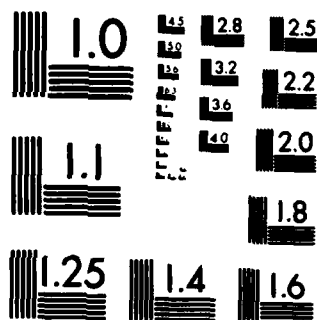


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AN ARCHAEOLOGICAL SURVEY
OF THE GALISTEO DAM AND RESERVOIR AREA
SANTA FE COUNTY, NEW MEXICO

By

David A. Phillips, Jr.

Deni J. Seymour

Prepared For

Corps of Engineers, Albuquerque District
New Mexico
(Purchase Order No. DACW47-82-M-0432)

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Report of Investigation No. 77
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an area surveyed in 1976 was revisited; 15 sites were relocated and re-recorded; six new sites were located, and 46 new isolated finds were located. Identification of site function was often tentative, but sites appear to include lithic procurement and reduction loci, hunting-related sites, possible wild seed processing sites, farming campsites, field houses, transient activity loci (such as pot breaks), and campsites. (The only permanent habitation site was destroyed during dam construction.) Of special note are two zones in which agricultural (?) check dams were found. It appears that aboriginal use of the area was heaviest during Late Archaic and early Pueblo IV (Glaze A) times. Historic remains from the Hispanic period were scarce; the single known Hispanic habitation site was destroyed during dam construction. Anglo-American remains were more extensive, and included remains related to mining, ranching (?), an old power-line, and an old section of the ATFS railroad. Although several sites are considered to be individually eligible for the National Register for Historic Places, the authors argue that the sites within the study area should be considered eligible for nomination as a district. The report closes with management recommendations for Galisteo Dam and Reservoir Area cultural resources, including suggestions for additional survey, monitoring of sites, and testing and mitigation work.

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ABSTRACT

In August 1982, New World Research, Inc., carried out an intensive archaeological survey of Corps-owned lands at Galisteo Dam and Reservoir, Santa Fe County, New Mexico, for the Albuquerque District, U.S. Army Corps of Engineers. The survey covered lands adjacent to Galisteo Creek, in an area of alluvial terraces, juniper-dotted shale ridges, and rolling grasslands.

Heavily disturbed areas were not studied, leaving somewhat over 1550 acres which were intensively surveyed. Thirty-seven new sites and 149 isolated artifact loci were located, and five previously known sites were revisited and re-recorded.

In addition, an area surveyed in 1976 was revisited; 15 sites were relocated and re-recorded; six new sites were located, and 46 new isolated finds were located.

Identification of site function was often tentative, but sites appear to include lithic procurement and reduction loci, hunting-related sites, possible wild seed processing sites, farming campsites, field houses, transient activity loci (such as pot breaks), and campsites. (The only permanent habitation site was destroyed during dam construction.) Of special note are two zones in which agricultural (?) check dams were found. It appears that aboriginal use of the area was heaviest during Late Archaic and early Pueblo IV (Glaze A) times.

Historic remains from the Hispanic period were scarce; the single known Hispanic habitation site was destroyed during dam construction. Anglo-American remains were more extensive, and included remains

related to mining, ranching (?), an old powerline, and an old section of the ATFS railroad.

Although several sites are considered to be individually eligible for the National Register for Historic Places, the authors argue that the sites within the study area should be considered eligible for nomination as a district. The report closes with management recommendations for Galisteo Dam and Reservoir Area cultural resources, including suggestions for additional survey, monitoring of sites, and testing and mitigation work.

ACKNOWLEDGEMENTS

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D.A.P.

D.J.S.

SUPPLEMENT FOR ARIQUIU COMPUTER FILE

Basin

- 01 Chama
- 02 Canones
- 03 Chamiso
- 04 Comales
- 05 Comanche
- 06 Iron Springs (Chama)
- 07 Arroyo Jaspe
- 08 Rio Puerco
- 09 Arroyo Seco
- 10 Arroyo Yeso
- 11 Gato (Chama)
- 12 Burns Ranch (Chama)
- 13 Windmill (Chama)

Tarea

all entries in sq. meters

Cult? (Phase combinations)

- 01 Paleoindian
- 02 Paleoindian/Archaic
- 03 Archaic (indeterminate)
- 04 Bajada
- 05 San Jose
- 06 Armijo
- 07 En Medio
- 08 BMII
- 09 Lithic (indeterminate)
- 10 Indeterminate
- 11 Anasazi (indeterminate)
- 12 BMIII/PI
- 13 PII
- 14 PII/PIII
- 15 PIII/PIV
- 16 PIV
- 17 PV
- 18 Navajo (Piedra Lumbre)
- 19 Ute
- 20 Hispanic
- 21 Lithic/Hispanic
- 22 Armijo/En Medio
- 23 Armijo/BMII
- 24 En Medio/BMII
- 25 Armijo/Anasazi/Navajo
- 26 En Medio/Navajo
- 27 BMIII/Ute
- 28 PIV/Ute

- 29 San Jose/En Medio
- 30 Bajada/BMII
- 31 Archaic/BMII/Navajo
- 32 Archaic/Navajo
- 33 Armijo/Navajo
- 34 Lithic/Navajo
- 35 Armijo/En Medio/Navajo
- 36 BMII/PIV
- 37 Bajada/Ute
- 38 PIV/Navajo
- 39 San Jose/Armijo/En Medio/BMII
- 40 En Medio/BMII/Ute
- 41 Anglo
- 42 Armijo/BMII/Ute
- 43 Modern

TYPE21 and TYPE22

ABSUPPL2

- 01 = lithic scatter with hearths
- 02 = lithic scatter without hearths/firecracked rock
- 03 = lithic & ceramic scatter
- 04 = quarry
- 05 = single structure
- 06 = multiple unit (2-5 structures)
- 07 = village
- 08 = dispersed village (Piedra Lumbre)
- 09 = farmstead
- 10 = log cabin
- 11 = check dam
- 12 = well
- 13 = isolated corral
- 14 = shelter overhang boulder
- 15 = natural shelter
- 16 = isolated artifact
- 17 = petroglyph
- 18 = indeterminate structure
- 19 = cist
- 20 = possible structure
- 21 = 2-4 tipi rings
- 22 = 1 tipi ring
- 23 = ramada
- 24 = wooden post
- 25 = indeterminate
- 26 = glass/metal trash

CHAPTER ONE

INTRODUCTION

In August 1982, New World Research, Inc., Western Division, carried out an intensive cultural resources survey at Galisteo Dam and Reservoir, Santa Fe County, New Mexico (Figure 1). The project was conducted for the U.S. Army Corps of Engineers, Albuquerque District, under Purchase Order No. DACW47-82-M-0432. Surveyed areas excluded zones already flooded, the active floodplain of Galisteo Creek, and areas heavily disturbed by dam-related construction, resulting in coverage of about 1550 ac. In the course of the survey of the 1500 ac tract, 37 sites and 149 isolated finds were defined and recorded.

In addition, the project members located new sites and relocated and re-recorded a number of previously known sites identified by earlier surveys (Lang 1976, 1977) in the vicinity of Galisteo Dam. Descriptions of all sites are presented in Appendix 1 to this report, and recommendations for all sites encountered during the survey are presented in Chapter Seven.

BACKGROUND TO THE SURVEY: GALISTEO DAM AND RESERVOIR PROJECT

Galisteo Dam was built between 1965 and 1970 to provide flood control and sediment deposition on Galisteo Creek, a large tributary of the Rio Grande. Authority for construction of the dam and reservoir is contained in the Flood Control Act of 1960 (P.L. 86-645).

Within the study area, a number of factors have affected cultural resources. In addition to the earthfill dam itself, there are a number of borrow pits and haul roads which have obliterated any

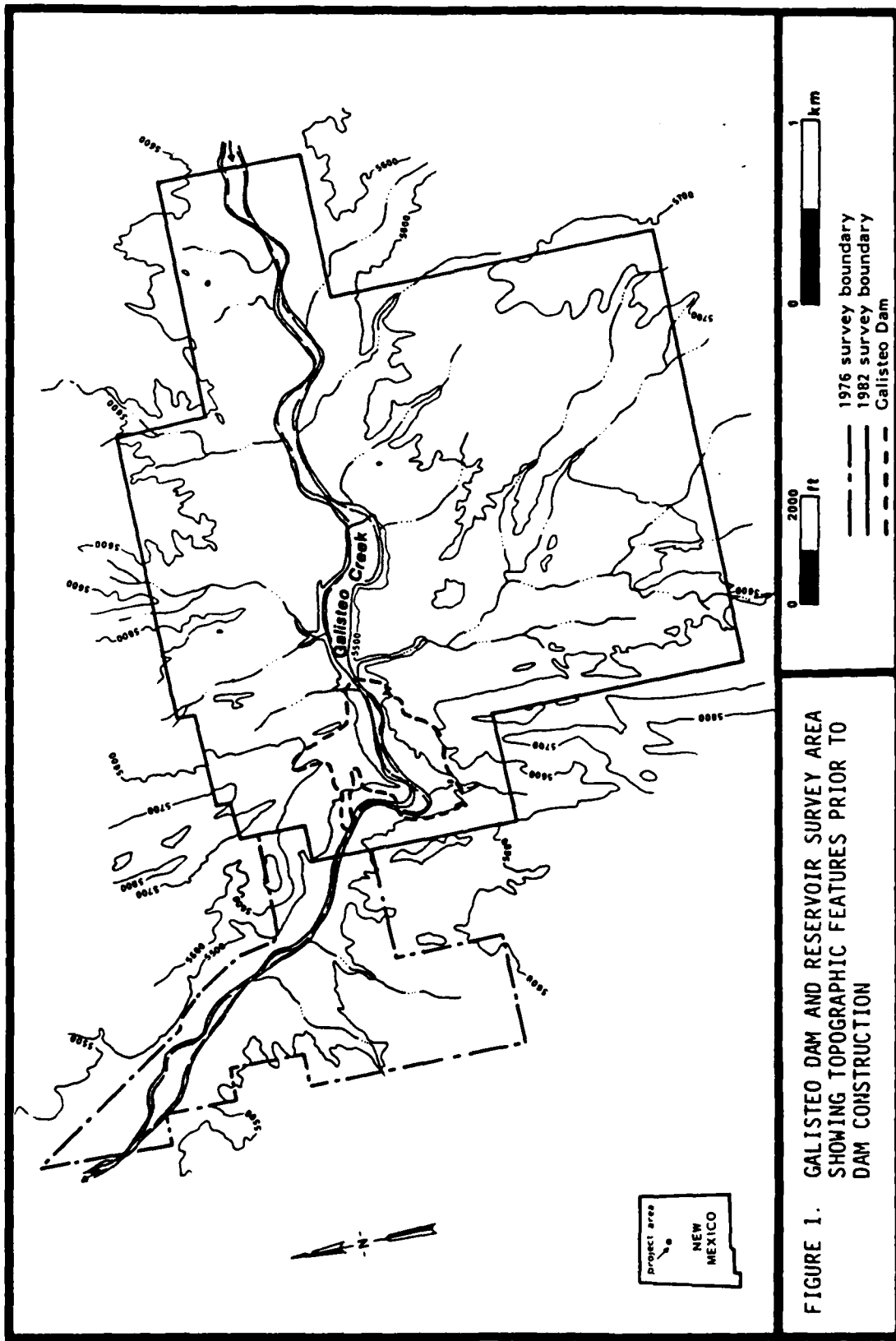


FIGURE 1. GALISTEO DAM AND RESERVOIR SURVEY AREA
SHOWING TOPOGRAPHIC FEATURES PRIOR TO
DAM CONSTRUCTION

archaeological resources which once existed in those locations. Further disturbance has been caused by access roads, dam related facilities, and by natural disturbance factors (as in the active floodplain of Galisteo Creek). Finally, the potential effects of inundation due to the dam must be considered. For most of its ten years of operation, Galisteo Reservoir has been dry, with water retention usually lasting only a day or two; maximum flood pool elevation has been 5516.45 ft. However, the maximum pool could reach 6533.7 ft, in which case the flood pool area would cover 2060 ac (some outside the current study area).

Galisteo Dam is designed to retain floodwaters only temporarily, so inundation of sites should be short-lived. Nonetheless, the fluctuating shorelines in such flood-control reservoirs can be extremely damaging to sites (Phillips and Rozen 1981). In addition, temporary flooding can lead to marked vegetation changes which obscure sites (cf. Phillips et al. 1981), as well as silt deposition. At Galisteo, the sediment reserve (which would effectively hide any sites) is designed to reach 472 ac, and some inundation-related vegetation changes have already occurred.

SUMMARY OF WORK CONDUCTED IN THE PRESENT SURVEY

Work carried out during this project was guided by the Corps Purchase Order and by a research design prepared prior to the start of fieldwork. The research design was submitted for informal comments by the Corps during the early days of the fieldwork, and the comments received were incorporated into the final version of the research design. The background sections of the research design are provided, with some revisions, in Chapters Two and Three. The actual research orientation and methodology are provided in Chapters Four and Five.

Field survey was carried out from August 3 to 23, 1982. In all, 19 days were spent in the field. Crew size varied from two to five people, including the authors (two person crews were used for recording only), with a total of 75 person-days in the field.

Two different, but adjacent, areas were involved in the survey. The first area, largely east of the dam (Figures 1, 2), had not been intensively surveyed except along its margins. The field crew, therefore, surveyed the entire area except where extreme land disturbance had occurred (the result of dam construction). The active floodplain of Galisteo Creek (naturally disturbed with thickets of tamarisk and Russian olive) was also excluded. Aside from the non-surveyed areas, the 1982 intensive survey covered over 1550 ac. In all, 37 new sites and 149 isolated artifact loci were located, and five previously known sites were revisited and re-recorded.

The second study area, west of Galisteo Dam, had been intensively surveyed in 1976 (Lang 1976). The present work in this area consisted of relocating recorded sites on Corps land and re-recording them. No

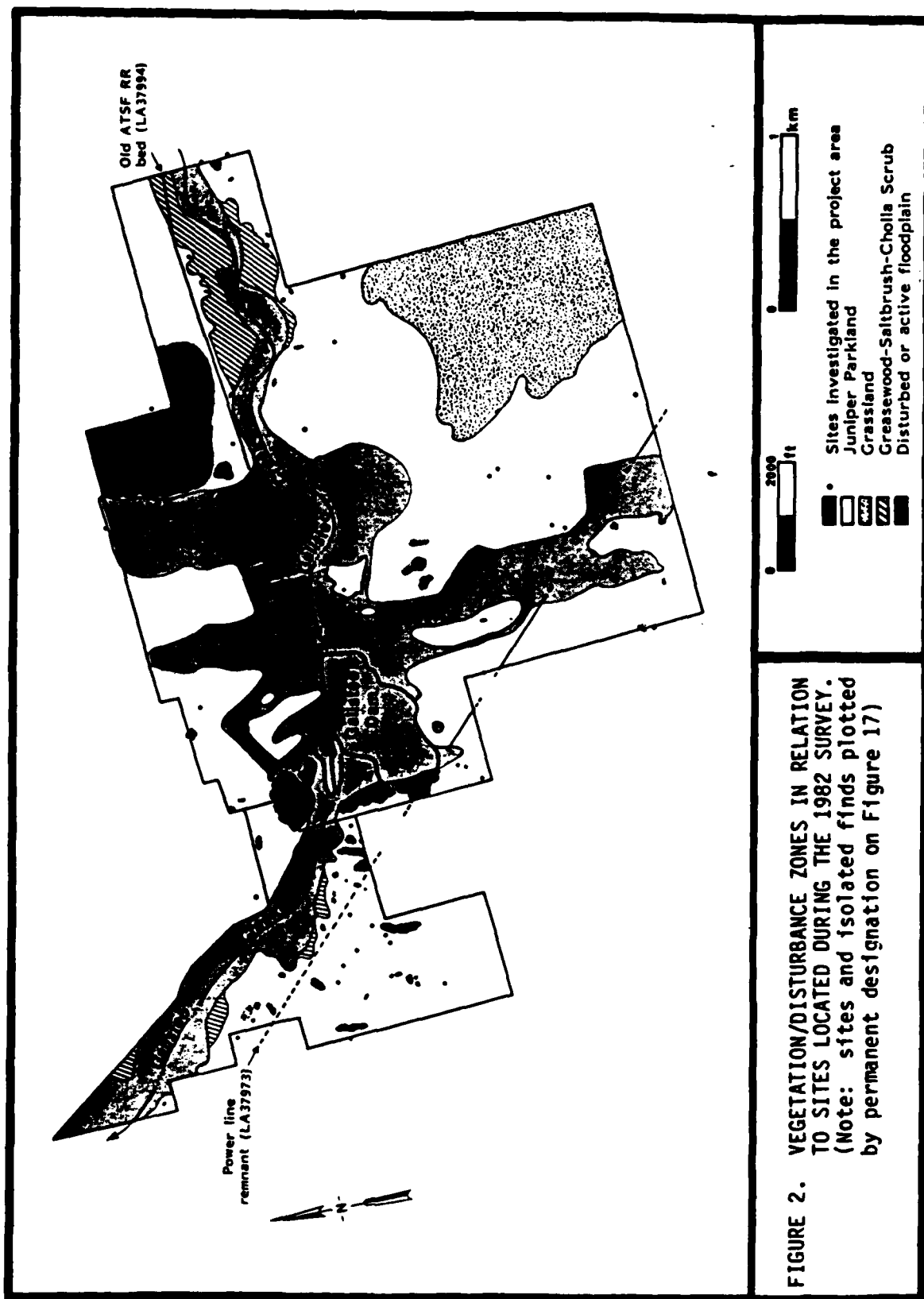


FIGURE 2. VEGETATION/DISTURBANCE ZONES IN RELATION TO SITES LOCATED DURING THE 1982 SURVEY. (Note: sites and isolated finds plotted by permanent designation on Figure 17)

attempt at formal survey was made in this area, but if new finds were made, they were plotted on maps and briefly noted. (Two of these sites, LA 37993 (G-22) and LA 37995 (G-26), were fully recorded; after that, however, it became clear that time was lacking for further documentation of new finds). In all, 15 sites were successfully relocated and fully re-recorded; 13 sites could not be relocated despite careful attempts to find them; six new sites apparently missed during the 1976 survey were plotted and noted; and 46 new isolated finds, apparently missed during the 1976 survey, were plotted and noted.

Data analysis and report preparation began immediately after the end of fieldwork. Work in this stage included preparation of typed records on sites and isolated finds. Site forms and other records related to this project are on file at the Laboratory of Anthropology (Museum of New Mexico, Santa Fe) and at the Albuquerque District, Corps of Engineers. In addition, a small number of collections (Appendix 3) have been turned over to the Museum of New Mexico for permanent curation.

CHAPTER TWO

NATURAL SETTING

PHYSIOGRAPHY

The survey area described in this report is set within the drainage of Galisteo Creek, a few kilometers above its junction with the Rio Grande. The study area is in a hilly portion of the Mexican Highlands Section of the Basin and Range Province of New Mexico (Williams and McAllister 1979:6). Soils in the region are generally argid aridisols (U.S.G.S. 1970), which are best suited for range and in some cases for irrigation farming.

Geologically, the area is dominated by broad exposures of Mancos Shale, with associated sandstone layers. Because of the softness of the shale beds, much of the study area has been eroded into a series of dissected ridges and deep washes. The most impressive geological feature of the area, however, is a series of sandstone- or basalt-capped hogbacks. These cross the study area from north to south, their strata dipping to the east. The resulting west-facing escarpments form a wall blocking easy movement from the Rio Grande into the Galisteo Basin.

There is one obvious passage through the escarpments, and this is provided by Galisteo Creek. The narrow passage cut by the creek creates a natural "choke point" for east-west travel; and, as shall be seen, both prehistoric and historic activities were influenced by this choke point. Today, the same narrows are filled by Galisteo Dam, which thus takes advantage of existing natural barriers in its design.

In the study area west of the hogbacks, outcrops of Chinle sandstone occur (again with associated sandstone layers). The surface of these areas is bright red, instead of the gray typical of the Mancos outcrops, but as before the tendency is for the shale to be eroded into dissected ridges.

Large parts of the study area are mantled with alluvium (derived from Galisteo Creek and its major tributaries) or outwash deposits (derived from local ridges, the Cerrillos Hills, and the Ortiz Mountains). These deposits have been carved into a number of terraces, most of which are large and antedate initial human occupation of the area. (There does appear to be at least one low terrace of Holocene age present). The alluvial terrace deposits are noteworthy because some of them contain cobbles of chert, quartz, quartzite, petrified wood, basalt, and other stone. The basalt, in particular, is often a dark, fine-grained material commonly used prehistorically for making flaked stone tools.

The tectonic activity in the study area is further shown by a number of sills and dikes, as well as minor faults and zones of mineralization. These particular features were of more interest to historic prospectors than to prehistoric inhabitants of the area.

One final geological aspect of the study area deserves emphasis. As much of the study area consists of actively eroding shale outcrops, soil deposition at site locations is often limited to nonexistent. Thus, with rare exceptions, sites in the study area are superficial.

CLIMATE, VEGETATION, AND FAUNA - - A HISTORICAL PERSPECTIVE

Demonstrated human occupation of the Southwest began at the end of the Pleistocene. Regional climate at that time was much cooler and wetter than today, and the survey area probably supported rich meadows and forests. Fauna such as horse, mammoth, and bison were found in the region. With the close of the Pleistocene (about 9000 B.C.), a shift to modern climate and life forms began.

It would appear that the period from 9000 to about 6000 B.C. was still quite cooler and wetter than today. Evidence for this claim comes from alluvial deposits (Antevs 1955; Haynes 1968), from pollen (Mehring 1962), and especially from packrat midden analysis (King 1976; King and Van Devender 1976; Van Devender 1977; Betancourt and Van Devender 1981). Stands of spruce and pine survived in some parts of the New Mexico plains (Irwin-Williams 1979:31), and forests elsewhere extended as low as 2000 ft. Although a general warming and drying tendency is suggested, some Pleistocene fauna continued to survive into this period.

According to the Bryan-Antevs model (Antevs 1955), the period from 5500 to 2000 B.C. -- the Altithermal -- was much warmer and dryer than today. Based on pollen evidence, Martin (1963) disputed the existence

of such an extreme dry period, but the weight of evidence still favors Antev's position (see Irwin-Williams 1979:32). The start of this period witnessed the eastward retreat of Plains-type grasslands (which had once extended into Arizona) and the upward retreat of conifer forests. Packrat midden data indicate that vegetation from 5500 B.C. onwards was not grossly different from that today. In other words, environmental effects on human groups during the Altithermal were probably more in terms of fluctuations in biotic productivity rather than wholesale shifts in the natural setting.

The period from 2000 B.C. to the present is termed Medithermal and the climate was much like that today. As in recent times, episodes of drought and arroyo cutting are known to have occurred, and in some cases appear to be correlated with population shifts or other cultural changes (see Euler et al. 1979). The timing of the various lesser fluctuations in climate are not quite agreed on, but one thing is clear: Southwestern climate is inherently variable, and any successful adaptation must have been flexible enough to deal with fluctuations, whether short-term changes in rainfall (Dean and Robinson 1977) or longer term climatic shifts leading to cycles of erosion and deposition (Haynes 1968).

PRESENT CLIMATE AND FLORA

In the general area, the dominant plant communities are Grama-Galleta (Bouteloua-Hilaria) Steppe and Juniper-Pinyon (Juniperus-Pinus) Woodland. Lang (1976) provides a detailed breakdown of the western part of the study area, which includes the following associations: juniper-grassland, juniper-pinyon-oak, grassland, salt-hush, big rabbitbrush, and cane cholla. For this study, however, a somewhat different classification of vegetation zones will be considered. Each of these biotic divisions reflects basic topographic features of the study area, as well as recent modifications related to dam construction.

1. Grasslands. As defined here, grasslands consist of very large areas with few to no shrubs or trees; such a situation occurs only in the southeastern part of the study area (Figure 2). Vegetation consists almost exclusively of grass species such as Bouteloua spp., although isolated snakeweed, cholla, and small juniper do occur. Few resources are present that would be attractive to prehistoric peoples.

2. Juniper Parkland. This community covers most of the study area, and consists of grass species and widely spaced junipers; the term savanna is sometimes used for this association (Figure 3). In some parts of the study area (especially in the ridges flanking the dam), scrub oak is present and pinyon is common. Other plants found in this community include yucca, Mormon tea and snakeweed.



FIGURE 3. VIEW OF THE JUNIPER PARKLAND ASSOCIATION IN THE GALISTEO 1982 SURVEY AREA; PHOTO TAKEN FROM THE EDGE OF THE GRASSLANDS ASSOCIATION.

Within the Juniper Parkland area, some grassy meadows and knolls do occur. However these are small enough that tree cover is a few meters away. Throughout the study area, the reason for the division between grassy knoll and juniper-dotted areas is clear; flat to gently sloping areas (such as outwash or terrace surfaces, and knolls) are colonized by the grasses to the exclusion of juniper and pinyon, while the more marginal slopes are successfully colonized by these tree species.

3. Greasewood-Saltbush-Cholla Scrubland. This is an uncommon community which occurs only on the first low terrace above the active floodplain of Galisteo Creek. At the east end of the study area, greasewood is the dominant species, with four-wing saltbush being almost as common. As one moves downstream, however, the frequency of greasewood diminishes, until the saltbush component is dominant or exclusively present. Downstream from Galisteo Dam, mixes of saltbush and cane cholla occur on the same low terrace.

4. Tamarisk-Russian Olive Riparian Thickets. Except for the actual channel of Galisteo Creek, the active floodplain of that creek is choked by immature trees of exotic species (Figure 4). The codominant species are tamarisk and Russian



FIGURE 4. VIEW OF ARROYO NEAR GALISTEO CREEK WITH TAMARISK-RUSSIAN OLIVE RIPARIAN THICKETS.

olive, although rare examples of other exotic species (such as Osage orange) are also present. In this case, the present vegetation has no relation to prehistoric occupation of the area.

5. Barren Disturbance Zone. Portions of the dam borrow pits have been invaded by tamarisk and Russian olive (in such cases, the locations are classified under No. 4). Most of the borrow pits and associated haul roads, however, show no evidence of revegetation. In large part, this must have to do with the exposed materials, which are unaltered shale.

According to recent climatic records, the area is somewhat marginal for rainfall farming. The growing season is long enough--between 160 and 180 days--but average rainfall is just under ten inches a year (Cordell 1979a). A key issue in middle/upper Rio Grande archaeology is how agriculturalists were able to persist under such conditions (cf. Cordell 1977:454).

CHAPTER THREE

REVIEW OF PREVIOUS WORK AND CULTURAL SEQUENCE

PREVIOUS INVESTIGATIONS

Archaeologists have worked in the vicinity of Galisteo Dam for many decades. In particular, Nelson's (1914, 1916) pioneering excavations in the Galisteo Basin established the joint use of stratigraphy and the "index fossil" concept in fieldwork, thus providing the means by which comparative chronological analysis of sites could be performed.

Within the reservoir area itself, a survey of unknown intensity was carried out in 1964 by Bussey and Dutton (Lang 1976:28). The survey, performed for the Laboratory of Anthropology and the National Park Service, located several sites; four were chosen for excavation, which was carried out between 1964 and 1965 (Kayser and Ewing 1971). The sites were the Signal Site, a pre-Revolt Spanish colonial site; the Wheeler Site, a Classic pueblo excavated by Alexander; the Waldo Site, a small Coalition site (outside the present study area) excavated by Hammack; and La Bolsa Site, a Bajada phase Archaic site excavated by Honea. Honea published his conclusions in 1969, but otherwise the studies went unreported until Kayser and Ewing (1971) collected and edited the four sets of excavation notes.

In 1976, the School of American Research contract archaeology program undertook an intensive survey of about 430 ac of Corps of Engineers land west of the dam. The area was covered in a series of transects, with each crew member 50 ft (15.2 m) apart. When remains were encountered, crew members recorded their observations in their

site field notebooks. Some finds were classified as sites, while other ones--small, undiagnostic lithic sites or single items--were termed isolated artifact areas. Sites were recorded sequentially, using the prefix "GR-," while isolated find areas were termed "A," "B," and so on. The project was directed and reported by Richard Lang (1976).

In 1977, the School of American Research again carried out a survey for the Corps of Engineers, this time to evaluate the effects of building a fence around the Corps property. Those parts of the fence bordering the 1976 intensive survey were not revisited, as cultural resources in that area were presumably already recorded. For the remainder of the fence-line route (along the edge of the 1982 intensive survey area), Lang and a Corps archaeologist, Donna Roxey, walked the proposed line spaced 25 ft (8.7 m) apart. In the report for the survey (Lang 1977), the isolated find areas in the 1976 report were reclassified as sites within the "GR-" sequence, with areas A through K being reclassified as sites GR-30 through 40. Lang's report ended with the recommendation that--with certain restrictions--construction of the fence be allowed to proceed.

One factor hampering the effectiveness of the 1976 and 1977 surveys was the lack of a large-scale map of the area, making accurate plotting of site locations difficult. (The most recent USGS map, the Madrid 15 minute quadrangle, is at a scale of 1:62,500.) In 1977, as part of the survey report, Lang submitted a Corps enlargement of the Madrid quad map with sites from 1976 and 1977 plotted on it; the scale was 1:6000, and this proved useful in relocating the sites in 1982. However, some degree of inaccuracy was still inevitable. The 1982 survey was equipped with orthophoto quad maps at a scale of 1:4800, and where possible Lang's sites were pinpointed on these for future reference.

CULTURAL SETTING

Evidence for human occupation of the Southwest before 10,000 B.C. is limited and controversial (e.g., Hibben 1941). Subsequent occupation, though imperfectly known, can at least be outlined. Much of the information given below conforms to the recent syntheses by Cordell (1979a,b) for the northern half of New Mexico, and to the discussion in Lang's (1976) report on survey within the site area. Other sources will be cited where pertinent.

Paleo-Indian occupation in north-central New Mexico is marked by a mix of cave and open sites (Judge 1973). Clovis sites, which appear at about 9500 P.C., are not common, but this situation is due in part to erosion and deposition since the end of the Pleistocene. Folsom sites are much more common; as Cordell (1979a:13) states,

Folsom materials suggesting campsites seem to be absent from high elevation settings...but do seem to be correlated with water sources which would have been reliable during the period of occupation of the Southwest.

Paleo-Indian material also occurs in prominent spots where game could be watched (Judge 1973). This particular pattern has been noted in other parts of the West as well (e.g., Hester 1975).

Other Paleo-Indian complexes in the area include Midland (which may be a stylistic variant of Folsom) and Cody. After 6000 B.C., however, a gap in the regional sequence occurs. Cordell (1979a:15-16) posits that this gap is filled by "Belen" sites, though this remains an issue for future study.

A Cody Complex Scottsbluff point was found at La Bolsa Site (Honea 1969) which is an Archaic site. The point was possibly collected as curiosity by the inhabitants of La Bolsa, rather than representing a Cody Complex component at the site (see Chapter 6). No other direct evidence for Paleo-Indian use of the study area is known; perhaps the area was a marginal one under the environmental conditions of the time.

The regional Archaic sequence has best been summarized by Irwin-Williams (1973, 1979), who sees the emergence of a distinctive regional Archaic tradition labelled the "Oshara Tradition" at 6000 B.C. The earliest in situ remains of this tradition are those of the Jay Phase (5500-4800 B.C.); these remains bear little resemblance to those of the Paleo-Indian period. Sites include base camps at canyon heads (the optimal locations in Irwin-Williams' survey area) and smaller, special-activity sites in other locations. The artifact assemblage includes large, slightly shouldered projectile points, bifacial knives, and side scrapers (grinding tools have not yet been found--Irwin-Williams 1973:4-5). Irwin-Williams suggests that the Jay phase represents the immigration of Archaic peoples from the west, who used the area's resources year-round and who concentrated near permanent water.

The following phase is the Bajada phase (4800-3300 B.C.), which roughly coincides with a period of decreased effective moisture (Antevs 1955; Haynes 1968; Irwin-Williams and Haynes 1970). The settlement pattern reported by Irwin-Williams is similar to that of the Jay phase, but sites appear to be more numerous. The tool kit incorporates large chopping tools and rough side scrapers; small rock-filled hearths and earth ovens appear (Irwin-Williams 1973:6-7).

Within the study area, La Bolsa site (Honea 1969) represents an important example of a Bajada phase site (Lang 1976:29-34). The greater part of the tool assemblage consisted of cobble tools manufactured from local basalt, quartzite, and argillite. Other items found include projectile points, Jemez obsidian artifacts, a single specimen of Alibates "flint" from Texas, and ground stone (one hand manos, unshaped metates, and grinding slabs). The ground stone, if associated with the Bajada phase occupation, is noteworthy because the phase definition (Irwin-Williams 1973:6-7) does not mention ground stone. The site also contained a number of hearths and scattered heat-affected cobbles.

While La Bolsa represents, as stated earlier, an important site, some caution might be important in interpreting it. The Scottsbluff point found by Honea represents a temporal anomaly; a second temporal anomaly is presented by a radiocarbon date from a hearth (Kayser and Ewing 1971) that would fall into the later part of the Archaic sequence. It may be that La Bolsa, as a large, shallow site, could have more than one component in horizontal association.

Around 3300 B.C., a period of increased moisture began, and with it the San Jose Phase (3300-1800 B.C.). In the Arroyo Cuervo region studied by Irwin-Williams, canyon-head site locations increase in number, size, and apparent intensity of occupation. Simple structures were probably present by this time (if not much earlier), and extensive rock-filled ovens occur. The predominance of large choppers and crude flake side scrapers, combined with the introduction of shallow-basined grinding slabs and cobble manos, indicates a continued intensification of plant food use (Irwin-Williams 1979:7-9).

From 1800 to 800 B.C., Armijo phase occupation of the general area occurred. A critical innovation was the adoption of maize farming, which was not heavily exploited but which represented an option that could be actively manipulated. The settlement pattern continued to include base camps in favorable locations and more specialized work sites elsewhere. In addition, Irwin-Williams found a large, probably fall/winter base camp (1973:10). The tool kit suggests continued emphasis on plant foods; faunal evidence suggests an emphasis in hunting on smaller forms of game.

Irwin-Williams' last preceramic phase from the Arroyo Cuervo region, the En Medio Phase (800 B.C. - A.D. 400), corresponds to Basketmaker II in the Pecos Classification. In general, site size, number and density continue to increase. At least some locations in the Southwest show a pattern of small pithouse villages by this time. Storage pits became much more common, indicating a trend towards more intensive use of a few selected resources (such as cultigens and pinyon nuts) and a corresponding strategy of resource storage to cover other parts of the year.

Although none of the 1976 and 1977 survey sites could be definitely assigned to the later Archaic, Lang (1976, 1977a) believes that some of them could date from that time. Lang (1976:33-34) also suggests that some of the remains at La Bolsa site--such as the ground stone--may belong to a post-Bajada phase, fairly late Archaic component.

Basketmaker (BM) II and III sites have been found in the San Cristobal drainage of the Galisteo Basin (Lang 1977b). Early BM II sites occur on small mesa spots near reliable sources of water, and may have in part served as lookouts for game. In late BM II/Early BM III through Pueblo (P) I times, a shift occurs which indicates less concern with being near arable land. BM III and P I sites tend to be large base camps with numerous earth ovens and hearths; Lino Gray is the dominant local pottery type (Cordell 1979a).

The Pueblo II period, starting shortly after A.D. 900, is characterized by Red Mesa Black-on-white pottery and plain and neck-banded culinary ware. Sites of this period are sparse in the Galisteo Basin (Lang 1976, 1977a, 1977b), and it is possible that use of the area was entirely transitory. Sites in the general area appear to be small and sparse in distribution. It is interesting that in the Tijeras Canyon area to the south, Cordell (1979b:144, 1979a:44) believes that occupation during P II times was only seasonal.

Pueblo II presents several problems for researchers in the general Santa Fe area (Cordell 1979a:55). Those who see later Pueblo occupation as an in situ development must account for the occupational hiatus that occurred in the Galisteo Basin and elsewhere.

"Migrationists," who would derive that occupation from the Western Anasazi, must explain the lack of obvious San Juan features in Santa Fe area sites. Finally, the dates assigned to black-on-white pottery in the area are in need of refinement.

The Pueblo II-III transition is marked by a shift, at about A.D. 1200, from mineral to organic paint (i.e., the appearance of Santa Fe Black-on-white pottery). At this time, agricultural communities reappear in the Galisteo Basin (Lang 1976, 1977b). Sites generally occur near permanent water; both pithouses and above-ground structures are present. Most sites, however, are in the eastern part of the basin, with only two (LA 590 and LA 9147) occurring in the vicinity of the study area. As part of the Galisteo Dam salvage program, Hammack excavated LA 9147, the Waldo Site, which is just east of the 1982 intensive survey area (Kayser and Ewing 1971). The site includes four masonry rooms and one possible jacal room, and also two pit structures, one of which may be a kiva (Lang 1976:39-43). Santa Fe Black-on-white pottery also occurs in association with prehistoric lead and turquoise mines in the Cerrillos Hills (Lang 1976:44), which are just northeast of the study area.

In the Galisteo Basin, Santa Fe Black-on-white is replaced by a new type, Galisteo Black-on-white, with obvious ties to the Mesa Verde black-on-white tradition. The similarity between types has led to the suggestion that populations moved from the San Juan Basin to the Galisteo Basin at this time. However, the phenomenon was apparently restricted to the eastern part of the basin (Lang 1976:44-46), and so has little bearing on events within the study area.

Several broad trends can be noted after A.D. 1250. Population seems to have increased, and aggregation of settlements occurred. Sites took the form of large rectangular room blocks which partly or completely enclosed plazas; one or more large kivas were common. Agricultural intensification is inferred from the appearance of extensive grid borders in floodplains.

A key question for Pueblo III in New Mexico is why such marked aggregation of population occurred. Generally, the answer has been that aggregation was a response to environmental stress (e.g.

Hunter-Anderson 1979; Cordell 1979a:57). An alternative explanation, however, is that the shift from small to large settlements involved a change in social modes of production, this leading to changed responses to what was essentially the same set of environmental challenges (Phillips n.d.)

Pueblo IV is a period of large aggregated communities and elaborate material culture, and has been termed a "Classic" period (Wendorf and Reed 1955). For project purposes, it is dated from about A.D. 1325 (with the appearance of red-slipped glaze wares) to A.D. 1600. Early in the fourteenth century, red-slipped glaze wares became widely popular, and proved to be a key trade item in the eastern Southwest and into the Plains. Production of these wares may have lasted until about A.D. 1700.

From about A.D. 1350 to 1475, several large pueblos were built in the Galisteo Basin (Lang 1977b); as part of this process of aggregation, the fieldhouse/farmstead pattern died out by about A.D. 1370. One site of this period, the Wheeler Site (LA 6869), was located within the 1982 intensive study area. Founded in about A.D. 1386, it consisted of about 30 rooms in three room blocks, which were arranged around a plaza area containing a kiva. Walls were coursed adobe with cobble footings, or else of masonry.

Dominant pottery at the Wheeler Site was Agua Fria Glaze-on-red, followed by Cieneguilla Glaze-on-yellow. Lang (1977a:49-50) hints at a local origin for some of the pottery, but no sources for the clay have been identified within the general area. Lithic artifacts included one- and two-hand manos, metates, and choppers. Much of the site had been burned, possibly under hostile circumstances, at about A.D. 1425.

The Galisteo Basin played an important role in the production and distribution of P IV glaze wares. Glaze A and B wares were apparently traded from the Albuquerque and Cochiti areas from the mid-1300s to the early 1400s; thereafter, San Marcos and other Galisteo Basin pueblos became trade centers for Glaze C and D. San Cristobal Pueblo may have been a trade center for the period from the mid-1440s until the Pueblo Revolt of 1680, at which time the basin was abandoned (Cordell 1979a:145-146).

Details of the last centuries of Pueblo occupation in the basin are limited in part because of a research concern with untangling ceramic sequences. However, early ethnohistoric documents do provide some insights into proto-historic occupation of the Galisteo Basin. San Marcos was known as "turquoise pueblo ruin" among the Tewa (Harrington 1916); along with nearby pueblos it obtained turquoise from the Cerrillos Hills. Other mineral products obtained in the basin include lead for glazes and gypsum for whitewash (Harrington 1916). These activities generally ended with the Pueblo Revolt (Snow 1973).

Spanish penetration of the Pueblo area began about 1540, and by about 1680 there was already a struggling series of Spanish homesteads in the Galisteo Basin. One of these, the Signal Site (LA 9142), was excavated as part of the Galisteo Dam salvage work (Kayser and Ewing 1971).

In 1680, Santo Domingo (just west of the study area) and San Marcos (just east of it) participated in the Pueblo Revolt, driving the Spanish from New Mexico for twelve years. It was at this time that the basin was abandoned by the Puebloan peoples.

From early Spanish accounts, it is clear that Apache Indians were living in the hills around the Rio Grande from the 16th century onward (Gunnerson 1979). At first, relations with the Apache were fairly peaceful, but Spanish slaving and pressure from other Plains groups led to protracted hostilities. Recurring warfare was the major obstacle to European settlement of the hills around the Rio Grande, until the Apache were finally forced onto reservations in the late 19th century.

Despite these hostilities, the Spanish showed a clear interest in the potential of the Galisteo Basin. The Mesita de Juana land grant (in which the study area is located) was issued in 1782. In the early 19th century, the Ortiz Mine Grant was issued to cover the Ortiz Mountains, and a modest gold placer boom ensued. The placer deposits were worked off and on for years, but a lack of water limited ore processing and thus the success of the mines.

The same mineral wealth that attracted native and Hispanic miners to the Cerrillos Hills and Ortiz Mountains led to the development of Anglo mines and towns during the U.S. Territorial period. At Dolores in the Ortiz Mountains, the first stamp mill in New Mexico was set up in 1865. The real boom, however, came when the Santa Fe railroad built a line along Galisteo Creek in 1880 (Kayser and Ewing 1971). This new line made it possible to transport goods and ores cheaply--thus making the basin and its environs an attractive place for Eastern and European capital. A number of towns and mines were built, flourished for a while, and then were shut down. Just east of the study area, the town of Waldo was the site of 15 coke ovens, at which smelting coke was produced from the late 1890s onwards. Waldo was also the location of a rail junction with the line to Madrid, which dates from about 1870. At Madrid, a large mining operation provided coal for the railroad and for other customers; it peaked in the 1920s. The town of Cerrillos did better than most because it served as a supply point on the railroad and for mining camps and towns (Sherman and Sherman 1974).

In more recent years, the Galisteo Basin has seen a decline of activity and population, and to a large degree the basin's economy is supported by cattle ranching and tourism. It appears that prior to the construction of Galisteo Dam, the study area was used mainly as a transportation route (the Santa Fe railroad route was used until about 1960), for ranching, and also for cutting of firewood (many junipers and pinyons in the study area bear ax marks).

CHAPTER FOUR

RESEARCH ISSUES

This research design is divided into three parts. First, a statement of theoretical bias underlying the research is provided. Next, a series of problems domains are defined; subsequently a number of research questions, hypotheses, and test implications are provided.

STATEMENT OF THEORETICAL BIAS

The basic assumption made in the research design is that human culture reflects, at least in part, behavioral strategies for accommodating and subsisting from the natural environment. In particular, it should be possible to relate the specific locations of sites to topographic variation and to the distribution of abiotic and biotic resources used by inhabitants of those sites. The test of one's understanding of site location strategies is the ability to predict successfully the location of different site types in new circumstances.

The ability to make specific predictions on site location, however, presumes an adequate understanding of site function (and variability in that function). On survey, site function can sometimes be partly inferred from site location; however one cannot then test predictions of site location without entering into circular reasoning. Instead, on this project, it is important to derive site function independently of site location, on the basis of site size, depth, architectural and artifactual content, and analogy to excavated sites

of the same cultural complex. Such independent identifications can then be compared to site locations to determine whether hypothesized function-location relationships actually occur.

Functional identification of sites from survey data is, of course, difficult at best. However, at least tentative identifications can be made for use in comparing function and location. Also, such identifications can be seen as hypotheses which can be confirmed or refuted in subsequent stages of research.

PROBLEM DOMAINS

It is appropriate to define several general research concerns at this point, even if they cannot be fully addressed by the survey data from the project. There are several reasons for this:

1. A statement of general research concerns, drawn from regional literature, helps illustrate why specific research questions are appropriate for study.
2. It is important to raise research issues which cannot necessarily be resolved through survey, since evaluation of site significance often depends in large part of the relevance of potential excavation data.
3. Findings may be made during survey which were not anticipated by the research questions (for example, a well-preserved Paleo-Indian site). Statement of general research issues will provide an initial framework for interpreting such finds and for studying them in the field.

With these points in mind, the following problem domains are defined in relation with this project:

1. Culture History--While the Galisteo Basin sequence is fairly well blocked out, several chronological issues await resolution.
 - a. The probability of a pre-Clovis occupation in North America seems low, but cannot be ruled out; the existence of such a stage remains a research concern.
 - b. The apparent lack of continuity between Paleo-Indian and Archaic components in the area needs to be explored. In particular, we may ask whether the break merely represents adaptive changes or an occupational hiatus.
 - c. The apparent lack of continuity between Late Basket-maker/Early Pueblo and Late Pueblo occupations needs to be explored. If there in fact was continuity between occupations, what is the evidence for it? If there was an abandonment and subsequent repopulation of the area, where did the original inhabitants go and where did the new ones in fact come from, if not from the San Juan Basin?
 - d. There is a need for greater precision in dating the Black-on-white ceramic sequence in the area. In terms of this

project, any site with potential for stratified (or otherwise separable or seriable) deposits can be considered an important one, in that it could be used to refine such ceramic definitions.

- e. Similarly, there is room for refinement in the glazeware sequences.

2. Adaptive History--As Cordell (1979b) has noted, this is probably the chief research concern in Eastern Anasazi archaeology. Various approaches to prehistoric adaptation can be pursued:

- a. General paleo-environmental data should be obtained from sites, and also from non-site locations where the latter contribute significantly to the adequate interpretation of cultural resources.
- b. More specifically, food and food-related biological remains should be recovered for specialized analysis. The likelihood of such remains can at least be anticipated from site depth whether the site is a dry cave site or in the open, etc. Reconstruction of foodways is an obvious approach to understanding the overall adaptive strategy of a group.
- c. An idea of food-gathering and processing site types can at least be gleaned from site content: for example, ground stone indicates seed processing, large cists indicate long-term storage, etc.
- d. Site location should be studied in order to obtain data on environmental use and also activity strategies. Sites can be related to local plant communities, for example, or to features such as permanent water, arable land, or ridgetops. By considering site location separately from site content, adaptive predictions based on one set of data can be tested against the other. The ultimate goal of such studies should be a successful predictive model of site location.

3. Socio-Economic Structure and Relations--While environmental factors are one source of cultural content, other, more purely social factors also affect human culture. Two topics have attracted a good deal of archaeological attention:

- a. Social organization is difficult to reconstruct archaeologically, but it does seem likely that the change from small habitation sites to large aggregated communities involved social as well as adaptive change. It would be highly useful for theorists of social evolution if the sociological nature of this transition were better defined and understood.
- b. Trade is easy to detect when exotic materials are encountered on sites. Definition of the precise mechanisms of trade, and the effects of trade on local social groups, however, is less well defined.

SPECIFIC QUESTIONS, HYPOTHESES, AND DATA NEEDS

The following research questions and hypotheses are based on the previously defined problem domains, but are tailored in such a way that they could reasonably be addressed by the anticipated survey data. In some case, specific data relevant to the questions raised will be noted; in others, the general survey results can be applied to the questions.

1. Culture History

- a. What evidence is there for pre-Clovis, Clovis or later Paleo-Indian occupation? Because the study area is not a prime location (in an adaptive sense) for such an occupation, and because of millenia of erosion and deposition of sediments, we anticipate that evidence for any occupation before the Archaic will be lacking.
- b. What evidence is there for Archaic occupation? Using Irwin-Williams' (1973) phase definitions, the following characteristics can be used to define sites of different cultural affiliations:

Jay Phase: large, lightly shouldered projectile points; well-made lanceolate bifacial knives; numerous well-made side scrapers. No ground stone.

Bajada Phase: large, lightly shouldered points with basal indentation and thinning (early); shorter points with more defined shoulders (late); well-made side scrapers; rare bifacial knives; large chopping tools; crude side scrapers on thin irregular flakes; fire-cracked rock (from hearths and earth ovens).

San Jose Phase: tool kit dominated by crude side scrapers on thin flakes, and by large, heavy chopping tools; well made side scrapers rare; bifacial knives rare to absent; points show increasing use of seriation on blade, shorter stem relative to blade, decreasing overall length; introduction of shallow-basined grinding slabs and cobble manos; pounding stones; fire-cracked rock (from hearths and ovens); base camps ca. 100 to 150 sq m on average.

Armijo Phase: serrated points with concave bases, side notches and convex bases, narrow bases; small bifacial knives or points; drills; irregular flake scrapers; large scrapers; discoidal chopper-pounders; ground stone more common; fire cracked rock (from hearths and ovens).

En Medio Phase (BM II): stemmed, corner-notched points, barbs increasingly long through time; bifacial

knives and drills uncommon at first, more common later; most of tool kit consists of flake scrapers and knives, crude choppers and pounders; deep grinding basin forms and cobble manos abundant; flat and troughed metate forms and "two-hand" mano forms introduced late; fire-cracked rock.

Our basic hypothesis in this case is that, consistent with Lang's survey results and the earlier work at La Bajada, identifiable Archaic sites will belong to the Bajada phase.

In the phase content listings just provided, it is clear that positive identification of particular phases will depend on one of two conditions: identification of associated point styles, or else the presence of rich and varied assemblages on sites found. Limited lithic scatters may be impossible to identify in terms of phase; very likely, it will be impossible to distinguish preceramic from Anasazi aceramic sites in such cases.

- c. What evidence is there for Anasazi occupation? Although Lang's survey data indicate a late Pueblo occupation, it is likely from the Waldo site, and from data on other parts of the Galisteo Basin, that earlier Anasazi remains could be found. For each earlier phase, it will be important to ask whether the site represents a permanent occupation, a seasonal occupation, or specialized or transitory use.

While point styles and other supplementary information may help date ceramic period sites, the obvious and primary diagnostic material is pottery. Certain types will be used to identify the different phases in question:

BM III/P I:	Lino Gray
P II:	Red Mesa B/W, plain and neck-banded culinary wares
P III (Santa Fe Phase):	Santa Fe B/W
P III (Galisteo Phase):	Galisteo B/W
P IV:	Rio Grande Glazewares; specific styles as defined by Mera (1933) and others can be used to distinguish finer units of time within the three century span of the wares
P V (Historic Pueblo):	Various historic Pueblo pottery styles.

- d. What evidence is there for Apachean occupation? Such sites could occur in the study area, but are comparatively

rare and difficult to identify; therefore, we do not anticipate finding any during survey. One obvious marker for such an occupation, which should be kept in mind, would be Plains style tepee rings.

- e. What evidence is there for Hispanic occupation? Even though a Hispanic homestead was excavated in the study area, such remains are rarely documented archaeologically, and are therefore not likely to be found again. (This is especially true since the area is somewhat removed from the main centers of Spanish population, and would have been exposed to attacks by Plains Indian groups.) Instead, any evidence for the Hispanic period should relate to transitory activities such as travel or cattle ranching. What would characterize such activities archaeologically, however, is less than clear.
- f. What evidence is there for Anglo-American period occupation? For this period, more extensive remains can be expected for the Hispanic period. To begin with, during the Anglo period the Apache and Navajo were subjugated. Also, known centers of Anglo activity occur nearby. We can specifically expect:
 - 1) that substantial railroad-related remains will be found, in the vicinity of the old Santa Fe line;
 - 2) that substantial evidence of ranching will be found, although most of it may be fairly recent;
 - 3) that the extensive Anglo mining activity in the general area will be reflected within the survey area in the forms of claims and mining tests (cf. Lang 1977a).

2. Adaptive History

- a. What evidence is there for paleo-environmental change? Specifically:
 - 1) can the placement of sites on alluvial terraces be related to terrace formation sequences?
 - 2) are certain sites likely sources of paleo-environmental data? Minimally, a site should have a potential for buried remains (allowing recovery of faunal, macrofloral, flotation, and pollen data); optimally it should be in a dry cave or rock shelter. Such locational data is therefore very important to note, along with any surface indications of preserved biological remains.
 - 3) are there any non-cultural locations likely to yield paleoenvironmental data relevant to the human occupation of the area? For example, packrat middens have been used to establish local vegetation histories for many parts of the Southwest.

- b. What items visible on the site surface give clues to site adaptive functions, and what is their relative frequencies? For example:

- 1) the presence of points, thin biface knives, and scrapers could be used to argue for hunting-related activities;
- 2) the presence of ground stone indicates seed processing;
- 3) the presence of substantial amounts of heavily heat-altered rock (especially non-tabular pieces) suggests the regular use of earth ovens to process vegetal foods.

Adequate understanding of site content will require a formal and replicable procedure for recording site attributes; for this project this entails recording all intrasite features, using sampling transects when it is not practical to record all surface artifacts, and using standard terminologies for artifact types.

- c. What site functions can be defined? Rather than set up a formal typology at this stage, we propose to proceed from the field data and construct a functional classification inductively, based on similarities of site forms and content.
- d. What is the environmental context of each site? A working assumption of the project will be that the sites are related to resources at or near their site locations. Possible resources include:
- 1) biotic--as defined by the local plant community.
 - 2) topographic--the physical setting of the site should be considered.
 - 3) closeness to permanent water
 - 4) closeness to arable land
 - 5) closeness to sources of chippable stone

Adequate analysis of these variables requires that the field crew leader take notes on biotic, topographic, and other variables as needed, for the survey area as a whole and not just for specific sites. This can be done fairly easily by marking the distributions of such resources on a set of field maps. Subsequently, site distributions relative to these resources can be studied.

3. Evidence for Socio-Economic Change and Trade

- a. While socio-economic factors are difficult to study archaeologically, and especially so during surveys, we can at least anticipate that greater social integration

through time will be manifested by the fact that habitation sites, if found, will become larger through time.

b. What evidence is there for trade? The most common material evidence for such exchange should be ceramic, but obsidian and other material should be found. We can suggest two expectations in regard with trade:

- 1) if social integration between regions increases through time, then more trade items should occur on sites of the same type through time.
- 2) if Galisteo Creek served as an east-west travel route, incidental evidence of this should be detected in the archaeological record.

CHAPTER FIVE

SURVEY METHODS AND RESULTS

FIELD PROCEDURES

The actual survey involved a crew of three to five persons spaced at 15 m intervals, and covering the survey area in a series of contiguous transects. These transects were usually oriented east-west or north-south to conform to the layout of the survey area, but at times other orientations were used to match local topography. To prevent gaps or overlaps in survey coverage, the outer edge of each traverse was marked.

Except for recent items (those with an apparent or likely age of less than 50 years), all cultural items found were recorded. These were divided into sites and isolated finds. Conceptually, sites were locations of multiple human activities, while isolated finds represented the loci of isolated incidents of human behavior. This theoretical distinction was put into practice as follows: in general, loci with fewer than five artifacts were defined as isolated finds, while those with five or more items were termed sites. Isolated finds could include five or more items, however, if these were clearly derived from the same incident--a single chipping station with a core and six flakes, for example, or a purple-glass bottle break with several dozen pieces present. Conversely, any find with an architectural feature was termed a site regardless of artifact frequency.

When a site was found, crew members marked their survey locations with pinflags and regrouped at the find (Figure 5). An informal survey of the site then ensued, in order to determine the extent and



FIGURE 5. LA 37999 SITE AREA WITH THE SURFACE ARTIFACTS MARKED BY PINFLAGS.

general nature of the remains; as items were found they were pinflagged. A datum was set at the approximate center of the site, and a metal tag attached with the initials "NWR," the date, and the site field number. One or more crew members would begin to fill out a Museum of New Mexico (MNM) site form, while another would take black-and-white and color transparency photos of the site. Following this, the field crew would carry out one of several procedures for recording the artifacts and features present.

Site Recording

The initial plan for recording artifacts and features was as follows: all features, whether artifacts or concentrations, would be noted on site form continuation sheets and plotted on the site sketch map. Then, on small sites (up to 20 artifacts), each pinflagged item would be individually described and plotted. On larger sites, where it was impractical to record each item individually, a formal sampling technique would be used. This consisted of laying out two to four transects running from the site datum towards the edge of the site, and then recording all items within a one meter square every ten meters along the transects. Any artifact of special note (such as projectile points and other formal tools) which did not fall into a transect square would also be recorded and plotted on the site sketch maps.

The method of recording items individually on smaller sites worked well, and was, therefore, on occasion applied to slightly more extensive finds. The use of transects with ten meter sampling intervals, however, proved cumbersome and unproductive on the large, but low density sites in the survey area. This can be seen on one of the two sites where it was applied. On LA 37984 (G-12), four transects (two along the long axis of the site, two along the short axis) were placed, resulting in 20 one-meter sample squares; in these only one item was recorded. Such results probably give an accurate impression of overall site density, but they hardly allow one to interpret site content. As a result, the interval transects were abandoned, and the crew experimented with three new methods of recording larger sites, with the idea of later evaluating their relative merit.

The first approach used was similar to that successfully applied to smaller sites--that is, a concerted effort was made to locate, pinflag, and record all surface items. The main difference was that instead of plotting each item on the site map, the crew would only indicate the perimeter of the artifact scatter and, if present, any location where artifacts tended to be more concentrated. In the rest of the report, this approach, along with that used on smaller sites, will be termed a total count. Density estimates can be calculated by the formula $D = N/A$, where N = total number of artifacts and A = (site length) times (site width) times 0.785. The resulting number, while approximate, is probably no worse than extrapolating from sample transects to an entire site.

The second approach was applied on sites at which pinflagging all items was not practical. Instead, two or more of the crew members would cover the site in a series of informal transects two meters to five meters apart, and would examine and record each item encountered. The main difference between this approach and the previous one was that in the absence of pinflagging, it was not possible to guarantee by subsequent checking that all items had, in fact, been located. However, the sample of site content thus achieved should be close enough to reality to allow its use in evaluating the site, and the procedure was replicable in the sense that it encompassed a formally defined area (the entire site). Approximate density estimates can be calculated from these data by the same formula as was presented before. The approach just described will be termed an informal sweep in the report.

A third approach was used on very dense sites, where even an informal count would be excessively time-consuming. Here, transects were revived but in a different form: two to four transects were run from the site (sometimes feature) datum towards the edge of the artifact scatter, and all artifacts within each one-meter square along the transect lines were recorded. This procedure usually resulted in enough sample squares (60, for example, on four 15 m transects) to yield a good sample of surface artifacts. These formal transects were in some cases used on a given site along with a total count or informal sweep, in order to provide an independent check on site density and to allow later comparison of the methods.

On a few extremely large but low-density sites, none of these artifact recording techniques proved appropriate. Instead, one of the techniques would be used on each of the artifact concentrations within the site, while visual estimates of site density were recorded for the near-empty remainder of the site. Any formal tools in the low-density extensions, however, were recorded.

While this variety of approaches may seem slightly confusing, it did seem to provide an optimum level of detail in site recording, in a way that many sampling procedures alone fail to provide. The survey and recording procedures used at each site are detailed where appropriate in the Appendix 1 site descriptions; however, any person seriously interested in working on the sites is advised to use the site forms prepared by the survey (presented to the Corps under separate cover with this report). There, for example, the contents of each transect square are recorded separately.

Site depth was estimated by inspection of the ground surface and of natural or mechanical disturbance areas. As was mentioned earlier, almost all sites proved to be superficial.

Sherd collections were made only when materials could not be field typed and if identification of the materials was judged (at the time) to be necessary to carry out the proposed research. A listing of the few items collected is provided in Appendix 3. Diagnostic chipped stone was sketched in the field and left in place.

Sites were plotted on orthoquad sheets provided by the Corps. These photo-based maps were at a scale of 1:4800 and proved extremely useful--in many cases the tree one was standing next to could be located on the sheets. As a result, a high degree of accuracy in site location was possible.

Once the site was recorded, crew members returned to their flagged locations and the survey was resumed.

The procedure just described applies to sites, whether newly discovered or previously recorded. Initially, isolated finds were recorded at the same level of documentation, the only real difference between them and sites being that a datum was not placed at isolated finds. After consultation with the Corps, however, the practice of photographing isolated finds was dropped. All isolated finds, however, were still fully described, their settings sketched, and their locations plotted onto the orthoquads.

Several series of field numbers were used. Sites previously recorded by Lang (1976, 1977) were re-recorded using his old field numbers; these are characterized by the prefix "GR-." Newly located sites were assigned serial numbers (starting with 1) and prefixed by "G-." Isolated finds within the 1982 intensive survey area were assigned numbers prefixed by "I-." In the 1976 survey area, the project merely visited sites rather than repeating the intensive survey,

and newly discovered isolated finds encountered while walking between sites were prefixed with "Z-" in order to distinguish them from isolated finds made during the intensive survey. In this report, field numbers are supplemented with permanent Laboratory of Anthropology site numbers wherever these have been assigned.

Artifact Terminology

On any project seeking to obtain replicable results, formal definitions of terminology are necessary. Some have been provided in the description of field methods. In addition, project personnel used a list of formal definitions for classifying chipped stone while in the field. This list is provided in Appendix 2. The authors suspect, however, that crew members tended to under report certain items during the field recording. In particular, blades and thinning flakes were probably classified as simple flakes in some cases. This distortion was limited, however.

The terminology used to describe lithic materials is probably somewhat more suspect; one person's chert is another person's chalcodony. Even obsidian types did not seem exempt from some degree of subjectivity. In the field, clear to streaky gray obsidian was glossed as Jemez, obsidian with "powdery" white inclusions was termed Polvadera Peak, and opaque black obsidian was called Grants. In the end, no lithic term is secure unless confirmed by petrological or trace element analysis.

Among the pottery, glazewares were classified in strict adherence to Mera (1933), which -- although dated -- is at least a widely accessible source. Moreover, if a sherd did not have the full characteristics needed for a positive identification of the glaze type (e.g., a body sherd without paint), it was classified under a rubric such as "unidentified redware of Rio Grande glaze ware tradition," even if the person was relatively confident that it was, for example, Agua Fria Glaze-on-red. This conservative approach seemed most appropriate for field identifications.

In the case of historic artifacts, detail such as glass color, bottle type, or metal type was recorded. In addition, any pertinent information, such as makers' marks, embossed lettering on bottle fragments, or method of can closure was also recorded as a possible method of dating the artifact types.

SURVEY RESULTS

The 1982 field season involved the intensive survey of about 1550 ac, resulting in the location and recording of 37 sites and 149 isolated finds. Five previously known sites were revisited and recorded. Sites originally reported in the 1976 survey area were also evaluated. Of the sites reported in that area, 15 were relocated and re-recorded, six new sites were also recorded, and 46 new isolated finds were found.

Site data, including artifact counts are presented in Table 1 for all sites found during the 1982 survey season. Data concerning the isolated finds in both the 1982 and 1976 study areas are presented in Appendix 1, as are summary descriptions of all sites found or relocated in the 1976 and 1982 study areas.

The clear majority of the sites within the study universe are non-diagnostic lithic scatters. This is not to say, however, that other site types were not present; lithic and sherd scatters, prehistoric water control loci, possible prehistoric fieldhouses, and historic scatters, features, and rail and power lines were identified. The following chapter presents a detailed discussion of the possible implications of the sites, and in certain instances, isolated finds recorded during the 1982 field season.

TABLE 1. 1982 SURVEY AREA SITE SUMMARIES

SITE #	GENERAL CHARACTERISTICS		Chert	ARTIFACTUAL ASSEMBLAGE			Historic
	Setting	Dimensions (in meters)		Basalt	Obsidian	Other Stone	
LA 37973	across country	linear	power line remnants				
LA 37974	adjacent wash	19 x 6					
Total count			2 interior 1 thinned biface		Grants: 1 thinned biface	3 P IV	Insulators ("Provo") power poles
LA 37975	low rise base	55 x 35					
Total count			1 interior	2 interior	Jemez: 1 interior	Chalcedony: 1 thinned biface	
LA 37976	edge flat	25 x 15					
Total count			1 partly cortical 1 angular fragment		Jemez: 1 interior Polvadera Peak: 1 interior	Jasper: 1 interior Moss agate: 1 projectile point	
LA 37977	hogback slope	75 x 25					
LA 37978	adjacent wash	27 x 9					
Total count				2 interior 1 simple core 1 chopper (?) 1 grinding slab	Polvadera Peak: 1 interior	Quartzite: 1 hammerstone	
LA 37979	flat topped terrace	32 x 14					
Total count				1 partly cortical 1 interior			1 unid. glazed sherd (Hispanic) 14 purple glass 20 green glass 1 snuff can bottom
LA 37980	terrace	16 x 4					
Total count				9 interior (?) 1 complex core 1 simple core 1 angular frag.			

SITE #	GENERAL CHARACTERISTICS		ARTIFACTUAL ASSEMBLAGE			
	Setting	Dimensions (in meters)	Chart	Basalt	Obsidian	Other Stone
LA 37981	terrace edge	50 x 25	2 partly cortical 1 angular fragment	1 flake	Jemez: 1 partly cortical 4 interior Polvadera Peak: 9 interior 1 interior (?) Grants: 1 interior	Unidentified: 1 proj. point Mass agate: 2 interior 1 side scraper
LA 37982	knolltop edge	25 x 15		4 cortical 1 partly cortical 10 interior	Jemez: 1 interior Grants: 1 interior	Chalcedony: 1 interior Unidentified: 1 complex core
LA 37983	ridge top & informal flanks	175 x 75		1 simple core	Grants: 1 interior	Mass agate: 1 interior
<u>Concentration A</u>						
Total count	knoll on ridge top	26 x 11	1 interior	2 partly cortical 2 interior 1 modified flake 2 complex core 1 bifacial core 1 angular fragment		
<u>Concentration B</u>						
Total count	ridge flanks	24 x 12	1 interior	7 interior 3 cortical		Jasper: 1 interior

1 .32 caliber
ammunition shell

SITE #	GENERAL CHARACTERISTICS			ARTIFACTUAL ASSEMBLAGE			Other Stone	Ceramics	Historic
	Setting	Dimensions (in meters)	Features	Chert	Basalt	Obsidian			
LA 37984	knolltop	140 x 70	1 rock alignment						
	formal transects				1 cortical				
	Informal			4 cortical 8 interior	13 cortical 18 interior 15 partly cortical cortical 1 simple core 1 complex core 1 bifacial core 1 test piece	No type: 1 partly cortical 1 interior	Quartzite: 1 cortical 1 partly cort. Petrified wood: 1 proj. point Unidentified: 1 mano	1 P II B/W (min.) 1 unid. red-ware 1 Red Mesa B/W 1 recent cans and wire	1 purple glass 1 can top
LA 37985	low ridge- informal line	90 x 35		2 partly cortical 1 interior 1 flake frag 1 flake 1 scraper 1 complex core	4 partly cortical 1 interior 1 cortical 1 interior 3 complex core 1 simple core 1 test piece core	Jemez: 1 interior Polvadera Peak: 1 slightly refouched flake			
	Feature 1 Total count			3 cortical 1 partly cortical 2 interior 1 angular fragment					
	Feature 2 Total count								
LA 37986	terrace point total count slope	12 x 6			2 cortical 2 partly cortical 2 interior		Quartzite: 1 partly cort.		1 cast iron stove leg
								5 Agua Fria Glaze-on-red	

SITE #	GENERAL CHARACTERISTICS		ARTIFACTUAL ASSEMBLAGE			
	Sitting	Dimensions (in meters)	Features	Chert	Basalt	Obsidian
LA 37987	terrace edge	30 x 10				
	total count	slope			2 cortical 4 interior 1 simple core 1 complex core 1 angular fragment	
LA 37988	valley bottom	15 x 7				
	total count					Potivadera Peak: 1 cortical 11 interior 1 angular fragment 1 pseudo-point 1 interior, with unsuccessful modification
LA 37989	terrace	60 x 35	slab-lined hearth			
	total count			1 partly cortical	2 simple core 6 test place	Quartzite: 1 interior
LA 37990	terrace finger	14 x 10	semicircular rock alignment			
	total count			1 complex core	1 interior	
LA 37991	ridge slope	75 x 10				
						2 wooden stakes axe-cut wood pieces of coal
						Bottle fragments: 11 brown 1 purple 1 clear 1 aque 2 cans, soldered seams pieces of coal 4 pieces of metal (2 recent)

SITE #	Setting	GENERAL CHARACTERISTICS		Chert	ARTIFACTUAL ASSEMBLAGE		Other Stone	Ceramics	Historic
		Dimensions (in meters)	Features		Basalt	Obsidian			
LA 37992 (continues)									
Feature 7 (C-38)		50 x 28			2 cortical 7 partly cortical (1 blade) 5 interior 1 simple core 5 complex core (1 "macro")	Jemez: 4 interior 1 proj. point Polvadera Peak: 2 interior	Chalcedony 1 cortical 1 partly cort. Indurated siltstn: 1 interior 2 complex cores Petrified wood: 3 complex cores		
Total count									
Feature 8 (I-114)								1 unid.	
Total count									
Feature 9 (I-107)								Chalcedony: 1 flake	
Total count									
LA 37993 ridge base & 25 x 20+					1 unifac. mod. flake 1 angular frag. 1 interior	Jemez: 12 interior Polvadera Peak: 2 interior	Quartzite: 1 partly cort.		
Total count top									
bottle break									50 light blue glass
Informal					1 interior 1 simple core 1 complex core	Jemez: 2 interior			

SITE #	GENERAL CHARACTERISTICS			ARTIFACTUAL ASSEMBLAGE			Historic
	Setting	Dimensions (in meters)	Features	Basalt	Obsidian	Other Stone	
LA 37994	across county	1750 x 50	ATSF RR segment				
<u>Recording Locus 1</u> Informal							
Bottle fragments: 77 brown 36 clear 2 green 1 blue 1 aqua 1 insulator frag. 1 porcelain 3 can, cold-rolled seems 1 jar lid, recent 1 oyster shell misc. coal, wood, metal pieces							
<u>Recording Locus 2</u> Informal							
Bottle fragments: 6 purple 10 brown 38 clear 16 green 1 ceramic insulator fragment 1 porcelain 5 cans, cold-rolled seems 3 misc. wood, steel numerous pieces of coal							
LA 37995	between 2 arroyos	2 x 1	slab-lined cist or hearth				
total count							1 interior

SITE #	GENERAL CHARACTERISTICS		ARTIFACTUAL ASSEMBLAGE				Historic
	Setting	Dimensions (in meters)	Features	Chert	Basalt	Obsidian	
LA 37996	point on hillside	13 x 7					
total count					3 interior		Quartzite: 1 cortical 1 Agave Frie Glaze-on-red 1 Clenequille Glaze-on-yellow 1 Glaze A Redware 2 plain grayware
LA 37997	edge of low terrace	30 x 15					
formal transect							1 glazeware
total count							42 glazeware (frags. three vessels; one with "C" type rim--ceramics appear late in sequence)
LA 37998	knoll top & slope	60 x 30					
formal transects					2 partly cortical	5 Jemez interior	Petrified wood: 1 flake unidentified: 1 interior 1 complex core
					2 interior	1 Jemez interior w/ marginal retouch	
informal					3 cortical	Jemez: 5 cortical	Indurated Siltstone: 3 cortical
					6 partly cortical	5 partly cortical	22 interior
					9 interior	cortical	Quartzite: 1 partly cortical
					2 simple core	42 interior	Chalcedony: 1 flake
					2 complex core		

SITE #	Setting	GENERAL CHARACTERISTICS		ARTIFACTUAL ASSEMBLAGE			Historic
		Dimensions (in meters)	Features	Chert	Basalt	Other Stone	
LA 37999	Knoll top & top	12 x 8					
<u>Top of Knoll-total count</u>							
					2 interior	Jemez: 1 cortical 21 interior 1 unifacially retouched flake 3 thinned biface frags. Polvadera Peak: 1 interior	Unid. Material: 1 partly cortical 1 interior 1 square cut nail
<u>Flank of Knoll-total count</u>							
					2 cortical 4 partly cortical 4 interior	Jemez: 1 interior 1 bifacially retouched flake Diorite (?): 1 partly cort. 1 simple core Chalcedony: 1 interior	
LA 38000	Knoll top total count	30 x 28			5 cortical 9 partly cort. 16 interior 1 simple core 1 complex core 1 test piece	Jemez: 6 partly cort. 15 interior Indurated Siltstone: 3 interior 1 bifacial core	1 purple glass bottle fragment Numerous pieces of coal
LA 38001	rise in valley	22 x 12				8 unid. B/R	1 porcelain (blue-on-white) 20 purple bottle frags. 1 enameled wash basin 5 cold-rolled seams 1 16d wire nail

SITE #	Setting	GENERAL CHARACTERISTICS		Chart	ARTIFACTUAL ASSEMBLAGE			Other Stone	Ceramics	Historic
		Dimensions (in meters)	Features		Basalt	Obsidian				
LA 38002	hogback flat	50 x 15		1 interior	1 cortical 1 partly cort., 1 interior 5 interior	Jemez:		Chalcedony: 3 partly cortical 2 interior		
LA 29539	terrace	350 x 200	17 check dams 1 possible fieldhouse (F2) 1 hearth (F1) 1 pit (F3)							
formal transects										
				1 angular fragment	1 cortical 1 partly cort., 1 partly cort., Polvadera Peak: 3 interior	Jemez:		Unidentified: 1 interior		
Informal										
				1 cortical 2 partly cortical 1 interior 1 test piece	3 partly cort., Jemez: 2 interior 1 cortical 1 core 2 partly cort., 1 angular frag. 10 interior Polvadera Peak: 1 partly cort., Grants: 1 interior			Quartzite: 1 cortical 1 interior 1 core Chalcedony: 1 interior 2 partly cort., Petrified wood: 1 possible tested piece Diorite: 1 partly cort., Moss Agate: 1 interior Sandstone: 1 ground stone Unidentified: 1 interior		
LA 38003	knoll top & total count slope	90 x 75		1 interior	4 cortical 7 partly cort., 1 interior 16 interior 1 simple core 1 test piece	Jemez:		Chalcedony: 2 cortical 1 partly cort., 2 interior 1 complex core 1 proj. pt.		2 pieces of slag

SITE #	GENERAL CHARACTERISTICS		Chert	ARTIFACTUAL ASSEMBLAGE		Other Stone	Ceramics	Historic
	Setting	Dimensions (in meters)		Basalt	Obsidian			
LA 36003 (continues)						Diorite: 1 cortical Jasper: 1 test piece Petrified Wood: 1 complex core Unid. Material: 1 cortical 1 partly cort. 1 complex core 1 bifacial core		
LA 36004	dissected	35 x 10				Chalcedony: 1 interior Unid. Material: 3 interior		
LA 36005		250 x 125		1 partly cort. Jemez: 1 interior 1 interior				
Locus 1	ridge slope	45 x 30		2 partly cortical Jemez: 13 partly cort. 2 interior 1 complex 22 interior 1 angular frag. core 5 complex core Polvadera Peak: 1 partly cort.		Chalcedony: 1 cortical 1 partly cort. 5 interior Indurated Siltstone: 2 cortical 5 partly cort. 5 interior Diorite: 2 cortical 1 partly cort. 2 interior Quartzite: 1 partly cort. 1 polishing stone 1 hand memo Petrified Wood: 1 partly cort. Unid. Material: 1 partly cort.	3 Red Mesa B/W	Insulator frags. Power pole remnants

SITE #	GENERAL CHARACTERISTICS			ARTIFACTUAL ASSEMBLAGE		Other Stone	Ceramics	Historic
	Setting	Dimensions (in meters)	Features	Chart	Basalt			
LA 38005 (continues)								
Locus 2		knoll and adjacent slopes	23 x 7					
formal transects								
				2 interior 1 complex core 1 partly cortical	5 cortical 6 partly cort. 17 interior 2 complex core		Chalcedony: 6 vessel frags. 1 cortical (63 total sherds): 1 partly cort. Agua Fria G/R bowl Indurated Silt: Unid. Redware olla 1 partly cort. Cieneguilla G/Y bowl 1 interior Cieneguilla G/Y bowl Unid. Material: San Clemente Poly. bowl 1 partly cort. Grayware utility vessel 1 interior 1 complex core	
LA 38006	lower ridge slope & terrace	400 x 125	hearth (recent)					
Feature 1		terrace rem. formal transects	65 x 65	hearth				
				3 interior 1 angular fragment	3 partly cort. Jemez: 6 interior 1 angular frag. 12 interior 1 angular frag. Polvadera Peak: 5 interior		Chalcedony: 1 interior Indurated Silt: 1 cortical 1 partly cort. Unid. Material: 1 bifacial core Argillite: 1 piece bifacially flaked to form knife	
Feature 2			12 x 10	shelter remnant	2 cores 10 interior		10 Puname (?) Polychrome	
LA 38007	base of hill	5.75 x 4	structure					
LA 38008	knoll & saddle	15 x 10						
total count				1 interior	1 cortical 6 partly cort. 6 interior 2 complex core		Chalcedony: 1 interior	

CHAPTER SIX

DATA SYNTHESIS AND INTERPRETATIONS

The research questions outlined in Chapter Four framed the theoretical orientation of the data synthesis and interpretation. The results of the 1982 fieldwork in the Galisteo Dam and Reservoir area indicate that over the course of human occupation in the area, the region has been the scene of sporadic, occasionally intensive occupations which date from the Archaic period to the recent era. In order to understand the possible implications of the presence of these occupations it is first necessary to evaluate the types of functions possibly represented by sites.

PREHISTORIC SITE FUNCTION

In some cases, it is fairly easy to identify site functions from the survey data, but for most sites such identifications are tentative at best. Interpretations made will be presented by functional categories.

Permanent Habitation Sites

If permanent habitation sites are defined as showing permanent architecture and extensive storage facilities, then only one such site occurred aboriginally in the study area. This is LA 6869 (the Wheeler site), an early P IV pueblo of about 30 rooms; it does not appear to have been occupied very long (Kayser and Ewing 1971). On the whole, the western end of the Galisteo Basin seems to have been somewhat marginal for permanent occupation.

Field Houses

Four field houses were identified. These are one or two room structures, possibly all with masonry bases and perishable superstructures. Of the three re-located in 1982, two were on steep slopes (LA 37996 [G-29], LA 14182 [GR-3]), and the third was on a sloping rock outcrop (LA 14182 [GR-12]) (Figure 6). The fourth site was LA 29535 (GR-24).

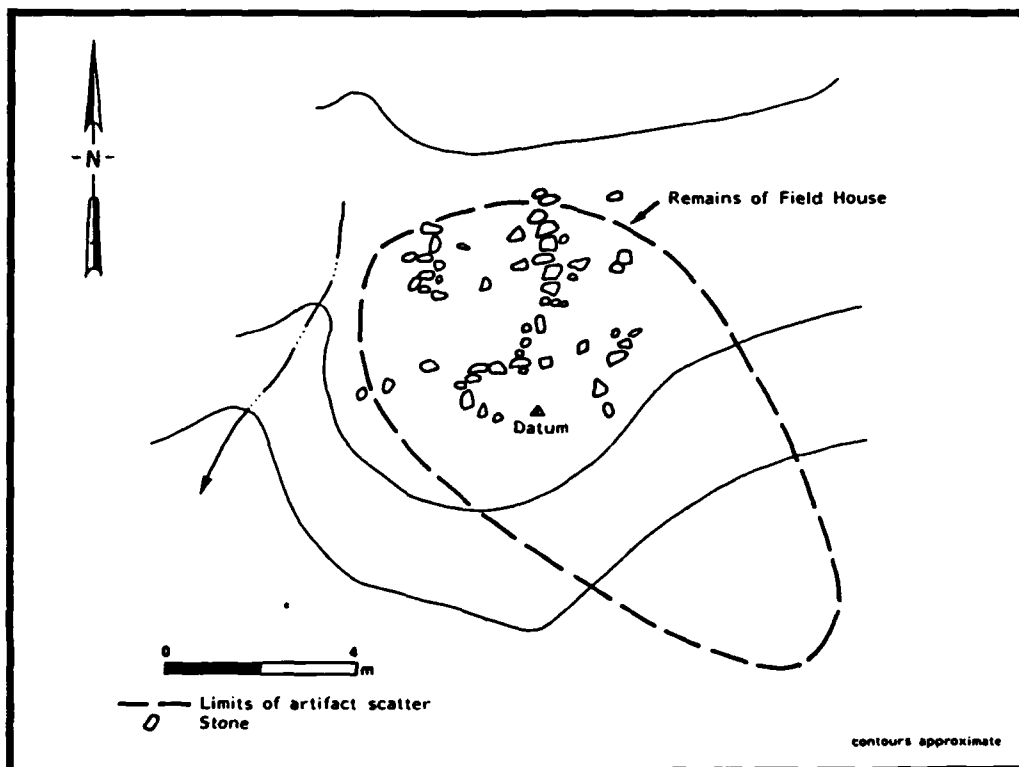


FIGURE 6. SKETCH MAP OF LA 37996 (G-29) SHOWING DISTRIBUTION OF STRUCTURAL REMNANTS.

The fact that such structures were not built on level ground suggests temporary storage rather than occupation as a site function. It appears that the four field house sites have very similar artifact assemblages-- almost exclusively pottery and simple flakes. Thus, the function of "field houses" appears to exclude extensive food processing.

Agricultural Zones and Camps (?)

Two sites, LA 29539 (G-36) and LA 37992 (G-20), include extensive zones where check dams were located (Figure 7). It is possible that the check dams were built by the Civilian Conservation Corps (CCC) in

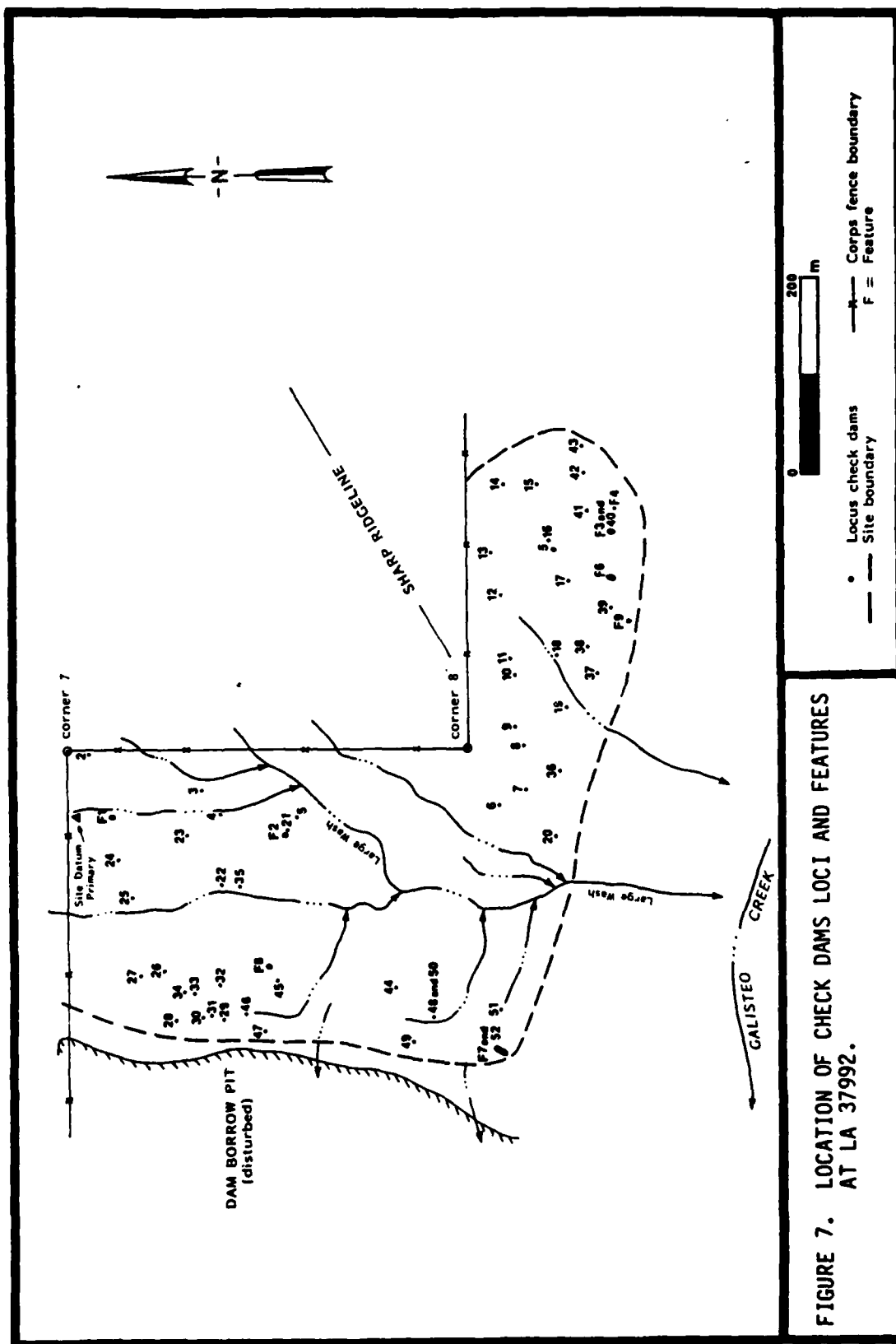


FIGURE 7. LOCATION OF CHECK DAMS LOCI AND FEATURES AT LA 37992.

the 1930s, but in the authors' opinion a prehistoric origin is likely. At both sites, prehistoric artifacts occur in the general vicinity of the check dams; multiple dams are present on most of the drainages; and many of the dams appear to have been breached by long-term erosion. Thus, although the age of the check dams remains an issue for further study, they will tentatively be accepted as prehistoric in this study.

If the check dams are indeed aboriginal, it is important to define the functions of associated remains. At LA 37992 (G-20), three features are likely candidates for agriculture-related campsites: Features 2, 3, and 6. However, they are not very homogenous as a class. Feature 2 includes two cists, simple flakes, a core and tested piece, and pottery. Feature 3 includes simple flakes, a tested piece, and pottery. Feature 6 is marked by simple flakes, cores, a scraper, and ground stone.

At LA 29539 (G-36), a large-low density lithic scatter is present and may represent camping activities in relation to the check dams there. It is slightly disturbing, however, that no pottery is found in the artifact scatter, and that the single point found there is more likely Archaic. Thus, the artifact component at LA 29539 may well predate--and be unrelated to--the check dams.

It is worth pointing out that three of the four field houses identified are not associated with the check dam areas (LA 29535 (GR-24) is the possible exception). The logical corollary of this statement is that farming was being practiced in areas beside the check dam zones; one can then ask whether any additional agricultural camps can be identified. Tentatively, three possibilities can be suggested: LA 14184 (GR-6), LA 14190 (GR-11), and the sherd/lithic concentration portion of LA 14193 (GR-14).

As a class, the three loci just mentioned are fairly homogeneous. Each is a fairly small but dense sherd and lithic scatter (such density was, in fact, unusual in the study area), suggesting limited but repeated use. Each is located on the lower slope of a steep, north-facing slope, overlooking potentially arable land (the fact that they are on the slopes makes them unattractive loci for even temporary habitation). Finally, their lithic assemblages are similar--cores and simple flakes, especially interior flakes. Use as agricultural camps (possibly with ramadas or brush windbreaks, now gone) is certainly compatible with these physical characteristics.

Campsites

Campsites are here distinguished from other remaining sites because of evidence suggesting that at least overnight habitation took place, in addition to any specialized activities. This evidence consists of (a) shelter remains, (b) probable hearth remains, or (c) ancillary evidence such as extent or heterogeneity of remains.

Two campsite locations contain shelter remains. LA 38006 (G-41), Feature 2, is a historic Pueblo rectangular shelter with associated pot break; some chipped stone may be possibly related to the camp (Figure 8). At LA 29538 (GR-27), one probable shelter and three other possible ones were noted in association with a lithic scatter.

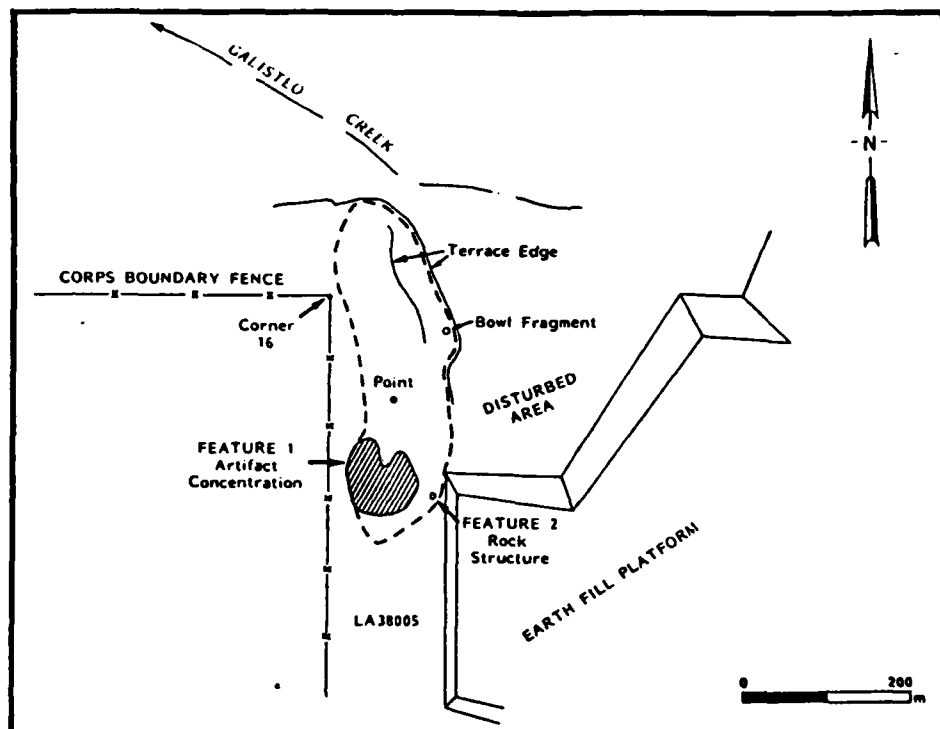


FIGURE 8. SKETCH MAP OF THE LA 38006 (G-41) SITE AREA.

Two locations contain probable slab-lined hearths and associated chipped stone--LA 37989 (G-17) and LA 37995 (G-26). Both locations, unfortunately, appear to be highly eroded and lacking much of their original artifact assemblage.

Two to four sites may represent recurrently used, possible seasonal camps. The first of these is LA 356, the Bajada phase camp excavated by Honea (1969; Kayser and Ewing 1971). The second is LA 29537 (GR-26), the late Archaic site containing concentrations of heat-affected rock, scatters of the same material, and an extensive lithic scatter. The two remaining candidates for the "campsite" function have more tentative credentials. LA 38009 (GR-30) is a low-density but extensive lithic scatter (with one sherd) on a stabilized dune; one piece of fire-affected rock was noted; a retouched flake and ground stone were present on the site. Finally, the extensive low-density scatter of chipped stone at LA 29539 (G-36) could be the product of a campsite on the stabilized sand cover found there.

Wild Seed Processing Sites

Each of these is tentatively suggested as a wild seed processing site because the site contains ground stone but is not near any potentially arable land. Other site functions may have occurred in these locations.

The first candidate for this function is LA 37978 (G-6), which contains simple flaked stone items, a possible hammerstone, and a lightly ground natural slab (Figure 9). It is possible that this location saw limited preparation of food brought onto the site as part of other activities, rather than processing of seeds from the immediate environment.

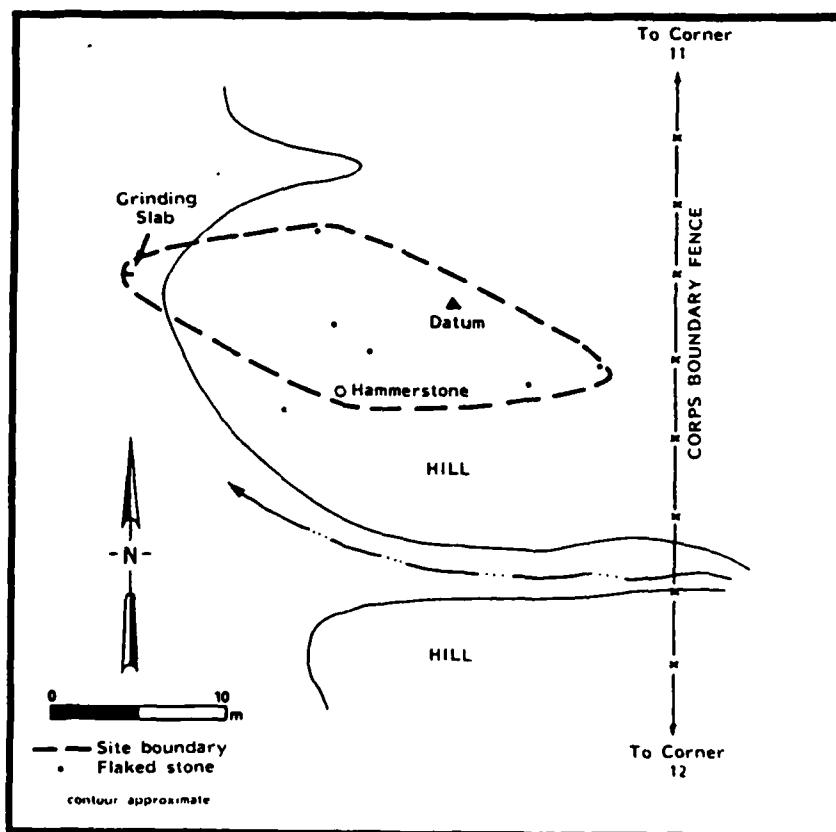


FIGURE 9. SKETCH MAP OF LA 37978 (G-6).

The second possibility is LA 38005 (G-40), Locus 1; here a sherd and lithic scatter included ground stone. Again, it may be that the food being prepared with the ground stone was not derived from the immediate environment.

The last candidate is LA 38009 (GR-30), which could be a specialized seed processing site rather than a general campsite.

One question deserving mention is what, exactly, was being ground. The most attractive seed plant in the area today, pinyon, is generally rare in the study area. Pinyon do become fairly dense, however, in one place--the ridge system that LA 38005 (GR-40), Locus 1 is on, and that LA 38009 (GR-30) is just west of.

Hunting Related Sites

Each of these sites is hypothesized to be a specialized, hunting related site because it contains a projectile point or other, probably hunting-related formal tools, and little else. LA 37974 (G-2) contains two small (ca. four centimeters long), thinned bifaces which may be fine butchering tools, and also two interior flakes, in addition to pottery. LA 37975 (G-3) contains the same type of biface and five interior flakes. LA 37976 (G-4) contains a projectile point, four flakes (three interior), and an angular fragment of chert (Figure 10). LA 37981 (G-9) contains a projectile point, a side scraper, 21 flakes (17 interior), and an angular fragment of chert.

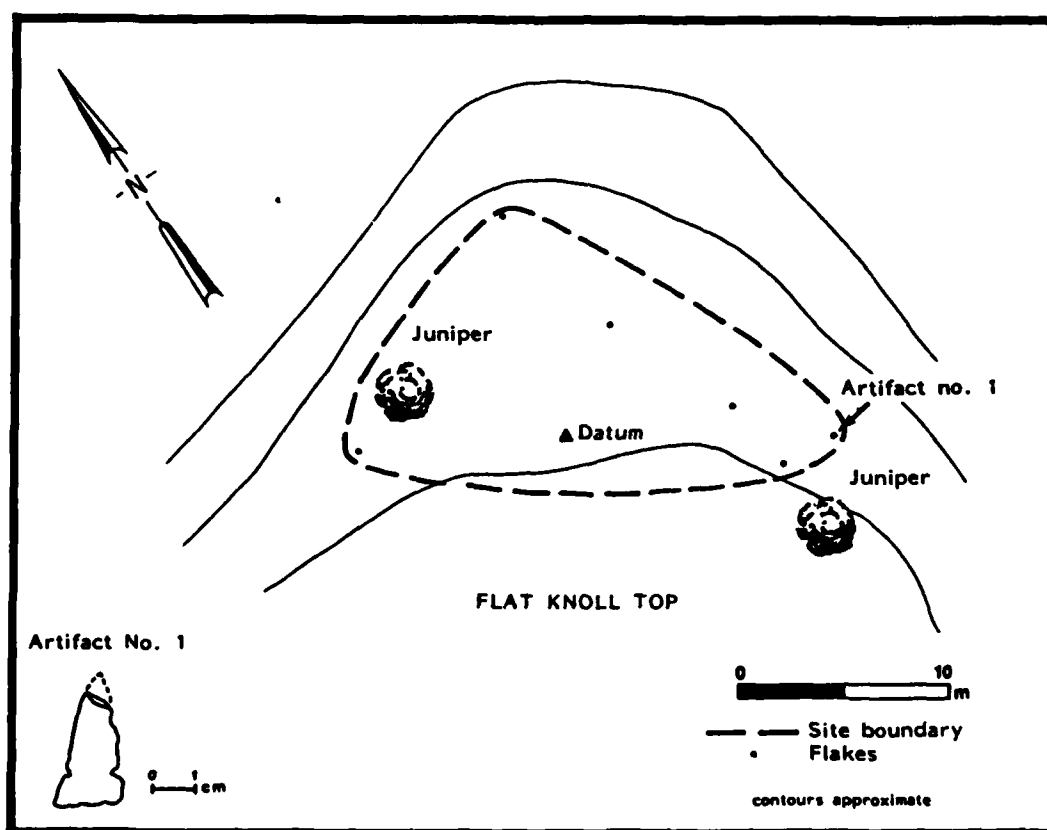


FIGURE 10. SKETCH MAP OF LA 37976 (G-4).

The function suggested tentatively by these sites is of hunting-related activities marked by the presence of formal tools, and interior flakes possibly indicative of tool maintenance. The presence of two angular fragments suggests that production of the flakes was probably carried out on the site. Although LA 37974 did yield pottery, its presence does not preclude the primary function of the loci as hunting-related, though it may indicate that a wider range of activities were conducted by the occupants of the site.

There are, in addition, two loci at which this same set of hunting-related behavior may be associated with lithic reduction activity. LA 37992 (G-20), Feature 7 contains a projectile point, cores, and flakes (12 out of 23 are interior). LA 38003 (G-37) contains a projectile point, cores, and flakes (20 out of 37 are interior).

Pot Breaks

The simplest interpretation of isolated clusters of sherds from a single vessel is that a pot was dropped during transient activities. Several such examples were encountered during the survey. At LA 37997 (G-30), however, a pure sherd scatter of at least three vessels was encountered. We can speculate that several trade vessels were dropped or broken during transport. One fact weakly supporting this guess is that the site is on the edge of the Galisteo floodplain, where a traveler along Galisteo Creek might well be expected to pass.

Other Sites

Even being generous with the assignment of site functions, a number of sites are left in an amorphous category of locations of lithic reduction activity. It would be an error to dismiss these as initial lithic procurement and reduction sites; the proportion of cortical and partly cortical flakes can be low, and exotic materials were often used. While some lithic procurement activity was going on, other functions, less clearly defined, were also taking place.

In order to define what possible role these sites played within the scheme of things, it was first necessary to examine the overall characteristics of the lithic assemblages from all the sites.

A large sample of flakes from a variety of sites (with comparable recording methods) was analyzed to understand relationships between lithic materials. One fact that emerged is that obsidian, as an exotic material, appears to have been flaked in a more thorough manner than basalt and chert, which are local materials.

This fact can be seen in two ways. First, obsidian has a higher proportion of interior flakes than basalt or chert. Among 178 flakes of obsidian, 89 percent were interior flakes, whereas eight percent were partly cortical and three percent were cortical. Among 72 chert

flakes the corresponding percentages were 58 percent, 31 percent, and 11 percent; among 303 basalt flakes the percentages were 50 percent, 32 percent, and 18 percent.

It might be argued that the difference merely represents the initial decortication of obsidian at its place of origin. However, the ratios of flakes to cores indicates that, in fact, more intensive use of material is involved. For the sample, 61 basalt cores, nine chert cores, and no obsidian cores were present. This represents ratios of five flakes per core for basalt, eight flakes per core for chert, and 178 flakes to no cores for obsidian. This fairly clearly suggests different degrees of reduction being applied to different lithic materials.

Once a picture of the overall assemblage characteristics had been achieved, it was possible to examine the subtleties of the situation. Two analyses were conducted in an attempt to answer the question: did lithic sites (as a class) tend to represent procurement and initial reduction loci for sherd and lithic sites? By addressing the question it was hoped that functional definition could be given to the non-diagnostic lithic scatters.

For each test, samples of comparably collected data were used. The first test, examining the lithic assemblages from sherd and lithic sites, showed that 21 percent of all flakes were cortical, 32 percent were partly cortical, and 47 percent were interior (247 flakes total). In contrast, purely lithic sites had nine percent cortical flakes, 19 percent partly cortical flakes, and 72 percent interior flakes (419 flakes total). Given such frequencies, it is hardly likely that lithic sites are generally serving as initial procurement and reduction loci for sherd/lithic sites.

The second analysis examined materials used. At sherd and lithic sites, 60 percent of the chipped stone was basalt, 16 percent was chert, five percent was obsidian, and the remainder was other materials (308 items total). On purely lithic sites, only 36 percent of the chipped stone was basalt, 31 percent was obsidian, nine percent was chert, and the remainder was other materials (505 items total). In other words, lithic sites as a class have lower proportions of local materials than do sherd and lithic sites. This again, is unlikely for sites at which initial reduction is taking place.

Site Location: Implications for Site Function

To some degree, site location has already been mentioned in the discussion of site function (despite initial plans not to do this, as indicated in Chapter Four). In this section, some other observations on site location will be provided.

Some correlation between the environmental zones defined in Chapter Two and site location can be noted. Remains are present on the greasewood and saltbush covered terrace just out of the Galisteo

floodplain, but these are extremely limited in size and content (the exception being the historic rail line, LA 37994 [G-25]). A similar lack of substantial remains can be noted in the grasslands portion of the study area (Figure 2). Thus, disparities in zone size aside, it appears that there is a preferential location of sites in areas with juniper/grassland association present.

One factor behind this preference may be that the juniper parkland zone includes most of the variable topography in the study area. Time and again, the survey crew noted that sites were located in order to have a clear, unimpeded view, especially towards Galisteo Creek. This effect can be seen at LA 37998 (G-31), LA 37999 (G-32), and LA 38000 (G-33) where only the southern (Galisteo) sides of knolls were occupied; it is also apparent at LA 37981 (G-9) and LA 37982 (G-10), where artifacts are densest on the northern (Galisteo) edge of knolltop settings.

Limited additional information on site location was obtained by examining a sample of sites, chosen for comparability, in terms of immediate topographic setting. As might be expected, the preferred locations for sites consisted of flat spots, especially on some kind of elevation. Of the 32 sites considered, 18 were on knoll, ridge, or terrace tops; seven were on the slopes of knolls, ridges, or terraces; and five were in other locations. (No distinction between sherd/lithic and lithic sites was noted.)

The major determinant of site location, however, appears to be Galisteo Creek. Simple examination of Figure 2 will show that most sites are clustered near the creek, often on the first rises north or south of it. It is particularly interesting that the three extensive low-density sites (LA 29539 [G-36], LA 38005 [G-40], and LA 38006 [G-41]) are situated near Galisteo Creek just as it emerges from the "choke point" now filled by the dam. It is highly possible that the location of these sites was determined by this strategic location; it would be a likely area for sporadically used (and therefore scattered and low-density) sites related to east-west travel. One other instance of "site location" being influenced by the former narrows can be noted: the route taken by the old Santa Fe rail line passed through the same location in order to avoid the high ridge country to either side of Galisteo Creek.

The Role of Isolated Finds: Implications for Areal Activity

Most isolated finds were chipped stone loci, and the question arose as to whether these were mostly initial procurement and reduction loci or whether, as a class, they included a much wider range of activities. In order to provide some degree of comparability, samples of lithic isolated finds were contrasted with sites at which artifacts included only lithic items.

The first comparison contrasted 283 lithic items from isolated finds with 465 items from lithic scatters (with and without features), in terms of materials used. For isolated finds, the figures which

resulted were 62 percent basalt, 12 percent chert, 17 percent obsidian, and nine percent other materials. For the sites, the figures were 41 percent basalt, ten percent chert, 28 percent obsidian, and 21 percent other materials. From these figures it appears that isolated finds tend to be derived from local materials more often than lithic items in sites, but that in many cases non-local materials do appear as isolated remains.

A second analysis contrasted 216 flakes from isolated finds with 383 flakes from lithic sites (with and without features). On isolated finds, seven percent of the flakes were cortical, 32 percent were partly cortical, and 61 percent were interior. On sites, the figures were nine percent, 21 percent, and 70 percent. The relative differences in degree of reduction would appear to be minor.

The final analysis to be discussed contrasted topographic settings for isolated finds and lithic sites (without features); 109 of the former and 18 of the latter were considered. The distribution for isolated finds were 24 percent on knoll, ridge, or terrace tops, 45 percent on knoll, ridge, or terrace slopes, and 31 percent in other settings. For lithic sites the distributions were 56 percent on the tops, 17 percent on slopes, and 28 percent in other settings.

The analyses just presented can be summarized as follows. Isolated finds more commonly involve use of local lithic resources. In addition, they are more commonly located on sloping terrain than are sites. However, they do often include non-local materials, and in terms of degree of reduction (as measured by cortex) they do not appear to be highly different from lithic sites. Thus, while initial procurement and lithic reduction was probably one function involved in the creation of isolated remains, this is not likely to be the only role of isolated lithic finds.

Prehistoric Site Function: A Summary

The preceding discussions were designed to define the possible functions of both sites and isolated finds within the study area. It is apparent from the data reviewed that most of the sites within the area served as short-term or limited use loci. Even in the case of the farming related sites, seasonal activities are suggested. Though the area did host a large P IV pueblo, in the millenia preceding that occupation there is little evidence to suggest intensive use of the region. Rather, the functional implication of the sites and the isolated finds as a whole is that the western end of the Galisteo Basin was utilized on a short term or seasonal basis.

CULTURE HISTORY - A SYNTHESIS

No evidence for Paleo-Indian occupation was encountered during the survey. Thus, to date, the Cody Complex point found by Honea (1969; Kayser and Ewing 1971) at LA 356 (La Bolsa Site) remains the only indication (and not a very convincing one) of Paleo-Indian use of the western Galisteo Basin.

Although the research design predicted that any identifiable Archaic sites found would be from the Bajada phase, the reality was somewhat different: Archaic remains tended to be late rather than early. Of course, LA 356 contains a Bajada component, whatever else may be present. However, of Lang's (1976) three Bajada phase finds in the 1976 survey area, two could not be located and the third, tentatively relocated locus consisted of a single "Bajada phase chopper" which more likely is a core. The one possible Bajada phase find was an isolated point (I-131). It was, however, crude and possibly unfinished.

Part of the failure to find Bajada phase remains may lie in philosophical differences among archaeologists. During the 1982 survey, the crew found many cobbles of basalt from which flakes had been removed. Another archaeologist might have classified them as a number of choppers. However, in the authors' eyes the items in question lacked the characteristics of choppers as opposed to cores; in an area where so much raw material occurs in the form of cobbles, it is only to be expected that "chopper-looking" cores would be common.

Late Archaic occupation of the western Galisteo Basin is indicated by a number of finds of corner-notched projectile points (Figure 11). One site, LA 29537 (GR-26), is probably an En Medio phase (BM II) camp which saw extended, possible seasonal use. In addition, probable or possible Late Archaic points were found at LA 37981 (G-9); LA 37984 (G-12); LA 37988 (G-16); LA 37992, Fea. 7 (G-38); LA 29539; LA 38003; and I-59. Some of these may represent more specialized sites of the Archaic, but not all of the artifacts found with them are necessarily coeval.

No evidence for a Basketmaker III/Pueblo I occupation was found anywhere in the study area. Pueblo II use of the area can be shown, but was apparently highly transitory. At LA 37984 (G-12), a possible sherd of Red Mesa Black-on-white and a second sherd of P II style black-on-white were found in a low-density artifact scatter; the sherds and other artifacts may or may not all be contemporaneous. At LA 38005 (G-40), Locus 1, three sherds of Red Mesa Black-on-white were found in what could be a wild plant food processing site. Finally, an isolated find (Z-1) of possible Red Mesa Black-on-white (?) was made in the 1976 study area.

Although the Santa Fe phase Waldo Site (LA 9147) (Kayser and Ewing 1971) is located just east of the survey area, evidence for this phase again suggests transitory use of the study area. Only three sherds of Santa Fe Black-on-white, all isolated finds (I-39, 40, 54), were

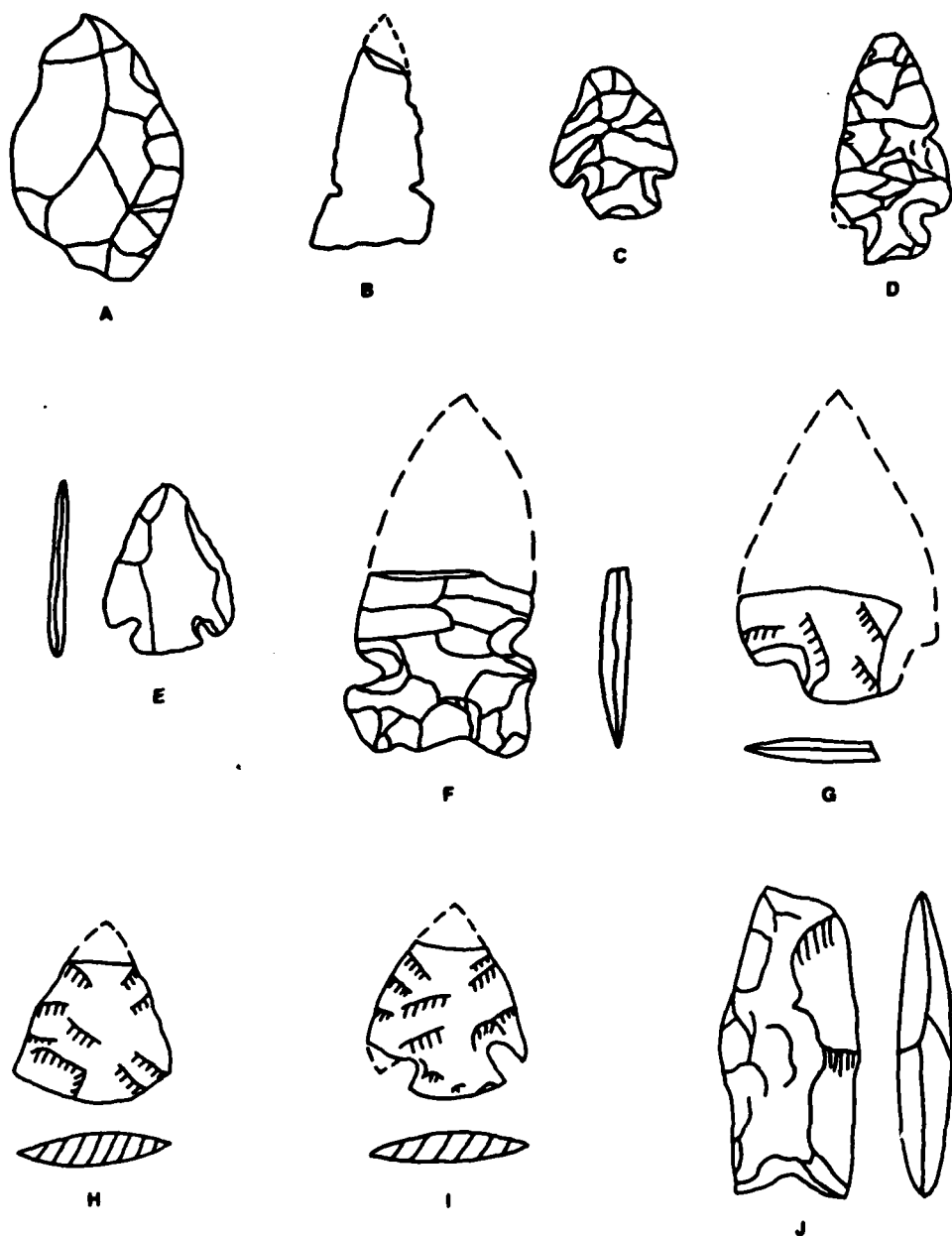


FIGURE 11. DIAGNOSTIC PROJECTILE POINTS: A) Thinned biface (LA 37974); B) Pueblo Aligned Edge (LA 37976); C) Echo Shouldered (LA 37981); D) En Medio - Parallel (LA 37984); E) Ojo Barbed or Echo Shouldered (LA 37988); F) Arroyo Hondo Sub-concave (LA 29539); G) En Medio (LA 38006); H) Preform (LA 29537); I) Ojo Barbed (LA 29537); J) Bajada Sub-concave (I-131). Note: all artifacts are actual size.

found. No evidence whatsoever was found to show use of the area during the Galisteo phase.

Two of the projectile points found appear to date to the Pueblo I through Pueblo III span: one at LA 37975 (G-4), and another, isolated find (I-144).

During early Pueblo IV times, the study area experienced a renaissance of sorts. The first habitation site since the late Archaic was built; this was LA 6869, the 30-room Wheeler site. Possibly as satellite sites, four fieldhouse locations were also built at this time; tentatively, an additional four contemporary sites are considered as agricultural camps. The check dam zones in the study area may have been built at this time, but at least some farming was probably done without such structures; akchin-style (runoff) farming may have been feasible in those locations. We may note that, except for locations adaptable for runoff or check dam farming, and despite the presence of Galisteo Creek, this part of the stream basin seems poorly suited for agriculture.

Several other loci, including one possible hunting related camp, can be dated to early Pueblo IV. A general pattern can be hypothesized in which areas near Galisteo Creek were used for farming, the associated terrace gravels were exploited for their chippable stone, and upland areas were used more occasionally, perhaps for hunting and plant food collecting.

The early P IV renaissance did not last long. Two postulated agricultural campsites (LA 37992 [G-20], Fea. 3, and LA 14184 (GR-6)), appear to include A as well as B glazewares. The same may possibly be true for a third site, of unknown function, LA 29532 (GR-21). The remaining span of the Glazeware sequence is, however, underrepresented if one postulates a continued intense occupation of the area. Two sites of apparently Glaze E affiliation are present: one (LA 37992 [G-20], Fea. 2) may be an agricultural camp while the other (LA 37997 [G-30]) is a multiple pot break which possibly occurred during travel. A large Koyitki Polychrome (?) bowl sherd (Glaze F) was found at LA 38006 (G-41).

In historic times, transitory Pueblo use of the area appears to have picked up slightly. A temporary shelter was found at LA 38006 (G-41), Feature 2, in association with Puname (?) Glaze Polychrome. Other locations exhibiting historic Pueblo pottery are LA 14180 (GR-1), LA 14188 (GR-9), LA 14194 (GR-15), and I-100.

Although a pre-revolt Spanish homestead was found in the study area (LA 9142, the Signal Site [Kayser and Ewing 1971]), the 1982 survey was able to turn up only two pieces of pottery to document Hispanic use of the area. One was at LA 37979 (G-7), while the other was an isolated find (I-58). At LA 38007 (G-42), the remnants of a European-style structure were found; it could not be dated and might either be Hispanic or Anglo-American.

"Anglo" use of the area was more intense, but in limited ways. In 1880, a main line of the Santa Fe Railroad was built on the north side of Galisteo Creek; thereafter, for eight decades, passengers and stewards apparently tossed their unwanted material culture to one side or the other of the tracks as their trains passed by. At about the same time, Anglo-American prospecting and ranching must have become important. At LA 37975 (G-3) and I-21, prospect holes were encountered; while at LA 29540 (GR-29), a lined shaft and a stone cabin testify to someone's initial determination to make the mine pay.

While no remains can be directly attributed to the early "Anglo" ranching period, it is clear that people were in many parts of the hills lining Galisteo Creek. Much of the evidence for these passing individuals, who in many cases were cowboys probably looking for stray cattle, consists of purple, brown and blue bottle glass.

At the turn of the century, while ranching and perhaps mining continued, an early high-power line was built through the study area, from the coal town of Madrid to the silver town of Albemarle. Crossing the area in absolute disregard for topography, the powerline was part of an enormous investment scheme that, in the end, failed. Since then, ranching has continued and--except for the dam--is the only real use the study area is put to today.

The preceding discussions have served as a summary of the both the prehistoric and historic occupations of the study area. Yet, it would be insufficient to close the discussion without exploring a phenomenon identified during the course of the investigations; a phenomenon all too common to surveys in the West.

OF OYSTERS AND INSULATORS: THE "CURIO EFFECT"

Archaeologists assume that isolated artifacts represent one of two phenomena: limited activity, or else natural transport of artifacts (for example, through sheet wash). In the first case, the artifact is assumed to be in its original location, which can be analyzed to learn about the functional or adaptive context of the find. In the second instance, it is sometimes possible to find a site from which the artifact was washed, simply by going up-arroyo or upslope. During the Galisteo Project, however, a third phenomenon behind isolated finds presented itself. The term picked to describe this phenomenon is "the Curio Effect."

Recognition of the effect was belated. Early in the survey, in the high dissected ridge area south of Galisteo Creek (roughly north of I-43), a crew member found an oyster shell. It looked old but not ancient, and its presence in the hills of New Mexico led to a good deal of discussion. A number of suggestions for its origins were raised and discarded; the problem was one of getting as perishable an item as an

oyster so far from civilization. Two explanations finally emerged as the least ludicrous: an airborne sybarite dropped the shell out the window of a small plane; or else his Jeep-borne counterpart had brought it out with a cooler containing a high-class picnic. In any case, all agreed that the need for refrigerating oysters would date the find to recent years.

Somewhat later during the survey, the crew encountered a vast array of historic debris along the Santa Fe railroad line (LA 37994; G-25). Among the items found were oyster shells. A source for the first, mysterious, and (alas) unrecorded oyster find was revealed. Moreover, a historic (pre-1932) age for the original find was likely.

Looking back, it is easy to see where we went wrong. In its original location, the oyster shell would probably have to be recent [Assumption One--the find is the place where the activity occurred]. The only places it could have washed down from would require the same assignment of a recent age [Assumption Two--the activity took place upslope or upstream from the place where the item was found]. A third assumption was required, however, to explain how an oyster shell moved 900 m south from its original resting place along the Santa Fe line--crossing Galisteo Creek and passing up and down several ridges in the process. Assumption Three demanded that one assume that at some point after 1880, an individual had picked up the oyster shell, kept it for a while, and then lost it or threw it away.

The question is, why? Most likely, the oyster shell was collected as a curiosity--a "curio"--and the collector eventually lost interest in the find. It is easy to understand the initial curiosity in this case, however--to a ranch hand who perhaps had never seen the ocean, an oyster shell might seem strange indeed. It is worth mentioning that, thus enlightened, the crew located and recorded additional oyster shell fragments at I-145, which again was across the creek and uphill from the old railroad line.

As superficial as the above insight might seem, it is needed to explain other patterns of material culture noted by the survey. In particular, the distribution of some glass insulator fragments from the Madrid-Albemarle power line had no obvious explanation. The fragments were widely scattered along the original powerline route, and any found within 50 m of the presumed centerline were ignored as explainable scattering (too many fragments were present to record in the time available). However, others were not easily explained. At the location designated G1-A fragments of a Provo Type insulator were found in a 2 m by 2 m area; at G1-B a single large fragment was found; at G1-C about 30 fragments were found scattered down a hillslope; at G1-D a nearly whole example was found; and at G1-E about 30 small fragments were found.

A similar pattern was discovered in the 1976 survey area, in which it was not possible to fully trace out the route of the powerline. Remains at LA 38010 (GR-37) are in line with the approximate route of the powerline, and almost certainly form part of it. However, insulator

fragments which may derive from the line were also found at LA 14187 (GR-8), LA 14189 (GR-10), Locus 1, LA 14196 (GR-17), Z-18, Z-19, and Z-36. In most of these cases, a human being must have transported the items from their original locations on or near the line.

It is difficult to define a functional reason for moving these insulators around so much. At LA 14196, it is possible that the insulator was being chipped to produce flakes. In other locations, the insulators might have been set against a hillslope and used as a practice target by bored cowboys. But on the whole, it appears that short-lived curiosity has a great deal to do with the present locations of the fragments in question.

Other possible cases of the Curio Effect can be mentioned. At LA 38010 (GR-37), some individual picked up two pieces of glassy slag from the Santa Fe rail bed, carried them up to a nearby knoll, and then dropped them. At LA 37990 (G-18) and LA 37991 (G-19), pieces of coal were found (Figure 12); perhaps they were scavenged from along the railroad line as fuel, but in each of these juniper-rich locations the coal might also be curios. Finally, one can wonder whether the Curio Effect was at work prehistorically, and explains why a Bajada phase camp such as LA 356 (La Bolsa Site) would have a Cody Complex point on it--perhaps the point, already old in Bajada times, was a curiosity worth collecting to the inhabitants of the site.

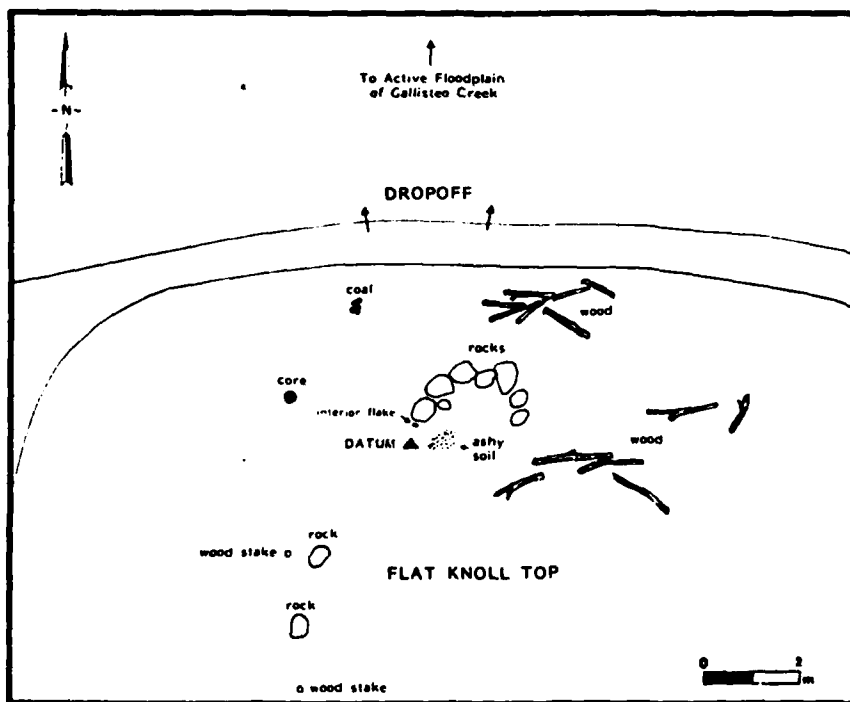


FIGURE 12. LA 37990 SKETCH MAP SHOWING RELATIONSHIP OF SURFACE ARTIFACTS AND FEATURES.

Of course, not all inexplicable artifact locations can be blamed on idle minds. At two locations (RR-1 and RR-2), a railroad tie and two ties, respectively, were located. To reach either location from the old Santa Fe railbed, the ties must have been carried there by humans. No reason for moving and then abandoning the ties is known, but considering their size and weight it seems unlikely that simple curiosity was responsible.

CHAPTER SEVEN

CONCLUSIONS AND RECOMMENDATIONS

This chapter begins with evaluations of the 1976 and 1982 surveys. Following that, sites are evaluated in terms of eligibility for the National Register of Historic Places. The authors recommend that the cultural resources encountered should be considered eligible as a district; however, some sites are also considered eligible on an individual basis. Finally, additional management recommendations are made.

EVALUATION OF THE 1976 INTENSIVE SURVEY

Because the results from the 1976 intensive survey differ somewhat from those obtained in 1982, a few comments on the earlier survey are necessary. In part, the discrepancies are due to the inexactness of survey in general--it is widely known (though rarely discussed) that sites often grow, multiply, and move about from one survey to the next. While this reality is somewhat deplorable, the appropriate methodological solution continues to elude archaeologists.

Nonetheless, part of the differences between survey results appear to relate to theoretical or methodological differences which could be controlled for. The clearest difference is that the earlier survey tended to ignore Euro-American remains as a historical resource. In addition, the survey approach used seems to have been less sensitive to low-density extensions of sites, and to isolated artifacts, than the 1982 survey results. The 1976 intensive survey, as augmented non-formally in 1982, should be sufficient for present management and

planning needs; however, future users of the survey data should consider that historic and isolated finds are probably somewhat denser than recorded.

EVALUATION OF THE 1982 RESEARCH DESIGN

In the final research design, one section was concerned with "specific questions, hypotheses, and data needs." The following subsections are in the same order used in that part of the design (see Chapter Four). Following that, more general comments are provided.

Culture History

In general, it was possible to construct a picture of the culture history of the study area. One factor limiting this effort was the large number of sites that lacked diagnostic remains. One place where the research design could have been made much more useful was in defining the attributes by which historic and recent Anglo-American artifacts could be distinguished in the field.

Adaptive History

It was usually not possible to relate sites on alluvial terraces to sequences of climate-related terrace formation. Most of the terraces along Galisteo Creek are quite large and apparently were in place long before the first humans reached the Southwest. One low terrace along Galisteo Creek does appear to be Holocene in age; it has been a terrace for at least several centuries, to judge from the remains found on its surface. Along tributary arroyos some alluvial terracing has also occurred, but this could not be tied to any sites.

As for sites themselves, the potential for paleo-environmental data appears to be limited. Most sites appear to be superficial. Non-site locations with good paleo-environmental potential (such as a dry overhang with a packrat midden) were not found.

In some cases, site adaptive functions were defined. However, these identifications were often tentative, and a number of sites could not be classified according to probable function. Two important research goals for any further work in the study area should be:

- 1) devising tests for the hypothesized functions assigned to some sites in the study area; and
- 2) devising means of identifying function for those sites which, at the moment, have too "simple" a material culture to classify effectively. For example, flake attributes other than degree of cortex should probably be recorded in a formal and consistent manner.

Environmental sources of cultural variability were isolated to a slight degree during the study. Understanding of biotic-cultural

interactions was limited by the relatively narrow range of cultural remains located within the study area.

One possible insight into adaptive history was provided by the discovery of two extensive series of check dams. As mentioned early in the report, a key research issue in the immediate region is how agriculturalists were able to persist. For the western Galisteo Basin, the answer may be in part that they were able to use artificially concentrated runoff. It is therefore important that any future work in the study area establish whether or not the check dams discovered by the survey are aboriginal.

Socio-Economic Change and Trade

Study of socio-economic change through survey data was based on the assumption that a minimal sample of habitation sites would be located. This assumption was rudely dispelled. For similar reasons, it was not possible to study changes in frequencies of trade items through time.

The hypothesis that Galisteo Creek served as an east-west trade route was weakly supported, in the sense that sites appear to cluster near the creek (and, in the case of low-density scatters, near the narrows in the creek).

Additional Comments

Certain general concerns were voiced in the "Problem Domains" section of the research design. It is worth noting that several general problems raised there are inappropriate to future research in the study area. These include: the question of continuity (or lack thereof) between Paleo-Indian and Archaic; the question of continuity (or lack thereof) between Late Basketmaker/Early Pueblo and Late Pueblo (in this location there is none); and the need for refining the Black-on-white and Glazeware ceramic sequences (the pottery samples which could be obtained are not sufficient to address the need).

EVALUATION OF ARTIFACT RECORDING METHODS

Where it is practical, the "total count" approach to recording artifacts is probably most desirable; it provides a complete picture of surface artifact variability, and surface density can easily be approximated by comparing the total count to the surface area of the site. While some distortions may be inherent in estimating density in this way, they are certainly no worse than extrapolating from sample transects to an entire site.

Two variants of the total count approach were used: one in which each item was recorded and plotted separately, and one in which only the perimeter of the artifact scatter was indicated. The former was highly time consuming if more than a dozen or so artifacts were located, but it does appear that intrasite variability in artifact

distribution is slighted when the latter approach was applied. We became aware of this at LA 37998 (G-31), where the transect data hinted that obsidian was concentrated on a knoll top while basalt was concentrated on the adjacent slope. At a nearby and very similar site, LA 37999 (G-32), separate total counts of the knoll top and slope did show the distribution of obsidian and basalt items suggested in the previous site's formal transect data. Thus, any future researcher utilizing the method of total counts without plotting individual artifacts may wish to at least break up the site area in terms of such topographic (or other) divisions.

When a careful total count was not possible, the approach used was a formal transect, an informal sweep, or both. Formal transects centered on a permanent datum are, of course, highly replicable, and they at least give the illusion of "doing science." They are slow, however, and usually sample only a small portion of the site. Informal sweeps lack the replicability of transects, and probably will miss items, but by covering the entire site they tend to provide a larger sample that is more likely to subsume intrasite variability. In a sense, the argument is a mathematical one--whether a small, precise sample is better than a large, unprecise one. Statistical theory does suggest that as the sample size approaches the total size of the population being sampled, variations in sampling procedures become less important.

One direct test of formal transects versus informal sweeps can be obtained from the survey data. In Table 2, it can be seen that informal sweeps yielded consistently lower site densities than formal

TABLE 2. COMPARISONS OF DENSITY ESTIMATES
(in items per sq m)

<u>Site Designation</u>	<u>Method</u>		
	<u>Formal Transect</u>	<u>Total Count</u>	<u>Informal Sweep</u>
LA 37984 (G-12)	0.1	-	fewer than 0.05
LA 37985 (G-13)	0.1	-	fewer than 0.05
LA 37992 (G-20), Fea. 1	0.2	-	fewer than 0.05
LA 37997 (G-30)	0.3	-	0.1
LA 37998 (G-31)	0.2	-	0.1
LA 14187 (GR-8)	0.2	-	fewer than 0.05
LA 14192 (GR-13)	0.1	-	fewer than 0.05
LA 29537 (GR-26)	0.1	-	fewer than 0.05
LA 38009 (GR-30)	0.1	-	fewer than 0.05
LA 38010 (GR-37)	0.2	0.1	-

transects. This cannot be dismissed as a tendency for informal transects to miss items, however. Formal transects represent a weighted sample favoring the central portion of sites, even when they extend to the edges of sites; and on this project many informal transects did not extend that far. In contrast, informal sweeps include all of the low density fringes on sites. Thus, the discrepancies in Table 2 cannot in themselves be used to discredit informal sweeps.

In one case, at LA 38003 (G-37), a formal transect was combined with a total count. The density estimate resulting from the latter was about half that achieved by the former. This reinforces the suggestion that formal transects can be biased samples of site density, under-representing low-density areas.

EVALUATION OF INDIVIDUAL SITES ACCORDING TO NATIONAL REGISTER CRITERIA

Among the criteria for eligibility for the National Register of Historic Places is that sites or districts "...have yielded, or are likely to yield, information important in history or prehistory." It is this criterion which applies to remains in the study area. Later in this chapter, an argument will be made for treating the remains in the study area as a district; for now, however, sites will be considered individually. We will consider a site to be "important" if it is likely to fill in major gaps in local or regional culture history; is likely to provide substantial new information about a past society's technology, economy, social relations, behavioral patterns, or ideology; or could be used to test key controversies or hypotheses about human behavior or history.

There are several areas which impinge on the potential importance of sites in the study area. First, the site must be basically intact, or else significant portions of the site must remain intact, if it is to yield significant new information to archaeologists. Second, though less critical, is site depth. Superficial sites are fully capable of yielding useful information; however, a number of data classes (pollen, fauna, macrofloral, and chronometric) are usually recoverable only in sites with buried components. Thus, any site with potential for site depth must automatically take on some importance.

A third factor considered in evaluating sites is the presence or absence of features. At Galisteo, since sites are superficial, it is possible to estimate whether features are present from survey data alone. Again, features do not in themselves determine the importance of a site, but they represent a data class which can be analyzed in addition to that provided by artifacts. Features are also worth considering because, as a rule of thumb, they indicate that human activity at the site was not highly transient or limited.

A fourth factor used is the presence or absence of diagnostic artifacts -- projectile points or pottery for prehistoric sites, datable items such as purple glass for historic sites. These are

important because data on function technology, etc., are more meaningful if they can be placed within a historical framework, for purposes of comparison and synthesis.

A fifth factor, relevant to prehistoric components only, is the presence or absence of obsidian. This particular material can be used to date sites (through obsidian hydration analysis), if sufficient samples are present, and it can also be used to determine trade relationships (through source analysis).

The last factor used to evaluate all sites was whether more than 100 artifacts were present. While the number chosen is somewhat arbitrary, it does serve as a useful litmus test of the amount and extent of remains available for collection and analysis. Effective isolation of behavioral and historical patterns requires the use of a statistical approach -- that is, artifacts must be considered as parts of greater assemblages and not as isolated bits of data. A site with fewer than 100 artifacts is much less likely to yield information on a variety of research questions than is a site where the artifacts number in the hundreds or even in the thousands.

This factor (no. of artifacts), in particular, presents a potential research and preservation bias, which must be noted. If small sites (fewer than 100 artifacts) are functionally different from large ones -- which seems likely -- their exclusion from the National Register process means that a non-representative sample of sites is selected for preservation and management. (A similar argument can be made in the case of isolated finds.) Thus, whenever an area is found to contain a number of small sites or isolated finds, a district nomination is the best means of preserving a representative data base. The fact remains, however, that if individual determinations are called for, some sites -- seen in isolation -- contain less information than others.

Using these criteria -- but not ignoring other survey data -- sites were individually evaluated and ranked in terms of three levels of importance (Tables 3, 4). Seven sites met most or all of the criteria just defined, and so were judged to be important enough to be eligible, on an individual basis, for the National Register of Historic Places. Each of these sites will be discussed individually.

LA 37973 (G-1)

At the turn of the century, an early powerline was built to transmit energy from Madrid, New Mexico, to the silver mines at Albemarle, in the Jemez Mountains. The powerline passes through the study area; although poles and wire have been salvaged, various types of debris (remnants of the pole assemblies, insulator fragments, and rock bases for power poles) still mark the route. Within the study area, part of the line has been erased by dam construction, but enough remains on Corps land (and presumably off it) to make further research worthwhile.

TABLE 3. SITE EVALUATIONS -- 1982 SURVEY

Site Number	Site Basically Intact	Site Depth Present/Likely	Archit. Features/Hearths	Diagnostic Artifacts	Obsidian	More Than 100 Items Present	Very High Research Potential	Further Research Potential	Little Research Potential	Comments
LA 37973 (G-1)	X	-	X	X	-	X	X	-	-	early examples of powerline
LA 37974 (G-2)	X	-	-	X	X	-	-	X	-	
LA 37975 (G-3)	X	-	-	X	X	-	-	X	-	
LA 37976 (G-4)	X	-	-	X	X	-	-	X	-	
LA 37977 (G-5)	X	-	X	-	-	-	-	-	X	historic prospect holes
LA 37978 (G-6)	X	-	-	-	X	-	-	X	-	
LA 37979 (G-7)	X	-	-	X	-	-	-	X	-	at least 3 components
LA 38980 (G-8)	X	-	-	-	-	-	-	-	X	
LA 37981 (G-9)	X	-	-	X	X	-	-	X	-	
LA 37982 (G-10)	X	-	-	-	X	-	-	X	-	
LA 37983 (G-11)	X	-	-	-	X	-	-	X	-	
LA 37984 (G-12)	X	-	?	X	X	-	-	X	-	
LA 37985 (G-13)	X	-	-	X	X	-	-	X	-	
LA 37986 (G-14)	X	-	-	-	-	-	-	X	-	
LA 37987 (G-15)	X	-	-	-	-	-	-	-	X	
LA 37988 (G-16)	X	-	-	*	X	-	-	-	X	* pseudo-point
LA 37989 (G-17)	-	-	X	-	-	-	-	-	X	site badly eroded
LA 37990 (G-18)	X	-	X	-	-	-	-	X	-	historic camp
LA 37991 (G-19)	-	-	-	X	-	-	-	-	X	site partly bulldozed
LA 37992 (G-20)	X	-	X	X	X	X	X	-	-	multiple features; extensive
LA 37993 (G-22)	X	-	-	-	X	-	-	X	-	
LA 37994 (G-25)	*	-	X	X	-	X	X	-	-	railroad line, associated trash; significant portion remains
LA 37995 (G-26)	-	-	X	-	-	-	-	-	X	site badly eroded
LA 37996 (G-29)	X	-	X	X	-	-	-	X	-	
LA 37997 (G-30)	X	-	-	X	-	-	-	X	-	
LA 37998 (G-31)	X	-	-	-	X	*	-	X	-	Informal sweep: 101 items
LA 37999 (G-32)	X	-	-	-	X	-	-	X	-	
LA 38000 (G-33)	X	-	-	*	-	-	-	X	-	*except 1 intrusive pc. purple glass
LA 38001 (G-34)	*	-	-	X	-	-	-	-	X	*site may be somewhat disturbed
LA 38002 (G-35)	X	-	-	-	*	-	-	-	X	* 1 piece
LA 29539 (G-36)	*	X	X	X	X	X	X	-	-	* significant portion remains
LA 38003 (G-37)	X	-	-	X	X	-	-	X	-	
LA 38004 (G-39)	X	-	-	-	*	-	-	-	X	* 1 piece
LA 38005 (G-40)	X	-	-	X	X	X	X	-	-	multiple features, extensive
LA 38006 (G-41)	X	X	X	X	X	X	X	-	-	multiple features, extensive
LA 38007 (G-42)	*	-	-	-	-	-	-	-	X	* partly bulldozed
LA 38008 (G-43)	X	-	-	-	-	-	-	-	X	

TABLE 4. SITE EVALUATIONS -- 1976, 1977 AND MISCELLANEOUS SURVEYS

Site Number	Site Basically Intact	Site Depth Present/Likely	Archit. Features/Hearths	Diagnostic Artifacts	Obsidian	More Than 100 Items Present	Very High Research Potential	Further Research Potential	Little Research Potential	Comments
LA 14180 (GR-1)	?	?	-	X	-	-	-	-	*	* based on Lang 1976
LA 14181 (GR-2)	?	?	-	-	-	-	-	?	?	based on Lang 1976
LA 14182 (GR-3)	X	*	X	X	-	+	-	X	-	* possible slight depth in room + based on density estimate
LA 14183 (GR-4)	X	-	-	-	-	-	-	-	X	
LA 14185 (GR-5)	?	?	-	*	-	-	-	-	-	* based on Lang 1976
LA 14185 (GR-6)	X	-	-	X	*	+	-	X	-	* based on site density estimate
LA 14186 (GR-7)	?	?	-	*	-	-	-	?	-	* based on Lang 1976
LA 14187 (GR-8)	X	-	-	-	X	-	-	X	-	
LA 14188 (GR-9)	?	-	-	*	-	-	-	-	*	* based on Lang 1976
LA 14189 (GR-10)	X	-	-	X	*	-	-	X	-	* 1 item noted
LA 14190 (GR-11)	X	X	-	X	-	*	-	X	-	* based on site density estimate
LA 14191 (GR-12)	X	-	X	X	-	-	-	X	-	
LA 14192 (GR-13)	X	-	-	X	X	-	-	X	-	
LA 14193 (GR-14)	X	-	-	X	X	*	-	X	-	* based on site density estimate
LA 14194 (GR-15)	?	-	-	*	-	-	-	-	*	* based on Lang 1976
LA 14195 (GR-16)	?	?	?	*	-	?	-	?	?	* according to Lang 1976
LA 14196 (GR-17)	X	-	-	*	-	-	-	X	-	* insulator fragments
LA 14197 (GR-18)	?	?	-	-	*	?	-	?	?	* based on Lang 1976
LA 14198 (GR-19)	?	?	-	-	-	-	-	-	*	* based on Lang 1976
LA 29531 (GR-20)	?	-	-	*	-	-	-	-	*	* based on Lang 1977
LA 29532 (GR-21)	-	-	*	X	-	-	-	X	-	* Lang 1977, outside Corps land?
LA 29533 (GR-22)	*	?	X	-	-	-	-	-	?	* based on Lang 1977
LA 29534 (GR-23)	*	-	-	-	-	-	-	-	*	* Lang 1977, single artifact
LA 29535 (GR-24)	*	?	*	*	-	?	-	*	-	* based on Lang 1977
LA 29536 (GR-25)	*	-	-	-	*	-	-	-	*	* Lang 1977, single artifact
LA 29537 (GR-26)	X	X	X	X	X	X	X	-	-	En Medio (?) phase Archaic campsite
LA 29538 (GR-27)	X	*	X	-	-	-	-	X	-	
LA 29539 (GR-28)										[See LA 29539 (G-36)]
LA 29540 (GR-29)	X	-	X	X	*	X	-	X	-	* 1 coincidental piece
LA 38009 (GR-30)	X	X	*	+	X	-	-	-	X	* poss. of hearth suggested by 1 piece of heat-altered rock + 1 sherd.
GR-31 (B)	?	-	-	-	-	-	-	-	*	* based on Lang 1976
GR-32 (C)	?	-	-	-	-	-	-	-	*	* based on Lang 1976
GR-33 (D)	?	-	-	-	-	-	-	-	*	* based on lang 1976
GR-34 (E)	X	-	-	-	-	-	-	-	X	
GR-35 (F)										[See text on LA 14189 (GR-10)]
GR-36 (G)	X	-	-	-	-	-	-	-	X	
LA 38010 (GR-37)	X	-	*	*	X	-	-	X	-	* historic component
GR-38 (I)	*	-	-	-	+	-	-	-	*	* based on Lang 1976 + 1 flake
GR-39 (J)	X	-	-	-	-	-	-	-	X	assuming GR-39 is Z-131
GR-40 (K)										[See text on LA 14189 (GR-10)]
LA 9143	X	-	-	-	X	-	-	X	-	

The powerline can be significant for two reasons. First, it is an important part of local and regional history, specifically the history of late 19th century mining in northern New Mexico. Second, it should be possible, by further study of the existing remnants, to clarify aspects of technological innovation in a frontier context. Research questions include the following: Is the tentative reconstruction of power-pole assemblies described in this report accurate (Appendix 1)? What was the interval between poles? As an early injection of "high technology" into western mining, did the Madrid-Albemarle line reflect optimal engineering design, did it incorporate engineering compromises needed in a frontier situation, or was it in fact a jury-rigged structure making poor use of the intense capital investment involved? When was the line put into use, and how long was it used? Finally, why were the insulators not salvaged along with power cables and posts?

LA 37992 (G-20)

In the section on the area's natural setting (Chapter Two), we stated that "a key issue in middle/upper Rio Grande archaeology" was "how agriculturalists were able to persist" in an area receiving less than 10 in (250 mm) of rainfall a year. The extensive series of check dams found at this site could possibly provide an important perspective on that same issue.

As noted previously, the check dams may be CCC structures; however, the authors believe that they are very likely aboriginal (Figure 13). If this proves to be the case, the site would be a



FIGURE 13. CHECK DAM IDENTIFIED IN THE LA 37992 SITE AREA.

significant source on prehistoric agriculture in the Galisteo Basin. It is possible to suggest several lines of study for such remains.

First, any future research must go beyond the fact that check dams were being used by the Puebloan occupants of the area, and the site is important because there is the potential for answering many specific questions about the nature of Puebloan agricultural activity. For example, it would be important to know when the check dams were first built and how long they were used; study of the features associated with check dams at this site should assist in the process. Additionally, study of the associated features should help define how check dams are linked to habitation sites (e.g., what stages of processing or storage were taking place near fields, as opposed to in the habitation sites).

Another aspect of such water-control devices that has not received sufficient archaeological attention is the technology involved. During site recording, it became clear at an intuitive level that the placement of check dams was not at random. On specific arroyos, check dams appeared to be spaced at regular intervals which varied according to slope and the size of associated water catchment areas. Other strategies were apparently also used: when two confluent rills drained a large area, two dams would be placed on the tributary branches just up from the confluence of streams in order to keep runoff at manageable levels. The large terraces at Locus 40 (Figure 14) appear designed to catch runoff from several small, parallel rills on steep slopes.

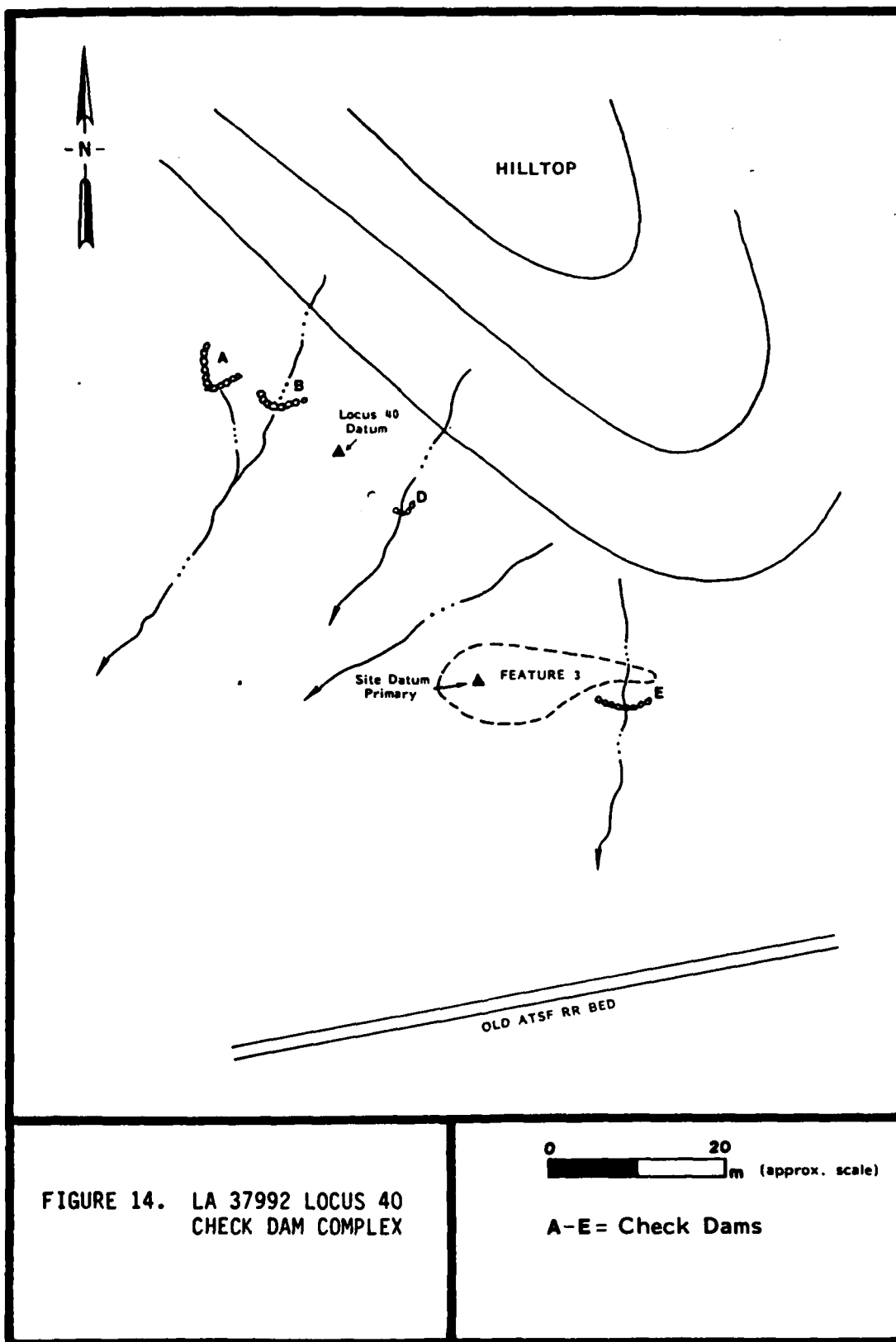
It would be highly informative to plot the series of check dams as they relate to stream branching, slope, and individual catchment area; once this was done, it should be possible to model runoff and discover how dams were spaced and located in order to "parcel" and control runoff. It would also be interesting to estimate, using current rainfall data, what the effective moisture yield in check dam plots would be.

In summary, the large number of check dams at this location, combined with their association with other features, makes it possible to evaluate the site as an important location for extensive statistical analysis of Pueblo farming technology.

LA 37994 (G-25)

Although this site was recorded as an old railroad route, the actual bed has been so modified over the years that it has little integrity as a resource for the history of technology. Instead, the importance of the site derives from the historic trash scattered along the line. Conservatively, the surviving portion of the line on Corps land contains upwards of 10,000 artifacts (whole or fragmentary) dating between 1880 and about 1960.

The artifacts are important because there is no unbiased, adequate historical record of life on trains in the western frontier. Such



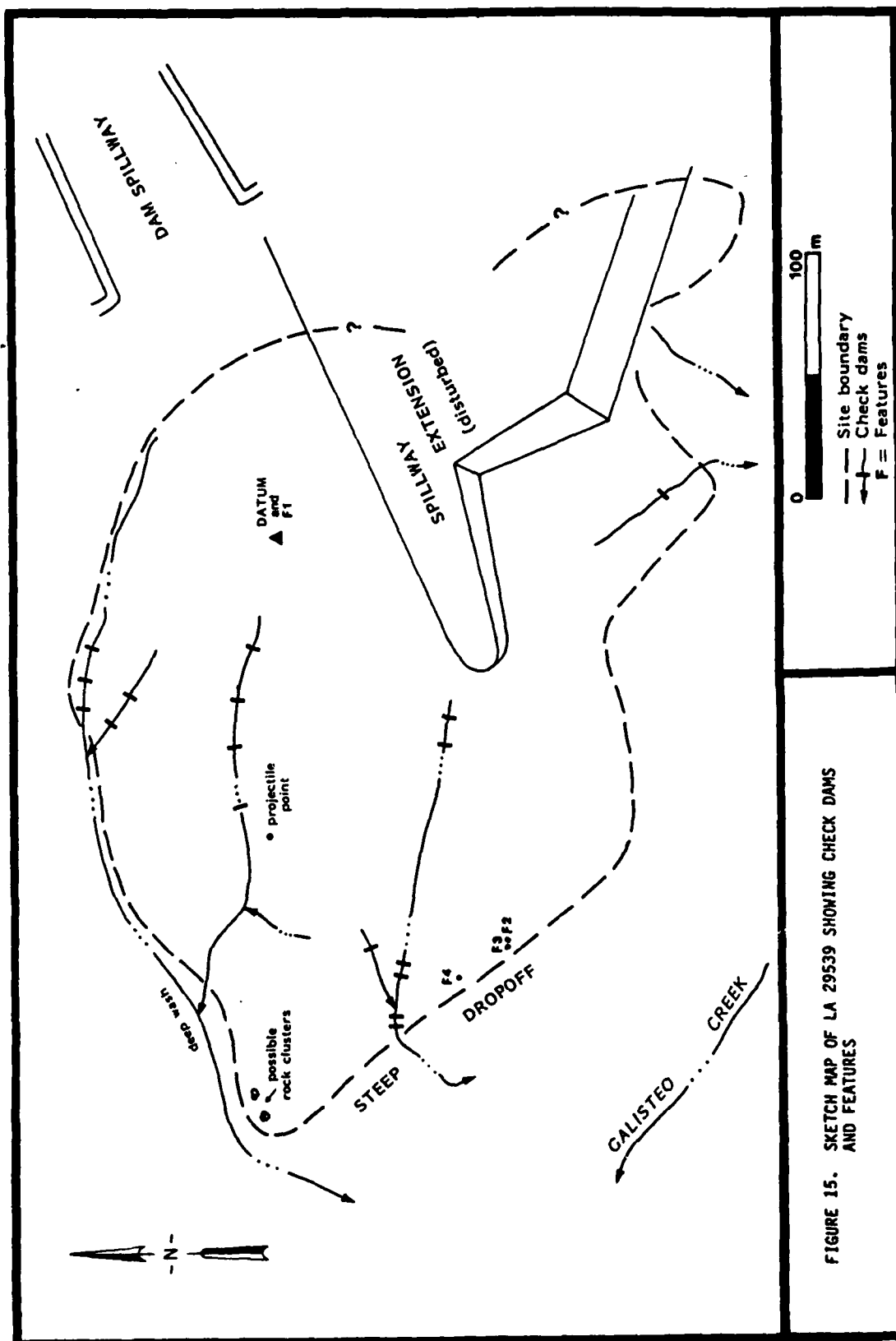


FIGURE 15. SKETCH MAP OF LA 29539 SHOWING CHECK DAMS AND FEATURES

glimpses as are provided by travelogues and newspaper stories are both selective and somewhat colored (e.g., shooting buffalo from train windows). The remains along the old line at this site represent indirect but faithful documentation of actual life on trains in the early American West; they represent real behavior rather than myth. That reality is not always more dull than myth, as suggested by the evidence for fresh oysters consumed as the New Mexican hills slid by.

We would hope that the Corps would avoid destroying the remaining portion of the old railbed, despite its lack of historical integrity. But when it comes to the associated trash, it is clear that a valuable insight into a largely dead American tradition--rail travel--is present and should be preserved.

LA 29539 (GR-28, G-36)

Because the nature of this site was not fully determined during survey, it is impossible to state the full potential of the site. Nonetheless, enough is known about the site that its potential significance can be affirmed.

Part of the site's importance derives from the presence of check dams (Figures 15 and 16) apparently for agriculture (but see comments above). Although these are fewer in number than at LA 37992 (G-20), they could still yield the same kinds of information as were detailed for the latter site. The site is also important, however, for its large (though low density) artifact scatter and its potential for site depth.



FIGURE 16. CHECK DAM LOCATED AT LA 29539.

Artifact scatters as large as this one occur at only one other location in the study area, across Galisteo Creek (LA 38005 [G-40] and LA 38006 [41]). It is important to determine why this pattern would occur only in one part of the study area, as well as to define how many occupations of the site occurred. In the end, research at this location could clarify aspects of the age and technology of the check dams present, the nature of other (perhaps antecedent) subsistence activities besides farming, and possibly the role of the narrows on Galisteo Creek as a funnel for east-west travel.

LA 38005 (G-40) and LA 38006 (G-41)

These two sites will be discussed together, as they are similar in nature and could be considered a single zone of cultural resources. Along with LA 29539 (GR-28, G-36), they represent an unusual type of site in the study area--large, low-density artifact scatters. While the full extent and nature of these two sites is not clear, the evidence so far indicates that they are potentially important sources of information on the area's prehistory.

With LA 38005 (G-40), two concentrations of artifacts and at least three temporal components were noted. Locus 1 is a sherd and lithic concentration which may be a P II camp; if so it is one of two sites (the other being LA 37984 [G-12]) of that age. It is important: 1) to confirm the assigned date; and 2) to establish why a P II camp is present in that location when the area was generally unoccupied.

Locus 2 at the same site represents an early P IV sherd and lithic concentration. While its function is unknown, the concentration is unusually dense in relation to the other finds made. It is important to define the activity that would lead to such a dense concentration of remains, especially in the context it is in (a small knoll up on a dissected ridge slope, with no local resources immediately apparent).

A third component is provided by the Madrid-Albemarle powerline, which crosses the site. As just discussed, the remnants of the powerline are in themselves important archaeologically.

At LA 38006 (G-41), two features and possibly five temporal components are present. Feature 1 is an undated lithic scatter at which site depth is suggested and at which a hearth is eroding from the ground. Feature 2 is the only historic Pueblo find which represents anything more than a pot break; apparently, it served as a temporary camp. Three more temporal components, Archaic, Pueblo IV, and historic Anglo, are suggested by non-feature finds.

Both sites may be summarized as large, low-density areas with occasional loci of more intense human activity. The sites are important for both the concentrations of remains, and the low density extensions which may have resulted from extremely long-term but sporadic use of the area. Such low-density scatters are often difficult to deal with archaeologically, but the overall large numbers of remains

and the potential for identifying multiple temporal components indicate that significant information could be obtained from either site.

LA 29537 (GR-26)

This site appears to be an extensive, undisturbed, late Archaic campsite with at least some site depth present. The presence of burned rock (scattered and concentrated) suggests that features could be uncovered at this site, and the presence of one piece of archaeological bone on the surface hints that faunal preservation is good.

The site is important in part because, of all the sites surveyed, it is the one most likely to contain a complete assemblage of artifacts and features in a subsurface context. This means that a variety of research questions could be addressed and resolved at work at the site. In particular, the site could be used to explore the nature of the Late Archaic occupation of the area and to try to understand why an apparent occupational peak occurred at that time. Relevant information on the environment of the study area at that time could be recovered, and data on fauna and flora used by the inhabitants obtained. In short, the site is potentially an unusually rich archaeological resource relative to other sites in the study area, and must, therefore, be considered as an important cultural resource.

Other Cultural Resources

The sites just discussed clearly have a high research potential. However, many of the finds met few of the criteria of importance defined earlier in this chapter. In Tables 3 and 4, it can be seen that these sites lack appropriate combinations of site integrity, depth, extent, etc., needed to consider them highly important.

Sites considered to be of lesser importance, when taken individually, were further subdivided into two categories. Sites with features, diagnostic artifacts, or more than 100 artifacts present on their surface were judged to contain some further research potential even when considered in isolation from one another. The authors, therefore, consider that such sites should also be included in any National Register evaluations. Finally, sites lacking such attributes were seen as having little further research potential by themselves. Some exceptions to these rules were made on a site by site basis, as in the case of extreme disturbance at a site with a feature (LA 37989, LA 37991, LA 37995, LA 38001, LA 38007).

Isolated finds are, by their very nature, too limited as cultural resources to yield significant information on an individual basis. In short, the resources not considered eligible are either too limited or disturbed to yield, by themselves, important information on the area's past.

RECOMMENDATION FOR CONSIDERATION AS A DISTRICT

When taken as a whole, the cultural resources of the Galisteo Dam and Reservoir area are clearly eligible for nomination as a district (Figure 17); this approach, moreover, appears to be more appropriate to the resource base than consideration of sites as individual loci. If the resources of the study area are considered as a whole, they are able to provide comparative information not obtainable on a site by site basis.

Perhaps the greatest puzzle in the western Galisteo Basin is why human occupation was so variable and discontinuous. Understanding this will require information on use of the area's resources, not only in terms of items found at habitation sites but in terms of special activity and limited activity resource procurement sites. Given their fundamentally limited nature, data pooled from several such sites would probably be highly informative. This fact is illustrated by our ability, in Chapter 6, to obtain statistical information from ambiguous lithic scatters as well as from isolated finds.

We are not suggesting that all finds made at Galisteo are equally worthy of protection, but rather that consideration of an appropriate sample of smaller and less important sites would satisfy the need to preserve significant cultural resources. We therefore recommend that consideration for eligibility for the National Register be carried out on a district basis. This would include not only sites considered to have a very high research potential, but also those listed as having further research potential, as in the aggregate they provide a sample of smaller and simpler cultural resources.

IMPACTS TO SITES AND ADDITIONAL MANAGEMENT RECOMMENDATIONS

1) Except for the potential effects of flooding, current operations at the dam do not appear to threaten archaeological resources.

2) Many of the finds are outside the potential floodpool of the reservoir and are, therefore, not in danger of destruction by inundation. Moreover, current land use (dam operation and cattle grazing) do not threaten the finds. Therefore, no additional action is needed on a number of sites until such time as land use changes. The finds in question are:

1976 Survey Area Sites

LA 14180 (GR-1)	LA 29531 (GR-20)
LA 14181 (GR-2)	LA 29532 (GR-21)
LA 14182 (GR-3)	LA 29533 (GR-22)
LA 14183 (GR-4)	LA 29538 (GR-27)
LA 14184 (GR-5)	LA 29540 (GR-29)
LA 14185 (GR-6)	LA 38009 (GR-30)
LA 14186 (GR-7)	GR-31

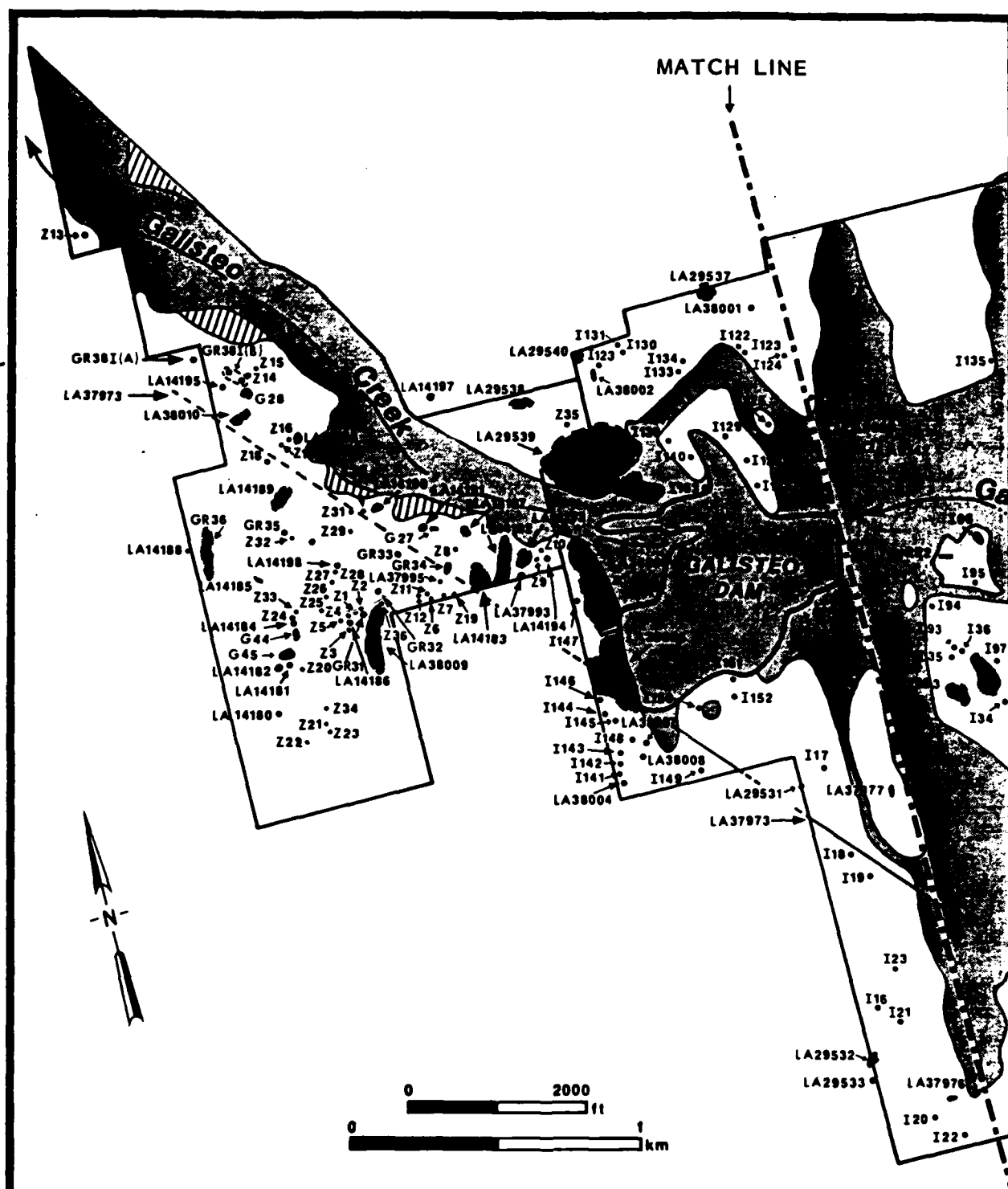


FIGURE 17. LOCATION OF NEWLY FOUND SITES, ISOLATED FINDS AND PREVIOUSLY KNOWN SITES AND ISOLATED FINDS WITHIN THE PROPOSED NATIONAL REGISTER DISTRICT

- Sites investigated in the project area
- Juniper Grassland
- Grassland
- Greasewood-Saltbrush-Cholla Scrub
- Disturbed or active floodplain
- Destroyed sites
- Railroad ties found

1976 Survey Area Sites - Continued

LA 14187 (GR-8)	GR-32
LA 14188 (GR-9)	GR-33
LA 14189 (GR-10)	GR-34
LA 14190 (GR-11)	GR-35
LA 14191 (GR-12)	GR-36
LA 14192 (GR-13)	LA 38010 (GR-37)
LA 14193 (GR-14)	GR-38
LA 14194 (GR-15)	GR-39
LA 14195 (GR-16)	GR-40
LA 14196 (GR-17)	
LA 14197 (GR-18)	
LA 14198 (GR-19)	

1982 Survey Area Sites

LA 37974 (G-2)	LA 38004 (G-39)
LA 37993 (G-22)	LA 38005 (G-40)
LA 37995 (G-26)	LA 38006 (G-41)
G-27	LA 38007 (G-42)
G-28	LA 38008 (G-43)
LA 38002 (G-35)	

Isolated Finds (Both Survey Areas)

Z-1 through Z-36	I-17	I-63
I-1 through I-3	I-18	I-64
I-6	I-27	I-66
I-7	I-28	I-67
I-9	I-39 through I-43	I-73
I-15	I-50	I-130 through I-134
		I-140 through I-153

3) Some of the remaining finds, although inside the potential floodpool of the reservoir, are unlikely to yield significant new information about the study area's prehistory or history, over and above that recovered by the survey. We therefore do not recommend further action on these remains, regardless of potential future impacts. (However, further analysis of site survey data might be called for as part of future projects.) The remains in question are:

1976 Survey Area Sites

LA 29534 (GR-23)
LA 29535 (GR-25)

1982 Survey Area Sites

LA 37977 (G-5)	LA 37989 (G-17)
LA 37980 (G-8)	LA 37991 (G-19)
LA 37987 (G-15)	LA 38001 (G-34)
LA 37988 (G-16)	

Isolated Finds (Both Survey Areas)

I-5	I-44 through I-49
I-8	I-51 through I-62
I-10 through I-14	I-65
I-16	I-68 through I-72
I-19 through I-26	I-74 through I-129
I-29 through I-38	I-135 through I-138

Also, LA 356, LA 6869, and LA 9142 were excavated in the 1960s and the last two have been destroyed by borrow pit construction, so no further action is needed on them.

4) Some of the finds within the potential floodpool are likely to yield significant new information if studied further, and therefore must be considered in any project mitigation program. We have arranged these sites into two categories.

A) Sites having a very high research potential National Register status. These sites are discussed in a previous section of this chapter. Any mitigation or conservation programs should include each of these sites:

LA 29537 (GR-26)	LA 37992 (G-20)
LA 37973 (G-1; portions of line only)	LA 37994 (G-25)

B) Sites having more limited research potential, but each able to yield additional information on the study area. Any mitigation program should consider additional study of each one, or at least additional study of a statistically representative sample of remains for each general site type. These include:

LA 29535 (GR-24)	LA 37990 (G-18)
LA 37975 (G-3)	LA 37993 (G-22)
LA 37976 (G-4)	LA 37995 (G-26)
LA 37978 (G-6)	LA 37996 (G-29)
LA 37979 (G-7)	LA 37997 (G-30)
LA 37981 (G-9)	LA 37998 (G-31)
LA 37982 (G-10)	LA 37999 (G-32)
LA 37983 (G-11)	LA 38000 (G-33)
LA 37984 (G-12)	LA 38003 (G-37)
LA 37985 (G-13)	LA 9143
LA 37986 (G-14)	

5) We do not believe that a general mitigation program is the next logical step in resource management at Galisteo Dam and Reservoir, although that approach may be indicated later on. Finds within the potential floodpool are in some danger, but so far, Galisteo Reservoir has not come close to capacity. The areas most subject to flooding--the lower part of the floodpool--are already beyond help. In higher areas, it is possible that sites would be flooded only rarely, if ever; and it is to be questioned whether a

short inundation once or twice a century will have a significant impact on sites within the lifetime of the dam. This is especially true for superficial lithic scatters. We therefore recommend two immediate steps for management of floodpool resources:

A) The Corps should estimate the frequency and severity of future flooding within the reservoir area. Once this is done, a zone of repeated flooding should be defined; depending on that finding, a mitigation program for resources in that zone can be prepared. It is possible, however, that the zone of heavy flooding would be little greater than the present zone of flood disturbance.

Sites outside the heavy impact zone should be monitored but otherwise not disturbed. Extent of the monitoring program (which could include additional study or testing in order to better establish the nature of some sites) would depend on the extent of repeated flooding. Also, a carefully chosen sample of sites should allow adequate evaluation of general resource conditions. If monitoring indicated a deterioration of cultural resources, a mitigation program could be started.

B) Potential flooding is not restricted to the lands surveyed, but covers a large amount of easement land as well. We recommend that the Corps arrange for survey on that easement land. For both management and research purposes, finds made in the present study area are best managed along with those threatened in the easement area. Therefore, we recommend that such additional survey be a high priority in the Corps administration of the Galisteo cultural resources.

6) For several sites, additional information on the nature of the remains would significantly assist in the proper interpretation and management of the remains.

A) On three sites, LA 29539 (GR-28, G-36), LA 38005 (G-40), and LA 38006 (G-41), surface remains were so extensive and yet so sparse that density measurements and artifact counts probably did not adequately sample intrasite variability. These sites are easily accessible, and a simple surface sampling program on areas outside features could be informative.

B) A number of sites were bisected by the Corps boundary fence; since permission to enter adjacent lands had not been obtained, only the Corps-owned portions could be recorded. We recommend that the Corps arrange for recording of the remaining portions of such sites. This could be done at the same time as survey work in easement areas.

C) On sites LA 14190 (G-11), LA 29537 (G-26), LA 37997 (G-30), LA 29539 (G-36), and LA 38006 (G-41), we recommend that a testing program be carried out in order to clarify whether site depth

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AN ARCHAEOLOGICAL SURVEY OF THE GALISTEO DAM AND
RESERVOIR AREA SANTA FE COUNTY NEW MEXICO(U) NEW WORLD
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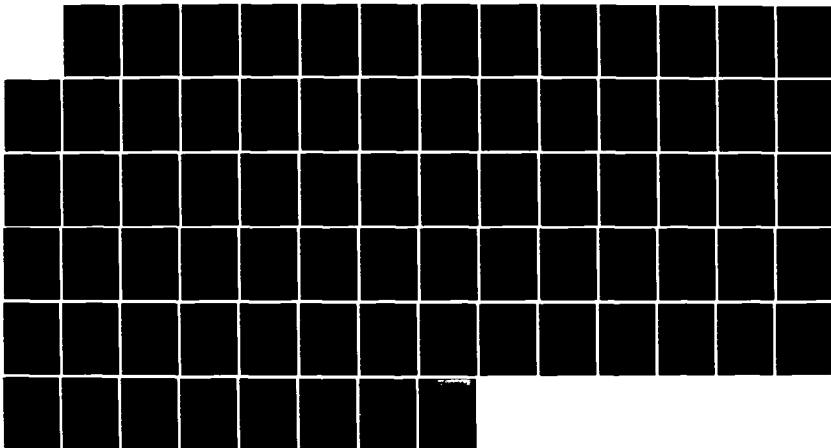
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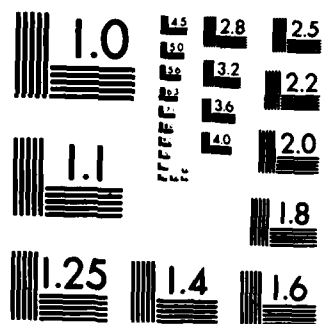
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is present, and if so, how much depth there is. This program would not need to include more than one to three 1 m by 1 m test pits per site.

D) On two sites, LA 37992 (G-20) and LA 29539 (G-36), check dams are present. The authors believe that the structures are most likely aboriginal, but this identification has been disputed. Since the issue of the check dams' antiquity has a strong bearing on the significance of these two sites, we recommend additional study of the matter.

7) Contingent on the information retrieved through recommendations 6A, B, and D, we strongly suggest that one site be intensively studied, including surface collections and excavation. This is LA 29539 (G-36, GR-28); part of the site has been disturbed by construction of an earthfill extension of the dam spillway, and most of the remaining part of the site is in the direct line of flow for any water which might pass through the spillway. Although a flood of such proportions may be unlikely, the location of the site means that even a single incident of spillway flow will eradicate or seriously damage the resources present. Because of this, an impact mitigation program involving intensive data recovery is appropriate.

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APPENDIX 1

SITE AND ISOLATED FIND
DESCRIPTIONS

The following site and isolated find descriptions serve as a narrative discussion of field results. Detailed site sketch maps, feature plans, and in some cases artifact sketches, are appended to the site forms which are submitted under separate cover with this volume. The site and isolated find descriptions which follow are organized units, with all sites located and recorded during the 1982 field season initiating the discussion.

NEWLY LOCATED SITES

Key attributes of these sites were summarized in Chapter Four of the report. Each site will also be discussed individually.

LA 37973 (G-1)

This "site" is actually a linear feature, part of which traverses the study area. It consists of the remnants of an early high-voltage power line. The poles and wire have been salvaged, but other portions of the line remain on or near the original route.

The poles for the line appear to have been locally obtained timber, and cannot have been much over two meters tall. Available evidence suggests that at the top of the pole, milled wood crosspieces were attached using two bolts and a reinforcing V-shaped steel brace. The crosspieces measured about 4 in by 4 in by 57 in (10 cm by 10 cm by 145 cm), and supported four unthreaded wooden pegs (sometimes secured with wire nails), on which the insulators sat.

The insulators used were almost always of one type made from blue glass, which bore the following inscriptions: "V.C. CONVERSE/PROVO TYPE" and "PATENT MAY 2 1893." The only example of a different insulator type (in the 1982 intensive survey area) was a Hemingray No. 9 Glass insulator. This reconstruction of the powerline configuration is based on fragmentary evidence, but should give an approximate picture of how the line was built.

Within the 1982 survey area, it was possible to trace the route by the occurrence of fragments of the Provo type insulators, and occasionally by the occurrence of power pole remnants. When the line is extrapolated to the southeast, it points directly to the coal town of Madrid. Because the 1976 survey area was not intensively surveyed during this project, it was not possible to trace the route as effectively west of the dam, but the route appears to continue in the same direction. One of the interesting findings of the survey is that fragments of these same Provo type insulators were found at quite a distance from the powerline route, in locations where humans must have transported them (Chapter Six).

The powerline in question was built in ca. 1900 in order to supply power to the silver mining town of Albemarle (F. Wozniak, personal communication). Coal mined at Madrid was used to generate electricity

which was then transported by this line to Albemarle. The capital-intensive nature of the venture is less an indication of the success of the mine than of the large amounts of money being speculated on mining at this time.

LA 37974 (G-2)

This site consists of seven artifacts (Table 1) scattered next to a wash. The thinned bifaces are both quite small, and may be fine cutting tools. Given the pottery found, the site probably dates to early Pueblo IV times.

LA 37975 (G-3)

Located at the base of a low rise, this site contains six artifacts. A small thinned biface, like those at LA 37974 (G-2), was also found here. The remaining five items are interior flakes.

LA 37976 (G-4)

At this location, the edge of a flat knoll top, six artifacts were found. One is a side-notched triangular point (the tip is missing), with a flat base and straight side; its approximate original dimensions are 3.3 cm by 1.8 cm. Using Thoms' (1977) classification, the point can be classed as Pueblo Aligned Edge.

LA 37977 (G-5)

On the slope of a large hogback, three prospector's pits were found dug into a zone of mineralization. The first pit was ca. 1 m by 3 m across by 2 m deep. The second pit is next to the first, and measures ca. 2.5 m by 1.5 m by 3 m deep (some filling as occurred). The spoils from these pits extends ca. 15 m downslope from them, but are shallow.

The third pit is across a deep wash from the first two, but lies in the same band of mineralization. It is ca. 3 m by 2 m by 1.5 m deep; the waste from this pit extends about five meters downslope.

The mineralization at this location includes iron oxides and quartz, but no obvious economic ores. No artifacts were found in association with the pits, and the age of the prospecting event cannot be definitely determined.

LA 37978 (G-6)

Seven items were located on a flat area overlooking a deep wash. They included several pieces of chipped stone, a quartzite hammerstone, and a slab of basalt that had been lightly utilized as a grinding slab. One of the pieces of chipped stone may have been a chopper, although it resembled a naturally angular stone.

LA 37979 (G-7)

This site is located on a flat-topped high terrace remnant, and commands a good view of Galisteo Creek. It appears to have been a favored resting spot or viewpoint for centuries: minor amounts of trash from three different temporal components were recorded. The prehistoric component is represented by two pieces of chipped stone. A Hispanic component is represented by one glazed sherd. The Anglo-American component includes both early historic remains (purple glass) and recent litter (the fragments of a beer bottle, probably a Heineken bottle).

LA 37980 (G-8)

This site consists of three cores and nine flakes of basalt; these might be considered the residue of a single chipping episode, but the items are scattered in such a way that multiple chipping events more likely occurred. The flakes may all be interior flakes, but with the basalt used it is difficult to distinguish cortex and interior stone. This site is located on the edge of a high terrace remnant.

LA 37981 (G-9)

This site is located on the edge of a high terrace finger overlooking Galisteo Creek; artifacts are densest near the terrace edge, becoming sparser as one moves away from it. The assemblage is exclusively chipped stone, including a small point.

The projectile point is of unidentified material, and measures 2.1 cm by 1.7 cm. It is triangular, corner-notched, with rounded sides and base, and may be an Echo Shouldered specimen (Thoms 1977). The other tool present is a side scraper on a modified flake of moss agate. Some of the flakes have possible utilization scars along their edges.

LA 37982 (G-10)

Like the previous three sites, this one commands a good view of Galisteo Creek and its environs. All but two of the items found are along the edge of this knolltop, which suggests that the view was, indeed, a factor in the location of activities. The remaining two items, one basalt flake and one obsidian flake, were noted upslope from the concentration.

Most of the artifacts are flakes. The exceptions are a core and a recent unfired round of .32 caliber ammunition ("W-W/32 AUTO").

LA 37983 (G-11)

Located on the top and flanks of a ridge finger, this site is fairly discontinuous. Concentration "A" is located on a small knoll on the ridgetop, and consists almost exclusively of basalt items. Concentration "B" is located between two arroyos running off the south

flank of the ridge, and again consists mostly of basalt items. Only three artifacts were found outside the concentrations. The concentrations may represent discrete activity loci related to LA 37984, which is situated immediately to the east of LA 37983.

LA 37984 (G-12)

In the dissected ridge area southeast of Galisteo Dam, one high, flat-topped knoll is especially dominant. Its summit is the location of a very low density site which in all likelihood has been utilized sporadically over many centuries. The infrequent nature of the remains is shown by the fact that, in 20 1 m by 1 m sample squares, only one artifact is recorded.

The majority of the artifacts were reported on informal transects across the site area. Included in those noted are: (1) a red petrified wood projectile point (triangular, corner-notched, rounded sides, stem narrower than blade, 4.2 cm by 2.5 cm), probably a crude En Medio - Parallel point (Thoms 1977); (2) a mano fragment of unidentified type and material; (3) a 9 m by 4 m concentration of flakes; (4) a sherd of unidentified Black-on-white (mineral paint, Pueblo II style thick line); (5) a piece of purple bottle glass; (6) a sherd of unidentified redware; (7) a sherd, possibly of Red Mesa Black on-white; and (8) a rock alignment, of unknown age but possibly recent, consisting of seven rocks in a 2.3 m line.

The remaining artifacts are chipped stone, except for a possible very early can top (of the hole-in-the-top style), recent metal cans including sardine cans, and bits of wire. At this site, at least, a clear mixing of temporarily distinct materials has occurred.

LA 37985 (G-13)

This sherd and lithic scatter was found on a low ridgeline southeast of LA 37984. It includes two features: Feature 1 consists of five sherds from an Agua Fria Glaze-on-red vessel, and Feature 2 is a chipping station with a chert core fragment and flakes. Other items found include a chert flake scraper and a number of cores and flakes. As with LA 37983, this site may represent an activity location related to LA 37984.

LA 37986 (G-14)

On the lower slope of a terrace point, a chipping station was found in the same location as a historic artifact. The chipping station consisted of six basalt and one quartzite flakes, while the historic artifact was a cast iron stove leg with a raised decoration.

LA 37987 (G-15)

This site is also on the slope below a terrace edge. It includes basalt cores and flakes, which are distributed across the slope in such a way that more than one chipping episode probably took place.

LA 37988 (G-16)

This site is clearly a single chipping station, but it was recorded as a site because of the material used (Polvadera Peak obsidian), and the presence of two modified flakes.

The first item may be an example of prehistoric humor. A very thin, uniform flake of obsidian was shaped into a projectile point of sorts, not by bifacial modification but by "crunching" the edges of the thin flake until the desired form was obtained. The resulting pseudo-point was triangular, about 2.4 cm by 2.0 cm, with corner notches and rounded side and base; it does not fit any of Thoms' (1977) types, but somewhat resembles Ojo Barbed and Echo Shouldered examples.

The second item is a flake on which, apparently, an unsuccessful attempt at bifacial modification was made. The remaining items include one angular fragment and a number of flakes.

LA 37989 (G-17)

Located on a terrace near Galisteo Creek, this site is a low density lithic scatter associated with a slab-lined hearth. The hearth measures about 95 cm by 60 cm and has dark soil in its interior. The lithic scatter consists only of fairly heavy pieces of chipped stone; the site is crossed by a number of rills that have probably carried off lighter remains. Based on the amount of exposure of the hearth slabs, the present ground surface is about five centimeters lower than the original occupation surface.

LA 37990 (G-18)

A historic campsite and isolated prehistoric artifacts were found on a small terrace finger which flanks the edge of the Galisteo floodplain. The historic remains include a semicircular rock alignment which may be the corner of a shelter or part of a cooking windbreak. Near the alignment there are several pieces of ax-cut juniper, two more loose rocks, two hand-cut juniper stakes (still in the ground), and few bits of coal. The soil is slightly ashy in the vicinity of the site datum, with one especially ashy spot next to it.

The coal dates this camp to 1880 or after; the railroad built at that time used coal to fire its engines, and pieces could easily be scavenged from along the tracks across Galisteo Creek.

Coincidentally, the same terrace finger top yielded an exhausted complex core of chert and an interior flake of basalt.

LA 37991 (G-19)

This site is located on the lower part of a ridgetop. Unfortunately, it is on the edge of a dam borrow pit and the site's

original extent is unknown. The surviving artifacts have been spread to some degree by bulldozer activity.

The site is a historic trash scatter which contains fragments of at least four bottles: one brown, possible whiskey/beer; one purple, possible bitters; one clear; and one small, aqua-colored, medicine bottle. Two tin cans with soldered seams were encountered; one reads "AC/...CL2" on its bottom. Four miscellaneous pieces of metal were also found; two of these, however, may be recent debris from construction of the borrow pit. Finally, a small concentration of coal fragments was noted. As at the previous site, this coal dates the site to 1880 or thereafter; the purple glass indicates a terminal date of 1915.

LA 37992 (G-20)

This location is not so much a site (in the traditional sense) as a zone: an extensive area containing numerous check dams, and also other prehistoric remains and some historic trash. The zone is set in an area of low, dissected shale hills in which most rainfall probably runs off into a number of small rills and arroyos. Many of these courses have been spanned by one or more check dams, ranging from single lines of rocks to elaborate terrace-like features.

A continuum of building styles can be noted. In some cases, a thin outcrop of sandstone crossed the stream at a dip, forming a natural check dam of sorts; these were "reinforced" by adding stones to the outcrop. In another location, a single layer of rocks or sandstone slabs might be placed across the rill. If the gradient was somewhat steep, two or three layers of rock might be used to build up the catchment area. Check dams of the type just described were usually 1.5 m to 2 m long, and the stones do not appear to have been chosen with any unusual care. In a few cases, however, pieces of tabular sandstone were built up in several courses to create curved check dams that approach terraces in their appearance.

Fifty-two loci of check dams were recorded during the course of the survey. Although they were plotted as points (see Figure 7 in the main body of this report), they tend to extend up and down the different rills and arroyos, and some loci connect with others. The reader is warned that given the need to identify the loci in a number of sweeps, some check dams may have been missed and others possibly duplicated in the descriptions that follow. To give a better idea of construction, the dams at the first location encountered will be described in some detail.

- Locus 1: 8 check dams on 3 parallel rills, as follows:
- 1) 12-15 sandstone, basalt, and shale rocks; ca. 2 m long and 1 course high.
 - 2) "several" basalt cobbles and sandstone slabs; ca. 1.5 m long.
 - 3) ca. 6 sandstone, basalt, and "granite" rocks; ca. 1 m long.

- 4) possible check dam: 3-4 scattered rocks on rill.
- 5) 20-25 basalt, "granite" sandstone, and cherty rocks; ca. 2 m long and 2-3 courses high.
- 6) 11-15 "granite" and basalt cobble/rocks; ca. 1.5 m long.
- 7) 12-16 sandstone, "granite," and basalt cobbles/slabs; ca. 1.5 m long and several courses high.
- 8) 12-15 "granite," sandstone, and basalt cobbles/slabs; ca. 3 m long and 1 course high.

Locus 2: 2 check dams--lines of thin tabular sandstone, about 7 m apart. One is ca. 1.5 m long, now cut through by a rill; the other is ca. 2 m long, across a shallow rill. (On separate but parallel rills.)

Locus 3: 5 check dams: four on a small branching arroyo just off a larger arroyo, and the fifth on a second small arroyo parallel to the first.

Locus 4: 3 substantial check dams (greater than 1 course) on fairly steep rills.

Locus 5: 1 check dam on a very short tributary rill.

Locus 6: 1 check dam on rill, at base of shallow slope.

Locus 7: 2 check dams, ca. 10 m apart on same rill. In very steep rill; several courses present, almost creating a terrace effect.

Locus 8: 5 check dams on branching rill; each set ca. 20 m from the next dam. Several courses present, almost creating a terrace effect.

Locus 9: 3 check dams set ca. 30 m apart on the same rill. More than one course.

Locus 10: 1 check dam on a rill.

Locus 11: 5 check dams, set ca. 15-30 m apart on a branching rill. One is large, with 2 courses.

Locus 12: 6 check dams. set ca. 20 m apart on a branching arroyo. Four of the dams are actually natural sandstone outcrops in the shale which act naturally to trap runoff in the rill, and which were "reinforced" by adding rocks to their tops.

Locus 13: 5 check dams on branching rill; total extent is ca. 50 m. Three of the dams are again reinforced sandstone outcrops.

Locus 14: 1 check dam on a short tributary rill.

Locus 15: 4 check dams on a branching arroyo; total extent is ca. 50 m by 20 m.

Locus 16: 1 check dam on a rill.

Locus 17: 1 definite check dam (ca. 3 m long, curved upslope at ends); also, 2 possible check dams and 1 possible reinforced sandstone outcrop. All these are on 2 branches of the same arroyo.

The definite check dam has 4 courses of tabular sandstone. Construction is similar to that described for Locus 40.

Locus 18: 3 definite check dams on branches of an arroyo running just W of a low ridgeline. Also, 3 possible additional dams of the same arroyo, 2 of which are reinforced sandstone outcrops. Total extent of this locus is ca. 75 m by 20 m.

Locus 19: 2 check dams on the same rill; in the middle of a swale.

Locus 20: 3 check dams set ca. 20 m apart on a branching rill which empties into a large wash.

Locus 21: 7 check dams on two parallel, branching arroyos which empty immediately into a large wash. Three dams are on an arroyo which flanks Feature 2 (G-21) on the SW; the other 4 are on an arroyo which flanks the same feature on the NE.

Locus 22: 1 check dam on a rill running W off a low ridgeline.

Locus 23: 3 check dams on a branching arroyo; total extent is ca. 25 m by 10 m.

Locus 24: 1 check dam on an arroyo running E off a low ridgeline.

Locus 25: 2 check dams, ca. 15 m apart on same arroyo, latter runs SW off low ridgeline into large wash.

Locus 26: 2 check dams, ca. 10 m apart on parallel rills.

Locus 27: 1 definite check dam on a rill (a reinforced sandstone outcrop); also, ca. 20 m downstream, a possible check-dam.

Locus 28: 1 definite check dam on an arroyo; also ca. 5 m away on a different branch of the arroyo, a possible check dam.

Locus 29: 4 check dams on a branching rill which runs in a southerly direction off a knoll. Total locus extent is ca. 40 m by 20 m.

- Locus 30: 1 check dam on an arroyo which runs E off a low ridge. Dam is ca. m E of ridgeline.
- Locus 31: 2 check dams on an arroyo running SE off a low ridge-line. Dams are ca. 25 m apart.
- Locus 32: 2 check dams on an arroyo that runs E, then SE off a low ridgeline. Dams are ca. 25 m apart.
- Locus 33: 2 check dams set ca. 5 m apart on parallel arroyos. The arroyos merge just below the dams. Direction of drainage is to SE.
- Locus 34: a single check dam set on an arroyo, which drains to SE.
- Locus 35: 1 check dam set on an arroyo which drains W off a low ridgeline into a large wash.
- Locus 36: 2 check dams set ca. 20 m apart on an arroyo which drains S off a ridgeline (and which nearly parallels that ridgeline).
- Locus 37: 1 check dam on an arroyo which drains W off a low ridge-line.
- Locus 38: 1 possible check dam on an arroyo which drains S off a low ridgeline.
- Locus 39: 1 checkdam on an arroyo which drains W off a low ridge-line.
- Locus 40: This locus contains the most elaborate check dams found; they are almost terraces. The dams are located on the same lower ridge slope as Feature 3 (G-23). A supplemental site datum for LA 37992 was set at this locus. Each check dam will be described separately.

Check Dam 40 "A": a curved feature consisting of three levels of sandstone slabs which are 40-75 cm long. The feature is ca. 8 m from tip to tip.

Check Dam 40 "B": a curved feature consisting of 3 levels of sandstone slabs of the same size range as in "A." The feature is ca. 6 m from tip to tip.

Check Dam 40 "C": a curved feature consisting of three levels of sandstone slabs, which are more weathered than the slabs in "A" and "B." The feature is ca. 4 m from tip to tip.

Check Dam 40 "D": an arc of sandstone slabs with more than one course present. The feature is ca. 2.5 m from tip to tip.

Check Dam 40 "E": a badly eroded arc of sandstone slabs which is ca. 10 m from tip to tip.

The upslope curve of these check dams is clearly to trap runoff which might otherwise exit via the sides of the plots. Each of the large check dams currently traps runoff from several small rills, and the same probably held true in antiquity.

As noted before, a similar check dam was encountered at Locus 17, which is to the NNE on the same ridge flank.

Locus 41: 1 check dam on an arroyo which drains to the S and E off a low ridgeline.

Locus 42: 2 check dams, set ca. 10 m apart, on parallel arroyos draining to the SE. Just below the dams, the arroyos join, to flow to the S and W.

Locus 43: 1 check dam, on an arroyo flowing SW.

Locus 44: 2 check dams, each of which is a reinforced outcrop of sandstone within the shale. Set ca. 10 m apart, on parallel arroyos flowing slightly S of E off a low ridgeline.

Locus 45: 1 definite check dam, on an arroyo flowing slightly S of E off a low ridgeline. Ca. 20 m up the arroyo from this check dam, and between it and the ridgeline, is a sandstone outcrop which is exposed by the arroyo and which may have been reinforced to form a second check dam.

Locus 46: 1 check dam, on a small arroyo flowing SE. Just below the check dam, the small arroyo empties into a larger S flowing arroyo.

Locus 47: 3 check dams, each ca. 20 m from the next on three parallel arroyos (i.e. 1 dam on each arroyo). The arroyos flow slightly S of E, and empty into a larger, southerly flowing arroyo within 5 m to 40 m of the dams.

Locus 48: 9 definite check dams, 1 possible. Six of the check dams are strung out at ca. 10 m intervals along a southerly-flowing arroyo. Three more are set on side branches of the arroyo, ca. 10 m up from the junction of that particular side arroyo with the main arroyo. On one of the 3 side arroyos in question, ca. 10 m up from the check dam, a second possible check dam was noted; this was a sandstone outcrop exposed by the arroyo and possibly reinforced by a line of rocks.

Locus 49: a single check dam on an arroyo running to the SW.

Locus 50: originally recorded as a separate locus; now subsumed under Locus 48.

Locus 51: 2 check dams ca. 20 m apart on the same, SE flowing arroyo.

Locus 52: 1 check dam on a westerly-flowing arroyo. Set within Feature 7 (G-38).

In addition to the check dams, a number of artifact locations were discovered at the site. Because the zone in question is so extensive, it was difficult at the outset of site recording to know which other remains were inside the area of check dams and whether they were associated with them in any way. As a result, any items besides check dams were recorded separately, as sites or isolated finds; after completion of the survey, those finds which did lie inside the check dam zone were reclassified as features. In the descriptions that ensue, the feature numbers will be followed by the original field numbers.

Feature 1: This is an isolated sandstone one-hand mano, found just south of Locus 1; it was originally recorded as part of that locus.

Feature 2 (G-21): This find consists of a sherd and lithic scatter associated with two slab-lined cists. The find is on the slope of a low knoll, and is flanked by arroyos containing check dams (which are part of Locus 21). The larger cist measures 1.8 m by 1.5 m by at least 30 cm deep; one side of it is exposed in a small rill. The smaller cist is adjacent to the larger one, and measures ca. 1 m by 1 m (depth is unknown).

In addition to chipped stone, the feature yielded remains of two pottery vessels. A sherd from each bowl was collected; one may be Tiguex Polychrome, while the other is an unidentified late type from the Rio Grande glaze sequence.

Feature 3 (G-23): Located between two check dams of Locus 40, Feature 3 may at least indicate a date for these terrace-like structures. The location includes pottery, chipped stone, and historic artifacts.

The pottery found includes one definite, one probable, and one possible sherd of San Clemente Polychrome; one probable sherd of

Largo Polychrome, three unidentified redware sherds, and two sherds of an unidentified redware with a cream slip exterior. The chipped stone consists of three flakes, the historic items include a solder-seam can and a glass insulator. The insulator contains the words "Patent Dec. 19, 1871" in raised letters.

Feature 4 (I-109): This is a scatter of an aqua bottle with an applied lip; the bottle base includes the letters "AYE...". The scatter, like the historic items in the previous feature, probably relate to the old ATSF railroad line which ran a short distance to the south.

Feature 5 (I-104): Three sherds, probably San Clemente Glaze Polychrome, were found in a small arroyo draining off a low ridgeline. The sherds may have washed off the ridgeline.

Feature 6 (G-24): This feature is located in a swale a short distance from Feature 3 and Locus 40. It is a sherd and lithic scatter which also includes an old can. Site contents include flakes, cores, two pieces of ground stone, a modified flake scraper, corrugated pottery, and a square meat can with soldered seams and a spot top.

Of these, the sandstone ground stone item could either be a large two-hand mano or a small grinding slab; it measures 27 m by 14 m by 4 cm. The other ground stone item, of quartzite, is fragmentary and of unknown function. The corrugated sherds include six reddish-hued, one yellowish-hued, and one brown-hued pieces, which, however, have the same dark temper and which could possibly be from the same pot. The can probably relates to the old ATSF railroad line which passed just south of the feature.

Feature 7 (G-38): A lithic scatter was found centering on a small arroyo and extending upslope to either side of it. A check dam, Locus 52, is located near the center of the scatter. A distinct concentration of artifacts occurs along one part of the arroyo, suggesting that the arroyo has cut through a part of the feature with some depths of deposit.

The remains at the feature are restricted to cores and flakes, with the exception of a projectile point of Jemez obsidian. The point is triangular and corner-notched, with convex base and sides; it measures 3.1 cm by 2.1 cm by 0.5 cm, and can be classed as Echo Shouldered (Thoms 1977).

The association of check dam loci and numbered features is unclear, but on the whole a date in the Pueblo IV period is reasonable.

LA 37993 (G-22)

In 1976, Lang discovered LA 14193 (GR-14) at the base of a ridge point formed by a sandstone outcrop. In re-recording Lang's site, the 1982 crew located additional remains on top of the ridge point; they were defined as a separate site but may be related to those just below.

The site includes a prehistoric and historic component. The prehistoric remains consist of a concentration of chipped stone (mostly flakes and cores), and a few other items lightly scattered on the remainder of the ridge top. The location of the concentration is a small "bench" between two outcrops of sandstone.

The historic component consists of a bottle break; about 50 pieces of a light blue bottle (no seam on the lip; glass age-frosted) were found.

The site extends for an unknown distance beyond the Corps boundary fence.

LA 37994 (G-25)

Like LA 37973, this is a linear feature: to be precise, a segment of the Atchison, Topeka and Santa Fe Railroad Line built along the north side of Galisteo Creek in 1880. The line is recorded as a cultural resource not so much for the route itself--the bed has clearly been modified through the years and the track and ties are gone--as for the rich historic trash scatter which extends along either side of it.

The section of line in question saw service from 1880, as mentioned, until about 1960 when the construction of Galisteo Dam required shifting the route to its present location north of the reservoir area. Throughout those 80-odd years, it would seem, the passengers and crews of the Santa Fe line threw just about everything throw-able out the windows of their cars. The result is a swath, roughly 50 m wide, of late 19th through mid 20th century material culture.

Among the items noted informally along the tracks were whole and partial bottles and insulators; fragments of purple, brown, blue, green, aqua, and clear glass; fragments of utility china (many have marks identifying them as "Made Expressly For Santa Fe Dining Car Service"), cans with soldered and cold-rolled (crimped) seams; large numbers of pieces of coal; miscellaneous items of wood and metal; and, on occasion, oyster shells. In order to provide some quantitative estimate of the trash present, the survey members did quick counts of items in two 400 sq m areas chosen arbitrarily along the railroad line. The results, shown in Table 1 (main text), indicate how much was being discarded.

Adequate interpretation of these remains would require a project in itself. At the least, one can appreciate that littering--far from being an automotive innovation--is an ancient practice among American travellers.

LA 37995 (G-26)

Like LA 37993 (G-22), this site is in the 1976 survey area. It was discovered by the 1982 survey during re-recording of the previously known sites.

The site consists of a slab-lined cist or hearth and an interior flake of red chert: both are located on a small finger of land between two arroyos. The cist/hearth measures 1.0 m by 60 cm, and still contains some fill. The remainder of the finger of land is heavily eroded, and it is likely that the site was once more extensive.

LA 37996 (G-29)

A one- to two-room structure was found on a slight point on a hillside overlooking Galisteo Creek. All that remains of the structure is an irregular cluster of stones, measuring ca. 6 m by 5 m. Associated with it is a sherd and lithic scatter which begins at the structure and extends downhill from it. The pottery includes an Agua Fria Glaze-on-red sherd, a Cieneguilla Glaze-on-yellow sherd, a Glaze A tradition redware sherd with slippery interior and partly slipped exterior, and two plain grayware sherds. The chipped stone is limited to four flakes.

LA 37997 (G-30)

This sherd scatter was found at the very edge of the first low terrace out of the Galisteo floodplain; some sherds are washing off the terrace. In all, 42 sherds were counted, from at least three vessels. One vessel was a glaze polychrome of unknown type; a second was a glazeware with an "E" type rim; the third was a glazeware of unknown type. Taken in general, the sherds appeared to be fairly late in the glazeware sequence.

LA 37998 (G-31)

A lithic scatter was encountered on the southern part of a knoll overlooking Galisteo Creek; the scatter began near the edge of the knoll facing the creek and extended down the adjacent slope. As shown in Table 1 (main text), only cores and flakes, mostly Jemez obsidian and basalt, were found. The formal transect data hint that obsidian is more concentrated on the top of the knoll, while basalt is more concentrated on its edge and slope.

LA 37999 (G-32)

Like the previous site, this lithic scatter is located on the southern part of a knolltop overlooking Galisteo Creek, and on the adjacent slope. In this case, separate total counts were made for the top and flank of the knoll; this showed that Jemez obsidian artifacts predominate on the flat knolltop while basalt items are common on its flank. This pattern, originally suggested by the transect data at the previous site, is difficult to explain.

Most of the chipped stone consists of flakes. Other items found included a unifacially retouched flake of Jemez obsidian, three fragments of a thinned biface of Jemez obsidian, a bifacially retouched flake of Jemez obsidian, three fragments of a thinned biface of Jemez obsidian, a bifacially retouched flake of Jemez obsidian, a simple core of diorite (?), and a square cut nail. The nail probably is related to the old railroad route which passes the north end of the knoll.

LA 38000 (G-33)

Like the previous two sites, this lithic scatter is at the south end of a knoll top, overlooking Galisteo Creek; it also has a predominance of basalt and Jemez obsidian items, but in this case the artifacts seem to be limited to the top of the knoll. In addition to flakes, three cores and a tested piece were located, as were a piece of purple glass and several pieces of coal. The coal and glass are probably derived from the railroad route passing just north of the knoll.

LA 38001 (G-34)

On a slight rise within a low, valley-like setting, an artifact scatter was located with at least two and probably three components. The first of these consists of eight sherds of an unidentified Black-on-red bowl (slipped interior and exterior, mineral paint design, uniform rim thickness, rounded lip). The second is represented by a ca. 2 m by 2 m concentration of about 20 pieces of thin purple glass, while the third includes cans and an enamel wash basin. Other items might fall within either historic component.

The apparently recent trash found may be related to dam construction, as an area of bulldozer scars extends up to the edge of the site.

LA 38002 (G-35)

This site is located in a fairly flat spot in the high hogback area northwest of Galisteo Dam. It is a light scatter of flakes of several materials.

LA 29539 (G-36, GR-28)

This site was originally encountered within the 1982 survey area, and treated as a new find. As definition of the site proceeded, however, it became clear that it extended into the 1976 survey area and encompassed the location recorded by Lang (1976:18-19) as GR-28. The site covers a high terrace on the north side of Galisteo Creek, just downstream from the "choke point" or narrows occupied by the dam. Part of the site has been destroyed by construction of the dam spillway, and most of the remainder would be washed away if the spillway were ever to come into use.

Because of the great size of the site (some 350 m by 200 m), adequate recording of site artifacts was difficult. Artifacts appeared to be densest in the general vicinity of the datum, and a formal transect was carried out there. In the remainder of the site, artifact density appears to be less than one per 25 sq. m overall.

Seventeen check dams were noted on several arroyos draining the terrace; an intensive study might reveal others which are less obvious due to erosion. The dams are similar to those found at LA 37992 (G-20); they consist of lines of rocks across drainages, and are about 1.5 m to 2 m long. Single courses were used in gentler drainages; two or three courses were used in steeper spots.

In addition, several features were defined:

Feature 1 is located about two meters south of the site datum. It is a small hearth, 50 cm in diameter, consisting of fire-altered rocks and ashy, fire-blackened sand. It is possible that this feature is recent.

Feature 2 is a rectangular (?) alignment of sandstone rocks, located about five meters from the edge of a steep drop-off at the west end of the site. The alignment measures 1.7 m by 1.8 m. Its configuration suggests that of an Anasazi fieldhouse; however, no material remains diagnostic of that culture were found. The one item associated with the alignment was a blasting cap can top, with the words "Hercules Blasting Caps" in raised letters. This fact, along with the proximity of Feature 3, suggests that Feature 2 could possibly be Anglo-American.

Feature 3 is an excavation pit at the edge of the drop-off bounding the west end of the site. While no artifacts were associated with it, the pit would seem to be early

Anglo-American. The feature consists of a 2.3 m diameter shallow hole with a surrounding ring of dirt; overall diameter is 5.5 m.

It is difficult to suggest a function for this excavation. It is distinct from (and looks older than) the test pits related to dam construction; the latter are less symmetrical and more obviously the product of backhoes.

Feature 4 is a historic trash scatter about four meters back from the same bluff edge which runs past Features 2 and 3. It includes 16 tops and/or bottoms of blasting powder cans from the American Powder Company, Boston, in a 4 m diameter area. In the same area there are two cans without lids. The bluff in this area has been artificially cut back in historic times, and perhaps the powder cans were used in preparing the old ATSF railroad route which once ran past the base of the bluff.

Three other finds are noted. The first is a large projectile point of opaque black (Grants) obsidian. Its tip is missing, but the original length can be estimated and would have been about 5 cm. Width is 3.0 cm and thickness about 0.4 cm. The point is side-notched, with convex sides and an irregular base; the blade portion shows parallel traverse thinning scars. Most likely it is an Arroyo Hondo Sub-concave Base point (Thoms 1977).

The two remaining finds have to do with Lang's original definition of the site. According to Lang, the site contained two stone rings; in part, his description (Lang 1976:18-19) is as follows:

The main feature, a loosely arranged stone ring...exhibits a diameter of about 2.50 meters. In size and form it is similar to the small stone rings resulting from the erection of tipi-like sun and wind shelters by some Navajos engaged in the sale of jewelry and other items along certain highways in Arizona today. The GR-28 feature and possibly a very similar, but less regular arrangement of stones about 150 feet to the west, were probably similar in concept and function. No artifacts were found in the GR-28 area.

We were unable to relocate these rings. However, near the northwestern end of the site, two irregular clusters of rock, apparently natural but possible cultural, were noted. The more westerly cluster measured 2.5 m by 2 m, and the other one measured ca. 2 m by 2 m.

At least two components--aboriginal and Anglo-American--are clearly definable at this site. It may well be, however, that more than one aboriginal component is present. The check dams noted are most likely Puebloan, and if so, the low density lithic scatter on the

site could represent camping or other activities related to farming. However, the lack of pottery on the site suggests that a preceramic component could be present, possibly using the terrace as a camp spot. This possibility is slightly reinforced by the finding of one large projectile point which is Archaic in appearance.

LA 38003 (G-37)

This lithic scatter was found on the flat top of a knoll overlooking Galisteo Creek; some items extend slightly down the adjacent slopes. Most of the scatter is low-density, but slight concentrations of artifacts were noted in spots, especially toward the edges of the knoll.

The scatter consisted almost exclusively of cores and flakes. The exceptions included a chalcedony projectile point and two small bits of slag. The point is 4.2 cm long and ca. 0.5 cm thick; one tang is missing, but the original width would have been about 2.5 cm. The point is triangular and corner-notched, with slightly irregular sides and a rounded base; the remaining tang is sharp. It may be a Pindi-Convex Base point (Thoms 1977). The slag found is identical to pieces in the old ATSF railbed, just south of the site; apparently, the Santa Fe Railroad used crushed slag, among other materials, in building up the bed of the road.

LA 38004 (G-39)

Six pieces of chipped stone were found in a small area along a shallow arroyo, on a dissected ridge slope south and west of Galisteo Dam. All were flakes; three different materials were present. Thirty meters to the north, a seventh flake (of Jemez obsidian) was found on the same slope.

LA 38005 (G-40)

Except for two concentrations, this site consists of a large, very low density scatter of artifacts. It is also crossed by the Madrid-Albemarle power line (LA 37973 [G-1]). Because the site is so diffuse, it might best be considered as a zone in which different items were deposited at different times. Overall density outside the two concentrations is easily less than one item per 25 sq. m. The site extends for an unknown distance to the west beyond the Corps boundary fence. On its north end it adjoins LA 37006 (G-41), the boundary between the two being somewhat arbitrarily defined along an arroyo.

Locus 1: Almost all the items at this first concentration, located in a fairly flat spot on the ridge slope, were flakes and cores. However, three sherds from a Red Mesa Black-on-white jar, a fragment of a quartzite one-hand mano, and a possible polishing stone of quartzite were also encountered. In addition, numerous fragments of

blue insulator glass are present within the concentration, in clear association with the remnants of power poles. Just outside the concentration is a small rock-pile which appears to have been a basal support for a power pole; among the rocks a number of pieces of clear insulator glass were found.

Locus 2: This concentration is located in a rather steep and dissected portion of the ridge slope; it consists of a sherd and lithic scatter on a small knoll and the adjacent slopes. The scatter is unusually dense in comparison with most of the ones in the study area.

The chipped stone consists of flakes and cores. The pottery includes sherds from at least six vessels: an Aqua Fria Glaze-on-red bowl, an olla of unidentified redware; a Cieneguilla Glaze-on-yellow bowl; what appears to be a second, misfired Cieneguilla Glaze-on-yellow bowl; a San Clemente Polychrome bowl; and a plain gray utility vessel.

LA 38006 (G-41)

Situated to the north of LA 38005, LA 38006 could be considered an extension of the same artifact scatter. It begins on the lower slope of the ridge, but then continues out onto terraces overlooking Galisteo Creek. The greatest density of artifacts occurs at the base of the ridge, in what has been defined formally as a concentration; elsewhere the overall density is probably less than 1 artifact per 50 sq. m.

Feature 1 The concentration is on a terrace remnant which has been cut into by an arroyo. On it was found an extreme concentration of ca. 100 flakes (mostly interior flakes of obsidian); transects were run from the center of the extreme concentration out to the edges of the terrace remnant. During transect recording, the crew discovered that one transect passed through a small chipping station with basalt items. An additional feature here was a small hearth (a patch of ashy soil one meter in diameter) eroding out of the ground near a branch of the arroyo.

Some historic trash occurs within the concentration and was recorded. It included a metal lid from a blasting powder (?) can, a spot-top can with soldered seams, a piece of lard bucket (?), three pieces of clear glass (probably from a recent pop bottle), and a recent fence post and bits of associated wire.

It appears that some site depth may occur at the concentration, in contrast to most other loci found. This

is because sediments in runoff from the adjacent slope have been deposited on the top of the terrace, to a depth of at least 10 cm.

Feature 2 This consists of a temporary shelter which probably postdates the main use of the site. At the base of a hillslope, near the former course of Galisteo Creek, a three-sided rock structure was built with its opening to the northeast. The walls were probably never higher than 50 cm at most, and have partly tumbled over. The interior of the structure measures ca. 2.5 m by 2.0 m, and the exterior measures 4.0 m by 3.0 m. Rocks used in the structure are local sandstone and igneous stone.

The shelter was built in such a way that it incorporates two small juniper trees into the southeast "wall" of the structure; the "interior" sides of the junipers have been trimmed back using a steel ax. The latter definitively dates the shelter to the historic period.

Just outside the shelter opening is a pot break, containing about 10 sherds of a historic polychrome olla (possible Puname Glaze Polychrome). Also, in the general vicinity of the shelter, several basalt artifacts were encountered, including six partly cortical flakes, four interior flakes and two complex cores; two possible cores were found which may instead have been produced by "bulldozer retouch" (serious disturbance has occurred next to the shelter). It may well be that the basalt artifacts are just some of the "background" scatter for the site in general, and so cannot be unequivocally associated with the shelter.

Several other discoveries from outside the features deserve mention. A point fragment of non-local chert (blood-red with blue-gray veinlets) was discovered on a terrace. Only one tang and part of the base remain, but it is possible to suggest the nature of the original point. This would have been a triangular, corner-notched point, with stem narrower than blade, and rounded base; the sides would have been slightly convex. Approximate size would have been 4 cm to 4.5 cm long, slightly over 2.5 cm wide, and about 0.4 cm thick. If this reconstruction is correct, the point could fall within the En Medio phase (Late Archaic). No analogous type is found in Thoms (1977).

A second unassociated find was a large bowl sherd (ca. 20 cm by 13 cm) probably of Koyitki Glaze Polychrome. The sherd was found in a gully, into which it had apparently washed from the terrace surface. (About 30 m northwest of the bowl fragment, a hearth was found on the terrace surface; however, it appears to be recent.) Finally, fragments of a clear glass insulator were found at the extreme northern end of the site.

LA 38007 (G-42)

Remnants of a stone structure were found at the base of a hill, overlooking a fairly sheltered valley on the south side of Galisteo Creek. The site is on the edge of a bulldozed area, and has been partly damaged by that activity; perhaps for the same reason, no artifacts could be found in association with the structure.

Despite the lack of diagnostic remains, the structure has a clearly Anglo-American cast to it. The interior dimensions are about 4.5 m by 2.7 m, and the exterior dimensions about 5.75 m by 4.0 m. The interior appears to be near the original floor level. Two small trees, a pinyon and a juniper, are growing inside the structure, suggesting a minimum age of over 25 years.

LA 38008 (G-43)

This is a small lithic scatter on a knoll and adjacent saddle. On the knoll, 16 flakes and cores were found. On the adjacent saddle (where it may have washed from the knoll) was a single interior flake of chalcedony.

ADDITIONAL SITES NEWLY LOCATED DURING THE 1982 SURVEY

Several new sites were located in the 1976 survey area during recording work in that part of the project area. Two of these, LA 37993 and LA 37995 (G-22 and 26), were fully recorded. Unfortunately, a lack of time prevented recording the others. These were instead located on a map and datum was placed on each site on Corps land to allow positive relocation. They are briefly described below.

G-27

This lithic scatter (basalt, chert, chalcedony, Polvadera Peak obsidian) measures 30 m by 35 m and is on top of a high terrace remnant; LA 14191 (GR-12) is at the base of the same terrace.

G-28

A scatter of basalt cores and flakes was found in a 30 m by 15 m area, on the southeastern slope of a low knoll.

G-44

This site could conceivably be Lang's (1976:58) GR-5, as it is in the same approximate location; however, the fit with Lang's description is poor. In 1982, the survey encountered a roughly 30 m by 30 m scatter which (according to a quick check) included numerous flakes of chalcedony, obsidian and chert. The site is located next to a wash, on top of (and near the edge of) a high terrace remnant.

G-45

This site could conceivably be Lang's (1976:55) GR-2, as it is in the same general location as reported by Lang; once again, however, the published description of the setting and site content do not correspond with what was found. The site is a large (roughly 50 m by 30 m), low-density artifact scatter in an area of red Chinle-derived soils; it lies between G-44 and LA 14182. Items noted on the site included an Agua Fria Glaze-on-red sherd, basalt cores, and flakes of basalt, chalcedony, obsidian, and indurated siltstone (?).

G-46

This site is located just east of the 1982 survey area, on a small knoll directly overlooking the floodplain of Galisteo Creek. The site was about 10 m outside the boundary fence, and so was not recorded; it appears to be a one-room stone structure, possibly a fieldhouse. No datum was placed at this site.

SITES FROM THE 1976 AND 1977 SURVEYS

These will be discussed in the order of their field numbers, as assigned by Lang (1976, 1977). Site attributes are summarized in Tables 1-1 and 1-2.

LA 14180 (GR-1)

This site was described by Lang (1976:53-54) as a three meter diameter cluster of sherds from a Puname Polychrome olla, with a suggested date in the mid-19th century. We were unable to relocate this site.

LA 14181 (GR-2)

According to Lang (1976:55), this site consisted of chipped stone tools and flakes made on a variety of cherts, and scattered for about 15 m along the head of a small arroyo. We were unable to relocate this site; the spot most closely matching Lang's description of the setting did not contain any artifacts.

LA 14182 (GR-3)

This site was reported as a one to two-room structure with an associated scatter of pottery and chert and basalt tools and flakes (Lang 1976:55-56). The site was relocated in the location described, a small ridge point in the Chinle Formation. The spine of this ridge point is formed by a small igneous dike, and the site is on the north slope of the point next to the spine.

One definite room and one possible room occur on the site. The west (definite) room measures about 4.0 m by 2.5 m; construction was

TABLE 1-1. 1976 SURVEY AREA SITE SUMMARIES

Site Number	Dimensions	Projectile Points Other Formal C.S. Tools Other Chipped Stone Ground Stone Pottery Prehist. Arch. Feature Historic (non-recent) artifacts Historic Arch. Feature	Other items of note (specify)
LA 14180 (GR-1)	* 3 x 3 m	- - - - *	NOT RELOCATED
LA 14181 (GR-2)	*15 x ? m	- * * - - -	NOT RELOCATED
LA 14182 (GR-3)	18 x 10 m	- - X - X X - -	
LA 14183 (GR-4)	85 x 25 m	- - X - - - -	
LA 14184 (GR-5)	* 9 x 4.5 m	- - * - - - -	NOT RELOCATED
LA 14185 (GR-6)	90 x 25 m	- - X - X - X -	
LA 14186 (GR-7)	*10 x 4 m	- * * - * - -	NOT RELOCATED
LA 14187 (GR-8)	45 x 22 m	- - X - - - X -	
LA 14188 (GR-9)	* 9 x 9 m	- - - - * - -	
LA 14189 (GR-10)	120 x 75 m	- - X - X - X -	poss. hammerstone
Locus 1	30 x 20 m	- - X - X - X -	poss. hammerstone
Locus 2	30 x 30 m	- - X - X - -	
Locus 3	35 x 30 m	- - X - X - -	
LA 14190 (GR-11)	45 x 35 m	- X X - X - -	
LA 14191 (GR-12)	16 x 14 m	- - X - X X X -	
LA 14192 (GR-13)	160 x 40 m	- - X - X - X -	
LA 14193 (GR-14)	80 x 40 m	- X X - X - X -	
LA 14194 (GR-15)	* 2 x 2 m	- - - - * - -	NOT RELOCATED
LA 14196 (GR-16)	*15 x 15 m	- * * - - - -	NOT RELOCATED

* As reported by Lang (1976, 1977)

X - As recorded by the 1982 survey crew

Site Number	Dimensions	Projectile Points	Other Formal C.S. Tools	Other Chipped Stone	Ground Stone	Pottery	Prehist. Arch. Feature	Historic (non-recent) artifacts	Historic Arch. Feature	Other items of note (specify)
LA 14196 (GR-17)	13 x 6 m	-	-	X	-	-	-	-	X	-
LA 14197 (GR-18)	*20 x 20 m	-	*	*	-	-	-	-	-	NOT RELOCATED
LA 14198 (GR-19)	* 3 x 3 m	-	-	*	-	-	-	-	-	NOT RELOCATED
LA 29531 (GR-20)	2 x 1 m	-	X	-	-	-	-	-	-	NOT RELOCATED
LA 29532 (GR-21)	30 x 22+ m	-	X	-	-	X	-	-	-	
LA 29533 (GR-22)	* 4 x 2 m	-	*	-	-	-	*	*	-	NOT RELOCATED
LA 29534 (GR-23)	*N/A	-	-	*	-	-	-	-	-	NOT RELOCATED
LA 29535 (GR-24)	*ca. 40 x 30?	-	*	*	-	*	X	-	-	NOT RELOCATED
LA 29536 (GR-25)	*N/A	-	-	*	-	-	-	-	-	NOT RELOCATED
LA 29537 (GR-26)	65 x 40+ m	X	X	X	X	-	-	-	-	Burned rock clusters and scatters
LA 29538 (GR-27)	60 x 25 m	-	-	X	-	-	X	-	-	
LA 29539 (GR-28)										(see GR-36 text)
LA 29540 (GR-29)	15 x 10+ m	-	-	X	-	-	-	X	X	
LA 38009 (GR-30-A)	200 x 60 m	-	X	X	X	X	-	-	-	1 pc. burned rock
GR-31 (Area B)	?	-	-	*	-	-	-	-	-	NOT RELOCATED
GR-32 (Area C)	?	-	*	*	-	-	-	-	-	NOT RELOCATED
GR-33 (Area D)	*N/A	-	-	*	-	-	-	-	-	NOT RELOCATED
GR-34 (Area E)	5 x 1 m	-	-	X	-	-	-	-	-	Complex core of basalt
GR-35 (Area F)										(See GR-10 text)
GR-36 (Area G)	N/A	-	-	X	-	-	-	-	-	Complex core of basalt
LA 38010 (GR-37;H)	28 x 22 m	-	X	X	-	-	-	-	X	X

* As reported by Lang (1976,1977)

X - As recorded by the 1982 survey crew

Site Number	Dimensions	Projectile Points	Other Formal C.S. Tools	Other Chipped Stone	Ground Stone	Pottery	Prehist. Arch. Feature	Historic (non-recent) artifacts	Historic Arch. Feature	Other items of note (specify)
GR-38 (Area I)	?	-	-	*	-	-	-	-	-	
GR-39 (Area J)	*N/A	-	*	-	-	-	-	-	-	NOT RELOCATED
GR-40 (Area K)										(See GR-10 text)

* As reported by Lang (1976,1977)
X - As recorded by the 1982 survey crew

TABLE 1-2. FORMAL ARTIFACT COUNTS FOR 1976 AND 1977 SEASON SITES

<u>Site/Method</u>	<u>Artifact Type</u>	<u>Count/Material Type</u>
LA 14182 (GR-3) --formal transect	cortical flake partly cortical flake interior flake simple core pottery	1 basalt 3 basalt, 1 magnetite, 2 unidentified material 2 chert, 2 basalt, 1 chalcedony, 1 uniden- tified material 1 basalt 10 (see text)
(Total of 24 items in 15 sq. m, or density of 1.6 items/sq. m.)		
LA 14183 (GR-4) --formal transect	cortical flake interior flake complex core tested piece angular fragment	1 chert 5 chert, 1 chalcedony 1 chert 1 chert 2 chert, 3 chalcedony
(Total of 14 items in 65 sq. m, or density of 0.2 items/sq. m.)		
LA 14185 (GR-6) --formal transect	cortical flake partly cortical flake interior flake flake fragment complex core angular fragment pottery	1 basalt, 1 quartzite 2 basalt 16 basalt, 4 chalcedony 1 petrified wood, 1 quartzite, 1 unidenti- fied 1 chalcedony 1 chert, 1 chalcedony 1 chert, 1 basalt 9 (see text)
(Total of 44 items in 27 sq. m, or density of 1.6 items/sq. m.)		
LA 14187 (GR-8)	partly cortical flake interior flake flake, unidentified type angular fragment bottle fragment	1 basalt 1 basalt, 3 Jemez obsi- dian, 1 chalcedony 1 basalt 1 chert 1 brown glass
(Total of 9 items in 46 sq. m, or density of 0.2 items/sq. m.)		

<u>Site/Method</u>	<u>Artifact Type</u>	<u>Count/Material Type</u>
--informal sweep	cortical flake	1 basalt
	partly cortical flake	1 basalt
	interior flake	3 chert, 1 basalt, 1 Jemez obsidian, 1 chalcedony
	simple core	1 basalt
	angular fragment	2 basalt
	bottle fragment	3 brown glass
	insulator fragment	11 blue glass
(Total of 23 items in ca. 777 sq. m, or density of less than 0.05 items/sq. m.)		
LA 14189 (GR-10)		
a) Locus 1,	•cortical flake	1 basalt
total count	partly cortical flake	1 basalt, 1 petrified wood
	interior flake	1 basalt, 1 petrified wood
	simple core	1 chert
	complex core	1 basalt
	possible hammerstone	1 unidentified material
	pottery	1 unidentified redware, from Rio Grande glaze tradition
	insulator fragment	1 aqua glass
b) Locus 2,	interior flake	1 chert, 1 basalt
total count	complex core	1 chert, 1 basalt
	pottery	4 Rayo Glaze-on-red (?)
c) Locus 3,	cortical flake	1 indurated siltstone
total count	partly cortical flake	2 basalt
	interior flake	1 basalt
	angular fragment	1 basalt
	core, unidentified type	1 Polvadera Peak obsidian
	pottery	1 unidentified redware, from Rio Grande glaze tradition
d) outside loci,	cortical flake	1 basalt
informal sweep	partly cortical flake	1 basalt
	interior flake	2 basalt
	miscellaneous historic	1 pc. lumber with cable attached
(Total of 30 items in ca. 471 sq. m, or density of ca. 0.1 item/sq. m.)		

<u>Site/Method</u>	<u>Artifact Type</u>	<u>Count/Material Type</u>
LA 14190 (GR-11)	cortical flake	3 basalt, 1 unidentified material
	partly cortical flake	2 basalt, 1 unidentified material
	interior flake	45 basalt, 1 chert, 4 chalcedony, 5 unidentified material
	complex core	1 unidentified material
	angular fragment	1 chert, 1 basalt
	blade, retouched for backing	1 basalt
	pottery	35 (see text)
(Total of 100 items in 15 sq. m, or density of 6.7 items/sq. m.)		

LA 14191 (GR-12)	cortical flake	3 basalt, 1 unidentified material
	partly cortical flake	3 basalt, 1 quartzite, 2 unidentified material
	interior flake	6 chert, 9 basalt, 2 chalcedony, 2 unidentified material
	angular fragment	1 chert
	pottery	7 (see text)
(Total of 35 items in 30 sq. m, or density of 1.2 items/sq. m.)		

LA 14192 (GR-13) --formal transects	cortical flake	1 basalt
	partly cortical flake	1 chert
	interior flake	1 chert, 2 Jemez obsidian
(Total of 5 items in 60 sq. m, or density of 0.1 items/sq. m.)		
--informal sweep	cortical flake	1 basalt
	partly cortical flake	6 chert, 1 quartzite
	interior flake	4 chert, 2 basalt, 3 chalcedony
	simple core	1 basalt
	complex core	2 basalt
	core, unidentified type	1 petrified wood
	angular fragment	1 chert
	pottery	4 (see text)
	bottle glass	5 brown, 1 blue
(Total of 31 items in ca. 5024 sq. m, or density of less than 0.05 items/sq. m.)		

<u>Site/Method</u>	<u>Artifact Type</u>	<u>Count/Material Type</u>
LA 14193 (GR-14) --formal transects	partly cortical flake interior flake	1 Jemez obsidian 1 chert, 1 basalt, 2 Grants obsidian, 1 Jemez obsidian, 3 Polvadera Peak obsi- dian, 1 chalcedony, 1 quartzite 5 (see text)
	pottery	
(Total of 16 items in 55 sq m, or density of 0.3 items/sq. m.)		
LA 14196 (GR-17)	interior flake	5 chert, 3 basalt, 2 chalcedony, 2 moss agate
	angular fragment	1 chert
	insulator fragment	ca. 11 blue glass
	bottle glass	1 brown, 1 clear
(Total of ca. 27 items in 61 sq. m, or density of less than 0.4 items/sq. m.)		
LA 29532 (GR-21) --total count	end scraper pottery	1 chert 4 (see text)
(Total of 5 items in ca. 518 sq. m, or density of less than 0.05 items/sq. m.)		
LA 29537 (GR-26) --formal transects	angular fragment metate fragment	chalcedony 3 material not noted (from same metate)
	flake fragment	1 basalt
	animal bone	1
	heat-altered rock	20 sandstone
	possible heat-altered rock	13 sandstone
(Excluding heat-altered rock, total of 6 items in 59 sq. m, or density of 0.1 items/sq. m.)		
LA 29537 (GR-26)	partly cortical flake	1 chert, 3 basalt, 1 Grants obsidian, 13 Jemez obsidian, 6 Polvadera Peak obsi- dian, 3 chalcedony
	simple core	2 chert, 2 basalt
	tested piece	1 basalt
	point	1 Polvadera Peak obsi- dian (see text)
	point perform (?)	1 Jemez obsidian
(Heat altered rock not counted. Total of 46 items in a ca. 204/sq. m. area, or less than 0.05 items/sq. m.)		

<u>Site/Method</u>	<u>Artifact Type</u>	<u>Count/Material Type</u>
LA 29538 (GR-27)	cortical flake	1 unidentified material
--formal transects	partly cortical flake	2 chert, 2 basalt
	partly cortical flake with marginal retouch	1 basalt
	interior flake	1 chert, 8 basalt, 3 Grants obsidian, 2 Jemez obsidian, 1 chalcedony
	complex core	1 chert
	angular fragment	1 Grants obsidian, 1 chalcedony, 1 uniden- tified material
	thinning flake	1 Jemez obsidian
(Total of 28 items in 20 sq. m, or density of 1.4 items/sq. m)		

LA 29540 (GR-29)	bottle fragment	45 purple glass, 62 aqua glass, 1 brown glass, 4 green glass ("OIL"), 2 clear glass
--informal sweep	tin can-soldered seam	2
	tin can lid	1
	square tin can	1
	(corned beef type)	
	large coal oil or	1
	kerosene type pour can	
	lid, powder can	1 ("BOSTON POWDER COMPANY")
	base, small metal drum	2
	or large powder can	
	metal fly button, jean	1
	rivet type	
	plastic button	1
	mother of pearl button	1
	nuts (metal)	2
	bolt	1
	misc. pc. metal	2
	sheeting	
	fragment of shaped	2
	turquoise	
	angular fragment	1 obsidian
	partly cortical flake	2 basalt
(Total of 135 items in ca. 20 sq. m, or density of 6.8 items/sq. m)		

<u>Site/Method</u>	<u>Artifact Type</u>	<u>Count/Material Type</u>
LA 38009 (GR-30)	interior flake	1 basalt
--formal transects	mano fragment, type unidentified	1 unidentified material
(Total of 2 items in 30 sq. m, or density of 0.1 items/sq. m.)		
--informal sweep	partly cortical flake	1 basalt, 1 chalcedony
	interior flake	1 chert, 3 basalt, 6 Jemez obsidian, 1 chalcedony, 1 quartzite, 1 unidentified material
	complex core	1 chert, 1 chalcedony
	tested piece	1 basalt
	angular fragment	1 chert
	retouched flake	1 chert
	mano fragment, type unidentified	1 sandstone, 1 unidentified
	mano, 1 hand	1 quartzite (river cobble)
	metate, slab type	1 granite-like material
	pottery	1 unidentified type (see text)
(Total of 26 items in ca. 63.6 sq m, or density of ca. 0.4 items/sq. m.)		
LA 38010 (GR-37)	partly cortical flake	1 basalt
--formal transects	interior flake	4 basalt, 2 Jemez obsidian, 1 chalcedony
(Total of 8 items in 50 sq. m, or density of 0.2 items/sq. m.)		
--total site count	partly cortical flake	5 basalt
	interior flake	2 chert, 8 basalt, 4 Jemez obsidian, 1 chalcedony, 1 unidentified material
	complex core	1 basalt
	angular fragment	1 basalt
	flake modified for use as knife	1 chert
	discoidal scraper	1 chalcedony
	insulator fragment	3+ green glass
(Excluding insulator fragments, total of 25 items in area ca. 81 sq m, or density of ca. 0.3 items/sq. m.)		

probably with perishable materials over a base of upright sandstone slabs (some of which are still in place). The east (more dubious) structure, is, at present, a jumble of rocks measuring 3.0 m by 2.8 m, and may not have connected to the west room. Spread downhill from the structures is a trash scatter measuring about 15 m by 10 m; flakes and pottery predominate.

In the transect, the following pottery was found: two sherds Agua Fria Glaze-on-red; five plain redware sherds, presumably from Agua Fria Glaze-on-red bowls; one Rayo (?) Glaze-on-red; one Largo (?) Glaze-on-yellow sherd; and one sherd from a glaze polychrome (red interior, glaze-on-white exterior, strongly incurved side). Lang's (1976) description indicates a preponderance of Agua Fria, and a few sherds of San Clemente Glaze Polychrome and Cieneguilla Glaze-on-yellow present at the site.

LA 14183 (GR-4)

This site was recorded (Lang 1976:57-58) as a 40 m by 12 m lithic scatter in a slight saddle on a ridge point or headland. Contents were described as two tools (both flake knives of chert), flakes, cores, core "chunks" (angular fragments) of chert, and a basalt flake.

When resurveyed, the site proved to be somewhat more extensive. Chipped stone is densest in the southern (saddle) portion of the ridgetop, but artifacts do extend to the edges of the ridgetop and to its northern end--an area of about 85 m by 25 m. (Density towards the northern end is very low, estimated visually at less than one artifact per 25 sq m). The site also extends for an unknown distance beyond the Corps boundary fence, to the south.

The formal transect supports the description of site contents as cores, flakes, and angular fragments. The two flake knives were not relocated.

LA 14184 (GR-5)

Lang described this as a 9 m by 4.5 m scatter of flakes, chipped stone from four varieties of chert, and additionally a sherd of Agua Fria Glaze-on-red pottery. We were unable to relocate this site as described, either in terms of setting or of site content. However, the lithic scatter recorded in 1982 as G-44 could conceivably be the one encountered by Lang.

LA 14185 (GR-6)

As originally described (Lang 1976:58-60), LA 14185 was a 30 m by 7.5 m sherd and lithic scatter at the base of a great, dome-like exposure of the Chinle Formation. Sherds include both Cieneguilla and Largo Glaze-on-yellow, while the lithic assemblage contained basalt flakes, a few basalt cores and chopping tools, a limited number of chert flakes, and a hammerstone.

When resurveyed, the site was defined somewhat differently. A high-density area measuring about 30 m by 10 m was noted at the base of the Chinle knoll; this probably corresponds to Lang's site. In addition, though, a very light scatter of artifacts was found to extend outward from the concentration, resulting in a total site size of about 90 m by 25 m. Outside the concentration, density is well under one item per sq m; these materials probably represent slope wash from the denser area.

The concentration is on a slope steep enough that even short-term habitation would seem unlikely. A transect through this part of the site indicates that basalt flakes are indeed common; other items included flakes, cores and angular fragments of various materials. (A Jemez obsidian flake and one piece of blue bottle glass were noted outside the transect.) Nine pieces of pottery were recorded within transect squares: one Cieneguilla Glaze-on-yellow, six unidentified Glaze-on-yellow (either Cieneguilla or Largo), and two plain gray sherds from a utility vessel. Lang (1976:59) did not note any "culinary" pottery, but did notice Agua Fria Glaze-on-red, Cieneguilla Glaze-on-yellow, San Clemente Glaze Polychrome, and Largo Glaze-on-yellow during his visit.

LA 14186 (GR-7)

This site was recorded as a 10 m by 4 m area on a point of land overlooking a deep arroyo (Lang 1977:60-61). Within the site area there are two smaller clusters of remains: a 4 m diameter area containing an unspecified number of Agua Fria Glaze-on-red sherds, a Cieneguilla or San Clemente sherd, and a few basalt tools (one, a bifacial chopper); and a 1.5 m diameter cluster of chert flakes. Lang mentions that about 30 m south of the first concentration, an isolated sherd of Agua Fria Glaze-on-red was found.

We were unable to find the site as described by Lang. In the same general area, however, two partly cortical flakes of basalt (Z-4) and two interior flakes of Polvadera Peak obsidian (Z-3, Z-5) were noted.

LA 14187 (GR-8)

According to Lang (1976:61-62), this site consisted of a 10 m diameter concentration of artifacts on a headland (terrace) point, with an additional scattering of artifacts both up and downslope. Chipped stone consisted of basalt, obsidian, and chert flakes, a chert discoidal biface, and a slate pick or hoe. An Agua Fria Glaze-on-red sherd was noted within the concentration; scattered sherds of the same type, as well as Cieneguilla Glaze-on-yellow (with thickened and unthickened rims) occurred on the slope below.

When resurveyed, the scatter was defined as being 45 m by 22 m, and lying on top of the terrace point. (The pottery on the slope below could not be relocated, unfortunately.) A formal transect and an informal sweep of the site indicate that items of basalt, chert,

chalcedony, and Jemez obsidian are present: these included flakes, a simple core, and angular fragments. The chert biface and slate pick/hoes were not relocated.

The 1982 visit also revealed a historic component on the site: pieces of a brown bottle and a blue glass insulator were found.

LA 14188 (GR-9)

This site is described by Lang (1976:62) as a 9 m diameter sherd scatter containing remnants of two or more Kiua Polychrome vessels. The site is apparently located outside the Corps boundary fence and was not revisited.

LA 14189 (GR-10)

As described (Lang 1976:63) this site was an 18 m by 4.5 m sherd and lithic scatter at the northern tip of a terrace finger; it contained a scatter of Agua Fria Glaze-on-red bowl sherds and basalt flakes. Within 60 m of this location, two isolated artifact loci yielded an obsidian flake, sherds from two Agua Fria ollas (= Rayo Glaze-on-red), and sherds from a Cieneguilla Glaze-on-yellow olla.

The 1982 survey was able to define a site which extended to the northern tip of the terrace finger referred to by Lang, so the site was recorded using the old designations. It is somewhat larger than Lang reported, however, measuring roughly 120 m by 75 m. The site boundary is defined by a drop-off circling the terrace finger; this drop-off is minimal at some points but very marked along the wash flowing along the west side of the finger.

Artifacts are concentrated in three areas, each of which represents a tip of the terrace remnant.

Locus 1: is at the northern tip of the remnant, and presumably represents Lang's original GR-10. It includes a redware sherd (from the Rio Grande glaze tradition), flakes, cores, and a possible hammerstone. (A glass insulator fragment was also present.) Lithic materials used included basalt, petrified wood, and chert.

Locus 2: is on a northwest-pointing spur of land overlooking a large wash. It included four Glaze-on-red olla fragments and a few pieces of chipped chert and basalt.

Locus 3: is on a tip of the site, at a point where the terrace remnant connects to the remaining part of the terrace by a slight saddle. It contained an unidentified redware (from the Rio Grande glaze tradition), flakes, an angular fragment, and a core; materials present are basalt, indurated siltstone, and Polvadera Peak obsidian.

Between these loci, site density is low; only five items were recorded in the central portion of the site.

It is impossible to reconstruct the location of the isolated loci (Areas F and K, or G-35 and 40 [Lang 1976:63, 71; 1977:3, footnote 1]) associated with G-10. However, these are probably subsumed within the expanded site boundaries.

LA 14190 (GR-11)

This site was recorded in 1976 as a sherd and lithic scatter on the north side of an Entrada Sandstone remnant; it measured about 18 m by 7.5 m (Lang 1976:63). Chipped stone was mostly basalt, with some pieces of chert observed; Agua Fria Glaze-on-red dominated the ceramic collection and pieces of Cieneguilla Glaze-on-yellow, San Clemente Polychrome, and Wiyo Black-on-white were noted.

The 1982 resurvey tended to confirm these observations. Site dimensions were somewhat larger (about 45 m by 35 m), in order to incorporate low-density areas. An area of greatest concentration was also defined, and sampled using formal transects. The sample squares yielded flakes, a core, an angular fragment, and a backed blade; material used included basalt, chert, chalcedony, and unidentified material. The same squares yielded 35 pieces of pottery, with the following breakdown: two Agua Fria Glaze-on-red; 14 Glaze-on-red, probably Agua Fria, 12 unidentified redwares, probably Agua Fria, two Cieneguilla Glaze-on-yellow; two unidentified Glaze-on-yellow; two glaze polychromes, probably San Clemente; and one unidentified glaze polychrome. A sherd of Wiyo Black-on-white was noted on the southeastern flank of the knoll.

Like LA 14185, this site is a dense sherd and lithic scatter; also like it, the artifact concentration is on a slope too steep for anything but temporary seating.

LA 14191 (GR-12)

Lang (1976:64-65) describes the main feature of this site as a boulder-and-cobble ring which probably served as the base for a circular one-room structure. The interior diameter of the structure was 2.2 m to 2.5 m. The ring was located on a rock outcrop, below which a three-sided 48 cm by 36 cm possible storage structure was located. Most artifacts were located within the ring, although a few were found scattered north of it; sherds (Agua Fria Glaze-on-red, Cieneguilla Glaze-on-yellow, and possibly San Clemente Glaze polychrome), flakes (basalt, chert, quartzite), and one chopping tool were recorded.

The rock structure was found to be as Lang described it, although there is the possibility that it was originally rectangular rather than round. The small rectangular storage unit could not be found.

Formal transects were set up along the axes of symmetry of the rock structure. These indicate that while artifacts are concentrated

in and immediately around the rock structure, the site extends out for several meters in all directions. Items found in the transects included flakes, one angular fragment, and pottery; the latter included five Agua Fria Glaze-on-red sherds; one redware, probably Agua Fria; and one sherd of unidentified ware. A Cieneguilla Glaze-on-yellow sherd was noted off the transects.

A historic component is also present. Two pieces of age-frosted light blue bottle glass and one piece of purple glass were found on the site.

LA 14192 (GR-13)

Located on a terrace finger overlooking the Galisteo floodplain, this site was originally described as a light artifact scatter in a 45 m by 30 m area. Site contents included pottery (Agua Fria Glaze-on-red, Cieneguilla Glaze-on-yellow), basalt flake tools (including one pick/hoe), chert flakes, and a chert flake scraper (Lang 1976:65-66).

When resurveyed in 1982, the site proved to be somewhat more extensive, measuring about 160 m by 40 m; although artifact density was low, items could be found over the entire length of the terrace finger. Presumably, this light scatter continues south of the Corps boundary fence for an unknown distance.

A formal transect was laid out and served mainly to confirm the low-density of artifacts. Lithic scatters turned up by an informal sweep included flakes, cores, and an angular fragment, with basalt, chert, quartzite, chalcedony, and petrified wood being used. (The formal transect noted Jemez obsidian, missed by the informal sweep.) Four pieces of pottery were found; these were all redwares probably from Agua Fria Glaze-on-red vessels.

In addition to the prehistoric remains, a 5 m by 3 m area containing pieces of a brown and a blue bottle was found. The glass appears to be fairly old.

LA 14193 (GR-14)

This site was recorded by Lang (1976:66-67) as an 18 m by 6 m sherd and lithic scatter, and a concentration of obsidian flakes. The two loci were 50 m apart, with a few flakes of basalt in the intervening space. The sherd and lithic scatter contained Agua Fria Glaze-on-red sherds, Cieneguilla Glaze-on-yellow sherds, a few San Clemente Glaze Polychrome pieces, and flakes, cores, and one possible bifacial chopper of basalt. The site was located on a ridgeline below a prominent ledge of Morrison Sandstone.

As noted earlier, cultural remains were located on top of the ledge described by Lang, and have been recorded as LA 37993 (G-22). When resurveyed, the remains below the ledge proved to extend over an area roughly 80 m by 40 m.

At the base of the ledge, the sherd and lithic cluster reported by Lang was relocated; this proved to be the densest part of the site. Items in this location included Agua Fria Glaze-on-red, Cieneguilla Glaze-on-yellow, and San Clemente Glaze Polychrome, as well as chipped basalt. However, there is no clear-cut division between lithic materials for each end of the site; chert, chalcedony, basalt, and obsidian occur throughout. Formal transects revealed that interior flakes predominate in the lithic assemblage. Informal inspection of this site showed, however, that cores and angular fragments also occur.

Two small features were located outside the sherd and lithic cluster. The first of these is a concentration of about five pieces of light blue bottle glass, age-frosted, from a whiskey or beer-type bottle. The second is a chipping station of Polvadera Peak obsidian, in a small arroyo leading off the edge of the terrace finger. About 40 interior flakes are present.

Outside of these concentrations, artifact density is very low. Items found in the low density area include a unifacially modified flake of obsidian (perhaps an unsuccessful attempt at making a projectile point) and a sherd of unidentified corrugated ware.

LA 14194 (GR-15)

This site consists of a 2 m diameter cluster of sherds from a single Kuia Polychrome bowl (Lang 1976:67); it is located on a terrace south of Galisteo Creek. We were unable to relocate the site.

LA 14195 (GR-16)

Located on a headland (ridge or terrace point), this site consisted exclusively of basalt items in 15 m diameter area. Flakes were uncommon, most items being large unifacial and bifacial choppers and cores (or core tools). The site is located at a dense yucca stand, and Lang (1976:67-68) suggests that processing of that plant and of cactus might have taken place. Lang also suggests a Bajada phase date for the remains.

We were unable to relocate this site. Site G-28, a newly discovered scatter of basalt artifacts, was located in the same general area but does not fit Lang's description.

LA 14196 (GR-17)

This site was reported (Lang 1976:68) as a 2 m diameter cluster of a variety of chert artifacts, and one Tewa redware jar sherd. The site was located in a denuded area on a grassy terrace.

When relocated, the site proved to have prehistoric and historic components. All the prehistoric items were found in a 3 m diameter concentration. The Tewa redware sherd was not found, but a variety of interior flakes and an angular fragment were recorded (Table 1-2).

Within the same cluster, a large fragment of a blue glass insulator (possible Provo type) was located, and in the area around the cluster additional glass (ten more fragments of the same type insulator, a brown bottle fragment, and a clear bottle fragment) was found.

Interestingly, the large insulator fragment within the cluster, and several other pieces of insulator, looked as if they had been chipped on. This observation is highly tentative, but if it held it would date the site to after 1890.

LA 14197 (GR-18)

This site is located off the Corps property and was not revisited. As reported by Lang (1976:68-69), it is a 20 m diameter lithic scatter on a high bluff point overlooking the valley of Galisteo Creek from its north side. Contents included chert flakes, tools, and core fragments; obsidian flakes; and basalt flakes and hammerstones (three of the latter were noted).

LA 14198 (GR-19)

Located in the center of a high terrace, this site consisted of a 3 m diameter cluster of several basalt flakes and numerous chert pressure flakes (Lang 1976:69-70). We were unable to relocate the cluster, but two chalcedony interior flakes and a basalt partly cortical flake were found in a 20 m by 3 m area in the same general location (Z-28).

LA 29531 (GR-20)

This is the first of the sites located during the 1977 survey of the corridor for the Corps boundary fence (Lang 1977:3-5). It was described as three quartzite artifacts (a bifacially flaked, unifacially retouched scraper; a knife/scraper; a spokeshave) in about a one meter to two meter diameter area. The site could not be relocated, either because of its size or because it lies outside the present boundary line.

LA 29532 (GR-21)

This site is located on a knoll or ridge finger, and is bisected by the Corps boundary fence. As reported by Lang (1974:4-5), two to possibly four identifiable components are present: a hearth (a 5 ft by 2.5 ft cluster of about eight heat-altered rocks); a small amount of heavily patinated non-chert tools and debitage; a pair of chert tools; and fragments of a Galisteo Black-on-white vessel. Based on the sherds and the heavily patinated artifacts, Lang suggested that at least two components (Early Archaic and Pueblo III-IV) were present.

When resurveyed, the site was observed to extend west of the boundary fence. Within the Corps-owned portion, only five artifacts were noted (Tables 1-1 and 1-2). One of these was a chert end scraper; the

other four consisted of two unidentified redware sherds (possibly Agua Fria Glaze-on-red), a Cieneguilla or Largo Glaze-on-yellow sherd, and a sherd of unknown type.

LA 29533 (GR-22)

A partial rectangular rock alignment, this feature measures about 4 m by 2 m and is located on the point of a ridge finger. Associated with the alignment were a piece of iron strap and a retouched flake of argillite. Lang (1977:8) believed the site to be aboriginal, the iron strap fragment being intrusive.

The site is west of the boundary fence.

LA 29534 (GR-23)

At this location, on a high terrace south of Galisteo Creek, a single argillite flake was found (Lang 1977:9). The flake was not relocated.

LA 29535 (GR-24)

This site consists of a two-room stone structure (whether the rooms are contiguous or adjacent could not be determined) on a knoll north of Galisteo Creek (Lang 1977:9-12). A light sheet trash deposit also occurs on the site. The structures measure roughly 2 m by 2 m (north room) and 2.5 m by 2 m; the remaining slabs could represent either horizontal courses or vertical slab footings. The trash included flakes, cores, and tools of several materials, the latter including a black argillite, a black igneous rock, a dark gray limestone, and chert. Pottery included late variants of Tesuque Corrugated, Cieneguilla Glaze-on-yellow (bowl and jar forms), "Sanchez" Glaze on-yellow, unslipped redware, and a sherd of either Wiyo Black-on-white or misfired Cieneguilla Glaze-on-yellow.

The site was not revisited, as it lies outside the Corps boundary fence. However, the site is very close to LA 37992 (G-20), and may well fall within the unsurveyed extension (beyond Corps land) of that agricultural zone. In any case, this fieldhouse site is almost certainly related to the extensive agricultural zone which is just west of it, and which may actually surround it.

LA 29536 (GR-25)

A single Jemez obsidian flake, this site was located north of the Corps boundary fence (Lang 1977:12) and was not revisited.

LA 29537 (GR-26)

When first recorded (Lang 1977:13-15), this site was described as an artifact scatter on a low, wide knoll formed by stabilized sand. The site, which is bisected by the boundary fence for the Corps land,

included flakes, cores, flake knives and scrapers, end scrapers, hammerstones, a chopper-hammer, a core-hammer, and a bifacial flake scraper. Materials observed included argillite, slate, quartzite, chert, opaque black obsidian (termed "Grants" in this report), moss agate, Jemez obsidian, and quartz. Other items included a small piece of polished slate and fragments of a gray sandstone basin milling stone.

During the second visit to the site in 1982, formal transects were laid out; these revealed that the most common surface items were small pieces of sandstone with definite or possible heat alteration. Three clusters of such fire-affected rocks were noted and are marked on the site sketch map. The transect and informal data indicate that the chipped stone consists primarily of flakes and cores; in addition, though, two bifacially modified items were found. The first is a triangular projectile point of Polvadera Peak obsidian, with corner-notching and convex sides and bases. The tip and one tang are missing, but original dimensions can be estimated at 2.5 cm by 2.2 cm by 0.4 cm. Most likely it is an Ojo Barbed point (Thoms 1977). The second item is a thinned biface with the tip missing, the approximate original dimensions being 2.5 cm by 2.2 cm by 0.4 cm. This item is triangular, with convex sides and base, and most likely is a preform for the same type of point as was just described. A final find on the site was three fragments from a basin milling stone, most likely the one encountered by Lang.

Based on the presence of a basin milling stone, and of a high portion of Jemez obsidian, Lang (1977:14-15) suggested a possible Late Archaic/Basketmaker affiliation for the site. The presence of the point style described earlier, as well as of numerous fire-affected rocks, strongly reinforces Lang's interpretation.

LA 29538 (GR-27)

This site is located on the eastern flank of a high escarpment west of the main north-south hogbacks in the study area. The crest of this escarpment provides a commanding view in all directions, and effectively dominates the westerly approaches to the "choke point" or narrows farther upstream on Galisteo Creek.

As first described (Lang 1977:15-18), the site consisted of four "sleeping circle"-like features and an artifact scatter. The "circles" were modifications of natural flat spots in the hillslope, with rocks in the flat spots being moved to the downhill edge of the clearing. They were individually described as being (1) a roughly 4 m by 2 m clearing; (2) a roughly circular clearing, about 3.5 m in diameter; (3) a 2 m by 2 m clearing; and (4) a rectangular clearing about 3 m by 1 m. Two of the clearings contained artifacts. Overall, Lang noted flakes, cores, choppers, a flake scraper, and an end scraper on the site; these were made on argillite, chert, quartzite, moss agate, Polvadera Peak obsidian, and opaque black obsidian. Lang argued that the clearings found resembled San Dieguito "sleeping circles," and the site probably dated to the Archaic.

In 1982, one definite circular clearing, with surrounding rock ring as described by Lang, was found; this feature (No. 1 on the site sketch map) probably is Lang's second circle. Three other possible clearings were found; Feature 2 measures about 2 m by 2 m; Feature 3 measures about 2 m by 1.5 m; Feature 4 measures about 3 m by 1.5 m (interior, possibly cleared area). It must be said that none of these resemble San Dieguito sleeping circles in the classic form.

In a flat area on the scarp slope, a concentration of chipped stone was found. This was sampled formally (Table 1-2), and yielded simple flakes, a marginally retouched flake, a thinning flake, a core, and angular fragments. Materials noted included chert, basalt, chalcedony, Grants and Jemez obsidian, and unidentified material.

LA 29540 (GR-29)

Located in a corner of the Corps property, in the high ridges northwest of Galisteo Dam, this site was recorded by Lang (1977:19) as an open mine shaft and a scatter of metal objects and blue bottle glass fragments. Lang noted that the shaft was lined up with hewn logs.

As resurveyed in 1982, the site is defined as a shaft with tailings, a stone cabin, and an artifact scatter. The shaft measures roughly 1.5 m by 1.5 m, and is at least nine to ten meters deep; it is lined with hand-cut, square set juniper timbers. Tailings extend about four meters downslope from the collapsing edge of the shaft. The stone cabin is built of sandstone blocks and is set against a natural sandstone outcrop, which forms the back wall of the structure. Interior dimensions are about 3.1 m by 3 m (about 10 ft by 10 ft); the walls apparently vary between 50 cm and 1.5 m in thickness. A 95 cm wide doorway is located in the west wall of the cabin. A fireplace (of sandstone, with an iron or steel bar as support) is built into a natural crack in the sandstone outcrop forming the back wall of the room.

The artifact scatter at this site contained both historic and aboriginal items, probably reflecting a coincidental reuse of the location. Among historic items were purple- and other-colored glass, buttons, a metal rivet fly button, and a blasting powder can lid ("--Powder Company, Boston"). The prehistoric component included obsidian and basalt items. Two fragments of a shaped piece of turquoise were also found; these could be assigned to either component, but probably were historic.

LA 38009 (GR-30, Area A)

The remaining sites with a "GR-" prefix are located within the 1976 survey area and were originally classified as isolated artifact loci (Lang 1976). In 1977 (Lang 1977a:3, Footnote 1), Lang assigned these finds numbers within the "GR" sequence, beginning with GR-30 for Area A. Lang described the first of the isolated artifact areas as

"...an area of stabilized, Juniper-grassland covered dunes...several chert flakes were found...but no concentrations were present" (Lang 1976:70).

During the 1982 revisit to this location, the find was redefined as a very low-density but extensive artifact scatter. Artifacts seemed to be slightly concentrated in blowouts, suggesting that some site depth is present. Items found during an informal sweep of the site included flakes, cores, other chipped stone, ground stone (including a one-hand mano and flat milling stone), and one sherd of crude brown plainware (large angular and mica temper, gray carbon streak). The density and extend of artifacts indicated that the concentration should be assigned a permanent site number.

GR-31, Area B

Located on the margin of a deep arroyo, this find included a core and two decortication flakes of chert (Lang 1976:70). We were unable to relocate it.

GR-32, Area C

Located northeast of the previous find, GR-32 consisted of a small basalt biface and a basalt flake (Lang 1976:70). We were unable to relocate it.

GR-33, Area D

This find consisted of a red chert flake on top of a high terrace finger (Lang (1976:70). We were unable to relocate the find.

GR-34, Area E

On the eastern margin of a high terrace remnant, Lang (1976:70-71) found a sparse scatter of a few chert flakes and a flake knife. A resurvey of the same area turned up two flakes and a partly cortical flake of red chert. The local gravels contain small angular pieces of chert which appear to be natural but which, conceivably, could be of cultural origin.

GR-35, Area F

This could not be relocated as described by Lang (1976:71), but it may have been incorporated within the expanded definition of LA 14189 (GR-10) [see previous description].

GR-36, Area G

As plotted on Lang's 1977 map, this find was discovered on the top and north and south flanks of a low knoll. The find was described as including two basalt cores, a unifacial chopper, a chert flake knife, and a chert end scraper. In 1982, we were able to find only one

artifact in the indicated location, a complex core of basalt. Some naturally angular fragments of chert occur on the site.

LA 38010 (GR-37, Area H)

Lang (1976:71) described this find as three chert flakes on a headland (ridge point), and three more at the base of the same point. Resurvey of the area in 1982 revealed a fairly intensive lithic scatter and historic power line remnants. A total count of the pre-historic remains (Table 1-2) indicates that chipped stone items of chert, basalt, chalcedony, Jemez obsidian, and an unidentified material are present on the ridge point; the flakes at the base of the point were not relocated.

The historic component includes a stone pile which was probably a basal support for a powerline, fragments of two (?) green glass insulators, and a small rock pile which may be a survey marker. The site is in line with the route recorded for LA 37973 (G-1) in the 1982 survey area, and in all likelihood is a part of the Madrid-Albemarle power line. It is interesting, then, that the insulators are not of the Provo type found in the 1982 survey area. Instead they are of green glass, similar in size and shape to the Provo type, but having an open top. One fragment had the letters "...RAY" on it, suggesting that the insulators were a Hemingray product.

GR-38, Area I

This find consisted of three flakes (obsidian, basalt and chert) (Lang 1976:71); apparently two flakes were located about 60 m apart on one knoll, while a third was located on a separate knoll west of the Corps boundary, about 120 m northwest of the first two. We were unable to relocate any part of this find.

GR-39, Area J

On top of a bluff point overlooking Galisteo Creek, Lang (1976:71) recorded a large unifacial basalt cobble chopper; he assigned a probable Bajada phase affiliation to it. This item was not relocated, but a simple core on a basalt cobble was found, and recorded as Z-13. If Lang's GR-39 and the 1982 survey's Z-13 are, in fact, the same item, certain comments are in order. First, the "chopping" edge on the item was irregular enough to suggest use as a core, not a chopper. Moreover, this same edge did not show any use scarring or battering. Most likely, then, this is a core and is undiagnostic of any particular period.

GR-40, Area K

This could not be relocated, as described by Lang (1976:71), but like GR-35 (Area F), may have been subsumed under LA 14189 as redefined in 1982.

SITES RECORDED BEFORE 1976

Several sites were excavated or recorded as part of the original salvage archaeology program for Galisteo Dam and Reservoir; four were in the study area and were plotted by Lang onto a map as part of his 1977 report. They will be discussed briefly in turn.

LA 356 (La Bolsa Site)

This site was excavated by Honea, who published his conclusions in 1969. Two years later, Kayser and Ewing compiled and edited the unpublished material on La Bolsa Site and the other three sites excavated at that time. In 1982, the survey found what appears to be the remainder of the site; part of the location lies on Corps land and the rest is east of the boundary fence.

The portion of the site on Corps land measures about 70 m by 30 m. Items found there included a cortical flake and a partly cortical flake of basalt, a partly cortical flake of chalcedony, and interior flakes of Polvadera Peak obsidian (1), Jemez obsidian (11), Grants (1), and chert (2). Most of the flakes are small thinning flakes, of the sort that could easily be missed in digging or screening.

LA 6869 (Wheeler Site)

This is the Pueblo IV site with about 30 rooms excavated by Alexander (Kayser and Ewing 1971). It was subsequently destroyed by construction of dam borrow pits.

LA 9142 (Signal Site)

Located near the previous site, this location consisted of a pre-revolt Spanish homestead (Kayser and Ewing 1971). It also was destroyed, after excavation, by construction of dam borrow pits.

LA 9143

This site was recorded but not excavated during the original salvage archaeology program for Galisteo Dam. As resurveyed in 1982, it consisted of a 12 m by 9 m cluster of obsidian flakes on top of a terrace finger. Transects through the long axis of the site yielded 20 interior flakes of Jemez obsidian, 16 interior flakes of Grant (opaque black) obsidian, and three flakes of Polvadera Peak obsidian in 12 sq m.; a density of 3.25 items per sq m.

ISOLATED FINDS FROM THE 1982 SURVEY AREA

For convenience, these newly recorded finds are summarized in Table 1-3. In some cases, additional comments will be provided.

TABLE 1-3. ISOLATED FINDS FROM THE 1982 SURVEY AREA

<u>Isolated Find No</u>	<u>Topographic Setting</u>	<u>Artifact Descriptions</u>
I-1	base of small ridge point	retouched flake of jasper
I-2	low ridgeline	piece of purple bottle glass
I-3	gently sloping steppe	interior flake of basalt
I-4	knoll top	2 fragments of a square brown glass bottle, probably 19th century
I-5	flat ridge top, near ridgetop	interior flake of Polvadera peak obsidian
I-6	gently rolling steppe	interior flake of chert
I-7	low rise in swale	ca. 50 pieces of purple glass from a single bottle, in 5 by 5 m area
I-8	gently rolling area just W of ridge	partly cortical obsidian flake
I-9	base of ridge slope	2 interior flakes of Jemez obsidian; one is modified. 50 cm apart
I-10	in shallow valley	partly cortical flake of Grants obsidian
I-11	in flats just W of ridge	3 sherds of unidentifiable redware and 1 bifacial core, in 20 by 15 m area
I-12	in flats	piece of white china plate

<u>Isolated Find No.</u>	<u>Topographic Setting</u>	<u>Artifact Description</u>
I-13	base of ridge slope	5 fragments of blue bottle in 20 by 10 m area; appears to be old
I-14	next to wash	complex core of chert
I-15	gently rolling steppe	partly cortical flakes of chert
I-16	valley bottom	interior flake and core fragment of Jemez obsidian, 10 m apart
I-17	ridge slope	chipping station--3 partly cortical flakes and 4 interior flakes of basalt, in 3 by 2 m area
I-18	ridge slope	chipping station--2 partly cortical flakes of basalt, in a 2.5 by 1.5 m area
I-19	edge of wash	interior flake of Jemez obsidian
I-20	flats between ridges	interior flake of Polvadera Peak obsidian
I-21	ridge slope	isolated prospect hole, 4 by 4 m and 1 5 m deep
I-22	base of ridge point	partly cortical flake of chert
I-23	ridge slope	complex core of chert
I-24	base of ridge slope	complex core of moss agate and small thinned biface of moss agate; the latter is probably an unsuccessful attempt to make a point Found 22 m apart

<u>Isolated Find No.</u>	<u>Topographic Setting</u>	<u>Artifact Descriptions</u>
I-25	flats between ridge and wash	partly cortical flakes of Jemez obsidian
I-26	top of spit of land between two arroyos	3 interior flakes of Jemez obsidian and 2 fragments of a mano fragment, type unknown
I-27	gently rolling steppe	interior flake of Jemez obsidian and sherd from unidentified redware vessel; 14 m apart
I-28	hillslope	one hand mano of unspecified material
I-29	on terrace, near edge	bifacial core of basalt
I-30	within arroyo on terrace	simple core of basalt
I-31	next to arroyo, on	cortical flake of basalt, cortical flake of unidentified igneous material, tested piece of red chert, and cortical flake of chert (modified on distal end for use as scraper) In 7 by 5 m area
I-32	gently sloping area near wash	sherd of unidentified redware vessel
I-33	ridge slope	2 complex cores of basalt and 1 interior flake of jasper
I-34	hillslope	2 interior flakes, 1 tested piece, and a simple core of basalt in a 9 by 2 m area

<u>Isolated Find No</u>	<u>Topographic Setting</u>	<u>Artifact Descriptions</u>
I-35	hillslope	interior flake of chert; also a basalt flake and a chert flake, type not specified. In a 5 by 10 m area
I-36	hillslope	interior flake of basalt, complex core of basalt, and 5 fragments of an old brown bottle (mid-late 1800's?) in a 15 by 3 m area
I-37	steep ridge slope	interior flake of basalt, interior flake of chert, flake fragment of chert, and core fragment of chert in a 2 by 2 m area
I-38	base of knoll, near arroyo	2 sherds of San Clemente Polychrome, 1 with mend hole; 2 m apart
I-39	grassy steppe	sherd of Santa Fe Black-on-white
I-40	grassy steppe	sherd of Santa Fe Black-on-white
I-41	grassy steppe	ca. 50 fragments of a blue bottle; in a 10 by 10 m area. See text
I-42	grassy steppe	sherd of unidentified glaze polychrome, possibly Glaze E or F
I-43	on high terrace, near dropoff	interior flake of basalt, interior flake of chert, and partly cortical flake of chert in 23 by 5 m area

<u>Isolated Find No.</u>	<u>Topographic Setting</u>	<u>Artifact Descriptions</u>
I-44	hillslope	2 interior flakes of basalt; 1 m apart
I-45	hillslope	interior flake of chert
I-46	lower slope of ridge near wash	2 partly cortical flakes of basalt, interior flake of basalt, and modified flake of quartzite in a 12 by 5 m area
I-47	edge of terrace	chipping station--1 partly cortical flake and 6 interior flakes of basalt in 8 by 5 m area
I-48	edge of low terrace	interior flake of chalcedony
I-49	base of ridge slope near arroyo	sherd of unidentified glaze-on-red ware
I-50	on top of point between two deep arroyos	1 partly cortical flake, 2 interior flakes, and 1 complex core of basalt; in a 1.5 by 1.5 m area
I-51	dissected slope between two ridges	2 partly cortical basalt flakes, 3 m apart
I-52	lower slope of ridge	2 partly cortical flakes, 1 interior flake, and 1 complex core of basalt; in 5 by 5 m area
I-53	on slope of terrace finger	partly cortical basalt flake
I-54	low terrace	3 sherds of unidentifiable whiteware; possible Santa Fe Black-on-white. Sherds adjacent to one another

<u>Isolated Find No.</u>	<u>Topographic Setting</u>	<u>Artifact Descriptions</u>
I-55	low terrace	10-15 pieces of purple bottle glass and ca. 10 pieces of brown bottle glass in a 12 by 6 m area
I-56	on low terrace, near edge	simple core of basalt
I-57	on eroding edge of terrace, next to wash	3 sherds; collection made. See text
I-58	on edge of arroyo	sherd of unidentified redware, probably Spanish colonial
I-59	on high terrace, near edge	unfinished projectile point of Polvadera Peak obsidian. Point would have been triangular, corner-notched, ca. 2.7 by 2.5 cm.
I-60	slope below terrace edge	cortical flake of basalt
I-61	slope before terrace edge	chipping station--5 partly cortical flakes, 5 interior flakes, and 1 tested piece of basalt; in 4 by 4 m area
I-62	ridge slope	interior flake of chert
I-63	hillslope	isolated complex core of basalt
I-64	on high flats, near dropoff into wash	hinged metal match can ca. 7.5 by 6 cm; striking surface on bottom
I-65	on edge of arroyo	interior flake of Jemez obsidian
I-66	hillslope	1 partly cortical flake and 1 cortical flake of basalt; 1 m apart

<u>Isolated Find No.</u>	<u>Topographic Setting</u>	<u>Artifact Descriptions</u>
I-67	slope just off edge of high flats	1 partly cortical basalt flake and 1 partly cortical chert flake; 0.5 m apart
I-68	on gentle slope near head of wash	simple core of basalt (discarded after removal of only three flakes)
I-69	on slope of ridge finger	partly cortical flake of Polvadera Peak obsidian
I-70	near bottom of deep arroyo	base plate for 12 note harmonica; appears to be old; attached reeds
I-71	ridge slope	tobacco can--slim type with hinged lid
I-72	on flat ridge top	Prince Albert can--same type as I-71, but this can still has lettering in spots, allowing positive identification of brand
I-73	on flat ridge top, near dropoff into deep arroyo	1 interior flake of basalt, 1 partly cortical flake of basalt, 1 interior flake of chalcedony, and 1 interior flake of Jemez obsidian; in 13 by 11 m area
I-74	next to shallow arroyo	complex core of chert
I-75	next to shallow arroyo	interior flake of Jemez obsidian
I-76	low terrace	2 interior flakes of basalt, ca. 3 m apart
I-77	slope of ridge finger	lard can; see text

<u>Isolated Find No</u>	<u>Topographic Setting</u>	<u>Artifact Descriptions</u>
I-78	on top of ridge point	1 tested piece of basalt and one cortical flake basalt (not conjoinable); 1 m apart
I-79	valley bottom, next to arroyo	1 basalt complex core and 1 basalt interior flake; 5 m apart
I-80	slope overlooking wash	heavily patinated, thick, unifacially modified chalcedony flake. Possibly a side scraper
I-81	lower part of slope below terrace edge	chipping station; 6 interior flakes of same red chert, plus one flake of petrified wood (indeterminate flake type) with unsuccessful attempt at modification along one edge
I-82	flat knolltop	partly cortical flake of basalt
I-83	in small valley, next to wash	interior flake of Polvadera Peak obsidian
I-84	just off crest of ridge	complex core of basalt
I-85	hillslope	ca. 15 pieces of purple glass bottle; glass has bubbles and neck is applied. In 4 by 3 m area
I-86	hillslope	cortical flake of Jemez obsidian
I-87	on terrace	complex core of basalt
I-88	flat knolltop	interior flake of moss agate and partly cortical flake of chalcedony; 7 m apart

<u>Isolated Find No.</u>	<u>Topographic Setting</u>	<u>Artifact Descriptions</u>
I-89	flat ridgetop	piece of brown bottle glass; appears to be old
I-90	flat knolltop	steep end scraper of chert; made by unifacially modifying end of a flake
I-91	sloping point of a ridge	simple core of basalt
I-92	knolltop	tobacco can (slim type with hinged lid); thick chert flake used as a "micro" core. 1 m apart
I-93	base of slope, next to wash	interior flake of chert
I-94	sloping point of ridge	ca. 8 pieces of purple bottle glass in an 8 by 4 m area
I-95	knolltop	flake fragment of chert and piece of pale green glass; 2 m apart
I-96	knoll slope and adjacent terrace surface	1 chert cortical flake, 1 chert interior flake, and 1 chalcedony interior flake in 40 by 10 m area
I-97	hillslope	20-25 pieces of brown glass beer/whiskey type bottle; no seams on upper neck. Also 1 sardine can with soldered seams; in 6 by 6 m area
I-98	ridge slope	ca. 10 pieces of brown bottle in 6 m diameter area; see text

<u>Isolated Find No.</u>	<u>Topographic Setting</u>	<u>Artifact Descriptions</u>
I-99	flat ridgetop	complex core on basalt cobble
I-100	just off ridgetop, next to arroyo	numerous sherds from pot break; collection made. see text
I-101	dissected slope	sherd of unidentified black-on-red ware
I-102	base of hill slope	partly cortical flake of basalt
I-103	in shallow rill running off hills onto terrace	3 pieces of light blue bottle glass, apparently old
I-104		(reclassified as Site G-20, Feature 5)
I-105	dissected terrace	5 pieces of small pink glass jar in 5 by 3 m area. See text
I-106	terrace	4 age-frosted pieces of aqua-colored bottle in 30 by 10 m area
I-107		(reclassified as Site G-20, Feature 9)
I-108	terrace	2 pieces of bottle glass, type and color not noted; 5 m apart
I-109		(reclassified as Site G-20, Feature 4)
I-110	base of slope, next to artificial cutbank	partly cortical flake of Grants obsidian
I-111	terrace	interior flake of indurated shale
I-112	terrace	complex core on basalt cobble
I-113	terrace; between 2 knolls	partly cortical basalt flake

<u>Isolated Find No.</u>	<u>Topographic Setting</u>	<u>Artifact Descriptions</u>
I-114		(reclassified as Site G-20, Feature 8)
I-115	ridge slope	cortical flake of Polvadera Peak obsidian
I-116	terrace	interior flake of Jemez obsidian
I-117	slope of ridge finger	2 partly cortical flakes of basalt, and 1 interior flake of basalt which appears to have been "backed" along one lateral edge for use as a knife In 5 by 2.5 m area
I-118	terrace	ca. 30 pieces of purple bottle glass in a 15 by 7 m area; see text
I-119	terrace	thick, tabular basalt flake unifacially retouched along both lateral edges; probably a heavy scraper or plane
I-120	hillslope	2 partly cortical basalt flakes; adjacent to each other
I-121	edge of terrace, next	chipping station--1 cortical flake 2 partly cortical and 7 interior flakes of basalt. Also 1 chalcedony interior flake. In 3 by 3 m area
I-122	flat valley bottom; next to arroyo	partly cortical flake of Jemez obsidian
I-123	flat valley bottom; next to arroyo	chipping station--8 partly cortical and 8 interior basalt flakes in a 4 by 3 m area

<u>Isolated Find No.</u>	<u>Topographic Setting</u>	<u>Artifact Descriptions</u>
I-124	just off ridgeline	complex core of indurated shale
I-125	lower slope of ridge	interior flake of red chert
I-126	base of ridge	fragment of thinned biface of Jemez obsidian
I-127	ridge slope	1 partly cortical flake, 1 interior flake, and 1 core fragment of basalt; in 7 by 3 m area
I-128	ridge slope	1 complex core of basalt and 1 "micro" core of Jemez obsidian; 2.5 m apart
I-129	ridge slope	1 complex core and 1 interior flake of Polvadera Peak obsidian, ca. 1 m apart
I-130	ridge slope	interior flake of chalcedony
I-131	ridge slope	projectile point of basalt; see text
I-132	fairly flat "bench" on ridge slope	1 partly cortical and 1 interior basalt flake; 3 m apart
I-133	next to top of escarpment	2 partly cortical basalt flakes; 0.5 m apart
I-134	ridge slope	interior flake of chalcedony
I-135	lower slope of ridge	1 age-frosted piece of aqua-colored glass insulator, and 1 piece of clear bottle glass; adjacent to each other

<u>Isolated Find No.</u>	<u>Topographic Setting</u>	<u>Artifact Descriptions</u>
I-136	on top of old rail-road bed	interior flake of basalt (may have washed onto bed from adjacent hillslope?)
I-137	ridge slope	tested piece of basalt
I-138	slope of ridge finger	chipping station--1 cortical flake 3 partly cortical flakes, 2 interior flakes and 1 complex core of basalt
I-139	next to top of escarpment	complex core on basalt cobble
I-140	ridge slope	complex core of basalt
I-141	finger on dissected ridge slope	1 chert interior flake, 1 basalt interior flake, and 1 chalcedony interior flake in 20 by 5 m area
I-142	in wash running off dissected ridge slope	cortical flake of indurated siltstone
I-143	finger on dissected ridge slope	interior flake of basalt
I-144	dissected ridge slope	fragment of small projectile point, original probably a triangular corner-notched point with flat base and measuring ca. 2.0 by 1.1 cm
I-145	ridge slope	8 fragments of oyster shell and 1 interior flake of basalt in a 1 by 1 m area. See text
I-146	ridge slope	chipping station--3 partly cortical flakes and 1 interior flake of basalt in a 7 by 5 m area

<u>Isolated Find No.</u>	<u>Topographic Setting</u>	<u>Artifact Descriptions</u>
I-147	ridge slope	spot-top soldered can
I-148	near base of dissected ridge slope	age-frosted piece of brown bottle glass
I-149	slope of ridge finger	2 interior flakes of basalt and 2 sherds of unidentified mineral paint black-on-red
I-150	disturbed--in bulldozer "push" dirt from hilltop	cortical flake of Jemez obsidian
I-151	next to top edge of escarpment	interior flake of chert
I-152	ridge slope	chipping station--1 basalt hammerstone with small step fractures in many spots, plus: 1 cortical, 3 partly cortical, and 1 interior flake of basalt; 1 partly cortical and 1 interior flake of chalcedony. In 10 by 5 m area
I-153	ridge slope	1 fragmentary projectile point of Polvadera Peak obsidian (triangular tip only) and 1 interior flake of basalt; 20 m apart

I-41

This bottle had a brandy-type neck, and the basal bottle mark reads "C&Co/I" or "CC&Co/I." A similar mark is shown in Wilson (1981:114, Figure 24).

I-57

These three sherds were collected for lab study; they consisted of gray plainware (large angular temper and mica in paste; unsmoothed exterior) and an unidentified Black-on-white sherd.

I-77

This can is a square can with soldered seams, measuring 10 in by 10 in by 6 in (ca. 25.5 cm by 25.5 cm by 15.5 cm). On the front, the raised legend reads "PLANKINTON & ARMOURS/KANSAS CITY, MO. ("20" inside a circle)(logo)("LBS" inside a circle)/PURE/...EAF LARD."

I-100

Two sherds from this pot break were collected to provide a positive identification; they were shown to several archaeologists who provided several different names for them. Most likely the sherds are from a very late Gila Polychrome bowl; the lip is everted and the paste and temper hint at a northern Chihuahuan origin.

I-105

This small jar had a screw-type top; "La..." was found written on one fragment. While this item is younger than much of the glass recorded during the survey, an educated guess would place it before World War II.

I-118

The base of this bottle is concave and bears a "4" inside a double (concentric) circle.

I-131

This point is crudely chipped, and may have been an unfinished specimen; the tip is missing. The base is strongly concave and the sides can be interpreted as either weakly shouldered, or else irregularly convex. The approximate original or finished dimensions would have been about 5.0 cm by 2.0 cm by 0.7 cm.

If the point is a finished item, the closest resemblance is with points of the Bajada phase (Irwin-Williams 1973: Fig. 3 b,c,e), and with Bajada Sub-concave in Thoms' (1977) typology.

I-145

The fragments of oyster shell found here were probably scavenged from litter along the old ATSF railroad line (see discussion for LA 37994).

ISOLATED FINDS FROM THE 1976 SURVEY AREA

These represent finds newly made during revisits to the 1976 survey area. Because the 1982 re-recording effort included no formal survey in this area, the finds reported cannot be considered a complete record of additional isolated finds. The finds are summarized in Table 1-4.

Table 1-4 ISOLATED FINDS FROM THE 1976 SURVEY AREA
(not previously recorded)

<u>Isolated Find No.</u>	<u>Topographic Setting</u>	<u>Artifact Descriptions</u>
Z-1	on slope next to wash	complex cobble core of basalt and 2 sherds of Red Mesa (Black-on-white ?); sherds and core are 10 m apart
Z-2	on slope next to wash	tin can (See text)
Z-3	gently rolling; deep wash nearby	interior flake of Polvadera Peak obsidian
Z-4	point overlooking deep wash	2 adjacent partly cortical flakes of basalt
Z-5	near edge of deep wash	interior flake of Polvadera Peak obsidian
Z-6	base of slope ridge	sherd of glaze-on-red, probably Aqua Fria Glaze-on-red
Z-7	slope near deep wash	interior flake of chert
Z-8	edge of high terrace	complex core on basalt cobble, and interior flake of chert, 2 m apart
Z-9	in arroyo on terrace edge	partly cortical flake of basalt
Z-10	on terrace	2 simple cores on basalt cobbles, 7 m apart
Z-11	base of ridge slope	complex core of basalt
Z-12	in small arroyo	cortical flake of chert

<u>Isolated Find No.</u>	<u>Topographic Setting</u>	<u>Artifact Descriptions</u>
Z-13	on top of terrace finger	complex core on basalt cobble (see text)
Z-14	on gentle knoll slope	4 sherds of Pojoaque Polychrome (2 collected, see text)
Z-15	gentle slope	simple core on basalt cobble
Z-16	on terrace	interior flake of chert
Z-17	on terrace	sherd of unidentified black-on-red ware
Z-18	on terrace	fragments of a blue insulator
Z-19	in wash	fragments of a blue insulator
Z-20	on high terrace	complex core of basalt
Z-21	next to shallow wash	interior flake of chert
Z-22	on high terrace	interior flake of chert
Z-23	next to shallow wash	2 interior flakes of quartzite
Z-24	on point of high terrace	4 basalt flakes (type not noted) in area 30 by 15 m
Z-25	on high terrace	interior flake of basalt
Z-26	on high terrace	interior flake of chert, 1 unidentified redware from Rio Grande Glaze tradition (4 m apart)
Z-27	on high terrace	2 olla sherds of uni- dentified black-on-red ware

<u>Isolated Find No.</u>	<u>Topographic Setting</u>	<u>Artifact Descriptions</u>
Z-28	on high terrace	2 chalcedony interior flakes and 1 basalt partly cortical flake in area 20 by 3 m
Z-29	on high terrace	sherd from bowl of unidentified black-on-white, mineral paint
Z-30	on terrace, at base of higher terrace edge	piece of aqua-colored, age-frosted glass bottle, and miscellaneous piece of metal, 4 m apart
Z-31	on terrace, at base of higher terrace edge	partly cortical flake of Jemez obsidian
Z-32	in shallow blowout on top of a terrace	chipping station? 2 cortical flakes, 1 partly cortical flake, and 3 interior flakes of basalt; also 2 interior flakes of chert. In 25 by 10 m area
Z-33	on slope off high terrace edge	partly cortical flake of chert
Z-34	next to shallow wash	complex core of quartzite and simple core of chert; 4 m apart
Z-35	steep hillslope	1 cortical flake, 3 partly cortical flakes, and 4 interior flakes of chalcedony in a 3 by 3 m area
Z-36	gently sloping area	fragments of a blue glass Provo-type insulator

APPENDIX 2
LITHIC TYPOLOGY

The validity of a particular interpretation of a lithic assemblage depends on the selection of meaningful attributes for observation that are believed, or can be shown, to reflect functional and stylistic value. During the 1982 fieldwork, the following formal lithic typology was used in the field. Following the definition of terms, a few comments on core and flake terminology will be provided.

Chopper: a marginally flaked cobble, block, or altered core, usually exhibiting shape alterations to create a sharp, straight-cutting edge with a relatively steep edge angle; usually also with use-damaged edges resulting from pounding, chopping or sawing. Specify unifacial or bifacial.

Preform: a bifacially flaked core which has been fully edged and initially thinned and shaped. Edges are irregular, perhaps sinuous; often they are denticulate and retain remnants of the platform preparations. The cross-section is generally regular and lenticular; the outline shape is ovate to subrectangular. Although technically an interim product for subsequent thinned biface tools, and thus not a formal tool class, many specimens have partly regularized edges and flaking resulting from use as a tool.

Thinned Biface: a tool produced by bifacial flake removals from all (or two predominant) edges, with lenticular cross-section and regular edges, and with most remnants of platform preparation removed. Specify shape.

Projectile Points: a tool shaped to a point to facilitate puncture while hafted on a shaft and used as a missile or lance. Specify type, if known. All points should be drawn on sheets of graph paper, unless they are non-diagnostic fragments.

End Scraper: a flake with steep unidirectional flaking and shape modification on the distal end.

Side Scraper: a flake with steep unidirectional flaking and shape modifications on a lateral edge.

Trimmed Flake: a flake with unidirectional or bidirectional flaking on one or more areas of the edge. The flaking is generally limited in area and is the result of either intentional flaking off from use of a previously unmodified flake. This category includes all small, lightly trimmed flake tools not otherwise specifically classified as a particular tool type.

Notch: a flake with a concave edge outline modification produced by flaking, usually in one direction. Flaking is usually steep (more than 50 degrees) and notches range from several millimeters to several centimeters wide and deep.

Denticulate: a flake with multiple edge flaking spaced to produce protruding points, or teeth alternating with concave edges. Flaking is usually unidirectional.

Core: a core is a rock, generally of a cryptocrystalline silicate, which has served as parent material for the removal of flakes. For this project, five core types will be recognized; they should be specified on the forms.

1) Tested Pieces: stones (cobbles or chunks) with only one or two flakes removed. These removed flakes are usually unsuitable for tools and are often associated with the cores. This will be assumed to represent "testing" the stone to investigate its quality. Unsuitable stones are discarded; suitable pieces are subsequently flaked, resulting in another type of core.

2) Simple Core: a core where three or more flakes are removed from a simple striking platform.

3) Complex Core: a core where three or more flakes are removed from two or more striking platforms, excluding Bifacial Cores.

4) Bifacial Core: a core with a biconvex cross-section and continuous removal of flakes resulting in an acute angle between flake removal faces. Flake removal is done along the two predominant (longest) edges, at least in most cases. The category includes both cores used for producing flakes and those which are destined for thinning into knives or other bifacial tools.

5) Angular Fragments: pieces of probable core, or other chipping byproducts, with no characteristic attributes. (This category was originally termed core fragments.) [Cores which have been recycled as tools (such as hammerstones or choppers) should be classified as those tool types.]

Flakes: these are pieces of stone detached from a block of parent material by percussion or pressure, but not subsequently modified. (If a flake is modified, it should be classed under one of the tool types defined previously.) Five categories of flakes are defined below and should be specified on the forms:

Cortical: the entire dorsal surface of the flake appears to have been covered with cortex. Ignore cortex on striking platforms.

Partly Cortical: the dorsal surface of the flake appears to have been partly covered with cortex, and partly shaped by prior removal of a flake from the core.

Interior: the entire dorsal surface of the flake appears to have been shaped by prior removal of flakes from the core.

Thinning: these flakes are identified by their small size, the lip or overhang on the ventral edge of the striking platform, an acute angle between the striking platform and the dorsal surface, generally a prepared striking platform indicating smoothing of the dorsal edge, and vaulted longitudinal cross-section.

Fragments: this term will be used only to describe those flake fragments which cannot be identified in terms of the previous four classes of flake. Usually, such fragments are distal portion of broken flakes.

Blade: these are at least twice as long as their width, have relatively parallel lateral edges, and have at least one prominent dorsal ridge running the length of the flake.

Comments on the Typology

Cores. By categorizing cores in terms of the number and direction of negative flake scars, the project intended to indicate the intensity of reduction on each raw cobble. Review of the field data suggest that the classification was not as sensitive an indicator of reduction as was hoped. This apparently was because the number and direction of flake scars could be affected by the size and nature of the original nodule being chipped, as well as by the amount of reduction. Although it is not clear what a better classification would involve, future investigators in the area would do well to make use of an alternative typology of cores.

Flakes: Characteristics recorded for flakes were basically limited to material, amount of cortex on the dorsal surface, and absence or presence of modification. This probably did not allow very precise determination of stages of reduction. One recent study in particular (Rozen 1981) has shown that striking platform characteristics can be the most useful indicator of reduction stages. The presence or absence of cortex, in contrast, may have to do with factors such as the size of the nodule and the nature of the desired final product, as well as with the absolute degree of reduction.

1

APPENDIX 3
COLLECTIONS

Limited collections were made and are listed below. The collections have been turned over to the Museum of New Mexico in Santa Fe, for permanent curation.

<u>Site/Isolated Find</u>	<u>Description</u>
LA 37992 (G-20), Feature 2	Two Sherds
I-57	Three Sherds
I-100	Two Sherds
Z-14	Two Sherds

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