MUSEUM OF NEW MEXICO

OFFICE OF ARCHAEOLOGICAL STUDIES

A DATA RECOVERY PLAN FOR LA 9075, ALONG NM 53, CIBOLA COUNTY, NEW MEXICO

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ADMINISTRATIVESUMMARY

The Archaeological Site Stabilization and Preservation Project (ASSAPP), Office of Archaeological Studies, Museum of New Mexico, conducted a site evaluation of LA 9075 (the La Vega site), a large multicomponent site along NM 53 in Cibola County, New Mexico, on private lands and highway right-of-way. The New Mexico State Highway and Transportation Department (NMSHTD) proposes to stabilize areas within the boundaries of the site and within the NMSHTD right-of-way that have been or may be affected by erosion. The Office of Archaeological Studies has been working under contract with the NMSHTD to identify endangered archaeological sites within highway rights-of-way.

Subsequent to shoulder construction and improvement by the NMSHTD, additional cultural resources were exposed within the Museum's project area. The OAS/ASSAPP program identified five major areas within the highway right-of-way at LA 9075 where cultural resources are threatened by erosion. These areas have been targeted for stabilization. In conjunction with the NMSHTD, District 6, the OAS proposes to conduct a data recovery program on the affected areas prior to stabilization efforts.

NMSHTD Project No. TPE-7700(14), CN 9163
MNM Project No. 41.596 (Archaeological Site Stabilization and Protection Project)

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INTRODUCTION

At the request of Mr. Steve Koczan, Environmental Team Coordinator, New Mexico State Highway and Transportation Department (NMSHTD), the Archaeological Site Protection and Preservation Project (ASSAPP), Office of Archaeological Studies (OAS), Museum of New Mexico, conducted a site evaluation at LA 9075 (the La Vega site), located along NM 53 in Cibola County, NM., on private lands and NMSHTD easement (Fig. 1 and Appendix 1).

Work was performed in compliance with Section 106 of the National Historic Preservation Act (36 CFR Part 800) , Executive Order 11593 (1972), and the Environmental Policy Act of 1969 (91. Stat 852). LA 9075 is not listed on the *State Register of Cultural Properties* or the *National Register of Historic Places* but may be eligible for inclusion of both of these lists on the basis of criterion "D" (34 CFR 60.4). The OAS proposes to perform data recovery on five specific areas so that erosion control measures can be installed without compromising the integrity of the resources. This program includes proposed research orientations and a strategy for implementing research objectives through excavation and analysis.

Funding for this project is provided through the Enhancement Program of the Intermodal Surface Transportation Efficiency Act of 1991 (NMSHTD Contract J00089; Project No. TPE-7700(14); MNM Project No. 41.596). Properties have been included in the ASSAPP based on recommendations from NMSHTD staff, land management agencies, and the public. Each property has been visited to determine if it qualifies for protection under applicable state or federal laws and to determine whether any factors affecting preservation are within the control and responsibility of the NMSHTD. The ASSAPP is intended to deal with sites that pose on-going problems and are not part of planned construction or improvement projects. Treatment of cultural properties that are part of planned construction projects are coordinated through the normal NMSHTD environmental evaluation procedures.

LA 9075 underwent a program of data recovery in 1986, by the Research Section, Laboratory of Anthropology, Museum of New Mexico, under the direction of Richard B. Sullivan. Sullivan's work was performed under contract with the NMSHTD (Project No. SP-ETS-1301(202) F00490). On July 7, 1996, Dean Wilson of the OAS reported abundant cultural materials within the right-of-way. The site was revisited by Stephen Lentz and John Ware of the OAS/ASSAPP on September 9, 1997. On July 1, 1999, Dorothy Zamora and Stephen C. Lentz, under the State of New Mexico Blanket Permit (Annual Survey Permit No. 99-027), placed 35 auger tests within the right-of-way to determine the extent of subsurface deposition (NMCRIS No. 55173). It was concluded that cultural deposition did in fact exist up to 1.5 m below ground surface. On July 15, 1999, the OAS returned to transit map the site and identify sensitive areas that had not been investigated. On December 1, 1999, Yvonne Oakes (principal investigator) and Stephen Lentz (project director) identified specific areas within the right-of-way in which cultural materials were destabilized through erosion.

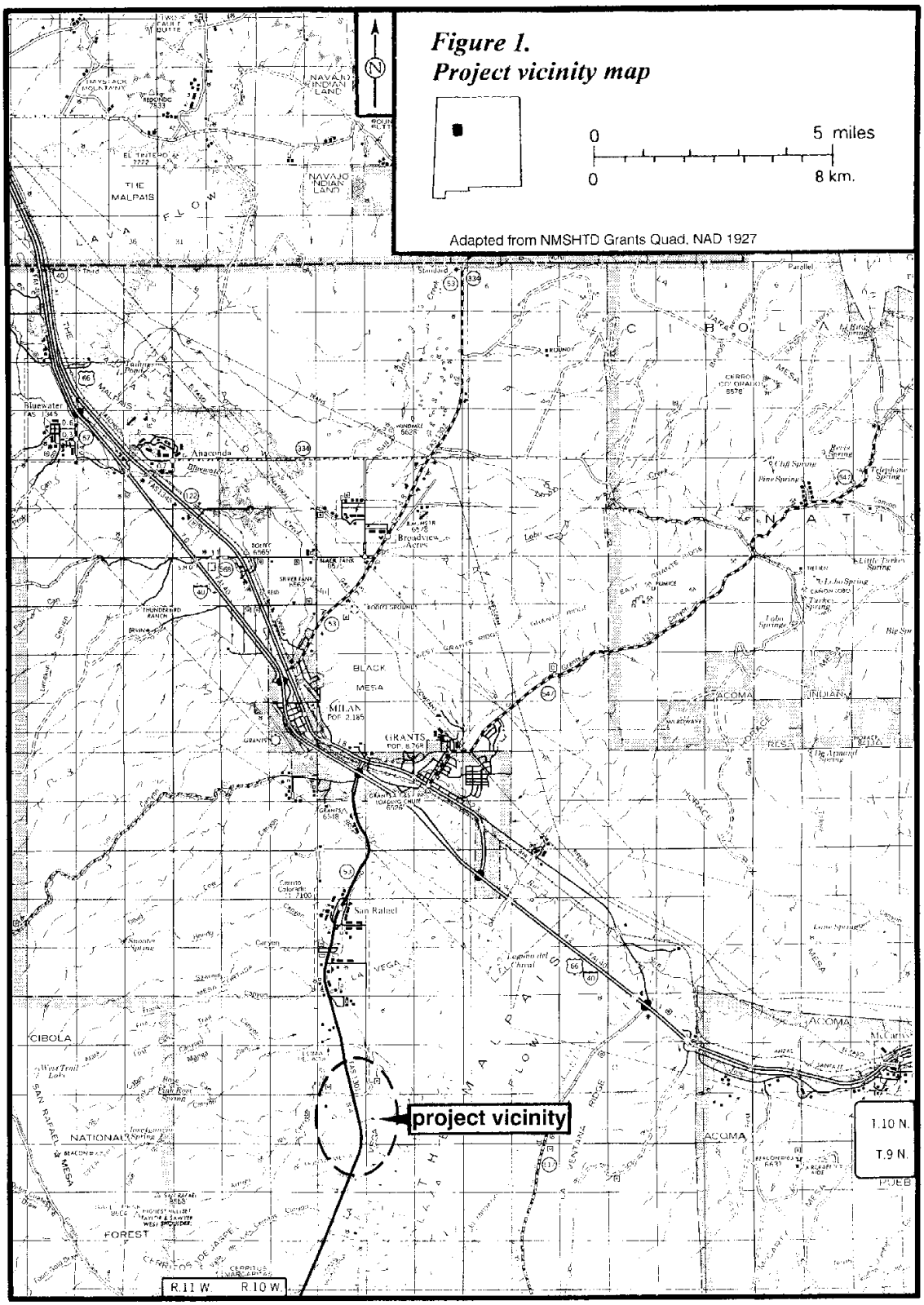
Figure 1.
Project vicinity map
0
5 miles
0
8 km.
Adapted from NMSHTD Grants Quad, NAD 1927
project vicinity
T.10 N.
T.9 N.
R.11 W.
R.10 W.
Bluewater
Anaconda
Broadview Acres
BLACK MESA
MILAN
GRANTS
San Rafael
CIBOLA
NATIONAL FOREST
ACOMA INDIAN
ACOMA
LAVA FLOW
THE MALPAIS
NAVAJO INDIAN LAND

ENVIRONMENT

LA 9075, the LA Vega site, lies on a slightly sloping plain dominated by desert scrub. Lying to the north, east, and south of the affected area is a sandstone/conglomerate outcrop rising 27 m (88 ft) above the road. Plant species found on this outcrop include one-seed juniper, some piñon, scrub oak, and various understory species. To the east, there is a flat grassland known locally as La Vega (Spanish for pasture or meadow) that ranges from 1500 to 3700 m (5000 to 12,000 ft) wide in the site area and is bordered to the east by malpais (recent vesicular basalt flow). Outside the right-of-way, west, southwest, and north of the site, are limestone outcrops of the San Andres formation, containing nodules of Fingerprint chert. Numerous chert quarries in the outcrops indicate that this area is the primary source of the lithic raw material found on the site.

The project site is located in an area called the Acoma culture province; a diverse physical environment with topographic diversity. As defined by Dittert (1959), the province is surrounded by Mt. Taylor to the north, the North Plains on the south, the Zuni Mountains to the west, and the Rio Puerco to the east. Cebolleta Mesa lies at the southeast boundary of the Colorado Plateau. The project area is characterized by two distinct geologic features: the McCartys lava flow to the west, and the Jurassic sandstone cliffs to the east.

The McCartys basalt is a relatively young flow (Late Pleistocene). The source of this extrusion is a small lava cone 32 to 40 km southwest of Interstate 40 with the lava flowing northeast to the San Jose Valley, and eastward down a broad valley. The Malpais region was created by the lava flowing from this same source, southwestward for 9.7 km (Nichols 1946).

Cebolleta Mesa is over 2,590 m (8,500 ft) above sea level and capped with a basaltic lava that extruded during the Ortiz period. Erosional processes have carved out this mesa from the original Ortiz surface exposing strata that includes the Mesaverde formation (just under the basalt cap) to the Mancos formation, Dakotas sandstone, Morrison formation, Todilto limestone, Wingate sandstone, and Chinle formation (Dittert 1959).

In general, the soils of the area can be classified in the Rockland-Travessilla association. These soils are widely distributed between the lava beds and the Rio Puerco. Both soil types occur on steep slopes on the sides of mesas or rolling upland areas and mesa tops. Rockland soils are shallow and rocky with small pockets of moderately deep to deep deposits occurring on the escarpments in flatter areas (Maker et al. 1974). Travessilla soils are characterized by a fine, sandy loam or stony, fine sandy loam underlain by sandstone. The Penistaja, a deep, well-drained soil found in this association, occurs on the crests and side slopes of upland ridges and on alluvial fans. Small areas of unclassified alluvial soils also figure in the Rockland-Travessilla association. These deep alluvial soils occupy nearly level to gently sloping landscapes in narrow valley bottoms (Maker et al. 1974).

Soils in an area along the southern one-third of the McCartys lava flow can be classified in the Lohmiller-San Mateo association. This association is located primarily in valley bottoms and on the floodplains and terraces along intermittent drainages. These gently sloping soils form in alluvium and derive from sedimentary formation. Today plots of land in the Lohmiller-San Mateo association are under irrigation in the vicinity of Acoma, Laguna, and Cebolleta.

The project area characteristically falls within a semiarid climate with an annual precipitation received in the general area of 12 to 17 inches (30 to 43 cm). However, precipitation in the project area may increase because of the orographic effect of Cebolleta Mesa, which lies in the path of major storms coming from the southwest or northeast (Beal 1976). Modern records for the area show a peak

in moisture during July, August, and September. Nearly half of the average precipitation falls during this time as the result of brief thunder storms. The rest of the annual precipitation falls from May to October, the warmer months of the year (Maker et al. 1974). The annual frost-free season for the project area fluctuates between 114 and 175 days (four to five months long), depending on the elevation and side of the mesa. Air temperature exhibits few extremes, with afternoon solar radiation causing maximum temperatures to be higher on the west and south flanks of the mesa slopes (Tuan et al. 1973). The average temperature ranges between 33 degrees F (15.22 degrees C) in January to 82 degrees (64.22 degrees C) in July.

Vegetation in the project area is typical of the kind of plants found in the upper division of the Upper Sonoran Zone. The open valley bottom region (the lower division of the zone) is scattered with grasses, cacti, yucca, and low desert shrubs. In the upper division, a piñon-juniper association is present (Dittert 1959). The vegetation observed in the project area includes juniper, piñon, cholla, saltbrush, snakeweed, chamisa, blue grama grass, Indian rice grass, and various composite grasses.

PREVIOUS WORK

In 1882, A. F. Bandelier visited the study area. As part of his reconnaissance from McCarty to Zuni, in particular the Las Ventanas and Cebolleta Canyons, which are adjacent to the project area, he described large prehistoric sites along the edge of the Malpais. In 1913, Cebolleta Canyon was investigated by F. W. Hodge and J. L. Nusbaum, who conducted a small survey and performed minimal excavations. About the same time, N. C. Nelson was in the Los Pilares area, where he made a series of sherd collections used by Spier in his Zuni chronological studies. Between Nelson's visit in the early 1900s and 1948, when Dittert and Ruppé started their work in the Acoma and Cebolleta regions, archaeological work in the area was limited to surveys by Mera and Stubbs and excavations of a few rooms by Simmons (Dittert 1959).

The first known investigation of LA 9075 was by a local collector, Victor B. Brown, who reported the site to Stewart Peckham of the Museum of New Mexico. Peckham subsequently visited and recorded the site in 1969. Brown's collection (less the complete projectile points) was loaned to Peckham for analysis. The site was later tested by John Speth (Sullivan 1987:5) of the University of Michigan who collected the surface assemblage from the Paleoindian component of the site and turned the collection over to the Museum of New Mexico in Santa Fe. Speth also reported that in subsurface testing of the Paleoindian component, cultural remains were limited to 5 to 10 cm below the modern ground surface.

A site file search at the Archaeological Records Management Section (ARMS) revealed that extensive archaeological work has been conducted in and around the project area since the late 1970s. Large projects in the area include Beal (1976), Broster (1982), Groody (1982, 1987), Clifton (1982, 1984), Amsden (1989), and Doleman (1990). The interested reader is referred to these reports for a more comprehensive discussion of the archaeology of the area.

The original State of New Mexico Archaeological Sites Inventory Form (1969) records the site size as 150 by 150 m. Multiple components were also recorded. Among the diagnostic artifacts recorded are Folsom points, Archaic Pinto-like points (Oshara Tradition, Bajada and San Jose phases), Archaic Lobo points, Archaic Oshara Tradition points, Pueblo points, drills, gravers, microblades, bifaces, numerous flake tools, basin metates, and one-hand manos.

In 1986, LA 9075 underwent a program of data recovery by the (then) Research Section, Laboratory of Anthropology, Museum of New Mexico, under the direction of Richard B. Sullivan. The final report is still in progress.

CULTURAL OVERVIEW

LA 9075 is a large multicomponent site dating between the Paleoindian period (9,000 B.C.) and turn-of-the century Euroamerican times.

Paleoindian Period

As reported by Peckham and Speth (Sullivan 1987:7), a large Folsom component was present at LA 9075. The majority of the Folsom period surface assemblage remaining after Brown's collection was recovered during Speth's field testing and given to the Museum of New Mexico for curation. Peckham also received a large collection of fragmentary Folsom points and associated artifacts from a local collector. Paleoindian materials were also recovered within the NMSHTD right-of-way during Sullivan's (1987) project.

Three major subdivisons of Paleoindian adaptation have been proposed, based primarily on the presence of diagnostic projectile point types: Clovis (10,000-9,000 B.C.), Folsom (9,000-8,000 B.C.), and the terminal Paleoindian phase, which incorporates a number of distinctive technological traditions including the Agate Basin (8300-8000 B.C.) and the Cody Complexes (6600-6000 B.C.) (Irwin-Williams and Haynes 1970; Judge 1973). The recovery of Paleoindian artifacts in association with extinct forms of post-Pleistocene megafauna initially led to the conclusion that Paleoindian groups subsisted primarily on big-game hunting. In the study area, Folsom period occupations appear to have occurred during a period of decreased relative moisture; consequently, sites appear to be close to major water resources. Irwin-Williams and Haynes (1970) suggest that from Folsom times onward, late Paleoindian adaptive strategies centered on bison ecology, with bands of hunters following small herds in their seasonal migrations. While it is true that Clovis and Folsom materials have been found in association with extinct species of mammoth and bison, it is also believed that wild plants and small game animals formed an important component of the resource base. Few of these items, however, have been documented in the archaeological record. This has led to the hypothesis that there may have been a return to a more generalized hunting strategy during post-Folsom and terminal Paleoindian times, as evidenced by the use of less specialized projectile points (Tainter 1980; Cordell 1984; and Judge 1973, 1974, and 1979).

Archaic Period

The extent of the Archaic component at LA 9075 is not known, but at least a portion of the original Archaic cultural material is extant. During Sullivan's (1987) project, Archaic materials (including projectile points) were found in association with features within the NMSHTD right-of-way.

The Archaic component at LA 9075 consists of artifacts associated with the Oshara (northern) Tradition, specifically the Jay, Bajada, San Jose, and Armijo phases (Irwin-Williams 1973). The Oshara tradition was defined on the basis of excavation and survey carried out in the Arroyo Cuervo area of north-central New Mexico. Many sites of this tradition are found in areas of northwest and north-central New Mexico, south-central Colorado, and southeast Utah. The following is a brief summary of Archaic phases believed to be represented within the right-of-way, as derived from Irwin-Williams (1973) and Tainter (1980).

Jay Phase

The Jay phase (5500 to 4800 B.C.) corresponds with a period of decreased effective moisture occurring at the end of the Pleistocene. Sites typically consist of small base camps and isolated quarrying and hunting locales. The majority of the sites of this phase are situated in sheet sand deposits on cliff tops, in canyon head complexes, near playas, and on low sloping mesas. Excluding the Arroyo Cuervo region, two types of Jay phase sites have been found: hunting camps and quarry-workshops near basalt outcrops. The Jay phase tool kit includes relatively large projectile points with small shoulders, usually made from basalt, and well-made bifacial knives and side scrapers. Milling equipment is absent.

Bajada Phase

During the Bajada phase (4800 to 3000 B.C.), both a decrease in effective moisture and a slight increase in population are indicated. Settlement patterns are similar to the preceding Jay phase, with sites occurring in sheet sand atop cliffs, in canyon head complexes, on low sloping mesas, and near ephemeral ponds. Site types include base camps, foraging camps (usually within 8 km of a base camp), quarries, and isolated hunting sites. The Bajada tool kit includes projectile points, which are slightly shouldered and basally thinned with basal indentations. The kit also includes rare bifacial knives, large chopping tools, and flaked side scrapers.

San Jose Phase

The San Jose phase (3000 to 1800 B.C.), corresponding to a period of increase in effective moisture, is characterized by a settlement pattern similar to that of the Bajada phase. This includes an increase in the number of sites, temporary structures, and large earth ovens filled with fire-cracked rock. Site types include base camps (more extensive than in the Bajada phase), specialized hunting sites, foraging sites, and quarries. The San Jose tool kit includes projectile points quite like those of the Bajada period but with marked serration. Shallow basin grinding slabs and simple cobble manos indicate an increase in the utilization of seeds and nuts (possibly related to a population increase). Also included in the tool kit are side scrapers, heavy choppers, and an occasional biface.

Armijo Phase

The Armijo phase (1800 to 800 B.C.) is characterized by a settlement pattern similar to the preceding phases with additional evidence for seasonal patterns of population aggregation and limited cultivation of maize near canyon head springs. During this period there is a fluctuation in the amount of effective moisture. The overall amount is generally less than in the San Jose phase. Site types generally follow those of the preceding phases. The tool kit includes projectile points similar to the serrated San Jose style with the addition of short expanding stems (early variety) or side notching, with concave or straight bases. Other artifacts include small bifaces, flake scrapers, drills, and choppers.

The Pueblo Period

The first important chronological framework for the Pueblo sequence of the Southwest was developed by Alfred V. Kidder (1927). It was expected to be useful for the entire Southwest as it was then understood archaeologically, but eventually it was agreed that it was applicable only to the Anasazi culture, particularly as it occurred along the San Juan drainage. The Pecos Classification was a simple division of the total span of the Anasazi culture into temporal units based primarily on architecture and pottery, since tree-ring dating had not yet been developed.

The following time periods were defined by Kidder (1927): Basketmaker II (A.D. 1 to 500) was agricultural, aceramic, and atlatl-using. Basketmaker III (A.D. 500-700) was characterized by pit-structure construction, pottery making (plain and decorated), and the introduction of the bow and arrow in the later stages. Pueblo I (A.D. 700-900) was marked by vessel neck corrugation, cranial deformation, and above-ground rectilinear masonry pueblos. In Pueblo II (A.D. 900-1100) there was widespread geographical population dispersal into small villages and the wide use of corrugated pottery. Pueblo III (A.D. 1100-1300) saw the development and elaboration of material culture, intensive local specialization and the growth of large communities. During Pueblo IV (A.D. 1300-1400), there was a general contraction of occupied areas and the gradual disappearance of corrugated wares. Finally, during Pueblo V (A.D. 1400-1600), the entire prehistoric system was irrevocably altered by the arrival of Spanish colonizers.

In the late 1940s and early 1950s, Alfred Dittert and Reynold Ruppé established a local prehistoric cultural and temporal sequence for the Cebolleta Mesa region. The project area is on the western fringe of this area, paralleling the McCartys lava flow, which makes up the northwestern boundary of the region. For heuristic purposes, I have included LA 9075 in this cultural classification rather than the Cibolan tradition, although the site may lay on the boundary of both culture groups and therefore belong to a "frontier" area. It is likely that more research is needed before LA 9075 can be classed with certainty in either of these temporal schemes. The site does, however, fall within the geographical boundaries of the Acoma Area as defined by Dittert (1959). Moreover, at least two of the Pueblo structures at LA 9075 fall within Dittert and Ruppé's classification of Red Mesa phase sites, that is, a linear masonry roomblock situated on a low bench at the side of a canyon with Socorro Black-on-white pottery.

To summarize, Dittert (1959) and Ruppé (1953) developed a framework of eight ceramic groups and corresponding phases. Table 1 shows the Cebolleta Mesa cultural sequence and its relationship to Kidder's Pueblo Classification.

Table 1. The Cebolleta Mesa ceramic cultural sequence

Cultural Phase	Dates (A.D.)	Pecos Classification
White Mound	700-800	Basketmaker III
Kiatuthlanna	800-870	Pueblo I
Red Mesa	870-950	Early Pueblo II
Cebolleta	950-1100	Pueblo II
Pilares	1100-1200	Pueblo III
Kowina	1200-1400	Pueblo III to Pueblo IV
Cubero	1400-1600	Late Pueblo IV
Acoma	1600-present	Pueblo V

Source: Dittert 1959; Ruppé 1953

The White Mound Phase (A.D. 700-800)

White Mound phase sites are found in all topographic situations, but primarily on low benches that border drainages in the upper ends of canyons, on the southwest facing slopes of large mesas, and in higher sand hills (Dittert 1959:523). Architecturally, this phase was characterized by pithouses accompanied by small surface structures. White Mound Black-on-white and Lino Gray are the dominant local ceramic types.

The Kiatuthlanna Phase (A.D. 800-870)

Sites of the Kiatuthlanna phase are on secondary benches, mesa tops, and on the sandy slopes of tributary drainages. Some shelters were built against low cliffs in these tributaries. Pithouses were the dominant architectural form in the earlier period. Later, jacal surface structures came to be used more frequently, with structures built in a crescentic plan. Coursed sandstone masonry was used as foundations. Kiatuthlanna Black-on-white is the dominant pottery type, with Kana'a Gray and intrusive brown wares.

Red Mesa Phase (A.D. 870-950)

During the red Mesa phase, site locations concentrate on points above where the main canyons constrict. The typical settlement pattern is for sites to be situated on a low knoll or a low bench along the eastern or southern sides of a canyon. Other small units continue to be built against low cliffs in small, tributary canyons.

Dwellings were built of jacal walls with sandstone slab facings, or of other temporary materials. Later in the period, full height walls of masonry blocks were built. Village form ranged from straight rows of rooms, sometimes two tiers deep, to L-shaped, to crescentic. Ruppé (1953:117) sees this architectural variability as evidence of site unit intrusion, probably from immigrant Mogollon groups.

The dominant pottery type for this period is Red Mesa Black-on-white, Socorro Black-on-white, Kana'a Gray, and Exuberant Corrugated.

Cebolleta Phase (A.D. 950-1100)

The settlement pattern for this period includes upland mountain meadows, flat-topped mesas, and canyon mouths. Architecturally, many sites consist of blocks of contiguous rooms with consistent north-south alignment. Plazas and kivas are generally on the east side. D-shaped rows of rooms are oriented to the north or east. Jacal structures are still used. Ruppé (1953: 120-126) believes that the Cebolleta phase witnessed considerable Mogollon intrusion, based on the occurrence of brown wares. Cebolleta Black-on-white is the dominant pottery type, with some Socorro Black-on-white and intrusive Mogollon and Cibolan wares.

Pilares Phase (A.D. 1100-1200)

During the Pilares phase, sites tend to shift from higher topographic situations to the mouths of canyons or to the eastern edge of the Northern Plains, with access to arable land. Towards the end of the phase, there was a settlement shift to flat-topped mesas. There is a marked decrease in the number of intrusive ceramic types, which might suggest a deemphasis on external trade relations or demographic saturation.

Cebolleta Black-on-white, Tularosa Black-on-white, Socorro Black-on-white, St. Johns

Polychrome, Pilares Banded, and Los Lunas Smudged characterize the ceramic assemblage from this period.

The Kowina Phase (A.D. 1200-1400)

The Kowina period was a period of major cultural change, as indicated by the increase of large sites situated on flat-topped mesas and in upper wooded areas. The lowlands appear to have been exploited only seasonally. The beginning of the Kowina phase is marked by population aggregation into large villages of up to 300 rooms. Great kivas are present during this period. Except for the seasonal sites, the Cebolleta Mesa appears to have been abandoned at this time. Concomitantly, the areas around Acoma and the Rio San Jose show sudden increases in population. Populations from the San Juan Basin, indicated by the presence of Mesa Verde Black-on-white pottery, may have also entered the area.

The dominant pottery types for the Kowina phase include Acoma and Tularosa varieties of Tularosa Black-on-white, Kowina Black-on-white, Kowina Indented, St John's Polychrome, North Plains Black-on-red, North Plains Polychrome, Kowina Black-on-red and Polychrome, Pilares types, Pinnawa and Wallace polychromes, and a host of types form the western Mogollon highlands.

The Cubero Phase (A.D. 1400-1600)

The major settlement at this time was Acoma Pueblo. Small shelters were built against the low cliffs along the Rio San Jose. Some small settlements dating to this period have also been found overlooking confluences between the Rio San Jose and its tributaries.

The major pottery types for the Cubero phase were Pinnawa Glaze-on-white and Glaze-Polychrome, Kwakina Glaze-Polychrome, Acoma glaze wares, Northern Gray Corrugated, Kowina indented, indented brown wares, intrusive Matsaki Polychrome, and early Rio Grande glaze wares.

Acoma Phase (A.D. 1600-present)

Settlement during this phase continued at Acoma Pueblo, with the maintenance of agricultural centers along the Rio San Jose. The dominant ceramic types for the Acoma phase were Hawikuh Glaze-on-red and Glaze Polychrome, Ashiwi Polychrome, and modern Acoma Polychromes. Zuni, Tewa, Laguna and Dinetah types show up as intrusives.

The Historic Period

Native groups underwent numerous changes in lifestyle, social organization, and religion after the Spanish settlement of New Mexico (Table 2). The introduction of new crops and livestock contributed to major changes in subsistence, as did mission programs which taught new industries (Simmons 1979:181). Incursions by Plains groups caused the abandonment of many pueblos and a constriction of the region occupied by the pueblos (Chavez 1979; Schroeder 1979). A combination of new diseases to which the pueblos had no natural defenses, intermarriage, conflict attendant with the Pueblo Revolt of A.D. 1680-92, and the abandonment of traditional lifestyles contributed to a significant decrease in pueblo populations over the next few centuries (Dozier 1970; Eggan 1979).

With the goals of missionization, territorial expansion, and mineral wealth, the colonizing expedition of Don Juan de Oñate arrived at San Juan Pueblo (Oke Owinge) on July 11, 1598, and proclaimed it the capital of the province. Soon, New Mexico was divided into seven missionary districts.

The earliest record of European contact with local Pueblo groups in the area is in the early 1580s (Brugge 1983:491). In January 1599, in retaliation for the death of Juan de Zaldivar (one of two of Oñate's nephews), 70 of Oñate's men attacked Acoma Pueblo. After a three-day battle, the Spanish troops prevailed. In retribution, 500 Acoma prisoners over the age of 25 had one foot severed and were sentenced to twenty years of hard labor in the mines of Zacatecas. Mexico. The Acoma women were forced into prostitution, and the remaining population over 12 years of age was enslaved (Spicer 1962:157). It was then that Oñate inscribed his name on Inscription Rock, El Morro.

Table 2. Entradas and historical dates in relations between the Pueblos and the Spaniards

1535	Cabeza de Vaca learns of Rio Grande pueblos
1540-1542	Coronado expedition into New Mexico
1581	Chamuscado-Rodríguez expedition
1582	Espejo expedition
1598	Oñate's colony of San Gabriel founded at San Juan Pueblo
1600	Siege of Acoma
1610	Pedro de Peralta moves capital to Santa Fe
1630	Father Benavides reports on conditions among the Pueblos
1680	Pueblo Revolt
1681-1682	Otermín's attempted reconquest, burns all pueblos south of Cochiti
1692	de Vargas's reconquest
1696	Second revolt of the Pueblos

In 1676, a series of events began that ultimately led to the Pueblo Revolt of 1680. Santa Fe was besieged by an alliance of Pueblo forces, and on August 21, 1680, Governor Otermín was forced to surrender and evacuate the city (Hackett 1942: 56-57). The Pueblos held firm to their independence for 12 years. Taking advantage of inter-Pueblo factionalism, the definitive reconquest was initiated in 1692 by Don Diego de Vargas (Dozier 1970:61; Simmons 1979:186).

With the signing of the Treaty of Cordova on August 24, 1821, Mexico secured its independence from Spain, and New Mexico became part of the Mexican nation. That year brought the opening of the Santa Fe Trail and expanded trade networks brought new settlers and goods for industrial manufacture. By the Treaty of Cordova, all Indians residing in New Mexico were granted full Mexican citizenship (Jenkins and Schroeder 1974:34-37).

Following the short-lived Mexican period, General Stephen Kearny accepted the surrender of Acting Governor Juan Bautista Vigil y Alaríd. The U.S. flag was run up over the Palace of the Governors in Santa Fe on August 18, 1846. By the Treaty of Guadalupe Hidalgo, which ended the Mexican War, United States dominion was established in New Mexico. In 1850, New Mexico was officially made a territory of the United States. During the Territorial period, under United States laws, Pueblo Indians were tacitly afforded the same rights as all U.S. citizens.

It is likely that some of the historic features recorded at LA 9075 are historic Navajo in origin. Much debate has addressed the exact time of arrival of the early Athapaskans. The earliest dates place the arrival of early Navajo groups in the Navajo Reservoir District in A.D. 1550 and in Gobernador Canyon in 1656 (Dittert et al. 1961; Keur 1944).

It is probable that, unlike the Pueblos, the Navajos entered the study area late, probably about the same time as the Spaniards. The first mention of people who were apparently Navajo indicates the assignment of missionaries, and, following the destruction of Acoma in 1599, the placing of old captives from Acoma with the Navajo (Brugge 1983). In 1748, attempts to relocate Navajos who had settled at the base of Mt. Taylor at a mission in Cebolleta failed due to the failure of the church to deliver promised supplies (Tainter and Gillio 1980:131). The Navajos farmed and herded sheep in the project area both before and after the Bosque Redondo phase (1868 to 1880), although there were many conflicts between the Lagunas and the U.S. military forces. After the 1930s stock reductions, substantial numbers of Navajos settled in Grants, and they now rely on the Euroamerican cash economy for subsistence.

Historic foundations were recorded within the project limits. It is probable this *rancho* may have its origins in the turn-of-the-century Hispanic pastoralist adaptations of the area. Since the introduction of the sheep by Oñate's colonizing expedition, sheepherding has played an important role in the economy of the Hispanic people. In an effort to manage large herds, rich landowners *(ricos)* developed the *partidario* system, in which flocks of sheep were put out on shares to individual sheepherders. Although this system potentially allowed individual sheepherders to start their own flocks and become independent, it usually led to perpetual debt and promoted an inequitable class system. After the reconquest (between 1692 and 1821), the Spanish government granted free title tracts of land to colonists to encourage resettlement of the New Mexico province. By 1696 northern New Mexico was reoccupied, and the Hispanic colonists lived on approximately 140 land grants. The pueblos were granted their own "Pueblo Leagues," but were frequently encroached upon by the Spanish colonists, and later, Anglo-American settlers. Beginning in 1768, the Baca land grant was the primary Hispanic land grant in the area, although it was well known that the Baca family had encroached on land assigned to Laguna Pueblo. These lands were claimed by the Bacas until 1939 (Tainter and Gillio 1980:131).

Fort Cebolleta was a military post established in 1850 and abandoned a year later, largely due to the desertion of its commanding officer. The first Fort Wingate was established in 1862 and abandoned in 1868. It was rebuilt at its current location as a munitions depot and a school. It is currently reverting from the Department of Defense to the Navajo Nation.

PROPOSED ACTION

The purpose of the Archaeological Site Protection and Preservation Project (ASSAPP) is to identify cultural properties within existing NMSHTD highway rights-of-way and to propose management actions if the preservation of those properties is threatened by past or present highway-related activities. Therefore, this document should not be viewed as a conventional data recovery plan

LA 9075 underwent a program of data recovery in 1986 by the Research Section, Laboratory of Anthropology, Museum of New Mexico, under the direction of Richard B. Sullivan. The final report is still pending. On July 7, 1996, Dean Wilson of the OAS reported that abundant cultural materials were still present within the right-of-way. The site was revisited by the OAS/ASSAPP by Stephen Lentz and John Ware on September 9, 1997. On July 1, 1999, Dorothy Zamora and Stephen C. Lentz, using the OAS State of New Mexico blanket testing permit (see introduction) excavated 35 auger tests within the right-of-way to determine the extent of subsurface deposition (NMCRIS No. 55173). It was concluded that cultural deposition did in fact exist up to 1.5 m below ground surface. On July 15, 1999, the OAS returned to transit map the site and identify sensitive areas that had not been investigated.

On December 1, 1999, Yvonne Oakes (principal investigator) and Stephen Lentz (project director) identified specific areas within the right-of-way in which cultural materials were destabilized through erosion (Fig. 2). These artifacts had been exposed during highway shoulder improvement and consisted primarily of concentrations of lithic artifacts. All stages of reduction are present, including formal and informal tools, and local and exotic material types. Five specific areas were identified.

Area 1 is within the NMSHTD right-of-way, approximately 10 m south of the southernmost culvert. It consists of an aceramic lithic artifact concentration threatened by braided erosion channels washing downslope from the east. It measures 10 by 12 m (120 sq m, or 1,292 sq ft).

Area 2 is 50 m north of the southernmost culvert. There is a lithic artifact concentration present in this location which is threatened by a west-flowing erosional channel. This area measures 6 by 10 m (60 sq m or 646 sq ft).

Area 3 is 5 m north of southernmost culvert. It consists of a lithic artifact scatter threatened by erosion. The total area of the concentration is approximately10 by 14 m (140 sq m, or 1,506 sq ft).

Area 4 is a short distance to the south of the culvert near the middle of the site and measures 6 by 10 m (60 sq m or 646 sq m). It consists of a concentration of lithic artifacts that are actively eroding within the right-of-way.

In Area 5, although there are only a few artifacts within the affected area (500 sq m, or 5380 sq ft), the potential erosion is such that it will soon threaten adjacent areas of high artifact concentration. Data recovery in this area will be limited to controlled surface collections.

Although specific preservation procedures will be established after consultation with the NMSHTD district environmental specialists, it is probable that the most efficient means of stabilizing these areas is through backfilling, topsoil loading, and revegetation.

Care will be taken not to disrupt any of the intact cultural resources at LA 9075 either inside or outside of the NMSHTD right-of-way.

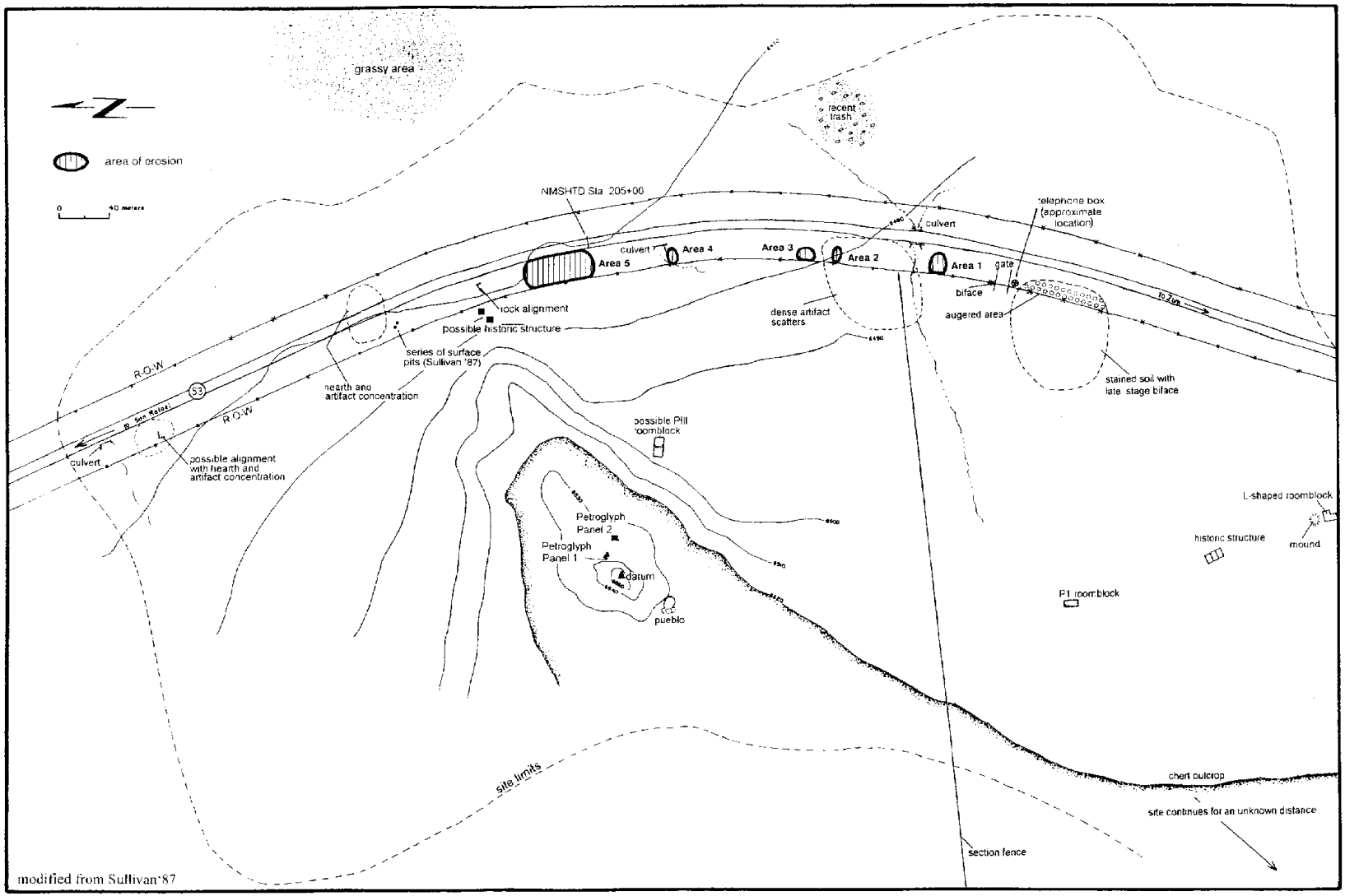

Figure 2. LA 9075 site map.

PROPOSED DATA RECOVERY PLAN

LA 9075 is a large site of potentially great theoretical and practical importance. It has been repeatedly reoccupied from Paleoindian through historic times. However, given the specialized nature of this project, the range of research questions that can be addressed by the data set are inherently limited. Hence, this document does not conform to the conventional data recovery plan in the sense that it recovers cultural resource information in advance of an undertaking. As described above, highway shoulder construction and improvement have already been completed along this stretch of NM 53. As a result of these activities, additional resources were exposed that have been designated as unstable. Therefore, the proposed data recovery plan departs philosophically from its predecessors in several important ways: First, only several areas within the right-of-way will undergo data recovery. Secondly, these five previously listed areas within the right-of-way, as best as can be determined from surface manifestations, are the only resources that require preservation. Other resources do exist within the NMSHTD right-of-way, including features, wall alignments, and other artifact concentrations that will not be investigated because they have been determined to be stable. The greater part of the site exists outside of the right-of-way to the west. Thus, the fraction of the resources within the right-of-way that will be investigated represents, in effect, a sample of a sample.

The foundation of most proposed research is that of regional settlement and subsistence patterns. In recent years, archaeologists have found it productive to move away from a focus on individual sites to an examination of regional patterns. Specific sites provide only a limited look at prehistoric lifeways , but their importance is increased by examining their role in the context of regional events. Unfortunately, given the restricted data potential of the site sample, it would be unrealistic to speculate about broader regional patterns and variations through time. But, far from being irrelevant, the recovered information from the stabilization project can still substantially contribute to the body of data already collected from this site.

Research Orientation

LA 9075 is a large multicomponent site dating between the Paleoindian period (9,000 B.C.) and turn-of-the century Euroamerican times. The reason for these constant reoccupations can be explained by the site location. A wide alluvial floodplain is framed by the Malpais to the east and the foothills of the Zuni Mountains to the west. LA 9075 is on the west side of this natural corridor, through which must have passed numerous wild game migrations. With the “toe” of the outcrop on which the site is located projecting into the floodplain, LA 9075 is in an excellent place for a hunting ambush strategy. Preliminary analyses have shown that, when combined with the locally available chert source, LA 9075 probably served as a convenient locale from which to scout and hunt game. The numerous projectile points, biface reduction areas, evidence of rearmament activities, and features such as blinds and hearths strongly suggest a logistical hunting focus at this site. Moreover, this function was apparently not limited to a particular time period but seemingly occurred throughout Paleoindian, Archaic, Puebloan, and Historic times.

Apart from a hunting and quarrying location, LA 9075 may represent some of the earliest year-round settlement in the valley. Within the right-of-way, area residents may have constructed pit structures as dwellings. The shift from subterranean dwellings to above-ground rooms was a phenomenon that occurred across the Southwest. This shift may have important implications for corresponding changes in social organization and subsistence strategies. Since the site contains possible habitation features, archaeological investigation should offer data that can be used in the study of this transition in living space. Even if the site proves to be a seasonal habitation or an outdoor activity area, the artifact assemblage can still provide information on the diversity of daily

activities performed by valley inhabitants.

As LA 9075 may be one of the earlier Puebloan sites in the region, it may potentially provide information on agrarian subsistence practices in the area. Paleoenvironmental reconstruction of the region shows that there were a series of changes in rainfall patterns. It is believed by many that early farmers reacted to such uncertainty by varying their subsistence pursuits, and the plant and animal remains at the site should shed some light on the types of subsistence options practiced during the Archaic and early Puebloan periods. Researchers have frequently hypothesized a pattern of increasing specialization in subsistence strategies over time. By comparing the results obtained at this site with the evidence from earlier and later sites in the valley, implications for local and regional settlement systems may emerge.

The following research concerns will be addressed at LA 9075.

1. Social organization and the structure of living space. Do surface artifacts represent an outdoor activity area, an enclosed living area, or some other form of structure?

Preliminary testing suggests that concentrations of artifacts are present on the surface and may extend to up to 1.5 m subsurface. Is the spatial organization of these artifacts the result of random artifact movement due to colluvial movement, or can patterns be identified to indicate that localized subsistence activities were occurring at that location? Minimally, this stratum has the potential to offer information on limited activity sets as determined by artifacts in association with the surface. Optimally, the surface may be part of a residential structure and offer substantially more information about local settlement and subsistence.

Given the implications this stratum has for building a more complete understanding of site activities and perhaps social organization, the first data recovery concern is a simple one and revolves around identification.

Outdoor activity areas may also be specialized. As specialized differentiation in activities may have occurred, there may have been more formalized use of exterior space. For example, if warm-season activities included the grinding of plant foods outdoors, then it would be expected that this area would be kept free of the debris that might be generated by other activities. Identification of such areas within bounded localities such as plazas enclosed by roomblocks would also signal increasing differentiation of activities and the need to coordinate activities.

The issue of identification of the living surface will be resolved by removing overburden and expanding the original test pit until walls or features can be identified. If there are no architectural elements to indicate that the occupational surface was within an enclosed space, the surface likely represents an outdoor activity area. If the occupation surface was a surface room, it may be bounded by walls, cobble foundations, adobe, or postholes that represent jacal construction. A pit structure would be indicated by subterranean walls formed by the removal of natural deposits.

2. What was the function of the artifact concentrations?

In order to define the functions of the artifact concentrations and the changes in component function through time, it will be necessary to define intrasite spatial organization. Initial mapping shows that there is primarily a nonaggregated lithic artifact scatter with a few isolated ceramic artifacts. One of the first tasks will be to delineate any possible activity areas associated and to define features. If activity area or features are defined, it will be necessary to separate these into discrete occupational loci. This will be accomplished through site structure analyses.

Judge (1974) found that projectile points and scraping tools are the most sensitive indicators of Folsom period site function. Following this supposition, he has established a typology of site function for this period based on the ratio of projectile points to scrapers per site. Additional variables are the mean number and condition of lithic artifacts (formal tools) per site, and the presence of faunal remains. A model based on these variables was found to be successful in ascertaining the differences between camp sites, kill sites, quarries, and processing sites. The site function of any Paleoindian component that may exist on the site will therefore be inferred by the lithic, and if present, faunal artifact remains.

In hunting and gathering studies (Binford 1979, 1980; Vierra 1985; Vierra and Doleman 1985), two primary hunter-gatherer organizational strategies appear to predominate: the forager and the collector. In the foraging system, a group "maps onto" exploitable resources through frequent residential moves and adjustments in group size. Within this system there are two identified site types: short-term residential base camps and logistical sites. The residential site is the terminus for all exploitative activities, and it is where the group resides when processing resources, maintaining and manufacturing tools, and performing other daily activities. The assemblage associated with this site type has been shown to be quite variable in content and includes debitage and implements associated with tool manufacture and maintenance, expended tools, and processing equipment. The internal site organization of a residential base should be differentially organized according to separate activity loci and residential units. In the foraging model, residential bases appear to exhibit relative redundancy of land use and are the location from which foraging groups depart.

Logistical sites are where specific activities take place. Sites of this category, particularly those generated during plant gathering and encounter hunting, may be archaeologically difficult to discern. On the other hand, sites created during intercept activities may also be used redundantly in the exploitation of the targeted resource. The assemblage associated with this type site may include limited numbers of core reduction and tool production or maintenance debitage.

In a collector system, specialized task groups leave a residential location to procure a specific resource. Unlike the foragers, they know the location of a critical item and are not searching for resources on an encounter basis. Within a particular settlement system, geographical locations are seen as being more advantageous in fulfilling a site's functional requirement. According to Vierra (1985), it appears that logistical site locations, in particular intercept locations, are more often reoccupied than residential locations. Reuse may be tied to the specific locational requirements of these sites for resource exploitation and monitoring. Occupants of these sites can predict the location and time period when a resource can be utilized, such as the seasonal migration of a particular species. Residential sites appear to be less frequently reoccupied owing to greater flexibility in their locational options over the more rigid requirements of an intercept location.

Hunter-gatherer systems may use differing aspects of these strategies at different times. According to Vierra and Doleman (1984), a generalized model characterized by a forager strategy in the spring through fall and a collector strategy in the winter is an appropriate model for the southwestern Archaic system.

Within the Late Archaic/Early Pueblo component of LA 9075, there is a possibility that structures may be encountered. In order to address questions of increasing differentiation and its implications for social organization, it is necessary to determine the function of any identified living space. Based upon ethnographic data, Hill (1970) provides a set of assumptions that can be tested to determine function. Briefly, living areas should display a variety of floor features, a diversity of artifacts types, and a nonrandom distribution of artifacts, while storage rooms should lack features and have low artifact diversity. Specialized activity rooms should have low artifact diversity and,

depending upon the type of activity, a high number of specific tool types. If activity differentiation was not important, then the living surface should contain a wide variety of floor features, high artifact diversity, and manufacturing debris. These areas may also have a random distribution of artifact types.

Outside activity areas may also be specialized; for example, stone tool, pottery, basket, or food production may occur repeatedly in the same location. Soil may become compacted through continued use of the same location, and it is expected that, if specialized, there will be a high frequency of similar artifact types. If there is random patterning to the artifact composition and distribution, the area may have had multiple uses or may be a discard area.

This issue will be studied through detailed inventory and mapping of site features and their locations and through laboratory analysis of the artifact assemblage. The inventory and mapping of site features, particularly those found on the occupation surface, will provide a measure of activity diversity. Statistical analysis of the artifact assemblage will quantify specific attributes and allow assessment of any mixture of activities within the activity area.

3. Subsistence activities. What food resources were exploited, and what does this information tell us about the potential of the local environment for farming, hunting and gathering, or a mixture of both?

The subsistence strategies of site occupants in the context of past environmental conditions can be assessed by the recovery and analysis of macrobotanical and faunal remains. For example, the presence of nonedible domesticated plant parts would suggest local farming practices, while the occurrence of only edible portions might suggest the import of plant foods. The presence of certain skeletal elements, such as skulls, vertebrae, or feet, may indicate that animals were hunted in proximity to the site. However, if these parts show evidence of extensive butchering, it may be evidence of food stress, since these are skeletal elements with low meat value. The array of formal and informal tools can also be used to infer the range of past subsistence pursuits.

By gathering information on regional and local agricultural potential as well as the availability of wild plant and animal foods, it should be possible to examine the interplay between population and resource availability during the period(s) of occupation. Regions that are extremely productive for hunter-gatherers might be marginal for farmers because of a lack of water or a short growing season. Conversely, some areas that are exquisitely suited to farming are marginal for hunter-gatherers because wild plant productivity is low or limited to very short seasons of availability. By reconstructing the regional environment, it should be possible to determine its suitability for both hunting-gathering and agriculture.

4. What was the nature of the prehistoric environment when the site was occupied?

Evidence of seasonality will also be obtained, if available. This type of information may be derived from pollen, flotation, and faunal samples and from the presence or absence of certain feature or artifact types (for example, hearths in habitation structures). The unfortunate reality, however, is that evidence for seasonality is usually so spotty that while it may be possible to document site use in a given season, absence of evidence for use in another season is usually inconclusive.

To answer these questions, data on the environment at the time of occupation must be obtained. Site specific information can be inferred through the analysis of pollen samples, macrobotanical remains, and faunal remains recovered during excavation. Macrobotanical remains will be retrieved through the sampling of unburned features while pollen samples will be taken from features and

various strata. The samples will be analyzed by specialists for plant species identification. Faunal remains will be retrieved through high-resolution screening.

5. Temporal context. What periods of occupation do the various site components represent?

As discussed above, LA 9075 may represent some of the earliest known occupations, not only in the Acoma region, but also in North America. There is little information relative to both Folsom and Archaic period chronologies in the Mt. Taylor area. The Folsom component (dating to 9,000-8000 B.C.) is one of the earliest known Paleoindian adaptations, and it is popularly associated with a reliance on the hunting of *Bison antiquus*. Although Folsom materials within the right-of-way have been limited to a possible projectile point base, other Paleoindian materials (Clovis, Cody Complex) and Early Archaic materials (Jay and Bajada) have been reported. Since information on these time periods is relatively scanty, any data recovered that can be confidently ascribed to either the Paleoindian or the Archaic time periods will be especially useful, particularly if recovered from an undisturbed context or in association with chronometric data. Therefore, temporal placement of the site is important for understanding region patterns of social and subsistence organization. The site must be placed in the appropriate temporal framework to detect regional trends and changes in social and subsistence patterns. Minimally, the recovery of any of these early period artifacts will add to the general fund of descriptive data concerning morphology, manufacture, and use of hunting-and-gathering assemblages.

In the instance of Pueblo-phase materials, it may be that stylistic and typological analysis of pottery is the only available method for determining occupation dates; therefore, all ceramic artifacts will be retrieved for study. If appropriate features are encountered, radiocarbon and archaeomagnetic samples will also be retrieved.

In summary, it is unrealistic to draw far-reaching conclusions from the limited sample anticipated from this stabilization project. It is likely that, at the very most, we will be able to augment the body of information already collected by past investigators. The acquisition of base-line data will help refine Paleoindian, Archaic, and Puebloan chronologies for the area and may aid in generating models and hypotheses for further study.

METHODS

Excavation Techniques

In order to prepare the designated areas within the NMSHTD right-of-way for stabilization, the following excavation techniques will be utilized. A main datum will be set in place from which horizontal and vertical controls will be generated to construct a grid system for the excavation of the identified sensitive areas. Excavation will be in one meter grids. Excavation will be by strata where they exist. Augers and coring tools will be used to search for subsurface features. If the excavation units or auger holes expose additional subsurface cultural remains, they will be expanded. All subsurface stratigraphy will be drawn and photographed. All excavated fill will be screened through 1/4 inch mesh hardware cloth. Trowels and shovels will be the primary excavation implements, and more delicate hand tools, such as dental picks and brushes, will be used when appropriate. Excavation trenches and surface-stripped areas will be backfilled to conform to the original ground surface.

Mapping

A contour map of the site will be generated using an Electronic Distance Measurer (EDM), a laser Total Station, or a transit and a stadia rod. Contours, features, site boundaries, piece-plotted artifacts, and excavation areas will be mapped.

Features

All features will be drawn and photographed. Features will be excavated by halves to expose a profile of individual strata. The fill will be screened through 1/8-inch mesh hardware cloth. Flotation samples will be collected in one liter specimens.

Laboratory Analyses

All collected artifacts will be cleaned, sorted, and examined in the laboratories of the Office of Archaeological Studies. Analyses within each artifact material class will be conducted according to standards established by the Office of Archaeological Studies.

Disposition of Recovered Artifacts

Unless otherwise stipulated by landowners or land managers, all recovered artifacts will be curated in the Archaeological Research Collections at the Museum of New Mexico, Laboratory of Anthropology. As a division of the Museum of New Mexico, the Office of Archaeological Studies maintains a curation agreement with the Archaeological Research Collection.

Laboratory analysis will be conducted by the staff of the Office of Archaeological Studies and qualified professional consultants. The types of cultural materials and brief descriptions of the kinds of information desired from each are presented below. Analytical techniques to be used in the data recovery phase of this project are outlined in the testing results portion of this report.

Ceramic Artifacts

Distributions of various ceramic data from LA 9075 will provide information concerning the dating of sites and contexts, as well as the examination of trends in the affiliation, production,

exchange, and use of pottery vessels. While the examination of all issues involves recording a large and varied range of categories and attributes, it is not feasible or necessary to record all of these for the entire ceramic collection. Before various issues can be addressed, it is first necessary to determine the temporal association and integrity (in terms of mixing of material from different temporal components) of the ceramics from a given provenience. Data from undated or highly mixed proveniences will contribute very little to our understanding of various changes and trends.

Thus, different systems or levels of analysis will be conducted on sherd collections from contexts of different integrity and research potential. The first level of analysis involves a "rough sort" recorded on sherds from all proveniences and includes basic data required for the dating and evaluation of the integrity of sherd collections. Sherds from intact dated contexts will be analyzed and described in greater detail during an "intensive analysis." This will include categories and attributes recorded during rough sort as well as the recording of additional attributes allowing for the examination of various trends and patterns. Specialized stylistic analysis will be conducted on selected samples of decorated rim sherds. An attempt will be made to implement the more detailed analysis on sufficient samples of sherds from as many distinct temporal components as possible. The basic analytical system employed, variables recorded, and research issues that will be addressed using this data are discussed below.

Ceramic analysis will involve recording information concerning the context of recovery, typological classification, descriptive attributes, and quantitative data. Contextual data include information concerning the site, field specimen (FS) number, and associated provenience. Sherds from each FS exhibiting unique combinations of typological and attribute classes will be assigned to a distinct lot number, and data describing these sherds will be recorded on a distinct data line. Sherds from each lot will be bagged separately along with a tag indicating the associated site, field specimen number (FS), and lot number. Quantitative data recorded for each data line include sherd counts and weight in grams.

Each sherd will be assigned to a typological category reflecting a series of hierarchical decisions made during analysis. First, an item is placed into a spatially distinct ceramic tradition or series on the basis of temper, paint, and technological characteristics. Next, it is put into a ware category based on surface manipulation or decoration. Last, it is assigned to a specific type using temporally sensitive surface manipulations or design styles.

Descriptive attribute categories were selected to provide detailed descriptions of the associated ceramic collections as well as the investigation of a wide range of research issues. Descriptive categories that may be recorded during various levels of analysis include vessel form, temper, paint pigment, surface manipulation, slip, modification, refired paste color, and various stylistic attributes.

Vessel form categories are assigned to all sherds and vessels based on observed shape. Sherds are incomplete subsamples of the original parent vessels, and the resolution of vessel form characterization depends on sherd size and portion of vessel represented. Vessel form categories utilized will include information concerning both vessel shape and vessel part. Examples of categories that will be employed include bowl rim, bowl body, jar body, jar neck, wide mouth (cooking/storage) jar rim, and narrow mouth jar olla rim. *Rim radius* will be measured in order to obtain information concerning the relative size of vessels.

The identification of *temper type* is critical for the identification of nonlocal ceramics as well as the examination of patterns of ceramic production. Temper categories are identified by examining freshly broken sherd surfaces through a binocular microscope. These characterizations of temper are limited, but broad tempering categories can be identified by ranges in the color, shape, fracture, and

reflectivity of tempering particles. These categories reflect material sources available and used as tempering agents in different geographic areas. Temper types expected to be identified during the present study include various classes of igneous rock including tuff, ash, andesites, and diorites; crushed sandstones; and crushed potsherds.

Paint pigments are distinguished by surface color and characteristics (Shepard 1971). Pigment use in this area is known to have changed over time, and categories that may be encountered include organic, iron oxide mineral, organic mineral polychromes, mineral polychromes, clay, and glaze pigments.

Surface manipulation refers to surface treatments including textured treatment (such as corrugations and polishing) and will be recorded for each surface. *Slip* refers to the presence of a separate clay applied to the vessel surface to produce a distinctive effect. Categories recorded for each surface will include information concerning the presence, relative thickness, and color of slips. *Modification* includes information concerning the modification of sherds or vessels through use, shaping, or repair.

Refiring analysis will also be conducted on small samples of sherds and clays and will involve recording information concerning the color of samples exposed to common firing conditions using a kiln. This allows for the common comparisons of pastes derived from different sources based on the presence of mineral impurities (particularly iron oxides) in the clay. A small sample of sherds exhibiting the range of pastes and temper types identified will be submitted for petrographic analysis or various types of chemical or compositional analysis to provide for more detailed characterizations and sourcing information.

A detailed stylistic and technological analysis may be recorded for an even smaller subset of decorated rim sherds, providing information for the examination of various temporal and spatial trends. Attributes that may be recorded include wall thickness, rim shape, rim decoration, painted styles, and design orientation.

Reconstructible vessels (where a third or more of the original vessel is present) will also be analyzed separately. Vessel analysis will involve recording previously discussed attributes as well as the dimensions of each vessel.

Lithic Artifact Analysis

Chipped stone artifacts will be studied to provide data on material procurement and selection, activities, and alterations to enhance flaking quality. Certain attributes will be studied on all chipped stone artifacts. Material type and texture will provide data on selection and source, and in particular whether materials were procured nearby or from distant locations. The type of cortex present will also be used as an indicator of material origin--while some types suggest procurement at the source, others indicate secondary deposits. In conjunction with other studies, these data will provide information on mobility and ties with other regions. Chipped stone artifacts will be classified by morphology and presumed function, which will provide a basic categorization of activities employing chipped stone tools as well as a basis for more intensive analyses. They will also be examined for evidence of thermal alteration to enhance flakeability, a process that is tied to reduction strategy and the suitability of materials for reduction. The flakeability of some materials can be improved by heating, and this can be an important aid in strategies aimed at formal tool production, while it is less important in strategies based on informal tool use.

A range of other attributes will also be examined, depending on artifact morphology. Information

on group mobility and tool production can be derived from an analysis of the reduction strategy employed. The reduction process produces three basic by-products: debitage, cores, and formal tools. Debitage and cores are the immediate by-products of this process, while formal tools are by-products that were modified to produce a specific shape. While the former categories provide information about the reduction strategy employed, the latter provide data on tool using activities. Thus, different attributes will be examined for each of these broad categories.

Debitage and cores will provide information on reduction strategies. Attributes used for this analysis will include debitage type, amount of cortical surface, artifact portion, and size. Cores will be morphologically identified by the direction of flake removals and number of striking platforms, providing basic information on how they were reduced. Flakes are debitage that were purposefully removed from cores and can provide critical data on reduction technology. Hence, several attributes will be analyzed on this class of artifact including platform type and modification, platform lipping, direction of dorsal scarring, and distal termination.

Formal tools will be identified by morphology and wear patterns. Informal tools will be identified by the presence of marginal retouch or use-wear patterns along one or more debitage edges. A binocular microscope will be used to identify and classify retouch and wear patterns on all tools, and utilized or retouched edge angles will be measured. All evidence of edge modification will be recorded for informal tools, while evidence of use or modification unrelated to production will be recorded for formal tools. These attributes will provide information on activities employing chipped stone tools.

Data from lithic artifact analysis is important to the investigation of LA 9075. Information concerning basic site function, mobility, and ties with other regions can be derived from these studies. Chipped stone artifacts should reflect an expedient reduction strategy, and the amount of purposeful thermal alteration should vary over time in the prehistoric deposits. More thermal alteration should occur in the Developmental period assemblage when compared to the Coalition period assemblage. A wide range of subsistence-related, manufacturing, and maintenance activities should be represented in both assemblages. While local materials should predominate, exotic materials, particularly obsidian, could occur in significant quantities. Again, variation between temporal components is expected, with the Developmental assemblage demonstrating better access to exotic materials. Biface manufacture and use should be restricted to special-use tools (as defined by Kelly 1988). Evidence of large unspecialized bifaces serving as cores as well as tools should be rare.

Ground Stone Analysis

Ground stone artifacts will be tabulated and discussed in morphological and material classes. The possible correlation of the technological attributes of this class of artifact and specific processing activities will be discussed if adequate samples are recovered. If ground stone artifacts are found within intact, discrete settings, fill samples will be recovered for pollen or botanical analysis, and the ground stone artifact will be carefully bagged for pollen wash.

Several types of information are available from this class of artifact. In the absence of floral remains, certain varieties of ground stone tools can be used to infer plant food processing. While trough metates and two-hand manos suggest maize processing, basin metates and one-hand manos are more indicative of the processing of wild plant foods. Analysis of pollen samples from ground stone artifacts retrieved from floors or buried activity areas can provide information about the range of plant foods exploited. Wear patterns are often indicative of function, and can be used to suggest activities such as hide processing for which other indications might be lacking.

Faunal Remains

Faunal analysis will concentrate on identification of species, age, and bone elements to assist in documenting food procurement and consumption patterns. Evidence of processing, such as burning or roasting and cut marks, will also be recorded. These data will help determine season of occupation, hunting and food processing and consumption patterns, and may provide information on the local environment at the time of occupation.

Floral Remains

Plant remains will be identified to the specific level when possible and will be compared with floral data from other sites to help provide a clearer picture of plant use during the period(s) of occupation. Floral remains will also aid in determining seasonality. The discovery of both edible and nonedible parts from domesticates will be indicative of local production, while the lack of all but edible parts might suggest that domesticates were raised elsewhere and imported to the site. Both pollen and macrobotanical remains will be useful in reconstructing the local environment at the time of occupation. Botanical and charcoal samples will be collected by identified strata. Pollen samples will be collected in tandem with all flotation samples. Radiocarbon samples will be collected wherever possible.

Human Remains

If human remains are encountered, they will be protected and left in place. If conditions are such that the remains cannot be protected, field treatment will follow procedures outlined by the laws and regulations of the State of New Mexico (Sec. 16-6-11.2 NMSA 1978; HPD Rule 89-1) and the Museum of New Mexico policy adopted January 17, 1991, and modified February 5, 1991, “Policy on Collection, Display, and Repatriation of Culturally Sensitive Materials” (SRC Rule 11). The probability of locating and recovering human remains appears to be low.

Discovery of burials during the data recovery effort seems unlikely. Only a small part of the site is in the construction area, and should human remains be encountered, the number of burials exposed is likely to be low. If burials, associated burial goods, or isolated burial goods are found, excavation will cease, and consultations with appropriate parties will be initiated as prescribed by the Native American Graves Protection and Repatriation Act (NAGPRA). If the remains are to be excavated, and interested parties express no specific excavation treatment, standard archaeological excavation techniques will be employed. These include definition of the burial pit, use of hand tools to expose skeletal materials, mapping, photographing the position of the skeleton and any grave goods, and retrieval of soil for pollen analysis. We will attempt to excavate all human remains encountered in order to rescue them for culturally appropriate disposition. No person will be allowed to handle or photograph the remains except as part of scientific data recovery efforts. Photographs of sensitive materials will not be released to the media or general public. If the parties consulted have no specific desires for treatment of the remains, the remains will be submitted to the Museum of New Mexico Archaeological Research Collection (ARC) for physical storage at the Department of Anthropology, University of New Mexico. Remaining artifacts will be submitted to ARC for physical storage.

Should burials be encountered and analysis approved, the main goal of skeletal analysis will be the nondestructive study of the remains to add to general data on prehistoric human populations, rather than to address specific questions raised in the research design. This approach will include standard metric studies, aging and sexing, and documentation of pathologies. There is a possibility that human remains from the sites could yield bone tissue samples for carbon isotope studies, allowing us to estimate the relative proportion of maize in the diet of the site's inhabitants. Before this

or any other destructive analysis is attempted, however, the Office of Archaeological Studies will work with the State of New Mexico Historic Preservation Division to ensure prior consultation with all concerned parties.

Traditional Cultural Properties Consultation

Traditional cultural property (TCP) investigations are a part of the Section 106 review process. According to the *National Park Service National Register Bulletin Number 38 (Guidelines for Evaluating and Documenting Traditional Cultural Properties)*, the *National Register of Historic Places* contains a wide range of historic property types, reflecting the diversity of the nation's history and culture. Buildings, structures, and sites; groups of buildings, structures, or sites forming historic districts; landscapes; and individual objects are all included in the *Register* if they meet the criteria specified in the *National Register's Criteria for Evaluation* (36 CFR 60.4). Such properties reflect many kinds of significance in architecture, history, archaeology, engineering, and culture. In the *National Register*, the word *culture* is understood to mean the traditions, beliefs, practices, lifeways, arts, crafts, and social institutions of any community, be it an Indian tribe, a local ethnic group, or the people of a nation as a whole. One kind of cultural significance a property may possess, and that may make it eligible for inclusion in the *National Register of Historic Places*, is traditional cultural significance. "Traditional" in this context refers to those beliefs, customs, and practices of a living community of people that have passed down through the generations, usually orally or through practice. The traditional cultural significance of a historic property, then, is that derived from the role the property plays in a community's historically rooted beliefs, customs, and practice.

A traditional cultural property can be defined generally as one that is eligible for inclusion in the *National Register of Historic Places* because of its association with cultural practices or beliefs of a living community that are rooted in that community's history and important in maintaining the continuing cultural identity of the community. Because of the difficulty in recognizing a traditional cultural property, the existence and significance of such locations often can be determined only through ethnographic research.

On June 17, 1999, revised regulations (36 CFR part 800) governing the Section 106 process were implemented. This called for expanded requirements for tribal consultations and participation. The NMSHTD currently operates under a substitution agreement between the Advisory Council on Historic Preservation and the New Mexico State Historic Preservation Officer under 36 CFR Section 800.7.

The OAS/ASSAPP project area is on private lands and NMSHTD right-of-way, and not on lands managed by the Bureau of Indian Affairs or any Indian tribe, nation, or pueblo. In the capacity of "interested party," the OAS/ASSAPP has contacted five Native American groups to determine if there are any TCP concerns: Acoma, Laguna, Hopi, and Zuni Pueblos, and the Navajo Nation.

Published Report

A report containing a summary of the test excavations, laboratory analyses, and recommendations for site management will be produced upon completion of fieldwork and laboratory study. At the completion of a major undertaking, the results will be published in the Archaeology Notes series. Attached to the report will be updated site record forms for the New Mexico Cultural Resource Management Information System, managed by the Historic Preservation Division, Archeological Records Management Section.

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