

MUSEUM OF NEW MEXICO

OFFICE OF ARCHAEOLOGICAL STUDIES

**U.S. 285 ROSWELL-SOUTH PROJECT: DATA RECOVERY PLAN FOR NINE
PREHISTORIC AND HISTORIC SITES BETWEEN ROSWELL AND
CARLSBAD, CHAVES AND EDDY COUNTIES, NEW MEXICO**

Regge N. Wiseman

**Submitted by
Yvonne R. Oakes
Principal Investigator**

ARCHAEOLOGY NOTES 225

SANTA FE

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ADMINISTRATIVE SUMMARY

Seven prehistoric and two historic cultural resource sites are within proposed highway project SD-WIPP-285-2(210)78 between Roswell and Carlsbad in Chaves and Eddy Counties, southeastern New Mexico. This document presents a data recovery plan for the treatment of those sites.

Submitted in fulfillment of Joint Powers Agreement J00343/97 between the New Mexico State Highway and Transportation Department and the Office of Archaeological Studies, Museum of New Mexico.

MNM Project 41.6471 (Roswell South Excavation Project)
NMSHTD Project SD-WIPP-285-2(210)78
CN 2783

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INTRODUCTION

On December 12, 1995, the New Mexico State Highway and Transportation Department (NMSHTD) requested that the Office of Archaeological Studies (OAS) prepare this data recovery plan for nine cultural resources, including seven prehistoric sites and two historic sites (Fig. 1 and Appendix 1). These sites, recorded by Cibola Research Consultants (Marshall 1997), lie partly within NMSHTD Project SD-WIPP-285-2(210)78 (CN 2783) in Chaves and Eddy counties, New Mexico. Land ownership and administration varies by site and includes the NMSHTD, the Bureau of Reclamation, and private owners (Appendix 1).

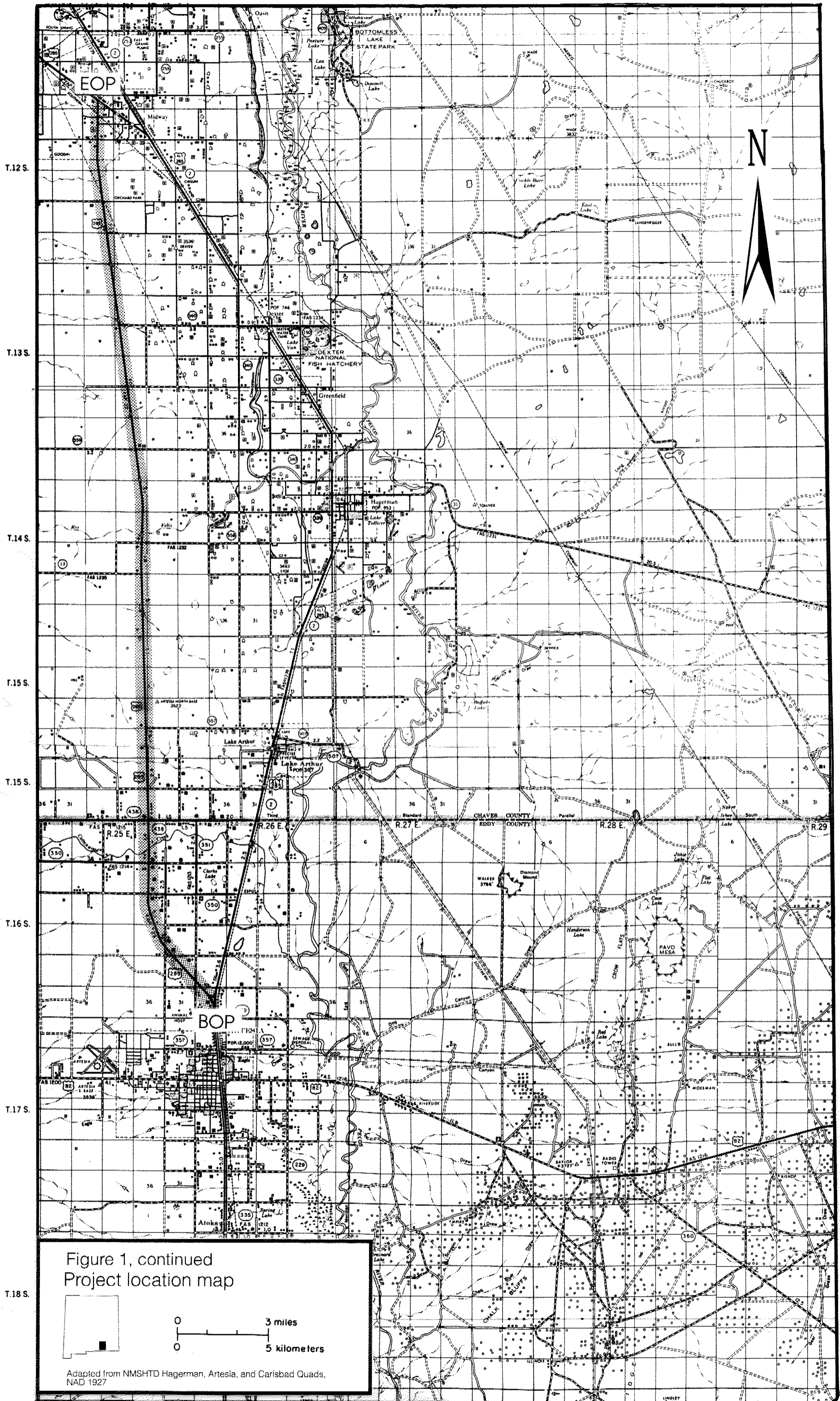
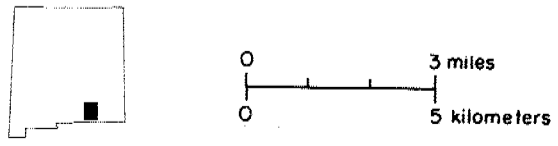


Figure 1, continued
Project location map



Adapted from NMSHTD Hagerman, Artesia, and Carisbad Quads, NAD 1927

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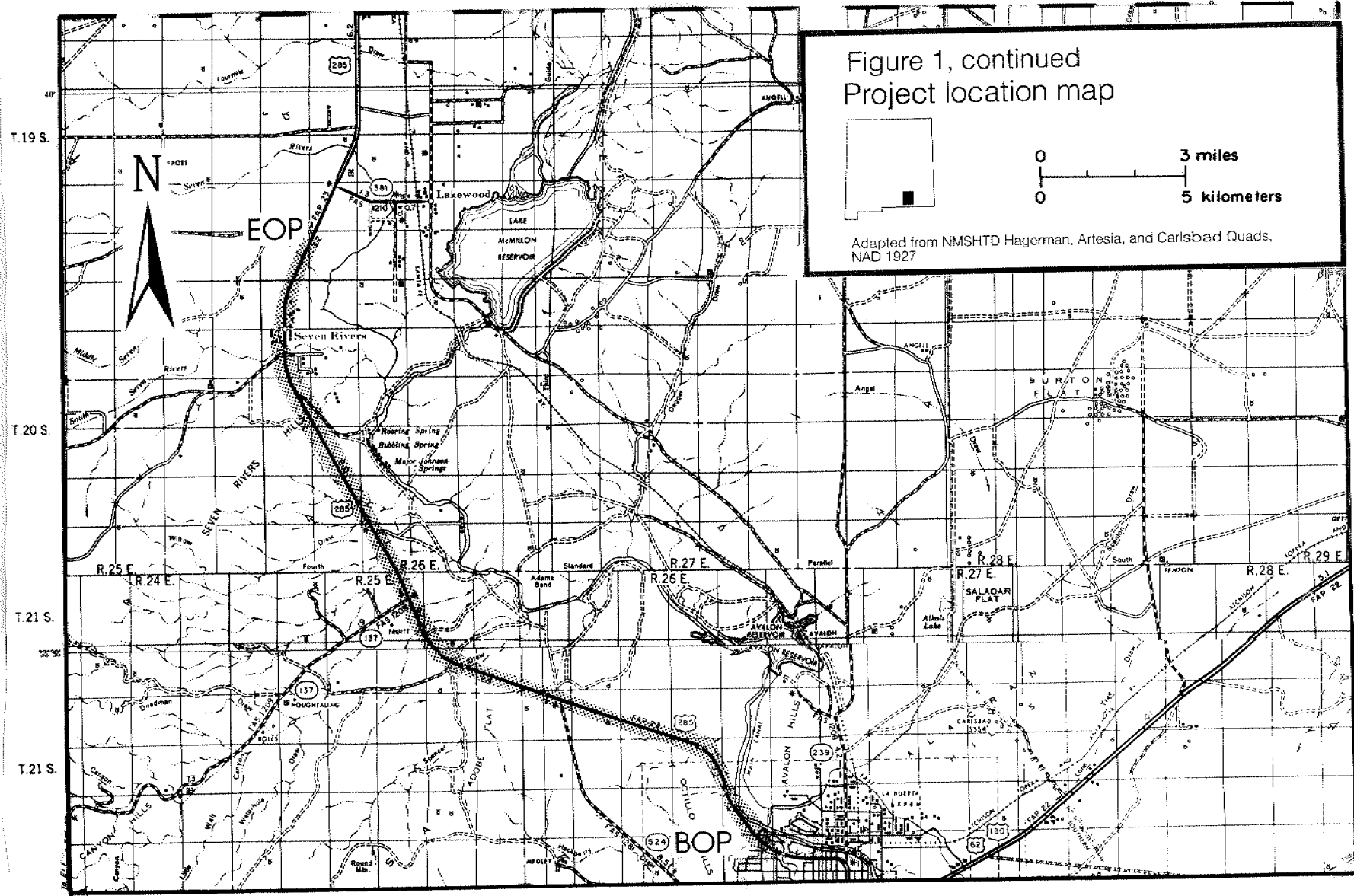
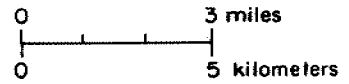


Figure 1, continued
Project location map



Adapted from NMSHTD Hagerman, Artesia, and Carlsbad Quads,
NAD 1927

NATURAL ENVIRONMENT

In some ways the physical appearance of the Pecos Valley, excluding the towns and farms, has not changed much over the past 100 years, especially to the casual eye. It was, and still is, a plains-like environment with broad expanses of grass and scrubland, and trees that are limited to water courses.

But to the scientist, the changes have been profound. As attested by reports of pioneers (Shinkle 1966), the biotic wealth of the land prior to 1900 was remarkable. Specifics about the Pecos Valley environment, documented by casual observers and scientists between the 1880s and the present, are summarized below.

North project sites LA 116467, LA 116468, and LA 116469 are situated on small, short, unnamed, ephemeral drainages that begin and end in alluvial topography. Neither drainage reaches the Pecos River, which itself lies several more kilometers to the east. The historic site, LA 89153, is situated on a gentle alluvial slope more than a kilometer from any drainage, the nearest of which is one of the unnamed drainages just described. Site elevation above mean sea level is 2,000 meters (3,600 feet).

South project sites LA 116470 and 116471 are situated along the Pecos River immediately north of Carlsbad. LA 44565 and LA 44583 are on the north bank of Rocky Arroyo about 2 km upstream from the confluence with the Pecos. LA 116473 sits on the south terrace of the South Seven Rivers about 3 km upstream from the confluence with the Pecos. All south project sites sit on the first terrace or low hills bordering their respective streams at elevations varying from 975 m to 1,000 m (3,200 to 3,300 ft) above mean sea level.

The surface geology of the overall project area consists of mixed alluvial sediments deposited by the Pecos River. In the south project area, outcrops of the Seven Rivers and the Queens formations (Permian) occur southwest, west, and northwest of the sites (Dane and Bachman 1965).

Soils in the north project area belong to the Calciorthis association (Maker et. al 1974). These thermic calcareous soils are shallow to relatively deep depending on topographic situation. They are derived primarily from limestone but can be productive in plants and crops if sufficient moisture is present. In southeastern New Mexico, that means irrigation. Modern commercial farming in the Pecos Valley is on these soils. In the vicinity of the north project sites, the deeper soils having farming potential are in the limited drainage bottoms next to the sites.

Soils in the south project area belong to the Calcicustolls-Rock Land association, near the boundary with the Calciorthis association just described. These thermic soils are shallow and rocky and occur on "strongly sloping and rolling to very steep uplands underlain mainly by limestone bedrock" (Maker et. al 1974). Very limited acreages of soils belonging to the Pachic Calcicustolls, Pachic Haplustolls, and/or Cumulic Haplustolls occur along the course of the

South Seven Rivers, but these tracts are too small for any but garden farming.

According to pioneer accounts (Shinkle 1966), the vegetation of the Pecos Valley at the time of Euroamerican settlement consisted of a grama-dominated grassland with trees common only along certain watercourses such as the Rio Hondo. Kuchler (1964) posits that the potential natural vegetation of the north project area was Creosote Bush-Tarbush (*Larrea-Flourensia*) association. Many of the minor species of this association (i.e., yucca, agave, sotol, and some species of cactus) that would have been most useful to man either do not occur or do not occur in useful numbers this far north.

The north project sites lie within Dick-Peddie's (1993) Desert Grassland association (mainly black grama and soaptree yucca), and the south project sites are within his Chihuahuan Desert Scrub association (mainly creosote and tarbush). However, he notes in his discussion (1993:131ff.) that the Chihuahuan Desert in southern New Mexico has spread at the expense of Desert Grassland over the past 150 years, mainly because of grazing pressure. Because a very slight climatic shift also occurred during the past 150 years, the changes brought on by overgrazing could not be reversed to normal vegetative conditions (i.e., Desert Grassland). Whether this particular problem involves any of the individual project site locales is uncertain at this time.

In the south area, the potential natural vegetation is the Trans-Pecos Shrub-Savannah (*Flourensia-Larrea*) association (Kuchler 1964). This association contains many of the same species as the Creosote Bush-Tarbush association, but species patterning varies. Perhaps more importantly, the proximity of the foothills of the Guadalupe Mountains provides a greater variety and abundance of certain plant (and animal) species in the Oak-Juniper association (*Quercus-Juniperus*) to the inhabitants of the south project sites.

Prior to intensive agricultural development in the late 1800s, surface and underground water sources in the Roswell-Carlsbad region were especially productive. As far as we can tell today, the occupants of the north project sites lacked permanent water in the vicinity of the sites, though reliable water was available at the Pecos River 4 km to the east. The south project sites are better situated for water because of their proximity to the Pecos River, the South Seven Rivers, and Rocky Arroyo.

The Pecos River and Rocky Arroyo today are intermittent streams. The Pecos has several dams and water storage reservoirs between its head in the Sangre de Cristo Mountains of northern New Mexico and the project area. In the driest months today, its surface water flow can cease for short periods, but in the past its flow was probably perennial.

The South Seven Rivers drains the north end of the Guadalupe Mountains. In addition, artesian springs once added significant quantities of water to this system and probably provided water to the lower reaches most of the year. Today, with the lowering of the water table, the lower South Seven Rivers channel carries water only after episodic rain storms.

Rocky Arroyo also heads in the central the Guadalupe Mountains. As recently as the late

1800s, different stretches of this drainage had water available from springs and bedrock catchments through much of the year. However, in its lower reaches, water was available mainly during the spring snow melt and in the rainy season of late summer.

Another natural attraction of the Pecos Valley was the variety and abundance of wildlife. Early pioneers describe large herds of antelope, cottontails, jackrabbits, and an abundance of fish (Shinkle 1966). The Pecos River formed the western boundary of the range of the great bison herds that frequented the southern Great Plains, though small herds and individuals moved west of the river as well.

The Pecos River is also a natural flyway for migratory birds. The Bitter Lakes Wildlife Refuge is a modern-day example of brackish-water wetlands that occur all along this stretch of the Pecos River. These wetlands harbor an abundance of ducks, geese, and other species, especially during the spring and fall. The north project sites are several kilometers west of this important resource zone, but the south project sites are adjacent to the zone along the Pecos and the lower reaches of some of the larger tributaries.

The climate of Roswell and Carlsbad today is characterized by mild winters and hot summers. The mean January temperature ranges from 3.3 degrees C to 5.5 degrees C (Roswell and Carlsbad, respectively), and July temperatures from 25.5 to 27.2 degrees C. The yearly mean is 14.7 to 17.0 degrees C. The average frost-free season is in excess of 200 days (Tuan et al. 1973).

Precipitation is currently summer dominant. The mean normalized annual amount is 295 mm, with 210 mm falling in the growing season, from April through September (USDC 1965).

An annual precipitation of 11-13 inches is generally insufficient for dryland farming. Thus, growing crops in the vicinity of all project sites would be impossible except perhaps during exceedingly wet periods and then only on a small scale along the courses of the drainages below the sites.

CULTURE HISTORY

The following culture history outline of the Pecos Valley is distilled from a number of sources. Sources for the prehistoric period include Stuart and Gauthier (1981), a general study of New Mexico archaeology; Sebastian and Larralde (1989), an overview of east-central and southeastern New Mexico; Kelley (1984), a more specific study of the Sierra Blanca region west of Roswell; Jelinek (1967), the Pecos River north of Roswell; Katz and Katz (1985a), the Pecos River south of Roswell; and Leslie (1979), the region east of the Pecos River and especially the southeastern corner of New Mexico. The primary references used for the historic period are Katz and Katz (1985b) and Shinkle (1966). The reader desiring more information is referred to those volumes for more details.

Human occupation of southeastern New Mexico began with the Llano complex ("Clovis Man") of the Paleoindian period, which dates at least 13,000 years ago. These people and their successors of the Folsom period hunted large animals (so-called megafauna, such as mammoths and extinct forms of bison) and maintained a nomadic or seminomadic lifestyle. Although most accounts of Paleoindians refer to them as big-game hunters, it is a virtual certainty that the people collected and consumed wild vegetal foods and small animals as well as large animals.

The retreat of the Pleistocene glaciers and resultant warming of the more southerly latitudes resulted in a shift in human adaptation to what archaeologists call the Archaic period. This adaptation was more eclectic and focused on smaller animals such as deer and rabbits. The appearance of grinding tools and specialized burned-rock features suggests a greater reliance on plant foods. This long period--not systematically investigated in the Fort Sumner and Roswell areas yet--is best defined in the Carlsbad area and is described in some detail later.

The prehistoric pottery period in southeastern New Mexico, after about A.D. 500, has not yet been investigated as a coherent or singular whole, largely because the region is so vast. The discussion below divides the Pecos Valley region into three sectors or areas: Fort Sumner, Roswell, and Carlsbad. Of these, the Roswell and Carlsbad areas pertain directly to the north and south areas, respectively, of the current project. The Fort Sumner data, especially those pertaining to the Crosby and Roswell phases, are included here because the remains extend down to Roswell and provide perspective for the discussions to follow. Crosby and Roswell phase peoples may relate more directly to the question of local indigenous inhabitants versus colonizers from the Sierra Blanca and Trans-Pecos peoples from the Carlsbad area.

Fort Sumner Area

Arthur J. Jelinek (1967) defined a late prehistoric (i.e., pottery-period) sequence along the Pecos River below Fort Sumner. Architecture is present in most phases, but the structures and the pottery seem to reflect cultural events in central New Mexico. These small villages of pithouses, and later on, small pueblos of cimiento construction, were abandoned about A.D.

1250 or 1300 when, as Jelinek (1967) suggests, the people quit farming to hunt bison full time.

While Jelinek focused his attention on sites 50 km north of the project area, surveys closer to Roswell led him to postulate two separate but related phases for the Roswell area: the Crosby phase and the Roswell phase. Jelinek (1967) does not present singular, coherent descriptions for the Crosby and Roswell phases but discusses them in a sketchy manner, comparing them to equivalent phases in his Fort Sumner sequence. The descriptions given here are gleaned from various statements scattered throughout his report.

The Crosby phase is equivalent to the Early and Late Mesita Negra phases in the north and dates to ca. A.D. 1000-1200. The type site for the phase, P9, is a few kilometers east of the project sites (Jelinek 1967). It is characterized as a "concentration of several hundred flakes and/or sherds and occasional indications of permanent architecture," but elsewhere, Jelinek states that the sites "appear to represent temporary camps." It differs from Mesita Negra phase sites in that the pottery assemblage is dominated by Roswell Brown rather than Middle Pecos Micaceous Brown. The lithic assemblage is like that of Mesita Negra phase sites. The two identifiable projectile points are wide, corner- and side-notched arrow (?) points with convex blade and basal edges. The reader is left wondering about the validity of the Crosby phase, for Jelinek (1967:67) states that it is "distinct," but then questions it on ceramic grounds.

The Roswell phase is equivalent to the Early and Late McKenzie phases in the north and dates ca. A.D. 1200 to 1300 (Jelinek 1967). The two sites listed for this phase, P7 and P8, are characterized as "concentrations of several thousand flakes and/or sherds with little or no indication of permanent architecture." We are left to presume that "permanent architecture" refers to pithouses or pueblos, such as those excavated closer to Fort Sumner. Roswell phase sites differ from Mesita Negra phase sites in that the pottery assemblage is dominated by Roswell Brown, Jornada Brown, and Chupadero Black-on-white rather than the McKenzie Brown and Middle Pecos Black-on-white of McKenzie phase sites. The lithic assemblage, including numbers of small end scrapers, is like that of Mesita Negra phase sites. The three identifiable projectile points are wide, side-notched arrow points with convex blade edges, straight to convex basal edges, and a triangular, multiside-notched form.

Roswell Locality

Late prehistoric (pottery period) sites in the immediate vicinity of Roswell appear to reflect the oasislike character of the area. That is, local natural resources are especially favorable to more intensive occupation and presumably greater population stability than in surrounding areas. It is not surprising, then, that a number of sites known to have or suspected of having architecture are present and that they have the character (substantial trash deposits, much pottery, pithouses, pueblo-style dwellings, corn horticulture) of sites of the more sedentary Jornada Mogollon peoples to the west. For this reason, Jane Kelley (1984) has tentatively included the Roswell locality within the geographic reach of her Lincoln phase, which dates to the late thirteenth, fourteenth, and perhaps early fifteenth centuries. Somewhat earlier remains (e.g., Rocky Arroyo site, Wiseman 1985) also generally fit the Jornada Mogollon

configuration and can be tentatively included with them.

Other pottery-period sites with structures, however, such as King Ranch (Wiseman 1981) and the Fox Place (Wiseman 1991), are enigmatic and currently unassignable to an existing culture chronology. These last two sites are of special interest with regard to the question, posed later on, of the relationship between the prehistoric horticulturists and hunter-gatherers of the region.

These late prehistoric remains in the vicinity of Roswell contrast with the extensive scatters of artifacts commonly found in the sand dune country east of the Pecos River (such as the Bob Crosby Draw site) and on the Sacramento Plain north, west, and south of Roswell (Stuart and Gauthier 1981). It is currently unclear how these scatters relate to either Jornada Mogollon or Plains manifestations. Given the geographic location of the sites, they could have been occupied by peoples from either culture area. How do we make a determination? Some progress is being made in this direction (Speth 1983; Rocek and Speth 1986), but we are far from the last word on the matter.

The Roswell locality evidently was abandoned by farmers in the A.D. 1300s or early 1400s. But because of its incredible water and faunal resources, the area had to figure prominently in all subsequent hunting and gathering patterns of the region between then and the coming of the Spaniards in the late 1500s and 1600s.

Carlsbad Area

In the Carlsbad area an Archaic sequence including hunter-gatherers dating to the pottery period (Katz and Katz 1985a) evidently relates to the Trans-Pecos culture area immediately to the south in Texas. The sequence starts with the Middle Archaic, rather than the Early Archaic, suggesting that there may have been an occupational hiatus between the Paleoindian and the Avalon phase (3000-1000 B.C.). Little is known about the peoples of the Avalon phase except that they inhabited the floodplain near the river channel during at least part of the year, camped and constructed hearths in the open, and consumed one or more species of freshwater shellfish. The subsistence orientation at these sites was clearly riverine. Projectile points are currently unknown for this phase.

Late Archaic peoples of the succeeding McMillan phase (1000 B.C. to A.D. 1) are better known in that more sites with a wider variety of remains have been documented. Sites may contain burned-rock scatters, hearths (1 m diameter clusters of small rocks), and/or burned-rock rings averaging 10 to 12 m in diameter. Previously named projectile point styles associated with the McMillan include the Darl and the Palmillas types of the Texas sequence. Subsistence involved exploiting both riverine and upland plant and animal species.

The terminal Archaic Brantley phase (A.D. 1 to 750) saw a continuation of the previous patterns and a greater use of burned-rock rings. Although this suggests that certain upland resources such as agave and sotol were becoming more important in the diet, the ratio of

riverine to upland sites remained the same, with the emphasis still on floodplain living. Projectile point types commonly associated with the Brantley phase include the previously known San Pedro style; a newly described provisional type, the Pecos point; and several less standardized, but nevertheless familiar, styles of points commonly found in the region.

During the Globe phase (A.D. 750 to 1150), the first phase denoted by pottery, occupation of the floodplain environment reached its zenith. Three major changes also occurred in the material culture at this time: the appearance of brown ware pottery, the bow and arrow, and a type of circular habitation structure called "stone enclosure." In addition, the subsistence system changes from a riverine base, supplemented by upland foods, to one that emphasized upland products supplemented by riverine foods. Projectile point styles are dominated by the corner-notched arrow tips called Scallorn. In many ways, the Globe phase appears to have been transitional between earlier and later adaptive patterns.

During the succeeding Oriental phase (A.D. 1150 to 1450), occupation along the river in the Carlsbad area started to diminish. The people who remained in the area continued in some cases to inhabit stone enclosures and used painted pottery such as Chupadero Black-on-white, Three Rivers Red-on-terracotta, and El Paso Polychrome imported from areas to the west and northwest. Otherwise, they retained their essentially Archaic, hunter-gatherer lifestyle. Why the local culture of Carlsbad/Guadalupe Mountains region did not continue to develop along the same lines as those to the north and west remains to be determined.

The Phenix phase (A.D. 1450 to 1540) and the Seven Rivers phase (post-A.D. 1540) are predicated on projectile point styles only (Garza-like and Toyah-like in the former, and metal points in the latter), and Katz and Katz (1985a) admit that distinguishing between the two may be dubious in practice. They were able to assign only one site to each phase, indicating that Native American use of the riverine habitat in the Carlsbad area was minimal, mostly oriented towards hunting and perhaps succulent plant exploitation, and focused mainly (?) on Rocky Arroyo.

Where many of the people went, assuming that a diminution of sites and cultural remains indicates at least partial abandonment, also remains to be determined. The period represented by the Phenix and Seven Rivers phases (the latter including the early Spanish explorations in the late 1500s) is unknown archaeologically. Abandoned *rancherías* described by early Spanish explorers for the Seven Rivers region certainly indicate the presence of hunter-gatherers during the protohistoric and early historic periods (Schroeder and Matson 1965), but the inhabitants (possibly Jumanos or Apaches; Hickerson 1994) effectively disappeared as an identifiable people before more detailed accounts and relationships could be recorded.

European Entry into Southeastern New Mexico

From Spanish contact until after the American Civil War, roaming Apaches, Comanches, Kiowas, and other Plains tribes kept Euroamerican settlement of southeastern New Mexico in abeyance. Following the Civil War, westward mass movement of Americans and eastward

drifting of small groups of New Mexico Hispanics led to settlement of the region. Cattle ranching was the first economic activity to start up, but by about 1890, drought had reduced its effectiveness and overall importance.

Farming, especially in the Roswell area, provided an increasingly important base for the local economy, especially after the discovery of artesian water. Development of an irrigation system based on this water promoted widespread farming throughout the valley between Roswell and Carlsbad and resulted in a rapid influx of people.

The railroad reached Carlsbad in 1891 and Roswell in 1894, irretrievably setting the course for urbanization of the area. At the turn of the century, the region's economy became firmly based in agriculture, stockraising, and, in the mid-twentieth century, the production of oil and gas.

PREVIOUS ARCHAEOLOGICAL WORK IN THE PROJECT REGION

Except for a number of small-scale contract archaeological projects associated with oil and gas exploration, archaeological investigations in the project region have been few in number. The list below, presented by area, includes some of the more significant investigations.

North Project Area (Roswell)

- * Hannaford (1981): Testing of 20 lithic artifact sites west of Roswell.
- * Jelinek (1967): Survey and excavation along the Middle Pecos River northeast of Roswell; defined culture sequence from Paleoindian to Late Prehistoric for Fort Sumner section of Pecos River; excavations focused on Late Prehistoric (pottery) phases.
- * Kelley (1984): Excavation at Bloom Mound southwest of Roswell; excavation in pueblo and pit structure dating to A.D. 1300s.
- * Kemrer and Kearns (1984): Sample survey of the Abo Oil Field north of Roswell. Documented a wide-range of site types, probably all of which are campsites, lithic material collection/quarry areas, and food collecting sites. No structural sites identified with certainty.
- * Maxwell (1986): Testing of the Townsend site north of Roswell. Recovered hearths, artifacts, and animal bones from three time periods defined by radiocarbon dates: 490-250 B.C. (pre-pottery), A.D. 460-820 (pottery and corner-notched arrowpoints), and A.D. 1200-1400 (pottery and side-notched arrow points). Bison bones associated with earliest and latest periods.
- * Oakes (1983): Excavation of the historic period Ontiberos Homestead west of Roswell.
- * Parry and Speth (1984); Speth (1983): Excavation of the Garnsey Spring Campsite (pottery period and possibly some Late Archaic remains) and the protohistoric Garnsey Bison Kill east of Roswell.
- * Phillips et. al (1981): Survey of the Two Rivers Reservoir southwest of Roswell; documented lithic material quarries, camp sites, food collecting sites, and probable pottery period structural sites.
- * Rocek and Speth (1986): Excavation at the Henderson site southwest of Roswell; excavation in surface rooms and pit structures dating to A.D. 1200s and 1300s.
- * Schermer (1980): Excavations at several sites in the Haystack Mountain area northeast of Roswell. Test excavations at several pottery period camp sites. Dart points at several of

the sites may indicate Archaic occupations as well.

- * Wiseman (1985): Excavation at the Rocky Arroyo site south of Roswell. Excavation of a large, deep pit structure in a small village dating to the A.D. 1200s.
- * Wiseman (1991): Excavation of the Fox Place site at Roswell. Excavation of part of a large village containing numerous tiny pit structures and one large, deep ceremonial pit structure, all dating to the A.D. 1200s and early 1300s.
- * Wiseman: Excavation of Los Molinos site (LA 68182) at Roswell. Excavation of a substantial midden associated with 70+ bedrock basin metates and mortars that date to A.D. 800-1350, perhaps earlier. Analyses in progress.
- * Wiseman: Excavation at the Bob Crosby Draw site (LA 75163) northeast of Roswell. Excavation of a portion of a multicomponent dune site dating to A.D. 800-1350, perhaps earlier. Analyses in progress.

South Project Area (Carlsbad)

- * Applegarth (1976): Doctoral dissertation, University of Wisconsin. Excavation of several caves and shelters in the Guadalupe Mountains in New Mexico.
- * Ferdon (1946): Excavation of Hermit's Cave in Last Chance Canyon of the Guadalupe Mountains in New Mexico.
- * Henderson (1976): Survey report for the Brantley dam site and reservoir on the Pecos River between Carlsbad and Artesia, New Mexico.
- * Howard (1930, 1932, 1935): Excavations at several caves in the Guadalupe Mountains, New Mexico and Texas.
- * Gallagher and Bearden (1980): First season's excavations by Southern Methodist University at open sites in the Brantley Reservoir on the Pecos River between Carlsbad and Artesia, New Mexico.
- * Paul Katz (1978): Survey and assessment of sites in Guadalupe National Park, Texas.
- * Katz and Katz (1985a, 1985b): Second season's excavations and cultural synthesis of prehistoric and historic resources in the Brantley Reservoir on the Pecos River between Carlsbad and Artesia, New Mexico.
- * Kemrer and Meyer (in press): Excavation at a ring midden complex in Indian Basin, west central Eddy County, New Mexico.

- * Lord and Reynolds (1985): Excavation of three open sites in the Waste Isolation Pilot Project area east of the Pecos River in southeastern Eddy County, New Mexico.
- * Mallouf (1985): Master's thesis, University of Texas at Austin. Cultural synthesis of the eastern Trans-Pecos Texas, including the Guadalupe Mountains and adjacent Pecos River of New Mexico.
- * Mera (1938): Survey and excavations in caves and open sites in the Guadalupe Mountains and in the open country east of the Pecos River, all in New Mexico.
- * Oakes (1982): Excavation at three dune sites east of the Pecos River in northeast Eddy County.
- * Oakes (1985): Excavation at five dunes sites east of the Pecos River in northeast Eddy County.
- * Riches (1968): Master's thesis, University of Wisconsin. Survey of caves, shelters, and open sites in the Guadalupe Mountains.
- * Roney (1985): Master's thesis, New Mexico University. Based on excavations at Hooper Canyon Cave in the Guadalupe Mountains and survey of open sites in the upper Rocky Arroyo.
- * Sebastian and Larralde (1989): Cultural overview, assessment, and synthesis of the prehistory and history of the Roswell District, Bureau of Land Management.
- * Staley (1996): Testing and excavation at 14 dune sites in the Laguna Plata area of east central Eddy and west central Lea Counties, New Mexico.

SITE DESCRIPTIONS

The sites are described in three sections: the prehistoric sites near Roswell, the prehistoric sites near Carlsbad, and the historic sites. This organization is both temporal and cultural in that the Roswell or north project sites probably relate to the prehistoric occupations of the Roswell and Fort Sumner areas, while those in the Carlsbad or south project area relate to the Trans-Pecos. The historic sites, though one each lies within both the north and south project areas, belong to a single phenomenon, the Euroamerican settlement of southeastern New Mexico. Site locational data, including maps, are in Appendix 1.

The descriptions follow the survey report (Marshall 1997) for the most part, though additional information gathered by an OAS team is provided for some of the sites. The OAS team included Yvonne Oakes (principal investigator), R. N. Wiseman (project supervisor), and Janet Spivey (ethnohistorian).

Prehistoric Sites near Roswell

LA 116467

This site is exposed primarily by a utility trench that brought prehistoric pottery and lithic artifacts to the surface inside the existing highway right-of-way. Contrary to the map location shown in the survey report, the site is situated on the lower part of a south-facing slope of a hill. This hill forms the north side of a short, unnamed, ephemeral drainage that rises a few kilometers to the west, ends a couple of kilometers to the east, and does not connect with any major streams of the area.

Artifacts and a few burned rocks are scattered over an area measuring 35 m north-south and at least 16 m east-west (Fig. 2). The site extends westward outside the highway right-of-way. Pottery identified during the survey by Marshall and on a later visit by Yvonne Oakes and me includes Chupadero Black-on-white, El Paso Polychrome, red-slipped brown ware, and plain brown pottery.

Given the large number of surface artifacts and the possibility of culturally burned soil, it is entirely possible that pithouses, storage pits, extramural hearths, and other features are present. If so, cultural deposits as deep as 50 cm may be encountered. Approximately 70 percent of the known site area lies within the proposed highway construction zone.

LA 116468

This site is denoted by several large prehistoric pottery sherds, one piece of burned rock, and a few lithic artifacts inside the existing highway right-of-way. Contrary to the map location shown in the survey report, the site is situated on a low rise in the bottom of the short,

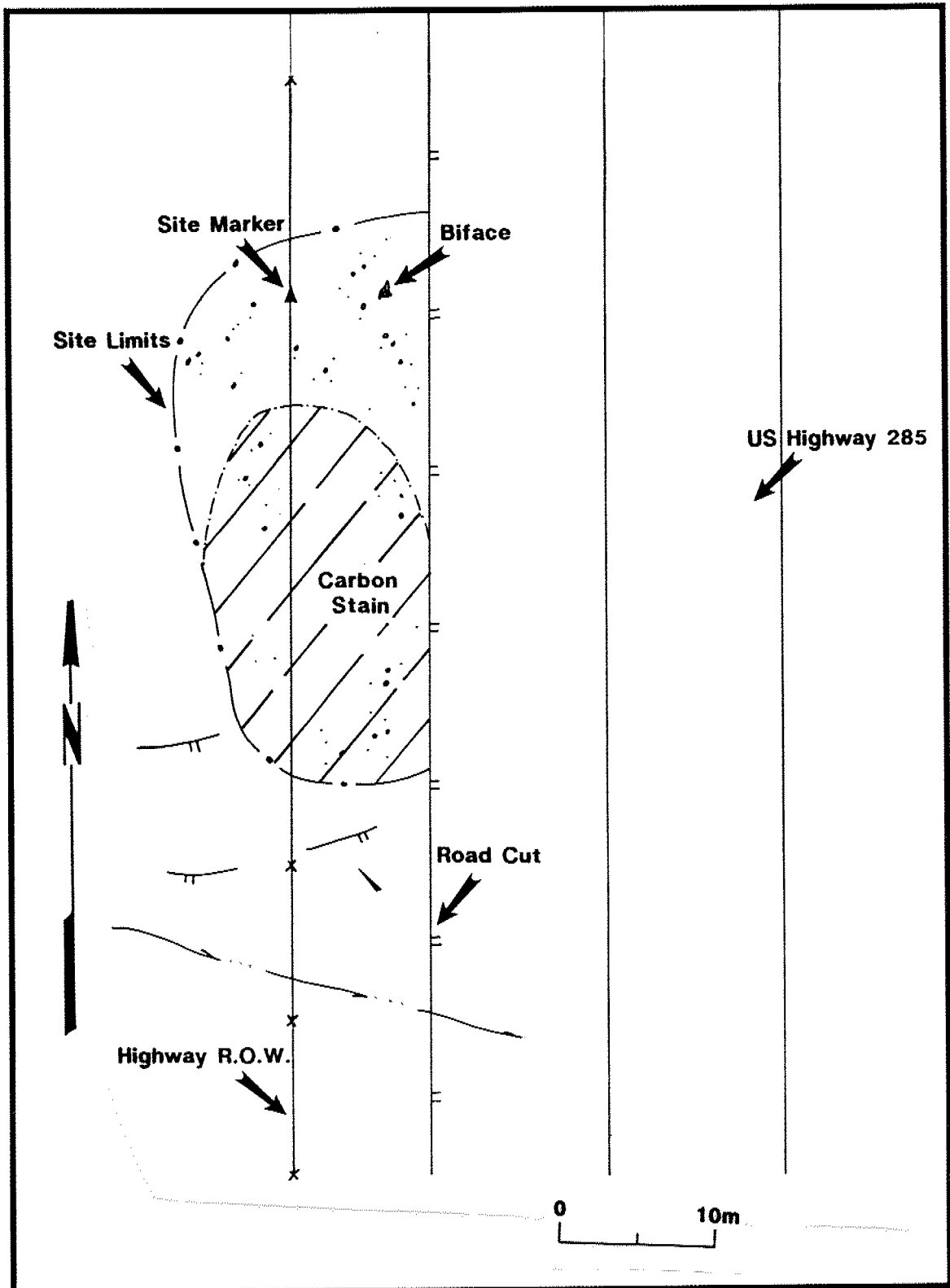


Figure 2. LA 116467 site map (after Marshall 1997).

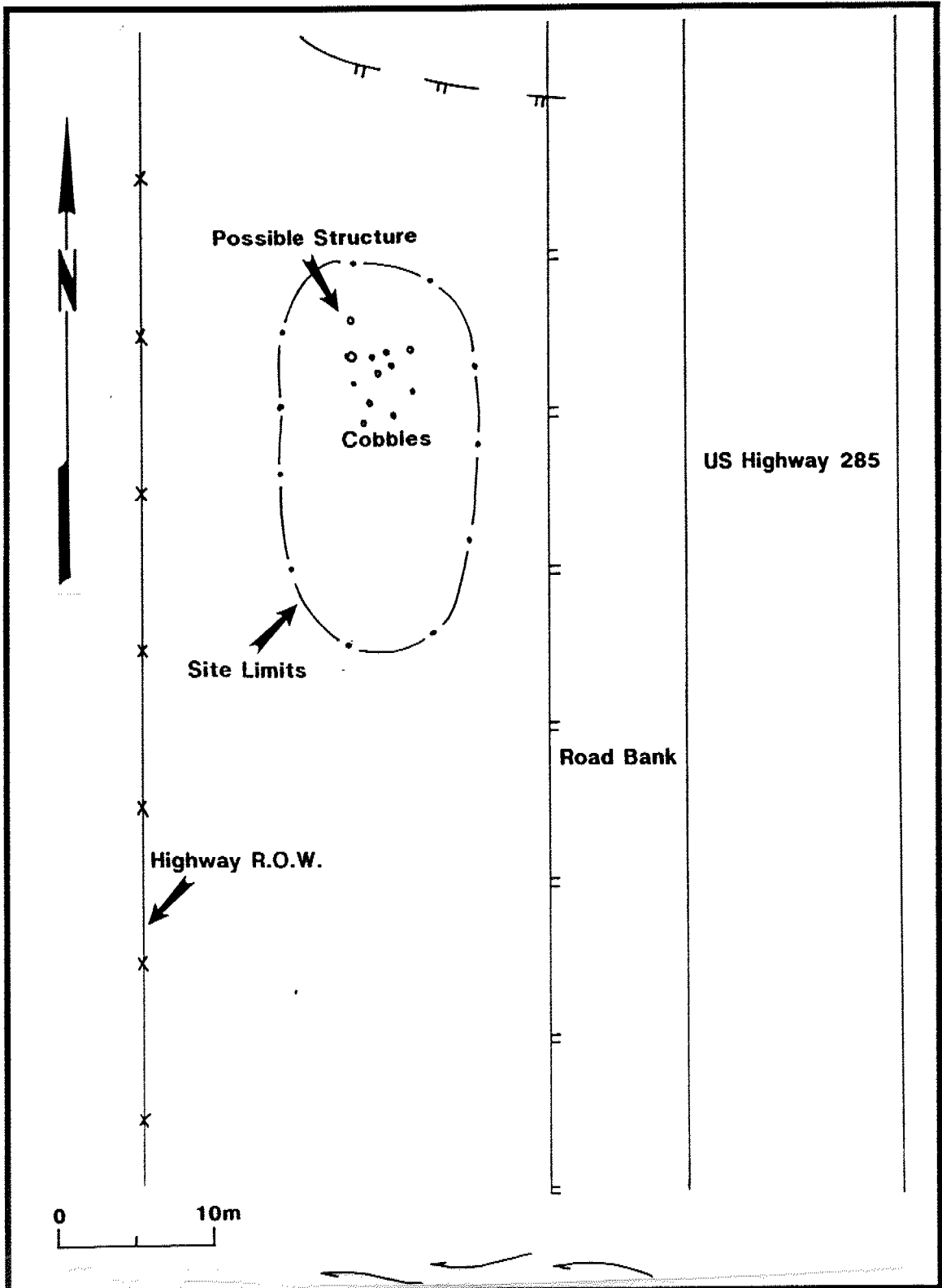


Figure 3. LA 116468 site map (after Marshall 1997).

unnamed, ephemeral drainage described for LA 116467. Marshall, the survey archaeologist, suggests that a concentration of several cobbles in one part of the site may represent a structure (1997).

The artifacts are scattered over an area measuring 25 m north-south and at least 13 m east-west (Fig. 3). The cobble concentration in the north end of the site is 6 m in diameter. Pottery identified during the survey by Marshall includes a red-slipped brown ware rim sherd, Ochoa Corrugated, and plain brown pottery. Occupation dates suggested by the pottery are between A.D. 750 to 1400 or 1500, assuming that the identification of one sherd as Ochoa Corrugated is correct.

The low topographic situation of this site and the nature of its remains are enigmatic. Even though it is on a small drainage that lacks substantial headwater area, a cloudburst anywhere in its headwater could result in flooding. The cobbles of the possible structure sit on the surface, not in it, as would be expected for an intact or partly intact structure.

All but one of the sherds noted during a site visit by the OAS team are unusually large, much larger than the sherds at nearby LA 116467 and other sites in the region. In the plains of southeastern New Mexico, sherds of this size (several centimeters across) are rarely found in excavation contexts, let alone in survey contexts; their presence here next to the road is very dubious, raising the possibility that they (and the lithics artifacts) got here through some modern agency. Limited excavation should be informative.

LA 116469

This site is on both banks of a small, unnamed, intermittent drainage that begins a few kilometers to the southwest and ends a kilometer or two to the east. The drainage does not connect with a large stream, but appears to empty into an ephemeral pond. The site consists of a series of burned-rock hearths and associated prehistoric artifacts spaced along the drainage.

The hearths and artifacts cover an area measuring 55 by 30 m along the north bank and 105 by 20 m along the south bank (Fig. 4). It is clear that the south site area extends even further south, but the limit in that direction is obscured by grass and soil cover. Only 15 to 18 m of the west end of the south site area protrudes into the project zone (i.e., within the existing right-of-way).

Artifacts noted by Marshall (1997) include over two dozen flakes and cores, two one-hand manos, and half a dozen pottery sherds. Pottery types include one sherd of Chupadero Black-on-white and plain brown pottery, suggesting an occupation date from A.D. 1000 to 1400.

The OAS team agrees that this site has excellent research potential, particularly in the areas still protected by grass and soil. As long as the scope of construction work proposed at this location does not extend beyond the current right-of-way, only an 18 by 18 m sector of this site will be affected by highway construction.

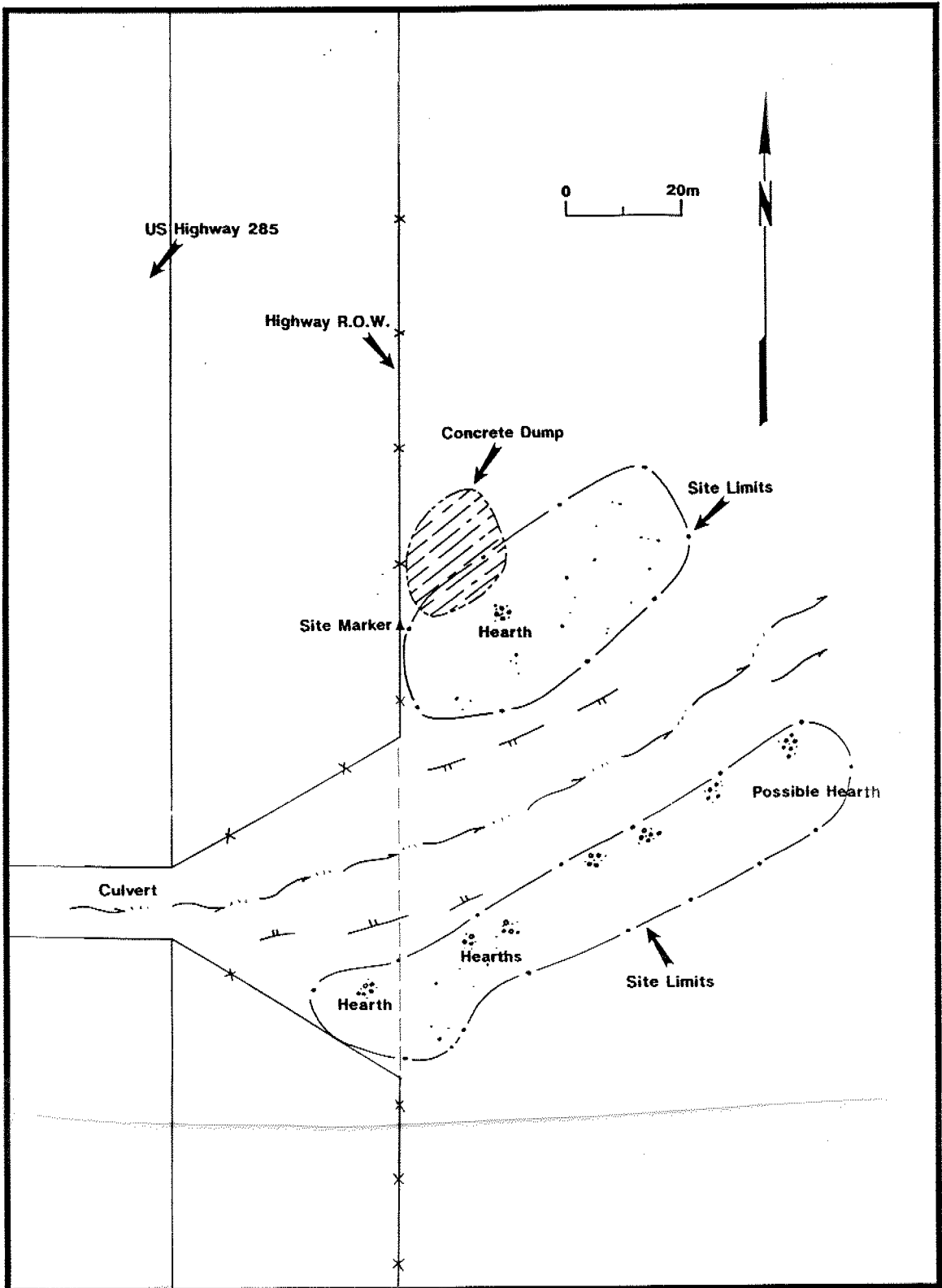


Figure 4. LA 116469 site map (after Marshall 1997).

Prehistoric Sites near Carlsbad

LA 44565 (BR-28)

This hearth and artifact scatter is on the terrace north of Rocky Arroyo, a major, intermittent water way that drains the central Guadalupe Mountains to the west and enters the Pecos river a few kilometers to the east. The site measures 35 by 40 m.

The site contains at least two burned-rock hearths and a thin scatter of lithic artifacts (Fig. 5). Most of the artifacts are concentrated in the eastern half of the site in an area that straddles the current right-of-way fence. The occupation was presumably prehistoric, but the dates are currently unknown.

One of the hearths and about half of the artifact concentration lie within the proposed construction zone as currently planned. This site area is 40 m north-south by 12 m east-west.

LA 44583 (BR-48)

This rock feature and artifact scatter is situated on the terrace north of Rocky Arroyo, a major, intermittent water way that drains the central Guadalupe Mountains to the west and enters the Pecos river a few kilometers to the east. The site measures 30 by 40 m (Fig. 6).

The site is denoted by a "ring" of river cobbles and other stones that Etchieson (1983) believed to be historic and Marshall (1997) believes to be prehistoric. The OAS team agrees with Etchieson, for the rocks sit on the surface of the ground. Furthermore, the configuration of the rocks is reminiscent of the sparse rock alignments often used as the foundations of frame houses in this part of New Mexico about the turn of the century (i.e., A.D. 1900). As stated by Marshall, historic artifacts occur on the site.

Several dozen flakes and cores scattered over the site area represent a prehistoric component. A burned-rock hearth probably belongs to this undated occupation, but it could also belong to the historic occupation.

Within the current right-of-way, LA 44583 has been truncated by scraping associated with the U.S. 285 bridge over Rocky Arroyo. Only a 3 to 4 m wide strip along the fence remains undisturbed. Few artifacts and no rock features were noted within the right-of-way by the OAS team.

LA 116470

LA 116470 is a group of bedrock mortars next to the channel of a small drainage that heads on the hill immediately to the west. The survey archaeologist reports finding a dozen flakes and cores in the vicinity of the 12 deep mortars, some of which have been ground through the

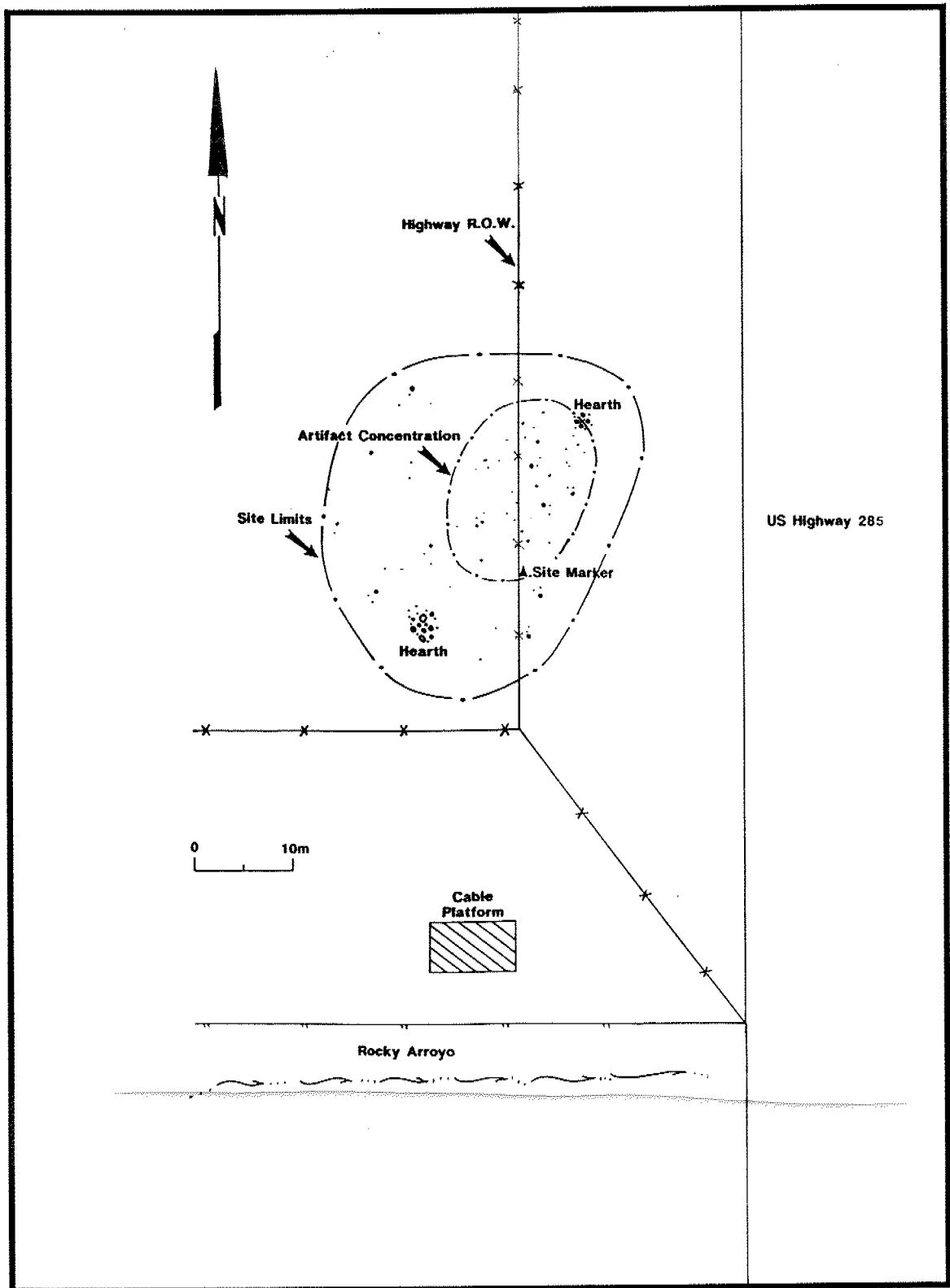


Figure 5. LA 44565 site map (after Marshall 1997).

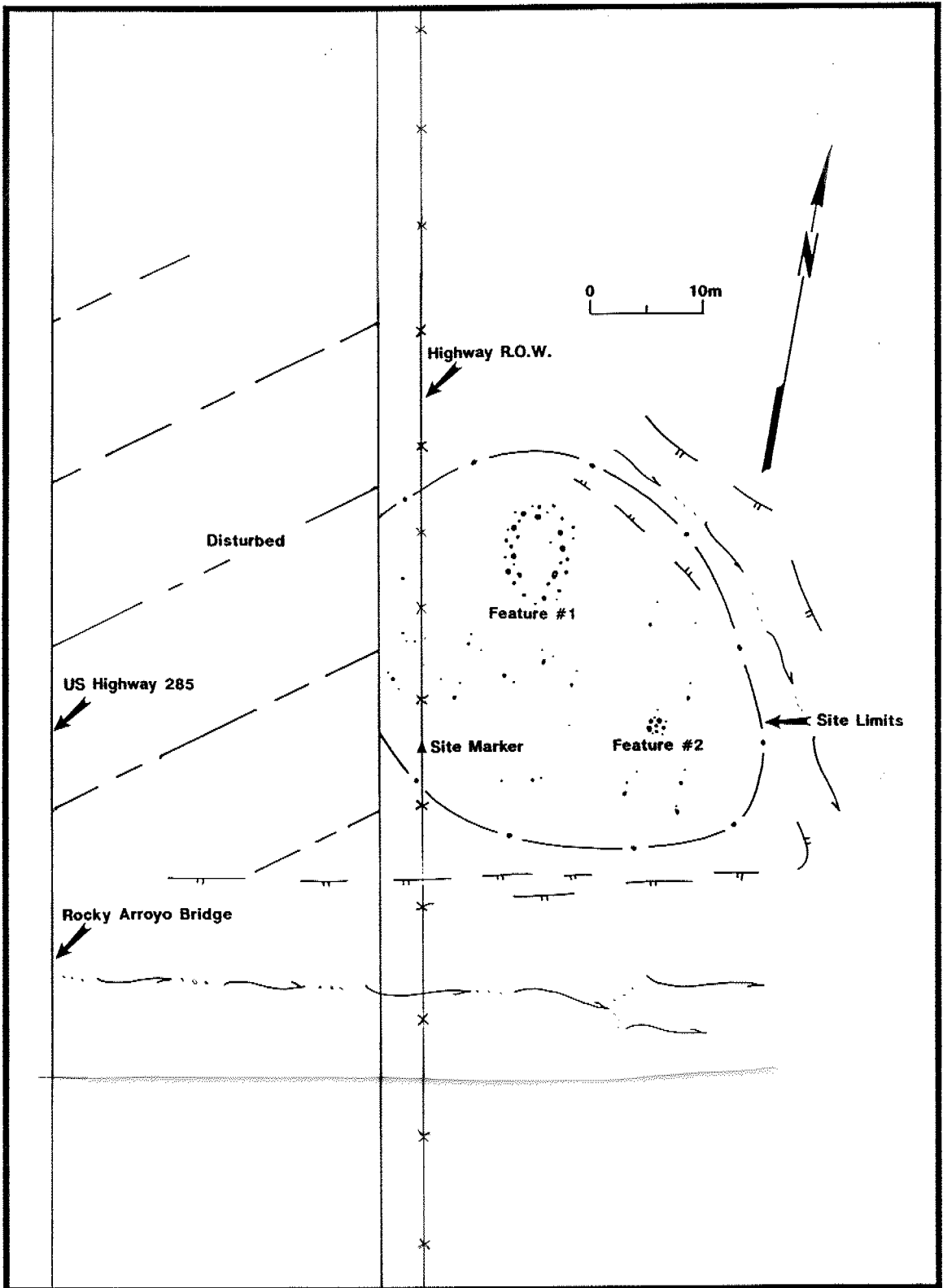


Figure 6. LA 44583 site map (after Marshall 1997).

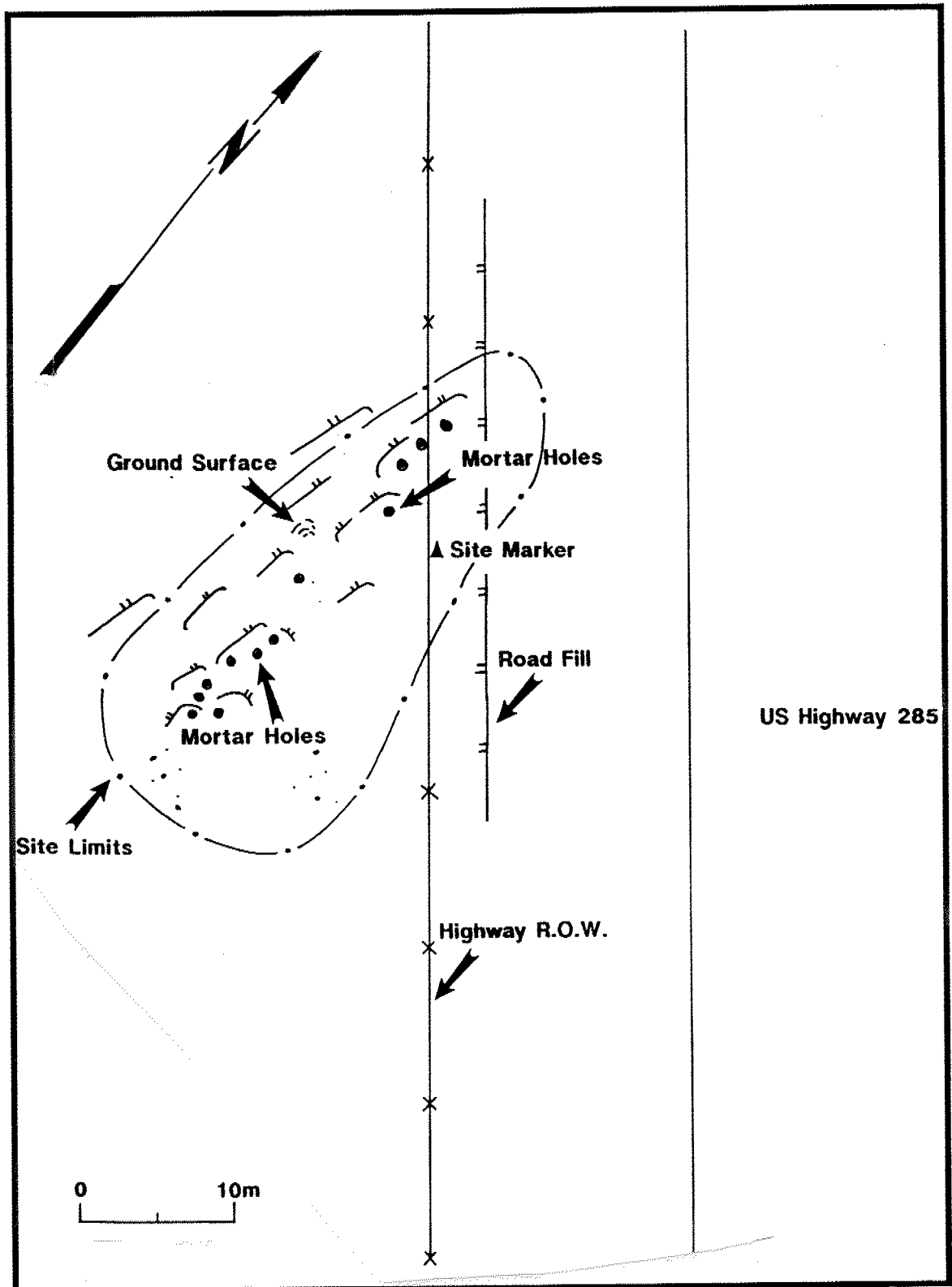


Figure 7. LA 116470 site map (after Marshall 1997).

bedrock limestone slab in which they are situated. The small drainage empties into the Pecos River immediately across the highway from the site.

The mortars and artifacts cover an area 30 m northeast-southwest and 15 m wide (Fig. 7). The apparent absence of diagnostic artifacts precludes dating the site at this time. However, site LA 116471, a stone enclosure site with mortars, is less than 200 m to the north. It is possible that the LA 116470 mortars belong to that site. Only one mortar lies within the present right-of-way and proposed construction zone.

LA 116471

LA 116471 is recorded as a ring midden with a group of three bedrock mortars and a diffuse scatter of flakes, cores, and other artifacts. The site is on a high knoll overlooking the

The OAS team noted that the rock ring is actually a stone enclosure, rather than a burned-rock ring or midden, as implied by the survey archaeologist's term "ring midden" (Fig. 8). The difference is critical in that stone enclosures are believed to be habitation structures, and ring middens are specialized baking pits. At the survey level, both features appeared to be circular rock rings that have black soil in the depressed center. The difference is that ring middens are composed of hundreds or even thousands of small, discolored, burned rocks, while stone enclosures are composed of relatively few, large, normally unburned rocks that are piled or sometimes stacked into walls. The LA 116471 feature has been heavily vandalized by artifact collectors, resulting in a greatly disturbed appearance.

The stone enclosure, mortars, and artifact scatter cover an area 110 m northwest-southeast and 50 m wide. The apparent absence of diagnostic artifacts precludes dating the site at this time. However, stone enclosure sites (both with and without mortars) and mortar sites excavated in eastern New Mexico, including LA 38326 (SMU 108) in the nearby Brantley Reservoir, have been dated to the Globe, Oriental, and possibly McMillan phases (Katz and Katz 1984a).

The stone enclosure and roughly 85 percent (110 by 40 m) of the artifact scatter are within the proposed construction zone and will require treatment. This area includes a 30 foot (9.1 m) wide strip that will be added to the construction zone for this project.

Historic Sites

LA 89153 (ENM 20481)

This historic trash scatter is situated on a gentle, southeast-trending slope more than 1.5 km from the nearest drainage. The site lies nearly entirely within the highway right-of-way, between the blacktop and the east fence.

The site apparently consists only of artifacts that are widely but thinly scattered over an

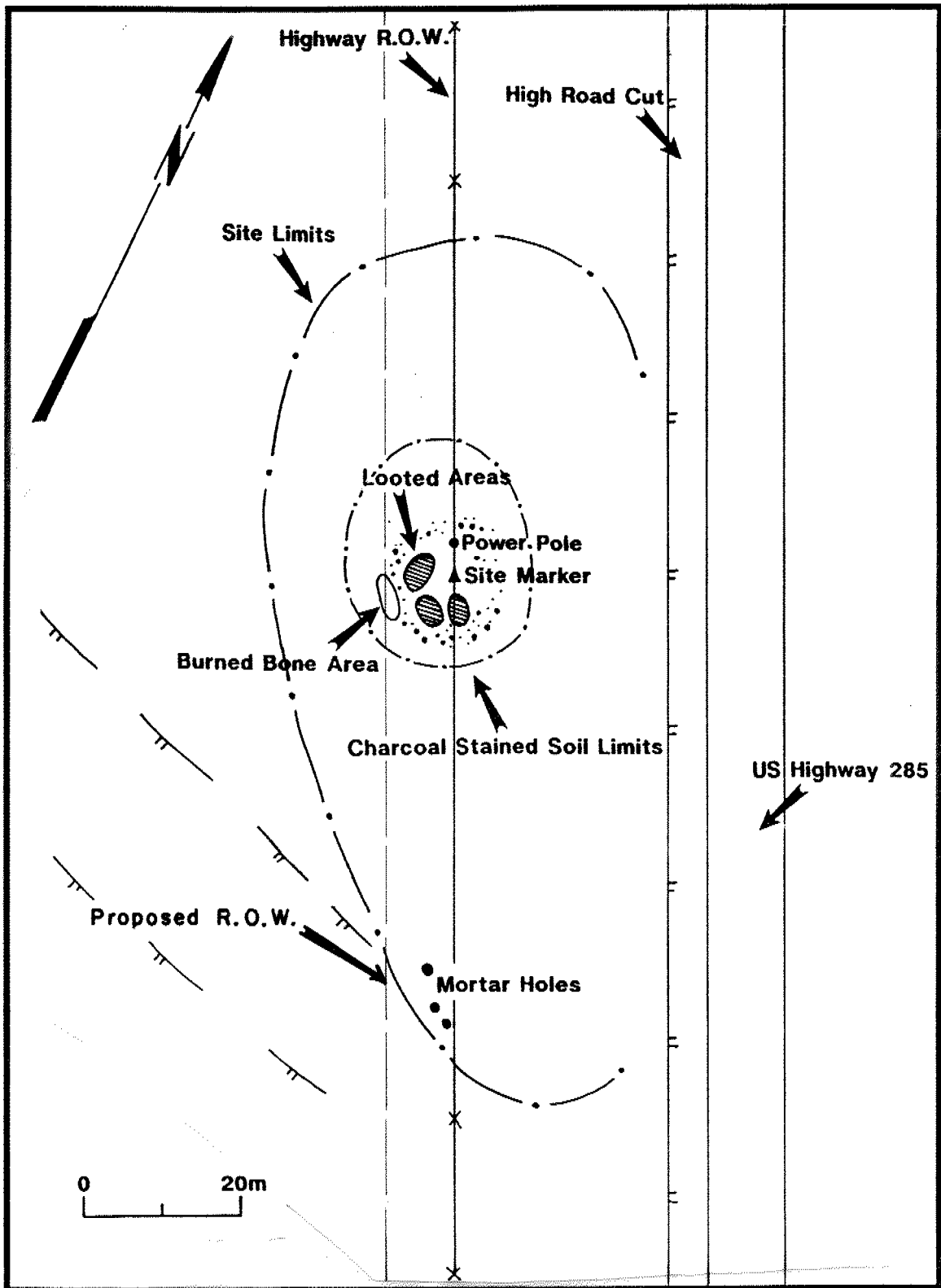


Figure 8. LA 116471 site map (after Marshall 1997).

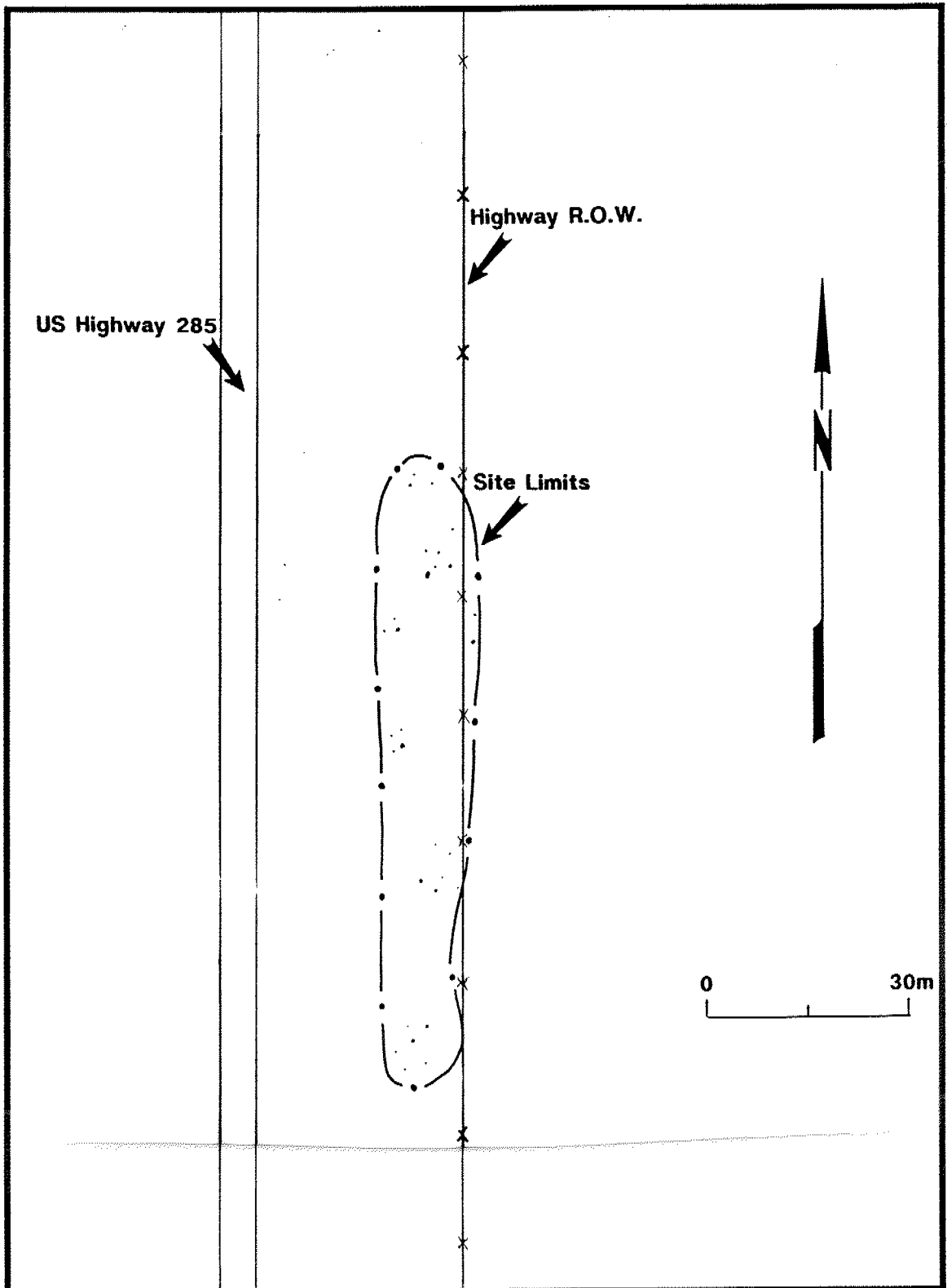


Figure 9. LA 89153 site map (after Marshall 1997).

area measuring 105 m north-south by 23 m east-west. The survey archaeologist suggests that tents or other forms of movable structures may have been present but states that no direct evidence was noted (Fig. 9).

The OAS team suggests that the trash was formerly in a more restricted area but that blading for highway improvements may have scattered the debris. Artifacts including hole-in-top cans and purple glass suggest a turn-of-the-century date.

Marshall's suggestion that the refuse might be related to the former settlement of Blackdom, a few kilometers to the west, could be true. However, the refuse could equally well belong to any of numerous homesteads of the period that dot the area.

LA 116473

This site, recorded as the Seven Rivers School House, is situated on the first terrace about 50 m south of the South Seven Rivers channel. It consists of a discontinuous alignment of rocks set in a rectangular pattern suggestive of a foundation (Fig. 10). Several definable trash piles, most with coal clinkers as well as metal fragments, white ware, and glass, are placed about the site. A short remnant of a piled-rock wall parallels the fence just outside the current right-of-way.

Marshall is clear that this structure was built about the turn of the century or a little later and that it was not part of the town plat of the Seven Rivers town site. The town site is a few kilometers to the east at a location now flooded by Brantley Reservoir. He estimates that the schoolhouse was built between 1900 and 1920 and abandoned about 1940.

Only Midden 1 and the occasional scattered artifact fragment of this site lie within the current right-of-way and proposed highway construction zone.

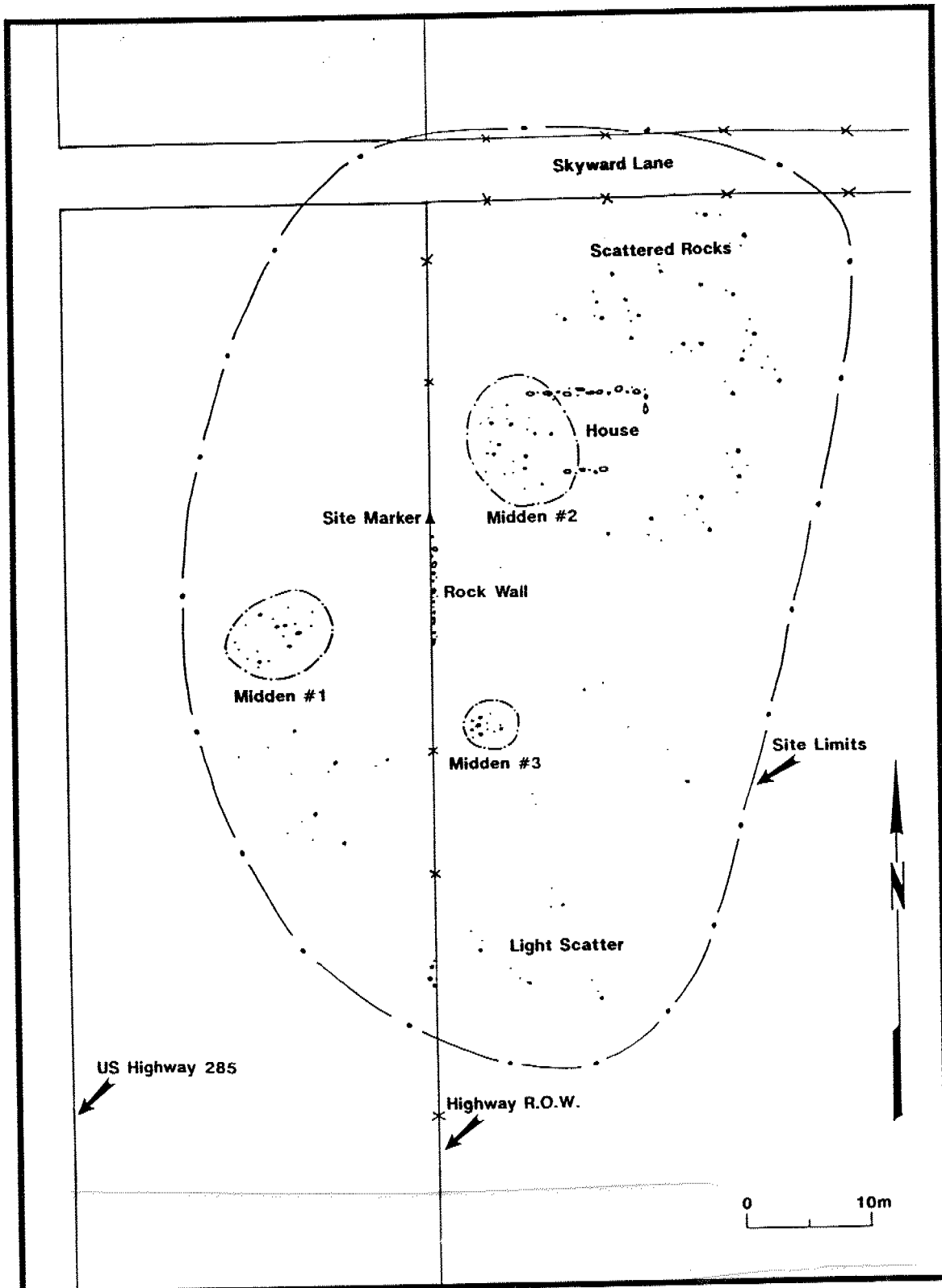


Figure 10. LA 116473 site map (after Marshall 1997).

RESEARCH DESIGN AND DATA RECOVERY PLAN

This research design and data recovery plan are for seven prehistoric and two historic sites along U.S. 285 between Roswell and Carlsbad in southeastern New Mexico. Three prehistoric sites (LA 116467, LA 116468, LA 116469) and one historic site (LA 89153) are located south of Roswell in Chaves County. Four prehistoric sites (LA 44565, LA 44583, LA 116470, LA 116471) and one historic site (LA 11473) are located north of Carlsbad in Eddy County. While each group of sites is in a separate highway construction project, they are being included here as a single archaeological project. Prehistoric and historic sites are treated separately.

The Prehistoric Sites

The conventional view of southeastern New Mexico archaeology assigns the prehistoric sites in the current project to the Jornada Branch of the Mogollon culture, a culture described for south-central New Mexico, the El Paso area of far west Texas, and the northern part of the Mexican state of Chihuahua (Lehmer 1948). In 1965, the suggestion was made to include all of southeastern New Mexico within what is now called the "Eastern Extension" of the Jornada-Mogollon (Corley 1965; Leslie 1979). This last designation takes in the Guadalupe Mountains as well as the plains east of the Pecos Valley. The original formulation of the Eastern Extension was based on architecture and Jornada pottery. However, archaeological practice clearly sees the presence of Jornada pottery as sufficient reason for assigning sites, and entire regions, to the Jornada-Mogollon culture.

But southeastern New Mexico contains a diversity of archaeological remains spread over two major biotic zones (Great Plains, Chihuahuan Desert) and 20,000 square miles (56,000 sq km). We can now see the folly in suggesting that cultural remains over such a vast region were in some way homogeneous. No other region in the Southwest is treated in this manner. The more we learn about the archaeology of regions of comparable size, the more differences we find and the more justified we are in refining taxonomic structures. That time has arrived for southeastern New Mexico, but the task will not be easy or simple. Refinement is necessary for sharpening our perspective on the prehistoric cultures and peoples of the region and permit us to delve more deeply into the processes and dynamics of their adaptations.

Some archaeologists (Mallouf 1985) have already started the job of reassignment. By ignoring state lines and looking solely at site types and contents, several differences between the Guadalupe-Brantley area and the rest of the so-called Jornada-Mogollon, including the Eastern Extension, become immediately evident. Pottery is relatively rare on most sites in the Guadalupe-Brantley area. Ring middens, or specialized earth ovens, involving the baking of desert succulents and the disposal of massive quantities of burned rocks are the best known features at many of these sites. Southwestern style architecture (pithouses and pueblos) and corn horticulture are unknown or unproven in spite of over 60 years of investigation in the area. The key sites and their contents are clearly much more like those farther south in West Texas than they are to those in the Roswell-Sierra Blanca region to the north and northwest.

The bulk of the sites, however, fit a more generic mold. These campsites with their hearths and scatters of artifacts look pretty much like campsites in other regions of New Mexico and are less readily assigned to specific cultures on the basis of survey data alone.

Other, more meaningful characterizations of the differences between Trans-Pecos and Jornada-Mogollon sites can be made when excavation data are available. Jornada-Mogollon sites are those of farmers who lived in pithouse or pueblo architecture and made large quantities of pottery. Farming, though greatly supplemented by wild products, provided important nutrients in the form of corn and, at least in some areas in some time periods, beans and squash. In southeastern New Mexico, unquestionable Jornada sites are most often in mesic environments such as the Sierra Blanca/Capitan/Jicarilla/ Gallina highlands or in the well-watered oasis of the premodern Roswell locale. In these areas, the life zones, called Upper Sonoran and Transition (Bailey 1913), are characterized by mesic grass species, woodlands, and forests.

The peoples who occupied Trans-Pecos sites, on the other hand, evidently were full-time hunters and gatherers of wild plants and animals. Clear evidence of farming or pottery making has not been found in Trans-Pecos sites (including the Guadalupe Mountains; see Roney 1985), though one might expect corn to have been occasionally obtained in trade from Jornada-Mogollones just as pottery and other durable items were. Durable structures other than occasional stone enclosures were not used by the Trans-Pecos until late in prehistoric and early historic times and only in restricted areas along the Rio Grande. More portable or easily constructed shelters such as brush wickiups were used by this more transient people. Their environment was primarily the Chihuahuan Desert, a series of xeric vegetation communities and landforms centered in northern Mexico but extending northward into Texas, New Mexico, and Arizona.

It is all well and good that we can define two different archaeological cultures and that we can attribute them to more or less specific biotic zones. However, specific boundaries, both of cultures and of plant and animal communities, are harder to define simply because both appear to be characterized by transition zones, rather than by discrete beginnings and endings. In plant and animal ecology, these transitional "ecotones" (Odum 1971) are characterized by a mixture of species from the adjoining biotic areas and species that are found only within the ecotone itself. The same appears to be true for human populations.

In our project area, the problem is manifest in what appears to be the interdigitation of sites of the two cultures. For instance, the Neff site (Wiseman 1971), on the Rio Felix ten miles (16 km) southwest of the north project area, is denoted by the Neff style Livermore point. I now believe it to represent a northward intrusion of Trans-Pecos peoples. Livermore points were first documented in the Texas Big Bend country, and sites producing large numbers of these and related points have been found in the Guadalupe Mountains (Applegarth 1976).

Another example of cultural interdigitation is the northernmost ring-midden site known to me, along the Rio Hondo, 30 miles (48 km) west of Roswell, well within the supposed territory of the Roswell-Sierra Blanca Jornada-Mogollon culture. Of special note, the site is

also within a relict patch of Chihuahuan Desert. The Neff site, mentioned above, is within a belt of grassland between that relict patch of Chihuahuan Desert and the main desert itself.

A special note here relates to one of the project sites, LA 116471. This site has a relatively rare form of structure called a stone enclosure. Stone enclosures seem to be confined to a very long, narrow distribution along the Rocky Mountains-Great Plains interface, stretching from southeastern Wyoming, through Colorado, New Mexico, and West Texas, and for an unknown distance into Mexico. Some have pottery (Wiseman 1975; Katz and Katz 1985a), and some produce only lithic artifacts but may date to the Late Prehistoric (pottery) period. They have not been attributed to a single culture or group, but their presence in a cultural, as well as biological, ecotone is noteworthy in the current discussion.

While interdigitation of sites from two different cultures along the boundary of those cultures can perhaps be expected if the peoples of those cultures were on friendly terms, we might be witnessing a more important reason for cultural interdigitation or "mixing" in this part of southeastern New Mexico. We suspect that the two cultures are primarily adapted to specific biotic niches that are complementary, rather than conflicting. That is, if each group focused on different species of plants, competition could be reduced or even eliminated. And that brings us back to the fact that Trans-Pecos culture occurs primarily in the Chihuahuan Desert, and the closest manifestation of the Jornada-Mogollones, represented by Kelley's Glencoe, Corona, and Lincoln phases, occurs primarily in the more mesic environments of the Sierra Blanca country and the Roswell locale.

The research proposed for the current project has two main objectives. The first requires us to determine which culture--Jornada-Mogollon or Trans-Pecos--each site belongs to. This will require us to discover and develop criteria that will permit us to make the assignment to one culture or the other in the absence of key diagnostics of the two cultures as we currently know them. During this process, we will be able to investigate the nature of the adaptations within the specific locales in which the sites occur. Sites of the north group are situated on very small drainages in the middle of the Sacramento Plain, well outside the usual environments (rivers, playas, dunes) used by prehistoric peoples in the Roswell area. While most of the sites in the south group are in expected environmental situations for that area (Pecos River, Rocky Arroyo), the stone enclosure site (LA 116471) is not on a high promontory like most other stone enclosures documented for the mountain/plains zone.

These deviations from known patterns require explanation and will be investigated in a culture ecological framework by focusing on settlement and subsistence practices. Perspective on these matters will draw on the works of Kelley (1984) for the Roswell-Sierra Blanca country, Jelinek (1967) for the Pecos Valley above Roswell, Katz and Katz (1985a) for the Brantley-Guadalupe Mountains region, and my own work in the Roswell Relief Route, Dunahoo, Bob Crosby, and Seven Rivers projects undertaken for the Office of Archaeological Studies and the New Mexico State Highway Department (all analyses and reports in progress).

Problem Domains

The following domains are being studied through a series of highway projects in southeastern New Mexico. They involve basic questions that will allow us to characterize, compare, and contrast the prehistoric societies in the region. By standardizing the questions, data-gathering techniques, and analyses over a number of projects within the region, we should be able to gather a substantial, coherent body of information, which is usually not possible when archaeological work is left uncoordinated. The long-term benefits should be numerous. The overall goal is to make substantial contributions to our knowledge and understanding of culture process, dynamics, and change through adaptation to this rigorous environment by the full-time hunter-gatherers and the farmers of the region. Ideally, by the end of our studies, we should know more about the shadowy groups encountered by the first Spanish expeditions to the region in the A.D. 1500s and 1600s.

Problem Domain 1: Settlement and Site Types. What structures, storage pits, other types of pits, and thermal features (hearths, cooking pits, etc.) are present at the sites? It is possible that some or all of the project sites were occupied more than once during the prehistoric period? Assuming so, we need to discover not only what kinds of features are present, but also which ones were contemporaneous and which were not. Were the activities or site function during each component the same or different? At this stage in the investigations, we have few observational data and facts with which to answer these questions. More intensive work will probably greatly modify our perceptions and interpretations of the prehistoric components at all of the project sites.

Once individual components are defined, we can then proceed to document the activities that took place at each. The cultural features (storage pits, other types of pits, hearths, baking pits, etc.), associated artifactual materials, and patterning of these remains are critical in defining site types through an analysis of the activities represented. Important subsidiary studies will assist in determining site type and overall subsistence patterns and include floral, faunal, and artifactual data, as discussed below.

Problem Domain 2: Artifact Assemblages. What types of tools and manufacture debris are present? What are the relative abundances of the various types? On the basis of the artifacts, what types of activities were performed at the sites? How do these assemblages compare with those from other sites in the region?

The types of artifacts at a site help define the kinds of activities that took place at each specific location (component). Manos and metates imply grinding of plant foods, projectile points imply hunting, and scrapers imply hide dressing. Multipurpose tools such as hammerstones, awls, and drills, manufacture debris such as chipped lithic debris, and some types of fragmentary artifacts imply a host of generalized activities involving the manufacture or maintenance of items associated with day-to-day living. A wide range of artifact and debris types imply a base camp/habitation situation, and fewer artifact and debris types imply special activity sites. The percentages of each category will provide a *very rough* index to the relative frequency of occurrence of each activity at the site.

Caution is required in interpreting the data in this manner because of the effects of tool use-life on artifact assemblage composition (Schlanger 1990), because this line of interpretation makes several assumptions about the data and the activities they represent, and because the technique greatly simplifies a number of complex variables and conditions. With these details worked out, we can then compare the project sites with other sites and culture sequences in southeastern New Mexico (see Problem Domain 6).

Problem Domain 3: Subsistence. What biotic communities were being exploited? Were the inhabitants of the sites exploiting all available biotic communities or only selected ones? Were cultigens being grown and/or consumed? What season or seasons were the sites occupied?

Plant and animal remains recovered at archaeological sites provide first-line evidence for reconstructing various aspects of the human food quest. Animal bones and the charred remnants and pollen of plants will be studied to identify the species present and the biotic zones exploited and characterize the diet and food preparation techniques. Floral and faunal data also have the potential of providing data on season of the year that they were collected or hunted. Although only certain plant and animal remains provide seasonal data, they are very useful in helping define the time of the year the sites were occupied. Since it is unlikely that the data from the project sites constitute a total view of the diet throughout the year or through time, it will be necessary to compare these results with those of other projects in the region to gain a better understanding of the total subsistence system.

As mentioned in an earlier section of this document, it is imperative that we establish whether or not domestic plants were grown in the Guadalupe-Brantley region. Leslie's (1979) assessment of the structural sites in the vicinity of Hobbs in far southeastern New Mexico, though without benefit of flotation and pollen recovery techniques, suggests that corn was not being grown east of the Pecos River within New Mexico. The WIPP Project (Lord and Reynolds 1985), between Leslie's sites and the Pecos River, excavated three nonstructural sites but failed to find evidence of cultigens in flotation and pollen samples. On the other hand, corn was clearly being grown within the Pecos Valley at Roswell (Kelley 1984: Appendix 6; Rocek and Speth 1986; Wiseman 1985) and probably near Fort Sumner as well (Jelinek 1967). Corn pollen has even been recovered from a prehistoric campsite northeast of Roswell (Wiseman, in prep.). Thus, if cultigens are documented for the project sites, then the relative quantities may help us determine if the site occupants were farmers or full-time hunter-gatherers. Relatively large numbers of domestic remains would indicate that the people were farmers. Small amounts of cultigens would be less clear, for hunter-gatherers could have obtained them in trade from farmers.

Problem Domain 4: Exchange and Mobility. Materials and artifacts can provide important clues about the territories and movements of peoples and their relationships with other groups. Materials present within sites but not available in a region are indicative of either exchange relationships with other people or a mobility pattern that permits a group to acquire these items during their yearly round. Judging which situation is applicable to the project sites is difficult and will require careful comparison with data from the Roswell region. If we can determine whether the site occupants acquired the goods through trade or by direct access, we will gain

perspective on the territory they used and therefore on the identity of the people themselves.

The absence of exotic materials is another matter entirely. In small sites and sites of short occupation, the absence of exotics can be misleading simply because such items may not have found their way into the archaeological record. Or, perhaps the occupants simply did not acquire exotic materials. Either way, we may never know at any specific site. But this is precisely where comparisons with other assemblages in the region and the long-term accumulation of excavation data from numerous sites, both large and small and of all types, is necessary for acquiring perspective and, eventually, resolving the problem.

Unexpectedly, studies of lithic raw materials obtained by several recent projects in the Roswell area suggest that locally available materials, even if ostensibly from the same general source such as the San Andres formation, can have detectable differences from place to place. When this issue is thoroughly researched by acquiring samples from the vicinities of sites as well as from the sites themselves, it appears possible to determine subareas and resources used by a group or groups within the "home range."

At the present time we are experimenting with ultraviolet light to characterize bulk lithic debris from sites. We can extend this study to the Carlsbad area since the San Andres formation is a major feature of the surface geology there as well. If our preliminary results are verified by future studies, then we will have one more domain of information for looking at the question of group territory by being able to discriminate the use of specific subareas by the various groups.

Problem Domain 5: Dating the Occupations. Since it is possible that all project sites were occupied on one or more occasions during the prehistoric period, dating individual features and components is crucial. At the individual feature level, we need to determine which are contemporaneous (or approximately so) and which are not. This will enable us to discover the presence of multiple components and determine the dates of each. This in turn will permit documentation of site and region use through time, whether or not these uses changed through time, and if they did change, the directions, intensity, and, hopefully, the reasons for those changes. Dating information will also permit us to assess the chronologies developed by Kelley, Jelinek, Katz and Katz, and Leslie.

The dating situation is critical in southeastern New Mexico, where dendrochronology, the most accurate and preferred dating technique, works poorly or not at all (W. Robinson, pers. comm., 1975). Few absolute dates derived by other techniques are currently available (Sebastian and Larralde 1989). Recent advances in radiocarbon dating make it the most viable technique for southeastern New Mexico at the present time. Obsidian hydration and thermoluminescence have been tried in the region, but because these techniques are fraught with problems and are not generally reliable, they will not be used in this study.

During excavation, charcoal will be recovered from as many features and cultural situations as possible. Because of the importance of dating the project sites, we will submit both very small samples (for accelerator mass spectrometry analysis) and bulk samples

(carbon-stained sands) for dating if necessary.

Problem Domain 6: Assessing Cultural Affiliation. As discussed in some detail in an earlier section of this document, we have reason to believe that more than one cultural configuration ("culture") is represented in the archaeological remains of southeastern New Mexico, rather than just the one (Jornada-Mogollon) usually cited in the literature. Four culture sequences have been defined within and on the borders of our project area: the Roswell-Sierra Blanca Jornada-Mogollon (Kelley 1984), the Middle Pecos in the Pecos Valley north of Roswell (Jelinek 1967), the Brantley-Guadalupe Mountains Trans-Pecos (Katz and Katz 1985a), and the Eastern Extension on the Southern Plains east of the Pecos Valley (Corley 1965; Leslie 1979).

In the case of sites with structures known as stone enclosures, no single culture has been defined, because their material culture, especially pottery when present, usually consists of the types made nearest to that particular site. For instance, Sitio Creston at Las Vegas, New Mexico, produced prehistoric Taos-like pottery (Wiseman 1975), and SMU 108 in the Brantley Project produced Jornada-Mogollon pottery (Katz and Katz 1985a). Perhaps the present project will make a definitive contribution in this regard.

As discussed elsewhere, cultural assignment based on geographic location will not work in the project area because of the culture interdigitation problem, unless, of course, the sites contain diagnostic features or items attributable to a specific culture. At our present level of knowledge about our sites, only LA 116471, with its stone enclosure, provides a clue to possible cultural affiliation. As mentioned above, that question, the affiliation of stone enclosures, is not satisfactorily settled at this time.

In the absence of definitive criteria for assigning cultural affiliation, our excavations will be looking at several factors that will assist us in making this determination for each site. The criteria that follow represent an amalgamation of information from published sources and recent studies conducted by OAS in the Roswell region (Table 1). The reader should bear in mind that characterizations from the literature pertain to the original definitions and implications given in the early studies that defined the sequences (Lehmer 1948, Kelley 1984, Jelinek 1967, Corley 1965, Leslie 1979, and Katz and Katz 1985a).

Table 1. Summary characteristics of cultural sequences

Probable Cultural Affiliation	Present	Absent
Jornada-Mogollon	Jornada-Mogollon Architecture such as large pithouses or pueblos of substantial construction; large quantities of pottery, especially a variety of painted types and low percentage of plain brown types; abundant remains of corn; large, heavy basin metates and manos; very low percentage of Southern Plains lithic materials (Alibates, Tecovas, Edwards); predominance of side-notched arrow points (Harrell, Washita).	

Middle Pecos	Architecture such as large pithouses; pueblos of cimiento (flimsy) construction; large quantities of pottery with few painted types and good representation of Jelinek's (1967) plain brown types; remains of corn; predominance of side-notched arrowpoints (Washita, Harrell, etc.)	
Trans-Pecos	Major accumulations of burned rock; Livermore, Perdiz, and/or Toyah arrow points; little or no pottery; pottery may include Central Texas types (Leon Plain, Doss Redware; small basin metates on thin rocks and small one-hand manos.	No habitation structures other than stone enclosures; no corn known to be present
Eastern Extension	Architecture such as small, deep pithouses or small pueblos of cimiento (flimsy) construction; pottery dominated by plain brown wares and/or Ochoa Corrugated; corner-notched and side-notched arrowpoints; small basin metates on thin rocks and small one-hand manos; large numbers of Plains-style end scrapers; Southern Plains lithic materials (Edwards, Tecovas, Alibates, Ogallala) well represented.	No corn known to be present.

Problem Domain 7: Examining a Cultural Boundary Zone. If we are successful in satisfying Problem Domains 1 through 6, we will be able to examine prehistoric occupation of the project area in the context of cultural mingling in more detail than is currently possible. Examination of the conditions surrounding that mingling, or interdigitation, is important to our overall understanding of regional prehistory. Are the different adaptations based on simultaneous exploitation of different ecological niches as we suspect, resulting in relatively peaceful coexistence and perhaps even cooperation between (among) peoples? Or, did the groups have serial use of the project area and thereby avoid contact with one another? Serial occupancy could be on the basis of seasons or periods of years. Dating of individual features and sites is of the utmost importance to success in this domain of inquiry.

Site-Specific Research

Since a limited testing program has not been completed, our perceptions and expectations about the sites are based on observations of the site surfaces made by the site recorder(s) and during the visit by the OAS team.

LA 44565 (South Area). Approximately half of this site lies within the proposed highway construction zone. At least one probable hearth and part of a major concentration of lithic artifacts will be excavated. We should recover substantive information about site features and organization of space. Datable materials (carbon) may be forthcoming. The artifacts will inform us about site function through analysis of artifact types and exchange and/or group movements through lithic materials. Past experience with sites of this type has shown that much more information is usually present below surface than is suggested by surface information alone. Virtually all of the area of the major surface artifact concentration will be excavated by shovel-skimming. All features will be excavated separately with hand tools.

LA 44583 (South Area). A small, undisturbed strip of this site lies within the proposed highway construction zone. Only a couple of artifacts were noted on the surface of this strip during the OAS visit. The best spot for artifact recovery and possible feature discovery will be selected for excavation by shovel-skimming. If, after the first five contiguous 1 by 1 m squares have been excavated, no substantive artifact or other data returns are realized, excavations will cease at this site. If conditions warrant continuation, the entire area of the site lying within the right-of-way will be excavated by shovel-skimming. Any features will be excavated separately with small hand tools. The data potential of this site is the same as for LA 44565 (above).

LA 116467 (North Area). Most of this site lies within the highway right-of-way and will be excavated. Although only surface artifacts are evident at this site, its situation next to a fertile drainage, the large number of potsherds, and the concentration of artifacts suggest the presence of subsurface features such as hearths, pits, and perhaps structures. The fact that the site is slightly buried (except where traversed by the utility trench) suggests excellent potential for the recovery of intact deposits, including feature fills, activity areas, details of site organization, datable materials, and the preservation of at least some perishable materials (charred plant remains, animal bone, etc.). A large area of this site will be excavated by shovel skimming, but all features will be dug with small tools.

LA 116468 (North Area). This site is clearly the most enigmatic of the project. As mentioned in an earlier section, the presence of several large sherds scattered over a comparatively large area and the site situation in the bottom of a drainage suggest modern derivation or else a site type previously unknown in the region. Our approach here will be the same as that for LA 44583 (above). The strip trench will intersect a large part of the cobble concentration to determine whether it represents a structure, as suggested by the recording archaeologist. If sufficient reason is found within the excavated 5 m squares, a much larger area will be opened up to examine site content and structure. This site has the potential to yield intact, subsurface deposits and could contain features such as hearths, as well as details of site organization and materials amenable to dating and subsistence reconstruction.

LA 116469 (North Area). Only a small part of this large site is currently within the proposed highway construction zone. The remains within the right-of-way include one hearth and scattered artifacts. The ground surface appears to have been scraped in the past in conjunction with highway construction, raising the question of whether this part of the site has intact features. Our work will involve hand excavation of the hearth to determine its condition and potential for yielding materials suitable for dating and botanical analyses. If we find that this part of the site has potential for yielding information important to regional prehistory, we will open up the area surrounding the hearth to document artifact patterns and recover all associated materials.

One thing about this site is clear: outside the current right-of-way, the site is intact and has excellent potential for yielding significant information on intrasite patterning, intact hearths, and possibly biotic remains useful for reconstructing subsistence patterns, determining site function, and dating the occupation(s). The quantities of burned rock in addition to the hearths

raise the possibility that this site belongs to the Trans-Pecos culture, making it important to the research goals of this project.

LA 116470 (South Area). Only one mortar hole and a small fraction of the artifact scatter at this site lie within the current right-of-way and proposed construction zone. Our excavation plan is to record the mortar hole in detail, collect the surface artifacts, and excavate at least one 1 by 1 m square near the mortar hole to determine whether subsurface deposits are present. If subsurface deposits are present, we will expand our excavations to recover evidence of site structure and content. The contents of the mortar hole will be collected and examined for plant residues that, if present, will provide information on the use of the mortar and at least some subsistence practices of the site inhabitants.

LA 116471 (South Area). The stone enclosure at this site, even though disturbed by previous diggers, provides an important opportunity to examine a rare form of habitation in the Brantley-Guadalupe region. This single-room structure and much of the associated artifact scatter lie within the proposed construction zone. We have the opportunity to document all details of construction, internal organization, and associated artifacts and other cultural materials. The disturbed areas within the structure reveal a darkly stained fill containing fragmented animal bone and artifacts. Deposits such as this are uncommon in the region and present an excellent opportunity to examine a range of plant and animal materials useful for reconstructing subsistence patterns and dating the occupation. Although we will do some shovel stripping outside the structure, we anticipate finding little or no subsurface deposits: the site is situated on a rocky knoll that lacks significant soil development. As usual, all surface artifacts will be pinflagged, mapped, and collected.

Field Methods

The first activity at each site will be to pinflag all surface artifacts. A grid system with main datum and baselines along the two major axes will then be established. Next, surface artifacts will be recorded and collected across the site in 2 by 2 m squares.

Excavations will center on individual features and include a radius of 5 m from the edge of the feature. Hand tools will be used to excavate in 1 by 1 m squares, and all fill will be screened through 1/8-inch wire mesh. Scattered burned rocks will be mapped individually, but concentrations will be mapped schematically.

Vertical excavation control will not be necessary in most instances, because, by all indications, most features are sitting on or within a few centimeters of the modern surface. If we should encounter situations of cultural depth, either 5 or 10 cm arbitrary levels will be maintained from locally designated subdatums. Stratified fills are not anticipated, but if some are found, they will be excavated by individual stratum as determined from vertical tests.

Cultural features such as hearths, pits, and at least one structure (stone enclosure) are known to be present or are anticipated at several of the sites. When found, features will be

excavated separately. Special attention will be given to obtaining soil samples for dating, flotation analysis, and pollen analysis. In all cases, samples will be obtained only from contexts that are clearly relatable to prehistoric activities and amenable to preservation of the target materials. That is, pollen samples will not be taken from cultural features such as hearths or other thermal features, but flotation and dating samples will. Flotation and dating samples will not be taken from ambiguous contexts such as eolian deposits that could contain charcoal from natural grass fires and the like.

During the excavations, photographs, drawings, and notes will be made as needed to document work progress, impressions, initial interpretations, features, and details uncovered during the work. Subsidiary maps will be prepared for each excavation area and will include all cultural features, excavation units, and modern features (highway markers, fencelines, etc.).

Human Remains and Sensitive Objects

We do not anticipate finding human remains at any of the project sites. If we do, we will treat them with sensitivity and abide by stipulations resulting from consultations between the officials of appropriate Native American groups, the New Mexico Historic Preservation Office, the NMSHTD, and the OAS. Also, the conditions outlined in the following documents will be met: Historic Preservation Division Rule 89-1 ("Regulations for the Issuance of Permits to Excavate Unmarked Human Burials in the State of New Mexico"); and Museum of New Mexico Rule 11, as amended April 2, 1991 ("Collection, Display, and Repatriation of Culturally Sensitive Materials"). Copies of both documents can be found in Appendix 2.

Human remains or sensitive materials identified and recovered will not be handled or photographed in the field except as part of scientific data recovery by authorized persons. Photographs of human remains and other sensitive materials will not be allowed by or released to the news media, the general public, or other unauthorized persons. The only person authorized to take photographs of human remains and sensitive materials is the person designated by the project supervisor to take documentary photographs as part of the data recovery plan.

The Historic Sites

Problem Orientation

Katz and Katz (1985b), following on the work of Southern Methodist University (Henderson 1976; Gallagher and Bearden 1980), studied two dozen historic sites at Brantley prior to construction of the reservoir. Virtually all of these sites were Euroamerican and date to the late 1800s and early 1900s. Ranches, farms, commercial irrigation projects, and the old town site and cemetery of Seven Rivers were investigated.

It is clear that, at least in the days prior to 1900, ranchers and farmers within a 30 km

radius of the townsite of Seven Rivers considered themselves to be part of that community. LA 116473 lies within 5 km of the original Seven Rivers townsite but well outside the town plat. By way of contrast, LA 89153 is situated "in the country," well outside any community past or present. The artifacts are believed to represent a trash dump that presumably derived from a homestead somewhere in the vicinity.

In investigating LA 89153 and LA 116473, we are interested in methodological possibilities as well as historical data. The ranching economy was the mainstay of late nineteenth century southeastern New Mexico. When the drought hit in the late 1880s, ranching was reduced to a role secondary to farming. In the early 1890s, the railroad entered the region, providing access to a nationwide market and opening the region to widespread land speculation and settlement. A major factor in all of this was the concurrent discovery of artesian water. J. J. Hagerman, Pat Garrett, C. B. Eddy, and others undertook an ambitious, privately funded, commercial irrigation project that, although it eventually failed, provided the impetus for commercial development of the region during the present century.

In what ways are episodes of hopes, dreams, successes, and failures reflected at any one time in the archaeological record? As time capsules, like shipwrecks, the LA 89153 refuse, and perhaps Midden 1 at LA 116473, should provide us with information on the activities and materials available during short slices of time during those fast-paced changes. More specifically, the dumps should reflect the goods and materials available to local residents prior to, during, or after one or more of the major events of the region (end of the reign of the ranching industry, coming of the railroad, advent of commercial irrigation, movement into the modern period).

Problem Domains to Be Investigated

Historic Problem Domain 1: Confirmation of Site Function and Inventory of Remains. Before we can proceed with determining how each site fits into, and informs us on, the history of the region, we must document the identification or function of each. This can be accomplished by answering several questions.

LA 116473, Seven Rivers School. Was the site a schoolhouse? When was it established and abandoned? How wide a community did it serve? Who were the key figures (backers, teachers, etc.) in its founding and operation? Why did it cease to function?

Part of the identification of site function will be accomplished by inventorying the artifacts and other physical remains. Since only Midden 1 of the site lies within the highway project, most of the work will focus on it. Key questions include: What is the content of the midden (what types of artifacts and in what ratios)? Does the midden contain items that one might expect at a school? Finding items such as ink bottle fragments, chalkboard fragments, children's items, and the like would help establish such a function. Their absence, especially if artifacts associated with other kinds of activities are present, would point to another site function and might negate a school function altogether.

In order to assure that Midden 1 belongs to the school and is not the result of trash fortuitously dumped there from some other location, it will be necessary to make at least a perfunctory assessment of the middens more closely associated with the structure foundation. This, of course, means examining the area outside the highway project zone to a limited degree. However, the part of the site lying outside the project zone is on private land and will require written landowner permission for the work to be done. If the requisite permission is obtained and the evidence indicates that Midden 1 does not belong with the rest of site (i.e., is a trash dump), then the questions and lines of reasoning discussed for LA 89153 (below) will be applied.

The identification of LA 116473 as a schoolhouse evidently is based on a document written by a long time resident of Carlsbad. While this in itself is a valuable piece of evidence, it is always necessary to check other archival sources and to interview other knowledgeable area residents for confirmation and, if necessary, reassessment.

LA 89153, historic trash scatter. This site is enigmatic for its size, shape, and location. The OAS team believes that it is a trash dump that got scattered over a long, linear area through road construction, maintenance, or safety improvements in the distant past. Our investigation will seek to determine its nature, but proving its origin, if indeed it is a trash dump, may not be possible. However, working on the idea that trash dumps are time capsules of information, we can still learn something about human experience in the region through a study of this site.

Questions include: Is LA 89153 a trash dump? What is the full range of items at the site? Are the items reflective of a domestic or commercial source? Do the items, both individually and as a group, indicate a local subsistence economy or wage economy, or an economy tied into the national system through the railroad? If the site is not a trash dump, what evidence can we find to tell us what kind of site it is?

Historic Problem Domain 2: What do the sites tell us about the regional economic situation? Were most or all goods found in the project sites produced in the region (New Mexico and Texas), or were wider markets (Midwest, East Coast) accessed? If so, what goods and regions were involved? Can we ascertain why certain goods and the produce of specific regions were accessed and others were not?

Wealthy people, no matter where they are, often have the money and connections to access expensive, "exotic" goods from remote sources. Information about these people and their connections are often the stuff of local and regional histories. But the situation of the common man--or 90 percent or more of the people comprising any region--often goes unexplored and unrecorded. Thus, a vital part of the human story of a region and a nation is lost simply because it lacks the flash and pizzaz of the lives of the wealthy. Yet, we maintain that the life of the ordinary person provides the truest, and most important, view of the success or failure of a society, whether looking at the local, regional, or national level.

One way of learning about the success of the ordinary citizen is to use the same criteria by which we gauge the success of the wealthy. What kinds of goods did they obtain, where were

the products made, and how difficult and expensive were they to obtain? Does the archaeological record of the average man stay the same or change for the better or worse through time? Obviously, the fortunes of any one person can change over time, and this will probably be reflected in the archaeological record. But the fortunes of that individual may not accurately reflect what happened to the local society as a whole. Consequently, to get an accurate picture of the trends through time, we must accumulate information on a number of sites. Thus, the information gained from the historic sites in the current project will provide pieces to a larger puzzle. However, we will not know to what degree they reflect the overall condition and course of the average person's life, but they will provide an invaluable start in the process.

Site-Specific Research and Field Methods

Our investigation of LA 116473, the purported schoolhouse associated with early twentieth-century Seven Rivers, will have three phases: archaeological, archival, and interviews with local people.

The archaeological work will include mapping the site, in-field analysis of artifacts in Midden 1 (the only feature within the highway project), collecting diagnostic pieces, and excavating one or more 1 by 1 m squares within the midden to ascertain the depth and nature of the midden and to inventory (analyze in the field) a sample of the subsurface artifacts. We are anticipating that Midden 1 is homogeneous throughout (i.e., represents a single type of activity), but the excavated squares will either confirm or negate this assumption. If the private landowner permits us to examine the middens outside the project zone, our activities will include looking over (but not collecting or excavating) the dumps to confirm the presence or absence of artifact types and categories documented for Midden 1. This will involve use of a checklist developed for Midden 1, noting likenesses and differences between that midden and the others.

Archival work for LA 117473 will include the examination of land titles, tax records, and any other records that might shed light on owners, site function through time, and dates of occupation/use. Limited interviews will be undertaken with knowledgeable locals, one of whom lives one mile east of the site.

Our investigation of LA 89153 will focus on the materials as a time capsule of information. Although we probably will not be able to correlate the site with a known historic habitation, we can document the site in terms of cultural content, infer activities performed at the source location, and date the materials. The archaeological work will include mapping the site, inventorying artifacts, collecting diagnostic pieces, and excavating one or more 1 by 1 m squares to ascertain the depth and nature of the site and to look for structures or other evidence that would indicate that the site is something other than a trash dump.

Archaeological, archival, and interview results from both sites will be compared for matching and contrasting information to correlate the archaeological remains with specific

individuals and documentable site functions. The final effort will place the component in local and regional perspective by comparing the results obtained by Katz and Katz (1985b) in their study of the Seven Rivers community.

The in-field artifact analyses at both sites will tally the various types of artifact fragments (clear glass, purple glass, brown glass, can types and sizes, etc.). Particular attention will be paid to maker's marks, labels (embossed, paper, etc.), and any other information that will inform us about the place of manufacture and distribution points. Notes will also be taken on evidence of extended use or modification for other uses. Taken in the aggregate, evidence of extended use and modification for other uses indicates goods were not readily accessible and/or were too expensive for the average person to readily purchase and discard. Another factor--fiscal and material conservatism-- will probably also be involved in the content and condition of the project sites. It is precisely this factor that will require the long-term accumulation of information from a number of projects for us to gain proper perspective.

Site-Specific Research and Field Methods

Our investigation of LA 116473, the purported schoolhouse associated with early twentieth-century Seven Rivers, will have three phases: archaeological, archival, and interviews with local people. The archaeological work will include mapping the site, inventorying artifacts in Midden 1 (the only feature within the highway project), collecting diagnostic pieces, and excavating one or more 1 by 1 m squares within the midden to ascertain the depth and nature of the midden and to collect a sample of the artifacts. Archival work will concentrate on land titles, tax records, and any other records that might shed light on owners, site function through time, and dates of occupation or use. Limited interviews will be undertaken with knowledgeable locals, one of whom lives one mile east of the site.

Our investigation of LA 89153 will focus on the materials as a time capsule of information. Although we probably will not be able to correlate the site with a known historic habitation, we can document the site in terms of cultural content, infer activities performed at the source location, and date the materials. The archaeological work will include mapping the site, inventorying artifacts, collecting diagnostic pieces, and excavating one or more 1 by 1 m squares to ascertain the depth and nature of the site and to look for structures or other evidence that would indicate that the site is something other than a trash dump.

Archaeological, archival, and interview results from both sites will be compared for matching and contrasting information in an effort to correlate the archaeological remains with specific individuals and documentable site functions. The final effort will place the component in local and regional perspective by comparing results obtained by Katz and Katz (1985b) in their study of the Seven Rivers community.

LABORATORY ANALYSIS: PREHISTORIC AND HISTORIC MATERIALS

Artifact Preparation for Analysis and Sampling Considerations

All items except bone will be washed in water. Animal and human bone will be dry brushed to remove clods and grains of dirt but will not be washed.

All collections from all proveniences will be sorted by general artifact type (lithic debitage, sherds, formal artifacts, etc.), tabulated, and scrutinized for rare or unusual artifact types and materials. If the items in a particular artifact class number in the tens of thousands, a 40 percent sample will be drawn for detailed analysis. Otherwise, all items from each site will be analyzed.

Where sampling is necessary, primary consideration will be given to items from critical proveniences: structure floors, bottom fills of other types of features, use surfaces, stratified contexts, datable locations, and proximity to features. The types of proveniences most likely to be excluded from the analysis are excavations for ascertaining site peripheries (for example, backhoe trenches), exploratory excavations that have negative results (do not locate activity areas, culturally meaningful deposits, or features), and surface collections.

Analyses

Animal Bone

The animal bone analysis will provide several types of information pertinent to research questions. Paramount for our purposes, it will inform us about the species present, the relative proportions of species taken (the "mix"), hunting strategies, and seasonality.

Faunal remains will be analyzed for species, age, season of death, taphonomy, and evidence of butchering, cooking, and consumption. An attempt will be made to determine which elements were used by the prehistoric occupants of the sites and which were postoccupational intrusives.

Chipped Stone Debitage

A key aspect of the analysis of the chipped stone debris will be to reconstruct the core reduction technology. We need to know what the sizes, shapes, and internal imperfections of the raw material units were and how they affected the sizes, shapes, and other characteristics of the end products, the flakes, and ultimately, the artifacts produced from them.

This type of analysis is necessary because of the nature of the raw materials available to the prehistoric people in southeastern New Mexico and will be necessary in looking at and

evaluating similarities and differences in metric and nonmetric attributes of flakes, cores, and chipped stone artifacts throughout the region. The chipped stone analysis will permit us to answer research questions concerning artifact production technology and exchange, mobility, and, potentially, social relations.

The chipped stone debris will be analyzed for type (core, flake, angular debris), subtype (types of cores and flakes), material, metric dimensions (length, width, thickness, weight), platform characteristics, cortex, termination type, heat treatment, intentional retouch, and use wear.

Lithic material identification is gaining increasing importance in southeastern New Mexico archaeology. On-going research, building on research conducted in part by Eastern New Mexico University, is focusing on the use of detailed observation and ultraviolet light discrimination to identify imported materials such as Edwards chert, Tecovas chert, Alibates material, Ogalalla chalcedony, Long Arroyo chalcedony, and materials from the Delaware Mountains and Van Horn region of west Texas. Preliminary results indicate that examination of bulk site collections of local (mostly San Andres) cherts under ultraviolet light may permit intraregional discrimination of human movements and contacts.

Lithic debitage exhibiting evidence of use-wear will be analyzed first as manufacturing debris, then set aside and analyzed, described, and discussed in functional terms in a separate section on informal artifacts. The functional information will be combined with the functional information derived from the analysis of the formal tools (see below) in addressing the question of site function.

Dating

Each radiocarbon sample will first be sorted by plant species and photosynthetic pathway category (3C, 4C, CAM, etc.). The samples will then be submitted to Beta-Analytic, Inc. for dating. The AMS dating technique will be used if necessary.

Formal Artifacts

All artifacts typable to traditional categories of curated tools (projectile points, drills, manos, metates, etc.) will be analyzed according to assumed anticipated primary function. We readily acknowledge that many individual artifacts were ultimately used in a variety of ways, but the primary function, judged by design characteristics (shape, material, etc.), will be the main criteria for assignment. In some cases, artifacts were put to secondary uses after they were no longer needed or functioned properly in their primary roles.

By analyzing artifacts and assemblages from the standpoint of anticipated primary roles or needs, we can ascertain what activities the people expected to perform, and probably did perform, at a given location. Use-wear studies and other evidence for secondary uses can assist

us in confirming anticipated uses and in discerning uses in addition to those for which the tools were designed. The two kinds of evidence, then, can give us a more complete picture of the functions of the individual artifacts, associated features, and sites.

Formal artifacts will be analyzed for type (primary function inferred from design characteristics), material (stone, bone, shell, pottery, etc.), metric dimensions (length, width, thickness, weight), use-wear, and other attributes having interpretive potential (burning, breakage type, pigment, etc.).

Historic Artifacts

Historic artifacts will be inventoried in the field, but only those requiring further identification will be collected. The historic artifact assemblage will help date the components. Because of the short time represented, especially by the trash dumps, the historic assemblages may provide insights into shifts in quality and quantity, and/or origins of goods made available after the railroad entered southeastern New Mexico.

Human Remains

We do not anticipate finding human remains in the project sites. However, if human remains are discovered, the following procedures will be followed. Laboratory treatment of human remains and sensitive materials will follow the stipulations resulting from consultations between the officials of appropriate Native American groups, the New Mexico Historic Preservation Division, the NMSHTD, and OAS. Also, the conditions outlined in the following documents will be followed: Historic Preservation Division Rule 89-1 ("Regulations for the Issuance of Permits to Excavate Unmarked Human Burials in the State of New Mexico"); Museum of New Mexico Rule 11, as amended April 2, 1991 ("Collection, Display, and Repatriation of Culturally Sensitive Materials"); and New Mexico statutes pertaining to the treatment of human remains (pursuant to Section 18-6-11.2 NMSA 1978). Copies can be found in Appendix 2.

Human remains or sensitive materials identified and recovered will not be handled or photographed in the laboratory except as part of scientific data recovery by authorized persons. Photographs of human remains and other sensitive materials will not be allowed by or released to the news media, the general public, or other unauthorized persons. The only person authorized to take photographs of human remains and sensitive materials is the person designated by the project supervisor to take documentary photographs as part of the data recovery plan.

Subject to consultation, the following nondestructive observations and studies will be conducted if human remains are recovered during the excavations: standard measurements, gender, age, pathologies, and anomalies. If the bone is sufficiently well preserved, and depending on the results of consultations with the appropriate agencies, destructive studies may

be undertaken. The samples for these studies will be of two types: (1) a minimum of two dime-sized pieces of bone from each individual represented, and (2) one cross section of the end of one long bone. The dime-sized pieces will be ground for chemical analysis.

Overall, the proposed studies will yield information on stature, gender, diet, health, nutritional status, and genetic relationships to regional and extraregional peoples. This information will then be compared and contrasted to the results obtained by Rocek and Speth (1986) in their study of burials from the Henderson site, a Late Prehistoric farming village near Roswell.

Plant Materials

Plant remains, as documented through pollen, microscopic plant fragments from flotation samples, and macroremains (large enough to be seen with the unaided eye), will also provide several other types of information pertinent to answering the research questions. They will provide information on wild species collected, domesticated species grown, the relative proportions of wild and domestic species used (the "mix"), wild-plant collecting strategies, and seasonality.

The floral materials will be analyzed to lowest taxonomic order possible and plant part represented. An attempt will be made to determine which remains were used by the prehistoric occupants of the sites, and which were post-occupation intrusives.

Pottery

Pottery in sites like those being studied here is important for three reasons, all of which will inform on research concerning exchange, social relations, and dating. Pottery provides a relative date for the occupation, indicates socioeconomic ties with pottery-producing villages, and documents certain activities (food service, cooking, storage, etc.) that may have taken place at the sites.

The analysis will monitor several attributes, including temper, paste, surface finish, vessel form, and pottery type. The degree of success in the analysis will rely heavily on the nature of the sherds themselves and the natural processes they have undergone since the site was occupied.

Data Integration and Interpretation

Once all of the analyses have been completed, the results will be synthesized and used to address the research questions. Pertinent sites in the region, as reported in the archaeological literature, will be compared to the project sites to gain perspective on regional culture dynamics.

RESEARCH RESULTS

The final report of findings will be prepared and published in the Archaeology Notes series of the Office of Archaeological Studies, Museum of New Mexico.

All collections, except human remains and grave goods, will be submitted to the Museum of New Mexico Archaeological Research Collections. Human remains and grave goods will be repositied according to understandings reached through consultation with the appropriate governmental agencies and Native American group(s), to be determined by the Historic Preservation Division and the NMSHTD.

All paper records and photographs will be submitted to the Archeological Records Management Section at the Laboratory of Anthropology, Museum of New Mexico, in Santa Fe.

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**APPENDIX 2: DOCUMENTS PERTAINING TO THE TREATMENT OF HUMAN
REMAINS**

1991 FEB -5 AM 11: 14

Office of Cultural Affairs
Museum Division
(Museum of New Mexico)
P.O. Box 2087, 113 Lincoln Ave.
Santa Fe, New Mexico 87504

Rule No. 11 **POLICY ON COLLECTION, DISPLAY AND REPATRIATION OF CULTURALLY SENSITIVE MATERIALS** Adopted: 01/17/91

I. INTRODUCTION

The policy of the Museum of New Mexico is to collect, care for, and interpret materials in a manner that respects the diversity of human cultures and religions.

Culturally sensitive materials include material culture as well as the broader ethical issues which surround their use, care, and interpretation by the Museum. The Museum's responsibility and obligation are to recognize and respond to ethical concerns.

II. DEFINITIONS;

- A. "Culturally sensitive materials" are objects or materials whose treatment or use is a matter of profound concern to living peoples; they may include, but are not limited to:
1. "Human remains and their associated funerary objects" shall mean objects that, as a part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later;
 2. "Sacred objects" shall mean specific items which are needed by traditional religious leaders for the practice of an ongoing religion by present-day adherents;
 3. Photographs, art works, and other depictions of human remains or religious objects, and sacred or religious events; and

- 4. Museum records, including notes, books, drawings, and photographic and other images relating to such culturally sensitive materials, objects, and remains.

- B. "Concerned party" is a museum-recognized representative of a tribe, community, or an organization linked to culturally sensitive materials by ties of culture, descent, and/or geography. In the case of a federally recognized indian tribe, the representative shall be tribally-authorized.

- C. "Repatriation" is the return of culturally sensitive materials to concerned parties. Repatriation is a collaborative process that empowers people and removes the stigma of cultural paternalism which hinders museums in their attempts to interpret people and cultures with respect, dignity, and accuracy. Repatriation is a partnership created through dialogue based upon cooperation and mutual trust between the Museum and the concerned party.

- D. The Museum of New Mexico's Committee on Sensitive Materials is the committee, appointed by the Director of the Museum of New Mexico, that shall serve as the Museum of New Mexico's advisory body on issues relating to the care and treatment of sensitive materials.

III. IDENTIFICATION OF CONCERNED PARTIES

- A. The Museum shall initiate action to identify potentially concerned parties who may have an interest in culturally sensitive material in the museum's collections.

- B. The Museum encourages concerned parties to identify themselves and shall seek out those individuals or groups whom the Museum believes to be concerned parties.

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- C. The Museum's sensitive materials committee shall review all disputed individual claims of concerned-party status in consultation with the tribe, community, or organization which the individual(s) claims to represent. The Museum's sensitive materials committee shall assist, when necessary, in designating concerned parties who have an interest in culturally sensitive materials contained in the collections of the Museum of New Mexico.
- D. The Museum shall provide an inventory of pertinent culturally sensitive materials to recognized concerned parties.
- E. The Museum shall work with concerned parties to determine the appropriate use, care and procedures for culturally sensitive materials which best balance the needs of all parties involved.

IV. IDENTIFICATION AND TREATMENT OF CULTURALLY SENSITIVE MATERIALS

- A. Within five years of the date of adoption of this policy, each Museum unit shall survey to the extent possible (in consultation with concerned parties, if appropriate) its collections to determine items or material which may be culturally sensitive materials. The Museum unit shall submit to the Director of the Museum of New Mexico an inventory of all potentially culturally sensitive materials. The inventory shall include to the extent possible the object's name, date and type of accession, catalogue number, and cultural identification. Within six months of submission of its inventory to the Director of the Museum of New Mexico, each Museum unit shall then develop and submit, a plan to establish a dialogue with concerned parties to determine appropriate treatment of culturally sensitive items or materials held by the unit.

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- B. As part of its treatment plans for culturally sensitive materials, the Museum reserves the right to restrict access to, or use of, those materials to the general public. The Museum staff shall allow identified concerned parties access to culturally sensitive materials.
- C. Conservation treatment shall not be performed on identified culturally sensitive materials without consulting concerned parties.
- D. The Museum shall not place human remains on exhibition. The Museum may continue to retain culturally sensitive materials. If culturally sensitive materials, other than human remains, are exhibited, then a good-faith effort to obtain the advice and counsel of the proper concerned party shall be made.
- E. All human skeletal remains held by the Museum shall be treated as human remains and are de facto sensitive materials. The Museum shall discourage the further collection of human remains; however, it will accept human remains as part of its mandated responsibilities as the State Archaeological Repository. At its own initiation or at the request of a concerned party, the Museum may accept human remains to retrieve them from the private sector and furthermore, may accept human remains with the explicit purpose of returning them to a concerned party.

IV. REPATRIATION OF CULTURALLY SENSITIVE MATERIALS

- A. On a case-by-case basis, the Museum shall seek guidance from recognized, concerned parties regarding the identification, proper care, and possible disposition of culturally sensitive materials.

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- B. Negotiations concerning culturally sensitive materials shall be conducted with professional discretion. Collaboration and openness with concerned parties are the goals of these dialogues, not publicity. If concerned parties desire publicity, then it will be carried out in collaboration with them.
- C. The Museum shall have the final responsibility of making a determination of culturally sensitive materials subject to the appeal process as outlined under section VII A.
- D. The Museum of New Mexico accepts repatriation as one of several appropriate actions for culturally sensitive materials only if such a course of action results from consultation with designated concerned parties as described in Section III of this policy.
- E. The Museum may accept or hold culturally sensitive materials for inclusion in its permanent collections.
- F. The Museum may temporarily accept culturally sensitive materials to assist efforts to repatriate them to the proper concerned party.
- G. To initiate repatriation of culturally sensitive materials, the Museum of New Mexico's current deaccession policy shall be followed. The curator working with the concerned party shall complete all preparations for deaccession through the Museum Collections Committee and Director before negotiations begin.
- H. Repatriation negotiations may also result in, but are not limited to, the retention of objects with no restrictions on use, care, and/or exhibition; the retention of objects with restrictions on use, care and/or exhibition; the lending of objects either permanently or temporarily for use to a community; and the holding in trust of culturally sensitive materials for the concerned party.

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- I. When repatriation of culturally sensitive materials occurs, the Museum reserves the right to retain associated museum records but shall consider each request for such records on an individual basis.

VI. ONGOING RECOVERY OR ACCEPTANCE OF ARCHAEOLOGICAL MATERIALS

- A. In providing sponsored archaeological research or repository functions, the Museum shall work with agencies that regulate the inventory, scientific study, collection, curation, and/or disposition of archaeological materials to ensure, to the extent possible under the law, that these mandated functions are provided in a manner that respects the religious and cultural beliefs of concerned parties.
- B. When entering into agreements for the acceptance of, or continued care for, archaeological repository collections, the Museum may issue such stipulations as are necessary to ensure that the collection, treatment, and disposition of the collections include adequate consultation with concerned parties and are otherwise consistent with this Policy.
- C. In addition to the mandated treatment of research sites and remains and in those actions where treatment is not mandated, defined, or regulated by laws, regulations, or permit stipulations, the Museum shall use the following independent guidelines in recovering or accepting archaeological materials:
 1. Prior to undertaking any archaeological studies at sites with an apparent relationship to concerned parties, the Museum shall ensure that proper consultation with the concerned parties has taken place.

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2. When so requested by concerned parties, the Museum shall include an observer, chosen by the concerned party, in the crew of an archaeological study.
3. The Museum shall not remove human remains and their associated funerary objects or materials from their original context nor conduct any destructive studies on such remains, objects, and materials, except as part of procedures determined to be appropriate through consultation with concerned parties, if any.
4. The Museum reserves the right to restrict general public viewing of in situ human remains and associated funerary objects or items of a sacred nature and further shall not allow the public to take or prepare images or records of such objects, materials, or items, except as part of procedures determined to be appropriate through consultation with concerned parties. Photographic and other images of human remains shall be created and used for scientific records only.
5. The Museum reserves the absolute right to limit or deny access to archaeological remains being excavated, analyzed, or curated if access to these remains would violate religious practices.

MANUAL FOR THE ARCHAEOLOGICAL TREATMENT OF HUMAN REMAINS
ON STATE AND PRIVATE LANDS
IN THE STATE OF NEW MEXICO

Draft Version

October 1990

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PREFACE

This manual has prepared as a guide for the archaeological treatment of human remains in unmarked burial grounds on state lands, local public lands, and private lands in the State of New Mexico. It is based on Section 18-6-11.2 NMSA, on Historic Preservation Rule No. 89-1, and on the stipulations of our annual state permit for excavation of unmarked burials.

The manual assumes that burials will be excavated under an annual burial excavation permit issued by the state, and not under a project-specific (individual) burial permit.

Human remains in marked burial grounds (such as cemeteries) are accorded separate treatment under state law, and generally cannot be disturbed without a court order. Procedures in this manual do not apply to such remains.

The manual will be updated periodically. Staff members should be sure to use the most recent version of the manual.

The state law on unmarked human burials does not apply to federal and tribal trust lands in New Mexico. Procedures for unmarked burials on federal and tribal trust lands will vary by agency, tribe, and local office. Once again, the first step after encountering human remains is to contact the Office of Archaeological Studies (OAS) home office. Afterwards, the field supervisor will usually need to contact the local agency archaeologist (and also the tribal governor's office, in the case of trust lands). Besides informing these persons about the discovery, the field supervisor should ask whether they have any specific instructions on the treatment of the remains.

PRE-FIELD PREPARATION

Before any fieldwork begins, it is the field supervisor's responsibility to:

--Know which laws and regulations apply to the discovery of human remains in the project area.

--Review the permits or rights-of-entry under which the project will be completed, to determine whether there are any special stipulations regarding human remains.

--Obtain field copies of the permits or rights-of-entry for the project. These copies are to be kept available at the work site, in case of challenges by law enforcement agents or concerned members of the general public.

--Obtain a field copy of this manual, to be kept at the work site for quick reference.

PROCEDURE TO BE FOLLOWED
ON INITIAL FIELD DISCOVERY OF HUMAN REMAINS

Whenever human remains are encountered during archaeological field studies, the field supervisor will halt any activities that may further disturb those remains and will contact the Office of Archaeological Studies (OAS) by telephone, to report the discovery and to receive further instructions.

When calling in the discovery to OAS, the field supervisor should have the following information jotted down, in case it is requested:

- A. The location of the burial ground. For burials at a recorded site, the LA number should be enough. For burials not at recorded sites, the office staff will need to know the legal location (to the quarter-section) and the UTM coordinates of the burial ground.
- B. Land ownership; also, the address and telephone number of the owner (or land manager), if known.
- C. A preliminary general description of the burial ground, including age, cultural affiliation, and minimum number of individuals.
- D. The telephone number of the local law enforcement unit with jurisdiction over the burial ground.
- E. A telephone number or physical location where the supervisor can be reached.

The remains (including burial goods and associated deposits) are not to be disturbed until the field supervisor contacts OAS. The remains will be covered over with plastic sheets and loose dirt, or other materials as needed to protect them. Other research activities may continue during this time.

Burial remains not in situ, and that are in clear danger of being destroyed or stolen if left where found, are to be provided the minimum amount of handling consistent with their conservation.

If the remains appear to be part of a crime site, do not move or touch anything at the site, and do not walk about the crime site. In general, any recent human remains (less than 50

years old) should be considered part of a crime site until proven otherwise.

After OAS is contacted, the field supervisor will usually need to contact the local law enforcement authorities about the discovery. This is usually the city police within municipal boundaries, or the county sheriff in rural areas.

The local law enforcement authority is then required to contact both the Office of the Medical Examiner (OMI) and the State Historic Preservation Officer (SHPO), so the OMI and SHPO can determine who has jurisdiction over the remains. Local authorities can contact the SHPO at 827-8320.

If the remains appear to be part of a crime scene, this will usually end OAS's involvement in the matter. If the burial ground or remains are archaeological, the following additional steps will be taken.

If it appears that specific living relatives can be identified quickly, by means of local inquiries, OAS may direct the field supervisor to contact relatives regarding the burial grounds, and will attempt to ascertain their wishes before undertaking any further actions regarding the burials.

The Director, OAS will then submit to the SHPO a letter of intent to use the OAS's annual permit for excavation of burials, with the following information:

- A. A legal description of the location of the burial ground (to the nearest quarter). If the land is not platted, the UTM coordinates will be provided instead.
- B. A statement of land ownership.
- C. A copy of the appropriate USGS 7.5 minute quadrangle segment showing the location of the burial ground.
- D. Written authorization from the landowner to remove the burial. If an existing permit or right-of-entry for general archaeological excavations has been obtained, a copy of that document will be attached for this purpose.
- E. The name, address, and telephone number of the individuals performing or supervising the excavations.
- F. Documentation of procedures to identify living relatives, as appropriate to the specific case,

along with a preliminary statement on the proposed disposition of the remains.

- G. The tentative time frame for carrying out the excavations.

OAS will notify the SHPO of discoveries and pending excavations in terms of whole burial grounds (i.e., sites) rather than on a feature by feature basis. This will allow us to avoid submitting multiple letters of notification for a single burial ground.

Once the letter of intent has been prepared and submitted, the OAS office will notify the field supervisor to proceed with excavation of the remains.

GUIDELINES FOR THE EXCAVATION OF HUMAN REMAINS

Once the OAS has notified the field supervisor that a letter of intent has been submitted, excavation of the burial grounds may proceed. (The field supervisor should not simply assume that this step has been taken after he first notifies the Section office of the initial discovery of the remains.) Notification will be verified by OAS before the field supervisor proceeds with excavation. A person trained in and familiar with the OAS procedures for the excavation of human remains may then proceed with the excavation of the human remains as requested by the field supervisor.

Burials will be excavated in terms of a horizontal and vertical site grid tied to a datum. If the burials are encountered as part of general site excavations, full records will be kept as an integral part of the excavation process. All articulated human remains along with displaced elements that are determined by the excavator to part of a given burial should be given a single field specimen (FS) number. Other associated materials should contain a reference to that FS as part of the provenience information.

The following minimum standards will be followed in the excavation burials. Additional procedures will be required as part of project data recovery plans.

- A. If the burial ground is not part of a site already in the Archaeological Records Management System (ARMS), an ARMS form will be completed.
- B. Excavation of the remains, any associated artifacts, and the pit or other burial feature will be entirely by hand using tools that will not mar the bone. All fill will be screened through 1/4 inch mesh. The fill around the burial itself will either be collected or sifted using window screen. Excavation will be by strata, if visible, and by levels (including within strata) not to exceed 10 cm.

As excavation proceeds all bones from the burial should be left in place for mapping and photographing once the majority of the burial is exposed. (Disarticulated human remains should be treated in this manner as well.) Depth readings should be taken, at least, at the base of the

cranium and at the lowest aspect of the pelvis so the position of the torso in the ground may be determined. All bones displaced from their anatomical positions should be noted and included in all mapping and photographing of the burial as evidence of ground disturbance, rodent disturbance, etc.

Loose artifacts will be bagged by horizontal and vertical provenience and associated with the burial FS. At least, one flotation sample and one pollen sample will be taken from the pelvic cavity of each in situ burial. Other samples (such as radiocarbon samples) should also be collected as appropriate.

If bowls or jars are present, these should be removed complete with fill, whenever practical and once recording has been completed.

- C. Burials in intact coffins should be removed in one piece, to preserve the integrity of the burial it contains and to because the living relatives may wish to have the burial reinterred as it was found. When the burial cannot be removed in one piece, it will be exposed as completely as possible before any remains or associated items are removed.
- D. Scale plan drawings of the burial will be prepared and should include all displaced bone and grave goods. If the burial is in an upright position, a side view should also be prepared. If the burial is in a feature (such as a pit), a scale plan and profile of the feature should be incorporated into the drawings made. Labels for any fragmentary or disturbed remains should be incorporated into these drawing, again to document the disturbance.
- E. Photographs will be taken of the burial from, at least, two directions, while the latter is in situ with associated remains. If the associated artifacts cover the remains, additional photographs should be taken after the artifacts have been collected.
- F. Field records (which may be part of overall site records) will indicate field methods used, observations about soils and feature fills, the context of the burial within the site. Records should include the orientation of the burial, depth readings taken, its interment position, etc.

North arrows in field drawings and photographs should point to true north, not magnetic north!

While the burials are exposed, members of the general public, including the media, will not be allowed to view the remains. During any site tours for the general public, any human remains and associated artifacts will be covered. Except for photographs or other images taken as part of archaeological records, no photographs or other recorded images of the human remains or associated burial goods will be allowed. These restrictions are consistent with Museum of New Mexico Board of Regents policy (SRC Rule 11).

Crew members are not allowed to take photographs of the remains or burial goods for personal use.

Once removed, the burials and associated goods will be wrapped in acid-free paper, cushioned with cotton batting, and properly boxed for transportation to OAS or to a field laboratory.

Within seven days of completion of permitted excavations, the field supervisor will notify the SHPO (through the Director, OAS) that excavations have been completed and that efforts to carry out a plan for disposition of the remains has begun.

If the excavation is delayed beyond the current permit period, the field supervisor will notify the SHPO (through the Director, OAS) of the delay, and will request an extension of the permit period. This request must be received by the SHPO before the permit period expires.

If the proposed excavation is canceled, the field supervisor will notify the SHPO (through the Director, OAS) of this change in plans. This notification will state that no fieldwork was completed relative to the burials, and will state the reason for the request.

PROCEDURES FOR LABORATORY STUDY
AND REPORT PREPARATION

On arrival at OAS or a field laboratory, human remains and any associated funerary objects will be placed in locked storage, apart from other collections. These items will not be removed from locked storage except when being cleaned or analyzed.

At a minimum, laboratory analysis of the human remains will consist of the following steps:

- A. Determination of the age, sex, and stature of the individual or individuals.
- B. Anthropometrics should be done on all elements, if possible, along with the identification of any pathologies present.
- C. Photo-documentation of the remains in general and of any specific features such as pathologies. It is important to remember that in the event of reburial of the remains, such photographs will become a primary source of information on the remains.

At a minimum, laboratory analysis of the associated funerary goods or other artifacts will consist of the following steps:

- A. A written inventory of all items associated with, and removed from, the burial. This list will be submitted to the SHPO through the Director, OAS as part of the disposition plan for the remains. The list will be specific in terms of the class, type, quantity, and condition of items recovered.
- B. Scaled photographs of all recovered items, to be submitted with the written inventory. The photographs will be labeled with "OAS/MNM", the burial provenience (site number, burial or feature number, and county), the date of excavation, and the disposition of the remains (e.g., reburied at site, or in MNM repository). It is important to remember that these photographs, like those of the actual remains, may one day become a primary source of information on the burial.
- C. The collected fill within associated vessels or from the vicinity of the remains will be floated or fine-screened, except for any samples reserved

for pollen analysis or other specialized analysis.

- D. Collected pollen and other specialized samples will be analyzed as appropriate under a general sampling and analysis protocol for the site as a whole.

In addition, general analysis of the burial site will attempt to confirm field observations of the age and cultural affiliation of the burials. Appropriate methods for this general analysis may include ceramic cross-dating, point styles, tree-ring dating, radiocarbon dating, etc.

At times during analysis, disarticulated human remains may be located among other archaeological collections. In such cases, the project supervisor will notify the SHPO (through the Director, OAS) that such remains have been encountered within the general site collection, and that such remains will henceforth be included with, and treated as, part of the burial collection from that burial ground.

Within twelve months of the end of fieldwork at the site containing a burial ground, OAS will complete the analysis of burials, will prepare a complete report on those burials to the SHPO, and will have the remains and artifacts ready for final disposition. Two copies of the final report will be submitted to the SHPO. The reports will either be issued as separate Archaeology Notes, or will be in a format suitable for inclusion as appendices in the final project report. In the latter case, a preliminary Archaeology Notes number will be assigned (e.g., "This report constitutes an appendix to Archaeology Note 587, which is in preparation).

If, due to unforeseen circumstances, the final burial report cannot be prepared within this period, the project supervisor will request (through the Director, OAS) an extension of the permitted analysis period. This request will include an estimated completion date for the final report, and will include two copies of an interim report.

The final burial report will include (be accompanied with) the following sections or information:

- An abstract or summary.
- A general verbal description of the location of the burial, accompanied with a general project location map, in such a way that this information cannot be used to pinpoint the original location of the burial. This description will include a statement of land ownership and current surface lessee. The map will note the

identity of the project, the name of the person who prepared the map (not the draftsman!), a scale, and a north arrow.

- An appendix with the legal description of the site location (to the nearest quarter-quarter section), UTM coordinates, and a pinpoint location map based on the local USGS topographic quadrangle. The map will note the identity of the project, the name of the USGS quad, the name of the person who prepared the map (not the draftsman!), a scale, and a north arrow.
- A description of excavation and recording methods used, along with names of persons who took part in excavation of the remains.
- A determination of the cultural and temporal placement of the remains, including a discussion of the criteria used to make this determination.
- A plan drawing that shows the physical position of the human remains in relation to associated funerary objects and features. This drawing will include a north arrow, scale, and key to map symbols. (A profile drawing should be included for upright burials.)
- An inventory of all funerary objects, artifacts, and other remains associated with the burial. (Don't forget items such as pollen samples!) The inventory list should be accompanied by scaled, labeled photographs of each item.
- Photographs of the burial, organized in terms of a photo catalogue. The report will explicitly state where the photos will be stored. (Glossy black and white photographs are preferred by SHPO.)
- A description of the final disposition of the human remains and all associated objects or items. If the burial remains are reinterred, the exact location of reinterment will not be included in the final project report. If the burial remains are curated, the curating facility should be identified. If any remains are retained by a landowner, the address of the landowner should be stated.

PROCEDURES FOR IDENTIFICATION OF LIVING RELATIVES
AND DISPOSITION OF REMAINS AND BURIAL ITEMS

As part of the initial notification that OAS will be using its annual excavation permit, the Director, OAS will provide a brief statement on the preliminary approach to identifying and notifying living relatives, and will indicate tentative recommendations regarding the disposition of the remains.

If it appears that specific living relatives can be quickly identified, OAS will hold off excavation of the burial until an attempt is made to notify these relatives. As an example, if an unmarked burial is found at an early 20th century ranch house, it may be possible to quickly identify the direct descendants of the individual by making a few local inquiries. The preliminary stated wishes of these individuals will be considered in any decisions on excavating the remains, and an update will be provided to the SHPO before the remains are excavated.

Concurrently with excavation and analysis of the remains, OAS will assist in identifying (and consulting with) living relatives of the individuals involved, above and beyond any preliminary efforts as described above.

For unmarked Native American burials, state regulations require the SHPO and Office of Indian Affairs (OIA) to coordinate efforts to identify and consult with living relatives. OAS will assist in this process as requested. Information that may be useful to the SHPO and OIA's consultation efforts should be passed on by supervisors to the Director of OAS.

For unmarked non-Native American burials, the burden of identifying and consulting with living relatives falls on OAS. Supervisors will attempt to contact possible relatives in writing. If this approach is not possible, legal notices will be placed in local newspapers. Once contacted, possible relatives will be given at least 30 days to make recommendations on the disposition of human remains and associated burial goods.

Within 45 days of the completion of excavations at a site, OAS will submit a proposal for the disposition of human remains and associated goods. This proposal will describe any consultations completed or underway, comments from living relatives, relevant permit stipulations, and the wishes of the landowner if known. The proposal will outline one or more possible plans for the disposition of the remains.

If reburial or curation at a specific location can be

proposed as one alternative, or the only possibility, the disposition proposal will provide the legal location of the reburial site or curatorial facility. The list of objects found with the remains will be submitted with this disposition plan.

The disposition plan will include the exact location for any proposed reburial activity.

The SHPO will notify OAS when the disposition plan has been approved or rejected. In the latter case, the SHPO will provide specific instructions for disposition of the remains. Within 30 days of this notification, or within an alternative period specified by the SHPO, the project director will complete the disposition plan and will notify the SHPO (through the Director, OAS) of this fact.

If disposition is delayed beyond the time allowed for this purpose, the project supervisor will notify the SHPO (through the Director, OAS) and will request an extension to allow this process to be completed, before the original disposition period has expired.