ARCHAEOLOGICAL INVENTORY OF THE BUCKMAN ROAD AND CAMINO LA TIERRA INTERCHANGE FOR THE WIPP–NM 599 PHASE OF THE NORTHWEST SANTA FE RELIEF ROUTE, SANTA FE, NEW MEXICO

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ARCHAEOLOGY NOTES 185

SANTA FE 1996 NEW MEXICO
ADMINISTRATIVE SUMMARY

An archaeological inventory was completed for the Buckman Road and Camino La Tierra interchange at the east end of the WIPP–NM 599 phase of the Northwest Santa Fe Relief Route in Santa Fe County. The inventory was conducted at the request of the New Mexico State Highway and Transportation Department on a 3.54 ha (9 acre) parcel at centerline station 733+00. The parcel is 60 m (200 ft) wide and extends 762 m (2,500 ft) to the northeast from the north right-of-way line. It is privately owned.

A search of the New Mexico Cultural Resources Information System (NMCRIS) files at the Archeological Records Management Section (ARMS), State Historic Preservation Division, in Santa Fe revealed no known archaeological sites within the project area. The field reconnaissance identified two archaeological sites—LA 111364 and LA 111365—and two isolated occurrences.

LA 111364 is a late Developmental-period sherd and lithic artifact scatter with a soil stain that may be the deflated remains of a thermal feature. The artifact assemblage reflects short duration, small-scale domestic activities. The site setting, near the headwater of a primary tributary of Arroyo de los Frijoles, may have been suitable for agriculture. Archaeological testing is recommended to determine the extent and depth of the cultural deposit.

LA 111365 is a glass-bottle dump associated with the Ferguson Dairy, which was operated between 1932 and 1943. The site consists of two discrete clusters of pint, quart, and one-half-gallon milk and cream bottles. The bottles have labels from four New Mexico dairies. A judgmental sample of temporally and functionally diagnostic bottle portions was collected and analyzed. LA 111365 has limited potential to provide additional information on the late Depression and early World War II history of the Santa Fe area. No further archaeological investigation of the site is recommended.

The two isolated occurrences were recorded in the field and described in this report. They have no potential to yield important additional information on the prehistory and history of the Santa Fe area.

This report is submitted in fulfillment of Joint Powers Agreement J00122 between the Museum of New Mexico and the New Mexico State Highway and Transportation Department.

MNM Project No. 41.612 (WIPP–NM 599)
NMSHTD Project No. WIPP 599-1(3), CN2147
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INTRODUCTION

At the request of the New Mexico State Highway and Transportation Department an archaeological inventory of 3.54 ha (9 ac) was completed for Buckman Road and Camino La Tierra interchange at the east end of the WIPP-State Road 599 phase of the Northwest Santa Fe Relief Route in Santa Fe County (Fig. 1). The Northwest Santa Fe Relief Route is a proposed four-lane highway with interchanges, frontage roads, bridge construction, and drainage realignments.

An archaeological inventory for the Northwest Santa Fe Relief Route was completed previously by the Office of Archaeological Studies in July and August of 1987. Forty-nine archaeological sites and 72 isolated occurrences were identified (Maxwell 1988). A redesign of the Buckman Road and Camino La Tierra interchange resulted in the addition of one parcel that was not included in the initial inventory.

The parcel is in the SW¼ and NW¼ of the SW¼ of the SE¼; the SW¼ and NW¼ of the NW¼ of the SE¼; the NE¼ of the NE¼ of the SW¼; and the SE¼ of the SE¼ of the NW¼ of Sec. 16, T 17N, R 9E, Santa Fe County, NMPM; UTM Zone 13, E410310, N3950720 (south limit of project area); E410000, N3951540 (north limit of project area). The parcel was located at centerline station 733+00 and is 60 m (200 ft) wide and extends for 762 m (2,500 ft) to the northeast from the north right-of-way line. It is privately owned.

Prior to conducting the inventory a search of the NMCRIS files at the Archeological Records Management Section, State Historic Preservation Division, in Santa Fe revealed no known archaeological sites within the project area. The National Register of Historic Places and the New Mexico State Register of Cultural Properties were consulted, and there are no listed properties within the project area.
Figure 1
Project vicinity map

Adapted from NASSHTD Santa Fe and Espanola Quads, NAD 1927
CONTEMPORARY ENVIRONMENT

The contemporary environment of the Santa Fe Basin has been thoroughly reviewed in a study by Kelley (1980) as part of the Arroyo Hondo archaeological project. Maxwell (1988) concisely summarizes the contemporary environment along the Santa Fe Relief Route right-of-way proper. His summary is repeated here:

The project area is located within a structural subdivision of the Southern Rock Mountain physiographic zone known as the Española Basin (Folks 1975). The basin is bounded on the west by the Jemez Mountains and to the east by the Sangre de Cristo Mountains. An alluvial plain, dissected by numerous arroyos, stretches westward from the foothills at the base of the Sangre de Cristos. Elevation in the project area ranges from 1,910 m to 2,252 m.

Local topography alternates among nearly level plains, rolling terraces, and steep, rocky slopes. The project area is within the Santa Fe River drainage basin. The Arroyo Frijoles, which is a major tributary, borders the project area to the north. The prehistoric floodplain of the Arroyo Frijoles has gentle grassy slopes with intermittent stands of piñon and juniper trees. From the prehistoric floodplain of Arroyo de los Frijoles, the project corridor heads southeast across a low ridge system that separates Arroyo de los Frijoles from Arroyo Gallinas. The ridge top is paved with Ancha formation gravel and cobbles and is a piñon-juniper parkland. The project corridor ends near the headwater of a primary tributary of the Arroyo de los Frijoles.

Alluvial materials consisting of ancient and modern gravel are found in all the arroyos and in slope wash and terrace deposits. Tertiary volcanic deposits, Cenozoic sediments, and Precambrian rock are exposed in surrounding areas and, combined with local alluvium, provide most of the materials needed for prehistoric lithic artifact production. In particular, cherts are available in the Ancha formation (Kelley 1980:11-12), and sandstone, siltstone, andesite, basalt, and silicified wood occur in nearby formations (Hannaford 1986:4). Small amounts of obsidian are found scattered along the basalt-capped mesas to the west (Kelley 1980:12). The primary obsidian source for the study area was likely the Jemez Mountains.

The flora and fauna in the project area are typical of Upper Sonoran grasslands (Fallon et al. 1978:3). The piñon-juniper community thins as it descends from the Sangre de Cristo foothills and grades into shortgrass plains with scattered juniper about midway between the foothills and the Santa Fe River (Kelley 1980:61-62). The open, grass-covered valleys contain grama grass, muhly, Indian ricegrass, galleta grass, soapweed yucca, one-seed juniper, Colorado piñon, occasional Gambel’s oak, and small stands of mountain mahogany. The arroyo bottoms contain various shrubs such as fourwing saltbush, Apache plume, rabbitbrush, big sagebrush, and wolfberry.
Regional fauna include desert cottontail, black-tailed jackrabbit, and Gunnison's prairie dog. A complete list of flora and fauna found in the area is in Kelley (1980).

The area has a semiarid climate. Most of the local precipitation occurs in the form of intense summer thunderstorms that produce severe runoff and reduce usable moisture. The area receives an average of 229 to 254 mm of precipitation per year and a mean snowfall of 356 mm (Kelley 1980:112). The growing season ranges from 130 to 220 days and averages 170 days. The last spring frost usually occurs in the first week of May and the first fall frost occurs around the middle of October. The mean yearly temperature is 10.5° C.
CULTURE HISTORY

This brief summary of the culture history of the project area has been adapted from Post and Snow (1992). Other regional syntheses include Cordell (1978), Peckham (1984), and Stuart and Gauthier (1981).

Paleoindian Period

A striking characteristic of Santa Fe culture history is the paucity of evidence for occupation during the Paleoindian period (9500 B.C. to 6000 B.C.). The two reported occurrences are isolated late Paleoindian Cody complex artifacts from the Galisteo Basin near San Cristobal (Lang 1977) and the Galisteo Reservoir (Honea 1971).

In New Mexico, the most extensive and spectacular evidence of Paleoindian subsistence modes are the remains from the killing and butchering of large mammals (Stuart and Gauthier 1981). Evidence for hunting smaller mammals and plant gathering is rare and largely inferential (Judge 1973). Kill and butcher sites have the highest archaeological visibility and therefore are reported most often.

The lack of reported Paleoindian remains may be a visibility problem rather than indicating the scarcity of occupation. Paleoindian remains from hunting and gathering activities may be masked by later Archaic and Anasazi components. Geomorphological factors also may contribute to low Paleoindian-period visibility. Surfaces or strata containing the earliest remains may be deeply buried, and exposures that contain Paleoindian remains may be difficult to identify or missed using traditional pedestrian survey methods (Cordell 1978:6).

The recent discovery of a Clovis-period site in the Jemez Mountains suggests that Paleoindians used montane environments, where large game was available (Acklen et al. 1990). The two identified Cody complex components may be evidence of a changing adaptation that was focused more on hunting smaller mammals and plant gathering than in previous periods. Use of the Middle Rio Grande Valley for hunting and gathering forays may have resulted in site or component distributions that were not masked by later occupations or by deep, natural soil deposition.

Archaic Period

The Archaic period in the Santa Fe area has been defined according to the Desert Culture Oshara and Cochise traditions (Cordell 1979; Biella and Chapman 1977; Lang 1977). These traditions span 5500 B.C. to A.D. 400 and are primarily distinguished by morphologically and temporally distinct projectile points and to some extent stone tool assemblages and site structure (Irwin-Williams 1973, 1979). Archaic-period sites identified in the Santa Fe area span the Bajada
phase (4800 to 3200 B.C.) and the En Medio or Basketmaker II period (800 B.C. to A.D. 400). Recent archaeological investigations throughout the Santa Fe area have revealed some aspects of the settlement and subsistence patterns of Archaic-period populations.

The Early and Middle Archaic periods (5500 to 1800 B.C.) are represented by low-frequency and widely dispersed sites and isolated occurrences. Evidence from this period often consists of temporally diagnostic projectile points or tools that are mixed with deposits from later occupations. Many of these sites are along the Santa Fe River and its primary tributaries, which would have been preferred campsite locations. Early and Middle Archaic-period materials found on these sites are presumed to be primary deposits and not the result of later recycling or scavenging. Temporal information for this period is mainly derived from obsidian hydration dating of chipped stone artifacts from surface or near surface contexts. The accuracy of these dates is debatable. Other chipped stone materials associated with the obsidian are weathered, suggesting that they are older than the other spatially associated materials.

The Late Archaic periods (Armijo, En Medio, and Basketmaker II, 1800 B.C. to A.D. 400) are characterized by increasing numbers of sites through time that were occupied longer and located in a broad range of environmental settings. Small Armijo-phase campsites have been identified north of the Santa Fe River (Post 1993:8-10). Late Armijo-phase pit structures and base camps have been excavated in the low piedmont area separating the Arroyo Calabasas from the Santa Fe River near the airport in Santa Fe (Schmader 1994; Post in prep.). Radiocarbon midpoint dates ranging from 940 to 1740 B.C. were obtained from hearths and structural elements from three sites. As Late Archaic populations remained longer in the Santa Fe area, the sites had more formal facilities and distinctive discard patterns. Small logistical sites increase in number but are widely dispersed, suggesting expansive foraging ranges.

En Medio and Basketmaker II sites are the most numerous and widely distributed. Base camps with structures, limited base camps, special activity sites, and isolated occurrences are found in riverine, piedmont, foothill, and montane environments (Lang 1993; Scheick 1992; Schmader 1994; Viklund 1988; Post 1993). The greater site frequency and diversity indicate population increase, longer occupations, and shorter spans between occupations. Based on Lang's (1977:328-329) climatic reconstruction, the periods from 50 B.C. to A.D. 200 and from A.D. 250 to 400 may have been the best for a hunting and gathering adaptation. These periods had above-average or similar to modern precipitation patterns combined with warmer than modern temperatures during the early period and equal to or cooler than modern temperatures during the later period. Warmer temperatures combined with above-average precipitation would have supported a more abundant and perhaps diverse plant community as well as larger herds of large game mammals. It is possible that year-round habitation could have been supported in the eastern Galisteo Basin and the Santa Fe drainage basin during these periods.
Pueblo Period

Developmental Period (A.D. 600-1200)

The Developmental period (Wendorf and Reed 1955) is divided into early (A.D. 600 to 900), middle (A.D. 900 to 1000), and late (A.D. 1000 to 1200) subperiods. This temporal framework roughly corresponds to the Pecos Classification system developed by Kidder (1924).

Early Developmental sites are uncommon in the northern Rio Grande (Wendorf and Reed 1955:138). Archaeological survey at Cochiti Reservoir found only 12 sites that could be assigned to this period (Biella and Chapman 1977:203). McNutt (1969:70) found no early Developmental period components north of La Bajada and White Rock Canyon. In the eastern Galisteo Basin only five components may date to this period (Lang 1977; Scheick and Viklund 1989). The lack of evidence for sedentism suggests that there was a long-term pattern of hunting and gathering in the northern Rio Grande. This continued focus on hunting and gathering may be in part attributed to the rich resource diversity of the northern Rio Grande Valley, forestalling an early reliance on small-scale farming (Cordell 1979:2).

During the middle Developmental period (A.D. 900 to 1000), site frequency increased in the northern Rio Grande area. Excavations in the Santa Fe and Tesuque river valleys revealed pithouses associated with contiguous surface rooms, and perhaps a kiva (Honea 1971; McNutt 1969:58). The pottery was mineral painted in the Red Mesa style, and neckbanded utility wares occurred. The appearance of these sites does not necessarily suggest that population increased. Instead, the settlement and subsistence pattern had shifted from one of mobility, which left ephemeral archaeological remains, to a more sedentary lifestyle, which left more structural remains and artifact accumulations. The general pattern was still one of low population density.

During the late Developmental period (A.D. 1000 to 1200), the first population increase occurred in the Santa Fe area, as inferred from increased site numbers and size (Wendorf and Reed 1955:140-41). Larger village size suggests year-round residential occupation. The predominant pottery was Kwahe'e Black-on-white, originally identified by Mera (1935) as a local Rio Grande variant of Chaco-style pottery. Occurrence of this pottery style coincided with the growth of the Chaco system in the San Juan Basin in northwestern New Mexico. Site size in the northern Rio Grande area ranges from 1 to 100 rooms. Known sites in the project area include LA 114 (Arroyo Negro), LA 15969 (Wiseman 1978), and a minor component at Pindi Pueblo (LA 1) (Stubbs and Stallings 1953). The Pindi Pueblo component shows that some large Coalition sites had their origins in this period (Stubbs and Stallings 1953:14-15).

Arroyo Negro (LA 114) was originally recorded by Mera in the 1920s. It has seven small (less than 10 rooms) to medium (11-25) roomblocks constructed of adobe with cobble foundations (NMCRIS, 1974). In 1934, W. S. Stallings collected 95 tree-ring samples from pothunted rooms and four kivas (Smiley et al. 1953:27-29). The tree-ring dates indicate an occupation span between A.D. 1050 and 1150. Less reliable dates of A.D. 950 to 1000 were given for Kiva C. Two construction episodes occurred between the A.D. 1050s and A.D. 1130 to 1145 (Smiley et al. 1953:29). Identified pottery types at LA 114 included Kwahe'e Black-on-white, Santa Fe
Black-on-white, Socorro Black-on-white, and Wingate Black-on-red.

LA 15969 was identified by Wiseman (1978:8) on top of the gravel terrace overlooking the northern prehistoric floodplain of the Santa Fe River. The site included a U-shaped 14-room structure with a kiva and is estimated to have been occupied between A.D. 1100 and 1150, making it contemporaneous with the later occupation of LA 114.

The late Developmental component at Pindi Pueblo (LA 1) had two jacal structural remnants, a pithouse, and sparse refuse (Stubbs and Stallings 1953:9). The refuse was in the central portion of the site on a knoll. Identified pottery types included Red Mesa Black-on-white, Kwahe'e Black-on-white, and Puerco and Wingate Black-on-red (Stubbs and Stallings 1953:14). Stubbs and Stallings observed that the pre-Pindi material was very sparse, and the deposit ranged from 2 to 50 cm deep (1953:15). These deposits were underneath the later Coalition occupation.

Coalition Period (A.D. 1200-1325)

The Coalition period is marked by three major changes in the archaeological record in the northern Rio Grande: (1) a significant increase in the size and numbers of sites, suggesting an increase in population and an extension of the early village-level organization noted in the late Developmental period; (2) pithouses as domiciles were replaced by contiguous arrangements of adobe and masonry surface rooms; and (3) a change in pottery-making technology from mineral paint to organic-based painted pottery. These changes were sufficiently important to warrant a new period in the Northern Rio Grande cultural sequence that was divided into two phases: Pindi (A.D. 1220-1300) and Galisteo (A.D. 1300-1325) (Wendorf and Reed 1955). The decorated pottery was divided into Santa Fe Black-on-white and all its local variants (Stubbs and Stallings 1953) for the Pindi phase and Galisteo Black-on-white (Mera 1935) for the later phase. Most of the large sites were established during the Pindi phase. The largest sites continued to grow into the Galisteo phase, anticipating the large villages of the Classic period. Site sizes ranged from 2 to 200 rooms; 15 to 30 rooms was the most frequent size (Stuart and Gauthier 1981:51). Site frequencies in all areas of the northern Rio Grande increased enormously at this time (Biella and Chapman 1977:203; Orcutt 1991; McNutt 1969; Lang 1977).

In the Santa Fe River Valley, large villages on the prehistoric floodplain near the river channel were established during the early Coalition period. The only reported excavations are at Pindi Pueblo (LA 1, Stubbs and Stallings 1953) and the Agua Fria Schoolhouse site (LA 2, Lang and Scheick 1989). LA 1, LA 2, LA 109, LA 117, LA 118, and LA 119 have Santa Fe and Galisteo Black-on-white, and at least a small amount of glaze-paint pottery, suggesting that all six sites are roughly contemporaneous. These villages formed a large continuous community that was 3.2 km (2 mi) long. Sites in the Santa Fe River Valley recorded by Carter and Reiter (1933), but not by Mera, include CR (Carter-Reiter) 178, 180, 182, 183, and 185. These sites may have Coalition and early Classic components, since LA 1 (Pindi Pueblo) and LA 2 (Agua Fria Schoolhouse) were recorded by Carter and Reiter as historic sites.

Site data for the late Coalition period show a thriving community along the Santa Fe River. Farming along the Santa Fe River, the presence of fresh water springs, and the access to
diverse environments for subsistence items and raw material all contributed to successful settlement. So successful was it that while the communities of the Four Corners area of the American Southwest were declining, the Santa Fe River community was growing.

Classic Period (A.D. 1325-1600)

Wendorf and Reed (1955) mark the beginning of the Classic period (A.D. 1325-1600) by the appearance of Glaze A and locally manufactured red-slipped pottery (see also Mera 1935; Warren 1979). Characterized by Wendorf and Reed as a "time of general cultural florescence," regional populations reached their maximum size, and large communities with multiple plaza and roomblock complexes were established. Although the reasons for the appearance and proliferation of the glaze wares are debatable, many researchers, including Eggan (1950), Hewett (1953), Mera (1935, 1940), Reed (1949), Stubbs and Stallings (1953), and Wendorf and Reed (1955) believe that the similarity of the new pottery to White Mountain Red Ware is evidence for large-scale immigration into the area from the San Juan Basin and Zuni region. Steen (1977) argues, however, that the changes seen during this period resulted from rapid indigenous population growth. Steen believes that the population growth was enabled by favorable climatic conditions that allowed Rio Grande populations to practice dry farming in previously unusable areas. Steen also suggests that there was "free and open" trade between the northern Rio Grande region and other areas, accounting for the observed changes in Classic-period material culture.

It is therefore unclear how much of the population increase during this period resulted from immigration or from intrinsic growth. Besides populations migrating from the west, it has also been suggested that some population growth was due to the arrival of people from the Jornada branch of the Mogollon to the south, and perhaps from northern Mexico (Schaaafsma and Schaafsma 1974).

Large villages of this period found in the Santa Fe vicinity include the Aqua Fria Schoolhouse site (LA 2), Arroyo Hondo (LA 12), Cieneguilla (LA 16), LA 118, and LA 119. When Glaze B pottery appeared (ca. A.D. 1425), however, only Cieneguilla was still occupied by a large population. Dickson (1979) believes that abandonment of the large villages was due to the drought conditions revealed by tree-ring studies (Fritts 1965; Rose et al. 1981) and to subsequent agricultural failure.

In the Santa Fe River Valley, LA 1 and LA 2 are the best known Classic-period sites. LA 1 was occupied between A.D. 1325 and 1350, which is the early part of the period (Stubbs and Stallings 1953:155). This may have been a time of population movement and village reorganization. Pindi Pueblo experienced a short interlude of decreased occupation before A.D. 1325, but by A.D. 1330 there was new building and renewed use of older parts of the pueblo (Stubbs and Stallings 1953:14). A similar pattern was suggested at LA 12 (Arroyo Hondo Pueblo) (Lang and Scheick 1989:196). A change in kiva function may be indicated by a change in their frequency (four to two) within villages and a change from subterranean to surface placement. Perhaps as kiva function became more specialized, the number decreased. Plazas were more conspicuous at this time, suggesting a more centralized social organization that may have required larger community areas for social or ceremonial functions. It is known that the
large villages of the Galisteo Basin, the Rio Grande, and Rio Chama showed the same trends in the construction of fewer kivas and use of larger, more centrally located community space, such as early Classic-period Pindi Pueblo. The full florescence of the Classic period was not realized at Pindi Pueblo because it was abandoned in A.D. 1350, just as the larger villages were being established.

Limited excavation data from LA 2 suggest an occupation that lasted until A.D. 1420, which corresponds to Arroyo Hondo Pueblo and La Cieneguilla. Little is known about the early Classic period at LA 2. The abundance of Glaze A pottery suggests that the residents were engaged in regular social or economic interaction with the more southern Classic-period villages (Lang and Scheick 1989). Lang and Scheick (1989:195) surmise that LA 2 was the largest village in the Santa Fe River Valley until A.D. 1420. If the village did house between 1,000 and 2,000 people, as suggested by Lang and Scheick (1989:196), then the smaller surrounding villages (LA 117, LA 118, and LA 119) may have been abandoned by A.D. 1350, and the local population coalesced at LA 2. An untested hypothesis suggests that this coalescence may have been brought on by a change in social organization, not environmental conditions. The resources of the Santa Fe River could have been successfully exploited by many little villages. Success notwithstanding, sometime after A.D. 1350, everybody may have moved into one large village. If economic resources were equally available to all, then there must have been other social or religious factors that contributed heavily to population aggregation (Cordell 1978:58).

After A.D. 1420, the Santa Fe River Valley, east of Agua Fria, was mostly abandoned. The large settlement at La Cieneguilla increased in size and was still occupied by Native Americans until the Pueblo Revolt in A.D. 1680. The settlement pattern that prevailed throughout the Rio Grande, Rio Chama, and Galisteo Basin was a decrease in small villages or large farmsteads. The remaining large villages dramatically increased in size (Stuart and Gauthier 1981). Presumably these large villages had extensive subsistence catchment basins and networks of social and economic interaction. The pattern of few or no Native American sites dating between A.D. 1420 and 1680 is graphically reflected in the survey results from large parcels near the Santa Fe River Valley (Hannaford 1986; Maxwell 1988; Wiseman 1978; Gossett and Gossett 1989; Lang 1980).

Historic Period (A.D. 1540 to 1940)

The Historic period in the Santa Fe area spans more than 400 years of interaction among Native American, Spanish, and Anglo-American cultures. A detailed summary of historical events and trends in the Middle Rio Grande and the Santa Fe area is beyond the scope of this report. Interested readers are referred to the many sources that detail the events and patterns of the historic period (Jenkins and Schroeder 1974; Lamar 1966; Larson 1968; Bannon 1979; Noble 1989; Pratt and Snow 1988; Kessell 1979; Twitchell 1925; Athearn 1989).

Except for the period of Spanish exploration, the Historic period is divided into time spans that reflect changes in political control in New Mexico. The Spanish exploration includes the period between Coronado's entrada into New Mexico, in 1540, and Don Juan de Oñate's
arrival at San Juan de los Caballeros along the Rio Grande at modern San Juan Pueblo, in 1598. The early Spanish Colonial period spans 1599 to 1680, which includes the founding of Santa Fe (1609-10) and the beginning of the Pueblo Revolt. The return to Native American self-determination occurred between 1680 and 1696. Beginning in 1696 and ending in 1698, Don Diego de Vargas recaptured New Mexico and returned political and economic control to Spain. The Spanish Colonial period spanned A.D. 1698 to 1821, the year of Mexican independence from Spain. It was a time of settlement growth and expansion in New Mexico. The Mexican period lasted from A.D. 1821 to 1848. This period was a short interlude with minor changes in New Mexico social and political life, except for the initiation of trade with the United States and the official opening of the Santa Fe Trail. The Territorial period began in 1848, with the end of the Mexican-American War and the signing of the Treaty of Guadalupe Hidalgo. The Territorial period continued the expansion of the Anglo-American social, economic, and political system into the American Southwest that had begun with the opening of the Santa Fe Trail. The Territorial period ended with statehood in 1912. From statehood to World War II (A.D. 1912 to 1945), New Mexico continued to become more integrated into the national political, economic, and social system. There was increased education and economic opportunity outside New Mexico and a steady flow of Anglo-Americans into New Mexico. These factors combined to crystallize the tricultural traditions that are a recognized part of New Mexico past and present.
SURVEY METHODS

The project corridor was surveyed by two archaeologist walking linear transects at 10 m intervals within the 60 m (200 ft) wide corridor. One hundred percent of the project area was surveyed at this interval.

Isolated occurrences were recorded and located on a USGS 7.5' Santa Fe quadrangle map. Chipped stone was recorded according to morphological and technological attributes, using the Office of Archaeological Studies’s lithic analysis manual (OAS 1994). The historic artifacts were recorded according to function, form, and age. None of the isolated occurrences were collected.

The archaeological sites were recorded following OAS standard procedures. The site limits, artifact concentrations, general artifact distribution, and features were pinflagged, and a sketch map of the site was drawn. The artifacts were counted and examined for range of material and artifact type. The standard Laboratory of Anthropology site form was completed. Black-and-white photographs were taken with a 35 mm camera. The site limits were marked with yellow flagging tape, and the artifact concentrations and features were marked with a single pinflag. Temporally and economically diagnostic artifacts were collected from the bottle-glass clusters at LA 111365. These artifacts will be submitted to the Archaeological Research Collection for permanent curation.
SURVEY RESULTS

The archaeological inventory identified two archaeological sites, LA 111364 and LA 111365, and two isolated occurrences. LA 111364 is at the south project area limit. LA 111365 is at the north project area limit. Site location information is provided in Appendix 1.

LA 111364

Site Type: Sherd and lithic artifact scatter with thermal feature.

Cultural/Temporal Affiliation: Anasazi/Late Developmental Period (A.D. 1050 to 1200).

Elevation: 2,110 m (6,920 ft).

Setting: LA 111364 is on a gentle to moderately steep, southwest-facing slope cut by numerous minor drainages, two of which bound the site on the east and west. The site extends from the ridge slope to the bank of a primary tributary of Arroyo de los Frijoles. It is at the headwaters of the arroyo, where numerous modern channels have cut into the deep alluvium and combine to form a broad and braided channel. The ridge top has deep Pojoaque-Rough broken land complex soils (Folks 1975:43) capped by a dense and abundant Ancha formation gravel and cobble deposit that is exposed on the slopes. The arroyo channel is cut into Bluewing gravelly sandy loam (Folks 1975:16). The ground cover is predominantly grama grass and rabbitbrush with prickly pear, cholla cactus, and narrowleaf yucca. Piñon-juniper is sparse to moderately abundant.

Condition: The site is in eroded condition. The top soil on the ridge slope is deflated with cobbles and gravel forming a pavement where many of the chipped stone artifacts were found. The lower slope along the margins of the arroyo channel is deflated and eroded with diffuse soil stains. The sherds occur on this lower slope in association with the soil stains.

Dimensions: 27 m north to south by 24 m east to west; 648 sq m.

Description: LA 111364 is a late Developmental-period (A.D. 1050 to 1200) artifact scatter with a soil stain that may be the diffuse remains of a thermal feature (Fig. 2). The pottery is clustered on the lower slope along the arroyo channel. The chipped stone occurs on the lower slopes but is more abundant on the gravelly upper slopes. The pottery cluster and diffuse soil stain may represent an activity area, although the cultural deposit exhibits the effects of slope erosion and deflation. The artifact density is low, but the artifact diversity is unusually high for Pueblo-period limited activity sites of the Santa Fe River and its major tributaries.

The pottery was Kwahe'e Black-on-white and one sherd of indented corrugated utility ware. The Kwahe'e Black-on-white pottery included four bowl sherds and two jar sherds from
Figure 2. LA 111364 site map.
different vessels. One of the bowl sherds was decorated on both sides, which is unusual for Kwahe'e Black-on-white. The indented corrugated was a typical coarse sand-tempered utility ware. The cooccurrence of decorated bowl and jar sherds and utility ware sherds suggests small-scale domestic activities at a field structure used on a daily basis.

The chipped stone artifacts reflected use of local raw materials. Observed material types were red, brown, and white chert, white and clear chalcedony, and gray, black, and brown quartzite. The thirty chipped stone artifacts were core reduction flakes and angular debris. The chipped stone debris reflects local raw material procurement and early stage core reduction.

A soil stain is visible along the edge of the arroyo bank. The soil is gray brown, but no charcoal or ash was observed. The stain is 1 m north to south by 4 m east to west and is at least 10 cm deep. The stain is deflated and eroded, resulting in diffuse edges and coloration. No fire-cracked rock was observed, suggesting the stain may be a basin-shaped hearth typical of the small sites found in the piñon-juniper piedmont north of the Santa Fe River.

Interpretation: LA 111364 is a small site with low artifact frequency and density but unusually high ceramic vessel-form diversity. The chipped stone assemblage, reflecting material procurement and early stage core reduction, is typical of the majority of nondiagnostic artifact scatters investigated along the northern tributaries of the Santa Fe River. The pottery assemblage of decorated bowl and jar sherds and a utility ware is unusual. More commonly, only one vessel form is found at late Developmental or Coalition sites. This pattern is exemplified by LA 61328, which was along the Northwest Santa Fe Relief Route, 4.6 km (3 mi) east of this project area (Wolfman et al. 1989:110-111). Close spatial association of the soil stain and sherds indicates they are contemporaneous. A diverse pottery assemblage, soil stain, and expediently used lithic raw materials suggests small-scale and low-intensity domestic activities necessary to maintain a day-use field structure. The setting of LA 111364 at an arroyo headwaters with deep Bluewing complex soils suggests that dry farming was feasible in the immediate area.

LA 111365

Site Type: Dairy bottle dump.


Elevation: 2,098 (6,880 ft).

Setting: LA 111365 is in the prehistoric floodplain of Arroyo de los Frijoles south of the entrenched channel. The floodplain slopes gently to the west and south and is composed of deep alluvial Cerrillos fine sandy loam soils. The immediate vicinity has three 8 to 10 m wide by 3 m deep erosion channels that roughly parallel Buckman Road. These channels may be eroded remnants of an earlier roadbed. The channel that incorporates the dairy glass-bottle dumps has
steep sides that cut through the thick refuse. The floodplain understory consists of dense, tall grasses mixed with intrusive Russian thistle and snakeweed. The overstory is sparse piñon-juniper.

Condition: The glass-bottle dumps are on the north slope of a dissected erosion channel that probably has formed recently. The dumps remain densely packed, although they have been intruded by tree roots and rodent burrows. The rodent burrows that enter the bank through the glass display a thick cascade of glass shards, where normally there would be soil. Relatively little glass occurs in the channel, indicating good integrity for the two dumps.

Dimensions: 40 m east to west by 7 m north to south; 280 sq m.

Description: LA 111365 consists of two historic-period dairy glass-bottle dumps south of Buckman Road, in the prehistoric floodplain of the Arroyo de los Frijoles (Fig. 3). The two glass-bottle dumps are in a recent erosion channel that may be remnants of an earlier Buckman Road bed. They are similar in size and content and are probably contemporaneous. Each glass dump, at 25 m apart, extends from near the top of the erosion channel to the edge of the channel. Temporally diagnostic bottle fragments are abundant, as are all portions of milk and cream bottles. A sample of bottle fragments was collected. The bottles are datable, have dairy names, list product information, and show advertisements, or they are representative of the range of bottle shapes.

Bottle Dump A is at the east end of the site. It is 8 m east to west by 4 m north to south. Estimated glass shard counts range between 10,000 and 20,000. The bottle fragments include lip, neck, body, and basal portions as well as one-half to three-quarter portions of milk and cream bottles. This dump consists almost exclusively of dairy bottle fragments. Bottle fragments from Ferguson Bros. Dairy (Santa Fe), Slade’s Dairy (Santa Fe), Hoyne Wells Riverside Jersey Dairy (Española), and Clarke’s Dairy (Gallup) were observed. Labels from two other dairies are evident, but the dairy names could not be determined. The dense cluster and high frequency of the same bottle types indicate that Bottle Dump A results from a single episode.

Bottle Dump B is at the west end of the site. It is 6 m east to west by 5 m north to south. It has an estimated 20,000 bottle-glass shards, with all bottle portions represented. Cream and milk bottles are the most common. Besides the bottle glass there are fewer than one hundred 12 oz vegetable/fruit sanitary cans, sardine cans, Prince Albert-style tobacco cans, stoneware, and construction debris such as steel mesh, plaster lathe, and concrete fragments. The Ferguson Bros., Riverside, and Clarke’s dairies are represented, but not the Slade Dairy.

Bottle Glass Artifact Descriptions: An arbitrary sample of bottle glass portions and labels representing less than .01 percent of the assemblage was selected that illustrated the time range, different dairies, and bottle forms.

Thirty-four bottle fragments collected from Bottle Dump A included two one-quart neck and lip portions, a one-quart base, a one-half-pint base, 29 body fragments, and a purpled body fragment. The base and lip fragments show traces of an automatic bottle machine, which was the predominant manufacture method after 1903 (Ward et al. 1977:236). All but two of the
Figure 3. LA 111365 site map.
fragments were painted using the applied label method, which was the industry standard after 1934 (Ward et al. 1977:235).

Twelve bottle fragments collected from Bottle Dump B included a one-quart milk bottle body and base, a one-half-pint cream bottle body and base, two one-half-pint cream bottle lip and body portions, one lip and body prescription bottle, and seven painted body fragments. All bottles were made by an automatic bottle machine and were painted with the applied label method.

The one-quart milk bottles had labels from three dairies: Riverside, Ferguson Bros., and Clarke's. Eleven bottle fragments from the Riverside Dairy were collected. The label extols milk as "Natures Most Perfect Food" and depicts a young boy holding a glass of milk. Also painted on the bottle is a Jersey cow, the name of the dairy owner--Hoyne Wells--and the location of the dairy, Española.

Seven bottle fragments from the Ferguson Bros. Dairy were collected. These bottle labels were painted blue and displayed patriotic World War II slogans. The label shows stenciled blue balloons with clear letters urging milk drinkers to "BUY WAR BONDS." Next to the balloon is a scroll outlined in blue with a clear background. The scroll displays Pacific theater battle cries: "AVENGE MANILA," "REMEMBER PEARL HARBOR," "TAKE THE SOLOMON ISLANDS," and "LIBERATE THE PHILIPPINES." These labels were obviously produced in 1942, by which time the Japanese had attacked Pearl Harbor and virtually pushed the Allies out of the Pacific.

One Clarke's Dairy bottle one-quart bottle fragment was collected. It was painted red and showed the profiled head of a Native American. Only part of the label was present, but a one-half-pint cream bottle displays the same label, saying, "SUPPORT HOME INDUSTRY BE 100% FOR GALLUP--THE INDIAN CAPITAL." This bottle was probably one of a lot of second-hand bottles that were used by the local Ferguson Bros. Dairy.

Two and possibly three other dairies are represented by bottle labels. However, the partial labels lack the name of the dairy or other conclusive information. The different dairies are suggested by different label colors and printing styles.

One-half-pint cream bottles were collected with Ferguson Bros., Clarke's, and Slade's Dairy labels. Slade's Dairy has a red label written in cursive, providing the dairy name and Santa Fe, New Mexico, as the dairy location. The Clarke's Dairy bottle is similar to the one-quart bottle except the label is made smaller to fit the bottle. The Clarke's one-pint bottle is also a small version of the one-quart bottle with a flared, thick lip and a recurved body shape.

The Ferguson Dairy one-half-pint bottles were unique. The have a thick-bead flared lip and a neck and body that are cylindrical but expand in diameter from the top of the neck to the base. The bottle mold was fancy, with bands formed by hexagons and diamonds ringing the upper portion of the neck and middle and lower portions of the body. The bottle label was painted blue, providing the dairy name and location, Santa Fe, N.M.; and the date, 1942. Obviously, the date fits with the World War II slogans printed on the one-quart bottles.
One prescription-style bottle body and lip with a threaded lip was collected. The bottle lip was made to imitate the cork-stopper bottles of the turn of the century, with a flared bead encompassing the upper portion of the neck, which is topped by a threaded lip. This bottle postdates 1930 because it lacks patination. It was recovered from Bottle Dump 2, which contained a low-frequency component of domestic refuse.

Historical Documents: Historical title documents provide information on the history of the Ferguson Bros. Dairy. Charles A. B. Ferguson and David F. Ferguson purchased 1,750.82 acres from Charles and Berta Brenner of Colorado Springs, Colorado, on October 25, 1932. The land included private land holdings and State of New Mexico lease lands (Santa Fe County Clerk's Office [SFCCO], Book E, p. 141). This purchase provided the Fergusons with land for the dairy and range land for livestock. The Fergusons retained the land until 1943, when a quitclaim deed was given to Franklin Bond for $10 (SFCCO, Book 23, QCD, p. 266). The deed included all improvements to the land. From this document it can be inferred that the Ferguson Bros. Dairy ceased operation with the sale of the state land leases in 1943. The dairy was in business for 11 years, during which time the Fergusons had trouble making tax payments and unemployment compensation payments to the state. This suggests that the dairy was viable but financially unstable.

Interpretation: LA 111365 consists of two discrete dairy bottle-glass dumps at the north end of the project area along the south side of Backman Road. The dumps have an estimated 20,000 to 40,000 glass shards. An estimated 200 to 400 bottles are present in each dump. The bottles appear to have been broken before they were discarded, suggesting that they represent waste deposits rather than a discontinuation of inventory. At least four and perhaps as many as seven dairies are represented by the bottle labels. The dairies were in Santa Fe, Gallup, and Española. Most of the bottles came from the Ferguson Bros. Dairy in Santa Fe.

The dairy labels indicate a World War II manufacture period, which is supported by the documents relating to the Ferguson Bros. Dairy. The Ferguson Bros. Dairy was established in 1932 and closed by 1943. The 1942 date on the Ferguson Bros. cream bottle indicates that the bottle glass was deposited near the end of the dairy's operation. Buckman Road passed through former Ferguson Bros. land, and dumping along the road may have been for convenience. Another bottle dump, LA 85641, was recorded on Las Campanas property 1 mile to the west, suggesting that the dairy used numerous locations for occasional trash disposal (Scheick 1992:44).

Isolated Occurrences

Two isolated occurrences were identified. Isolated Occurrence 1 was a 5 m diameter historic refuse concentration consisting of one 14 oz vegetable/fruit sanitary seal can, three 12 oz condensed milk cans, a Prince Albert-style tobacco can, a 2 lb coffee can lid, one 5 lb resealable dry goods lid, one 2 gal bucket, one stoneware dish fragment, and a 6 cylinder distributor cap. Isolated Occurrence 1 is in the vicinity of LA 111365 and may be refuse from livestock herding or ranching activities.
Isolated Occurrence 2 was a medium-grained chert core reduction flake. It was complete, with 30 percent dorsal cortex, a single-faceted platform, and two dorsal scars. It measured 42 mm long by 51 mm wide by 26 mm thick. The chert is a local material available in the gravel that covers the piedmont hills. The core reduction flake is evidence of expedient or situational use of the local raw material during foraging activities by prehistoric populations living along the Santa Fe River.
RECOMMENDATIONS

The archaeological inventory of the 3.54 ha (9 ac) parcel for the Northwest Santa Fe Relief Route, WIPP–NM 599, was conducted at the proposed Camino La Tierra and Buckman Road interchange. The inventory resulted in the identification of two archaeological sites, LA 111364 and LA 111365, and two isolated occurrences.

The two isolated occurrences were recorded in the field and described in this report. They have no potential to yield important additional information on the prehistory and history of the Santa Fe area.

LA 111364 is a late Developmental-period sherd and lithic artifact scatter with a soil stain that may be the deflated remains of a thermal feature. The artifact assemblage reflects short-duration, small-scale domestic activities. The site location, near the headwater of a primary tributary of Arroyo de los Frijoles, may have been suitable for agriculture. The data potential of LA 111365 could not be determined during the inventory. Archaeological testing is recommended to determine the extent and depth of the cultural deposit.

LA 111365 is a glass-bottle dump associated with the Ferguson Bros. Dairy. The site consists of two discrete clusters of pint, quart, and one-half-gallon milk and cream bottles. The bottles have labels from four New Mexico dairies. A judgmental sample of temporally and functionally diagnostic bottle portions was collected. Bottle labels indicate a 1942 date of manufacture for some of the bottles. Historical documents indicate that the Ferguson Bros. Dairy operated between 1932 and 1943. The bottle dumps result from two discrete disposal episodes that occurred near the end of the dairy operation. The field recording and analysis of the artifact sample, and a review of the historical documents pertaining to Ferguson Bros. Dairy land transactions provide specific data on site dating and function. LA 111365 has limited potential to provide additional information on the late depression and early World War II period in the Santa Fe area. Therefore, no further archaeological investigation is recommended.
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