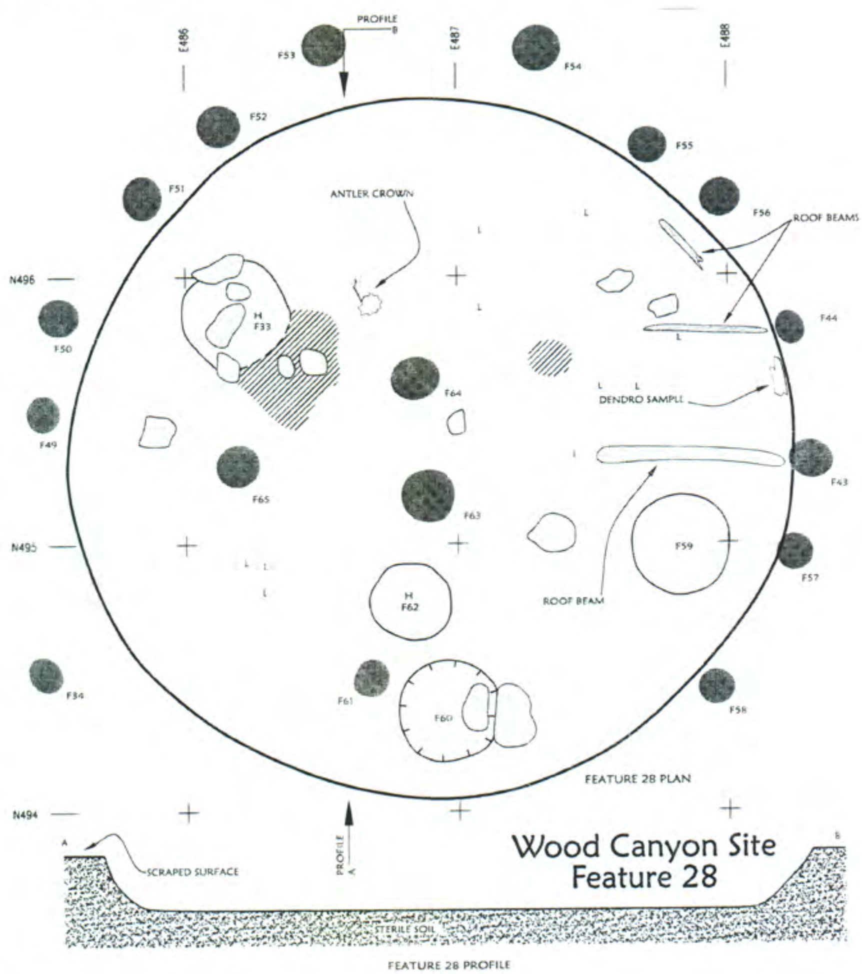
CULTURAL RESOURCE

TECHNICAL SERIES
2000–3

A Highway Through Time: Archaeological Investigations Along NM 90

TRC

Project Number 24830



Volume I

New Mexico State Highway and Transportation Department

A HIGHWAY THROUGH TIME: ARCHAEOLOGICAL INVESTIGATIONS ALONG NM 90, IN GRANT AND HIDALGO COUNTIES, NEW MEXICO (U.S. FOREST SERVICE REPORT 03-06-98-005b)

Prepared for

New Mexico State Highway and Transportation Department

Technical Report 2000-3

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Abstract

Archaeological data recovery investigations were conducted at nine sites along the New Mexico 90 right of way in Grant and Hildago counties, New Mexico. These sites include Forest Home (LA 78089), Wood Canyon (LA 99631), Beargrass (LA 121158), Peterson Canyon (LA 121159), Power (LA 121210), LA 121160, LA 121164, LA 121165, and LA 121209. Data relevant to the Late Archaic/Early Agricultural, Early Pit House, and Late Pit House as well as protohistoric intervals were recovered and analyzed.

Late Archaic/Early Agricultural period components from Forest Home, Wood Canyon, and Beargrass represent substantial agricultural settlements with structures, large storage facilities, numerous extramural thermal and non-thermal pits, and burials associated with high densities of artifacts and thick cultural deposits. Dating between approximately 800 BC and AD 200, these settlements produced the earliest evidence of maize production thus far in the Mimbres region. Data from the sites suggest their use over long periods of the year.

Early Pit House period components at Forest Home and Power are interpreted as small seasonal agricultural settlements with few structures, extramural features, and one burial. Dated to the early end of the period, these components offer data on early ceramic production and further evidence to support a seasonal settlement model for the Early Pit House. A third Early Pit House component at Beargrass is recognized by only one very substantial structure dating relatively late in the sequence. The labor investment in its construction suggests a major commitment to the location and perhaps a winter occupation.

Intensive use of the area during the Three Circle phase of the Late Pit House period is indicated by the occupations at Beargrass and Peterson Canyon. Both indicate mixed farming and foraging activities. Beargrass was a large community with multiple structures, burials, and extramural facilities, while Peterson Canyon consisted of a single pit structure, a possible surface structure, and a sparse artifact assemblage. Chemical compositional and petrographic analyses of the Mimbres Black-on-white ceramics indicate production centers in the Mimbres Valley.

One chronometric determination from Wood Canyon suggests a brief protohistoric occupation between AD 1500 and 1700. Derived from a shallow, oval pit structure thought to be Late Archaic/Early Agricultural period in age, the date was not associated with Euroamerican goods, arrow points, or late ceramic types that could support its accuracy.

Acknowledgments

Adequate acknowledgment of the many that in some way have assisted in this project may be an impossible task. Nevertheless, I do sincerely express my heart-felt thanks to those named or inadvertently unnamed in these few pages.

This project was funded by the New Mexico State Highway and Transportation Department. Its dedicated support for cultural resource preservation and research has advanced our knowledge of New Mexico's cultural heritage and in the context of the NM 90 project, given us more profound understanding of past cultures that inhabited southwestern New Mexico. I especially wish to acknowledge Blake Roxlau, head of the Environmental Section of the NMSHTD, who worked closely with us to complete all phases of this project.

The personnel of the Gila National Forest, the lead agency for the endeavor, were of great importance to the success of this study. Gail Firebaugh, Cultural Resource Manager for the Forest, was supportive of the project and instrumental in accomplishing all regulatory tasks in a timely fashion. She also prepared the Native American Grave Protection and Repatriation Act Action Plan and consulted with the tribes. Bob Schiowitz, Gila National Forest Archaeologist, provided a wealth of information on the Burro Mountains and assisted in interpreting some of the more complex archaeology found during the project.

The New Mexico State Historic Preservation Office staff members Alysia Abbott and Glenna Dean were most helpful in reviewing the data recovery plan and its modifications as well as the interim report.

Discussions with colleagues in the field and during the analysis were also very important. Dr. Cynthia Ann Bettison of the Western University Museum, was generous in her advise and opened the museum collections for study and comparison. Dr. Bruce Huckell of the Maxwell Museum, Dr. Jonathan Mabry of the Center for Desert Archaeology, John Roney of the Bureau of Land Management, Dr. Steve Shackley of the University of California-Berkley, Gary Brown of Aztec National Monument, and Dr. Chip Wills of the University of New Mexico shared their knowledge on the Late Archaic/Early Agricultural period. Additionally, Dr. Huckell, Mr. Roney, and Mr. Brown helped in the identification of the projectile points and offered insight into other artifacts. Dr. Patricia Gilman of the University of Oklahoma kindly supplied much needed information on the archaeology of the region. I appreciated the interaction with each of them. Stephen Shackley submitted an unsolicited chapter on his obsidian sourcing analysis. Toti Larson, Ph.D. graduate student at the University of New Mexico, assisted in the identification of the lithic material types.

The archaeological research presented in this report is the result of the combined efforts of numerous staff and consulting specialists. Thanks go to the crew for their hard work on the project. Site Directors include Scott Wilcox for Forest Home, Power, and Peterson Canyon sites and Chris Turnbow for the other sites. Mark T. Sechrist and Tim B. Graves served as Crew Supervisors. Crew members included Timothy Antonio, Juan Arias, Alphonzo Benally, Don Badon, Bruce D. Boeke, Collum, Nathan Fleming, Sterling Howard, Jeffery L. Johnson, Samual E. Jones, Lance N. Lamb, Michael F. Okies, Mark A. Orsbun, Russell Richard, Karl Schaffenburg, Sean Simpson, Rebecca Sterling, Silva Stewart-Chamlee, and Amy Sullivan. Quality control officers include Nick Trierweiller and John C. Acklen. Grant Smith carried out the geomorphology investigations. Karl Schaffenburg, Mark Orsburn, and Chris Turnbow took the field photographs.

Special thanks go to several volunteers who helped immensely in the field. Marlyn Markel came nearly every week, good weather and bad. Harold Chandler came to our aid by protecting the sites when the crews were off and collecting the control samples for the phytolith and pollen samples.

Gwyneth Duncan served as Laboratory Director. The laboratory crew included Jonathan Van Hoose, Catherine Heyne, Samual E. Jones, and Lisa M. Morton.

The daunting task of analyzing the collected data was carried out by Lisa Huckell (macrobotanical analysis), Dr. Steven Bozarth (microbotanical analysis), Jonathan Van Hoose (lithic analysis), Gwyneth Duncan (faunal analysis), Dr. Steven Shackley (obsidian sourcing), and Grant Smith (geomorphology). Lori Reed and Joel Goff analyzed the ceramic assemblage. Andrea Carpenter conducted the petrographic study and Hector Neff performed the Neutron Activation Analysis.

Jim A. Railey, Richard Reycraft, John C. Acklen, Richard D. Holmes, Timothy Baugh, Grant Smith, Gwyneth Duncan, Catherine Heyne, and Jonathan Van Hoose authored the introductory and site description chapters. Document production staff consisted of Constance Upton, supervisor, and Tracey L. Suzuki. Christine Acklen assisted with the technical editing. The site maps were produced by Jewel Paschke, Emily Herd, Elisa Lockhart, and Scott Wilcox. John Evaskovich prepared the feature plans and profiles. Jim A. Railey drew the artifact illustrations.

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1.0 Introduction

Christopher A. Turnbow

As part of its continuing effort to improve the state's highway system, the New Mexico State Highway and Transportation Department (NMSHTD) has carried out the reconstruction of an 8 km segment of New Mexico 90 (NM 90) between Silver City and Lordsburg, New Mexico (Control Number [CN] 2656). The NMSHTD developed or widened the shoulders, re-contoured the slopes, and upgraded drainage systems. This endeavor improved the safety of the highway, but also resulted in unavoidable impacts to nine significant archaeological sites.

This volume presents the results of data recovery excavations designed to mitigate the effect of the project on those sites. Carried out by TRC under NMSHTD Contract Number C03791/3, the investigations included sites LA 78089 (Forest Home), LA 99631 (Wood Canyon), LA 121158 (Beargrass), LA 121159 (Peterson Canyon), LA 121160, LA 121164, LA 121165, LA 121209, and LA 121210 (Power), all situated partially or completely within the highway easement in Hidalgo and Grant counties (Figure 1.1). All nine sites are located on public lands owned and administered by the United States through the U.S. Department of Agriculture-Forest Service, Gila National Forest. Locational data are located in a confidential appendix (Appendix F), which is bound separately.

This work was performed to comply with federal legislation protecting cultural resources, including the National Historic Preservation Act of 1966, as amended (PL 89-665), and the Archaeological Resource Protection Act of 1979 (PL 96-95). All of the fieldwork presented in this volume was authorized under Special Use Permit No. 2033-02 (expiring on December 31, 2001), issued by the Gila National Forest, and the approved data recovery plan prepared by TRC (Railey and Turnbow 1999). The U.S. Forest Service served as the lead federal agency for this undertaking. Gail Firebaugh, U.S. Forest Service archaeologist, prepared the Native American Grave Protection and Repatriation Act (NAGPRA) plan, consulted with Native American groups, and was instrumental in the successful completion of the data recovery project.

Funding for the research was provided by the NMSHTD. Blake Roxlau, NMSHTD archaeologist, coordinated the planning and implementation of the project. The NMCRIS number is 64848. Data recovery fieldwork at the sites was carried out by TRC from February 16 to May 11, 1999. The investigations were conducted under the direction of Christopher A. Turnbow, who served as principal investigator and field director. Scott Wilcox served as site director on Forest Home, Peterson Canyon, Power, and LA 121209. Mark Sechrist and Tim Graves also acted as crew supervisors for periods of time. Crew members included Timothy Antonio, Juan Arias, Don Badon, Alphonzo Benally, Bruce Boeke, Cullom, Nathan Fleming, Sterling Howard, Jeffrey Johnson, Samual Jones, Lance Lamb, Earl Mead, Michael Okies, Mark Orsbun, Russell Richard, Karl Schaffenburg, Sean Simpson, Rebecca Sterling, Silvia Stewart-Chamlee, and Amy Sullivan. Grant Smith served as the project geomorphologist. A quality assurance check was performed by Dr. W. Nicholas Trierweiler.

Laboratory processing and data management were conducted under the direction of Gwyneth Duncan with Jonathan Van Hoose, Catherine Heyne, and Cullom serving as laboratory technicians. Analyses of the artifact assemblages were undertaken by Lori Reed on ceramics, Jonathan Van Hoose on chipped stone and ground stone assemblages, and Dr. Steven Shackley on obsidian sourcing. The biological assemblages were analyzed by Dr. Steven Bozarth on microbotanical remains, Lisa Huckell on macrobotanical remains, and Gwyneth Duncan on the faunal assemblage. All of the analysts authored their own chapters. Site descriptions were prepared by Christopher A. Turnbow, Dr. Jim A. Railey, Dr. Richard Reycraft, John C. Acklen, and Dr. Timothy Baugh, with contributions by Grant Smith. Catherine Heyne analyzed paleoenvironmental data and conducted feature analysis with Richard Reycraft. Dr. Railey analyzed settlement data.

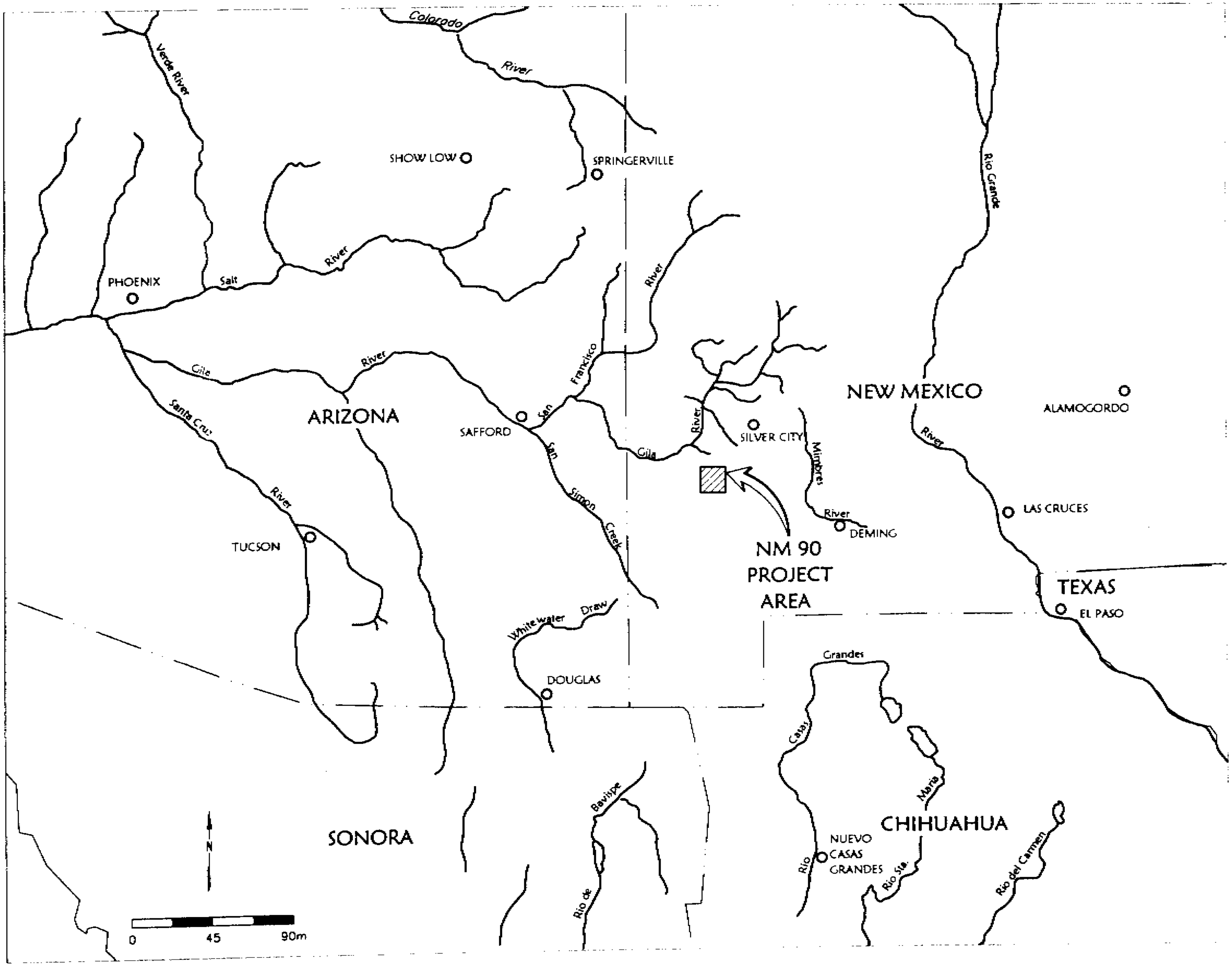


Figure 1.1 Project Location.

Project History

Beginning in the 1980s, the NMSHTD developed a long-term plan to improve the safety of NM 90. Reconstruction of the highway was set in stages with the first segment completed in 1999. Cultural resource investigations along that portion of the highway included in the excavation of LA 83772, a multicomponent site near White Signal, by the Office of Archaeological Studies (Wiseman 1998).

In 1998, the NMSHTD implemented plans to improve the next 8 km stretch of NM 90 between mileposts 12 and 17. TRC was tasked to undertake a comprehensive inventory of all cultural resources found within the existing highway right-of-way. These efforts, carried out between February 4 and 14, 1998, confirmed the presence of 13 prehistoric archaeological sites along the project route (Goar et al. 1998). Two of these sites (LA 78089 and LA 99631) were previously recorded. LA 78089, now referred to as the Forest Home site, was documented by the U.S. Forest Service (USFS) (Dodt-Ellis 1989; Kelley 1990) during surveys for a fuel wood lot. The other site, LA 99631, the Wood Canyon site, was found by the Office of Contract Archaeology in 1992 (Hogan 1992). The other 11 sites (LA 121158 to LA 121165 and LA 121208 to LA 121210) were newly recorded by TRC.

Based on the survey results, the cultural resources were thought to represent Archaic through Classic Mimbres period occupations ranging from small, light artifact scatters to large middens with architectural remains. Surface indications suggested that many of these sites had the potential to address a variety of research issues pertaining to these periods and the people who lived within southwestern New Mexico between 1000 BC and AD 1150. Given their assumed potential to contribute to scientific issues, 11 of the sites (LA 78089, LA 99631, LA 121158, LA 121159, LA 121160, LA 121162, LA 121163, LA 121164, LA 121165, LA 121208, and LA 121210) were recommended as eligible or potentially eligible to the National Register of Historic Places under Criterion D (have yielded or may be likely to yield information important in history or prehistory). The Wood Canyon site had been previously determined eligible by the State Historic Preservation Officer (SHPO) in 1992. The other sites were determined to be eligible to the National Register through consultation between the Gila National Forest and the SHPO.

Shortly after the survey was completed, NMSHTD determined that three of these sites (LA 121162, LA 121163, and LA 121208) could be avoided by the construction. The other eight could not be avoided and, therefore, data recovery was proposed within the limits of the existing highway right-of-way to mitigate the adverse impact of the project. At the request of Mr. Blake Roxlau of the Environmental Section of the NMSHTD, TRC prepared a data recovery treatment plan for the eight archaeological sites (LA 78089, LA 99631, LA 121158, LA 121159, LA 121160, LA 121164, LA 121165, and LA 121210) to be affected by the highway reconstruction (Railey and Turnbow 1999). The plan was approved by the Gila National Forest and the State Historic Preservation Division in late January, 1999. It was given Gila National Forest Service Report number 03-06-98-005a.

Meanwhile, employees of the Gila National Forest prepared a NAGPRA action plan and implemented consultation with Native American groups, including the Zuni, Acoma, Hopi, San Carlos/Fort Sill Apache, and Mescalaro Apache. Both the treatment and NAGPRA action plans were submitted to the Native American groups for review and comment. In accordance with the Archaeological Resource Protection Act, the Gila National Forest issued Special Use Permit Holder No. 2033-02 (expiring December 31, 2001) to TRC at the close of the review period on February 23, 1999.

Data recovery fieldwork was undertaken by TRC from February 16 to May 11, 1999. The investigations proceeded in accordance with the approved research design and data recovery plan (Railey and Turnbow 1999) with the following exceptions. Two amendments to the Forest Service Special Use Permit, approved on April 27 and May 10, 1999, are associated with three changes in the plan. First, approval was given to excavate only half of each small feature on LA 78089 and LA 99631. Second, the plan was modified to allow the preservation of small portions of sites within the right-of-way on the condition that the NMSHTD

could ensure their protection from construction activity and subsequent erosion. Third, the later discovery of a rock alignment on LA 121209 caused that site to be reevaluated as potentially eligible, and it was added to the plan.

An interim report was submitted to the Gila National Forest and NMSHTD on June 16, 1999, approximately four weeks after the data recovery fieldwork had been completed. The Forest Service and the SHPO reviewed this document and concurred that the stipulations of the treatment plan had been met, and the Forest Service approved conditional clearance to begin the highway construction project. The present document and the accompanying site form updates fulfill the final requirements of the treatment plan.

Organization of the Report

This report is divided into 24 chapters, references cited, and appendices. This chapter presents the background of the undertaking, location, and summary of the investigations. A detailed description of the environmental setting of the project area and the Big Burro Mountains is presented in Chapter 2. Chapter 3 discusses the previous archaeological investigations and cultural sequence in the Big Burro Mountains. Chapter 4 presents the research design, including the theoretical orientation and research questions. Chapter 5 describes field and laboratory methods.

Chapters 6 to 14 offer site descriptions for the nine cultural resources investigated. These chapters provide a detailed discussion of the sites' physical setting, research strategy, stratigraphic and geomorphic setting, excavation results, descriptions of the artifact and biological assemblages, and interpretations.

Results of the artifact and biological studies are offered in Chapters 15 through 22. Chapter 23 presents an analysis of the settlement and sociopolitical context of the occupations. These chapters set the stage for the final syntheses of research issues discussed in Chapter 24. This final chapter presents a project summary and management recommendations.

The appendices include (A) NAGPRA Plan, (B) Chronometric Data, (C) Fauna by Feature and Nonfeature, and (D) Soil Analysis Sheet.

2.0 The Environment of the Big Burro Mountain Range

Christopher A. Turnbow, Catherine Heyne, and Grant D. Smith

Located in the arid Basin and Range country of southwestern New Mexico, the NM 90 project area passes through the rugged Big Burro Mountain range. Formed from plutonic activity, massive faulting, and erosion, this range stands as a majestic landmark surrounded by broad basins and drainages. Within this setting, human populations have flourished for thousands of years. Their interaction with the mountain and its surrounding environments was an integral part of the cultural expressions left in the archaeological record. This chapter provides a foundation to the understanding of that environment and its place in shaping human culture in southwestern New Mexico.

Physiography

The project area lies within the Mexican Highland section of the Basin and Range physiographic province (Fenneman 1931) bordering the northwestern extent of the Chihuahuan Desert. Like most of the Basin and Range province, this section is characterized by north-south trending mountain ranges separated by gravel-filled basins.

The Big Burro Mountains are among the most prominent of these ranges. Composed primarily of granite and quartz diorite, they are bounded by the Mangus Valley to the east, by the Mimbres basin to the southeast, and by the Animas Valley to the southwest. The Big Burro Mountains converge with lava covered hills approximately 40 km north of the project. Although the central peaks of the Big Burro Mountains reach 2,428 m (7,966 feet) above mean sea level (amsl), the range generally attains elevations between 1,500 and 2,100 m (4,920 and 6,890 feet) amsl. From the mountain peaks, slopes descend gently to all sides. The archaeological sites investigated by the NM 90 project lie between 1,740 and 1,900 m (5,709 and 6,234 feet) amsl in the southern sector of the Big Burro Mountains.

Although located on the mountain, most of the more permanent habitation sites examined by this study were positioned with good visibility into the Animas Valley. the eastern edge of this large, closed basin lies about 3 km from the western most of the NM 90 archaeological sites and no more than 10 km from the furthest site to the east. This intermontane valley drains an area of approximately 650km^2 in New Mexico, Arizona and Mexico (Krider 1998) and is bounded by the Big Burro Mountains and Animas Range on the east, the Peloncillo Range on the west, and the Sierra Madre to the south.

This gravel-filled graben basin supports extensive piedmonts that descend from the Big Burro Mountains into the Animas Playa, topographically the lowest portion of the valley (1,263 m or 4,143 feet amsl). Lacustrine and alluvial stratigraphic sequences in the basin indicate the presence of the late Quaternary lakes of Lake Animas and Lake Cloverdale. These lakes had a relatively long history of high water levels during the last glacial maximum (20,000 to 13,750 years ago), with decreasing stand levels during the early to late Holocene, at which time they finally disappeared (ca. AD 1000) (Fleischhauer and Stone 1982; Krider 1998). Today, heavy rains occasionally form shallow lakes in the playa; however, the water typically evaporates within a week.

Geology

The geology of the Big Burro Mountains consists of a complex set of tilted fault blocks composed of igneous, metamorphic, and sedimentary rock dating between the Precambrian and recent alluvium (Gillerman 1964:13-30, 1970:115-121; Hedlund 1978a, 1978b; Hewitt 1959). Dominating the geology is the Precambrian Burro Mountain batholith, a massive intrusive igneous body composed predominantly of granite, quartz

diorite, and other associated rocks. Metasedimentary and metaigneous rock formed through contact with the intrusive batholithic material is present in isolated masses around the batholith. These metamorphic rocks include phyllites, schists, hornfels, and quartzites. In turn, the batholithic rock was intruded by the quartz monzonite Tyrone stock, rhyolite dikes and plugs, and other plugs and dikes of various rock.

Upper Cretaceous marine and continental deposits, as well as Tertiary volcanic rock, cover a small portion of the batholith. These deposits consist of quartzite, shale, rhyolite, basalt, and andesite. The Tertiary and Quaternary Gila Conglomerate, sometimes exceeding 760 m thick, consists of consolidated and semi-consolidated conglomerates and sandstones interbedded with basalt, andesite, and rhyolite flows near its base.

The Precambrian Burro Mountain Granite, the main rock type of the batholith, underlies all of the archaeological sites investigated during the current NM 90 project. It is characterized as a coarse, frequently porphyritic, quartz and feldspar rich granite that varies in color from pink, light tan, orangish-brown, or gray-orange (Gillerman 1970; Hedlund 1978a, 1978b). The granite weathers to form an accumulation of angular, coarse-grained fragments referred to as grus. While used in the thermal features, the local granites tend to be too coarse grained to be of much use as grinding implements or other tools. Though not observed during the field studies, a dike of Precambrian basalt porphyry was mapped by Hedlund (1978b) on the eastern margins of the Forest Home site.

Quartz dikes, some measuring up to 60 cm wide, infrequently occur on or near the sites. Intruding through the granite matrix, these more resistant dikes eventually weather into large, blocky quartz fragments of up to 10 cm in length. In general, these pieces are not well suited for the production of formal tools since they contain numerous internal flaws and tend to shatter into angular debris. However, some fragments were successfully knapped into sharp pieces useful as expedient tools.

Rhyolite was probably the most important locally available raw material for chipped stone tool production. It is usually a light gray, fine grained to aphanitic rock with a few small vugs and occurs in massive flows immediately north of the project area. Knight's Peak, located approximately 4.5 km north of the Wood Canyon site, is composed of high quality rhyolite that forms blocks in excess of 25 to 30 cm in length.

Other useful geological resources available near the sites were relatively pure clay deposits found in local drainages. These isolated sources probably derived from the chemical weathering of feldspars in the Burro Mountain Granite. Ceramic sourcing studies conducted during the present investigation (see Chapter 15) suggest these local clays were utilized for ceramic production.

Other raw materials present in the artifact assemblages of the NM 90 sites were procured from sources much further from the project area. Sources of high quality quartzite and chalcedony occur from 30 to 40 km to the north and east.

Beartooth Quartzite can be found across the northern end of the Big Burro Mountains and in places in the Little Burro Mountains (Church et al. 1996). Found in beds up to 4 m thick, this fine- to medium-grained orthoquartzite is gray and breaks with a subconchoidal fracture (Gillerman 1964:22). Chalcedony has been reported in deposits below vesicular basalt deposits in the Little Burro Mountains (Schiowitz 1999, personal communication). Although no obsidian occurs within the Big Burro Mountains, another volcanic glass, vitrophyre, surfaces in these mountains (Wargo 1960). The suitability of this material for flaked tools is unknown.

Various igneous and metamorphic rocks in the Big Burro Mountains are readily assessable resources for the production of grinding and battering implements. Serviceable materials include granite, diorite, quartz monzonite, quartz diorite, gneiss, and basalt.

Native populations also may have exploited the wealth of primary and secondary minerals associated with the numerous faults and hydrothermally enriched deposits in the surrounding mountains. Such deposits include hematite, fluorite, barite, chrysocolla, malachite, azurite, turquoise, native copper, limonite, and chalcedony, among others. Although it is unknown to what extent most of the minerals were used, prehistoric turquoise mines were observed near the Parker and Azure mines in the Tyrone Mining district approximately 25 km northeast of the NM 90 project area. The Azure mine consisted of tunnels and shafts 12 m deep (Gillerman 1964:49; Northrop 1959:523). The turquoise found in veins and veinlets is primarily a deep blue color, but nearly all shades of blue and green exist (Sterrett 1908:828-829).

Other lithic resources are available within the region. For example, the area around Mule Creek, New Mexico, located about 80 km northwest of the study area, represents a primary source of obsidian (Shackley 1988, 1992). South of this source and approximately 35 km to the northwest of the study area around Virden, iron and petrified wood deposits have been identified (Zeitner 1972). The Jeffers agate field is located on the southern slopes of New Mexico's Mogollon Mountains near the Gila Cliff Dwellings (Church et al. 1996). Agate from this area ranges from a translucent, dark carnelian color to a "milk-white with a taffy color inclusion ... to a clear chalcedony with fine lines" (Neely 1946). An additional useable stone available in the agate field is a dark red jasper with fern inclusions.

Soils and Geomorphology

Field examinations indicate that all of the recorded archaeological sites rest on grus. Granitic bedrock has a significant impact on soil formation at these sites. Decomposing granite is the primary source of sandy sediments through *in situ* weathering, alluvial slopewash, and eolian deposition. Furthermore, the feldspar-rich granite is subject to chemical weathering, which results in the development of clay, a perceptible component of most local soils.

Previous Geomorphological and Geoarchaeological Studies in the Region

Several geomorphological and geoarchaeological studies have been conducted in areas bordering the Big Burro Mountains, but well documented studies are scarce for this specific range. Even the peripheral studies appear to concentrate largely on alluvial, eolian and playa sequences that are substantially different from what was observed on the flanks of the Big Burro Mountains. Nevertheless, the earlier chronologies point towards environmental shifts that may be reflected in the depositional record noted within the study area.

Virtually all geoarchaeological and paleoclimatic work in the southwest, either directly or indirectly, pays homage to the regional climatic history proposed by Antevs (Sayles and Antevs 1941; Antevs 1948, 1955, 1962, and 1983). Antevs proposed a chronology based on a variety of data and a rough correlation between North American and Finno-Swedish varve chronologies. From oldest to youngest, these proposed climatic episodes are the subhumid Provo Pluvial (>14,000 to 10,000 BP), semiarid Anathermal (10,000 to 7,500 BP), arid Altithermal (7,500 to 4,000 BP) and semiarid Medithermal (4,000 BP to present). In many areas the Anathermal generally is considered to be a period of erosion in many parts of the southwest, and is represented by a well-developed paleosol with a dark, thick A horizon and an argillic and calcareous Btk horizon (e.g., Smith and McFaul 1997). However, paleosols that exist and date to this time often exhibit a Stage I carbonate accumulation (after Gile et al. 1966, 1981; Hall 1990; Monger 1993; Smith and McFaul 1997; Wells et al. 1990). Research has suggested that the Medithermal conditions may have begun as early as 5,500 to 4,500 BP (e.g., Smith and McFaul 1997; Waters 1990; Waters and Woosley 1990). During this time several wet and dry intervals appear to have occurred. For example, Smith and McFaul (1997) propose four separate soil-forming intervals during Medithermal time, but evidence of these events is preserved discontinuously in the southwest. Burial of the paleosols occurred at roughly 4,500 BP, 3,000 BP, 2,100 BP, and 300 BP. The abrupt deposition of sediments at 2,100 BP and 300 BP particularly are interesting. The 2,100 BP burial event coincides with a cultural shift from the Late Archaic to the Formative/Anasazi periods, and the 300 BP time frame roughly correlates with the Little Ice Age.

All of these studies were considered in the evaluation of the archaeological sites encountered along the NM 90 corridor. Particular emphasis was given to research nearest the area under consideration, but playa studies also were examined because of the proximity of the Animas Valley. Alluvial chronologies received particular focus since much of the terrain in the study area occurs on alluvial fan remnants. The following sections provide a brief synopsis of these studies.

Playa Studies

A detailed geoarchaeological investigation was conducted by Waters and Woosley (1990) in the Wilcox Basin in southeastern Arizona. The Wilcox basin was dominated by the pluvial Lake Cochise during the late Pleistocene and had high-standing water levels from approximately 13,750 to 13,400 BP. Another high stand of the lake occurred at approximately 8,900 BP. During the middle Holocene, the lake appears to have been primarily dry until approximately 5,400 BP and again sometime between 3,000 and 4,000 BP when the lake contained enough water for the deposition of marl sediments. The lake was limited to shallow and ephemeral playa lake stands during the late Holocene and is now represented by the Wilcox Playa. As would be expected, this lake region was an important hydrologic resource to prehistoric inhabitants. Cultural materials ranging from late Paleoindian to Late Archaic have been recovered from the lake shores. Closer to the study area (in the Animas Valley), playas were found, but currently it is unknown whether depositional sequences here are similar to those observed in the Wilcox Playa.

Alluvial and Eolian Studies

Alluvial studies have been conducted both to the east and west of the NM 90 study area. In Arizona, Waters (1990, 1998) investigated sedimentation in White Water Draw, south of the Wilcox playa. Although several depositional units were defined, Waters determined that five depositional regimes occurred in the White Water Draw during the late Quaternary. Deposits from the late Pleistocene to early Holocene (ca. 15,500 to 8,000 BP) indicated a system dominated by perennial stream processes. From 8,000 to 6,750 BP deposition from marsh-like, or cienega, conditions dominated. This period was followed by an interval between approximately 6,750 to 5,500 BP of incision and arroyo development. After 5,500 BP, cienega deposition continued until approximately 750 BP. Since that time, the area has been subject to arroyo incision and deposition resulting from sheet flooding.

In contrast to the moister environment at Whitewater Draw, alluvial fans were the focus of the Desert Project in the Las Cruces area (Gile et al. 1981). Several late Quaternary strata were defined. The Jornada I and II deposits are calcium carbonate-rich gravels (Stage III and greater carbonate accumulations) that date to greater than 62,000 BP (Machette 1985). The late Pleistocene/early Holocene is represented by the Isaack's Ranch alluvium, which generally is thought to date between 8,000 and 15,000 BP (Gile 1987). The remainder of the Holocene is represented by three Organ alluvial units. Organ I sediments exhibit Stage I carbonates and are considered to date between 7,000 and 2,100 BP (Gile et al. 1981; Monger 1993). Organ II sediments exhibit a weak Stage I carbonate accumulation and date to a 2,100 to 1,100 BP time frame. The final Organ unit, Organ III, exhibits no visible carbonate accumulations and dates from 1,100 to 100 BP. Monger (1993) has applied the Organ alluvial fan sequence to eolian sediments in the Hueco Bolson/Tularosa basin. This approach is somewhat controversial since it maintains that alluvial fans supplied sediment to the basin floor, thereby sustaining eolian processes.

Climate

Southwestern New Mexico has a semiarid, continental-montane climate with considerable variability due to elevation and topography. Therefore, the Big Burro Mountains are cooler and wetter than the adjacent Animas Valley. Modern climatic records have been maintained since 1948 at the White Signal station in the Big Burro Mountains (1,850 m amsl) and since 1914 at the Lordsburg weather station in the Animas Valley (1,295 m amsl). These statistics indicate an average annual precipitation that varies from 382 mm

in the mountains to 276 mm in the basin. Modern climatic records reveal dramatic fluctuations in yearly precipitation with clusters of wetter and drier years. For instance, annual precipitation extremes range from 178 mm to 382 mm on the Big Burro Mountains (1948 to 1998) and from 119 mm to 500 mm in the Lordsburg basin (1914 and 1999). Late-summer and early-fall rains supply about 55 percent of the annual precipitation with winter precipitation contributing the remainder. The driest period lasts from March to June.

Temperatures vary between -18°F in mid-winter to 104°F during the summer. January is normally the coldest month, and July is the hottest. Average annual temperatures range from 54.4°F in the Big Burro Mountains to 60.7°F in the Animas Basin. Diurnal ranges in temperature during the spring and fall affect the number of frost-free days. In the Big Burro Mountains, the average number of frost-free days is 181. The number is slightly greater in the Animas Valley. Corn varieties adapted to the southwest require a growing season of 110 to130 days.

Paleoclimatic Setting

In the late Wisconsin period (ca. 18,000 BP), climate in the NM 90 project area began to warm and dry, a general trend which continues today. Mild winters, cooler summers, and increased winter precipitation is inferred from studies examining past elevational and or geographic limits of plant taxa, most of which is collected from packrat (*Neotoma* sp.) middens as macrofossil remains (e.g., Van Devender 1990). Pollen, lake, isotope, vertebrate, and invertebrate research also indicate a drying and warming environment. Temperatures during the late Wisconsin throughout the Southwest have been estimated to be 5-7°C cooler than present (Allen and Anderson 1993; Stute et al. 1995). Basin lowlands of southwestern New Mexico evidence the existence of past lakes, all of which slowly aggraded until drying in the late Holocene (Markgraf et al. 1984; cf. Hawley 1993; Krider 1998).

During the late Wisconsin and early Holocene, juniper was most likely the dominant cover in the NM 90 study area. Piñon pine and oak woodland shrubs also probably were prominent. A mixed-conifer forest of Douglas fir, blue spruce, Rocky Mountain juniper, and ponderosa pine community may have bordered the upper elevations of the juniper zone (Van Devender and Spaulding 1979; Van Devender 1990).

As winter temperatures and precipitation diminished during the Middle Holocene (beginning ca. 8000 BP), summer temperatures increased. Animals such as the desert tortoise were restricted increasingly to a less severe climate of the Sonoran Desert further to the west. Woodland communities migrated to higher elevations, as well as northward, virtually disappearing in the lowlands (Van Devender 1990). By around 4000 BP the modern climate was established with a decrease in winter freeze frequency and rainfall, but with higher seasonal variability in precipitation and an increased number of drought years.

Understanding past people in relation to natural climatic fluctuations, as well as long-term change, is essential when considering human distribution and adaptation. A fluctuating or inconsistent environment can greatly curtail a region's biotic productivity from season to season, thereby offering a challenging setting for human occupation (Minnis 1985b). Climate change over long periods of time, although easier for humans to adjust to since shifts take generations, encourages modifications in lifestyle or location of habitation. Yet, populations in turn, impact their immediate surroundings through resource exploitation, which has additional important ramifications for the study of early societies and changing environments.

Hydrology

The Big Burro Mountains are dissected moderately into numerous drainages and canyons that often become narrow and steep-sided. The northern and northeastern portions of the mountain range drain into the Gila River and its tributaries. The southern half of the range, which is split by the Continental Divide, drains into closed basins. The southwestern side empties into the Animas and Hatiche basins, while the southeastern region descends into the Mimbres Basin.

The nine sites investigated as part of this study lie within the headwaters of Wood Canyon, C-Bar Canyon, and Walking Canyon drainages. The main Wood Canyon channel drains out of the Big Burro Mountains into Lordsburg Draw and eventually into Animas Playa about 40 km west of the project area. The C-Bar and Walking canyons flow into the Burro Cienega.

The Wood Canyon drainage is further divided into smaller tributaries, which include Peterson, Picnic, and Powerline canyons. Like the Wood Canyon site, Picnic Canyon has a relatively broad floodplain. Both these areas could have supported bottomland farming practices. The other sites lie along more constricted drainages that must surely have required dryland farming measures. At present, all of these drainages have intermittent water flow, although it is surmised that prehistoric water resources were, in general, more favorable.

Springs are still common in the Big Burro Mountain range, although many local sources have ceased flowing. Juniper Spring is the closest permanent water source to the project area. It is approximately 1.3 km from the Forest Home site and 2.0 km from the Wood Canyon site.

Flora

As proposed by Lekson (1992:25), the biotic community is best viewed by a series of zones that consolidate the diversity in a region into smaller, more manageable units. For the present work, vegetation classifications delineated by the New Mexico Heritage Council's Gap Analysis Project (GAP) map (1997) were used. The GAP map is an up to date vegetation map providing considerable detail of the area under study. Figure 2.1 shows the center of the project area in relation to these zones and catchments. Areas with 40 and 50 km radii are delineated for easier spatial orientation.

The region within a 10 km radius of the project center supports a number of vegetational zones. Zones encountered on western slopes, moving from lowlands to higher ground, are the Chihuahuan Broadleaf Evergreen Scrub dominated by creosote (see Table 2.1 for scientific names), the Short Grass Steppe predominantly covered by blue and hairy grama grasses, and the Madrean Open Oak Woodland with Emory, gray, and Arizona white oak as the major cover and alligator juniper occasionally interspersed. The Chihuahuan Foothill-Piedmont Grassland (black grama, mesa dropseed, yucca, Mormon tea, common sotol and mariola) occurs along the elevational gradient on east-facing slopes.

Also present, but less prominent, are the Madrean Closed Oak Woodland (silverleaf and netleaf oak), the Rocky Mountain Montane Scrub/Chaparral (mountain mahogany, various oaks, point-leaf manzanita), and the Chihuahuan Broadleaf Deciduous Scrub (tarbush, honey mesquite, whitethorn, ocotillo). Conifer forest, characterized by trees more than 10 m tall, grows at higher elevations just to the northeast of the 10 km delimiter. This upper elevational zone is dominated by pines (e.g., ponderosa) mixed with shorter piñon pine, juniper, and oak.

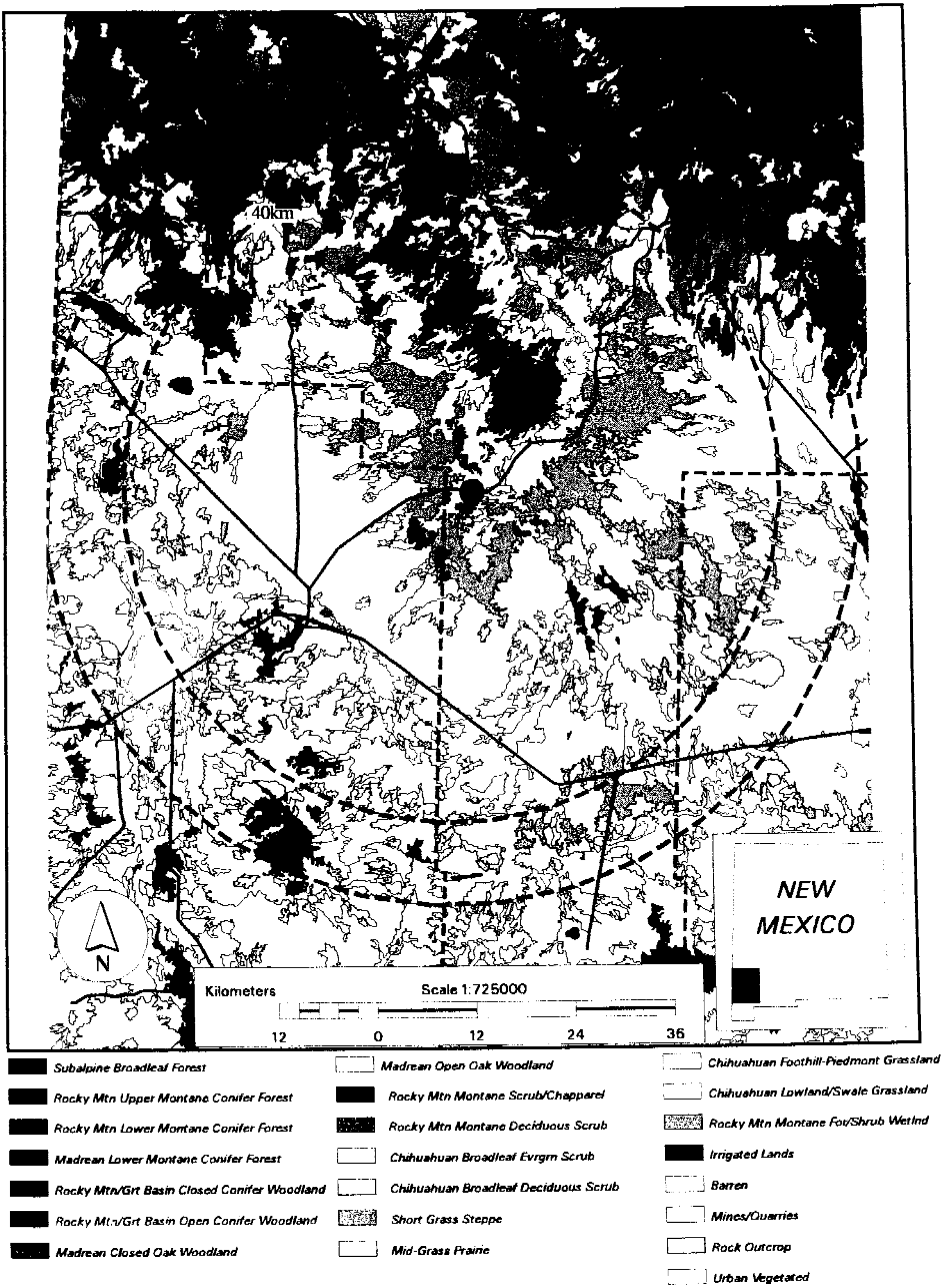


Figure 2.1 Regional Vegetation Community Classification Map for Southwestern New Mexico. (New Mexico Gap Analysis Project 1997). The Highway 90 Archaeological Project Area is represented by a red dot.

Table 2.1 Plant Species List.

Common Name	Scientific Name
Alligator juniper	*Juniperus deppeana*
Arizona white oak	*Quercus arizonica*
Black grama	*Bouteloua eriopida*
Blue grama	*Bouteloua gracilis*
Common sotol	*Dasylirion wheeleri*
Creosote	*Larrea tridentata*
Emory oak	*Quercus emoryi*
Gray oak	*Quercus grisea*
Hairy grama	*Bouteloua hirsuta*
Honey mesquite	*Prosopis glandulosa*
Mariola	*Parthenium incanum*
Mesa dropseed	*Sporobolus flexuosus*
Mormon tea	*Ephedra* spp.
Mountain mahogany	*Cercocarpus montanus*
Netleaf oak	*Quercus rugosa*
Ocotillo	*Fouquieria splendens*
Piñon pine	*Pinus edulis*
Point–leaf manzanita	*Arctostaphylos pungens*
Ponderosa pine	*Pinus ponderosa*
Silverleaf oak	*Quercus hyperleucoides*
Tarbush	*Flourensia cemua*
Whitethorm	*Acacia constricta, A. neovemicosa*
Yucca	*Yucca* spp.

Large changes in vegetation structure along the relatively short gradient in the study area today suggests that the area's prehistoric inhabitants also had access to a diverse assemblage of plant resources. Several studies completed in southeastern Arizona indicate broad exploitation of the many biotic communities in relatively short distances (B. Huckell 1995). Mesquite, cactus fruits, gourds, grasses, agave, yucca, acorns, walnut, piñon nuts, and juniper berries, to name a few, were utilized extensively from a variety of vegetation communities . Also, as early as the Archaic time period, maize agriculture emerged in conjunction with diversified foraging (B. Huckell 1995, 1998).

Fauna

Faunal distributions in New Mexico have been influenced notably by climate change, as well as physiographic barriers, and can be recognized according to preferred habitat: upper-elevation forest, intermediate scrub-woodland, or desert-grassland (Findley et al. 1975). A variety of animal species lived within the diverse habitats located within a 10 km radius of the NM 90 project area. These included large herbivores (peccaries, deer, elk, pronghorn, bison, sheep), large carnivores and omnivores (bear, large cats, wolves, foxes, coyotes, and later domesticated dog), medium sized mammals (porcupine, raccoon, weasels, skunks, badgers, and otters), and small herbivores (shrew, cottontail, jack rabbit, various ground squirrels, mice, rats, and voles).

In Chihuahuan desert terrain, it is possible to find varieties of wrens, roadrunners, and thrashers. Gray vireo, Bell's vireo, Montezuma Quail, and Abert's Towhee also dwell in this habitat and are most common near bordering Sonoran desert plant communities. In the winter, the rolling grasslands and scrub covered areas of the NM 90 project area support large flocks of sparrows, as well as bluebirds, larks, longspurs, and raptors (e.g., rough-legged hawk, bald eagle, ferruginous hawk). Highland oak-juniper-piñon canyons and hillsides are home to jays, thrashers, sparrows, vireos, warblers, and wild turkeys. Riparian valleys to the north, such as the Gila River area with cottonwood and willow habitat, shelter up to 180 different bird species, including numerous woodpeckers, flycatchers, kingbirds, orioles, waterfowl, warblers, and swallows (National Audoban Society 2000). Above 2,130 m (6,988 feet) amsl in the Gila Forest, nuthatches and such unique bird species as the olive and red-faced warblers thrive.

Currently, there are few to no permanently flowing waterways in the region surrounding the targeted region. The Gila River, 40 km to the north, is perhaps the closest river that would offer suitable habitat for fish. Fish existed in the now dry valley basins to the east and west of the study sites in prehistory (cf. Krider 1998; Van Devender and Worthington 1977). Arid to semi-arid grasslands and open woodlands, with soils suitable for digging, support several species of turtle; however, most prefer locations near permanent streams, springs, ponds, or lakes. Multiple species of lizard occur within the project area, usually in juniper-grassland, piñon-juniper woodland, or ponderosa pine forest.

3.0 Cultural History

Jim A. Railey and Richard D. Holmes

There are several conceptual frameworks for the cultural history of the Southern Mogollon region. Period and phase names vary by area and author (e.g., Anyon and LeBlanc 1984; LeBlanc 1989; Woosley and McIntire 1996). The chronological sequence adopted for this project follows traditional and more recently proposed cultural historical frameworks (Anyon et al. 1981; Huckell 1996; Mabry 1998). Tables 3.1 and 3.2 present the cultural periods used in this project.

Paleoindian Tradition (9500 to 6000 BC)

Although claims have been made for evidence of human occupation in southern New Mexico as early as 36,000 years ago (Chrisman et al. 1996; Chrisman 1997; MacNeish et al. 1993; Shaffer and Baker 1997), the current conservative date most widely accepted by archaeologists is the Paleoindian period (ca. 9500 to 6000 BC). During this time, the local climate was cooler and moister than today, with somewhat more lush vegetation and a smattering of now-evaporated lakes. Under these less arid conditions, the environment of the southern Southwest was not as harsh as it is today. Now-extinct Pleistocene megafauna inhabited the area and were game for Paleoindian hunters. Low population densities prevailed among the early inhabitants of the region, and they apparently were organized as small-scale, mobile, and socially fluid groups. These conditions worked to homogenize projectile point styles and other cultural marker traits over vast areas.

Clovis Complex (ca. 9500 to 9000 BC)

The distinctive marker of the Clovis complex is the fluted lanceolate projectile point, first identified in eastern New Mexico. Patterns of Clovis sites indicate low population densities, with small-scale and dispersed, highly mobile bands that inhabited large home ranges, trading and interacting extensively with other groups. Clovis projectile points are rare in the Chihuahuan Desert, although several have been found in southwestern New Mexico (Huckell 1972).

Folsom Complex (ca. 9000 to 8000 BC)

The Clovis complex was followed by the Folsom complex (ca. 9000 to 8000 BC), which is also named for a distinctive fluted projectile point, first identified in northeastern New Mexico (Wheat 1972). Following the extinction of mammoths, a relatively homogeneous Pleistocene environment in western North America evolved into different environments characterized by distinct floral and faunal assemblages. Most archaeological evidence supports the view that Folsom people primarily were bison hunters (Amick 1994; Figgins 1927; Judge 1973; Staley and Turnbow 1995). Folsom sites include isolated projectile points, small kill sites, butchering stations, and other modest site types (Krone 1975). Several sites have been recorded in the desert lowlands along the shorelines of ancient lakes or modern playas (Beckes et al. 1977; Peter and Mbutu 1993; Zeidler et al. 1996). Other locations include caves, canyons, and foothills that may have been base camps (Carmichael 1986).

Plano Complex (ca. 8000 to 6000 BC)

Evidence of increasingly drier conditions appears around 10,000 years ago (Judge and Dawson 1972; Peter and Mbutu 1993). Adaptive changes to this more xeric environment are associated with the emergence of the Plano complex (8000 to 6000 BC). Plano sites tended to be located in areas with relatively easy access to increasingly restricted water sources. Communal hunting techniques were employed and focused primarily on bison (Carmichael 1983, 1986; Cordell 1979; Wheat 1972). Technologically, projectile points were laterally thinned (e.g., Midland and Plainview), basally constricted (e.g., Agate Basin and Hell Gap), and basally indented (e.g., Firstview and Cody).

Table 3.1 Comparison of the Regional Paleoindian and Archaic Period Chronological Frameworks for the Mogollon.

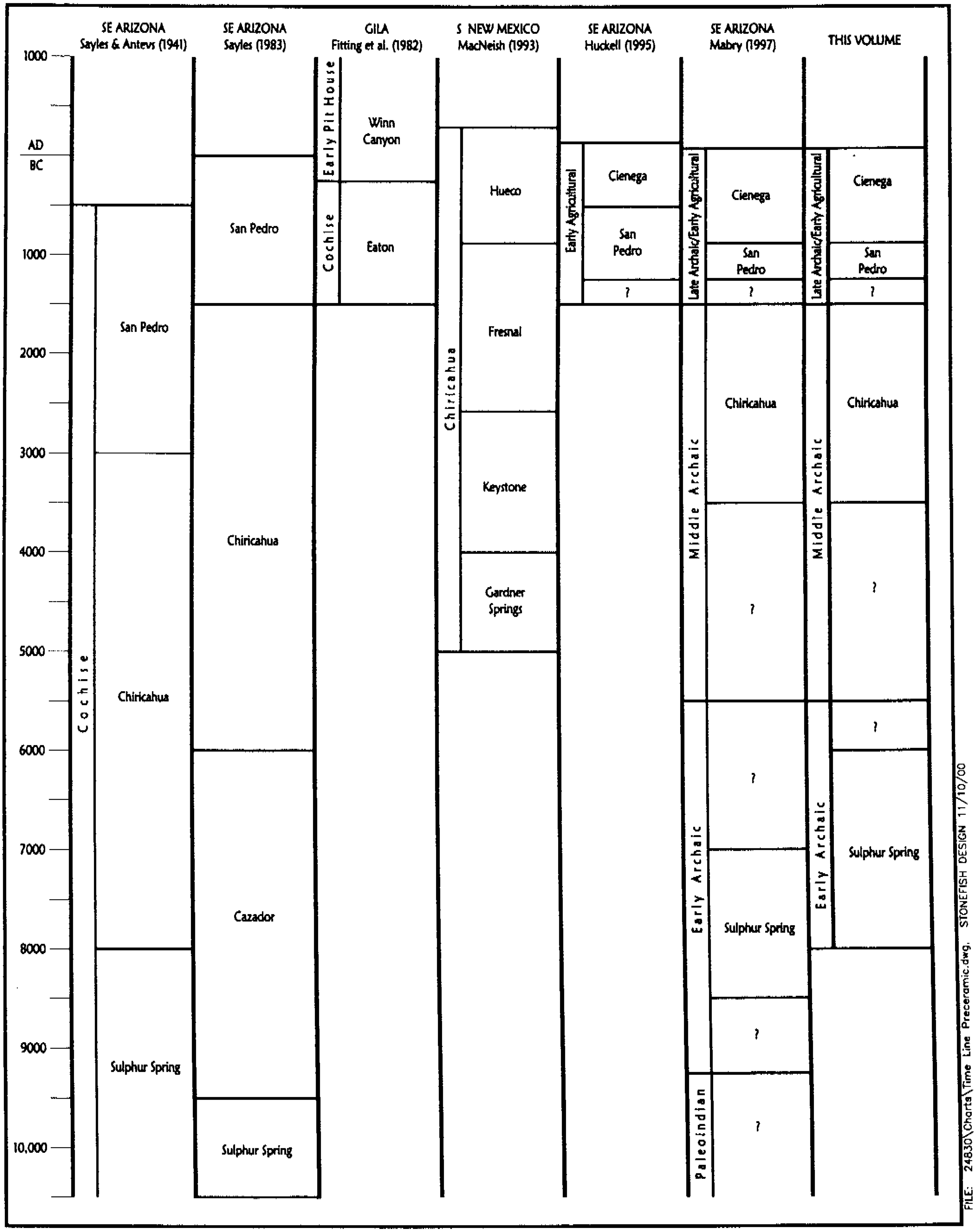
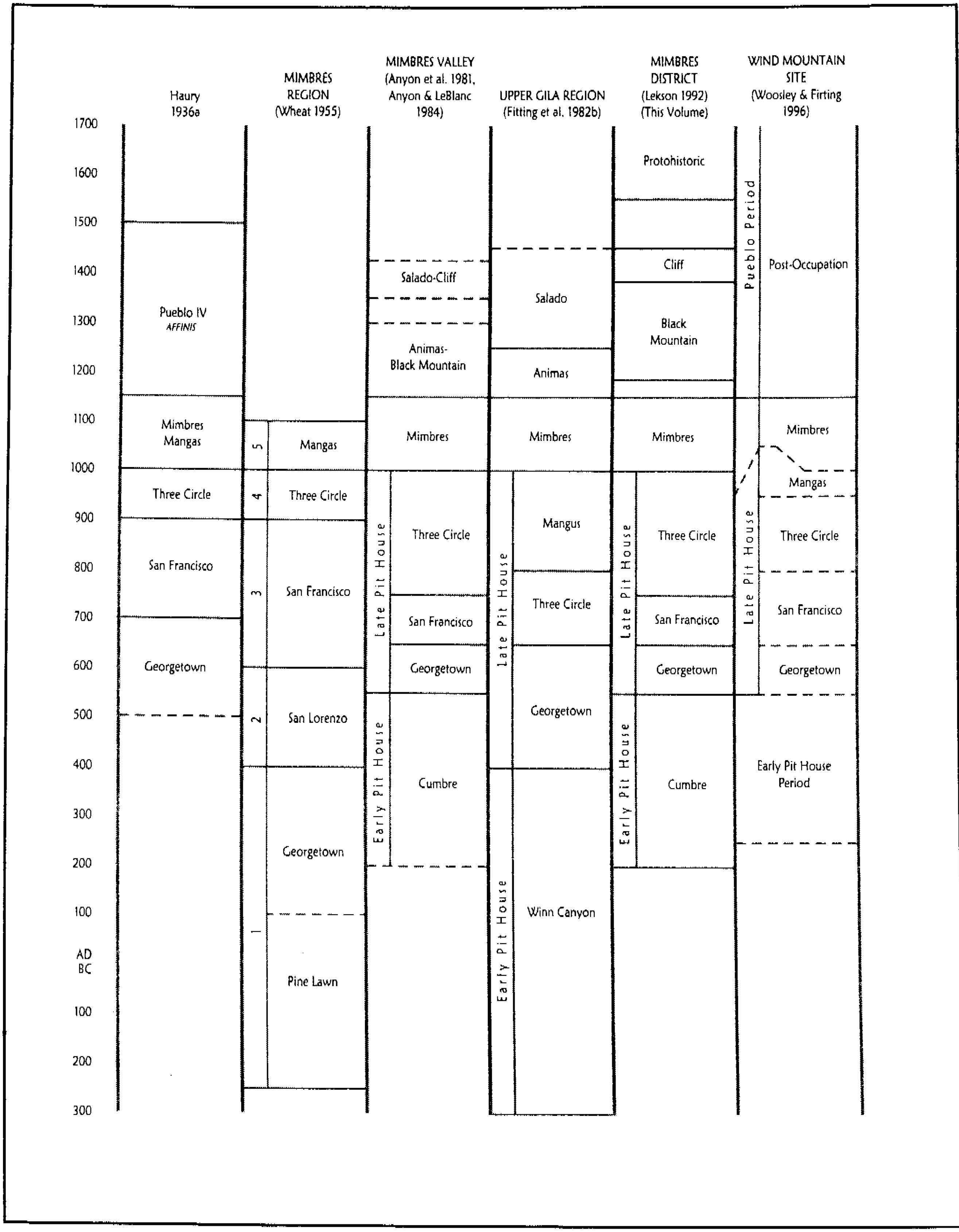


Table 3.2 Comparison of Regional Chronological Frameworks for the Ceramic Periods of the Mogollon.



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Paleoindian Sites in Southwestern New Mexico

In southwestern New Mexico, the Paleoindian period has received little attention, and few artifacts of this period have been recovered (Nelson 1980). Most of the known Paleoindian occupations are located in lower elevations of the desert environments to the south of the Mogollon uplands, and in the Rio Grande Valley to the east. The lack of information for the Paleoindian period may be symptomatic of low population densities, with extremely small-scale, highly mobile hunter-gatherer groups occupying the region at this time. These groups apparently left little that is visible, accounting for the paucity of information. An alternative view is that erosion and deposition may play an equally important role.

Archaic Tradition (6000 BC to AD 200)

In the southern Southwest, Archaic culture has been defined as the Cochise tradition (Huckell 1996; Irwin-Williams 1979; Sayles and Antevs 1941). This was one of four traditions of the Archaic in the Southwest that interacted and were ancestral to later cultures of the region (Irwin-Williams 1979). A variety of ways to subdivide the Archaic has been proposed. The Sulphur Spring (alternatively called Sulphur Springs [e.g., Cordell 1997]) phase is sometimes considered the earliest phase of the Archaic in southwestern New Mexico and southeastern Arizona, from 6000 to 3500 BC. Archaeologists have often divided the Cochise tradition into the Chiricahua (well known from 3500 to 1500 BC) and San Pedro (1200 to 800 BC). A final phase, the Cienega (800 BC to AD 200), also has been proposed. As is discussed in the Cienega phase section, Huckell has proposed an Early Agricultural period within the Archaic.

Sulphur Spring Phase (ca. 6000 to 3500 BC)

The Sulphur Spring phase was identified at sites along Whitewater Draw and Wilcox Playa in the Sulphur Spring Valley of southeastern Arizona. This phase is marked archaeologically by simple ground stone milling tools (e.g., grinding slabs) and crudely flaked stone tools, with a distinctive lack of projectile points. Sayles (1983) considers the Sulphur Spring phase as dating to 11,000 to 14,500 BP. One interpretation of sites from this phase is that the sites actually represent Paleoindian plant processing locations (Haury 1983; Martin and Plog 1973).

A contrary view is that the Sulphur Spring phase is later than the Paleoindian period (Irwin-Williams 1979; Whalen 1971; Willey and Phillips 1958). In this view, Sulphur Spring is an Early Archaic cultural phenomenon. Recent geoarchaeological research concludes that Sulphur Spring artifacts are younger than previously thought and belong to the Archaic (Waters 1998).

Sayles (1983) suggests a subsequent phase, the Cazador phase, but it is not widely accepted. Little is known about the culture history of southern New Mexico from 7000 to 3500 BC.

Chiricahua Phase (3500 to 1500 BC)

Dating of the Chiricahua phase is problematic, and is well known only from about 3500 BC; Whalen dates the phase to 3500 to 1500 BC (Whalen 1971). An increasing variety of mano forms, crude flaked stone tools, and projectile points mark the Chiricahua phase. Among the projectile points associated with this phase are side-notched points that have been called Chiricahua points (Huckell 1996). Sites generally are small, with low densities of artifacts and features. Maize remains appear in the archaeological record by 2000 BC, but archaeologists generally assume that maize contributed little to the diet (Wills 1988).

San Pedro Phase (1200 to 800 BC)

The San Pedro phase is marked by the appearance of large sites with substantial midden deposits, abundant artifacts, fire-cracked rock, storage pits, and shallow pit structures. An increased frequency of

projectile points has been observed for this period. The most common of these point types is the San Pedro, which typically exhibits broad, lateral notching. Archaeologists have long known that maize was present in this period, with early discoveries at sites such as Ventana Cave and Bat Cave. As is the case with the preceding Chiricahua phase, however, archaeologists have long assumed that cultivation of maize was a minor activity within a subsistence economy still dominated by hunting and gathering. This assumption, in turn, led archaeologists to assume that before AD 200, groups in the region were non-sedentary (e.g., LeBlanc 1989:180), despite the presence of midden sites and pithouses.

Cienega Phase (800 BC to AD 200)

B. Huckell (1995) identified the Cienega phase in southeastern Arizona. It is marked by flaked stone similar to that of the San Pedro phase, except for the presence of Cienega points, which are diagonally corner-notched. Ground stone includes large perforated stone rings whose function is not known. Structures are round and do not contain bell-shaped pits. Maize, possibly squash, and native plant remains have been recovered from sites of this period (Huckell 1996).

Introduction of Agriculture in the Late Archaic

Investigations by B. Huckell (1995) in the Cienega Valley of southern Arizona have radically re-shaped conceptions of the Late Archaic in the southern Southwest. This research is relevant to discussions of the San Pedro and Cienega phases.

Investigating sites with substantial midden deposits and pit structures, Huckell's team routinely collected and processed flotation and pollen samples, and they found that maize remains were both abundant and ubiquitous in these sites. Apparently, the Late Archaic inhabitants were investing considerable energy in maize farming, although hunting and gathering remained important. Moreover, the substantial midden deposits at the site, along with the presence of pit structures, indicated a significant residential commitment to these sites, with at least semi-sedentary occupations.

Huckell's findings present a picture of the Late Archaic period that differs from what had been assumed, and Huckell proposes that the period 1500 BC to AD 200 be re-defined as the "Early Agricultural period" rather than Late Archaic. Yet, it remains unclear to what extent intensive maize farming, as documented at the Cienega Valley sites, may characterize this time across the region. Huckell himself acknowledged this issue and questioned whether intensive maize agriculture was a generalized economic pattern at this time or was restricted to more favorable environments, such as the alluvial bottoms of the Cienega Valley.

The Cienega Valley findings spotlight interpretive issues surrounding the appearance of domesticated plants and agriculture in the Southwest, which have been the subject of much discussion over the years. Competing models include those advocating that domesticated crops (maize, beans, and squash) were adopted by indigenous peoples (Ford 1981; Haury 1962; Minnis 1985a, 1985b) and those that argue for local or regional immigration of agricultural peoples (Berry 1982; Berry and Berry 1986; Huckell 1990). A third model focuses on the evolution of maize and the development of varieties adapted to different local environments (Matson 1991).

. ıther point of debate focuses upon the impact of maize on the overall economy and sociopolitical organization. Some investigators (e.g., Dick 1965; Ford 1981; Haury 1962; Minnis 1985a, 1985b; Woodbury and Zubrow 1979) argue that the adoption of maize and other domesticates had little impact for several centuries. Others (e.g., Berry and Berry 1986; Huckell 1990; Smiley and Parry 1990; Wills and Huckell 1994), citing the recent evidence for abundant maize in substantial Late Archaic villages, contend that the introduction of agriculture had a profound impact. The latter authors suggest that changes included a shift to more residential sedentism, enhanced effectiveness of hunting and gathering, and a dramatic increase in food storage.

Much of this discussion about the introduction of agriculture in the Southwest has focused upon ecological and economic factors to explain the adoption and spread of cultivation and agriculture, with much less attention paid to potential social and political forces. The relative role of these various factors remains an open question, but it is perhaps significant to note that, unlike eastern North America, where most of the earliest domesticates were indigenous plants, in the Southwest domesticates (and probably at least some agricultural techniques) were *adopted* from Mesoamerica. This fact lends potential support to Hayden's (1995b) argument that the *origins* of food production should be expected in biotically rich environments, where the costs of experimenting with plant domestication and agriculture would be less risky, and that food production itself was motivated more by social competition to generate surpluses than out of bare subsistence pressures. In a marginal environment such as the Southwest, the risks entailed in agricultural experimentation may simply have been too costly, despite the presence of potential domesticates in the indigenous flora (e.g., chenopods and amaranths). The domestication of plants and farming techniques in Mesoamerica provided an established agricultural complex that could be adopted by societies in the Southwest, and exploited by aspiring leaders. Of course, once adopted, agricultural production probably accelerated population growth, leading to problems and resource stresses emphasized in more traditional models of food production and social evolution.

Important questions remain about settlement patterns and social organization for the Late Archaic/Early Agricultural period. Other pithouse sites have been documented in southeastern Arizona, ranging from single-house sites to the Santa Cruz site, where excavations uncovered more than 180 pithouses (Mabry et al. 1997; Mabry 1998). This site included a large pithouse (9 m in diameter) that may have been a community structure for this large settlement. The large range in the size and population of these settlements raises important questions concerning their relationships. Huckell suggested two possibilities for the single-house sites: 1) they were seasonal occupations inhabited by families who lived at the larger sites part of the year; or 2) they were occupied by families who lived independent of the larger villages. To these one could add a third alternative: that the smaller sites represent intervals of settlement dispersion, when social fission within the larger villages led to their fragmentation. Such a scenario would necessarily force a consideration of the costs and benefits of aggregation, including the cooperative demands of farming, internal disputes that inevitably arise within aggregated settlements, and the levels of local warfare and associated defensive concerns.

Whatever the observed site variation represents in terms of settlement *systems*, it appears that Late Archaic/Early Agricultural societies probably were transegalitarian organizations (see Hayden 1995a) that lacked formalized hierarchies and stratification, and perhaps were structured as sequential hierarchies (Johnson 1982; 1989). As such, intensified ceremonialism (to facilitate group integration and provide a formal venue for social competition) was probably characteristic of this period. Political strategies on the part of aspiring leaders—including the accumulation of surplus and competitive feasting—may have encouraged agricultural intensification and population growth. Population increases, in turn, would have led to the growth of individual communities, social fission in the absence of large-scale integrative institutions, and demographic packing and territorial constriction, which would have exacerbated the upward spiral of sociopolitical evolution. Insofar as this scenario is true, social evolutionary developments by the Late Archaic/Early Agricultural period had already established important economic, social, and political precedents for developments in the succeeding periods.

The Southern Mogollon Tradition (AD 200 to 1450)

Mogollon culture was first proposed by Gladwin (1934) and first defined by Haury (1936a). This tradition marks the rapid development of agricultural communities in the region, with the most prominent trends involving significant population growth and subsequent rapid decline, a shift from pithouse communities to above-ground pueblos, and the appearance of ceramic technology and the proliferation of decorated pottery types. Various chronological sequences have been proposed for this tradition, and the one adopted here generally follows that framed by LeBlanc (1989).

Early Pit House Period (AD 200 to 550)

Traditionally, it has been proposed that this period marks the initial appearance of fully permanent villages and full-scale agriculture (e.g., LeBlanc 1980b, 1983, 1989:180). Although the findings in the Cienega Valley and elsewhere in southeastern Arizona now challenge this scenario for at least certain areas, it may still be the case that the shift to sedentary life did not occur in many localities until AD 200 to 300. Villages of up to 50 pithouses are known for this period, and are typically situated on elevated, defensible locations adjacent to fertile bottomlands. This suggests a pattern of autonomous, village-level polities with a prevailing threat of inter-polity conflict. Utilization of more xeric areas appears to have sharply diminished in this period. Population estimates for the Mimbres Valley (Blake et al. 1986; LeBlanc 1989:190) suggest a nearly three-fold demographic increase during this period, from an estimated population of 290 at AD 200, to 830 at AD 550. Pottery appears during this period and consists of undecorated wares classified as Alma Plain Brownware and small amounts of San Francisco Redware.

Archaeologists have traditionally considered the appearance of pithouse settlements as a marker of the shift to fully sedentary, agricultural life. In recent years, however, some investigators in the region have questioned the degree of sedentism indicated by pithouses (e.g., Lightfoot and Jewett 1986; Gilman 1997). Gilman cited ethnographic studies that suggest that pithouses typically represent seasonal settlements in non-tropical cultures and suggested that pithouse settlements in the Mogollon area might be less stable and sedentary than previously assumed. Lightfoot and Jewett (1986) examined the remains from several pithouse settlements in the Mogollon area, analyzing potential indicators of seasonality, occupational duration, and residential stability. These indicators included density and diversity of associated artifacts, numbers of burials (burial-to-pithouse ratio), degree of associated midden accumulation, the presence or absence of internal hearths, architectural diversity, and bioarchaeological (floral and faunal) remains. Their findings suggested a notable range in terms of seasonality, occupational duration, and residential stability among the pithouse settlements in their analyses, and the authors concluded that the shift to sedentism was, in fact, probably much more dynamic and variable than previously thought. Noting that previous explanations of the shift to sedentism in the Mogollon area had relied on ecological and subsistence economic factors, Lightfoot and Jewett emphasized the importance of social and political factors in explaining the observed patterns.

Late Pit House Period (AD 550 to 1000)

The Late Pit House period is marked by the abandonment of defensive locations on isolated knolls and the establishment of new villages on lower river terraces in the midst of good farmland. There also were changes in ceramics, architecture, and burial practices (LeBlanc 1977, 1980a).

Several phases divide this period, with three successive phases characterizing the period in the vicinity of the project area. LeBlanc (1980a) has described the "Phase Proliferation Problem" in a discussion of the history of research. The work of Haury (1936a, 1936b) provides the framework for periodization based on pithouse architecture and assemblages of ceramics and other artifacts.

- Georgetown phase (AD 550 to 650),
- San Francisco (AD 650 to 750), and
- Three Circle (AD 750 to 1000).

Some researchers support use of the Mangas phase (AD 950 to 1000/1050), named for the Mangas Creek settlements. This phase may be the equivalent of the Transitional stage in the Mimbres Valley (i.e., transitional from the Late Pit House to the Classic Mimbres periods, from pithouses to pueblos, ca. AD 900 to 1060) (Lekson 1992).

Lekson points out that some archaeologists state that these three Late Pit House phases are indistinguishable in the field. Other archaeologists, he notes, find it hard to distinguish Early Pit House assemblages from those of the Georgetown phase, but they can easily distinguish San Francisco and Three Circle phase assemblages (Lekson 1992:66).

Georgetown-phase sites are characterized by circular or D-shaped pithouses with a lateral entrance. Pottery includes San Francisco Red, Alma Plain, Alma Neck-banded, and Alma Scored ceramics (LeBlanc 1980)

The San Francisco phase is characterized by rectangular pithouses with plastered walls, inclined lateral entranceways, and posts in line with the lengthwise axis of the house. Ceremonial houses also are subterranean, but kidney-shaped. Ceramic assemblages include increased frequencies of San Francisco Redware, high frequencies of Alma Plain, and the appearance of the earliest known painted ceramics, including Mogollon Red-on-brown, Three Circle Red-on-white, Mimbres Black-on-white Style I, and San Lorenzo Red-on-brown (LeBlanc 1980a).

The next phase is the Three Circle phase, named for the Three Circle site at the northern end of the Mimbres Valley and excavated in the 1920s (Bradfield n.d.). Although pithouses are rectangular, there were changes in ceramics. Pottery assemblages exhibit greater variability than before, with much higher frequencies of Three Circle Black-on-white, San Francisco Redware, Mimbres Black-on-white Style II, Reserve Smudged, and Alma Textured. Mogollon Red-on-white is no longer the dominant pottery type during this phase. White slip is used for the first time on ceramics in the region (LeBlanc 1980a).

The Mangas phase was proposed as a transitional period where the first small surface pueblos often are associated with pithouses (Lekson 1988). The ceramics of the Mangas phase reflect a preponderance of Mimbres Black-on-white Style II over Mimbres Black-on-white Style III.

Settlement and village patterns during the Late Pit House period exhibit trends suggesting increasing populations at the both the regional and community level, with evidence for increasing sociopolitical complexity as well. Demographic levels in the Mimbres Valley appear to have experienced a nearly four-fold increase during this time period, from the estimated population of 830 at AD 550, to 3,200 at AD 1000. The maximum size of individual villages appears to have increased as well, with villages of up to 22 houses at the beginning of this period, to as many as 60 structures at the end. Ceremonial structures, often referred to as great kivas, were present in most of the moderate to large villages, and these exhibit evolutionary changes in both size and form (Anyon 1980; Anyon and LeBlanc 1980a; Haury 1950; Woosley and McIntire 1996). Little community planning is evident for this period, with villages typically consisting of randomly-clustered pithouses sharing a communal structure.

Increasing regional and community-level populations would have required mechanisms for coordinating decision-making and coping with various problems posed by increasing settlement aggregation. Such mechanisms probably included increasingly complex communal ceremonialism and an escalating level of prestige goods exchange. There is evidence for especially close intensive interaction with the Hohokam area toward the end of this period, including ceramic styles, stone palettes, three-quarter grooved axes with raised lips, and various shell goods. Large sites such as Galaz have yielded hundreds of shell ornaments, many of which were probably Hohokam imports. Despite the evidence for increasing social integration and growth of community-level polities during this period, the continued presence of settlements as small, single structures suggest that mobility and fission may have continued as options for addressing the stresses resulting from settlement aggregation and growth of communities.

Classic Mimbres Period (AD 1000 to 1150)

Archaeological research in the Mimbres period began with reports by J. Walter Fewkes of the Smithsonian Institution from the 1910s to the 1920s. Additional work was done by the Cosgroves (e.g., Cosgrove and Cosgrove 1932). For years after World War II, however, archaeological research was limited on this period until the 1970s (Gilman 1980; Lekson 1992).

Three major cultural changes mark this period. First, there was a shift to above ground, pueblo-style dwellings. This was not entirely a sharp break from the past, as late Three Circle phase semi-subterranean structures include many examples with cobble walls and three major posts running down the central axis of the room. The shift to above-ground structures in the Classic Mimbres "simply involved the construction of equivalent rooms without placing them in a pit" (LeBlanc 1989:187). Besides being constructed above ground, roomblocks ranged in size from a few units up to 50 rooms, with most blocks containing 20 rooms or less. LeBlanc (1989:187) notes that the larger villages "were comprised of up to six of these roomblocks," which corresponds to the average number of decision making units in a sequential hierarchy. Roomblocks include both habitation and storage rooms, reflecting increasing segregation of functional space. Great kivas were discontinued over the course of this period. Their function may have been taken over by plazas that were loosely defined by surrounding roomblocks.

The second major development is the proliferation of Classic Mimbres painted pottery, which represents the artistic peak of ceramic embellishment for this region, if not the entire Southwest. A brownware, like earlier Mogollon pottery, has a white or gray slip. Color on Mimbres pottery was first red-on-white and later black-on-white. Leading scholars of Mimbres ceramics consider the technological and stylistic changes to have developed in-place, rather than being imposed by other groups (Brody 1977; Cordell 1997; LeBlanc 1989).

It is possible to interpret the development and florescence of painted pottery as a form of stylistic messaging expected under conditions of increasing community size and interaction between people of intermediate social distance. LeBlanc (1989:187-188), however, notes that there is little recognizable patterning of painted motifs associated with roomblocks or villages, and there is apparently a high degree of individualism in the executed subject matter. This may indicate escalating social competition within Mimbres societies, which may have been facilitated by concealable storage rooms within pueblo roomblocks. Nevertheless, there is no evidence of formalized hierarchies at this time, and the Mimbres appear to be an example of a complex, transegalitarian society based on the organizational principles of a sequential hierarchy. Insofar as this is true, the growth in the size of individual communities probably was accomplished by stacking segmentary sociopolitical units (see Johnson 1989), with the fundamental economic unit possibly shifting from individual nuclear families to larger corporate groups (LeBlanc 1989:189-190).

The third major development relates to continued population growth. Population estimates for the Mimbres Valley suggest an increase from around 3,200 people at AD 1000, to a prehistoric demographic peak of 5,133 at AD 1130. One of the largest villages of this period, Galaz, had a population of roughly 300 people, which is only slightly higher than the estimated population for the Three Circle phase component at this site (Anyon and LeBlanc 1984:187-192). These patterns suggest that population growth was accompanied by community fission and the establishment of many new settlements at this time. Such population levels strained the productivity of available farmland, and depleted other critical resources such as firewood and game. Communities expanded into increasingly marginal areas, whose productive potential was increased by the construction of water management facilities such as check dams. Fieldhouses were constructed in marginal areas and between major villages in the main river valleys. The formation of larger corporate groups may have facilitated the level of integration necessary for the kinds of regularized communal exchange required for efficient exploitation of diverse localities by a single community.

The Mimbres phase is roughly contemporaneous with the Mesilla phase to the east and southeast, the San Luis phase to the southwest, and the Reserve phase to the north. Mimbres ceramics appear on sites identified with these phases.

Black Mountain Phase (AD 1150 to 1300)

Culture history periodization in the region is not clear after the Mimbres phase. As Lekson writes, "Southwestern New Mexico had been the center of Mimbres Mogollon development, but after the Mimbres phase, the area in effect becomes a frontier between archaeological entities defined in adjoining portion of southeastern and west-central New Mexico, northern Chihuahua, and southern Arizona" (Lekson 1992:86). An alternative view is that AD 1150 to 1200 was a period in which sites were not abandoned but reorganized (Nelson 1999).

From one point of view, the Black Mountain phase followed the collapse of the Classic Mimbres cultural system and is contemporary with the rise and florescence of the large sociopolitical center at Casas Grandes in northern Chihuahua. The regional interaction sphere that developed around Casas Grandes included the Mimbres region. In many ways, the Casas Grandes network paralleled (and may have replaced on a regional scale) the interaction sphere associated with Chaco Canyon, a similar sociopolitical center that was already well into its collapse by the beginning of this period. Casas Grandes far exceeds in scale and complexity all other cultural developments in the prehistory of the Southern Mogollon region. This center probably hosted a population between 2,000 and 3,000 and contains evidence of considerable communal labor in the form of platform mounds, ballcourts, and aqueducts, and was apparently a major center of craft specialization and production. Elite burials are associated with elaborate graves and furnishing, and architectural patterns within the site suggest elite residences as well. Although there is debate surrounding the nature of sociopolitical organization at Casas Grandes, evidence suggests it had been structured as a simultaneous hierarchy, or chiefdom.

The rise and florescence of Casas Grandes corresponds to a precipitous collapse and rapid depopulation in the Mimbres area. Demographic estimates for the Mimbres Valley suggest a roughly four and one half fold population decrease from the estimated peak of 5,133 at AD 1130, to 1,145 at AD 1275. To what extent local populations may have emigrated toward the Casas Grandes area remains an open question. The abrupt demographic shift is accompanied by significant changes in cultural marker traits as well. Architectural forms shift from cobble-and-adobe construction to adobe without cobbles, and rooms now typically have only one or two central posts. Hearth styles and mortuary patterns change as well, and pottery styles are almost completely different from the preceding classic Mimbres, with painted and other decorated wares now including Chupadero Black-on-white, Three Rivers Red-on-terracotta, El Paso Polychrome, Ramos Black, and Playas Red Incised.

There is some relationship between the collapse of the Classic Mimbres and the rise of Casas Grandes, but the precise circumstances and processes remain unclear. LeBlanc (1989:195) suggests that one scenario might involve a process of expansionist warfare on the part of Casas Grandes similar to that observed ethnohistorically among Polynesian chiefdoms (Sahlins 1958), although it is doubtful that direct political integration extended very far beyond the Casas Grandes site itself. DiPeso (1974) and LeBlanc (1986) suggest scenarios in which Casas Grandes exploited its position between the Southwest and Mesoamerica, controlling the distribution of prestige goods from the latter area (such as macaws and copper bells), which were exchanged for Southwestern turquoise and perhaps other goods. Groups in areas experiencing economic cultural stresses, such as the Mimbres, may have found the new cultural elements (and associated marker traits) an attractive alternative to their own failed system. Once drawn into the interaction sphere, however, these groups would have been caught up in an inflationary spiral of supply and demand typical of such exchange networks—a process described in many social-structural explanations of sociopolitical change (e.g., Friedman 1975). Perhaps more often than not in history, such a process leads to precipitous collapse rather than to further, large-scale integration. This certainly appears to be the case in the Southern Mogollon area, where the Casas Grandes interaction sphere collapsed sometime around AD 1300.

Salado (Cliff Phase) (AD 1300 to 1450)

The collapse of the Casas Grandes interaction sphere must have had a profound impact on the Southern Mogollon area. Unfortunately, the archaeological record of developments in the post-Casas Grandes period is far from clear (LeBlanc 1989:196). What is known about sites of this phase in the Mimbres area suggests close relationships with "Salado" sites in southeastern Arizona. The Salado period is represented in the southwestern New Mexico by what is sometimes called the Cliff phase (LeBlanc and Nelson 1976; Nelson and LeBlanc 1986).

Adobe-walled pueblos, usually exhibiting a U- or L-configuration are typical, with an adobe wall closing off the open end of the roomblock and defining a plaza area. There is little or no investment in ceremonial architecture, and architectural patterns suggest not only the continued absence of a sociopolitical elite, but perhaps the disappearance of corporate groups, which were suggested in the Classic Mimbres by the association of a roomblock with a kiva. Also, there is no obvious differentiation between habitation and storage rooms, and rooms within the pueblos show almost no differences between each other. Large settlements containing 100 or more rooms became common in the Southern Mogollon region at this time, although much smaller pueblos and fieldhouses are present as well (but the latter are unknown in the Mimbres Valley).

Sociopolitically, the overall picture for this period is one of rapid cultural collapse and the disintegration of integrative social mechanisms, with a progressive return to smaller scale, less complex social arrangements. Continued population decline is suggested, with estimates for the Mimbres Valley falling from 1,145 at AD 1275, to 240 by AD 1400, a level lower than that estimated for the beginning of the Early Pit House period. Settlement patterns suggest increasing population density toward the west (southeastern Arizona), although there are large areas with no settlements during this time period, with gaps of 20 to 25 miles between settlement clusters common.

Archaeological research on this period considered the possibility of a break in cultural continuity, perhaps the result of depopulation and in-migration of a new group. Currently, ceramic, architectural, and burial practices do not suggest a replacement of the earlier inhabitants, even though there was a population decline and a reorganization of the society.

Abandonment and Aftermath (AD 1500 to 1600)

By the early fifteenth century, abandonment of the Southern Mogollon region was well under way. This phenomenon, like other episodes of abandonment throughout the Southwest, continues to befuddle archaeologists. Abandonment of the Southern Mogollon is difficult to explain on ecological or climatological grounds alone (see LeBlanc 1989:200-201), although a period of reduced precipitation beginning around AD 1130 to 1150 may have exacerbated the long cultural decline observed in the region after this time. LeBlanc (1989:200-202) notes that the record of environmental change is not as clear for the Southern Mogollon region as it is for the Four Corners, and that caution must be exercised when using environmental models to explain the changes observed in the archaeological record. In any event, it would appear that social and cultural factors were at least as responsible for the observed changes as environmental factors, and that the observed changes stem from a complex web of causation (including both environmental shifts and particular cultural-historical circumstances).

Abandonment of the Southern Mogollon region after AD 1450 was followed by an occupational hiatus of unknown duration. Athapaskan-speaking Apachean groups colonized the region sometime between AD 1500 and 1800, but their nomadic lifeway, dominated by hunting, gathering, and raiding (with only a minor commitment to agriculture), has left only ephemeral archaeological remains of low visibility.

Previous Research

Among the works that synthesize the culture history of the region and present information on previous research are LeBlanc and Whalen (1980), Stuart and Gautier (1981), and Lekson (1992 draft). The history of archaeological research in the region is discussed by Schroeder (1979), Martin (1979), Brody (1977, 1989), Gilman (1980), Anyon and LeBlanc (1984), in various chapters of LeBlanc and Whalen (1980), Woodbury (1993), and Huckell (1996).

Overview of Research on the Pre-Ceramic Period

Not much is known for an extended portion of the prehistory of the region, including the Paleoindian, Early Archaic, and Middle Archaic periods. Little work has been done to expand our information on the period, particularly at higher elevations. Most of what is presented in culture history summaries is an extension of data from other parts of the Southwest (Lekson 1992 draft).

Kidder (1924) proposed a hunting and gathering culture without pottery, a stage he called Basketmaker I. With the acceptance of a late Pleistocene date for Paleoindian culture and the recognition of Pueblo cultures as being only a thousand or so years old, a problem arose for archaeologists working in the Southwest. Basketmaker I appeared to cover a vast time range, thousands of years long. Instead of using the Basketmaker I concept, archaeologists defined other cultural stages between the Paleoindian and Basketmaker II (Huckell 1996:321-322).

Byron Cummings, working in the 1930s at the Double Adobe site in the Sulphur Spring Valley of southern Arizona, found an assemblage dominated by ground stone beneath Pleistocene faunal remains. Further research in this area was conducted by the Gila Pueblo Archaeological Foundation. Antevs, Sayles, and others found more pre-ceramic sites in the Sulphur Spring Valley (Minnis and Nelson 1980). Work by the Gila Pueblo archaeologists defined cultural phenomena such as the Cochise and Mogollon traditions (Schroeder 1979).

The Archaic in the Southwest has been described as "pre-pottery and pre-house" (Sayles and Antevs 1941). This period was eventually defined in terms of four regional traditions that were existing by about 3000 BC. In the southern part of the Southwest, the Cochise tradition was the manifestation of the Archaic period. It was divided into Sulphur Spring, Chiricahua, and San Pedro phases (Sayles and Antevs 1941:55). Subsequently, other phases were proposed, and the dates of periods were revised (e.g., Waters and Woosley 1990; Waters 1998).

Archaeologists discussed the usefulness of the term "Desert culture" for this period. Jennings and Norbeck (1955) and Jennings (1956) defined this term to describe the widespread pattern of prehistoric adaptation to an arid environment. Although the description is accurate "at the broad adaptational level … on a historic-genetic level the term Desert culture should be confined to the area of original definition in the Great Basin" (Irwin-Williams 1979:33). Irwin-Williams' approach generally has been accepted by archaeologists working on Archaic topics.

Particularly important issues in Archaic research touched on environmental change and the use of plant resources. Antevs correlated sedimentary patterns with dated artifacts. Making climatological inferences from the condition of sediments, Antevs then constructed an environmental history of the region. He postulated the existence of periods that were moderately warm (Medithermal), distinctly warmer than today (Altithermal), and similar to today but increasingly warmer through time (Anathermal) (Dick 1965). Other researchers used pollen analysis and macrobotanical remains to reconstruct the paleoenvironment.

As for Archaic food sources, several cave sites to the north of the project area, in Catron County, New Mexico, provided information. Among these are the Tularosa Cave and Bat Cave sites.

Tularosa Cave contained piñon nuts, Indian rice, maize, mariposa lily bulbs, walnuts, acorns, beans, prickly pear, wolfberry, squash, and sunflower seeds (Martin et al. 1952). Bat Cave in the San Agustin Plains contained the remains of early maize (Dick 1965; Mangelsdorf et al. 1964; Mangelsdorf and Smith 1949).

Recent work by Huckell in southeastern Arizona suggests that Archaic people were maize farmers. Although the extent of maize cultivation is still unknown, investigations in the Cienega Valley document intensive cultivation. On the basis of this research, Huckell has called for the use of the term "Early Agricultural period" for the cultural phase that appears between 1500 BC and AD 200 (B. Huckell 1995). This topic is discussed further below.

Overview of Research on the Ceramic Period

Researchers with anthropological interests visited the region between the 1890s and the 1910s. One of the earliest to draw attention to the ceramics of the Mimbres Valley was J. Walter Fewkes of the Smithsonian Institution. He collected ceramics and excavated sites, including the Osborn Ranch and Old Town sites (Fewkes 1914a, 1914b, 1915, 1916a, 1916b). Fewkes' publications influenced both archaeological investigations as well as art, presenting art historians and artists with a catalog of Mimbres designs (Brody 1989).

Subsequently, Fewkes and others, such as Wesley Bradfield and his associates at the Museum of New Mexico and the School of American Research, conducted field studies in the 1920s. This work included a 1922 survey (Bradfield et al. 1928) and excavation of the Three Circle site (Bradfield notes 1927-1928) and the Cameron Creek site (Bradfield 1929). Cornelius and Harriet Cosgrove, a husband and wife team with ties to the region, began their work at this time, excavating the Treasure Hill site (Cosgrove 1923), Swarts Ruin (Cosgrove and Cosgrove 1932), and Doolittle Cave. In 1927, the Southwest Museum excavated the Galaz site; this site was also investigated in the 1930s and was the subject of a later report (Anyon and LeBlanc 1984). During the 1920s and 1930s, excavations and purchases provided museums with their collections of Mimbres pottery.

Even though archaeologists working in the region during the 1920s and 1930s focused on Mimbres sites, excavations of pithouse sites were important for sorting out culture history. Foremost of these projects was the work of Emil Haury at the Harris Village and the Mogollon Village sites (Haury 1936a). These projects were important because the results were the basis for Haury's definition of the Mogollon tradition (Martin 1979). One interpretation of the Mogollon is that it represents an adaptation to particular ecological niche, yet it exhibits a "majestic parallelism" to the other Southwestern subcultures, the Anasazi and the Hohokam (Martin 1979:61). Over time, archaeologists delineated branches of the Mogollon:

- Mimbres, in southwestern New Mexico;
- San Simon, in southeastern Arizona;
- Black River, along the Gila, San Carlos, and Black Rivers in eastern Arizona;
- Forestdale, further to the north of Black River, in Arizona;
- Cibola, in Catron County, north of the Mimbres;
- Eastern Periphery, in the Rio Grande Valley and to the east, south of Albuquerque; and
- Jornada, in the Tularosa Basin and Rio Grande Valley near El Paso and northern Chihuahua.

Discussions of the Mogollon often separate the Jornada Mogollon from the other branches (Gilman 1980). For this report, the culture history is discussed below in terms of a Southern Mogollon tradition, which includes the Mimbres branch and sites within a 100-km radius of the project area.

Several temporal divisions of the Mogollon tradition have been proposed (e.g., Haury 1936a; Wheat 1955; Bullard 1962; Graybill 1973; and Anyon et al. 1981). According to Gilman (1980), the concept of the Mogollon is useful until about AD 1000, when regional variation has increased. She discusses three temporal divisions:

- Early Pit House period (AD 200 to 550);
- Late Pit House period (AD 550 to 1000); and
- Mimbres or Surface Pueblo period (AD 1000 to 1150).

This general framework is used for the current project. Furthermore, Haury (1936a) proposed three phases that are divisions of the Late Pit House period: Georgetown, San Francisco, and Three Circle. Generally, Haury's presentation of culture history has withstood the test of time and has been able to incorporate new data. These phases are also used in the culture history that follows.

Although work on the Mogollon tradition continued for years, there was a peculiar break in research conducted in the Mimbres region after the 1930s. Work tended to be salvage projects along highways or stabilization of ruins. A list of some of the highway projects of this era appears in Lekson (1992:42). Neglected by archaeologists, many sites were lost to looters in the middle decades of the twentieth century.

During the hiatus in Mimbres research, the National Park Service conducted projects at Gila Cliff Dwellings National Monument from the 1940s on. Surveys and studies of Mimbres sites (e.g., the TJ ruin, not far from the cliff dwellings, and numerous small pueblos on the forks of the Gila) within the boundaries of the monument and the Gila National Forest were done (Anderson et al. 1986; McKenna and Bradford 1989).

The revival of interest in the region came in the 1970s, however, with work by the University of Michigan directed by Arthur Jelinek. This was followed by other projects directed by Donald Graybill and James Fitting. Work focused on the Upper Mimbres (Graybill 1973) and the Upper Gila (Fitting 1970, 1971a, 1971b, 1971c, 1971d, 1973a, 1973b, 1974; Fitting et al. 1982a, 1982b). The Upper Gila Project excavated or tested 18 sites from a wide range of periods (Lekson 1992).

Although many archaeologists did not believe that new data on the region, particularly the Mimbres period, was likely to be found, the Mimbres Foundation began surveys and other projects (Blake and Narod 1977; LeBlanc 1983). One project was a multiyear survey of the Mimbres Valley (LeBlanc 1975, 1976, 1977). Excavation of sites by the Mimbres Foundation was the next step. The research strategy concentrated on acquiring data from many sites rather than excavation of a single site. As Anyon and LeBlanc write:

> *While site survey proceeded according to plan, detailed excavation of individual sites was hindered by the great amount of looting that had taken place. Therefore, the foundation decided that rather than intensively excavating a few sites, we should sample a large number of sites in different environments and from various time periods (Anyon and LeBlanc 1984).*

A salvage excavation was conducted by the Foundation at the Galaz site, which had been extensively looted and was about to be bulldozed by a commercial looter (Anyon and LeBlanc 1984). Other projects were also undertaken by the Mimbres Foundation, such as a photographic archive of all Mimbres pottery in museum and private collections.

In his overview of southwestern New Mexico, Lekson (1992) briefly describes some of the other projects conducted since the 1980s:

- The Wind Mountain Project, by the Amerind Foundation. The Wind Mountain site in the Mangus Valley is a Late Pit House site with Mimbres material present. It was investigated by

Charles DiPeso and reported by Woosley and McIntyre (1996). DiPeso sought evidence of the Gran Chichimecan chronology, and he came to consider the local periodization of culture history as too provincial in that they did not relate to much larger cultural and economic systems. Although there were no reliable dates acquired by this study, extensive architecture was exposed. This site contained material from the Early Pit House to final Pueblo occupations.

- The WS Ranch Project, by the University of Texas at Austin. James Neely investigated a pueblo site at the northwestern edge of the Mimbres area. Other excavations in the immediate area have provided data on site distributions.
- The NAN Ranch Project, by Texas A&M University. Harry Shafer directed a study that began in 1978. Complex stratigraphy and architectural sequences were recorded at this large, multicomponent site.

Other projects are listed in Table 3.3 below (Lekson 1992).

Table 3.3 Other Recent Projects in the Region.

Project/Site	Reference
Berrenda Creek Project, LA 12992	Gomolak and Ford (1979)
Ladder Ranch Project, LA 37690, LA 37691	M. Nelson (1984)
Black Range Survey	Laumbach and Kirkpatrick (1983)
NMSU 1973 Field School, LA 1082	—
UCLA Hidalgo County Survey	DeAtley and Findlow (1982) and other papers
HPD Animas-Phase Site Recording	O'Laughlin 1986
NMSU State Land Survey, Grant and Luna Counties	Ackerly et al. 1988

In addition to these reports, there are numerous cultural resource management (CRM) reports (i.e., studies conducted to enable land managers to comply with federal and state laws) that have been produced in the region. Since no large engineering projects (e.g., dams and reservoir building) have been constructed in southwestern New Mexico, there has not been a coherent program of survey, testing, and data recovery that follows a single research design. Furthermore, there are inconsistencies and gaps in the site data on file in the principal archaeological data bases for the region (i.e., Archaeological Records Management System [ARMS], Gila National Forest, and the Las Cruces District of the Bureau of Land Management [BLM]) (Lekson 1992). Nonetheless, there have been important CRM projects. Among them is the work of Chapman et al. (1985), which documented pre-ceramic pithouses in the Upper Gila Drainage.

4.0 Research Orientation

Jim A. Railey and Christopher A. Turnbow

Introduction

An archaeological research design should establish an explicit framework for carrying out field investigations, conducting analysis, and constructing interpretations of recovered and documented remains. Ideally, a good research design provides a theoretical orientation drawn from general concepts and models, and relates these to region-specific problems in a way that both enriches general theory and, at the same time, places regional issues in a broader, comparative light. From this theoretical point of departure, the research design should then identify how the anticipated findings of the specific project may be used to address explicit questions and issues, and thus provide a guide and justification for the various methods to be employed. The end result should be a synthesis that maximizes the interpretive potential of the data recovered from the investigated sites, and makes a substantial contribution to an understanding of how general behavioral processes are expressed on the historically unique stage of the specific region.

General Theoretical Orientation

The present project deals with archaeological remains that occur within a specific environmental regime, cover a relatively broad expanse of time, and encompass an appreciable range of variation along an historical-evolutionary trajectory. Accordingly, the theoretical orientation employed here makes use of concepts drawn from a broad range of theoretical approaches, including cultural ecology, sociopolitical dynamics, and social-evolutionary theory.

One essential tenet of this synthetic approach is that humans adapt to specific environments. Human culture has evolved to satisfy not only bare subsistence needs in particular environmental settings, but also to provide cognitive "maps" that allow human groups to carry on and reproduce their social structure and ideological systems within complex webs of interaction. Importantly for archaeologists, the cognitive map of culture involves the use of material marker traits which serve as visual cues that help channel and structure culturally-embedded perceptions of their world. The potential variation of cultural behaviors and associated marker traits is such that a broad range of evolutionary outcomes may be possible from any given "starting point." These evolutionary possibilities are conditioned as much by essentially random historical circumstances and mutation-like variation in human behavioral patterns, as they are by the economic exigencies of wresting a living from a particular environment. Hence the profound diversity in human cultures.

At the same time, the nature of cultural learning is such that, once a particular set of culturally-instilled patterns of behaviors and marker traits are established, such patterns will constrain and channel the direction of subsequent change by providing a unique, culture-specific pool of variation upon which evolutionary forces can act (Gould and Lewontin 1979). As a result of evolutionary processes and particular historical conditions, minor cultural variation between two groups at one point can lead to wide differences over time, with each group following its own divergent evolutionary course. Thus, archaeologists and historians can recognize both diversity between different areas and regions, and long-term continuity within particular regions. For archaeologists, these patterns typically are characterized as cultural traditions which, in turn, can be subdivided into spatial-temporal units such as periods and phases.

Cultural learning processes evolved to provide humans with an efficient mode of reproducing themselves socially, politically, and ideologically. As a result, humans are constrained by biologically-induced behavioral patterns, many of which recur cross-culturally. Such recurrences include social organizational patterns such as those characterized within evolutionary typologies (e.g., Fried 1967; Service 1962; Johnson and

Earle 1987), or Johnson's (1982; 1989) simultaneous hierarchies versus sequential hierarchies (see also Braun 1991). Other human behavioral convergences have been discussed in terms of interactional models such as Wobst's (1977) information exchange theory, the peer polity interaction model (Renfrew and Cherry 1986), or world systems theory. Recurrent forms of architecture—and evolutionary trends in architectural forms—reflect cross-cultural behavioral patterns variously associated with similarly recurrent environmental conditions, economic patterns, and social-organizational structures. Parallel developments in domestication and agriculture in various world regions provides another example of cross-cultural convergence. Thus, despite the great diversity of human cultures, there are many behavioral convergences that reflect humanity's common evolutionary heritage and are relevant to an understanding of the archaeological record in any particular cultural-historical context.

Using this theoretical orientation as a point of departure, the anticipated findings at the nine investigated sites can be considered from a comparatively broad and informed perspective. The occupations at these sites represent highly localized and chronologically momentary residues of human activities conditioned by specific cultural-historical circumstances. At the same time, patterned behaviors are expected to derive from pan-human cognitive structures and learning processes. This dual perspective is offered as a means of enriching an approach to region- and site-specific research problems, and is developed further in the cultural historical narrative presented in Chapter 3.

Research Questions

The research questions framed here draw upon both the general theoretical orientation presented above and a current understanding of the regional culture history. Six problem domains identified for study are: 1) chronology, 2) environmental reconstruction, 3) technology, 4) subsistence, 5) settlement and demographic patterns, and 6) regional interaction. Although for discussion purposes the questions are segregated according to discrete categories, these domains are closely interrelated. Together, the research into these domains can contribute significantly to the knowledge of Late Archaic and Mogollon adaptations in the region.

Chronology

What are the temporal parameters of each component represented at the sites?

In order to examine other temporally sensitive research issues, each component in the study should be accurately dated and placed within the temporal framework for the region. A basic objective of the project was to gather chronological data to either confirm or modify the present understanding concerning the temporal components represented at the nine sites. These data were, in turn, used to refine the regional chronology, especially in terms of diagnostic artifacts and settlement and subsistence patterns.

Given these research directions, one of the main focuses of the project was to obtain high-resolution chronological data. Temporal assignments relied on both absolute chronological methods and analysis and external comparisons of diagnostic artifacts. Of particular importance was the collection of tightly-provenienced radiocarbon, archaeomagnetic, and dendrochronologic samples. Tree-ring dating provides the best results, but as at the Wind Mountain site (Woosley and McIntire 1996), these samples were not recovered from the NM 90 investigations. Archaeomagnetic samples were considered the second most desirable chronometric source to be derived from well burned clay lined thermal features and floors. Charcoal for radiocarbon dating, while less accurate, was more ubiquitous in well preserved cultural contexts. For radiocarbon dating, efforts were made to assay annual seeds such as maize kernels, thus avoiding the "old wood" effect.

In addition to absolute techniques, diagnostic artifacts and their contextual distributions were carefully and systematically analyzed for the purpose of extracting precise chronological data. With the exception of LA 121164, all of the sites had previously produced diagnostic artifacts with Forest Home, Wood Canyon, LA 121209, and LA 121165 producing projectile points and Forest Home, wood Canyon, Beargrass, Peterson Canyon, LA 121209, and Power having ceramics.

Ceramics were especially useful for this analysis, and a high-resolution ceramic chronology developed for the area was employed to help enhance chronological resolution. Based on research in the Mimbres Valley, Shafer and Brewington (1995) have refined the dating sequence for pottery types from Pit House and Classic Mimbres period sites. The refined sequence is based on recognized temporal changes in painted designs and further division of Mimbres Boldface and Mimbres Classic Black-on-white into microstylistic groupings. By utilizing Shafer and Brewington's (1995) ceramic dating sequence and date ranges for nonlocal ceramic types, Mimbres assemblages offered an excellent data set with which to calculate ceramic mean dates. Although a relative dating technique, ceramic mean dates were used to supplement absolute dating methods and provide a date range for proveniences lacking absolute dates.

For the NM 90 assemblages, weighted mean ceramic dates were calculated for proveniences with ceramic types having less than a 300-year temporal span. Mean ceramic dates generally are calculated using the formula proposed by South (1977) and have been implemented in analysis of Anasazi ceramic assemblages by numerous researchers (e.g., Goetze and Mills 1993; Goff and Reed 1998; Hays-Gilpin et al. 1998; Reed and Hensler 1999). During recent analysis of two Classic Mimbres phase assemblages near Fierro, New Mexico, mean ceramic dates were calculated and used successfully to supplement absolute dates from the structures and middens (Lori Reed and Gary Brown, personal communication 1998).

Two aspects of the chronology issue were of particular interest beyond the simple placement of the components in time. First, chronological data especially were important for addressing related questions concerning settlement patterns. For example, estimating whether or not multiple structures or other features within a given site component were contemporary was crucial for discussions of settlement size and social organization. Likewise, the ability to estimate precise temporal relationships between "contemporary" components (of the same general time period) at different sites allowed more detailed interpretation of settlement patterns.

The chronological investigations at the Archaic sites also contributed information to refine projectile point chronologies in the region. Ideally, the development of a projectile point chronology should be based on well provenienced, single component assemblages that are stratified and/or satisfactorily dated. However, to date, such data are not available for the Archaic sequence. Therefore, efforts were undertaken to date and maximally describe Archaic period projectile points during this study.

Environment

What were the environmental settings of the occupations?

Collecting data on past environmental conditions is crucial to understanding prehistoric developments in the project area. Because the Southwest is a marginal, semi-arid environment, even minor fluctuations in precipitation levels and other climatic conditions had potentially profound effects on resource availability and farming systems (Minnis 1985a). Moreover, human impact from farming and exploitation of critical resources (such as firewood) could have had notable effects on local environments that, in turn, affected the local residents (LeBlanc 1989:189). With the exception of the Mimbres Valley proper, no definitive work has been produced on the environmental conditions of the Mimbres region.

Data on past environments at specific sites may be inferred from various sources, including macrobotanical remains obtained through flotation, pollen, phytoliths, faunal remains, tree-ring sequences, sedimentological data, and the contents of preserved pack-rat middens. Although pack rat middens are valuable in this research, they were not present on the sites. Sedimentation data did not contribute significantly in this research since the sites lie in upland settings with little deposition. Nevertheless, a geomorphologist documented the stratigraphic sequences for each of the eight sites. The presence of archaeological midden and features on most of the sites within the current NM 90 study area presented an excellent opportunity for recovery of the other remains. In particular, palynology and dendroclimatology methods can be applied to infer specific archaeological relevant climatic fluctuations. Pollen was recovered in cultural contexts at project area sites, but dendrological samples were not.

Technology

Technology represents both an interface between people and their environment, the economic means of production, and capital investments that play into social and political relations. Addressing issues concerning technology was thus a major focus of this research. Ceramics and lithics (chipped and ground stone) constituted the most abundant artifact classes recovered from the eight sites, so technological analyses focused on these materials.

What synchronic and diachronic trends exist in local pottery production and vessel function in the study area?

Seven sites yielded ceramic artifacts, but the larger assemblages came from Beargrass, Power, and Forest Home. Given the peripheral location of these sites in relation to the Mimbres Valley, they offered an opportunity to study the role of ceramic production and function at small sites in the overall Mimbres cultural network.

As will be subsequently discussed in the Regional Interaction section, special attention was devoted to identification of local pottery production and how these ceramics varied among the components in the study area and to the larger region as a whole. Clay and temper constituents served as the primary means of distinguishing locally produced ceramics. The use of neutron activation analysis (NAA), in conjunction with collection of local clay source materials, provided a quantitative means of examining patterns of clay source procurement, and identifying locally-made versus imported ceramics. This information was used for examining patterns of social organization and external interaction and exchange.

Not only was pottery a commodity that was traded, it also served a functional role in the daily life of prehistoric people. Characterizing the functional aspects of pottery contributes to the larger issue of understanding the activities that occurred at a site. Detailed examination of floor assemblages provides excellent data with which to address patterns of pottery use. Following the work of Skibo (1992) and others, characterization of use wear, vessel form, appendages (handles), and post-breakage use of sherds as tools contributes to the larger picture of site function.

What is the nature of variation in the production and use of lithic assemblages in the study area?

Data necessary to address this question included chipped stone and ground stone artifact assemblages in well dated cultural contexts, morphological and functional information, and raw material locational data. All nine sites in the study contained lithic assemblages potentially useful for addressing technological questions. Of the sites, Forest Home, Wood Canyon, Beargrass, and Power had chipped stone assemblages of sufficient size to address the issue.

As with ceramics, the production and use of lithic assemblages on Archaic and Mogollon sites within the region are not well understood. Analysis focused on those sites where statistically valid samples of lithic materials were collected. Analysis included the development of a comprehensive typology and detailed type descriptions for comparative purposes. A limited geological survey was also undertaken to locate locally available raw materials. Efforts then focused on inter- and intra-site comparisons of the assemblages (Berman 1978; Fitting 1970; Wheat 1955). In particular, debitage analysis concentrated on identifying biface and core tool production technologies and comparing the results to other pattern recognition studies that have identified difference between Archaic and Ancestral Puebloan tradition lithic production strategies in New Mexico (Acklen et al. 1984; G. Brown 1982; Chapman 1977; Hogan et al. 1983; Laumback 1980; Schutt 1980; Vierra 1980). While a number of archaeological analyses have demonstrated a link between stone tool production efforts and prehistoric mobility (Bamfourth 1986; Kelly 1988; Parry and Kelly 1987), a number of recent studies have explored a second factor in how a lithic assemblage is organized with regard to tool form and production effort. These studies emphasize the availability of lithic raw material resources, defined by both abundance and quality, as perhaps the primary factor conditioning the organization of lithic production (Andrefsky 1994; Kuhn 1994). In particular, Andrefsky (1994) suggests that mobile prehistoric populations would not necessary have needed to produce formal, curated tools if good quality raw materials were readily available at needed locations.

Subsistence

Is there evidence of Late Archaic maize farming at Wood Canyon (LA 99631) and Forest Home (LA 78089), and if so, what was the role of maize in the local subsistence economy at that time?

One of the key questions concerns the role of maize farming in Late Archaic subsistence economies (Woodbury and Zubrow 1979). The active participation of Late Archaic populations in maize production has been well documented by Wills (1988), B. Huckell (1995), Tagg (1996), and Hard and Roney (1999) in regions immediately surrounding the Mimbres core area. Wood Canyon and Forest Home are settlements located along major drainages suitable for food production. Excavations at these sites provided an excellent opportunity for addressing issues of dispersal of food production strategies into the Mimbres region. Finding evidence for maize farming at these sites would thus strengthen the case that agriculture was a subsistence economic strategy common to Late Archaic groups in many different local environments. On the other hand, negative evidence for maize agriculture (especially if coupled with abundant evidence for the use of wild food plants) would suggest that maize farming may have been restricted to more favorable environments at this time.

Flotation, pollen, and phytolith samples routinely were collected from both of these sites. They were analyzed to extract data on subsistence patterns, determine the presence or absence of maize, and, if present, its relative abundance and ubiquity.

What was the role of hunting and gathering in local Late Archaic subsistence economies?

Another pattern suggested by Wills and Huckell (1994) is that maize cultivation may have made Late Archaic peoples more efficient hunters and gatherers, as the availability of stored agricultural products could have made seasonal exploitation of upland wild resources less risky. The presence of intensive Archaic settlement at Wood Canyon and Forest Home, along with two smaller, likely Archaic components (LA 121164 and LA 121165) within the targeted sites, presented opportunities for investigating this issue.

Again, flotation, pollen, and phytolith samples routinely were collected and analyzed to extract data on subsistence patterns. Analysis of faunal remains also contributed data to help answer this question. Standard quantitative methods were used to determine the relative frequencies of various plant food remains. A secondary data source of relevance to this question was artifact tool categories.

What subsistence patterns are associated with the Mogollon occupations of the targeted sites?

Evidence from data recovery indicates Early and Late Pit House residential sites at Forest, Power, Beargrass, and Peterson. The presence of Early and Late Pit House components is consistent with the expansion of farming communities into comparatively marginal zones (such as the project area) and presents an excellent opportunity for recovering biological samples and artifactual remains that could be used to address subsistence issues. Such remains may not only throw light on general subsistence trends for these time periods, but also may be used to explore issues of seasonality. A key question here is the extent to which the occupants of small, comparatively marginal pithouse settlements were involved in hunting and gathering as a subsistence supplement or buffer.

Again, flotation, pollen, and phytolith samples were routinely collected and analyzed to extract data on subsistence patterns. Analysis of faunal remains also contributed data to help answer this question. Standard quantitative methods were used to determine the relative frequencies of various food sources. Artifact tool type distributions provided a secondary source of data bearing on this question.

Some investigators have pointed to morphological changes in manos and metates as indicators of increasing reliance on maize agriculture. Do changes in the size of manos and metates from the targeted sites match patterns noted elsewhere, and what will these data reveal in terms of subsistence patterns?

Analysis of artifact functional classes also may provide information regarding subsistence patterns. One potential line of artifact evidence concerns inferred relationships between changes in the morphology of ground stone tools and the processing requirements associated with increasing dependence on agriculture (e.g., Diehl 1996; Hard 1986, 1988, 1990; Mauldin 1991, 1993). The argument hypothesizes that, over time, an increase in the surficial grinding areas of manos and metates reflects efforts to increase the efficiency of grinding activities associated with maize processing, an especially time-consuming activity. Accordingly, quantitative measurements of recovered ground stone artifacts from the NM 90 sites were recorded and compared with the results of other time-transgressive studies concerning morphological changes in these processing tools. Addressing this question necessitated the recovery of manos and metates from temporally datable contexts. Wood Canyon, Forest Home, Power, and Beargrass especially were useful given their relatively large ground stone assemblages.

Settlement and Demographic Patterns

What do the substantial Late Archaic midden deposits at Wood Canyon and Forest Home represent in terms of settlement type, and how, if at all, does this settlement relate to the three other Archaic components at Beargrass, LA 121165, LA 121209?

The Archaic components identified during the present project present a good opportunity for investigating settlement patterns during this important time period, characterized by dynamic economic and social changes. The large, substantial middens at Wood Canyon and Forest Home suggest the presence of Late Archaic base camps or villages, but detailed analysis of these sites' remains should help refine an understanding of these important settlements and allow assessment of some key questions. For example, do the substantial middens at these sites represent sedentary, year-round occupations by a relatively large number of people? Do they represent smaller, repeated occupations (either seasonally, annually, or periodically) over a longer period of time? Did the character of these occupations change over time?

Precise chronological data, spatial analysis of feature distributions, and data on seasonality and occupational intensity are used to address these questions.

Comparisons of tool-function class frequencies between the sites (and with other sites in the region) are used to determine the range of activities carried out within the respective occupations, which in turn helped answer questions concerning seasonality, occupational intensity, and site-use duration. Distributional analysis of structures and features aid in the assessment of these specific issues. Subsistence evidence is used to address these sorts of settlement questions, and precise chronological data were used to assess potential contemporaneity between intra-site structures and features, and components of the same period at different sites.

What is the nature of pithouse use and abandonment in the study area?

Pithouses were identified during data recovery at Forest Home, Wood Canyon, Peterson Canyon, Beargrass and the Power site; these ranged in age from the Late Archaic to the Late Pit House period.

Lightfoot and Jewett's study (1986) provides a comparative method for analyzing pithouse remains to answer specific settlement questions. Specific lines of evidence, including bioarchaeological remains, the presence or absence of internal hearths, the degree of associated midden accumulation, relative compaction of house floors, and the density and diversity of associated features and artifact remains, can help determine the nature of the pithouse occupations in terms of seasonality, residential stability, and site-use duration. These results can then be compared between the investigated site components, and linked to findings from the surrounding region (such as Lightfoot and Jewett's findings) to assess the settlement contexts of these occupations in greater detail than might otherwise be possible.

Another issue relating to settlement and spatial analysis concerns patterns of pithouse re-use and abandonment, which were explored in a recently published article by Diehl (1998). Diehl points out that the fill assemblages associated with most pithouses probably represents post-occupation refuse, and that intact "floor assemblages" are rare and associated with special abandonment circumstances. Accordingly, the artifactual contents of excavated pithouses excavated at the project sites were documented carefully in terms of provenience. The resulting assemblages are compared with Diehl's data, in an attempt to differentiate intact assemblages (which relate more directly to questions of pithouse seasonality, occupational intensity, and duration of use) from post-occupation refuse.

Do the Late Pit House components at Wood Canyon, Beargrass, Peterson Canyon, and LA 121160 represent a spatially dispersed community, or a series of smaller, non-contemporaneous (and possibly seasonal) settlements?

Questions concerning settlement changes from the Late Pit House to Classic Mimbres periods in the area prompt further inquiry into the settlement status of the Late Pit House components at Wood Canyon, Beargrass, Peterson Canyon, and LA 121160. A key question is whether or not these components represent a single community that was dispersed spatially over the local area, or if they mark smaller, non-contemporaneous settlements of only one or a few families, which would imply seasonal or periodic re-occupation, along with short-distance shifting of settlement locations. Addressing this question relies on various lines of evidence, not the least of which involves precise chronological determinations. Analyses involving pithouse artifactual and feature contents, along with any associated midden debris, are used to estimate pithouse seasonality and occupational duration, and thus help address this question.

Regional Interaction

A final research category that is of potential relevance to the scheduled investigations involves patterns of regional interaction. A comprehensive understanding of the various occupations at the targeted sites is not possible without a consideration of the broader patterns of cultural interaction of which they were a part. As is evident from the cultural-historical background, there were significant shifts in the scale, complexity, and directionality of interaction spheres involving the prehistoric occupants of the Mimbres area. The changes in regional interaction patterns may be viewed simultaneously as both symptoms and causes of the cultural and sociopolitical trends observed in the archaeological record.

What evidence for regional exchange networks exists on the sites?

One specific avenue through which questions of regional interaction are addressed is through ceramic analysis. At the foundation of most research issues involving ceramics is the identification and characterization of locally produced pottery. Because the prehistoric pottery in southwestern New Mexico is part of the larger Mogollon tradition, nonlocal utility ware and decorated ware of the Mogollon and Mimbres traditions occasionally are difficult to identify without more detailed analysis of the clay and temper constituents. Nonlocal ceramics from areas outside of the Mogollon region generally are the most obvious imported items (e.g., Anasazi pottery, Hohokam pottery). Although exchange with other regions may have played an important role in the society, much of this exchange was organized in a "down the line" pattern. Thus, nonlocal goods probably were most often obtained by contact with nearby villages or through large community or supra-community gatherings (see Shafer 1996). These mechanisms of exchange not only brought pottery from other regions into smaller sites, but facilitated the exchange of Mogollon and Mimbres pottery on intra-regional and inter-community levels. In order to understand the organization of exchange patterns and social ties, pottery produced within the general project area must be identified and then placed within a comparative context. This analysis made use of clay source samples and NAA of both raw material sources and selected ceramic sherds.

Identification of lithic material types provides another line of evidence for investigating patterns of regional interaction. Using existing geological and archaeological literature augmented by visits to source localities, an attempt was made to identify specific source materials in the lithic assemblages. Quantitative analyses of material type frequencies and their relationships to lithic artifact categories and debitage classes were conducted, and the results were compared with similar studies in the general region. Also, x-ray fluoresence analysis (XRF) was conducted on obsidian materials and linked to existing chemical-characterization databases for the region (see Shackley 1995). The results are interpreted in terms of general and regional models of obsidian exchange.

5.0 Field and Laboratory Methods

Christopher A. Turnbow, Gwyneth A. Duncan, and Grant D. Smith

Introduction

The goals of the data recovery investigations along NM 90 were 1) to collect information to address the research questions discussed in Chapter 4 of this report, 2) to respectfully remove any human remains from the right-of-way, and 3) to preserve for future generations the information gathered from the research. The field and laboratory methods and techniques used to achieve these goals are presented below.

Field Strategies

This section describes the general methodology applicable to all nine sites, while specific field strategies for the individual sites are discussed within the site description chapters (See Chapters 6 to 14). Both the general and site-specific plans were designed to collect a full compliment of information to address the research design issues (Railey and Turnbow 1999). To retrieve the necessary data, an intensive data recovery program focused on the cultural resources contained within the highway right-of-way portions of each site. With the exception of two small areas on two sites, all cultural manifestations within the project area were examined completely by the investigations.

Initial Site Investigations

The first tasks at each site included preliminary surface reconnaissance and site mapping. Reconnaissance was designed to evaluate site boundaries, surface features, assemblage character, and depositional prospects. Attempts were made to relocate the existing site datums and previously described features and concentrations using extant site sketch maps and inventory forms. The reconnaissance entailed systematic closely spaced transects across the highway right-of-way portion of each site, careful examination of drainage and road cut banks, and a general inspection of the site outside the immediate project area. Notes and photographs were taken of the condition of the sites prior to excavation.

Mapping of the sites included collecting detailed topographic information, establishing a site grid, and plotting the locations of surface artifacts and features. These tasks were accomplished with the use of an EM total station and AutoCAD. A metric grid system was oriented to magnetic north. In order to ensure continued accuracy, a permanent datum was established outside the right-of-way fence at each site. For vertical control, the datum was assigned an arbitrary 100 m elevation. The datum served as a reference point for all subsequent mapping. The locations of backhoe trenches and manual excavation units were plotted as needed throughout the excavations. All units were designated by their southwestern corner.

Before beginning excavations, controlled surface collections were undertaken on each site within the highway right-of-way. The purposes of this work were to delineate site boundaries, activity areas, and loci of different occupations. In most cases, all observed surface artifacts were flagged, provenienced with the total station, and collected. The total station recorded the northing, easting, and elevation of each of these artifacts. In particularly dense artifact areas, the strategy was altered to collect specimens by 2 by 2 m grid unit. These data were computerized and density maps generated to examine surface distributions of cultural materials. Given the previous highway construction and the presence of both aggrading and degrading surfaces on the sites, the controlled surface data were not as informative as hoped for at the outset of the investigations. Nevertheless, site boundaries and the locations of tools, diagnostic artifacts, and concentrations were determined by these methods.

Beginning with the surface collections, a bag inventory was established for each site. Recorded in consecutive order, artifacts and samples were cataloged into the inventory on a daily basis. In addition to the bag number, the inventory data included provenience, artifact or sample type, counts, initials, and date of collection. These catalogs were later entered into the computer and served as the computer link for various analyses.

Exploratory Excavations

Exploratory excavations were conducted within the first few field days at each site in order to evaluate site stratigraphy and determine the depths of any intact cultural deposits or features. These data were necessary later to guide mechanically assisted excavations. Depending on the assumed depth of the sediments, featureless landscapes were investigated using shovel tests, shovel strips, and bucket augers. The bucket auger excavates a hole approximately 15 cm in diameter and can penetrate to a maximum depth of 1.7 m bgs (below ground surface) if no large rocks or roots are encountered. The auger units were excavated in approximately 20 cm levels. Shovel tests were 50 by 50 cm units dug in 10 cm levels and sometimes reached 80 cm in depth. In a few cases, bucket augering extended the shovel test units to greater depths. Shovel strips were usually 50 cm wide scrapes that continued for one or more meters across loose surface sediments or shallow deposits. The strips were normally only 5 to 10 cm in maximum depth, although a few were excavated in arbitrary 10 cm levels to 30 cm bgs. In all cases, the fill from these excavations was screened through 1/4-inch hardware cloth. The shovel and auger test holes were numbered individually and notes were kept on the stratigraphy, depth, and types of artifacts collected. The shovel strips were recorded by the southwestern corner of each 1 by 1 m unit and by using excavation unit forms.

Mechanical excavations were used to assist in the definition of on-site stratigraphy; to search for buried cultural strata, artifacts, features, and occupational surfaces; and to determine the extent of the site. Because the sites are located in alluvial fan and colluvial deposits and, in places, are known to be buried by up to 50 cm of overburden, hand excavations alone were considered incapable of accomplishing these tasks without an inordinate outlay of manpower over a protracted period. A backhoe was considered the most efficient way to excavate trenches into the deep deposits of the sites. This equipment excavated to sterile subsoil or bedrock using a bucket 60 cm in width. The orientation and placement of these trenches depended on a variety of factors, including surface conditions and the location of the cultural materials. Trenching extended out beyond the site boundaries, or until the topography or right-of-way boundary precluded further mechanical work. All mechanical excavations were monitored by an archaeologist. As mechanical excavations continued, trench profiles were inspected carefully for artifacts, staining, cultural strata, or other cultural inclusions. Representative profiles were drawn of all trenches and descriptions prepared on the strata by the geomorphologist.

Description of the backhoe trenches was recorded on a standardized, archival form. Soils and sediments were characterized using standard geologic and pedologic procedures (Soil Survey Staff 1962, 1975; Krumbein and Sloss 1963; Reineck and Singh 1980; Guthrie and Witty 1982; Birkeland 1984; Birkeland et al. 1991; Waters 1992). The soil/sediment column from at least one backhoe trench from each site was sampled for laboratory analyses and quantification of geologic and pedologic properties.

Major Excavations

After the conclusion of the exploratory investigations, enough information existed to develop strategies for the full-scale excavation of each site. As stipulated in the contract and work plan, the highway right-of-way portions of each site were to be completely excavated. In general, the plan was to excavate surface features with block excavations and to use mechanical equipment to expose other features and cultural deposits. This effort allowed a better understanding of the archaeological site structure (distribution on the landscape of habitations, activity areas, refuse areas, and other features) and the range of activities that occurred on each site. This information, in turn, made it possible to better assess various research issues, including subsistence, settlement patterns, and social organization.

Given the size of the resources and the amount of earth to be moved, mechanical excavation was necessary to accomplish this task. On those sites where intact cultural deposits had not been located during the exploratory work, the surface was stripped mechanically to search for isolated features or remnant cultural strata. However, on the six sites with either intact features or strong evidence of subsurface cultural deposits, the investigations included a combination of manual and mechanical excavations. The following sections discuss these methods.

Mechanically-Assisted Excavations: All mechanical excavations on the sites were done in similar fashion. The boom of the backhoe was mounted with a special blade for scraping soil a few centimeters at a time. This method left a clean and typically even surface. Because of the narrow working area along the edge of the right-of-way, the strategy was to begin at the edge of a site, completely examine one area, and then stockpile dirt from the next area onto it. Scraping of the deposits was done in small increments to minimize disturbance to cultural features and burials. Monitored by an archaeologist at all times, this work resulted in the identification of 15 pit structures, 11 of the 14 burials, and nearly 300 other features. Prior to terminating mechanical scraping, and after the excavation of all observed features, each area was scraped again until clean, sterile C horizon sediments, grus, or bedrock were reached. This was done in order to locate any features not readily visible after the initial scraping. All features recognized during mechanical scraping were excavated manually as described below. At the end of the excavation, the equipment was used to backfill the excavations and re-contour the site.

Unit Excavations: Manual excavation units of varying size were placed over intact cultural deposits or around features in order to sample non-feature artifact assemblages. The southwestern corner of each grid square was the designated coordinate for that unit. Cultural materials were provenienced in arbitrary 10 cm levels in 1 by 1 m squares. Notes, however, were kept only for the larger 2 by 2 m or 1 by 2 m units. Maps were prepared for the bottom of each level if warranted. All fill from the cultural deposits was screened through 1/4-inch or, in the case of special contexts, smaller 1/8-inch mesh.

Flotation and pollen samples were taken from all features, occupational surfaces, general middens, and other locations identified by the Field Director. Control samples from nearby non-cultural contexts also were collected. Because of the need for environmental and subsistence information, typical flotation samples were at least 5 liters, with larger features, middens, and floors sampled in more locations.

Features: The data recovery investigations along NM 90 exposed 478 features, including structures, post holes, thermal and nonthermal pit features, burials, and anomalies eventually determined to be natural or general midden remnants. The cultural features represented discrete loci of behavior and their careful inspection was essential for addressing many of the research issues of the study.

Once a stain, rock cluster, or other sign of a feature was uncovered, the area was cleaned and assessed. If determined to be a discrete anomaly, grid points and subdatums were established around the area using a total station, and a grid center point of each feature was shot. A pre-excavation planview map and both color slide and black and white photographs were taken of the feature prior to excavation. Most features were bisected along their long axis and half excavated in either arbitrary 10 cm levels or in full cuts to the bottom of the feature. The original plan called for the fill to be screened through 1/4-inch mesh; however, 1/8-inch mesh often was used. Pollen, flotation, phytolith, radiocarbon, and archaeomagnetic samples also were taken. Profiles of the features were drawn and photographed. According to the research design, each feature was to be fully excavated, but the large numbers of redundant, small shallow pits (less than 60 cm in length) at the Wood Canyon site led the Gila National Forest and NMSHTD archaeologists to agree to a change in the design that allowed the excavation of only half of such features if nothing unusual was noted in the first half. At the completion of work, post-excavation planview maps and photographs were taken.

Architectural Remains: The archaeological excavations along NM 90 uncovered 15 pit structures from five of the nine investigated sites. Excavations were oriented toward examining Diehl's (1996) and Gilman's (1983) theoretical perspectives regarding pit structure use and abandonment and larger issues of group mobility. Specifically, data were sought on structure size, season of occupation, interior spatial arrangement, temporal placement, and the amount of energy directed at the construction and maintenance of the structure. Except for one case, all the structures were found during backhoe trenching or mechanical stripping. Once exposed, the structures were mapped, photographed, and a manually excavated trench was placed through them in order to determine the stratigraphic context and to recover a controlled artifact sample from post-occupational fill. These trenches were 1 m wide on the larger structures but were 50 cm wide on some of the smaller examples. Regardless of the width, the individual excavation units were 1 m in length and dug in arbitrary 10 cm levels. Once the trench was profiled, a decision was made to either systematically excavate the rest of the post-occupational fill, or to remove it without screening. In either case, the floor deposits, consisting of the last 5 to 10 cm of room fill, were excavated carefully and screened through 1/8-inch hardware cloth. The finer screen size aided in the examination of structural use and abandonment issues presented by Lightfoot and Jewett (1986) and Diehl (1998) and in chipped stone technology and subsistence issues.

The floors of larger structures were excavated in 1 by 1 m units, while smaller structures were dug in quarters. The artifacts on the floor were piece plotted whenever possible. Efforts were made particularly to recover flotation, pollen, and chronometric samples from the floor and the intramural features. Post-excavation plan and cross section maps were prepared and photographs taken at the completion of work on each structure.

Treatment of Human Remains: Although no human remains had been observed prior to data recovery, it seemed likely that burials would be encountered on the residential sites. Following the provisions of NAGPRA (25 USC 3001 et seq.) and its implementing regulations (43 CFR Part 10), a NAGPRA action plan was prepared for this undertaking by representatives of the Gila National Forest. Under the stipulations of this plan, when identifiable human remains were encountered, activities near the remains were halted immediately, and the Gila National Forest and the NMSHTD archaeologists were notified. Additionally, the local police, Office of Medical Investigator, and the SHPO were also contacted.

In many respects, the treatment of burials paralleled methods used for excavation of other features. Burials were located on pit structure floors, in subfloor pits, in a rock cairn, and in extramural pits either especially prepared for the burial or reused from their original purpose. After regulatory guidance was obtained, each burial was exposed following the guidelines in Bass (1971). Plan maps and photographs of the burial were prepared. Each pit feature was bisected along its long axis and careful excavation was conducted to determine stratigraphic sequence of pit filling. A profile was drawn and photographed. The remaining portion of the feature was excavated in either arbitrary 10 cm levels or in cultural lenses to fully expose the burial. On pit structure floors, burials were exposed in 1 by 1 m units. Regardless of the context, when fully exposed, a second map of the burial was prepared and additional photographs taken. Burial orientation (the direction the top of the skull is facing), facing (the direction the skull is facing), position (extended, flexed, tightly flexed), and associated funerary objects (i.e., metates, manos, sherds) were noted on the burial forms. When appropriate, pollen, flotation, and phytolith samples were taken, particularly under the skeleton. The burials were subsequently removed in accordance with the NAGRA action plan. The bones were wrapped carefully in bubble wrap and batting to minimize damage, and placed in individual paper bags labeled with the element and side, as well as the provenience data. Funerary objects were transported and kept with the remains except during analyses.

Unexcavated Rights-of-Way: With the permission of the NMSHTD and the Gila National Forest, there were two cases where data recovery investigations did not excavate all cultural deposits within the project area. In both instances, the resources were complex and located in areas easily preserved. One was a pit structure at the Beargrass site that only slightly protruded into the project area. The other was a narrow strip of ground likely to contain 50 or more cultural features at the Wood Canyon site. Highway construction plans showed that neither area was in danger. Both of these areas were fenced and avoided during construction.

Laboratory Methods and Procedures

All materials recovered from the field were processed in the TRC laboratory facilities in Albuquerque. When artifacts and samples came into the laboratory, the provenience information with the bag was cross-checked against field bag inventories compiled for each site. After materials were checked into the laboratory, the field bag inventory was entered into Microsoft Access97. The database was updated periodically as new materials came in from the field or as provenience information was refined. When the fieldwork was complete, inventory lists generated from the Access database were printed for each artifact type, by site, for the analysts.

Procedures for artifact processing and analysis varied slightly between funerary and other objects. Whenever possible the artifacts were not washed; however, in many cases analysts needed them cleaned. Exceptions were those anticipated to undergo special analyses. Although sorted by major category in the field, the specimens were re-examined when washed to ensure accuracy. All faunal materials were washed except for bone tools and other delicate items. Specimens were cataloged using the field bag inventory numbers and rebagged in 4 ml plastic bags with acid free tags containing all provenience information.

Funerary objects were prepared, cataloged, and analyzed in a similar fashion. However, these materials were organized and kept with their associated human remains in order to be returned for re-interment.

Each major category of material was analyzed separately. Ceramics were submitted to Animas Ceramic Consulting in Farmington, New Mexico. Lithics and the faunal remains were analyzed in-house. Macrobotanical materials were sent to Lisa Huckell in Albuquerque. The pollen and phytolith samples were submitted to Dr. Steven Bozarth at the University of Kansas. Soil samples were analyzed by LaRamie Soil Service. Analytical methodologies used by these various analysts are discussed in the appropriate chapters.

Not all collected samples could be analyzed due to time and budgetary constraints, so samples were prioritized according to context and the likelihood to yield data in keeping with the research design. Samples ultimately chosen for analysis were selected from undisturbed middens, structures, and extramural features.

Three hundred thirty-six flotation samples were collected during the course of the investigation to address issues on subsistence, paleoenvironmental reconstruction, and behavioral patterns. All were wet processed at the TRC laboratory using the Model A-1 Flote Tech machine. Flotation samples varied from 0.1 liter to 24.5 liters. Samples larger than 7 liters were split so that no more than 7 liters would be floted at one time. To measure recovery rates, 50 carbonized poppy seeds were added randomly to one out of every 14 samples for sites LA 78089 and LA 99631. Poppy seeds were mixed into one sample from each of the following sites: LA 121158, LA 121159, and LA 121210. The mesh screen of the heavy fraction bucket was 0.5 mm nylon. For sites LA 121158, LA 121159, and LA 121210, the light fraction screen measured 0.3 mm and included both nylon and cotton fabrics. A 0.15 mm nylon mesh was used for the light fraction for sites LA 78089 and LA 99631.

After the samples were floted and dried, heavy fraction samples given priority status were dry screened using three separate fractions to facilitate sorting: 4 mm, 2 mm, and 1 mm. The ≤ 1mm was scanned with the aid of magnification while the other two fractions were sorted without magnification. All artifacts, as well as botanical and faunal remains, were bagged separately and sent to the respective analysts. Heavy fraction samples considered non-priority were screened using 1/8-inch mesh.

Pollen, phytolith, and other special samples also were prioritized. Samples selected for analysis include 30 pollen samples, 64 phytolith samples, and 17 soil samples. The remaining samples were set aside for curation.

Radiocarbon samples were derived from carbonized seeds recovered from flotation samples or in some cases, from specimens observed during the excavations. Each sample was inspected by the project's paleoethnobotanist and weighed before being sent for analysis to Beta Analytic in Miami, Florida. The 29 samples were dated through the accelerator mass spectrometry (ASM) technique and were calibrated to convert their radiocarbon age determinations into calendar years.

Archaeometric samples were collected from two sites. All six samples were submitted to the Archaeometric Laboratory at Colorado State University under the direction of Dr. Jeffrey Eighmy.

Human remains and their associated funerary objects were treated with care, and respect. In accordance with the NAGPRA action plan prepared by the Gila National Forest, the remains were temporarily housed at the TRC laboratory and handled as little as possible. Human remains were dry brushed when necessary. Dr. Russell Nelson, physical anthropologist for the Wichita and Affiliated Tribes, analyzed the remains using nondestructive methods. After consultation with the Pueblos of Zuni and Acoma, re-interment of the human remains and associated funerary objects was carried out in accordance with the requirements contained in 43 CFR 10.6.

Nonfunerary materials and most samples not destroyed during the analytical process were prepared for curation. Conservation measures followed 36 CFR Part 79: Curation of Federally-owned and Administered Archaeological Collections. The collections, photographs, documents, and digital files from the project were curated at the Museum of New Mexico.

6.0 The Forest Home Site (LA 78089) (USFS No.: AR-03-06-07-00308)

Christopher A. Turnbow and Richard M. Reycraft with contributions by Grant D. Smith

Introduction

The Forest Home site (LA 78089) contained the remains of a Late Archaic/Early Agricultural period settlement dating to the Cienega phase and a subsequent Early Pit House period occupation. The site originally was documented by the USFS in 1989 (Dodt-Ellis 1989). At the time, LA 78089 was classified as a Mimbres phase site based on the presence of Mimbres Black-on-white and Mimbres Corrugated. The construction of a fuel wood access road resulted in limited test excavations at Forest Home in 1990 (Kelley 1990). These excavations were located within the NM 90 right-of-way investigated by the present study.

LA 78089 was visited in 1990 and 1997 by staff from the Museum of New Mexico Office of Archaeological Studies (OAS) as part of the Archaeological Site Stabilization Project. The OAS staff described LA 78089 as a Late Pit House period Mogollon site (NMCRIS #55173). Finally, in 1998, TRC personnel revisited Forest Home as a part of the current NM 90 reconstruction project (Goar et al. 1998). During this visit it was discovered that the ARMS topographic map confusingly displays the location of another site, LA 5785, occurring within the Forest Home site area. The site descriptions for LA 5785, however, place its location 243 m south of NM 90, well beyond the Forest Home site boundary. Thus, the two sites do not appear to overlap.

The 1998 survey (Goar et al. 1998) documented three features on the surface of the site (Features 1, 2, and 3), all within the highway right-of-way. Two of these features were described as concentrations of burned rock mixed with ground stone and other artifacts. The third feature, which was exposed in the cutbank by a small drainage, was a dark soil stain with associated ground stone fragments.

The major project-related impacts to the Forest Home site involved the widening of the shoulders and the recontouring of the slopes. These road improvements were anticipated to impact all remaining intact cultural deposits within the right-of-way limits. Between March 6 and April 25, 1999, TRC carried out data recovery excavations at Forest Home. Crew size varied from four to six during this period. The investigations cleared all cultural deposits from the right-of-way.

Data recovery investigations at Forest Home exposed portions of two major components within the highway right-of-way. Chronometric determinations and diagnostic artifacts and features identified a substantial Cienega phase component represented by two shallow, circular pit structures, storage facilities, numerous other non-thermal pit features, a burial, and an abundance of cultural materials. The second component was a significant early Early Pit House period component containing a shallow, circular pit structure, a few extramural thermal and non-thermal pits, and a burial. Ceramics from this component support Lekson's (1992) hypothesis of an early pre-redware ceramic assemblage in the Early Pit House period. The ubiquity of maize from the Cienega phase occupations at the site indicate that maize farming was an important part of the Late Archaic/Early Agricultural period diet by 400 BC in the Mimbres area.

Physical Description

The Forest Home site is situated on a ridge that straddles the head of Wood Canyon 600 m to the south, and the head of Powerline Canyon about 300 m to the north (Figures 1.2, 6.1, and 6.2). At an elevation of 1,890 m (6,200 feet) amsl, the central portion of the site lies on a gentle slope that gradually drops to the west and rises up to a knoll immediately to the northeast (Figure 6.3). The terrain continues to rise gradually to the north and east of the site, but slopes away to the south and west. Both Wood Canyon and Powerline Canyon are currently intermittent drainages.

The site locality is within the Madrean Open Oak Woodland biotic zone. At the site, the vegetation consists of mature alligator juniper and piñon mixed with oak. These trees sometimes form dense canopies but large grassy openings are more common. Sparse amounts of beargrass, yucca, and mountain mahogany also occur.

The major land modifications to the site include the original construction of NM 90 and erosion to the edges of the site. Currently, NM 90 cuts through the center of the site, which probably removed at least some cultural features, especially along the northwest of the highway cut adjacent to the Late Archaic period pit structures and other features documented during the present investigations. The former path of old NM 90 veered south of the current alignment, which likely destroyed sections of the Early Pit House period occupations documented by this study.

Data Recovery Strategy

Data recovery investigations at the Forest Home site included mapping, surface collection, shovel testing, manual excavations of blocks, backhoe trenching, and mechanical stripping of the site. The site was first mapped and datum was established at N500 E500 at an arbitrary elevation of 100 m. A more permanent datum was later set at N505 E500 with an elevation of 100.12 m. Subsequently, a controlled surface collection was made. All artifacts were point provenienced using the total station, except in an area of high artifact density, located in the center of the site, where surface collection was carried out within grids of 2 by 2 m units (Figure 6.4). Excavations commenced with the placement of blocks over Feature 1, which was later determined to be a gully, and Feature 2, a possible roasting pit. Both of these features were exposed along the edge of the road cut. Following the excavation of these two blocks, the portion of the site contained within the right-of-way on the north side of NM 90 was mechanically trenched and stripped in order to locate subsurface cultural features. Four backhoe trenches, each orientated from east to west, were excavated in the northern portion of the site. The westernmost of these, Trenches 12 and 13, revealed several cultural features in profile. Subsequent mechanical stripping revealed two pithouses and several additional cultural features. All cultural features subsequently were excavated manually.

As the mechanical stripping and trenching proceeded on the northern side of NM 90, a 1 by 2 m excavation unit was placed over a suspected feature on the southern side. This excavation revealed an ovoid pit that contained human remains. Following the excavation of this burial, the southern site area also was mechanically trenched and stripped. Eleven backhoe trenches, each orientated north-to- south, were excavated on the site south of NM 90. No cultural deposits were revealed by these trenches, however, mechanical stripping did expose a third pit structure and several small cultural features in this area. A total of 4,991 m^2 of the site area within the right-of-way was stripped mechanically. A 113 by 12 m area was stripped on the northern side of the highway, and three areas (58 by 17 m, 59 by 26 m, and 34 by 30 m) were stripped on the southern side of the highway.

Surface Characteristics

The Forest Home site covers a gentle western slope between the headwaters of Wood and Picnic canyons. The site contains an extensive artifact scatter with features and dark cultural deposits exposed in the highway cut banks and to the south of the project area. The surface boundaries of the site are marked by an absence of artifacts, dark cultural deposits, and features. The Forest Home artifact scatter was recorded originally as approximately 280 long (east-west along NM 90) and 200 m wide (north-south to the northern highway right-of-way fence). Based on a reconnaissance survey of the entire site area, it measures at least 260 m north-south by a maximum of 160 m east-west (Figure 6.3) and encompasses an estimated 32,672 m^2.

Figure 6.1 Photograph of the Forest Home Site Facing North.

Figure 6.2 Photograph of the Forest Home Site Facing South.

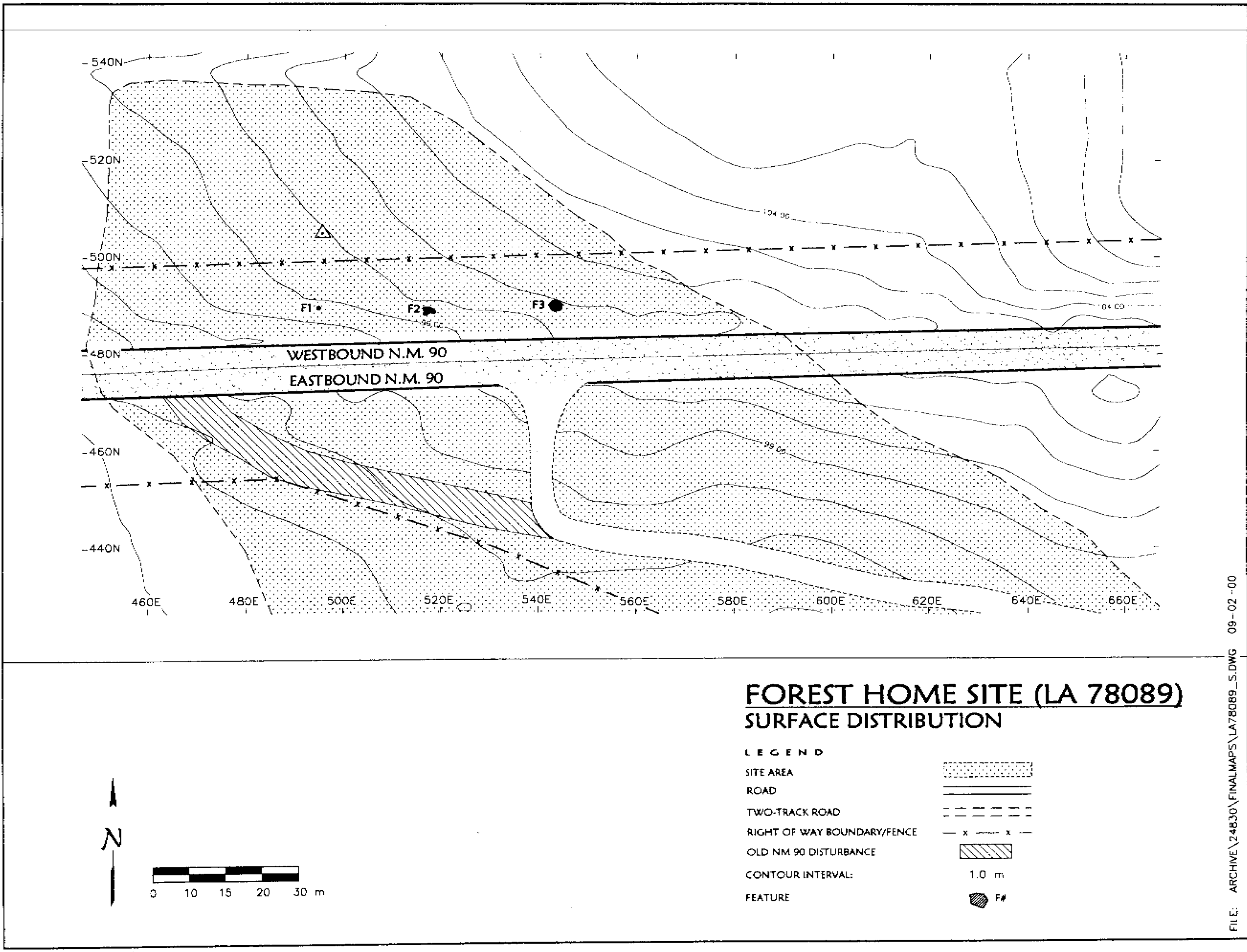

Figure 6.3 **Forest Home Site Topographic Map.**

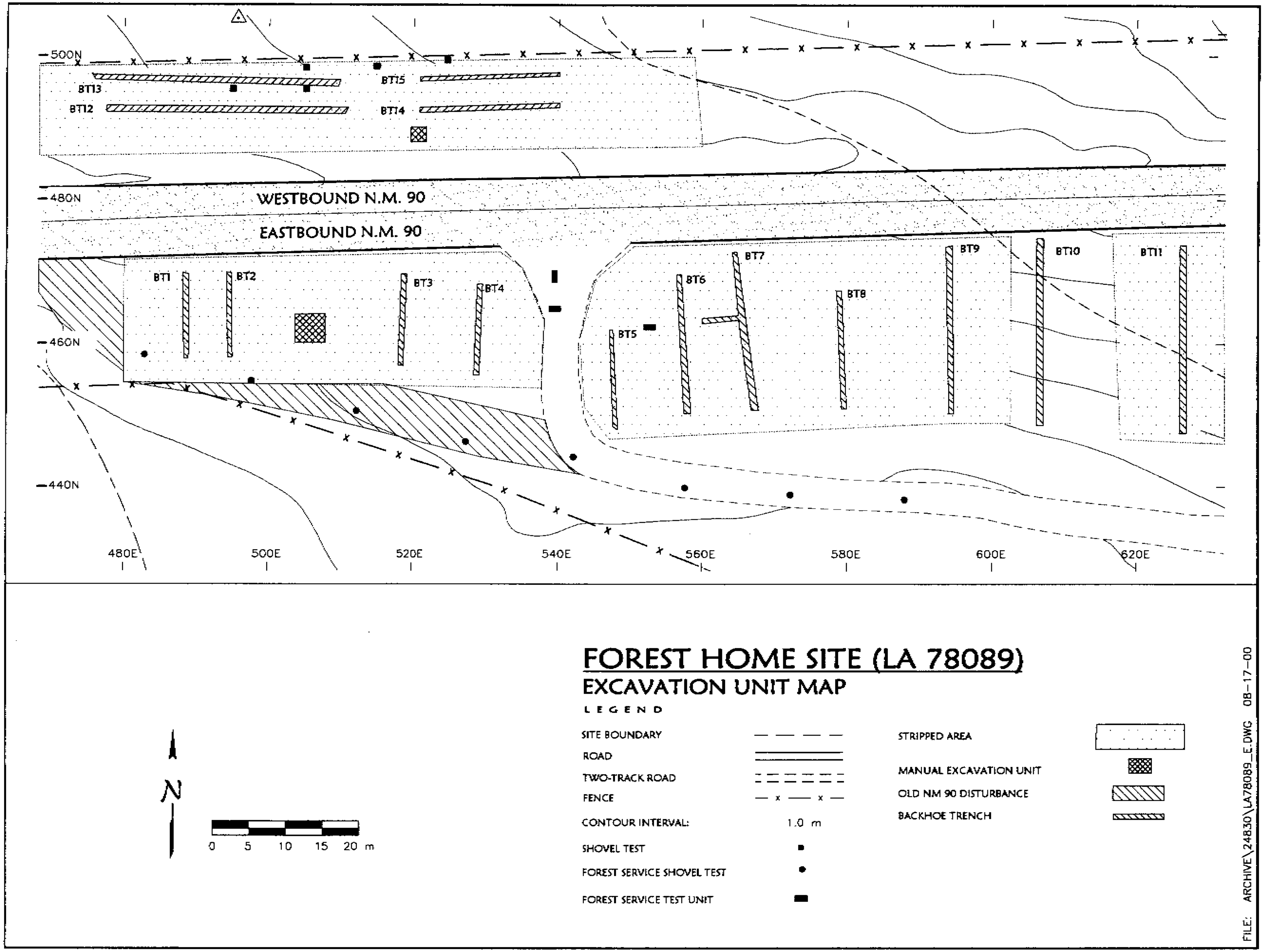

Figure 6.4 Forest Home Map Showing Excavations.

The distribution of cultural materials and features on the site is influenced strongly by past geomorphic processes. As discussed later, trenching and excavation have confirmed that much of the site area was covered with coarse-grained sediments and redeposited cultural material that have washed down slope from a higher elevated granite knoll north of NM 90. Consequently, the Late Archaic/Early Agricultural period cultural deposits north of the highway were buried by up to 55 cm of more or less sterile overburden. At the same time, any later components were largely scoured out and redeposited down slope, particularly on the eastern side of the site.

Examination of the alluvial fan to the north of the highway right-of-way found few surface artifacts. Cultural materials were found only in small drainages and in mechanically dug ditches that appeared to penetrate through the overburden and into the cultural deposits. These materials included chipped stone, thermally altered rock, and Alma series ceramics. Artifacts and thermally altered rocks were observed at least 60 m north of the project area. It is assumed that buried cultural deposits could occur throughout this area.

In contrast to the northern portion of the site, the area to the south of the right-of-way contained intact cultural deposits and an abundance of artifacts on the surface. Extremely dark cultural deposits were encountered in a 60 m east-west by 30 m north-south area immediately south of the right-of-way between N410 and 440 and E500 and 560. Cultural materials associated with these deposits included the highest density of thermally altered rocks and chipped stone observed on the site. Only a few ceramics, all Alma series, were present in the area. Features were not noted on the general surface, but thermally altered rock concentrations were observed in drainages. These data suggest that deposition from alluvial slope washing has spread a thin veneer of sediments over the cultural deposits. Although lower in density and more sporadic, artifacts continued down slope at least 150 m south of the right-of-way.

Within the right-of-way, the site measured 155 m east-west by 50 m north-south including that portion removed by the previous highway construction. Undisturbed portions of the site within the right-of-way included 1,318 m^2 on the northern side of NM 90 and 3,591 m^2 on the southern side of the highway. The road cut on the northern side of the highway revealed a dark cultural deposit for almost 80 m. Erosion of this cut exposed three features (Features 1, 2, and 3). Two were interpreted as roasting pits while the other was thought to be a pit structure. Excavation of the latter anomaly determined that it was actually simply a darker portion of the cultural deposits.

The controlled surface collection carried out in the right-of-way produced 365 artifacts, including 318 chipped stone pieces, 11 ground stone artifacts, and 36 ceramics (Table 6.1 to 6.3). No artifacts were collected from the push piles or the disturbed portion of the old NM 90 roadway. In general, these artifacts demonstrate little in the way of meaningful spatial patterning. As mentioned above, alluvial slope wash sediments covered large portions of the site, thus preventing a clear picture of spatial distributions of the cultural materials. In other areas, slope washing resulted in the destruction of cultural deposits and the redeposition of artifacts further down slope. Other factors that influenced the final distribution of the artifacts included the construction of NM 90 and the subsequent erosion of the road cuts.

The surface chipped stone assemblage consisted of 295 pieces of chipped stone debitage, 13 retouched tools, nine cores, and one projectile point (Figure 6.5). Located on the northern side of the road near the later identified Structure 1 (Feature 6), the projectile point was typed as a San Pedro. This style is characteristic of the Late Archaic period, but did continue briefly into the Early Pit House period. The chipped stone artifacts were concentrated along the eroded northern road cut and in a recently scraped area adjacent to the old NM 90 road bed.

Table 6.1 Chipped Stone Artifacts from Surface Features and Nonfeature Levels at Forest Home.

	Debitage	Cores	Retouched Tools	Cienega	Indeterminate (SP-like)	San Pedro	Bifaces	Hammer stones	Totals
Surface	295	9	13	—	—	1	—	—	318
Feature 2	12	—	2	—	—	—	—	—	14
Feature 4	16	—	1	—	—	—	—	—	17
Feature 5	16	—	—	—	—	—	—	—	16
Feature 6	246	3	3	—	—	1	—	—	253
Feature 7	2	—	1	—	—	—	—	—	3
Feature 9	5	—	—	—	—	—	—	—	5
Feature 10	40	1	—	—	—	—	—	2	43
Feature 11	14	—	2	—	—	—	—	—	16
Feature 12	50	—	—	—	—	—	—	—	50
Feature 13	3	—	—	—	—	—	—	—	3
Feature 16		—	—	—	—	—	—	—	0
Feature 17	10	—	—	—	—	—	—	—	10
Feature 19	2	—	—	—	—	—	—	—	2
Feature 21	4	—	—	—	—	—	—	—	4
Feature 23	1	—	—	—	—	—	—	—	1
Feature 24	11	—	—	—	—	—	—	—	11
Feature 25	56	—	2	—	—	—	—	—	58
Feature 26	27	—	—	—	—	—	—	—	27
Feature 31	33	—	—	—	—	—	—	—	33
Feature 32	1	—	—	—	—	—	—	—	1
Feature 33	84	1	—	—	1	—	—	—	86
Feature 34	37	—	1	—	—	—	1	—	39
Feature 35	112	2	3	—	1	—	—	—	118
Feature 36		—	—	—	—	—	—	—	0
Feature 37	46	—	—	—	—	—	—	—	46
Feature 38	32	—	—	—	—	—	—	—	32
Feature 39	127	—	—	—	—	—	—	—	127
Feature 41	32	—	—	—	—	—	1	—	33
Feature 42	203	—	—	1	—	—	—	1	205
Feature 43	15	—	—	1	—	—	—	—	16
Feature 44	26	—	—	—	—	—	—	—	26
Feature 45	22	—	—	—	—	—	—	—	22
Feature 46	3	—	—	—	—	—	—	—	3
Feature 47	7	—	—	—	—	—	—	—	7
Feature 48	7	—	—	—	—	—	—	—	7
Feature 49		—	—	—	—	—	—	—	0
Feature 50	1	—	—	—	—	—	—	—	1
Feature 51	4	—	—	—	—	—	—	—	4
Feature 52	1	—	—	—	—	—	—	—	1
Feature 53	1	—	—	—	—	—	—	—	1
Feature 54	2	—	—	—	—	—	—	—	2
Feature 60		—	—	—	—	—	—	—	0
Feature 61	23	—	—	—	—	—	—	—	23
Nonfeature		—	—	—	—	—	—	—	
Level 1	4	—	—	—	—	—	—	—	4
Level 2	6	—	—	—	—	—	—	—	6
Level 3	3	—	—	1	—	—	—	—	4
Level 4	1	—	—	—	—	—	—	—	1
Level 5	2	—	—	—	—	—	—	—	2
Level 6	4	—	1	—	—	—	1	—	6
Level 7	8	—	—		—	—	—	—	8
No provenience	3	1	2	—	—	—	—	1	7
Totals	**1660**	**17**	**31**	**3**	**2**	**2**	**3**	**4**	**1722**

Table 6.2 Ground Stone Artifacts and Faunal Remains from Surface, Feature, and Nonfeature Levels at Forest Home.

	Manos	Metates	Stone Tray	Smooth Round Stone	Hematite/ Ochre	Metallic Mineral	Muscovite Flakes	Stone Beads	Faunal Remains	Totals
Surface	8	3	—	—	—	—	—	—	—	11
Feature 2	—	—	—	—	—	—	—	—	1	1
Feature 4	4	—	—	—	—	—	—	—	1	5
Feature 5	—	—	—	—	—	—	—	—	—	0
Feature 6	5	3	—	—	—	—	—	—	31	39
Feature 7	—	—	—	—	—	—	—	—	—	0
Feature 9	—	—	—	—	—	—	—	—	—	0
Feature 10	—	1	—	—	—	—	—	—	16	17
Feature 11	—	—	—	—	—	—	—	—	94	94
Feature 12	—	—	—	—	—	—	—	—	9	9
Feature 13	—	—	—	—	—	—	—	—	6	6
Feature 16	—	—	—	—	—	—	—	—	7	7
Feature 17	—	—	—	—	—	—	—	—	—	0
Feature 19	—	—	—	—	—	—	—	—	—	0
Feature 21	—	—	—	—	—	—	—	—	—	0
Feature 23	—	—	—	—	—	—	—	—	—	0
Feature 24	1	—	—	—	—	—	—	—	—	1
Feature 25	1	1	—	—	—	—	—	—	—	2
Feature 26	1	—	—	—	—	—	—	—	—	1
Feature 31	3	—	—	—	—	—	—	—	2	5
Feature 32	1	—	—	—	—	—	—	—	—	1
Feature 33	6	2	—	1	—	—	6	—	10	25
Feature 34	2	—	—	—	—	—	—	—	—	2
Feature 35	—	—	—	—	1	—	—	—	16	17
Feature 36	—	—	—	—	—	—	—	—	3	3
Feature 37	—	—	—	—	—	—	—	—	54	54
Feature 38	—	—	—	—	—	—	—	—	36	36
Feature 39	—	—	—	—	—	—	—	—	167	167
Feature 41	—	—	—	—	—	—	—	—	31	31
Feature 42	2	—	—	—	—	—	—	—	118	120
Feature 43	—	—	—	—	—	—	—	—	19	19
Feature 44	1	—	—	—	—	—	—	—	165	166
Feature 45	—	—	—	—	—	—	—	—	6	6
Feature 46	—	1	—	—	—	—	—	—	6	7
Feature 47	—	1	—	—	—	—	—	—	—	1
Feature 48	—	—	—	—	—	—	—	—	—	0
Feature 49	—	—	—	—	—	—	—	—	20	20
Feature 50	—	—	—	—	—	—	—	—	—	0
Feature 51	—	—	—	—	—	—	—	—	—	0
Feature 52	—	—	—	—	—	—	—	—	—	0
Feature 53	—	—	—	—	—	—	—	—	—	0
Feature 54	—	—	—	—	—	—	—	—	—	0
Feature 60	1	1	—	—	—	—	—	—	—	2
Feature 61	—	—	—	—	—	—	—	50	20	70
Nonfeature	—	—	—	—	—	—	—	—	—	—
Level 1	—	—	—	—	—	—	—	—	—	0
Level 2	—	—	—	—	—	—	—	—	1	1
Level 3	—	—	—	—	—	—	—	—	—	0
Level 4	—	—	—	—	—	—	—	—	—	0
Level 5	—	—	—	—	—	—	—	—	—	0
Level 6	1	—	—	—	—	—	—	—	11	12
Level 7	—	—	—	—	—	—	—	—	—	0
No provenience	6	5	1	—	—	1	—	—	57	70
Totals	**43**	**18**	**1**	**1**	**1**	**1**	**6**	**50**	**907**	**1028**

Table 6.3 Ceramics from Surface, Feature, and Nonfeature Levels at Forest Home.

	Alma Plain	Alma Rough	Indeter. Brown	Mimbres Corrugated	San Francisco Red	Ceramics Too Small for Analysis	Totals
Surface	1	31	1	1	—	2	36
Feature 2	—	8	—	—	—	1	9
Feature 4	—	8	—	—	—	—	8
Feature 5	—	2	—	—	—	—	2
Feature 6	—	5	—	—	—	—	5
Feature 7	—	—	—	—	—	—	0
Feature 9	—	—	—	—	—	—	0
Feature 10	—	—	—	—	—	—	0
Feature 11	—	1	—	—	—	—	1
Feature 12	—	1	—	—	—	—	1
Feature 13	—	—	—	—	—	—	0
Feature 16	—	—	—	—	—	—	0
Feature 17	—	—	—	—	1	—	1
Feature 19	—	—	—	—	—	—	0
Feature 21	—	—	—	—	—	—	0
Feature 23	—	—	—	—	—	—	0
Feature 24	—	—	—	—	—	—	0
Feature 25	—	—	—	—	—	—	0
Feature 26	—	—	—	—	—	—	0
Feature 31	—	—	—	—	—	—	0
Feature 32	—	—	—	—	—	—	0
Feature 33	1	1	—	—	—	—	2
Feature 34	—	—	—	—	—	—	0
Feature 35	1	43	—	—	—	25	69
Feature 36	—	—	—	—	—	—	0
Feature 37	—	—	—	—	—	2	2
Feature 38	—	—	—	—	—	—	0
Feature 39	—	—	—	—	—	—	0
Feature 41	—	—	—	—	—	—	0
Feature 42	—	2	—	—	—	—	2
Feature 43	—	—	—	—	—	—	0
Feature 44	—	—	—	—	—	—	0
Feature 45	—	6	—	—	—	—	6
Feature 46	3	4	—	—	1	1	9
Feature 47	—	—	—	—	—	—	0
Feature 48	—	—	—	—	—	—	0
Feature 49	—	—	—	—	—	—	0
Feature 50	—	—	—	—	—	—	0
Feature 51	—	—	—	—	—	—	0
Feature 52	—	—	—	—	—	—	0
Feature 53	—	—	—	—	—	—	0
Feature 54	—	—	—	—	—	—	0
Feature 60	—	—	—	—	—	—	0
Feature 61	—	—	—	—	—	—	0
Nonfeature	—	—	—	—	—	—	
Level 1	—	—	—	—	—	—	0
Level 2	—	1	—	—	—	—	1
Level 3	—	12	—	—	—	—	12
Level 4	—	2	—	—	—	—	2
Level 5	—	3	—	—	—	—	3
Level 6	—	—	—	—	—	1	1
Level 7	—	4	—	—	—	—	4
No provenience	—	25	—	—	—	6	31
Totals	**6**	**159**	**1**	**1**	**2**	**38**	**207**

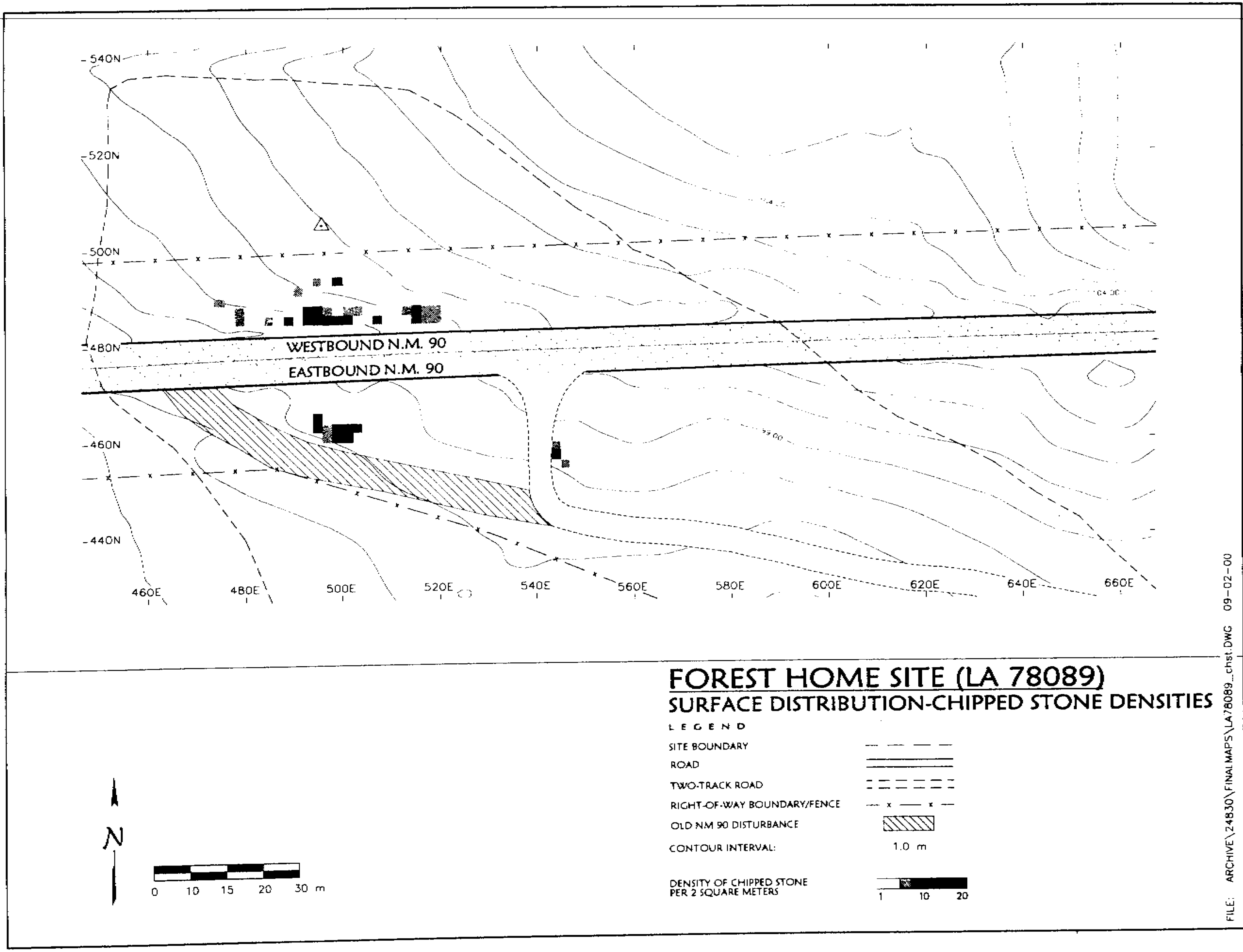

Figure 6.5 **Map of Forest Home Site Showing Surface Density of Chipped Stone Artifacts.**

Ground stone artifacts were distributed sparsely on either side of the highway. In all, eight manos and three metate fragments were recovered.

Ceramic artifacts were identified on both sides of the highway (Figure 6.6). Ceramics were distributed thinly over a wider area on the northern side of the highway. Their distribution on the southern side was more restricted. High density clusters of ceramics, however, were identified adjacent to the road cuts in both the north central and south central portions of the site. The assemblage consisted of 31 Alma Rough, one Alma Plain, one Mimbres Corrugated, and one Indeterminate Brown, ceramic sherds. Two sherds were too small for analysis. In the absence of Mimbres Black-on-white and other decorated sherds, the assemblage appeared to date to the Early Pit House to perhaps Georgetown phase. The single Mimbres Corrugated sherd suggested a more ephemeral occupation in the Classic Mimbres phase. Considering that other researchers had noted a Mimbres component on the site, it may be possible that a more substantial occupation lies outside the right-of-way.

Site Stratigraphy and Geomorphology

Forest Home occurs on a gentle, southward-facing slope that is dominated by granite outcrops on the northern margin. Site sediments are composed of sandy granitic materials that have washed down slope from the granite outcrops, though it is possible that some eolian deposition and reworking of the sandy sediments also occurred. The thickness of the sediments over weathered bedrock is quite variable on the site, varying from 37 cm deep in Backhoe Trench (BT) 9 to more than 90 cm deep in BT 10. The boundary between the bedrock and overlying sediments suggests an uneven, hummocky terrain that gradually filled in with granitic sands washed into the depressions and formed the relatively smooth slope that occurs on the site today.

In areas directly beneath pine trees, the surface unit of the site is a thin (ca. 4 cm thick) litter of decomposing pine needles that is considered an O horizon. The O horizon is not present over much of the site, however, and was most notable in BTs 3 and 4. Over the rest of the site, the surface horizon is a 10 to 50 cm thick deposit of brown (10YR 5/3,d) sandy loam that lacks evidence of significant soils formation (AC horizon) (Figure 6.7). The AC horizon underlies the O horizon in the vicinity of pine trees. The topographic position and lack of significant soil formation in the AC horizon suggests that it is a relatively recent deposit, but an exact time frame is not certain. The AC horizon was thickest in the northern portion of the right-of-way where its sediments accumulated up to 40 to 50 cm thick along the fence.

The AC horizon is underlain by a variably thick (14 to 35 cm thick), cumulic Ab horizon with a sandy loam texture. This horizon contains most of the archaeological materials. The color of the Ab horizon is variable across the site. It is at its lightest color (brown; 10YR 5/3, d) in grassy areas uninfluenced by pine trees (e.g., BT 5) and at its darkest (dark gray; 10YR 4/1, d) in areas beneath pine trees. This color association suggests that the pine trees were present during at least some portion of the Ab horizon's development. The humic materials from the pine trees (e.g., decomposing needles) helped contribute to the Ab horizon's color. Given the thickness of the Ab horizon over most of the site, soil development and sedimentation occurred concurrently over an extended period of time on the site. The most likely scenario is that occasional sheetwash events swept the sandy sediments down slope from the granite outcrops. None of these sheetwash events buried the previous sediments so deeply that the vegetative community was destroyed. Instead the vegetation kept pace with the sedimentation and produced an over-thickened A horizon. Subsequent burial results in the Ab designation assigned to this horizon.

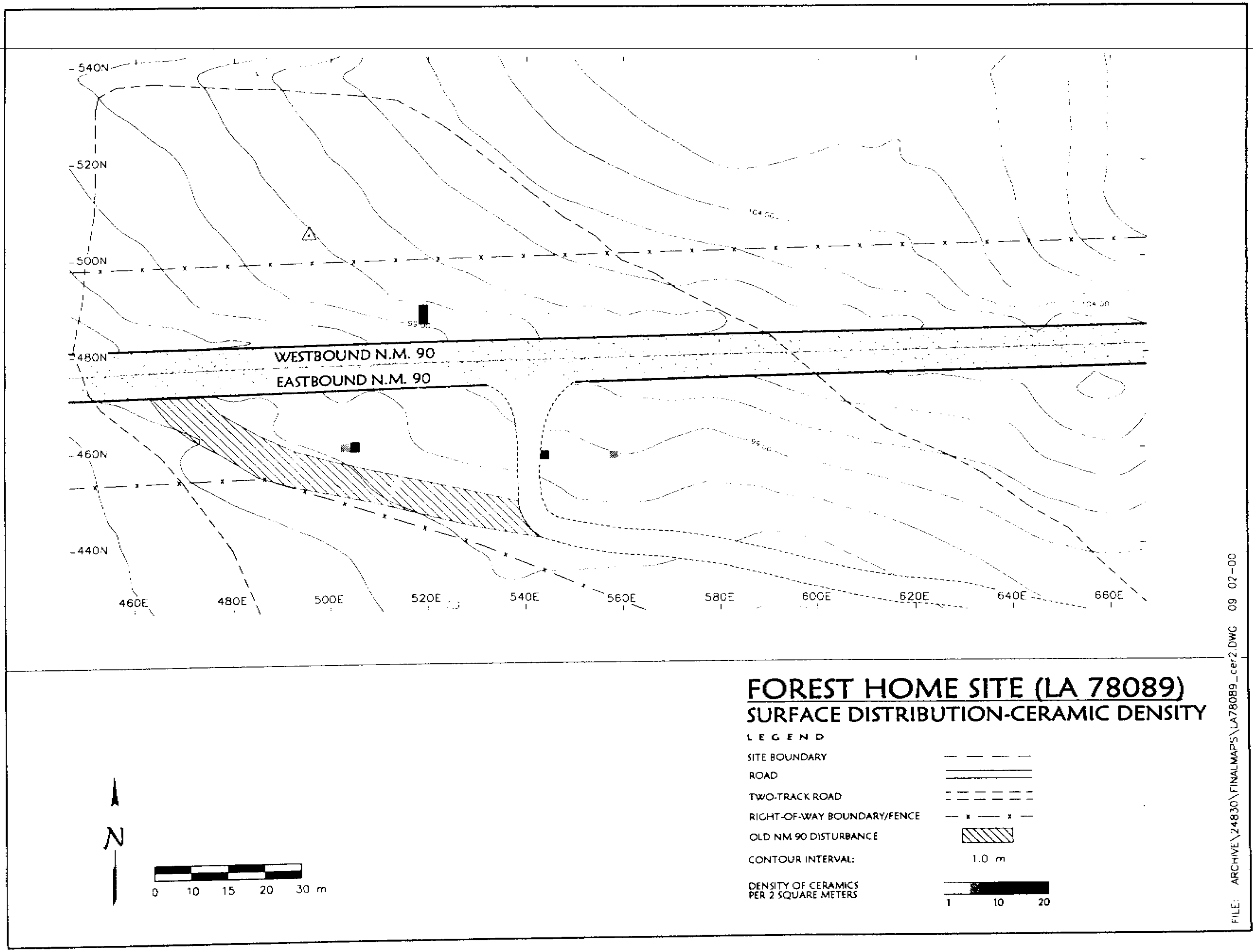

Figure 6.6 **Map of Forest Home Site Showing Surface Density of Ceramic Artifacts.**

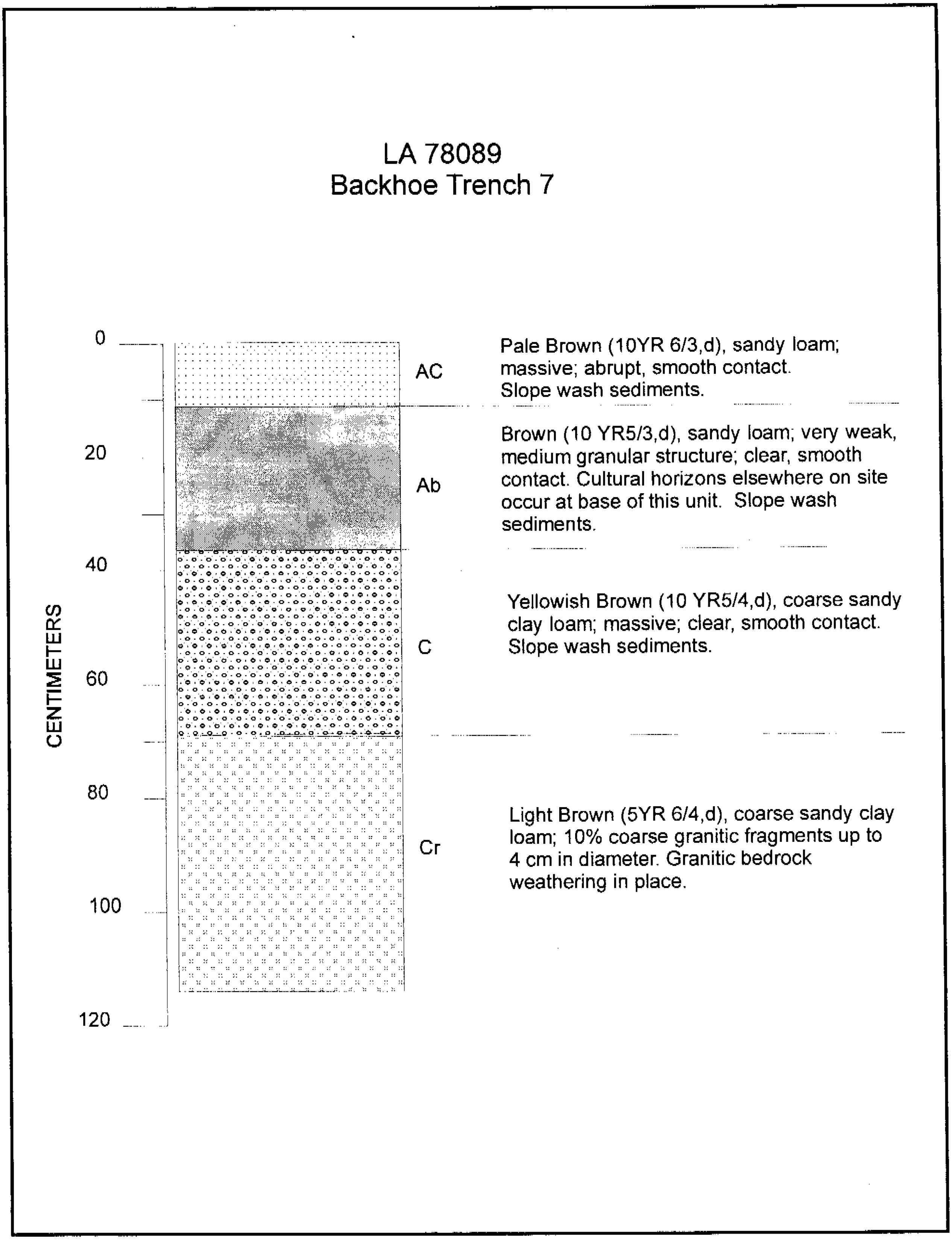

Figure 6.7 Geomorphic Profile from Backhoe Trench 7 at Forest Home.

All of the cultural features observed on Forest Home appear to be associated with the base of the Ab horizon. This is similar to the association observed in BT 5 at Wood Canyon. The similarity of the position of the cultural materials in relationship to cumulic Ab horizon at the two sites suggests the possibility that they may have been occupied at roughly the same time. Many of the cultural features are intrusive into the underlying C horizon, including those in the excavations north of the road.

A variably thick deposit of granitic sands, the C horizon, underlies the Ab horizon and, where present, the cultural horizons of the site. This unit is typically yellowish brown (10YR 5/4,d), massive, and has a sandy clay loam texture. The higher clay content in the C horizon as compared to the overlying horizons is probably due to *in situ* weathering of the feldspars that comprise the granitic sands instead of pedogenic translocation and accumulation (illuviation) within the soil profile. This unit is more than 50 cm thick in some locales (e.g., BT 10), but it is absent in other places (e.g., BTs 5 and 10). This is probably due to differential infilling of depressions in the surface of underlying granitic bedrock. Where the bedrock is close to the surface (e.g., BT 9) there was no depression to fill and, thus, none of the sediments that comprise the C horizon accumulated.

The base of the site is composed of weathered granitic bedrock. The degree of this weathering varied between locales on the site. Where it was more weathered and unconsolidated it was identified as a Cr horizon. Where the granite was relatively intact it was considered an R horizon. These designations are purely pedogenic distinctions, however, and have little influence on the archaeological interpretation of the site.

The overall development of Forest Home appears to be similar in time and scope to that described at Wood Canyon, though the depositional process is different (alluvial slopewash instead of eolian deposition). All of the sediments on this site accumulated after erosion scoured down to granitic bedrock. None of the soil horizons on Forest Home exhibit pedogenic properties that would suggest that they are Pleistocene in age (e.g., Stage II carbonates or clay cutans). Based on the lack of these properties and the similarities in soil horizon development between Forest Home and Wood Canyon, it is proposed that all deposition on the site occurred after a middle Holocene erosional event.

Subsurface Cultural Remains

Data recovery excavations included extensive backhoe trenching and mechanical stripping of the entire site area within the right-of-way. These investigations revealed intact cultural deposits, features, and artifacts restricted to a relatively limited portion of the site area within the impact area.

Fifteen backhoe trenches were excavated within the site area to better delineate these deposits. Of these, only BT 2 to BT 5, BT 12, and BT 13 produced an Ab horizon containing features, dark cultural staining, and an abundance of cultural materials. The thickness of this deposit varied but reached a maximum of 35 cm near the west-central site area adjacent to several feature areas. In general, these deposits were found in an area measuring 60 m east-west by 46 m north-south between E480 and E540 and N454 and N500. BT 5, located south of the highway and immediately to the east of a Forest Road around E545 (Figure 6.4), produced only a faint cultural deposit with few artifacts. These findings were consistent with the archaeological test excavations conducted by the Forest Service in the same area.

To the east, BT 6 to BT 11, BT 14, and BT 15 contained no evidence of an Ab horizon covered by a thick AC sediment deposited through alluvial washing. The trenches revealed no evidence of cultural deposits, features, or artifacts. Subsequent mechanical stripping also found no indications of cultural occupation of the area.

Surface artifacts on the eastern portion of the site as well as above the cultural deposits on the western side occur within the redeposited AC sediments and therefore, are likely out of their original contexts. Mechanical stripping of the AC deposits found no intact cultural features or occupational surfaces. Washing down from the knoll to the north, these deposits contained a few chipped stone artifacts and Alma series ceramics, suggesting an Early Pit House period occupation. A reconnaissance investigation of the slopes above the right-of-way did not locate the source of the cultural material, and it is assumed that the erosion destroyed it.

Features

Eighty-six features were designated and excavated at the site. These included three structures, 37 post holes, 15 thermal pits, 24 non-thermal pits, a burial pit, a general midden, and five occurrences that, upon investigation, did not prove to be cultural features. One feature number (Feature 18) was not used. Tables 6.4 and 6.5 summarize their location, type, dimensions, volume, content, and where available, the period to which they date. Figure 6.8 displays the structures and extramural features. Intramural features are shown in the individual structure plan maps.

Table 6.4 Forest Home Feature Type and Provenience.

Feature	Type	N	E	Elevation	% Excavated	Volume (l)	Time
1	Midden	—	—	—	0	—	—
2	Roasting pit	488.00	521.00	99.8	100	—	Late Early Pit House
3	Natural	489.50	540.67	101	0	—	—
4	Burial	462.61	506.57	97.3	100	562.52	Late Early Pit House
5	Unknown use	492.60	495.00	98.9	100	143.99	Late Cienega
6	Pithouse	490.02	495.83	98.8	100	1038.82	Late Cienega
7	Roasting pit	496.88	493.68	99.1	100	165.03	Late Cienega
8	Natural	498.06	499.99	99.5	0	—	—
9	Tree disturbance	495.60	495.50	99.1	50	—	—
10	Roasting pit	490.61	505.56	99	100	68.01	Late Cienega
11	Roasting pit	464.20	497.84	97.2	100	150.50	Late Cienega
12	Unknown use	491.85	496.33	98.8	100	196.04	Late Cienega
13	Hearth	489.80	495.70	98.5	100	7.44	Late Cienega
14	Storage pit	490.17	5.00	98.5	100	21.71	Late Cienega
15	Storage pit	490.83	495.08	98.3	100	24.51	Late Cienega
16	Unknown use	496.00	493.00	99	100	16.40	Late Cienega
17	Unknown use	496.00	498.30	98.2	100	125.73	Late Cienega
19	Roasting pit	494.80	500.25	99.3	100	47.05	Late Cienega
20	Hearth	489.50	495.30	98.5	100	2.93	Late Cienega
21	Storage pit	491.03	496.07	98.7	100	11.44	Late Cienega
22	Tree disturbance	497.16	501.60	99.5	50	—	—
23	Storage pit	490.25	495.30	98.3	100	12.27	Late Cienega
24	Unknown use	497.62	508.93	99.7	100	170.90	Late Cienega
25	Storage pit	495.72	511.60	99.6	100	653.05	Late Cienega
26	Unknown use	496.11	512.77	99.6	100	90.56	Late Cienega
27	Post hole	490.47	494.65	98.4	100	2.47	Late Cienega
28	Post hole	489.09	495.10	98.3	100	2.01	Late Cienega
29	Post hole	489.74	496.33	98.4	100	2.51	Late Cienega
30	Post hole	491.00	495.79	98.5	100	4.05	Late Cienega
31	Roasting pit	496.87	509.50	99.3	100	395.45	Late Cienega
32	Tree disturbance	496.80	507.60	99.7	100	—	
33	Pithouse	498.76	499.27	99.4	100	1223.65	Late Cienega
34	Storage pit	498.50	507.20	99.9	100	554.46	Late Cienega
35	Pithouse	460.16	517.15	97.5	100	307.23	Early Pit House
36	Hearth	459.49	516.72	97.4	100	6.33	Early Pit House
37	Storage pit	493.40	507.92	99.4	100	312.15	Late Cienega

Table 6.4 Forest Home Feature Type and Provenience (Continued).

Feature	Type	N	E	Elevation	% Excavated	Volume (l)	Time
38	Storage pit	497.08	504.54	99.4	100	122.60	Late Cienega
39	Roasting pit	495.39	503.21	99.3	100	280.26	Late Cienega
40	Unknown use	493.04	499.53	99	100	43.98	Late Cienega
41	Unknown use	496.05	502.07	99.2	100	70.50	Late Cienega
42	Roasting pit	494.51	497.88	99	100	532.50	Late Cienega
43	Unknown use	496.06	497.47	99	100	75.66	Late Cienega
44	Unknown use	462.63	502.78	97.2	100	83.11	Late Cienega
45	Storage pit	464.38	506.57	97.2	100	237.06	Early Pit House
46	Roasting pit	460.63	527.08	97.9	100	178.02	Early Pit House
47	Storage pit	498.38	500.55	99.2	100	25.43	Late Cienega
48	Storage pit	499.15	498.49	99.1	100	47.12	Late Cienega
49	Unknown use	498.74	500.24	99.2	100	8.14	Late Cienega
50	Unknown use	499.14	501.04	99.1	100	8.06	Late Cienega
51	Hearth	498.59	499.33	99.1	100	44.92	Late Cienega
52	Storage pit	497.59	499.43	99.2	100	473.48	Late Cienega
53	Post hole	498.94	497.94	98.9	100	5.22	Late Cienega
54	Post hole	499.86	500.27	98.9	100	7.54	Late Cienega
55	Post hole	499.11	500.36	98.9	100	5.85	Late Cienega
56	Post hole	498.07	500.19	98.9	100	4.31	Late Cienega
57	Post hole	497.91	498.25	98.9	100	3.00	Late Cienega
58	Post hole	499.88	498.55	99.1	100	2.00	Late Cienega
59	Post hole	498.02	499.44	99.1	100	0.93	Late Cienega
60	Roasting pit	461.67	519.19	97.8	100	45.83	Early Pit House
61	Unknown use	460.15	521.05	97.8	100	36.29	Early Pit House
62	Post hole	491.16	496.75	98.7	100	0.76	Late Cienega
63	Post hole	491.03	496.64	98.6	100	1.47	Late Cienega
64	Post hole	490.84	497.14	98.6	100	0.50	Late Cienega
65	Post hole	490.37	497.44	98.6	100	1.26	Late Cienega
66	Post hole	489.87	497.46	98.6	100	1.26	Late Cienega
67	Post hole	489.57	497.53	98.4	100	0.71	Late Cienega
68	Post hole	489.10	497.43	98.5	100	0.35	Late Cienega
69	Post hole	488.74	497.27	98.5	100	0.55	Late Cienega
70	Post hole	488.16	495.12	98.5	100	0.20	Late Cienega
71	Post hole	488.35	494.83	98.5	100	2.04	Late Cienega
72	Post hole	488.66	494.51	98.4	100	1.18	Late Cienega
73	Post hole	489.39	494.01	98.5	100	0.50	Late Cienega
74	Post hole	489.71	494.09	98.5	100	0.71	Late Cienega
75	Post hole	490.10	494.17	98.5	100	0.50	Late Cienega
76	Post hole	490.40	494.19	98.6	100	0.86	Late Cienega
77	Post hole	490.92	494.27	98.6	100	0.40	Late Cienega
78	Post hole	491.35	494.91	98.6	100	0.63	Late Cienega
79	Post hole	491.51	495.28	98.7	100	0.47	Late Cienega
80	Post hole	491.33	495.66	98.6	100	0.71	Late Cienega
81	Post hole	497.74	497.79	99.1	100	0.35	Late Cienega
82	Post hole	498.14	497.46	99.1	100	0.79	Late Cienega
83	Post hole	498.39	497.42	99.1	100	0.63	Late Cienega
84	Post hole	499.27	497.32	99.1	100	0.17	Late Cienega
85	Post hole	498.34	500.92	99	100	0.94	Late Cienega
86	Post hole	460.10	517.56	97.4	100	0.71	Early Pit House
87	Post hole	459.56	517.89	97.4	100	0.88	Early Pit House

Table 6.5 Forest Home Feature Dimensions and Content.

Type	Thermal?	Morphology	Location	Feature	L (m)	W (m)	Depth	Volume (l)	# Artif/l	TAR kg/l
Burial	N	Cylindrical	E	4	1.7	0.92	0.45	562.52	0.05	0
Hearth	T	Basin	Str 1	13	0.3	0.38	0.11	7.44	1.21	0
Hearth	T	Basin	Str 1	20	0.3	0.25	0.08	2.93	0.00	0
Hearth	T	Basin	Str 3	36	0.4	0.32	0.09	6.33	0.47	0.46
Hearth	T	Basin	Str 2	51	0.7	0.6	0.22	44.92	0.09	0
Midden	N	Irregular	E	1	—	—	—	—	—	—
Pithouse	N	Basin	Str 1	6	3.1	3.2	0.2	1038.82	0.29	0.02
Pithouse	N	Basin	Str 2	33	3.8	4.1	0.15	1223.65	0.09	0
Pithouse	N	Basin	Str 3	35	4	3.64	0.04	307.23	0.66	0.03
Post hole	N	Cylindrical	Str 1	27	0.2	0.15	0.14	2.47	0.00	0
Post hole	N	Cylindrical	Str 1	28	0.2	0.16	0.1	2.01	0.00	0
Post hole	N	Cylindrical	Str 1	29	0.1	0.14	0.19	2.51	0.00	0
Post hole	N	Cylindrical	Str 1	30	0.2	0.14	0.23	4.05	0.00	0
Post hole	N	Cylindrical	Str 1	53	0.2	0.17	0.23	5.22	0.19	0
Post hole	N	Cylindrical	Str 1	54	0.2	0.2	0.24	7.54	0.27	0
Post hole	N	Cylindrical	Str 1	55	0.2	0.18	0.23	5.85	0.00	0
Post hole	N	Cylindrical	Str 1	56	0.2	0.17	0.19	4.31	0.00	0
Post hole	N	Cylindrical	Str 1	57	0.2	0.15	0.17	3.00	0.00	0
Post hole	N	Cylindrical	Str 1	58	0.1	0.14	0.13	2.00	0.00	0
Post hole	N	Cylindrical	Str 1	59	0.1	0.13	0.07	0.93	0.00	0
Post hole	N	Cylindrical	Str 1	62	0.1	0.11	0.08	0.76	0.00	0
Post hole	N	Cylindrical	Str 1	63	0.1	0.12	0.13	1.47	0.00	0
Post hole	N	Cylindrical	Str 1	64	0.1	0.08	0.1	0.50	0.00	0
Post hole	N	Cylindrical	Str 1	65	0.1	0.1	0.16	1.26	0.00	0
Post hole	N	Cylindrical	Str 1	66	0.1	0.1	0.16	1.26	0.00	0
Post hole	N	cylindrical	Str 1	67	0.1	0.1	0.09	0.71	0.00	0
Post hole	N	Cylindrical	Str 1	68	0.1	0.07	0.09	0.35	0.00	0
Post hole	N	Cylindrical	Str 1	69	0.1	0.1	0.07	0.55	0.00	0
Post hole	N	Cylindrical	Str 1	70	0.1	0.08	0.04	0.20	0.00	0
Post hole	N	Cylindrical	Str 1	71	0.1	0.12	0.18	2.04	0.00	0
Post hole	N	Cylindrical	Str 1	72	0.1	0.1	0.15	1.18	0.00	0
Post hole	N	Cylindrical	Str 1	73	0.1	0.08	0.1	0.50	0.00	0
Post hole	N	Cylindrical	Str 1	74	0.1	0.1	0.09	0.71	0.00	0
Post hole	N	Cylindrical	Str 1	75	0.1	0.08	0.1	0.50	0.00	0
Post hole	N	Cylindrical	Str 1	76	0.1	0.1	0.11	0.86	0.00	0
Post hole	N	Cylindrical	Str 1	77	0.1	0.08	0.08	0.40	0.00	0
Post hole	N	Cylindrical	Str 1	78	0.1	0.1	0.08	0.63	0.00	0
Post hole	N	Cylindrical	Str 1	79	0.1	0.1	0.06	0.47	0.00	0
Post hole	N	Cylindrical	Str 1	80	0.1	0.1	0.09	0.71	0.00	0
Post hole	N	Cylindrical	Str 2	81	0.1	0.08	0.07	0.35	0.00	0
Post hole	N	Cylindrical	Str 2	82	0.1	0.12	0.07	0.79	0.00	0
Post hole	N	Cylindrical	Str 2	83	0.1	0.1	0.08	0.63	0.00	0
Post hole	N	Cylindrical	Str 2	84	0.1	0.06	0.06	0.17	0.00	0
Post hole	N	Cylindrical	Str 2	85	0.1	0.1	0.12	0.94	0.00	0
Post hole	N	Cylindrical	Str 3	86	0.2	0.15	0.04	0.71	0.00	0
Post hole	N	Cylindrical	Str 3	87	0.2	0.15	0.05	0.88	0.00	0
Roasting pit	T	Basin	E	10	0.9	0.82	0.18	68.01	0.88	0.18
Roasting pit	T	Basin	E	7	1	0.85	0.36	165.03	0.02	0.02
Roasting pit	T	Basin	E	11	1.2	1.22	0.19	150.50	0.74	0
Roasting pit	T	Basin	E	19	0.8	0.64	0.18	47.05	0.04	0.94

N = Nonthermal; T = Thermal; E = Extramural

Table 6.5 Forest Home Feature Dimensions and Content (Continued).

Type	Thermal?	Morphology	Location	Feature	L (m)	W (m)	Depth	Volume (l)	# Artif/l	TAR kg/l
Roasting Pit	T	Cylindrical	E	24	0.8	0.8	0.34	170.90	0.07	0
Roasting pit	T	Basin	E	39	1.3	1.18	0.36	280.26	1.05	0.07
Roasting pit	T	Basin	E	42	1.5	1.13	0.6	532.50	0.61	0.05
Roasting pit	T	Basin	E	46	1.6	0.85	0.25	178.02	0.11	0.05
Roasting pit	T	Basin	E	60	1.1	0.73	0.11	45.83	0.04	0.07
Roasting pit	T	Cylindrical	E	31	1	0.95	0.53	395.45	0.10	0
Roasting pit	T	Deflated	E	2	2	2	0.4	—	—	—
Roasting pit	T	Basin	E	12	1.2	1.2	0.26	196.04	0.31	0
Storage pit	N	Basin	Str 1	21	0.3	0.26	0.3	11.44	0.35	0
Storage pit	N	Basin	E	38	0.9	0.83	0.31	122.60	0.55	0.01
Storage pit	N	Basin	E	45	1	1.1	0.42	237.06	0.14	0
Storage pit	N	Basin	Str 2	47	0.5	0.44	0.23	25.43	0.31	0
Storage pit	N	Basin	Str 2	48	0.6	0.5	0.3	47.12	0.15	0
Storage pit	N	Bell-shaped	Str 2	52	0.4	0.35	0.2	473.48	0.00	0
Storage pit	N	Cylindrical	Str 1	14	0.3	0.32	0.27	21.71	0.00	0
Storage pit	N	Cylindrical	Str 1	15	0.3	0.34	0.27	24.51	0.00	0
Storage pit	N	Cylindrical	Str 1	23	0.3	0.25	0.25	12.27	0.08	0
Storage pit	N	Cylindrical	E	25	1.3	1.16	0.56	653.05	0.09	0.04
Storage pit	N	Cylindrical	E	34	1.5	0.9	0.53	554.46	0.07	0.03
Storage pit	N	Cylindrical	E	37	1	0.92	0.45	312.15	0.33	0.00
Unknown use	N	Basin	E	41	0.9	0.72	0.22	70.50	0.91	0.02
Unknown use	N	Basin	E	5	1.3	1	0.22	143.99	0.13	0
Unknown use	N	Basin	E	16	0.6	0.58	0.09	16.40	0.43	0
Unknown use	N	Basin	E	17	0.9	0.9	0.29	125.73	0.09	0.01
Unknown use	N	Basin	E	26	0.9	0.92	0.2	90.56	0.31	0.09
Unknown use	N	Basin	E	43	0.9	0.85	0.2	75.66	0.46	0
Unknown use	N	Basin	E	44	1.1	1.1	0.13	83.11	2.31	0.05
Unknown use	N	Basin	Str 2	49	0.4	0.37	0.12	8.14	2.46	0
Unknown use	N	Basin	Str 2	50	0.4	0.4	0.11	8.06	0.12	0
Unknown use	N	Basin	E	61	0.7	0.55	0.18	36.29	2.56	0
Unknown use	N	Irregular	E	40	0.8	0.7	0.15	43.98	0.00	0
Not Used	—	—	—	18	—	—	—	—	—	—
Natural	N	Natural	—	3	—	—	—	—	—	—
Natural	N	Natural	—	8	—	—	—	—	—	—
Root disturbance	N	Basin	—	22	1.3	1.12	0.22	—	—	—
Root disturbance	N	Irregular	—	9	1.6	1.32	0.24	—	—	—
Root disturbance	N	Irregular	—	32	0.7	0.6	0.28	—	—	—

N = Nonthermal; T = Thermal; E = Extramural

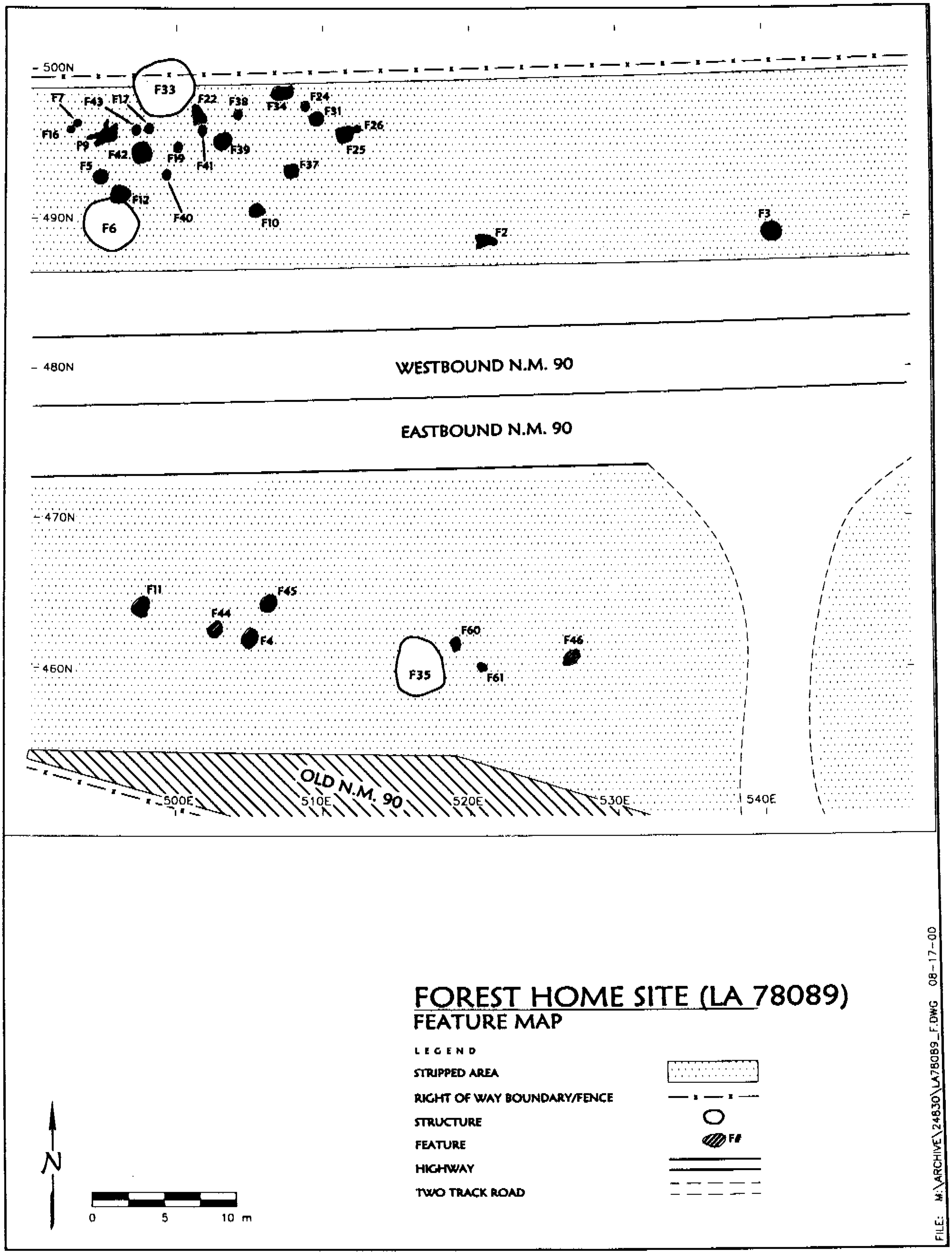

Figure 6.8 **Forest Home (LA 78089) Feature Map.**

Structures

Three structures, all constructed in shallow, circular pits, were documented at Forest Home. Structure 1 (Features 6) and Structure 2 (Feature 33), located on the northern side of the right-of-way, date to the Cienega phase of the Late Archaic/Early Agricultural period. Structure 3 (Feature 35), which was found on the southern side of the right-of-way, has been dated to the Early Pit House period.

Structure 1: Feature 6

The location of Structure 1 was detected through the discovery of the adjacent and overlapping Feature 12. After this initial exposure, subsequent machine stripping revealed the presence of Structure 1. The fill of this feature was removed in quarters by placing four excavated units within the circumference of the pit structure. These excavations revealed Structure 1 as a circular, basin-shaped pit measuring 3.10 m by 3.20 m in plan, with a maximum depth of 20 cm (from the stripped surface to the base of the feature). The structure had four central support posts, a ring of smaller peripheral posts around its interior edge, and a floor area of 7.79 m^2 (Figures 6.9 and 6.10). The eastern section of the pit structure floor was disturbed by a small gully; the highway cut bank also has eroded out a small section of the southern wall of the pit structure.

Two AMS radiocarbon determinations dated this structure. Calibrated two-sigma dates of 395 to 170 BC (Beta 133978) and 400 to 340 BC or 320 to 205 BC (Beta 141721) were derived from a walnut shell and a Zea cupule recovered from the floor. A superimposed roasting pit, Feature 12, also yielded a two-sigma date of 390 to 155 BC (Beta 133979).

Internal Stratigraphy: Machine stripping revealed a circular pit uniformly filled with a dark grayish-brown silt loam (7.5YR 4/2, d) containing slight charcoal flecking and a few rocks. Structure 1 was excavated into a granitic sandy loam C horizon. No internal fill stratigraphy was identified; however, the floor was clearly defined by the presence of a thin ash layer and the exposure of several features. In total, 196 artifacts were recovered from Levels 4 and 5 excavated in feature fill (see Table 6.6). Artifacts included 184 pieces of debitage, two cores, one retouched tool, one scraper, two manos, two metates, three ceramics, and one projectile point, notably, a single San Pedro style projectile point. Also recovered from these levels were two pieces of burned fauna, 19 pieces of unburned fauna, and 19.5 kg of thermally altered rock. A total of 65 artifacts was recovered from the floor surface; these included 61 pieces of debitage, one core, one scraper, and two Alma Rough ceramics. Faunal remains included eight unburned pieces and two burned pieces.

Table 6.6 Forest Home Structure 1 Artifact Summaries and Intramural Features.

Structure 1	Debitage	Cores	Retouched Tools	Projectile Points	Scrapers	Manos	Metates	Alma Rough	Unburned Fauna	Burned Fauna	TAR (kg)
Structure: Feature 6											
Levels 1-5: Fill	184	2	1	1 San Pedro	1	2	2	3	19	2	19.500
Level 6: Floor	61	1	—	—	1	—	—	2	8	2	—
Hearths											
Feature 7	2	—	—	—	1	—	—	—	—	—	3.700
Feature 13	3	—	—	—	—	—	—	—	6	—	—
Feature 20	—	—	—	—	—	—	—	—	—	—	—
Storage Pits											
Feature 14	—	—	—	—	—	—	—	—	—	—	—
Feature 15	—	—	—	—	—	—	—	—	—	—	—
Feature 21	4	—	—	—	—	—	—	—	—	—	—
Feature 23	1	—	—	—	—	—	—	—	—	—	—

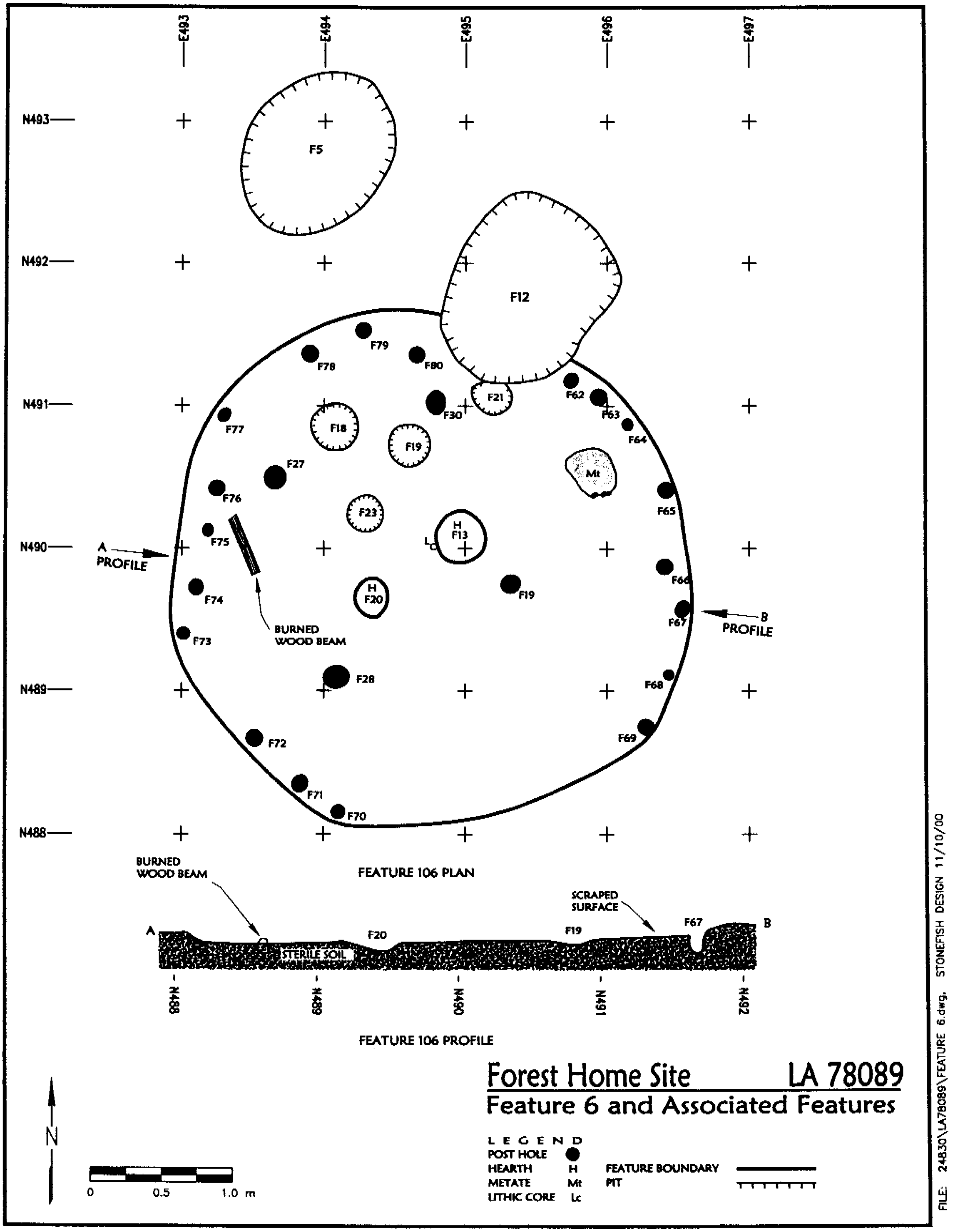

Figure 6.9 Planview of Structure 1 (Feature 6).

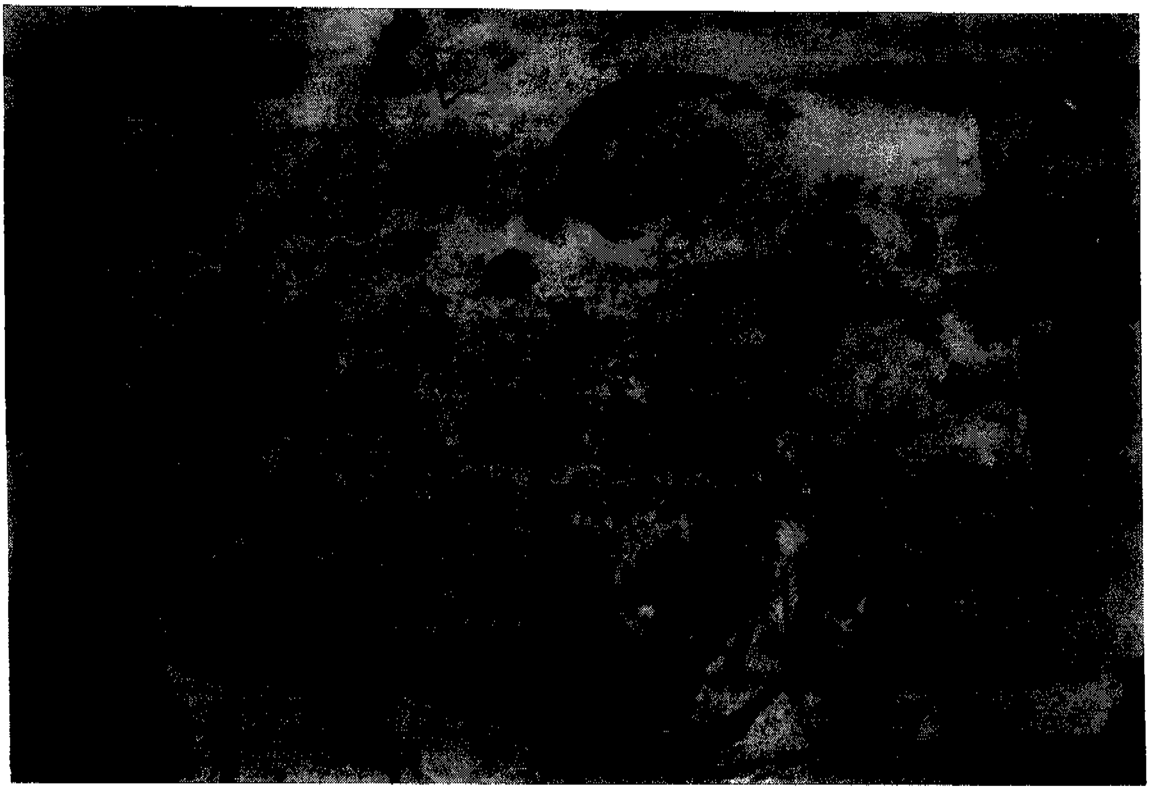

Figure 6.10 Photograph of Structure 1 (Feature 6).

Floor and Internal Features: Excavation of Structure 1 revealed a variety of intramural features. Nineteen post holes (Features 62 through 80), with an average diameter of 10 to 12 cm and 10 to 15 cm deep, surrounded the interior circumference of the pit structure. No doorway or ramp area could be discerned for the structure. Features 27 through 30, four central support post holes, averaged 14 to16 cm in diameter and were 10 to 23 cm deep.

Two hearths were found near the center of the structure. Feature 13 was an oval hearth, approximately 36 cm in diameter and 11 cm deep. This feature held grayish brown ash and charcoal fill surrounded by orange, baked earth. Upon analysis, the fill was found to contain small quantities of maize cob phytoliths. Feature 20 also was a hearth, 26 cm in diameter and 8 cm deep, situated approximately 75 cm southwest of Feature 13. This feature contained ashy gray fill. The earth matrix that contained the feature displayed characteristics of heating but was not baked like Feature 13. Maize cob phytoliths were relatively abundant in Feature 20, suggesting that the cobs were burned as a source for fuel (see Chapter 22).

Four storage pits (Features 14, 15, 21, 23) were encountered inside Structure 1. These pits, which were all oval in plan, averaged between 25 and 30 cm in both diameter and depth. Features 14 and 15 contained no artifacts; Feature 21 contained four pieces of debitage and also yielded a maize cob phytolith, while Feature 13 contained a single debitage fragment. All of these pits held an ashy gray or dark gray cultural fill. A burned beam was found on the floor near the eastern wall, and the large metate was recorded on the floor along the northwestern wall of the pit structure.

Construction and Remodeling Evidence: Structure 1 was dug at least 20 cm below the ground surface. The structure was basin shaped, with walls that gradually slope down into a near level floor. There was no evidence of plaster or other special preparation of the walls and floor. No evidence of an entranceway has been found, however, its location may have obscured by the disturbance in the northern and southern

parts of the structure. The peripheral post holes that surround the interior circumference of the structure denote the location of former walls. The presence of four central support posts could have supported a pole frame, and the peripheral posts could have been pole stringers suggesting that the frame was brush. Although possibly covered with earth on the top and on the sides, no daub was recovered from the excavation

Finally, the small size of Structure 1 argues against the necessity for two contemporaneous hearths. The presence of two hearths suggests different functions for these features or, possibly, a remodeling event. In the latter scenario serial hearth use is suggested, as the hearth is moved to a more convenient location. For the former scenario, simultaneous hearth use may have occurred, with each hearth employed differently. The dissimilar hearth morphology does support this hypothesis. Feature 13 was larger and deeper and had an orange, baked-earth lining, which suggests a more intense fire than the flame ignited in Feature 20. Perhaps, the former was used primarily for food preparation, while the latter functioned as a fire pit, providing some warmth and flame for special occasions. Alternatively, these different hearth morphologies may represent serial reoccupation during different seasons, with the larger hearth employed during colder weather.

Abandonment and Post-abandonment Evidence: Structure 1 does not appear to have been hastily abandoned. One of the two metates was overturned on the floor implying that the residents did plan to return. Although some artifacts were documented in the fill and on the floor, the pit fill did not resemble midden, and the structure was not used as a dump after abandonment. The burned beam found on the floor implies the structure burned during or sometime after abandonment. At some point after Structure 1 was abandoned and completely filled in, new site occupants excavated Feature 12, a shallow basin-shaped pit into the northern wall and fill of Structure 1.

Structure 2: Feature 33

Mechanical stripping of the area immediately around BT 12 exposed Structure 2 (Feature 33), a circular pit structure. The pit measured 3.80 m by 4.10 m in planview and had a maximum depth of 15 cm (from the stripped surface to the base of the feature). The structure had a floor area of 12.24 m^2 and six central support posts. Originally, it also likely had a ring of smaller posts surrounding its interior edge (Figures 6.11 and 6.12). This structure was deeply buried by the AC horizon.

Two AMS radiocarbon determinations dated this structure. A calibrated two-sigma date of 390 to 190 BC (Beta 141724) from the hearth (Feature 51) and 395 to 180 BC (Beta 141725) from a bell-shaped storage pit (Feature 52) tightly place the occupation to the Cienega phase. Both dates were produced from Zea cupules.

Internal Stratigraphy: Structure 2 was excavated into the granitic sandy loam C horizon. It was filled uniformly with dark yellowish brown (10YR 4/4, d) loam containing chipped stone artifacts and a few ceramic sherds. The unstratified fill overlay a reddish yellow (7.5YR 6/6, d) beaten earth floor that contained several features. In total 105 artifacts were recovered from the fill. These consisted mostly of lithic debitage but also contained a few tools that included four manos and a metate fragment. Present on the floor surface (Level 3) were 71 artifacts, including a single mano, a metate fragment, and a San Pedro-like projectile point (Table 6.7).

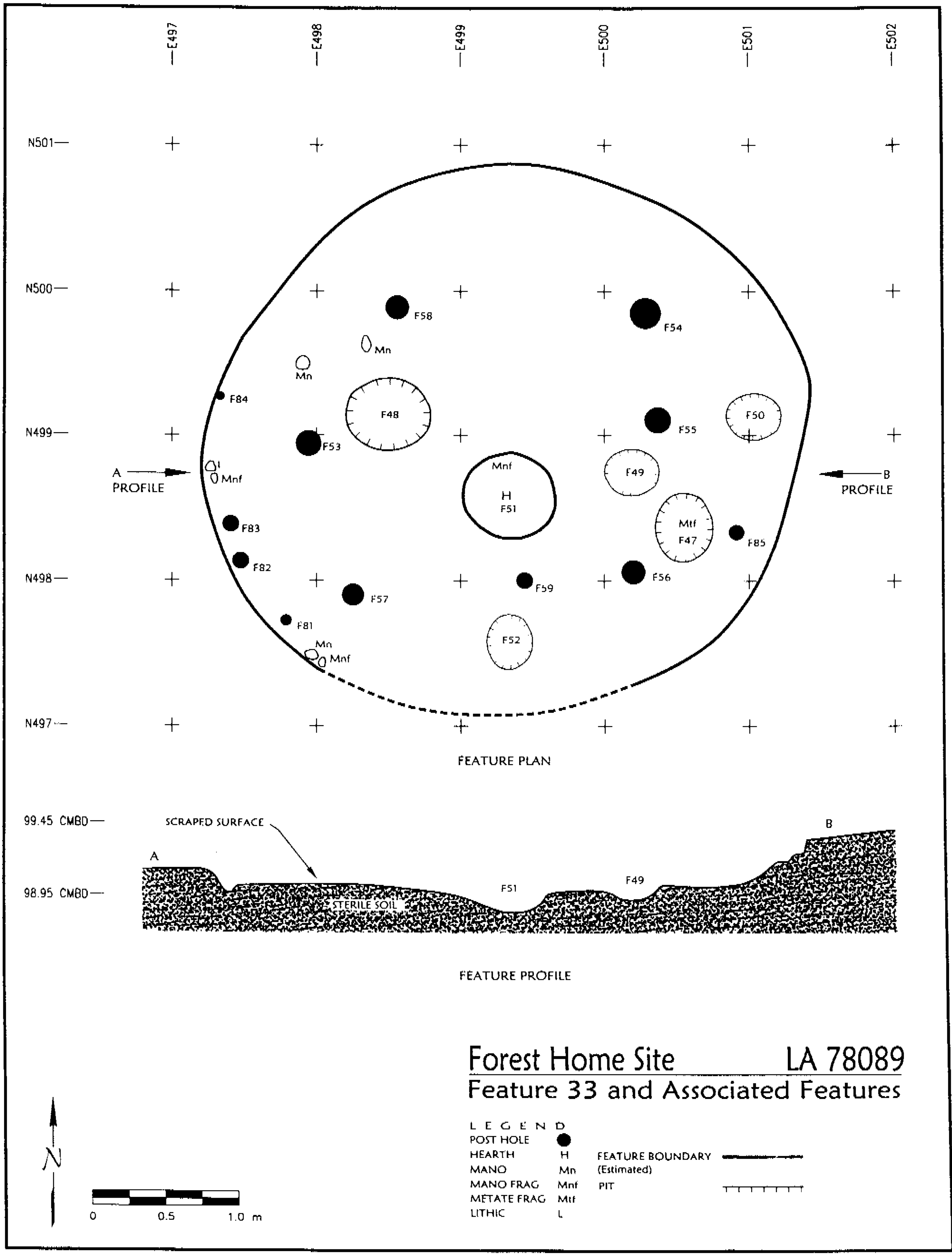

Figure 6.11 Planview of Structure 2 (Feature 33).

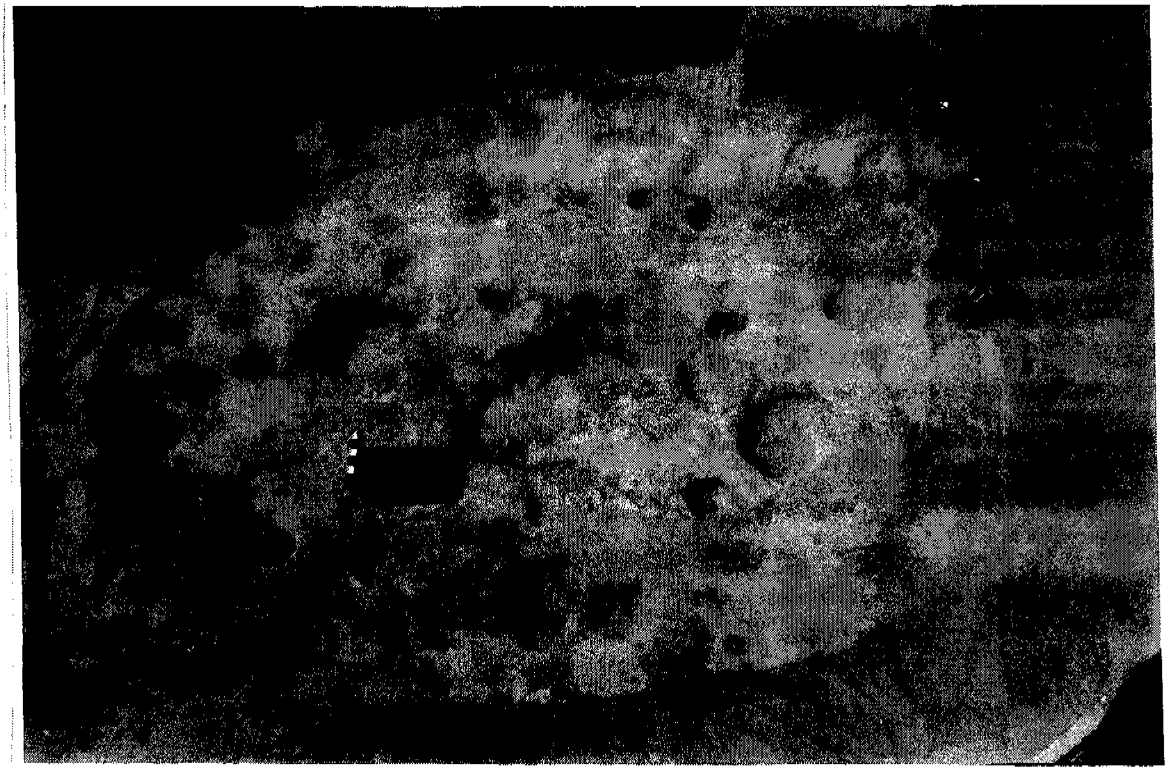

Figure 6.12 Photograph of Structure 2 (Feature 33).

Table 6.7 Forest Home Structure 2 Artifact Summaries and Intramural Features.

Structure 2	Debitage	Core	San Pedro-like Projectile Point	Mano	Metate	Alma Plain	Alma Rough	Unburned Fauna	Burned Fauna
Pit Structure: Feature 33									
Levels 1-2: Fill	25	—	—	4	1	1	1	1	1
Level 3: Floor	59	1	1	1	1	—	—	7	1
Hearth									
Feature 51	4	—	—	—	—	—	—	—	—
Storage Pits									
Feature 47	7	—	—	—	—	—	—	—	—
Feature 48	7	—	—	—	—	—	—	—	—
Feature 52	1	—	—	—	—	—	—	—	—
Unknown Pits									
Feature 49	—	—	—	—	—	—	—	—	—
Feature 50	1	—	—	—	—	—	—	—	—
Post holes									
Feature 53	1	—	—	—	—	—	—	—	—
Feature 54	2	—	—	—	—	—	—	—	—
Feature 55	—	—	—	—	—	—	—	—	—
Feature 56	—	—	—	—	—	—	—	—	—
Feature 57	—	—	—	—	—	—	—	—	—
Feature 58	—	—	—	—	—	—	—	—	—

Table 6.7 **Forest Home Structure 2 Artifact Summaries and Intramural Features (Continued).**

Structure 2	Debitage	Core	San Pedro-like Projectile Point	Mano	Metate	Alma Plain	Alma Rough	Unburned Fauna	Burned Fauna
Feature 59	—	—	—	—	—	—	—	—	—
Feature 81	—	—	—	—	—	—	—	—	—
Feature 82	—	—	—	—	—	—	—	—	—
Feature 83	—	—	—	—	—	—	—	—	—
Feature 84	—	—	—	—	—	—	—	—	—
Feature 85	—	—	—	—	—	—	—	—	—

Floor and Internal Features: Excavation of Structure 2 revealed several associated intramural features. Six post holes (Features 53 through 58), ranging from 14 to 17 cm in diameter and from 13 to 24 cm in depth, were located around the center of the structure interior. Five additional post holes (Features 81 through 85), ranging in diameter from 6 to 10 cm and from 7 to 12 cm in depth, partially surrounded the interior circumference of the pit structure. These are probably the remnants of a ring of posts that originally helped support the pithouse superstructure. No doorway or ramp area could be discerned. A hearth, Feature 51, was found near the center of the structure. Feature 51 was an oval basin-shaped hearth, approximately 60 cm in diameter and 22 cm deep. The feature contained lightly stained, dark grayish brown charcoal-flecked fill surrounded by lightly oxidized earth.

Five non-thermal pits (Features 47, 48, 49, 50, and 52) were encountered inside Structure 2. These pits all contained an ashy gray or dark gray cultural fill. Most of these pits appear to have been small storage features. Feature 52 was bell shaped and contained a single lithic flake. Ethnographic evidence suggests that bell-shaped pits were principally used for food storage (Burskirk 1986; Hill 1938; Wilson 1987). The smaller aperture/storage area of these pits allowed for a more efficient seal and thus better storage of the contents. Feature 52 contained a relatively high amount of maize phytoliths and a single squash phytolith, suggesting prehistoric use for maize and squash storage (see Chapter 22). Small amounts of maize cob phytoliths also were found on the floor of Structure 2.

Construction and Remodeling Evidence: Structure 2 (Feature 33) is a basin shaped pit structure excavated at least 0.15 m below the surface. The wall of this pit gradually slanted into a level floor. There was no evidence of plaster or other special preparation of the walls and floor. No evidence of an entranceway has been found either. As with Structure 1, peripheral post holes appear to have originally surrounded the interior circumference of the structure, however, most of these peripheral post holes could not be defined during excavation. The presence of six central support posts suggests that the pole and brush frame of the pithouse was covered with mud or clay.

Abandonment and Post-abandonment Evidence: Structure 2 does not appear to have been hastily abandoned. The only site furniture remaining, a metate, was broken and likely useless to the structure occupants. Few artifacts were found on the floor. The feature fill contained few artifacts, which suggested that the site occupants did not use Structure 2 as a dump after its abandonment.

Structure 3: Feature 35

Structure 3 (Feature 35), located during mechanical stripping south of the highway, was the shallowest of all of the structures at Forest Home. This circular pit structure measured 3.64 m by 4.0 m in planview and had a maximum depth of 4 cm (from the stripped surface to the base of the feature). The floor area was approximately 11.52 m^2 and the structure was excavated into granitic subsoil. Three to six central support posts likely supported the structure. Excavation, however, revealed only two of these posts (Figure 6.13). The post holes were difficult to recognize in the surrounding subsoil.

Two radiocarbon determinations date this structure. A juniper seed found on the floor yielded a two sigma, calibrated date of AD 250 to 430 (Beta 141722). Another juniper seed from Feature 36, the structure's hearth, produced a calibrated, two-sigma date range of AD 245 to 425 (Beta 141723). These tightly clustered dates indicate the structure falls into the middle of the Early Pit House period.

Internal Stratigraphy: This pit structure was filled with a uniform dark grayish brown (10YR 3/2) sandy loam, which contained various lithic materials, some specimens of faunal bone, and several ceramic sherds. Level 3 of the pit structure was a strong brown (7.5YR 5/8, d) sandy clay, beaten earth floor, that contained three features. In total, 63 artifacts were recovered in the fill, mostly from the southeastern quarter of the structure. Most of the artifacts were Alma Rough ceramic sherds, along with a few pieces of lithic debitage, a scraper, and a San Pedro-like projectile point. Level 3, the floor, contained 142 artifacts, most of which were debitage fragments and Alma Rough ceramic sherds (Table 6.8). A few lithic tools, a bone gaming piece, several faunal specimens, and multiple fragments of thermally altered rock also were found on the structure floor. A phytolith sample taken from this floor suggests that the pithouse occupants utilized maize (see Chapter 21).

Table 6.8 Forest Home Structure 3 Artifact Summaries and Intramural Features.

Structure 3	Debitage	Core	Chopper	Scraper	San Pedro-like Projectile Point	Alma Plain	Alma Rough	Ceramic Not Analyzed	Bone Gaming Piece	Unburned Fauna	Burned Fauna	Not TA Rock (kg)	TAR (kg)
Pit Structure: Feature 35													
Levels 1-2: Fill	15	—	—	1	1	—	25	14	—	5	1	4.3	—
Level 3: Floor	97	2	1	1		1	18	11	1	9	1	11.8	9.1
Hearth													
Feature 36	—	—	—	—	—	—	—	—	—	3	—	—	2.9
Post holes													
Feature 86	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 87	—	—	—	—	—	—	—	—	—	—	—	—	—

Floor and Internal Features: Three intramural features were associated with Structure 3. Two post holes (Features 86 and 87) with diameters between 14 and 16 cm, and depths between 4 to 5 cm, were located approximately 1 m east/northeast of the hearth, near the south-central part of the structure interior. As with the other pit structures, no doorway or ramp area could be discerned. A hearth, Feature 36, was found in the south-central part of the structure. This feature was an oval basin-shaped hearth, approximately 42 cm long, 32 cm wide, and 9 cm deep. The feature contained a darkly stained, dark grayish brown (10YR 3/2, d) charcoal-flecked, loamy sand fill, with numerous fragments of fire-cracked rock. The base and walls of Feature 36 were heavily oxidized.

Construction and Remodeling Evidence: Feature 35 is a shallow, basin-shaped pit structure at least 4 cm deep from excavated surface to base. The wall of this structure gradually slanted into a level floor. There was no evidence of plaster or other special preparation of the walls and floor. No evidence of an entranceway has been found either. The two central support post holes were located on the eastern half of the structure, suggesting the presence of at least one undetected post, which for roof stability, must have been located in the western half of the structure. These posts would have supported a pole and brush frame that may or may not have been covered with mud. No evidence of daub was detected in the structure fill.

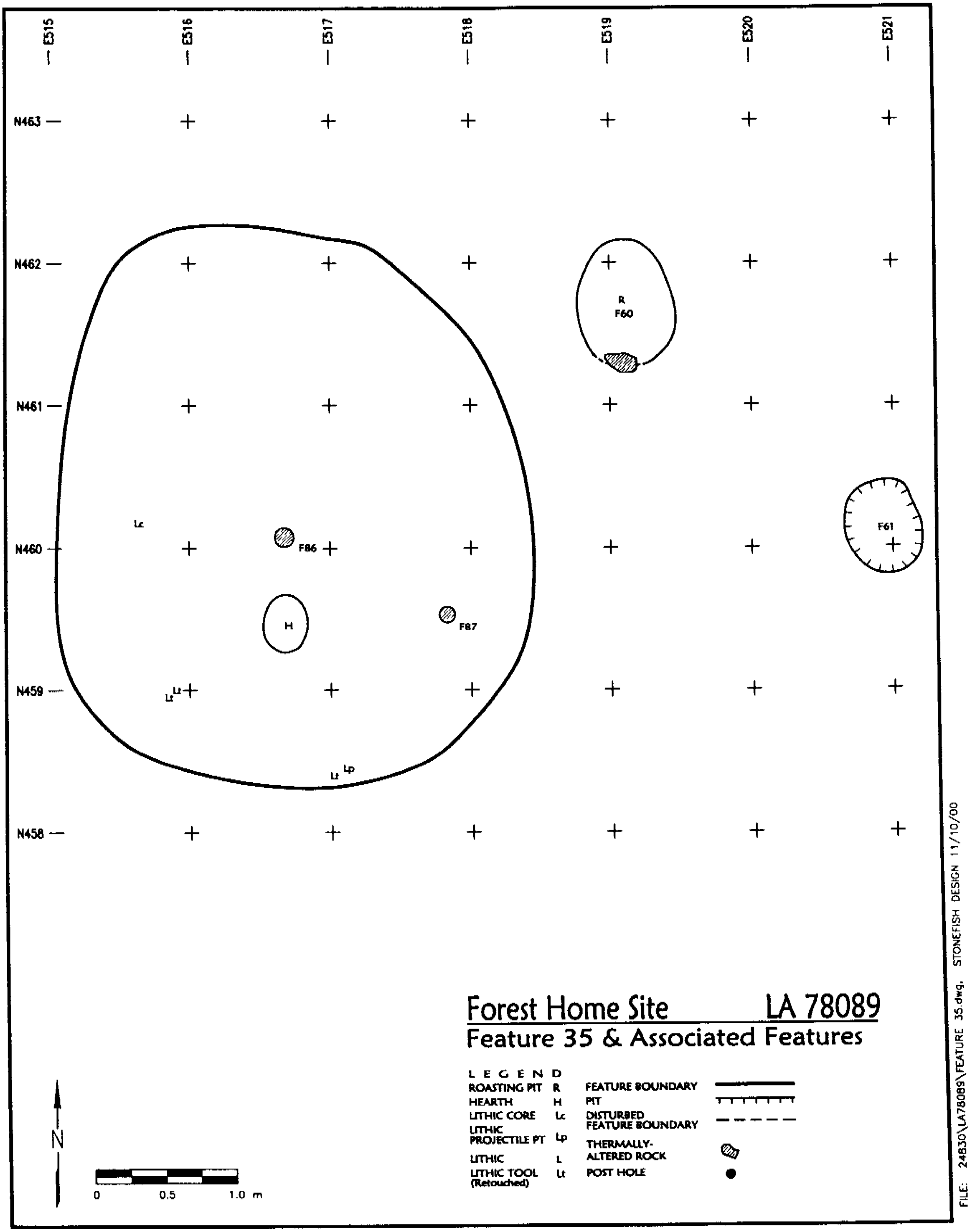

Figure 6.13 Planview of Structure 3 (Feature 35).

Abandonment and Post-abandonment Evidence: Items of site furniture, such as metates or pots, were not found on the floor or in the fill, suggesting that the pithouse occupants removed their household items before they left. There was no direct evidence that the structure was burned. The relatively high quantity of Alma series ceramics found in the upper levels of this feature suggests that the fill accumulated during the Early Pit House period, probably shortly after the abandonment of this pithouse.

Thermal Pits

Sixteen thermal pits were discovered at Forest Home (Tables 6.4 and 6.5). Four of these features were intramural and 12 extramural. These features were characterized by concentrations of ash, charcoal, or thermally altered rocks and a general appearance of thermal activity, sometimes associated with soil oxidation. The thermal features were classified as hearths and roasting pits (including one last used for a burial). Ethnographic data regarding size of roasting pits served to distinguish the two.

Hearths

Hearths were defined for this project as thermal features less than 70 cm in maximum length. All four were intramural, roughly circular, and basin-shaped. They typically exhibited concentrations of ash and charcoal and exhibited light soil oxidization. The hearths were typically small, circular to oval pits with a basin shape. Three ranged from 2.93 to 7.44 liters in volume. The hearth located in Structure 2 (Feature 51) was unusually large with a volume of 44.92 liters.

Roasting Pits

Twelve extramural features were classified as roasting pits (Tables 6.4 and 6.5). These thermal features were defined as 70 cm or larger in maximum length. All roasting pits, by definition, had a maximum horizontal dimension of 70 cm or more. This figure is based on several ethnographic and cross-cultural studies (see Chapter 23). At Forest Home, not including the deflated Feature 2, the roasting pits varied from 80 cm to 1.6 m in length, from 11 to 60 cm in depth, and from 47.05 to 395.45 liters in volume (Table 6.5). Many of these pits (Features 7, 11, 31, 39, 60) had maximum horizontal dimensions between 1 and 1.6 m. All were basin shaped except for Features 31 and 39 which were cylindrical and Feature 2 which was deflated. Figure 6.14 illustrates the profiles of roasting Features 10, 12, 31, and 39.

Most of these features contained thermally altered rock assumed to be associated with the cooking process (Figure 6.15). Some also contained varying amounts of ceramics, faunal bone, lithic debitage, ground stone fragments, charcoal, and ash in the fill (Tables 6.1, 6.2, and 6.3).

Eight of these pits (Features 2, 7, 10, 12, 19, 31, 39, and 42) were located in the northern side of NM 90. Feature 2, the deflated remains of a probable roasting pit, was found isolated in the center-left portion of the northern site area. Features 7, 10, 19, 31, 39, and 42 were all clustered in the northwestern portion of the site, between and around Structures 1 and 2, dated to the Cienega phase.

Several of these pits were particularly noteworthy. Features 10 and 39 each contained a single maize cob phytolith. Feature 42 held a Cienega style projectile point, relatively abundant maize cob phytoliths, and a walnut seed. The seed produced a calibrated two-sigma radiocarbon date of 365 to 45 BC with a calendar intercept of 180 BC (Beta 133980).

Feature 12 had intruded into the northern edge of Structure 1 (Figures 6.9, 6.14, and 6.16). The cultural fill held 21.3 kg of thermally altered rock, 50 pieces of debitage, nine fragments of faunal bone, one Alma Rough sherd, a maize cob phytolith, and several fragments of burned walnut shell. One of the walnut shells yielded a two sigma, calibrated radiocarbon date of 390 to 155 BC with a calendar intercept of 350 BC (Beta 133979). Given the superpositioning of the feature, this date suggested that Feature 12 was essentially contemporaneous with Structure 1 but had been constructed after the structure had collapsed and filled in.

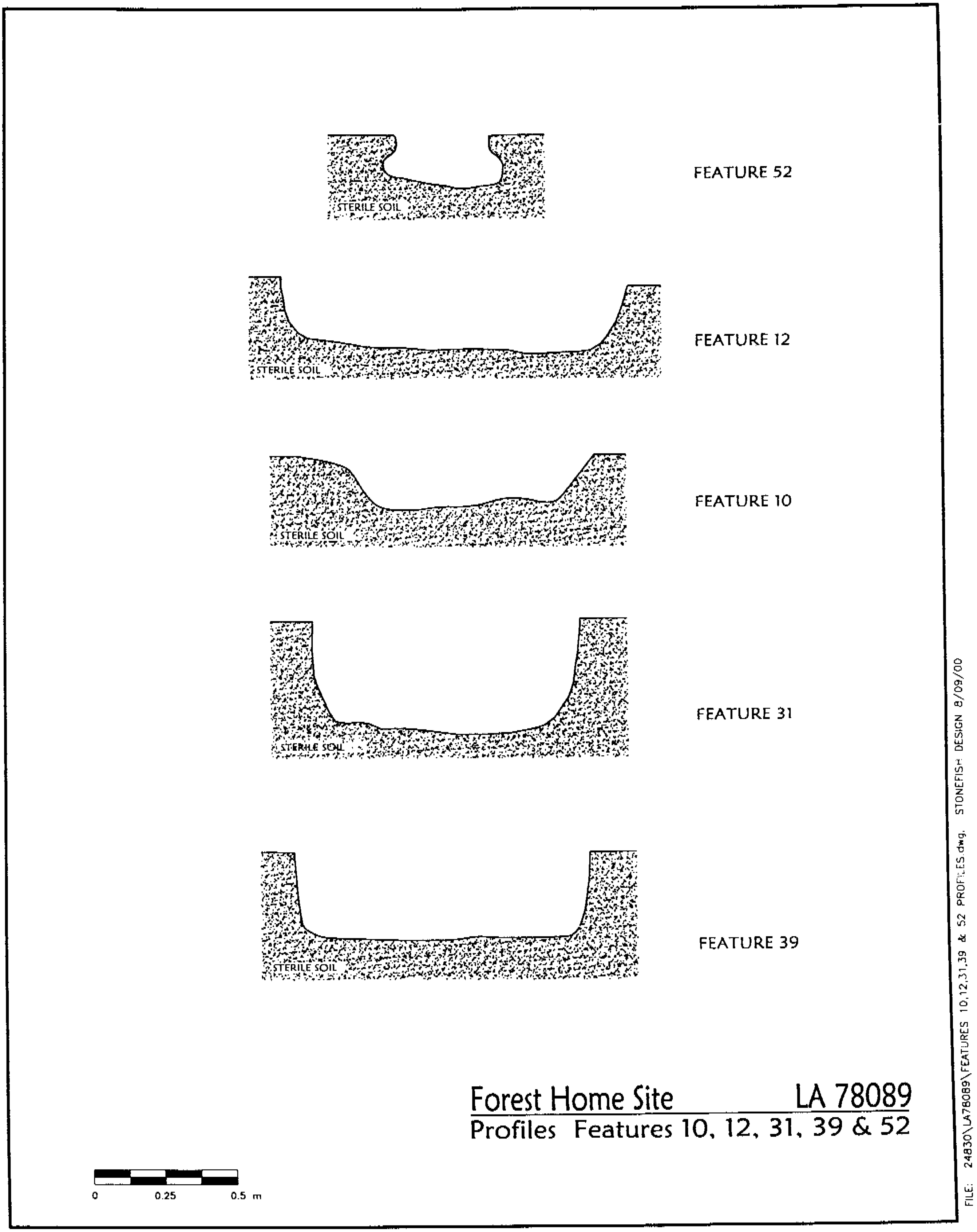

Figure 6.14 Profiles of Roasting Features 52, 12, 10, 31, and 39.

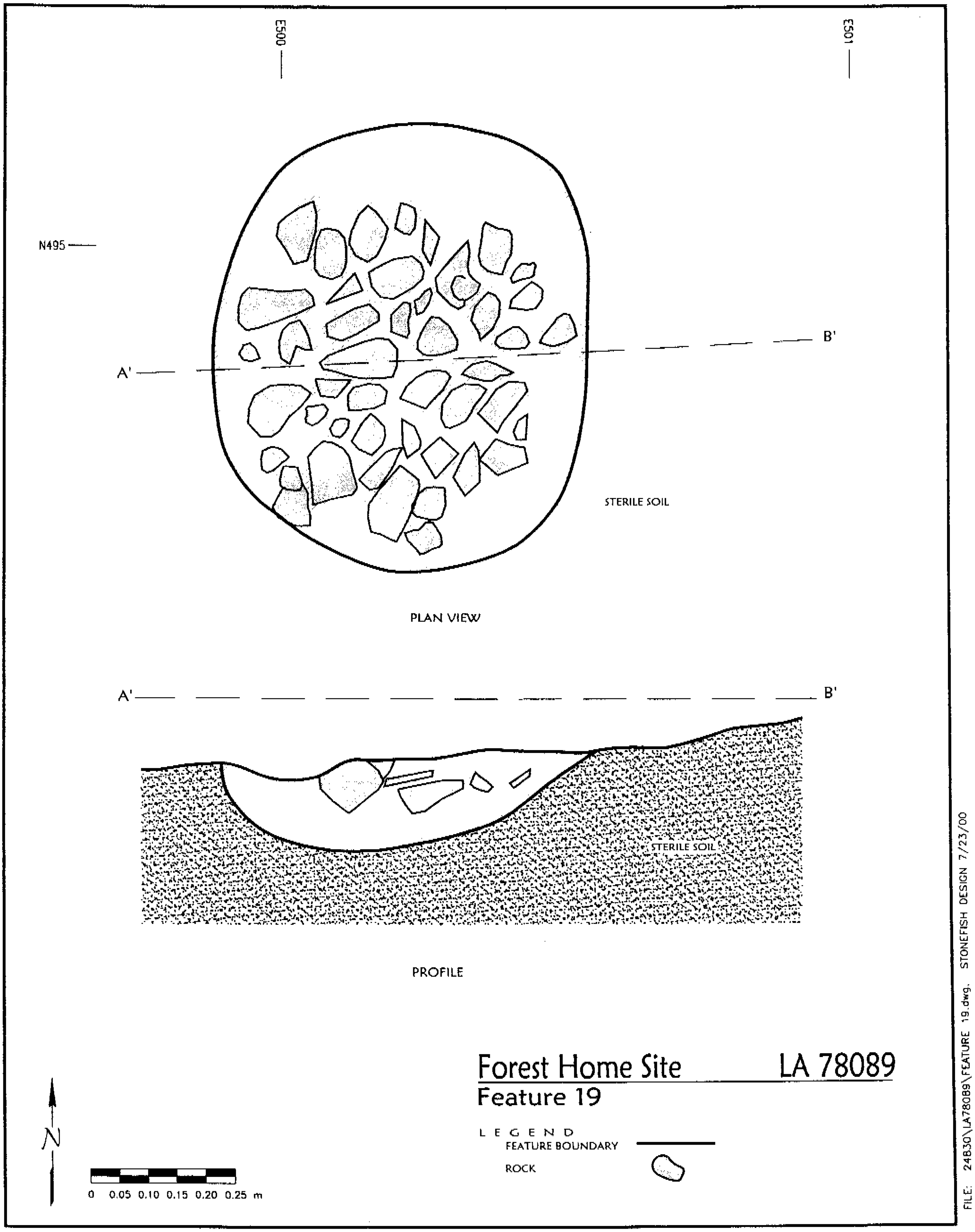

Figure 6.15 Planview and Profile of Feature 19.

Figure 6.16 Photograph Showing the Excavation Feature 12 with Feature 6 in Background.

Feature 31 was a large roasting pit later reused for human interment (Burial 2). Located on the northeastern edge of the Cienega phase occupation, the pit contained the tightly flexed remains of an adult female, between 25 and 45 years old at the time of death (Figures 6.8, 6.17, and 6.18). This pit was 1.0 m in length, 95 cm in width, and 53 cm in depth.

Three roasting pits (Features 11, 46, and 60) were located in the southern side of NM 90 in the vicinity of Structure 3 and dated to the Early Pit House period. Feature 46 contained abundant prickly pear phytoliths, which suggests that prickly pear pads and/or fruit may have been roasted in it.

Non-thermal Pits

Twenty-three non-thermal pits were found at Forest Home (Tables 6.4 and 6.5). These were defined by a lack of any evidence of burning. As some of the aforementioned thermal pits had only minimal evidence of burning, this designation is somewhat arbitrary. Fourteen of the non-thermal pits were extramural and nine occurred within structures. Function of these features is speculative. Twelve were interpreted as storage facilities, but the rest were of unknown use.

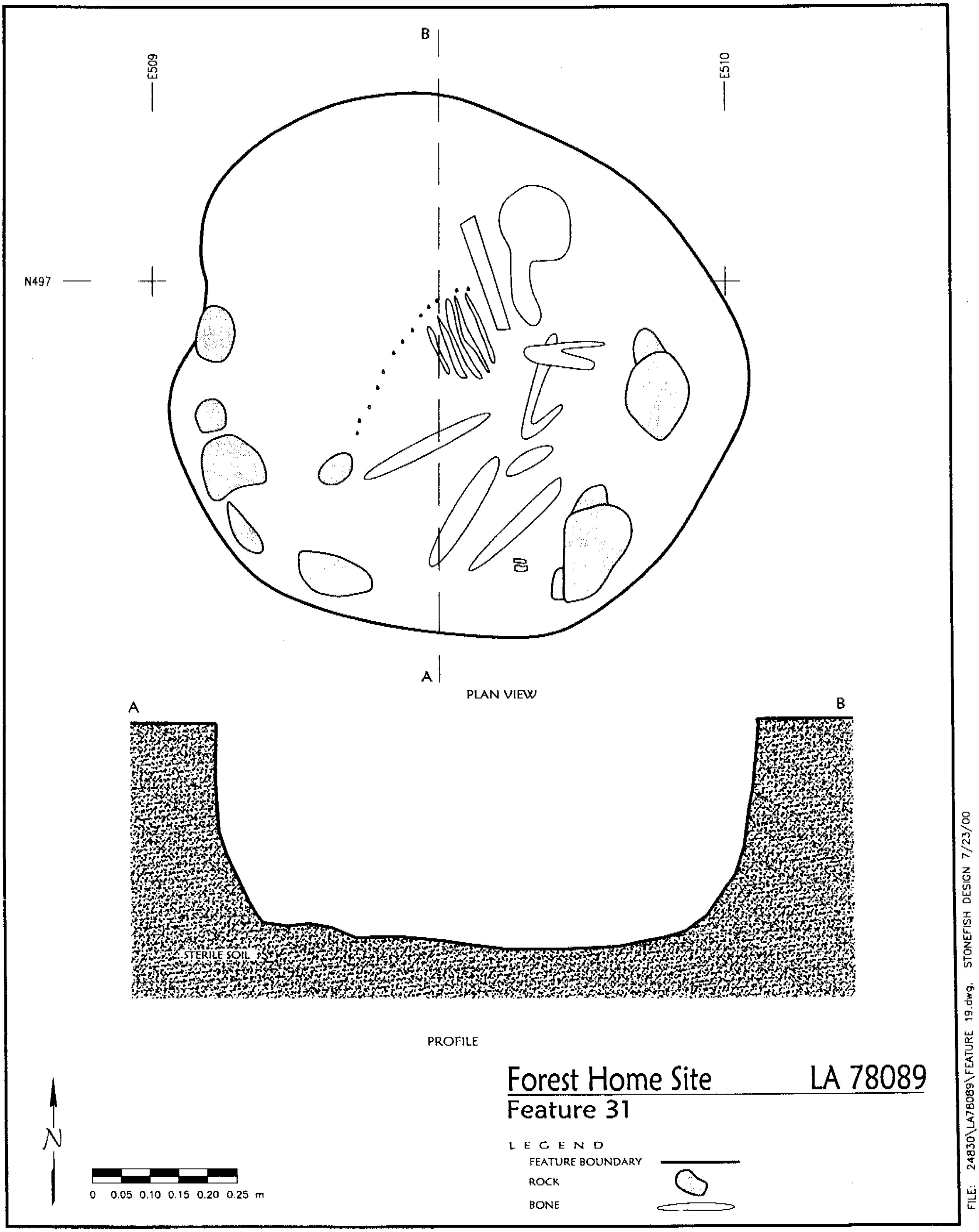

Figure 6.17 Planview and Profile of Feature 31.

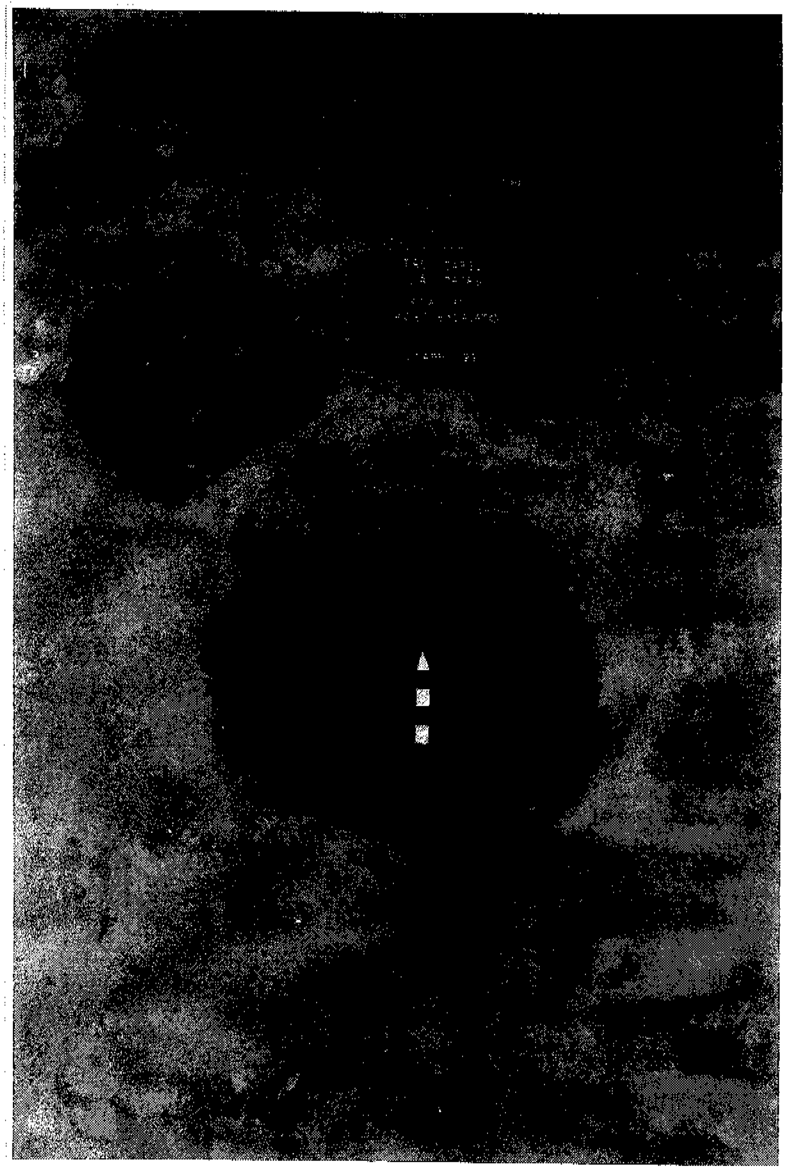

Figure 6.18 Photograph of Feature 31, a Roasting Pit, Post-excavation.

The nonthermal pits were organized below according to their cross-sectional shape. They included bell, cylindrical, and basin forms.

Bell-shaped Pit

Forest Home contained only one bell-shaped storage pit (Feature 52). Located on the floor of Structure 2, a Cienega phase pit structure, Feature 52 had a volume of 473.48 liters (Figure 6.14). It represents the only intramural bell-shaped pit found during the project. The pit was not plaster lined. Maize cob and squash phytoliths were identified from the fill. A calibrated two-sigma date of 395 to 180 BC (Beta 141725) was derived from a Zea cupule found in the pit.

Basin-shaped Pits

The 15 non-thermal, basin-shaped pits identified at the Forest Home site were characterized by sloping side walls, flat to rounded bottoms, and oval to circular plans (Tables 6.4 and 6.5). The pits were not plastered. These pits range from 30 cm to 1.5 m in length, 26 cm to 1.2 m in width, and 9 to 42 cm in

depth. Their volumes varied from 8.14 to 237.06 liters. Four of these pits were intramural and associated with the Cienega phase structures on the northern side of the highway.

Of the 15 basin-shaped features, five were classified as storage pits and the others as unknown function. The intramural storage pits were, as a class, very small with volumes between 11.44 to 47.12 liters. The two extramural storage facilities were larger, ranging from 122.60 to 237.06 liters. Those of unknown function tended to be large but very shallow, limiting their usefulness as food storage facilities (Figure 6.19). It is possible that these pits were actually roasting pits that lacked substantial evidence for thermal activity.

Features 44 and 45 were located on the southern side of the highway and could be Early Pit House period, or perhaps Cienega phase pits (Figure 6.20). The others were on the northern side and are assumed to date to the Cienega phase occupations in that area.

Cylindrical Pits

All six cylindrical pits at the Forest Home site were interpreted as storage facilities and were located within the Cienega phase occupation area. They exhibited straight sides, flat bottoms, and circular to more rarely, oval openings (Tables 6.4 and 6.5). These pits varied significantly in size. The three intramural pits of this type (Features 14, 15, and 23) were located in Structures 1 and 2 and were small. They were 30 to 34 cm in maximum length at the opening and 25 to 27 cm in depth. Volumes for these intramural storage pits were from 12.27 to 24.51 liters. In contrast, the three extramural pits (Features 25, 34, and 37) located just outside Structures 1 and 2 were much larger with maximum lengths from 1.0 to 1.5 m and depths from 45 to 56 cm. Their volumes varied from 312.15 to 653.05 liters.

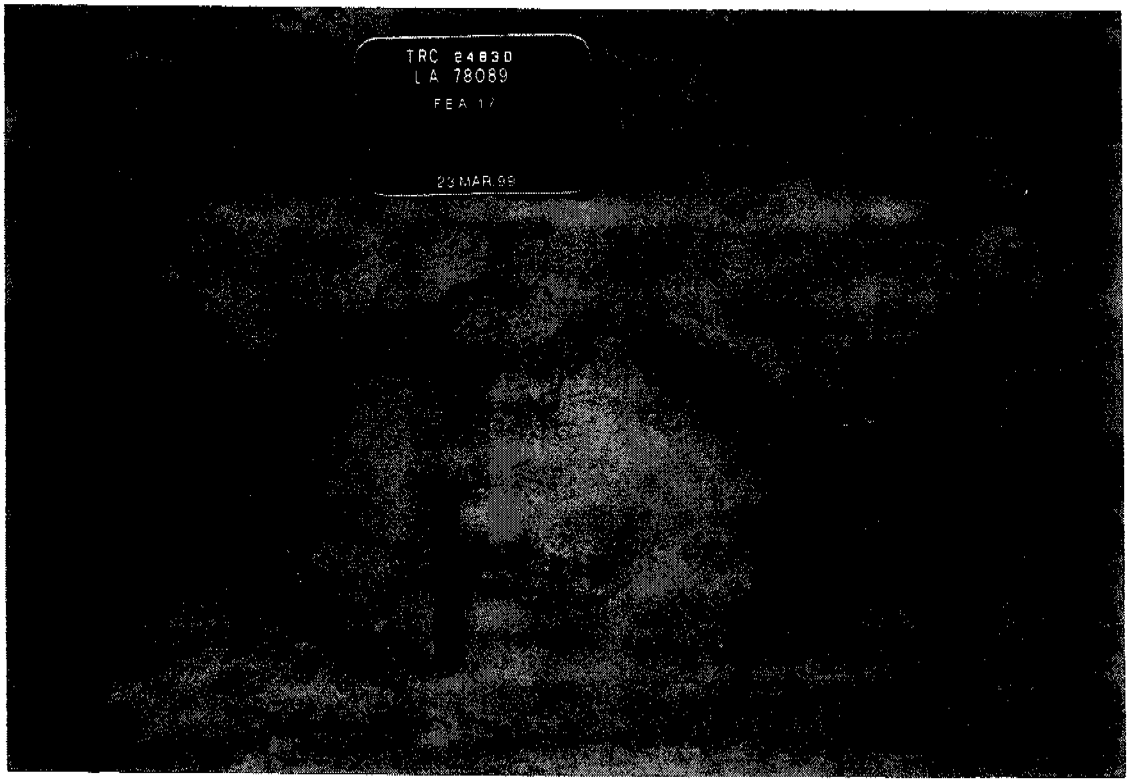

Figure 6.19 Photograph of Feature 17, a Non-thermal, Basin-shaped Pit, Post-excavation.

Figure 6.20 Photograph of Feature 44, a Nonthermal Basin-shaped Pit, Post-excavation.

Burial Pit

One of two human interments at the Forest Home site was located in what appeared to have been an intentionally prepared burial pit (Feature 4). Feature 4 was an oval, basin-shaped pit measuring 1.73 m in length, 92 cm in width, and 45 cm in depth. It contained the remains of a single, tightly flexed individual (Burial 1). The burial matrix was a brown (7.5YR 4/4) silty sandy loam. The pit also contained 15 pieces of lithic debitage, four manos (including one at the feet of the skeleton), one retouched flake, eight ceramic sherds (Alma Rough), and one piece of faunal bone (burned).

Burials

Two human burials were recovered from Forest Home (Table 6.9). Burial 1, due to its location beside the Early Pit House structure as well as the ceramics in the grave fill, was interpreted as an Early Pit House interment. Burial 2 was situated in the Cienega phase component and was assumed to date to that period. The bioarchaeologial data on these remains are presented in Chapter 22.

Burial 1 was exposed on the southern side of the highway while excavating a test unit. The adult male, aged between 25 and 45 years, was found in a prepared oval pit that was designated Feature 4. The body was placed on its back in tightly flexed position. The body was orientated to the east and the head facing south. Although the skeleton was fairly complete when discovered, the remains were fragile and poorly preserved. Stature is estimated at 168.41 cm ± 3.8 cm (5.5 feet, ± 1.5 inches). A complete mano laid at the feet was the only artifact in direct association with the burial. Pit fill included eight Alma Rough sherds.

Burial 2 was found in a roasting pit (Feature 31) that was apparently re-used as a grave (Figure 6.17). The fragmentary and poorly preserved interment was that of an adult female from 25 to 45 years at the time of death. The body was on its left side in a tightly flexed position with the arms across the chest. The axis of the body was oriented to the northeast with the head facing east. No funerary objects were identified, although a small amount of mica was encountered near the skeleton.

Table 6.9 The Forest Home Site (LA 78089) Osteological and Mortuary Data.

Burial Number	Feature Number	Feature Planview	Feature Profile	Length	Width	Depth	Burial Type	Body Position	Skeletal Orientation	Head Facing	Position of Legs	Position of Arms	Preservation	Sex	Age	Pathologies	Funerary Objects
1	4	Oval	Basin-shaped	1.73	0.92	0.45	Single	Supine/lf	East	South	Tightly flexed	Lf on abdomen/ rt on chest	Fair	Male	25-45		Mano at feet
2	31	Circular	Basin-shaped	0.90	0.9	0.53	Single	Left	Northeast	East	Tightly flexed	Across chest	Fair	Female	25-45	Tooth attrition	Mica sheets

Artifacts

Chipped Stone

The chipped stone assemblage included 1,660 pieces of debitage, 17 cores, 31 retouched tools, seven projectile points, three bifaces, and four hammer stones (Table 6.1). The projectile points included three Cienega points, two San Pedro points, and two indeterminate San Pedro-like points. Both the Cienega and the San Pedro points styles date to the Late Archaic period (Huckell 1988; Sayles and Antevs 1941) but continued into the Early Pit House period (Mabry 1998; Sliva 1998, 1999). A San Pedro style projectile point was found in the fill of Pit Structure 1; a San Pedro-like projectile point was found on the floor of Structure 2; another San Pedro-like point was found in the fill of Pit Structure 3. Single specimens of Cienega points were found in pit features (Features 42 and 43).

Other formal flaked tools included only three bifaces. These were shaped into triangular or ovate forms and exhibited fine to moderate workmanship. Expedient tools included two choppers, two notched flakes, eight projections, four retouched pieces, and 15 scrapers. Additionally, four hammer stones were present. These data imply a variety of maintenance and production activities were carried out on the site.

Ground Stone

Of the 113 ground stone artifacts, 18 were metates and 43 were manos. Other ground stone types included a stone tray; a smooth, round stone; and 50 stone beads (Table 6.2).

Eleven of the metates were flat/concave, four were basin-shaped, and one was of an indeterminate type. At Forest Home, the basin-shaped and the flat/concave varieties appear to have been used contemporaneously during the Late Archaic/Early Agricultural occupation, as both types were found in floor-related deposits in Structures 1 and 2 and in other Cienega phase contexts on the northern side of the highway.

The flat/concave group of metates includes examples that range from slab metates to more concave specimens. Basin-shaped and flat/concave metates appear as part of the Archaic grinding complex (LeBlanc 1982a; Sayles 1983; Woosley and McIntyre 1996). The flat/concave examples long preceded the use of cultigens in the Southwest, while the basin-shaped forms may have developed from the adoption of more efficient grinding methods, which were required for intensified wild plant use and the adoption of cultigens at the onset of the Late Archaic period (Sayles 1983). The behaviors that produced these forms of metates were directed towards the processing of wild seeds, and their continued use with cultigens suggests the latter were processed in the same manner as wild species, which reinforces the notion that Late Archaic cultigens were incorporated into previously extant foraging and food processing patterns (Wills and Huckell 1994).

The stone tray fragment was uncovered in the general cultural deposits near the center of the Cienega phase occupation on the northern side of the highway. The specimen was morphological identical to those from Cienega phase contexts in Arizona (B. Huckell 1995; Mabry 1998) and, like the Arizona examples, was made of vesicular basalt. Function of these trays has not been confirmed. Given their rarity in the Late Archaic assemblages of southwestern New Mexico, they may have been traded into the region.

The stone beads were recovered from Feature 61 adjacent to Structure 3, dated to the Early Pit House period. The presence of 50 beads in a single pit clearly indicates purposeful placement.

Ceramics

The 207 ceramic sherds found at Forest Home included Alma Rough (159), Alma Plain (six), San Francisco Red (two), Mimbres Corrugated (one), indeterminate brown (one), and 38 sherds too small

to analyze (Table 6.3). The San Francisco Red sherds were faintly slipped and not polished. These attributes are not characteristic of later San Francisco Redwares and thus appear to be an early, local phenomenon (LeBlanc 1980a: 119; Wallace 1998: 19).

One hundred seventeen sherds were found in subsurface features. Structure 3 (Feature 35), which dates to the Early Pit House period, contained the vast majority of these ceramics. Sixty-nine ceramic sherds were found in Structure 3; of these, 43 were Alma Rough, one was an Alma Plain, and the remaining 25 sherds were too small to identify. Twenty-five Alma Rough sherds were found in the fill levels of this structure, which suggests that the pithouse was filled in during, or recently after, the Early Pit House period occupation at Forest Home. Eighteen Alma Rough sherds and one Alma Plain sherd were recovered from the floor. A radiocarbon date taken from a juniper seed found in floor contexts indicates that Structure 3 was occupied sometime between AD 250 and AD 430. The production of the first known Mogollon pottery, the Alma series wares, dates to AD 200 to 300 (LeBlanc 1982a, 1982b), which corroborates the radiocarbon date.

Structure 1 (Feature 6) contained five ceramic sherds, all Alma series. Three of these were found in fill levels and two in floor deposits. Structure 2 (Feature 33) contained two ceramic sherds, both Alma series, and both found in fill levels. Radiocarbon analysis of a walnut seed, a Zea cupule from the floor of Structure 1, and Zea cupules found in the hearth (Feature 13) and a storage pit (Feature 52) of Structure 2 indicate an occupation range between 400 and 170 BC for these two structures. The tiny amount of ceramics found in these structures were probably deposited on the surface during the Early Pit House period occupation and later filtered down into fill levels as a result of rodent activity.

The two San Francisco Red sherds were found in pit features. Feature 46, an isolated roasting pit in the southeastern part of the site, contained four Alma series sherds as well as the San Francisco Red ceramic. Feature 17, a pit situated among a cluster of features on the northern side of NM 90, also held a San Francisco Red sherd. Although a variety of Mimbres ceramics were reported at Forest Home by Dodt-Ellis (1989), the current study did not corroborate these results. A single Mimbres Corrugated sherd was recovered from the surface during data recovery. The site extends past the highway right-of-way to the south, and it is possible that a small Mimbres component exists in this area.

Other Artifacts

Other objects recovered from Forest Home included one piece of hematite, a metallic mineral, and six pieces of muscovite. The hematite and the metallic mineral may have been intended for use as pigments but neither showed evidence of grinding.

Biological Remains

A total of 907 faunal remains (burned and unburned) were recovered from Forest Home (see Table 6.2). The faunal specimens were generally in poor condition, and the majority of the assemblage could only be identified by size category. The results of faunal analysis suggest that the site occupants targeted more medium-to-large game than smaller species. If accurate, this information is consistent with faunal assemblages recovered from several Late Archaic upland sites in the region, which also indicates an emphasis on larger game (B. Huckell 1995; Mabry 1998). Given the preservation problems at the site, however, it is possible that some percentage of the small mammal bones at Forest Home have not been preserved. Within the medium-to-large game category, the remains of deer (*Odocoileus* sp.) were much more prevalent than either pronghorn (*Antilocapra* sp.) or bighorn sheep (*Ovis* sp.), while jack rabbit (*Lepus* sp.) remains were marginally more abundant than cottontail (*Sylvilagus* sp.) in the small game category.

Botanical remains from Forest Home were recovered in 60 flotation, 35 pollen, and 60 phytolith samples in addition to the 115 macrobotanical specimens collected from the excavations and screens. In all, 24 archaeological phytolith, 31 flotation, and eight macrobotanical samples were analyzed. Poor preservation of pollen from the site led to only six archaeological pollen samples and a modern analog being analyzed. The preservation of the macrocbotanical remains also was poor, leading to the identification of relatively few taxa. The results of these analyses are presented in Chapters 20 and 21.

Maize macrofossils were found in several features, including the floor of Structure 1, a bell-shaped pit (Feature 52), and the hearth of Structure 2. The pollen samples contained low concentrations of pollen, which generally reflects the poor preservation of plant macrofossils and faunal specimens at the site. Maize pollen, however, was present in all of the analyzed pollen samples. The phytolith samples, in contrast, contained high concentrations of plant silica microfossils. The hearth of Structure 1 and the bell-shaped storage pit in Structure 2 contained relatively high counts of maize cob phytoliths. The latter also contained a squash phytolith. This information, along with the recovery of maize pollen and cob phytoliths from other features in and around Structures 1 and 2, is indicative of maize and probably squash cultivation at Forest Home during the Late Archaic period. These two structures also contained an aggregate of chenoam pollen and high frequencies of grass pollen suggesting the cultural use of these wild species. The presence of maize cob phytoliths in and around Structure 3 indicates that maize use continued into the Early Pit House period. Abundant prickly pear cactus phytoliths found in Feature 46, a roasting pit filled with Alma series ceramics, suggests the continued presence of a mixed foraging/cultivation economy during the Early Pit House period.

Site Chronology

The Forest Home site was dated by the calibrated radiocarbon technique, as well as through the presence of diagnostic ceramics, projectile points, and architecture. These data indicated a minimum of three components. The most substantial component dates to the late Cienega phase of the Late Archaic/Early Agricultural period. Another major residential occupation occurred during the Early Pit House period. A Classic Mimbres phase component previously recognized on the site (Dodt-Ellis 1989; Kelley 1990) was represented by only two diagnostic ceramics in the current data recovery investigations.

Chronometric Determinations

Eight AMS determinations were produced from juniper seed, walnut shell, and Zea cupules in order to avoid the old wood problem (Table 6.10, Figure 6.21). The samples were selected to date all three pit structures and two roasting pits (Appendix B).

Six determinations fall into the temporal span of the Cienega phase with two-sigma calibrated date ranges between 400 to 205 BC (Beta 141721) and 365 to 45 BC (Beta 133980). All six dates overlap between 320 and 205 BC. Of the six Cienega phase dates, five have calendar intercepts between 350 and 370 BC. These dates were produced from Structures 1 and 2 and two closely associated roasting pits on the northern side of the highway.

The other two determinations were derived from Structure 3. They include two-sigma calibrated ranges of AD 250 to 430 (Beta 141722) and AD 245 to 425 (Beta 141723). These dates and the associated ceramic assemblage indicate an Early Pit House period occupation. This component was best preserved on the southern side of the highway.

Table 6.10 Forest Home Radiocarbon Dates.

Beta No.	Calibrated Two-sigma Age	Calibrated One-sigma Age	$^{13}C/^{12}C$ Ratio o/oo	Calendar Intercept	Conventional Radiocarbon Age (BP)	Dated Material	Context
133978	BC 395 to 170 (BP 2345 to 2120)	BC 380 to 200 (BP 2330 to 2150)	-21.5	BC 360	2230 +/- 50	Walnut seed	LA 78089, Pithouse floor, Structure 1 (Feature 6)
141721	BC 400 to 340 (BP 2270 to 2155) and BC 320 to 205 (BP 2270 to 2155)	BC 390 to 360 (BP 2324 to 2310) and BC 280 to 240 (BP 2230 to 2190)	-12.0	BC 375	2270 +/- 40	Zea cupule	LA 78089, Pithouse floor, Structure 1 (Feature 6)
133979	BC 390 to 155 (BP 2340 to 2105)	BC 375 to 190 (BP 2325 to 2140)	-21.3	BC 350	2210 +/- 50	Walnut seed	LA 78089, Roasting pit, Feature 12
141722	AD 250 to 430 (BP 1700 to 1520)	AD 330 to 410 (BP 1620 to 1540)	-22.3	AD 385	1690 +/- 40	Juniper seed	LA 78089, Pithouse floor, Structure 3 (Feature 35)
141723	AD 245 to 425 (BP 1705 to 1525)	AD 265 to 290 (BP 1685 to 1660) and AD 325 to 405 (BP 1625 to 1545)	-23.1	AD 365	1700 +/- 40	Juniper seed	LA 78089, Hearth in Structure 3 (Feature 36)
133980	BC 365 to 45 (BP 2315 to 1995)	BC 340 to 320 (BP 2290 to 2270) and BC 205 to 100 (BP 2155 to 2050)	-20.9	BC 180	2140 +/- 50	cf. Walnut seed	LA 78089, Storage pit, Feature 42
141724	BC 390 to 190 (BP 2340 to 2140)	BC 380 to 350 (BP 2330 to 2300) and BC 310 to 210 (BP 2260 to 2160)	-10.7	BC 365	2240 +/- 40	Zea cupule	LA 78089, Hearth in Structure 2 (Feature 51)
141725	BC 395 to 180 (CP 2345 to 2130)	BC 385 to 340 (BP 2335 to 2290) and BC 320 to 205 (BP 2270 to 2155)	-10.8	BC 365	2240 +/- 50	Zea cupule	LA 78089, Bell-shaped pit in Structure 2 (Feature 52)

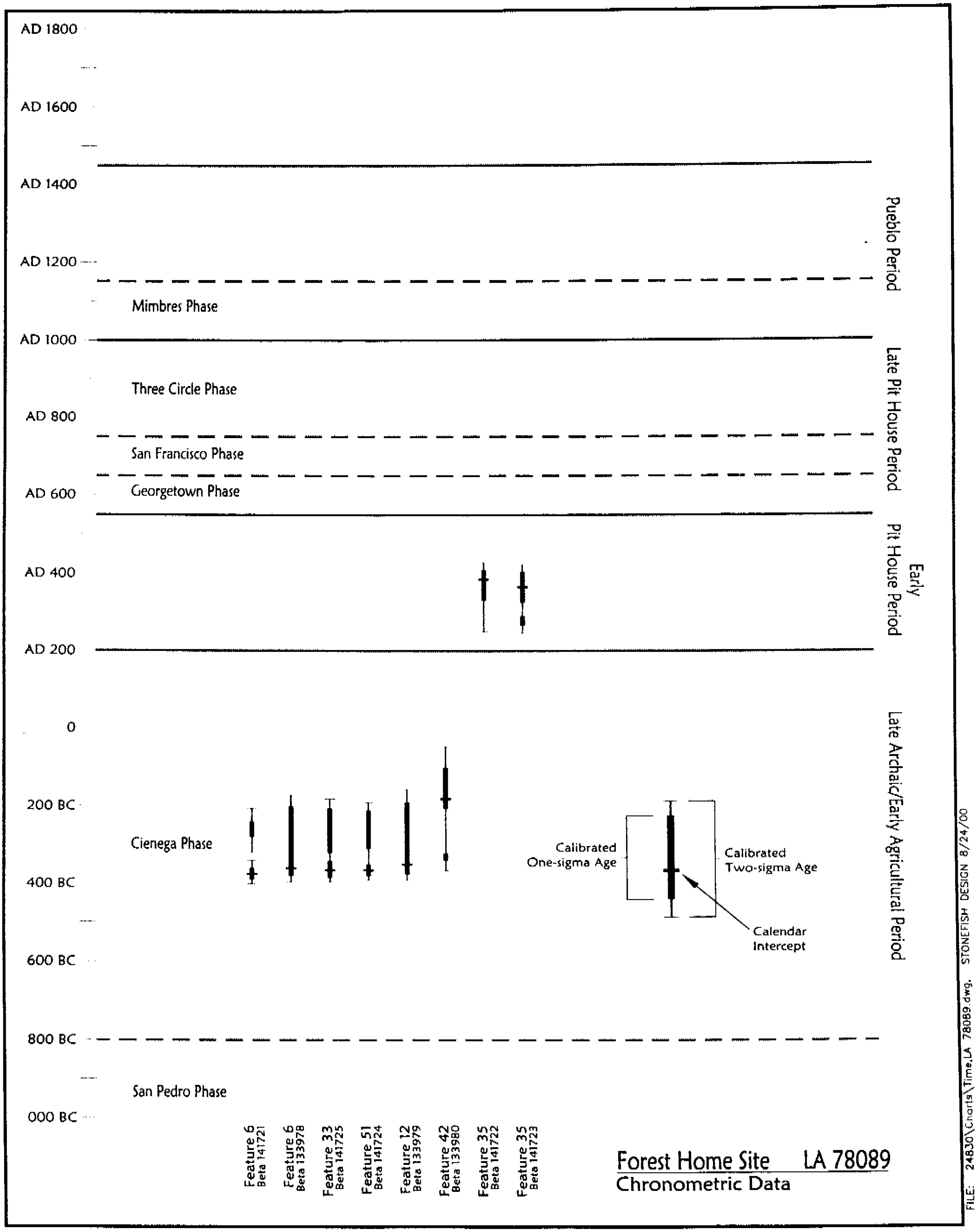

Figure 6.21 Chronometric Determinations from Forest Home.

In addition to the radiocarbon determinations, two archaeomagnetic samples were collected from the hearths (Features 13 and 20) in Structure 1. These samples dated to time periods (Pre- AD 600 to 700) for which there was no master curve (Appendix B).

Relative Dating

Diagnostic ceramic and projectile point types, the stone tray, and the architectural forms on the site support the radiocarbon dates. The seven projectile points recovered from the site include three Cienega, two San Pedro, and two indeterminate San Pedro-like points. Both the Cienega and the San Pedro points have fairly broad temporal spans but are characteristic of the Late Archaic period in Arizona (Huckell 1988; Sayles and Antevs 1941). In Arizona, the point types continue into the early Ceramic period, perhaps extending to at least AD 650 (Mabry 1996; Slivia 1999).

The San Pedro point in the fill of Structure 1, a San Pedro-like point on the floor of Structure 2, and a Cienega point in pit Feature 42 were associated with Late Archaic/Early Agricultural radiocarbon determinations. As such, they dated between 400 BC and 45 BC. The San Pedro-like point in the fill of Structure 3 could either be associated with the Late Archaic or the Early Pit House period occupations. The dates of AD 250 to 430 (Beta 141721) and AD 245 to 425 (Beta 141723) from the structure may help to date that type.

The relative abundance of diagnostic ceramics in features generally supports the radiocarbon analyses. Although ceramics were found in the fill of Structure 2, and both the fill and floor of Structure 1, the small quantities of sherds from such contexts suggest secondary deposition as a result of bioturbation (see ceramic discussion above). Structure 3, in contrast, contained abundant ceramics in both fill and floor contexts (Table 6.8).

The ceramics from the site are dominated by Alma Rough and Alma Plain. Other ceramics were limited to two weakly slipped San Francisco Red found in features and a Mimbres Corrugated sherd. According to Shafer and Brewington (1995), the latter type dates from AD 1020 to 1130. That sherd suggests the presence of a Classic Mimbres phase occupation somewhere outside the immediate project area. The rest of the assemblage conforms most closely to the Early Pit House. Lekson (1992) noted four early Early Pit House occupations in the region with dated ceramic assemblages. These varied in terms of their assemblages but generally either lacked redwares or had them in low frequencies. Fitting (1973a) reported about 5 percent San Francisco Red in the Winn Canyon site ceramic assemblage. The reasonable radiocarbon date from the site had a calibrated one-sigma range of 262 to 532 (Lekson 1992:Table 4.2). Based on these data, the Forest Home ceramic assemblage probably dates to the early end of the Early Pit House in the AD 200s to 300s. A similarly dated assemblage also was recovered from the Power site with dates falling between AD 140 and 265 (Chapter 14 of this report).

Site Interpretations

Forest Home is a large, multicomponent residential site found on both sides of NM 90. Data recovery investigations revealed the remains of structures, features, burials, and cultural materials ranging between approximately 400 BC and AD 430. Components included substantial residential settlements dating to the Cienega phase of the Late Archaic/Early Agricultural period and to the Early Pit House period. A later Mimbres phase component was represented by only a single Mimbres Corrugated sherd within the investigated portion of the site.

Cienega Phase Component

The Cienega phase component at Forest Home may extend over the entire site area within the right-of-way but was best represented by a tight cluster of structures, extramural pits, and a burial found on the northern side of the highway. These features coupled with a dark cultural deposit and numerous artifacts indicate repeated occupations of considerable duration.

Although a few ceramics were mixed into the cultural deposits in this area, the component was well dated to the phase by six AMS determinations (Table 6.10). The dates, derived from walnut shell or Zea cupules, have two-sigma dates spanning a period between 400 and 45 BC and overlapping between 365 and 205 BC.

Distinguishing the settlement plan for the component was difficult due to the prior highway impacts, the alluvial overburden on the northern end of the site, and the limited investigations outside the right-of-way. The two structures and extramural features on the northern side were in an area measuring only 25 m east-west by 11 m north-south. These dimensions are culturally meaningless since both the northern and southern boundaries were either concealed or destroyed.

The two structures within the Cienega phase concentration were dated statistically the same but may have been constructed decades apart in time. Feature 12 does indicate that a slightly later Cienega phase occupation did occur on the same location. Superimposed on to Structure 1, this roasting pit must have been built some decades after the structure collapsed and filled with sediments. These data could suggest that the structures also were separated slightly in time.

The structures at Forest Home do have many attributes in common with pithouses found on contemporaneous sites in or near the Mogollon region. These attributes include: a circular to oval plan; a saucer-shaped profile; peripheral interior; and, at times, more centrally located post holes; level to slightly concave floors with unprepared surfaces; shallow basin hearths; and abundant, at times bell-shaped, interior and exterior pit features (Hemphill 1983; Minnis 1980; Oakes and Zamora 1999; Wallace 1998). The Forest Home structures ranged from 7.79 and 12.24 m^2 in size. The structures were characterized by roughly circular, basin-shaped pits from 15 to 20 cm in depth. Exterior walls were indicated by small, closely spaced post holes around the interior perimeter or the pit. Four intramural post holes arranged in a square pattern suggest frameworks that supported an earthen covered roof. Interior floor space included one or two hearths, small storage pits, and in Structure 1, a possible plant processing activity area. Their small size implies the structures were occupied by relatively few people, perhaps a nuclear family or household. Their size and the few artifacts found on the floors also argue that most domestic activities were performed outside the structures.

Surrounding the structures was a tight cluster of external roasting pits, storage pits, and other pits whose function remains unknown. This association, and the relative lack of feature superimposition, suggests that the external features are affiliated with the structures and represent the remains of external activity areas. These external locations were used for storage, food preparation and, likely, craft production.

The large capacity of the storage facilities implied surplus foods or goods were being kept at the site. In contrast to the earlier Cienega phase component at the Wood Canyon site (Chapter 7), only one bell-shaped storage pit was identified at Forest Home, and it was located inside a structure as opposed to being extramural. It also was the small bell-shaped pit found in the study. The other large capacity storage pits found on the component were extramural deep, cylindrical features ranging from 312.15 to 653.05 liters in volume. These pits were not as large as those from the early Cienega phase component at Wood Canyon where many storage pits exceeded 1,655 liters. Based on these observations, it could be that less surplus was being produced or it was being removed to another location.

Botanical evidence indicates the production of maize and squash by the Cienega phase occupants of Forest Home. Macrobotanical sampling focused on the structures and their internal features. The results are dominated by maize, which is almost ubiquitous (found in 84 percent of the site samples). The predominance of maize cupules in these samples likely reflects the storage of shelled maize in subfloor pits, as well as the use of maize cobs for fuel. Another interesting taxon recovered was a tobacco seed found in Feature 5. This pit, whose original function remains unknown, was not directly dated, however, its spatial association with Structure 1 suggests an Early Agricultural period context. Nuts also are

abundantly evident, as piñon, walnut and acorn were found in the component's features. As Huckell suggests in Chapter 20, their presence may reflect use as on-site stores for sustenance during longer seasonal occupation periods, including overwintering. At the least, they could reflect late summer and fall occupation of the site.

Microbotanical evidence also indicates the use of cultigens during the Late Archaic/Early Agricultural period. Maize pollen and maize cob phytoliths were found in all of the microbotanical samples taken from inside and immediately around Structures 1 and 2. Relatively abundant maize cob phytoliths were found in the hearth of Structure 1 (Feature 20) and in Feature 42, a large roasting pit situated between Structures 1 and 2. Maize cob phytoliths also were recovered from five other extramural features around the two structures. Feature 52, the bell-shaped storage pit in Structure 2, contained both maize cob and squash phytoliths, indicating the use of the latter cultigen as well.

The Early Pit House Period

Like the preceding Cienega occupations, the Early Pit House period component may have utilized a large portion of the site, including portions to the north and south of the right-of-way. Data recovery excavations, however, confirmed intact deposits dating to this period only in a limited area on the southern side of the right-of-way. Dark cultural deposits and an abundance of artifacts immediately south of the project area could indicate the Early Pit House component extended out in that direction. The presence of a structure, burial, and a few extramural features in this area were interpreted as seasonal occupations perhaps seasonally inhabited for only a few years.

The Early Pit House period component was dated by two AMS determinations derived from juniper seeds within the structure. The two-sigma calibrated dates include AD 250 to 430 (Beta 141722) and AD 245 to 425 (Beta 141723). In the near complete absence of San Francisco Red vessels on the site, the actual occupation is assumed to be at the earlier end of the radiocarbon date ranges.

No clear data on the overall settlement plan was gleaned from the excavations. It is likely that the component continued south out of the present right-of-way. Construction of both the old and current NM 90 no doubt also removed portions of the component. That part that survived within the right-of-way consisted of one structure surrounded by a few extramural roasting pits, pits of unknown function, and a burial in a 25 m east-west by 10 m north-south area.

Structure 3 consisted of a roughly circular pit only 4 cm below the scraped surface. A combination of rodent and tree disturbance to the overlying deposits may have obliterated the upper portion of the structure, but it is assumed to have been a shallow structure. The floor encompassed around 11.52 m^2 and was nearly level. A shallow hearth and two post holes were the only floor features. No peripheral posts or internal storage pits were found. Like the Cienega phase structures, Structure 3 probably was large enough to accommodate a small household.

No storage pits were found nearby the structure. Although a few roasting pits and other pits of unknown function were spatially associated with the structure, they are uncommon and less concentrated than the dense feature cluster associated with the Cienega phase structures. Macrobotanical samples taken from *in situ* contexts revealed the presence of maize cupules, winged pigweed, tansy mustard, stickleaf and acorn shells in Structure 3 (see Chapter 20). Four maize cob phytoliths also were found on the floor of this structure. Another cob phytolith was found in a nearby pit (Feature 61). Feature 46, a roasting pit situated slightly east of Structure 3, has yielded 272 prickly pear phytoliths, which are the likely remains of one or more pit roasting events.

In summary, the evidence indicates that the occupants of Forest Home procured resources through a strategy that combined agricultural products with foraged resources. This mixed strategy emerged during the Late Archaic/Early Agricultural period and continued in the Early Pit House period. The major difference between the two periods appears to be related to the intensity of site occupation. The Late Archaic/Early Agricultural period occupation represents a relatively compact settlement, which contains well-constructed pithouses and a greater amount of storage features. The Early Pit House period structure appears more ephemeral and is not associated with storage features.

Analysis of the relationship between construction costs, in terms of labor and materials invested, and residential mobility suggests that residents invest more in housing construction when they anticipate long periods of structure use (Binford 1990; Diehl 1992; Kent 1991; McGuire and Schiffer 1983). Diehl (1997) has presented several criteria for monitoring the investment in pithouse construction for the Mogollon region. The Early Agricultural period structures at Forest Home score high on two of these criteria: the density of interior posts and evidence of (hearth) remodeling, suggesting that the site occupants expected a relatively long period of residence. In another study, Diehl (1992) found that structures that were occupied less than 121 days of the year tended to be constructed out of non-durable, perishable materials, for example, brush and thatch. Structures occupied between 121 and 240 days per year often combined perishable materials and earth, while structures occupied longer than 240 days in a single year were made of truly lasting materials, such as wood planks, adobe, and stone. As numerous internal peripheral and central posts are required to support an earth-covered, domed pithouse superstructure while pole and brush thatched roofs would not require such support, the Cienega phase structures at Forest Home appear to fall in the middle category, and the Early Pit House structures the former. When combined with the abundant storage facilities and deeper midden associated with the northern site component, this information suggests a protracted site occupation during the Cienega phase, probably longer than a single season.

Current information suggests a substantial variation in occupation intensity for sites of both periods. Whereas some sites contain well-defined pit structures with both internal and external storage pits, other settlements are composed of more ephemeral structures that lack abundant subsurface storage features. For example, like Forest Home, several sites in the Tucson area, notably the Santa Cruz Bend and Stone Pipe sites, also had Cienega phase pit structures that were deeper and contained more interior storage features than pithouses dating to the Plain Ware Horizon (which generally corresponds to the Early Pit House period) (Mabry 1998). The later structures at these sites did contain more floor area. Meanwhile, some Early Pit House period settlements, such as the Pine Lawn phase occupation at the SU site near Reserve, New Mexico, also utilized well-defined pithouses with abundant interior storage pits (Wills 1996).

This situation suggests a minimally bi-seasonally mobile settlement pattern, whereby larger base camp settlements, which contained more substantial pit structures with associated intramural and extramural storage features and fairly dense midden, were occupied for extended periods of time, likely longer than a single season. Smaller pithouse settlements during these periods may represent alternate season short-term occupations when foraging required greater residential mobility. Alternatively, and more likely, these ephemeral sites may represent short-term logistical occupations, possibly of a few weeks duration, that were established for the harvest of spatially restricted, temporally contingent resources, such as piñon nuts or dispersed agricultural gardens.

7.0 The Wood Canyon Site (LA 99631) (USFS No.: AR-03-06-07-00589)

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Introduction

The Wood Canyon site (LA 99631) contained the remains of two substantial Late Archaic/Early Agricultural settlements dating to the Cienega phase. These residential components consisted of structures, burials, large storage facilities, other features, and evidence of a mixed farming, foraging, and hunting economy. Other minor occupations at the site occurred during the San Francisco and Three Circle phases of the Late Pit House period, the Mimbres phase of the Pueblo period, and the Protohistoric period. The site also may have served as a Middle Archaic camp.

Wood Canyon originally was recorded by the Office of Contract Archeology during a cultural resource inventory survey of an existing powerline right-of-way that parallels the current project corridor (Hogan 1992:26-27). Although one Alma Plain sherd indicated some Mogollon activity on the site, the presence of a biface tip and bifacial thinning flakes led Hogan (1992) to propose the main occupations dated to the Archaic tradition. In 1998, the site was revisited by TRC as part of the cultural resource survey for the current NMSHTD undertaking (Goar et al. 1998:42-46). At that time, the boundaries were expanded to 165 by 31 m within the highway right-of-way. A large rock-filled feature was identified on the surface, and the road cut revealed a thick A horizon with cultural materials. Additionally, a Late Archaic type dart point and a small number of Alma Plain and unspecified corrugated sherds were noted on the surface. These materials supported the estimated temporal span given by Hogan.

The major project-related impacts to the Wood Canyon site are the widening of the shoulders and the recontouring of the slopes. These road improvements were anticipated to disturb all remaining intact cultural deposits within the right-of-way limits. Between March 10 and May 10, 1999, TRC carried out data recovery excavations on the Wood Canyon site to mitigate impacts of the highway reconstruction project. Crew size varied from three to eight during this period. The investigations sought to clear all cultural deposits from the right-of-way; however, given the density of the features and midden deposits, a portion of the site within the right-of-way eventually was set aside for avoidance.

The investigations at Wood Canyon revealed four shallow, circular pit structures, large capacity storage facilities, burials, and numerous other thermal and nonthermal pit features associated with a substantial artifact assemblage. Eleven of the 12 radiocarbon determinations from the site date to two temporally separate Cienega phase components. The other determination fell into the Protohistoric period. Although Late Pit House and Mimbres artifacts were scattered across the surface and mixed into the deposits, no clear intact deposits or features of those occupations were identified. The presence of maize from well-dated Late Archaic/Early Agricultural contexts indicates maize farming was already a well established part of the economy by 800 BC in the Mimbres area.

Physical Description

The Wood Canyon site is situated on a ridge overlooking Wood Canyon immediately to the south and Picnic Canyon approximately 200 m to the north (Figure 1.2). At an elevation of 1,780 m (5,840 feet) amsl, the central portion of the site lies on a broad, nearly level surface that slopes gently to the west (Figures 7.1 to 7.5). It continues out onto two narrow finger ridges to the west. Steep, rocky slopes descend abruptly on the northern, southern, and western sides of the ridge, marking the general limits of the site in those directions. A small drainage on the eastern side separates the Wood Canyon site from LA 121208.

Figure 7.1 Photograph of the Wood Canyon Site Northwestern Quadrant Facing Northwest.

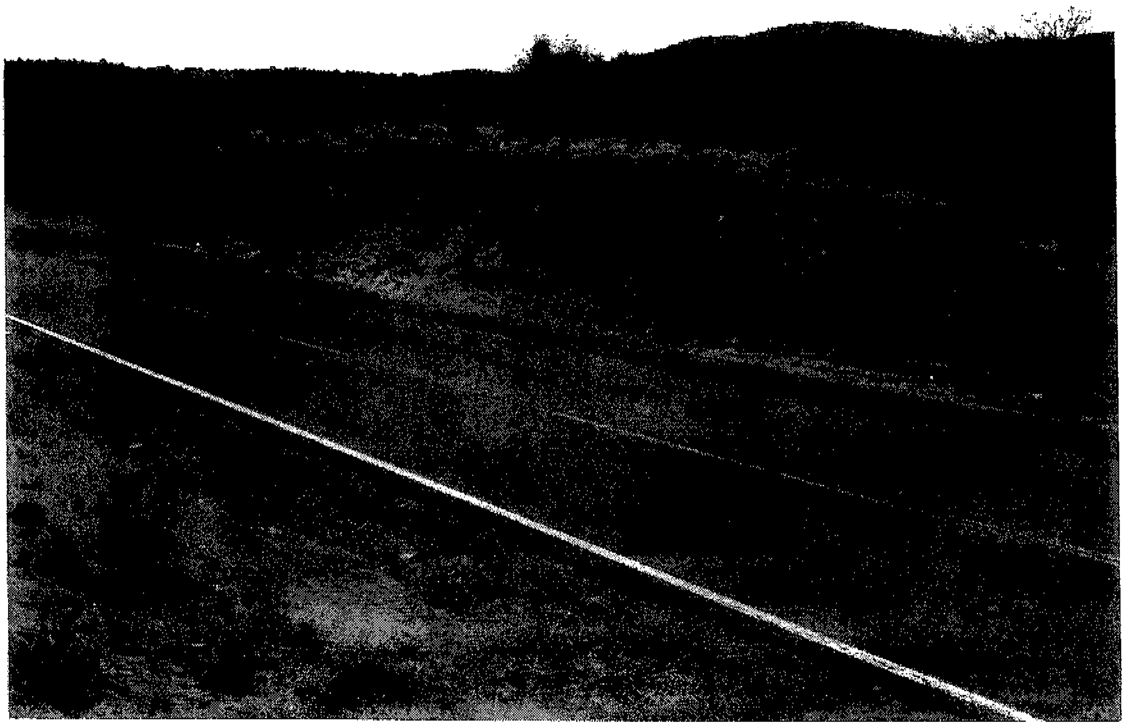


Figure 7.2 Photograph of the Wood Canyon Site Southeastern Quadrant Facing Southeast.

Figure 7.3 Photograph of the Wood Canyon Site Southeastern Quadrant Facing South.

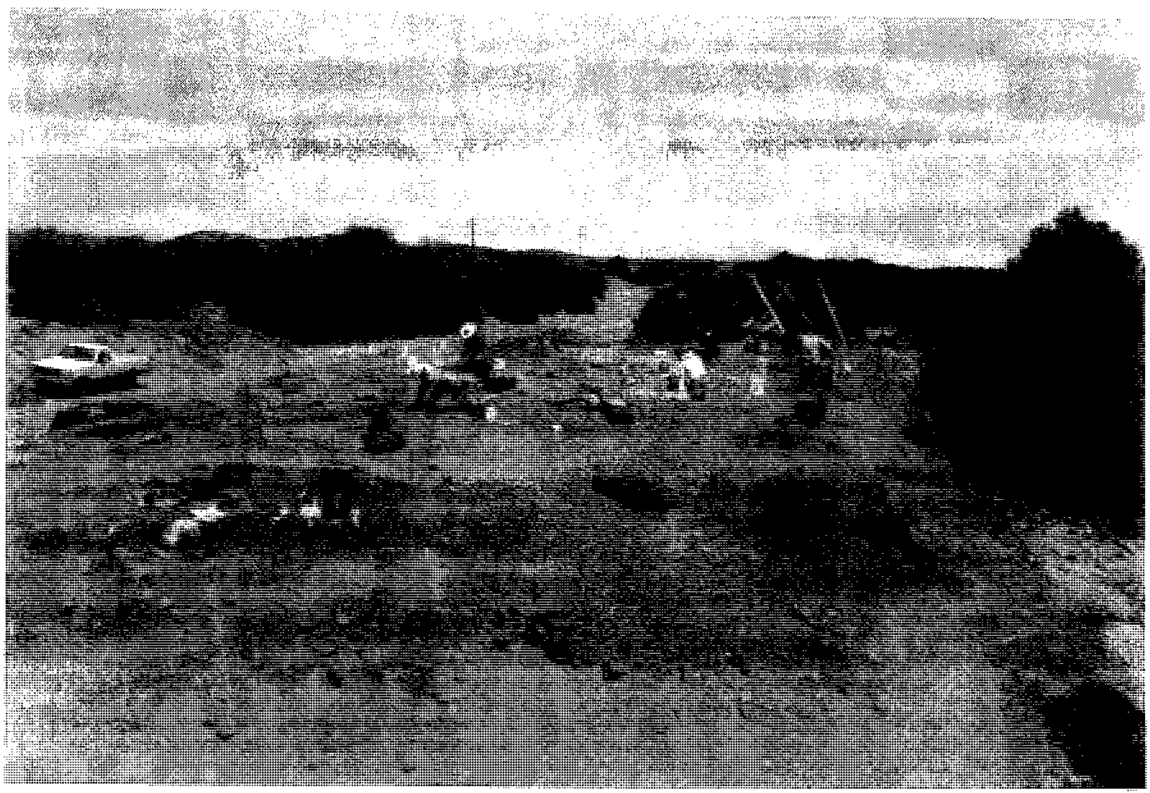


Figure 7.4 Photograph of the Wood Canyon Site Excavations Facing East.

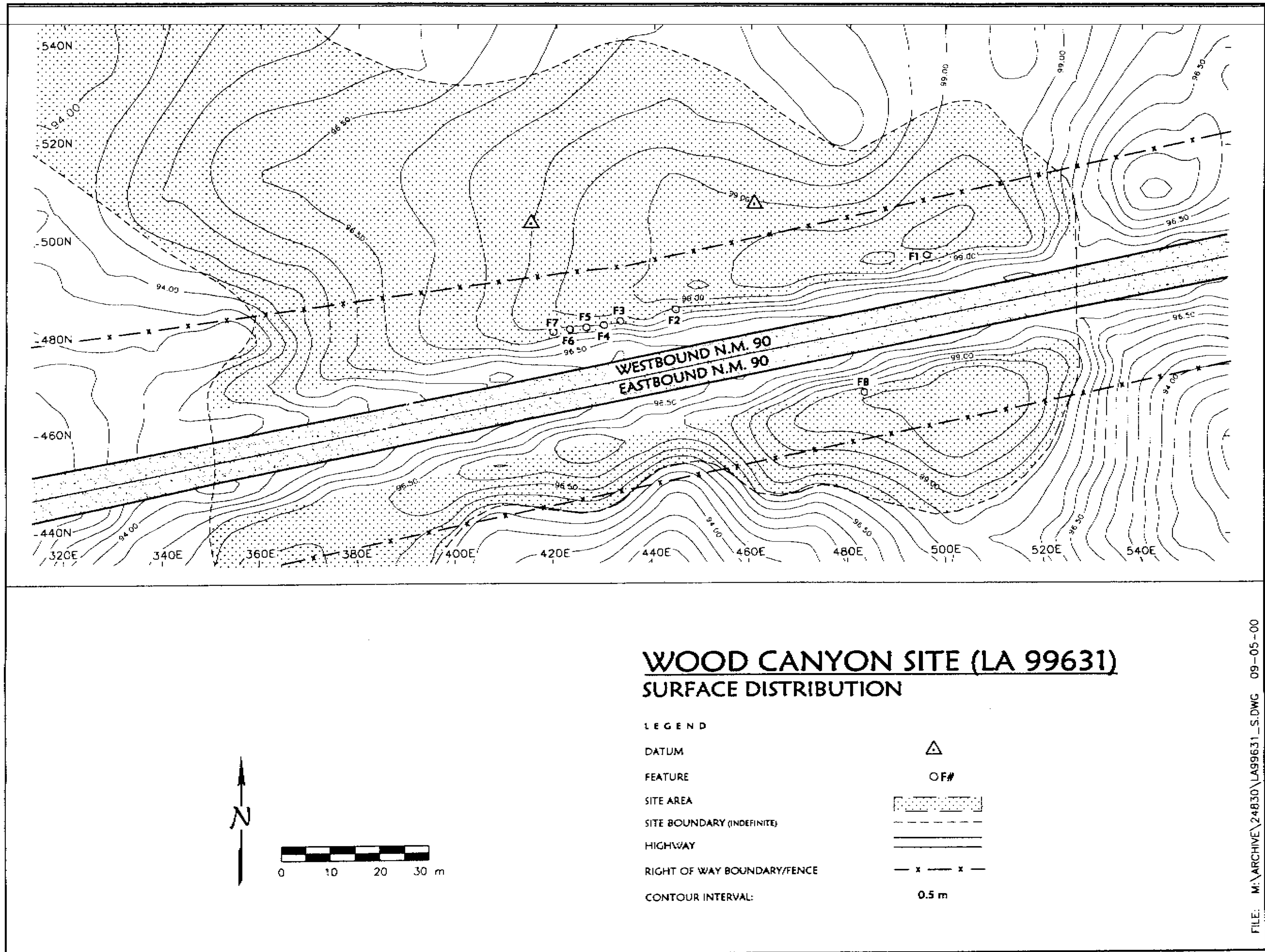


Figure 7.5 Wood Canyon Site Topographic Map Showing Surface Artifact and Feature Distributions.

The site lies about 12 to 14 m above the broad alluvial plain of Wood Canyon. Nearby the site, this floodplain is at least 140 m wide and is filled with coarse sand and gravel. Although potentially suitable for farming, the valley presently is subject to flash flooding during the late summer monsoonal period. Currently, no permanent, naturally available water source is located nearby the site. Juniper Spring is found about 2 km to the southeast. Other springs could have issued out nearer the site during its occupations.

The surface geology of the area consists of Burro Mountain granite intruded by numerous vein deposits (Gillerman 1964). The granite occurs in both porphyritic and fine-grained varieties and is tan, pink, or red in color at the site. Veins are filled with white quartz that is more resistant to weathering but eventually fractures into angular pieces. The granite weathers to soft crumbly rock that decomposes to a gravelly soil.

The Wood Canyon site is situated within the Madrean Open Oak Woodland biotic zone. This rich zone produced a wealth of oak, walnut, piñon, and juniper seeds, as well as yucca, beargrass, and agave. The site currently is covered in alligator juniper, piñon, and gray oak. A juniper stump measuring more than 1 m in diameter and a standing juniper estimated at 80 cm in diameter are present on the site; however, most of the standing trees are 10 to 20 cm in diameter at the trunk. The sparse understory includes yucca, beargrass, and various grasses. Oaks dominate the overstory along the lower slopes and alluvial plains.

The major land modifications to the site include the original construction of NM 90 and erosion to the edges of the site. NM 90 cut through the center of the site, probably taking out the main portion of the Mimbres component as well as the heart of the Late Archaic/Early Agricultural occupations. The steep road cuts were 2.5 to 3 m below the original surface of the ridge, leaving excellent profiles of the site's stratigraphy. Road construction also may be partially responsible for a thin sandy loam that covers portions of the thick A-horizon north of the road. Erosion to the surface of the site was most evident on the western slopes where numerous thermally altered rocks and debitage were exposed on the surface.

Data Recovery Strategy

Data recovery investigations at the Wood Canyon site included mapping, surface collection, shovel testing, manual excavations of blocks, backhoe trenching, and mechanical stripping. All collections and excavations were carried out within the highway right-of-way fence lines. A reconnaissance survey was carried out beyond those limits to determine the site boundaries.

Fieldwork began with a systematic inspection of the site to further define the size and nature of the surficial deposits. These investigations found dense quantities of chipped and ground stone artifacts, particularly along the road cut and other eroded contexts. A small scatter of ceramics was located near the center of the site. Eight features (Features 1 to 8) also were documented along the road cut during the reconnaissance (Figure 7.5).

Site mapping incorporated three permanent site datums beyond the right-of-way, topographic details, and highway right-of-way and engineering stations. The mapping operation also included point proveniencing all artifacts, features, excavation units, backhoe trenches, and the limits of mechanical stripping. The permanent datums (N509E500 at an elevation of 99.96 m, N501E460 at an elevation of 99.41 m, and N495E417 at an elevation of 98.11 m) are long aluminum capped rebar stakes stamped with the site number, grid coordinates, and ground elevation. The OCA site datum was located at N496.12 E402.24 at an elevation of 97.55 m. In addition to the grid datums, two permanent right-of-way markers may be preserved on the site. These are located at N502.60 E485.05 at an elevation of 99.65 m and N495.95 E452.69 at 99.23 m.

Systematic surface collections were undertaken across the entire right-of-way portion of the site. Specimens were either point provenienced or, in three areas of greater concentrations, collected within 2 by 2 m grid units.

As the surface collection proceeded, excavations began on the northern side of the road (Figure 7.6). An excavation block was laid in over Feature 1, a deflated roasting pit. This area was severely deflated with only a few centimeters of A horizon deposits resting on C horizon soils. The road cut also was profiled in places, leading to the identification of a more complicated stratigraphic column to the west of Feature 1. One 50 by 50 cm shovel test, various other units totaling 38 m^2, and nine backhoe trenches were then excavated on the northern side of the road in order to determine the extent of the cultural deposits. The backhoe trenches were placed perpendicular to the road.

The southern side of the right-of-way was less well preserved. Much of this area sloped down toward Wood Canyon and was often completely eroded to subsoil. Intact cultural deposits were restricted to the surface of broader ridge tops. These deposits were examined by profiling the road cut, and by one 50 by 50 cm shovel test, three 50 cm wide shovel trenches of varying lengths, a 1 by 1 m unit, and an excavation block totaling 30 m^2. These excavations confirmed that cultural deposits were on the surface, somewhat deflated, and no more than 15 cm thick.

Geomorphic investigations of the various profiles concluded that the central portion of the site contained an Ab horizon cultural deposit ranging from 10 to 30 cm thick. It graded into a C horizon soil developed from decomposed granite. Armed with the geomorphic interpretations, the site was carefully stripped of the A horizon deposits. Areas were scraped down until features were identified. All features were excavated according to the data recovery plan. After excavating the features, the areas were scraped one or two more times to confirm that no more cultural anomalies were present

Once features were identified, excavations followed the stipulations of the data recovery plan. However, as the excavations continued, many small, shallow pit features were found to contain few, if any, biological remains or artifacts useful in addressing the research questions. After receiving approval from the Gila National Forest, SHPO, and NMSHTD to modify the data recovery plan, these features (60 cm or less in length) were sampled by the excavation of half of their fill unless important information was encountered.

Three backhoe trenches were excavated on the last field day. BT 10 ran westward from Feature 100, a pithouse, through the most important portion of the site in an attempt to identify other pits. Only one feature (Feature 178) was identified in BT 10. BT 11 and BT 12 bisected natural anomalies south of the road. Both proved to be slight depressions or gullies where A horizon deposits had not been completely removed by erosion or mechanical stripping.

Mechanically stripped surfaces within the right-of-way measured 163 m by a maximum of 12 m on the northern side and 186 m by a maximum of 13.5 m on the southern side for a total of 3,782 m^2. A small portion of the site within the right-of-way was not investigated (Figure 7.6). This area lay between the right-of-way boundary and the Forest Service fence on the northern side of the road. The NMSHTD erected protective fencing around this area prior to the reconstruction of NM 90. The area currently is marked by a series of florescent orange rebar stakes.

Geomorphology and Stratigraphy

Sediments at the Wood Canyon site consist dominantly of moderate to coarse, granitic sands with smaller amounts of silt and clay. Due to the topographic position of this locale, it appears that the sediments at this site are eolian, as opposed to alluvial, in origin. It is likely, however, that the nearby alluvial channels served as sediment source areas from which the sands were reworked by eolian processes. Nine backhoe trenches were excavated into the Wood Canyon site to help determine the geoarchaeological relationships on this hill top (Figure 7.7).

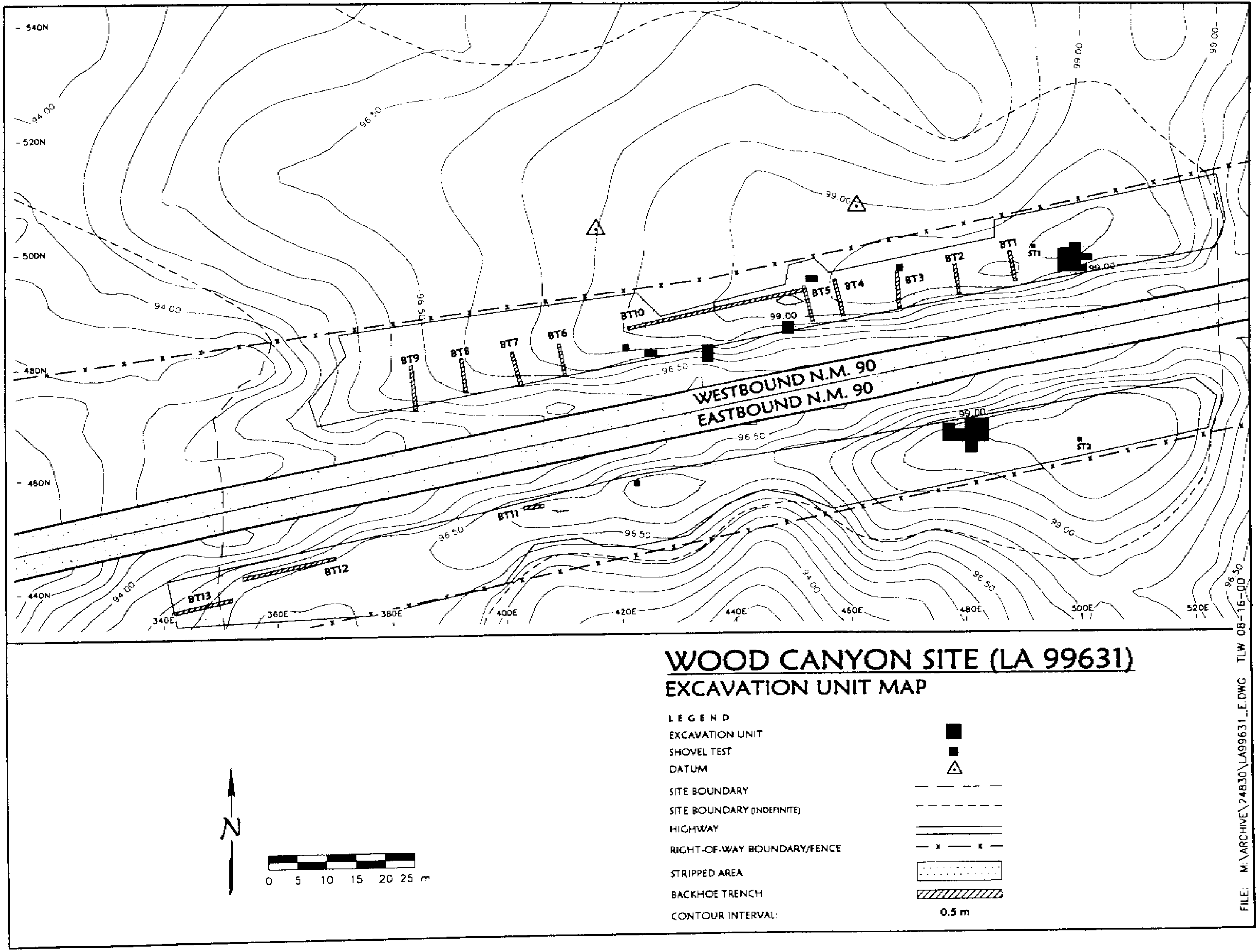
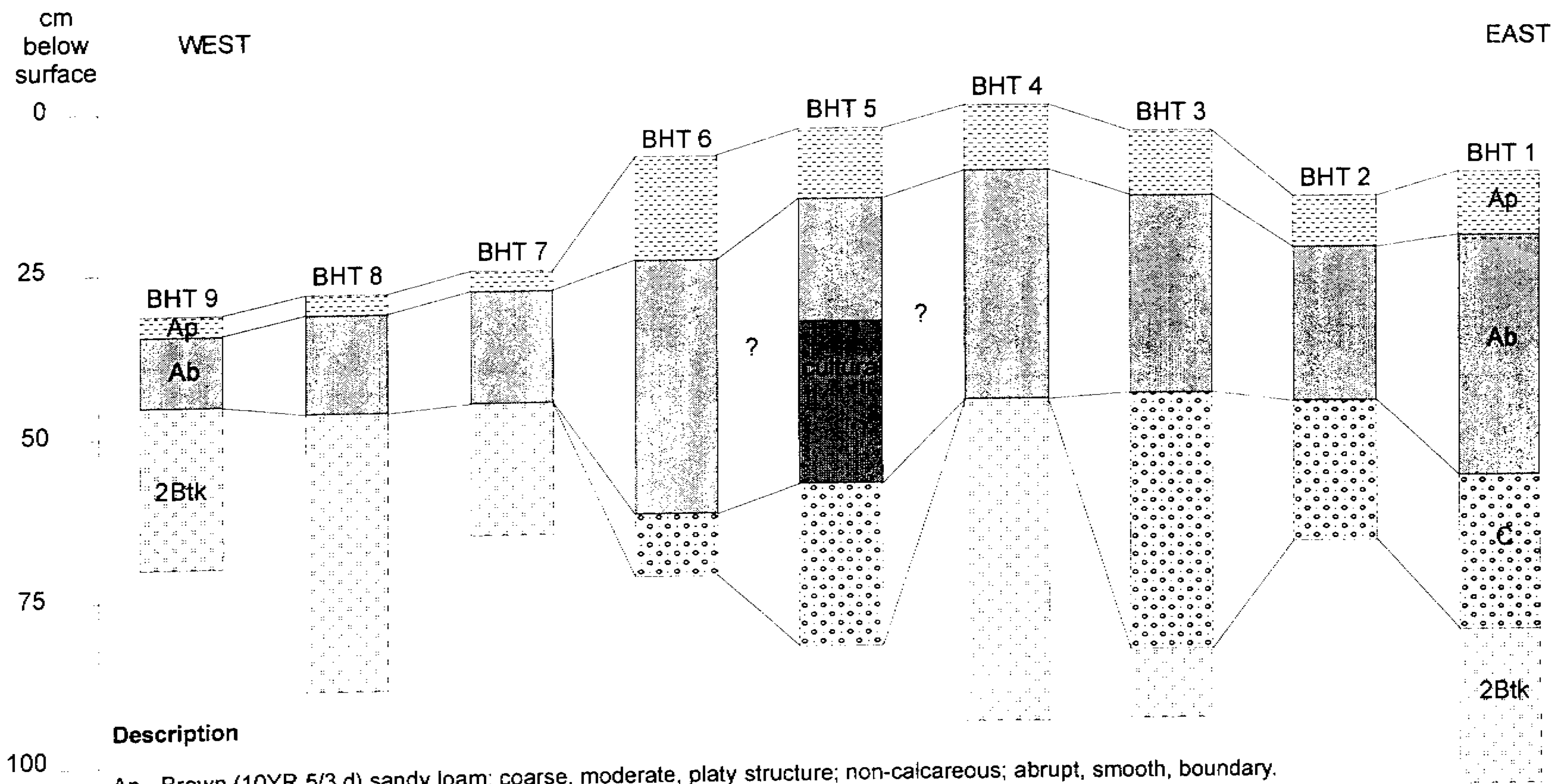


Figure 7.6 Wood Canyon Site Topographic Map Showing Excavation Units.

Stratigraphic Relationships Between Backhoe Trenches at Site LA 99631

(Relative Elevations are Estimates Based on Field Observations)



Description

Ap - Brown (10YR 5/3,d) sandy loam; coarse, moderate, platy structure; non-calcareous; abrupt, smooth, boundary.

Ab - Brown (10YR 5/3,d) sandy clay loam; weak, medium, granular structure; non-calcareous; clear, smooth, boundary.

Cultural - Dark grayish brown (10YR 4/2,d) sandy clay loam; weak, medium, granular structure; non-calcareous; sharp, irregular boundary.

C - Brownish yellow (10YR 6/6,d) sandy clay loam; massive; non-calcareous; sharp, irregular boundary.

2Btk - Yellowish red (5YR 5/6,d) sandy clay loam; moderate, coarse, subangular blocky structure; common, thin, clay and organic cutans on ped faces; common (15%), medium, irregular, carbonate filaments and masses (Stage II accumulation).

Figure 7.7 Stratigraphic Relationships Between Backhoe Trenches at the Wood Canyon Site.

Exposures in the backhoe trenches typically exhibited four different soil horizons and also a discontinuous cultural horizon. The uppermost horizon consisted of a brown (10YR 5/3,d), loose, unconsolidated, sandy loam (Appendix D) that forms the modern A horizon. In many places this horizon shows evidence of mechanical compaction in the form of a coarse, platy structure which results in its designation as an Ap soil horizon. This was most likely caused by heavy machinery during previous construction along the NM 90 right-of-way. Based on its stratigraphic position, unconsolidated nature, and weak soil formation, this unit is tentatively considered to be historic in age and has limited archaeological potential.

Below the Ap horizon is a much thicker, cumulic Ab horizon. The Ab horizon typically is composed of a brown (10YR 5/3,d), sandy clay loam, with a weak, medium, granular structure. The thickness of this cumulic Ab horizon is quite variable across the site, from 10 cm thick in BT 9 to 60 cm thick in BT 6 (Figure 7.8). The granular structure observed in this unit often is associated with A horizons and results from bioturbation (e.g., earth worms and roots) within the humus-rich surface horizon of the soil. The A horizon also appears to be associated with the cultural materials recovered from the site. In backhoe trenches and test units that encountered cultural materials and/or features, the archaeological materials often were resting upon or within the Ab horizon. In BT 6, the culturally stained unit occurs in the bottom portions of the Ab horizon and is buried by additional cumulic A horizon soil/sediments. This indicates that, at least in reference to the occupation represented in BT 6, the environmental conditions that were present during the occupation persisted for some time after the occupation. Whether this relationship holds true for all of the cultural evidence on the site is unclear.

In some portions of the site, the Ab horizon is underlain by a horizon of unaltered parent material similar to that in which the A horizon developed (C horizon). This includes backhoe trenches 1 through 6, though the C horizon was curiously not observed in BT 4. It may be that all of the sandy sediments in the vicinity of BT 4 experienced soil formation and are, thus, included in the Ab horizon. In general, however, the C horizon sediments are a brownish yellow (10YR 6/6,d) sandy clay loam, that lacks soil structure. Like most all of the sediments of which the site is comprised, the general composition of the C horizon deposits is granitic in nature.

Underlying the C horizon and the Ab horizon in the western portions of the site is a unit of decomposing granite that exhibits pedogenic carbonate accumulations and clay cutans on ped faces (2Btk horizon). The pedogenic properties indicate, although the sediments are granite that has weathered in place, that they experienced soil formation prior to burial. The lack of a well-developed A horizon capping the 2Btk horizon over most of the site indicates that the paleosol associated with the 2Btk horizon was partially eroded prior to the deposition of the overlying sediment units. Thus, the contact between the 2Btk horizon and the overlying sediments represents an unconformity on the site. Based on the amount of carbonate observed in the unit (Stage II accumulation) a tentative age estimate may be made. Stage II carbonate accumulations within the region typically are associated with paleosols that date to the late Pleistocene/early Holocene (ca. 8000 to 15,000 BP; Gile et al. 1966; Karlstrom 1988; Machette 1985; Monger 1993; Smith and McFaul 1997). This is a sharp contrast to the Late Archaic/Early Agricultural materials recovered from the overlying sediments (younger than 3000 BP). Thus, a significant portion of the early and middle Holocene in not represented by sediments at Wood Canyon.

Based on the soil/sediment recorded on this site, a tentative model for the development of the site may be made (Figure 7.8). During the late Pleistocene/early Holocene, weathered granite on the hill top experienced a strong soil forming event that resulted in the pedogenic accumulations of carbonate and clay. The clay was the result of weathering of the feldspar that comprises the local granite. Organic acids present in the A horizon of the soil probably assisted the decomposition of the feldspars and assisted in making them mobile for translocation into the underlying Btk horizon that was developing at the same time. At some point, probably during the middle Holocene, the soil experienced erosion and was truncated to its Btk horizon. The middle Holocene is a tentative suggestion based on the premise that the Altithermal dry climatic episode (ca. 8000 to 5000 BP) occurred in southwestern New Mexico (Antevs 1948, 1955).

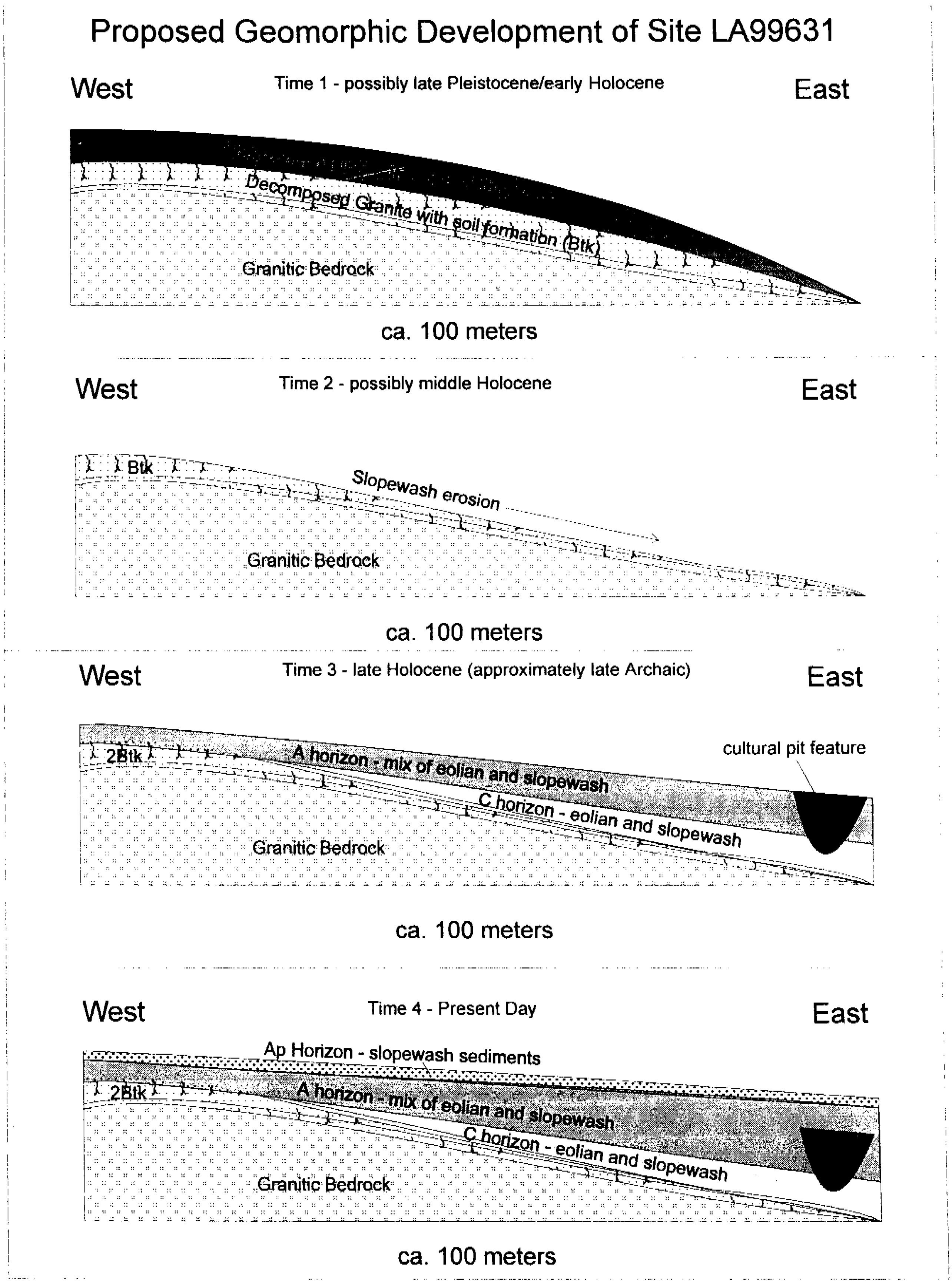


Figure 7.8 Proposed Geomorphic Development of the Wood Canyon Site.

Following this erosional episode, the granitic sands from the surrounding alluvial fans began to be reworked and deposited on the hill upon which the Wood Canyon site rests. Though eolian sedimentation continued, environmental conditions allowed for the development of a vegetative community on the eolian sands. This also resulted in the initial development of the A horizon on the sands. Over time, and including the time cultural occupations occurred on the site, eolian sedimentation and soil development continued. This resulted in the gradual accumulation of sandy materials and the continued influx of humic material from the vegetative community that was able to keep pace with the sedimentation (Time 3 shown in Figure 7.8). The lack of any discernable hiatus within the Ab horizon of the site suggests that this accumulation was a slow, gradual process and that the vegetative community was never entirely buried by a sudden influx of sediment. Based on the stratigraphic data observed in the backhoe trenches, it appears that the eastern portion of the site was formerly a gentle swale in the hill top locale. The topographic break caused by this swale helped form a modest eolian sediment trap in the lee of the crest of the hill. As a result, the majority of eolian sedimentation occurred on the central portion of the Wood Canyon site.

It is unclear how long the cumulic A horizon continued to develop at the site. It is possible that it was at the surface up through the Late Pit House and Pueblo periods. Thus, more than one cultural component could be concentrated on the surface of the Ab horizon. At some point, the Ab horizon was buried by subsequent eolian sediments. The poor soil development in the overlying Ap horizon suggests that this was a relatively recent event, possibly since the end of the Little Ice Age (ca. 100 BP). Pieces of historic metal found in these deposits may suggest the sediments also were associated with highway construction.

Surface Characteristics

The Wood Canyon site occupied the entire ridge top between Wood Canyon on the south and Picnic Canyon on the north. Surface manifestations dropped off extending out the finger ridges to the west, on the steep slopes to the north, west, and south, and at a small drainage on the east. Including the finger ridges, the site was approximately 280 m east-west and a maximum of 100 m north-south (Figure 7.5). The distribution of surface artifacts and features encompassed 6,311 m^2 on the ridge.

This large multicomponent site included an extensive surface artifact and thermally altered rock scatter. Most of the artifacts were chipped stone debitage, although ceramics, ground stone, and chipped stone tools also were present. The surface densities were highest within the project area along the western slope and road cuts where erosion was exposing more cultural deposits. Other areas had a moderate to sparse distribution of material. Artifacts and thermally altered rocks were sparse on the finger ridges. Only one feature, a deflated roasting pit (Feature 1), was identified on the general surface. Seven other features (Features 2 to 8) were recognized in the NM 90 road cuts.

Within the right-of-way, the site measured 174 m east-west and 46 m north-south, including that portion removed by previous road construction. Previously undisturbed portions of the site within the right-of-way included 1,808 m^2 on the northern side and 1,975 m^2 on the southern side for a total of 3,782 m^2.

A controlled surface collection undertaken on the right-of-way portion of the site yielded 1,384 artifacts, including 1,294 chipped stone pieces, 29 ground stone artifacts, and 61 ceramics (Tables 7.1 to 7.3). Although these materials obviously indicate intense cultural activity, their distribution on the surface in part reflected the results of prior highway construction and post-abandonment deposition and erosion processes. Building of the highway required the removal of approximately half the site within the right-of-way. Steep road cuts measuring 2.5 to 3 m in depth led to accelerated erosion from the banks and the exposure of features and cultural materials immediately adjacent to the road cut. Perhaps also related to the construction was the thin, loose, sandy loam Ap horizon that overlies the Ab horizon in the central part of the site. These sediments contained construction related metal objects and therefore, are assumed to be deposited during the recent past. They obscure the cultural bearing Ab horizon, making the surface distribution of artifacts less meaningful. Finally, erosion, particularly in the northwestern quarter of the site, has left a large deposit of rocks and artifacts exposed along rills and small drainages that formed on the site. Higher densities of artifacts and thermally altered rocks on the eroded surfaces and lower densities within the loose, sandy loam sediments strongly biased the results of the surface collections.

Table 7.1 Wood Canyon (LA 99631) Chipped Stone Artifacts from Surface, Feature, and Nonfeature Levels.

	Debitage	Cores	Projection	Retouched piece	Scraper	Chiricahua	Cienega	Indeter.	Indeter. (SP-like)	San Pedro	San Pedro/Cienega	Trimmed Flake (C-like)	Drill	Fine biface	Med biface	Med/fine biface	med/poor biface	Poor biface	Hammer-stones
Surface	1214	12	6	7	16	—	—	2	3	7	1	—	2	8	4	1	2		2
Feature 1	44	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—
Feature 2	46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 3	147	—	—	—	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—
Feature 4	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 5	27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 6	440	1	2	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—
Feature 8	203	—	—	—	—	—	1	—	—	—	—	—	—	1	—	—	—	—	—
Feature 9	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 11	30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 12	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 13	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 18	13	1	—	—	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—
Feature 21	5	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 25	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 28	225	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 30	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 31	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 32	4	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 33	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 35	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 37	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Feature 39	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 40	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 42	56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 7.1 Wood Canyon (LA 99631) Chipped Stone Artifacts from Surface, Feature, and Nonfeature Levels (Continued).

	Debitage	Cores	Projection	Retouched piece	Scraper	Chiricahua	Cienega	Indeter.	Indeter. (SP-like)	San Pedro	San Pedro/Cienega	Trimmed Flake (C-like)	Drill	Fine biface	Med biface	Med/fine biface	Med/poor biface	Poor biface	Hammer-stones
Feature 43	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 46	13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 47	200	1	—	2	—	—	—	1	—	2	—	—	—	—	—	—	—	—	—
Feature 53	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 67	2	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—
Feature 68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 72	15	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 73	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 74	27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 75	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 76	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 77	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 79	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 80	28	1	—	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 81	14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 82	45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 84	7	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 87	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 89	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 92	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 93	32	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 94	50	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—
Feature 95	14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 98	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 99	18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 100	168	1	—	—	1	—	—	—	—	—	—	—	—	—	1	—	—	1	—

Table 7.1 Wood Canyon (LA 99631) Chipped Stone Artifacts from Surface, Feature, and Nonfeature Levels (Continued).

	Debitage	Cores	Projection	Retouched piece	Scraper	Chiricahua	Cienega	Indeter.	Indeter. (SP-like)	San Pedro	San Pedro/Cienega	Trimmed Flake (C-like)	Drill	Fine biface	Med biface	Med/fine biface	Med/poor biface	Poor biface	Hammer-stones
Feature 101	85	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 102	391	1	—	—	—	—	1	—	—	—	—	1	1	2	1	—	—	—	—
Feature 103	36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
Feature 107	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 108	59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 109	13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 110	127	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 111	16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 112	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 114	241	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1	—
Feature 115	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 116	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 117	75	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 118	14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 119	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 120	31	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 122	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 124	25	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 125	76	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 127	94	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 129	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 130	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 132	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 133	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 137	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 138	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 140	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 141	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 142	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 7.1 Wood Canyon (LA 99631) Chipped Stone Artifacts from Surface, Feature, and Nonfeature Levels (Continued).

	Debitage	Cores	Projection	Retouched piece	Scraper	Chiricahua	Cienega	Indeter.	Indeter. (SP-like)	San Pedro	San Pedro/Cienega	Trimmed Flake (C-like)	Drill	Fine biface	Med biface	Med/fine biface	Med/poor biface	Poor biface	Hammer-stones
Feature 143	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 145	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 146	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 148	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 152	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 153	19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 154	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 155	13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 156	50	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 157	21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 158	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 159	319	2	1	—	1	—	—	—	—	—	—	—	—	1	—	—	—	—	—
Feature 160	173	5	—	2	—	—	—	—	—	—	—	—	—	1	—	—	—	—	2
Feature 162	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 164	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 165	44	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 167	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 168	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 169	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 172	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 173	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 174	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 175	33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 176	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 177	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 178	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 7.1 Wood Canyon (LA 99631) Chipped Stone Artifacts from Surface, Feature, and Nonfeature Levels (Continued).

	Debitage	Cores	Projection	Retouched piece	Scraper	Chiricahua	Cienega	Indeter.	Indeter. (SP-like)	San Pedro	San Pedro/Cienega	Trimmed Flake (C-like)	Drill	Fine biface	Med biface	Med/fine biface	Med/poor biface	Poor biface	Hammer-stones
Nonfeature																			
Level 1	934	4	2	2	3	—	1	2	—	—	—	—	—	5	2	—	—	1	2
Level 2	107	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Level 3	62	—	—	—	—	1	—	—	—	—	—	—	—	—	1	—	—	—	—
Level 4	38	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—
Level 5	38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Level 6	14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Point plotted	169	1	—	2	1	—	1	2	—	1	1	—	—	1	1	—	—	—	1
TOTALS	6615	35	12	24	35	1	8	8	4	10	2	1	5	20	11	2	2	3	9

Table 7.2 Wood Canyon (LA 99631) Ground Stone, Minerals, and Faunal Remains from Surface, Feature, and Nonfeature Levels.

	Manos	Metates	Stone Hoes	Discoid Ornament	Hematite/ Ochre	Quartz Crystals	Shell Beads	Faunal Remains	Totals
Surface	21	8	—	—	—	—	—	—	29
Feature 1	—	—	—	—	—	—	—	—	0
Feature 2	3	—	—	—	—	—	—	—	3
Feature 3	12	6	—	—	—	—	—	18	36
Feature 4	—	—	—	—	—	—	—	—	0
Feature 5	—	—	—	—	—	—	—	8	8
Feature 6	4	2	—	—	—	—	—	319	325
Feature 8	1	—	—	—	—	—	—	163	164
Feature 9	1	—	—	—	—	—	—	1	2
Feature 11	1	1	—	—	—	—	—	—	2
Feature 12	3	1	—	—	—	—	—	12	16
Feature 13	—	—	—	—	—	—	—	—	0
Feature 18	1	—	—	—	—	—	—	2	3
Feature 21	—	—	—	—	—	—	—	7	7
Feature 25	—	—	—	—	—	—	—	21	21
Feature 28	2	1	—	—	—	—	—	28	31
Feature 29	—	2	—	—	—	—	—	5	7
Feature 30	—	—	—	—	—	—	—	—	0
Feature 31	—	—	—	—	—	—	—	2	2
Feature 32	—	1	—	—	—	—	—	3	4
Feature 33	3	—	—	—	—	—	—	—	3
Feature 35	1	1	—	—	—	—	—	14	16
Feature 36	—	1	—	—	—	—	—	—	1
Feature 37	—	—	—	—	—	—	—	—	0
Feature 39	—	1	—	—	—	—	—	—	1
Feature 40	—	—	—	—	—	—	—	—	0
Feature 42	—	5	—	—	—	—	—	34	39
Feature 43	—	—	—	—	—	—	—	—	0
Feature 45	—	1	—	—	—	—	—	—	1
Feature 46	1	1	—	—	—	—	—	—	2
Feature 47	5	2	1	—	—	—	—	148	156
Feature 53	1	—	—	—	—	—	—	—	1
Feature 59	—	—	—	—	—	—	—	1	1
Feature 67	—		—	—	—	—	—	—	0
Feature 68	—	1	—	—	—	—	—	—	1
Feature 72	—	—	—	—	—	—	—	18	18
Feature 73	—	1	—	—	—	—	—	30	31
Feature 74	1	1	—	—	—	—	—	4	6
Feature 75	1	1	—	—	—	—	—	—	2
Feature 76	1	—	—	—	—	—	—	—	1
Feature 77	—	—	—	—	—	—	—	—	0
Feature 79	—	—	—	—	—	—	—	—	0
Feature 80	1	—	—	—	—	—	—	2	3
Feature 81	—	—	—	—	—	—	—	5	5
Feature 82	1	2	—	—	—	—	—	28	31
Feature 84	—	—	—	—	—	—	—	23	23
Feature 87	—	—	—	—	—	—	—	1	1
Feature 89	—	—	—	—	—	—	—	—	0
Feature 92	—	—	—	—	—	—	—	8	8
Feature 93	2	—	—	—	—	—	—	7	9
Feature 94	3	—	—	—	—	—	—	7	10
Feature 95	—	1	—	—	—	—	—	9	10

Table 7.2 Wood Canyon (LA 99631) Ground Stone, Minerals, and Faunal Remains from Surface, Feature, and Nonfeature Levels (Continued).

	Manos	Metates	Stone Hoes	Discoid Ornament	Hematite/ Ochre	Quartz Crystals	Shell Beads	Faunal Remains	Totals
Feature 98	—	—	—	—	—	—	—	1	1
Feature 99	—	—	—	—	—	—	—	5	5
Feature 100	1	—	2	—	—	1	—	16	20
Feature 101	4	—	—	—	—	—	—	46	50
Feature 102	4	4	—	—	—	1	—	696	705
Feature 103	—	1	—	—	—	—	—	1	2
Feature 107	—	—	—	—	1	—	—	19	20
Feature 108	2	1	—	—	—	—	—	13	16
Feature 109	—	—	—	—	—	—	—	—	0
Feature 110	3	1	—	—	—	—	—	40	44
Feature 111	—	—	—	—	1	—	—	6	7
Feature 112	1	—	—	—	—	—	—	—	1
Feature 114	—	—	—	—	—	—	—	49	49
Feature 115	—	—	—	—	—	—	—	—	0
Feature 116	—	—	—	—	—	—	—	3	3
Feature 117	2	1	—	—	—	—	—	14	17
Feature 118	1	1	—	—	1	—	—	27	30
Feature 119	—	—	—	—	—	—	—	10	10
Feature 120	—	—	—	—	—	—	—	12	12
Feature 122	—	—	—	—	—	—	—	—	0
Feature 124	2	—	—	1	—	—	—	76	79
Feature 125	—	—	—	—	—	—	—	19	19
Feature 127	—	—	—	—	—	—	—	9	9
Feature 129	—	—	—	—	—	—	—	1	1
Feature 130	1	—	—	—	—	—	—	—	1
Feature 132	—	—	—	—	—	—	—	6	6
Feature 133	—	—	—	—	—	—	—	—	0
Feature 137	—	—	—	—	—	—	—	—	0
Feature 138	—	—	—	—	—	—	—	—	0
Feature 140	—	—	—	—	—	—	—	—	0
Feature 141	—	—	—	—	—	—	—	—	0
Feature 142	—	—	—	—	—	—	—	1	1
Feature 143	1	—	—	—	—	—	—	1	2
Feature 145	—	—	—	—	1	—	—	—	1
Feature 146	—	—	—	—	—	—	—	—	0
Feature 148	—	—	—	—	—	—	—	—	0
Feature 152	1	—	—	—	—	—	—	—	1
Feature 153	—	—	—	—	—	—	—	—	0
Feature 154	—	—	—	—	—	—	—	—	0
Feature 155	—	—	—	—	—	—	—	2	2
Feature 156	2	1	—	—	—	—	—	4	7
Feature 157	—	—	—	—	—	—	—	—	0
Feature 158	—	—	—	—	—	—	—	—	0
Feature 159	11	4	—	—	—	—	62	489	566
Feature 160	2	1	—	—	—	—		90	93
Feature 162	—	—	—	—	—	—	—	—	0
Feature 164	—	—	—	—	—	—	—	—	0
Feature 165	1	1	—	—	—	—	—	—	2
Feature 167	—	—	—	—	—	—	—	—	0
Feature 168	—	—	—	—	—	—	—	3	3
Feature 169	1	—	—	—	—	—	—	—	1
Feature 172	—	2	—	—	—	—	—	—	2
Feature 173	—	—	—	—	—	—	—	—	0

Table 7.2 Wood Canyon (LA 99631) Ground Stone, Minerals, and Faunal Remains from Surface, Feature, and Nonfeature Levels (Continued).

	Manos	Metates	Stone Hoes	Discoid Ornament	Hematite/ Ochre	Quartz Crystals	Shell Beads	Faunal Remains	Totals
Feature 174	—	—	—	—	—	—	—	6	6
Feature 175	—	—	1	—	—	—	—	—	1
Feature 176	—	2	—	—	—	—	—	24	26
Feature 177	—	2	—	—	—	—	—	—	2
Feature 178	1	—	—	—	—	—	—	—	1
Nonfeature									
Level 1	12	5	—	—	—	—	—	113	130
Level 2	1	—	—	—	—	—	—	46	47
Level 3	—	2	—	—	—	—	—	6	8
Level 4	—	—	—	—	—	—	—	13	13
Level 5	—	—	—	—	—	—	—	5	5
Level 6	—	—	—	—	—	—	—		0
No provenience	18	4	—	—	—	—	—	20	42
TOTALS	141	74	4	1	4	2	62	2820	3109

Table 7.3 Wood Canyon (LA99631) Ceramics from Surface, Feature, and Nonfeature Levels.

	Alma Incised	Alma Neck- banded	Alma Plain	Alma Rough	Corrugated Brown	Indeter. Brown	Indeter. White	Indeter. Mimbres Black-on-white	Mimbres Black-on-white (unspec. Style II or III)	Mimbres Black-on-white (unspec. Style III)	Mimbres Black-on-white Early Style II	Mimbres Black-on-white Middle Style II	San Francisco Red	Three Circle Neck Corrugated	Ceramics too small for analysis	Totals
Surface	1	—	6	26	12	2	1	2	1	1	1	1	2	3	2	61
Feature 2	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	2
Feature 3	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
Feature 6	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
Feature 11	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Feature 28	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Feature 47	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	2
Feature 68	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Feature 102	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1
Feature 103	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Feature 112	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1
Feature 140	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1
Feature 160	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Nonfeature																
Level 1	—	—	1	2	1	—	—	3	—	—	—	—	—	1	—	8
Level 2	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	2
Level 3	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1
Level 4	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Level 5	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
No provenience	—	—	3	1	—	—	1	—	—	—	—	—	—	—	1	6
TOTALS	2	1	12	33	19	4	2	6	1	1	1	1	2	6	3	94

The chipped stone assemblage consisted of 1,221 pieces of debitage, 12 cores, 29 retouched pieces, 17 bifaces, 13 projectile points, and two hammer stones. The densest concentrations of these artifacts were related to the most severely eroded portions of the site discussed above (Figure 7.9). The projectile points represent forms easily classified within the Late Archaic/Early Agricultural period. They include seven San Pedro, three San Pedro-like, one San Pedro/Cienega, and two Indeterminate specimens. Although the San Pedro type first occurred around 1200 BC, it co-occurred with the Cienega type from 800 BC to perhaps AD 300. The distribution of the dart points across the site suggests that Late Archaic/Early Agricultural to Early Pit House period occupations covered the entire site within the project area (Figure 7.10).

The surface assemblage of ground stone was represented by 29 specimens, all grinding implements or fragments. These included 21 manos and eight metates. Forming a sparse scatter over the entire surface collection area, they indicate plant processing was an important activity that occurred in all portions of the site.

The 61 ceramics from the surface of the site were classified as Alma series types, San Francisco Red, Three Circle Neck Corrugated, unspecified corrugated brown, Indeterminate Mimbres Black-on-white, Mimbres Black-on-white Style II or III, and Mimbres Black-on-white Style III. These types indicate Late Pit House and Classic Mimbres components. These ceramics were clustered on both sides of the highway on the west-central portion of the site and sparsely over the rest of the site (Figure 7.11). Only one sherd was noted north of the right-of-way fence. The main cluster covered a 46 m north-south by 32 m east-west area. Most of the Mimbres Black-on-white and unspecified corrugated brown specimens were recovered from this area, suggesting a Classic Mimbres phase component was present within the concentration. NM 90 cut through this concentration and may have removed a major portion of this Classic Mimbres occupation.

Subsurface Cultural Resources

The excavations of Wood Canyon confirmed the presence of a thick, culturally rich Ab horizon that was best preserved on the more level, central portion of the site. Although thickness sometimes reached 60 cm, the cultural deposits generally averaged around 30 cm in thickness in the center of the site, pinching completely out to the east, south, and west within the highway right-of-way.

Rodent, insect, and tree root activity cause major impacts to the cultural resources. Rodent burrows were so intense in some areas of the site that feature boundaries were difficult if not impossible to delineate. For example, Feature 3, a bell-shaped pit, had been so damaged that the orifice and upper walls were only faintly preserved. In another case, the outer edge of Structure 2 (Feature 80), was identified only by a dark, mottled ashy deposit riddled with open and filled in rodent runs. Across the site, these disturbances left the Ab horizon a homogeneous consistency and no doubt resulted in artifacts and botanic and faunal remains being transported through the deposits.

Features

One hundred seventy seven features were documented at Wood Canyon (Figures 7.12 to 7.16). These included one from the surface, seven exposed in the road cut, and another 169 from subsurface contexts (Tables 7.4 and 7.5). One feature number, Feature 170, was not used. The features included four pit structures, 20 post holes, two specially prepared burial facilities, an ash midden, two midden remnants, 35 nonthermal pits, 71 thermal features, and 30 anomalies that, upon investigation, did not prove to be cultural in origin. The burial facilities included a rock cairn and a large basin-shaped pit.

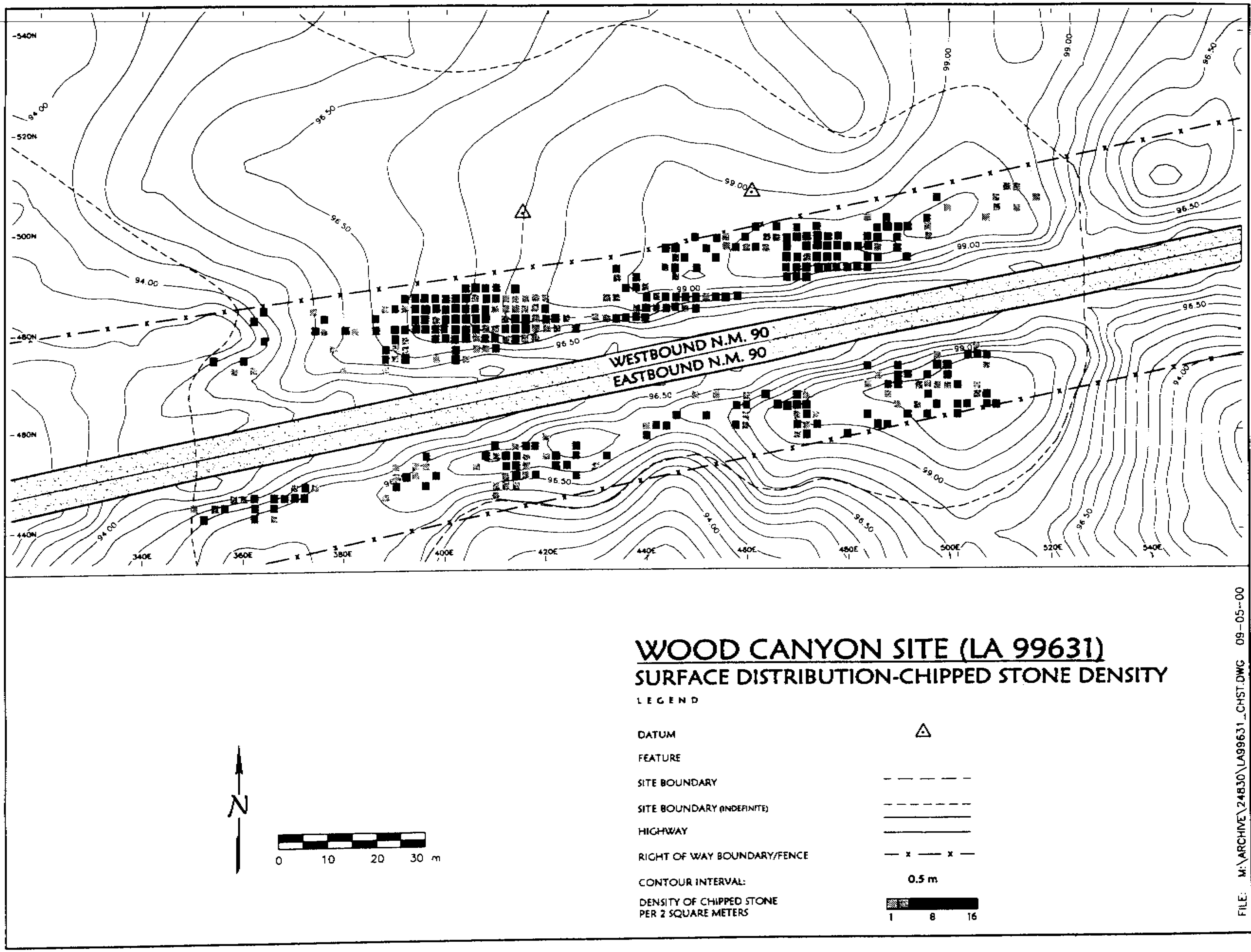


Figure 7.9 Wood Canyon Site Surface Chipped Stone Density Map.

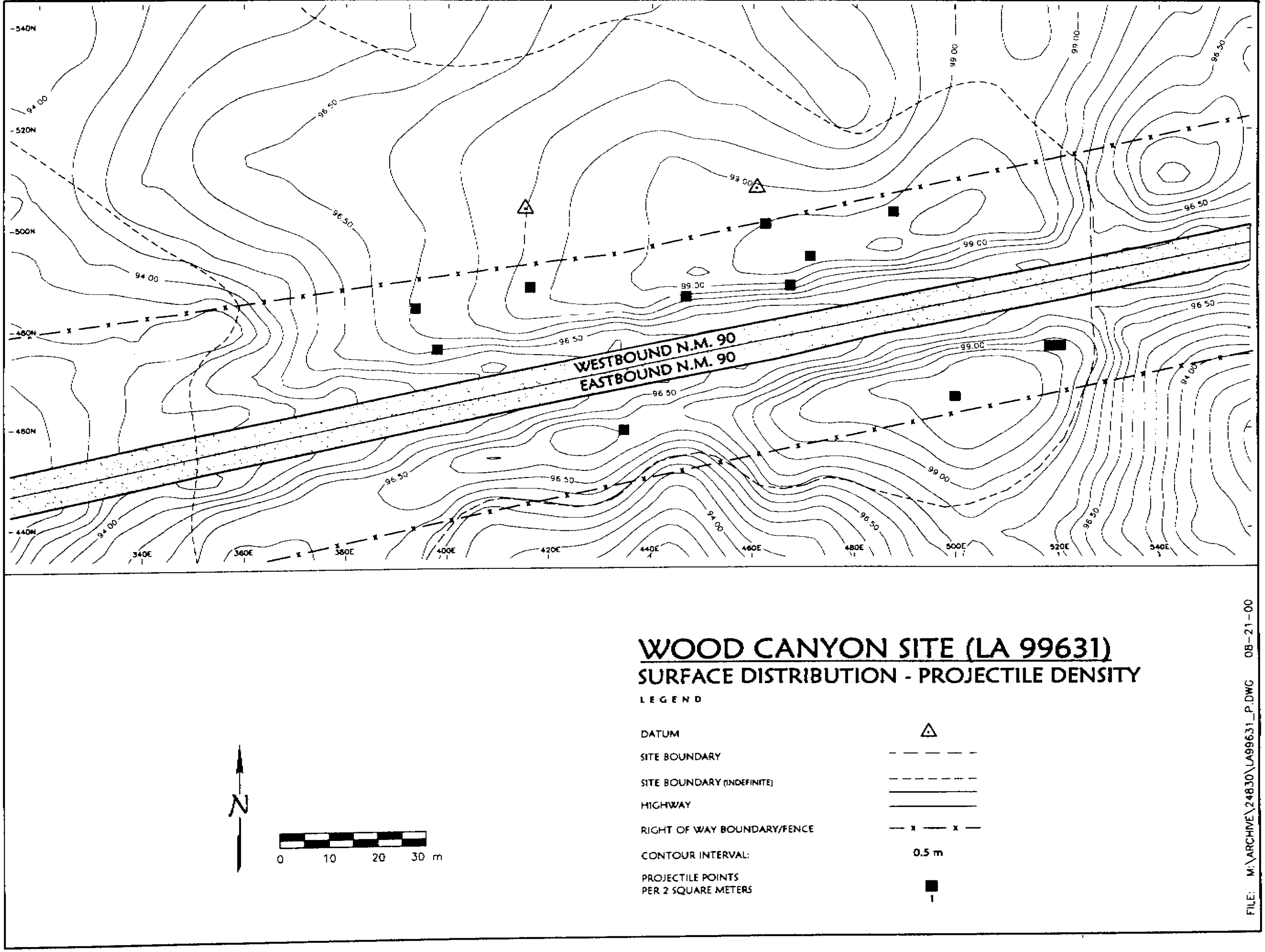


Figure 7.10 Wood Canyon Site Surface Projectile Point Location Map.

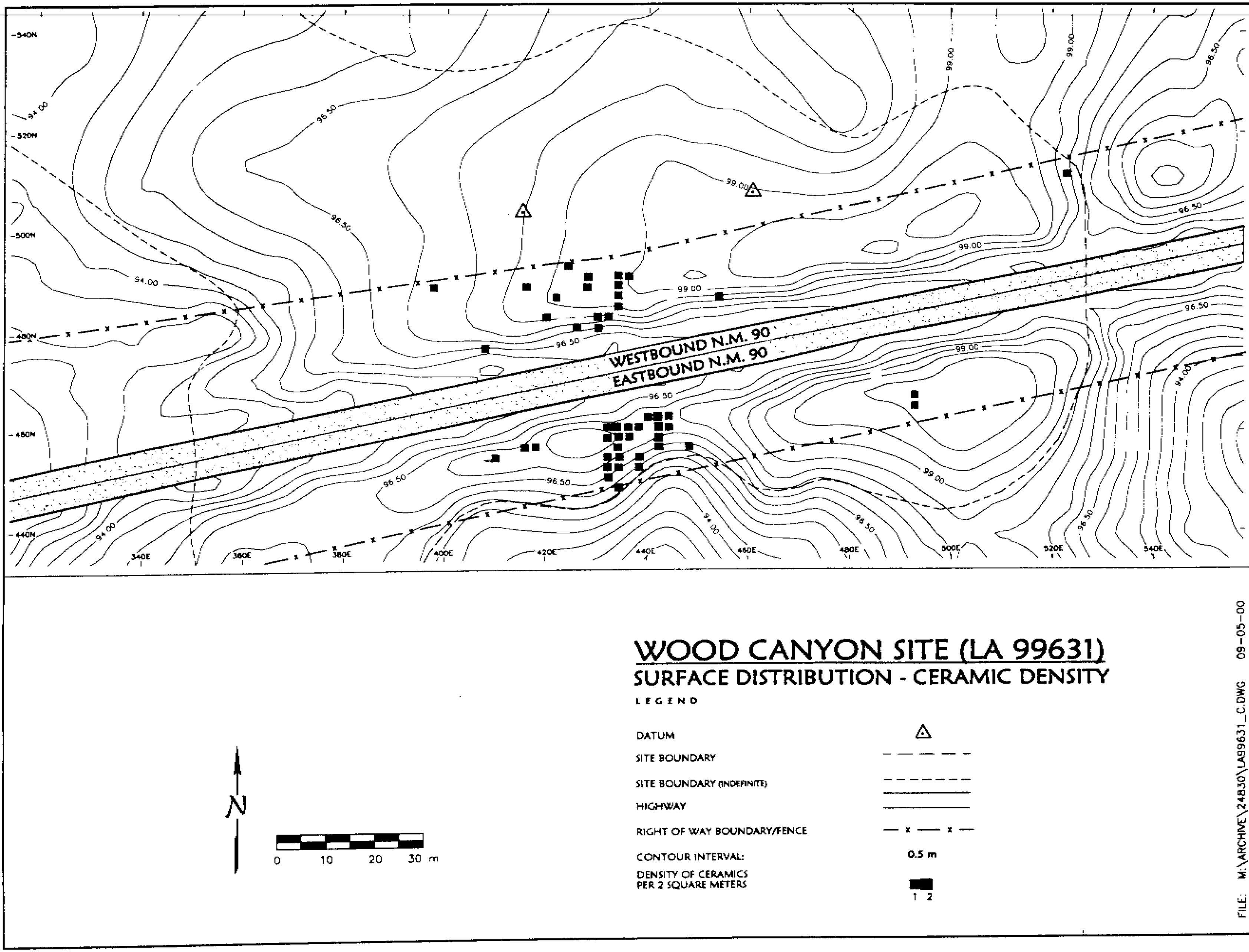


Figure 7.11 Wood Canyon Site Surface Ceramic Density Maps.

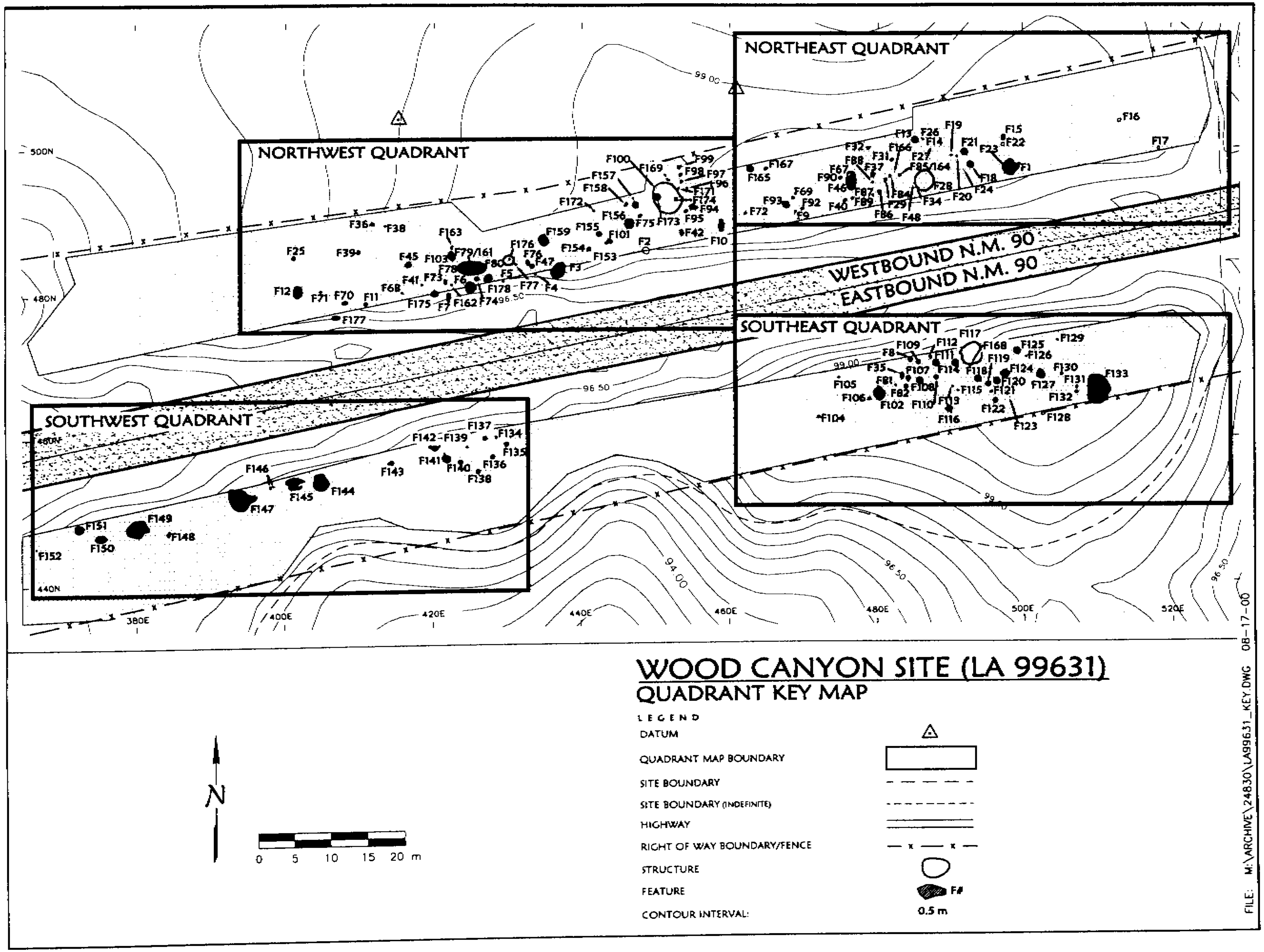


Figure 7.12 Wood Canyon Site Feature Distribution Map.

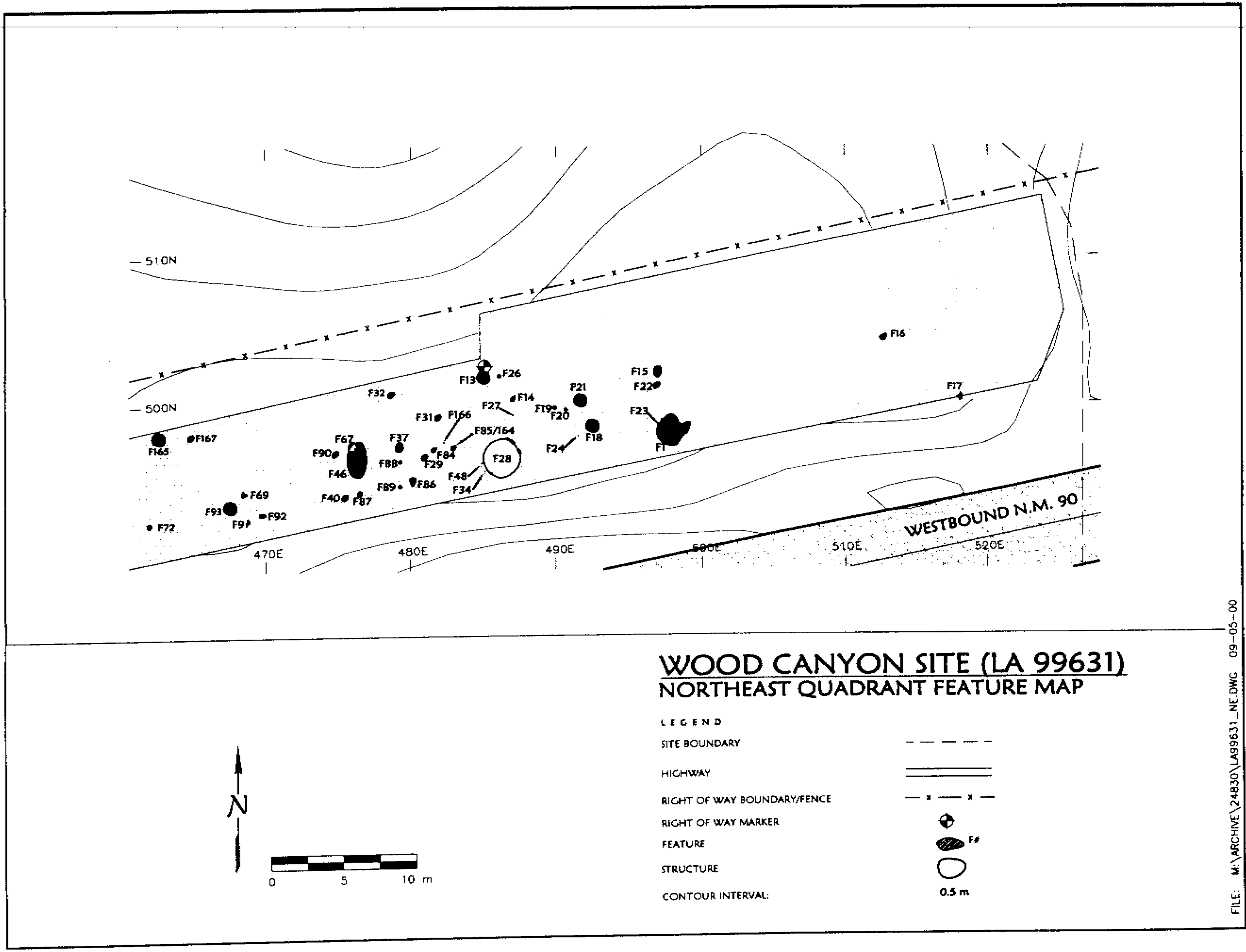


Figure 7.13 Wood Canyon Feature Distribution Map for the Northeast Quadrant.

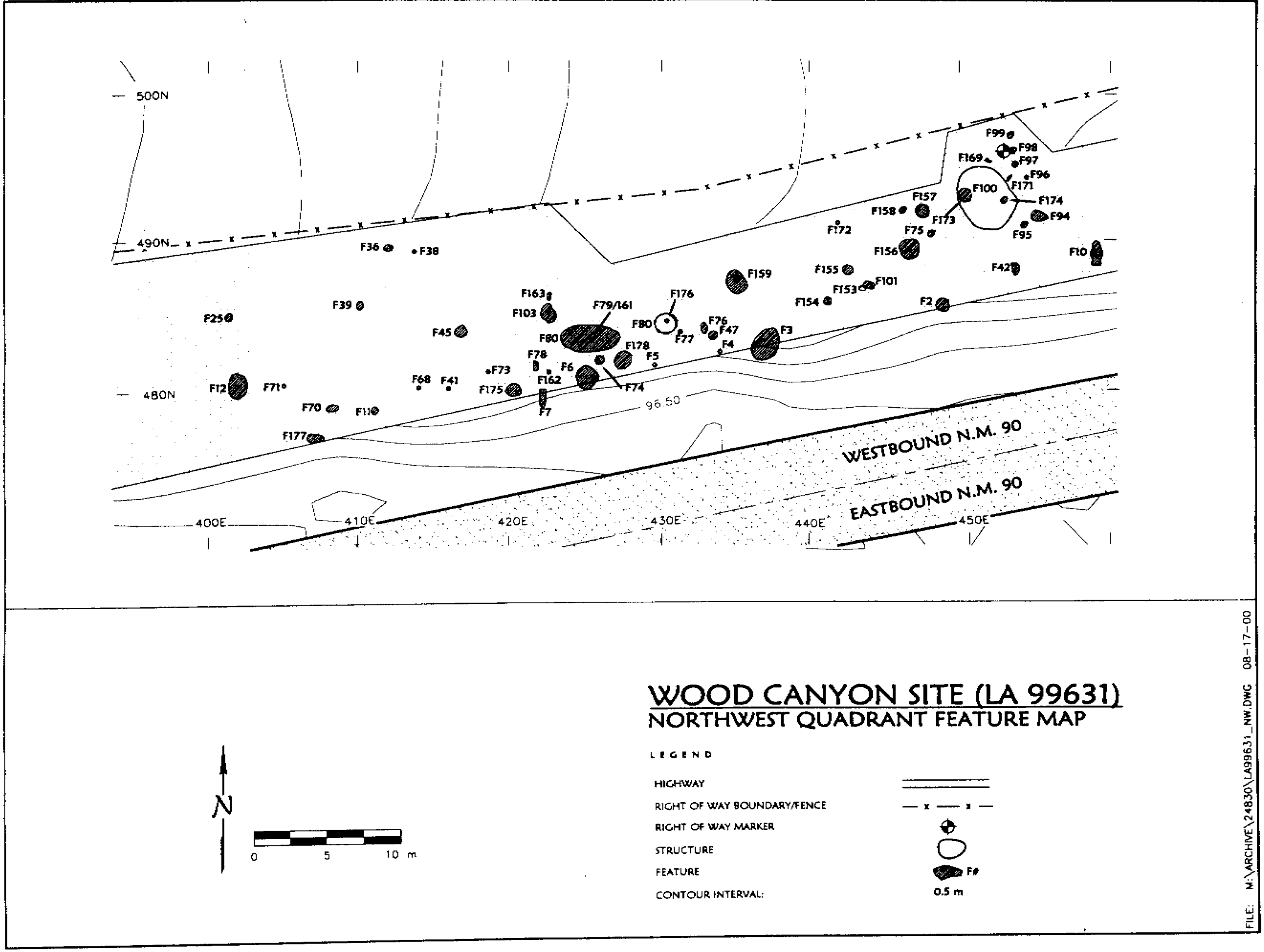


Figure 7.14 Wood Canyon Feature Distribution Map for the Northwest Quadrant.

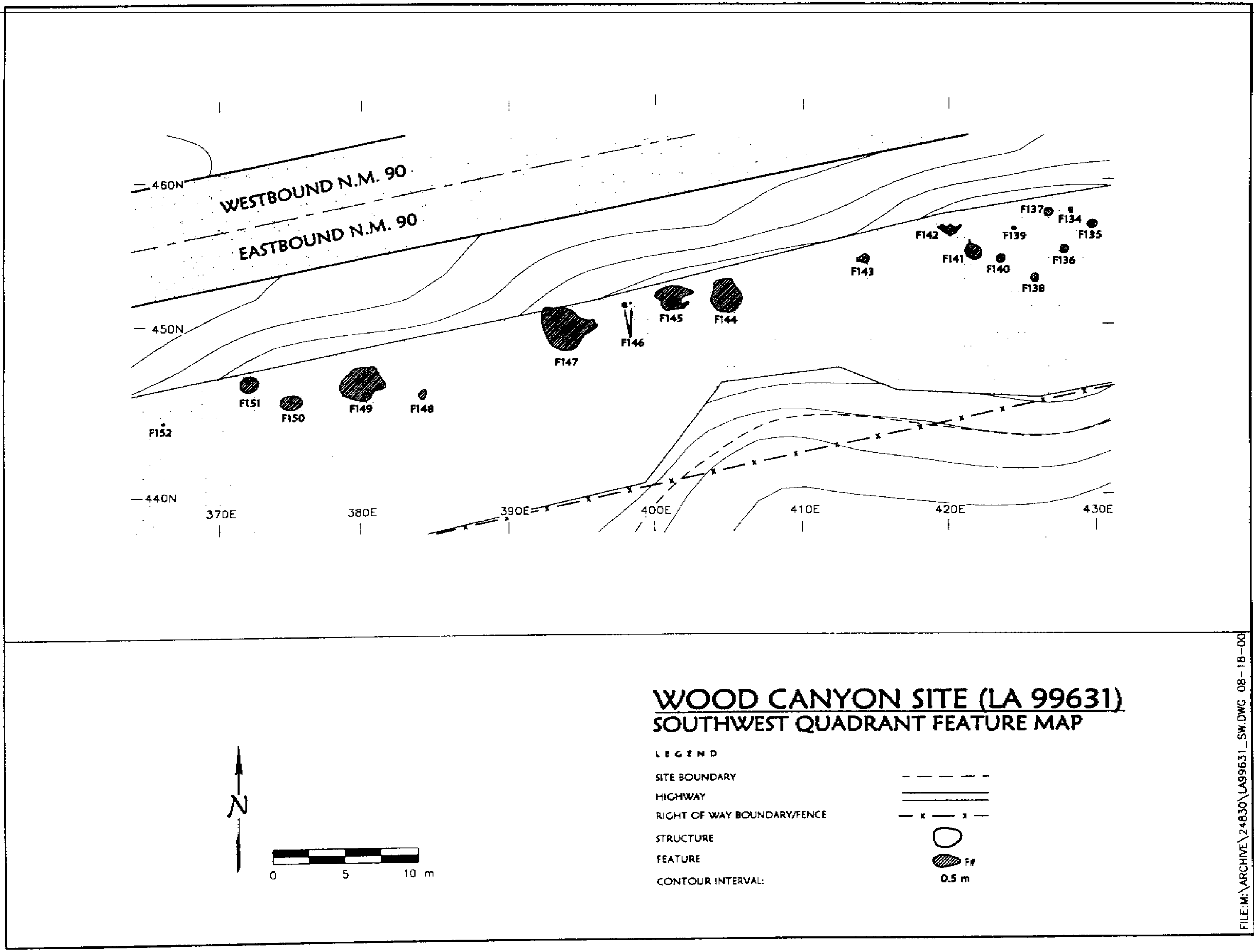


Figure 7.15 Wood Canyon Feature Distribution Map for the Southwest Quadrant.

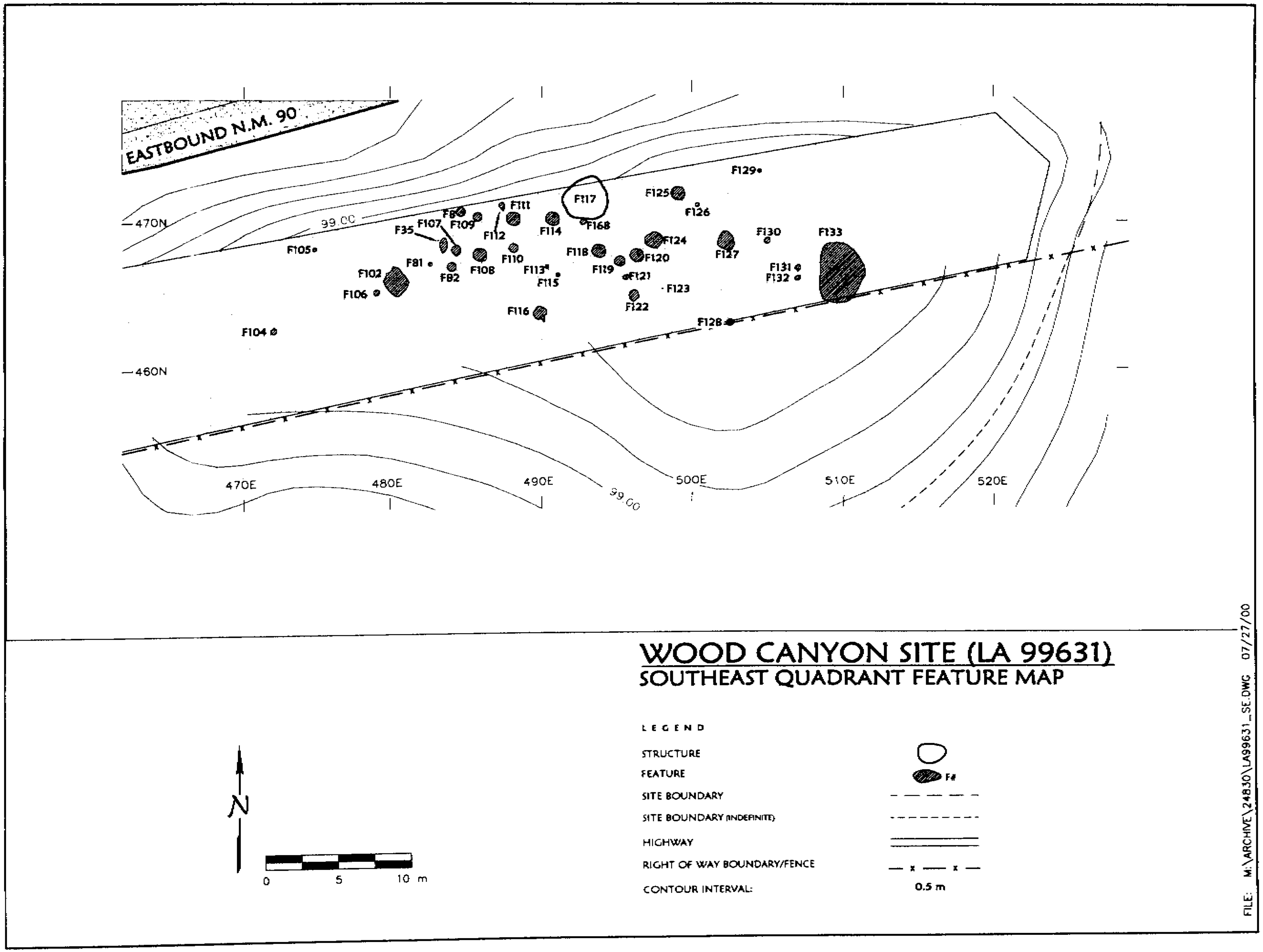


Figure 7.16 Wood Canyon Feature Distribution Map for the Southeast Quadrant.

Table 7.4 Wood Canyon (LA 99631) Feature Data.

Feature	Type	N	E	Elev	% Excav	Vol (l)	Time
1	Roasting pit	497.00	498.00	100.21	100	—	Late Cienega
2	Roasting pit	486.70	448.90	998.88	100	53.48	Early Cienega
3	Storage pit	483.18	437.11	98.07	100	1903.39	Early Cienega
4	Unknown use	482.60	434.15	98.22	100	12.96	Early Cienega
5	Storage pit	481.89	430.66	98.08	100	—	Early Cienega
6	Storage pit	481.00	425.00	97.8	100	828.07	Early Cienega
7	Natural	480.46	422.21	99.23	30	—	Early Cienega
8	Unknown use	470.66	484.67	100.1	100	94.25	Late Cienega
9	Rodent	490.88	469.22	99.54	0	—	Early Cienega
10	Root disturbance	489.21	459.20	99.38	0	—	Early Cienega
11	Storage pit	478.30	410.60	97.72	50	29.45	Early Cienega
12	Roasting pit	480.75	402.12	96.91	50	163.62	Early Cienega
13	Unknown use	500.97	485.37	99.68	100	68.22	Late Cienega
14	Hearth	499.50	487.40	99.74	100	9.31	Late Cienega
15	Roasting pit	501.50	497.50	99.97	100	13.85	Late Cienega
16	Natural	503.30	513.06	99.53	100	—	—
17	Root disturbance	499.44	518.24	99.23	50	—	—
18	Roasting pit	497.56	493.00	100	100	115.28	Late Cienega
19	Unknown use	498.85	490.38	99.86	100	4.78	Late Cienega
20	Unknown use	498.76	491.06	99.8	100	4.71	Late Cienega
21	Hearth	499.31	492.07	99.79	100	40.82	Late Cienega
22	Hearth	500.40	497.40	99.88	100	27.47	Late Cienega
23	Post hole	497.29	497.74	99.77	100	0.31	Late Cienega
24	Natural	496.80	491.87	99.78	100	—	Late Cienega
25	Unknown use	485.10	401.30	97.05	100	52.36	Early Cienega
26	Hearth	501.10	486.43	99.54	100	2.83	Late Cienega
27	Post hole	498.45	487.36	99.78	100	0.30	Late Cienega
28	Pithouse	495.40	486.50	99.84	100	819.96	Late Cienega
29	Unknown use	495.40	481.40	99.74	100	30.79	Late Cienega
30	Unknown use	495.33	485.80	99.72	100	12.57	Late Cienega
31	Hearth	498.15	482.25	99.65	100	27.75	Late Cienega
32	Unknown use	499.82	479.04	99.45	100	5.30	Late Cienega
33	Hearth	495.80	486.30	99.58	100	4.19	Late Cienega
34	Post hole	494.50	485.50	99.72	100	3.18	Late Cienega
35	Rock pile	468.30	483.50	100.15	100	34.03	Late Cienega
36	Unknown use	489.68	411.95	97.58	100	17.49	Early Cienega
37	Hearth	496.20	479.55	99.6	50	56.16	Late Cienega
38	Rock scatter	489.45	413.60	97.64	100	—	Early Cienega
39	Hearth	485.75	410.12	97.37	100	16.40	Early Cienega
40	Unknown use	492.67	475.89	99.51	100	37.70	Late Cienega
41	Hearth	481.35	418.60	97.73	50	7.70	Early Cienega
42	Storage pit	488.10	453.56	98.82	100	212.72	Early Cienega
43	Post hole	495.40	488.30	99.77	100	3.53	Late Cienega
44	Post hole	495.85	488.25	99.77	100	3.53	Late Cienega
45	Roasting pit	484.00	416.72	97.58	50	45.96	Early Cienega
46	Rock scatter	495.34	476.74	99.5	25	—	Late Cienega
47	Storage pit	483.86	433.49	98.16	100	668.08	Early Cienega
48	Rodent	494.93	485.37	99.73	100	—	Late Cienega
49	Post hole	495.52	485.50	99.79	100	3.89	Late Cienega
50	Post hole	495.90	485.57	99.79	100	3.18	Late Cienega
51	Post hole	496.32	485.86	99.79	100	3.53	Late Cienega
52	Post hole	496.61	486.16	99.79	100	3.53	Late Cienega
53	Post hole	496.92	486.52	99.79	100	3.89	Late Cienega
54	Post hole	496.87	487.35	99.81	100	3.53	Late Cienega
55	Post hole	496.57	487.76	99.82	100	1.57	Late Cienega

Table 7.4 Wood Canyon (LA 99631) Feature Data (Continued).

Feature	Type	N	E	Elev	% Excav	Vol (l)	Time
56	Post hole	496.31	488.01	99.81	100	1.57	Late Cienega
57	Post hole	494.97	488.24	99.74	100	1.57	Late Cienega
58	Post hole	494.54	487.93	99.73	100	1.57	Late Cienega
59	Unknown use	495.02	487.85	99.54	100	4.71	Late Cienega
60	Unknown use	494.40	487.00	99.51	100	2.36	Late Cienega
61	Post hole	494.55	486.70	99.52	100	0.79	Late Cienega
62	Hearth	494.80	486.85	99.53	100	0.94	Late Cienega
63	Post hole	495.15	486.96	99.51	100	3.14	Late Cienega
64	Post hole	495.65	486.84	99.53	100	0.71	Late Cienega
65	Post hole	495.32	486.21	99.55	100	0.63	Late Cienega
66	Post hole	483.56	437.00	99.95	100	25.53	Early Cienega
67	Roasting pit	496.20	476.40	99.5	100	65.97	Early Cienega
68	Hearth	480.15	415.90	97.58	100	6.27	Early Cienega
69	Unknown use	493.60	468.90	99.4	100	17.02	Early Cienega
70	Hearth	478.86	408.15	99.25	50	17.20	Early Cienega
71	Unknown use	480.46	404.98	96.98	50	12.63	Early Cienega
72	Unknown use	490.80	462.40	99.28	100	45.95	Early Cienega
73	Unknown use	481.62	421.73	97.9	100	39.74	Early Cienega
74	Storage pit	482.06	426.03	97.9	100	102.20	Early Cienega
75	Storage pit	490.50	448.00	98.92	100	41.39	Early Cienega
76	Unknown use	484.37	433.30	98.35	50	48.07	Early Cienega
77	Unknown use	484.00	431.45	98.4	50	37.70	Early Cienega
78	Natural	483.60	424.70	98.06	50	—	Early Cienega
79	Unknown use	483.44	425.50	98.12	100	15.67	Early Cienega
80	Pithouse	484.50	429.80	98.03	100	1099.56	Protohistoric
81	Unknown use	467.09	482.62	99.85	100	12.57	Late Cienega
82	Roasting pit	466.80	484.03	99.96	100	90.48	Late Cienega
83	Natural	468.68	483.26	99.85	50	—	Late Cienega
84	Unknown use	495.98	481.88	99.57	50	24.67	Late Cienega
85	Unknown use	496.11	483.34	99.69	50	12.19	Late Cienega
86	Unknown use	493.77	480.44	99.52	100	18.66	Late Cienega
87	Rodent	493.45	479.57	99.6	100	—	Late Cienega
88	Unknown use	495.08	479.58	99.57	100	3.05	Late Cienega
89	Unknown use	492.97	476.83	99.61	100	5.03	Late Cienega
90	Hearth	495.73	475.22	99.67	50	32.04	Late Cienega
91	Midden	496.55	473.80	99.56	—	—	—
92	Rodent	491.48	470.12	99.33	100	—	Early Cienega
93	Roasting pit	492.06	467.81	99.27	50	78.54	Early Cienega
94	Unknown use	491.70	455.44	98.95	100	114.95	Early Cienega
95	Storage pit	491.12	454.42	98.89	100	31.42	Early Cienega
96	Unknown use	494.29	454.55	98.95	100	2.59	Early Cienega
97	Unknown use	495.32	453.76	98.97	50	7.56	Early Cienega
98	Unknown use	496.07	453.70	99.05	100	24.50	Early Cienega
99	Unknown use	497.30	453.53	99.02	100	30.54	Early Cienega
100	Pithouse	492.97	452.42	98.89	100	1267.53	Early Cienega
101	Roasting pit	487.03	443.96	98.6	100	34.85	Early Cienega
102	Burial	466.00	480.45	100	100	1068.14	Late Cienega
103	Roasting pit	485.20	422.70	97.93	100	165.95	Early Cienega
104	Hearth	467.52	472.26	99.59	100	14.70	Late Cienega
105	Hearth	468.16	474.82	99.68	50	10.07	Late Cienega
106	Hearth	465.16	479.00	99.81	100	12.57	Late Cienega
107	Roasting pit	467.97	484.30	99.94	100	28.15	Late Cienega
108	Roasting pit	467.96	485.92	100	100	114.58	Late Cienega
109	Unknown use	470.35	485.64	99.99	100	26.13	Late Cienega
110	Unknown use	468.44	488.00	99.99	100	44.05	Late Cienega

Table 7.4 Wood Canyon (LA 99631) Feature Data (Continued).

Feature	Type	N	E	Elev	% Excav	Vol (l)	Time
111	Hearth	470.30	488.05	100.02	100	32.35	Late Cienega
112	Midden	470.98	487.33	100.08	50	12.16	Late Cienega
113	Hearth	466.88	490.33	100.03	50	7.70	Late Cienega
114	Storage pit	470.11	490.67	100.05	100	544.94	Late Cienega
115	Unknown use	466.32	490.76	100.1	100	21.21	Late Cienega
116	Unknown use	463.66	490.00	99.91	100	39.58	Late Cienega
117	Pithouse	471.45	492.81	99.98	100	1319.47	Late Cienega
118	Roasting pit	468.00	493.70	100.18	100	64.09	Late Cienega
119	Unknown use	467.19	495.21	100.16	50	35.92	Late Cienega
120	Roasting pit	467.70	496.40	100.16	100	98.49	Late Cienega
121	Hearth	466.15	495.58	100.2	50	20.59	Late Cienega
122	Hearth	464.85	496.05	100.2	50	25.66	Late Cienega
123	Root disturbance	465.24	498.04	100.24	50	—	Late Cienega
124	Hearth	468.65	497.65	100.18	100	88.70	Late Cienega
125	Unknown use	471.80	499.08	100	100	141.37	Late Cienega
126	Root disturbance	471.15	500.32	100.07	50	—	Late Cienega
127	Roasting pit	468.50	502.20	100.24	100	193.52	Late Cienega
128	Hearth	463.55	502.50	100.38	50	19.70	Late Cienega
129	Hearth	473.34	504.46	100.12	50	7.36	Late Cienega
130	Hearth	468.44	504.60	100.29	50	13.30	Late Cienega
131	Natural	466.73	507.06	100.43	50	—	Late Cienega
132	Hearth	466.14	507.11	100.44	50	24.86	Late Cienega
133	Ash midden	467.20	509.40	100.48	20	1256.64	Late Cienega
134	Hearth	460.21	428.56	97.78	100	23.04	Early Cienega
135	Root disturbance	459.21	430.01	97.79	50	—	Early Cienega
136	Unknown use	457.48	428.00	97.81	100	26.61	Early Cienega
137	Rodent	460.00	426.95	97.89	80	—	Early Cienega
138	Unknown use	455.48	425.94	97.67	50	7.92	Early Cienega
139	Rodent	458.00	424.00	97.85	50	—	Early Cienega
140	Unknown use	456.50	423.50	97.67	100	47.05	Early Cienega
141	Natural	457.52	421.68	97.73	100	—	Early Cienega
142	Unknown use	459.00	421.50	97.64	50	44.95	Early Cienega
143	Unknown use	456.73	414.33	97.45	100	25.14	Early Cienega
144	Natural	454.00	405.00	97.28	0	—	Early Cienega
145	Natural	453.80	401.60	97.07	25	—	Early Cienega
146	Rodent	453.84	398.14	96.82	50	—	Early Cienega
147	Natural	452.00	393.96	96.71	5	—	Early Cienega
148	Unknown use	447.43	384.31	96.24	50	20.45	Early Cienega
149	Natural	448.17	380.45	96.37	5	—	Early Cienega
150	Natural	446.96	375.39	96.1	50	—	Early Cienega
151	Natural	448.33	372.39	96.02	50	—	Early Cienega
152	Drainage	445.64	366.55	95.87	0	—	Early Cienega
153	Hearth	486.90	443.86	98.56	100	36.95	Early Cienega
154	Unknown use	486.10	441.25	98.32	50	36.29	Early Cienega
155	Hearth	488.70	442.60	98.52	100	51.38	Early Cienega
156	Roasting pit	489.55	446.64	98.7	100	241.78	Early Cienega
157	Hearth	492.00	447.50	98.7	100	59.51	Early Cienega
158	Hearth	492.30	446.42	98.68	50	23.50	Early Cienega
159	Storage pit	487.40	435.35	98.09	100	1631.20	Early Cienega
160	Storage pit	482.00	427.60	97.96	100	1791.31	Early Cienega
161	Hearth	483.26	425.36	97.82	50	6.13	Early Cienega
162	Unknown use	481.26	422.70	97.67	100	7.85	Early Cienega
163	Hearth	486.37	422.60	97.8	50	11.35	Early Cienega
164	Unknown use	496.02	483.26	99.56	100	35.07	Late Cienega
165	Storage pit	497.02	463.15	99.21	100	173.49	Early Cienega

Table 7.4 Wood Canyon (LA 99631) Feature Data (Continued).

Feature	Type	N	E	Elev	% Excav	Vol (l)	Time
166	Natural	496.48	482.61	99.49	50	—	Late Cienega
167	Root disturbance	497.03	465.29	99.23	50	—	Early Cienega
168	Hearth	469.82	492.62	100.33	100	7.42	Late Cienega
169	Natural	495.50	452.00	98.7	50	—	Early Cienega
170	—	—	—	—	—	—	—
171	Rodent	493.90	453.05	98.67	50	—	Early Cienega
172	Unknown use	491.30	442.00	98.65	100	7.62	Early Cienega
173	Unknown use	493.23	450.44	98.68	100	40.06	Early Cienega
174	Hearth	492.87	452.99	98.67	100	30.98	Early Cienega
175	Roasting pit	480.02	420.48	97.54	100	97.48	Early Cienega
176	Hearth	484.70	430.30	97.87	100	43.35	Protohistoric
177	Burial	476.94	407.14	97.04	100	158.34	Early Cienega
178	Unknown use	487.06	427.20	97.65	100	146.49	Early Cienega

Table 7.5 Wood Canyon (LA 99631) Feature Content.

Type	Thermal?	Morphology	Location	Feature	PD	L (m)	W (m)	Depth	Vol (l)	Lithic	Ceramic	Bone	Shell	# Artif/l	Phyto	Rocks kg/l	TAR kg/l
Ash midden	N	Irregular	E	133	—	4	3	0.2	1256.64	10	—	—	—	0.04	0	—	3.00
Burial	N	Basin	E	102	—	2	1.7	0.6	1068.14	407	1	696	—	1.03	0	28.55	66.9
Burial	N	Cairn	E	177	—	1.2	0.6	0.42	158.34	5	—	—	—	0.03	0	168.7	—
Hearth	T	Basin	E	14	—	0.52	0.38	0.09	9.31	—	—	—	—	0.00	0	—	0.10
Hearth	T	Basin	E	21	—	0.87	0.64	0.14	40.82	6	—	7	—	0.32	—	—	0.4
Hearth	T	Basin	E	22	—	0.55	0.53	0.18	27.47	—	—	—	—	0.00	—	—	0.20
Hearth	T	Basin	E	26	—	0.26	0.26	0.08	2.83	—	—	—	—	0.00	—	—	—
Hearth	T	Basin	E	31	—	0.48	0.48	0.23	27.75	2	—	2	—	0.14	—	—	0.00
Hearth	T	Basin	I	33	F28	0.4	0.4	0.05	4.19	4	—	—	—	0.95	0	—	7.10
Hearth	T	Basin	E	37	—	0.65	0.55	0.3	56.16	7	—	—	—	0.25	—	—	3.00
Hearth	T	Basin	E	39	—	0.58	0.54	0.1	16.40	2	—	—	—	0.12	—	—	8.00
Hearth	T	Basin	E	41	—	0.5	0.42	0.07	7.70	—	—	—	—	0.00	—	—	0.2
Hearth	T	Basin	I	62	F28	0.3	0.3	0.02	0.94	—	—	—	—	0.00	1cu,	—	—
Hearth	T	Basin	E	68	—	0.45	0.38	0.07	6.27	1	1	—	—	0.32	—	—	8
Hearth	T	Basin	E	70	—	0.92	0.51	0.07	17.20	—	—	—	—	0.00	—	—	0.00
Hearth	T	Basin	E	90	—	0.6	0.6	0.17	32.04	—	—	—	—	0.00	—	—	1.00
Hearth	T	Basin	E	104	—	0.6	0.52	0.09	14.70	—	—	—	—	0.00	—	—	0.05
Hearth	T	Irregular	E	105	—	0.4	0.37	0.13	10.07	—	—	—	—	0.00	—	—	1.6
Hearth	T	Basin	E	106	—	0.5	0.6	0.08	12.57	—	—	—	—	0.00	—	—	—
Hearth	T	Basin	E	111	—	0.66	0.52	0.18	32.35	17	—	6	—	0.71		0.045	—
Hearth	T	Basin	E	113	—	0.43	0.38	0.09	7.70	—	—	—	—	0.00	0	—	—
Hearth	T	Basin	E	121	—	0.55	0.55	0.13	20.59	—	—	—	—	0.00	—	—	—
Hearth	T	Basin	E	122	—	0.7	0.7	0.1	25.66	3	—	—	—	0.23	—	0.4	—
Hearth	T	Basin	E	124	—	1.1	1.1	0.14	88.70	29	—	76	—	1.18	—	—	1.2
Hearth	T	Basin	E	128	—	0.56	0.56	0.12	19.70	—	—	—	—	0.00	—	0.05	—
Hearth	T	Basin	E	129	—	0.38	0.37	0.1	7.36	1	—	1	—	0.54	—	—	2.00
Hearth	T	Basin	E	130	—	0.46	0.46	0.12	13.30	1	—	—	—	0.15	—	—	1.30
Hearth	T	Basin	E	132	—	0.51	0.49	0.19	24.86	2	—	6	—	0.64	—	—	0.30
Hearth	T	Basin	E	134	—	0.55	0.5	0.16	23.04	—	—	—	—	0.00	—	—	7.00
Hearth	T	Cylindrical	E	153	—	0.56	0.42	0.2	36.95	19	—	—	—	0.51	—	—	1.00
Hearth	T	Basin	E	155	—	0.78	0.74	0.17	51.38	13	—	2	—	0.29	—	—	8.50
Hearth	T	Basin	E	157	—	0.82	0.77	0.18	59.51	21	—	—	—	0.35	—	—	2
Hearth	T	Basin	E	158	—	0.55	0.48	0.17	23.50	2	—	—	—	0.17	—	—	0.5

Table 7.5 Wood Canyon (LA 99631) Feature Content (Continued).

Type	Thermal?	Morphology	Location	Feature	PD	L (m)	W (m)	Depth	Vol (l)	Lithic	Ceramic	Bone	Shell	# Artif/l	Phyto	Rocks kg/l	TAR kg/l
Hearth	T	Basin	E	161	—	0.3	0.3	0.13	6.13	—	—	—	—	0.00	—	—	
Hearth	T	Basin	E	163	—	0.56	0.43	0.09	11.35	—	—	—	—	0.00	—	—	
Hearth	T	Basin	E	168	—	0.45	0.45	0.07	7.42	1	—	3	—	0.54	—	—	2.50
Hearth	T	Basin	I	174	F100	0.6	0.58	0.17	30.98	3	—	6	—	0.29	0	—	14.00
Hearth	T	Basin	I	176	F80	0.6	0.6	0.23	43.35	4	—	24	—	0.65	0	—	23.00
Midden	N	Irregular	.	91	—	—	—	—	—	—	—	—	—	—	—	—	—
Midden	N	Irregular	E	112	—	0.6	0.43	0.09	12.16	5	1	—	—	0.99	—	—	3.00
Pithouse	N	Basin	STRUCT	28	F28	2.9	2.7	0.2	819.96	232	1	28	—	0.32	—	5.555	8.2
Pithouse	N	Basin	STRUCT	80	F80	3.5	2.5	0.24	1099.56	33	—	2	—	0.03	1mc	—	3.6
Pithouse	N	Basin	STRUCT	100	F100	4.45	3.4	0.16	1267.53	175	—	16	—	0.15	—	—	—
Pithouse	N	Basin	STRUCT	117	F117	3	3	0.28	1319.47	82	—	14	—	0.07	—	—	19
Post hole	N	Cylindrical	E	23	—	0.1	0.1	0.04	0.31	—	—	—	—	0.00	—	—	—
Post hole	N	Cylindrical	E	27	—	0.08	0.08	0.06	0.30	—	—	—	—	0.00	—	—	—
Post hole	N	Cylindrical	I	34	F28	0.15	0.15	0.18	3.18	—	—	—	—	0.00	—	—	—
Post hole	N	Cylindrical	I	43	F28	0.15	0.15	0.2	3.53	1	—	—	—	0.28	—	—	—
Post hole	N	Cylindrical	I	44	F28	0.15	0.15	0.2	3.53	—	—	—	—	0.00	—	—	—
Post hole	N	Cylindrical	I	49	F28	0.15	0.15	0.22	3.89	—	—	—	—	0.00	—	—	—
Post hole	N	Cylindrical	I	50	F28	0.15	0.15	0.18	3.18	—	—	—	—	0.00	—	—	—
Post hole	N	Cylindrical	I	51	F28	0.15	0.15	0.2	3.53	—	—	—	—	0.00	—	—	—
Post hole	N	Cylindrical	I	52	F28	0.15	0.15	0.2	3.53	—	—	—	—	0.00	—	—	—
Post hole	N	Cylindrical	I	53	F28	0.15	0.15	0.22	3.89	1	—	—	—	0.26	—	—	—
Post hole	N	Cylindrical	I	54	F28	0.15	0.15	0.2	3.53	—	—	—	—	0.00	—	—	—
Post hole	N	Cylindrical	I	55	F28	0.1	0.1	0.2	1.57	—	—	—	—	0.00	—	—	—
Post hole	N	Cylindrical	I	56	F28	0.1	0.1	0.2	1.57	—	—	—	—	0.00	—	—	—
Post hole	N	Cylindrical	I	57	F28	0.1	0.1	0.2	1.57	—	—	—	—	0.00	—	—	—
Post hole	N	Cylindrical	I	58	F28	0.1	0.1	0.2	1.57	—	—	—	—	0.00	—	—	—
Post hole	N	Cylindrical	I	61	F28	0.1	0.1	0.1	0.79	—	—	—	—	0.00	—	—	—
Post hole	N	Cylindrical	I	63	F28	0.2	0.2	0.1	3.14	—	—	—	—	0.00	—	—	—
Post hole	N	Cylindrical	I	64	F28	0.1	0.1	0.09	0.71	—	—	—	—	0.00	—	—	—
Post hole	N	Cylindrical	I	65	F28	0.1	0.1	0.08	0.63	—	—	—	—	0.00	—	—	—
Post hole	N	Cylindrical	E	66	F3	0.25	0.2	0.65	25.53	—	—	—	—	0.00	—	0.4	—
Roasting pit	T	Deflated	E	1	—	—	—	0.21	—	46	—	—	—	—	—	24.8	217.70
Roasting pit	T	Basin	E	2	—	0.76	0.96	0.14	53.48	49	2	—	—	0.95	—	0.8	17.50

Table 7.5 Wood Canyon (LA 99631) Feature Content (Continued).

Type	Thermal?	Morphology	Location	Feature	PD	L (m)	W (m)	Depth	Vol (l)	Lithic	Ceramic	Bone	Shell	# Artif/l	Phyto	Rocks kg/l	TAR kg/l
Roasting pit	T	Basin	E	12	—	1.25	1.25	0.2	163.62	7	—	12	—	0.23	—	—	11.75
Roasting pit	T	Basin	E	15	—	0.7	0.63	0.06	13.85	1	—	—	—	0.07	—	—	8.00
Roasting pit	T	Basin	E	18	—	0.86	0.8	0.32	115.28	17	—	2	—	0.16	0	—	103.00
Roasting pit	T	Basin	E	45	—	0.84	0.95	0.11	45.96	1	—	—	—	0.04	—	—	11.00
Roasting pit	T	Basin	E	67	—	0.7	0.6	0.3	65.97	3	—	—	—	0.05	—	—	8.00
Roasting pit	T	Basin	E	82	—	0.8	0.8	0.27	90.48	48	—	28	—	0.84	0	—	54.00
Roasting pit	T	Basin	E	93	—	0.8	0.75	0.25	78.54	35	—	7	—	1.07	—	—	0.07
Roasting pit	T	Basin	E	101	—	0.8	0.64	0.13	34.85	89	—	46	—	3.87	—	—	18.00
Roasting pit	T	Basin	E	103	—	1.3	1.06	0.23	165.95	38	1	1	—	0.24	—	—	37.4
Roasting pit	T	Basin	E	107	—	0.7	0.64	0.12	28.15	12	—	19	—	1.10	—	—	3.00
Roasting pit	T	Basin	E	108	—	0.98	0.77	0.29	114.58	62	—	13	—	0.65	—	—	22.00
Roasting pit	T	Basin	E	118	—	0.85	0.8	0.18	64.09	17	—	27	—	0.69	0	—	4.60
Roasting pit	T	Basin	E	120	—	0.95	0.9	0.22	98.49	32	—	12	—	0.45	—	—	13.90
Roasting pit	T	Basin	E	127	—	1.2	1.1	0.28	193.52	94	—	9	—	0.53	—	—	11
Roasting pit	T	Basin	E	156	—	1.48	1.2	0.26	241.78	54	—	4	—	0.24	—	—	26.30
Roasting pit	T	Basin	E	175	—	1.07	0.87	0.2	97.48	34	—	—	—	0.35	—	—	18
Rock pile	T	Pile	E	35	—	1	0.5	0.13	34.03	20	—	14	—	1.00	—	—	17.7
Rock scatter	T	Irregular	E	38	—	0.4	0.45	0.05	—	—	—	—	—	—	—	—	7.00
Rock scatter	T	Irregular	E	46	—	2.5	1.3	0.23	—	15	—	—	—	—	—	—	29.00
Storage pit	N	Bell-shaped	E	3	—	1.6	1.6	1.18	1903.39	167	1	18	—	0.10	1ce,	6.065	5.8
Storage pit	N	Bell-shaped	E	5	—	—	—	0.38	—	27	—	8	—	—	—	10	—
Storage pit	N	Bell-shaped	E	6	—	1.47	1.31	0.64	828.07	452	1	319	—	0.93	0	24.7	5.75
Storage pit	N	Basin	E	11	—	0.5	0.45	0.25	29.45	32	1	—	—	2.24	—	3	2
Storage pit	N	Cylindrical	E	42	—	0.92	0.92	0.32	212.72	61	—	34	—	0.45	0	—	21.75
Storage pit	N	Bell-shaped	E	47	—	0.84	0.78	0.78	668.08	214	2	148	—	0.54	0	—	—
Storage pit	N	Cylindrical	E	74	—	0.77	0.65	0.26	102.20	29	—	4	—	0.32	—	—	2.1
Storage pit	N	Basin	E	75	—	0.61	0.54	0.24	41.39	6	—	—	—	0.14	—	—	—
Storage pit	N	Basin	E	95	—	0.6	0.5	0.2	31.42	15	—	9	—	0.76	—	—	—
Storage pit	N	Bell-shaped	E	114	—	0.99	0.95	0.63	544.94	243	—	49	—	0.54	1cu	—	94
Storage pit	N	Bell-shaped	E	159	—	0.9	0.8	0.81	1631.20	401	—	489	62	0.58	—	—	165.80
Storage pit	N	Bell-shaped	E	160	—	1.22	1.2	1	1791.31	186	1	90	—	0.15	0	—	103
Storage pit	N	Cylindrical	E	165	—	0.94	0.94	0.25	173.49	47	—	—	—	0.27	—	12.9	—
Unknown use	T	Basin	E	4	—	0.55	0.5	0.09	12.96	6	—	—	—	0.46	—	—	15

Table 7.5 Wood Canyon (LA 99631) Feature Content (Continued).

Type	Thermal?	Morphology	Location	Feature	PD	L (m)	W (m)	Depth	Vol (l)	Lithic	Ceramic	Bone	Shell	# Artif/l	Phyto	Rocks kg/l	TAR kg/l
Unknown use	T	Basin	E	8	—	0.6	0.6	0.5	94.25	206	—	163	—	3.92	0	—	1.00
Unknown use	T	Basin	E	19	—	0.38	0.3	0.08	4.78	—	—	—	—	0.00	—	—	4.75
Unknown use	T	Basin	E	25	—	0.5	0.5	0.4	52.36	10	—	21	—	0.59	—	—	9
Unknown use	T	Basin	E	29	—	0.58	0.39	0.26	30.79	2	—	5	—	0.23	—	—	5.60
Unknown use	T	Basin	E	32	—	0.45	0.45	0.05	5.30	6	—	3	—	1.70	—	—	1.25
Unknown use	T	Basin	E	36	—	0.46	0.66	0.11	17.49	1	—	—	—	0.06	—	—	16
Unknown use	T	Basin	E	40	—	0.6	0.6	0.2	37.70	6	—	—	—	0.16	0	—	3.00
Unknown use	T	Cylindrical	E	72	—	0.52	0.45	0.25	45.95	18	—	18	—	0.78	0	—	9.80
Unknown use	T	Basin	E	73	—	0.69	0.5	0.22	39.74	12	—	30	—	1.06	—	—	17.00
Unknown use	T	Basin	E	77	—	0.6	0.6	0.2	37.70	3	—	—	—	0.16	—	—	0.25
Unknown use	T	Basin	E	79	—	0.44	0.4	0.17	15.67	3	—	—	—	0.19	—	—	8.3
Unknown use	T	Basin	E	98	—	0.65	0.6	0.12	24.50	2	—	1	—	0.12	—	—	3.5
Unknown use	T	Basin	E	99	—	0.6	0.54	0.18	30.54	18	—	5	—	0.75	0	—	22.70
Unknown use	T	Basin	E	110	—	0.62	0.59	0.23	44.05	132	—	40	—	3.90	—	—	13.1
Unknown use	T	Basin	E	115	—	0.45	0.45	0.2	21.21	3	—	—	—	0.14	—	—	1.5
Unknown use	T	Basin	E	172	—	0.52	0.4	0.07	7.62	2	—	—	—	0.26	—	—	8.25
Unknown use	N	Basin	E	13	—	0.99	0.94	0.14	68.22	5	—	—	—	0.07	—	2	—
Unknown use	N	Basin	E	20	—	0.3	0.3	0.1	4.71	—	—	—	—	0.00	—	—	—
Unknown use	N	Basin	I	30	F28	0.4	0.4	0.15	12.57	2	—	—	—	0.16	—	—	0.2
Unknown use	N	Basin	I	59	F28	0.3	0.3	0.1	4.71	—	—	1	—	0.21	1cu,	—	—
Unknown use	N	Basin	I	60	F28	0.3	0.3	0.05	2.36	—	—	—	—	0.00	—	—	—
Unknown use	N	Basin	E	69	—	0.5	0.5	0.13	17.02	—	—	—	—	0.00	—	—	18.5
Unknown use	N	Basin	E	71	—	0.51	0.43	0.11	12.63	—	—	—	—	0.00	—	—	—
Unknown use	N	Basin	E	76	—	0.9	0.6	0.17	48.07	9	—	—	—	0.37	—	0.3	—
Unknown use	N	Basin	E	81	—	0.4	0.4	0.15	12.57	14	—	5	—	1.51	—	—	—
Unknown use	N	Cylindrical	E	84	—	0.44	0.42	0.17	24.67	9	—	23	—	2.59	—	—	—
Unknown use	N	Basin	E	85	—	0.46	0.46	0.11	12.19	—	—	—	—	0.00	—	—	—
Unknown use	N	Basin	E	86	—	0.66	0.45	0.12	18.66	—	—	—	—	0.00	—	—	—
Unknown use	N	Basin	E	88	—	0.36	0.27	0.06	3.05	—	—	—	—	0.00	—	—	0.05
Unknown use	N	Basin	E	89	—	0.4	0.3	0.08	5.03	2	—	0	—	0.40	—	—	—
Unknown use	N	Basin	E	94	—	1.15	0.83	0.23	114.95	54	—	7	—	0.53	—	—	6.5
Unknown use	N	Basin	E	96	—	0.33	0.3	0.05	2.59	—	—	—	—	0.00	—	—	—
Unknown use	N	Basin	E	97	—	0.44	0.41	0.08	7.56	—	—	—	—	0.00	—	—	0.1

Table 7.5 Wood Canyon (LA 99631) Feature Content (Continued).

Type	Thermal?	Morphology	Location	Feature	PD	L (m)	W (m)	Depth	Vol (l)	Lithic	Ceramic	Bone	Shell	# Artif/l	Phyto	Rocks kg/l	TAR kg/l
Unknown use	N	Basin	E	109	—	0.66	0.54	0.14	26.13	13	—	—	—	0.50	—	—	0.05
Unknown use	N	Basin	E	116	—	0.9	0.84	0.1	39.58	3	—	3	—	0.15	—	1.6	—
Unknown use	N	Irregular	E	119	—	0.7	0.7	0.14	35.92	1	—	10	—	0.61	—	13.9	—
Unknown use	T	Basin	E	125	—	1	1	0.27	141.37	76	—	19	—	0.67	0	—	0.15
Unknown use	N	Basin	E	136	—	0.7	0.66	0.11	26.61	—	—	—	—	0.00	—	—	1
Unknown use	N	Basin	E	138	—	0.56	0.54	0.05	7.92	3	—	—	—	0.76	—	—	—
Unknown use	N	Basin	E	140	—	0.96	0.72	0.13	47.05	2	1	—	—	0.06	—	—	0.5
Unknown use	T	Irregular	E	142	—	1.47	0.73	0.08	44.95	3	—	1	—	0.18	—	—	1.7
Unknown use	T	Basin	E	143	—	0.98	0.7	0.07	25.14	7	—	1	—	0.32	—	—	4.6
Unknown use	N	Basin	E	148	—	0.71	0.55	0.1	20.45	2	—	—	—	0.20	—	—	0.7
Unknown use	N	Basin	E	154	—	0.6	0.55	0.21	36.29	7	—	—	—	0.39	—	—	—
Unknown use	N	Basin	E	162	—	0.5	0.5	0.06	7.85	3	—	—	—	0.38	—	—	—
Unknown use	N	Basin	E	164	—	0.61	0.61	0.18	35.07	6	—	—	—	0.17	—	—	—
Unknown use	N	Basin	I	173	F100	0.85	0.75	0.12	40.06	11	—	—	—	0.27	—	—	1.2
Unknown use	N	Basin	E	178	—	0.95	0.95	0.31	146.49	6	—	—	—	0.04	—	2.4	—
Drainage	N	Irregular	—	152	—	30	11	0.8	—	1	—	—	—	—	—	—	—
Natural	N	Irregular	—	7	—	3	0.5	0.25	—	—	—	—	—	—	—	—	—
Natural	N	Irregular	—	16	—	0.37	0.36	0.04	—	—	—	—	—	—	—	7.1	—
Natural	N	Natural	—	24	—	—	—	—.	—	—	—	—	—	—	—	—	—
Natural	N	Irregular	—	78	—	4	2.2	0.15	—	—	—	—	—	—	—	0.008	—
Natural	N	Irregular	—	83	—	—	—	—	—	—	—	—	—	—	—	—	—
Natural	N	Basin	—	131	—	0.49	0.35	0.09	—	—	—	—	—	—	—	—	—
Natural	N	Irregular	—	141	—	1.69	1.22	0.16	—	1	—	—	—	—	—	2.1	—
Natural	N	Irregular	—	144	—	2.38	2.16	0.9	—	—	—	—	—	—	—	—	—
Natural	N	Irregular	—	145	—	2.65	1.63	0.02	—	4	—	—	—	—	—	—	—
Natural	N	Basin	—	147	—	4	3	0.06	—	—	—	—	—	—	—	—	—
Natural	N	Irregular	—	149	—	2.8	2.5	0.06	—	—	—	—	—	—	—	—	—
Natural	N	Irregular	—	150	—	1.54	0.98	0.02	—	—	—	—	—	—	—	—	—
Natural	N	Irregular	—	151	—	1.23	1.15	0.04	—	—	—	—	—	—	—	—	—
Natural	N	Irregular	—	166	—	—	—	—	—	—	—	—	—	—	—	—	—
Natural	N	Irregular	—	169	—	0.55	0.5	0.06	—	1	—	—	—	—	—	—	4
Rodent	N	Irregular	—	9	—	0.5	0.3	0.47	—	12	—	1	—	—	—	—	—

Table 7.5 Wood Canyon (LA 99631) Feature Content (Continued).

Type	Thermal?	Morphology	Location	Feature	PD	L (m)	W (m)	Depth	Vol (l)	Lithic	Ceramic	Bone	Shell	# Artif/l	Phyto	Rocks kg/l	TAR kg/l
Rodent	N	Irregular	—	48	—	—	—	—	—	—	—	—	—	—	—	—	—
Rodent	N	Irregular	—	87	—	0.35	0.15	0.17	—	—	—	1	—	—	—	—	—
Rodent	N	Irregular	—	92	—	0.55	0.20	0.18	—	—	—	8	—	—	—	—	—
Rodent	N	Irregular	—	137	—	0.70	0.60	—	—	1	—	—	—	—	—	—	—
Rodent	N	Basin	—	139	—	0.36	0.34	0.04	—	—	—	—	—	—	—	—	—
Rodent	N	Basin	—	146	—	0.42	0.40	0.06	—	1	—	—	—	—	—	—	—
Rodent	N	Irregular	—	171	—	0.49	0.24	—	—	—	—	—	—	—	—	—	—
Root disturbance	N	Irregular	—	10	—	1.85	0.93	—	—	—	—	—	—	—	—	—	—
Root disturbance	N	Irregular	—	17	—	0.46	0.38	0.06	—	—	—	—	—	—	—	—	—
Root disturbance	N	Irregular	—	123	—	—	—	—	—	—	—	—	—	—	—	—	—
Root disturbance	N	Irregular	—	126	—	0.21	0.2	—	—	—	—	—	—	—	—	—	—
Root disturbance	N	Irregular	—	135	—	0.7	0.6	0.09	—	—	—	—	—	—	—	—	—
Root disturbance	N	Basin	—	167	—	0.68	0.6	0.1	—	2	—	—	—	—	—	—	—

Structures

Structure 1: Feature 28

Structure 1 (Feature 28) was a pit structure at the eastern end of the site. This portion of the site was eroded with an abundance of thermally altered rock and artifacts on the surface; however, the surface immediately above the structure was relatively clean. The structure was uncovered approximately 10 cm below the present ground surface during mechanical stripping. Although the main structure was intact, the southern edge may have been slightly impacted by previous highway construction and subsequent erosion.

This structure consisted of a shallow basin-shaped, circular pit with a ring of closely spaced post holes around the outside edge (Figures 7.17 and 7.18). Measured from the exterior wall posts, the dimensions of the structure were 3.0 m east-west by 2.98 m north-south; however, the pit measured 2.66 m north-south by 2.72 m east-west. The floor area was 6.15 m^2. It is a maximum of 24 cm in depth although it slopes up gently from the center.

Feature 28 was associated with 17 post holes, 13 of which formed a semicircular perimeter around the structure. The interior of the structure contained four other post holes, two shallow non-thermal pits, and two hearths. No formal entranceway was identified. Although the structure was burned, no evidence of oxidation was noted on the floor or walls. A Zea cupule found on the floor of Structure 1 yielded a calibrated two-sigma date range of 165 BC to AD 120 (Beta 141726).

Internal Stratigraphy: Mechanical removal of the topsoil revealed a circular pit filled with A horizon soil mixed with charcoal. This pit was ringed on three sides by post holes that began to appear as the freshly exposed C horizon differentially dried. A 50 cm wide trench was extended through the pit along the E486.5 line. The pit fill was a homogeneous, yellowish brown (10YR4/4,d) sandy clay loam. Although no internal stratigraphy was identified, charcoal was visible on the floor. The contact between the floor and substratum was clear to abrupt. One intrusive pit, Feature 30, was noted in profile. This subtle feature originated at the top of Feature 28 fill and penetrated the floor of the structure.

Given the lack of internal stratigraphy, the structure was quartered and excavated in two levels, the upper pit fill and 5 to 8 cm thick deposits resting on the floor of the structure. The upper deposits, Level 1, was sent through 1/4-inch screen. The floor deposits, designated as Level 2, were screened through 1/8-inch hardware cloth.

Excavations revealed a relatively low frequency of thermally altered rock and artifacts from Level 1 (Table 7.6). It is assumed that these materials were washed into the pit. The low concentrations of material suggest the pit was not used for refuse disposal after abandonment.

The floor deposits revealed a dense concentration of burned posts and roof material on the eastern side of the structure. These materials indicate the structure burned.

The floor deposits of Feature 28 (Level 2) contained 143 pieces of debitage, one core, one biface fragment, one retouched piece, and one Alma Incised sherd. The three mano fragments , all associated with Feature 33, were on the floor along with a small amount of both unaltered and thermally altered rock. The sherd was assumed to be intrusive given the radiocarbon date for the structure.

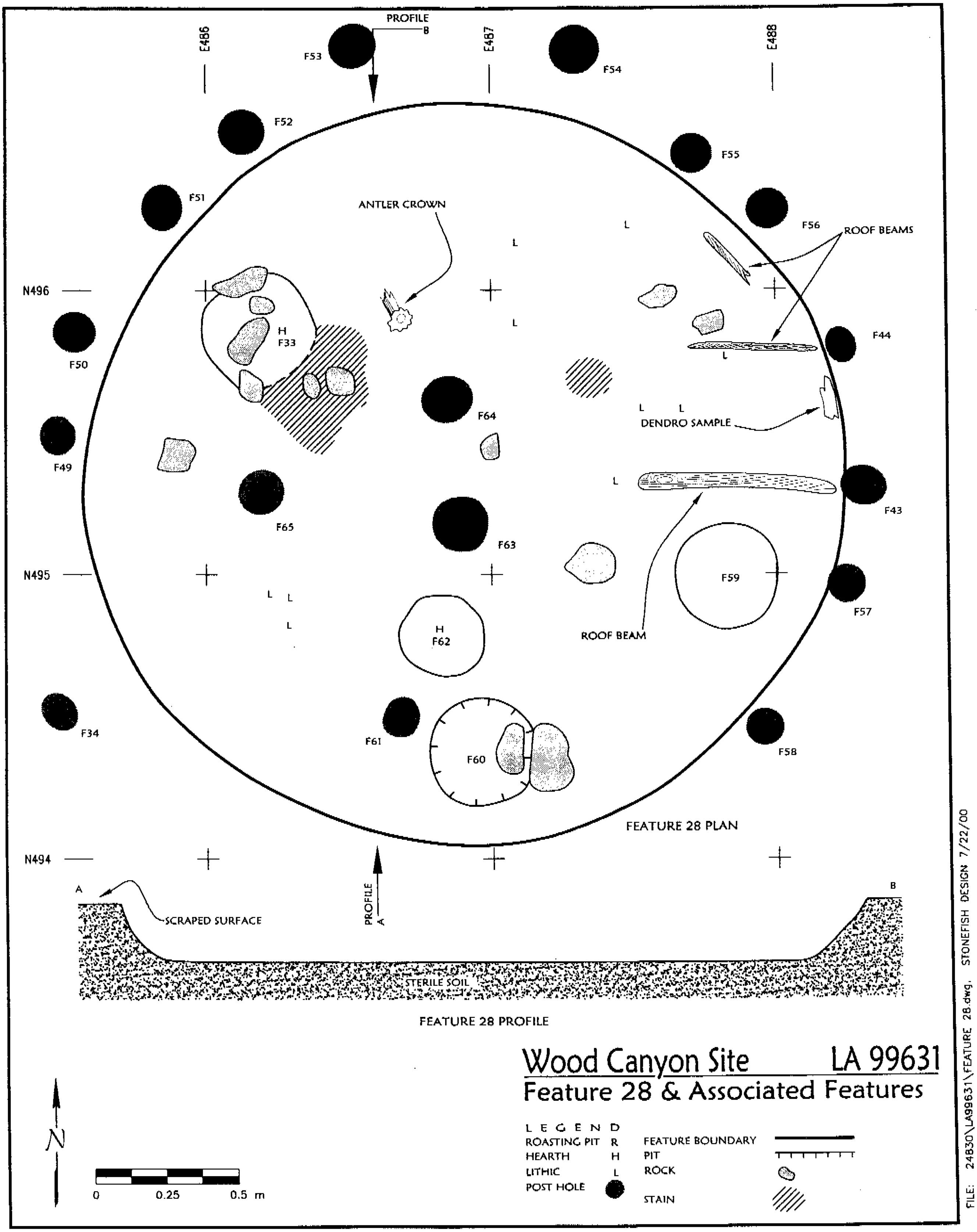


Figure 7.17 Structure 1 (Feature 28) Plan Map, Wood Canyon Site.

Figure 7.18 Photograph of Structure 1, Post-excavation, Facing East, Wood Canyon Site.

Table 7.6 Wood Canyon (LA 99631) Structures 1 Through 4 Artifact Summaries.

	Debitage	Cores	Retouched Tools	Bifaces	Scrapers	Drills	Manos	Metates	Stone Hoes	Quartz Crystal	Alma Incised	Unburned Fauna	Burned Fauna	Bone Tools	Non-TAR Rock (kg)	TAR (kg)
Structure 1:																
Pit Structure: Feature 28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Fill (Level 1)	82	1	—	—	—	—	2	1	—	—	—	3	—	—	2.648	0.200
Floor (Level 2)	143	1	1	1	—	—	—	—	—	—	1	21	4	1	2.907	8.000
Post holes																
Feature 34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 43	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 44	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 49	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 51	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 52	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 53	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—
Feature 54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 56	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 61	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 63	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 33	1	—	—	—	—	—	3	—	—	—	—	—	—	—	—	7.100
Feature 62	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Non-thermal Pits		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 59	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—
Feature 60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table 7.6 Wood Canyon (LA 99631) Structures 1 Through 4 Artifact Summaries (Continued).

	Debitage	Cores	Retouched Tools	Bifaces	Scrapers	Drills	Manos	Metates	Stone Hoes	Quartz Crystal	Alma Incised	Unburned Fauna	Burned Fauna	Bone Tools	Non-TAR Rock (kg)	TAR (kg)
Structure 2																
Pit Structure: Feature 80	28	1	2	—	1	—	1	—	—	—	—	2	—	—	—	3.600
Feature 176	2	—	—	—	—	—	—	2	—	—	—	24	—	—	—	88.000
Structure 3																
Pit Structure: Feature 100	168	1	—	—	1	1	1	—	2	1	—	11	2	1	—	
Feature 173	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.200
Feature 174	3	—	—	—	—	—	—	—	—	—	—	5	1	—	—	14.000
Structure 4																
Pit Structure: Feature 117	75	1	2	—	1	—	2	1	—	—	—	13	1	—	—	19.000

Floor and Internal Features: Feature 28 was associated with 21 internal features (Table 7.6). Structural features include 17 post holes, including 13 that encircle the outside of the pit structure. The post holes ranged from 10 to 15 cm in diameter and from 10 to 22 cm in depth. These post holes represent exterior wall posts.

The four interior post holes probably represented roof support or screens. They varied from 8 to 10 cm in depth and diameter except for the central post hole that was 20 cm in diameter and 10 cm in depth.

Two hearths were located on the floor. The more substantial of the two was Feature 33, a circular, unprepared hearth in the northwestern quarter of the structure. Measuring 40 cm in diameter and 5 cm in depth, the hearth was filled with a dark yellowish brown sandy clay loam with charcoal. An amorphous charcoal-rich stain associated with the hearth may represent a warming or roasting surface. The hearth contained a cluster of thermally altered rock and three manos. Charcoal in the pit was dominated by oak with a minor amount of juniper.

Feature 62 was another small, unprepared hearth pit located in the southern portion of the structure. It was 30 cm in diameter and only 2 cm in depth and exhibited an oxidized red (10R4/4,d) bottom. Unlike Feature 33, it contained no thermally altered rock. This pit may have been positioned near the entrance to the structure. Charcoal in the pit was not identifiable.

Two other shallow, circular, basin-shaped pits were observed on the floor in the southern and southeastern portions. Feature 59 was 30 cm in diameter and 10 cm in depth and filled with dark yellowish brown (10YR 4/4,d) sandy loam with an abundance of charcoal. The charcoal actually may be associated with the burned roof material. The other pit, Feature 60, was 30 cm in diameter but less than 5 cm in depth. Positioned between the edge of the pit structure wall and one of the hearths, the pit could actually represent a depression formed in the entranceway of the structure.

Construction and Remodeling Evidence: The pit structure was dug at least 24 cm below the surface. The floor was nearly level with steep sloping pit walls. There was no evidence of plaster or special preparation of the walls or floor. Closely spaced post holes encircling the structure denote above ground walls on the western, northern, and eastern sides of the structure. The absence of post holes on the southern edge of the structure may suggest an open side and entrance; however, given the faint staining associated with each post hole, a more likely scenario is that previous highway construction obliterated the evidence of the walls on the southern side.

Despite the confusion on the southern side of the structure, several lines of data argue for a southern entrance to the building. First, the characteristics of Feature 60 preclude it as an intentionally prepared pit. Rather, its shallow appearance suggests a depression caused by foot traffic at the entranceway. Second, interior hearths often are positioned near the entrance. Feature 62, located close to Feature 60, would be in the correct position to take advantage of the doorway draft.

Considering the small size of the structure, interior roof supports seem unnecessary unless dirt or mud was covering the frame. The four interior post holes included one (Feature 63) that was larger near the center of the structure. It could have been a central roof support. The other three also suggest three corners of a square roof support pattern. Charred timbers, probably wall posts and roofing elements, found on the floor of the structure were identified as mountain mahogany, oak, and juniper. The mountain mahogany elements were disintegrating, but at a minimum could have been 3 cm in diameter. The other wood was in too poor condition to determine the original size. No evidence of daub was noted in the pit fill.

The presence of two hearths in the structure may imply remodeling during the course of the occupation. It seems doubtful that two contemporaneous hearths would exist on the floor of such a small structure. Perhaps the hearth was moved for pragmatic reasons when winds or rain blew into the building. Nevertheless,

the characteristics of the two hearths are different. Feature 33 was slightly larger, associated with thermally altered rock, and lacked clear oxidization, while Feature 62 was oxidized, suggesting a hotter fire. It is possible that Feature 33 was used for roasting and warming food during special situations. More likely, Feature 62 was cleaned out and abandoned in favor of Feature 33.

Abandonment and Post-abandonment Evidence: Given the small size of the structure, the floor was probably kept relatively clean during the occupation. Although the structure burned, it is unknown if the event occurred during occupation. The limited amounts of cultural material in the filled in structure indicated the pit was not used for refuse disposal; however, sometime after the pit structure was completely filled, Feature 30, a basin-shaped pit, intruded into the deposits, terminating near the floor.

Structure 2: Feature 80

Structure 2 (Feature 80) was a pit structure exposed after the mechanical removal of approximately 30 cm of overburden. It initially was identified as an oval, dark ashy brown stain measuring approximately 4.0 by 3.5 m; however, the bioturbation was so great that no clear boundaries could be delineated (Figure 7.19). A trench was first excavated east-west through the stain, but due to the rodent disturbance only a small area measuring 1.6 m east-west by 1.5 m north-south could be firmly recognized as a floor area. Based on the estimated size, the floor space of the structure was 10.99 m^2. As finally exposed, the structure consisted of a shallow, basin-shaped pit with a maximum depth of 24 cm. Feature 80 had one recognizable internal feature, a rock-lined hearth (Feature 176). No entranceway was identified. A charred beam preserved on the floor suggested that the structure burned. A charred juniper seed on the floor of Structure 2 produced a calibrated, two sigma date range of AD 1525 to 1560 or AD 1630 to 1680 (Beta 141727). These dates are not consistent with any others from the site, but if accurate, indicate Protohistoric occupation on the site.

Internal Stratigraphy: The mechanical removal of the overburden revealed severely disturbed stain with a high organic content. The dark grayish brown (10YR4/2,d) sandy loam was riddled with filled in and open rodent burrows. This disturbance caused considerable confusion in delineating the boundaries. A 50 cm wide east-west trench through the stain recognized a good clear floor contact only in a small portion of the overall stain. The fill was loose and showed no internal stratigraphy. The floor was noticeably more compact with charcoal and a charred beam on the contact.

Floor and Internal Features: Although the overall structure may have been 3.5 by 2.5 m in size, bioturbation appears to have destroyed most of the floor, post holes, and other internal features. The small preserved floor remnant probably was the deepest part of the structure and, being closely associated with internal hearth (Feature 176), may have been more compacted and baked by the fire. It is assumed the floor sloped up gently to the west of the hearth. A charred beam, mano, and core were noted on the surface of the floor.

Feature 176 was a rock-lined hearth measuring 60 cm in diameter and 16 cm in depth (Figure 7.20). The lining material included granite, quartz, and two metate fragments. Wood charcoal in this feature included mountain mahogany and other unidentifiable hardwoods.

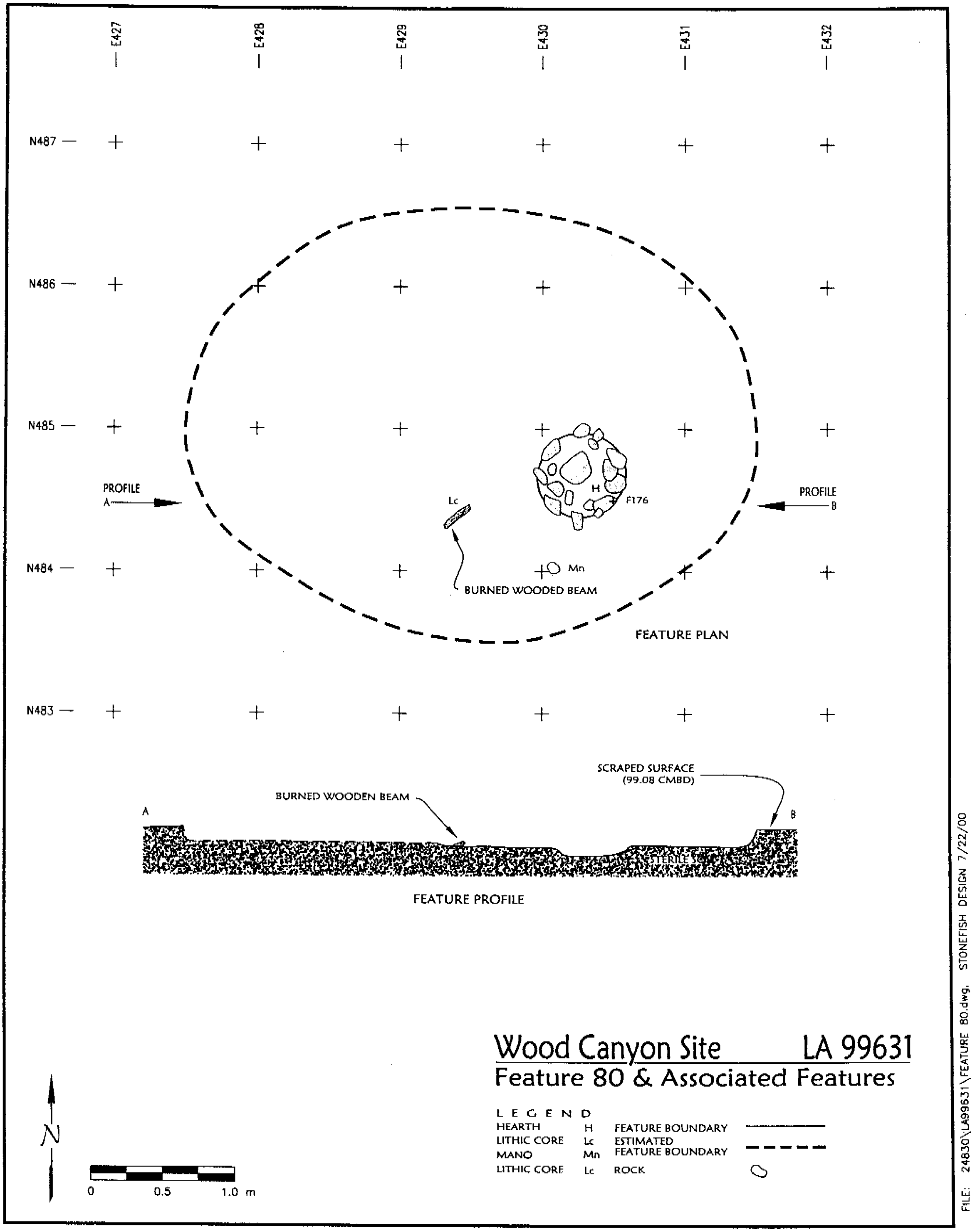


Figure 7.19 Structure 2 (Feature 80) Plan Map, Wood Canyon Site.

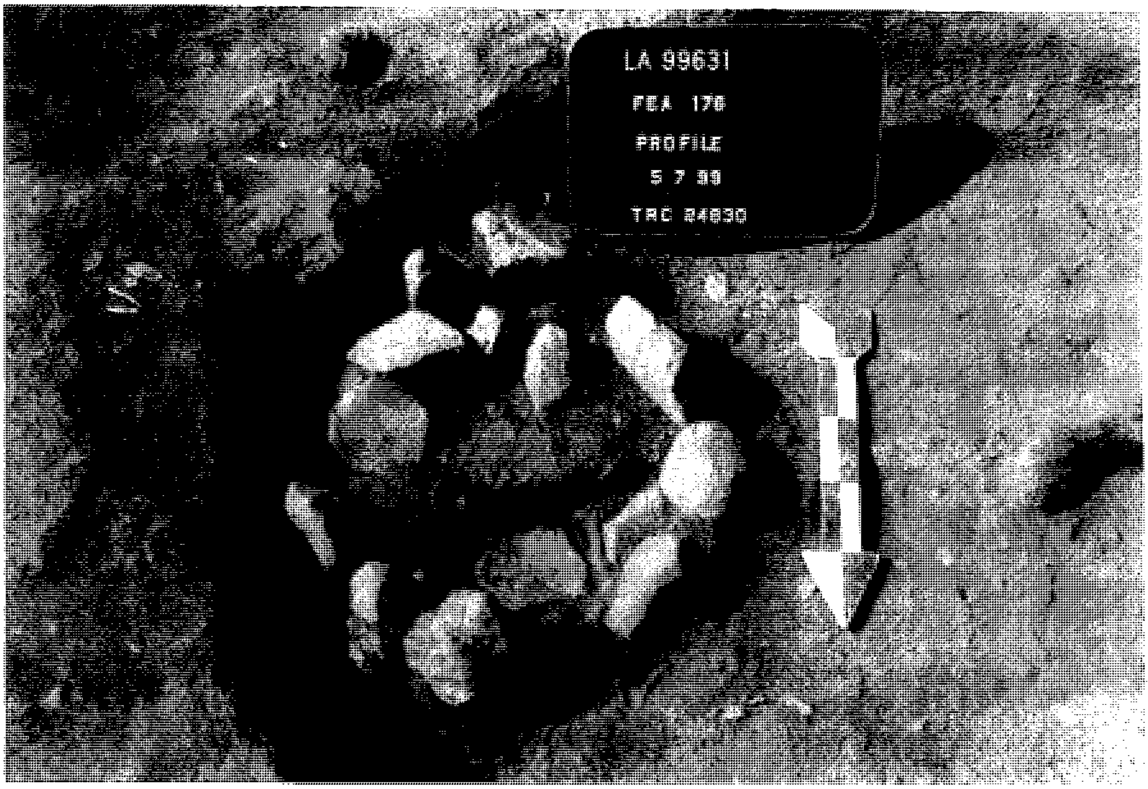


Figure 7.20 Photograph of Feature 176, a Hearth in Structure 2, Wood Canyon Site.

Construction and Remodeling Evidence: The pit structure was dug at least 24 cm below the surface. The floor was nearly level near the hearth but sloped up gently from there. The walls were not well defined. There was no evidence of plaster or special preparation of the walls or floor. The burned beam on the floor of the structure was identified as oak.

Abandonment and Post-abandonment Evidence: The ashy nature of the fill and the charred beam on the floor indicates the structure burned, although whether this occurred during the occupation is unknown. The pit fill was consistently ashy and probably includes materials from the surrounding cultural deposits. The low numbers of artifacts and thermally altered rocks indicate the abandoned structure was not used for refuse disposal.

Structure 3: Feature 100

Structure 3 (Feature 100) was a pit structure situated in the north-central portion of the site. The structure was identified in the east and west profiles of BT 5 as a very dark, charcoal rich depression below the Ab horizon. Although the profile indicated a basin or saucer-shaped pit, significant bioturbation had obliterated any abrupt boundaries. A 1 by 2 m unit was excavated into the structure in order to gain a stratified sample of materials before mechanically stripping off the 39 cm of deposits that overlay the structure. After the basin outline was fully exposed, two 50 cm wide trenches were dug through the stain to the floor.

The structure was a large, oval basin-shaped pit structure measuring 4.45 m north-south by 3.4 m east-west from the pit's edges (Figure 7.21). Floor space was 11.88 m^2. Despite careful excavations, no post holes were identified in association with the structure. The floor was a maximum of 19 cm in depth below the pit's rim. No formal entranceway was located. Two internal features, a hearth and another shallow pit, were documented on the floor.

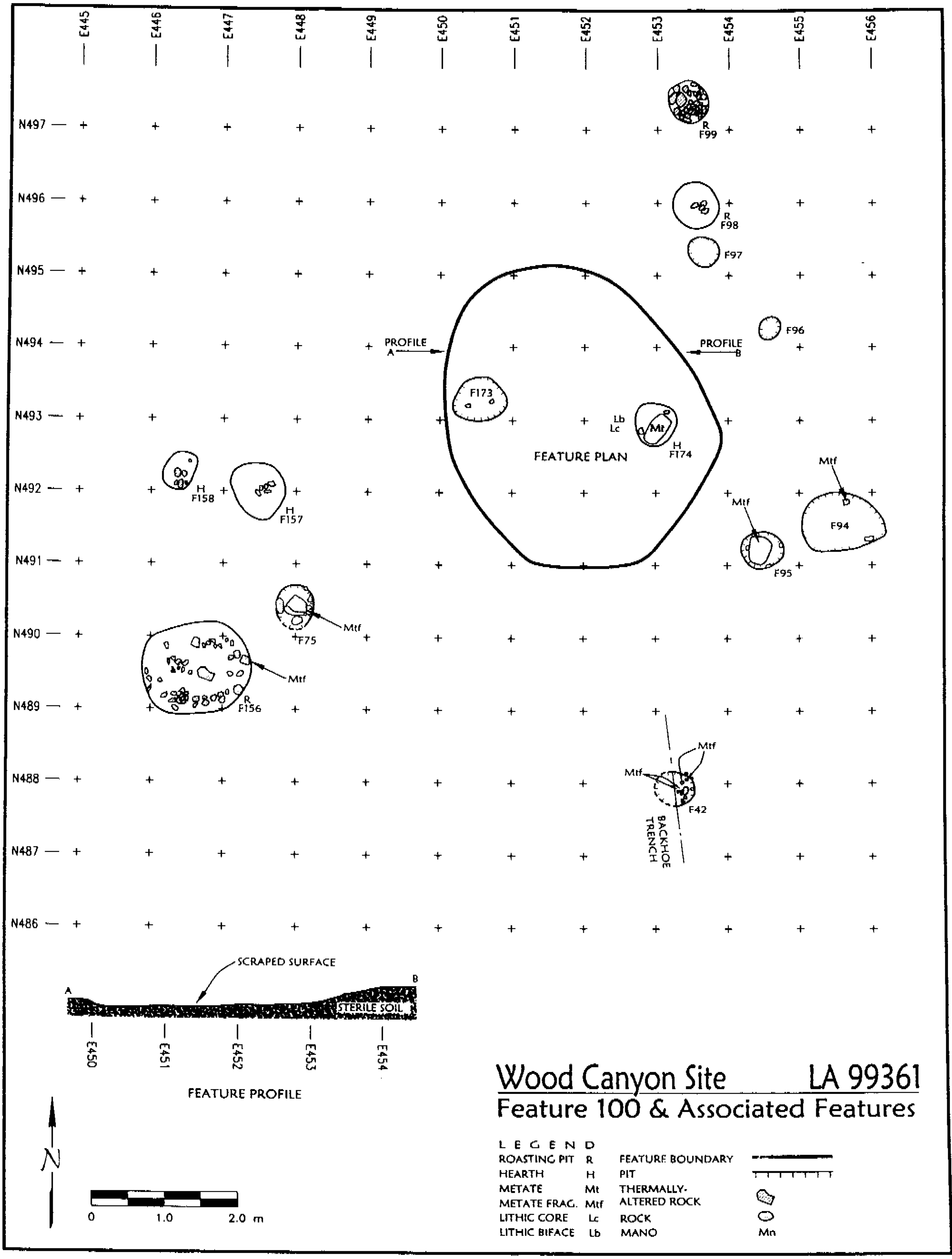


Figure 7.21 Structure 3 (Feature 100) Plan Map, Wood Canyon Site.

Internal Stratigraphy: The structure was first identified in the profiles of a backhoe trench and was later exposed in plan by mechanical removal of approximately 39 cm of Ap and Ab horizon sediments. The internal stratigraphy was homogeneous throughout the basin. It consisted of a grayish brown to brown (10YR 5/3, d) coarse clay loam with an abundance of charcoal. The feature's sediments were severely disturbed by rodent activity. The floor contact was marked by the much harder brownish yellow (10YR 6/6, d) sandy clay loam C horizon.

The lack of internal stratigraphy led to the structure being excavated in quarters. Two 50 cm wide trenches were dug across Feature 100 in order to identify the floor and walls before excavation of each quarter. One was placed east-west along the N494 line. The other extended north from the end of BT 6 along the E452 line. Since the floor sloped up gradually, it was difficult to separate one level as the floor and therefore, the artifacts were combined. In all, the structure contained 142 pieces of debitage, a core, a biface, a scraper, a drill fragment, a mano, a large hoe, and an awl (Table 7.6).

Floor and Internal Features: The floor of Structure 3 sloped up gradually from its low point with no true basin walls. The floor was not plastered. Due perhaps to the rodent activity, no post holes were recognized either on the floor or around the perimeter of the structure. The only features documented on the floor were a hearth and pit.

The floor contained debitage, a few tools, and a small amount of thermally altered rock. Located near the hearth in the southeastern quarter were a large stone hoe and mano. A deer bone awl with a missing tip was abandoned in the central portion of the structure.

Feature 173 was an oval basin-shaped pit located in the west-central portion of the structure (Figure 7.21 and 7.22). It was defined as 85 by 75 cm at its orifice and a maximum of 12 cm in depth. The feature contained two zones of fill. At the center was a circular charcoal stain about 35 cm in diameter that could have been the actual pit. The fill was a very dark gray (7.5YR3/0, d) clay loam. The outer zone was a mottled dark brown (7.5YR4/2, d) clay loam that graded outward from the center. The function of the pit was unknown. A charred juniper seed located in the feature yielded a calibrated two-sigma date range of either 820 to 750 BC or 695 to 540 BC (Beta 142217). These dates generally agree with other dated features nearby and are believed to accurately date the structure.

A distinctive hearth (Feature 174) was located in the southeastern quarter of the structure (Figures 7.21 to 7.22). The circular, basin-shaped feature was 60 by 58 cm in plan and 16 cm in depth. It was filled with a very dark gray (7.5YR3/1, d) sandy clay loam and an abundance of charcoal. A metate was placed upside down in the hearth along with a granitic and quartz thermally altered rock. The wood charcoal in the pit was primarily oak and other unidentifiable hardwoods, although a small amount of juniper also occurred.

Construction and Remodeling Evidence: Structure 3 was built into a shallow basin with sides that sloped gently up to the rim. The pit was dug into the compact C horizon which made a good surface for the floor. The pit was dug to a maximum depth of 19 cm below the rim. There was no indication of plaster, although the area around the hearth was baked hard. No evidence of the superstructure of the building was documented.

Abandonment and Post-abandonment Evidence: When the structure was abandoned, a metate was turned upside down and placed in the hearth. The large hoe with a fragment of the working margin missing was left on the floor. The quantity of charcoal noted in the structure's fill suggests it burned. Since fires probably swept through the area periodically, all structures would have burned eventually, if not from accidents or intentionally set fires. After the abandonment of Structure 3, the basin filled with general refuse that likely washed in from the surrounding surface.

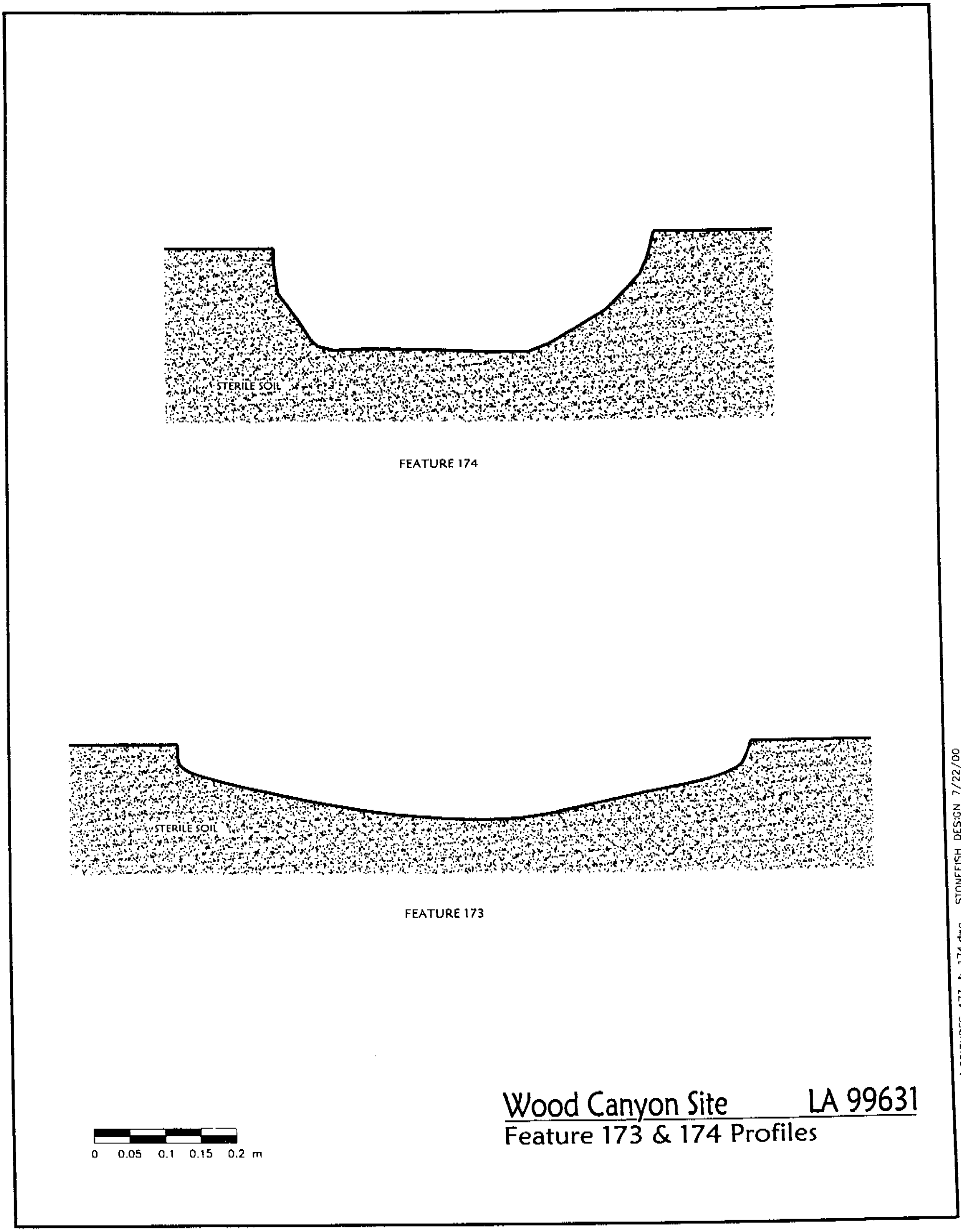


Figure 7.22 Profiles of Feature 173, a Pit, and Feature 174, a Hearth in Structure 3, Wood Canyon Site.

Structure 4: Feature 117

Feature 117 was a roughly circular pit structure found along the southern road cut of NM 90. The structure was first exposed in a profile along the road cut and later by the mechanical removal of approximately 15 cm of overburden. Severe rodent and root disturbance had seriously compromised the feature's integrity. An estimated 80 percent of the fill and at least 60 percent of the floor were damaged by these activities.

The structure was a shallow, basin-shaped pit with a level floor and steep basin walls. The pit measured 3 m north-south by 3 m east-west and had a floor area of 7.07 m^2 (Figure 7.23). The floor was disturbed, but where reasonably intact, it was approximately 20 cm in depth. There were no recognized internal features or entranceway. During the excavations, a particularly disturbed, soft area at the center of the structure initially was interpreted as an internal pit of some sort but was later viewed as simply an area of intensive bioturbation.

Internal Stratigraphy: The removal of the cultural overburden exposed a roughly circular pit containing a very loose, dark brown (7.5YR3/2, d) cultural fill composed of coarse sandy loam. Using the profile along the road cut as a guide, the northern half of the pit was excavated and later the southern half. An alligator juniper stump measuring more than 1 m diameter was located immediately southeast of the structure, and three massive roots, each measuring from 15 to 20 cm in diameter, were documented in the feature. Both active and filled in rodent burrows were abundant as well. Combined, these disturbances left no internal stratigraphy with the exception of the obvious rodent burrows. Given the bioturbation, the floor often was difficult to distinguish. Where present, the contact between the floor and the sterile substratum was marked by a clear change in soil color and consistency. The subfloor deposit was a very compact, hard, and very coarse sandy loam that was reddish brown (5YR6/6, d) in color. Considering the disturbance, most of the upper fill was removed without screening. The 5 cm above the floor was passed through 1/8-inch screen. These deposits yielded 75 pieces of debitage, one complete and two broken manos, a metate fragment, two retouched pieces, and a core (Table 7.6).

Floor and Internal Features: Evidence of a floor was limited to approximately 40 percent of the structure's interior. Even where found, the floor seemed churned from the bioturbation. As such, the materials recovered from the floor level are suspect. No internal floor features were distinguished, although thermally altered rocks found in the fill could imply a hearth had been present. One complete circular mano was located on the floor in the northeastern quarter of the structure.

Construction and Remodeling Evidence: Structure 4 was dug into the natural deposits to at least 20 cm below the feature's rim, stopping on a compact C horizon soil. The floor was nearly level and the pit's walls were nearly straight sided. The floor and walls showed no signs of plaster or special preparation. Given the condition of the feature, there was no evidence for the superstructure or remodeling episodes.

Abandonment and Post-abandonment Evidence: Unlike Structures 1 and 2, there was no indication that this building burned. Mixing of the internal deposits left no evidence of post-abandonment filling episodes. Although the upper deposits in the feature were not screened, no concentrations of artifacts or thermally altered rocks were noted and it is assumed that the pit was not purposefully used for refuse disposal. Since the interior cultural fill was similar to the surrounding cultural deposits, it is likely that sediments and artifacts simply washed into the depression.

Post holes

Twenty features were identified as post holes (Tables 7.4 and 7.5). Diameters ranged from 8 to 25 cm, representing both main support posts and smaller perimeter supports. Seventeen of these were associated with Feature 28, a small pithouse. The other three posts did not have an obvious association with any of the identified structures, although two of them (Features 23 and 27) were near Feature 28.

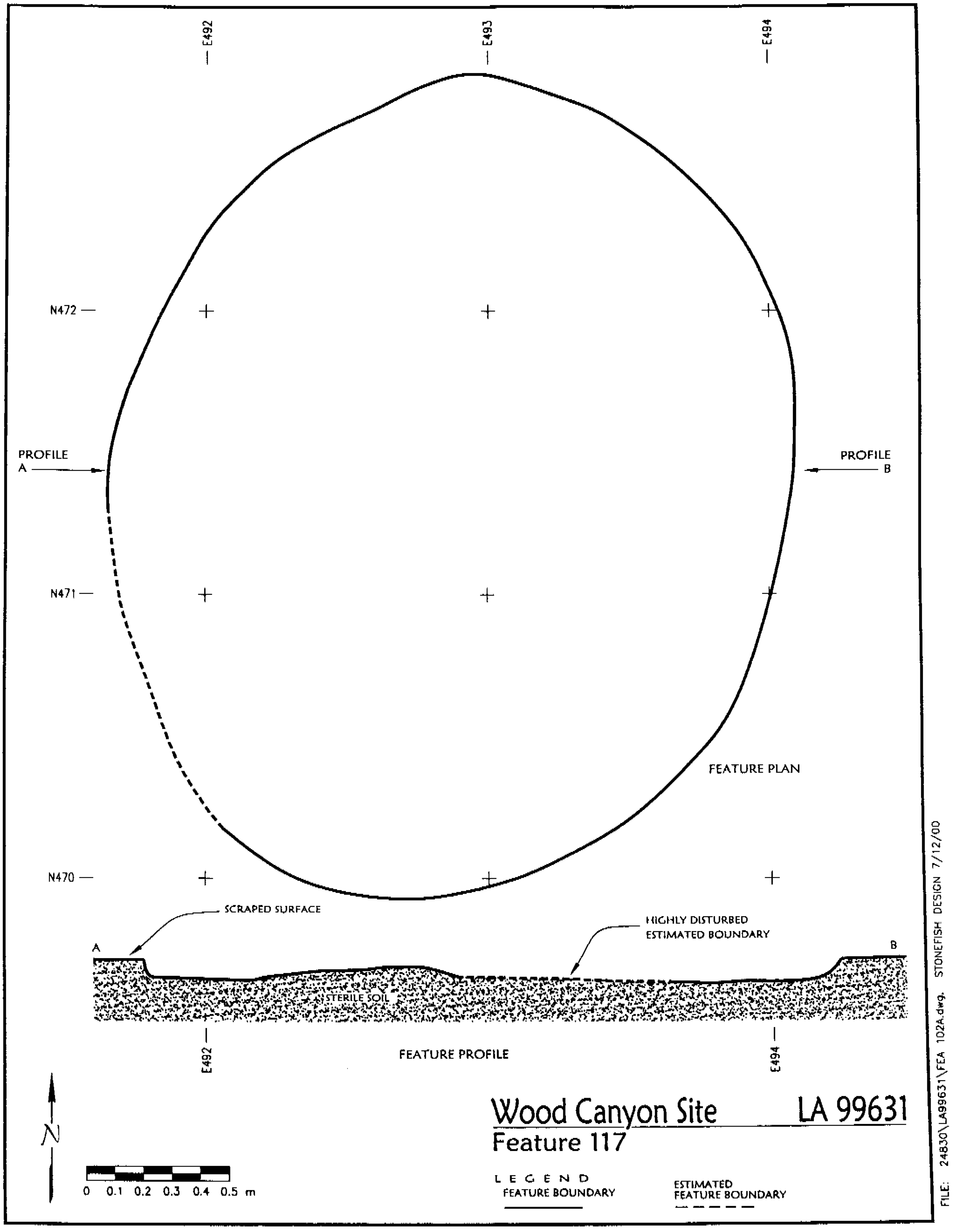


Figure 7.23 Structure 4 (Feature 117) Plan Map, Wood Canyon Site.

Thermal Features

Seventy thermal pits were recognized during the course of the excavation. Of these, four were intramural and 66 were extramural. Thermal pits were distinguished by the presence of at least one of the following: concentrations of ash, charcoal and/or dark staining; concentrations of thermally altered rock; or soil oxidation. Unfortunately, few of the thermal features contained discrete lenses of ash or charcoal and oxidation rarely was noted even when it was clear that a fire had been present in the pit. During the investigations, an experimental hearth was constructed in a shallow pit and allowed to burn in the evenings for a least a week. At the end, only a slight, granular oxidation had developed within the pit. Winds scoured out the oxidized surface and much of the accumulated ash within a few days after abandonment of the hearth. Given these results, many actual thermal pits may not have been recognized during the excavations. Adding to these problems, bioturbation, natural filling, and cultural disposal of refuse no doubt effected the character of these features.

Thermal pit features were further classified as hearths, roasting pits, and pits of unknown use. The latter refer to pits that were severely eroded. Distinctions between hearths and roasting pits was arbitrary, based solely on size. Ethnographic data suggest that, with the exception of insect roasting pits, most roasting facilities were greater than 70 cm (Wandsnider 1997). In fact, most were larger than 1.0 m in diameter. Using this information, all thermal pits larger than 70 cm were classified as roasting pits, while small thermal pits were listed as hearths.

Besides thermal pits, three piles or scatters of thermally altered rock were classified as features. In actuality, thermally altered rock was abundant on the surface of the site. Only those originally thought to be roasting pits were assigned feature numbers.

Hearths

The 37 hearths include four identified in Structures 1, 2, and 3 and 33 from extramural contexts. The latter were distributed across the site (Tables 7.4 and 7.5). These features were characterized by shallow pits with some evidence for thermal activity such as ash, concentrations of charcoal, and oxidation. Although thermally altered rocks may be present, they typically were not common. The volume of the hearths varied from 4.19 to 193.52 liters with hearths in structures no greater than 43.35 liters. Hearths within the structures tended to be better preserved and more likely to exhibit oxidation and ash than the extramural examples.

One hearth inside Structure 2 was lined on the bottom and sides with rock (Figure 7.20). This structure produced a Protohistoric date range from a charred juniper seed. The calibrated two-sigma range was AD 1525 to 1560 or AD 1630 to 1680 (Beta 141727).

Roasting Pits

Thermal pit features with dimensions more than 70 cm in length or width were identified as roasting facilities. These features were relatively common on the site with 18 examples (Tables 7.4 and 7.5). As might be expected, all were extramural. Most were circular to oval in plan and basin or cylindrical-shaped in cross section (Figures 7.24 to 7.29). The vary in size from 70 cm to 1.48 m in maximum length and no more than 32 cm below the scraped surface and often not more than 22 cm in depth. The volumes range from 13.85 to 241.78 liters. The pits with low volumes may be deflated.

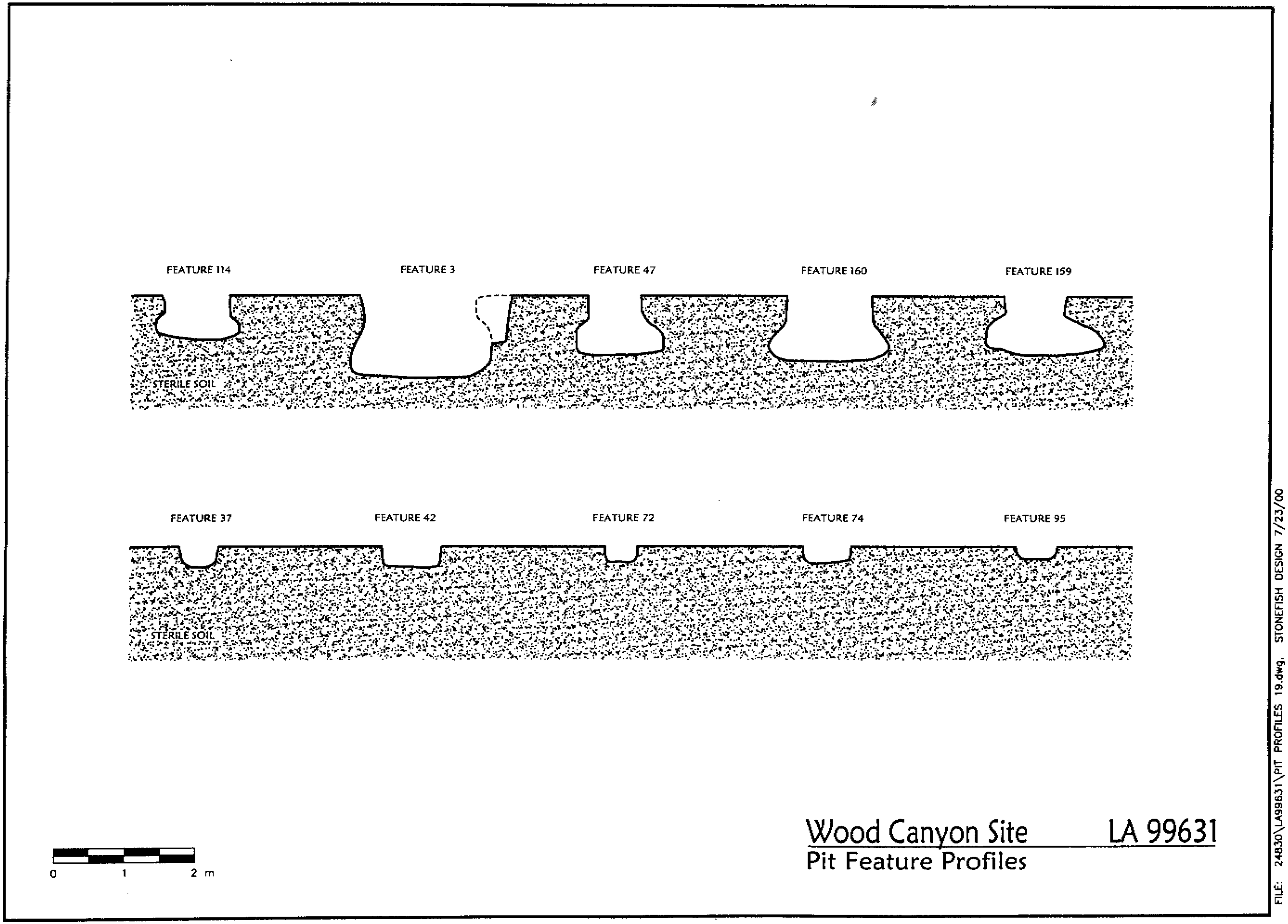


Figure 7.24 Representative Profiles of Wood Canyon Site Features.

Figure 7.25 Photograph of Feature 12, Roasting Pit, Pre-excavation Facing East.

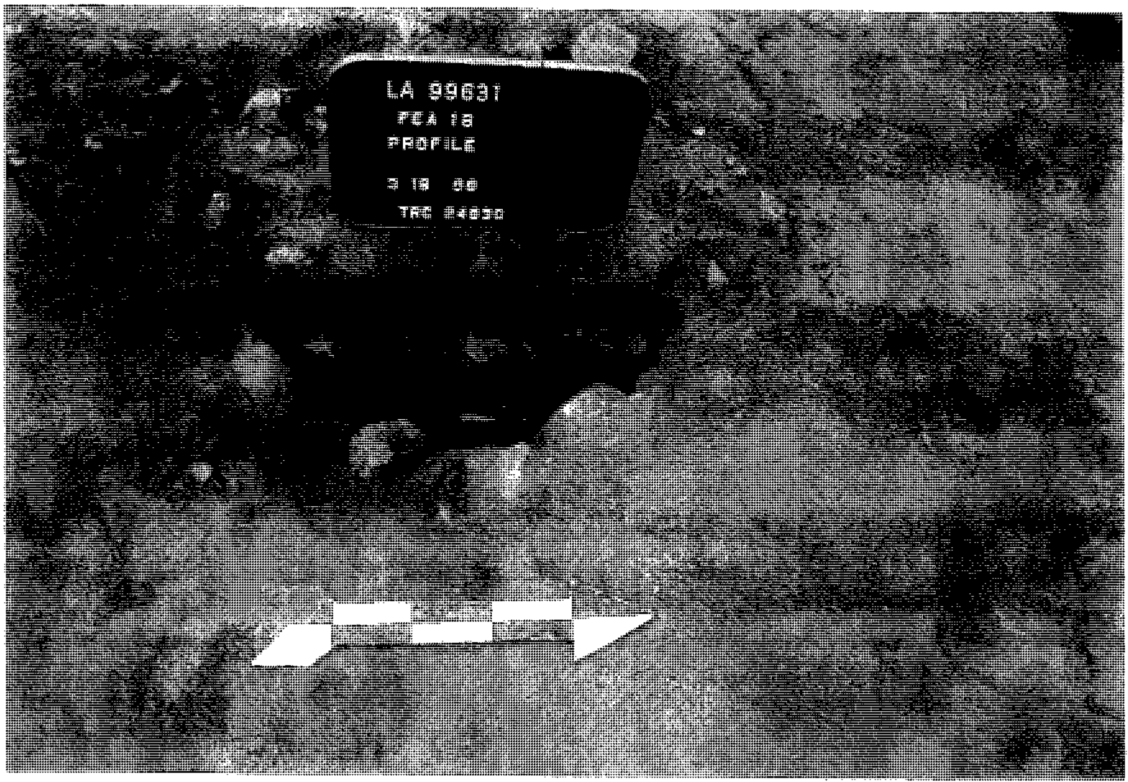


Figure 7.26 Photograph of Feature 18, Roasting Pit, West Profile.

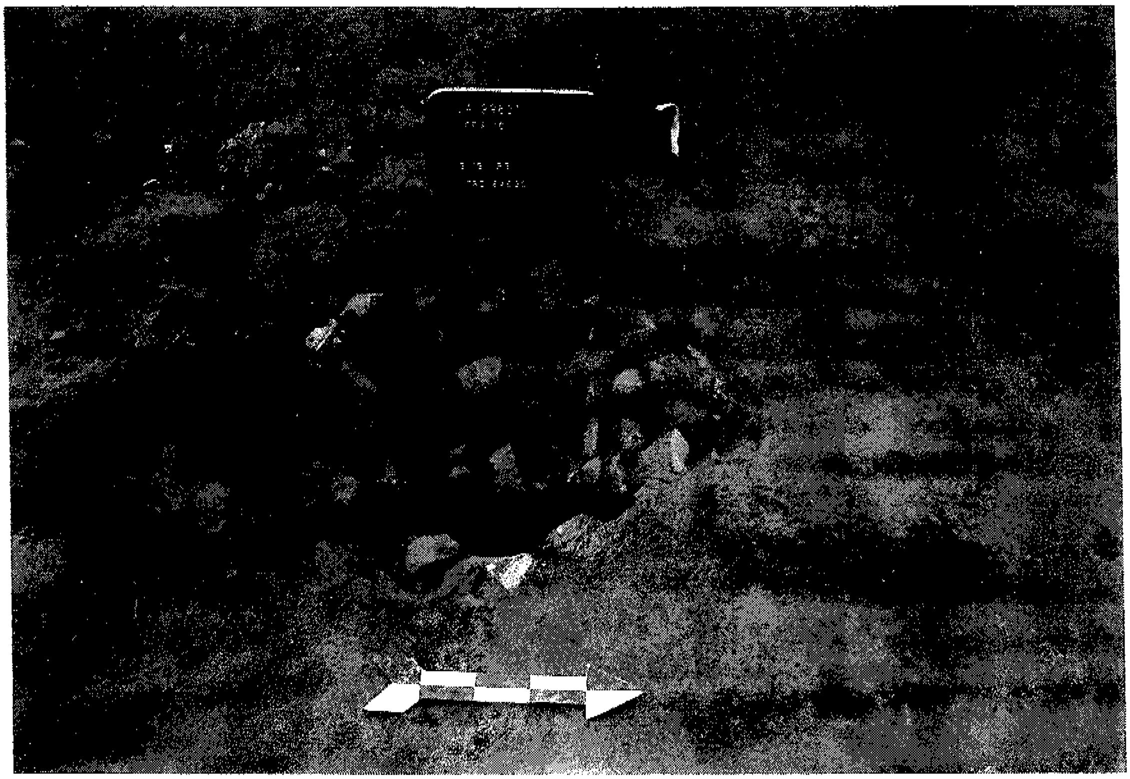


Figure 7.27 Photograph of Feature 18, Roasting Pit, Excavation in Progress.

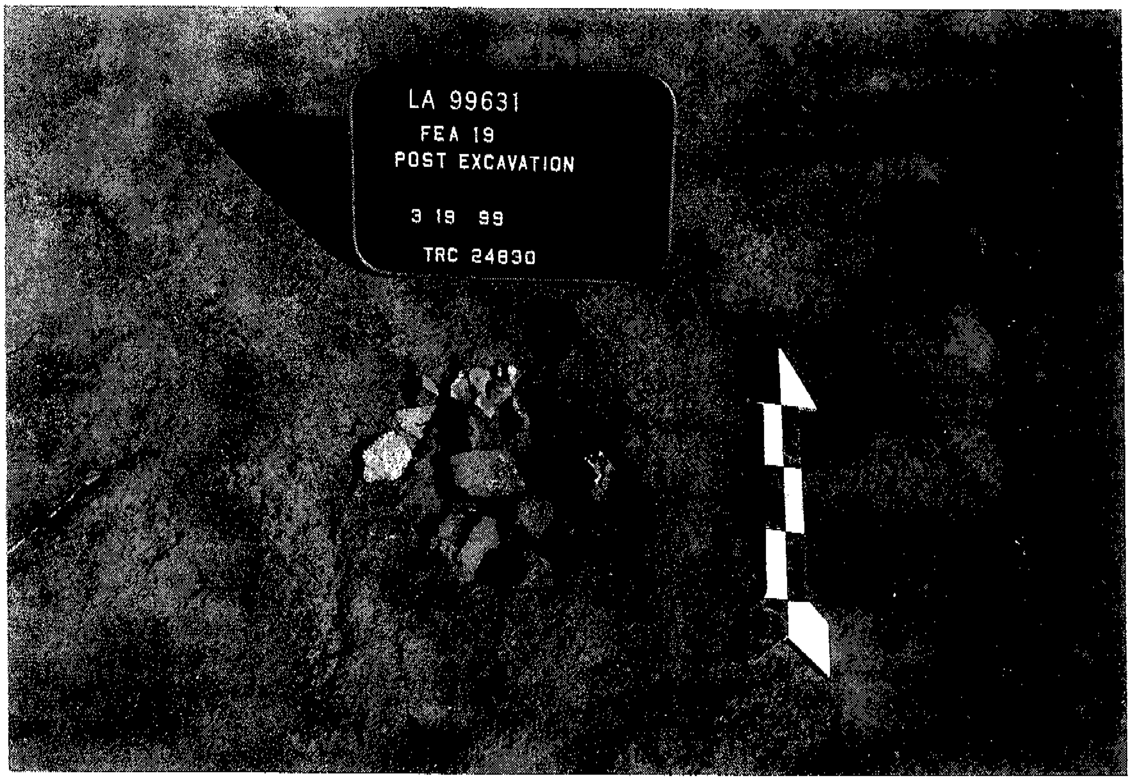


Figure 7.28 Photograph of Feature 19, Roasting Pit, Post-excavation.

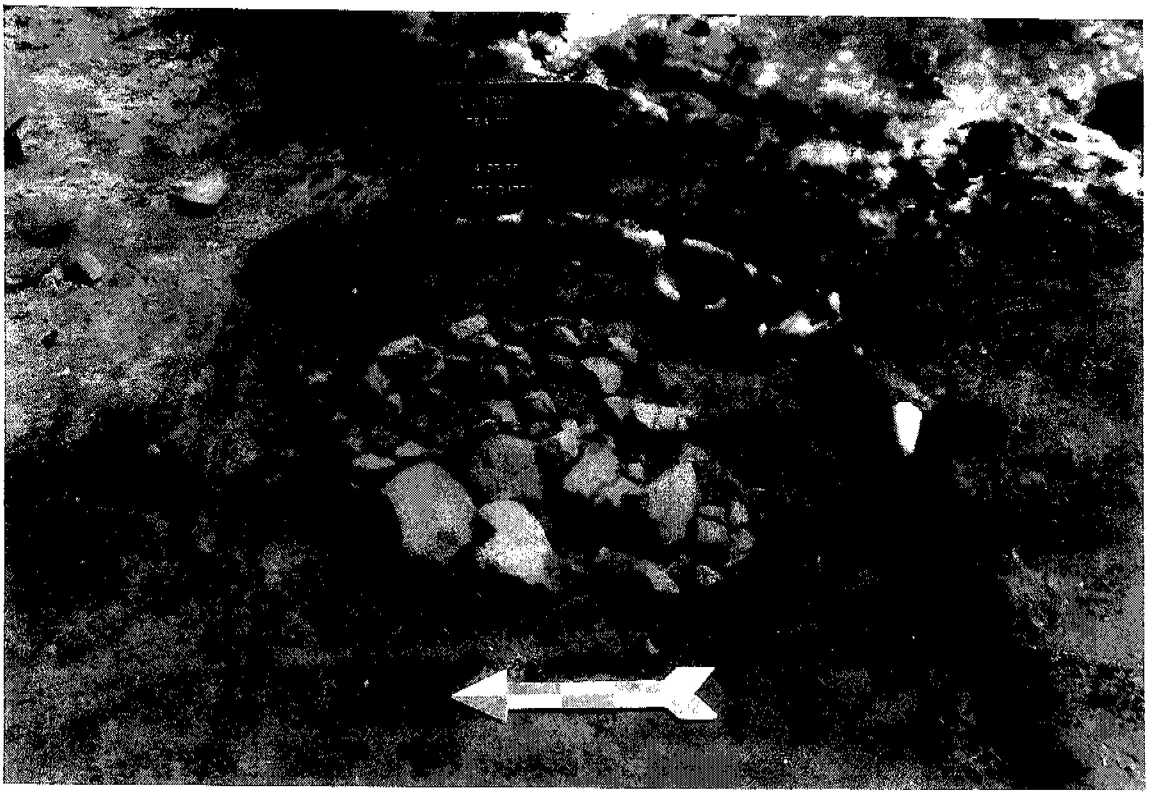


Figure 7.29 Photograph of Feature 82, Roasting Pit, Fully Exposed Rock.

Ethnographic records indicate that roasting pits or earth ovens were used to cook food by heating the facilities and then sealing the items within the hot pit to cook for a few hours to several days (Wandsnider 1997). Depending on the items to be cooked, hot rocks were not always required. At Wood Canyon, thermally altered rocks occurred in dense concentrations within the cultural deposits and in many of the features. The ratio of thermally altered rock to volume within the identified roasting pits varied significantly (Tables 7.4 and 7.5). Some of the large roasting pits contain little if any rock. In some cases, the rock could have been completely cleaned out, but more likely they were not needed for the particular food to be cooked. When rocks were present, they varied in terms of placement. Some appeared to be partially cleaned out with rock tightly clustered in only portions of the pits. Others had dense concentrations of rock in lenses above the bottom of the pit (Figures 7.29 to 7.30), while others had rocks resting on the bottom (Figures 7.26 and 7.31). These differences may reflect differing pit functions.

Several of the roasting pits had indications of repeated use. Perhaps the best example was Feature 18, located near Structure 1 in the northeastern quadrant of the site. This feature was a basin-shaped pit measuring 86 by 80 cm at the orifice and 32 cm in depth. The fill consisted of a dark reddish brown (5YR3/2, d) very coarse sandy loam with charcoal and thermally altered rock. The first usage was indicated by a layer of thermally altered rock at the bottom (Figures 7.26 and 7.27). Later, the pit was partially filled in and a second basin-shaped depression was formed about 10 cm below the top of the feature. A mano, a complete drill, and a hammer stone were found at the bottom of the pit.

Figure 7.30 Photograph of Feature 82, Roasting Pit, East Profile.

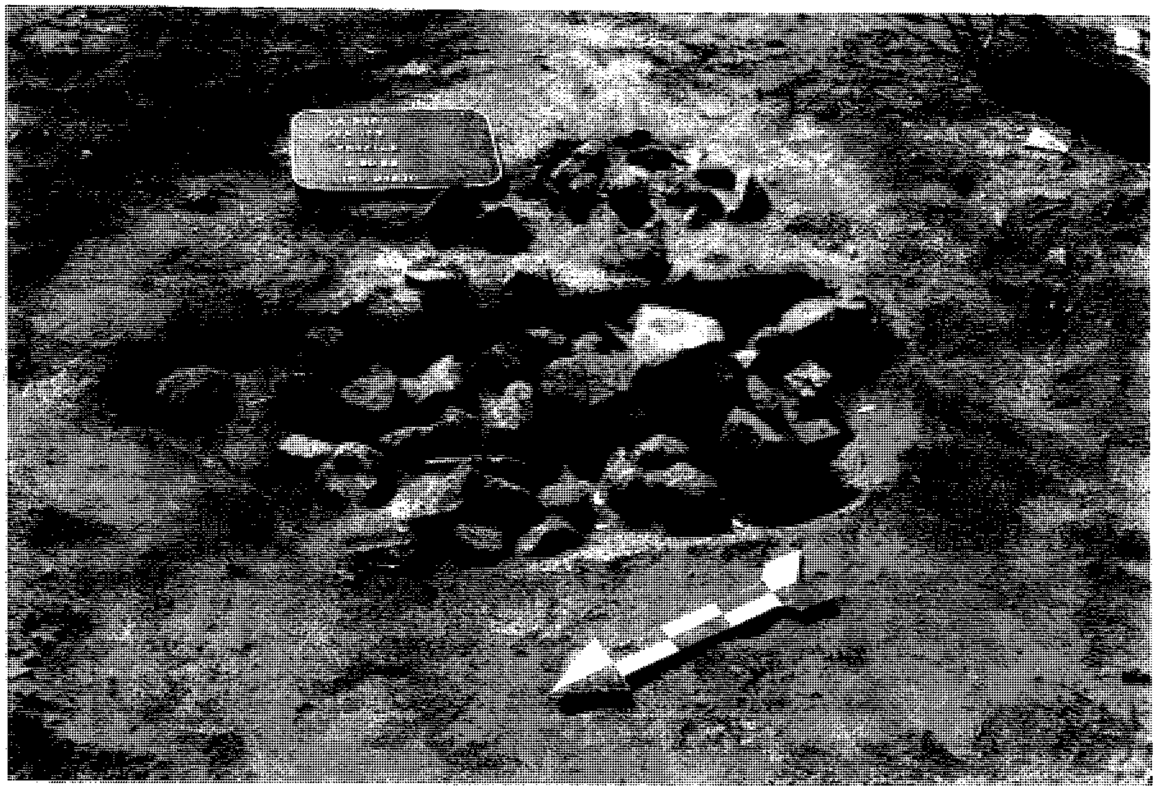


Figure 7.31 Photograph of Feature 103, Roasting Pit, East Profile.

Other Thermal Features

In addition to thermal pits, a rock pile and two rock scatters, all composed of thermally altered rock, were distinguished as secondary thermal features in the general cultural deposits (Tables 7.4 and 7.5). They were assumed to have been on the surface during the occupations. Given that thermally altered rocks were ubiquitous across the site, numerous scatters and piles existed at the site but were not systematically recorded during the mechanical stripping. Feature 35, the rock pile, was approximately 1 m in length, 50 cm in width, and 13 cm in thickness. The thermally altered rocks were mixed with ashy sediments containing charcoal, faunal remains, broken grinding implements, and other artifacts. Features 38 and 46, later interpreted as rock scatters, were first assumed to be roasting pits due to the dense concentration of rock and dark sediments. Excavations determined that the rocks were more likely discarded from some nearby thermal feature.

Nonthermal Features

Nonthermal pits are defined by a lack of evidence for burning. Placement of some features into this category is problematic since neither oxidized soils nor concentrations of charcoal or ash were commonly preserved at the site. Even clearly recognized hearths and roasting pits often lacked oxidized surfaces. Since many of the nonthermal features are similar to thermal pits in size and morphology, there was a certain degree of subjectiveness in the classification.

The function of nonthermal pits often is quite speculative. Fifteen were classified as storage pits, but the original function of the other 30 could not be adequately interpreted. It is possible that some of the shallow pits were used as roasting pits or perhaps lined with skins to hold water. In some cases, the pits were eventually filled with refuse, but one was last used as a burial pit.

The nonthermal pits were organized below according to their cross-sectional shape. They included bell, cylindrical, basin, and other forms.

Bell-shaped Pits

Seven bell-shaped pits were encountered during the excavations at Wood Canyon (Tables 7.4 and 7.5). Six were located in a cluster in a 15 by 10 m area in the west-central part of the site. The other (Feature 114) was on the southeastern portion. These pits were characterized by a relatively small opening that increased in diameter with depth. None of the pits were plaster lined. For the complete pits, volumes ranged from 544.94 liters in Feature 114 to 1903.39 liters in Feature 3.

Ethnographic records from North America indicate that bell-shaped pits were principally used for food storage (Burskirk 1986; Hill 1938; Wilson 1987). However, after a short use life, they were recycled for use as burial chambers and for the disposal of cultural refuse. At Wood Canyon, they were filled with ashy, cultural refuse containing faunal and floral remains, chipped and ground stone, and thermally altered rock. One of the pits, Feature 159, served as the burial place for three individuals. Features 3 and 114 contained grinding implements. Feature 6 produced an articulated red-tailed hawk skeleton that could represent a ritual burial. Specific aspects of several of the more complicated pits are presented below.

Feature 3 was the largest bell-shaped pit excavated with an overall volume of 1,903.39 liters. The feature was at least 1.18 m in depth and belled out from a diameter of 1.60 m at the orifice to 2 m in diameter at the base. It was filled with ashy sandy loam containing an abundance of chipped stone, ground stone, and faunal remains. The southern edge of the feature was exposed in the NM 90 road cut and the fill, walls, and bottom of the pit were severely disturbed by rodent activity. Unlike the other bell-shaped pits, Feature 3 was sampled with a 1 by 1 m unit excavated to the bottom. The fill was sent through 1/8-inch screen. The bottom 10 cm of the feature was excavated completely and was a compacted clay loam with a faint

lens of ash. A single post hole, Feature 66, was noted in the southwestern quarter of the pit. It measured 25 cm in length, 20 cm in width, and 65 cm in depth. The size and depth of the post hole suggested a substantial post had been placed in the pit. Given the size of the pit opening, the post may have been used as a support for a roof or pit cover. Most of the cultural materials from the fill were considered general refuse; however, a Cienega projectile point and an Alma Rough sherd were found. The ceramic was recovered at the top of the feature. A cache of grinding implements, including an inverted basin-shaped metate, a matching mano, and another larger mano, were found approximately 46 cm below the top of the pit within a 60 cm diameter concentration. It is assumed that the cache was placed into another pit whose outlines were destroyed by bioturbation.

Feature 6 was a large, bell-shaped pit largely exposed in the NM 90 road cut. As in Feature 3, the walls and fill of the feature had been severely impacted by rodent activity. From where it was defined at the base of the Ab horizon cultural deposit, it was at least 64 cm in depth; however, it is assumed the opening may have been higher in the deposits. The feature was unusual for several reasons. Despite the intense bioturbation of the feature, lenses of ash and charcoal were sometimes discernible. The articulated remains of a red-tailed hawk skeleton were found less than 10 cm above the bottom of the pit. It seems plausible that the bird represented a ritual burial. Three complete Cienega projectile points, representing both straight stem and expanded stem varieties, also were found scattered through the feature fill. Two radiocarbon determinations were derived from the feature. A juniper seed in the feature yielded a calibrated date range of either 820 to 750 BC or 695 to 540 BC (Beta 133981) and a Zea cupule produced a date range of 815 to 740 BC or 710 to 535 BC (Beta 142220). A single Alma Plain sherd was recovered from the top of the feature.

Feature 47 was a sizable bell-shaped pit that was filled with thermally altered rock and other cultural refuse. Among the 215 artifacts recovered from the pit were two San Pedro projectile point fragments, an untyped point fragment, and two indeterminate brownware sherds. Two radiocarbon determinations were produced from the feature. A juniper seed yielded a calibrated two-sigma radiocarbon date range from 810 to 515 BC (Beta 133982) and a Zea cupule produced a range of 785 to 410 BC (Beta 141728).

Feature 114 was the smallest bell-shaped pit with a volume of 544.94 liters. Located about 60 m southeast of the other bell-shaped pits, it was near Structure 4 (Feature 117). The feature also was notable for the cobble to small boulder sized rocks and basin-shaped metate placed in the pit. Given the arrangement of the rocks from the bottom to the top of the feature, it would appear that the pit was quickly filled. A charred juniper seed from the feature derived a calibrated two-sigma range of AD 60 to 350 (Beta 142216).

Feature 159 was a large bell-shaped pit containing the disarticulated remains of three human burials. Presumably after ceasing to function as a food storage facility, it was converted to a burial pit. Evidence of intensive rodent activity within the pit no doubt accounts for the complete mixing of the remains. The most complete remains encountered in the pit were those associated with Burial 3, a child around 11 to 12 years of age. Several larger pieces of this skeleton, including portions of the cranium, mandible, and a few long bones, were found at the bottom of the pit, suggesting it was buried at that location. The other two individuals, a child around four years of age (Burial 4) and an adult of unknown age and sex (Burial 6), were represented by relatively few remains in the fill. Given the incomplete nature of the skeletons, it is plausible that the earlier burial or burials were disturbed during the later interments. The presence of 62 shell disk beads and a bone tube likely used as a pipe stem (Woosley and MacIntyre 1996:254, Figure 8.6) may be funerary objects for one or more of the burials. A calibrated radiocarbon determination from a juniper seed within the feature yielded a range from 810 to 525 BC (Beta 13984).

Cylindrical Pits

Four nonthermal straight-sided pits were characterized by a cylindrical profile, flat bottom, and circular opening (Tables 7.4 and 7.5). The three larger, deeper pits were interpreted as possible storage features. The smaller pit, measuring 44 cm in diameter and 17 cm in depth, was not classified as to function. The three storage pits varied from 77 to 94 cm in diameter and from 25 to 32 cm in depth. Volumes ranged

from 102.20 to 212.72 liters. One of the storage pits, Feature 42, yielded a high concentration of Zea maize and chenoam pollen (Figures 7.24 and 7.32).

Basin-shaped Pits

The 34 nonthermal basin-shaped pits documented at Wood Canyon exhibited sloping side walls, flat or rounded bottoms, and circular to oval openings (Figures 7.33 to 7.35). These features showed no indications of being plaster lined and contained few, if any, thermally altered rocks. They varied from 30 cm to 1.15 m in length and 30 cm to 1 m in width. Except for one, all were quite shallow, ranging from 5 cm to 25 cm in thickness. Feature 8 reached a depth of 50 cm. Basin- shaped pits varied in volume from 2.59 to 146.49 liters.

Of the 34 pits, five were interpreted as storage facilities and the others were of unknown use. The morphological and size characteristics of the latter group precluded any clear indications of function. They seemed to be too shallow to have been effective food storage pits. Several were large, measuring around 1 m in diameter and 20 to 25 cm in depth, conforming to the shape and size of many of the roasting pits. Others were only 30 cm in diameter and 10 cm in depth. Contents of these features also were variable with 11 containing no artifacts and others containing chipped stone, a few faunal remains, or in one case, a ceramic. Since these materials could have derived from secondary refuse deposition or natural filling from the surrounding surface, the association between the contents and use was suspect. Small shallow pits could have served as basket rests, while the larger ones may have been emptied out caches. It is possible that some were lined with skins and filled with water for use in processing or hot rock cooking.

The five basin-shaped pits were classified as storage facilities, included three containing grinding implement caches (Figures 7.24, 7.32, and 7.34). Of the cache pits, Feature 75 yielded an upside down metate and mano along with a number of other unmodified large cobble-sized rocks. Feature 95 contained another upside down metate (Figure 7.34), and Feature 11 produced an upside down metate, netherstone, and a mano. The pits containing these implements were rather consistent in size. They had maximum lengths of 50 to 61 cm and depths from 20 to 25 cm. The pits had volumes between 29.45 and 41.39 liters. Other than holding caches, these features closely resemble many of those classified as being of unknown use.

Other Nonthermal Pit Features

Two nonthermal pit features (Features 119 and 142) were described as being irregular in profile. It is assumed that both were originally basin-shaped. Severe krotovina disturbance and highway construction impacts appeared to have altered their forms. The function of these pits was unknown.

Ash Midden

One ash midden (Feature 133) was located on the leeward slope along the southeastern edge of the site. This large amorphous ash concentration was approximately 4 m in length, 3 m in width, and about 20 cm in thickness. The ash was mixed with a coarse sandy loam and was a dark grayish brown (10YR3/2, d) color. Excavation of a trench and several smaller units into the ash, totaling 1.6 m^2, revealed no features below the midden. Relatively few thermally altered rocks or artifacts were recovered from the ash deposit. In all, only 10 pieces of debitage were found in the 1/8-inch screen. Neither the phytolith nor flotation sample yielded identifiable botanical remains. Located as it was on a steep slope at the edge of the occupations, the ash probably accumulated from many dumping episodes. The placement of the ash pile on the leeward side of the site of the ridge away from the prevailing southwestern winds probably kept the ash from blowing back into the settlement.

Figure 7.32 Photograph of Feature 42, Storage Pit, Post-excavation.

Figure 7.33 Photograph of Feature 8, Storage Pit, Post-excavation.

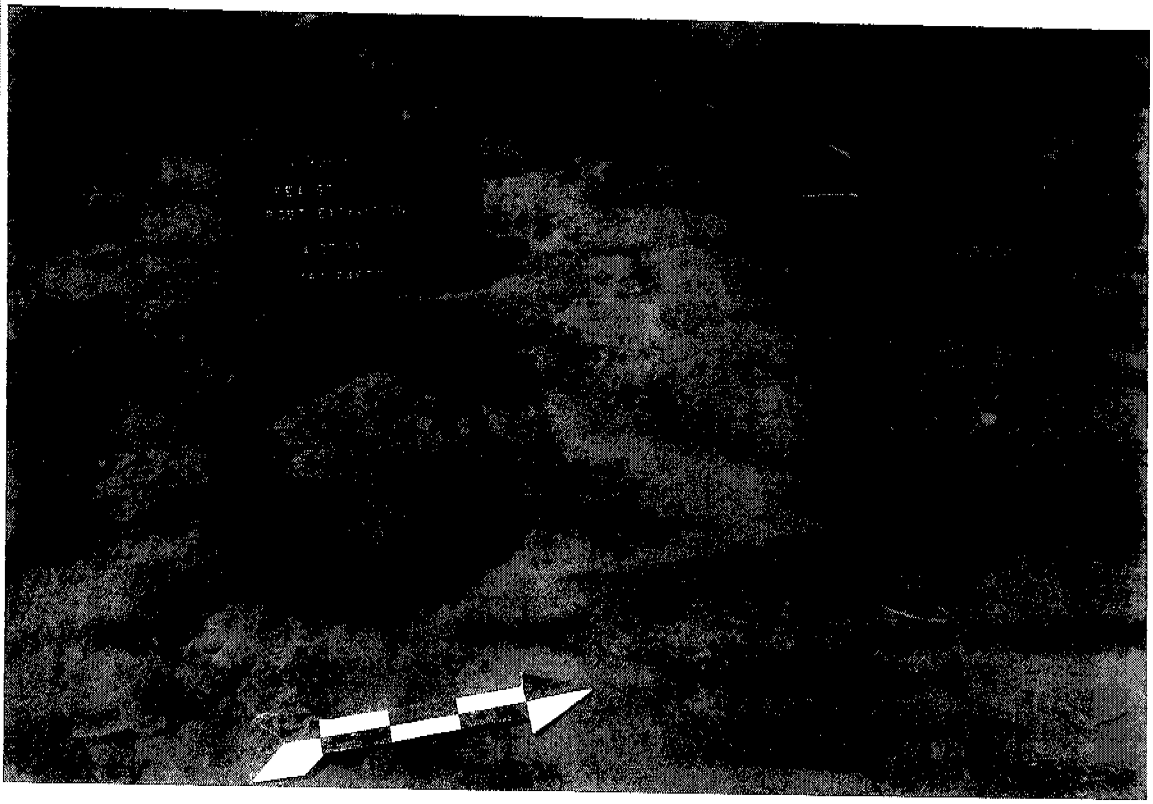


Figure 7.34 Photograph of Feature 95, Storage Pit Showing Metate Cache, Post-excavation.

Figure 7.35 Photograph of Feature 125, Nonthermal Pit, Feature 125 North Profile.

Specialized Burial Pit

One large nonthermal pit (Feature 102) identified at Wood Canyon contained the remains to two human interments (Burials 1 and 2) (Figure 7.36). Situated in the southeastern quadrant of the site, the pit was oval in plan and irregularly basin in cross-section. Its volume was 1,068.14 liters. The pit was dug deep into the C horizon deposits. Questions remain as to whether the pit originally was prepared for other functions, but after its completion, two smaller pits were dug into the northern and western side-walls for the burials (Figures 7.37 and 7.38). Burial 1, a child of five to six years of age at death, was placed along the northern wall in a pit measuring 56 cm in length, 40 cm in width, and 32 cm in thickness. It was a maximum of 55 cm below the top of Feature 102. A flat metate and several other rocks were placed immediately over the burial. Burial 2, an adult male of 20 to 35 years of age at death, was located along the western wall in a larger and deeper pit. The Burial 2 pit was 1 m in length, 52 cm in width, and a minimum of 32 cm in thickness. The burial was a maximum of 66 cm below the top of Feature 102. A large upside down basin metate and several smaller rocks were positioned over the body. Above both burials and filling the entire upper portion of Feature 102 was a dark grayish brown (10YR 4/3, d) very coarse sandy loam with an abundance of charcoal, faunal remains, a quartz crystal, and chipped stone artifacts. Among the chipped stone were a Cienega point; a notched, trimmed flake resembling a Cienega point; and four bifaces. The faunal remains included 696 specimens, about a quarter of the entire Wood Canyon faunal assemblage. Although the deposit was assumed to be refuse used to fill in the pit, graveside ritual feasting may account for some of the bone and other materials found in Feature 102.

Rock Cairn Burial

The only rock cairn (Feature 177) found at Wood Canyon was almost completely buried by A horizon sediments. Located along the edge of the NM 90 cutbank, only the top of a massive metate was exposed on the surface. Excavations revealed a sizeable cairn overlying an oval pit that contained an adult male between 25 and 35 years of age (Burial 5). The cairn comprised a low mound of unmodified igneous rocks and two metates, including a large, complete one inverted on the top (Figures 7.38 and 7.39). Although many were small, cobble-sized pieces, the main stones were 25 to 30 cm in length and thickness. The rock pile was roughly circular and approximately 1.11 m in maximum width northwest/southeast and 1.12 m in maximum length northeast/south. The rock was stacked up to 67 cm in thickness. The metates were both quite large with flat grinding surfaces.

The oval pit below the cairn measured 1.2 m in length east/west, 64 cm in width north/south, and 32 cm in depth. Some of the rock from the cairn had either subsided into or was placed directly into the pit; however, it appeared that the burial pit had been at least partially filled with soil prior to the construction of the pile. A charred juniper seed from the feature yielded a calibrated two-sigma date range of 885 to 780 BC (Beta 142218).

Midden Deposits

Two areas of the Ab horizon deposits initially were assigned feature numbers due to the dark soil, charcoal, and thermally altered rock. Upon further investigation, Feature 91 was found to contain no clear boundaries that separated it from the general cultural deposits and Feature 112 was delineated as an Ab horizon remnant.

Natural Anomalies

During the mechanical stripping of the site, 30 separate anomalies assigned feature numbers were later determined to be natural in origin (Tables 7.4 and 7.5). These included a swale filled with Ab horizon sediments, six root disturbances, eight rodent burrows, and 15 classified as natural. The latter group contained slight depressions filled with Ab deposits or probable krotovina disturbance not readily interpreted as the result of root or rodent activity. None of the anomalies were culturally meaningful.

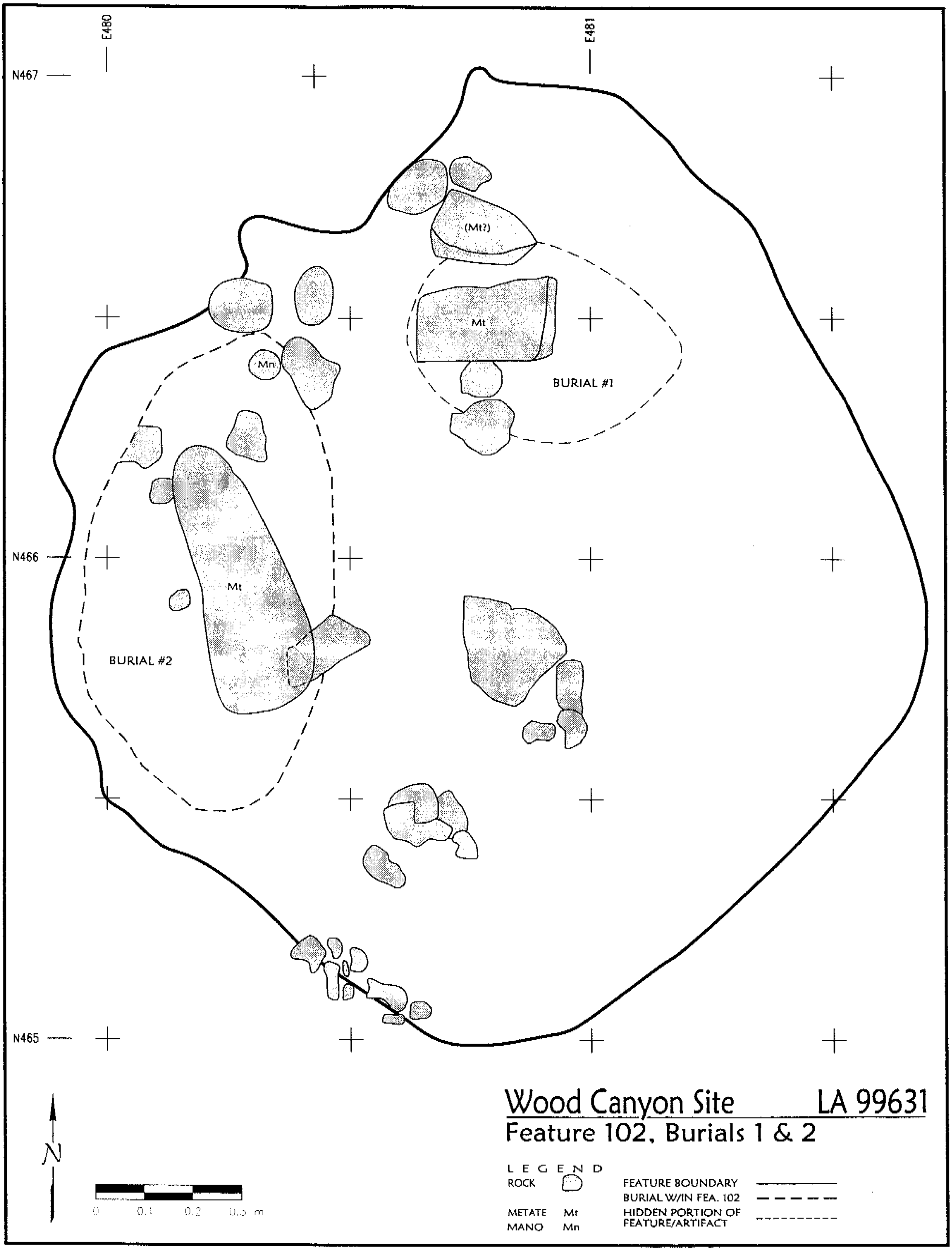


Figure 7.36 Planview Map of Feature 102 Above Burials 1 and 2.

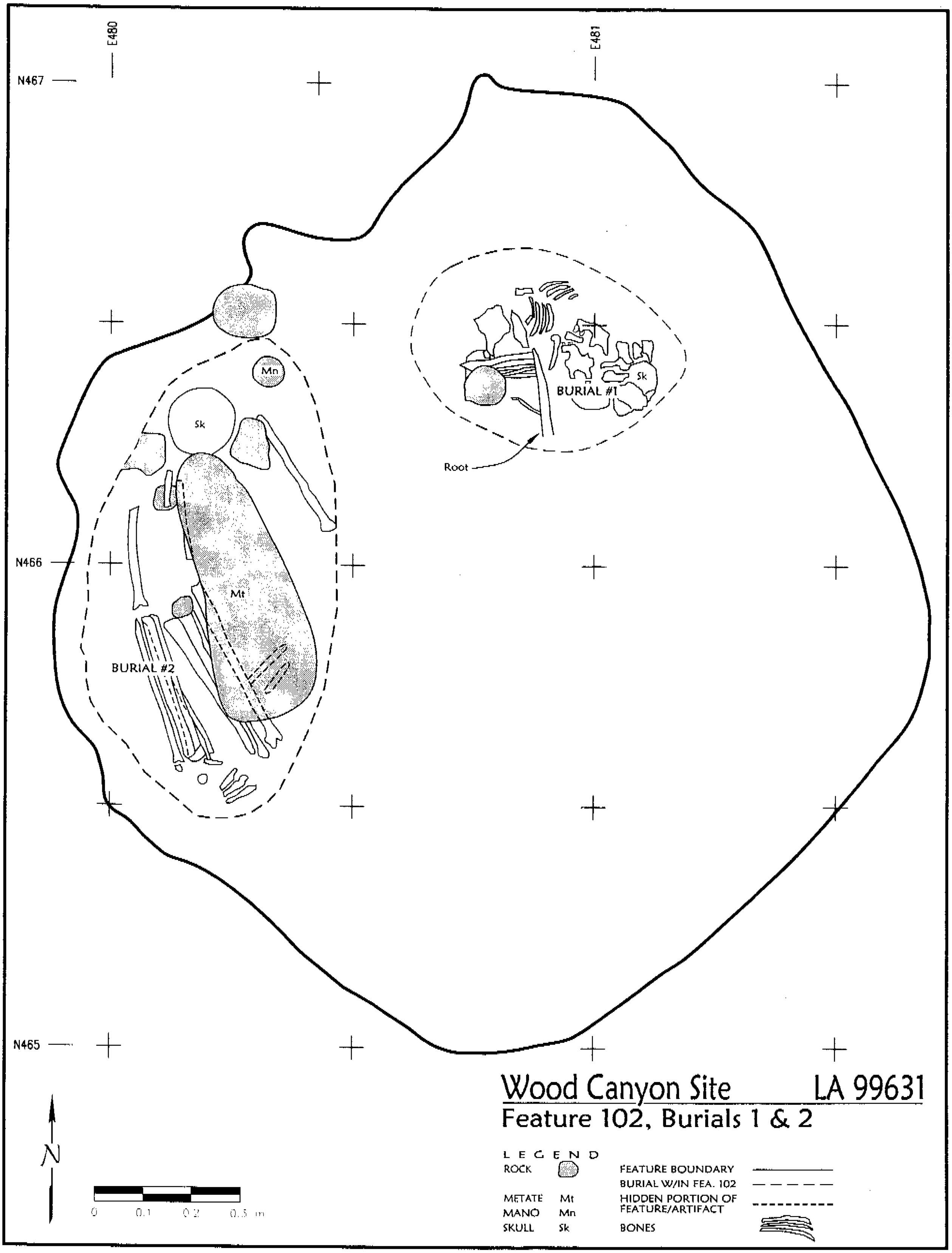


Figure 7.37 Planview Map of Feature 102, Burials 1 and 2.

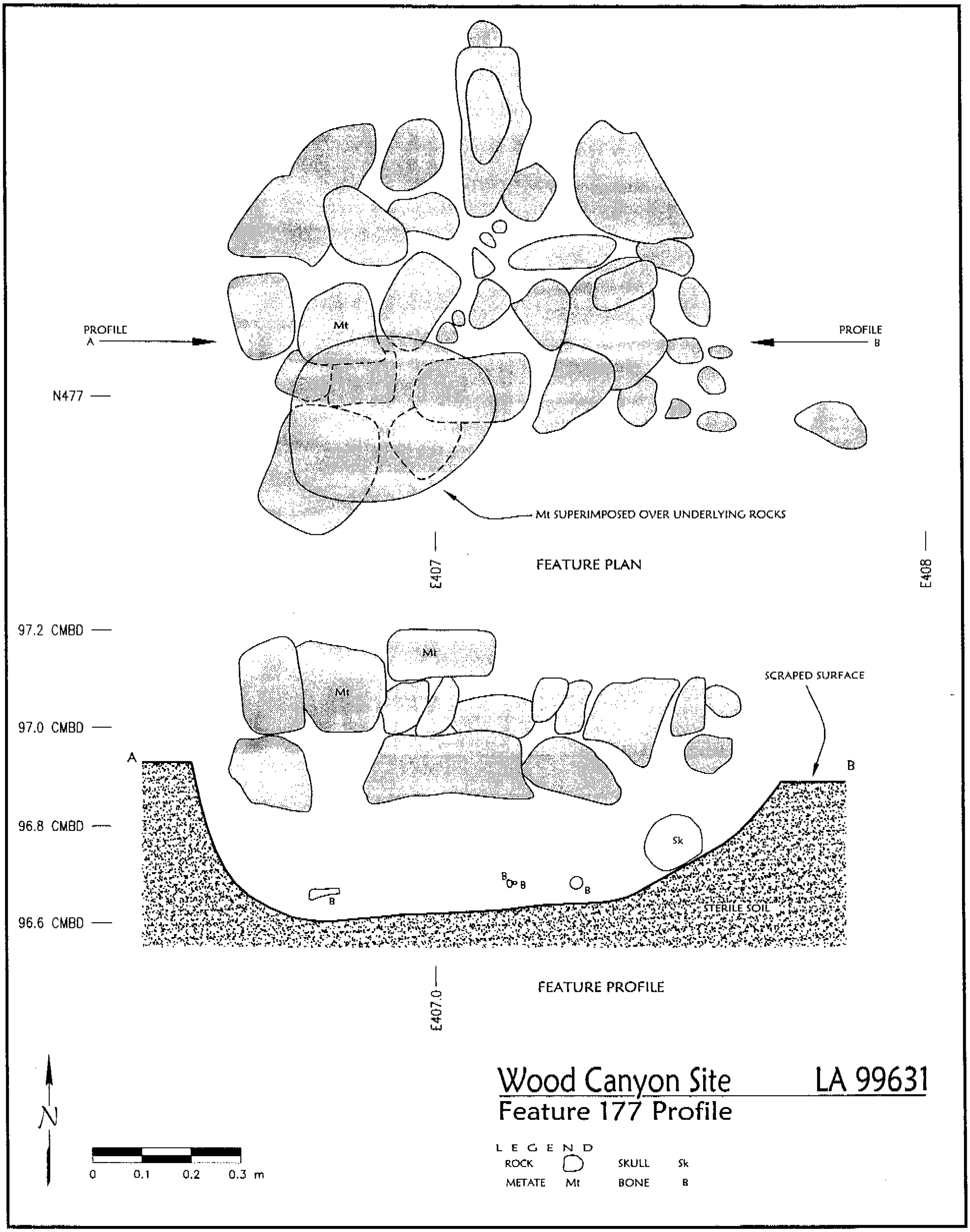


Figure 7.38 Planview and Profile Maps of Feature 177, Rock Cairn Burial Facility.

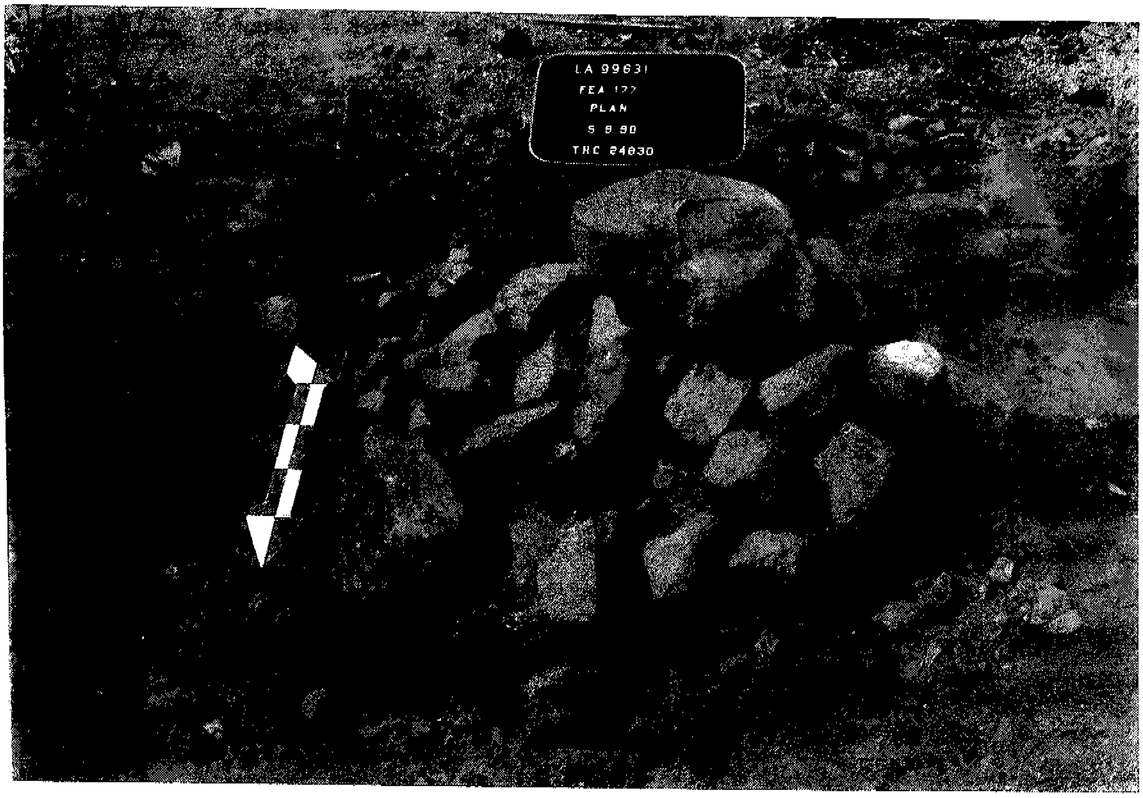


Figure 7.39 Photograph of Feature 177, Rock Cairn Burial Facility, Facing South.

Burials

Six human burials were found in three features at the Wood Canyon site (Table 7.7). The features containing these remains were radiocarbon dated to the Late Archaic, but were, in some cases, hundreds of years apart in time. As such, the burials should not be viewed as a single contemporaneous population.

Two of the three burial features appeared to be pre-existing pits that were recycled from their original use. One was a deep bell-shaped pit (Feature 159) that contained the fragmentary remains of three individuals and the other was a large, oval pit (Feature 102) with two inhumations. The only formally prepared mortuary facility (Feature 177) was characterized by an oval pit covered by a large rock cairn.

The remains were generally in poor condition. Most bones were friable and often fell apart while being extracted from the compacted coarse sandy clay loam. The three individuals represented in the bell-shaped pit were disarticulated. The other three were tightly flexed. Of those, two were positioned on their left sides and one was in a supine position. Two were oriented with their heads to the east, facing south and west. The other was oriented to the north, but the head was facing south.

Funerary objects were not abundant. Feature 159, the bell-shaped pit with the disarticulated remains of three individuals, contained 62 shell disk beads that probably were associated with one of the interments. The other three individuals were accompanied by metates. Feature 102, Burial 2, included a large, basin-shaped metate fragment over the body and Feature 102, Burial 1, a child, had a smaller, flat metate over the body. Feature 177, Burial 5, had a large, flat metate and a broken flat metate.

Table 7.7 Wood Canyon (LA 99631) Osteological and Mortuary Data.

Burial Number	Feature Number	Feature Planview	Feature Profile	Length	Width	Depth	Burial Type	Body Position	Skeletal Orientation	Head Facing	Position of Legs	Position of Arms	Preservation	Sex	Age	Pathologies	Funerary Objects
1	102	oval	basin-shaped	0.56	0.4	0.6	single	left side	east	south	tightly flexed	towards face	fair	unknown	5-6		metate over burial
2	102	oval	basin-shaped	1.00	0.5	0.7	single	supine	north	south	tightly flexed	crossed at abdomen	fair	male	20-35	rotator cuff injury	metate over burial
3	159	circular	bell-shaped	1.70	1.4	0.8	unknown	unknown	unknown	unknown	unknown	unknown	poor	unknown	11-12		shell beads in fill
4	159	circular	bell-shaped	1.70	1.4	0.8	unknown	unknown	unknown	unknown	unknown	unknown	poor	unknown	4		shell beads in fill
5	177	oval	basin-shaped	1.20	0.6	0.4	single	left side	east	south	tightly flexed	out in front	fair	male	25-35		metates over burial
6	159	circular	bell-shaped	1.70	1.4	0.8	unknown	unknown	unknown	unknown	unknown	unknown	poor	unknown	adult		shell beads in fill

Burials 1 and 2 were placed within Feature 102, a large oval pit (Figures 7.36 and 7.37) measuring 2 m north-south by 1.7 m east-west. Both were placed in smaller, oval pits dug into the northern and western sides of the larger Feature 102. It could not be determined whether the inhumations occurred at the same time. Immediately above the burial pits was a very dark, 10 to 15 cm thick midden containing a large assemblage of animal bone. Although speculative, these faunal remains could represent mortuary feasting associated with the burial of one or both individuals.

Burial 1 was a child approximately five to six years of age. It was placed into a small oval pit dug into the northern side of Feature 102. A flat metate and four other rocks were placed immediately over the body. The pit was approximately 56 cm in length, 40 cm in width, and 55 cm in depth to the top of Feature 102. The body was tightly flexed on its left side. The arms were on the chest. The long axis of the body was oriented to the east, but the head was curved around to the west.

Burial 2 was placed in an oval pit dug into the western side of Feature 102. This pit was 1 m in length, 52 cm in width, and 66 cm in depth from the top of Feature 102. A large, broken basin-shaped metate was positioned immediately above the burial along with a number of other smaller rocks. The interment was an adult male between 20 and 35 years old at the time of death. It was complete except for some hand and foot bones. The body was placed on its back in a tightly flexed position. The arms were down by the sides with the hands under the knees. The body was oriented to the north with the head resting on the chest and facing south.

Burials 3, 4, and 6 represent the disarticulated remains of three individuals found in Feature 159, a bell-shaped pit. The human remains were in a poor state of preservation with few recognizable elements affiliated with each person. The most complete remains (Burial 3) were that of a child from 11 to 12 years of age. The bones from Burial 3 were mixed throughout the pit fill, but large fragments of the cranium, mandible, and long bones were located on the bottom of the pits. It is plausible that this individual was placed in the tightly flexed position on the floor and was subsequently disturbed. Burial 4, a child approximately four years of age at the time of death, was primarily identified by teeth and small bone fragments, and Burial 6, an adult of unknown age and sex, was represented by only femoral and fibular midshaft fragments. Although rodent activity had been ferocious in the cultural deposits, the incomplete remains may suggest that the pit was repeatedly used as a mortuary facility. If this is the case, the earlier burials were disturbed during subsequent internment. In general, the pit was filled with midden refuse that could not be directly associated with the burials; however, the 62 thin shell disk beads found throughout the fill are assumed to be funerary objects of at least one of the individuals.

Burial 5 involved a specially prepared mortuary facility consisting of an oval pit covered by a sizable rock cairn (Figures 7.38 and 7.39). The burial was that of an adult male between 25 and 35 years old at the time of death. The skeleton was largely complete, although in poor condition. He was placed in a tightly flexed position on his left side. The arms were in front of the body with the hands toward the face. The body was oriented to the east with the head facing south. The pit was constructed just large enough to contain the body and was filled with dirt and covered with a rock cairn to about 67 cm thick. No nonperishable funerary objects were associated with the body in the pit, but a large, complete metate was inverted on top of the cairn and a broken metate was included in the rock pile.

Site Chronology

The Wood Canyon site was dated through a combination of calibrated radiocarbon determinations, ceramics, projectile points, and architecture. Data derived from these methods identified a minimum of seven components on the site. The major occupations occurred during the Late Archaic/Early Agricultural Cienega phase and are referred to as "early Cienega phase" and "late Cienega phase." A possible small Middle Archaic component also was recognized. Other brief occupations date to the San Francisco and Three Circle phases of the Late Pit House period, the Mimbres phase, and the Protohistoric period.

Chronometric Determinations

Twelve ASM radiocarbon determinations were derived from seeds of juniper and walnut or Zea cupules (Table 7.8; Figure 7.40). These determinations dated five bell-shaped pits, two burial facilities, and three pit structures. The dates revealed three distinct components on the site, two dating to the Cienega phase of the Late Archaic/Early Agricultural period and a Protohistoric period occupation.

Eight of the determinations tightly clustered between approximately 745 and 735 BC, representing an early Cienega phase component. These dates were derived from four bell-shaped pits, a rock cairn burial, and a pit within Structure 3 and included two Zea samples. All were located at the northwestern portion of the site.

Three other determinations have ranges that overlap between AD 60 and 120. These determinations did not overlap at all with other determinations from the site. Therefore, they are believed to date a separate late Cienega phase component. These determinations dated Structure 1, a bell-shaped storage pit, and pit fill above two burials and include one Zea cupule sample. All of these features were located in the eastern portion of the site.

One additional sample from the floor of Structure 2 (Feature 80) derived a calibrated date range of either AD 1525 to 1560 or AD 1630 to 1680 (Beta 141727). No arrow points, diagnostic ceramics, or Euroamerican artifacts were recovered to support the dates, although the architectural form could be representative of either the Archaic or the Historic period. Nevertheless, it seems plausible that a Protohistoric group established a small residence at the site in the AD 1500s or 1600s. Following cultural adaptations comparable to the earlier Archaic, the protohistoric population may have left behind cultural remains that blended easily into that of the much larger Cienega phase component. Conversely, given the severe rodent disturbance associated with Structure 2, it also is possible that the dated juniper seed was burned during a natural forest fire and redeposited into the feature.

Relative Dating

In addition to the 12 chronometric determinations, a small number of diagnostic artifacts helped to date the components. The 34 projectile points recovered from the site included 26 that bore similarities to known Late Archaic dart styles. The types included 10 San Pedro, four San Pedro-like, eight Cienega, two San Pedro/Cienega, a Chiricahua, and a trimmed and notched flake that resembled a Cienega. The Chiricahua type, closely associated with the Chiricahua phase in Arizona (Sayles 1983; Sayles and Antevs 1941) and the Fresnal phase of southern New Mexico (MacNeish and Beckett 1987), typically is assigned to the Middle Archaic period with estimated dates between 3000 and 1200 BC. As such, the identification of this point type at Wood Canyon could indicate a brief Middle Archaic occupation on the site. In southern Arizona, the San Pedro type exhibited fairly wide temporal span, beginning around 1200 BC and continuing through the San Pedro and Cienega phases to AD 300 (Sliva 1999). Cienega points joined the San Pedro during the Cienega phase. The Cienega type ranges from 800 BC to AD 150 and may persist to AD 650 (Sliva 1999). At the Wood Canyon site, the Cienega and San Pedro types co-occur on the surface and were recovered from dated contexts in Features 6, 47, and 102.

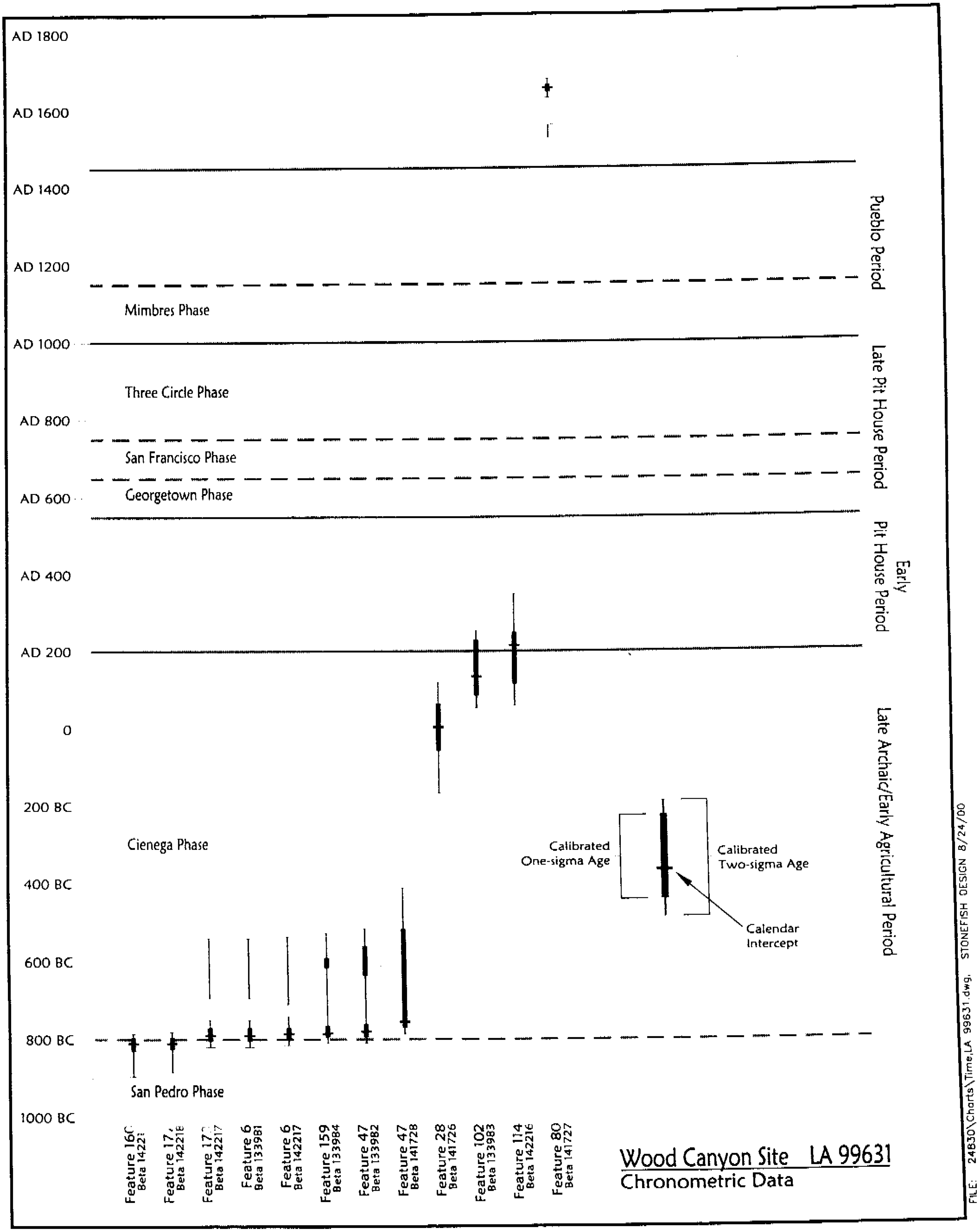


Figure 7.40 Chronometric Determinations from the Wood Canyon Site.

Table 7.8 Wood Canyon (LA 99631)Chronometric Determinations.

Beta No	Calibrated Two-sigma Age	Calibrated One-sigma Age	$^{13}C/^{12}C$ Ratio o/oo	Calendar Intercept	Radiocarbon Intercept (BP)	Dated Material	Context
133981	BC 820 to 750 (BP 2770 to 2700) and BC 695 to 540 (BP 2645 to 2490)	BC 805 to 770 (BP 2755 to 2720)	-18.8	BC 790	2740	Juniper seed	LA 99631, Bell-shaped pit, Fea 6
142220	BC 815 to 740 (BP 2765 to 2690) and BC 710 to 535 (BP 2660 to 2485)	BC 800 to 770 (BP 2750 to 2720)	-10.8	BC 785	2735	Zea cupule	LA 99631, Bell-shaped pit, Fea 6
141726	BC 165 to AD 120 (BP 2115 to 1830)	BC 55 to AD 65 (BP 2005 to 1885)	-11.0	AD 5	1945	Zea cupule	LA 99631, Pithouse floor, Fea 28
133982	BC 810 to 515 (BP 2760 to 2465)	BC 795 to 760 (BP 2745 to 2710) and BC 635 to 560 (BP 2585 to 2510)	-21.1	BC 780	2730	Juniper seed	LA 99631, Bell-shaped pit, Fea 47
141728	BC 785 to 410 (BP 2735 to 2360)	BC 770 to 515 (BP 2720 to 2465)	-10.4	BC 755	2705	Zea cupule	LA 99631, Bell-shaped pit, Fea 47
141727	AD 1525 to 1560 (BP 425 to 390) and AD 1630 to 1680 (BP 320 to 270)	AD 1645 to 1665 (BP 305 to 285)	-23.1	AD 1655	295	Juniper seed	LA 99631, Pithouse floor, Fea 80
133983	AD 55 to 255 (BP 1895 to 1695)	AD 85 to 230 (BP 1865 to 1720)	-18.5	AD 135	1815	Walnut seed	LA 99631, Nonthermal pit, Fea 102
142216	AD 60 to 350 (BP 1890 to 1600)	AD 115 to 250 (BP 1835 to 1700)	-22.2	AD 215	1735	Juniper seed	LA 99631, Bell-shaped pit, Fea 114
133984	BC 810 to 525 (BP 2760 to 2475)	BC 795 to 765 (BP 2745 to 2715) and BC 615 to 590 (BP 2565 to 2540)	-18.8	BC 785	2735	Juniper seed	LA 99631, Bell-shaped pit, Fea 159
142219	BC 895 to 785 (BP 2845 to 2735)	BC 830 to 795 (BP 2780 to 2745)	-11.4	BC 810	2760	Zea cupule	LA 99631, Bell-shaped pit, Fea 160
142217	BC 820 to 750 (BP 2770 to 2700) and BC 695 to 540 (BP 2645 to 2490)	BC 805 to 770 (BP 2755 to 2720)	-23.2	BC 790	2740	Juniper seed	LA 99631, Pit in Fea 100 (Fea 173)
142218	BC 885 to 780 (BP 2835 to 2730)	BC 825 to 795 (BP 2755 to 2745)	-23.8	BC 810	2760	Juniper seed	LA 99631, Rock cairn, Fea 177

The presence of 94 sherds, representing a minimum of 12 vessels, indicates a series of more ephemeral occupations during the Late Pit House period and subsequent Classic Mimbres phase. Ceramic types included Alma Plain, Alma Rough, Alma Incised, Alma Neck Banded, Three Circle Neck Corrugated, San Francisco Red, unspecified Mimbres Black-on-white, Mimbres Black-on-white Early Style III, and Mimbres Black-on-white Middle Style III. Based on the temporal spans assigned by Shafer and Brewington (1995), these types suggest at least three separate occupations. A possible San Francisco to early Three Circle phase occupation is recognized by one Alma Neck Banded sherd, dated from only AD 650 to 850. Other Alma series and San Francisco Red sherds also may date to this time. Later occupations during the Three Circle phase are distinguished by Three Circle Neck Corrugated dated between AD 850 and 1010. The unspecified Mimbres Black-on-white and Mimbres Black-on-white Style II or III sherds also could fall within this component. Finally, the Mimbres Black-n-white early Style III and middle Style III sherds on the western portion of the site indicate Classic Mimbres phase occupations between AD 1010 and 1110. If the Mimbres vessels were contemporaneous, the component probably occurred around AD 1060 to 1080.

Artifact Assemblages

A large quantity of cultural materials was collected during data recovery at Wood Canyon. The following discussions present basic data on the assemblages. For more thorough analyses, refer to the analytical chapters.

Chipped Stone

The artifact assemblage is dominated by 6,464 pieces of chipped stone, including 157 tools and 35 cores (Table 7.1). The tools contain a variety of projectile point fragments that are morphologically similar to Late Archaic forms found in southern Arizona (B. Huckell 1995). The 34 identified projectile points included 10 San Pedro, eight Cienega, four San Pedro-like, two San Pedro/Cienega, one Trimmed Flake (Cienega-like), one Chiricahua, and eight other indeterminate fragments.

Other formal chipped stone tools included five drills, 39 bifaces, and 69 retouched tools. The drills included bipointed and expanded base forms that showed no hafting elements. The other bifaces exhibited all stages of production from asymmetrical, roughly shaped forms to fine, symmetrical specimens with pressure flaking. Bifaces were predominantly triangular in form, although leaf, ovoid, and rectangular shapes also occurred. Taken together, the ratio of bifaces to other retouched tools was 0.64.

More expedient tool production was noted by the 69 retouched specimens. These consisted of 12 projections, 23 retouched pieces, and 34 scrapers.

A massive amount of chipped stone debitage was recovered from surface and subsurface contexts on the site. In all, 6,612 pieces of debitage were found and analyzed. The distribution of debitage size and characteristics, coupled with the prevalence of bifaces in the assemblage, indicates a biface and tool production emphasis.

The Late Archaic assemblage from Wood Canyon revealed a wide variety of raw material types. The majority of the materials were locally derived rhyolite and quartz. Finer quality materials such as chert, chalcedony, obsidian, and quartzite also were well represented but may have been procured over considerable distance. Shackley (this volume) notes that the obsidian was derived from a variety of sources up to 600 km from the site. These data indicate the Archaic inhabitants were involved in trade or direct acquisition of desirable materials over a large portion of the Southwest.

Ground Stone

The 220 ground stone artifacts from Wood Canyon include 142 manos, 73 metates, four stone hoes, and an ornament (Table 7.2). In term of their morphological categories, the manos include 21 circular, 52 irregular, 43 ovate, one subrectangular, and 31 of unknown shape. They were predominantly produced of diabase, basalt, sandstone, and granite, although a few specimens were of rhyolite or quartz. The 36 metates that were whole or nearly complete included 10 basins, 19 flat/concave, six flat/possible netherstone, and one netherstone. Like the manos, most were made of granite or diabase with fewer numbers of basalt, sandstone, and rhyolite.

Four caches of grinding implements were noted in the excavations. Recovered from Features 3, 11, 75, and 95, each cache was limited to a few tools. Feature 3, for instance, contained a basin metate, a fitted mano, and another mano. The metates were always turned upside down with the manos usually underneath.

Grinding implements were purposefully placed with at least three of the burials (Burials 1, 2 and 5). In each case, a flat or basin metate was positioned over the body, either directly in the pit or on a rock cairn over the burial. Two of the burials were males and one was a child.

In addition to grinding implements, four stone hoes were recovered from the site. These tools were basically hoe or spade-like in form with ground sides and use wear on the working end. All were made of granite or schist. Two were found on the floor of Structure 3 and the others in refuse.

A discoid "button"-like stone ornament fragment, made of limestone, was identified in Feature 124. This small specimen exhibited two biconical holes near the center and two concentrically engraved lines just inside the outer edge.

Ceramics

The ceramic assemblage recovered from Wood Canyon included only 94 sherds. Of these, 66 were from surface, 13 from general excavations, and 15 from feature contexts (Table 7.3). The ceramic assemblage included Alma Incised, Alma Neck Banded, Alma Plain, Alma Rough, indeterminate brown, Three Circle Neck Corrugated, corrugated brown, Mimbres Black-on-white (Style II/III through Middle Style III), San Francisco Red, as well as sherds too small to analyze. In all, a minimum of 12 vessels are represented, five bowls and seven jars.

The ceramics were sparsely distributed across the entire site. The Three Circle Neck Corrugated and Alma series ceramics are the most widely dispersed, suggesting short-termed Late Pit House period occupations were scattered over the site. The ceramics were more concentrated on the west-central portion on both the northern and southern sides of the highway. In particular, the Mimbres Black-on-white and untyped corrugated brown ceramics were clustered in a 30 by 40 m area. One or two sherds were located in each of 12 features, but five of the features have chronometric dates inconsistent with the ceramic types, and it assumed that all of the sherds were intrusive into Archaic pits.

Other Artifacts

Other artifacts recovered from the investigations of Wood Canyon include four pieces of hematite or ochre and two quartz crystals. The hematite and ochre form red or yellow pigments but were small in size and not ground. The quartz specimens were small, single pointed crystals in good condition. Unavailable in the locally exposed granite, the crystals probably were carried to the site by its inhabitants.

Biological Remains

Botanical Remains

Botanical remains from Wood Canyon were recovered in 199 flotation, 117 pollen, and 28 phytolith samples as well as a large number of macrobotanical specimens collected from general excavations. Due to the poor pollen preservation noted at Wood Canyon, only 11 pollen samples were run. In contrast, phytoliths were well preserved within the 21 samples processed. All of the flotation samples were processed and prepared for curation. In all, 56 flotation samples, 31 heavy fractions, and 15 macrofossil lots were analyzed. Given the research design questions pertaining to agricultural pursuits during the Late Archaic/Early Agricultural period occupations at the site, efforts were made to analyze samples from storage pits and structures dating to that period. The results of these analyses are presented in Chapters 20 and 21 of this report.

Analyses of the various samples yielded important data, but overall preservation of both the microfossil and macrofossil assemblages was poor to fair. Large flotation samples helped to reduce the problem for the macrobotanical materials.

Cultigens recognized in the assemblages were limited to maize and squash. Maize was present throughout the site, occurring on the floors of structures, in storage pits, and in other contexts. Based on its ubiquity and the radiocarbon dates from cupules, maize was apparently widely adopted by the Late Archaic/Early Agricultural period occupants of the site. It occurred in seven of the 11 pollen samples and four of the 21 phytolith samples.

The occurrence of squash at the site was only known from the phytoliths. Identified from Features 59, 62, and 114, squash occurred on the floor of Structure 1 and in a contemporaneous bell-shaped storage pit.

Economically important wild plants were represented by 20 other taxa from macrofossils, and microfossil data. Of particular significance were cheno-pod/chenoam and juniper. Other taxa include dropseed, other grasses, yucca, acorns, walnut, hackberry, amaranth, bugseed, tansy mustard, stickleaf, groundcherry/nightshade, purslane, and dock. CCSC (columnar-celled seed coat), an unidentified seed, also was common within the assemblage.

Wood usage by the inhabitants was primarily indicated by structural elements and charcoal recovered from 17 flotation samples. The charcoal data suggest a preference for oak (43.7 percent) and mountain mahogany (26.3 percent) with juniper (6.6 percent) and pine (1.8 percent) as secondary choices. These statistics are not surprising since oak gives off nearly twice as much heat, provides a much better bed of coal, sparks less, and is less smoky than pine.

Structural wood was not well preserved at Wood Canyon. Assumed roofing or wall materials included mountain mahogany, oak, and juniper.

The low frequencies of archaeological arboreal pollen at the site parallel the findings at other sites in the project area and elsewhere on the Big Burro Mountains. These data suggest the area was a more open grassland interspersed with a few trees.

Faunal Remains

A reasonably preserved faunal assemblage from Wood Canyon consisted of 2,783 bone fragments, five bone tools, and 62 shell beads (Table 7.2). Faunal remains were found in various contexts across the site, but one pit, Feature 102, yielded nearly one-quarter of the assemblage.

The 24 taxa identified at least to class include turtles, lizard, hawk and roadrunner, rabbits and hare, pocket gopher, kangaroo and wood rats, dog and/or coyote, gray fox, bobcat, mule deer, pronghorn, bighorn sheep, and possibly beaver and raccoon. In terms of bio mass, unidentified large mammals represented 20.6 percent while all artiodactyles combined contributed 38.2 percent of the total biomass as compared with 8.4 percent for all rabbits and hares.

Bone tools recovered from the site include three awls, a complete bone tube, and a snapped antler tine perhaps used as a flaker. The awls all were small and could have been employed for either leather punching or basket making. The bone tube is consistent in size and shape with those from Wind Mountain interpreted as pipe stems (Woosley and MacIntyre 1996). In addition to the bone tools, 62 shell disk beads were found in Feature 159, a bell-shaped pit last used for human interments. The beads are assumed to be formed from marine shell.

Site Interpretations

Data recovery investigations of the Wood Canyon site revealed a long and complex sequence of occupations. Recognized components included a possible ephemeral Middle Archaic camp, two residential settlements of the Cienega phase of the Late Archaic/Early Agricultural period, both San Francisco and Three Circle phase occupations in the Late Pit House period, a brief Classic Mimbres phase presence, and a possible Protohistoric period habitation. Most of the components were restricted to a few scattered artifacts or an isolated absolute date and therefore, were limited in their data potential.

The most intensive and substantial occupations of the site occurred during the Late Archaic/Early Agricultural period. These settlements covered the entire site and likely were responsible for nearly all of the intact cultural features, cultural deposits, and artifacts at the Wood Canyon site. During this period, at least two groups, separated by 650 to 800 years, established small, seasonal communities on the ridge overlooking the Wood Canyon floodplain. These settlements consisted of small pit structures surrounded by large capacity storage facilities, cooking pits, burials, and ground stone caches associated with organically-rich cultural deposits and dense concentrations of chipped stone and ground stone artifacts and thermally altered rock. The presence of maize along with the large storage pits indicated farming had already been integrated in the Late Archaic economy by 800 BC.

Data derived from these components have important implications to the understanding of regional agricultural adaptations during the Late Archaic. Representing the earliest agricultural evidence in the Mimbres region, the Wood Canyon settlements reflect change in the Archaic economic base to include food production as demonstrated by Wills (1988) and B. Huckell (1995) in adjacent areas of the Southwest. Coupled tightly with the appearance of food production was a restriction in residential mobility over the preceding Middle Archaic period. Late Archaic/Early Agricultural groups had to organize their settlement system to repeatedly return to the farming site in order to plant, tend, and harvest the crop. This pattern led to settlements that showed longer cumulative occupation, a greater investment in house construction, and the presence of formal storage facilities.

In the following sections, each of the components at the Wood Canyon site will be summarized. More specific discussions of settlement and subsistence trends will be presented in the final chapters.

Middle Archaic Component

This component was recognized by a single obsidian Chiricahua projectile point fragment. This type has been dated between 3000 and 1200 BC. The specimen was recovered from 30 cm below the surface in the Ab horizon. No other cultural materials or chronometric determinations could be associated positively with the component. As a result, the specimen could either represent a brief Middle Archaic period camp or perhaps a piece scavenged by later Archaic or Late Pit House period groups and brought to the site.

Early Cienega Phase Settlement

The first major occupations of the Wood Canyon site probably occurred between 800 and 700 BC in the early Cienega phase. Based on the distribution of radiocarbon dates, the component was concentrated in the western quadrants. The presence of thick cultural deposits, numerous features, and an abundance of artifacts in this area implied considerable length of occupation, repeated use, and most likely, a combination of the two.

The early Cienega phase component was dated by eight tightly clustered radiocarbon determinations, all run on wild seeds or Zea cupules (Table 7.7). Judging from the two-sigma ranges, these determinations could vary from 885 to 410 BC; however, all eight had intercepts falling between 810 and 755 BC and significantly overlapped in the mid 700s BC.

The community plan was difficult to delineate since prior highway construction probably removed the main portion of the settlement. The part that survived consisted of at least two pit structures surrounded by storage pits, nonthermal pits of unknown function, roasting pits, and hearths. Taking the missing portion of the site into account, there may have been four to five structures in an apparent random pattern of scattered houses. Although these features could represent more than one occupation, it is assumed that the residential episodes occurred during a restricted time frame. Judging from the distribution of features attributed to this occupation, the component was roughly oval with artifacts sparsely scattered out the finger ridges to the west. It was bounded by natural slopes on the north, west, and south and by a drop off of feature densities on the east. The main habitation area included 60 m east-west by at least 50 m north-south and encompasses approximately 2,356 m^2.

Two structures may be associated with the component. While Structure 3 was firmly dated to the early Cienega phase, Structure 2 yielded a Protohistoric period radiocarbon determination that led to debate over its true age. Based on Structure 3, each early Cienega phase household appeared to contain a single, small pit structure surrounded by thermal and nonthermal pits, and surface concentrations of thermally altered rock. The clusters of extramural features in the vicinity of the structures indicated a range of cooking and storage activities.

Structures 2 and 3 ranged from 10.99 to 11.88 m^2 with an average of 11.44 m^2. The pit basins were oval in outline and less than 20 cm in depth. Due to the severe rodent disturbance, no wall or roof support posts were detected. Dirt from the pits may have been banks onto the walls. Intramural features included one hearth in each structure and in Structure 3, one other shallow pit. The best evidence for Structures 2 and 3 not being part of the same community is the difference in hearths. Structure 2 contained a rock-lined hearth, while Structure 3 had a hearth constructed in a simple basin-shaped pit. In any case, the small size of the available floor space within the structures suggested enough room for only a small nucleated family or household. It also implied that most domestic activities were performed outside or in other kinds of structures.

The most significant finding from the excavations of the early Cienega phase component was the occurrence of maize. Maize was present in a variety of contexts, including bell and basin-shaped storage pits and the floor of Structure 3. Radiocarbon dating of maize cupules produced two-sigma calibrated determinations of 815 to 740 BC (Beta 142220), 785 to 410 BC (Beta 141728), and 895 to 785 (Beta 142219). These dates confirm that the maize was not intrusive from later occupations. These results, along with the other pollen, phytolith, and macrofossil evidence, indicated that by 800 BC populations in the Mimbres area had adopted maize farming into their economy.

Contemporaneous Late Archaic/Early Agricultural period groups in Arizona participated in floodplain farming and the development of irrigation canal systems. Given these data, the Wood Canyon population may have been farming on the 140 m wide Wood Canyon floodplain adjacent to the settlement. Although susceptible to flash flooding, the floodplain was relatively broad, likely fertile, and if necessary, could have been irrigated if the drainage contained sufficient water.

Although maize agriculture had already been incorporated, mixed foraging and hunting remained important elements in their overall economy. Faunal remains suggested a broad spectrum hunting strategy, but biomass calculations reflect large mammals, particularly artiodactyles, and rabbits and hares were important game. The archaeobotanical remains from the site indicate foraging pursuits contributed a wide variety of foods to the overall diet.

Six large bell-shaped storage pits were clustered near the center of the early Cienega phase component. These features ranged in volume from 1,655.76 to 1,903.39 liters. Individually, each could have held huge quantities of maize and wild plant foods. It seemed unlikely that all of the storage facilities were utilized in any one given year, but nevertheless they indicated that the Cienega population was producing a significant food surplus.

During the early Cienega phase occupation, human interments were placed in either specially prepared burial facilities or in available pits. An unusual rock cairn burial, dated from 885 to 780 BC (Beta 142218), involved the placement of a tightly flexed adult male within a simple oval pit that was covered by a cairn of large rocks and metates. Besides the metates, no funerary objects were located with the body. The milling stone-cairn mortuary form has not been previously recorded in the Mimbres region but Mabry (1998:724-725) noted that this complex extended throughout the Southwest. Previously recorded examples in southern Arizona were attributed to the Chiricahua stage on the basis of metate forms but have not been directly dated.

The other three burials in the early Cienega phase skeletal elements from component were found together in a bell-shaped storage pit apparently recycled from its original purpose. These individuals were mixed throughout the fill, although long bones and cranial remains from one were found on the bottom of the pit. It is unknown whether the burials were contemporaneous or if later interments disturbed the earlier ones. Despite the churned condition of the fill, the 62 shell disk beads and a bone tube recovered in the pit are assumed to be associated with one or more of the burials.

The artifact assemblage of the early Cienega phase component was dominated by chipped stone, although numerous grinding implements also were present. Chipped stone tools included dart points, drills, scrapers, and miscellaneous cutting, perforating and chopping tools. The darts were characterized by broad side notched, corner notched, and straight stemmed forms that could be classified into the San Pedro and Cienega types. Local rhyolite and quartz provided the bulk of the raw material, but non local obsidian, chert, and chalcedony also were present in good quantities. Ground stone included both flat/concave and basin metates. The most common mano types were circular and irregular forms.

Early Cienega phase trading relationships are suggested by the presence of probable marine shell disk beads and obsidian derived from up to 600 km from the site. Obsidian sourcing reported by Shackley (this volume) indicates obsidians found from this component were procured from Mule Creek (the nearest source); Sierra Fresnal in northern Chihuahua, Mexico; Cow Canyon, Arizona; and Valle Grande (Cerro del Medio) in the Jemez Mountains of north-central New Mexico.

The presence of large capacity storage facilities and ground stone caches on the site implied seasonal settlement abandonment (DeBoer 1988:1-2,14; Wills 1988:39). DeBoer's review of the ethnohistoric record for the Great Plains and Eastern Woodlands indicated that such subterranean storage pits were used to conceal foodstuffs from foreign pillagers, particularly during periods of residential abandonment. For Wood Canyon, the scheduling of seasonal foraging and hunting rounds remains unclear. The timing of maize farming and harvest implied late spring to fall occupations. Abandonment could have occurred during the winter months when hunting became a more important element in the economy.

Late Cienega Phase Settlement

A second major Cienega phase settlement occurred at the Wood Canyon site approximately 650 to 800 years after the early Cienega phase component. In many respects, the two components were remarkably similar in terms of feature and artifact assemblages, overall size, and assumed duration of occupations. Clustered on the eastern half of the site, the late Cienega phase occupations were characterized by well-developed cultural deposits, structures, burials, numerous features, and a large artifact assemblage suggestive of at least seasonal habitations over a short period of years. As discussed above, the components were most readily segregated by the distribution of radiocarbon determinations and a slight break in the topography and feature densities between the two.

The late Cienega phase settlement was dated by three radiocarbon determinations from maize cupule and wild seeds (Table 7.7). The assays dated a structure, bell-shaped storage pit, and a burial pit, all in a 30 m area. Their two-sigma ranges extend from 165 BC to AD 350 with intercepts from AD 5 to 215. The ranges overlap between AD 60 and 120. The 11 ceramics recovered from the late Cienega phase area are Late Pit House and Mimbres types and, therefore, were not assumed to be associated with the dated deposits. This information further supports a pre-AD 200 date for the component.

The component's site structure was difficult to discern since the central area had been removed by highway construction. The surviving portions of the community consisted of two pit structures, storage pits, nonthermal pits of unknown function, roasting pits, hearths, and burials. With the central part of the community missing, the successful interpretation of the site structure was diminished, but several interesting

observations could be made. As noted by the distribution of features in the northeastern and southeastern quadrants of the site, the community seemed to be clustered into a roughly circular configuration. It was bounded by natural breaks on the south and east and a drop off of features in the other directions. The main occupation was estimated to measure approximately 45 m north-south by 50 m east-west, encompassing an estimated 1,767 m^2. It is possible that the component developed over years of repeated occupation, but little feature overlap occurred, implying a prior understanding of the community layout.

The two recognized structures (Features 28 and 117), about 18 m apart, appeared to be placed near the center of the occupations. Other buildings could have been present in the present highway area, or perhaps were more ephemeral, surface structures. Along the southern edge of the ridge overlooking Wood Canyon floodplain were a number of thermal features, many of which produced quantities of rock. Thermally altered rocks were scattered densely in the Ab horizon deposits around these features. A large ash midden (Feature 133) was located on the southeastern edge of the component, and a possible special burial facility (Feature 102) was placed on the southwestern edge.

The two structures (1 and 4) of the component were circular pits with shallow basin-shapes. Structure 1 was dated by a Zea maize cupule recovered from the floor. Structure 4 was not directly dated, but was adjacent to a bell-shaped storage pit that produced a late Cienega phase determination. As in the earlier settlement, archaeological evidence for each residential unit was characterized by a single small pit structure surrounded by thermal and nonthermal pits and surface concentrations of thermally altered rocks. The extramural features argue for a range of cooking and storage activities.

The structures of the late Cienega phase occupation were similar to the earlier component. Both contained small structures built into shallow basin-shaped pits. The later structures did have a more circular plan and a slightly smaller size. However, these characteristics may have been related more to household size than cultural change in the configuration of the structures. Structures 1 and 4 varied from 6.15 to 9.42 m^2 with an average of 7.78 m^2. They ranged from approximately 20 to 28 cm in depth. Structure 4 was severely disturbed; however, Structure 1 was in good condition and provided information on its superstructure. Four posts may have supported a roof. If so, they could imply considerable weight such as a roof with an earth covering. The outer walls were formed by posts placed immediately outside the perimeter of the pit. Narrow diameter oak and mountain mahogany posts and brush were used to construct the walls and roof. No daub was found in association with either structure. The intramural features included two hearths and two shallow nonthermal pits that seemed too shallow for storage. Given the size of the structure, it seems doubtful that both hearths were used simultaneously. One exhibited more ash and oxidation and therefore, was likely utilized more intensively than the other. It is possible that wind or other weather may have required repositioning of the hearth from time to time. The size of the structures implied they were occupied by small numbers of people such as nuclear families or other household units.

Storage facilities in the late Cienega phase component were reduced greatly in size and number compared with the earlier component. Only one bell-shaped pit and one nonthermal, basin-shaped pit were interpreted as storage features. The bell-shaped pit, containing a volume of 544.94 liters, was the smallest one of this type located on the site. Although others may have been removed by highway construction, the storage pits recognized in associations with the late Cienega phase component represent a much lower subterranean storage capacity than those in the early Cienega phase occupation area.

The large ash midden was located on a slope at the edge of the component. This deposit accumulated through perhaps hundreds of dumping episodes, yet no recognizable plant or animal remains and few artifacts were recovered from the excavations. It is assumed that the ash came from cleaned out hearths and roasting pits.

Mortuary practices of the late Cienega phase component were represented by two burials in Feature 102, a large, basin-shaped pit. Since this feature was unlike any other on the site in terms of size and overall shape, it may have been specially constructed for the burials. Dating between AD 55 and 255, this feature contained an adult male of 20 to 35 years of age at death and a child from 5 to 6 years of age. They were placed in individual oval pits dug into the side walls of the feature and were tightly flexed on either their back or left side. Like the earlier Cienega phase component, the burials from this occupation were accompanied by grinding implements. Nonperishable funerary objects included a large basin metate over the adult and a smaller flat metate over the child. A thick layer of cultural refuse covered both burials and filled in the top of the feature. This deposit contained a quartz crystal, large numbers of chipped stone debitage and a few tools, and approximately 25 percent of the faunal remains from the site. In terms of biomass, the high percentage of artiodactyles in these deposits could represent grave side ritual feasting.

The artifact assemblage of the late Cienega phase component was essentially the same as that of the early Cienega phase component at the site. Besides the massive amount of debitage, the chipped stone assemblage included dart points, bifaces, drills, projections, scrapers, and retouched tools. The projectile points consist of San Pedro and Cienega types with the Cienega point style more popular. The chipped stone tools indicated a variety of manufacturing, scraping, perforating, and cutting activities. Raw materials used during the late Cienega phase were predominantly locally available rhyolite and quartz. Chert and chalcedony continued to be important but obsidian was less common than in the earlier Cienega phase component.

Grinding implements included basin and flat/concave metates, netherstones, and manos with irregular, ovate, cobble, circular, and subrectangular forms. The only ornament noted was a small limestone circular pendant or gorget with two drill holes and engraved, concentric lines.

Late Cienega phase subsistence strategies were similar to the earlier Cienega phase component. Farming was indicated by the presence of maize and *Cucurbita* pollen, phytolith, and macrofossils. These remains occurred in storage pits, nonthermal pits, floors of a structure, and burial pits. Foraging of wild plant seeds remained important to the subsistence economy. Wild plant foods identified in the assemblage included goosefoot, pitseed goosefoot, tansy mustard, tickseed/bugseed, dock/dropseed juniper, walnut, and oak.

Based on the materials recovered, external trade had diminished since the early Cienega phase component. Obsidian recovered from the component was almost exclusively from Mule Creek, the closest source to the site. The limestone ornament also may be nonlocal. No other exotic materials were identified with the occupation.

The Late Pit House and Mimbres Components

Occupations during the San Francisco and Three Circle phases of the Late Pit House period and the Mimbres phase of the Pueblo period were limited at the Wood Canyon site. Evidence was restricted to 94 ceramics scattered over the surface and intruded into Archaic cultural deposits. No chronometric determinations were derived for these components. Furthermore, no features were encountered that could be assigned conclusively to one of these occupations. Some features did yield one or two sherds each, but the features were Archaic in age.

The San Francisco phase was conclusively recognized by only one vessel, an Alma Neck Banded jar. This sherd was located in Feature 2, a roasting pit exposed on the road cut. Other Alma series ceramics and the San Francisco Red sherds could be associated with either this or the later Three Circle phase component.

The Three Circle phase component was indicated by the presence of a Three Circle Neck Corrugated jar and perhaps, the Indeterminate Mimbres Black-on-white or Mimbres Black-on-white, Style II (or III) bowls. These materials were scattered widely over the surface, in the upper most excavation level, and in Features 2 and 112.

The Mimbres phase occupation was the most obvious. Mimbres Black-on-white, Early Style III and Middle Style III sherds and the unspecified Corrugated Brown sherds (likely Mimbres Corrugated) were concentrated over the west-central portion of the site in the northwestern and southwestern quadrants. The distribution of these sherds covered an area measuring 40 m north-south by 30 m east-west. The area was bisected by the highway, suggesting the main part of this component could have been removed by the highway construction. Other than the ceramics, no artifacts were found that could be firmly associated with the Mimbres occupation.

Given the paucity of data from these components, it is assumed that all three were short-termed occupations. The Mimbres phase component was more clustered and contained more sherds than the other two and therefore, likely was longer in duration. However, none of the components could be considered more than a camp or activity area. It is possible that during the Late Pit House period and Mimbres phase, groups came to the Wood Canyon site to farm the organic-rich cultural deposits left by the previous Archaic settlements.

Protohistoric Period Component

The Protohistoric period occupation of the site is recognized by one radiocarbon determination dating to the sixteenth and seventeenth centuries AD. This date was derived from a charred juniper seed recovered from the floor of Structure 2, a poorly preserved, shallow oval structure. In the absence of Euroamerican goods, arrow points, late ceramic types, or other means of assessing the accuracy of this date, the Protohistoric period occupation is somewhat suspect. Given the severe disturbance to the deposits associated with the structure, a seed from the surface could easily have intruded into earlier features.

Structure 2, included above within the early Cienega phase component, was surrounded by Archaic diagnostic materials and six dated Archaic features. Its size and configuration were similar to both Archaic and early historic Native American structures. The hearth, however, was stone-lined, a trait not found in any other Archaic structure at Wood Canyon or Forest Home.

8.0 Beargrass: LA 121158 (USFS No.: AR-03-06-07-00578)

Richard M. Reycraft with contributions by Grant D. Smith

Introduction

The Beargrass site (LA 121158) probably represents the most intensively occupied location investigated during the NM 90 data recovery. This residential site contained major Late Archaic, Early Pit House, and Late Pit House period occupations with structures, burials, and extramural features associated with thick cultural deposits and an abundance of artifacts. The site was originally documented during a survey by TRC in 1998 for the proposed reconstruction portion of NM 90 (Goar et al. 1998). During this initial recordation, LA 121158 was identified as a probable Late Pit House period residential site with possible pithouses and/or middens, a roasting feature, and a moderately dense chipped stone, ground stone, and ceramic scatter on the northern side of NM 90. No cultural materials or features were observed south of the highway. Subsequent data recovery revealed a large multicomponent residential site with cultural remains located on both sides of NM 90.

The major project-related impacts to the Beargrass site are the widening of the shoulders and the re-contouring of the slopes around NM 90. These road improvements were anticipated to disturb all remaining intact cultural deposits within the right-of-way limits. Between February 17 and April 3, 1999, TRC carried out data recovery excavations at Beargrass to mitigate impacts of the highway reconstruction project. Crew size varied from four to six during this period. The investigations cleared all cultural deposits from within the right-of-way.

Physical Description

The Beargrass site is situated on a ridge top that straddles two ephemeral drainages. These drainages converge around the site area, then diverge again slightly north of the site. The nearest named drainage, Peterson Canyon, lies approximately 700 m east of the site area. At an elevation of 1,743 m (5,720 feet), the Beargrass site provides excellent views of Knight's Peak and the basin below (Figures 1.2 and 8.1).

The site lies within the Short Grass Steppe, only 1.0 km from the Madrean Open Oak Woodland zone to the east, and 1.0 km from the Chihuahuan Broadleaf Deciduous Scrub in the Animas Valley to the west. As such, the Beargrass site may have been placed to optimally exploit all three zones and their varied resources. The vegetation in the site area consists of an abundance of beargrass as well as scrubby oak, yucca, and grasses. Alligator juniper trees were widely scattered on the northern portion of the site. Oaks and junipers became larger and more concentrated upslope at the southern end of the site and in the drainages.

The geology is dominated by the Burro Mountain Granite, a massive formation exposed over much of the surface (Gillerman 1970). Quartz and rhyolite plugs and dikes, form prominent ridges immediately to the west of the site. Weathering of the granite results in the development of a thick, coarse grus deposit.

Major impacts to the surface of the site include natural erosion and the construction of NM 90. The highway currently bisects the site, resulting in a 34 m wide swath through the resource. Cutting down to 4 m below the original surface of the ridge, highway construction formed steep, severely eroded banks on both the northern and southern sides of the road. Erosion was so severe on the southern side on the right-of-way that no intact cultural deposits survived in that area.

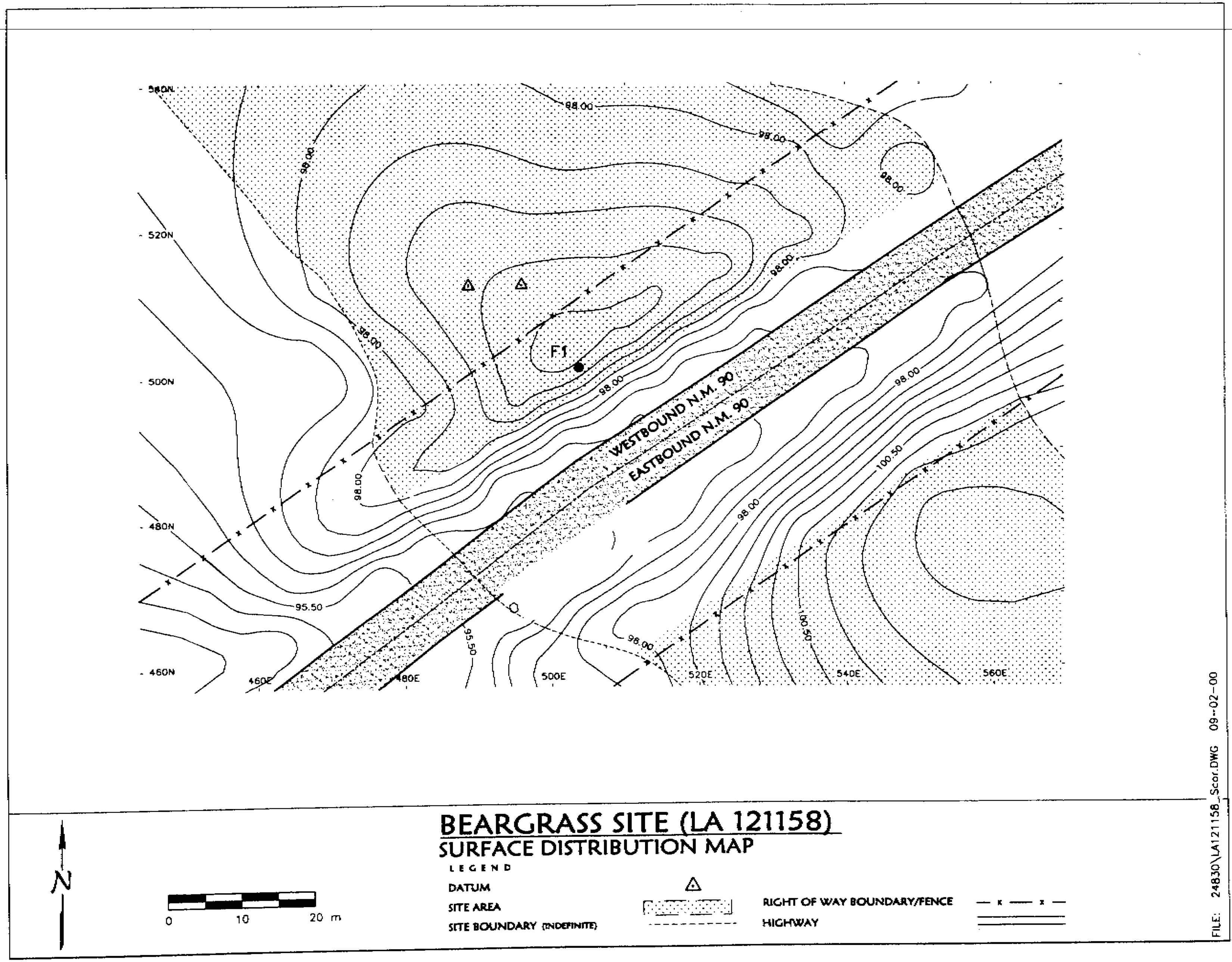


Figure 8.1 **Beargrass Site Topographic Map Showing Surface Artifact and Feature Distribution.**

Data Recovery Strategy

Data recovery investigations at Beargrass involved mapping, surface collection, shovel testing, manual excavations of blocks, backhoe trenching, and mechanical stripping of the site (Figure 8.2). Initially, a grid datum was established at N500E500 with an arbitrary elevation of 100 m; however, two more permanent datums were subsequently placed at N510E500 at an elevation of 99.93 m and N510E491 at an elevation of 99.68 m. After the completion of a topographic map, a controlled surface collections was conducted. During the latter procedure, all artifacts were point provenienced with a total station, except in the center of the site, where high artifact densities required that surface documentation be carried out within grids of 2 by 2 m units. Excavations commenced with 14 shovel test units, which were distributed across the site. Concurrently, two 5 by 5 m excavation blocks were placed over Feature 1, a shallow rock-filled basin, and Feature 2, later determined to be a gully. Both of these features were exposed along the edge of the road cut. The excavation units over Feature 1 eventually exposed Feature 3, a small circular structure, and Feature 9, a large circular pit. Later, this excavation block was expanded westward to more fully expose a rock alignment associated with Feature 6, a trapezoidal structure. Two backhoe trenches (BT) were extended east-west across the ridge (Figure 8.2). Initially, BT 1 and BT 2 were begun on the lower eastern slopes and excavated almost to the ridge top and the excavation blocks. BT 1 was later continued across the ridge and down the western slope to a gully. This trench exposed Feature 5, a burial; Feature 4, a large pit structure, and Feature 8, another pit structure. The profile of BT 2 disclosed another portion of Feature 4 and an isolated human mandible found in a rodent run.

An examination of the trench profile by Grant Smith, the project geomorphologist, indicated that most of the midden and A horizon were badly disturbed by bioturbation. Mechanical stripping of the disturbed A horizon was begun in order to locate any additional subsurface cultural features. The stripping began around the block excavations and extended down to the base of the slopes, which exposed the tops of several pit structures and a number of extramural features, including two additional burials. After excavation of all identified features, the area was stripped again in an attempt to delineate other, more subtle, cultural anomalies. In all, an area of 1108 m^2 was mechanically stripped in the right-of-way (Figure 8.2).

Surface Characteristics

The Beargrass site consists of features and a sparse to moderate artifact scatter covering much of a broad gently sloping ridge (Figure 1.2). Based on a reconnaissance survey outside the NM 90 right-of-way, the site measures at least 250 m along the northwest-southeast trending ridge and up to 90 m northeast-southwest. Artifact densities drop off rapidly along the steep slopes that descend into the intermittent drainages. Boundaries on the northern and southern ends of the site are less secure but were marked by a reduction in artifacts and thermally altered rocks. The distribution of surface artifacts and features encompassed 24,740 m^2 on the ridge.

The site continues at least 150 m north of the right-of-way as a series of artifact concentrations that are often associated with thermally altered rock and large and dark stains. These areas were eroding out on the slopes or in shallow depressions. This suggests that the thin sandy deposits on the ridge may be concealing other significant cultural deposits. Based on the staining and artifacts, substantial cultural deposits, features, and structures likely exist over much of this area. Although the artifacts on the northern portion of the site generally mirror those located in the right-of-way, a few Mimbres Black-on-white: Style III sherds were observed on the surface only 15 to 40 m north of the project. These artifacts suggest at least a small Classic Mimbres phase component exists in the area.

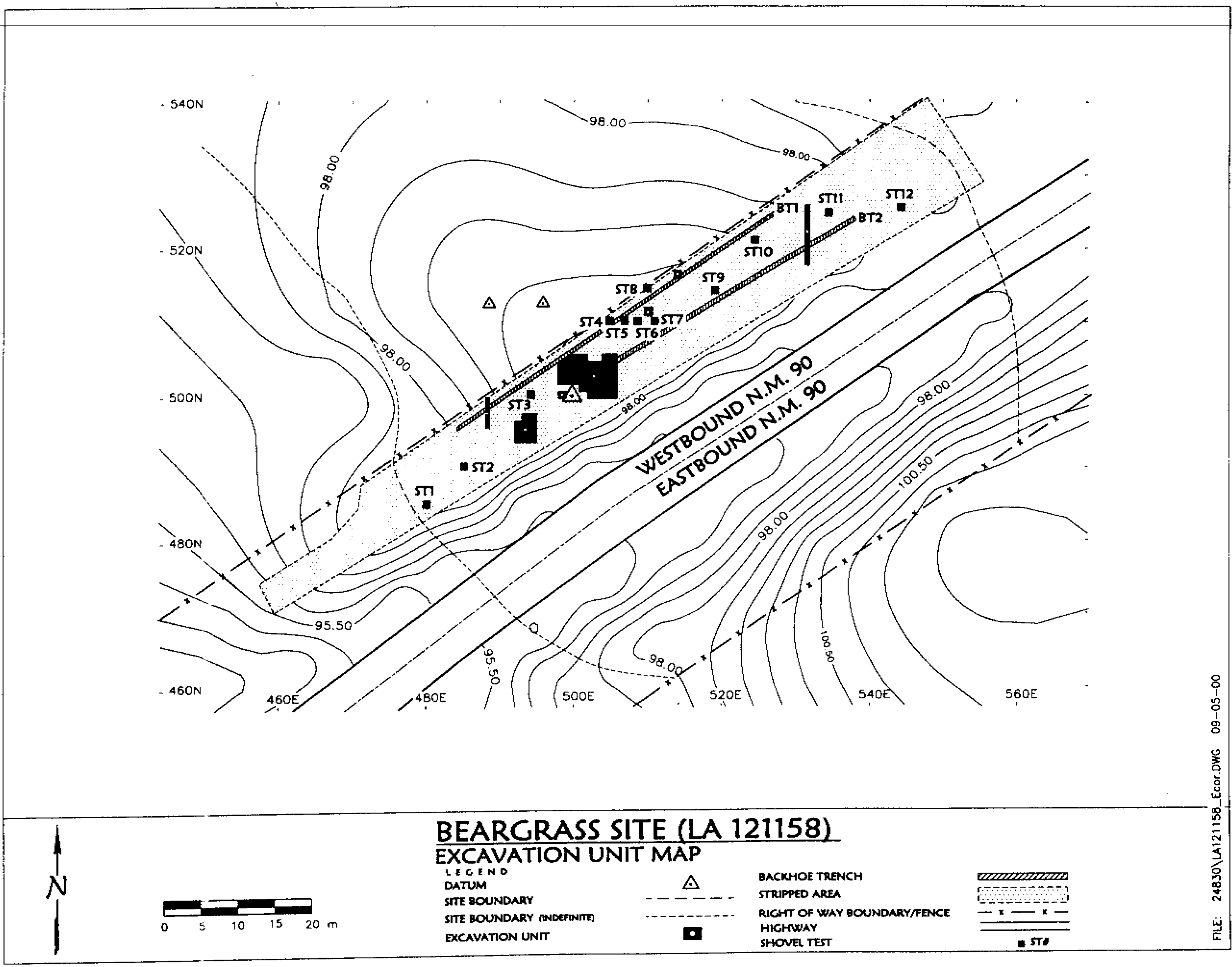


Figure 8.2 Beargrass Site Map Showing Excavation Units.

More sporadic scatters of cultural materials and features also extend for at least 63 m up slope, south of the NM 90 right-of-way. This area was characterized by sparse clusters of thermally altered rock with few chipped stone artifacts. Ceramics were relatively rare. Features observed appeared to be deflated, although lightly stained sediments did occasionally occur.

Within the NM 90 right-of-way, intact portions of the site were restricted to the northern side of the highway, measuring 84 m northeast-southwest by 11 m northwest-southeast (Figure 8.1). The southern portion of the right-of-way was eroded to the fence and devoid of subsurface data potential. Consequently, the undisturbed portion of the site within the right-of-way was 994 m^2 on the northern side.

The controlled surface collection of the right-of-way portion of the site confirmed a sparse to moderate scatter of ceramics and chipped stone (Figure 8.3). A few ground stone tools also were present. The surface densities were the highest on the crest of the ridge where later excavations would locate the thickest cultural deposits and features. Densities were up to eight artifacts per 2 by 2 m unit or two artifacts per square meter. Artifacts found on slopes probably were redeposited by slopewashing. Only one feature, a deflated roasting pit (Feature 1), was identified on the road cut.

A surface within the right-of-way portion of the site yielded 511 artifacts, including 40 chipped stone pieces, six ground stone artifacts, 464 ceramics, and a faunal remain (Tables 8.1 to 8.3). The chipped stone included 32 pieces of debitage, a core, three retouched tools, and four hammer stones. Ground stone artifacts included six manos.

The surface ceramic assemblage contained large amounts of Alma series wares (dominated by Alma Rough), moderate amounts of Corrugated Brown, Three Circle Neck Corrugated, and Indeterminate Mimbres Black-on-white wares, and small amounts of Mimbres Corrugated and Mimbres Black-on-white Styles I and Early II wares. A few specimens of indeterminate white and brownwares also were found. The distribution map of these controlled surface collections (Figure 8.3) suggests that the densest concentration of artifacts, especially ceramic sherds, occurred in the center of the site area contained within the right-of-way. Subsequent excavation revealed that this area contained relatively deep, extremely bioturbated, midden deposits superimposed over several pit structures. In general, similar types and relative percentages of ceramics were found in the surface and midden contexts.

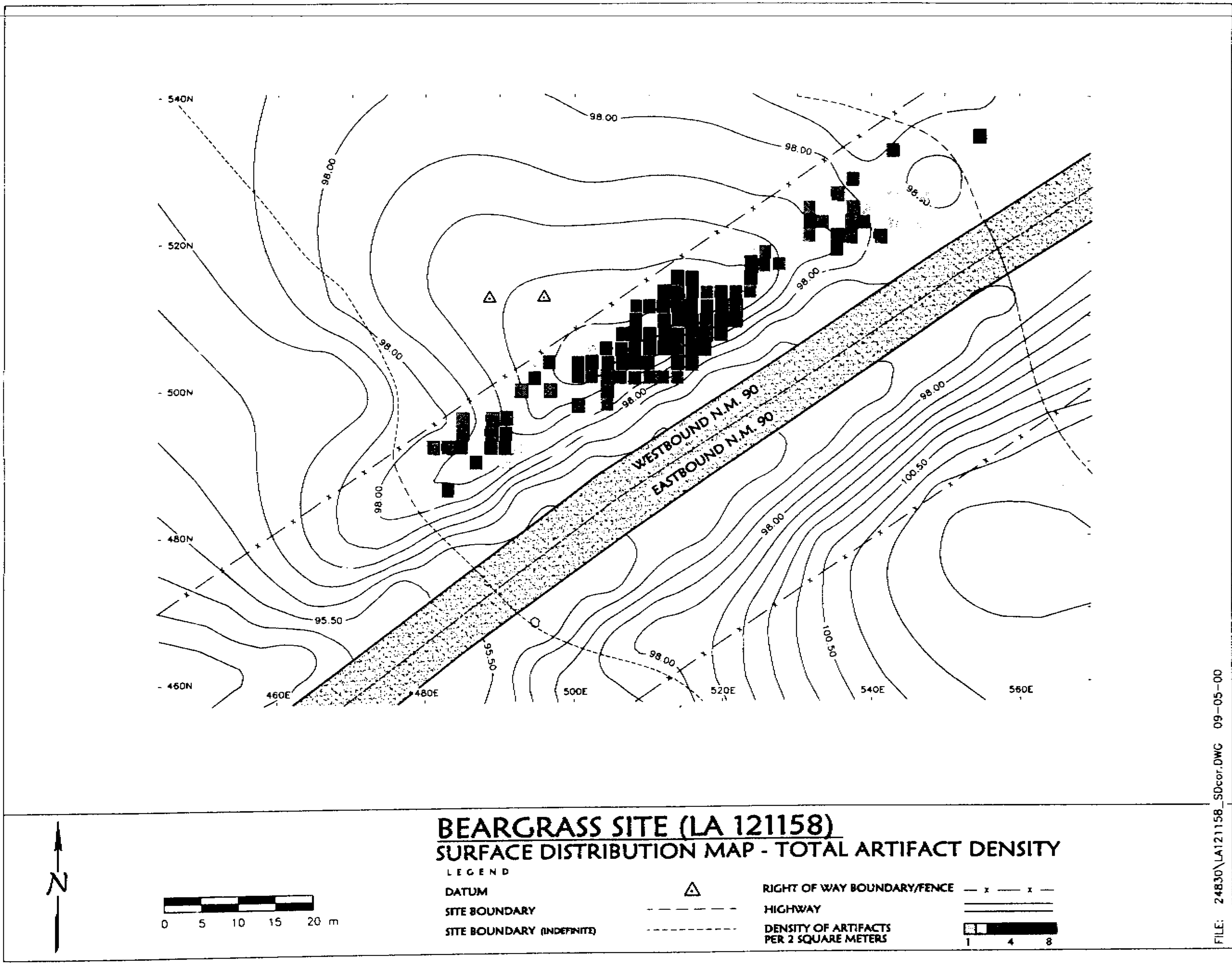


Figure 8.3 Beargrass Site Surface Artifact Density Map.

Table 8.1 Chipped Stone Artifacts by Provenience.

	Debitage	Cores	Retouched Tools	San Pedro Point	Cienega Point	Bifaces	Hammer stones	Totals
Surface	32	1	3	—	—	—	4	40
Feature 1	—	—	—	—	—	—	—	0
Feature 2	17	—	—	—	—	—	—	17
Feature 3	28	1	2	—	1	—	1	33
Feature 4	237	6	3	—	—	1	1	248
Feature 5	2	—	—	—	—	—	—	2
Feature 6	53	—	1	—	—	—	—	54
Feature 7	1	—	—	—	—	—	—	1
Feature 9	5	—	—	—	—	—	—	5
Feature 10	2	—	—	—	—	—	—	2
Feature 11	—	—	—	—	—	—	—	0
Feature 12	—	—	1	—	—	—	—	1
Feature 13	—	—	—	—	—	—	—	0
Feature 14	—	—	—	—	—	—	—	0
Feature 15	4	—	—	—	—	—	—	4
Feature 17	2	—	—	—	—	—	—	2
Feature 18	1	—	—	—	—	—	—	1
Feature 19	—	—	—	—	—	—	—	0
Feature 20	3	—	—	—	—	—	—	3
Feature 21	—	—	—	—	—	—	—	0
Feature 22	—	—	—	—	—	—	—	0
Feature 23	—	—	—	—	—	—	—	0
Feature 24	—	—	—	—	—	—	—	0
Feature 27	7	—	—	—	—	—	—	7
Feature 28	—	—	—	—	—	—	—	0
Feature 29	3	—	—	—	—	—	—	3
Feature 32	—	—	—	—	—	—	—	0
Feature 34	1	—	—	—	—	—	—	1
Feature 35	—	—	—	—	—	—	—	0
Feature 38	—	—	—	—	—	—	—	0
Feature 39	1	—	—	—	—	—	—	1
Feature 40	—	—	—	—	—	—	—	0
Feature 44	—	—	—	—	—	—	—	0
Feature 45	1	—	—	—	—	—	—	1
Feature 46	3	—	—	—	—	—	—	3
Feature 48	—	—	—	—	—	—	—	0
Feature 49	—	—	—	—	—	—	—	0
Feature 51	9	—	—	—	—	—	—	9
Feature 52	—	—	—	—	—	—	—	0
Feature 53	2	—	—	—	—	—	—	2
Feature 54	4	—	—	—	—	—	—	4
Feature 57	—	—	—	—	—	—	—	0
Feature 59	—	—	—	—	—	—	—	0
Feature 60	2	—	—	—	—	—	—	2
Feature 61	1	—	—	—	—	—	—	1
Feature 64	—	—	—	—	—	—	—	0
Nonfeature	—	—	—	—	—	—	—	
Level 1	61	—	—	—	—	—	—	61
Level 2	38	—	—	—	—	—	—	38
Level 3	27	1	—	—	—	—	—	28
Level 4	6	—	1	1	—	—	—	8
Level 5	—	—	—	—	—	—	1	1
No provenience	3	1	1	—	—	—	—	5
Totals	**556**	**10**	**12**	**1**	**1**	**1**	**7**	**588**

Table 8.2 Ground Stone Artifacts by Provenience.

	Manos	Metates	Stone Pipe	Azurite Object	Faceted Stone Ball	Faunal Remains	Totals
Surface	6	—	—	—	—	1	7
Feature 1	2	—	—	—	—	3	5
Feature 2	1	—	—	—	—	30	31
Feature 3	1	2	—	—	—	52	55
Feature 4	13	8	1	—	1	330	353
Feature 5	—	—	—	—	—	4	4
Feature 6	6	3	—	—	—	92	101
Feature 7	—	—	—	—	—	4	4
Feature 9	1	—	—	—	—	23	24
Feature 10	—	—	—	—	—	4	4
Feature 11	—	—	—	—	—	17	17
Feature 12	—	—	—	—	—	1	1
Feature 13	—	—	—	—	—	—	0
Feature 14	—	—	—	—	—	1	1
Feature 15	—	—	—	1	—	—	1
Feature 17	—	—	—	—	—	5	5
Feature 18	—	—	—	—	—	—	0
Feature 19	1	—	—	—	—	—	1
Feature 20	—	—	—	—	—	16	16
Feature 21	—	—	—	—	—	18	18
Feature 22	—	—	—	—	—	12	12
Feature 23	—	1	—	—	—	4	5
Feature 24	—	—	—	—	—	2	2
Feature 27	—	—	—	—	—	86	86
Feature 28	—	—	—	—	—	—	0
Feature 29	—	—	—	—	—	15	15
Feature 32	—	—	—	—	—	2	2
Feature 34	—	—	—	—	—	4	4
Feature 35	—	—	—	—	—	—	0
Feature 38	—	—	—	—	—	4	4
Feature 39	—	—	—	—	—	8	8
Feature 40	—	—	—	—	—	1	1
Feature 44	—	—	—	—	—	—	0
Feature 45	—	—	—	—	—	4	4
Feature 46	—	—	—	—	—	13	13
Feature 48	—	—	—	—	—	—	0
Feature 49	—	—	—	—	—	47	47
Feature 51	—	—	—	—	—	21	21
Feature 52	2	—	—	—	—	13	15
Feature 53	1	—	—	—	—	17	18
Feature 54	—	—	—	—	—	10	10
Feature 57	—	—	—	—	—	1	1
Feature 59	—	—	—	—	—	1	1
Feature 60	—	1	—	—	—	—	1
Feature 61	—	—	—	—	—	82	82
Feature 64	—	—	—	—	—	3	3
	—	—	—	—	—	—	—
Nonfeature	—	—	—	—	—	—	—
Level 1	3	—	—	—	—	4	7
Level 2	1	—	—	—	—	10	11
Level 3	—	—	—	—	—	7	7
Level 4	—	—	—	—	—	2	2
Level 5	1	—	—	—	—	7	8
	—	—	—	—	—	—	—
No provenience	6	3	—	—	—	3	12
	—	—	—	—	—	—	—
Totals	45	18	1	1	1	984	1050

Table 8.3 Ceramic Artifacts by Provenience.

	Alma Incised	Alma Neck Banded	Alma Pinched	Alma Plain	Alma Punched	Alma Rough	Alma Scored	Corrugated Brown	Indeterminate Brown	Indeterminate White	Indeterminate Mimbres Black-on-white	Mimbres Black-on-white (unspecified) Style I or II)	Mimbres Black-on-white Early Style II	Mimbres Black-on-white Late Style II	Mimbres Black-on-white Style I	Mimbres Black-on-white Style II/III	Mimbres Corrugated	Mogollon Red-on-brown	Pueblo I or Pueblo II Black-on-white	San Francisco Red	Three Circle Neck Corrugated	Ceramics too small for analysis	Totals
Surface	—	—	—	74	—	176	—	67	6	12	16	—	2	—	1	—	4	—	—	7	16	83	464
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 1	—	—	—	2	—	8	—	2	—	—	—	—	—	—	—	—	1	—	—	—	—	6	19
Feature 2	—	—	—	—	—	12	—	4	—	—	—	—	—	—	—	—	—	—	—	—	4	5	25
Feature 3	—	—	—	8	—	80	—	13	1	—	4	—	—	—	—	—	—	—	—	2	6	24	138
Feature 4	—	1	1	98	1	262	—	68	7	3	14	—	11	10	—	—	3	1	1	6	37	220	744
Feature 5	—	—	—	2	—	6	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	4	13
Feature 6	—	1	—	8	—	67	—	18	3	2	2	1	1	—	—	—	4	—	—	1	—	99	207
Feature 7	—	—	—	4	—	3	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	7	16
Feature 9	—	—	—	2	—	6	—	1	1	—	—	—	—	—	—	—	—	—	—	—	1	10	21
Feature 10	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	7
Feature 11	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	2	5
Feature 12	—	—	—	9	—	3	—	—	1	—	—	—	—	—	—	—	3	—	—	—	—	5	21
Feature 13	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Feature 14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Feature 15	—	—	—	3	—	7	—	2	—	—	2	—	—	—	—	—	—	—	—	—	2	2	18
Feature 17	—	—	—	4	—	6	—	2	—	—	1	—	—	—	—	—	—	—	—	—	—	3	16
Feature 18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0
Feature 19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0
Feature 20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	2
Feature 21	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	7
Feature 22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0
Feature 23	—	—	—	2	—	2	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	4	9
Feature 24	—	—	—	1	—	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	6	10

Table 8.3 Ceramic Artifacts by Provenience (Continued).

	Alma Incised	Alma Neck Banded	Alma Pinched	Alma Plain	Alma Punched	Alma Rough	Alma Scored	Corrugated Brown	Indeterminate Brown	Indeterminate White	Indeterminate Mimbres Black-on-white	Mimbres Black-on-white (unspecified) Style I or II)	Mimbres Black-on-white Early Style II	Mimbres Black-on-white Late Style II	Mimbres Black-on-white Style I	Mimbres Black-on-white Style II/III	Mimbres Corrugated	Mogollon Red-on-brown	Pueblo I or Pueblo II Black-on-white	San Francisco Red	Three Circle Neck Corrugated	Ceramics too small for analysis	Totals
Feature 27	—	—	—	3	—	2			2														7
Feature 28	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Feature 29	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	2	3
Feature 32	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Feature 34	—	—	—	6	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	10
Feature 35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Feature 38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0
Feature 39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	2
Feature 40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0
Feature 44	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Feature 45	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Feature 46	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Feature 48	—	—	—	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	4
Feature 49	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	10
Feature 51	—	—	—	1	—	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	15
Feature 52	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	2
Feature 53	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Feature 54	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Feature 57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0
Feature 59	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	3
Feature 60	—	—	—	—	—	3	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	5	10
Feature 61	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Feature 64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0

Table 8.3 Ceramic Artifacts by Provenience (Continued).

	Alma Incised	Alma Neck Banded	Alma Pinched	Alma Plain	Alma Punched	Alma Rough	Alma Scored	Corrugated Brown	Indeterminate Brown	Indeterminate White	Indeterminate Mimbres Black-on-white	Mimbres Black-on-white (unspecified) Style I or II)	Mimbres Black-on-white Early Style II	Mimbres Black-on-white Late Style II	Mimbres Black-on-white Style I	Mimbres Black-on-white Style II/III	Mimbres Corrugated	Mogollon Red-on-brown	Pueblo I or Pueblo II Black-on-white	San Francisco Red	Three Circle Neck Corrugated	Ceramics too small for analysis	Totals
Nonfeature	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Level 1	—	—	—	16	—	124	—	48	1	2	5	—	—	4	—	—	—	—	—	2	—	123	325
Level 2	1	—	—	6	—	51	—	10	—	—	1	2	—	—	—	—	4	—	—	—	2	43	120
Level 3	—	—	—	15	—	38	—	8	1	1	3	—	—	—	—	—	—	1	—	—	2	25	94
Level 4	—	—	—	4	—	10	—	1	1	—	—	—	—	—	—	—	—	—	—	—	1	2	19
Level 5	—	—	—	—	—	1	—	1	—	—	—	—	1	—	1	—	—	—	—	—	—	2	6
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
No provenience	—	—	—	13	—	45	—	11	—	3	—	—	9	—	—	1	1	—	—	1	3	44	131
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Totals	1	2	1	293	1	935	1	262	24	23	49	3	24	14	2	1	20	2	1	19	75	764	2517

Site Stratigraphy and Geomorphology

Beargrass is situated on a crest and flanks of a ridge composed primarily of granitic bedrock. Investigation of the sediments at the site suggests that only the ridge crest has a significant accumulation of late Quaternary sediments (Figure 8.4). The flanks of the ridge tend to be eroded down to weathered and disaggregating Precambrian granite. The majority of the archaeological site appears to be situated in the deeper sediment on the ridge crest, however. If more of the site did extend onto the ridge flanks, subsequent erosion has removed evidence of it.

Overlying the granite on the ridge crest is a sediment unit comprised of approximately 60 cm of coarse sandy clay loam. Soil development within this unit consists of a Bk horizon overlain by a buried A (Ab) horizon. The Ab horizon is relatively thick (approximately 24 cm) in the central portions of the site, which may indicate that this soil/sediment unit has experienced little erosion. These sediments appear to be the result of alluvial slopewash that brought sandy granitic material from up slope. The clay component of these sediments is probably the result of chemical weathering of the feldspars that comprise the granitic sand as opposed to pedogenic illuviation (i.e., clays being leached from overlying horizons).

The AC horizon represents the most recent deposit at the site. It consists of a light yellowish brown (10YR6/4, d) coarse sandy loam approximately 5 cm thick. Pebble to cobble-sized granitic materials comprise about one percent of these sediments. The position, composition, and texture of this surface unit suggest that it is the result of alluvial slopewash. This unit is thinnest on the western and eastern margins of the site, where steeper slopes and alluvial incision have prevented thick accumulations of these sediments from collecting.

With respect to the archaeology of the site, the majority of cultural materials appears to be associated with the intermediate depositional unit, including both the Ab and the Bk soil horizons. The floors and walls of excavated features appear to be concentrated mainly within the Bk horizon, possibly due to the durability imparted to this unit by its pedogenic carbonates. Pits excavated into this unit would tend to have more stable walls than the other sediments at the site.

Though relatively hard, this unit still has been subject to burrowing by animals. An abundance of krotovina meander across the site and through many of the cultural features.

A final note of interest is that this locale appears to be preferentially populated by yucca. The steeper portions of the hillslopes and alluvial drainages generally lack this plant. It is assumed that the yucca prefer the hill top area because of its deeper soil and better soil development. Given this possibility, the presence of yucca might be a useful surface indicator of deeper sediments that are suitable for the preservation of archaeological sites.

Subsurface Cultural Resources

Data recovery excavations confirmed the presence of thick cultural deposits and features on the ridge top. Shovel tests, block excavations, and backhoe trenching indicated a 30 m by 11 m area between E495 and E520 contained a culturally rich Ab horizon. This horizon varied from only a few centimeters thick on the edges to around 30 cm around N505 E505. Other portions of the investigated site area were eroded down to the C horizon, leaving only a few surface artifacts and truncated features. Two gullies or swales (Features 2 and 18) on the lower slopes of the ridge had been filled in with cultural deposits that probably eroded down from the upper slopes.

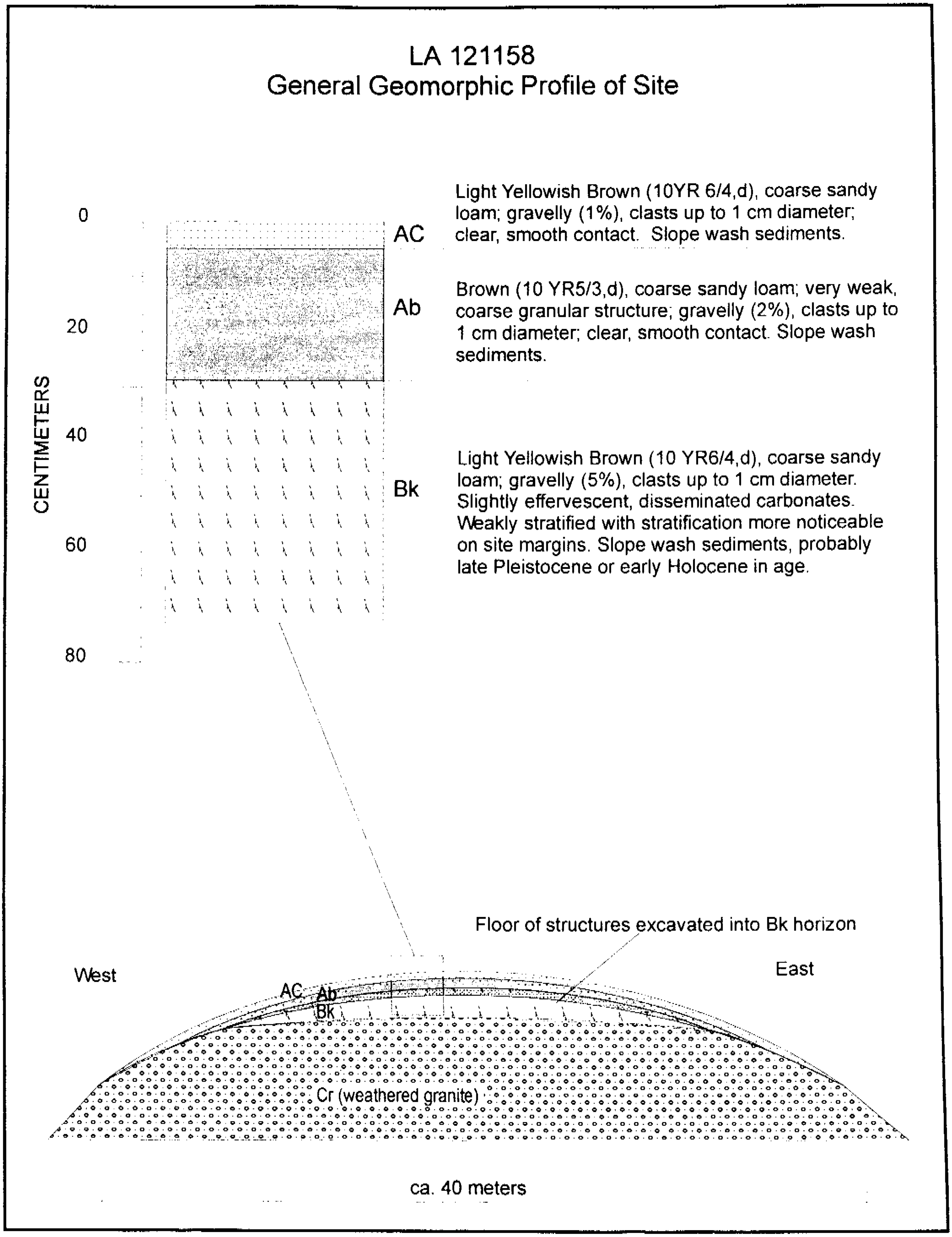


Figure 8.4 General Site Stratigraphy at the Beargrass Site.

It should be noted that evidence of bioturbation was among the most severe ever encountered during the site director's 25 years of experience (also see Wiseman 1998). In particular, rodents seemed to have completely mixed feature fill and destroyed any stratigraphy that might have existed otherwise. In one case, a human mandible probably associated with a burial on the floor of a structure was found in a rodent run 4 m away. In another, the walls and floor of one of the earliest structures was so riddled with rodent burrows that it was a challenge to trace the pit's boundary. Under these circumstances, there is a significant probability that smaller artifacts and biological remains may have been transported in or out of specific contexts. In short, caution should be exercised in attempting to associate specified cultural materials stratigraphically within the deposits or with particular feature types.

Features

Data recovery excavations at the Beargrass site revealed 66 features (Figure 8.5, Tables 8.4 and 8.5). These included the remains of five domestic pit structures, a ramp to one of the structures, a ventalator, 27 post holes, six burials, 13 thermal pits, eight nonthermal pits, three midden deposits, and two anomalies that upon investigation, did not prove to be cultural features.

Structures

Five structures were documented within a 30 m by 11 m area of the site (Figure 8.5). These pit structures dated from the end of the Late Archaic/Early Agricultural period to the end of the Three Circle phase. Structure 1 (Feature 4a) was assigned to the Early Pit House period. This structure was the largest and probably the most labor intensive to construct of all those investigated during the project. Structure 2 (Feature 4b) was a Three Circle phase building that was superimposed on Structure 1. Structure 3 (Feature 6) and Structure 4 (Feature 8) also probably date to the Three Circle phase. The latter structure was a square to rectangular pit that was mechanically exposed. Because only a small corner of this feature protruded into the highway right-of-way, the NMSHTD was able to avoid this structure and therefore, preserve it for future research. Finally, Structure 5 (Feature 3) appeared to date to the Late Archaic/Early Agricultural period or perhaps the Early Pit House. This enigmatic structure was small and lacked an internal hearth but seemed too large to have been a storage pit. Based on the evidence available, it may represent a special activity structure.

Structures 1 and 2

Structures 1 and 2 were first identified in a series of shovel tests and later in the profiles of both BT 1 and BT 2. While the former trench removed the northern wall of Structure 1, the latter sliced off the southeastern edge of the structure. Afterwards, mechanically stripping exposed the top of the structures. Initially labeled only Feature 4, the stain was bisected with a 1.0 m wide trench along the N508 line. Within this trench, alternate 1 by 1 m units were manually excavated in arbitrary 10 cm levels and screened through 1/4-inch mesh. At approximately 5 cm above the floor, a new level was defined and its deposits were screened through 1/8-inch mesh. The profiles of this trench revealed no internal stratigraphy, and it was decided to remove the rest of the pit fill down to the floor deposits without screening. At that point, the floor was excavated in 1 by 1 m units with the fill sent through 1/8-inch mesh. Excavations confirmed two floors on the northern portion of the feature, while only one was defined in the southern portion. Additionally, plastering was noted only in the southern half of the feature and multiple hearths were encountered. Thus, it was discovered that Feature 4 represented the superimposed remains of two pit structures, which were subsequently designated Features 4a and 4b (Structures 1 and 2 respectively) (Figures 8.6 and 8.7).

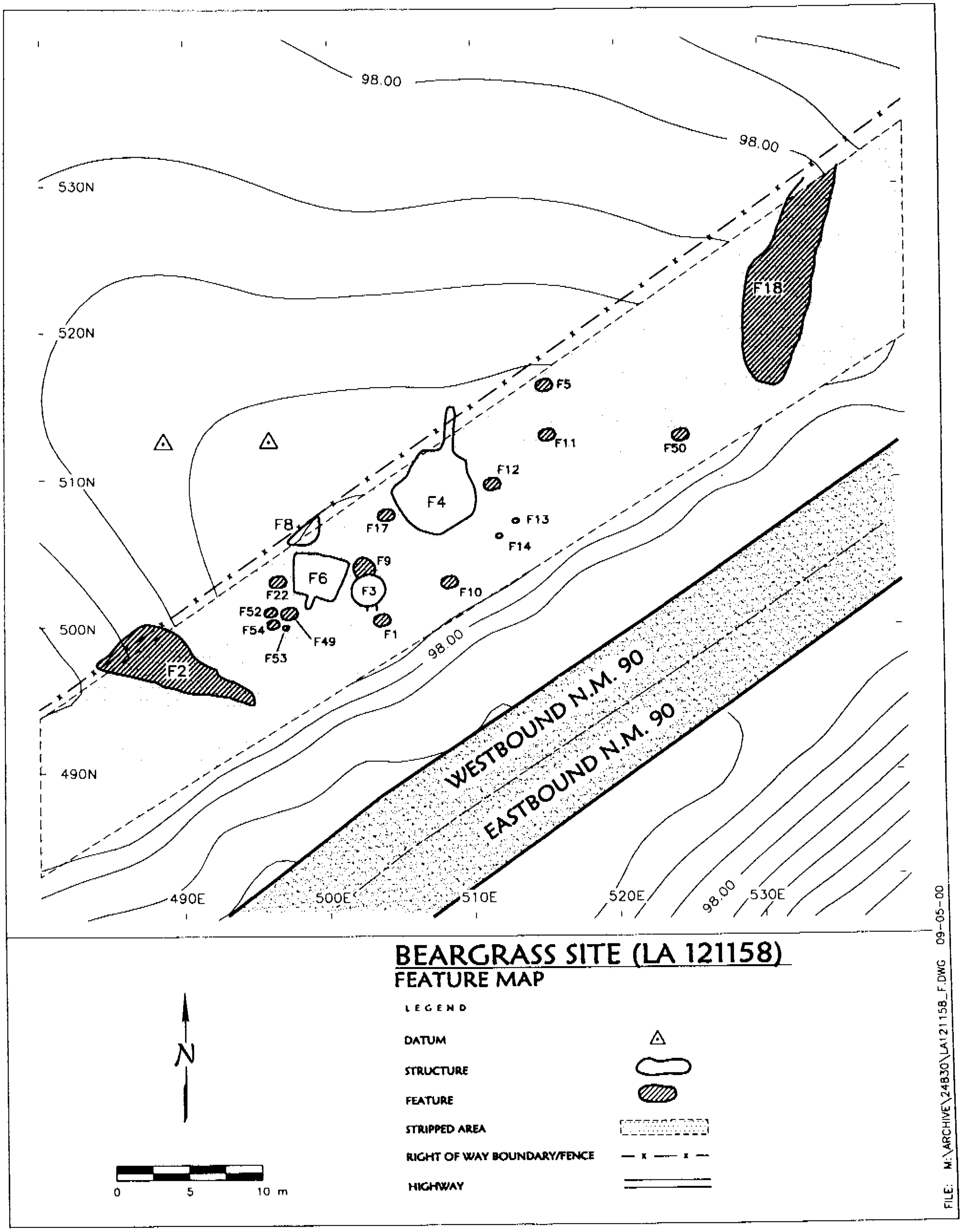


Figure 8.5 Beargrass Site Feature Distribution Map.

Table 8.4 Beargrass (LA 121158) Feature Volume and Provenience.

Feature	Type	N	E	Elevation	% Excavated	Volume (l)	Time
1	Roasting pit	500.63	503.62	99.8	100	27.49	—
2	Midden	497.00	488.00	99.24	5	—	—
3	Pithouse	502.50	502.50	99.6	100	775.55	Late Cienega
4a	Pithouse	508.13	507.38	99.67	100	—	Three Circle
4b	Pithouse	508.13	507.38	99.67	100	9484.78	Three Circle
5	Burial	516.50	514.75	99.39	100	274.45	Three Circle
6	Pithouse	503.60	499.30	100.0	100	3987.76	Three Circle
7	Burial	507.86	503.32	99.75	100	18.31	Three Circle
8	Pithouse	506.40	498.40	99.74	0	616.00	Three Circle
9	Roasting pit	504.08	502.00	99.85	100	144.51	Three Circle
10	Burial	502.90	508.16	99.8	100	92.36	Three Circle
11	Roasting pit	512.50	514.90	99.82	100	20.53	Three Circle
12	Roasting Pit	509.55	511.30	99.88	100	112.60	Three Circle
13	Unknown use	507.18	512.00	99.84	100	3.90	—
14	Unknown use	506.25	511.30	99.86	100	11.31	Three Circle
15	Midden	507.70	501.28	100.01	50	—	Three Circle
16	Rodent	502.20	502.20	99.52	50	—	—
17	Burial	503.18	500.60	99.93	100	38.20	Three Circle
18	Midden	520.37	530.70	99.9	10	—	Three Circle
19	Post hole	503.90	497.66	99.62	100	15.22	Three Circle
20	Hearth	502.80	499.04	99.62	100	21.87	Late Early Pit House
21	Unknown use	502.50	499.70	99.62	100	236.60	Late Cienega
22	Unknown use	503.00	496.00	99.75	100	82.47	Three Circle
23	Burial	506.00	509.00	99.29	100	5.97	Three Circle
24	Burial	503.13	499.48	99.5	100	2.57	Three Circle
25	Post hole	502.10	499.62	99.61	100	0.28	Late Early Pit House
26	Hearth	507.90	508.34	99.11	100	5.48	Late Early Pit House
27	Post hole	508.56	507.80	99.06	100	62.83	Three Circle
28	Post hole	508.70	508.36	0.09	100	35.19	Three Circle
29	Hearth	504.25	499.55	99.57	100	10.14	Three Circle
30	Post hole	503.60	500.70	99.64	100	8.40	Three Circle
31	Post hole	503.60	499.30	99.6	100	6.28	Three Circle
32	Post hole	510.30	506.75	99.1	100	12.57	Three Circle
33	Hearth	509.90	505.50	99.1	100	2.85	Three Circle
34	Post hole	510.48	509.00	99.05	100	40.43	Three Circle
35	Post hole	510.12	509.32	99.09	100	17.52	Three Circle
36	Post hole	510.67	505.95	99.0	100	4.71	Three Circle
37	Post hole	510.40	505.80	99.06	100	0.80	Late Early Pit House
38	Post hole	510.80	506.16	99.05	100	1.49	Three Circle
39	Unknown use	508.38	506.68	99.07	100	9.62	Late Early Pit House
40	Post hole	510.90	506.43	99.05	100	1.13	Three Circle
41	Rodent	510.37	509.23	99.05	100	—	—
42	Post hole	511.80	507.70	99.0	100	1.88	Late Early Pit House
43	Post hole	507.32	509.24	99.22	100	2.47	Three Circle
44	Post hole	508.55	506.88	99.06	100	3.53	Three Circle
45	Post hole	510.00	506.20	99.12	100	11.40	Three Circle
46	Storage pit	510.43	507.80	99.04	100	83.85	Three Circle
47	Post hole	509.90	509.30	99.11	100	7.23	Three Circle
48	Post hole	509.75	509.14	99.11	100	7.38	Three Circle
49	Roasting	500.62	496.92	99.83	100	132.24	Three Circle
50	Hearth	513.10	514.00	99.78	100	12.10	Three Circle
51	Pithouse ramp	513.40	508.35	99.5	100	129.60	Three Circle
52	Roasting pit	501.19	495.80	99.8	100	60.48	Three Circle
53	Unknown use	500.00	496.50	99.86	100	33.93	Three Circle
54	Unknown use	500.00	495.50	99.8	100	31.08	Three Circle

Table 8.4 Beargrass (LA 121158) Feature Volume and Provenience (Continued).

Feature	Type	N	E	Elevation	% Excavated	Volume (l)	Time
55	Post hole	513.15	508.95	99.52	100	1.77	Three Circle
56	Post hole	513.35	508.00	99.12	100	7.07	Three Circle
57	Post hole	514.12	508.13	99.52	100	6.19	Three Circle
58	Post hole	512.74	507.95	99.47	100	7.07	Three Circle
59	Post hole	514.50	509.05	99.52	100	5.83	Three Circle
60	Ventalator	505.12	495.50	99.82	100	23.04	Late Early Pit House
61	Hearth	511.10	508.00	98.96	100	11.54	Late Early Pit House
62	Unknown use	506.78	507.05	99.02	100	3.21	Three Circle
63	Post hole	508.18	507.06	99.07	100	4.62	Late Early Pit House
64	Post hole	509.80	509.50	99.07	100	4.62	Late Early Pit House
65	Post hole	508.66	509.04	99.15	100	1.36	Three Circle

Table 8.5 Beargrass (LA 121158) Feature Data.

Type	Thermal?	Morphology	Location	Feature	L (m)	W (m)	Depth	Volume (l)	# artif/l	TAR kg/l
Burial	N	Basin	E	5	1.12	0.78	0.60	274.45	0.07	0
Burial	N	Basin	E	7	0.63	0.37	0.15	18.31	1.15	0
Burial	N	Basin	E	10	0.7	0.63	0.40	92.36	0.14	0
Burial	N	Basin	Str 3	17	0.76	0.4	0.24	38.20	0.60	0
Burial	N	Basin	Str 3	24	0.28	0.25	0.19	2.57	4.68	0
Burial	N	Unknown	Str 1	23	0.3	0.2	0.07	5.97	2.35	0
Hearth	T	Basin	Str 3	20	0.58	0.45	0.16	21.87	0.96	0.16
Hearth	T	Basin	Str 3	29	0.44	0.44	0.11	10.14	2.07	0.15
Hearth	T	Basin	Str 2	33	0.33	0.33	0.05	2.85	0.00	0
Hearth	T	Basin	E	50	0.55	0.35	0.12	12.10	0.00	0
Hearth	T	Basin	Str 2	61	0.46	0.4	0.12	11.54	7.28	0
Hearth	T	Irregular	Str 1	26	0.34	0.28	0.11	5.48	0.00	0
Midden	N	Irregular	E	2	10	5.1	0.13	—	—	—
Midden	N	Irregular	E	15	—	—	0.34	—	—	—
Midden	N	Irregular	E	18	15.5	6	0.05	—	—	—
Pithouse	N	Basin	Struct	3	2.3	2.3	0.28	775.55	0.29	0
Pithouse	N	Basin	Struct	6	3.5	2.94	0.40	3,987.76	0.09	0
Pithouse	N	Basin	Struct	8	2	1.62	0.44	616.00	—	—
Pithouse	N	Basin	Str 1	4a	5.2	4.5	0.68	—	—	—
Pithouse	N	Basin	Str 2	4b	4.15	3.8	0.60	9,484.78	0.00	0
Pithouse ramp	N	Basin	Str 2	51	2.7	0.6	0.16	129.60	0.35	0
Ventalator	N	Rectangular	Str 3	60	0.4	0.24	0.24	23.04	0.56	0
Post hole	N	Cylindrical	Str 3	19	0.38	0.34	0.15	15.22	0.07	0
Post hole	N	Cylindrical	Str 3	25	0.06	0.06	0.10	0.28	0.00	0

N = Nonthermal; T = Thermal; E = Extramural

Table 8.5 Beargrass (LA 121158) Feature Data (Continued).

Type	Thermal?	Morphology	Location	Feature	L (m)	W (m)	Depth	Volume (l)	# artif/l	TAR kg/l
Post hole	N	Cylindrical	Str 1	27	0.4	0.4	0.50	62.83	1.59	0
Post hole	N	Cylindrical	Str 1	28	0.4	0.4	0.28	35.19	0.06	0
Post hole	N	Cylindrical	Str 3	30	0.27	0.18	0.22	8.40	0.00	0
Post hole	N	Cylindrical	Str 3	31	0.2	0.2	0.20	6.28	0.00	0
Post hole	N	Cylindrical	Str 2	32	0.2	0.2	0.40	12.57	0.24	0
Post hole	N	Cylindrical	Str 2	34	0.45	0.44	0.26	40.43	0.37	0
Post hole	N	Cylindrical	Str 2	35	0.26	0.26	0.33	17.52	0.06	0
Post hole	N	Cylindrical	Str 2	36	0.2	0.2	0.15	4.71	0.00	0
Post hole	N	Cylindrical	Str 2	37	0.13	0.13	0.06	0.80	0.00	0
Post hole	N	Cylindrical	Str 2	38	0.1	0.1	0.19	1.49	2.68	0
Post hole	N	Cylindrical	Str 2	40	0.1	0.09	0.16	1.13	0.88	0
Post hole	N	Cylindrical	Str 2	42	0.1	0.12	0.20	1.88	0.00	0
Post hole	N	Cylindrical	Str 1	43	0.15	0.15	0.14	2.47	0.00	0
Post hole	N	Cylindrical	Str 1	44	0.15	0.15	0.20	3.53	0.28	0
Post hole	N	Cylindrical	Str 2	45	0.22	0.22	0.30	11.40	0.61	0
Post hole	N	Cylindrical	Str 2	47	0.2	0.2	0.23	7.23	0.00	0
Post hole	N	Cylindrical	Str 2	48	0.18	0.18	0.29	7.38	0.54	0
Post hole	N	Cylindrical	Str 2	55	0.15	0.15	0.10	1.77	0.00	0
Post hole	N	Cylindrical	Str 2	56	0.15	0.15	0.40	7.07	0.00	0
Post hole	N	Cylindrical	Str 2	57	0.15	0.15	0.35	6.19	0.16	0
Post hole	N	Cylindrical	Str 2	58	0.15	0.15	0.40	7.07	0.00	0
Post hole	N	Cylindrical	Str 2	59	0.15	0.15	0.33	5.83	0.69	0
Post hole	N	Cylindrical	Str 1	63	0.21	0.2	0.14	4.62	0.00	0
Post hole	N	Cylindrical	Str 2	64	0.15	0.14	0.28	4.62	0.65	0
Post hole	N	Cylindrical	Str 1	65	0.12	0.12	0.12	1.36	0.00	0
Roasting pit	T	Basin	E	1	0.75	0.7	0.10	27.49	0.87	0.00
Roasting pit	T	Basin	E	9	1.2	1.15	0.20	144.51	0.35	0.06
Roasting pit	T	Basin	E	11	0.7	0.7	0.08	20.53	1.07	0.00
Roasting pit	T	Basin	E	52	0.7	0.5	0.33	60.48	0.28	0.24
Roasting pit	T	Basin	E	49	1.64	1.1	0.14	132.24	0.43	0.01
Roasting	T	Basin	E	12	1.1	0.85	0.23	1,12.60	0.20	0.00
Storage pit	N	Cylindrical	Str 2	46	0.42	0.41	0.62	83.85	0.20	0
Unknown use	N	Basin	E	13	0.27	0.23	0.12	3.90	0.26	0
Unknown use	N	Basin	E	14	0.45	0.4	0.12	11.31	0.18	0
Unknown use	N	Basin	Str 2	21	1.58	1.3	0.22	236.60	0.11	0
Unknown use	N	Basin	E	22	0.9	0.7	0.25	82.47	0.15	0
Unknown use	N	Basin	E	54	0.7	0.53	0.16	31.08	0.48	0
Unknown use	N	Basin	Str 1	62	0.35	0.25	0.07	3.21	0.00	0
Unknown use	N	Cylindrical	E	53	0.54	0.5	0.24	33.93	0.65	0
Unknown use	N	Irregular	Str 1	39	0.35	0.35	0.24	9.62	1.14	0
Rodent	N	Irregular	—	16	0.25	0.22	0.04	—	—	—
Rodent	N	Irregular	—	41	—	—	—	—	—	—

N = Nonthermal; T = Thermal; E = Extramural

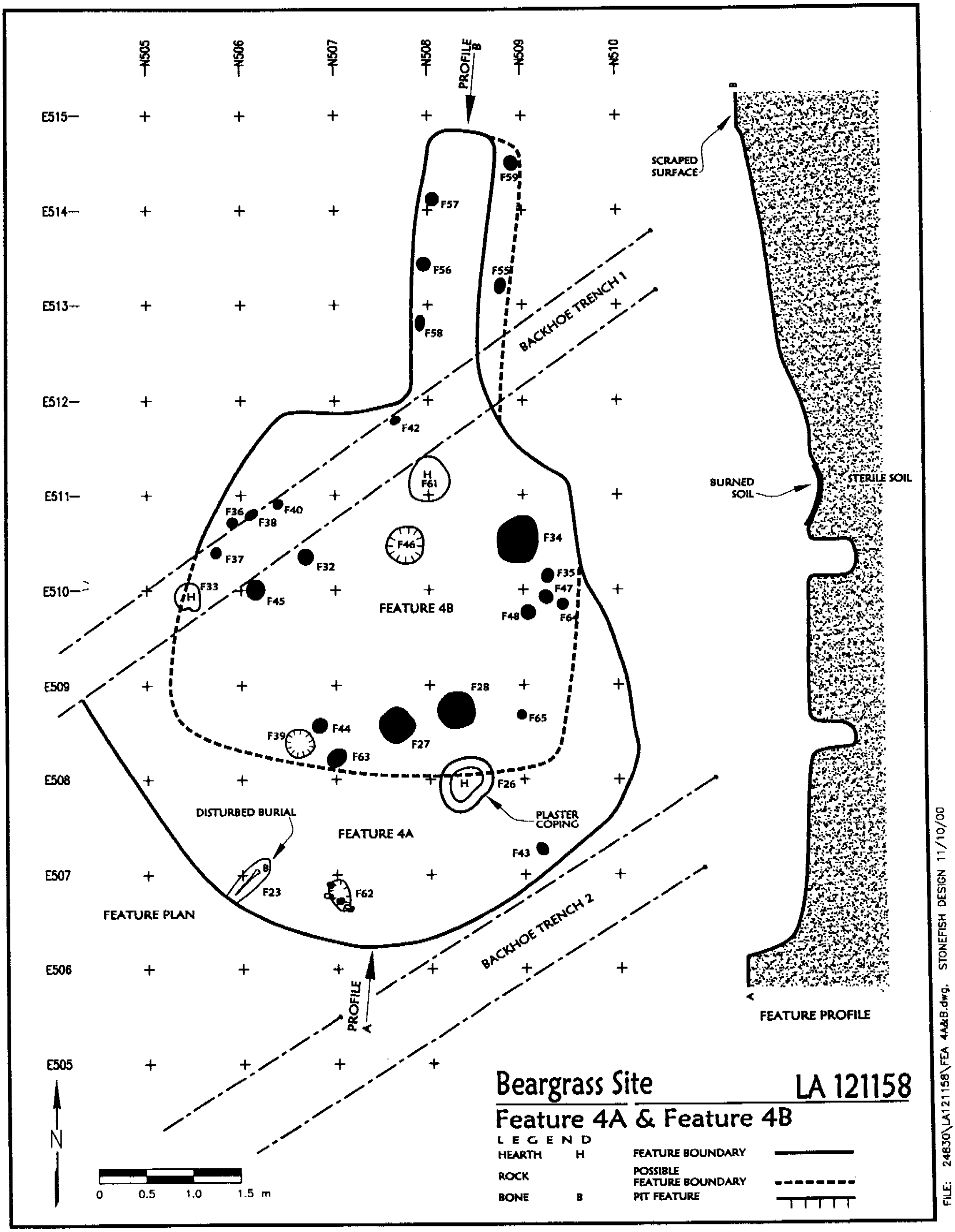


Figure 8.6 Planview and Profile of Structures 1 and 2 (Feature 4).

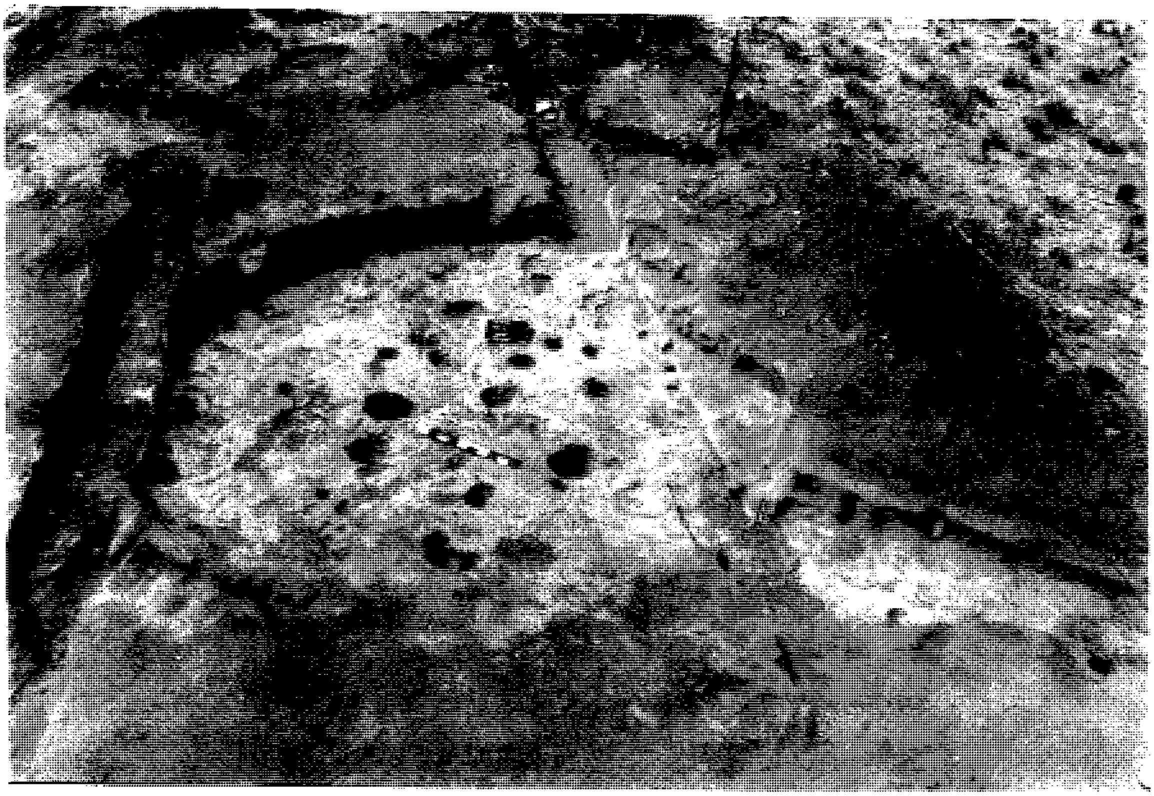


Figure 8.7 Photograph of Feature 4, Structures 1 and 2. Facing West.

Structure 1: Feature 4a (Early Pit House Period)

Structure 1 (Feature 4a), which was bisected and disturbed by the subsequent construction of Feature 4b, was originally oval or D-shaped in plan and basin-shaped in profile. The structure had plaster walls (Figure 8.8) and a well-prepared floor. Maximum dimensions for the intact east-west portion of the structure are 5.20 m wide and 68 cm deep (from the stripped surface to the base of the feature). The north-south dimensions of this pithouse are assumed to be 4.5 m.

A juniper seed found in good floor provenience in Structure 1 yielded a calibrated, two sigma date of AD 265 to 290 and AD 325 to 540 (Beta 133986). The double date ranges result from dual intersections with the calibration curve. The date indicates that this structure pertains to the Early Pit House period, which is supported by its architectural characteristics. Unfortunately, the extensive bioturbation, along with the intrusion of Structure 2, has resulted in extensive mixing of both fill, and in some cases, floor deposits. *In situ* provenience of diagnostic artifacts is thus a poor predictor of temporal affiliation.

Internal Stratigraphy: Mechanical and hand trenching revealed an oval pit filled with a dark brown ashy, sandy loam (10YR 3/3, d) containing slight charcoal flecking and a few rocks and ceramics (Table 8.6). A lower stratum, containing possible roof-fall materials, was composed of a dark yellowish brown (10YR 3/3, d) sandy loam, which contained a higher clay content than the former stratum. In more northerly locations, the floor of Structure 1 was positioned below a higher prepared floor, which pertained to Feature 4b.

Figure 8.8 Photograph of Plaster on Wall of Structure 1, Feature 4.

Table 8.6 Beargrass (LA 121158) Structure Artifact Summaries.

	Debitage	Cores	Retouched Tools	Indeterm. Retouched Tools	Projectile Points	Bifaces	Scrapers	Hammer-stones	Manos	Metates	Alma Neck-banded	Alma Plain	Alma Punched	Alma Rough	Corrugated Brown	Indeter. Brown	Indeter. Mimbres Black-on-white	Indeter. White	Mimbres Black-on-white Early Style II	Mimbres Black-on-white Late Style II	Mimbres Corrugated	Mogollon Red-on-brown	Pueblo I or Pueblo II Black-on-white	San Francisco Red	Three Circle Neck Corrugated	Ceramics too small for analysis	Unburned fauna	Burned fauna
Structure 5																												
Pit Structure: Feature 3																												
Fill (Levels 1-6)	24	1	1	2	1 Cienega		1		1			6		64	12	1	4							2	6	20	21	3
Floor (Levels 7-8)	4	—	—	—	—	—	—	1	—	2	—	2	—	16	1	—	—	—	—	—	—	—	—	—	—	4	24	4
Structure 1																												
Pit Structure: Fea. 4a																												
Fill (Levels 1-4)	119	3	—	1	—	1	1	1	3	3	—	45	1	123	33	3	8	2	1	6	3	1	1	3	10	74	45	18
Floor (Level 5)	43	3	—	—	—	—	—	—	3	—	—	17	—	26	4	1	—	—	2	—	—	—	—	—	5	38	52	19
Subfloor (Level 6)	5	—	—	—	—	—	—	—	1	—	—	3	—	1	1	2	—	—	—	—	—	—	—	—	—	6	6	1
Burial Pit: Fea. 23	—	—		—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearth: Fea. 26	—	—		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Thermal Pit: Fea. 39	6	—		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nonthermal Pit: Fea. 62	—	—		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Post holes																												
Feature 27	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 28	—	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 43	—	—	—	—	—	—	—	—		—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 44	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 63	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Feature 65	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Structure 2																												
Pit Structure: Fea. 4b																												
Fill (Levels 1-4)	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1	—	1	—	—	—	—	—	—	—	2	1	4	2
Floor (Level 5)	65	—	—	—	—	—	1	—	2	2	—	26	—	60	7	1	1	1	1	—	—	—	—	3	6	34	125	17

Table 8.6 Beargrass (LA 121158) Structure Artifact Summaries (Continued).

	Debitage	Cores	Retouched Tools	Indeterm. Retouched Tools	Projectile Points	Bifaces	Scrapers	Hammer-stones	Manos	Metates	Alma Neck-banded	Alma Plain	Alma Punched	Alma Rough	Corrugated Brown	Indeter. Brown	Indeter. Mimbres Black-on-white	Indeter. White	Mimbres Black-on-white Early Style II	Mimbres Black-on-white Late Style II	Mimbres Corrugated	Mogollon Red-on-brown	Pueblo I or Pueblo II Black-on-white	San Francisco Red	Three Circle Neck Corrugated	Ceramics too small for analysis	Unburned fauna	Burned fauna
Hearths																												
Feature 33	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 61	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Storage Pit: Fea. 46	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Ramp: Fea. 55	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Post holes																												
Feature 32	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 34	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 35	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 36	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 37	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 38	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 40	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 42	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 45	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 47	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 48	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 56	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 57	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 58	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 59	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 64	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Structure 3																												
Pit Structure (Fea.6)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Fill (Zone = fill)	30	–	–	–	–	–	–	–	3	2	1	1	–	37	12	3	1	1	–	–	1	–	–	1	–	63	8	3
Floor (Zone = floor)	23	–	–	–	–	–	1		3	1	–	7	–	30	6	–	2	1	1	–	3	–	–	–	–	36	79	2
Ventilator: Fea.60	2	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Burial Pit: Fea. 24	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Table 8.6 Beargrass (LA 121158) Structure Artifact Summaries (Continued).

	Debitage	Cores	Retouched Tools	Indeterm. Retouched Tools	Projectile Points	Bifaces	Scrapers	Hammer-stones	Manos	Metates	Alma Neck-banded	Alma Plain	Alma Punched	Alma Rough	Corrugated Brown	Indeter. Brown	Indeter. Mimbres Black-on-white	Indeter. White	Mimbres Black-on-white Early Style II	Mimbres Black-on-white Late Style II	Mimbres Corrugated	Mogollon Red-on-brown	Pueblo I or Pueblo II Black-on-white	San Francisco Red	Three Circle Neck Corrugated	Ceramics too small for analysis	Unburned fauna	Burned fauna
Hearths	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 20	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 29	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Nonthermal Pit: Fea. 21	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Post holes																												
Feature 19	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 25	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 30	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Feature 31	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Floor and Internal Features: The non-disturbed portion of Feature 4a contained a bean-shaped, adobe-lined hearth (Feature 26) (Figure 8.9), a single post hole (Feature 43), a small, basin-shaped pit of unknown function (Feature 62), and the disturbed remains of a burial (Feature 23). Feature 4a undoubtedly contained additional hearth, post, and pit features when it was occupied. Many of these would have been destroyed by the construction of Feature 4b. However, some of the pit and post features defined in the latter feature may actually correspond to the former. For example, Features 27 and 28, two large post holes within the proposed limits of Feature 4b, are situated close to Feature 26, and may be affiliated with the lower structure (Figure 8.6). A small stone pipe (Figure 8.10) also was found on the floor of Structure 1 (Feature 4a).

Construction and Remodeling Evidence: Structure 1 was dug at least 68 cm below the mechanically stripped ground surface. The structure was apparently oval, or possibly D-shaped, in plan and basin shaped in profile, with plastered walls that slope down rather steeply to intersect with a well prepared, near-level floor. No evidence of an entranceway has been found, however, its location was likely obscured by the disturbance in the north half of the structure. Likewise, the original location and spatial distribution of post holes and pit features has been shrouded by the subsequent construction of Feature 4b, which intruded into Structure 1 sometime during the Three Circle phase of the Late Pit House period.

Abandonment and Post-abandonment Evidence: There is no evidence indicating that Structure 1 had been hastily abandoned. No site and few artifacts were found remaining on the structure floor; however, this is probably also a consequence of the intrusion of Feature 4b. The burial, Feature 23, was found near the floor, close to the southwest wall of Feature 4a. When interred, the remains of Burial 5 were likely placed in a burial pit, which more than likely was placed into the pit structure fill after its abandonment. Rampant rodent activity in this area of the site, however, has destroyed the pit and undoubtedly carried away the rest of the associated human remains.

Structure 2: Feature 4b (Three Circle phase/Late Pit House Period)

Structure 2 (Feature 4b), which bisected and disturbed Structure 1, was semi-rectangular in plan and basin-shaped in profile. The structure had sheer, unplastered walls that intersected a well-prepared floor. Maximum dimensions for the east-west portion of the structure were 4.20 m. North-south, the maximum discernable dimensions were 3.8 m (not including the ramp). These dimensions are less reliable, as the southern wall was constructed of, and excavated as fill. Structure 2 was approximately 60 cm deep (from the stripped surface to the base of the feature). Two superimposed floors were identified in the structure. The upper floor, which was located in the northern part of Feature 4, defined the spatial limits of Structure 2, while the lower floor pertained to Structure 1. However, the floor of this structure was heavily bioturbated and difficult to define in many locations.

Archaeomagnetic analyses of oxidized clay has provided dates for the two hearths associated with Structure 2, Features 33 and 61. Both dates, expressed as two ranges, are respectively: AD 675 to 740 or AD 875 to 940 (CSU LA 121158-3) and AD 650-750 or AD 840-920 (CSU LA 121158-4). Radiocarbon analysis of a Zea cupule found in Feature 61 provided a two-sigma, calibrated date of AD 895 to 1025, with a calendar intercept of AD 995 (Beta 141729) which suggests acceptance of the later archaeomagnetic date ranges. Structure 2 thus appears to date to the Three Circle phase of the Late Pit House period. The architectural characteristics of this structure, its rectangular form, lateral ramp entryway, and entry-focused hearth position, also support a Three Circle phase affiliation (Woosley and McIntyre 1996).

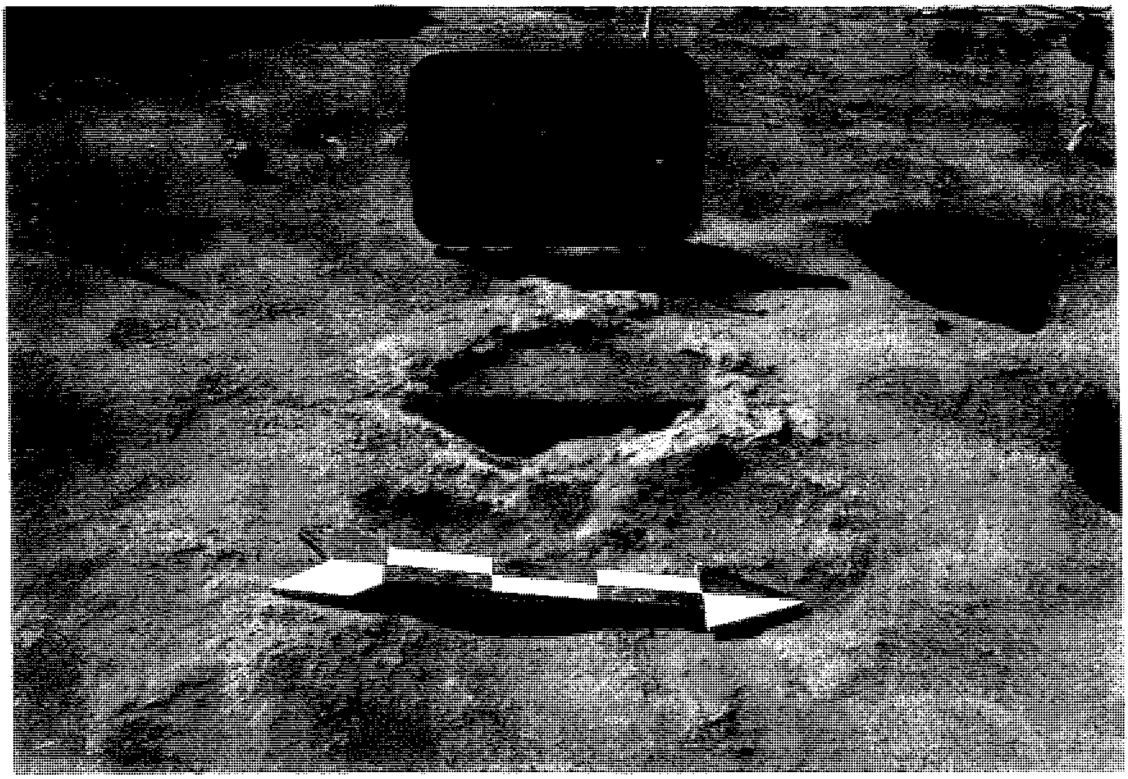


Figure 8.9 Photograph of Feature 26, Adobe-lined Hearth in Structure 1.

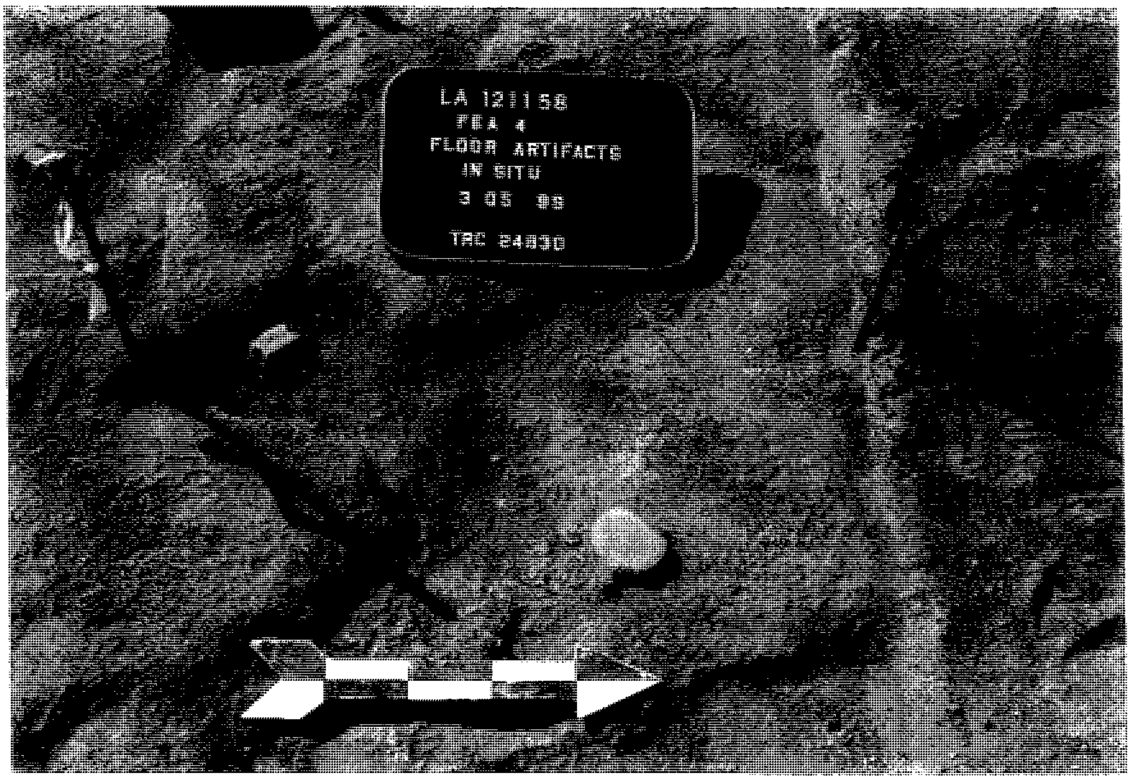


Figure 8.10 Photograph of Stone Pipe on Floor of Feature 4a, Structure 1.

Internal Stratigraphy: Mechanical and hand trenching revealed a semi-rectangular pit filled with a dark brown ashy, sandy loam (10YR 3/3, d) containing slight charcoal flecking and a few rocks and ceramics (Table 8.6). A lower stratum, containing possible roof-fall materials and composed of a dark yellowish brown (10YR 3/3, d) sandy loam with a higher clay content, appeared to be restricted to the more southerly excavation units and may pertain to Structure 1. In many areas a subfloor, also pertaining to Structure 1, was positioned below the floor of Structure 2.

Floor and Internal Features: Two hearths were found within the area defined as Feature 4b. Feature 61 was a 4.2 m diameter, 12 cm deep, oval basin-shaped hearth with an oxidized base (Figure 8.11). This hearth was placed in the traditional location for hearths found in Late Pit House period structures: directly in front of the ramp entry (Fitting 1973b; Haury 1936a; Woosley and McIntyre 1996). The second hearth, Feature 33, a 33 cm diameter, 5 cm deep circular basin-shaped pit with oxidized edges, was situated in the extreme western part of the structure. The remaining internal features were post holes and pits of undetermined function.

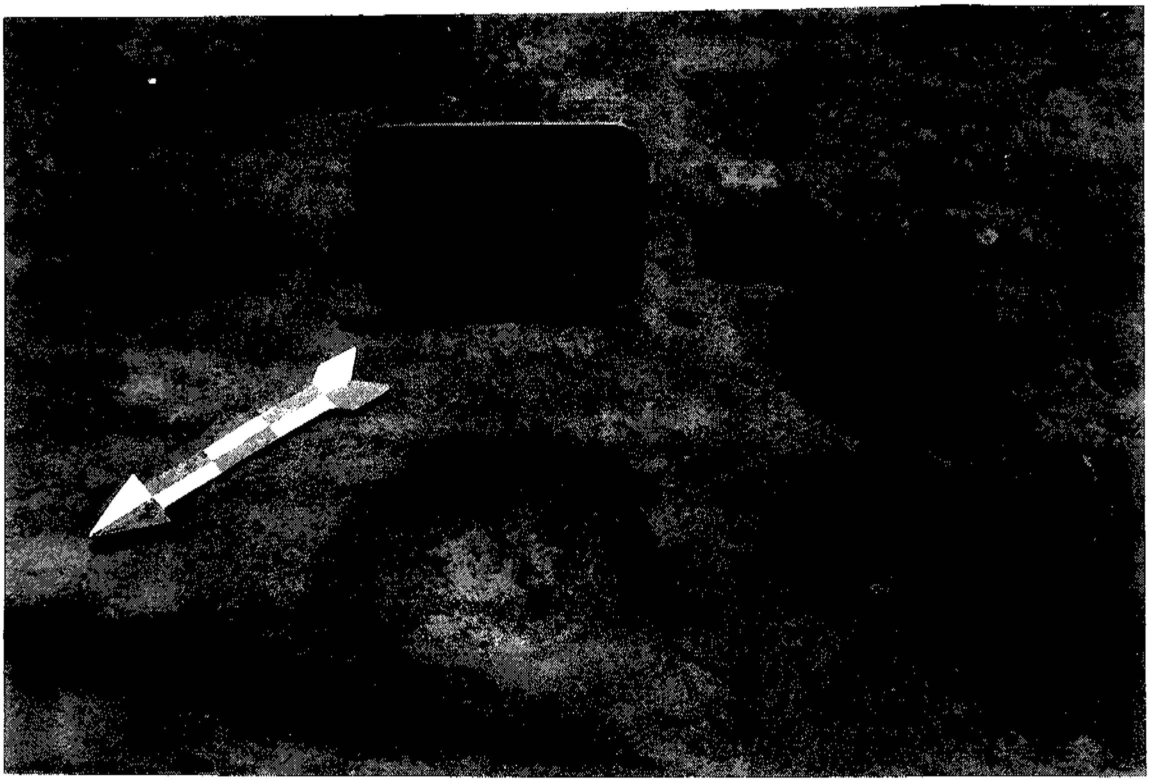


Figure 8.11 Photograph of Feature 61, a Hearth in Structure 2.

The diameters of the post holes varied dramatically, some as small as 15 cm and others as wide as 45 cm in diameter. Many of these features were heavily disturbed and their classification and provenience are tentative. Overall, with the exception of the post holes associated with the ramp entry, the spatial patterning of these posts makes little sense for roof support purposes. If, however, the southernmost large posts, Features 27 and 28, are associated with Feature 4a, then the pattern of large posts makes more sense. Post hole Features 46 and 34 form an east-west centerline across the midsection of Structure 2, which may reflect a post pattern similar to that found in Feature 6 (see below). The third post hole of this projected centerline, which should be situated in the middle of BT 1, may have been destroyed by rodent or backhoe activity. In an alternative scenario, if most of these post holes do pertain to Structure 2, their varied locations may have resulted from the hasty placement of supports required for shoring up a sagging roof.

Post hole Features 55 through 59, which represent the remains of ramp entry roof-support posts, were all approximately 15 cm in diameter and between 10 and 40 cm deep.

Construction and Remodeling Evidence: Structure 2 was dug at least 60 cm below the mechanically stripped ground surface. The structure was semi-rectangular in plan and basin-shaped in profile. No evidence of plastered floor areas or walls was detected. An approximately 1 m wide, 2.6 m long, north-orientated ramp entryway projected from this structure. North-orientated ramp entries, although uncommon, are not unknown in the Mogollon region (see Woosley and McIntyre 1996: Figures 4.72 and 4.94); however, this entryway was in direct visual alignment with a small, distant mountain peak (itself associated with Knight's Peak), which may have had some ritual significance to the builders (Figure 8.12).

Figure 8.12 Photograph of Ramp Entry, Structure 2 (Feature 4b) with Knight's Peak at Right.

Abandonment and Post-abandonment Evidence: There is no evidence indicating that Structure 1 had been hastily abandoned. No site furniture and few artifacts were found on the structure floor, and little evidence of burning or roof-fall could be detected in the structure fill. The rampant rodent activity in this area of the site, however, has extensively homogenized deposits, and thus destroyed any evidence of abandonment and post abandonment activities.

Structure 3: Feature 6 (Late Pit House Period, Three Circle Phase Pithouse)

Structure 3 (Feature 6) was discovered when BT 1 shaved its northwestern corner. Mechanical stripping of the area immediately a round the trench revealed a trapezoidal pit structure (Figures 8.13 and 8.14). It was 3.5 m in average length, 2.94 m in width, and 40 cm in depth. This pithouse was designed with a ventilator shaft in the middle of its northern wall, and an east/west alignment of support posts placed slightly north of the structure mid-section.

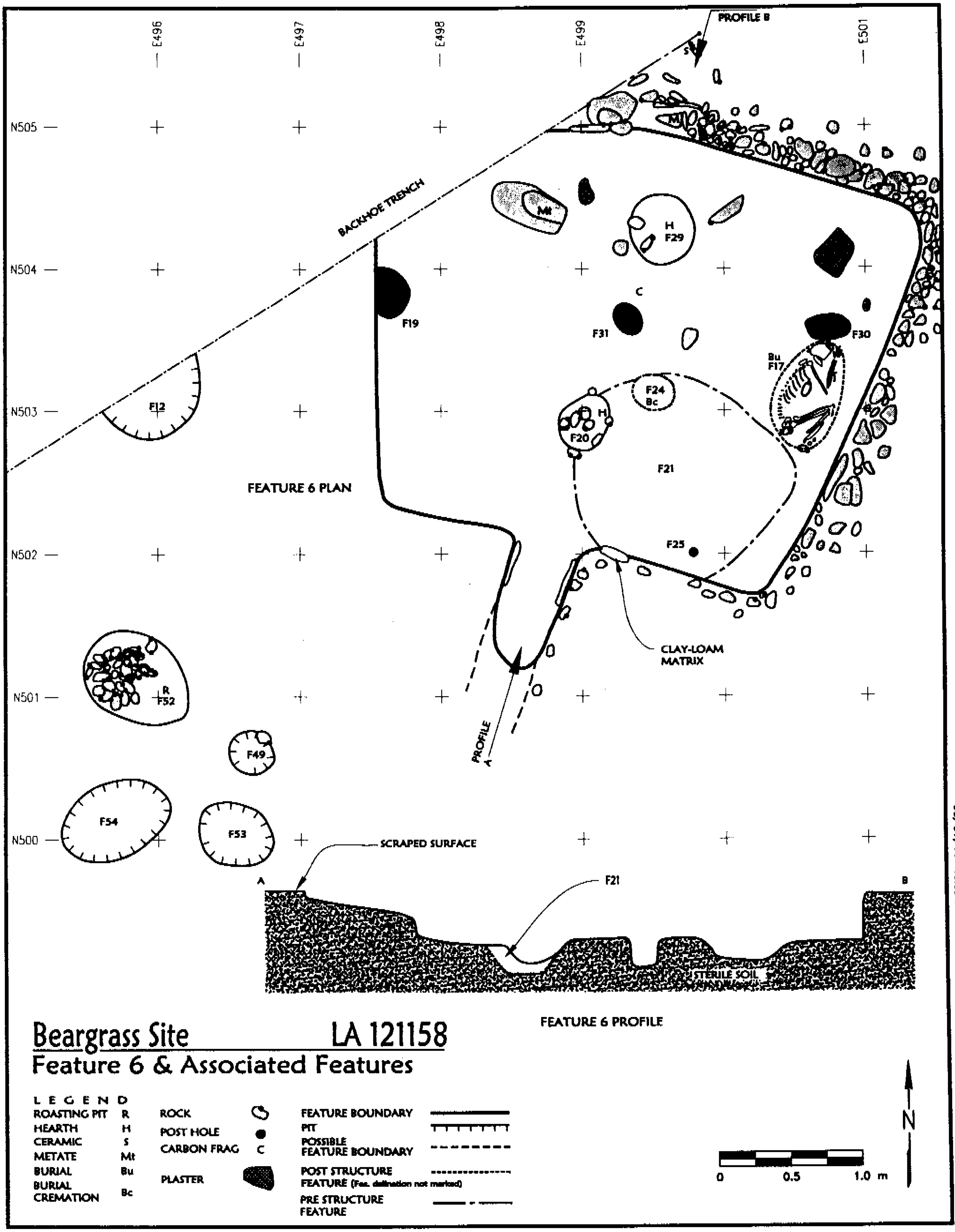


Figure 8.13 Planview and Profile of Structure 3 (Feature 6).

Figure 8.14 Photograph of Structure 3 (Feature 6) After Excavation, Facing East.

Radiocarbon analysis has provided contradictory dates for Structure 3. A Zea cupule, which was found in good context on the structure floor, has provided two-sigma, calibrated date ranges of AD 980 to 1050 or AD 1095 to 1140, with a calendar intercept of AD 1015 (Beta 138803) for the structure itself. In contrast, radiocarbon analysis of another Zea cupule found in the lower stratum of Feature 20, yielded two-sigma, calibrated date ranges of AD 65 to 265 or AD 290 to 365 with a calendar intercept of AD 155 (Beta 138804). The pithouse attributes and associated artifacts, however, support the former analysis. For example, the semi-rectangular form, ramp entranceway, and vent apparatus, along with the associated ceramic artifacts suggest that the structure was constructed and occupied during the Three Circle phase of the Late Pit House period. The dates from Feature 20 are thus incongruous and should be considered too early. As stated previously, the lower stratum of this feature appears to have been contaminated through contact with Feature 21, and the Zea cupule taken from this stratum likely dates the latter feature.

Internal Stratigraphy: Structure 3 was uniformly filled with a strong brown (7.5YR 4/2, d) coarse sand that contained various lithic and ground stone materials and several ceramic sherds, mostly Alma Rough and corrugated brownwares (Table 8.6). Initial excavation involved the placement of a 1 by 1 m wide, 4 m long, hand excavated trench across the southern end of the feature. Inside of this trench, the excavators removed the feature fill in 10 cm arbitrary levels, and screened with a 1/4-inch mesh. A separate arbitrary level was designated 5 cm above the floor in order to retain any floor-associated remains. This final level was screened with a 1/8-inch mesh. As no internal fill stratigraphy was identified, the excavators subsequently removed the remainder of the feature fill without screening. The floor-associated level, however, was excavated in 1 by 1 m units and screened with 1/8-inch mesh across the entire structure. Feature 6 had a strong brown (7.5YR 6/4) beaten earth floor. The floor and floor-associated deposits contained 193 artifacts, including three manos, a metate, and several dozen ceramics, most of which were Alma Rough and Corrugated Brownwares (Table 8.6). The presence of Indeterminate White-slipped, Indeterminate Mimbres Black-on-white, Mimbres Black-on-white: Early Style II, and Mimbres Corrugated from the floor correlate with the late Three Circle phase date from the structure.

Floor and Internal Features: Excavation of Structure 3 revealed several associated intramural features. Three post holes (Features 19, 30, and 31), each between 20 and 38 cm wide and 15 and 22 cm deep, were located in east-to-west linear alignment across the structure interior, slightly north of the floor midpoint. The partial remains of a ramp entry, approximately 45 cm wide and at least 1 m long, protruded from the southern wall of the structure (Figure 8.13). Two hearths were found in a northeast/southwest linear alignment with the entry ramp. Feature 29, a 44 cm wide, 10 cm deep, circular basin-shaped hearth, was located in the northern part of the structure. The feature contained lightly stained, brown (7.5 YR 5/2,d) charcoal-flecked fill with fire-cracked rock surrounded by oxidized earth. The southernmost hearth, Feature 20, was oval shaped, 58 cm long, 45 cm wide, and 16 cm deep, and contained two strata. The uppermost strata was a light brownish gray (10 YR 6/2,d) ash; the lower was a brown (10 YR 4/3, d) coarse sand with fire cracked rock inclusions. This lower strata intruded into, and was contaminated from, Feature 21, a Late Archaic/Early Pit House period pit structure (see description below).

Two non-thermal pits, Features 24, and 30, were encountered inside Feature 6. Both of these features contained human remains, both were intrusive to Feature 6, and both will be discussed in the burials section of this chapter. Feature 21, a Late Archaic/Early Pit House period pit, was encountered below Feature 6. The floor and southernmost hearth of the latter had partially intruded into the former. Feature 21 will be discussed later in the report.

Construction and Remodeling Evidence: Feature 6 is a trapezoidal pit structure excavated at least 40 cm below the surface of the mechanically stripped zone. The structure's walls slanted slightly away from a level, once plastered floor. Samples of plaster remained on some areas of the floor, and the largest of these are noted on the planview (Figure 8.13). A substantial area of rock debris was found around the eastern side of the structure perimeter. This debris was discrete and confined to the edge of the structure walls, suggesting its use for some kind of superstructure reinforcement. Similar patterns of rock debris surrounded portions of the Late Pit House period pit structures at the Wind Mountain site (Woosley and McIntyre 1996) and may represent the remains of small superstructure retaining walls. The east periphery surface of the pit structure was heavily eroded and devoid of rock debris. The partial remains of a lateral ramp entry, approximately 45 cm wide and 1 m long and orientated towards the southwest, were found protruding from the south wall of the structure. Several large sandstone slabs were found collapsed in the ramp interior, which implies it was, at least to some extent, slab lined. Erosion had destroyed the southernmost section of this entryway, which, based on the presence of a linear alignment of rocks, was once undoubtedly longer. A ventilator apparatus, designated Feature 60, was attached to the mid-northern wall, almost directly opposite of the lateral entry. The vent, which contained several upright slabs, was approximately 35 cm wide, 55 cm long, and 20 cm deep.

Three post holes were located in east-to-west linear alignment across the structure interior, each slightly north of the floor midpoint. Judging by the dimensions of these features, they represent the remains of substantial posts, which suggests they supported an equally substantial superstructure, whose frame was probably covered with earth or clay. Feature 20, the southern hearth, was directly aligned between the entrance ramp and the northern hearth (Feature 29), which suggests that both hearths were constructed during the use life of the structure. The presence of dual hearths in a relatively small pit structure may result from different activities at each hearth. Alternatively, one of the hearths may have been constructed during a past remodeling event. A survey of known Late Pit House period Mogollon structures indicates that hearths were traditionally located in alignment with, and in close proximity to, entry ramps (Fitting 1973a; Haury 1936b; Woosley and McIntyre 1996). The southern hearth is thus situated in the appropriate location for a Three Circle phase pithouse. The northern hearth sits in front of the ventilator. Feature 29 may have been constructed to take advantage of the airflow emanating from the vent apparatus. The presence of a large metate, found *in situ* propped up by small stones, in the immediate vicinity of Feature 29 indicates that this area was employed for food processing.

Abandonment and Post-abandonment Evidence: Structure 3 does not appear to have been hastily abandoned. Although an intact metate was found *in situ* on the floor, additional site furniture and floor pots were not present, indicating that the site occupants had time to remove these materials. Although not completely screened, the feature fill did contain a fair number of artifacts. Diagnostic structure fill and floor artifacts were similar, which suggests that the site occupants used Structure 3 for trash disposal after its abandonment. Sometime after the abandonment and collapse of this structure, Burials 4 (Feature 17) and 6 (Feature 24) were placed in the structure debris (Figure 8.13). The later burial intruded into the structure floor, impacting the subjacent Feature 21, while the former burial was placed directly on the floor of Feature 6.

Structure 4: Feature 8 (Late Pit House Period/Three Circle Phase Pit House)

Structure 4 (Feature 8) was first believed to be a small, deep pit feature. Initially, only the extreme southeastern corner of this structure had extruded from the northern wall of BT 1. Subsequent shovel scraping of the feature surface within the right-of-way revealed the extreme edge of a rectangular pithouse, the greater part of which continued past the right-of-way into National Forest property (Figure 8.5). As almost all of Feature 8 extended outside of the highway right-of-way, it was recommended that the structure be preserved. NMSHTD officials agreed and the structure was reburied. Road construction has avoided the immediate area. Although no diagnostic artifacts were retrieved from Structure 4, its architectural elements are similar to Three Circle phase pithouses found at Beargrass and elsewhere (Fitting 1973a; Woosley and McIntyre 1996), suggesting a similar construction date. A metate cache immediately west of the structure also was not excavated; however, a bone whistle located directly on two metates had been exposed and was recovered (see Figure 19.4).

Structure 5: Feature 3 (Late Archaic Period/Early Pit House Period)

Mechanical surface scraping of the area around Feature 6 revealed Feature 3, a circular, 2.3 m diameter, 28 cm deep pit structure (Figures 8.15 and 8.16). This structure contained slight evidence of internal features, and no related post holes, internal or external, could be detected.

Radiocarbon analysis of a juniper seed found on the structure floor at Feature 3 yielded a two-sigma, calibrated date of AD 20 to 240 (Beta 133985). This date range suggests that the structure was occupied during the terminal part of the Cienega phase (Late Archaic period), possibly into the beginning of the Early Pit House period. A Cienega type projectile point found in the pit fill supports this date range, as do the abundant Alma series ceramics found in both fill and floor. Considering the extent of rodent activity in the general vicinity, the few Three Circle phase ceramics found in fill of this structure certainly could have filtered down from the overlying, predominantly Three Circle phase midden.

Internal Stratigraphy: This pit structure was filled with a uniform dark brown (7.5 YR 3/2,d) coarse sandy loam, which contained various chipped stone artifacts, including a Cienega projectile point, some ground stone materials, and several ceramic sherds (Table 8.6). The majority of the latter were Alma series, with a few Three Circle Neck Corrugated examples found in the top stratum. This feature was covered with midden, and the interface between the midden and feature fill was laced with rodent holes. Rodents also significantly damaged the structure floor and its immediate exterior periphery. The high degree of bioturbation substantially mixed midden and feature deposits. Feature 3 was bisected and its eastern half excavated by arbitrary 10 cm levels, in 2 by 2 m units, and all fill was screened through a 1/4-inch mesh. A separate arbitrary level was designated 5 cm above the floor in order to retain any floor-associated remains. This final level was screened with a 1/8-inch mesh. As no internal fill stratigraphy was identified, the excavators subsequently removed the remainder of the feature fill without screening. The floor-associated level, however, was excavated in 1 by 1 m units and screened with 1/8-inch mesh across the entire structure. The structure floor, a compact dark brown (7.5 YR 3/2,d) coarse sandy loam, contained several Alma series ceramic sherds, some metate fragments, and, notably, two long bone awls.

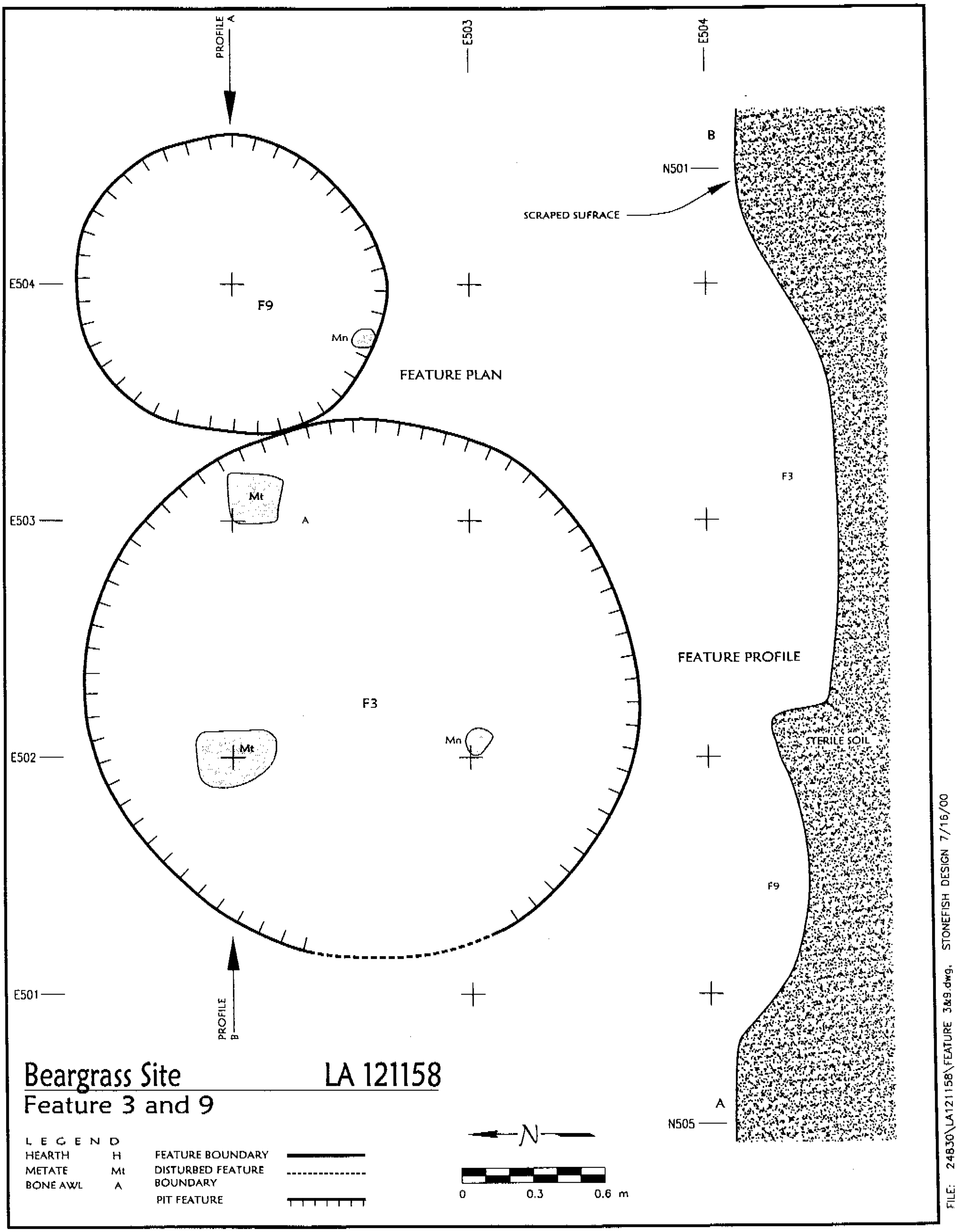


Figure 8.15 Planview and Profile of Structure 5 (Feature 3).

Figure 8.16 Photograph of Feature 3, Structure 5.

Floor and Internal Features: A small scattering of fire cracked rocks was found on the floor of Feature 3. These may represent the remains of a shallow hearth; however, no evidence of charcoal, ash, or oxidized earth was found. No additional floor or internal features were found in this structure. The unfortunate, extensive rodent activity in and around this feature certainly destroyed any evidence of posts or internal features.

Construction and Remodeling Evidence: Feature 3 is a small, basin-shaped pit structure at least 28 cm deep from excavated surface to base. The shallow wall of this structure gradually slanted into a very disturbed, probably once level floor. There was no evidence of plaster or other special preparation of the walls and floor. No evidence of an entranceway has been found either. Bioturbation has removed any evidence of post holes; however, given the small size of the structure, posts like the superstructure they supported, would not have been substantial. A pole and brush superstructure likely covered the pit during its use life.

Abandonment and Post-abandonment Evidence: Feature 3 may or may not have been hastily abandoned. The small size of the structure argues against the presence of significant site furniture, such as floor pots, bins, or large metates, being present during its use life. Hence, the lack of such remains cannot support a hypothesis of a calculated abandonment. The excavators did not find any evidence of a structural fire; however, this, along with any more refined evidence of abandonment behaviors has surely been destroyed by rodent activity. Some time after abandonment, the southern edge of Feature 9, a probable roasting pit, intruded into the northern edge of Feature 3.

Thermal Pits

Twelve thermal pits were recognized during the excavations (Tables 8.4 and 8.5). All exhibited evidence of thermal activity, including concentrations of ash, charcoal, and thermally altered rocks and in some cases, oxidized soils. Five of these features were intramural and the others extramural. The thermal features were classified as hearths and roasting pits based on size distinctions established during the investigations. Hearths were up to 69 cm in maximum length, while roasting pits, based on ethnographic data, exceeded that range.

Hearths

Five of the six hearths identified at the site were intramural and have been discussed in the contexts of their associated structures (Figures 8.6, 8.9, 8.11, and 8.13). In general, these hearths were shallow, circular to oval pits. They varied from 2.85 to 21.87 liters in volume, although the smallest hearth (Feature 33) probably had been truncated by later remodeling. All of the interior hearths from Three Circle phase structures were simple basin-shaped pits. However, the hearth (Feature 26) from the Structure 1, dating to the Early Pit House, had been adobe lined.

The extramural hearth was Feature 50, located at the eastern section of the site. This simple oval and basin-shaped feature had a volume of 12.10 liters. There was no evidence of a clay liner.

Roasting Pits

Six extramural thermal features were interpreted as roasting pits due to their size (Figure 8.17). Some exhibited slight oxidation to the sides and bottom and most contained concentrations of thermally altered rocks. They varied from oval to circular and all were basin-shaped. The pits ranged in volume from 20.53 to 144.51 liters. Analysis identified a single maize cob phytolith from Feature 9.

Nonthermal Pits

Nine nonthermal pit features were identified at the Beargrass site (Tables 8.4 and 8.5). Four were intramural and the others were extramural features (Figure 8.17). Two of these features were interpreted as storage pits. On of the latter, Feature 46, was located on the floor of Structure 2 and could actually be a major support post hole. The others were of unknown function. These features ranged from 27 cm to 1.58 m in length and from 23 to 1.30 m in width with depths from 7 to 62 cm. Volumes of these features varied from only 3.21 to 236.60 liters.

The largest of the nonthermal pits was Feature 21, identified below the floor of Structure 3 (Figure 8.18). This feature was an oval pit measuring 1.58 m in length, 1.30 m in width, and probably 50 to 55 cm in depth prior to being truncated by the construction of Structure 3. The surviving portion was 22 cm below the floor and contained a volume of 236.60 liters. Given the assumed depth, the feature probably exhibited a total volume of around 500 liters and could have been a storage facility. A Zea cupule found immediately above the pit in Feature 20, the disturbed hearth of Structure 3, yielded a calibrated, two-sigma date ranges of AD 65 to 265 and AD 290 to 325 (Beta 138804). Since both ranges are too early for the structure, it is assumed that the maize was a contaminate from Feature 21. If correct, the temporal position of the storage pit was very late Cienega phase to the Early Pit House period.

Figure 8.17 Photograph of Features 49, 52, 53, and 54, Post-excavation, Facing West. This group, located near Structure 3, contains thermal pits (Features 19 and 52 on right) and non-thermal pits (Features 53 and 54 on left).

Figure 8.18 Photograph of Feature 21, Post-excavation, Facing South.

Midden Deposits

Three features were interpreted as general midden deposits. Features 2 and 18 were filled in gullies or swales that contained dark organic-rich sediments, rocks, thermally altered rocks, sparse charcoal, and a few artifacts. Feature 15, upon excavation, proved to be highly disturbed cultural deposits.

Non-cultural Anomalies

During the investigations, two dark stains were assigned feature numbers (Features 16 and 41). Excavations confirmed them to be irregular anomalies thought to be the result of rodent activity.

Burials

The remains of six burials were found at the Beargrass site (Table 8.7). Associated ceramics and the archaeological context of the burials suggest they date to at least the Three Circle phase. Two burials (Burials 4 and 6) were under the floor and in the fill of Structure 3, chronometrically dated to the Three Circle phase and Burial 5 was in the fill of Structure 1, an Early Pit House feature. Although mixing from bioturbation should not be discounted, fill from all of the burial pits contained either Corrugated Brown or Indeterminate Mimbres Black-on-white. If contemporaneous with the filling of the graves, these ceramics also date the burials to the Three Circle phase.

Five of the six individuals were primary inhumations in burial pits. When pit outlines were discernable in the highly disturbed deposits, they were oval and basin shaped and just large enough to accommodate the body. Two were placed in the fill of abandoned pit structures and the other three appeared to be in specially prepared extramural pits. Although two skeletons were largely disturbed by rodents, the others were tightly flexed and positioned either on their backs or left side. Body orientation was to the northwest or northeast with the heads facing south or east.

The other individual (Burial 6) was represented by cremation redeposited below the floor of Structure 3. None of the interments was accompanied by nonperishable funerary objects.

Burial 1 (Feature 5), a 1.24 m long, 92 cm wide, and 53 cm deep oval pit, contained the disturbed, partial remains of a single adult individual. Only fragments of the cranium, sacrum, right and left innomate, femur, and right tibia remained intact. When revealed, the cranium appeared to be facing south, with the individual in a supine, tightly flexed position. No age or sex determination could be made from these remains. Pit fill consisted of a strong brown (7.5 YR 5/6,d) loamy sand with fine gravel inclusions. No *in situ* artifacts were found associated with this individual.

Burial 2 (Feature 7) was a 63 cm long, 37 cm wide, and 15 cm deep oval pit that contained a child's cranium. The cranium, which was found face down, is all that remains of this burial of a two to four year old child. Rodent activity likely has removed the rest of the skeletal remains. The child appears to have originally been interred in midden, and the burial pit refilled with midden materials. No *in situ* artifacts were found with this burial.

Burial 3 (Feature 10), a 63 cm by 70 cm, 40 cm deep, ovoid basin-shaped pit, contained the cranial fragments, cervical vertebrae, left scapula, right and left humeri, and right femoral shaft of an adult male. Due to the fragmentary nature of these remains, no further age determination was possible. When found, the cranium was facing toward the northeast; however, extensive rodent burrowing has obscured any further information concerning body orientation. No *in situ* artifacts were found with this burial.

Table 8.7 The Beargrass Site (LA 121158) Osteological and Mortuary Data.

Burial Number	Feature Number	Feature Planview	Feature Profile	Length	Width	Depth	Burial Type	Body Position	Skeletal Orientation	Head Facing	Position of Legs	Position of Arms	Preservation	Sex	Age	Funerary Objects
1	5	Oval	Basin-shaped	1.24	0.92	0.53	Single	Supine	Northwest	South	Tightly flexed	Unknown	Poor	Unknown	Adult	–
2	7	Oval	Basin-shaped	0.63	0.37	0.15	Single	Unknown	Unknown	Unknown	Unknown	Unknown	Poor	Unknown	2-4	–
3	10	Oval	Basin-shaped	0.70	0.63	0.4	Single	Supine	Northwest	Unknown	Tightly flexed	Toward face	Poor	Male ?	Adult	–
4	17	Oval	Basin-shaped	0.76	0.4	0.24	Single	Left side	Northeast	East	Tightly flexed	Toward face	Excellent	Male	30	–
5	23	Unknown	Unknown	0.30	0.2	0.19	Single	Unknown	Unknown	Unknown	Unknown	Unknown	Poor	Male ?	Adult	–
6	24	Circular	Basin-shaped	0.28	0.25	0.07	Single	Secondary	n/a	n/a	n/a	n/a	Good	Male ?	Adult	–

Burial 4 (Feature 17) was a well prepared, intact, 76 cm long, 40 cm wide, and 24 cm deep, oval burial pit. This pit intruded into and was situated on the floor of Structure 3 (Figure 8.3). The burial pit contained the nearly complete skeleton of an adult male, approximately 30 years old. The individual was interred on his left side, tightly flexed, with his head facing toward the east. Several rock cobbles were positioned in the pit around the body with single examples found at the top of the skull, front of the rib cage, distal end of the sacrum, between the sacrum and femorae, and below the feet. The pit fill consisted of a brown (10YR 5/3, d) compact silty-sand. With the exception of these cobbles, no *in situ* burial accoutrements accompanied the human remains.

Burial 5 (Feature 23) represents the disturbed remains of an adult male. The mid-shaft fragments of a left radius, right femur, and left tibia are all that remain of this individual. These remains were found near the floor, close to the southwestern wall of Structure 1 (Feature 4a). Considering the disturbed and fragmentary nature of the remains, no further age determination could be made for this individual. When interred, the remains of Burial 5 were likely placed in a burial pit, which, like Burial 4, probably intruded into pit structure fill. Rampant rodent activity in this area of the site, however, has destroyed the pit and undoubtedly carried away the rest of the associated human remains. A single adult human mandible, which was found in a rodent hole approximately 4 m southwest of Burial 5, may be related to these remains. No associated *in situ* artifacts were found with this burial.

Burial 6 (Feature 24) was an oval 28 cm long, 25 cm wide, and 7 cm deep pit, which had intruded into Feature 21 after first passing through Structure 3 (Figure 8.13). Pit fill consisted of a brown (7.5YR 5/2, d) coarse sandy loam. The burial pit contained the cremated remains of an adult, possibly male individual of undetermined age. The weight of the cremated remains, which were only a third of the weight of an average cremated adult, indicate that primary mortuary activities took place elsewhere, and that this was a secondary cremation. In spite of this secondary location, the skeletal components are well represented, as elements of the cranium, vertebrae, upper torso, and lower body were present. No associated *in situ* artifacts were found with Burial 6.

Artifact Assemblages

Chipped Stone

Of the 2,560 artifacts found at Beargrass, 511 were manufactured from chipped stone. These include 486 pieces of lithic debitage, 15 tools, and 10 cores (Table 8.1). The chipped stone tool category included two projectile points (one Cienega point, one San Pedro point). Both the Cienega and the San Pedro points styles date to the Late Archaic period (Huckell 1988; Sayles and Antevs 1941). The San Pedro style projectile point was found on the surface, while the Cienega point was found in the fill of Structure 5 (Feature 3). Radiocarbon analysis of a juniper seed found in Feature 3 dates this structure from the Late Archaic period into the early part of the Early Pit House period, which generally corresponds to end of the Cienega phase.

Ground Stone

Of the 64 ground stone artifacts, 18 were metates and 45 were manos. The remaining ground stone artifacts included a stone pipe, an azurite object, and a faceted stone ball. Of the metate specimens intact enough to determine morphology, five were basin-shaped, two were flat/concave, and one was flat (Table 8.2). At Beargrass, flat metates were associated with floor deposits in Structure 5 (Feature 3) concave specimens were associated with floor deposits in Structure 2 (Feature 4b), and a basin-shaped metate was found on the floor of Structure 3 (Feature 6). The latter was found *in situ*, propped up by several small stones. A mano, which re-fits into this metate, was found nearby on the floor.

Ceramic Artifacts

Of the 2,517 ceramic sherds found at Beargrass, 72 percent were Alma series wares, the vast majority of these being Alma Rough (Table 8.3). Corrugated brownwares also were relatively abundant at the Beargrass site. Of these, 76 were classified as Three Circle Neck Corrugated, 20 as Mimbres Corrugated, and 263 simply as corrugated brownwares. Overall, the ceramic frequencies found on the Beargrass site seem to represent a predominantly Three Circle phase occupation. Such Late Pit House period occupations are clearly demarcated by the presence of decorated and corrugated wares; however, Early Pit House period occupations on multicomponent sites may be masked by the ubiquitous nature of Alma Plain and Alma Rough wares, which were used during both Pit House periods (Bettison 1999; Woosley and McIntyre 1996). Thus, an Early Pit House period component may also be represented in the ceramic assemblage.

The floor levels of Structures 1 and 2 (respectively, Feature 4a and 4b) contained similar concentrations of ceramic types, including Alma series, Three Circle Neck Corrugated, and a few Mimbres sherds. In spite of this, the lower structure, Feature 4a, has been radiocarbon dated to the Early Pit House period, and this date is supported by architectural characteristics, such as a generally oval shape (Anyon et al. 1981). The architectural features of Feature 4b, however, definitively date it to the Late Pit House period (Anyon et al. 1981; Woosley and McIntyre 1996), likely the Three Circle phase. The similar ceramic concentrations of both structures are probably a reflection of disturbed provenience: first when Feature 4b intruded into Feature 4a, and later when rodents agitated both features. The ceramic sherds and architectural elements associated with Structure 3 (Feature 6) likewise reflect a Late Pit House period, Three Circle phase occupation. The floor of Structure 5, Feature 3, contained small quantities of Alma series wares, and a single corrugated brownware. Radiocarbon analysis of a juniper seed found on the floor of this feature dates the structure to the Late Archaic period/Early Pit House period transition. The associated ceramics support this date, with the exception of the corrugated ware, which may have filtered down to floor contexts from overlying midden deposits. No ceramics were associated with the floor of Feature 21, which may suggest a Late Archaic period occupation date, but is more likely the result of the intrusion of Feature 6, which resulted in the removal of *in situ* Feature 21 deposits.

The presence of a single Mimbres Black-on-white Style II/III sherd at the Beargrass site suggests some activities at the site may have continued into the early part of the Classic Mimbres period. No structure relating to the Classic Mimbres phase was found within the highway right-of-way, however, a few Classic Mimbres period ceramics were observed north of the right-of-way, and structures dating to that occupation may be present there.

Biological Remains

A total of 984 faunal fragments was recovered from the Beargrass site. These faunal specimens were generally in good condition, nevertheless, the majority of the assemblage could only be identified at the class level (see Chapter 19). At this level of analysis, examination of the faunal specimens suggests that, on an everyday basis, the site occupants targeted more small mammals than medium-to-large species. At the species level of identification, jack rabbit (*Lepus* spp.), followed by cottontail (*Sylvilagus* spp.) appear to be the most commonly taken game. Considering biomass figures alone, however, artiodactyls, and especially deer, contributed a much larger percent of the total meat consumed at the Beargrass site.

The floor fill and post holes of Structure 1 yielded maize, chenopods, chenoams, juniper, acorn shell, dock, and a single yet-to-be identified macrofossil plant species (the latter has temporarily been called "columnar-celled seed coat," or CCSC; see chapter 20). The hearths and a pit in Structure 2 yielded maize, chenoams, tansy mustard, juniper, purslane, and CCSC. Many of the above macrofossil remains also were detected in samples taken from Structure 3. Pollen samples from Beargrass contained low pollen concentrations; however, maize pollen was present in samples taken from Structures 1, 2, 3, and 5. Structure 3 contained the highest concentration of maize pollen.

Maize cob phytoliths also were found in Feature 26, an adobe-lined hearth in Structure 1; in Feature 61, the hearth of Structure 2; in Feature 29, the northernmost hearth in Structure 3; and in Feature 52, an exterior roasting pit located near the latter pit structure. Domesticated *Cucurbita* phytoliths were found in some intramural features from Structures 1 and 2, while Structures 1 and 5 contained culturally significant aggregates of chenoam pollen, which suggests the use of this wild species during the Late Archaic and Early Pit House periods. When taken together, the faunal and plant macrofossil and microfossil evidence suggests the presence of resource extraction strategy based on maize and squash cultivation coordinated with the exploitation of wild plant and animal species. This integration of horticulture with hunting and gathering likely began during the Cienega phase of the Early Agricultural/Late Archaic period. The higher concentration of maize pollen detected in Structure 3, a Three Circle phase structure, may whisper implications of an increased emphasis on maize; nevertheless, plant macrofossil evidence indicates that wild plant processing continued to be important.

Site Chronology

Features at the Beargrass site were dated with the archaeomagnetic and calibrated radiocarbon techniques, as well as through the presence of diagnostic ceramics, projectile points, and architecture. Radiocarbon dates were taken from seeds and maize macrofossils found in features (Table 8.8; Figure 8.19). Radiocarbon analysis of cultigens and macrofossils from utilized wild species avoids any dating problems associated with the reuse of old wood as kindling and building materials and also provides a more accurate chronology for the use of cultigens. Structure 1 has been dated to the Early Pit House period by radiocarbon analysis of a juniper seed found in good floor provenience, as well as by its diagnostic architectural form. Archaeomagnetic analyses of burned adobe has provided Three Circle phase, Late Pit House period, dates for the two hearths associated with Structure 2 (Table 8.3). These dates have been corroborated by radiocarbon analysis of a Zea cupule found in one of the hearths. The architectural characteristics of Structure 2, with its rectangular form, lateral ramp entryway, and entry-focused hearth position, also support a Three Circle phase temporal provenience (Woosley and McIntyre 1996).

Structure 3 has been dated to the Three Circle phase by radiocarbon analysis of a Zea cupule found on the floor of this pithouse. This date also is supported by architectural attributes considered characteristic of the Three Circle phase. The disconcertingly anomalous Late Archaic period/Early Pit House period date for Feature 20, the southernmost hearth of Structure 3, is probably a result of contamination. Feature 20 intruded into Feature 21, a small Late Archaic/Early Pit House period pit structure, sometime during construction or use, which likely contaminated the former feature, resulting in the anomalous radiocarbon date. In actuality, the radiocarbon date taken from a Zea cupule found in Feature 20 may date Feature 21. Structure 4, although not excavated, was assigned a Three Circle phase date because of its rectangular form. Finally, radiocarbon analysis of a juniper seed from the floor of Structure 5 has dated it to the Late Archaic Period/Early Pit House period. To summarize based on a limited area of site excavation, the site chronology suggests early possibly ephemeral site use during the Late Archaic/Early Pit House period transition. This was followed by a more substantial Early Pit House period occupation. The most substantial occupation at Beargrass, however, occurred during the Three Circle phase of the Late Pit House period.

Table 8.8 Chronometric Dates from Beargrass.

Beta No.	Calibrated Two-sigma Age	Calibrated One-sigma Age	$^{13}C/^{12}C$ Ratio o/oo	Calendar Intercept	Conventional Radiocarbon Age (BP)	Dated Material	Context
133985	AD 20 to 240 (BP 1930 to 1710)	AD 65 to 155 (BP 1885 to 1795)	-23.9	AD 115	1890 +/- 50	cf. Juniper seed	LA 121158, Pithouse, Feature 3
133986	AD 265 to 290 (BP 1685 to 1660) and AD 325 to 540 (BP 1625 to 1410)	AD 385 to 440 (BP 1565 to 1510)	-19.2	AD 415	1640 +/- 50	Juniper seed	LA 121158, Pithouse, Feature 4
138803	AD 980 to 1050 (CP 970 to 900) and AD 1095 to 1140 (CP 855 to 810)	AD 1000 to 1030 (BP 950 to 920)	-12.3	AD 1015	1010 +/- 40	Zea cupule	LA 121158, Pithouse, Feature 6
138804	AD 65 to 265 (BP 1885 to 1685) and AD 290 to 325 (CP 1660 to 1625)	AD 115 to 240 (BP 1835 to 1710)	-11.3	AD 155	1840 +/- 50	Zea cupule	La 121158, Hearth in Feature 6 (Feature 20)
141729	AD 895 to 1025 (BP 1055 to 925)	AD 970 to 1010 (BP 980 to 940)	-10.4	AD 995	1060 +/- 40	Zea cupule	LA 121158, Hearth in Feature 4 (Feature 61)
CSU* LA121158-3	AD 675 to 740 and AD 875 to 940	—	—	—	—	Adobe	LA 121158, Hearth in Feature 4 (Feature 33)
CSU* LA121158-4	AD 650 to 750 and AD 840 to 920	—	—	—	—	Adobe	LA 121158, Hearth in Feature 4 (Feature 61)

*CSU = Colorado State University Archaeometric Laboratory

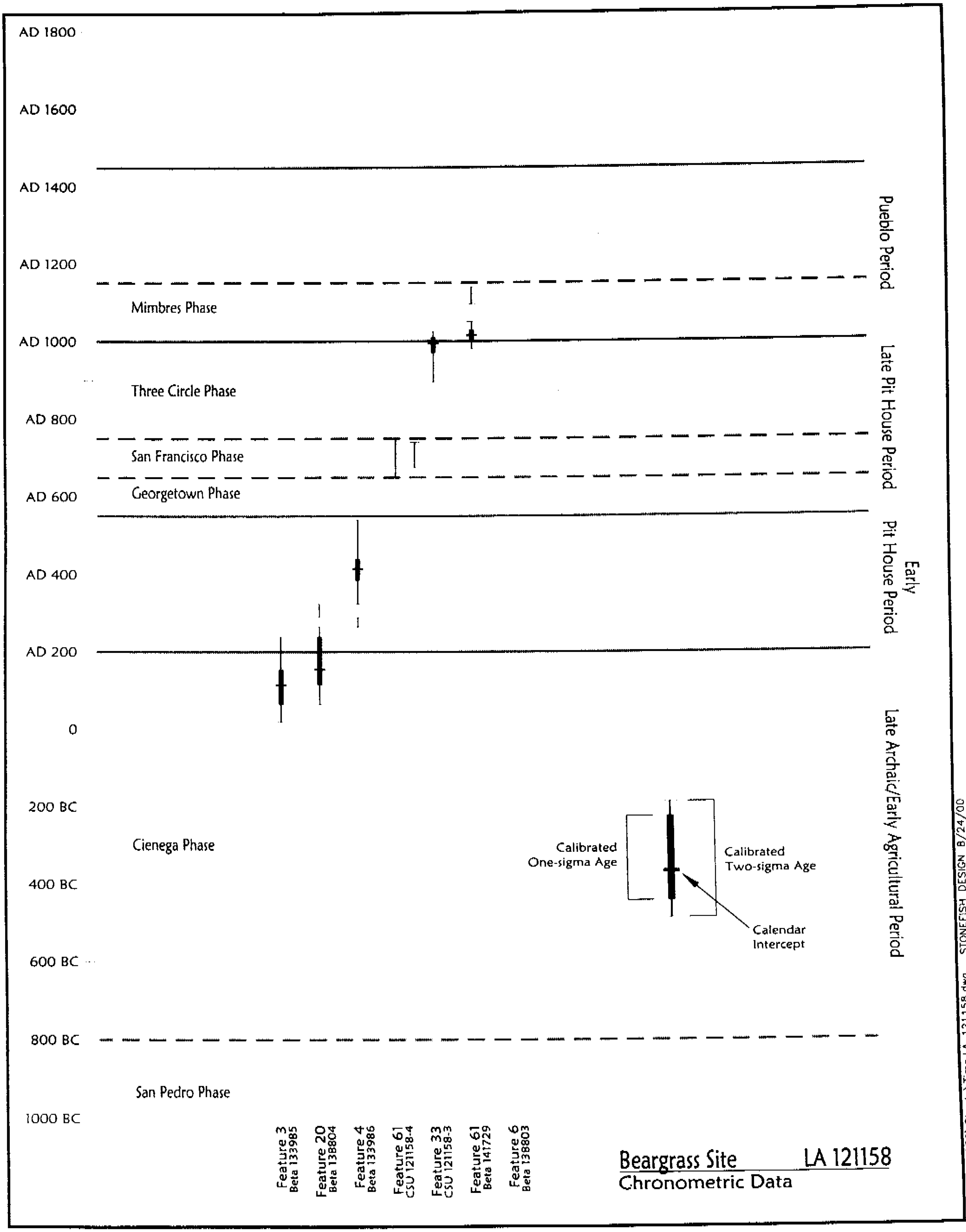


Figure 8.19 Chronometric Determinations from the Beargrass Site.

Summary and Conclusions

Data recovery investigations revealed major residential occupations at the Beargrass site during the Late Archaic/Early Agricultural, Early Pit House, and Late Pit House periods. A minor Classic Mimbres phase component also is recognized immediately to the north of the project area. During the excavations five structures, six burials, and 13 other extramural features (not including the middens) were located in an area measuring 30 m by 11 m. Given the overall site dimensions of 250 m by 90 m, similar features could number in the hundreds outside the investigated area.

Late Cienega Phase/Early Pit House Period Component

The earliest occupation of the Beargrass site dated to the very end of the Cienega phase during the Late Archaic/Early Agricultural period or possibly early in the Early Pit House period. Within the right-of-way, the component was manifest by two features, Structure 5 (Feature 3) and Feature 21. A radiocarbon date from the floor of Structure 5 produced a two-sigma range of AD 20 to 240 (Beta 133985). The presence of 18 Alma series ceramics on the floor could suggest the latter end of the date range or they could represent later refuse disposal into the pit. Although no dates were directly produced from Feature 21, a radiocarbon determination from the overlying Feature 20 may actually date Feature 21 to a period between AD 65 and 265 (Beta 138804). These dates suggest possible contemporaneous use lives for the two features.

Structure 5 was perplexing because of its small size and general lack of internal features. It is possible that the feature, containing a floor space of only 4.15 m^2, actually may not have served as a domestic habitation. In the Southwest region, the ethnographic literature concerning such small, ephemeral pit structures suggest two possible functions. Halbirt et al. (1993) and Hackbarth (1993) describe external 2 to 3 m wide storage structures constructed in moderately deep pits. These storage structures lacked internal thermal features but did contain pollen and seeds. In cross-section they resemble small pit structures with internal post holes (Wocherl 1998). A similar structure was documented by Underhill (1979:37) for the Todo O'Odham. Although Structure 1 lacks evidence of post holes, its disturbed condition may have obliterated their presence.

Other ethnographic information suggests that such small structures could have functioned as specialized activity huts. For the Southwest region, the best-documented type of small special activity structure is the menstrual hut. Menstrual huts and specialized menstrual rooms, in which women were isolated during menstruation, have been reported in several historic contexts (Parsons 1970: 47; Underhill 1979: 57-58). Other postulated prehistoric functions for such small structures include isolated birthing huts and ritual locations used by priests and/or initiates during rituals (Shafer 1991). Two large bone awls (see Figure 19.2) found on the floor of Structure 5 represent possible clues to the function of the structure. During the Historic Pueblo period weaving was a male ritual activity that took place inside of kivas. The size of the bone awls found in the structure, along with the wear patterns along their edges, suggests they were used in weaving rather than basket making activities. If they are weaving implements, these small structures may represent specialized ritual weaving huts, possibly utilized by males. Several fragments of fire cracked rock (Figure 8.14) and two metate fragments also were found on the floor (Figure 8.15); although disturbed, these may represent the remains of processing behaviors associated with this feature.

The other features associated with this component was the largest nonthermal pit identified from the excavations. Not substantially smaller than Structure 5, this feature had an estimated volume of 500 liters and could have served as a storage facility.

Clearly, these two features did not represent the entire Cienega phase occupation at Beargrass. Considering the intensity of later habitation of the site, it seems reasonable that other features dating to this period were disturbed and its artifact assemblage masked by the more intensive components. However, a San Pedro projectile point, recovered at the base of the Ab horizon near Structure 5, could be related to this component.

Early Pit House Component

The Early Pit House component at Beargrass was clearly represented by only Structure 1, an oval or D-shaped pit structure, dated by a single two-sigma radiocarbon date of AD 265 to 290 or AD 325 to 540

(Beta 133986). Despite the disturbance incurred during the intrusion of Structure 2, Structure 1 was the most substantial building identified during the NM 90 excavations. It was the deepest pit structure, exhibited well prepared plastered walls and floor, and had an adobe-lined hearth. According to Diehl (1997), some architectural attributes that signify greater labor investment in pithouse construction in the Mogollon region are adobe-collared hearths, floor and wall plaster, and pit depth. These data suggest that the builders of Structure 1 expected a relatively long period of residence per year.

Like the preceding occupation, the Early Pit House component was not easily recognized in the cultural deposits and extramural features. The size and complexity of Structure 1 implies a substantial occupation. Considering the small percentage of the site investigated, other Early Pit House features and structures likely occur outside the right-of-way.

Three Circle Phase Component

The most intensive occupation within the NM 90 right-of-way dated to the Three Circle phase of the Late Pit House period. Two archaeomagnetic dates and two radiocarbon determinations were derived from two Three Circle phase structures. Three pithouses, Structures 2, 3, and 4, appear to have been occupied during this time period. These structures share architectural features considered diagnostic of the later part of the Late Pit House period (Fitting 1973b; Haury 1936a; Woosley and McIntyre 1996), such as rectangular or semi-rectangular shape, and in the case of Structures 2 and 3, ramp entryways with aligned front hearths, and, possibly, similar main post alignments. Structure 4 would probably display similar characteristics if excavated. The effort employed in the construction of these structures is generally similar to the labor costs of Structure 1. Although the walls of Structures 2 and 3 were not plastered and their hearths were not adobe-lined, both are relatively deep pit structures with long entry ramps. Structure 3 also had a slab-lined entry ramp and ventilator. These architectural attributes imply significant construction effort, suggesting similar levels of residential mobility occurred at Beargrass during the Early and Late Pit House periods.

Little information could be gleaned from the few external features present at Beargrass. In most cases, the extensive bioturbation of midden deposits disturbed both overlying midden and underlying feature fill. Some of the least disturbed exterior pits were found in the immediate environs of Structure 3. Six pits represent either exterior roasting pits or pits of undetermined function. Features 49 and 52 represent the remains of two basin-shaped roasting pits with associated fire cracked rock and oxidized earth. The spatial proximity of these features to each other, to Structure 3, and the lack of any intrusion events, suggests that the features were relatively contemporaneous with each other and with Structure 3. If true, this suggests that this feature cluster functioned as a small outdoor activity area, which was constructed and used by the occupants of Structure 3. The presence of two roasting pits in a single activity area further indicates some remodeling occurred over time. As one roasting pit developed unstable walls or became filled in with debris, another was constructed nearby.

Most of the burials found at Beargrass were heavily disturbed and could not be conclusively assigned to one of the components; exceptions to this situation were Burial 4 (Feature 17) and Burial 6 (Feature 24). Both of these burials intruded into the fill of Structure 3, which indicates that they occurred after the abandonment of that Three Circle phase pit structure. Burial 4, the most intact human interment, contained carefully placed rock cobbles at specific locations around the deceased body. Similar rock cobble burials have been encountered at the Wind Mountain site. In one such case, rock cobbles were placed around the interred individual's head chest and shoulders (Woosley and McIntyre 1996:270). Burial 6 was a secondary cremation burial. Although rare, secondary cremation burials do occur at other contemporaneous sites in the region (Bussey 1975: 19; Haury 1936a: 24; Wheat 1955: 68-69; Woosley and McIntyre 1996: 270). Based on similar, contemporaneous burial patterns at other sites in the Mogollon region, and the stratigraphic intrusion of Burials 4 and 6 into the fill of Structure 3, it is suggested that both burials were interred sometime during the later part of the Three Circle phase.

9.0 Peterson Canyon, LA 121159 (USFS No.: AR-03-06-07-00579)

Jim A. Railey with contributions by Grant D. Smith

Introduction

Peterson Canyon (LA 121159) was a small residential site dating from the late Three Circle phase of the Late Pit House period. It was located on a small, restricted hill top on the southern (right) side of the NM 90 right-of-way (Figure 1.2). Documented in a 1998 survey (Goar et al. 1998), two features were observed on the surface of the site (Features 1 and 2), both within the highway right-of-way. Both were marked by concentrations of unshaped rock mixed with ground stone fragments and other artifacts. It was originally thought that these rock concentrations might be the locations of masonry field houses but this was not confirmed during data recovery. Based upon the potential for buried features and deposits, the site was recommended as eligible to the NRHP.

The major project-related impacts to Peterson Canyon were the widening of the shoulders and the recontouring of the slopes. These road improvements were anticipated to disturb all remaining intact cultural deposits within the right-of-way limits. Between February 19 and 23, and on April 5, 1999, TRC carried out data recovery excavations on Peterson Canyon to mitigate impacts of the highway reconstruction project. Crew size varied from three to eight during this period. The investigations cleared all cultural deposits from the right-of-way.

Data recovery at the site revealed a single pithouse and several other features, and a sparse artifact scatter. The site measured 22 m east-west by 17 m north-south with an area of 220 m^2. The entire site lay within the right-of-way, on the southern side of the highway, and data recovery activities were thus restricted to this side of the road.

Physical Description

This site was situated atop a small, upland hill top on the left bank of Peterson Canyon, immediately west of the canyon's intermittent stream (Figure 9.1 and 9.2). It lies at an elevation of 1,743 m (5,720 feet) amsl. The site presently was situated several hundred meters from the nearest presently-intermittent water sources.

Peterson Canyon was situated within the Madrean Open Oak Woodland biotic zone. This rich zone produced a wealth of oak, walnut, piñon, and juniper seeds, as well as yucca, beargrass, and agave during the summer months. The site currently is covered in alligator juniper, piñon, and gray oak. Low vegetation includes yucca, beargrass, and various grasses. Oaks dominate the overstory along the lower slopes and alluvial plains.

The major land modifications to the site included the original construction of NM 90 and erosion to the edges of the site. NM 90 passed through the northern edge of the site, probably removing at least some cultural features, especially along the southern side of the highway cut adjacent to the pit structures and other features documented during the present investigations. The steep road cuts were incised approximately 1.5 m below the original ground surface on the north.

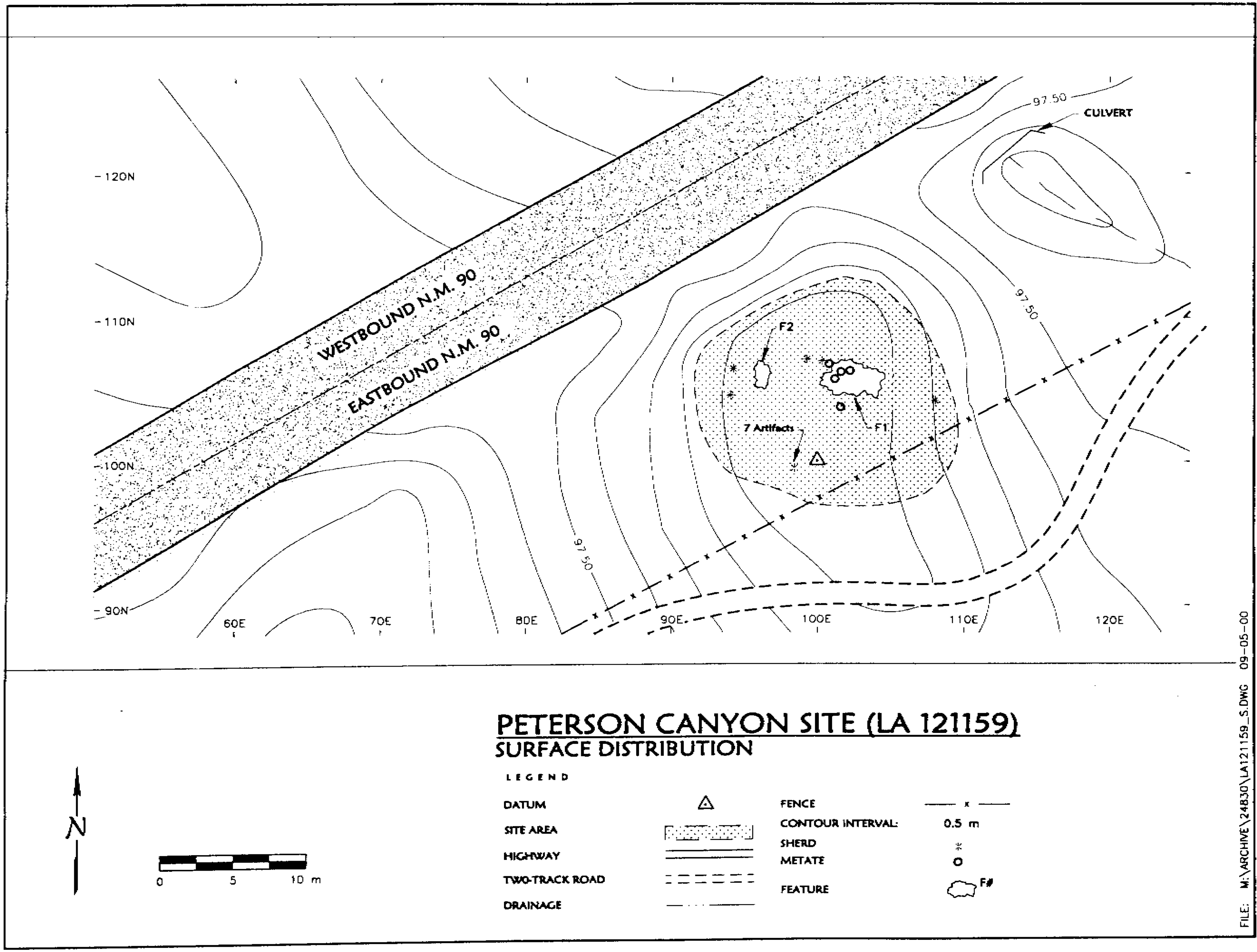


Figure 9.1 LA 121159, Site Map Showing Surface Artifacts and Features.

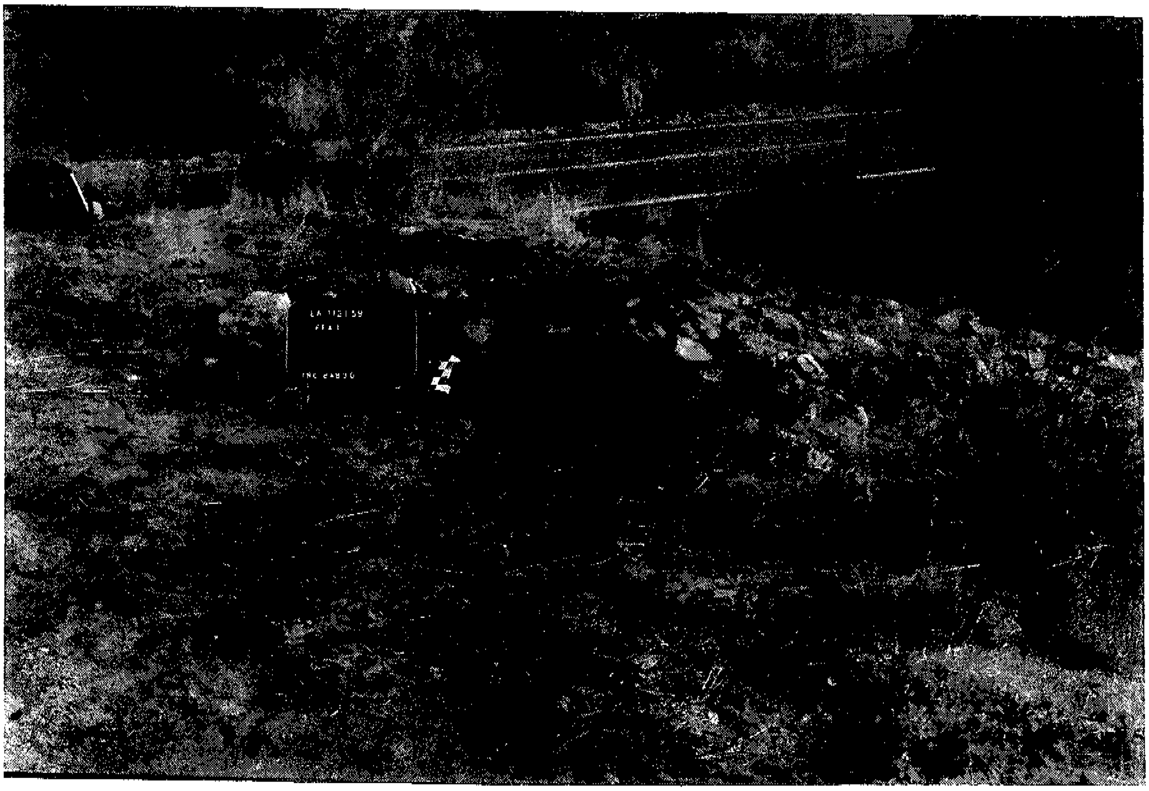


Figure 9.2 Photograph of the Peterson Canyon Site, Showing Feature 1 in Pre-excavation.

Data Recovery Strategy

Data recovery investigations conducted at LA 121159 included surface reconnaissance, mapping surface collection, test trench excavation, backhoe trenching, hand excavation of features, and mechanical stripping. A systematic survey of the site vicinity confirmed the site boundaries.

After datum was established at N100 E100, relevant topographic details, right-of-way engineering stations, artifacts, test trenches, backhoe trenches, excavation units, and the edges of stripped surfaces were mapped. All surface artifacts were point provenienced using the total station.

Excavations commenced with the placement of three 2 by 2 m and three 1 by 2 m excavation units across Features 1 and 2 and several other surface anomalies including rock concentrations and a ceramic concentration. Comprising a total contiguous area of 18 m^2 in an irregular, elongated block, these units were intended to bisect Features 1 and 2, identified as possible masonry field houses during the survey (Figure 9.3). The trench and block excavations revealed no evidence of the structure foundations or remains. Two additional 1 by 2 m excavation units were placed to the south of Features 1 and 2, also revealing no cultural remains. Neither of these units identified buried features or deposits. Machine stripping uncovered a total of 282 m^2. Three backhoe trenches were excavated at Peterson Canyon, with the length of each as follows: BT 1, 10.5 m; BT 2, 12.5 m; and BT 3, 5 m. BT 1 cut through Feature 3, the pit structure and central feature of the site.

Following hand excavation, a backhoe trench was excavated across the area that revealed a structure between Features 1 and 2. Two additional trenches were excavated to the east and south of the first to explore a stained area and a ceramic concentration. The three backhoe trenches comprised a total length of 29 m. One of these trenches revealed the presence of a buried pit structure. The area was then stripped mechanically to expose the structure and its associated extramural features. All features were subsequently excavated by hand. Finally, the site was mechanically stripped again to expose 287 m^2.

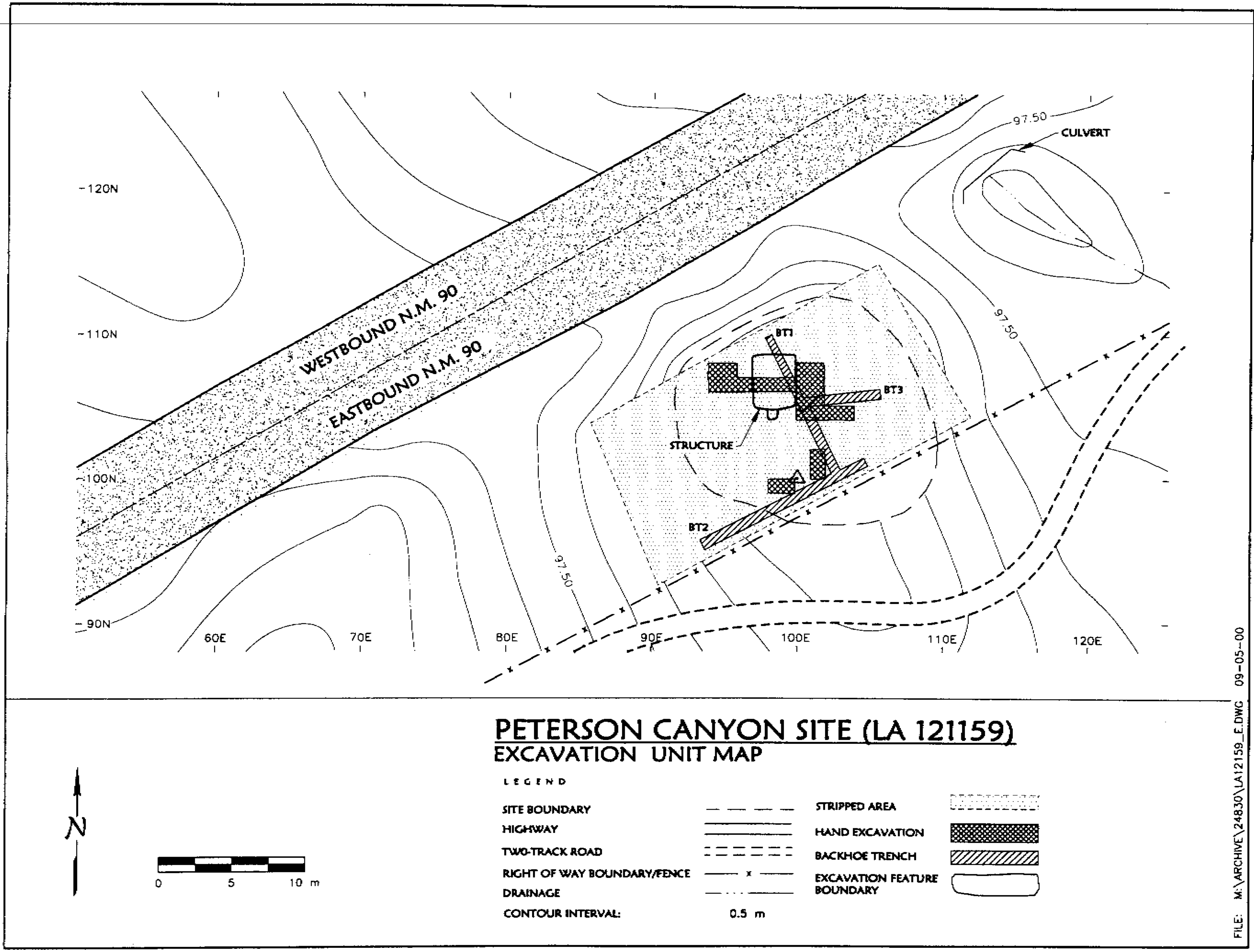


Figure 9.3 Peterson Canyon, Site Map Showing Excavation Units.

Surface Characteristics

Data recovery investigations at Peterson Canyon confirmed the presence of a discrete artifact scatter with features in an area measuring 22 m east-west by 17 m north-south (Figure 9.1). The surface of the site produced 31 artifacts (Table 9.1). No thermally altered rocks were noted on the surface. Since NM 90 marks the northern boundary of the site, it is plausible that the occupation may have continued a short distance into what is now the highway. The site continued only 3 m outside of the right-of-way, where only one artifact was observed.

Table 9.1 Peterson Canyon Site Artifact Assemblage.

	Debitage	Retouched Tools	Projectile Points	Manos	Metates	Alma Plain	Alma Rough	Alma Incised	Corrugated Brown	Indeter. Brown	Indeter. White	Indeter. Mimbres Black-on-white	Three Circle Neck Corrugated	Ceramics Too Small for Analysis	Faunal Remains	Totals
Surface	13	1	–	1	4	–	1	1	9	–	–	1	–		–	31
Feature 3	24	–	1 Cienega	1	1	1	7	–	2	1	9	–	3	6	11	67
Feature 13	1	–	–	–	–	–	–	–	–	–	–	–	–	–	2	3
Feature 14	6	–	–	–	–	–	–	–	–	–	–	–	–	–	10	16
Nonfeature		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Level 1	3	–	–	–	–	–	–	–	–	–	–	–	2	1	–	6
Level 2	2	–	–	–	–	–	1	–	–	–	–	1	1	–	–	5
Totals	49	1	1	2	5	1	9	1	11	1	9	2	6	7	23	128

Site Stratigraphy and Geomorphology

Peterson Canyon is located on a small ridge composed of coarse granitic alluvium. As compared to nearby Beargrass, which is also located on a ridge, the sediments at this locale are coarser and appear to be closer to their source. In addition, the stratigraphic profile is simpler, and the sediments are not as thick as those observed at Beargrass.

Overlying the decomposing granitic bedrock of the site is an approximately 60 cm thick deposit of stratified, pebble-rich, granitic sandy loam (Figure 9.4). This sandy loam is dominated by potassium feldspars and the sand and pebble-sized grains tend to be angular. Both of these properties suggest that the sands are close to their source, and probably were washed in from exposures up slope of the site. Given the mineralogical cleavage of the feldspars and their susceptibility to chemical weathering, further transport from their source area would quickly result in the reduction of grain-sizes and rounding of the edges of individual grains.

Two soil horizons were defined within this stratified, granitic sand. The upper 5 to 20 cm of these sediments are brown (5YR 4/4,d) and show a significant accumulation of humic material. These properties, and its position on the modern surface, result in its classification as an A horizon.

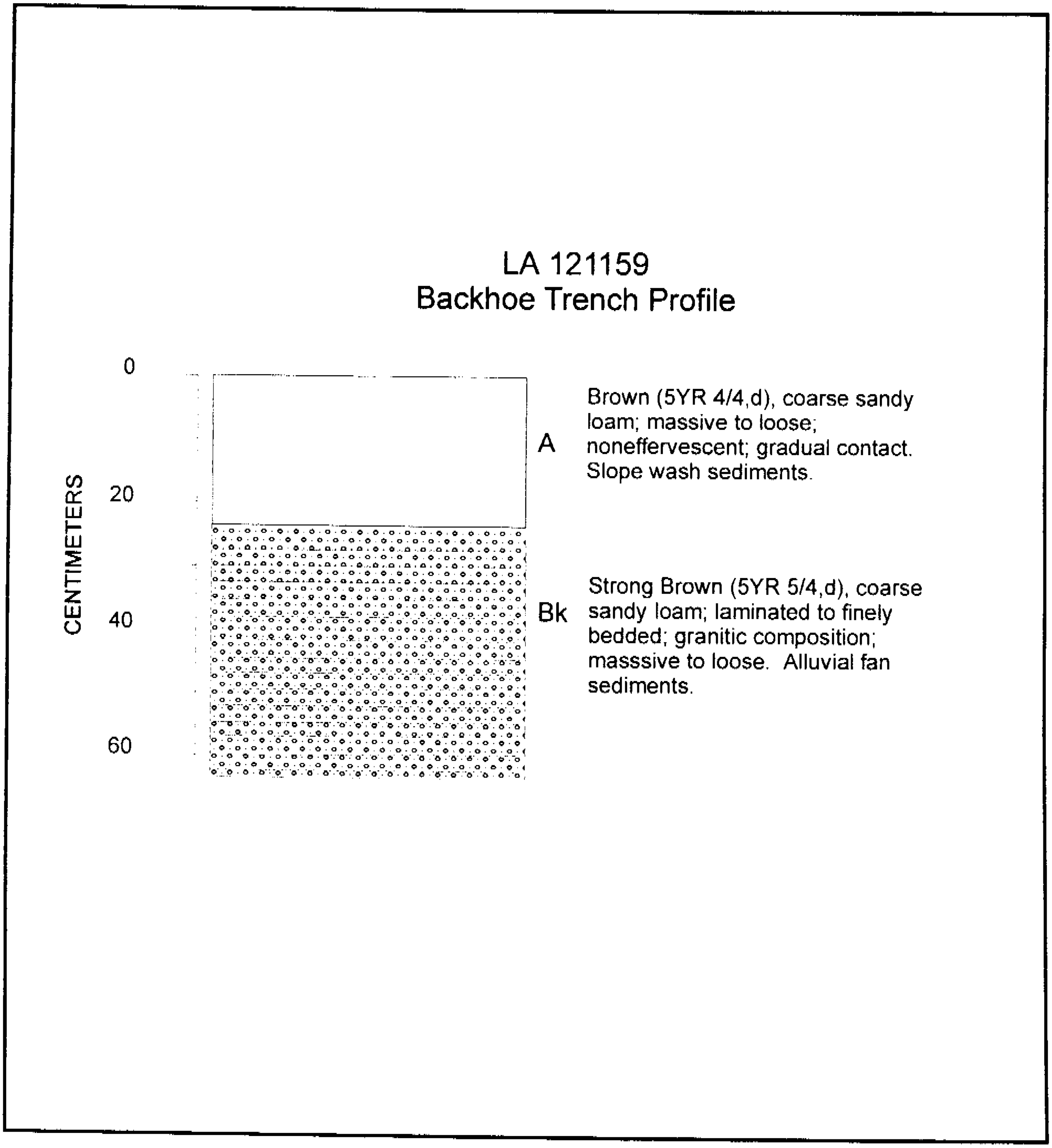


Figure 9.4 Geomorphic Profile of LA 121159.

Below the A horizon is an approximately 40 cm thick unit that lacks humates, but exhibits pedogenic carbonate accumulations. These properties result in its classification as a Bk soil horizon. The pedogenic carbonates consist of common (4 percent), fine, irregular, carbonate filaments. This amount of carbonate is considered a Stage I accumulation (after Gile et al. 1966; Machette 1985). Within New Mexico and Arizona, Stage I accumulations typically are associated with soils that date less than 5000 BP and are often less than 2000 BP (Karlstrom 1988; Machette 1985; Monger 1993; Smith and McFaul 1997).

With regards to the archaeological materials at the site, the majority of intrusive features are excavated into the Bk horizon. As with Beargrass, the preference for this unit for intrusive features may be due to the durability imparted to the unit by the pedogenic carbonates. In contrast to Beargrass, however, the coarseness of the sediments at Peterson Canyon would tend to make the walls of pits and house basins friable, and therefore, less durable.

The relationship of the cultural features to soil development on the site is unclear. Though the sediments appear to be the result of multiple slopewash events, the soil formation at the site would suggest this locale has been relatively stable for a substantial amount of time. Based on the Stage I pedogenic carbonates, a tentative age estimate for relative stability at the site is 1,000 years or more. What could not be determined was whether occupation of the site occurred while the sediments were accumulating, or if it happened after the site became more stable and a soil had developed. It would seem most likely that the occupation occurred after stabilization and soil development, but that cannot be confirmed with available evidence.

Subsurface Cultural Resources

The excavations and geomorphic investigations revealed no clear evidence for anthropogenic deposition at the Peterson Canyon site. The A horizon, within which cultural materials were contained, was up to 20 cm in thickness, yet it is not clear whether occupation occurred during the formation (and contributed to the accumulation) of this uppermost soil layer. Feature 3, the pithouse and central feature of the site, and other features were not recognized above the upper surface of the underlying Bk horizon. As a result, the only subsurface cultural deposits that were clearly intact are found within the features that intruded into the Bk horizon.

Twenty-eight features were documented and investigated at the site (Figure 9.5). These included one structure, one roasting pit, one small circular pit, 20 post holes, and three occurrences that, upon investigation, did not prove to be cultural features. Data for the pit structure and its interior features are summarized in Tables 9.2 and 9.3.

Table 9.2 Features at LA 121159.

Feature	Type	N	E	Elevation	% Excavated	Volume (l)	Time
1	Roasting pit	–	–	–	0	–	–
2	Midden	452.00	475.00	96.5	25	–	Early Pit House
3	Natural	502.00	562.00	98	0	–	Early Pit House
4	Pithouse	462.22	496.39	96.92	100	2206.86	Early Pit House
5	Pithouse	470.88	520.82	98.12	100	69.12	Early Pit House
6	Pithouse	454.79	478.15	96.63	100	1345.86	Early Pit House

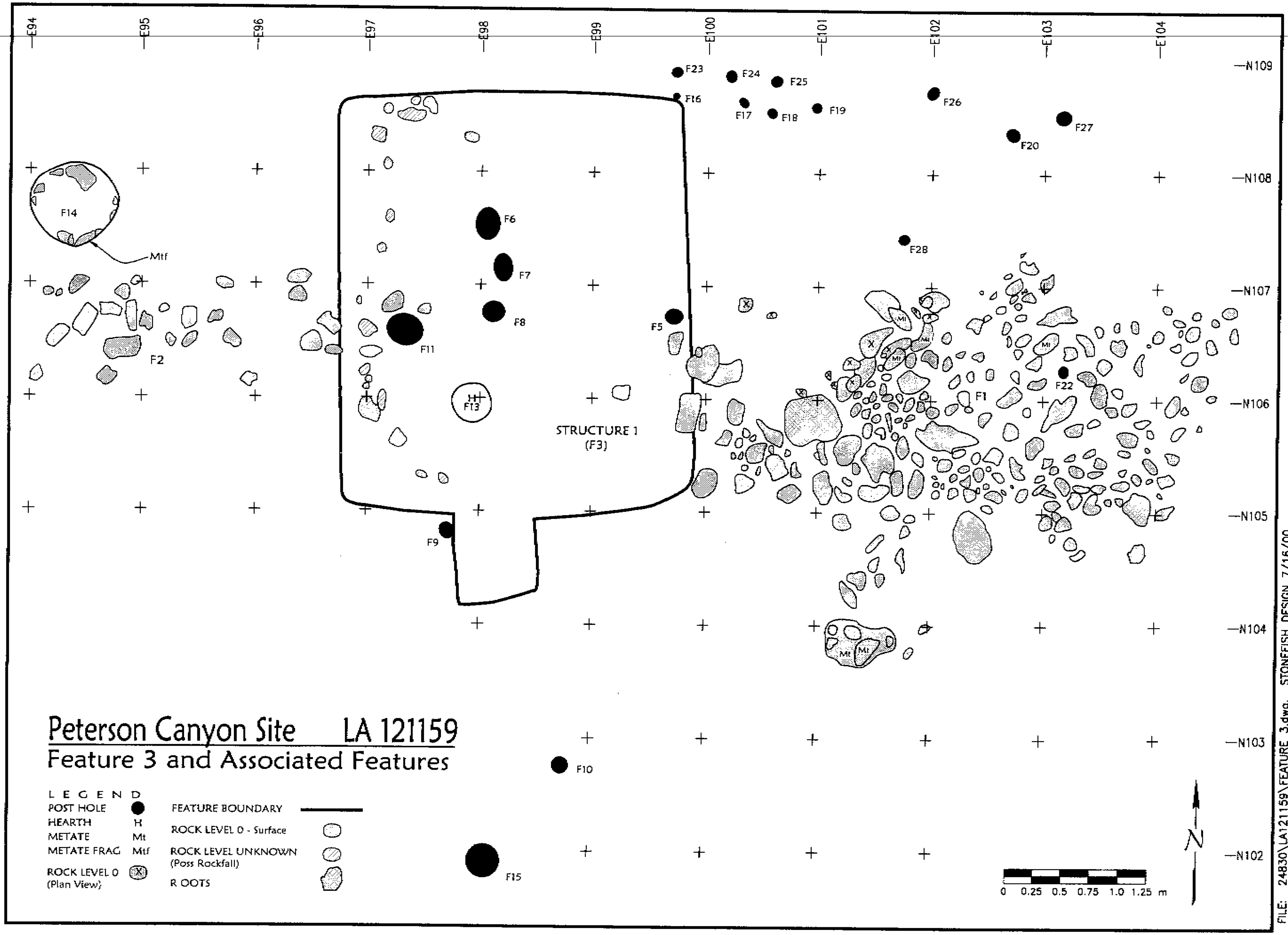


Figure 9.5 Features at LA 121159.

Table 9.3 Structure 1 and Interior Feature Data at LA 121159.

Feature	Type	Morphology	Plan	Thermal?	Length (m)	Width (m)	Depth (m)	Percent Excavated	Area (m^2)	Volume (l)	Artifact/l	TAR kg/l	Time
1	Rubble	Irregular	Amorphous	N	5	2.4	0.06	50	–	–	–	–	Three Circle
2	Rubble	Irregular	Amorphous	N	2	0.5	0.17	25	–	–	–	–	Three Circle
3	Pithouse	Basin	Rectangular	N	3.8	3	0.24	100	11.400	2736.000	0.02	0.000	Three Circle
5	Post hole	Cylindrical	Circular	N	0.14	0.14	0.08	100	0.015	1.232	0.00	0.000	Three Circle
6	Post hole	Cylindrical	Circular	N	0.28	0.22	0.1	100	0.048	4.838	0.00	0.000	Three Circle
7	Post hole	Cylindrical	Circular	N	0.26	0.2	0.1	100	0.041	4.084	0.00	0.000	Three Circle
8	Post hole	Cylindrical	Circular	N	0.2	0.2	0.3	100	0.031	9.425	0.00	0.000	Three Circle
9	Post hole	Cylindrical	Circular	N	0.13	0.13	0.07	100	0.013	0.929	0.00	0.000	Three Circle
10	Post hole	Cylindrical	Circular	N	0.18	0.15	0.08	100	0.02	1.70	0.00	0.000	Three Circle
11	Post hole	Cylindrical	Circular	N	0.3	0.3	0.1	100	0.07	7.07	0.00	0.000	Three Circle
13	Hearth	Basin	Circular	T	0.35	0.35	0.1	100	0.096	6.414	0.47	0.000	Three Circle
14	Roasting pit	Basin	Circular	T	0.8	0.8	0.25	100	0.50	83.78	0.19	0.448	Three Circle
15	Storage pit	Basin	Circular	N	0.3	0.3	0.14	100	0.07	6.60	0.00	0.000	Three Circle
16	Post hole	Cylindrical	Circular	N	0.1	0.1	0.15	100	0.01	1.18	0.00	0.000	Three Circle
17	Post hole	Cylindrical	Circular	N	0.1	0.1	–	0	0.01	–	–	–	Three Circle
18	Post hole	Cylindrical	Circular	N	0.1	0.1	–	0	0.01	–	–	–	Three Circle
19	Post hole	Cylindrical	Circular	N	0.1	0.1	–	0	0.01	–	–	–	Three Circle
20	Post hole	Cylindrical	Circular	N	0.1	0.1	–	0	0.01	–	–	–	Three Circle
21	Post hole	Cylindrical	Circular	N	0.1	0.1	–	0	0.01	–	–	–	Three Circle
22	Post hole	Cylindrical	Circular	N	0.1	0.1	–	0	0.01	–	–	–	Three Circle
23	Post hole	Cylindrical	Circular	N	0.1	0.1	–	0	0.01	–	–	–	Three Circle
24	Post hole	Cylindrical	Circular	N	0.1	0.1	–	0	0.01	–	–	–	Three Circle
25	Post hole	Cylindrical	Circular	N	0.1	0.1	–	0	0.01	–	–	–	Three Circle
26	Post hole	Cylindrical	Circular	N	0.1	0.1	–	0	0.01	–	–	–	Three Circle
27	Post hole	Cylindrical	Circular	N	0.1	0.1	0.15	100	0.01	1.18	0.00	0.000	Three Circle
28	Post hole	Cylindrical	Circular	N	0.1	0.1	–	0	–	–	–	–	Three Circle

Structure 1 (Feature 3)

The most prominent feature at the Peterson Canyon site was a pit structure (Structure 1, Feature 3) that dates from the late Three Circle phase (Figures 9.5 through 9.7). The structure was first encountered in one of three backhoe trenches excavated across the site. Machine stripping revealed the outlines of the rectangular structure, which measured 3.0 by 3.8 m, oriented north/south, with an entry ramp in the center of the southern wall. Following complete exposure of the structure, it was divided into four quarters, with the pithouse fill excavated as a single, natural level. All excavated fill was screened through 1/4-inch mesh.

Internal Stratigraphy

The Structure 3 pit extended down to 24 cm below the excavated surface. The house pit fill consisted of a very dark grayish brown (10YR3/2) compact coarse sand with charcoal and occasional rock. No internal stratification was observed. It seems likely that at least part of the fill is composed of collapsed superstructure debris, along with sediment eroded into the abandoned house pit.

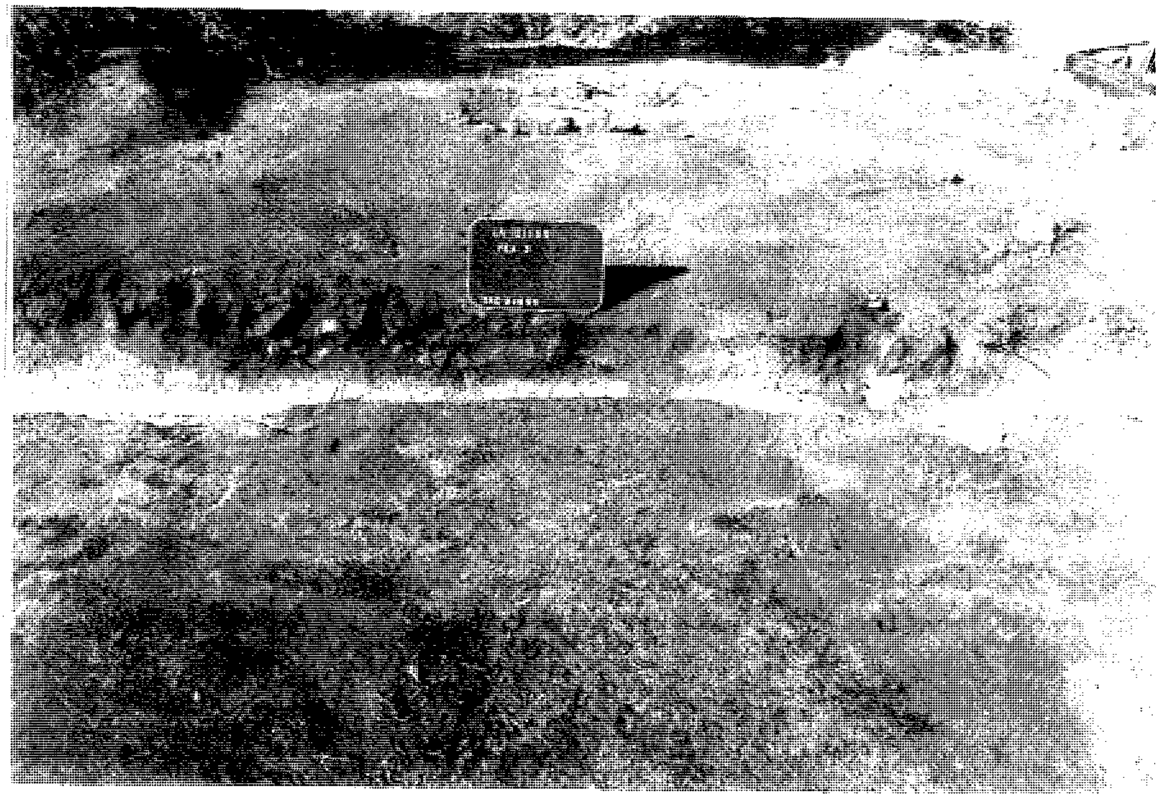


Figure 9.6 Photograph of Structure 1, Cross-section Profile.

Figure 9.7 Photograph of Structure 1.

Construction and Remodeling Evidence

The walls of the structure were vertical, and the floor was flat. Although the structure was partially subterranean, the upper walls may have been masonry as evidenced by the two nearby concentrations of rock recorded as Features 1 and 2. Although Features 1 and 2 may represent displaced rubble originally used in the wall construction of Structure 1, it is perhaps more likely that these features represent exterior stone pavements, and they are dealt with later in this chapter. The presence of five post holes within Structure 1 (Features 5–8 and 11) indicate that support posts were erected to hold up what was probably a heavy, earth-covered roof. The presence of dropseed grass stems in the fill may indicate the use of brush and grasses as well (see Chapter 20). These intramural posts ranged in size from 14 to 28 cm in diameter and from 8 to 10 cm in depth. The collective evidence points to a substantially-built structure that was probably intended for intensive or repeated use. The architectural characteristics of the structure, including its rectangular configuration, the presence of internal support posts and hearth, and the possible inclusion of masonry in the walls are all characteristic of Three Circle phase structures.

Floor and Internal Contents

Along with the five post holes (Features 5, 6, 7, 8, and 11), Structure 1 also contained an intramural hearth (Feature 13). The hearth was located in the south-central portion of the house floor, less than 1 m from the doorway. Feature 13 was a shallow, circular feature with charcoal in the fill and brightly oxidized margins. The recovery of maize cupules from this hearth indicates the use of cobs for fuel (see Chapter 20).

The fill and floor of Structure 1 did not contain a large number of artifacts (Table 9.1). Ceramics from Structure 1 include Alma Series, Three Circle Neck Corrugated, Corrugated Brown, and indeterminate brown-and-white wares. This assemblage underscores the Three Circle phase affiliation of this structure, which is supported by the architectural character of the structure itself, along with one of the two radiocarbon dates from the pithouse. The only grinding implement found on the floor was a broken mano.

In addition to the aforementioned dropseed and maize, Structure 1 also yielded squash, goosefoot, chenoam, winged pigweed, several other grasses, pursalane, prickly pear, and an unidentified seed fragment referred to as CCSC (see Chapter 20).

Abandonment and Post-abandonment

The paucity of materials within Structure 1 is consistent with a planned, orderly abandonment of the site, probably near the end of the Three Circle phase. There is no evidence that ceramic vessels or other implements were left on the structure floor, as might otherwise be expected if the site were under attack and abandoned rapidly. Nor does it appear that the occupants left the site, intending to return, in which case pots, metates, and manos might have been left inside the structure (for a contrasting example, see the Power site, Chapter 14). This inference is supported by the presence of oxidization on the floor and walls, and charcoal on the floor, indicating that the structure was burned (although it is unclear if this was accidental or intentional). Reasons as to why this single pithouse site was given up remain unknown. It is perhaps relevant to note that the end of the Three Circle phase was a time of especially dynamic social changes and re-settlement in the southern Mogollon area, with pueblo settlements forming and probably drawing residents in from surrounding areas.

Extramural Post Holes

Along with the five post holes inside the pit structure, 15 additional post hole features were located outside of Structure 1. One of these was identified adjacent to the doorway ramp and may have been a support post for the ramp entryway. Another post hole was uncovered a little more than 1 m south of the structure, and two other isolated posts were located between 1.75 and 8 m east of Structure 1. One of these latter post holes was located within the Feature 1 rubble concentration. Extending eastward off the northeastern corner of Structure 1 were 10 post holes that formed a distinctive linear configuration. What sort of structure these 10 posts formed or supported is unclear; they may represent the remains of drying racks, a ramada, or wind break, and may be structurally associated with Feature 1, a stone pavement (see below).

Rock Concentrations

These rubble concentrations were originally assumed to be the remains of surface masonry structures, but this was not borne out through excavations; that is, no wall foundations or other indications of a walled structure were encountered beneath these features. Feature 1 appears spatially associated with a line of post holes, but it remains unclear whether or not there is a functional or structural relationship between these. Along with Features 1 and 2, there was a small amount of rubble encountered on the floor of Structure 1, along the interior western wall. The excavators suggested that Features 1 and 2 represent rubble that was originally incorporated into the walls of Structure 1, but which had been displaced by bulldozing activities during the original construction of NM 90. This assumption may be correct, although the rubble from Features 1 and 2 may have been used to buttress and support the *exterior*, rather than interior, portions of the structure. This would explain the general lack of rubble from the interior of the pithouse. At the Wind Mountain site (Woosley and McIntyre 1996), use of stone to support exterior structure walls is reported for many of the Late Pit House-period structures. In these examples, the stone buttresses often do not line the entire wall of the structure, but rather are discontinuous suggesting selective strengthening or refurbishment of wall sections that may have weakened over time. In any event, displacement of rubble from the walls of Structure 1 at Peterson Canyon may have resulted from prehistoric dismantling of the structure to salvage and re-use construction timbers and, possibly, some of the rubble itself.

It is at least equally possible that the rubble from Features 1 and/or 2 were never incorporated into the walls of Structure 1, and here two plausible scenarios present themselves, especially with respect to Feature 1. One possibility is that Feature 1 represents a sort of "land fill" construction, intended to level out the area immediately east of Structure 1, perhaps to help stabilize, and indirectly support, this side of the structure. Another, not mutually exclusive, possibility is that Feature 1 represents a pavement that was constructed for activities carried out in this area. This possibility enjoys support from the fact that the line of exterior posts, extending eastward from the northeast corner of Structure 1, parallel to Feature 1 on the north. This apparently nonrandom association suggests that the exterior line of posts is structurally associated with Feature 1, and may have been a part of a ramada structure associated with the Feature 1 stone pavement.

Exterior stone pavements are known from Late Pit House- and Mimbres-period contexts at the Wind Mountain site (Woosley and McIntyre 1996:62), and appear similar to those at Peterson Canyon (especially Feature 1). Like Features 1 and 2 at Peterson Canyon, all four Wind Mountain stone pavements appear to be associated with domestic structure, although only one of the Wind Mountain pavements is associated with a support post. The precise function of these pavements remains unclear, although the Wind Mountain authors tentatively suggest they may have been used as drying surfaces. In any event, the weight of the evidence seems to tilt in favor of Features 1 and 2 at Peterson Canyon as stone pavements, rather than rubble displaced from the walls of Structure 1. The rubble along the western interior wall of Structure 1, however, may still represent a discontinuous use of stone to reinforce this side wall of the pithouse.

Of special interest are several metates incorporated into the Feature 1 rock concentration. It seems likely that these metates were left at the site during a previous occupation, perhaps a Late Archaic one that also left the Cienega projectile point found in the fill of Structure 1. If so, then it seems equally probable that these ground stone items simply were scavenged by the Three Circle occupants of the site and incorporated into the stone pavement.

Thermal Pit (Feature 14)

This feature was uncovered approximately 2 m west of Structure 1 (Figure 9.8). It was first recognized when mechanical stripping revealed several rocks at this locality. It consisted of a large (80-cm wide), well-defined basin, 30 cm deep (Figure 9.7). The feature was lined with burned rocks, including a metate fragment. Feature fill consisted of a black (7.5YR 2/1, d) sandy loam and a dense concentration of wood charcoal. No oxidization was observed along the pit wall, and it appears to be a Dutch oven-type roasting pit in which the rocks were heated elsewhere, placed in the pit surrounding the food item, and covered with earth for slow roasting. Feature 14 yielded maize, multiple goosefoot species, chenoams, winged pigweed, grass, juniper, and unidentified seed fragments (CCSC). The large number of chenopod specimens suggests seeds may have been roasted or that the green plants were used to wrap meats or other foods cooked in the pit. The floral assemblage is similar to Structure 1, but given the lack of diagnostic cultural materials from Feature 14, it remains unknown whether or not it is associated with the nearby pithouse.

Non-thermal Pit (Feature 15)

Located approximately 2.5 m south of the pit structure (Feature 3), this pit feature was encountered during stripping of the site. Feature 15 was smaller (30 cm diameter, 14 cm deep) than Feature 14, and lacked the dense concentration of burned rock observed in the latter feature, but otherwise is similar in shape and profile (Figure 9.9). The fill consisted of a very dark gray (10YR 3/1, d) silty sand loam, and charcoal was less abundant in this pit than in Feature 14. Floral remains include goosefoot, grass, stickleaf, dropseed, and unidentified seed fragments (CCSC) and probably represent the remains of secondary trash deposits in the pit. Like Feature 14, no diagnostic artifacts were recovered from this feature, and its temporal affiliation remains unknown.

Non-cultural Features

Features 4 and 12 were designated as features in the field, mapped, and cross-sectioned. Upon investigation, however, neither appeared to be cultural in origin. Features 1 and 2 were likely the disturbed remains of masonry walls associated with Feature 3.

Artifacts

A total of 128 artifacts was recovered from the site (Table 9.1). Lithics include 49 pieces of chipped stone debitage, one chipped stone tool, and seven pieces of ground stone.

Chipped Stone

Chipped stone artifacts included 49 pieces of debitage, one retouched tool, and one projectile point (Table 9.1). The 49 pieces of debitage included 33 flakes, 10 pieces of debris, and six pieces of unclassified debitage. Fourteen of the flakes were whole, 12 were broken, and seven were classified as flake fragments. Of the 33 flakes, 21 had unifacet platforms, two had multi-facet platforms, two had collapsed platforms, and the remaining flakes had no platforms. Three of the flakes showed evidence of edge modification. Debitage materials for all debitage types include chert (13), quartzite (11), rhyolite (nine), white quartz (eight), igneous (four), sedimentary (two), basalt (one), and obsidian (one).

One chipped stone tool, a chert scraper, was 67 mm long and 39 mm wide with a maximum thickness of 20 mm. The corner-notched projectile point, recovered from within Structure 1, was made of tan chert. Although broken, it retained diagnostic features of a Cienega point, which generally dates to the interval 800 BC to perhaps the AD 600s.

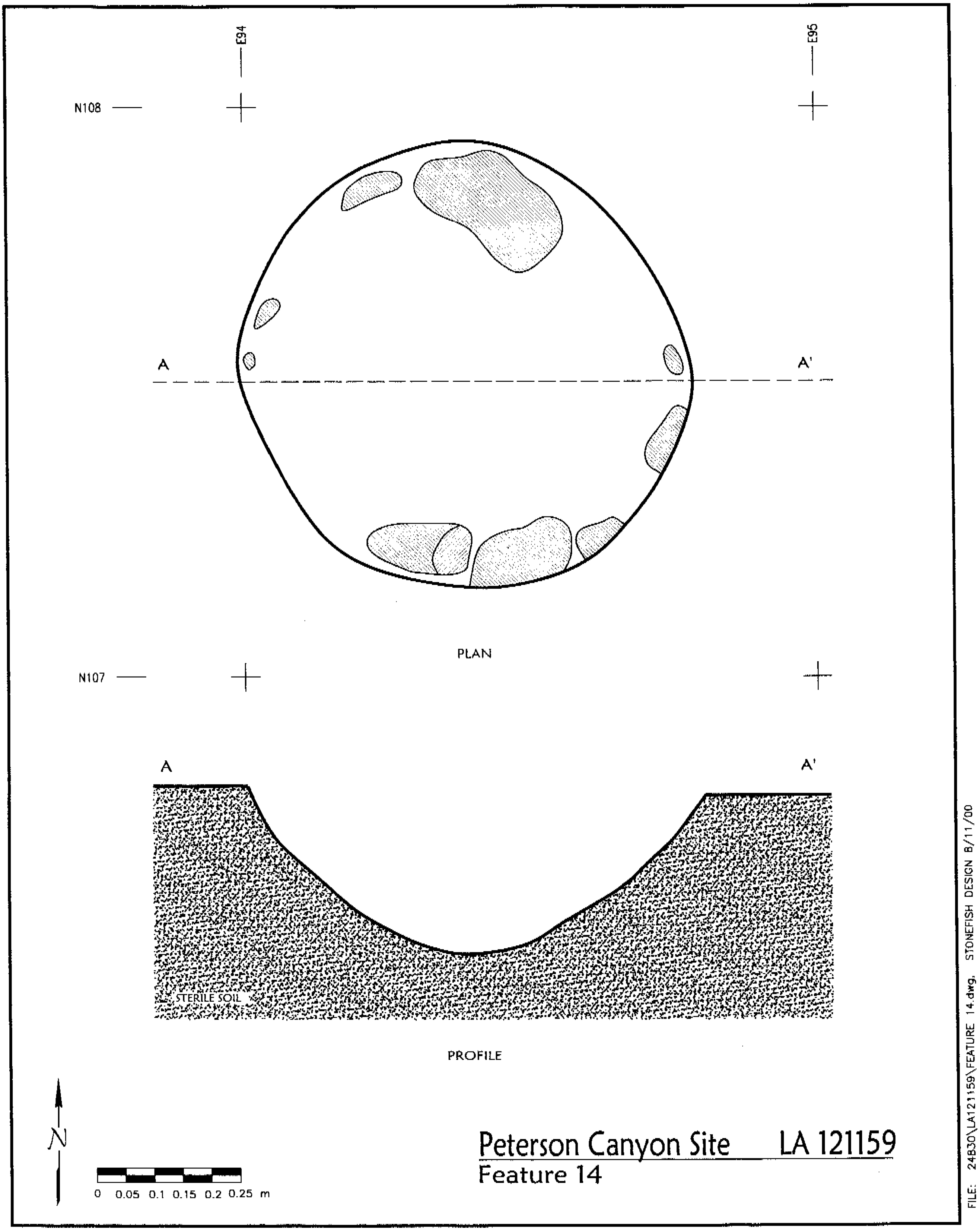


Figure 9.8 Feature 14, Site LA 121159.

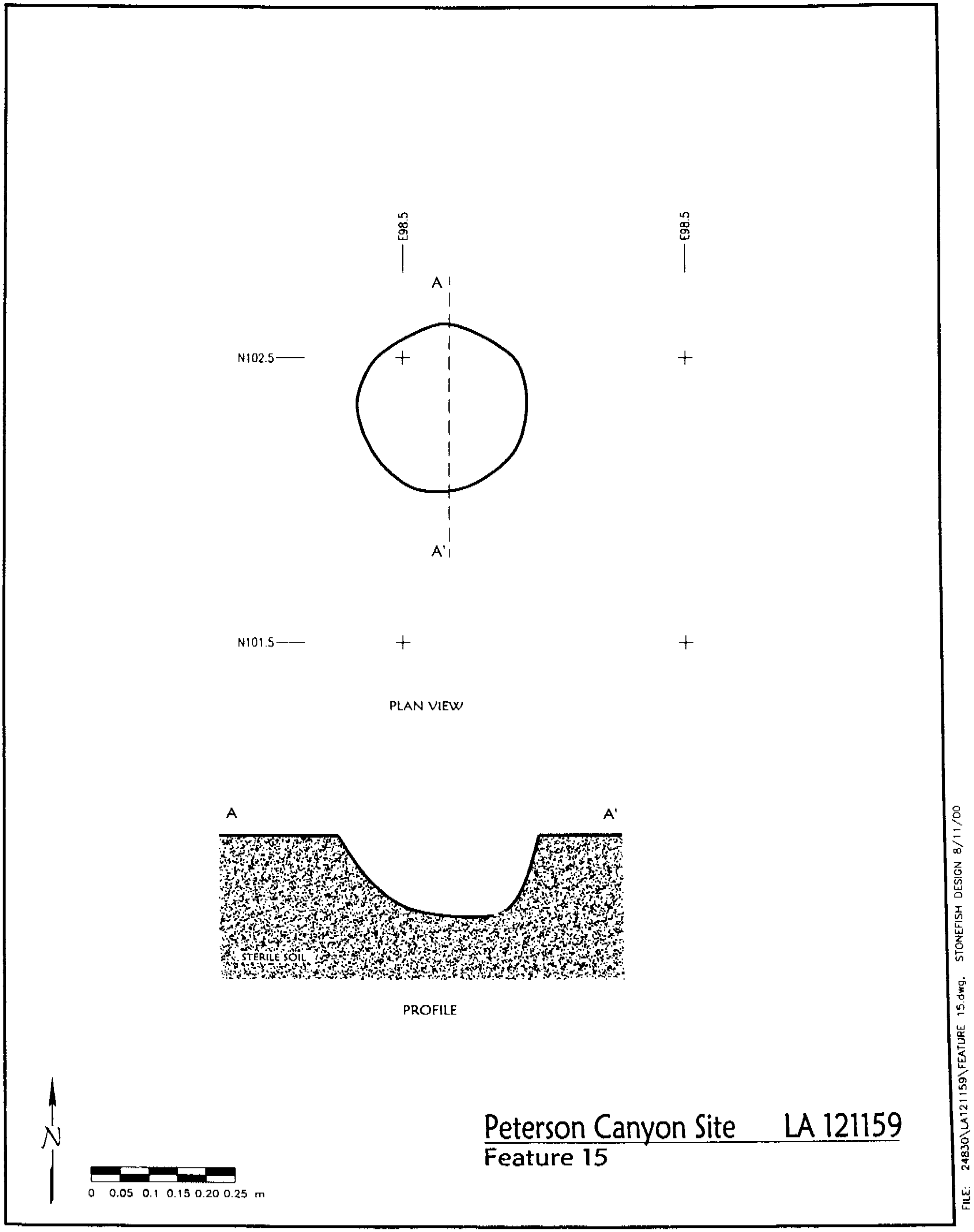


Figure 9.9 Feature 15, Site LA 121159.

Ground Stone

The ground stone assemblage recovered from the site included two manos and five metates (Table 9.1). Both of the manos were broken and were classified as irregular and subrectangular in shape. The metates also were broken and included two basin shaped and three flat/concave shaped pieces.

Ceramic Artifacts

The 47 ceramics sherds including Alma Plain (one), Alma Rough (nine), Alma Incised (one), Corrugated Brown (11), Indeterminate Brown (one), Indeterminate White (nine), Three Circle Neck Corrugated (six), Indeterminate Mimbres Black-on-White (two) and sherds too small for analysis (seven) (Table 9.1). The ceramic data generally support the Three Circle phase affiliation of Structure 1, the primary component at the site. The key diagnostics here are the Three Circle Neck Corrugated sherds, and the white-slipped brownware sherds tentatively identified as coming from a Mimbres Black-on-white Style I or II bowl. The assemblage is consistent with other evidence, including the rectangular plan of Structure 1 and transitional black-on-white ceramics.

Biological Remains

Only 23 faunal specimens were recovered from the site, mostly from Structure 1. Only one of the specimens was identifiable as a *Lepus* mandible. Five specimens were classified as unidentified large mammal, and nine were classified as unidentified small mammal. The remaining fauna were unidentifiable fragments.

Site Chronology

The primary (if not only) occupation of the Peterson Canyon site appears to have taken place during the late Three Circle phase, probably in the late tenth century. This inference hinges on three lines of evidence: 1) the ceramic assemblage; 2) the architectural characteristics of Structure 1; and 3) one of two radiocarbon dates.

Relative Dating

The ceramic assemblage clearly places at least part of the site's occupation within the Three Circle phase (see above). The architectural characteristics of Structure 1 clearly suggest a Three Circle phase affiliation, probably in the latter portion of this phase. The signal traits here are the rectangular plan shape of the structure, with sharp, angled corners that current evidence suggests came into vogue in the late Three Circle phase. Excavations in the region also have revealed that rubble masonry construction, along lower pithouse walls, does not appear until late in the Three Circle phase. Assuming the two rubble concentrations (Features 1 and 2) adjacent to Structure 1 represent displaced or dismantled wall-fall, then this lends further support for the dating of this structure within the late Three Circle phase.

Chronometric Determinations

There are the two radiocarbon dates, both from Structure 1 (Table 9.3). The dates are somewhat problematic in that they are non-contemporary and exhibit no overlap at two sigma. One of the dates (Beta-138805) derives from a Zea cupule in Feature 13 (the interior hearth in Structure 1) and yielded a two-sigma, calibrated age of AD 875–1010, with a calendar intercept of AD 970. This date is squarely within the expected time range of the late Three Circle phase, and is considered an acceptable association with Structure 1. The other date (Beta-141730) derives from an *Opuntia* (cholla) seed recovered from Structure 1, and yielded a two-sigma, calibrated age of AD 670–780 (calendar intercept AD 700). This age correlates with the early to mid San Francisco phase, and is not consistent with the other chronological indicators from the site. It remains unclear, however, if this sample indeed reflects an ephemeral San Francisco-phase presence at the site, or if it was a fortuitous inclusion within the Structure 1 fill.

Although the most obvious component at Peterson Canyon dates from the Late Pit House, Three Circle phase, it is possible that other, ephemeral or transitory occupations occurred here. The Cienega projectile point found in the fill of Structure 1 dates from terminal Late Archaic times. It is not clear, however, if this point was left by an earlier occupation at the site, or if it was a curated item left by the Three Circle occupants. The metates within the Feature 1 rubble also may date from an earlier occupation of the site, with the metates possibly scavenged and incorporated into the Feature1 rock concentration. It is entirely possible that one or both of the extramural pit features, along with any or all of the extramural post holes, date from an occupation that either pre- or post-date the Three Circle component at the site. But given the absence of diagnostic artifacts and radiocarbon dates from these features, this remains an open question.

Site Interpretation

The Peterson Canyon site was occupied during the late Three Circle phase, when a single, rectangular pithouse was constructed and occupied on a small hill beside the canyon drainage. The structure was a substantially-built pithouse with internal support posts. Judging from the small amount of artifactual debris at the site, however, the occupation appears to have been brief. The absence of storage pits at this site is not necessarily an indicator of seasonality or residential mobility, as storage patterns at this time appear to have involved above-ground facilities.

What implications the Peterson Canyon site holds for local settlement trends is open to discussion, but some tentative suggestions may be offered. Assuming for the moment that the NM 90 right-of-way transect provides a representative sample of prehistoric sites in the local area, it is perhaps significant that, following fairly intensive occupation of the area during Late Archaic and Early Pit House times, there is virtually no Late Pit House presence until the late Three Circle phase. Insofar as this is true, this pattern may indicate that upland areas were largely abandoned at the beginning of the Late Pit House period (at the same time that agricultural production was apparently intensifying in the region), but reoccupied during the Three Circle phase. Regional population levels were nearing their prehistoric peak at this time, and demographic "packing" of the landscape may have encouraged expansion of populations back into upland areas (see Chapter 23).

At any rate, the Peterson Canyon site was situated so as to take advantage of both canyon bottom and upland soils for farming, as well as the higher precipitation levels here relative to the floors of the region's larger valleys. The biotic richness of the piñon-juniper zone provided an added bonus that perhaps encouraged more intensive use of wild food resources by Three Circle peoples living in upland, as opposed to valley-bottom, locations. Yet the dispersed nature of cultivable land, precipitation, and wild food resources in this area probably encouraged a similarly dispersed settlement pattern at this time. The single structure at Peterson Canyon was likely part of a dispersed, local community, one that probably included the Three Circle phase occupation at the nearby Beargrass site. These occupations were, however, apparently very brief, and as such may reflect the dynamic sociopolitical conditions at this juncture in the prehistory of the southern Mogollon region.

10.0 LA 121160 (USFS No.: AR-03-06-07-00580)

John C. Acklen with contributions by Grant D. Smith

Introduction

LA 121160 was a sparse ceramic and lithic scatter dating to either the Three Circle phase of the Late Pit House period and perhaps the Classic Mimbres period. The site was located along a ridge overlooking an unnamed tributary of Peterson Canyon to the south and west (Figure 1.2). It was first located during the 1998 cultural resources survey for the NM 90 highway reconstruction project and, at that time, the extent of the site was described as a narrow strip measuring 184 by 17 m (Goar et al. 1998) at the base of the slope. No features were observed, but an infield artifact analysis documented the presence of 17 Alma Plain and San Francisco Red ceramics, eight pieces of debitage, and a metate fragment. No features were documented, but the presence of thermally altered rock was noted. Since the potential for subsurface deposits was unknown, the site was recommended as potentially eligible to the NRHP based on the possible presence of subsurface deposits.

Investigations of LA 121160 confirmed a large, dispersed site extending out from both sides of NM 90. the right-of-way portion of the site measured 66 m northeast-southwest by 46 m northwest-southeast. Improvements to the highway included the widening of the shoulders and the re-contouring of the slopes. These activities were expected to completely disturb all remaining portions of LA 121160 within the right-of-way. TRC conducted data recovery investigations at LA 121160 to mitigate the adverse effects of the highway reconstruction project. Work was undertaken on February 16 and 19, and again on March 1, 1999, at which time auger and shovel testing, stripping, and backhoe trenching were carried out. A crew of six conducted this work.

Data recovery investigations located 13 surface artifacts in an area measuring 66 by 46 m. Excavation of 14 shovel tests, six auger tests, 99 m of backhoe trenches, and 980 m^2 of stripped surfaces found no evidence of subsurface cultural deposits, features, or artifacts at the site. Available evidence suggests that this site was occupied during the Three Circle phase of the Late Pit House period or perhaps the Classic Mimbres period.

Physical Description

LA 121160 was located in a broad pass in the southern Big Burro Mountains at an elevation of 1750 m (5740 feet) amsl. The site overlooks Peterson Canyon to the west. The site was situated on the slopes of a gentle southeast trending ridgeline that dropped sharply to the west into intermittent tributary stream channels of Peterson Canyon (Figure 10.1 through 10.4). Construction of NM 90 may have disturbed the central portion of the site causing sediments on the ridgetop to slough and accumulate downslope to the west.

Only a portion of the site was contained within the right-of-way on the northern and southern sides of NM 90. Reconnaissance survey conducted outside the road right-of-way as part of the data recovery investigations confirmed that LA 121160 extended for a distance of at least 50 m along the ridge to both the north and south of the right-of-way. The only recognized feature was a charcoal stain situated on a knoll 45 m north of the right-of-way. Also present in the same vicinity was a light scatter of Alma Plain and San Francisco Red ceramics and thermally-altered rock located immediately south of this feature at the base of a slope.

Surface soils present over much of the site consisted of a coarse, dark brown sandy loam with pebbles of decomposed granite that overlay a Pleistocene-aged fluvial sand and gravel deposit. The site lies in the Madrean Open Oak Woodland biotic zone with oaks, piñon, and juniper present on the site. No available water was present near the site.

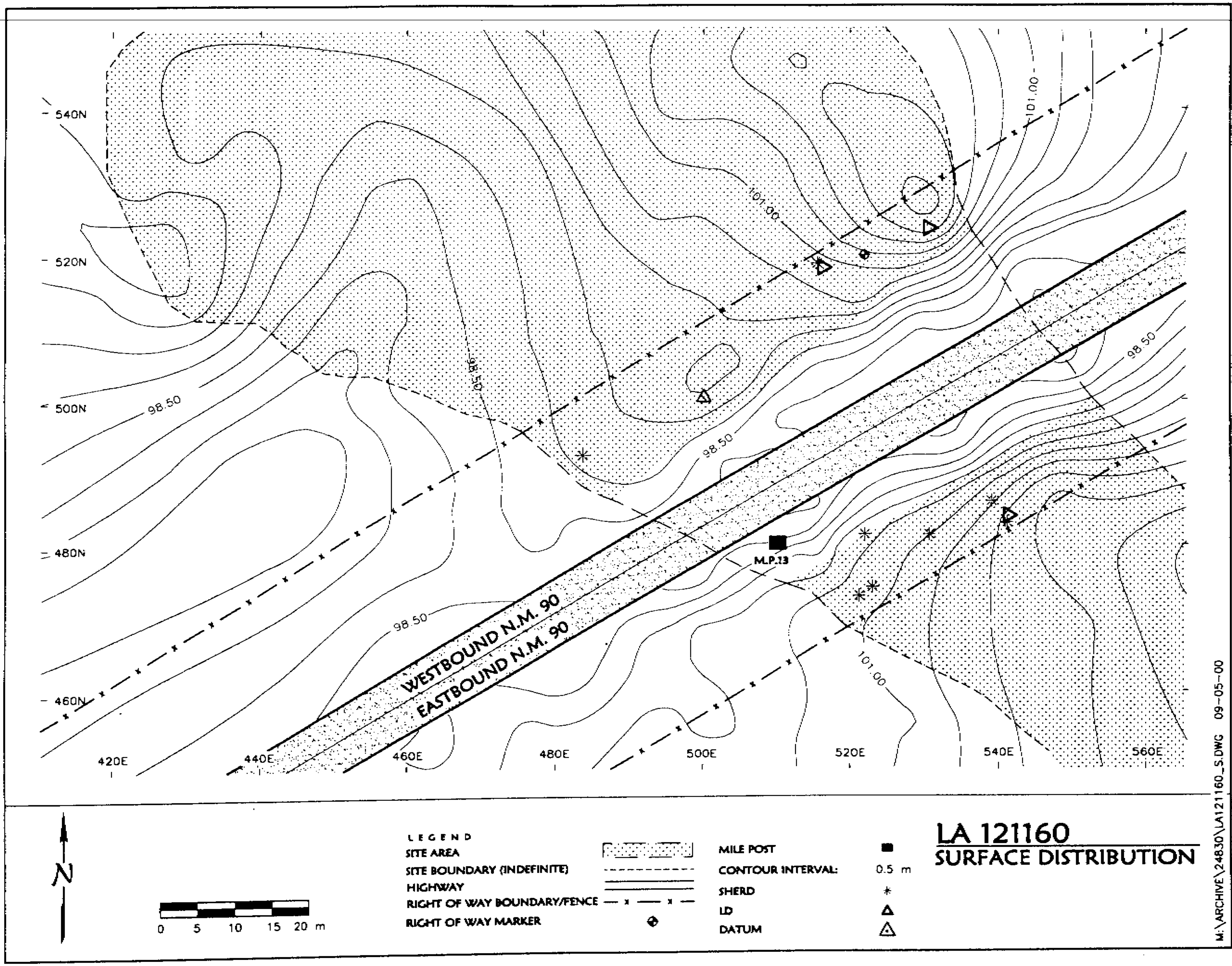


Figure 10.1 LA 121160, Site Map Showing Surface Artifacts.

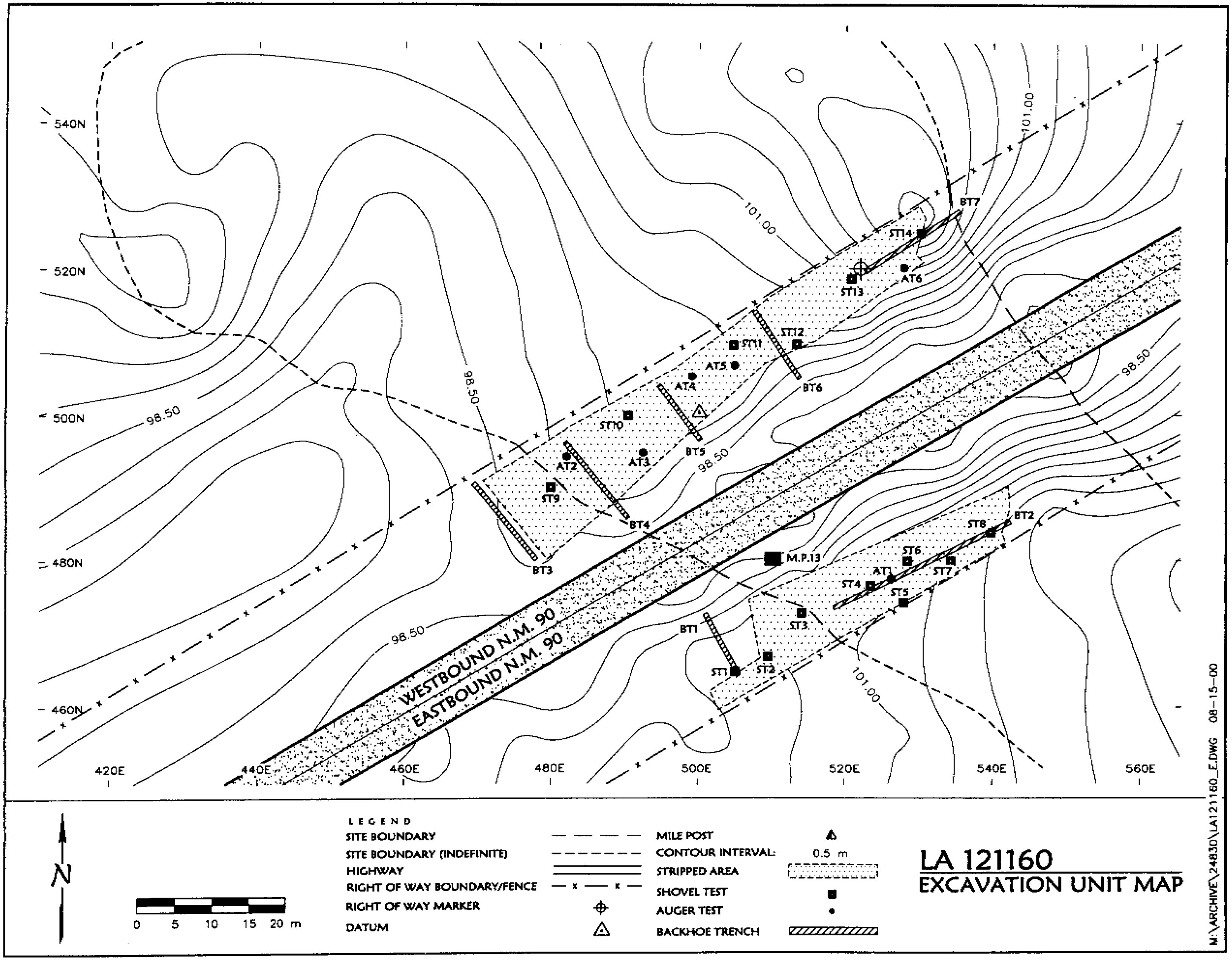


Figure 10.2 LA 121160, Site Map Showing Excavations.

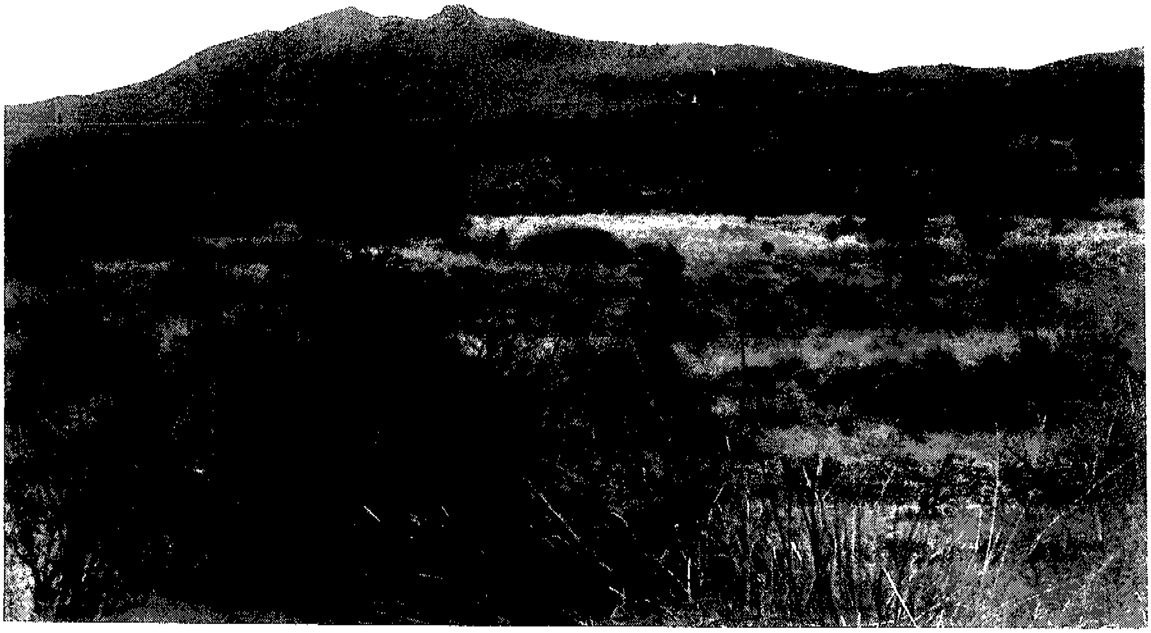


Figure 10.3 Photograph of LA 121160, Facing South.

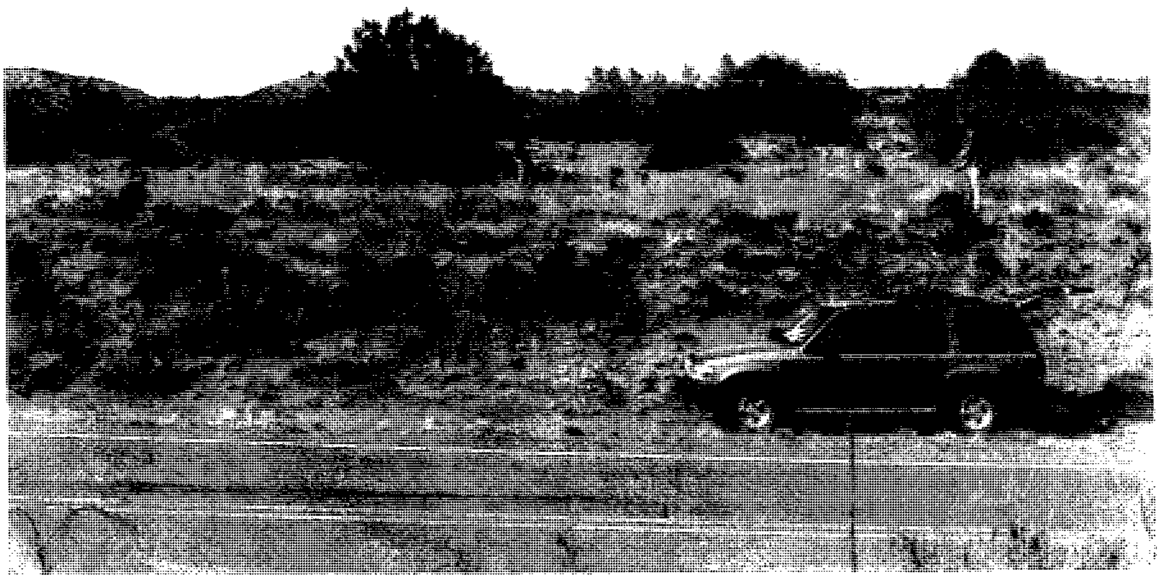


Figure 10.4 Photograph of LA 121160, Facing North.

Data Recovery Strategy

Data recovery investigations conducted at LA 121160 included site reconnaissance, mapping, surface collection, shovel testing, backhoe trenching, and mechanical stripping. A systematic survey beyond the recognized site boundaries confirmed that this site extended for a distance of at least 50 m beyond the northern and southern limits of the right-of-way. Although sparse, this site was considerably larger than the small portion treated within the right-of-way.

After the establishment of a datum at N500 E500, relevant topographic details, right-of-way engineering stations, mileposts, and the locations of artifacts, shovel tests, backhoe trenches, and mechanically stripped areas were mapped. Site boundaries were determined by the distribution of surface artifacts.

Systematic surface collections were undertaken in association with the site mapping. Given the limited quantity of cultural materials within the right-of-way, all surface artifacts were flagged, point provenienced, and collected. After mapping and collecting the surface artifacts, 14 shovel tests (50 by 50 cm) and six auger tests were placed into the dark brown A-horizon soils or near surface artifacts to determine if intact cultural deposits were in these areas. Shovel tests were excavated to depths between 10 cm and 80 cm for a total excavated volume of 1.3 m^3. Eleven tests were placed north of the highway, and nine tests were located south of the highway. Only two flakes were recovered from these test units; both were recovered from the upper 20 cm of fill. Six auger tests were excavated to test for more deeply buried deposits. These units were excavated to depths ranging from 90 cm and 120 cm. None produced subsurface artifacts. Seven backhoe trenches were placed within the site area. The excavations revealed an accumulation of A-horizon soils at the base of the ridge slope to a depth of nearly 1.0 m below the ground surface. In contrast, the ridge was eroded down to fluvial sand deposits that pre-date human occupation of the area. Subsequent mechanical excavation exposed a 69 by 13 m area on the northern side and a 47 by 10 m area on the southern side of NM 90 for a total of 980 m^2. No features were identified during hand or mechanical excavations.

Surface Characteristics

Site LA 121160 represents a large site situated on the ridge and slopes between Peterson and Wood canyons. A reconnaissance survey of that portion of the site located outside the right-of-way identified a sparse scatter of cultural materials over an area measuring 170 m northwest-southeast by approximately 75 m northeast-southwest. Much of the surface of the site was severely eroded on the ridge top, leaving behind only a few artifacts on the C horizon lag gravel. Artifacts were more concentrated on the western and southwestern slopes of the ridge.

A single feature was noted on the ridge to approximately 45 m north of the NM 90 right-of-way. Located on a level portion of the ridge, the feature was a dark, ashy stain about 1.5m in diameter. It was mostly covered in a thick veneer of eolian sand. No artifacts were observed on the ridge around the feature.

Downslope to the south of the feature was a cultural deposit exposed in the erosional cuts of a small arroyo. This deposit consisted of dark A horizon sediments mixed with thermally altered rock, ceramics, and chipped stone artifacts. The ceramics were composed of San Francisco Red, Alma Plain, and Alma Rough types. These types would suggest at least a Late Pit House period occupation in the area. The exposed deposit was approximately 20 by 5 m in maximum extent. It is likely that other portions of this cultural deposit are buried below more recent slopewash sediments.

Within the NM 90 right-of-way, the site was indicated by a sparse scatter of chipped stone and ceramic artifacts located on both sides of the highway (Figure 10.1) This area measured 66 m northeast-southwest by 46 m northwest-southeast, including that portion removed by previous highway construction. The surface of the site produced only three pieces of chipped stone and 10 ceramics (Table 10.1). The ceramics included Alma Rough, Alma Plain, Alma Scored, and Mimbres Black-on-white (unspecified Style II or III). These types suggest occupations could span the entire Early and Late Pit House period sequence as well as a possible Three Circle or Classic Mimbres phase component. The ground stone

artifact noted during the survey was not relocated. Thermally altered rocks were sparsely scattered over the ridge and slopes. Based on the exposed C horizon deposits on the ridge, it was assumed that the higher elevations of the right-of-way were severely eroded. Slopewashing of the sediments may have redeposited artifacts down to the lower portions of the site.

The 13 surface artifacts present within the right-of-way were scattered widely with no clear pattern. Given the high-energy erosion of the surface of the site, especially within the right-of-way, the distribution of cultural materials probably lacks integrity.

Stratigraphy and Geomorphology

Site LA 121160 occurred within a gentle swale and on the western flank of a ridge composed of alluvial sand and gravel. The hill top area appeared to be the remnants of a Pleistocene-aged alluvial fan (BT 1), while the hillslope and swale areas were comprised of more recent slopewash sediments (BT 2 through 7) (Feature 10.5). Given the proposed age of the hill top sediments, they were essentially considered bedrock with respect to archaeological materials. In contrast, the hillslope and swale sediments represented a depositional environment with the potential to contain buried cultural materials.

The composition of the hillslope and swale deposits was similar across the study area, though the gravel composition varied. The amount of gravel observed in backhoe trenches was highest (about 20 percent) near the base of the hill and decreased towards the western margin the site (about 5 percent). Other than this variation in gravel content, the deposits were uniformly a coarse sandy loam throughout the site. Within individual profiles, the deposits did not indicate any significant changes in depositional characteristics over time.

In contrast to the relatively uniform depositional characteristics, soil properties allowed for the delineation of a few horizons. All of the backhoe trenches on the hillslope and in the swale exhibited a thin (5 to 12 cm thick) Ap horizon on the surface, a relatively thick (24 to 61 cm) cumulic A horizon, and a C horizon of unaltered parent material up to 84 cm thick. In a few locales the C horizon was considered a Cr horizon because the gravels appeared to be from *in situ* weathering of bedrock as opposed to alluvial deposits.

Whether it is the result of *in situ* weathering of bedrock, or high-energy alluvial deposits, the C horizon did not appear to be a good stratum for the preservation of cultural materials. It is possible that intrusive features may have been excavated into this unit.

The A horizon overlies the C horizon on the western hillslope and swales. The portion of the site that is south of the highway exhibited the thickest example of the A horizon (BT 1; Figure 10.5), but all examples of the A horizon are considered to be cumulic in nature. Slopewash caused a gradual accumulation of sediments over time, and the A horizon continued to thicken with this accumulation. These data suggest that the A horizon deposits from the adjacent ridge tops and upper slopes were being redeposited at the base of the slope. Apparently, the accumulation rate was slope enough that the vegetative community was able to keep up with the sedimentation rate. As a result, no stratigraphic or pedogenic breaks occur within these sediments, and they are considered a single horizon. With respect to the archaeology, this suggested that multiple cultural components could have occurred within the horizon. However, trenching and archaeological testing of these deposits found no indication of intact cultural deposits or features.

The thin Ap or AC horizon, the surface unit over most of the site, appeared to be recent in origin. The Ap designation was used where the sediments have been obviously compacted by heavy machinery. Considering the compaction, lack of soil development, and surficial position, these sediments were probably the result of recent road construction in the area. Where they were not compacted, it was likely the sediments were the result of slopewash caused by denudation of the slope during road construction. Given this age assessment and proposed origin, the archaeological potential of the AC horizon was considered to be low and limited to historic materials and redeposited prehistoric artifacts.

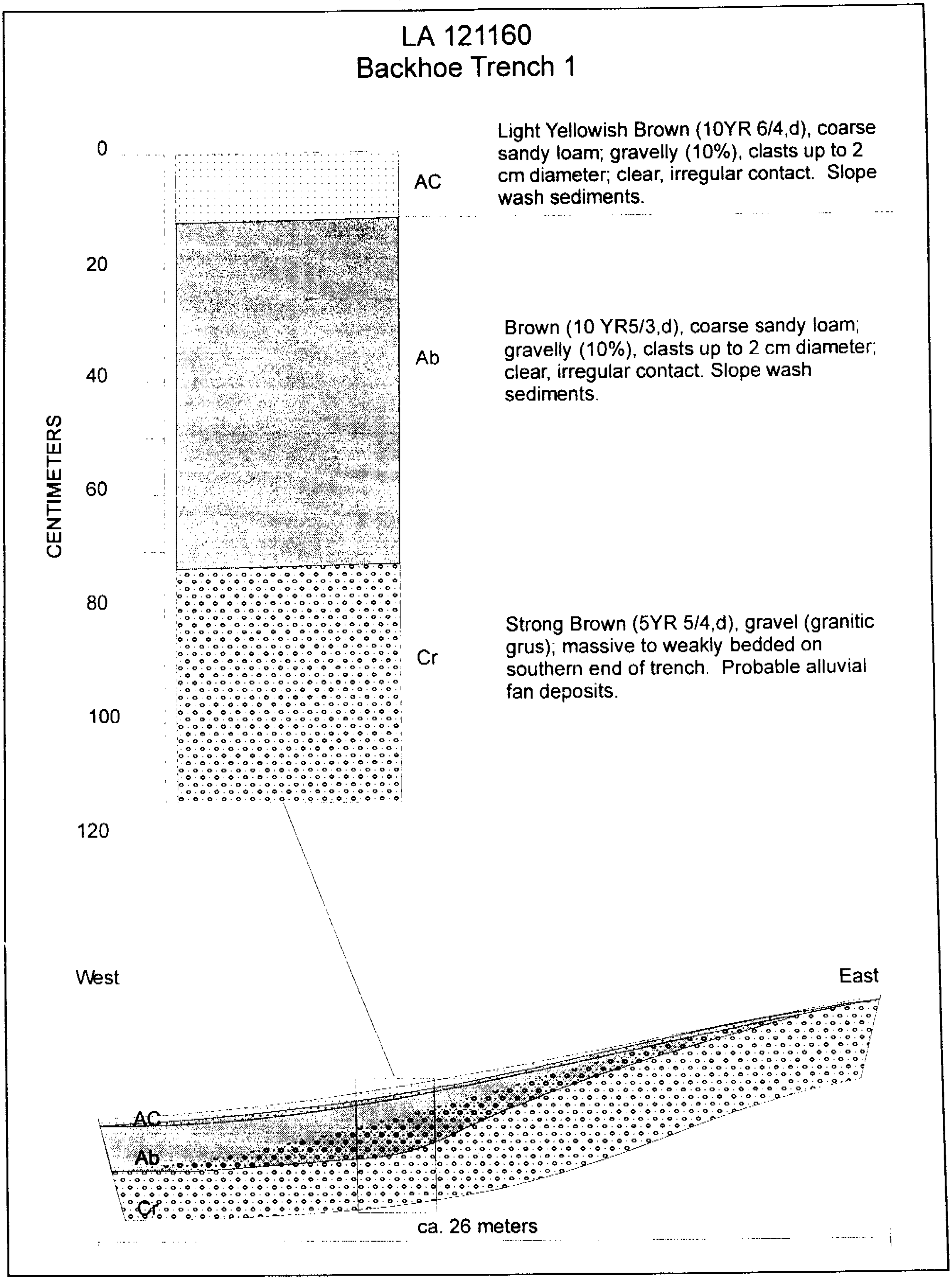


Figure 10.5 Geomorphic Profile of LA 121160, Backhoe Trench.

Subsurface Cultural Resources

A careful inspection of the highway cut bank on either side of NM 90 identified no evidence of cultural deposits or artifacts. The 14 shovel test (ST) units and six auger tests scattered over the known site area had similar results. Shovel tests produced two pieces of debitage from ST 5 and ST 13; both were recovered from Level 2 from 10 to 20 cm bgs. None of the other test units produced any evidence of cultural inclusions and or feature deposits. All of the test units were terminated either in C horizon sediments or the cumulic A horizon located along the southern and western perimeter of the site.

Seven backhoe trenches were excavated within the boundaries of the site. Five were perpendicular to NM 90, and two were parallel. All seven were culturally sterile and revealed no artifacts or cultural deposits.

Finally, in an attempt to identify any isolated features undetected by other means, mechanical stripping exposed an area measuring 69 by 13 m on the northern side and 47 by 10 m on the southern side of NM 90 for a total of 980 m^2. The mechanical removal of sediments continued into the C-horizon deposits. No evidence of any cultural materials or deposits was found during this endeavor.

Artifacts

Artifacts recovered from surface and subsurface contexts included 10 ceramics and five pieces of debitage (Table 10.1).

Table 10.1 LA 121160 Artifacts From Surface Collection and Test Units.

	Debitage	Alma Rough	Alma Plain	Alma Scored	Mimbres Black-on-white	Totals
Surface	3	6	2	1	1	13
Shovel Test 5	1	–	–	–	–	1
Shovel Test 13	1	–	–	–	–	1
Totals	**5**	**6**	**2**	**1**	**1**	**15**

Ten ceramic artifacts were recovered from the surface of the site. These included Alma Rough (six), Alma Plain (two), Alma Scored (one), and Mimbres Black-on-white (unspecified style II or III) (one). Although the assemblage is small, at least three vessels are represented. First, the Alma Scored sherd represents the remains of a jar that probably had a scored surface along the neck and shoulder. Because the paste, temper, and surface characteristics for the Alma Plain and Alma Rough sherds are similar, it is difficult to classify the sherds as more than a single jar. Thus, the seven Alma Plain and Alma Rough sherds may represent a single jar with intermittent polish. One of the Alma Rough sherds is from the base portion of the jar, while the remaining six sherds are body fragments. All of the sherds have angular granite/quartz temper. Finally, the third vessel is represented by a single bowl body sherd identified as Mimbres Black-on-white (unspecified style II or III).

Five pieces of debitage consisted of hard-hammer core flakes. All five had unifacet platforms, three of which were cortical. Debitage material types included two quartzite, one rhyolite, one chert, and one basalt. One of the quartzite flakes exhibited edge modification and the other, dorsal cortex.

Site Chronology

Chronological assignment of LA 121160 was based on the presence of a single Mimbres Black-on-white (Unspecified Style II or III), a few examples of San Francisco Red found to the north of the right-of-way, and sherds of the Alma series. The Mimbres Black-on-white sherd probably dates between roughly AD 880 and 1130, while San Francisco Red falls between AD 500 and 1000 (Shafer and Brewington

1995:7). In the absence of any Mimbres Corrugated sherds, dated between AD 1020 and 1130, the ceramics from the site may suggest a late Three Circle phase occupation. Alternately, several different components dating to the Late Pit House period and Classic Mimbres phase could have been present at the site.

Site Interpretation

LA 121160 is a large site probably repeatedly occupied over at least the Late Pit House period and perhaps into the Classic Mimbres phase. Cultural materials are dispersed over the ridge and down the slopes between the Peterson and Wood canyon drainages. Based on surface indications, the best preserved portion of the site lies to the north of the NM 90 right-of-way. Exposed cultural deposits and a single feature located 25 to 45 m north of NM 90 could represent a residential area possibly dating to the Late Pit House period. The geomorphic setting in this area suggested good potential for buried cultural deposits.

Data recovery investigations within the 66 by 46 m area of the site contained within the right-of-way found no evidence of intact cultural deposits or features and few artifacts. The artifacts recovered from the project portion of the site indicate a possible late Three circle phase or Classic Mimbres phase component within the general area. The geomorphology of this portion of the site suggested that darker A horizon sediments and associated artifacts had been colluvially transported down from the ridge and accumulated on the lower slopes. Perhaps as a result of these geomorphic processes, no intact cultural deposits or features were recovered within the right-of-way.

11.0 LA 121164 (USFS No.: AR-03-06-07-00584)

Timothy G. Baugh with contributions by Grant D. Smith

Introduction

LA 121164 is a moderately sized, highly dispersed lithic scatter of unknown age. It was first located during the 1998 cultural resource survey for the NM 90 highway reconstruction project (Goar et al. 1998). At that time the site was described as a dispersed chipped stone scatter measuring 63 by 24 m. Two artifact concentrations were identified, but no features were observed. Analysis of about 90 percent of the surface assemblage indicated a high percentage of cores and tools to debitage. The abundance of scraping tools led Goar and her colleagues (1998) to suggest that the site was a specialized activity locale possibly used for the processing of hides and meat. Based upon the absence of ceramics, the site was initially believed to represent an Archaic period occupation. Since subsurface cultural deposits were possible, LA 121164 was recommended as eligible to the NRHP.

The proposed highway improvements to NM 90 would impact approximately half of the site. The rest, located on Gila National Forest outside the right-of-way, were not effected. Data recovery excavations were carried out by TRC on February 15, 1999 by a crew of 12 with backhoe trenching and stripping occurring on March 1, 1999.

Data recovery investigations found 52 surface artifacts within a 56 by 17 m area within the right-of-way. Additional chipped stone tools, cores, and debitage were observed outside the project area. Excavations of 17 shovel tests, 51.5 m of backhoe trenches, and 616 m^2 of stripped surfaces found no evidence of subsurface cultural deposits or features. Eleven artifacts recovered from shovel tests were located predominantly in the upper slopewash sediments, or immediately below along the contact with the Ab or C horizons. The geomorphic study indicated the site was highly eroded with little potential for integrity of the cultural deposits within the highway right-of-way.

Physical Description

Lying just west of the Continental Divide, LA 121164 is situated in the southern Big Burro Mountains at an elevation of 1844 m (6,050 feet) amsl. It is located along the headwater of the C-Bar Canyon that flows southeastward into the Burro Cienaga, and then southwestward into the Lordsburg Valley. No available water currently is located near the site.

LA 121164 occupied a northeastern facing slope that was sparsely covered with vegetation (Figures11.1 and 11.2). Plants included beargrass and various dispersed grasses, as well as piñon pine, juniper, and oak that form part of the Madrean Closed Conifer Woodland habitat type. Due to the widely dispersed vegetation and slope erosion, surface visibility was approximately 85–90 percent.

The surface of the site within the right-of-way exhibited a long, linear sandy berm along the highway that was held in place by small juniper and piñon trees. However, most of the site inside the right-of-way showed evidence of being bladed to the C horizon. Erosion of the surface in these areas led to the development of several rills and arroyos that descend to the northeast. The main arroyo in the right-of-way was incised to approximately 1.0 m deep and 1.0 m wide and displayed nearly vertical cut banks. The area of the site outside the right-of-way had more trees, but also showed evidence of intense erosion. Steep slopes occur south and east of the known site area.

The cultural remains at the site are dispersed over an area approximately 56 by 34 m, with half of the remains located outside the right-of-way. The original highway construction may have removed the southern portion of the site. No artifacts were observed on the southern side of the right-of-way.

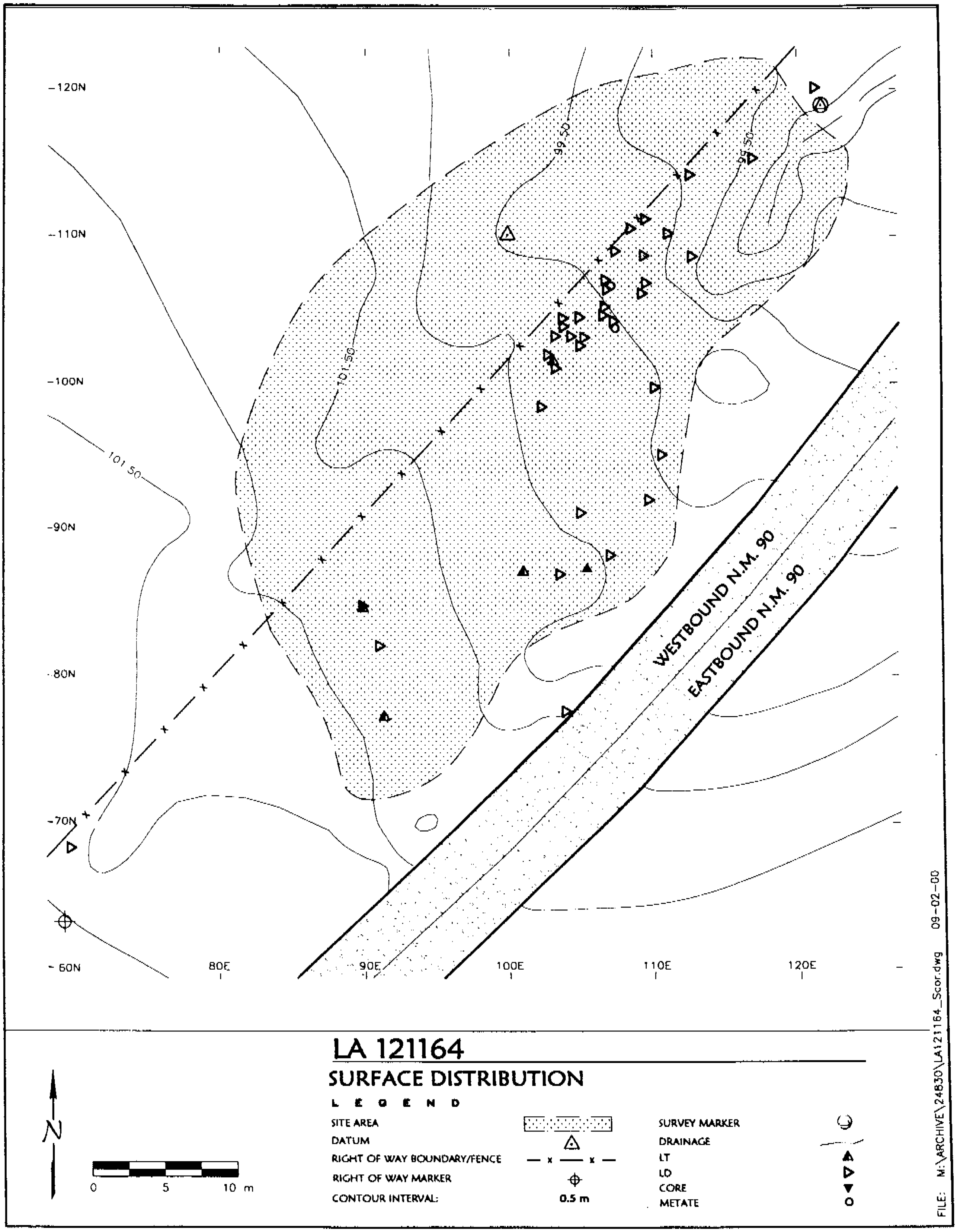


Figure 11.1 LA 121164 Topographic Map Showing Surface Artifact Distribution.

Figure 11.2 Photograph of LA 121164 Facing Northeast.

Data Recovery Strategy

Data recovery strategies at the site included site reconnaissance, mapping, surface collection, shovel testing, backhoe trenching, and mechanical stripping of the deposits. Backhoe trenches were used to define the geomorphological setting and search for buried cultural deposits.

With the establishment of a permanent datum at N110E100 and an elevation of 99.42 m (362.18 feet), mapping activities proceeded to acquire the relevant topographic features, right-of-way engineering stations, artifact locations, placement of shovel test units, backhoe trench positions, and the edges of stripped surfaces. Given the small number of artifacts, all were flagged and point provenienced with the total station. Site boundaries were determined by the distribution of surface artifacts.

Seventeen 50 by 50 cm shovel test units were placed in the site to determine the nature of the subsurface deposits (Figure 11.3). Most of the shovel tests reached sterile subsoil (decomposing granite) quickly with the depths of the shovel tests ranging between 5 and 4 cm bgs. A total volume of 1.08 m^3 was excavated from these test units.

After completion of the manual excavations, five backhoe trenches (BT) were placed in the site. Four (BT 2-5) were placed perpendicular to the highway and one (BT 1) was parallel to and immediately south of (inside) the right-of-way fence. The backhoe trenches were 75 cm wide and ranged from 8-12.5 m long. The volume of sediments removed from the backhoe trenches was 16.24 m^3 for a site total of 17.32 m^3. The area was subsequently stripped mechanically to expose 616 m^2.

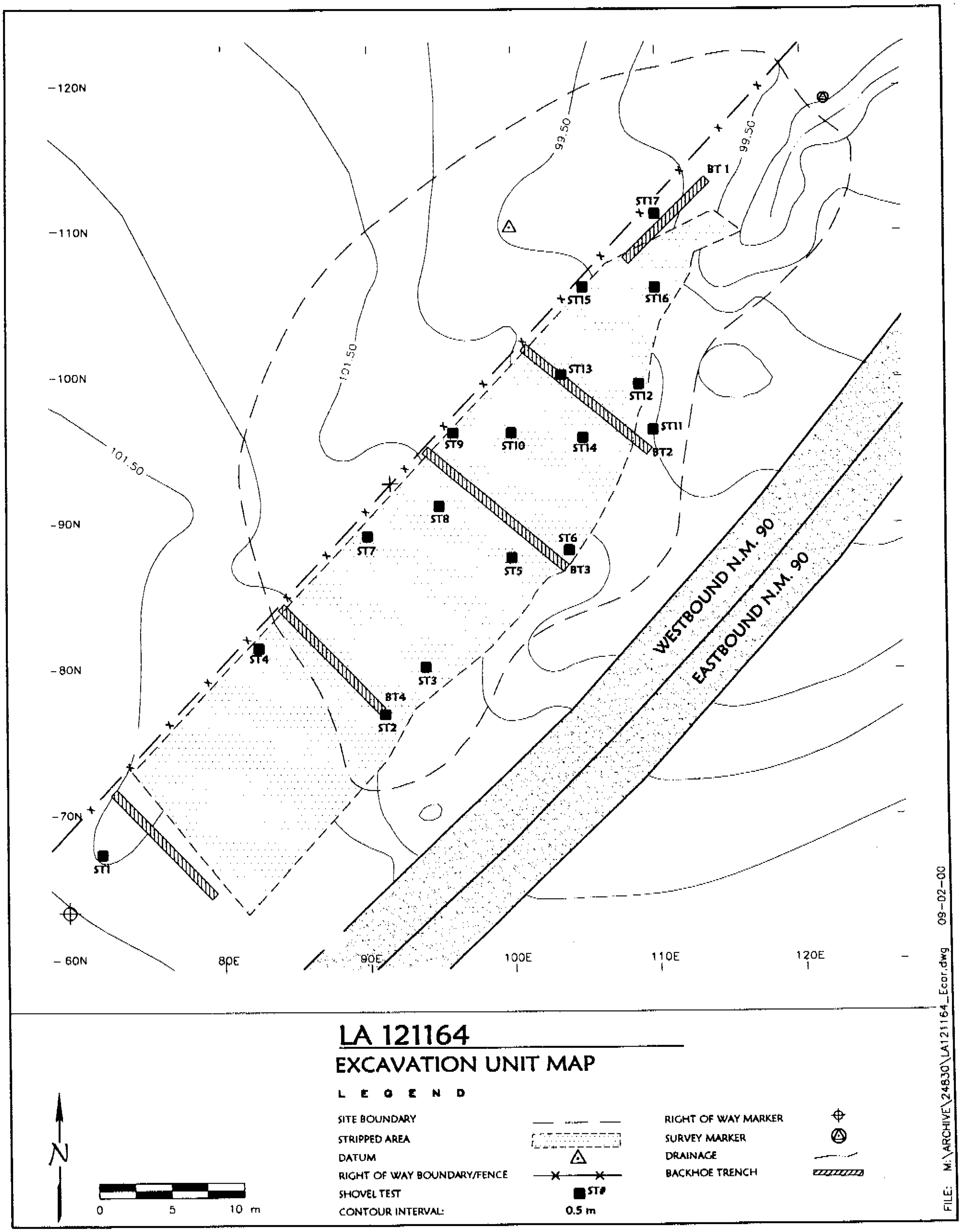


Figure 11.3 LA 121164 Topographic Map Showing Excavation Units and Stripped Area.

Surface Characteristics

LA 121164 consists of a sparse scatter of chipped stone artifacts extending for approximately 56 m east-west and 34 m north-south (Figure 11.1). The area within the highway right-of-way was 56 by 17 m. The complete surface collection within the right-of-way recovered 52 artifacts (Table 11.1). This assemblage included four scrapers, a core, two metate fragments, and 45 pieces of debitage. Only a few pieces of thermally altered rock were noted on the surface. The portion of the site outside the right-of-way has similar quantities and types of artifacts. No diagnostic artifacts were found on the site.

Table 11.1 LA 121164 Artifacts from Surface Collection and Shovel Testing.

Provenience	Debitage	Scraper	Core	Metate	Total
Surface	45	4	1	2	52
Shovel Test 3 (0–10 cm)	1	—	—	—	1
Shovel Test 6 (0–10 cm)	2	—	—	—	2
Shovel Test 6 (10–20 cm)	1	—	—	—	1
Shovel Test 9 (0–10 cm)	2	—	—	—	2
Shovel Test 17 (0–5 cm)	2	—	—	—	2
Shovel Test 17 (5–15 cm)	3	—	—	—	3
Total	56	4	1	2	63

The spatial distribution of cultural materials within the right-of-way portion of the site is greatly effected by the previous blading and erosional drainages that subsequently formed across the surface. The bladed portion, measuring from 7.5 to 15 m in width, ran along the fence line and no doubt displaced artifacts. The ensuing erosion that created the rills and deep arroyo exposed concentrations of artifacts along their banks. In contrast, the sandy berm paralleling the highway revealed few surface artifacts, probably due to the sands and duff that possibly concealed cultural materials.

Acknowledging these site formation processes and their ability to mask the true cultural patterns, one concentration was noted in the north-central portion of the site. Located along the fence line and between two drainages, this area was severely eroded, leaving the artifacts resting on C horizon deposits. The concentration was 17 m in length northeast-southwest and 4 m in width northwest-southeast and had an artifact density of 0.59 per m^2. The downcutting of a deep arroyo may have removed a portion of the concentration. This area yielded two fragments of a metate, a scraper, and 37 pieces of debitage.

The rest of the site produced only 12 other artifacts, including three scrapers, a core, and eight pieces of debitage. The artifact density in this portion of the site was 0.01 m^2. Interestingly, the three scrapers were within 10 m of one another at the southern end of the site. Their position may suggest a discrete activity area somewhat removed from the main occupation.

A comparison of materials shows the presence of at least five individual reduction sets within the rhyolite artifact assemblage, here arbitrarily assigned numbers 1 through 5. The first set includes 11 rhyolite flakes, most of which have cortex on their dorsal surface. The second set has five flakes, two of which have been modified to form scraping implements. Sets 3 and 4 consist of three and six flakes, respectively. The final set has three flakes and one core. Being dispersed throughout the center of the site, the spatial distributions of each of these reduction sets overlap significantly, (see Figure 11.4).

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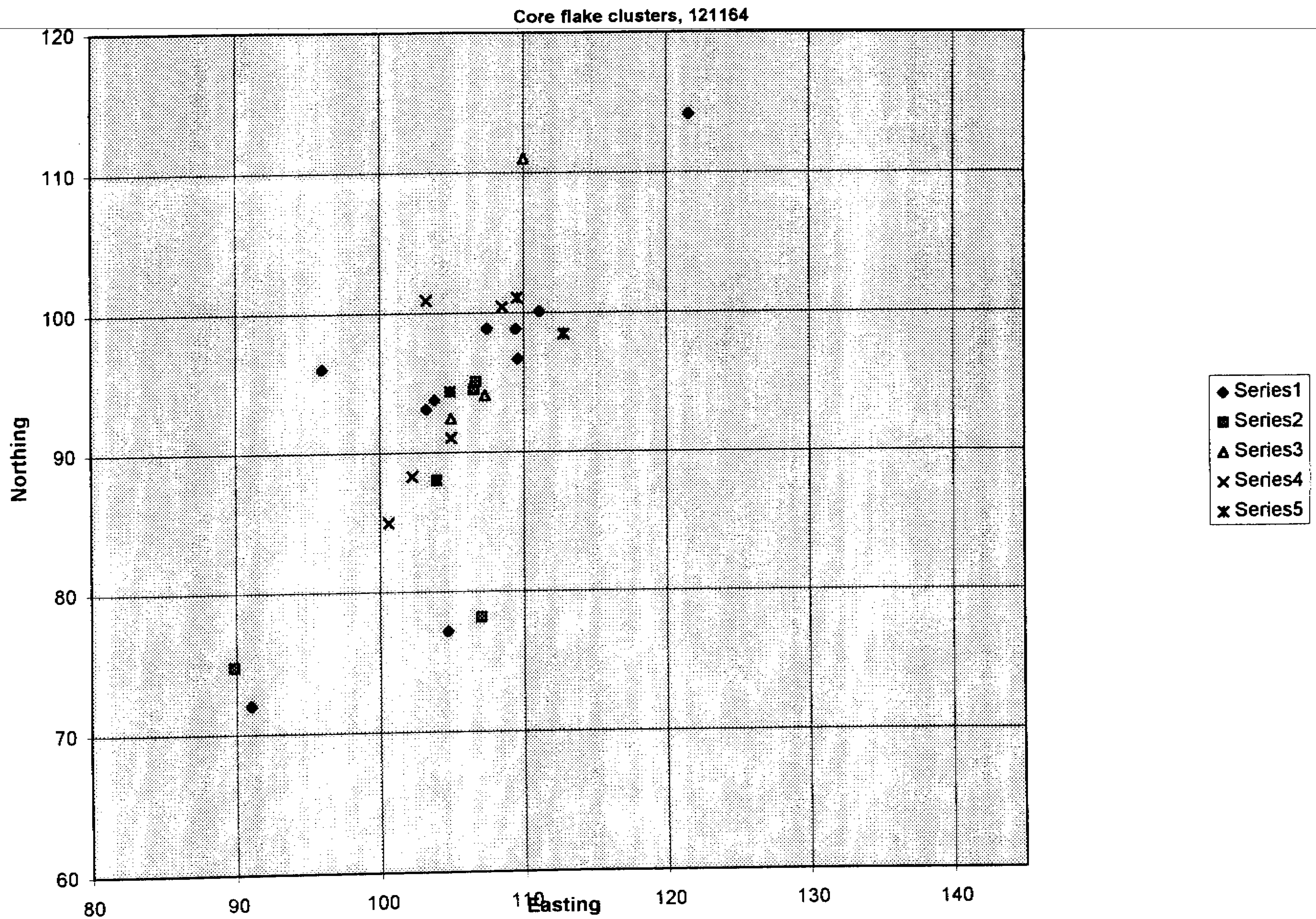

Figure 11.4 LA 121164 Scatter Plot of Individual Rhyolite Reduction Sets.

Based upon a scatter plot of associated cores, flakes, and tools, or reduction sets, N90 E100 (based on 10 m resolution) represents a primary activity center, representing all five reduction sets (Figure 11.4). Nearly half of all of the examined artifacts fall within this square. The first tier of surrounding squares may have a maximum total of three artifacts. The second tier of squares has a maximum of two artifacts. This indicates that the epicenter of the site activities occurred within this 10 by 10 m block, and activities fell dramatically as one moved away from the epicenter.

Stratigraphy and Geomorphology

LA 121164 is dominated by decomposed granite (grus) and slopewash deposits consisting of this decomposed granite. Where exposed, the color of the granitic parent material varies from red to grayish white, a property that also is reflected in the slopewash deposits.

The uppermost unit observed on the site was a deposit of light yellowish brown (10YR 6/4,d) coarse sandy loam that exhibited minimal soil development (AC horizon) (Figure 11.5). In most portions of the site this appeared to be recent fill from previous construction of the highway, although the possibility existed that some of the material may be natural slopewash deposits.

Underlying the AC horizon was an Ab horizon that typically exhibited a brown (10YR 6/4,d) coarse sandy loam. Five percent of this sandy loam was composed of pebbles up to 2 cm in diameter. In addition to the humates that gave the horizon its dark color, the unit also exhibited soil formation in the form of a weak, coarse, granular structure. The distribution of the Ab horizon was limited to areas beneath pine trees. It was likely that the pine needles and other organic matter from these coniferous trees helped contribute to the development of the A horizon in these areas. The A horizon was more widespread across the site in the past, but subsequent erosion removed this soil in areas that were not protected by the pine trees. Considering the limited distribution of the Ab horizon at this locale, correlation to the Ab horizon seen at other sites during this study was questionable. At other locales, the Ab horizon was evenly distributed across the site while at this locale the horizon only occurred in the vicinity of the pine trees. Considering that the organic influences of the pine trees may have produced an A horizon in a relatively short amount of time, this Ab horizon may not correlate to those observed at other sites.

Below the Ab horizon is a light gray (10YR7/1,d) deposit of coarse sand loam that lacks evidence of soil development (C horizon). Ten percent of this unit is composed of granitic pebbles up to 3 cm in diameter. This C horizon is the unit exposed on the surface over the majority of the site, including most of the areas that were excavated with backhoe trenches and archaeological test units. Considering that the C horizon on other sites in the right-of-way (e.g., LA 99631 and LA 78089) was below the cultural levels, there is a likelihood that the strata with the potential to yield *in situ* cultural materials were eroded off most of the site.

The C horizon was underlain by a brownish yellow (10YR 6/6,d) very coarse sandy loam that appeared to be granitic bedrock weathering in place (Cr horizon). Approximately 20 percent of these sediments were composed of angular pieces of feldspar fragments that measured up to 3 cm in diameter. No evidence of soil formation was observed in this unit.

Overall, site LA 121164 appears to be a poor locale for the preservation of cultural materials in stratigraphic context. The gravelly nature of the sediments and the moderate slope on this site suggest a relatively high energy of deposition. Sheet floods that were capable of moving clasts up to 3 cm also could have moved archaeological materials of a similar size. In addition, such a high energy environment would tend to be erosive to the pre-existing sediments. It is possible that cultural materials could be recovered from the site, but the stratigraphic integrity of such materials would be questionable. The most likely locales for the preservation of cultural materials were in the more protected areas beneath the pine trees, but excavations in those areas failed to recover archaeological materials.

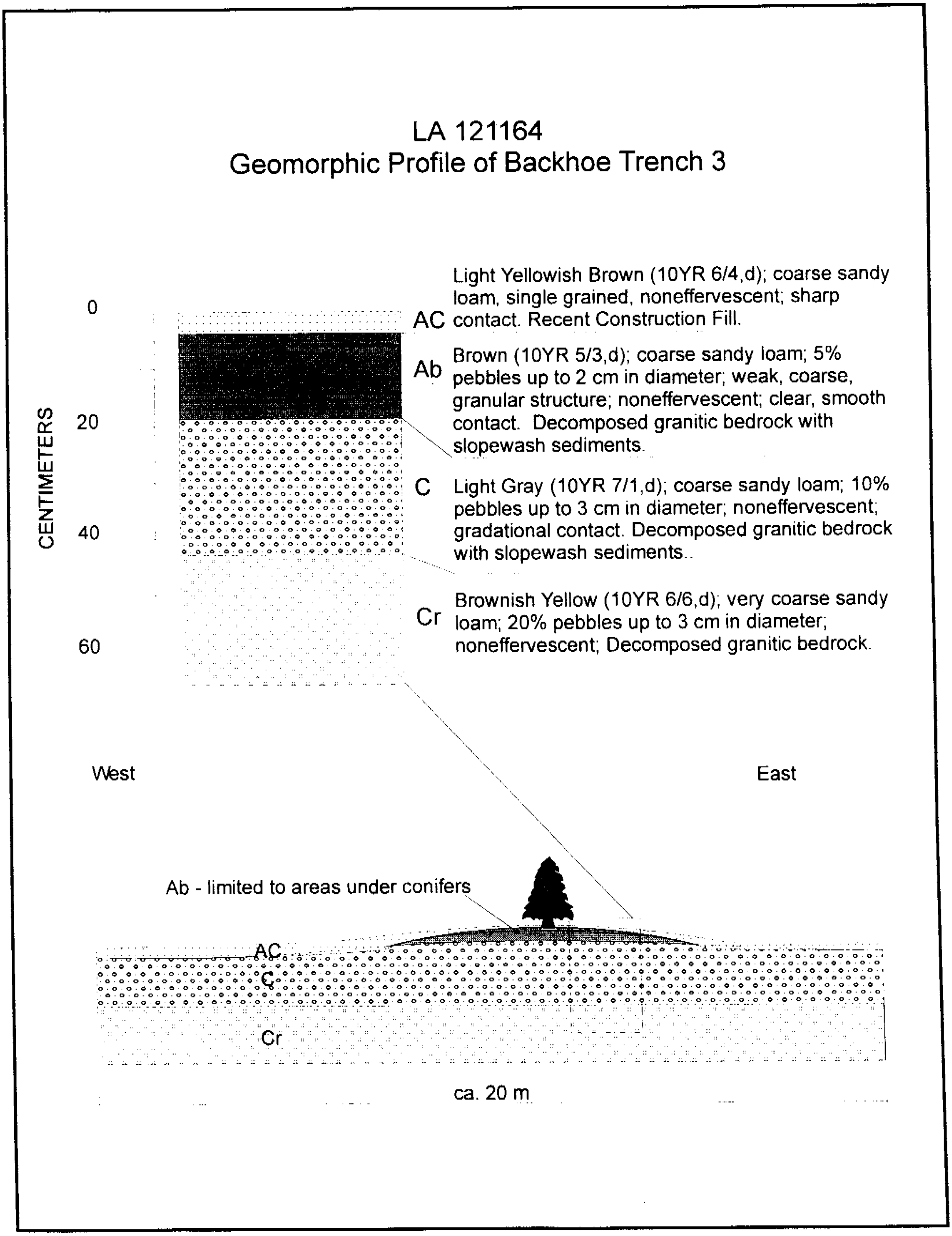

Figure 11.5 LA 121164 Geomorphic Profile of Backhoe Trench 3.

Subsurface Cultural Resources

Although the site might contain significant cultural remains outside of the right-of-way, data recovery excavations of 17 shovel test units and five backhoe trenches and the mechanical stripping of the site within the right-of-way found no indications of intact features or cultural deposits (Figure 11.3).

The 17 shovel test units were scattered over both the sandy berm and the bladed portions of the site. The units terminated from 10 to 40 cm bgs. In the bladed portions, the units were typically on the C horizon, at or just below the surface, to around 10 cm bgs in STs 1, 2, 3, 4, 7, 8, 9, 13, and 15. Bedrock granite was encountered in ST 7 at 10 cm bgs and 20 cm bgs in ST 9. STs 16 and 17 were excavated to 40 cm bgs, mostly through the C horizon sediments. Three of the units, STs 3, 9, and 17, yielded subsurface artifacts (Table 11.1). STs 3 and 9 produced artifacts only in the upper 10 cm of the disturbed AC horizon, while ST 17, located in the main artifact concentration, had three flakes from 5 to 15 cm bgs followed by 20 cm of sterile deposits. The depth of the artifacts in this unit is somewhat misleading since slopewash appears to have accumulated along the fence line in this area.

The five shovel tests excavated into the berm included STs 5, 6, 11, 12, and 14. The stratigraphy in these units varied from those on the bladed area in that an Ab horizon was recognized at the surface followed by the C horizon from 10-30 cm bgs. Of these units, only ST 6 yielded artifacts. Two flakes were found in the upper 10 cm and another came from 10-20 cm bgs. Like those in the bladed area, none of the units revealed any indication of charcoal, ashy sediments, features, or intact cultural deposits.

Of the 17 shovel test units placed in the site, only four (or 23.5 percent) yielded artifacts (Table 11.1). Eleven artifacts, all debitage, were recovered from these units. Except for one artifact, all were in the upper AC horizon that represents a largely disturbed construction fill or slopewash. In comparing the number of artifacts per unit, a range from zero to five was recorded.

The five backhoe trenches were excavated into the C horizon sediments and, in some instances, contacted decomposing granite bedrock Cr horizon. Overall, the stratigraphy exposed by the backhoe trenches mirrored that in the shovel tests. No evidence of intact cultural deposits was observed in the profiles.

Following the trenching and geomorphic investigation, the surface of the site was mechanically stripped to sterile C horizon deposits or decomposing Cr horizons over a 616 m^2 area. This activity revealed no cultural indications.

Based on the excavations and geomorphic investigations, the site appeared to be severely eroded even in the sandy berm. The thin gravelly sediments containing most of the artifacts are interpreted as significantly deflated with artifacts displaced from their original contexts. Although the berm contained an Ab horizon with some potential to contain cultural deposits, the excavations did not identify any features or cultural deposits.

Artifacts

Sixty-three artifacts were recovered from LA 121164. These included four retouched tools, one core, 56 lithic flakes, and two ground stone implements. The vast majority of chipped stone artifacts were made of rhyolite (83.6 percent) followed by white chert (6.6 percent), quartz (4.9 percent), obsidian (3.3 percent), and igneous material (1.6 percent).

The debitage at LA 121164 primarily represented hard-hammer core reduction and was dominated by large, complete cortical flakes (Table 11.2). Eighty-four percent (n=47) of the assemblage consisted of medium- to fine-grained rhyolite, which was subdivided into at least five discrete reduction sets (see above). Also present are three chert flakes (one with possible heat alteration), two obsidian flakes, and three pieces of white quartz. One flake is a fine-grained, dense, vitreous igneous material. Only one piece of debitage (white chert) is a possible soft hammer percussion/ biface thinning flake; all other flakes likely result from hard-hammer core reduction.

Table 11.2 Summary of Debitage.

Material	Number of Specimens	Number With Cortex	Number Of Whole Flakes	Number of Flake Fragments or Angular Debris	Average Weight (g)
Chert	3	1	1	2	8.9
Misc. Igneous	1	0	1	0	12.4
Obsidian	2	0	0	2	1.7
Rhyolite	47	28	30	17	19.0
Quartz	3	0	0	3	1.2

A single unidirectional rhyolite core was recovered. This core, associated with reduction set number 5, is a medium-grained rhyolite cobble with 15 flake scars. Fourteen of these originated from a single platform, forming an even trapezoidal cross-section.

The four retouched flake tools from LA 121164, included three rhyolite scrapers and a scraper of white chert (Table 11.3). Two of these rhyolite scrapers were members of reduction set 2. All scrapers were unifacially retouched, and showed wear on retouched edges (rounding and/or nibbling).

Table 11.3 Retouched Tool Summary.

Material	Retouch type	Retouch location	Weight (g)
White chert	Marginal and facial, continuous	Distal margin, one lateral margin	77.8
Rhyolite	Marginal, continuous	Distal margin, one lateral margin	12.1
Rhyolite	Marginal, continuous	Distal margin, one lateral margin	122.8
Rhyolite	Marginal, continuous	Platform, one lateral margin	86.6

Two small, fragmentary grinding slabs were recovered from LA 121164. Both pieces represent flat/concave metates (unprepared flat grinding surfaces that have become slightly concave due to extended use), made of tabular sandstone. One showed unidirectional striations. The broken edges of the other specimen were somewhat rounded, suggesting possible reworking of a larger metate fragment.

Site Chronology

LA 121164 produced no diagnostic artifacts during the survey or data recovery investigations. Because of the absence of pottery, Goar and her colleagues (1998) associated this site with the Archaic period. The lack of diagnostic Archaic artifacts, however, should keep this question open because other groups such as the protohistoric Chiricahua Apache followed a similar adaptive strategy with the addition of occasional metal artifacts.

Site Interpretation

LA 121164 is a moderately-sized, sparse scatter of cultural materials located about equally on both sides of the northern highway right-of-way fence. Geomorphic investigations suggest the site has been severely eroded and the artifacts principally in redeposited context. Supporting this interpretation, the archaeological excavations found no evidence of intact subsurface cultural features or deposits. Based on these data, the site area within the highway right-of-way is determined to lack subsurface integrity.

The lack of diagnostic artifacts precludes the temporal assignment of the site; however, in the absence of ceramics, it is suggested that the occupations may have occurred during the Archaic, Protohistoric, or perhaps, Historic period. Although the distribution of cultural materials may be a product of redeposition, a concentration of chipped stone materials was documented at the center of the site. Most of the lithic reduction activities were represented in this area. Lithic reduction was dominated by early stage core reduction with only one bifacial thinning flake represented in the assemblage. Although rhyolite was by far the most common lithic material, chert, quartz, obsidian, and sandstone were represented as well. Tools included a number of scrapers both inside and outside the right-of-way. The flake scrapers may indicate manufacturing processes occurred at the site. Grinding implements were rare at the site but where present, suggest plant food processing.

12.0 LA 121165 (USFS No.: AR-03-06-07-00585)

Christopher A. Turnbow with contributions by Grant D. Smith

Introduction

LA 121165 was a small, ephemeral site consisting of a sparse scatter of chipped stone and ground stone. It was located entirely within the right-of-way on the northern side of NM 90 in Grant County (Figure 1.2). Discovered during the 1998 cultural resource survey for the road reconstruction project (Goar et al. 1998), the site was described as a sparse, aceramic artifact scatter measuring 17 by 10 m. The absence of ceramics coupled with the presence of a large, corner-notched projectile point fragment caused Goar and her colleagues to tentatively date the site to the Late Archaic period. Since the potential for subsurface deposits was unknown, the site was recommended as potentially eligible to the NRHP.

Proposed highway reconstruction of NM 90 would completely impact this resource. Therefore, TRC undertook data recovery investigations on the site between February 15 and 17, 1999. This work was carried out by a crew of six.

Data recovery investigations located 10 surface artifacts in an area measuring 36 by 9.6 m. Excavations of eight shovel tests, 42 m of backhoe trenches, and 278 m^2 of stripped surfaces found no evidence of subsurface cultural deposits, features, or artifacts at the site. These results concur with the geomorphic interpretations that the coarse sediments at LA 121165 reflected a relatively high-energy depositional environment not conducive for the preservation of site integrity. Based on the available information, the site probably was occupied briefly by a small Late Archaic group.

Physical Description

LA 121165 was located in a broad pass in the southern Big Burro Mountains at an elevation of 1,840 m (6,040 feet) amsl. It lay at the headwaters of C Bar Canyon. The drainage flows southeastward into the Burro Cienaga and then southwestward into the Lordsburg Valley.

The site was situated on a gentle eastward facing ridge slope that dropped sharply to the north and south into small intermittent stream channels (Figures 12.1 and 12.2). Construction of NM 90 may have disturbed the southern portion of the site and caused erosion to the surface. The present road cut is around 1.0 m in thickness. A reconnaissance survey on the ridge found no additional artifacts immediately upslope beyond the right-of-way.

The surface soils included coarse sandy loam composed of decomposing granite. Bedrock granite was exposed on the highway cut bank about 40 cm bgs in some places. The site lay in the Madrean Open Oak Woodland biotic zone with oaks, piñon, and juniper present on the site. No available water was present near the site. A seep currently lies 600 m to the west in the C Bar Canyon.

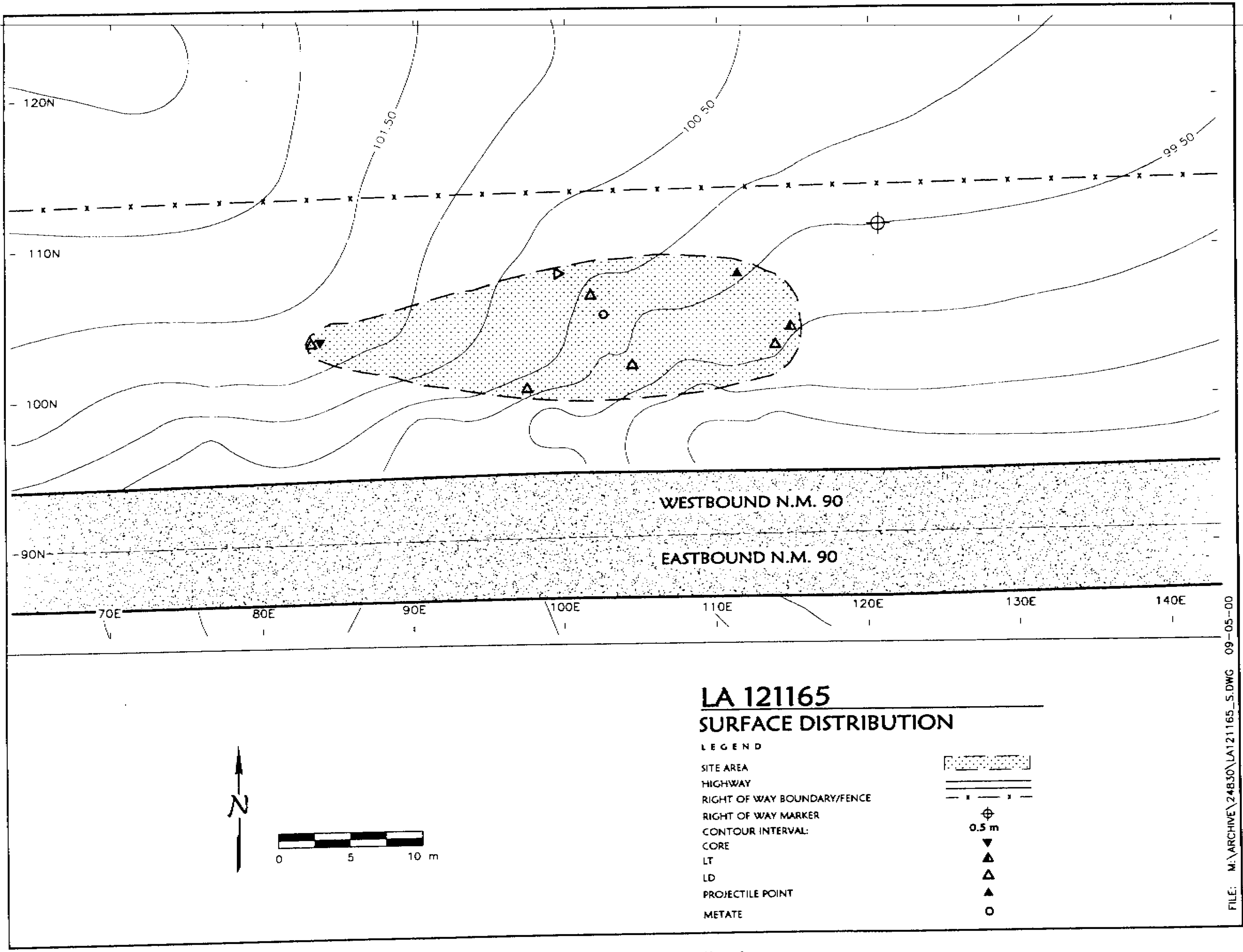

Figure 12.1 LA 121165 Topographic Map Showing Surface Artifact Distribution.

Figure 12.2 Photograph of LA 121165 Facing Northwest.

Data Recovery Strategy

Data recovery investigations conducted at LA 121165 included site reconnaissance, mapping, surface collection, shovel testing, backhoe trenching, and mechanical stripping of the deposits. A systematic survey beyond the recognized site boundary confirmed the small scatter was a discrete resource.

After the establishment of a datum at N100 E100, the mapping involved relevant topographic details, right-of-way engineering stations, artifacts, shovel tests, backhoe trenches, and the edges of the stripped surfaces (Figure 12.3). Site boundaries were determined by the distribution of surface artifacts.

Systematic surface collections were undertaken in associations with the site mapping. Given the limited quantity of cultural materials at the site, all surface artifacts were flagged, point provenienced, and collected.

Eight 50 by 50 cm shovel test units were placed within and near the site limits. Excavations continued through consistent coarse loamy sand to a clayey subsoil or granitic bedrock from 10 to 40 cm bgs. No artifacts or cultural deposits were recovered from these units. A total volume of 0.48 m^3 was excavated from these shovel tests.

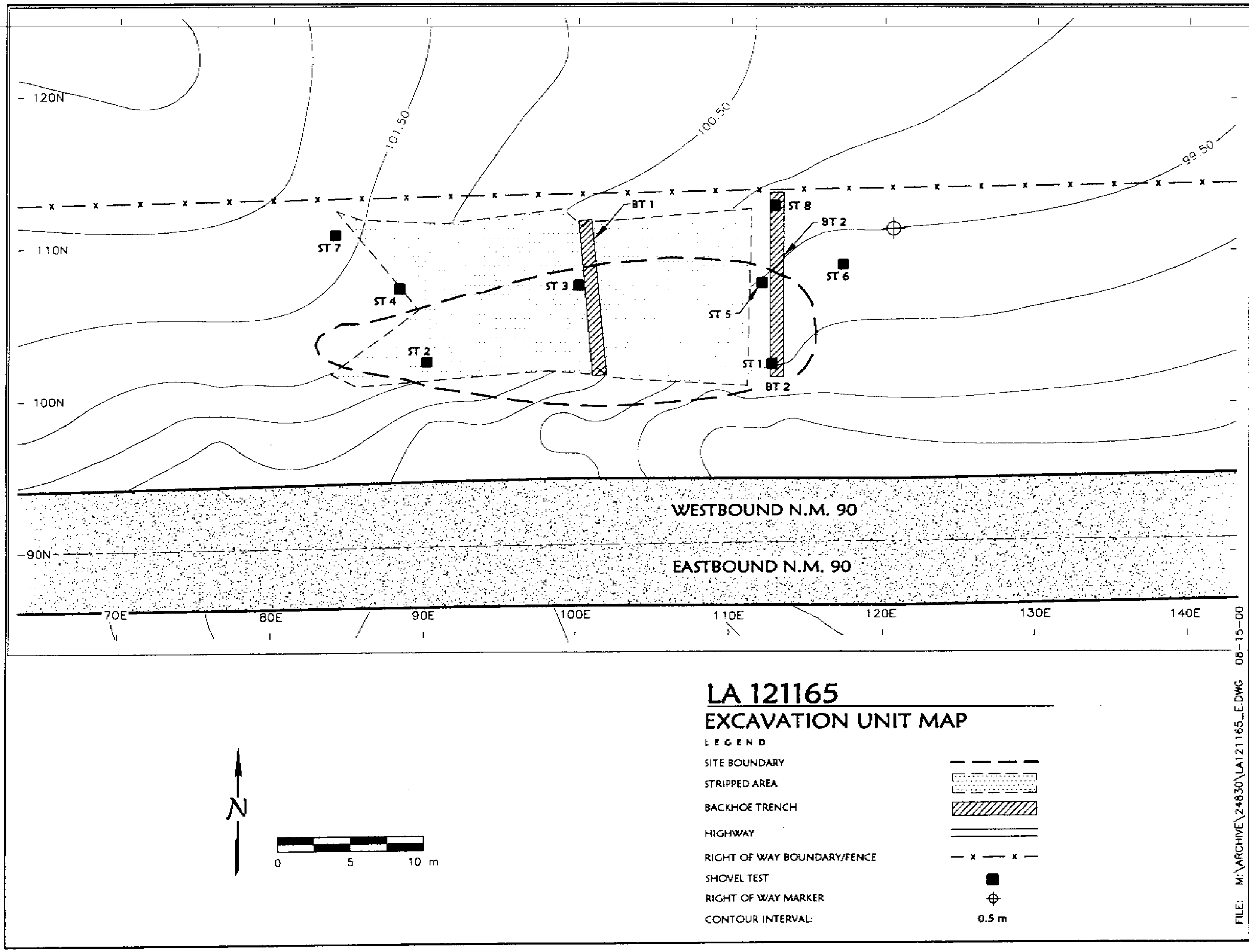

Figure 12.3 LA 121165 Site Map Showing Excavations.

After completing the shovel testing, two north-south backhoe trenches (BT 1 and 2) were excavated on the site. These trenches, measuring 75 cm wide and 9.25 to 10.37 m long, were excavated to bedrock and confirmed the results of the shovel tests. The trenches removed approximately 5.15 m^3 of sediments. Following the examination of the trenches by the geomorphologist, the backhoe was used to strip an area of approximately 278 m^2 to C horizon subsoil or bedrock. Hand and mechanical excavations produced no evidence of subsurface artifacts, features, or other cultural deposits.

Surface Characteristics

The investigation of LA 121165 confirmed the presence of a small, discrete scatter of chipped and ground stone artifacts in an area measuring 36.0 m east-west by 9.6 m north-south (Figure 12.1). The surface of the site produced only 10 artifacts. No thermally altered rocks were noted on the surface. Since NM 90 marks the southern edge of the site, it seems plausible that the occupation may have continued a short distance into what is now the highway; however, the slope becomes very steep to the south and likely was uninhabitable. No cultural materials were found immediately upslope from LA 121165.

The 10 artifacts were scattered widely with no clear pattern. Given the high energy erosion of the surface of the site, the distribution of the cultural materials probably was not meaningful. Eight of the artifacts were in an 18.0 m by 9.6 m area. A core and a piece of debitage were approximately 18 m to the west.

Site Stratigraphy and Geomorphology

LA 121165 occurs on a slope that moderately dips to the east. Shovel tests and backhoe trenches on this site encountered relatively shallow accumulations of sandy, granitic, slopewash alluvium. The overall soil profile appears similar to that observed at the Forest Home site, and it is possible that the soil horizons between the sites correlate to each other (Figure 12.4).

The uppermost unit at site LA 121165 consists of a yellowish brown (10YR 5/4,d) coarse sandy loam (AC horizon). Pebbles up to 1 cm in diameter comprise 10 percent of the sediments in this unit. The AC horizon has a clear, smooth contact with the underlying Ab horizon.

Underlying the AC horizon is a cumulic Ab horizon that is up to 30 cm thick and is composed of a brown (10YR 5/3,d) coarse, sandy loam. The sediments in this unit contain more gravel than the surface horizon (15 percent) with clasts up to 2 cm in diameter. Soil development has resulted in the development of a very weak, medium, granular structure. With the exception of the coarser sediment sizes, this Ab horizon appears similar to those observed at most of the other archaeological sites observed along the right-of-way. Based on this similarity, it is correlated to these other locales and is considered to be of the same age (Late Archaic to Classic Mimbres). The coarse clast size, however, suggests an environment less favorable for the preservation of cultural materials than observed in sites further to the west. The gravel component and the moderate slope on this site suggest relatively high-energy deposition. Sheet floods that were capable of moving clasts up to 2 cm also could have moved archaeological materials of a similar size. In addition, such a high energy environment would tend to be erosive to the pre-existing surface sediments. It is possible that cultural materials could be recovered from the site, but the stratigraphic integrity of such materials would be questionable.

Underlying the Ab horizon is a deposit of relatively unaltered sediment that lacks evidence of soil formation (C horizon). These sediments are a brownish yellow (10YR 6/6,d) very coarse sandy loam. Gravels comprise approximately 30 percent of this sediment with clasts up to 4 cm in diameter. These sediments appear to be reworked granitic grus that has been washed down slope from the granite outcrops upslope from the site. Over most of the site, the grus was deep enough to not be encountered at the base of the backhoe trenches. On the northeastern and western margins of the site (northern end of BT 1), the C-horizon material was not as deep, and granite bedrock was encountered at 10 to 30 cm below the ground surface.

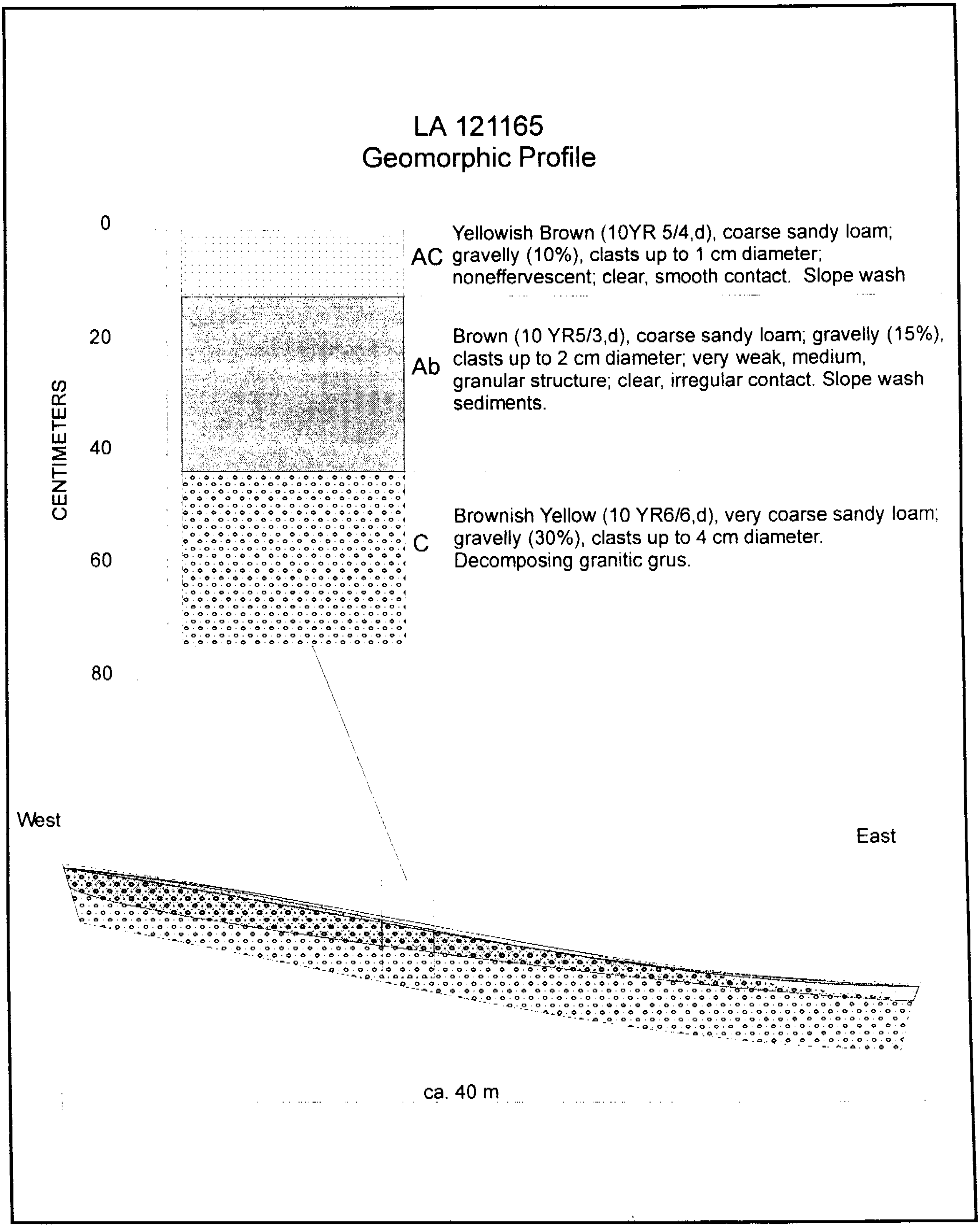

Figure 12.4 Geomorphic Profile of LA 121165.

Subsurface Cultural Resources

A careful inspection of the highway cut bank on the southern edge of the site identified no evidence of cultural deposits or artifacts. The eight shovel test units were scattered over the known site area and had similar results (Figure 12.3). None produced cultural materials or indications of intact cultural deposits or features. Five units reached granite bedrock between 10 to 30 cm bgs. Three others encountered C horizon sediments or granite regolith deposits by 20 cm bgs and were terminated at 30 to 35 cm bgs. The shallow AC and Ab deposits located above the weathering granite are coarse grained and reflect erosion and redeposition that destroyed the integrity of the resource.

Two backhoe trenches (BT 1 and BT 2) were excavated perpendicular to NM 90 through the main portion of the site. Both were culturally sterile and conformed to the results of the shovel tests.

Finally, in an attempt to identify any isolated features that may have survived the erosional process, mechanical stripping exposed an area measuring 35 by 11.9 m or 278 m^2. This area was slightly larger than the main portion of the site. The mechanical removal of the sediments continued to bedrock, regolith, or C-horizon deposits. Bedrock was exposed at only 10 to 16 cm bgs on the western portion of the site. No evidence of any cultural materials or deposits was found during this endeavor.

Artifacts

The artifact assemblage recovered from LA 121165 consisted of only 10 specimens. These included one corner-notched dart projectile point fragment, a retouched tool, a core, six flakes, and a basin metate fragment.

The six flakes represent hard-hammer core reduction. Five of the six have platforms, all of which are unifacet. Material types of the debitage include three white quartz, two rhyolite, and a gray quartzite. The quartzite flake has a slight edge rounding on part of the distal margin.

The core is composed of rhyolite. It is unidirectional with seven of the eight flake scars originating at the single platform. Cobble cortex is present. Based on its size, the specimen probably was exhausted.

Two chipped stone tools were recognized in the assemblage. A 21 mm thick flake fragment or piece of angular debris of rhyolite is interpreted as a single-edged scraper. It has a continuous marginal unifacial retouch along one edge. This edge also shows slight rounding suggestive of use-wear.

The corner-notched projectile point was made of white chert. Stem and barbs are missing, but minimum neck width is 12 mm. The overall shape of the blade is triangular with slightly excurvate lateral margins. The appearance of the point closely resembles Late Archaic or Early Pit House period styles.

The granite metate fragment exhibits a single, basin-shaped, concave grinding surface. This is a prepared basin with a maximum depth of 62 mm. Striations are multidirectional, suggesting round and/or random hand movements while grinding.

Site Chronology

LA 121165 is an aceramic site containing two artifacts that may help date the occupation. A broken, corner-notched dart point clearly is reminiscent of types dating to the Late Archaic and Early Pit House period. Basin metates, such as the one found at LA 121165, also are popular during the Late Archaic period (Lancaster 1983, 1984; Sayles 1983:79). Based on these data, the site is interpreted as dating to the Late Archaic period, although it may fall slightly later during the early portion of the first millennium AD.

Site Interpretation

LA 121165 is a small, sparse scatter of cultural materials with no evidence of intact cultural deposits or features. The stratigraphic columns of the site revealed little, if any, potential for buried cultural deposits. The shallow sediments resting on granitic regolith and bedrock are substantially deflated and likely redeposited. The artifacts found on the surface probably are displaced from further upslope and lack integrity; however, a reconnaissance outside the highway right-of-way found no source above the site.

The few artifacts associated with this site argue for a short-term campsite by a small group. Based on the projectile point form and the lack of ceramics, the ephemeral occupation most likely dates to the Late Archaic period. The diversity of tools suggests a variety of activities were carried out at the site, including hunting equipment maintenance, scraping, and plant food processing.

13.0 LA 121209 (USFS No.: AR-03-06-07-00587)

Christopher A. Turnbow

LA 121209 was a small multicomponent site consisting of chipped stone, ceramics, and a single feature. The site was recorded first in 1998 during the cultural resource survey for the NM 90 road reconstruction (Goar et al. 1998). At that time, the site was described as a sparse scatter of chipped stone and ceramics with little potential for subsurface cultural deposits. As such, it was not recommended as eligible to the NRHP. The Gila National Forest and New Mexico State Historic Preservation Officer concurred with the recommendations and, therefore, LA 121209 was not considered for data recovery (Railey and Turnbow 1999). During the subsequent archaeological excavations along NM 90, TRC staff observed relic collectors on the site and decided to revisit it on April 19, 1999. At that time, a rock alignment measuring 2.5 m in length east-west was identified under some dead wood near the center of the site. In all, nine large cobble to small boulder sized rocks composed the alignment on the surface. After consulting the NMSHTD, the Gila National Forest, and the New Mexico State Historic Preservation Office, a shovel test trench, measuring 30 cm by 2 m, was placed perpendicular across the alignment to further evaluate the feature's character and depth. The trench revealed at least three courses of rock, extending down approximately 25 cm below the present ground surface. Although no intact floors or clear cultural deposits were exposed, the rock feature was thought to be a possible wall to a structure. Based on the site's ceramic assemblage, the feature was believed to date to the Late Pit House period. A dart point on the site also suggested an earlier occupation sometime from the Late Archaic to perhaps AD 650.

Highway improvement plans for NM 90 indicate that the site would be completely impacted by construction. Given the potential for structural remains, the NMSHTD, the Gila National Forest, and the New Mexico State Historic Preservation Office concluded that the site did possess integrity and was determined to be eligible for the National Register of Historic Places. Data recovery investigations were conducted at LA 1211209 by TRC between May 8 and 9, 1999.

These investigations determined the rock alignment to be a rock pile of unknown age and function. No other features or intact cultural deposits were encountered, and few subsurface cultural materials were recovered during the investigations. It was concluded that the site was severely eroded and lacked integrity. Up to three components were identified from the diagnostic materials. They included a possible component between Late Archaic and the Late Pit House, a late Three Circle phase occupation, and a post AD 1903 littering episode.

Physical Description

LA 121209 was on a gentle westward-facing slope near a broad pass in Big Burro Mountains. Situated at an elevation of 1,890 m (6,200 feet) amsl, it overlooked Wood Canyon approximately 600 m to the south and the Animas Valley to the west. Powerline Canyon, a tributary to Wood Canyon, was located 400 m to the north. No springs or other sources of water currently are known to occur close to the site.

The site itself was situated on a small, level area on a western descending ridge top (Figures 13.1, 13.2, and 13.3). The ridge dropped steeply to the west and south of the site. Granite bedrock, in places covered by a thin veneer of grus and very coarse sandy loam, indicated no potential for buried cultural deposits in these areas. The other edges of the site had been impacted by previous road construction. An unknown amount of the northern portion of the site was removed during the building of NM 90. Likewise, the eastern side of the site was mechanically leveled and covered by non-local gravel, probably to serve as a construction staging area. A drainage ditch had been excavated east-west across the northern portion of the site to around 50 cm bgs. No intact cultural midden was recognized in the ditch banks or road cut.

The site was within the Madrean Open Oak Woodland zone. The surface of the site had a single large juniper, small scrub oak, and mountain mahogany. The understory had grasses and yucca. Overall visibility was approximately 60 to 70 percent.

Data Recovery Strategy

LA 121209 was mitigated using the methods and procedures presented in the NM 90 data recovery plan (Railey and Turnbow 1999). The site exhibited a fairly small, surficial artifact scatter. Work began with a reconnaissance aimed at establishing the site boundaries and surface characteristics. This inspection confirmed the general site characteristics documented by Goar and her colleagues (1998). A datum established under the existing right-of-way fence was assigned a grid coordinate of N100 E100 and an arbitrary elevation of 100 m. A detailed total station map of the site included the relevant topographic details, all surface artifacts, the manual and mechanical excavation units, and the edges of the stripping area.

The surface collection was undertaken systematically on the entire site. All surface artifacts were flagged, point provenienced with the total station, and collected. Materials were sparse over most of the site, but densities increased along the eroded road cut on the northern edge of the site. Site boundaries were determined by the distribution of the surface artifacts.

Data recovery excavations of LA 121209 initially focused on testing and then on fully exposing the rock alignment (Feature 1) (Figure 13.4). The preliminary 30 cm wide, 2.0 m long trench was excavated perpendicular to Feature 1. These excavations found two artifacts, but no floors, room fill, or other cultural deposits in association with the feature. Still feeling the alignment was structural in nature, the trench was expanded to 1 by 12 m along a north-south axis, originating at the right-of-way fence. This effectively cut across the only portion of the site where intact cultural deposits could be hidden from view. Afterwards, the feature was exposed fully by a shorter 1 by 4 m trench and a 7 m^2 block excavation. These excavations revealed only two additional artifacts, including a crushed metal can. No evidence of a structure was revealed by the 23 m^2 manual excavation of that portion of the site with the highest potential for containing intact cultural deposits or features.

The final step in the excavation was the mechanical stripping of the entire site to either bedrock or a very compact C horizon subsoil. This area measured 44 by 14 m and encompassed 440 m^2. This effort revealed no evidence of features, staining, or intact cultural deposits.

Surface Characteristics

The surface assemblage at LA 121209 consisted of 22 artifacts, as well as a sparse scatter of thermally altered rock that extended for 24 m east-west by 16 m north-south (Figure 13.3). The cultural materials were concentrated on the level ridge top and encompassed 260 m^2. The site boundaries were set artificially by the construction of NM 90 on the northern side and leveling and filling for a construction yard on the eastern side. Most of the identified surface artifacts were distributed along the eroded NM 90 road cut, suggesting other artifacts were buried in the loose sand. A few widely spaced pieces of debitage were observed opposite the site on the eroded northern side of NM 90 right-of-way. These artifacts were not included in the site given their dispersed nature. They suggest the site may have continued northward into what is presently the highway. The western and southern boundaries were marked by an absence of cultural materials on the eroded slopes.

The surface assemblage consists of eight chipped stone artifacts and 14 ceramics, representing a surface artifact density of 0.08 specimens per m^2 (Table 13.1). The chipped stone includes a San Pedro-like side-notched projectile point, two retouched flakes, and five pieces of debitage. The ceramics include four indeterminate white-slipped brownware, an indeterminate brownware, an Alma Plain, a San Francisco Red, and seven corrugated sherds. These ceramics suggest the main occupations of the site fall in the Late Pit House period and, more precisely, during the Three Circle phase. The dart point was found among a slight concentration of ceramics and may have been scavenged and recycled by the Three Circle phase population.

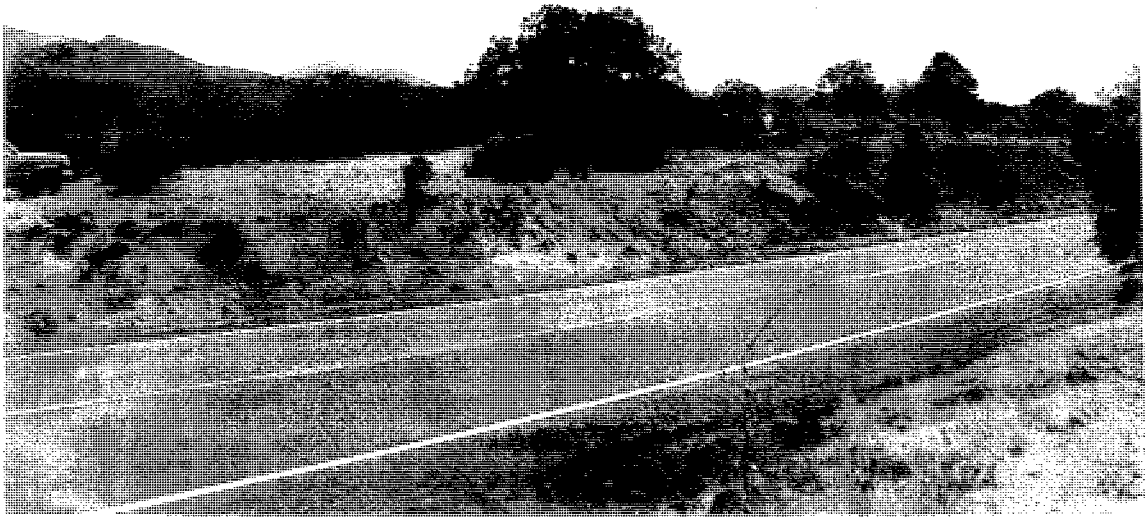

Figure 13.1 Photograph of LA 121209 Facing Southwest.

Figure 13.2 Photograph of LA 121209, Feature 1 Pre-excavation.

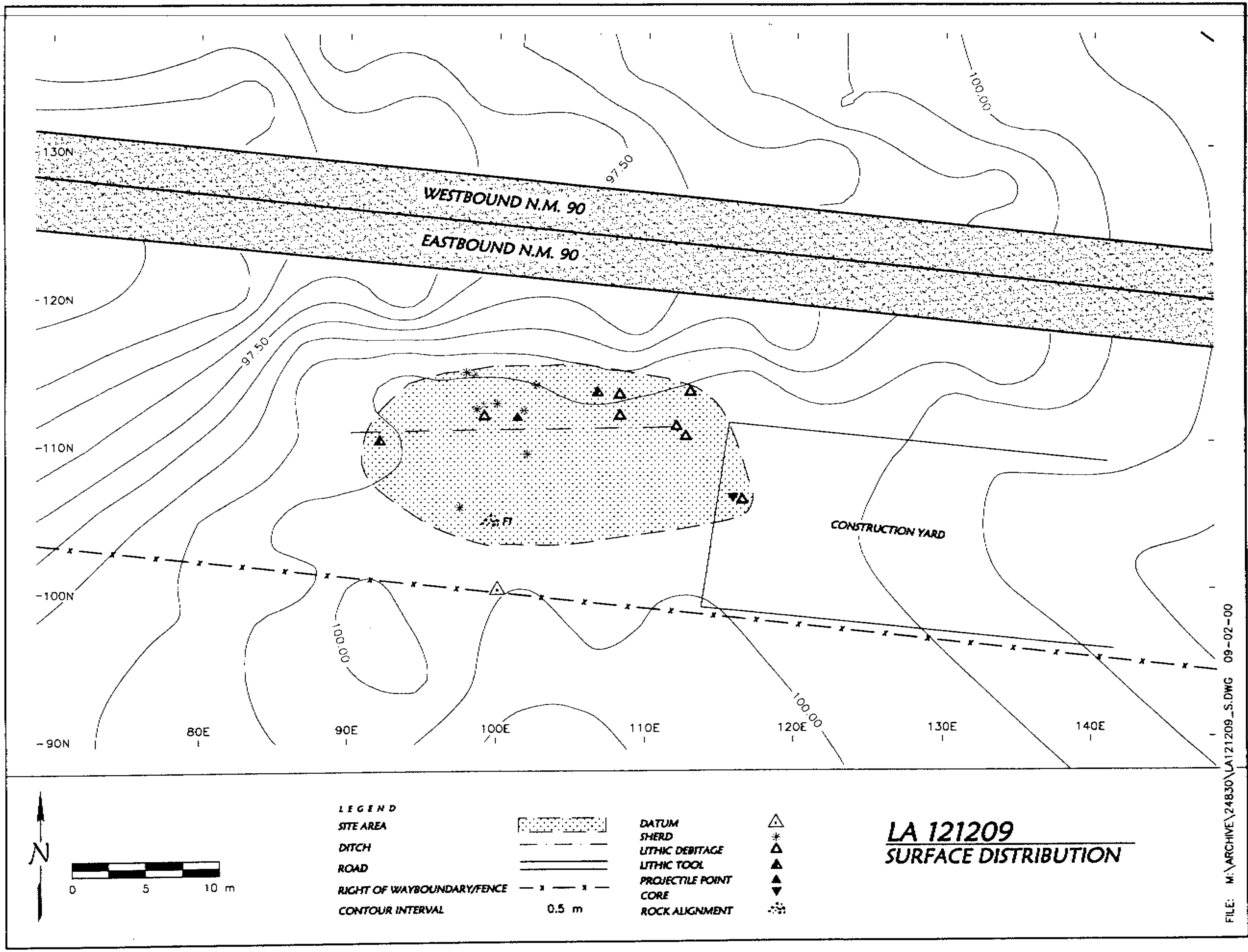

Figure 13.3 LA 121209 Topographic Map Showing the Surface Artifact and Feature Distribution.

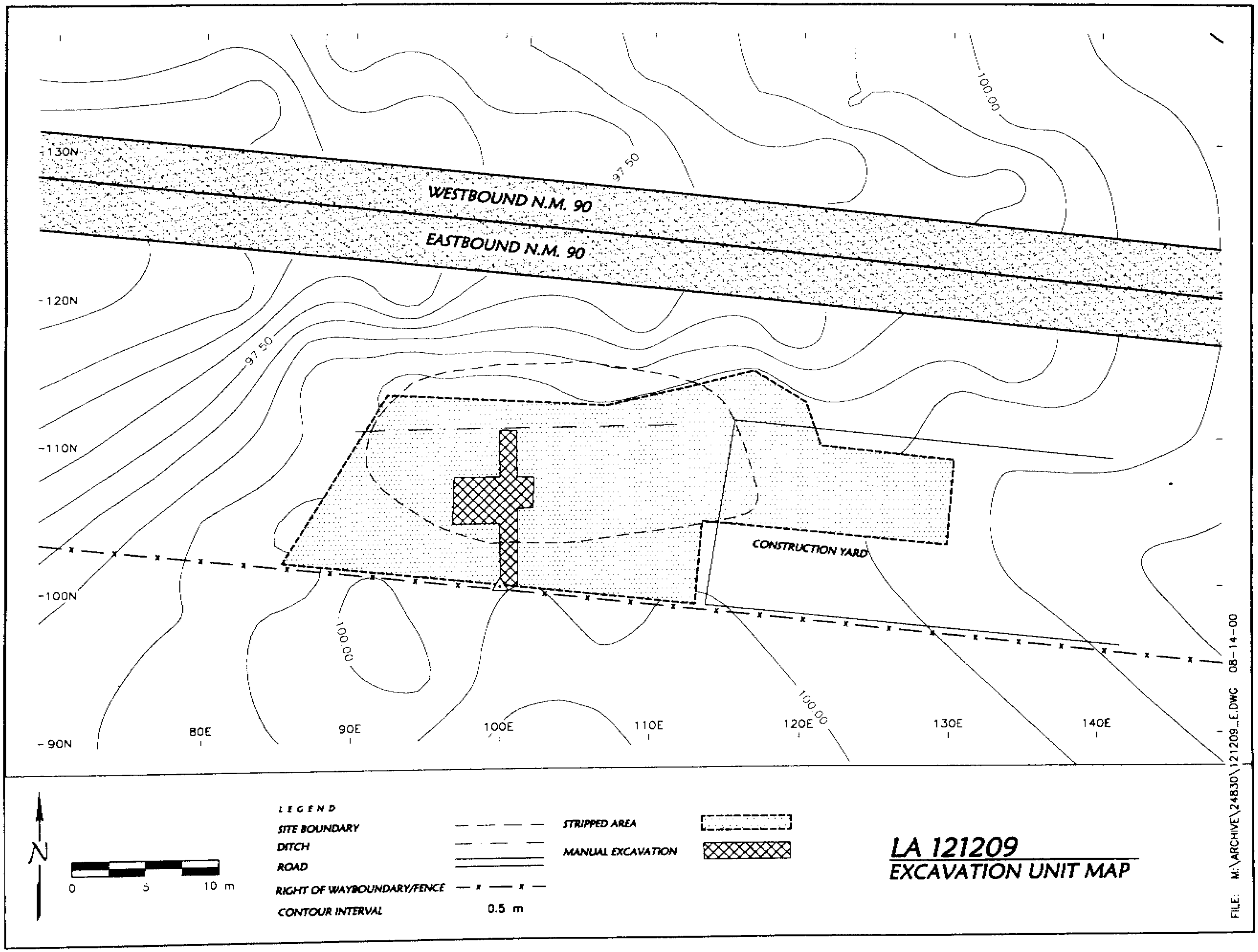

Figure 13.4 LA 121209 topographic Map showing the Excavation Units.

Table 13.1 LA 121209 Artifact Assemblage.

	Debitage	Cores	Retouched Tools	Indeter. Projectile Point	Alma Plain	Corrugated Brown	Indeter. Brown	Indeter. White	Indeter. Mimbres Black-on-white	San Francisco Red	Ceramics too small for analysis	Metal can	Totals
Surface	8	1	2	1	1	7	1	4	–	1	–	—	26
Feature 1	1	–	–	–	–	–	–	–	1	–	1	1	4
Totals	**9**	**1**	**2**	**1**	**1**	**7**	**1**	**4**	**1**	**1**	**1**	**—**	**30**

A rock alignment (Feature 1), measuring 2.5 m east-west, was the only feature noted on the surface. Located near the center of the site, the alignment consisted of nine large cobble to small boulder sized rocks on the surface. The linear character and size of the stones suggested that the feature represented a structural wall. One chipped stone artifact was located near the feature.

Site Stratigraphy and Geomorphology

LA 121209 was situated on a level ridge top with steep slopes to the south and west. Manual excavations and mechanical stripping on the site encountered relatively shallow accumulations of eolian sand mixed with residual deposits composed of the disintegrating granite parent material. This upper most unit (AC horizon) was up to 30 cm thick and consisted of a yellowish brown (10YR 5/4,d) coarse sandy loam and an eolian medium grained sand. Pebbles up to 1 cm in diameter comprised 20 percent of the sediments near the bottom of this unit. The AC horizon has a clear, smooth contact with the underlying C horizon or bedrock. The deposits are thickest around the rock feature where eolian sediments collected.

The AC horizon was underlain by either granite bedrock or a deposit of relatively unaltered sediment that lacked evidence of soil formation (C horizon). These sediments were a brownish yellow (10YR 6/6,d) very coarse sandy loam. Gravel comprised approximately 60 percent of this unit with clasts up to 4 cm in diameter. These sediments appeared to be residual granitic grus from the underlying bedrock and were culturally sterile.

Subsurface Cultural Resources

Since the major part of LA 121209 was either eroded to bedrock or had been mechanically disturbed in the past, the integrity of the site was viewed as poor, except for the sandy loam area surrounding the exposed rock alignment. This area encompassed 12 by 10 m. During the testing phase, a narrow shovel trench, measuring 30 cm by 2 m, had been excavated perpendicular to the rock alignment (Feature 1) exposed on the surface. For the data recovery excavations, this trench was widened to 1 m and lengthened to 12 m north-south, beginning at the right-of-way fence (Figure 13.4). Like the earlier testing, no intact floor, cultural deposits, or other rock alignments were located, and although the entire trench was screened, only two artifacts, a chipped stone flake and a small sherd, were recovered from the unit. No charcoal or dark carbon-rich sediments were found. By more fully exposing the rock alignment, it looked less like a coursed wall.

Given the lack of evidence for a structure, another trench was excavated 1 by 4 m along the eastern side of the rock alignment and perpendicular to the first trench. This trench encountered a sanitary can and a finely made Mimbres Corrugated miniature jar base only a few centimeters apart in the rather loose sands. Finally, the rock alignment was completely cleared off the AC horizon deposits, revealing a large, linear pile of igneous rock. The stone types included eroded, round cobbles and angular, blocky pieces. No

stains, pits, or artifacts were found under the pile after it was dismantled. Although the rocks were undoubtedly manuports from down the slope, the purpose and age of the pile remains a mystery.

Since the manual excavations found few artifacts and no indications of intact cultural deposits, the rest of the site was stripped mechanically to determine if other cultural features could be concealed by the eolian sand. This effort revealed no further evidence. Mechanical stripping continued off the known site into the leveled and gravel covered construction yard, but found the gravel rested directly on bedrock or grus. Since there was little potential for cultural deposits preserved in that area, the excavation was terminated.

Feature

A large, linear pile of igneous rock (Feature 1) represented the only cultural feature found at LA 121209 (Figure 13.3). On the surface, this feature manifested a wall-like character with nine large stones in a linear alignment of approximately 2.5 m east-west (Figure 13.2). However, excavation revealed it to be what may be best interpreted as a pile of assorted igneous rock measuring 3.45 m east-west, 1.95 m north-south, and 25 cm in maximum thickness (Figures 13.5 and 13.6). The pile was composed of two distinct types of rock varying from small boulder to large cobble sized pieces. The more common was the Burro Mountain Granite, a coarse granite that appeared most commonly as highly eroded, rounded stones. The other was a finer igneous rock that tended to exhibit sharp, angular edges. The pile was somewhat linear, but irregular in plan and showed no evidence of having ever been stacked in courses. Removal of the rock pile revealed it rested directly on the decomposing bedrock granite with no evidence of a pit or burial below it. The excavation block placed over the feature yielded no indications of intact cultural deposits, charcoal, or ash. Only four artifacts were found in close proximity to the rock pile. These included a Mimbres Corrugated sherd, another sherd too small for analysis, a flake, and a metal sanitary can. The latter item leads to some question of the origin of the rock feature.

Artifacts

Investigations at the site produced 30 artifacts including 16 sherds, 13 pieces of chipped stone, and a single piece of metal, as well as a sparse scatter of thermally-altered rock (Table 13.1). The metal object was a crushed sanitary can.

The chipped stone assemblage contains a single projectile point fragment, two retouched flakes, a core, and nine pieces of debitage. The projectile point is a thick side-notched point with an expanding stem and slightly excurvate blade margins. The tip and one lateral margin are missing, but minimum neck width is 12 mm. This dart point could not be satisfactorily classified to a formally named type, but is sorted into an indeterminate (San Pedro-like) type.

Two retouched pieces exhibit intentional retouch, but show only shallow marginal flaking. One is a small scraper fragment produced from a chert flake. It displays continuous unifacial marginal retouch along one lateral margin. Retouch flakes were removed from the flake exterior surface. This retouched edge shows slight rounding wear as well. The other is a medium to large, angular basalt flake with slightly discontinuous marginal retouch along all flake margins. Nibbling and rounding wear are present along all three of these use edges.

The core was predominantly unidirectional with a roughly trapezoidal cross-section showing seven scars, six of which originate from a single platform. Made from a fine-grained quartzite, the core appears to be exhausted, weighing 30.7 g.

The nine pieces of debitage from the site represent hard-hammer core reduction with large, angular debris and flake fragments slightly outnumbering the whole flakes (Table 13.2). The debitage indicates the use of quartzite, chert, rhyolite, and igneous materials.

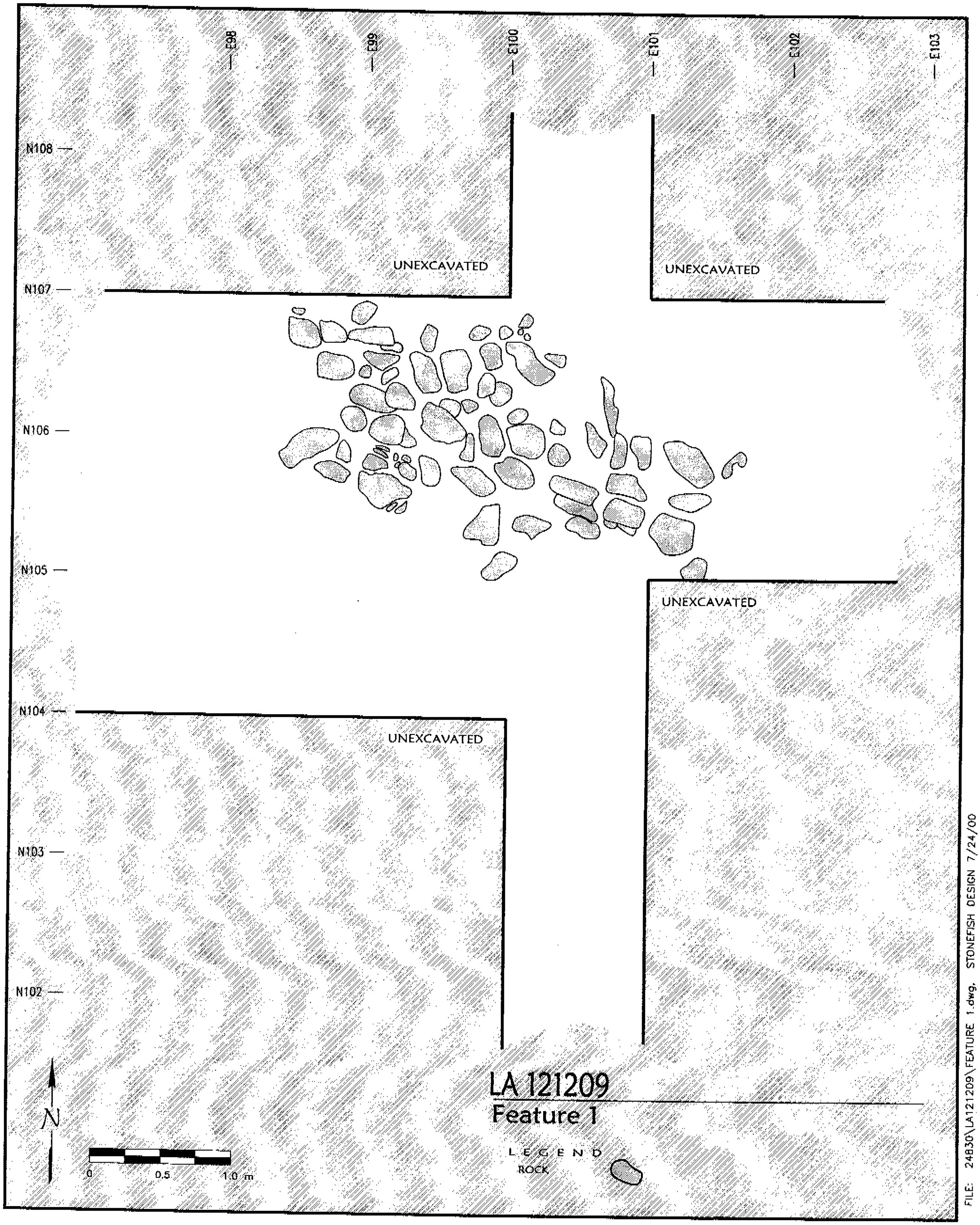

Figure 13.5 Feature 1 Planview Map, LA 121209.

Figure 13.6 Photograph of Feature 1, LA 121209, Facing South.

Table 13.2 LA 121209 Debitage Summary.

Material	Number of Specimens	Number with Cortex	Number of Whole Flakes	Number of Flake Fragments or Angular Debris	Average Weight (g)
Chert	2	2	0	2	26.8
Misc. Igneous	1	0	1	0	6.6
Quartzite	4	3	1	3	58.6
Rhyolite	2	2	1	1	25.9

The ceramic assemblage consisted of 16 specimens, including a Mimbres Corrugated miniature jar fragment, seven other corrugated brown sherds, an Alma Plain, an indeterminate brown, four indeterminate white-slipped sherds from a single bowl, a San Francisco Red, and one sherd too small to analyze. The white-slipped brownware sherds are weathered to the point where the painted designs are obliterated. Because the decorative elements are gone, the sherds could not be assigned to one of the Mimbres Black-on-white styles. As a result, the date range for the specimens is broadly set from AD 750 to 1130 (Schafer and Brewington 1995).

The Mimbres Corrugated miniature jar fragment was around 8 cm in diameter at the base with thin, indented, and smoothed over coils. The untyped corrugated sherds, all from the same vessel, exhibit coils that are clapboard corrugated, smoothed over, and of medium width (5 coils per 2 cm). These attributes are suggestive of the Three Circle Neck Corrugated, dated from AD 850 to 1010.

Site Chronology

Three temporal components were identified from the data recovery investigations at LA 121209. In the absence of any suitable chronometric samples, the assignment of components was based solely on diagnostic artifacts.

A Late Archaic to early Late Pit House period component is identified tentatively from a single, San Pedro-like dart point. The San Pedro type has a temporal span from 1200 BC to perhaps AD 300. These dates range from Late Archaic into the early Late Pit House period. The point was in close context to the corrugated and Mimbres white-slipped ceramics and therefore, could represent a piece scavenged by later populations.

A very late Late Pit House component is indicated by the 16 ceramics found around Feature 1 and eroding out along the road cut. Types include San Francisco Red (AD 500 to 1000), Alma Plain (AD 200 to 1000), and possible very late Three Circle Neck Corrugated (AD 850 to 1010). A miniature Mimbres Corrugated jar, recovered from near Feature 1, could date between AD 975 and 1130. If broken during a single occupation, these ceramics suggest a component during Late Pit House period and, more precisely, the late Three Circle phase.

The metal artifact, buried in the loose eolian sand near Feature 1 and the Mimbres Corrugated jar, is classified as a crimped, 16 oz sanitary can. The specimen was crushed and rusted. Production of such cans began around 1903, and it indicates late historic activity on the site.

Site Interpretations

The excavation of LA 121209 included 16 m^2 of manually dug trenches to bedrock, a 7 m^2 block excavation over Feature 1, and the mechanical stripping. Trenching and block excavations exposed that portion of the site with the highest likelihood of producing intact cultural deposits. The rest of the site was stripped mechanically to bedrock where it was not already fully exposed on the surface. The excavation of LA 121209 revealed no evidence of intact cultural deposits or features with the exception of the rock pile.

The investigations confirmed that LA 121209 was a sparse scatter of cultural material that probably dates to the Three Circle phase of the Late Pit House period. A San Pedro-like projectile point could represent an earlier component or a specimen scavenged by the Mogollon occupants of the site.

The rock feature on the site remains an enigma. Although cultural in origin, its function, if any, and age are unknown. Likely, it simply represents a pile of stones gathered from the surface around the ridge during the Three Circle phase. Perhaps the rocks were planned for the construction of a structure that never was built. Considering the miniature vessel found at the pile's edge, it could have marked a sacred location or burial covering for remains that long ago disintegrated. The can found below the surface near the feature, however, confounds the situation and leads to the question of whether the pile was somehow the result of highway construction.

14.0 The Power Site (LA 121210) (USFS No.: AR-03-06-07-00588)

Jim A. Railey with contributions by Grant D. Smith

Introduction

Situated on an upland hill top, along the divide between Powerline and Wood Canyons (Figure 1.2), Power is a residential site that dates to the Early Pit House period, with a single sherd dating from the Classic Mimbres. Portions of the site were present on both sides of NM 90 and continued beyond the right-of-way for at least 30 m to the north of the right-of-way fence on the northern side of NM 90 and for approximately 20 m to the south of right-of-way fence on the southern side of NM 90. Documented in a 1998 survey (Goar et al. 1998), three features were observed on the surface of the site (Features 1, 2, and 3) including two within the highway right-of-way. Feature 1 was a roasting pit outside the right-of-way. Feature 2 was documented as a probable midden deposit, and Feature 3 as a soil stain of unknown origin.

The major project-related impacts to the Power site are the widening of the shoulders and the recontouring of the slopes. These road improvements were anticipated to disturb all remaining intact cultural deposits within the right-of-way limits. Between March 3 -5, April 6, 24-27, and May 8, 1999, TRC carried out data recovery excavations at the Power site to mitigate impacts of the highway reconstruction project. Crew size averaged six persons. The investigations cleared all cultural deposits from the right-of-way.

Data recovery determined that the portion of the site within the right-of-way contained three pit structures and an eroded midden. Within the right-of-way, the site measured a maximum of 81 m east-west and 46 m north-south. Two pithouses (Features 4 and 6), one probable pithouse (Feature 5), and an eroded midden (Feature 2) were documented and excavated within the right-of-way. In addition to the features documented as a part of the project were two charcoal stained areas and a concentration of thermally altered rock to the north of the right-of-way fence on the northern side of NM 90. To the south of the southern right-of-way fence were two possible pithouses, three probable roasting pit features, and a scatter of thermally-altered rock representing either deflated features or midden deposits.

Physical Description

The Power site is situated atop a broad upland spur ridge overlooking the head of Wood Canyon 600 m to the south, and the head of Powerline Canyon about 300 m to the north (Figure 14.1 and 14.2). At an elevation of 1,884 m (6,180 feet) amsl, the central portion of the site lies on a nearly level bench that slopes gently to the west, and rises up to a knoll immediately to the north. The terrain continues to rise gradually east of the site, but slopes away more steeply to the west and south. The site lies several hundred meters from presently intermittent water sources.

The surface geology of the site area is composed of Burro Mountain Granite (Gillerman 1964). The granite is characterized by a pink porphyritic variety that ranges from tan to pink. Granite bedrock is exposed primarily along the slopes of the ridge and in erosional gullies. The granite weathers to a soft crumbly rock that decomposes to a grus and mixes with eolian sands to form a gravelly sandy loam on the surface.

The Power site is situated within the Madrean Open Oak Woodland biotic zone. On the site, this zone was composed primarily of alligator juniper mixed with oak, piñon, and mountain mahogany. Low vegetation included yucca, beargrass, and various grasses. Oaks dominate the overstory along the lower slopes and in the drainages.

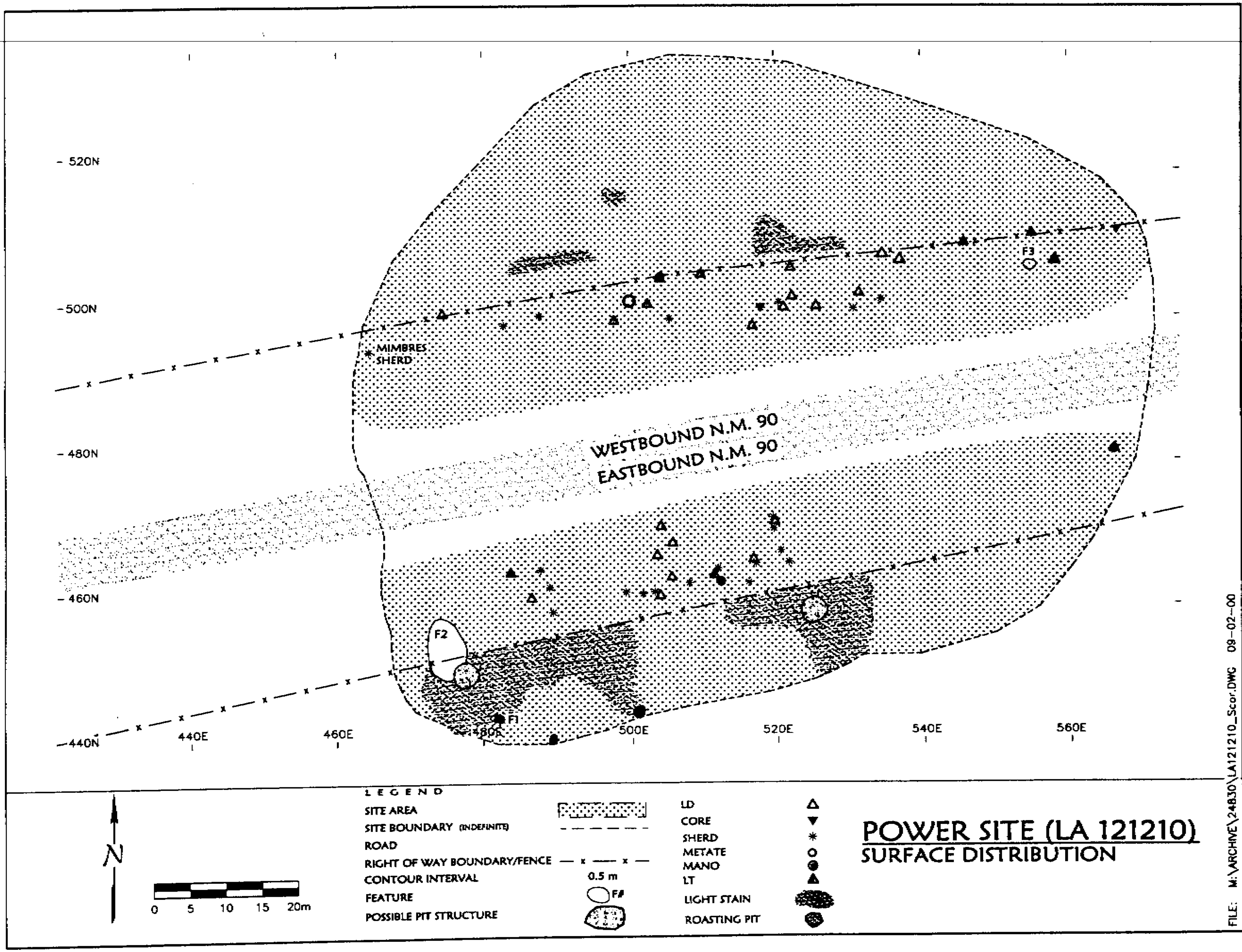

Figure 14.1 Power Site Topographic Map Showing Surface Artifacts and Features.

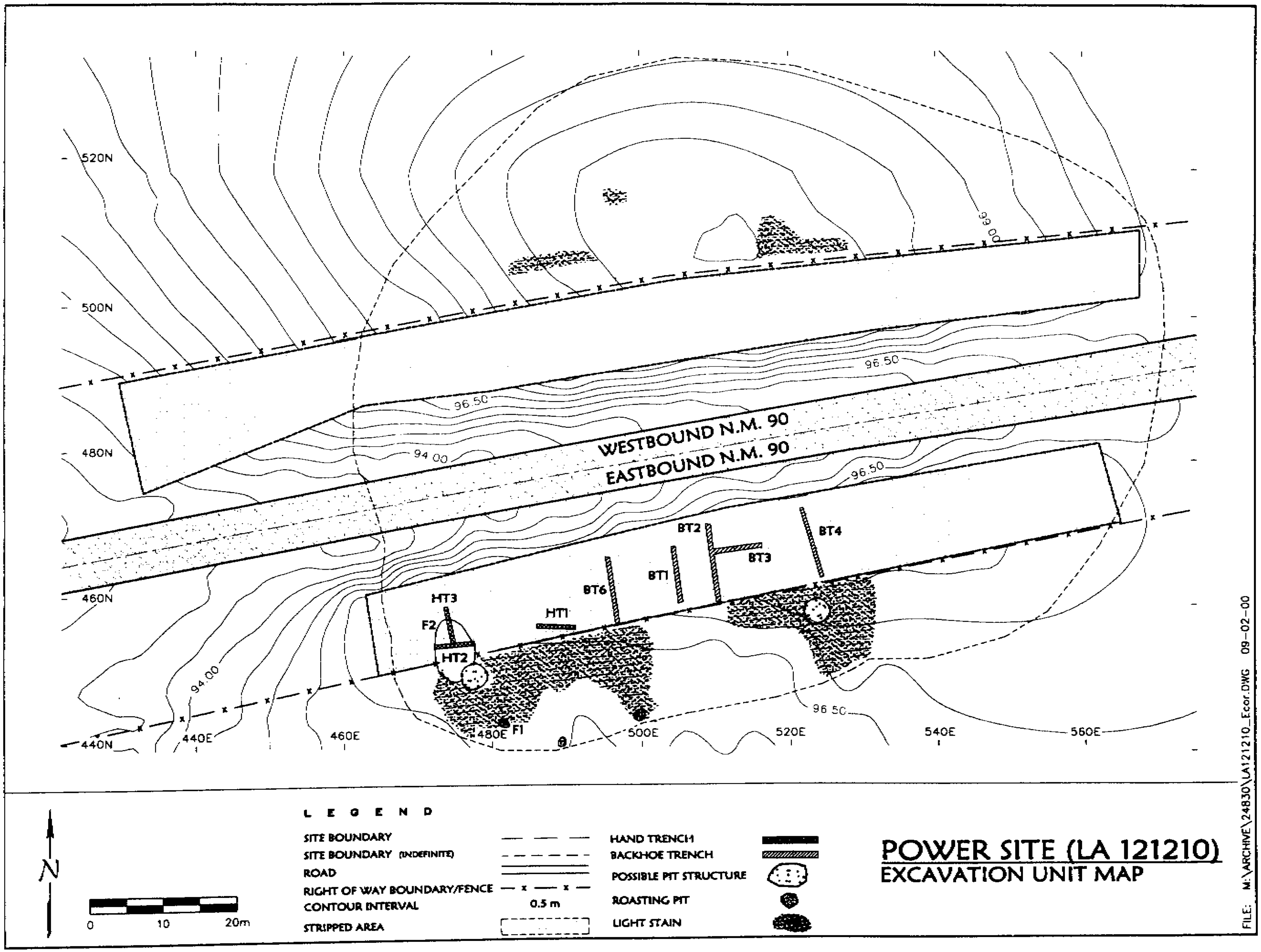

Figure 14.2 Power Site Map Showing Excavation on Both Sides of the Road.

Major land modifications to the site include the original construction of NM 90 and erosion to some portions of the site. NM 90 cut a 21-m wide swath through the center of the site, no doubt removing substantial cultural deposits and features. The steep road cuts descend 2.5 to 4 m below the original ground surface. In addition, both the northern and southern sides of the highway within the right-of-way were completely bladed during the road construction. In the case of the northern side, the blading often reached bedrock on the ridge top and upper slopes. On the southern side, the surface was bladed and a low linear berm was constructed parallel to the highway probably to control erosion. Together, the stripped surfaces and road cuts caused severe erosion to the shallow soils and weathered granite. Given the construction activities, most of the surface features within the right-of-way were destroyed and the artifacts were displaced from their original locations.

Data Recovery Strategy

Data recovery investigations conducted at the Power site included surface reconnaissance, mapping, surface collection, test trench excavation, backhoe trenching, mechanical stripping, block excavation of features, and mechanical stripping. All collections and excavations were confined within the highway right-of-way fence lines; however, a reconnaissance survey was undertaken beyond these limits to delineate the extent and type of the cultural resources.

Following a general inspection, a site datum was established on N500 E500 at an arbitrary elevation of 100 m. The datum was marked with a long rebar stake and an aluminum cap stamped with the site number and coordinates. Mapping of the site included all relevant topographic details, right-of-way engineering stations, artifacts, excavation units, and edges of the stripped surfaces. The surface collection was undertaken over the entire right-of-way portion of the site. All surface artifacts were flagged, piece plotted with the total station, and collected.

Excavations commenced with the placement of three shovel trenches in and around Feature 2, a probable midden deposit. These trenches were 50 cm wide and 5.0 to 6.0 m in length. Concurrently, five backhoe trenches were excavated in the southern portion of the site, the area of greatest potential for containing subsurface cultural deposits. Only BT 6 revealed any intact subsurface cultural remains (Feature 4).

Following the hand and mechanical trenching, most of the southern portion of the site within the right-of-way was stripped mechanically. Stripping revealed two additional features (Features 5 and 6) and confirmed the presence of a structure, originally identified in a trench as Feature 4. The portion of the site within the right-of-way, to the north of the highway, was found to have very shallow soils, therefore trenching was not warranted. This area was, however, mechanically stripped. The stripping revealed no cultural deposits and confirmed that Feature 3, a soil stain identified during survey, was non-cultural. Features 4, 5, and 6 were subsequently hand-excavated (Figure 14.3). In all, an area of at least 138 by 12 m was stripped on the northern side of the highway and 102 by 12 m on the southern side for a total stripped area of 2,695 m^2.

Surface Characteristics

The Power site occupies the entire top of a broad, gently sloping knoll between the headwaters of Wood Canyon to the south and Powerline Canyon to the north. This area was defined by a sparse to light scatter of cultural materials and thermally altered rock and in places, dark cultural deposits and features. The boundaries of the site roughly conform to the location of steeper slopes in all directions. The site measures 90 m north-south by 112 m east-west and encompasses 7917 m^2. Dark cultural deposits and features are concentrated within an area of 76 m north-south by 70 m east-west at the center of the overall resource.

Figure 14.3 Photograph Showing Excavations in Process.

NM 90 right-of-way bisected the central portion of the site, an area measuring 46 m north-south by 112 m east-west. Original construction of the highway removed a significant amount of this area. Additionally, both the northern and southern sides of the highway were bladed. This activity, coupled with subsequent erosion, probably removed the original occupational surface within the right-of-way and displaced most of the artifacts. Nevertheless, some potential for cultural deposits existed within the right-of-way, on either side of the existing road embankments. A portion measuring 112 m east-west by 11 m north-south remained north of the existing road embankments and, on the south, an area measuring 105 m east-west by 12 m north-south remained. This left a total of 2,492 m^2 containing a potential for intact cultural materials.

The northern side of the highway had been previously bladed and eroded down to bedrock on the top of the knoll, although some soils remained on the eastern slopes. This area revealed a circular soil anomaly interpreted as a possible pit structure stain (Feature 3; see Figure 14.1). Few artifacts were located nearby this anomaly and later excavations proved it to be a natural soil exposure. A sparse scatter of chipped stone and ceramic artifacts was identified on the northern right-of-way. Most were resting directly on the granite surface. A single indeterminate Mimbres Black-on-white sherd was noted on the steep western slope.

The surface on the southern portion of the right-of-way also exhibited evidence of previous blading, and a long earthen berm was constructed along the fence line, and parallel to, the highway. Despite these impacts, a soil mantle was still present, suggesting some potential for buried cultural deposits. Artifacts were found on the berm and scattered out over the more level portions of the ridge. The only surface feature identified on the southern side of the right-of-way was a midden deposit (Feature 2). First documented during the cultural resource survey (Goar et al. 1998), the feature measured 5 by 8 m and extended out of the right-of-way to the south. A few ceramics were identified in the feature's lightly stained deposits.

Controlled surface collections within the right-of-way yielded a total of 140 artifacts, including 61 chipped stone pieces, five ground stone artifacts, and 74 ceramics (Table 14.1). As discussed above, the distribution of these artifacts probably reflects prior highway construction and post-abandonment erosional processes, but the densest concentrations generally lie within the central portion of the site.

Table 14.1 Artifacts from the Power Site.

	Debitage	Cores	Retouched Tools	Manos	Metates	Alma Plain	Alma Rough	Indeter. Mimbres Black-on-white	Ceramics too small for analysis	Totals
Surface	51	4	6	4	1	–	73	1	–	140
Feature 4	8	2	1	6	3	11	716	–	42	789
Feature 5	–	–	–	2	–	–	1	–	–	3
Feature 6	9	2	–	11	–	–	145	–	11	178
Nonfeature:										
Level 1	2	–	–	–	–	–	–	–	–	2
Totals	70	8	7	23	4	11	935	1	53	1,112

The chipped stone assemblage included 51 pieces of debitage, four cores, and six retouched tools. These materials were broadly scattered over the surface but were mostly concentrated on the ridge top on the southern side of the site. The ground stone artifacts were represented by four manos and one metate.

The 74 ceramics from the surface were classified as Alma Rough except for a single indeterminate Mimbres Black-on-white sherd. The latter type has a temporal span from AD 750 to AD 1130 and could have been produced during the Three Circle or Classic Mimbres phase. The Alma Rough type also has a long span, ranging from AD 200 to 1000.

Outside the right-of-way to the north, the site continues for a maximum of 30 m. This area contains three exposed cultural deposits of dark soil mixed with thermally altered rock and artifacts. All three areas were being actively eroded, suggesting that other cultural deposits may be concealed under the sandy loam surface sediments. Artifacts in this area include chipped stone debitage and Alma series ceramics.

The site also continues to the south of the right-of-way for a maximum of 20 m. Steep, more eroded slopes mark the southern limits of the site. Unlike the right-of-way, this area contained a number of surface features and discrete artifact scatters (Figure 14.1). This area yielded three roasting pits, two possible pit structures, and lightly stained sediments with scatters of thermally altered rocks and artifacts. The possible pit structures were dark, roughly circular stains measuring approximately 3 to 4 m in diameter. Both are associated with large Alma Rough sherds. The one to the west had several large vessel fragments protruding up out of the stain. These sherds appeared to be major portions at least two Alma Rough jars. The roasting pits include one (Feature 1) documented during the first survey (Goar et al. 1998), and two documented during the data recovery. These features are approximately 1.2 to 1.5 m in diameter and filled with thermally altered rocks. The artifacts to the south of the right-of-way were consistent with those found in the southern portion of the project area and include Alma series ceramics, chipped stone debitage, and ground stone mano and metate fragments.

Site Stratigraphy and Geomorphology

The Power site is located on a granite ridge that is capped by approximately 40 to 50 cm of sandy alluvium/colluvium (Figure 14.4). The origin of this alluvium appears to be from slopewash from upslope portions of the ridge line. Weathered granitic sands probably were swept onto this area during slopewash events related to heavy rainfall. Considering the closeness of the granitic bedrock to the surface and the coarse texture of the sand, transport of this material probably was not far. The thickest sediment profiles were observed in the central portion of the ridge top underneath pine trees. In this area a 4 cm-thick

organic mat of decomposing pine needles, twigs, and bark forms the surface unit of the site. Underneath the organic litter, and in areas away from the pine trees, is a unit of brown (10YR 5/3,d) sandy loam that exhibits weak soil development, mostly in the presence of vegetation on the surface (Ap horizon). This unit does, however, exhibit a weak, coarse, platy structure that is considered to be the result of mechanical compaction on the site. This compaction is probably due to heavy machinery work along the highway right-of-way.

Underlying the Ap horizon is a cumulic Ab horizon that is up to 33 cm thick. The Ab horizon sediments are typically brown (10YR 5/3,d), exhibit a weak, medium, granular structure, and have a sandy clay loam texture. Examination of archaeological test units on the site suggests that the cultural materials are associated with this unit. Though the sediments on LA 121210 are relatively thin, the presence of a similar Ab horizon at nearby LA 78089 suggests that these horizons may be similar in origin and age. The lack of an underlying C horizon at LA 121210 raises the possibility that this unit also includes the time frame represented by the alluvial/colluvial sediments that comprise the C horizon at LA 78089. That is, sedimentation at LA 121210 was slower and that the development of the A horizon started while the sediments that comprise the C horizon were still accumulating at LA 78089 (prior to the onset of A horizon development at that site).

Below the Ab horizon is a unit comprised of decomposing granitic bedrock. Weathering of the granite has occurred to such a degree that matrix in between gravel clasts has a clay texture. The unit also exhibits a moderate, medium, subangular blocky texture. Clay cutans are present on the ped faces of this unit, indicating extended soil development. Based on this increase in clay and the presence of cutans, this unit is considered a 2Bt horizon. A slightly similar horizon with soil pedogenic clay accumulations was observed at LA 99631, though at that site it also exhibited pedogenic carbonate accumulations as well. Despite the absence of pedogenic carbonate, the 2Bt horizon at LA 121210 probably correlates to the 2Btk horizon at LA 99631. The lack of carbonates probably is due to the position of the described locality within a pine forest. Organic acids within the drip line of a conifers are known to be effective at dissolving carbonate accumulations.

In summary, deposition and soil formation at site LA 121210 appear to be dominated by a slow accumulation of alluvial/colluvial slopewash sediments derived from decomposing bedrock upslope of the site. A sparse vegetative cover probably was present during the gradual accumulation of the slopewash sediments, but individual slopewash events did not deposit enough sediment to kill off the vegetative cover and cause stratigraphic separation between the events. Instead, the vegetation kept pace with the accumulation and resulted in the development of a thick, cumulic A horizon (the Ab horizon). Cultural materials at the site are associated with the Ab horizon. Pedogenesis and weathering during this period caused additional decomposition of the underlying granitic bedrock and pedogenic accumulation of clay within these sediments, resulting in the development of the 2Bt horizon. Previous road construction in the area appears to have resulted in some destabilization of the sediments in the general area. That destabilization, along with compaction by heavy machinery, resulted in the development of the Ap horizon. This is finally capped by a recent accumulation of pine needles and twigs beneath the pine trees that is classified as an O horizon.

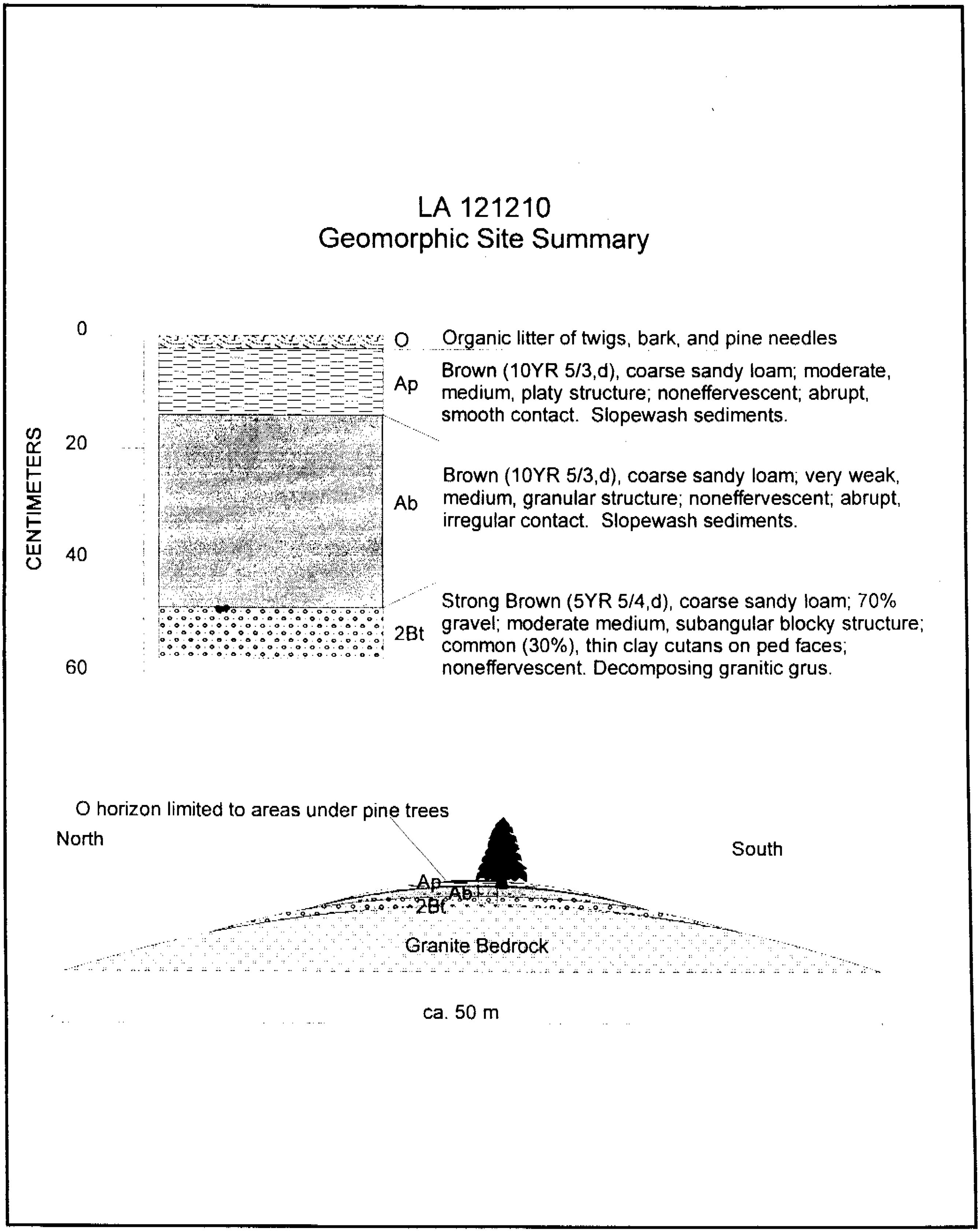

Figure 14.4 Power Site Geomorphic Profile.

Subsurface Cultural Resources

Features

Six features were defined and recorded at the site including four excavated features within the right-of-way (Figure 14.5). Excavated features included two pithouses (Features 4 and 6), one probable eroded pithouse (Feature 5), and an eroded midden (Feature 2 as originally defined during survey). Features outside of the right-of-way included two possible pit structures and three probable roasting pit features located to the south of the southern right-of-way fence. The probable pithouses were associated with broad areas of light staining that undoubtedly contain additional buried features. To the north of the northern right-of-way fence were two areas of cultural staining and a concentration of thermally-altered rock. The location of all of these features was mapped, but, being outside the right-of-way, none were investigated formally during data recovery investigations.

Structures

Two structures (Features 4 and 6), both circular pithouses, were documented at the Power site. Both date from the Early Pit House period (Tables 14.2 and 14.3).

Table 14.2 Features at the Power Site.

Feature	Type	N	E	Elevation	% Excavated	Volume (l)	Time
1	Roasting pit	–	–	–	0	–	–
2	Midden	452.00	475.00	96.5	25	–	Early Pit House
3	Natural	502.00	562.00	98	0	–	Early Pit House
4	Pithouse	462.22	496.39	96.92	100	2,206.86	Early Pit House
5	Pithouse	470.88	520.82	98.12	100	69.12	Early Pit House
6	Pithouse	454.79	478.15	96.63	100	1,345.86	Early Pit House

Table 14.3 Structural Features at the Power Site.

Feature	Thermal?	Type	Morphology	Plan	L (m)	W (m)	Depth (m)	Percent Excavated	Area (m^2)	Volume (l)	Number Artif/l	TAR kg/l	Time?
4	N	Pithouse	Basin	Circular	4.48	3.92	0.24	100	13.793	2206.856	0.36	0.000	Early Pit House
5	N	Pithouse	Basin	Unknown	2.4	1.1	0.05	100	2.073	69.115	0.04	0.000	Early Pit House
6	N	Pithouse	Basin	Circular	3.6	3.4	0.21	100	9.613	1345.858	0.13	0.003	Early Pit House

Structure 1 (Feature 4)

This feature first was encountered in one of the five backhoe trenches excavated at the Power site, where it appeared as a distinctly dark stain. Machine stripping revealed the stain to be oval in plan shape, with a maximum diameter of 5.07 m, a minimum diameter of 3.75 m, and a maximum recorded thickness of 24 cm (from the stripped surface to the base of the feature). The feature was excavated in four quarters, with the uniform fill removed, and screened, as a single level. Structure 1 yielded a calibrated radiocarbon date of AD 135-365 (Beta 141732).

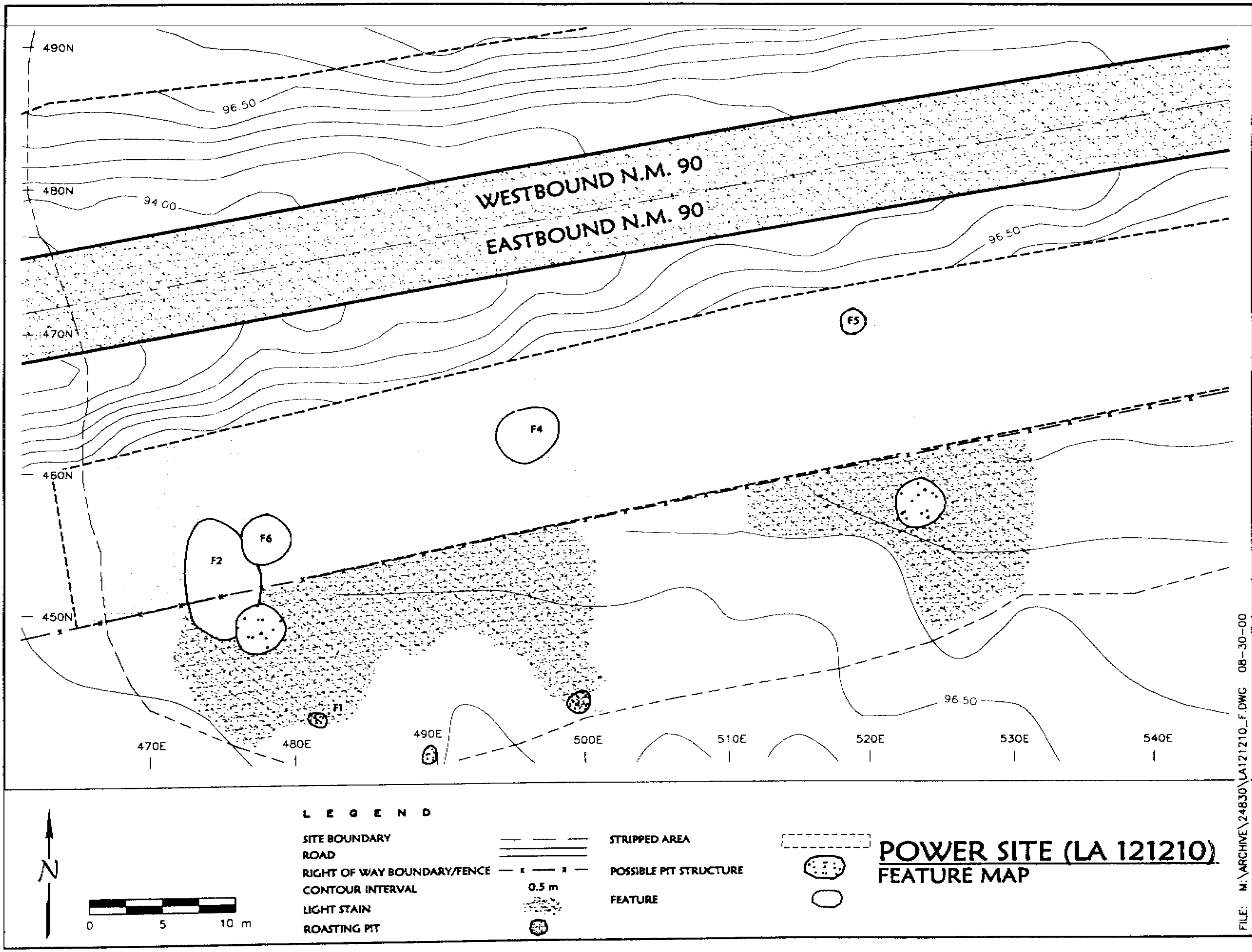

Figure 14.5 Power Site Feature Distribution Map.

Internal Stratigraphy

The feature fill was uniform with no internal stratification, consisting of a light grayish-brown (10YR4/2, d) coarse sand with charcoal flecking (Figure 14.6). It was not clear to what extent the fill was composed of burned and/or collapsed materials from the pithouse superstructure, as opposed to natural sediment derived from eolian deposition or local erosion. Given the near absence of evidence for post-Early Pit House period occupations at this site, infilling from anthropogenic deposition (i.e., tossing of trash into the abandoned house pit) seems unlikely as a source for the feature fill, unless nearby Structure 2 (Feature 6), or one of the other probable Early Pit House period structures at this site, was occupied following the abandonment of Structure 1. The base of the feature was marked by yellowish-brown, culturally-sterile subsoil, with no evidence of an intentionally-prepared floor.

Floor and Internal Contents

Excavation of this feature and its vicinity revealed no intramural or extramural features (Figure 14.6). No post holes were evident, and no doorway ramp or entryway could be discerned. A cluster of burned rock near the center of the structure floor, associated with an amorphous, dark stain, approximately 50 cm in diameter, probably marks the location of a hearth (Figure 14.7). Although no other features were evident, the structure did contain an impressive assemblage of ceramics, including six reconstructed vessels and 212 non-reconstructed sherds (Figures 14.8 and 14.9). The reconstructed ceramic vessels recovered from Structure 1 were all typed as Alma Rough, and included three jars, one wide-mouthed jar, one seed jar, and one bowl. The vessels were located along and near the eastern wall of the structure, close to a large metate uncovered there on the structure floor (see below). The vessel forms suggest a variety of activities involving ceramics, including cooking, serving, and storage. The non-reconstructed sherds are mostly Alma Rough (n=159), although the loose sherds also include 11 specimens identified as Alma Plain, along with 42 sherds that were too small for analysis. The exclusive presence of undecorated, Alma series ceramics in Structure 1 suggests an Early Pit House period affiliation for this feature, and this is supported by a calibrated two-sigma radiocarbon determination of AD 135-365 (two-sigma; Beta 141732).

Soil samples associated with Vessel 5 (one of the Alma Rough jars) yielded a high incidence of maize pollen and a smaller amount of Chenoam pollen. No phytoliths were recovered from Structure 1. Flotation samples yielded maize cupule and seeds of cf. goosefoot, winged pigweed, and juniper.

Along with ceramics, Structure 1 yielded 11 chipped stone items and six ground stone artifacts. The chipped stone items included eight flakes, two cores, and one scraper. Ground stone artifacts from the feature included a large metate, two metate fragments, and five manos. The metate and at least three of the manos were recovered from the eastern half of the structure floor, may mark a food processing and/or storage area within the pithouse. The metate is a large, basin form, and was fractured into several pieces (perhaps the result of impact from collapse of the superstructure, or from the weight of heavy machinery during the initial construction of NM 90).

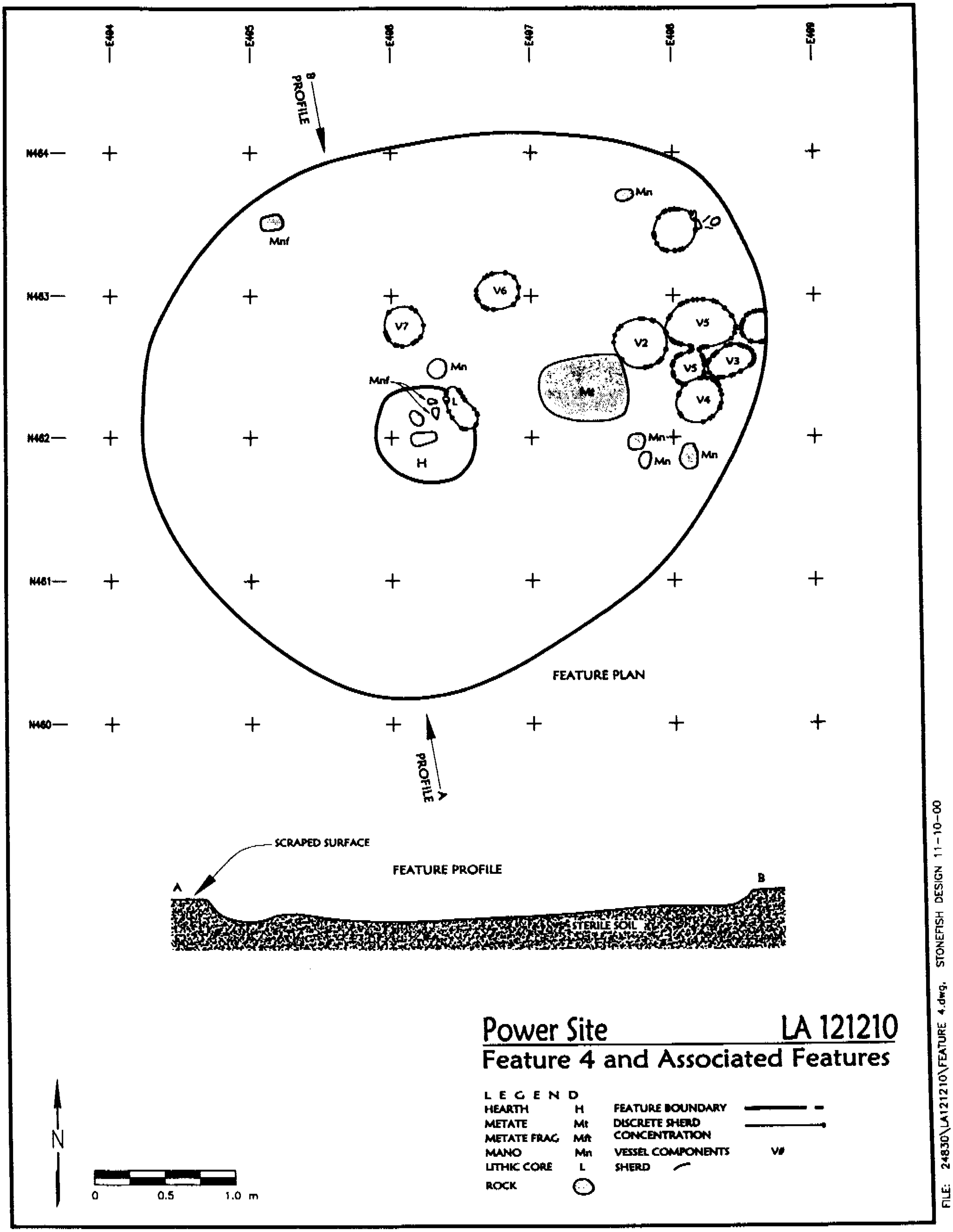

Figure 14.6 Structure 1 (Feature 4) Planview and Profile.

Figure 14.7 Photograph of Structure 1 Showing Metate and Probable Hearth.

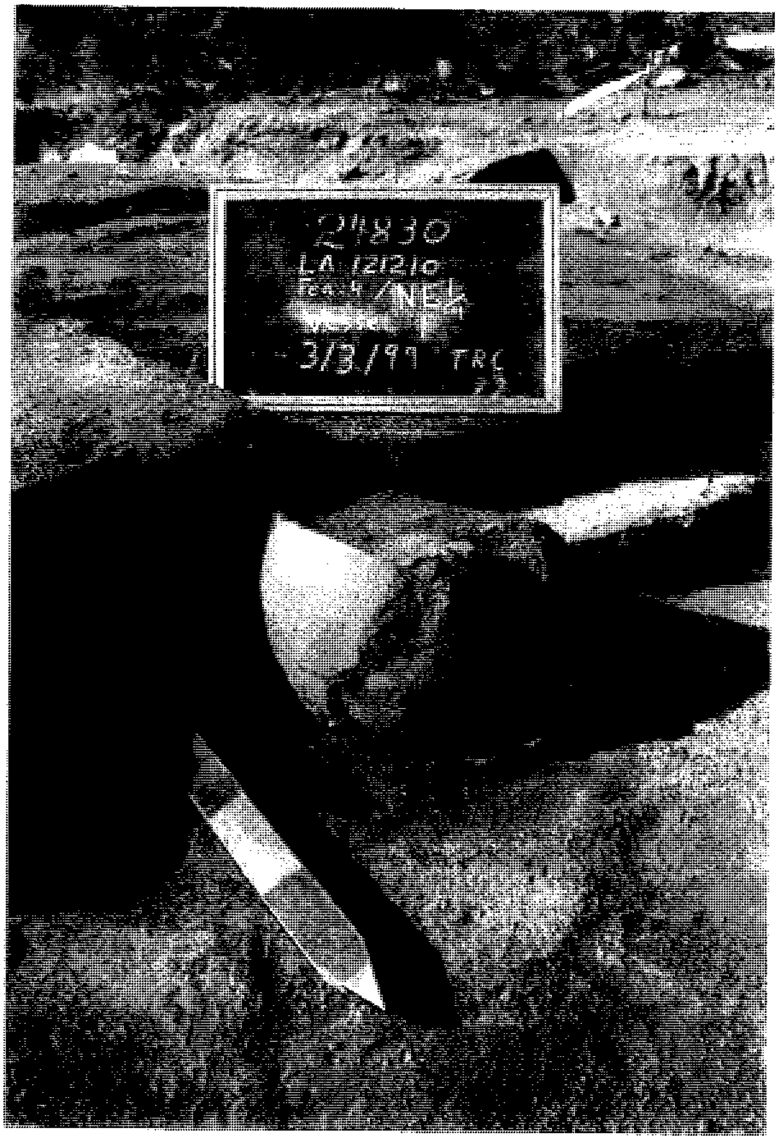

Figure 14.8 Photograph of Structure 1 Showing Alma Rough Ceramic Vessel on Floor (see Chapter 15, Vessel 2).

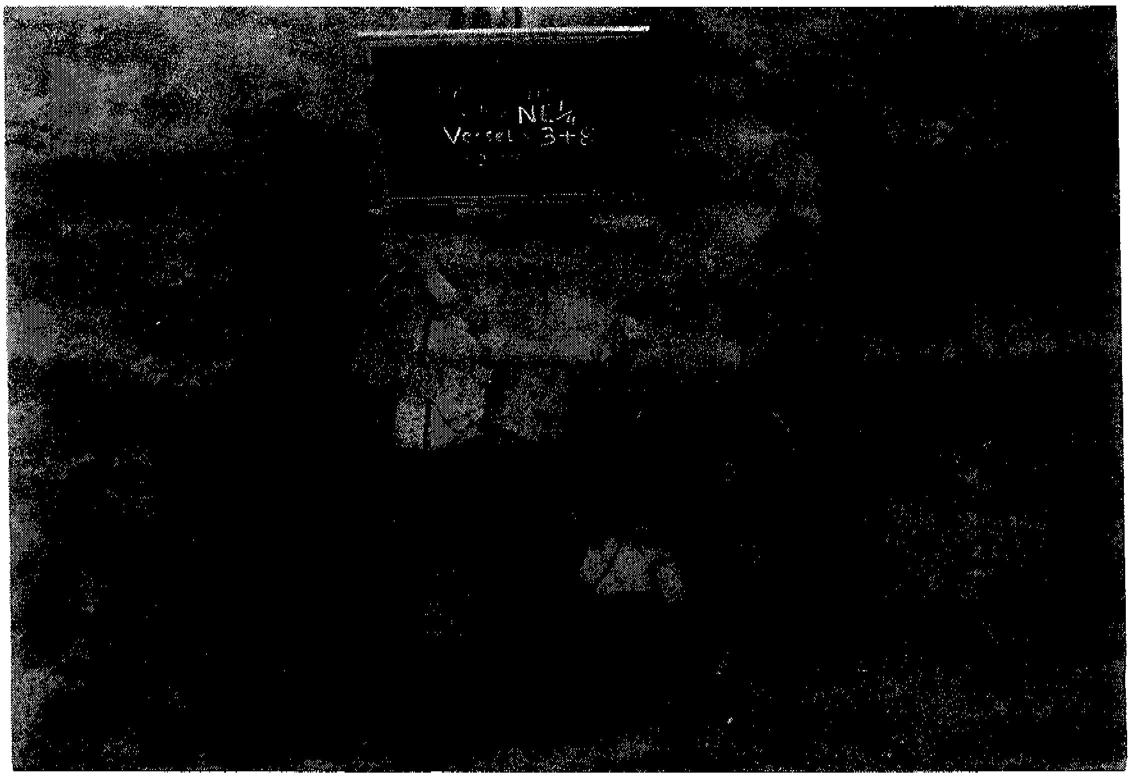

Figure 14.9 Photograph of Structure 1 Showing Broken Ceramics on Floor.

Structure 2 (Feature 6)

The second pit structure excavated at Power was located 20 m west-southwest of Feature 4. Feature 6 was revealed by machine stripping in the southwestern portion of the site within the right-of-way, in the vicinity of previously-recorded surface midden. The excavators quartered the feature and excavated the uniform fill as a single level. This structure was roughly circular in plan, with a maximum dimensions of 3.55 m E-W, and 3.45 m N-S, with a maximum depth of only 21 cm below the stripped surface (Figures 14.10 and 14.11).

Internal Stratigraphy

The feature fill was uniform, consisting of a dark grayish brown (10YR4/2), organically-enriched matrix with abundant charcoal, but little artifactual material. Given the near absence of evidence for post-Early Pit House period occupations at this site and the lack of artifactual materials present in the fill, infilling from anthropogenic deposition (i.e., tossing of trash into the abandoned house pit) seems unlikely as a source for the feature fill. The pithouse was dug into the culturally-sterile subsoil, which marks the base of the feature.

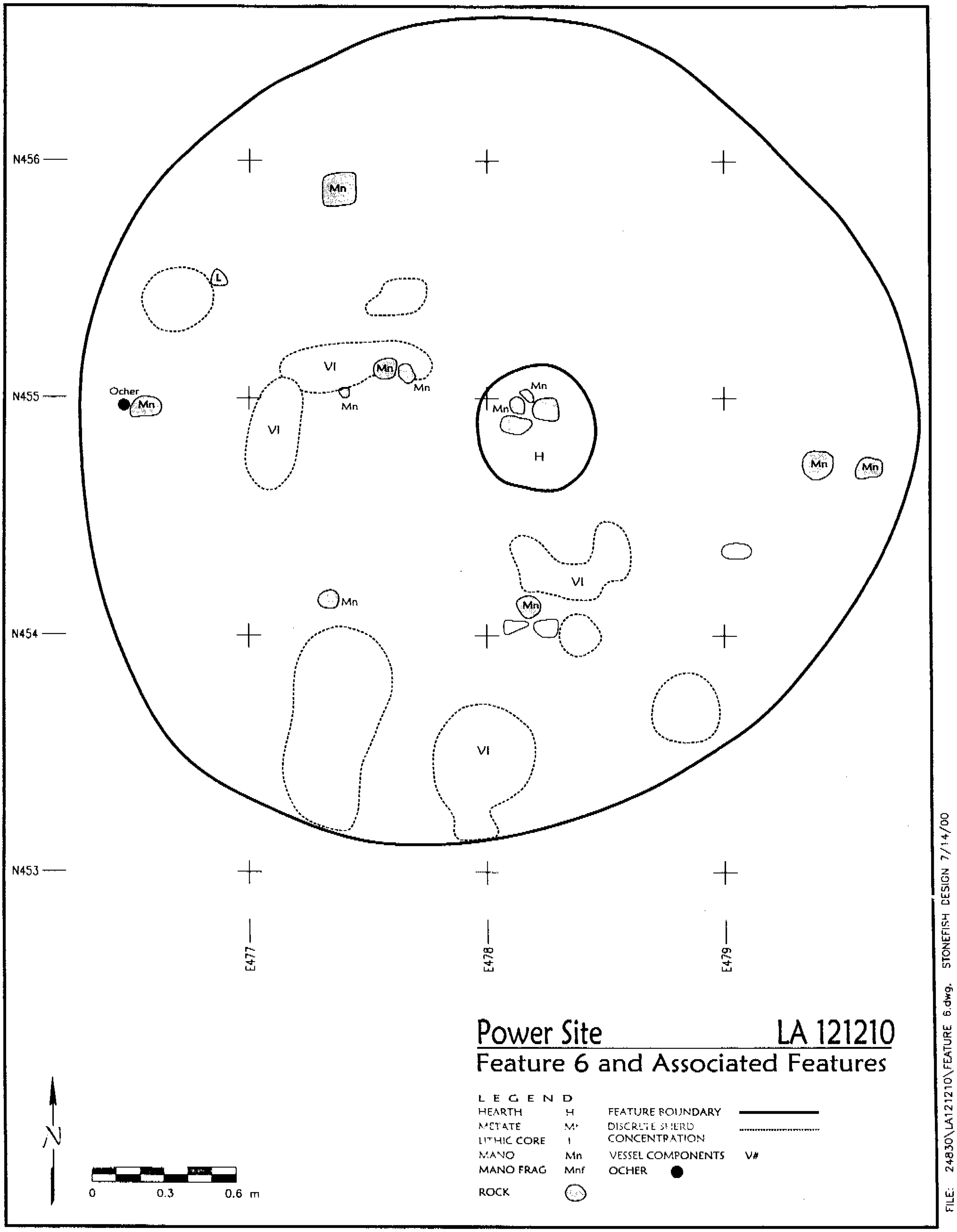

Figure 14.10 Structure 2 (Feature 6) Plan and Profile.

Figure 14.11 Photograph of Structure 2.

Floor and Internal Contents

Like Structure 1 (Feature 4), Structure 2 had no clear intramural or extramural features, and no post holes or doorway ramp were in evidence. Two pieces of burned rock were observed near the center of the structure, in association with an amorphous, 50 cm-diameter dark stain, which probably marks a central hearth. At least two additional burned rocks were found in a scattered context in the southern half of the structure. Also, like Structure 1, the floor of Structure 2 contained food processing and cooking utensils, including ceramics and ground stone artifacts. The ceramics included one reconstructed vessel, identified as an Alma Rough seed jar. Large sherds of this vessel were uncovered in three main concentrations, which were displaced up to a distance of 2 m across the central portion of the structure floor. In addition, 38 unreconstructed ceramic sherds were recovered, including 27 classed as Alma Rough, and 11 that were too small for analysis. The ceramic assemblage suggests an Early Pit House period affiliation for the structure, which is supported by a calibrated two-sigma radiocarbon determination of AD 115-330 (Beta 141731). Soil samples associated with two different portions of the reconstructed vessel (2 m apart), both yielded high incidence of maize pollen, along with smaller amounts of Chenoam pollen.

Ground stone items from Structure 2 included 11 manos. Like Structure 1, few chipped stone artifacts were recovered from Structure 2, including only nine flakes and two cores. Unlike Feature 4, however, there was no well-defined concentration or spatial patterning of ceramics and/or ground stone, other than a general absence of these materials from the northeastern quadrant through the northern half of the northwestern quadrant of the structure floor.

Flotation samples yielded an assemblage of floral remains richer than that of Structure 1, including maize, chenoams, winged pigweed, cf. spurge, grasses, juniper, stickleaf, and acorn shell fragments.

Structures 1 and 2: Discussion

Construction and Remodeling Evidence

Both structures were set in shallow, basin-shaped pits, the walls of which appear to have slanted gradually to the level floor, with no clear break. There was no evidence of plaster or other special preparation of the walls and floors, nor was any evidence of an entranceway detected with either structure. No remains of post holes were encountered during the excavation of the two structures, suggesting that their superstructures consisted of light frames without heavy earth coverings (that otherwise would have required the placement of internal support posts). The non-substantial character of the structures suggests they were not designed for intensive, sustained habitation, and there is no evidence that either underwent any major refurbishment.

Structure-related Activities and Spatial Patterns

Although the pit structures themselves appear to have been light-duty and seasonal, materials found within them suggest a variety of domestic activities, including food processing, cooking, serving, and perhaps storage in ceramic vessels. The scraper from Structure 1 suggests working of hides, bone, and/or wood. The probable central hearths (marked by small concentrations of fire-cracked rocks and amorphous staining) in each structure may have been used for warming and/or cooking. The small amounts of chipped stone debris suggests that flaking and maintenance of stone tools either were not important activities inside these pithouses, or that waste debris from these activities were gathered up and re-deposited outside the structures. The maize pollen recovered from both structure floors suggests that harvested maize and/or maize leaves (coated with pollen following tasseling) were stored or otherwise used within the structures.

One of the most striking patterns within Structure 1 is the concentration of materials (ceramic vessels, a metate, and several manos) in the eastern half of the structure, suggesting this area was used for food processing and possibly short-term storage of foods in ceramic jars. The excavators also noted a small concentration of chert artifacts just inside the northeastern portion of the structure wall. In contrast, the western half of the structure was comparatively free of debris. Accordingly, it can be inferred that the western half of the structure may have been used for sleeping.

Structure 2 did not reveal the same tight concentration of artifacts observed in Structure 1. In Structure 2, materials were distributed across the floor of the structure, except for an area extending from the northern half of the northwestern quadrant, through the northeastern quadrant of the structure. The latter, relatively debris-free area may have been used for sleeping, similar to the western half of Structure 1. Otherwise, the artifact assemblages are similar between the two structures and suggest a similar range of activities: food processing and possibly short-term storage of foods in ceramic jars, with little or no fabrication and/or maintenance of chipped stone tools.

Other Features Within the Right-of-Way

Midden Deposit (Feature 2)

Feature 2 was documented in the survey as a probable midden deposit measuring 5 by 8 m in an area located immediately west of Feature 6 (see Figure 14.5 and Table 14.4). During data recovery, the feature was examined by means of two 3.0 by 3.0 m hand-excavated trenches. Although the feature contained dark, charcoal-rich deposits and artifacts, the deposit was shallow and was confined to a small, ephemeral drainage. An additional hand trench was excavated in the vicinity of Feature 2, which confirmed that the cultural fill had been redeposited and was no longer intact.

Table 14.4 Non-Structural Features at the Power Site.

PD	Feature	Type	Morphology	Plan	Thermal?	L (m)	W (m)	Depth (m)	Percent Excavated	Area (m^2)	Volume (l)	Artifact/l	Rocks kg/l	TAR kg/l	Time
Not in ROW	1	Roasting pit	Unknown	Circular	T	1.2	1.2	–	0	1.1	–	–	–	–	–
–	2	Midden	Irregular	Amorphous	N	8	5	0.1	25	–	–	–	–	–	Early Pit House

T = Thermal; N = Nonthermal

Non-cultural Anomaly (Feature 3)

Feature 3 originally was recorded on the northern side of NM 90 as a large, dark circular stain located in a two-track road. No artifacts were observed in association with the feature, but its size and shape as originally observed suggested a badly-eroded pit structure. During data recovery, Feature 3 was mapped, sectioned, and investigated further through hand stripping. Hand stripping revealed that the dark stain extended well beyond its surface manifestation, and its configuration lost clear definition. No artifacts were found in association with the feature, and it does not appear to be cultural in origin.

Possible Eroded Pithouse Remnant (Feature 5)

This feature was observed eroding out of the road cut on the southern side of NM 90. Excavations revealed the extant portion of this feature to be a shallow, oval-shaped stain measuring 2.4 m east-west by 1.1 m north-south, with a maximum depth of 5 cm. No intramural or extramural features were observed in association with Feature 5. Only a few artifacts were recovered from this feature, including one Alma Rough ceramic sherd and two manos.

The original dimensions and function of Feature 5 could not be determined. It seems likely that it represents the remains of a pithouse that was partially removed during previous excavation of the road cut for NM 90 and subsequently eroded. This, however, remains largely conjectural because of the badly-damaged state of the feature. The feature appears to date from the Early Pit House period, judging from the presence of the Alma Rough sherd. Assuming this is indeed an Early Pit House period structure, then it was probably part of a hamlet or small village at the Power site.

Features Outside the Right-of-Way

At least five features were identified south of the right-of-way boundary, although they were not excavated, per the scope of work. Feature 1 was identified during the survey (Goar 1998). Located 13 m south of the right-of-way, this feature consists of an apparent roasting pit marked by a 1.2-m circular area of burned rock. Remains of two other, similar burned-rock features also were observed south of the right-of-way and these, too, are probably the remains of roasting pits.

During data recovery, surface manifestations of two additional features were noted just south of the right-of-way, in the vicinity of Feature 6. Neither feature was numbered or investigated. Both features were marked by dark stains containing large ceramic sherds suggesting possibly reconstructible vessels. One of them formed a distinctive stain within the southern portion of the midden deposit documented as Feature 2. It appears likely that these features mark the remains of pithouses similar to Structures 1 and 2. If these latter features are indeed the remains of pithouses, and if they date from the Early Pit House period, than we have evidence of a hamlet-size settlement during this period at the Power site. It remains unknown how many similar pithouse remains or other features may have been removed by the original construction of NM 90.

Just north of the right-of-way, on and around the summit of a knoll at the northern end of the site, three amorphous ash stains were observed. These contained artifacts, but it is unclear what they represent.