MUSEUM OF NEW MEXICO

OFFICE OF ARCHAEOLOGICAL STUDIES

U.S. 70-MESA GRANDE: TESTING TWO SITES NORTHEAST OF LAS CRUCES, DOÑA ANA COUNTY, NEW MEXICO

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ARCHAEOLOGY NOTES 257

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ADMINISTRATIVE SUMMARY

Between August 10 and August 14, 1998, the Office of Archaeological Studies, Museum of New Mexico, conducted limited testing at two sites near Las Cruces, Doña Ana County, New Mexico. The testing of LA 113981 and LA 30763 was conducted at the request of the New Mexico State Highway and Transportation Department (NMSHTD) to determine the extent and importance of cultural resources present within the proposed project limits of planned reconstruction and improvements of U.S. 70, near Las Cruces. Both of the archaeological sites are on private land and NMSHTD land acquired from private sources. Funds provided by the New Mexico State Highway and Transportation Department were utilized for this project.

The two sites are surface ceramic and lithic artifact scatters. No intact cultural features or deposits were found on any of the sites. In both cases the data potential of the portions of these sites within the proposed project area was determined to be minimal beyond that already documented, and no further investigations are recommended.

NMSHTD Project NH-070-2(23)
CN 3541/L20
MNM Project 41.663 (U.S. 70-Mesa Grande)
CPRC Archaeological Survey Permit No. SP-146

CONTENTS

FIGURES

TABLES

INTRODUCTION

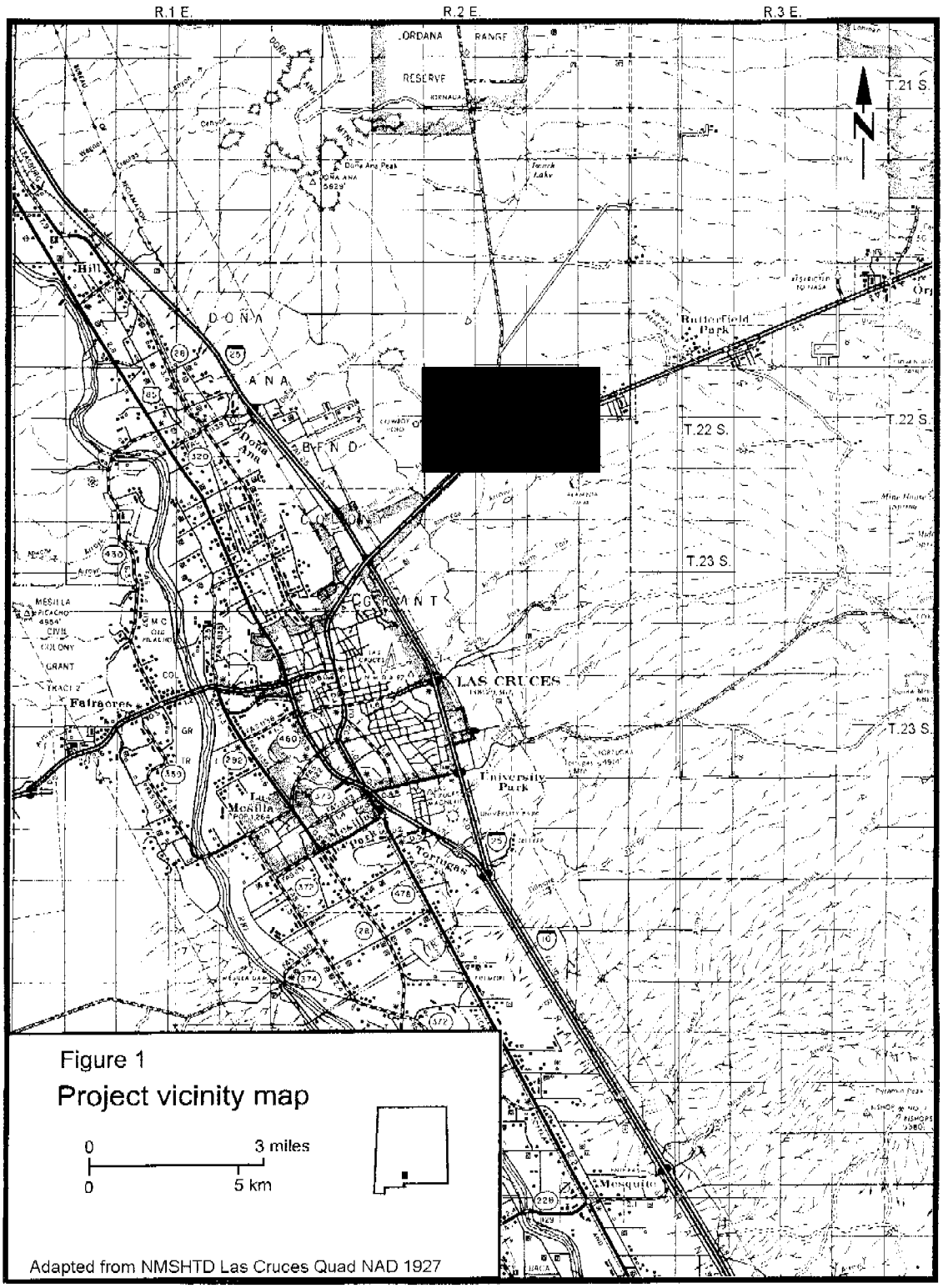
At the request of Craig Conley, Environmental Program Manager, New Mexico State Highway and Transportation Department (NMSHTD), a limited testing program was conducted at two sites (LA 113981 and LA 30763) located within the area of the proposed reconstruction and improvements to U.S. 70 near Las Cruces, New Mexico (Fig. 1). Funds provided by the NMSHTD were utilized for this project. Limited testing was conducted under CPRC Archaeological Survey Permit No. SP-146. Fieldwork took place between August 10 and August 14, 1998, conducted by Peter Y. Bullock, assisted by Byron Hamilton. Yvonne Oakes acted as principal investigator. Maps were drafted by Ann Noble.

Limited testing was conducted at LA 113981 and LA 30763 to determine the extent and importance of the portions of the sites within the proposed project limits. Testing was restricted to the proposed project limits of planned reconstruction and improvements. Exact site locations are included in Appendix 1 (removed from copies in general circulation).

Prior to conducting fieldwork, current listings of the *National Register of Historic Places,* the *State Register of Cultural Properties,* and the site files of the New Mexico Cultural Resource Information System were consulted. One of the tested sites (LA 30763) has been declared eligible for inclusion to the *National Register of Historic Places* on February 9, 1982, as NMSU 808 (Federal Number 4250) on the basis of criteria (d) (36 CFR 60.4). Portions of LA 30763, NMSU 808 (Federal number 4250) extend into the limits of the proposed undertaking. A review of the cultural material that is actually located within the limits of the proposed undertaking at LA 30763, NMSU 808 (Federal number 4250), indicates that it is not likely to yield information beyond what has already been documented. The portions of LA 30763, NMSU 808, that are likely to yield important information are not located within the limits of the proposed undertaking and will be avoided during construction. The undertaking will not alter any of the qualities that make LA 30763 historically important and no additional investigations are recommended.

No additional properties listed as eligible, or nominated to, or approved for submission to either inventory are located in the vicinity of LA 113981 or LA 30763.

This undertaking complies with the provisions of the Historic Preservation Act of 1966, as amended through 1992, and applicable regulations. The report is consistent with applicable federal and state standards for cultural resource management.



Both sites are located on private land and land acquired from private sources.

ENVIRONMENT

The project area is located to the east of the Rio Grande near the northern end of the intermontain lowland known as the Mesilla Bolson. Elevation within the project area varies from 1,322.8 m (4,340 ft) to 1,336.5 m (4,385 ft) (Marshall and Brown 1997).

The countryside, east of the Rio Grande Valley and north of Las Cruces, is rolling desert grassland (Castetter 1956, fig.1). The site areas are in a region of active coppice dunes. Historically these dunes have been stabilized; however, overgrazing has reduced the local grasses, allowing an increase in the level of erosional duning activity. The invasive species of mesquite, creosote bush, and soap-tree yucca dominate the local vegetation. An indepth analysis of the general project area's environmental setting is available in Laumbach (1982).

Geology

The project area is within the Mexican Highland section of the Basin-and-Range Physiographic Province (Fenneman 1931:379-380). The area is characterized by north-south block fault ranges uplifted in the Tertiary period. These ranges are separated by intermontain basins that were filled during the upland erosion of the Pleistocene (Kottlowski 1958; Strain 1966). The project area is in the northern portion of one of these basins known as the Mesilla Bolson (Fenneman 1931:385). The Mesilla Bolson is bounded to the west by the Sierra de las Uvas and the Potrillo Mountains, and by the Organ and Franklin Mountains to the east. The Organ Mountains, an uplift of Precambrian, Paleozoic, Cretaceous, and Tertiary sedimentary rock, with rhyolite, granite, and andesite intrusions (McAnulty 1967), are located approximately 16 km (10 miles) east of the project area.

The project area is 3.2 km (2 miles) east of the Rio Grande Valley in an area of Pleistocene gravel and soil sediments. These sediments generally slope downward toward the Rio Grande Valley, although they are fairly level in the general site area (McAnulty 1967).

The soils of the project area reflect the redeposited erosional material of these sediments. Project area soils are Typic Torripsamments, generally comprised of loose noncalcareous fine sand over thick deposits of fine sand, sometimes grading into sandy gravel. Small lenses of both clay and coarse gravel are common. Deeper deposits may contain slight calcareous deposits. These soils are common in areas of duning (Davis 1989; Maker et al. 1974:35).

Climate

The climate of the project area is semiarid mesothermal, with hot days and cool nights. Average annual precipitation for Las Cruces is 20.1 cm (O'Laughlin 1980:12; Tuan et al. 1973:18). Most rainfall occurs in the mid-summer months of July, August, and September (Gabin and Lesperance 1977:114; Maker et al. 1974:26; Tuan et al. 1973:20). The average number of frost free days is 248 (O'Laughlin 1980:12; Tuan et al. 1973, fig. 35), while the potential growing season for domesticated crops is closer to 348 days (Smith 1920:273, fig. 79). O'Laughlin has noted (1980:12) that this combination of temperature and rainfall results in one long growing season; the variability of

microclimates and localized conditions have the greatest effect on productivity and crop yield.

The current pattern of summer rains and cool dry winters first appeared in the middle Holocene when the amount of moisture was much greater than at present. Despite a great deal of variability (wetter periods are suggested for 1000 B.C. and A.D. 1000), there has been an overall drying trend through time. One result of this drying trend has been a gradual change in biotic communities from savannah grassland to desert grassland and mesquite scrubland (Davis 1989:21; O'Laughlin 1980:12-14; Van Devender and Spaulding 1979).

Flora and Fauna

Little variation is present within the environmental zone encompassing the project area. What variation that does exist within the plant community tends to reflect localized soil and erosional conditions. In contrast, an increased range of environmental zones is present to the east of the project area in the Organ Mountains, and to the west in the floodplain of the Rio Grande. Plant communities generally vary with elevation in the Organ Mountains. Increased plant variation is present on the eastern slope away from the project area, a result of increased rainfall (Castetter 1956). To the west of the project area, the riverine ecosystem of the Rio Grande floodplain serves as a distinct linear oasis, providing habitat for plant and animal communities not normally associated with the desert landscape.

Livestock grazing has modified the vegetation of the general project area by increasing the speed of the already occurring environmental trend toward scrubland (Castetter 1956:261-262). Previously, heavy grass areas of dropseed and black grama grasses have been largely eliminated. Mesquite, soaptree yucca, four-wing saltbush, and creosote bush currently dominate the existing vegetation (Castetter 1956).

The general project area supports the Chihuahua Desert faunal complex of jackrabbit, pronghorn, mule deer, coyote, and desert cottontail; a variety of birds and small rodent species are also present (Moore 1996).

CULTURAL HISTORY

A brief summarized cultural history of the project area is included in this report. For a more complete cultural history of the project area, the reader is referred to Lehmer (1948), Moore (1996), Stuart and Gauthier (1988), and Timmons (1990).

Paleoindian Period

The Paleoindian presence in the Las Cruces area is primarily known from surface finds of distinctive lanceolate-shaped projectile points, scrapers, and gravers (Beckes 1977; Everitt and Davis 1977; Hard 1983; Russell 1968). These artifacts have been restricted to Folsom and later Plano occupations dating roughly between 8000 B.C. and 6000 B.C. Artifacts attributable to the earliest Paleoindian culture (Clovis) have not been found in the general Las Cruces area.

Although originally considered dependent on large extinct Pleistocene mammals for food, Paleoindian subsistence is now believed to be broader based. Although bison did play an important role in Folsom and Plano subsistence, small animals and wild plants also seem to have been important (Judge 1973).

The presence of surface artifacts indicates that small, highly mobile Paleoindian groups took advantage of the diverse ecology existing in the Las Cruces area during the late Pleistocene. During this period large expanses of open woodland and savannah separated the then-forested mountain ranges. Small lakes and perennial streams were common. By the middle Holocene, climatic changes had established the ecological communities present today (O'Laughlin 1980:23).

Archaic Period

The Archaic period is characterized by a more generalized hunting and gathering form of subsistence than that utilized during the Paleoindian period. Small, family-based social groups may have traveled on a seasonal round, structured around the availability of different species of wild plants. Lechuguilla and sotol may have been principal food plants in south-central New Mexico and west Texas (Hard 1983:9).

Although subsistence remained based on wild plants, the cultivation of maize appears during the Archaic period (Hard 1983:8). Maize dating to 1394 B.C. has been recovered from the Fresnal Shelter in south-central New Mexico (Tagg 1996:317) and dates to 1029 B.C. from the Organ Mountains near Las Cruces (Upham et al. 1988).

Archaic sites are identified on the basis of diagnostic projectile points, allowing Archaic sequences to be developed for specific areas. In northwestern New Mexico, a cultural sequence known as the Oshara Tradition was developed by Irwin-Williams (1973). The Cochise Culture has been recognized in Arizona and southwestern New Mexico (Beckett 1973).

In addition to projectile points, Archaic sites are characterized by flaked core tools, grinding implements, and clusters of roasting pits and hearths represented by burned and fire-cracked rock.

Perishable materials, including basketry, sandals, cordage, and matting have been recovered from caves and rockshelters, primarily in west Texas (O'Laughlin 1980:24).

Archaic developments in the Las Cruces area reflect the Cochise Culture, with the addition of traits such as distinctive projectile points from the Big Bend aspect of the eastern trans-Pecos area (Hard 1983:9; Lehmer 1958:127). This is particularly true for the Late Archaic Hueco phase (Hard 1983; Lehmer 1948). A number of Archaic sites have been recorded in the general project area (Laumbach 1981).

Pueblo Period

The Pueblo period in south-central New Mexico is part of the Jornada Mogollon culture. Known as the Formative period, it is believed to be a direct offshoot of the Late Archaic Hueco phase (Hard 1983). Major cultural changes that occur include an increased dependence on agriculture, the development of ceramics, and increased sedentism (Hard 1983:9). The Formative period is comprised of the three phases developed by Lehmer (1948), although later slightly modified (Moore 1996).

Mesilla Phase

Beginning between A.D. 1 and A.D. 200, and extending to A.D. 1100, the Mesilla phase is characterized by the dominant use of El Paso Brown ceramics. Pit structures are present during this phase, either in a circular or rectangular form. Also common at sites dating to this period are extramural storage cists and hearths, and the presence of sheet trash deposits (Hard 1983:9; Lehmer 1948:77).

Regional trade is indicated by intrusive ceramics, suggesting contacts with both the Mimbres Culture to the northwest, and the Livermore horizon of the west Texas Big Bend area to the east, and the presence of shell from the Gulf of California (Lehmer 1948:77).

Doña Ana Phase

The Doña Ana phase dates between A.D. 100 and A.D. 1200. This is a transitional phase between the earlier Mesilla phase and the later El Paso phase. The Doña Ana phase is characterized by the presence of both El Paso Brown Ware and El Paso polychrome in the same cultural deposits (Hard 1983:9-10; Lehmer 1948:78-80).

Small surface pueblos begin to appear during this phase (O'Laughlin 1980:26). Most of the cultural material of this time, however, shows little change from the preceding Mesilla phase (Moore 1996). Trough metates tend to become more common within the assemblages, suggesting a greater dependence on agriculture and the processing of maize. An increased range of intrusive ceramic types, in greater numbers, occurs in the Doña Ana phase (Lehmer 1948:78-80).

El Paso Phase

The El Paso phase dates between A.D. 1200 and A.D. 1400. This phase is characterized by the presence of El Paso polychrome and above-ground adobe structures. An increase in intrusive ceramics takes place during this phase, and includes material from over a wider area (Hard 1983:10; Lehmer 1948:80-82). The overall artifact assemblage is more complex, with a wider range of items

and types of tools represented than in either of the two earlier phases (Lehmer 1948:81).

Adobe surface structures are the dominant structural type during the El Paso phase. These may be either grouped around a plaza or arranged in linear rows. Internal features are common (Lehmer 1948:8), consisting usually of postholes, pits, and hearths (Moore 1996). Village placement is usually near the base of slopes, possibly to take advantage of seasonal water runoff for agricultural purposes (Hard 1983:10). Village size varies. Clusters of villages are reported for both the Alamogordo area (Lehmer 1948) and in the Hueco Bolson (Whalen 1977). Specialized sites such as hunting camps, and plant gathering and processing camps, are easily discernable (O'Laughlin 1980:26).

Ritual, at the village level, is suggested by the presence of specialized rooms at most El Paso phase villages. These rooms are larger than the other rooms in the village, and frequently caches of material are located beneath the floors (Moore 1996). El Paso phase villages were abandoned by about A.D. 1400 (Hard 1983:10).

Protohistoric Period

The Las Cruces area was inhabited by the Manso Indians, probable descendants of the Jornada Mogollon, at Spanish contact. Although both pit structures and adobe pueblos were in use in the La Junta area to the south, and pueblos were used in the Socorro area to the north, the Manso inhabited small huts covered with brush. Beans, squash, and maize were raised, and wild plant foods gathered in season. The Manso hunted game and fished in the Rio Grande. After Spanish contact, the Manso were gradually absorbed into the general population (Beckett and Corbett 1992; Moore 1996).

Historic Hispano Period

Although a number of Spanish expeditions passed through the general Las Cruces area during the conquest and colonization of New Mexico, no Spanish settlement occurred in the general El Paso-Las Cruces region until December 8, 1659. On that date the Mission of Nuestra Señora de Guadalupe de los Mansos del Paso del Norte was founded, becoming the center of Spanish settlement in the general El Paso area. A presidio was also soon established (Timmons 1990).

The small Spanish population of the area increased dramatically because of the influx of refugees from the northern settlements of New Mexico after Pueblo Revolt of 1680. Many Spanish and Indian refugees refused to return north after the reconquest in 1692, settling in the El Paso area and becoming part of the local population (Timmons 1990).

Early Spanish settlement in the El Paso area was concentrated along the Rio Grande Valley, to the south of the pass that gave the area its name. The threat of Apache raids effectively limited settlement to the north until the late 1700s (Timmons 1990).

The Spanish government granted a number of land grants in the Mesilla Valley in an effort to encourage settlement, a policy that was continued by the Mexican government. The Santa Teresa grant was established by 1790 on the west bank of the Rio Grande. The El Brazito grant, located further north on the east bank of the Rio Grande, was first established in 1805 and reestablished in both 1816 (Price 1995:2) and in 1823 (Sayles and Williams 1986:105-107). The Canutillo grant, on

the east bank of the Rio Grande, was established in 1823 (Timmons 1990). All of these grants were abandoned by 1833 due to renewed Apache raids, remaining vacant until the arrival of American control (Timmons 1990). One successful settlement was Doña Ana, settled in 1843 (Price 1995:2), on the Doña Ana Bend grant established in 1839 (Sayles and Williams 1986:105-107).

The Mexican War brought an American presence to New Mexico, as American forces captured Santa Fe in April of 1846. Doña Ana and El Paso were captured in December of the same year. At the end of the Mexican War, the west bank of the Rio Grande, from Doña Ana to El Paso, remained the territory of Mexico. Mexican citizens from both areas who were unwilling, or unable, to remain in the territory captured by the Americans moved into this portion of the Mesilla Valley with the encouragement of the Mexican government (Price 1995:14). The largest settlement in this area was the town of Mesilla, founded in 1850 by Mexican refugees from Doña Ana (Price 1995; Stribling 1986; Timmons 1990). A new settlement, Las Cruces, was established by the Americans in 1848 several miles south of Doña Ana at the request of the first justice of the peace for the new county, Don Pablo Melendez (Julyan 1996).

The Mexican Government legitimized this settlement with a series of land grants. The J. M. S. Baca grant, located on the west side of the Rio Grande, was established in 1849. The Refugio Colony #1 grant and the Refugio Colony #2 grant were both established in 1852 (Sayles and Williams 1986:105-107), or 1850 according to Price (1995). The Mesilla Civil Colony grant and the Santo Tomas de Iturbide Colony grant were both established in 1853 (Sayles and Williams 1986:105-107), or 1852, according to Price (1995).

Anglo-American Period

The west side of the Mesilla Valley became part of the United States in the Gadsen Purchase of 1854. The Gadsen Purchase was obtained from Mexico for $15 million and included the territory located south of the Gila River between the Rio Grande and Colorado rivers (Stribling 1986; Timmons 1990). The small population of this territory was clustered in Mesilla Valley and in the mission settlements of southern Arizona (centered on Tucson).

In 1859 the Anglo-American residents of the Mesilla Valley and Tucson areas petitioned the United States congress for the establishment of a new pro-slavery Arizona Territory, to be made out of the southern half of New Mexico (Price 1995:12). This petition was not adopted, but with the advent of the Civil War, many Anglo-American residents of the area supported a Confederate victory. Mesilla was captured by Confederate forces on July 1, 1861, and the Territory of Arizona was proclaimed as part of the Confederacy (Price 1995:26; Stribling 1986:19; Timmons 1990).

Although not originally concerned with the issues leading up to the Civil War, the invasion of New Mexico by Texas Confederate forces rallied the Mexican-American population of southern New Mexico to support the Union. The final defeat of Confederate forces in New Mexico, and the subsequent capture of El Paso by Union Forces in 1862, ended Confederate control of the Mesilla Valley (Stribling 1986; Timmons 1990).

The northern area of the Mesilla Valley remained the primary agricultural area as farmers and some ranchers settled along the Rio Grande. The economics of the area was altered in the 1880s because of the arrival of the railroads.

Construction of the Atchison, Topeka, and Santa Fe Railway (AT&SF) to Las Cruces was completed in April of 1881 (Myrick 1990). This effectively linked the economy of the northern Mesilla Valley with that of the El Paso area. The combination of the AT&SF with the other railroads constructed through the El Paso area served to integrate the region into the national economy. Economic activity for this part of New Mexico is now centered on Las Cruces, and on the growing El Paso-Juarez area to the south.

TESTING PROGRAM

The two sites in the project area (LA 113981 and LA 30763), were recorded as surface scatters of ceramic and lithic artifacts (Marshall and Brown 1997). Both sites were tested as part of the planned reconstruction and improvements to U.S. 70 near Las Cruces, Doña Ana County, New Mexico. The purpose of the limited testing was to determine the extent and importance of the portions of the sites located within the proposed project limits. Both sites are located on private land and NMSHTD land acquired from private sources.

Field Methods

Limited testing followed the procedures and practices outlined in the *Testing and Site Evaluation Proposal* (SHPO Log 43648). A main datum and baseline were established for each site. Surface artifacts were pinflagged to locate artifact clusters, and to assist in recording and mapping site limits. A map of each site was produced using a transit, a stadia rod, and a 50-m tape, and the locations of all test units and cultural features were plotted. The locations of all surface artifacts were plotted with the use of a 50-m tape and mapped. Ceramic artifacts, lithic artifacts, and ground stone artifacts were analyzed in the field and left in place.

Hand-excavated test units measuring 1-by-1 m were dug at each site. These were placed adjacent to concentrations of surface artifacts, in areas of possible intact soil deposits.

Auger holes were hand-excavated in patterned transects across both sites within the project area. Each auger hole was dug until culturally sterile soil was reached, and the depth recorded. All of the excavated soil was inspected, and any artifacts present were collected. Soil descriptions were recorded.

All excavated areas were backfilled when excavation was completed. Cultural material recovered through these excavations will be curated at the Archeological Research Collections at the Laboratory of Anthropology, Museum of New Mexico. Field and analysis records will be on file at the Historic Preservation Division, Archeological Records Management Section, Santa Fe, New Mexico.

LA 113981 Testing Results

LA 113981 (Figs. 2 and 3) is a sherd and lithic artifact scatter measuring 40-by-30 m. Marshall (1997) suggests this is a campsite or resource procurement area. The site is heavily modified within the project area, both within and outside of the existing right-of-way. The site area within the existing right-of-way has been scraped as part of routine highway maintenance, and is crossed by a dirt track, a natural gas pipeline, and a telecommunications cable are all parallel to U.S. 70. Within the project area, but outside of the existing highway right-of-way, the site is both deflated and heavily modified by three power poles and a dirt track forming part of a power line corridor. Some recent duning has also taken place in the site area. The artifacts present are redeposited from a now-eroded surface and are exposed on a culturally sterile caliche and gravel surface. Site elevation is 1,322.8 m (4,340 ft).

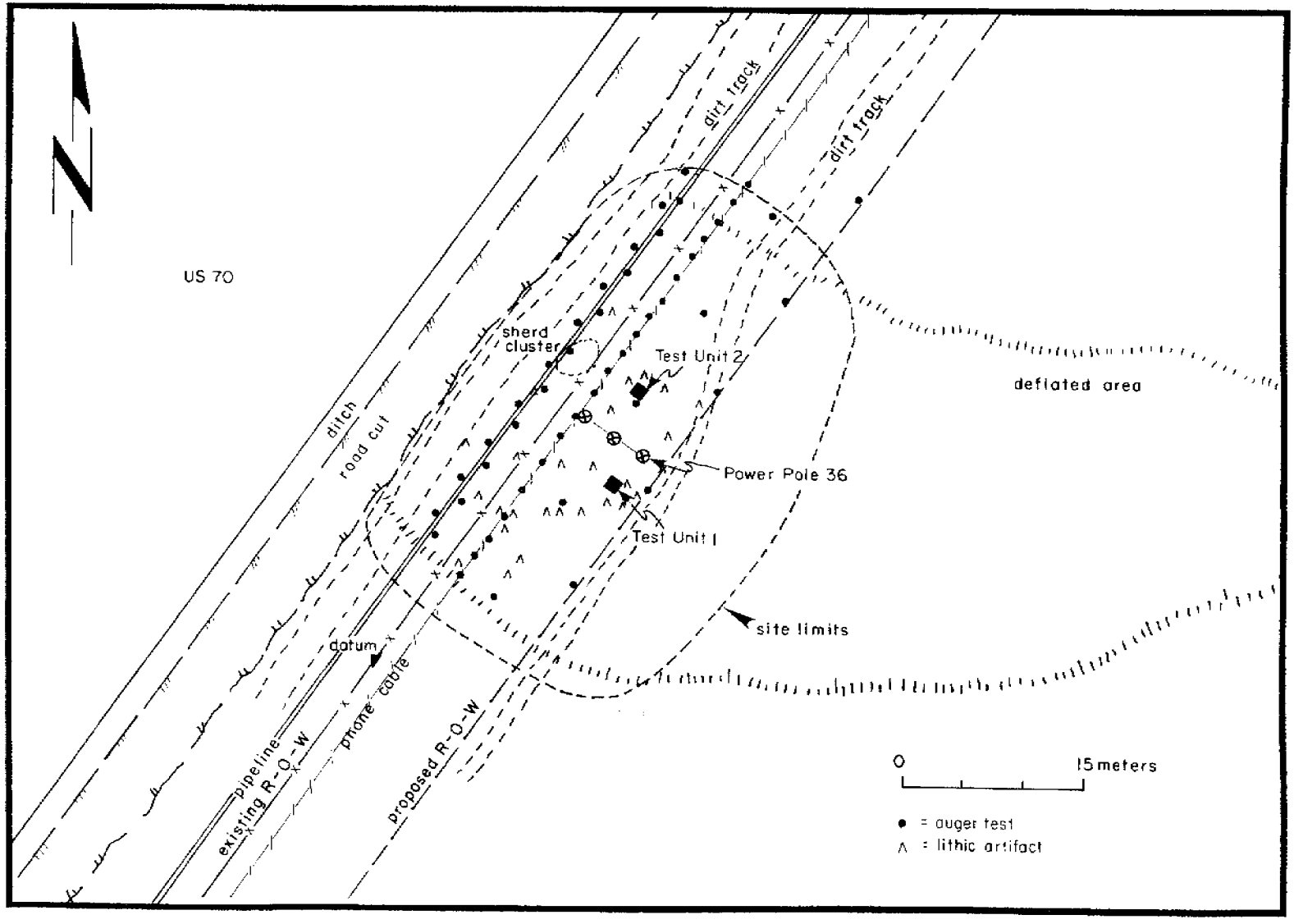


Figure 2. LA 113981 site map.

Figure 3. View of LA 113981, looking southwest.

A total of 33 artifacts (6 ceramics and 27 lithic artifacts) were recorded on the surface of LA 113981. No subsurface artifacts, cultural deposits, or features were found. Two 1-by-1-m test units were dug by hand adjacent to recorded concentrations of surface artifacts. In addition, 54 auger tests were hand excavated at LA 113981 in an effort to locate buried cultural features or deposits.

Test Unit Descriptions

Test Units. Two test units were hand excavated adjacent to concentrations of surface artifacts in areas of possible remaining soil integrity. Each test unit was hand dug in 10-cm levels until cultural material, or a depth of 20 cm, was reached. Two strata of soil were present within each test unit. Stratum 1 was a tan, fine, redeposited eolian sand measuring 1 to 4 cm in depth. Stratum 2 was a fine to medium sorted gravel cemented with caliche. No cultural features or deposits were found within either test unit.

Auger Tests. A total of 54 auger tests were hand dug at LA 113981 in a series of transects across the site area. Auger tests were hand dug to until cultural material, or a depth of 30 cm was reached. No artifacts or cultural material was found in any of the auger tests at LA 113981.

Cultural Features

No cultural deposits or features were found in any of the test units or auger tests at LA 113981.

LA 30763 Testing Results

LA 30763 (Figs. 4 and 5) is a large site measuring 150-by-590 m. Originally recorded as two separate sites (LA 5913 and LA 6300), both sites were rerecorded as LA 30763 and partially excavated for the Plains Electric Transmission Line in 1982. The remaining portion of the site was declared eligible for the *National Register of Historic Places* as NMSU 808 (Federal number 4250) on February 9, 1982 (Laumbach 1982) on the basis of criteria (d) (36 CFR 60.4).

Portions of LA 30763, NMSU 808 (Federal number 4250), extend into the limits of the proposed undertaking. A review of the cultural material that is actually located within the limits of the proposed undertaking at LA 30763, NMSU 808 (Federal number 4250), indicates that it is not likely to yield information beyond what has already been documented. The portions of LA 30763, NMSU 808, that are likely to yield important information are not located within the limits of the proposed undertaking and will be avoided during construction. The undertaking will not alter any of the qualities that make LA 30763 historically important and no additional investigations are recommended.

Figure 4. View of LA 30763, looking southeast.

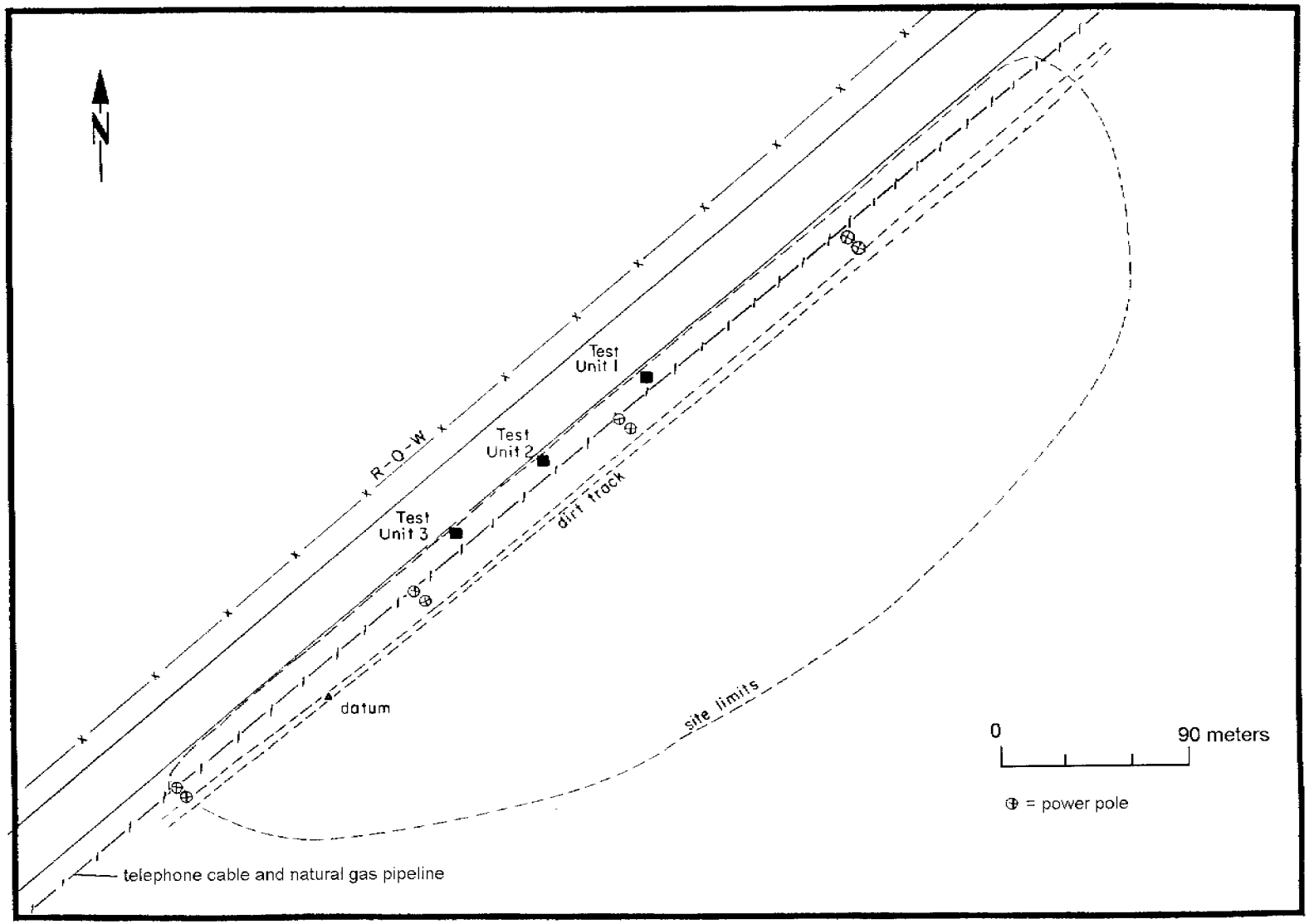


Figure 5. LA 30763 site map.

The portion of the site within the project area was completely within the portion of the site excavated in 1982 as part of the power line corridor established for the Plains Electric Transmission Line (Laumbach 1982). As well as having been excavated, the portion of the site within the project area has been heavily scraped with approximately 70 cm of soil removed from the modern ground surface. These modifications continue outside of the right-of-way for the length of the site, an additional 27 m. Within the existing right-of-way, a dirt track, a natural gas pipeline, and a telecommunications cable extend the length of LA 30763 parallel to U.S. 70. Site elevation is 1,336.5 m (4,385 ft).

No surface artifacts were found at LA 30763 within the project area. No subsurface artifacts, features, or cultural deposits were found. A total of three 1-by-1-m test units were hand dug at LA 30763. In addition to these units, 280 auger tests were hand dug across the length of LA 30763 in an effort to locate buried cultural features or deposits. None was found.

Test Unit Descriptions

Test Units. Because of the lack of surface artifacts, test units were hand dug in areas of possible remaining soil integrity. Each test unit was hand dug in 10-cm levels until cultural material or 20 cm was reached. Two strata of soil were present within each test unit. Stratum 1 was a loose, weathered sand and caliche layer. Stratum 2 was a fine to medium-sorted gravel cemented with caliche. No cultural features or deposits were found within any of the test units.

Auger Holes. A total of 280 auger holes was dug at LA 30763. These were hand dug in a transect across the length of the site. Auger holes were dug until either cultural material, or a depth of at least 30 cm, was reached. No cultural features or deposits were found in any of the auger holes dug at LA 30763.

Cultural Features

No cultural features or deposits were found within any of the test units or auger tests at LA 30763.

ARTIFACT ANALYSIS

Lithic Artifacts

Lithic artifacts were recorded only at LA 113981. These artifacts totaled 27.

Analytical Methods

Attributes chosen for lithic analysis reflected the desire to achieve the greatest return of useful information within the available time constraints. The guidelines and format of the Office of Archaeological Studies *Standardized Chipped Stone Analysis Manual* (OAS Staff 1994) were followed. Definitions used in lithic analysis are also included in this volume.

The following attributes were included in analysis.

Material Type

Codes for material types are for general material groups unless the material is from a recognizable source. However, rhyolite was the only material to occur at LA 113981, and no lithic artifacts were found at LA 30763.

Morphology (Artifact Type)

This is the characterization of artifacts by form.

Portion

Portion is the part of the artifact present. Flakes and tools may be whole or fragmentary. Angular debris and cores are whole by definition.

Dorsal Cortex

Cortex is estimated to the nearest 10-percent increment. For flakes, this is the cortex on the dorsal surface. Cortex on the platform was not included. For other morphological types the cortex on all surfaces is estimated and added together.

Flake Platform

Flake platform is recorded for the whole and proximal flakes. Some lateral flakes also have their platforms recorded, if the platform is still present. Either the morphology of the impact area prior to flake removal or extreme modifications of the impact area caused by the actual flake removal is coded.

Size

Artifact size is described in millimeters.

Edge Number

Artifacts can have one or more utilized edges. Each utilized edge on an artifact is given an edge number. Consecutive numbers are used for artifacts with more than one utilized edge. Each edge was analyzed separately for function and wear patterns.

Function

Function describes and characterizes artifact form.

Wear Patterns

Artifact modification caused by human use is coded as wear.

Analytical Results

Material Selection

Material use serves as an indication of human decision-making processes with regard to the suitability of materials (Young and Bonnichsen 1985:128). The presence within a site assemblage of either tested material, or of substantial numbers of core flakes exhibiting dorsal cortex, can thus be presumed to illustrate the manner in which this material suitability is determined.

Lithic material was present on only one of the two sites tested (LA 113981). Rhyolite comprises 100 percent of the lithic artifacts recorded. This is locally available, either as nodules within the Pleistocene alluvial deposits of the area, or from erosional deposits in the Organ Mountains to the east.

Artifact Morphology

The largest morphological group of lithic artifacts is made up of core flakes at 88.8 percent (24 of 27 artifacts). The other lithic artifacts present include one hammerstone flake, one multifaceted core, and the lateral fragment of a biface.

Flake platform types at LA 113981 are restricted to cortical (56 percent) and single faceted (44 percent). Eighty percent of the flakes from LA 113981 are whole, and proximal fragments are the second most common form at 12 percent.

Based on the range of cortex present within this assemblage (Table 1), limited lithic reduction of rhyolite took place at LA 113981.

Table 1. Percent of Dorsal Cortex

Percent of Cortex	Number of Artifacts
0	10
10	3
20	1
30	1
40	
50	1
60	2
70	1
80	1
90	2
100	4
TOTAL	26

Utilization

Although lithic material was present at LA 113981, only a single piece was utilized. This was a biface fragment that exhibited evidence of use, possibly as a knife. None of the flakes present showed any evidence of use as expedient tools. No secondary utilization was present on any of the lithic artifacts.

The low number of tools within this assemblage and the single lithic material involved are common occurrences on short-term use areas (Adams 1978; Akins and Bullock 1992). This is supported by site size and the lack of cultural features, although both of these aspects could be the result of the heavy modifications to this site. The number of artifacts is small, also making any conclusions regarding this assemblage suspect.

It should be possible to determine, however roughly, the types of activities pursued at this site (Christenson 1987:77). However, the assemblage is too small for this to be practical at the site level. The presence of debitage suggests that the production of flakes for later use as expedient tools may have taken place on a small scale. The low number of biface thinning flakes, uniface thinning flakes, and tool resharpening flakes also indicates a lack of formal tool production, while the large nonutilized debitage to tool ratio (25:2) also suggests short-term site use (Akins and Bullock 1992:27).

Ceramic Artifacts

Ceramic artifacts were present only at LA 113981. Six sherds were present on the site's surface. All of these were El Paso Brown Ware sherds. They were identical in color and temper, and all six are probably from the same pot. The small size of all six however, makes identification of the vessel form impossible to determine. No ceramics were found at LA 30763.

DATING OF SITES

The dating of these two sites is problematic, given the lack of features and diagnostic lithic artifacts at LA 113981, and the total lack of features and artifacts of any kind at LA 30763. The presence of ceramics at LA 113981 makes the dating of this site incrementally easier, but only to a degree. It is difficult to assign a precise date to this site based on ceramics, given the very conservative nature of ceramic change in the Jornada Mogollon region, and general absence of independently dated sites. The conservative nature of Jornada Mogollon ceramic technology is reflected by the very long dominance of El Paso Brown sherds with similar ranges of paste, temper, and surface textures.

The ceramic occupation of the southern Jornada Mogollon area is usually divided into a three-phase chronology (see the Cultural History section of this volume). The earliest ceramic period (the Mesilla phase) begins with the introduction of plain brown ware ceramics at about A.D. 0 to 500 and ends at about A.D. 1100 with the introduction of local painted types. Painted ceramics gradually replaced plain ware vessels during the following Doña Ana and El Paso phases (Lehmer 1948; Whalen 1994). The lack of painted ceramics at LA 113981 suggests that this site dates to the Mesilla phase of the Jornada Mogollon.

No ceramics were found within the portion of LA 30763 present within the project area. However, previous excavations of this portion of LA 30763 showed the site to have two components (Laumbach 1982). Laumbach (1982) found evidence of both an undifferentiated Archaic component as well as a Jornada Mogollon component dating to the El Paso phase.

DISCUSSION

The two sites in the U.S. 70-Mesa Grande project have been assigned to cultural phases based on their associated pottery. Ceramics at LA 113981 date the site to the Mesilla phase of the Jornada Mogollon. While no artifacts were found at LA 30763, the site is dated to both the Archaic and the El Paso phase of the Jornada Mogollon based on previous excavations (Laumbach 1982).

The ephemeral nature of these sites suggest that they are the result of short-term limited activity areas. Limited activity sites are defined by Adams (1978), as "sites containing a limited range of actions present within that specific culture, and are generally involved in the exploitation of resources located at a distance from residential area." Short-term limited activity sites usually involve the procurement of seasonally available plant or animal resources (Adams 1978:105). They may also involve the procurement of other materials in short supply, such as clay or specific types of stone (Adams 1978:106). In most areas of the Southwest, short-term limited activity sites are present as small structureless ceramic and lithic artifact scatters. Long-term occupational sites are therefore defined as sites containing residential structures and a range of features resulting from long-term use of the area. These may include hearth areas, storage pits, and specialized activity areas.

While short-term limited activity areas with features have been documented that can be assigned to the Jornada Mogollon (Hard 1983; O'Laughlin 1979, 1980; O'Laughlin and Gerald 1977; Whalen 1980, 1994), few habitation sites have been excavated in the northern Mesilla Bolson (Lehmer 1948; Moore 1996; O'Laughlin and Gerald 1977; Whalen 1994; Zamora 1993). No intact features, or any other evidence of habitation, were found within the project area.

The importance of wild plant and animal resources to the Jornada Mogollon has become increasingly better understood. Use was made of a wide range of wild plants, despite the cultivation of maize and other domesticated crops (Whalen 1994:116). This combination of farming, with the collection of wild plants, has been shown to be especially adaptive to hot dry desert conditions (Whalen 1994:116-117). Fluctuating crop yields are a common phenomenon in the difficult farming environment of the Southwest, where crop failure is common. The maintenance of a hunting and gathering component within a farming-based subsistence system is an effective coping mechanism in this type of environment.

Ethnographically, this mixture of farming with hunting and gathering has been recorded by Bohrer (1970) among the Pima Indians of southern Arizona. The Pima collected wild plants in inverse proportion to their harvest, although some wild plants were always collected. Hunting, as opposed to plant collecting, is less dependent on farming results.

Differentiating between activities through use of the archaeological record can be challenging. Ground stone artifacts would be indicative of domesticated maize, wild seed, or possibly mesquite bean collection. Although no ground stone artifacts were found at either site during testing, they have been previously recorded at LA 30763 (Laumbach 1982).

Of particular importance is the position of these sites within the Organ Mountains' eastern slope environmental zone. This zone is a relatively homogeneous area characterized by sandy soils, scattered coppice dunes, and cut by arroyos. Historic descriptions indicate that this area supported an abundant cover of grasses (black grama and dropseed) until the late nineteenth century (Timmons 1990). Grass seed would have been an important food resource, harvested in the summer or fall.

Yucca and mesquite, although believed to have been important food crops, had a much more restricted range than at present (Castetter 1956).

In contrast, habitation sites generally occur in ecological edge areas, the areas of contact between different biotic communities. These are generally where physical changes are present in the landscape. Ecological edge areas are "the most convenient locations for proximity to the widest variety and stability of resources" (Epp 1985:332). Correlations have been demonstrated between site location and ecological edge areas for sites dating from the Paleoindian (Thurmond 1990), the Archaic (Reher and Winter 1977), and the protohistoric periods (Epp 1988). Settlement patterns based on the correlation between environmental zone and site location for the Jornada Mogollon in the El Paso area have been developed by O'Laughlin (1980:27-31).

Although it has been argued that the constraints imposed by the unpredictability of the wild plant crops are incompatible with a sedentary lifestyle (Whalen 1994:132), Thurmond (1990:17) suggests that these biotic borderlands maximize both density and diversity of both available faunal and floral resources. This increased availability of resources should result in a larger range of short-term activities occurring in increased frequency in these ecological edge areas. Inversely, the more limited range of resources located within a single environmental zone should result in a smaller range of short-term activities.

The repeated use of an area should occur as different plant (and possible animal) resources become available throughout the year (O'Laughlin 1980:230), allowing the degree of exploitation needed to support a sedentary population.

The ecological zone of the site locations may also reflect the types of fauna procured. O'Laughlin and Gerald (1977) developed a model of Jornada Mogollon hunting strategies based on site location. Sites were divided by their locations on the landscape. Highland sites utilized a hunting strategy based on deer. Lowland sites utilized a rabbit-oriented strategy. A riverine hunting strategy formed the third type. This was essentially a lowland rabbit-based hunting strategy with the addition of migratory water fowl, fish, and riverine mammals (O'Laughlin and Gerald 1977). The location of these sites would represent the lowland hunting strategy. However, no faunal remains were recovered from either of these sites.

As an increasing number of sites are recorded in this general area, a more complete picture of site frequency, location of occurrence, and site structure will enable us to make more refined interpretations of these site data.

Limited testing of LA 113981 and LA 30763 within the proposed project limits has determined that neither of these areas is likely to yield information beyond that already documented. No further archaeological investigations are recommended.

ASSESSMENTS AND RECOMMENDATIONS

Information derived from the surface mapping and test excavations at LA 113981 and LA 30763 combined with analysis of the recovered artifact assemblages, provides insight into site function and aids in the interpretation of those portions of the sites existing within the proposed project area.

LA 113981

LA 11391 is a sherd and lithic artifact scatter. The site is assigned to the Jornada Mogollon culture and dates to the Mesilla phase (A.D. 200-1100) based on the presence of El Paso Brown Ware ceramics at the site. The site area has been heavily modified by a natural gas pipeline, telecommunications cable, powerline corridor, is deflated, and has some recent duning activity. All of the artifacts present have been redeposited. No intact cultural features or deposits were found.

Archaeological testing within the proposed project limits at LA 113981 did not reveal any cultural features or deposits likely to yield important information on the prehistory of LA 113981 or of the region. It is our opinion that no further investigations are needed.

LA 30763

LA 30763 is a ceramic and lithic artifact scatter with associated hearths present outside of the project area. Based on cultural material recovered when this portion of the site was excavated in 1982, the site was found to have two components: an Archaic component and a Jornada Mogollon El Paso phase component. The portion of the site within the project area was excavated in 1982 by Human Systems as part of the Plains Electric Transmission Line corridor (Laumbach 1982). This portion of the site has also been heavily scraped to a depth of approximately 70 cm below the modern ground surface. The site has also been modified by the construction of a natural gas pipeline, a telecommunications cable, and a dirt track. No artifacts were found in the portion of the site within the project area. No intact cultural features or deposits were found.

Archaeological testing within the proposed project limits at LA 30763 did not reveal any cultural features or deposits likely to yield important information on the prehistory of LA 30763 or of the region. It is our opinion that no further investigations are needed.

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