ATTACHMENT F-5

CULTURAL RESOURCE SURVEY FOR THE MIMBRES DUE DILIGENCE PROJECT, LUNA COUNTY, NEW MEXICO

Prepared for
Amec Geomatrix
7007 Wyoming Blvd. NE
Suite F-1
Albuquerque, NM 87109

LONE MOUNTAIN ARCHAEOLOGICAL SERVICES, INC.

NMCRIS No. 113215
Lone Mountain Report 1210
March 27, 2009

NMCRIS INVESTIGATION ABSTRACT FORM (NIAF)

1. NMCRIS Activity No.:	2a. Lead (Sponsoring) Agency:	2b. Other Permitting Agency(ies):	3. Lead Agency Report No.:
113215	Unknown at this time		

4. Title of Report: *Cultural Resource Survey for the Mimbres Due Diligence Project near Columbus, Luna County, New Mexico*

Author(s) Beth McCormack and Peggy Allison

5. Type of Report ☐ **Negative** ☒ **Positive**

6. Investigation Type

☐ Research Design ☒ Survey/Inventory ☐ Test Excavation ☐ Excavation ☐ Collections/Non-Field Study
☐ Overview/Lit Review ☐ Monitoring ☐ Ethnographic study ☐ Site specific visit ☐ Other

7. Description of Undertaking (what does the project entail?): The proposed facility would be constructed completely within the boundary of the western parcel of land indicated in Figure 1. Surface disturbance planned at the site would include approximately 400 acres of land. About 350 acres of disturbance would be for the construction of shallow ponds and the remaining 50 acres of disturbance would result from construction of buildings to house processing equipment, administration facilities, parking areas, powerline corridors, and access roads. The ponds would be shallow (less than two feet deep) and would be filled with brackish water to be used for algae growth. On-site processing activities would include algae harvesting, drying, and algae oil production.

8. Dates of Investigation: (from: March 3, 2009 to March 17, 2009)

9. Report Date: March 27, 2009

10. Performing Agency/Consultant:
Lone Mountain Archaeological Services, Inc.
Principal Investigator: Douglas H.M. Boggess
Field Supervisor: Thoras R. Dye and Peggy Allison
Field Personnel Names: Francisco Britton, Richard Francisco, Noel Pacheco, Timothy Ruiz Brown

11. Performing Agency/Consultant Report No.: 1210

12. Applicable Cultural Resource Permit No(s):
NM 09-073

13. Client/Customer (project proponent): Amec Geomatrix
Contact: Tom Tangen
Address: 7007 Wyoming Blvd. NE Suite F-1, Albuquerque, NM 87109
Phone: (505) 821-0221

14. Client/Customer Project No.:

15. Land Ownership Status ***(Must be indicated on project map):***

Land Owner	Acres Surveyed	Acres in APE
Private	2,149	2,149
TOTALS	2,149	2,149

16 Records Search(es):

Date(s) of ARMS File Review	3-4-2009	**Name of Reviewer(s)** Saundra D. Daras	
Date(s) of NR/SR File Review	3-4-2009	**Name of Reviewer(s)** Saundra D. Daras	
Date(s) of Other Agency File Review N/A		**Name of Reviewer(s)** N/A	**Agency** N/A

17. Survey Data:

a. Source Graphics ☒ **NAD 27** ☐ **NAD 83**

☒ **USGS 7.5' (1:24,000) topo map** ☐ **Other topo map, Scale:**

☒ **GPS Unit** **Accuracy** ☐**<1.0m** ☒ **1-10m** ☐ **10-100m** ☐**>100m**

b. USGS 7.5' Topographic Map Name | **USGS Quad Code**

Malpais Hill, NM (1965)	31107-G7
Colombus, NM (1965)	31107-G6

c. County(ies): Luna

17. Survey Data (continued):

d. Nearest City or Town: Colombus, NM

e. Legal Description:

Township (N/S)	Range (E/W)	Section	¼ ¼ ¼
29S	09W	8	S ½ and S ½, NE ¼ and NW ¼, NW ¼ and S ½, NE ¼, NW ¼ and NW ¼, NE ¼, NW ¼ and S ½, NW ¼, NE ¼ and SW ¼, NE ¼, NE ¼ and W ½, SE ¼, NE ¼ and SW ¼, NE ¼
29S	09W	9	S ½.
29S	08W	7	E ½.
29S	08W	8	SW ¼.
29S	08W	9	SE ¼.
29S	08W	17	NW ¼ and S ½, NE ¼ and N ½, NE ¼, SE ¼ and N ½, NW ¼, SE ¼ and N ½, NE ¼, SW ¼ and N ½, NW ¼, SW ¼ (irregular section – anchored NW corner)
29S	08W	18	N ½ and N ½, NE ¼, SE ¼ and N ½, NW ¼, SE ¼ and N ½, NE ¼, SW ¼ and N ½, NW ¼, SW ¼ (irregular section – anchored NW corner)

Projected legal description? Yes [ ], No [x] **Unplatted [ ]**

f. Other Description (e.g. well pad footages, mile markers, plats, land grant name, etc.):

18. Survey Field Methods:

Intensity: ☒ 100% coverage ☐ <100% coverage

Configuration: ☒ block survey units ☐ linear survey units (l x w): ☐ other survey units (specify):

Scope: ☒ non-selective (all sites recorded) ☐ selective/thematic (selected sites recorded)

Coverage Method: ☒ systematic pedestrian coverage ☐ other method (describe)

Survey Interval (m): 15 **Crew Size:** 5 **Fieldwork Dates:** 3-5-2009 to 3-17-2009

Survey Person Hours: 340 **Recording Person Hours:** 140 **Total Hours:** 480

Additional Narrative:

19. Environmental Setting (NRCS soil designation; vegetative community; elevation; etc.): The project is located in an area described as Chihuahuan Desertscrub (Brown 1994). Soils in the area are part of the Nickel-Tres Hermanos complex, which includes Stellar silty clay loam on the hill slopes and basin floors and, within the eastern project area, the Pintura-Berino complex, which includes Akela very gravelly loam on hill slopes, Mimbres and Verhalen soils on alluvial fans, stream terraces, and valley floor remnants, and Mohave sandy clay loam on alluvial fans and hill slopes. Elevation varies from 4,050 ft (1,234 m) amsl on the eastern edge of the project to 4,335 ft (1,321 m) amsl on the far western edge of the project.

20. a. Percent Ground Visibility: 30-80 **b. Condition of Survey Area (grazed, bladed, undisturbed, etc.):** Project Area 1 (PA1) exists only on once cultivated fields that have been plowed extensively for many years. Numerous vehicle tracks and two-track roads are located within the APE. The United States Border Patrol utilizes the area heavily. Project area 2 (PA2) is similar to the area in the west in terms of vegetation and visibility; however, it has not been plowed or used as extensively for farming, except in the far eastern regions. It has, however, been used for cattle grazing for a long period of time, as evidenced by heavy bioturbation and the presence of multiple ranching features, such as corrals and stock tanks. Several of these features are still in use.

21. CULTURAL RESOURCE FINDINGS ☒ **Yes, See Page 3** ☐ **No, Discuss Why:**

22. Required Attachments (check all appropriate boxes):
- ☒ **USGS 7.5 Topographic Map with sites, isolates, and survey area clearly drawn**
- ☒ **Copy of NMCRIS Mapserver Map Check**
- ☒ **LA Site Forms - new sites** ***(with sketch map & topographic map)***
- ☒ **LA Site Forms (update) - previously recorded & un-relocated sites** ***(first 2 pages minimum)***
- ☐ **Historic Cultural Property Inventory Forms**
- ☒ **List and Description of isolates, if applicable**
- ☐ **List and Description of Collections, if applicable**

23. Other Attachments:
- ☒ **Photographs and Log**
- ☐ **Other Attachments**

***(Describe)*:**

24. I certify the information provided above is correct and accurate and meets all applicable agency standards.

Principal Investigator/Responsible Archaeologist: Douglas H.M. Boggess

Signature _____ **Date** _____ **Title (if not PI):**

25. Reviewing Agency:
Reviewer's Name/Date

Accepted ( ) Rejected ( )

Tribal Consultation (if applicable): ☐ **Yes** ☐ **No**

26. SHPO
Reviewer's Name/Date:

HPD Log #:
SHPO File Location:
Date sent to ARMS:

CULTURAL RESOURCE FINDINGS

[fill in appropriate section(s)]

1. NMCRIS Activity No.:	2. Lead (Sponsoring) Agency:	3. Lead Agency Report No.:
113215	Unknown at this time	

SURVEY RESULTS:

Sites discovered and registered: 6
Sites discovered and NOT registered: 0
Previously recorded sites revisited (*site update form required*): **1**
Previously recorded sites not relocated ***(site update form required):*** **0**
TOTAL SITES VISITED: 7
Total isolates recorded: 43 **Non-selective isolate recording?** ☒
Total structures recorded (*new and previously recorded, including acequias*): **0**

MANAGEMENT SUMMARY: The 43 recorded isolated occurrences have been adequately recorded consistent with currently accepted standards and are not likely to yield information beyond what has already been documented, and no additional investigations are recommended for them.

Two of the newly recorded sites have been recommended eligible for nomination to the NRHP for their possible contribution toward understanding of ranching and homesteading practices in early twentieth century New Mexico. The previously-recorded site has been determined eligible by SHPO for inclusion on the NRHP. Of the remaining sites, three are ineligible and one is undetermined (see Table below). All of the sites fall, at least partially, within the areas that have been identified as impact areas. There is a high potential that the sites will be destroyed by the proposed action. Protection and preservation may not be an option in most cases. If the sites cannot be avoided, testing and data recovery plans should be developed and implemented in consultation with the New Mexico State Historic Preservation Division. Furthermore, if buried cultural deposits are encountered during ground disturbing activities, work should cease immediately and the New Mexico State Historic Preservation Division should be notified, and an assessment should be made by a qualified archaeologist.

IF REPORT IS NEGATIVE YOU ARE DONE AT THIS POINT.

SURVEY LA NUMBER LOG

Sites Discovered:

LA No.	Field/Agency No.	Eligible? (Y/N, applicable criteria)
162362	1210-001	N
162363	1210-002	Undetermined
162364	1210-005	Y, D
162365	1210-006	Y, D
162366	1210-007	N
162367	1210-008	N

Previously recorded revisited sites:

LA No.	Field/Agency No.	Eligible? (Y/N, applicable criteria)
50343	N/A	Y, D

CULTURAL RESOURCE SURVEY FOR THE MIMBRES DUE DILIGENCE PROJECT, LUNA COUNTY, NEW MEXICO

Prepared by
Beth McCormack and Peggy Allison,
Lone Mountain Archaeological Services, Inc.

Submitted by
Douglas Boggess, Principal Investigator
Lone Mountain Archaeological Services, Inc.
2625 Pennsylvania Street NE
Albuquerque, New Mexico 87110

Prepared for
Tom Tangen
Amec Geomatrix
7007 Wyoming Blvd. NE, Suite F-1
Albuquerque, NM 87109

LONE MOUNTAIN ARCHAEOLOGICAL SERVICES, INC.

NMCRIS No. 113215
New Mexico State Permit: NM 09-073
Lone Mountain Report No.1210
March 27, 2009

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Field Supervisor Thoras Dye and Peggy Allison and Field Technicians Francisco Britton, Richard Francisco, Noel Pacheco, and Timothy Ruiz Brown completed the field inventory between March 5 and March 17, 2009. The Principal Investigator for the project is Douglas Boggess. The survey was undertaken at the request of Tom Tangen of Amec Geomatrix.

The project area is located in Luna County, New Mexico, near the town of Columbus. The project area has been separated into two distinct areas of survey, Project Area 1 (PA1) and Project Area 2 (PA2). These appear on the Columbus and Malpais Hill, NM 7.5' Quadrangles (1965). Project Area 1 occupies Township 29 South, Range 09 West, portions of Sections 8 and 9, while Project Area 2 occupies Township 29 South, Range 08 West, portions of Sections 7, 8, 9, 17, and 18. Highway 9 runs directly north of the two survey areas. The overall project area measures 2,149 acres (869.7 hectares). PA1 is located west of PA2. PA1 is 842.4 acres (341 hectares) and PA2 is 1,306.6 acres (528.7 hectares). The project consisted of 100-percent pedestrian survey in 15-m intervals. The survey was conducted entirely on privately owned land, under NMCRIS No. 113215, State Permit No. NM 09-073.

Four previously recorded sites (LA 50343, LA 50344, LA 50346, and LA 131904) are located within a 500-m radius surrounding the project area. All four sites are located outside the project boundary and were not encountered during the current investigation. The first three were assigned a NM Statehood through WWII Hispanic (A.D. 1912 to 1945) and the fourth a NM Statehood through WWII Anglo (A.D. 1920 to 1939) temporal/cultural affiliation. LA 50343 was determined eligible for nomination for the NRHP while eligibility recommendations have not been entered for the remaining sites.

Seven sites and 43 isolated occurrences were encountered during this survey. Six sites are newly recorded and one (LA 50343) previously recorded. None of the sites contain prehistoric elements. All of the sites have been assigned a Historic through Recent temporal affiliation. Five of the sites are related to early 20th century homesteading. LA 162363 is located on a 1919 homestead patent issued to Charles E. Bourgeois, while LA 162364, LA 162365, LA 162366, and LA 162367 are located on a parcel issued to Clifford Moody in 1916 (BLM-GLO records).

Two of the newly recorded sites have been recommended eligible for nomination to the NRHP for their possible contribution toward understanding of ranching and homesteading practices in early 20th century New Mexico. The previously-recorded site has been determined eligible by SHPO for inclusion on the NRHP. Of the remaining sites, three are ineligible and one is undetermined

All work was completed in compliance with applicable federal and state legislation and procedures designed to protect nonrenewable cultural resources, including Section 106 of the National Historic Preservation Act of 1966 as amended (PL 89-665), the National Environmental Policy Act of 1969 (PL 91-852), the Archaeological Resource Protection Act of 1979 (PL 96-95), and Executive Order 11593.

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LIST OF FIGURES

LIST OF TABLES

Field Supervisor Thoras Dye and Peggy Allison and Field Technicians Francisco Britton, Richard Francisco, Noel Pacheco, and Timothy Ruiz Brown completed the field inventory between March 5 and March 17, 2009. The Principal Investigator for the project is Douglas Boggess. The survey was undertaken at the request of Tom Tangen of Amec Geomatrix.

INTRODUCTION

PURPOSE OF THE SURVEY AND PROJECT BACKGROUND

This project was undertaken in anticipation of the construction of a proposed facility. The facility would be constructed completely within the boundary of the western parcel of land indicated in Figure 1. Surface disturbance planned at the site would include approximately 400 acres of land. About 350 acres of disturbance would be for the construction of shallow ponds and the remaining 50 acres of disturbance would result from construction of buildings to house processing equipment, administration facilities, parking areas, powerline corridors, and access roads. The ponds would be shallow (less than two feet deep) and would be filled with brackish water to be used for algae growth. On-site processing activities would include algae harvesting, drying, and algae oil production.

PROJECT DESCRIPTION AND LOCATION

The project area is located in Luna County, New Mexico, near the town of Columbus (Figure 1.1). The project area has been separated into two distinct areas of survey, which will hereafter be referred to as Project Area 1 (PA1) and Project Area 2 (PA2). These appear on the Columbus and Malpais Hill, NM 7.5' Quadrangles (1965). Highway 9 runs directly north of the two survey areas. The project area includes areas that will be subject to mechanical modification and heavy vehicle traffic. The project consisted of 100-percent pedestrian survey in 15-m intervals. The survey was conducted entirely on privately owned land, under NMCRIS No. 113215, State Permit No. NM 09-073.

SIZE OF THE PROJECT AREA AND SURVEY AREA

The overall project area measures 2,149 acres (869.7 hectares). PA1 is located west of PA2. PA1 is 842.4 acres (341 hectares) and PA2 is 1,306.6 acres (528.7 hectares).

LAND OWNERSHIP

All of the land within the project area is privately owned.

LEGAL DESCRIPTION

Project Area 1 occupies Township 29 South, Range 09 West, portions of Sections 8 and 9, while Project Area 2 occupies Township 29 South, Range 08 West, portions of Sections 7, 8, 9, 17, and 18.

DESCRIPTION OF PROJECT AREA AND SURVEY AREA

The entirety of the western project area (PA1) exists only as formerly-cultivated fields and has been plowed extensively for many years. An informal conversation with a local rancher suggests that in the early 1950s a Mr. Teague installed pumps and cement for a ditch system in the area, although farming was already taking place at the time. The land was apparently sold once or twice, with farming coming to an end in the late 1970s or early 1980s. The last owner removed some of the pipe in order to sell it, although some is still visible in portions of the project area.

The eastern project area (PA2) is similar to the western in terms of vegetation and visibility; however it has not been plowed or used as extensively for farming except in the far eastern regions. It has been used for cattle grazing for a long period of time, as evidenced by heavy bioturbation and the presence of multiple ranching features such as corrals and stock tanks. Several of these features are still in use.

PROJECT PERSONNEL AND SURVEY DATES

Field Supervisor Thoras Dye and Peggy Allison and Field Technicians Francisco Britton, Richard Francisco, Noel Pacheco, and Timothy Ruiz Brown completed the field inventory between March 5 and March 17, 2009. The Principal Investigator for the project is Douglas Boggess. The survey was undertaken at the request of Tom Tangen of Amec Geomatrix.

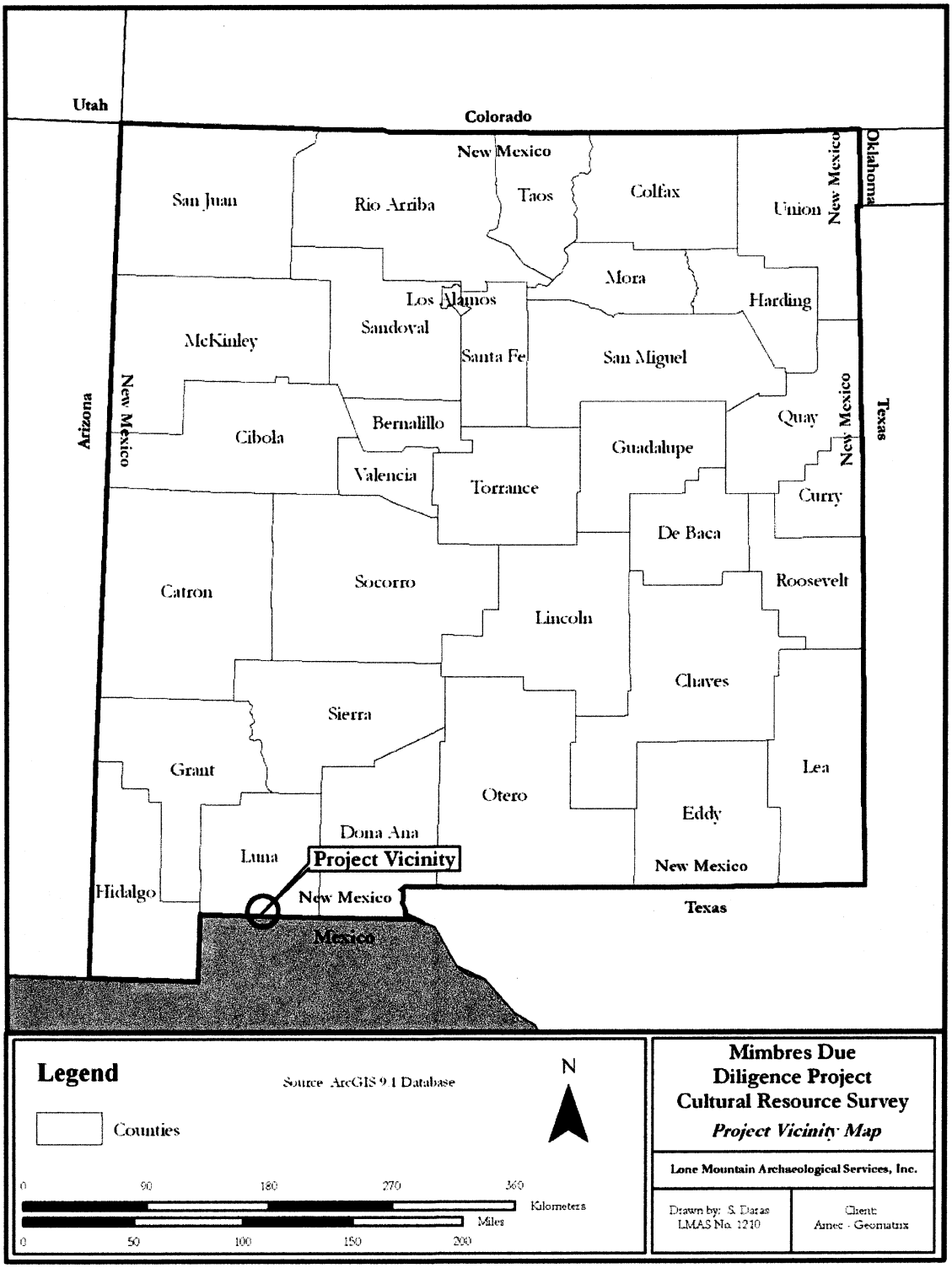

Figure 1.1: Project Vicinity.

ENVIRONMENTAL SETTING

NATURAL ENVIRONMENT

The project is located in an area described as Chihuahuan Desertscrub (Brown 1994). Located to the north are the Tres Hermanas and the Florida Mountains, to the west the Cedar and Hatchet Mountains, and to the south is the closest water source, the Rio Casas Grandes.

Soils in the area are part of the Nickel-Tres Hermanos complex, which includes Stellar silty clay loam on the hill slopes and basin floors and, within the eastern project area, the Pintura-Berino complex, which includes Akela very gravelly loam on hill slopes; Mimbres and Verhalen soils on alluvial fans, stream terraces, and valley floor remnants; and Mohave sandy clay loam on alluvial fans and hill slopes. It appears that much of the topsoil has eroded away, but recent flooding has deposited new alluvium sediments in some areas.

Elevation varies from 4,050 ft (1,234 m) amsl on the eastern edge of the project to 4,335 ft (1,321 m) amsl on the far western edge of the project.

CULTURAL ENVIRONMENT

The survey area is located in a region long used for farming activities and has several features associated with this practice. The area was once traversed by now-abandoned El Paso and Southwestern Railroad line running along the Mexican border between El Paso, Texas and Douglas, Arizona. The abandoned railroad grade through this area has been designated LA 69111. Today the track is absent, the grade is highly disturbed, and much of it functions as a two-track road. A railroad berm and slag are visible on the landscape. Roads in the westernmost part of the project area have been graveled with slag scavenged from the abandoned railroad beds. These roads are located near a series of ditches within the project area designated Lone Mountain Site 1206-001. The siding town of Mimbres, also now abandoned, is located close to the project area, although no trace remains. Of particular note is the series of cement ditches and pumps together with large amounts of historic and recent refuse. Numerous vehicle tracks and two-track roads are located within the APE. The area is heavily utilized by the United States Border Patrol.

PREVIOUS INVESTIGATIONS

On March 4, 2009, prior to entering the field, a files search was conducted by Saundra Daras of Lone Mountain, via the Internet, of the archaeological records maintained at the Archeological Records Management Section (ARMS) of the New Mexico Historic Preservation Division. Four previously recorded sites (LA 50343, LA 50344, LA 50346, and LA 131904) are located within a 500-m radius surrounding the project area. All four sites are located outside the project boundary and were not encountered during the current investigation. A summary of the sites is presented in Table 1.1. Five previous surveys were performed in the area. These surveys are summarized in Table 1.2.

The State Register of Cultural Properties and the National Register of Historic Properties were also consulted, but no properties on either register are located near the project area.

Informal conversations with the local ranchers provided information regarding the recent and historic use of the project area, particularly in regard to the ditch system and farming..

Table 1.1: Previously Recorded Sites within 500 m (0.31 mi) of the Project Area.

LA No.	Description	Cultural/Temporal Affiliation	Eligibility
50343	Historic trash dump	NM Statehood - WWII Hispanic (A.D. 1912 to 1945)	Eligible, Criterion D
50344	Historic trash dump	NM Statehood - WWII Hispanic (A.D. 1912 to 1945)	Not Entered
50346	Historic trash dump	NM Statehood - WWII Hispanic (A.D. 1912 to 1945)	Not Entered
131904	Historic artifact scatter	NM Statehood - WWII Anglo (A.D. 1920 to 1939)	Not Entered

Table 1.2: Previous NMCRIS-registered Activities within 500 m (0.31 mi) of the Project Area.

NMCRIS	Acres	Author	Citation	No. of Sites
115	0	Hilley, John	1981 407 Miles of Archaeological Transect Sampling in the Basins of Southern New Mexico	175
18868	27.5	Main, Rhonda, and Charles M. Haecker	1987 Cultural Resource Survey of Proposed Pit 87-5-S Near Columbus Project No. F-01301(21)	2
27852	28	Haecker, Charles M.	1989 Cultural Resources Survey Along State Road 9 Near Columbus, Luna County NMSHTD District One	0
50486	2644.3	Sechrist, Mark	1994 The Joint Task Force-Six Border Survey Archaeological Survey Along the U.S./Mexico Border Road from Anapra to Antelope Wells, New Mexico. 2 vols.	99
67167	1567.98	Lone Mountain's Staff	2002 Cultural Resource Survey for a Proposed Fiber Optic Corridor Spanning Hidalgo, Grant, Luna, and Dona Ana Counties, New Mexico	37

CULTURAL OVERVIEW

By Lone Mountain's Staff

Knowledge of local historic and prehistoric cultural history is of use to researchers who are conducting archaeological investigations in an area. An understanding of the material use and spatial patterning of various culture groups through time is necessary for the identification and interpretation of cultural objects and features discovered during such projects. The following synthesis of the archaeological and historical resources of southwestern New Mexico is mainly based on the overviews provided by Cordell (1984) and by Stuart and Gauthier (1984).

The cultural history of the project area generally is divided into the following broad developmental and chronological periods, with some variation occurring between defined cultural areas. Those divisions are the Paleoindian period (ca. 10,000 B.C. to 6000 B.C.), the Archaic period (ca. 6000 B.C. to A.D. 200), the Formative period (ca. A.D. 200 to 1450), and the Protohistoric and Historic periods (ca. A.D. 1450 to Present).

Paleoindian Period (ca. 10,000 B.C. to 6000 B.C.)

The initial settlement of North America by humans occurred during the Paleoindian period. Evidence indicates that during this period, which marks the ending of the Pleistocene (the last ice age) geological epoch, people lived in small nomadic bands. They were hunter-gatherers who hunted game that included now-extinct Pleistocene megafauna such as mammoths (*Mammutus primigenius*), and collected wild vegetation and seeds. Their flaked-stone tools commonly were comprised of fine-grain, non-local materials.

The Clovis complex (ca. 10,000 to 9000 B.C.) denotes the earliest identified groups of Paleoindians, and is mainly defined by a distinctive type of fluted projectile point, known as Clovis. The Clovis complex and point are named after the town of Clovis, New Mexico, which is near where the archaeological site used to first identify and define this complex is located (Cordell 1984:122).

Following the Clovis complex is the Folsom complex (ca. 9000 to 8500 B.C.), which also is named for a town in New Mexico that is located near the archaeological site that produced archaeological materials used to define this complex. Many Folsom complex sites are located near major water sources, which has been interpreted as indicating that this time period is marked by a decrease in moisture compared to the Clovis period. During this period, mammoths and other Pleistocene fauna either decreased in numbers or became extinct. One large game animal hunted by the Folsom hunter-gatherers is an extinct type of bison known as *Bison antiquus*. Stone tools associ-

ated with the Folsom complex include projectile points, knives, end scrapers, and side scrapers (Cordell 1984:126-127, 133).

The third, and final division of the Paleoindian period is known as the Plano complex (ca. 8000 to 6000 B.C.). Evidence indicates that during this period, which marks the end of the Pleistocene Epoch, the climate was marked by increased seasonal variation; it became warmer and drier. These environmental changes are thought to have contributed to the extinction of certain animal species and to changes in the types and locations of wild plants. These changes in animal and plant resources resulted in changes in the adaptive strategies and material cultural of the Plano complex peoples, although they appear to have continued living in small bands as hunter-gatherers. Unlike the Clovis and Folsom complexes, the Plano complex is characterized by several projectile point types that include Agate Basin, Alberta, Cody, and Hell Gap (Cordell 1984:134-135).

ARCHAIC PERIOD (CA. 6000 B.C. TO A.D. 200)

The beginning of the Archaic period generally occurred during the early part of the current Holocene geologic epoch. The Archaic period is characterized by a change in subsistence strategy in comparison to the preceding Paleoindian period. Archaic groups were hunter-gatherers who relied more on the gathering of a wider range of wild plant foods and hunting of small game than did the Paleoindian groups. This reliance on a wider range of food sources is considered an adaptive response of the Archaic period peoples to large-scale environmental changes that resulted in changes in food resources that included the extinction of Pleistocene megafauna. The shift in subsistence strategy is accompanied by greater diversity in their stone-tool assemblage, including reduction in projectile point size, an increase in the number of projectile point types, and an increase in groundstone tools. The location of Archaic period sites becomes increasingly variable in regard to their topographic and environmental settings (Cordell 1984:157-172).

In southwestern New Mexico, archaeological evidence of cultivated plants (cultigens) has been recovered from sites that date as early as 2000 B.C. In addition, evidence of pithouses dating from the Archaic period has been found in several areas. Sites assigned to the Archaic period are aceramic, although ceramics sometimes are absent from sites dating to the subsequent Mogollon tradition. Archaic flaked-stone assemblages generally contain a greater proportion of non-local and fine-grain types of materials, and more often exhibit evidence of tool retouch than later Mogollon flaked-stone tool assemblages (Whalen 1986:77-78). In the Jornada region, shallow circular huts and pithouses date to the Archaic period (Mauldin 1996:45-47, Table 6).

MOGOLLON TRADITION (CA. A.D. 200 TO 1450)

The currently proposed project area occurs within the Mogollon cultural area, which includes portions of southeastern Arizona, southwestern New Mexico, southwestern Texas, and northern Chihuahua (Stuart and Gauthier 1984:5,175, Map I.2). In general, the change from the Archaic period to the Formative period in the Mogollon cultural area is marked by the appearance of ceramics. Compared to the flaked-stone assemblage of the earlier Archaic period, Mogollon flaked-stone assemblages more often exhibit the utilization of locally available materials, and the production and use of more expedient types of tools (Whalen 1986:77-78). The Mogollon tradition, which was first defined as a distinct culture area by archaeologist Emil Haury (1936), is commonly divided into the Pithouse (ca. A.D. 200 to 1000) and Pueblo (ca. A.D. 1000 to 1450) periods. The project area falls on or near a frontier between the Mimbres Mogollon and the Jornada Mogollon culture areas (Stuart and Gauthier 1984:5, Map I.2).

PITHOUSE PERIOD (CA. A.D. 200 TO 1000)

The Pithouse period is marked by a cultural tradition that is broadly similar throughout the Mogollon culture area. This tradition includes the construction of subsurface habitation structures known as pithouses.

The Pithouse period is subdivided into four phases for the Mimbres Mogollon area: Cumbre (ca. A.D. 200 to 550), Georgetown (ca. A.D. 550 to 650), San Francisco (ca. A.D. 650 to 900), and Three Circle (ca. A.D. 900 to 1000).

Cumbre Phase (ca. A.D. 200 to 550)

The Cumbre phase of the Mimbres Mogollon Pithouse period is defined by the appearance of Alma plainware ceramics (Martin 1979:69). Subsistence and settlement patterns are viewed through increased sedentism and dependence on horiculture, which included the growing of corn, beans, squash, and cotton. Evidence indicates a continued reliance on the hunting of deer and rabbits, and gathering of wild plants and nuts such as acorns and piñon. Structures of the Cumbre phase consist of round or oval

pithouses that generally contain hearths. An average of 15 to 20 pithouses are present at habitation sites of this phase; they are located on high ridges and knolls. Use of the valley floors is indicated by the presence of debitage and plainware ceramics (Stuart and Gauthier 1984:178-185).

Georgetown Phase (ca. A.D. 550 to 650)

The major defining material type for the Georgetown phase, or Pine Lawn phase, is a highly polished ceramic known as San Francisco Red. Subsistence activities included the cultivation of crops such as corn, although the gathering of wild plants and hunting of game continued. Structures consisted of somewhat smaller, and occasionally D-shape, pithouses. Georgetown phase habitation sites generally contain fewer structures than do the preceding Cumbre phase sites, and are found in a greater variety of locations that include the first terraces above major drainages (Stuart and Gauthier 1984:186-188).

San Francisco Phase (ca. A.D. 650 to 900)

The San Francisco phase is predominantly defined by the production of red-on-white painted ceramics, and the construction of rectangular pithouses and associated kivas and communal structures. Evidence suggests that during this phase reliance on cultigens increased, as did the number of structures comprising habitation sites, suggesting a population increase as well. San Francisco phase habitation sites containing from 15 to 20 pithouses and one or two kivas are common. These San Francisco phase sites often were built at the same locations as Georgetown phase habitation sites, with the structures of one phase built over the structural ruins of the preceding phase. Mortuary practices of this phase began to include the ceremonial "killing" of ceramics that were placed in the grave of the deceased (LeBlanc and Whalen 1980:201; Stuart and Gauthier 1984:188-193).

Three Circle Phase (ca. A.D. 900 to 1000)

The Three Circle phase is distinguished by the presence of Three Circle Red-on-white ceramics, and during the latter parts of this phase, Early (Boldface) and Transitional Mimbres Black-on-white ceramics. Pithouses were rectangular and often had cobble masonry half-walls built inside the excavated pit walls. A substantial increase in population is indicated by the increased number of large villages being occupied versus those occupied during previous periods, and the appearance of villages along secondary drainages. The average size of habitation sites for this phase is 50 pithouses (Cordell 1984:115-117). Individual pithouse size declined compared to those of the preceding San Francisco phase, although the size of communal structures increased. The greater size of communal structures has been speculated to indicate increased emphasis on formal ceremonial activities (LeBlanc and Whalen 1980:181).

The most common burial treatment was to place the deceased in a flexed position in a subfloor pit, and to arrange ceramic bowls over the deceased's knees or side and later, the face or head (Stuart and Gauthier 1984:195-197). The occasional presence of turquoise, marine shell, and macaw feathers with inhumations indicates extensive exchange networks were occurring during the Three Circle phase (LeBlanc and Whalen 1980:187-190, 192-195).

PUEBLO PERIOD (CA. A.D. 1000 TO 1450)

The Pueblo period is marked by the construction of surface pueblos and greater interregional variation in material cultural, particularly ceramics and architecture. For the Mogollon culture region, a number of distinctive ceramic styles and forms of architecture first appear after A.D. 1000.

Material culture changes, and their indications for socio-economic changes, led archaeologists to define the following sequential phases for the Mimbres Mogollon culture area: Classic Mimbres (ca. A.D. 1000 to 1100 or 1150), Animas or Black Mountain (ca. A.D. 1100 or 1150 to 1300), and Cliff (ca. A.D. 1300 to 1450).

Classic Mimbres Phase (ca. A.D. 1000 to 1100 or 1150)

The Classic Mimbres phase developed in the Mimbres Valley and adjacent areas. It is defined by the appearance of above ground architecture and Classic Mimbres Black-on-white ceramics. The following trends are more typical of the Mimbres Valley occupation sites, with the sites in the outlying areas exhibiting less change from the preceding phase. The most common habitation sites are small, ranging from two to 20 rooms each. However, large village sites, pueblos that contained as many as 200 rooms each, appear during this phase. The populations of these large sites substantially decreased by A.D. 1150, for reasons that are yet unclear. This sharp drop in population appears to have occurred at the same time that a similar sharp population decrease occurred in the Chacoan Anasazi area to the north.

Subsistence was predominantly based on flood plain agriculture, although the subsistence base appears to have broadened to include food resources such as small game and fowl (as indicated by faunal remains), perhaps in response to inconsistent farming yields. Although irrigation was used, Mimbres irrigation systems are much less extensive and common than those for other southwestern cultures of this time.

The practice of interring the deceased beneath room floors continues during the Classic Mimbres phase. Burials recovered from excavated habitation sites averages five burials per room. The marked difference in the kinds and amounts of funerary objects associated with individuals at large sites in comparison to small sites has been speculated to reflect an increase in economic and social stratification. Exotic trade items such as marine shell and macaw feathers recovered archaeologically indicate the continued presence of trade networks to the south and west, and trade to the east is evidenced by exported Classic Mimbres ceramics (Stuart and Gauthier 1984:198-204).

Animas or Black Mountain Phase (ca. A.D. 1100 or 1150 to 1300)

The Animas or Black Mountain phase has been interpreted as representing an abrupt break from the Mogollon culture, with people from another cultural region moving into the area. However, evidence recovered more recently points toward an economic restructuring of the remnant Mimbres populations (Stuart and Gauthier 1984:206-208). Commonly, research for the Animas or Black Mountain phase emphasizes ties with Casas Grandes, Mexico, to the south, which reached its developmental height during the mid- to late-1200s.

The numerous ceramic types common for this phase are Playas Red, Ramos Polychrome, Chupadero Black-on-white, White Mountain Redware, and several corrugated, plain, and textured brownwares. The architecture changes from cobble masonry to puddled adobe. Pueblos are U-shape and typically contain 125 rooms. Residential rooms are relatively large compared to those of the Classic Mimbres phase, and surround the central plaza. Kivas usually are not present at village sites of this phase. Habitation sites most commonly occur in lower elevation areas in the desert with good agricultural soils and alluvial catchments, or playas (Stuart and Gauthier 1984:206-208).

Cliff Phase (ca. A.D. 1300 to 1450)

The Cliff phase includes the poorly understood Salado culture of the Mimbres Valley. Substantial population aggregation occurs during the Cliff phase, with the population heavily dependent on agriculture. The architecture of this phase is similar to that for the preceding Animas or Black Mountain phase. Village sites commonly consist of large, coarsed and puddled adobe pueblos with plazas.

The ceramic types of this phase, which may have originated in central Arizona, include Tonto, Pinto, and Gila Polychromes. The argument has been made that the Cliff phase people migrated from Casas Grandes after its collapse. Another view is that they came from the Tonto Basin of Arizona; therefore, it is not clear whether these ceramics represent trade activity or indicate that the Salado migrated from central Arizona. Archaeological evidence suggests that many of the Cliff phase sites were suddenly abandoned around A.D. 1450 (Lekson 1992:133-135). It is possible that these people joined other groups, such as the Jano- or Jocome-speaking people who may have been the predecessors of the Protohistoric period southern Apachean groups known in this region (Griffin 1983:330; Tainter 1985:144). It is equally possible that they were related to western Pueblo groups (Pilles 1996).

JORNADA MOGOLLON TRADITION (CA. A.D. 200 TO 1450)

Unlike the Mimbres Mogollon culture, the Jornada Mogollon sequence is characterized by cultural continuity, with little evidence of outside influence, throughout much of its developmental sequence. Divisions of the Pueblo period of the Jornada Mogollon culture are the Early Formative period (A.D. 200 to 1100) and the Late Formative period (A.D. 1100 to 1450) (LeBlanc and Whalen 1980:14).

EARLY FORMATIVE PERIOD (CA. A.D. 200 TO 1100 OR 1150)

The Early Formative period of the Jornada Mogollon includes the Mesilla phase (Carmichael 1986), and marks the advent of ceramic production and agriculture in this region. The shift to a more sedentary lifeway and dependence on agriculture to provide a food base appears to have occurred less completely for the Jornada in comparison to the Mimbres Mogollon. Reliance on hunting and gathering continued throughout the Pueblo period in the Jornada area (Upham 1984), although agricultural products did become increasingly important to the subsistence base. During the Mesilla phase, the population

aggregated into villages composed of round and rectangular pithouses with extramural hearths and storage pits. The initial use of pithouses actually occurred during the latter part of the Archaic period, and continued into the Mesilla phase. Other domiciles constructed during this time were shallow, basin-shape huts similar to those of the Archaic period (Hard 1983a; O'Laughlin 1980).

Mesilla phase ceramics are El Paso brownware (Whalen 1978, 1980), and Jornada Brown. After A.D. 750, small amounts of Mimbres Black-on-white ceramics occurred. Known sites of this period include long-term habitation sites and short-term special activity camps. Village sites commonly were situated near permanent water resources, although during the latter part of the Mesilla phase some habitation sites were placed at the base of foothills along alluvial fans (Carmichael 1985). Short-term camps were located in the central Basin and mountainous settings.

LATE FORMATIVE PERIOD (CA. A.D. 1100 OR 1150 TO 1450)

The Late Formative period of the Jornada Mogollon is subdivided into two phases: Doña Ana (ca. A.D. 1100 to 1200) (Lehmer 1948), and El Paso (ca. A.D. 1200 to 1450) (Upham 1991). Late Formative ceramics are El Paso brownware and El Paso Polychrome (Whalen 1978, 1980). Imported ceramics occur more frequently and include Chupadero Black-on-white, Playas Red, Three Rivers Red-on-terracotta, and Mimbres Black-on-white (Hard 1983b). The Doña Ana phase is characterized by the presence of above ground adobe pueblos and the continued use of pithouses similar to those of the preceding Mesilla phase.

During the El Paso phase, surface pueblo architecture completely replaced pithouse architecture. Pueblos were variable in size, and were composed of room blocks oriented in long east/west tiers or around a plaza. Special activity sites of the El Paso phase occur throughout the central Basin, and their larger size may indicate the formation of larger work groups (O'Laughlin 1980). The major type of ceramic produced during this time is El Paso Polychrome, with tradewares including Chupadero Black-on-white, Playas Red, Ramos Polychrome, Gila Polychrome, and Three Rivers Black-on-terracotta. Evidence provided by ceramic data suggests that the El Paso phase people were in contact with groups in central and northern New Mexico, the White Mountain region of southeast Arizona, the Gila River area of southwestern New Mexico and southeastern Arizona, and northwestern Chihuahua, Mexico. Exotic objects recovered from El Paso phase sites include copper bells from Mexico (Lehmer 1948), and marine shell from the Pacific Coast (Whalen 1978).

The Jornada Mogollon agricultural subsistence system began its decline around A.D. 1300, and abandonment of the area by much of its pueblo population followed. A more nomadic hunting-gathering lifeway was then adopted by the remaining population (Kelley 1984). Beckett and Corbett (1992) propose that a number of culture groups may have occupied the Jornada area during the last of the Prehistoric period. Those groups are generally identified as the Chinarra, Concho, Jano, Jocome, Manso, Suma, Piro, and Tarahumara.

PROTOHISTORIC AND HISTORIC PERIODS (CA. A.D. 1450 TO PRESENT)

Although evidence is slight and the date has been debated, the entrance of Athapaskan groups into southwestern New Mexico occurred at least by the mid-1400s with the appearance of the Navajo (Gunnerson 1979:162). Apachean groups are first definitely noted in written accounts from the 1620s, but Western Apaches may have occupied this region as much as a century before. These people were seminomadic hunter-gatherers who formed several bands, including those known as the Mogollon, Copper Mine, Mimbres, Warm Spring, and Chiricahua Apaches; these groups have been collectively referred to as the Gila Apache (Williams and McAllister 1979:28-29). These bands occupied the foothills and mountain ranges of southwestern New Mexico and southeastern Arizona. Their presence in this region ended with their removal into reservations in the 1860s by the United States government. Early Apachean archaeological sites documented for southwestern New Mexico are difficult to detect and define, and generally are represented by undated rock art and debitage scatters (Cordell 1984:356-360; Schaafsma 1980:333-341).

The entrance of Euro-Americans into southwestern New Mexico begins with the appearance of Alvar Nuñez Cabeza de Baca, Fray Marcos de Niza, and Francisco Vásquez de Coronado (Jenkins and Schroeder 1974; John 1975). This marked the beginning of the Historic period in the region. These early expeditions had little direct impact on the aboriginal occupants of the region, but succeeding Spanish involvement in the area eventually resulted in drastic changes in the lifeways of the Apaches. The introduction of European diseases, particularly smallpox,

severely reduced the size of the Apache population. Attempts at religious conversion, demands for slave labor, and the introduction of domestic animals (the horse in particular) by the Spanish, all resulted in changes in Apache culture. The Apache raided Spanish settlements to obtain livestock and other material goods. This resulted in retaliatory campaigns by the Spanish, a cycle that continued throughout much of the Spanish Colonial and Mexican periods (John 1975:3-97; Perry 1991:164-173; Williams and McAllister 1979:32-35).

Around 1799, the Spanish opened the Santa Rita Copper Mine and established the first permanent Spanish settlement in the area (Williams and McAllister 1979:34-35). During the first few years of operation, the Santa Rita Copper Mine was closed several times, mainly due to Apache raids. Spanish and Gila Apache leaders agreed to a treaty prior to Mexican independence in 1821, which confined the Apaches to "peace establishments" in return for supplies promised by the Spanish government. However, in 1821, when Mexico gained independence from Spain, the maintenance of these establishments ceased and led to severe food shortages for the Apaches. In response, the Apaches resumed their raiding tactics, and the Mexican government conducted military campaigns to try to stop the raids on their settlements.

Anglo-American fur trappers entered southwestern New Mexico once the Mexican border was opened for trade with the United States. For a time, the trappers' efforts to form treaties with the Apaches were fairly successful, and they could explore and trap the area between the Santa Rita Mine and the Rio Grande without interference from the Apaches. In 1837, however, conditions changed radically. That year, Anglo miner John Johnson led a scalp-hunting expedition to the town of Santa Rita, planning to collect the substantial bounty placed on all Apaches by the Mexican government. The Apaches, led by chiefs that included Cochise, Mangas Coloradas, Victorio, and Geronimo, then waged war against the miners and trappers. Despite military campaigns led by the Mexican military with the purpose of killing all Apaches, Apache raids against the Euro-Americans continued. Although peace was achieved between the two groups in 1842-1843, the occurrence of a smallpox epidemic and providing of meager rations at the Mexican "peace establishments" again led to unrest. Hostilities continued after the United States' victory in the Mexican War of 1848, with the Apaches attempting to retain possession of their lands against the continuing influx of miners, settlers, and military troops.

The presence of the United States military in southwestern New Mexico continued to increase until after the Civil War. Fort Dawson, Fort Webster, Fort McLane, and Fort Bayard are some of the military installations established during this period (Williams and McAllister 1979:40-41). The Apaches eventually were forced to resettle at reservations located at Ojo Caliente and San Carlos. Encroachment by Euro-American settlers on to lands promised to the Apaches, and shortages of rations, occasionally led to violent attacks and raids on soldiers and civilians by the Apaches. In 1886, the final band of renegade Apaches, led by Geronimo, was captured. Approximately 400 other Apaches from the San Carlos Reservation, in addition to several Apache prisoners from the last military campaign were taken by train to Florida and Pennsylvania, and then later to Alabama, and eventually to Oklahoma. Not until 1914 were the Chiricahua Apache released from Fort Sill Oklahoma and given the choice of remaining in Oklahoma and receiving land allotments, or moving to the Mescalero Apache Reservation in southeastern New Mexico (Perry 1991:176-179).

With the end of the Apache threat, Hispanic and Anglo-American settlement of southwestern New Mexico began to increase. Numerous villages and mining camps were established in quick response to finds of mineral wealth. Although most were abandoned, a few of these mining towns and camps managed to thrive despite fluctuations in mineral yields and prices. One of the more successful mines was the Santa Rita Copper Mine, which is currently owned by the Chino Mining Company. This is still a successful mine, largely due to the use of open-pit mining to obtain large amounts of copper from previously inaccessible areas.

The construction of the Southern Pacific Railroad across southern New Mexico, through the towns of Lordsburg and Deming, located north of the project area, occurred during 1880-1881. Although the railroad shipped ore and cattle for the southern New Mexican mining and livestock trade and quickly became an important factor in the economy of the region, the Southern Pacific's major source of income was from interstate shipping (Myrick 1970:59-66; Williams and McAllister 1979:42-43).

The El Paso and Southwestern Railroad began as an extension of the Arizona and Southeastern Railroad, which began building a line eastward from the town of Douglas, Arizona, in 1901. The railroad's name was changed to the El Paso and Southwestern Railroad in 1902. Trains began operating between Bisbee, Arizona, and Deming, New Mexico, by way of

Hermanas in February 1902. Completion of the entire route, which extended from Douglas, Arizona, through Rodeo, Hachita, Hermanas, Columbus, and Anapra, New Mexico, to El Paso, Texas, occurred in November 1902. Operation of trains along this route began in December of that same year (Myrick 1970:92-95; Williams and McAllister 1979:42-43).

In 1924, the El Paso and Southwestern Railroad merged with the Southern Pacific Railroad in response to investment losses suffered due to a sharp drop in the post-World War I price of copper. With this merger, the Southern Pacific gained possession of a number of coal-fired locomotives that had been used by the El Paso and Southwestern. To cut shipping costs, operation of the southern route established by the El Paso and Southwestern ceased on December 20, 1961. The tracks and facilities were left in place until 1963 when the railroad launched a clean-up effort (Myrick 1970:68-70, 92, 103).

Communities were established, increased in size, or relocated as a result of the establishment of a railroad through the area. The town of Rodeo was established after the El Paso and Southwestern Railroad extended its line from Douglas, Arizona, in 1901. This location became a major shipping point for area livestock (Julyan 1996:302; Myrick 1970:96). After Arizona voted to go dry around 1915, Rodeo boomed with as many as 17 saloons opening their doors to thirsty Arizonans. With the eventual lessening of alcohol restrictions in Arizona, though, business in Rodeo dwindled. The now abandoned locality of Pratt was a former siding along the railroad. The origin of the name is not known (Julyan 1996:275). Hermanas, named after the nearby Tres Hermanas Mountains, was founded in 1879 and served to furnish supplies to local miners (Carson 1991:30). Hermanas was the connection for the spur line to Deming that was built shortly after 1903 along the El Paso and Southwestern Railroad (Myrick 1970:93; Carson 1991:31). Hermanas relied on the railroad for financial support, although farming, ranching, and mining also contributed to the economy. It reached its peak population of 150 in 1902, and for a short time had a railroad station, a post office, a school, and various businesses (Carson 1991:30-31). Much of the town's population had left by 1910, however, and it is now abandoned (Julyan 1996:164; Carson 1991:31). Malpais was a small settlement named after the lava flows in the area. The community of Malpais is now abandoned (Julyan 1996:218). The community of Mount Riley, named after the nearby summit of Mount Riley, and Potrillo, named for the Potrillo Mountains, are abandoned (Julyan 1996:235, 274).

Very close to the project area, Columbus and the now-abandoned town of Mimbres are located about halfway along the El Paso and Southwestern Railroad line. (Sumner 1999). No trace of Mimbres remains. The townsite is located 7.2 miles west of Columbus. A 1915 USGS map refers to the town as Mimbres, but a 1950 SP timetable refers to the town as Onyx (mile marker 1242.9).

The town of Columbus today has a population of approximately 1000. The town was originally established as a border station across from Palomas, Chihuahua, Mexico around 1890. The origin of the town's name is uncertain. When the El Paso & Southwestern railroad was constructed in 1902 a new town, also named Columbus, was built alongside the railway about 2 miles to the north and the original townsite was gradually abandoned (Myrick 1970:98). An attempt in 1928 to bring back the southern community under the name of Border City failed. Some maps of the period show the original town as South Columbus. The railroad station house still stands today and is used as a museum for the Columbus Historical Society.

Columbus has the distinction of being the only place in the United States to be invaded by armed foreign troops since the War of 1812. A detachment of the U.S. 13th Calvary Regiment was stationed at Camp Furlong in 1914 The garrison was constructed south of the El Paso and Southwestern Railroad tracks near the center of Columbus to protect the U.S./Mexican border from bandits and marauders. On March 9, 1916, Mexican revolutionary leader Francisco "Pancho" Villa, led 485 men in an attack against Columbus. It is unclear why Villa loosed his men on the camp and the town of Columbus, although frustration with US arms dealers and US policy with Mexico were likely causes. Ten civilians and eight U.S. soldiers were killed. Approximately eighty of Villa's men were killed by the garrison's newly-acquired machine guns and at least six were captured in the attack and later hanged. Villa and the surviving men escaped with supplies, weapons and ammunition seized from the garrison. President Woodrow Wilson responded to the raid by sending 10,000 troops under the leadership of General "Black Jack" Pershing to Mexico to pursue Villa. The punitive expedition was called off after 11 months because it failed to locate Villa. With their return in February 1917, the camp at Columbus was dismantled, although 5,000 men were still stationed there in 1919. By 1923, the number of men had dwindled to 60 (Carson 1991:34-35). This event is commemorated in Columbus by two museums and Pancho Villa State Park (Julyan 1996:91; Carson 1991:34-36).

Field Supervisor Thoras Dye and Peggy Allison and Field Technicians Francisco Britton, Richard Francisco, Noel Pacheco, and Timothy Ruiz Brown completed the field inventory between March 5 and March 17, 2009. The Principal Investigator for the project is Douglas Boggess. The survey was undertaken at the request of Tom Tangen of Amec Geomatrix.

METHODS

Lone Mountain archaeologists surveyed the APE by walking 15-m (50-ft) wide transects. Field conditions at the time of the survey were very good, with excellent visibility, little ground cover, and sunny weather conditions.

The southern portion, eastern portion, and approximately half of the northern portion of PA1 is bounded by a barbed-wire fence. The western area is bounded by a bladed gravel road. The western half of the northern boundary is bounded by State Road 9. Although fencelines are prevalent throughout PA2, the easternmost area, the project area was defined using GPS, a USGS 7.5' quadrangle, with the southern boundary being defined, primarily, by the United States/Mexico border. Site locations were established with the aid of a USGS topographic map, a Garmin GPS unit, and a detailed contour map provided by Amec Geomatrix.

For this survey, sites were defined in accordance with the guidelines established by the State of New Mexico. Sites are defined as "a location where there exists material evidence of the past life and culture of human beings in the state. A significant archaeological site typically is 50 or more years old. Examples of archaeological sites include, without limitation, campsites, pueblos, homesteads, artifact scatters, resource procurement or processing areas, agricultural fields, locales with one or more features in association with other cultural materials, and locales that have the potential for subsurface features or cultural deposits" (New Mexico Historic Preservation Division 2005).

When cultural remains are encountered, a determination is made as to whether they are an isolated occurrence or a site. Isolated occurrences are isolated cultural remains that do not qualify as sites and generally consist of single artifacts or artifact scatters that are of extremely low density, are widely dispersed, or represent a single or unintentional activity. Isolated occurrences are recorded on a Lone Mountain form and their locations are plotted on the appropriate USGS quadrangle.

Sites are recorded using a Laboratory of Anthropology Site Record form. A map is drawn and color film photographs are taken showing the setting of the site and any unique features or artifacts. Artifact forms are used to record samples of flaked stone, ceramics, groundstone, and historic artifacts. Any artifacts with diagnostic properties are illustrated. An aluminum datum tag and spike are placed within the site boundary and noted on the site sketch map. The location of the cultural property is then plotted on the appropriate USGS quadrangle and GPS readings are taken to verify the accuracy of the field plot. When single artifacts or low-density artifact scatters are encountered, they are recorded in the field as an isolated occurrence and their locations are plotted on the USGS quadrangle.

DESCRIPTION AND ANALYSIS OF FINDINGS

One previously recorded site, six new archaeological sites, and 43 isolated occurrences were recorded during the survey and are described below in detail.

PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES

SITE NO.: LA 50343

Site No.: LA 50343
Field No.
Components: Hispanic NM Statehood-WWII (A.D. 1920 to 1945)
Eligibility: Previously determined eligible under Criterion D

Description

LA 50343, a historic trash dump, is located at the junction of NM Highway 9 and County Road 005. The site was first recorded by the New Mexico State University in 1981 (Naylor 1981), the University of Texas at Austin in 1984 (Mallouf 1984), NMDOT in 1987 (Main and Haecker 1987), and Lone Mountain in 2000 (Snell 2000). The site was tested by Human Systems Research in 2002 (Kirkpatrick 2002), and Zia Engineering and Environmental Consultants performed a survey in 2006 (NMCRIS 102597). Vegeta-

tion consists of creosote, broom snakeweed, and various forbs and grasses. Ground visibility is between 76 percent and 99 percent (Figure 2.1).

Assemblage Information

Previous researchers found hundreds of historic artifacts at the site including a cold cream jar, a small trunk handle, meat tins and other rusted cans, condensed milk cans, rubber soled shoes, a tractor tire, and various colored glass shards. Screwtop bottle fragments enabled Mallouf (1984) to assign a 1920s date to the site. The assemblage was found to be in much the same condition as previously recorded, with the addition of one multidirectional purple rhyolite core.

Site Structure and Features

No features were observed at the site. A trowel test performed by Lone Mountain in 2000 revealed cultural materials to a depth of 20 cm.

Disturbances and Potential Impacts

The site is at the intersection of an active roadway (NM Highway 9) and Luna County Road C007 near fences and a border security camera. A buried fiber optic line has been placed between the concentration and NM Highway 9. The site remains between 76 percent and 99 percent intact.

Conclusions and Recommendations

A NM Statehood-WWII temporal affiliation (A.D. 1920 through 1945) has been assigned to this site based on documented artifacts. Previous recorders assigned a Hispanic cultural affiliation to the site. Previous researchers also determined that the site is a roadside dump with some buried artifacts. The site was therefore recommended eligible for nomination to the NRHP under Criterion D. NMHPD concurred. Some form of limited testing took place in connection with the installation of a fiber optic line but it is uncertain from available documents whether additional work will be necessary.

NEW ARCHAEOLOGICAL SITES

SITE NO.: LA 162362

Site No.: LA 162362
Field No. 1210-001
Components: NM Statehood-WWII to recent (A.D. 1935 to 1980s)
Eligibility: Ineligible

Description

LA 162362 is a series of agricultural ditches and associated features and materials. The recorded ditches are located on a flat plain half a mile to a mile north of the United States and Mexico border. It should be noted that the ditches extend outside the survey area onto private land that could not be accessed at the time of recording. Vegetation consists of various grasses, narrow leaf yucca, and prickly pear cactus. Ground visibility is between 76 percent and 99 percent (Figure 2.2).

Assemblage Information

Hundreds of artifacts were observed at this site, all associated with the ditch system. Materials observed include cement, metal pipe, and railroad tailing. Hundreds of segments of these materials have been used in the construction of the ditch system and related features.

Site Structure and Features

Eight features, including a cement block with piping (F1) and seven ditch segments (F2 through F8), were observed at this site. The features all appear to be part of an irrigation system.

Feature 1, located almost immediately south of State Road 9 and the property fence, is a cement block with a metal pipe, possibly the remains of a drill hole and the foundation for a pump. The structure measures 28 ¼ in from north to south by 30 in from east to west by 11 in tall. The block is composed of cement mixed with local gravels including basalt and rhyolite. The metal pipe, which is flush with the surface of the cement, is 10 ½ in wide. Inscribed in the cement is "MAR 30-35," written in letters approximately 3 in to 3 ½ in tall.

Features 2 through 8 are all irrigation ditches located south of State Highway 9. With the exception of Feature 8, which is made entirely of dirt, the ditches are all lined with cement segments. The pre-poured cement ditches are in segments that are 8 ft, 8 in long and 4 ft, 2 in wide. The outer flanges are 4½ in wide and the cement is 2½ in thick, only measurable

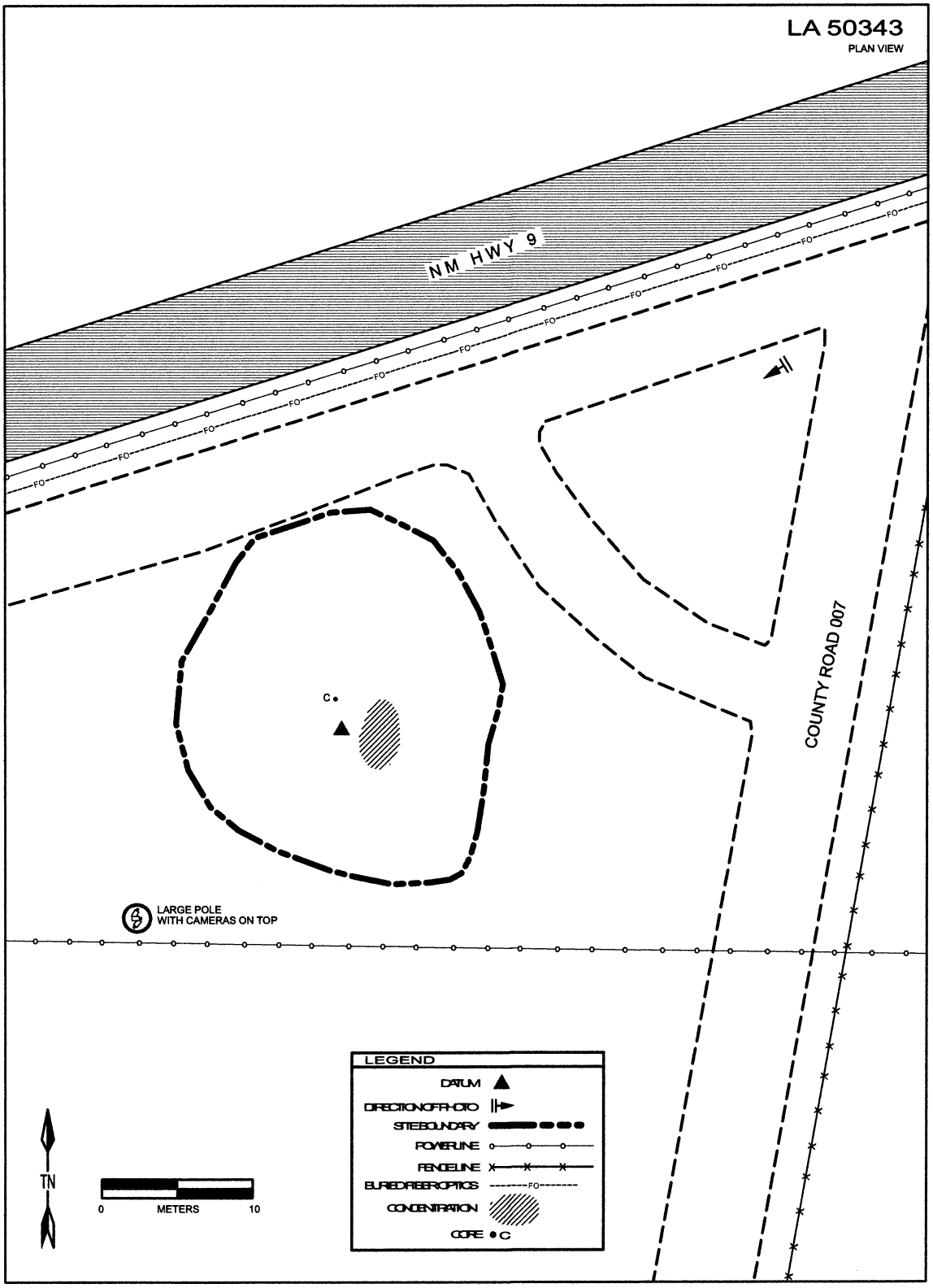

Figure 2.1: LA 50343 Plan View.

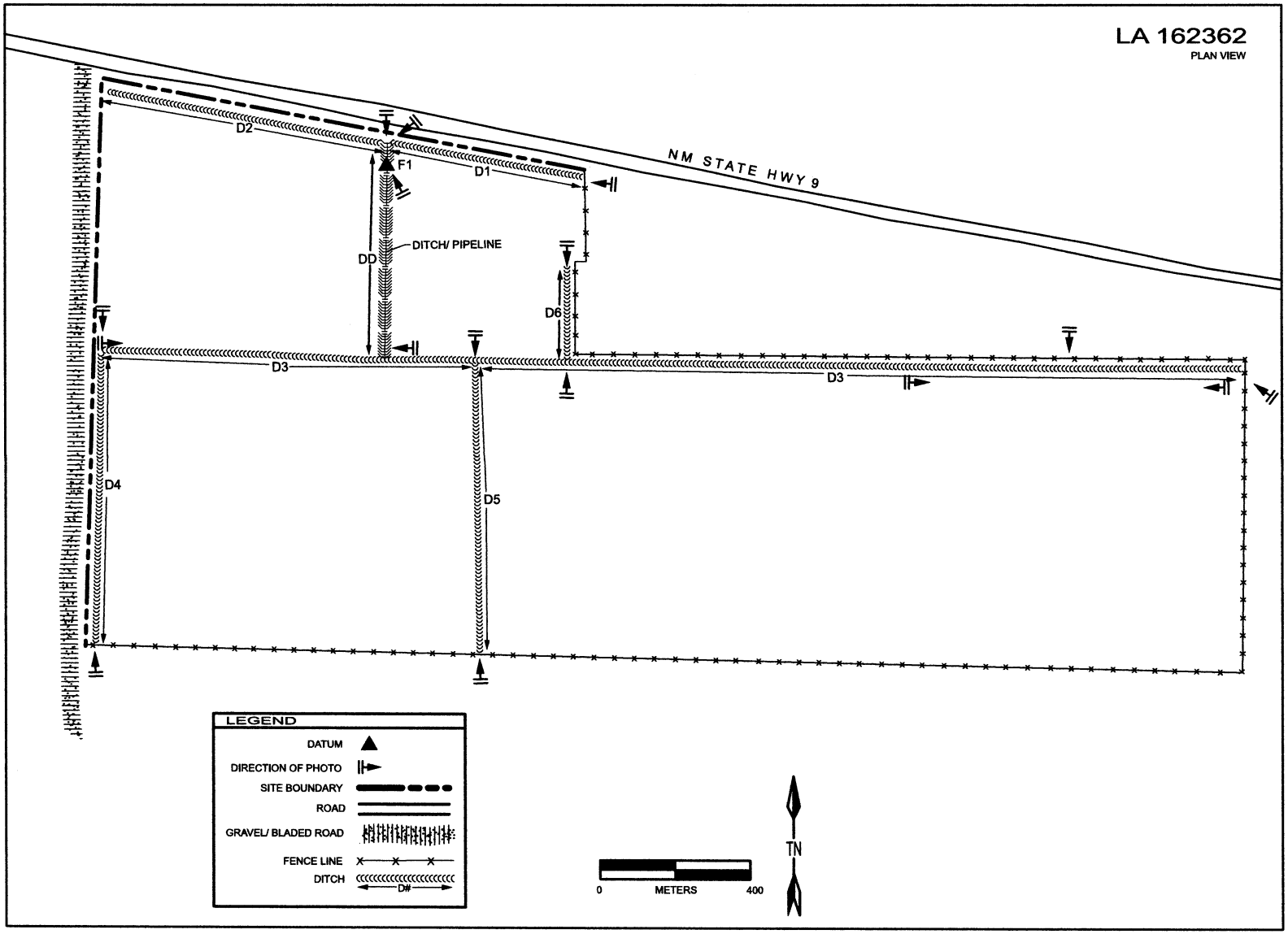

Figure 2.2: LA 162362 Plan View.

at the flanges. The sides and the base may be thicker. Although filled with sediment, the ditches are estimated to be between 2 ft to 2½ ft deep. There are two-track roads or bladed gravel roads or both on each side of all the ditches. Locals have been scavenging materials from the old railroad berm located north of State Highway 9, outside of the project area, for use on the gravel road. This slag and volcanic basalt is observed in many areas along the ditches. Local informants stated that the railroad was abandoned in the early 1950's, either 1951 or 1952, at the same time the cement ditches were installed. The ditches were installed by a Mr. Teague and in use until the late 1970s to early 1980s, through a succession of up to two landowners.

Feature 2 (Ditch 1) is approximately 1,804 ft (550 m) long and runs west-northwest to east-southeast. The ditch extends on to private property at its easternmost end.

Feature 3 (Ditch 2) is approximately 2,625 ft (800 m) long and runs west-northwest to east-southeast. The ditch extends on to private property at its westernmost end for approximately 30 ft (7 m) and has subsequently been demolished for the construction of a north to south trending bladed gravel road.

Feature 4 (Ditch 3) is approximately 10, 538 ft or 2 mi (3,212 m) long and runs east to west. No extensions were observed on either end. The ditch has been breeched in a few places by recent flooding. This ditch connects with Ditches 4, 5, 6, and 7. A few recent pumps and pump remains were observed along this ditch.

Feature 5 (Ditch 4) is approximately 2,543 ft (775 m) long and runs north to south. The north end connects to Ditch 3 and no extension to the south was observed.

Feature 6 (Ditch 5) is approximately 2,543 ft (775 m) long and runs north to south. The north end connects to Ditch 3 and no extension to the south was observed.

Feature 7 (Ditch 6) is approximately 820 ft (250 m) long and runs north to south. The north edge ends at what appears to be a pump location and an area in which the landowner has stacked pipe pulled from several pump locations. The south end connects to Ditch 3.

Feature 8 (Ditch 7) is approximately 1,804 ft (550 m) long and runs north to south. The south end connects to Ditch 3 and the north end connects to an area close to the eastern end of Ditch 2. Feature 1 is located near the northern end of this ditch. This is the only ditch not lined with concrete and is only observable as a shallow linear depression approximately 2.46 ft (0.75 m) wide with dense vegetation. An informal conversation with a local rancher suggests that a buried pipe was once located here and that is was removed by the last landowner so that it could be sold. The trench was then backfilled. This may explain why the western end of Ditch 1 and the eastern end of Ditch 2 do not connect, although it should be noted that they are somewhat offset; Ditch 2 ends approximately 65 ft (20 m) south of Ditch 1.

Although much of the topsoil has eroded away, the site surface is composed of alluvial sediments from recent flooding to a depth of roughly 1 m. Because the ditches were placed in machine-excavated trenches, sediments are not likely to contain further cultural deposits.

Disturbances and Potential Impacts

Multiple vehicle tracks, fences, and two-track roads are located in and around the site. The United States Border Patrol utilizes the area frequently. The entire area has been plowed extensively for many years and a previous landowner has dismantled portions of the features. Water action and wind action were also noted. The ditches remain 76 percent to 99 percent intact.

Conclusions and Recommendations

The site appears to be a mid twentieth century irrigation system. Although local informants date the concrete lined ditches to the early 1950s, an inscription on Feature 1 may indicate a 1935 construction date for at least that portion of the site. The site therefore has a NM Statehood-WWII to Recent (A.D. 1935 to 1985) affiliation. The site does not appear to be associated with significant historical events or people, does not retain any characteristic workmanship, and is not likely to yield any additional significant information concerning the mid twentieth century development of the area and is therefore recommended ineligible for nomination to the NRHP under any of the four criteria.

SITE NO.: LA 162363

Site No.: LA 162363
Field No. 1210-002
Components: NM Statehood-WWII to Recent (A.D. 1914 to 2009)
Eligibility: Undetermined

Description

LA 162363 is a historic artifact scatter with a single rock feature of unknown function. The site is located on a flat plain, with a slope of less than 2 degrees to the south-southeast. Vegetation consists of creosote, mesquite, narrow leaf yucca, and various forbs and grasses. Ground visibility is between 76 percent and 99 percent (Figure 2.3).

Assemblage Information

Hundreds of artifacts were observed at this site, all historic or recent, located mostly in a single concentration (Concentration 1). One hundred percent of the observed artifacts were recorded. Materials observed include glass, metal, and ceramic. Glass fragments within Concentration 1 are clear (n=30), aqua (n=8), manganese decolorized (amethyst [n=18]), and amber (n=13). Bottles and jars include one clear medicine bottle neck, the base of a manganese decolorized medicine bottle, two clear beverage bottle necks, the base of a clear beverage bottle, and the neck of a brown medicine bottle. Metal cans include 37 sanitary type cans, all smashed and rusted, with stamped ends and crimped side seams, all knife and key-striped opened; five tobacco tins, all smashed and rusted; 24 knife-opened condensed milk solder dot beverage cans, some crushed and some 2½ inches in diameter and 2½ inches in height, with stamped end seams and crimped side seams; and two hole-in-top cylindrical cans, smashed and heavily rusted. Historic ceramics in the concentration include 22 white-glazed semi-porcelain sherds from a dish or dinner plate; one white-glazed semi-porcelain dinner plate with a crackled glaze, and the base of a white-glazed semi-porcelain dinner plate. Makers' marks on the ceramics include one from the West End Pottery Company of East Liverpool, Ohio, dating from A.D. 1893 to 1910 (Kovel and Kovel 1986:223) and one from the Crescent Pottery Company of Alliance, Ohio, dating between A.D. 1920 and 1926. Two round-headed metal nails and a metal spring-loaded latch, 2¼ in long, ½ in wide, and ¼ in thick, are also present.

The general scatter of artifacts includes 20 fragments of aqua glass and 10 fragments of manganese decolorized glass. Metal cans include 20 three-part cylindrical sanitary types, all smashed and rusted, with crimped ends and side seams, and openings from a knife and a can opener; one cylindrical internal friction lid, smashed and rusted, with crimped end and side seams; one smashed paint can with crimped end seams and a rolled side seam; 20 hole-in-cap three-part cylindrical cans, smashed and rusted, with crimped end and side seams, mostly 3 in by 4 3/8 in and opened with a can opener; one wide and short can with a crimped seam that has a ½ in tab protruding from it, crimped end seams, and opened with a can opener; and one square tin storage container, 2½ in long, 2 in wide, and 2 ft tall. Historic (or recent) ceramics include 11 white-glazed semi-porcelain sherds that appear to be from a pitcher or a mug, but have no distinguishing marks; and 30 white-glazed semi-porcelain sherds that appear to be from a bowl, also with no distinguishing marks.

Site Structure and Features

A single feature was identified in the field as a small rhyolite and basalt cobble scatter that appear to be oriented in a line. Thirteen of the rhyolite cobbles are less than or equal to 5 in long, while 23 of the rhyolite cobbles are 5 in to 11 in long. Only one basalt cobble was noted. Approximately 30 small glass fragments, including manganese decolorized (amethyst), aqua, and clear are lying in a concentration approximately 2 m south of an eye bolt, which is driven into the ground approximately 2.5 m south of the feature. One tobacco tin and roughly five cans lie approximately 10 m southwest of the feature. The feature is highly disturbed and its function is unclear. Overall, the feature is 4 m in length and 2 m in width.

The site is heavily eroded and may in fact be the remains of a drill hole, based on the presence of the eye hole in Feature 1. Concentration 1 is the only area of the site that may have subsurface potential, but the nature of the site, a historic trash dump, would suggest that buried deposits are unlikely.

Disturbances and Potential Impacts

Wind action has scattered the metal artifacts. Sheetwash and powerline construction may have disturbed the site slightly. Bioturbation from cattle and rodent activity is present as well. The site remains 26 percent to 50 percent intact.

Conclusions and Recommendations

The site is located on a 1919 homestead patent issued to Charles E. Bourgeois (BLM-GLO records), suggesting a documented use of the property as

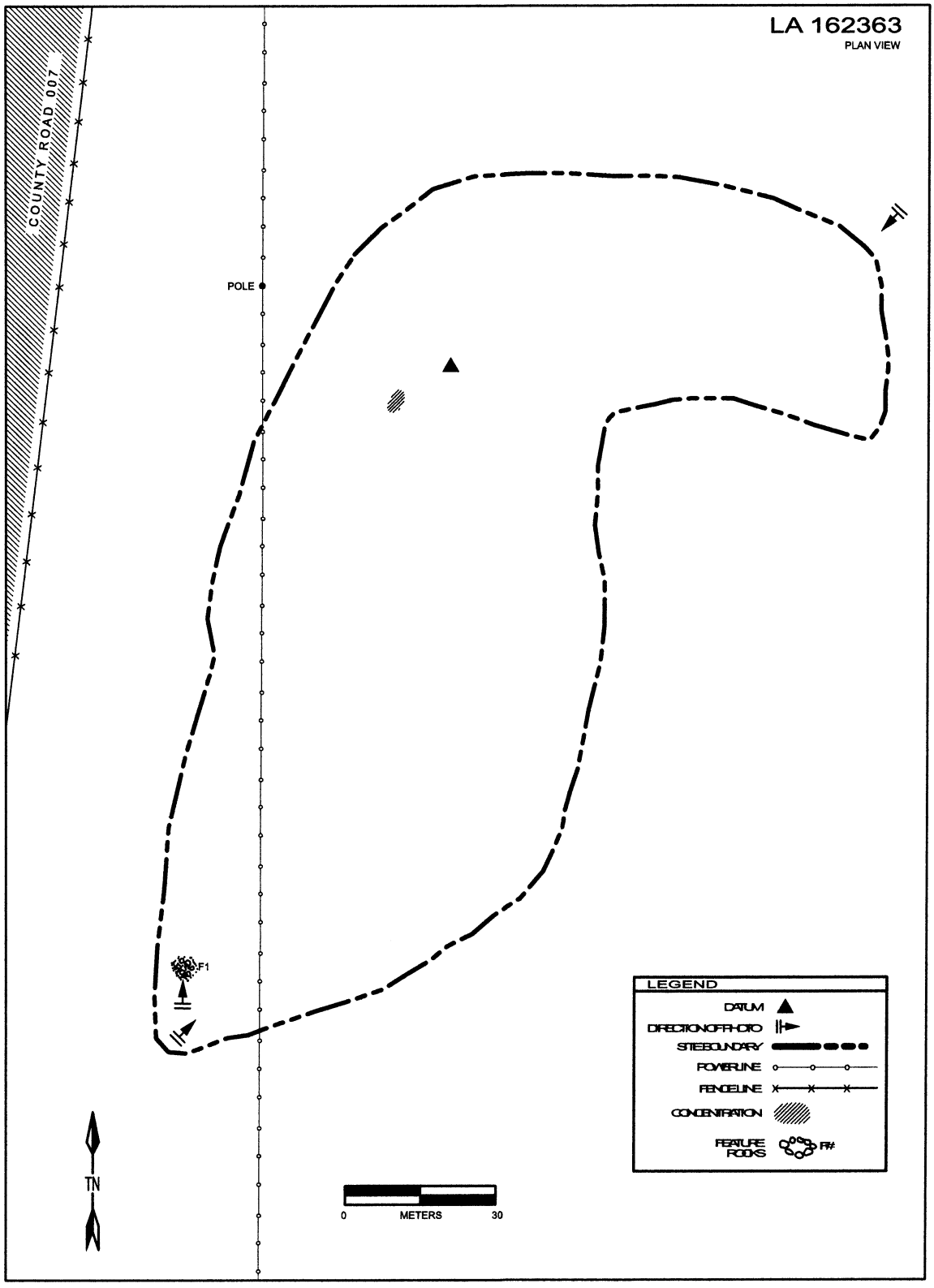

Figure 2.3: LA 162363 Plan View.

early as 1914. The area appears to have since accumulated recent refuse and so has been assigned a Euroamerican NM Statehood-WWII to Recent (A.D. 1914 to 2009) affiliation. It is unclear whether this site is a refuse dump or the remains of the Bourgeois homestead. More testing and archival research would serve to answer this question and establish the eligibility of this site. For this reason eligibility for nomination to the NRHP is undetermined.

SITE NO.: LA 162364

Site No.: LA 162364
Field No. 1210-005
Components: Euroamerican US Territorial to Recent (A.D. 1911 to 2009)
Eligibility: Eligible, D; Ineligible, C; Unevaluated A and B.

Description

LA 162634 is a historic artifact scatter with five features. The site is located on a flat area with a very gentle slope to the east, less than half a mile from the Mexican border. Vegetation consists of creosote, mesquite, and various forbs and grasses. Ground visibility is between 26 percent and 50 percent (Figure 2.4).

Assemblage Information

Hundreds of historic artifacts were observed on this site. A 90 percent judgmental sample was recorded by Lone Mountain archaeologists. The analyzed assemblage consists of two cans (an exterior friction and a tobacco); a homemade slide case consisting of the base of one can and the top of another conjoined with duct tape; 136 glass shards (22 manganese decolorized [amethyst], one aqua, 12 brown, 21 clear, 75 light green, one blue, one white, one red translucent, one yellow translucent); 35 sherds (one handpainted porcelain, 12 stoneware, 16 white-glazed stoneware, and six white-glazed semi-porcelain), seven nails, one iron washer, one iron fragment, one brass shotgun cartridge (pre 1958), three tin fragments, one iron hoe fragment, one brick tile, one brick fragment, one railroad spike, three 40-caliber R.P. S&W cartridges (post 1960), and one iron collar.

Site Structure and Features

Five features are present at this site including a house (F1), a depression (F2), a coop (F3), a windmill (F4), and a corral (F5). All appear to be inter-related and associated with ranching. Two small concentrations of rock were noted near Features 1 and 3. These may be discards associated with F1. Several pieces of broken glass are intermingled with the rocks.

Feature 1 is a 48-ft N/S by 42-ft E/W rectangular structure composed of unshaped basalt rocks. The structure may be a house though there are no visible room dividers. This feature consists of four partial walls. The basalt rocks are set in earthen berms, which appear to have been placed over the boulders during construction. These berms slant away from the walls to a distance of 6 ft to 8 ft. There is no visible mortar or bonding agent associated with the boulders. There are no access points to the interior or any of the walls. Fragments of red fire-brick are visible on the NW wall. Peculiarly, the northern, western, and eastern corners of the structure each have a large tree stump with massive root systems on the surface of the earthen berm. These trees appear to have been planted at the structure's corners during construction. Only a foundation remains with no evidence of wall materials, roofing, doors, wooden beams, or other construction materials, although two fragments of window glass are present in the northeastern wall. Erosion and weathering have caused the collapse of a portion of the northwestern wall. The feature remains approximately 75 percent intact.

Feature 2 is an 11-ft NE/SW by 9-ft NW/SE by up to 6-in deep roughly oval-shaped depression located approximately 21 ft southwest of F1. The feature appears to have been hand-dug as back dirt rings the surface of the feature. A corrugated metal fragment is protruding to 6 in from the ground at the north/northwest corner. Two milled pine beams measuring 8 in by 5 in by 6 ft, 4 in tall are set upright in the ground immediately west of the feature. One fragment of amethyst glass was observed at the base of one of these beams, approximately 5 ft apart. No other construction material is present near the feature. The feature may represent the remains of an outhouse. Erosion and weathering have seriously damaged this structure, leaving it less than 10 percent intact.

Feature 3 is an 18-in N/S by 12-in E/W by a maximum of 3-ft deep structure composed of cement over chicken wire walls and a concrete floor. This feature is approximately 50 ft northwest of F1. The walls have collapsed inward. Several fragments of milled lumber, possibly roofing supports, are scattered in the interior. Carbon stains on the cement walls and wood suggest the structure was destroyed by fire. Several 3-in wire nails protrude from the northern section of wall. No additional artifacts are present in

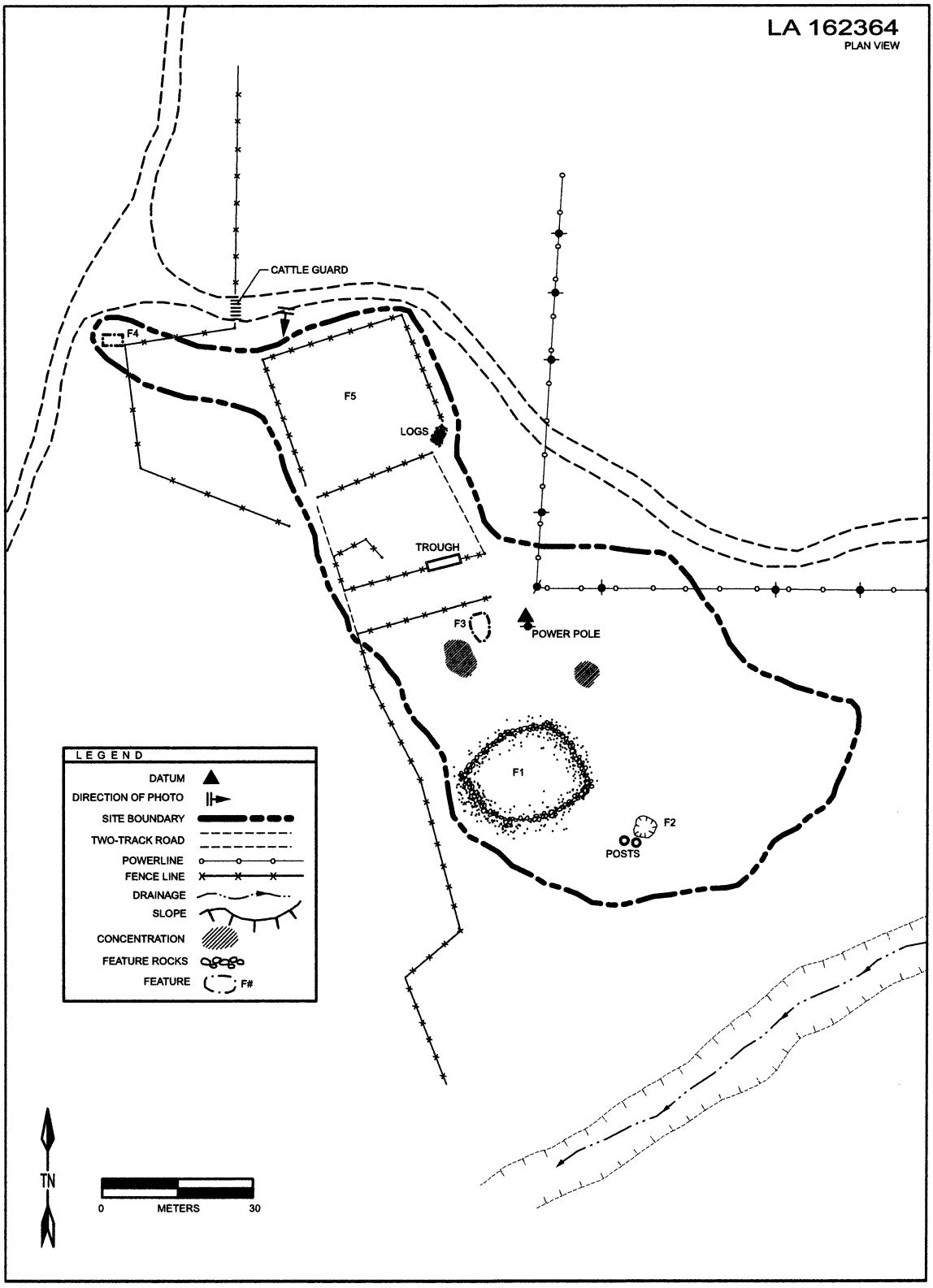

Figure 2.4: LA 162364 Plan View.

the interior. Glass and metal fragments are scattered outside of the structure. The feature is approximately 25 percent intact.

Feature 4 is a 7.5-ft square by 50-ft tall non-functioning galvanized steel and wood plank windmill located approximately 200 ft northwest of F3. A built-in vertical access ladder, located on the north face of the structure, terminates approximately 2 ft below a wooden plank platform. A faded rectangular steel sign reading "50 MILL" is affixed to the access ladder approximately 6 ft from the ground surface. Barbed wire encircles the steel-framed base of the windmill to a height of 5.5 ft. Only a 12-ft section of the original metal piping remains on the wellhead. The uppermost portion of this windmill is still intact. The wind pallet extending from the blade assembly bears a legend reading "Aeromotor Chicago." The feature is slightly weathered, but remains 80 percent intact.

Feature 5 is a corral. Although is appears to be recent, Lone Mountain archaeologists analyzed this feature as it is most likely related to Features 1 through 4. Construction materials include wood posts, milled lumber, round-head nails, barbed wire, sheep fencing, and chicken wire. Several gates and a smaller pen are located nearby.

Several bladed roads and a powerline are located around the site. A deep-cut drainage separates this site from LA 162365. Alluvial soils are present to a depth of at least 100 cm, as observed in road and arroyo cuts and rodent burrows. Buried deposits are unlikely aside from the depression feature, which may be an outhouse.

Disturbances and Potential Impacts

This site has been damaged by wind and water erosion, grazing, rodent activity, and construction. The site remains between 51 percent and 75 percent intact.

Conclusions and Recommendations

LA 162364 is located on lands patented in 1916 by Clifford L. Moody (BLM-GLO records). Given that the patent was issued as a homestead entry, it is probable that the site was in use as early as 1911. The site therefore has a Euroamerican US Territorial to Recent (A.D. 1911 to 2009) cultural and temporal affiliation. The site appears to be a homestead site and may yet yield significant data concerning the development of the area. For this reason the site is recommended eligible for nomination to the NRHP under Criterion D, does not have sufficient integrity to be eligible under Criterion C and is unevaluated under Criteria A and B.

SITE NO.: LA 162365

Site No.: LA 162365
Field No. 1210-006
Components: Euroamerican US Territorial to Recent (A.D. 1911 to 2009)
Eligibility: Eligible, D; Ineligible, C; Unevaluated A and B.

Description

LA 162365, located southeast of a large drainage and on the top and slope of a low, northwest-trending slope, is a historic artifact scatter with a stock-tank depression and remnants of a windmill. This site is likely associated with LA 162364, but is separated by the drainage. Vegetation consists of creosote, mesquite, and various forbs and grasses. Ground visibility is between 51 percent and 75 percent (Figure 2.5).

Assemblage Information

Hundreds of artifacts are present at the site. A 50 percent to 60 percent judgmental sample was recorded by Lone Mountain archaeologists. The assemblage consists of three sherds (one stoneware, one hard paste porcelain); two sheetmetal fragments; 47 cans (34 hole-in-cap, six sanitary, two score-strip, two exterior friction, one lard pail, two unidentifiable cans); and 168 glass shards, some with makers' marks (15 manganese decolorized [amethyst], nine aqua, and 144 green). The identifiable maker's mark present is an Adolphus Busch mark dating between 1904 and 1907 (Toulouse 1971).

Pieces of a windmill are scattered within the stock-tank depression, but there is no base or pipe to suggest that this was original windmill's location. A pile of vesicular basalt is also located within the tank, but this appears to have been recently stacked and is not associated with the site.

Site Structure and Features

No features were observed, though a slight depression from a stock tank that has since been removed is present at the northeast corner of the site.

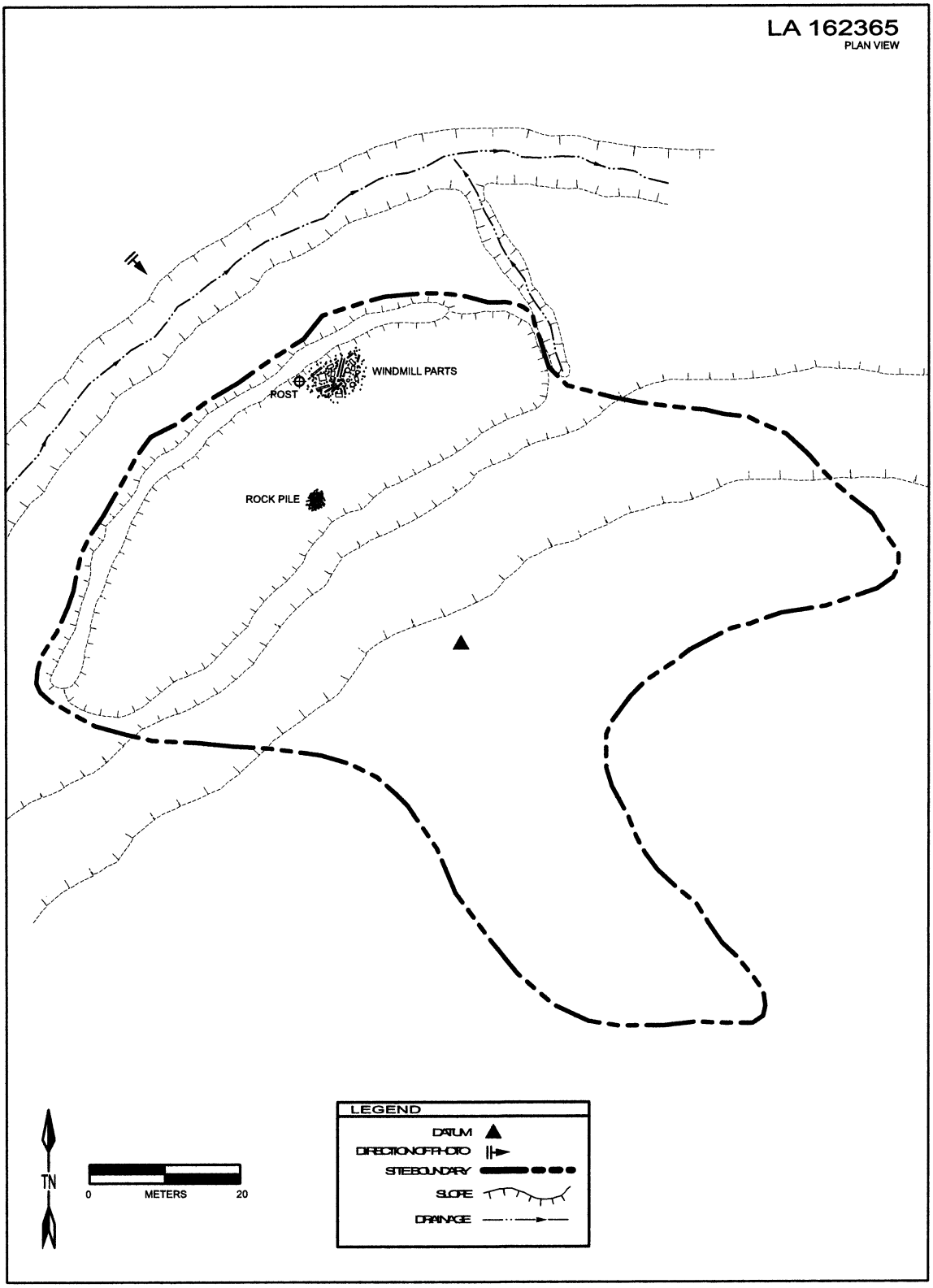

Figure 2.5: LA 162365 Plan View.

Based on examinations of arroyo cuts, Lone Mountain researchers have ascertained that alluvial and colluvial sediments are present to a depth of at least 110 cm. Buried deposits are unlikely, given the nature of the site.

Disturbances and Potential Impacts

This site has been damaged by wind and water erosion, grazing, rodent activity, and construction. The site remains between 51 percent and 75 percent intact.

Conclusions and Recommendations

LA 162365 also falls on the 1916 Clifford L. Moody homestead patent (BLM-GLO records). The Adolphus-Busch bottle may be a recycled item that survived its manufacture by several years or may indicate an even earlier habitation of the Moody patent than patent law suggests. At the least the site shares the Euroamerican US Territorial to Recent (A.D. 1911 to 2009) cultural and temporal affiliation evident at LA 162364. The site may contribute to our understanding of the Moody ranching operation, and is therefore recommended eligible for nomination to the NRHP under Criterion D, does not have sufficient integrity to be eligible under Criterion C and is unevaluated under Criteria A and B.

SITE NO.: LA 162366

Site No.: LA 162366
Field No. 1210-007
Components: NM Statehood-WWII to Recent (A.D. 1939 to 1951)
Eligibility: Ineligible

Description

LA 162366 is located on a flat area approximately one quarter mile north of the United States/Mexico border. The site consists of a historic artifact scatter and two historic artifact concentrations. Vegetation consists of creosote and various forbs and grasses. Ground visibility is between 76 percent and 99 percent (Figure 2.6).

Assemblage Information

Hundreds of historic artifacts are present at this site, some scattered across the surface and others clustered into two concentrations (C1 and C2). All observed artifacts were recorded by Lone Mountain.

The general scatter consists of 37 cans (15 sanitary, 16 hole-in-top, three score-strip, one three-hinge tobacco, two unidentified); three bottles, some with makers' marks, (one brown 1-quart with screw-cap, one clear, one gray/black opaque); three fragments of sheet metal, and one horse-shoe. One clear bottle base had a 1929, 1939, or 1949 Owens-Illinois mark (Toulouse 1971).

Concentration 1 is located at the northwestern edge of the site and consists of seven bottle fragments, some with makers' marks, (one amber Absorbine medicine bottle, three amethyst fragments, one clear 4/5 quart liquor bottle with a cork top, one clear one-quart liquor bottle with a cork top, one 2-oz Duraglass medicine jar dated to A.D. 1940 and later); 23 cans (11 hole-in-top, seven vent-hole, two sanitary, two score key, one wire-hinge folded tobacco); one enamel coffee pot; one enamel pan; one small steel cauldron; and two broken horse-shoes. Identifiable maker's marks on the bottles in Concentration 1 are Owens-Illinois dating to 1937 or 1947, 1933, 1943 or 1953, and 1941, or 1951, and an Armstrong Cork Company bottle dating from 1938 to 1969.

Concentration 2 is also located at the northwestern edge of the site, south of C1, and consists of three bottle fragments, some with makers' marks (one clear possible perfume bottle, one clear jar, one green coke bottle); 35 cans (six hole-in-top, 16 vent-hole, seven sanitary, three score-strip, two shaker, one folded Prince Albert tobacco); and one crushed caulking gun. The jar has a Duraglass mark and an Owens-Illinois maker's mark indicating manufacture in 1949.

Site Structure and Features

No features were observed at the site. There may be an old roadbed just east of Concentration 1, but it is only visible in patches and may be simply a result of erosion or bioturbation.

Based on examinations of arroyo cuts and rodent burrows, Lone Mountain researchers have ascertained that alluvial sediments are present on the site surface to a depth of 30 cm. Given the character of the site, there is a low potential for subsurface cultural deposits.

Disturbances and Potential Impacts

Sheetwash has been the primary agent of damage to the site. Bioturbation from cattle and rodents, wind action, and some gullying have also contributed to surface damage. The site remains between 76 percent and 99 percent intact.

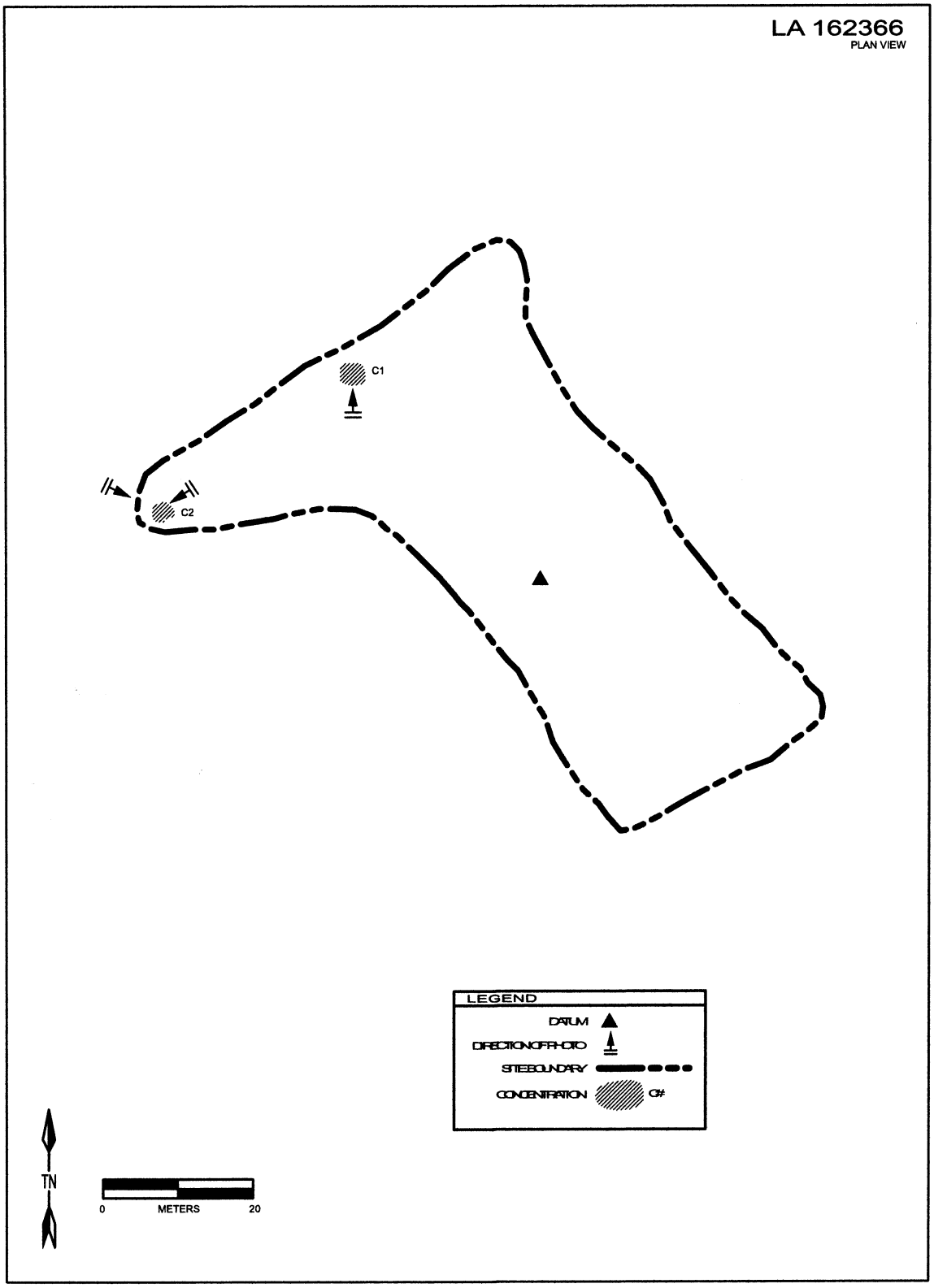

Figure 2.6: LA 162366 Plan View.

Conclusions and Recommendations

LA 162366 falls on the 1916 Clifford Moody patent (BLM-GLO records), but appears to consist of several dumping episodes that took place between 1939 and 1951. The site therefore has a NM Statehood-WWII to Recent (A.D. 1939 to 1951) component. It is uncertain whether this material is associated with LA 162364 and LA 162365, the two sites that appear to date from the early use of the patent. This material of composed of the remains of several dumping episodes, most of which appear to consist of ranching debris. The site is recommended ineligible under any of the four criteria.

SITE NO.: LA 162367

Site No.: LA 162367
Field No. 1210-008
Components: NM Statehood-WWII (A.D. 1920 to 1945)
Eligibility: Ineligible

Description

LA 162367, a historic artifact scatter and concentration, is located on a flat area immediately north of the United States/Mexico border. Vegetation consists of creosote and various forbs and grasses. Ground visibility is between 76 percent and 99 percent (Figure 2.7).

Assemblage Information

Artifacts in the general scatter consist of 13 cans (11 sanitary, two venthole); one clear jar base; and 24 glass shards, some with makers' marks (21 clear bottle fragments, three brown bottle fragments). The identifiable maker's mark belongs to the Hazel Atlas Company and dates from A.D. 1920 to 1964 (Toulouse 1971).

Artifacts in Concentration 1 include 21 white-glazed semi-porcelain sherds from a broken dinner plate; and 75 cans (three hole-in-top, 64 sanitary, six score-strip, two tobacco). The cans are crushed and heavily rusted with both knife and score-key openings.

Site Structure and Features

The United States/Mexico border fenceline and a two-track road are located immediately south of the site. Based on examinations of road cuts, Lone Mountain researchers have ascertained that alluvial sediments are present on the site surface to a depth of 25 cm. There is a low potential for subsurface cultural deposits.

Disturbances and Potential Impacts

Sheetwash has been the primary agent of damage to the site. Bioturbation from cattle and rodents have caused minor damage to the site. Wind erosion has been slight. The site remains between 76 percent and 99 percent intact.

Conclusions and Recommendations

The site is located on the 1916 Clifford Moody homestead patent (BLM-GLO records). It is uncertain if these materials are associated with the homestead. The site is likely a single episode dump that has become scattered and dates to the NM Statehood-WWII period between A.D. 1920 and 1945. The site is unlikely to yield any additional significant data and is recommended ineligible for nomination to the NRHP under any of the four criteria.

ISOLATED OCCURRENCES

Forty-three isolated occurrences were recorded within the boundary of the APE. The locations of these cultural manifestations are plotted and listed in Appendix A, and details of each are listed in Table 2.1.

SUMMARY

Seven sites and 43 isolated occurrences were encountered during this survey. Six sites are newly recorded and one (LA 50343) previously recorded (Table 2.2). None of the sites contain prehistoric elements. All of the sites have been assigned Historic through Recent temporal affiliations. Five of the sites are related to early 20th century homesteading. LA 162363 is located on a 1919 homestead patent issued to Charles E. Bourgeois, while LA 162364, LA 162365, LA 162366, and LA 162367 are located on a parcel issued to Clifford Moody in 1916 (BLM-GLO records).

EFFECT DETERMINATION AND RECOMMENDATIONS

The 43 recorded isolated occurrences have been adequately recorded consistent with currently accepted standards and are not likely to yield information beyond what has already been documented, and no additional investigations are recommended for them.

Two of the newly recorded sites have been recommended eligible for nomination to the NRHP for their possible contribution toward understanding of ranching and homesteading practices in early twentieth century New Mexico. The previously-recorded

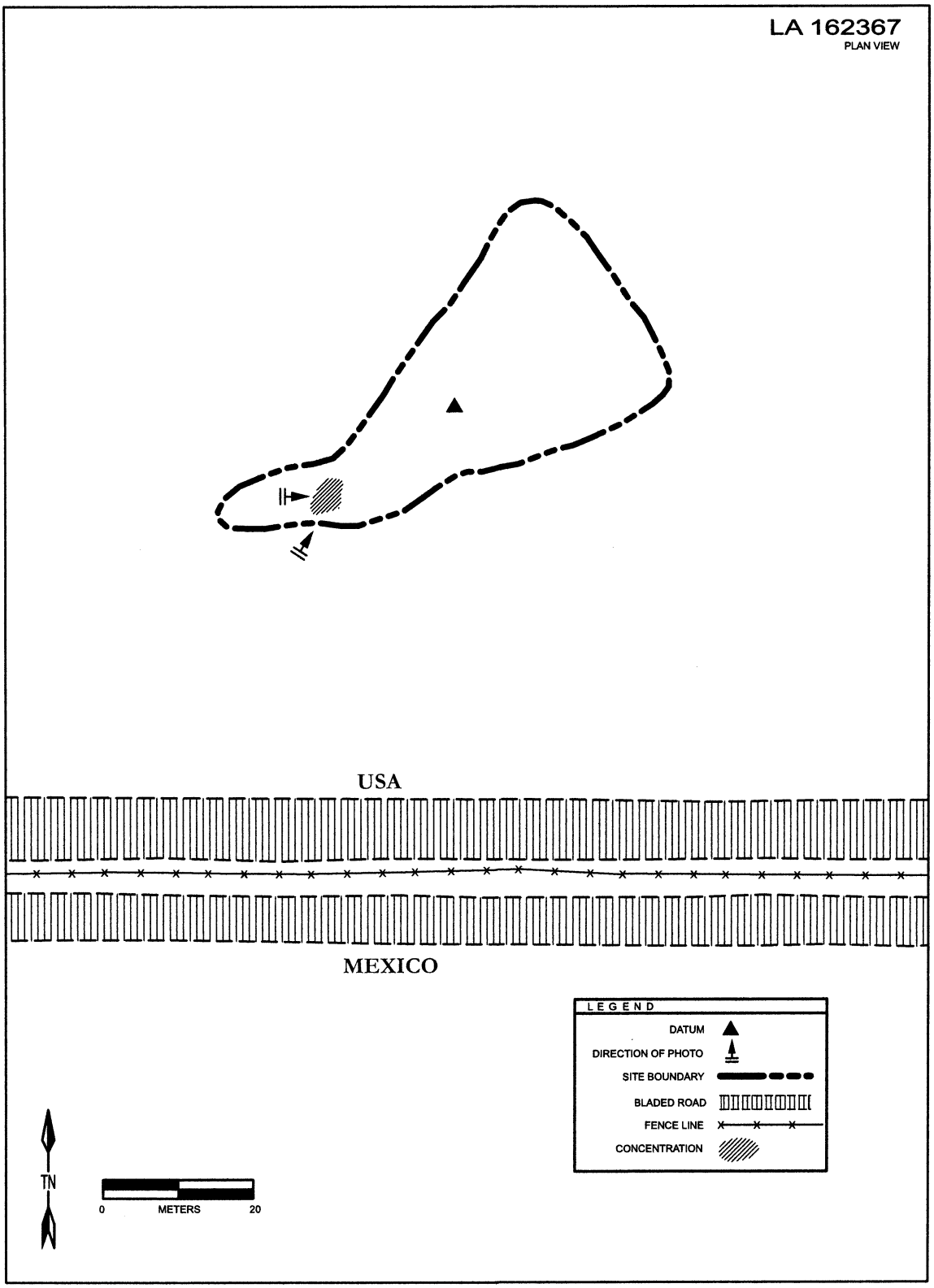

Figure 2.7: LA 162367 Plan View.

site has been determined eligible by SHPO for inclusion on the NRHP. Of the remaining sites, three are ineligible and one is undetermined (see Table 2.2). All of the sites fall, at least partially, within the areas that have been identified as impact areas. There is a high potential that the sites will be destroyed by the proposed action. Protection and preservation may not be an option in most cases. If the sites cannot be avoided, testing and data recovery plans should be developed and implemented in consultation with the New Mexico State Historic Preservation Division. Furthermore, if buried cultural deposits are encountered during ground disturbing activities, work should cease immediately and the New Mexico State Historic Preservation Division should be notified, and an assessment should be made by a qualified archaeologist.

Table 2.1: Isolated Occurrences.

IO No.	Description
1	One pink rhyolite basin metate fragment, moderately ground on two surfaces, no reuse, 16 cm.
2	One complete gray chert secondary flake, 10 percent cortex, 40 mm x 31 mm x 9 mm.
3	One complete red chert secondary flake, 30 percent cortex, 36 mm x 40 mm x 8 mm.
4	Four black basalt basin metate fragments, moderately ground on two surfaces, all from a single vessel, with some damage from plow, 5 cm, 12 cm, 10 cm, and 15 cm.
5	One pink rhyolite basin metate fragment, with heavy use on two surfaces, no reuse, 15 cm.
6	One complete black obsidian biface (possible preform), no retouch, all edges worked, 31 mm x 9 mm x 5 mm.
7	Eight fragments of whiteware ceramic with a floral glaze, all from a single tea or coffee cup, 1/8" to 1/4" thick. The Maker's mark on base is could not be identified, but reads "HECHO EN MEX..., MCA., A...ORA, R...RDO AMANO."
8	Three fragments of manganese decolorized (amethyst) bottle glass, all from a single vessel, 1/8" to 1/4" thick.
9	One broken red, white, and gray mottled chert secondary flake, 10 percent cortex, 25 mm x 20 mm x 7 mm.
10	One complete black vesicular basalt basin metate, moderately ground on one surface, no reuse, with some recent plow damage, 25 cm x 28 cm x 9 cm.
11	One U.S. General Land Office Survey section marker, dated "1915"; two two-part oval tobacco canisters, double-hinged, with an external friction lid.
12	One x-shaped knife-cut hole-in-top cylindrical can, top only.
13	One barrel ring, riveted and extremely weathered, 1 1/2" wide.
14	One cylindrical canister external friction lid, embossed "Woodburys Cold Cream," 2 1/2" in diameter and 1/4" wide.
15	One piece of manganese decolorized (amethyst) bottle glass, 3/16" thick; one smashed and rusted sanitary-type can. Artifacts located 3 m apart.
16	One knife-punched solder dot cylindrical evaporated milk can, smashed and rusted, with stamped external ends and a crimped side seam.
17	One knife-punched solder dot cylindrical evaporated milk can, smashed and rusted, with stamped external ends and a crimped side seam.
18	One knife-punched solder dot cylindrical can, with stamped external ends and a crimped side seam, 2 3/8" in diameter and 4 5/8" tall.
19	One x-shaped knife-cut three-part cylindrical sanitary-type can, smashed and rusted, with crimped ends and side seam.

Table 2.1: Isolated Occurrences. (Continued)

IO No.	Description
20	Ten fragments of manganese decolorized (amethyst) bottle glass, all from a single vessel, 1/8" to 1/4" thick; one two-part rectangular canister, with a stamped external end, overlapped side seam, machine soldered end and side seam, and an external friction lid for closure (missing), 20" tall and 12" wide. All artifacts are in a 25 m x 10 m area.
21	One knife-cut three-part cylindrical sanitary-type can, with crimped ends and side seam, 3 7/16" in diameter and 4 1/2" tall.
22	One three-part rectangular kerosine-type canister, smashed and rusted, with crimped ends and an overlap side seam with machine soldering. Solder on handle and a screw-on cap spout.
23	Two knife-punched solder dot three-part cylindrical canisters, smashed and rusted, with a crimped side seam; three knife-cut three part cylindrical canisters, smashed and rusted, with crimped ends and side seam; one two-part rectangular basin/tub, smashed and rusted, with a stamped external end, overlapped side seam, and hand soldered end and side seam. No handles. All artifacts are located in a 30 m x 20 m area.
24	One knife-punched three-part cylindrical vent hole can, smashed and rusted, with stamped external ends, a crimped side seam, and machine soldered ends and side seam; one knife-cut hole-in-top cylindrical canister, smashed and rusted. Artifacts located 1 m apart.
25	One three-part cylindrical solder dot evaporated milk can, smashed and rusted, with stamped external ends and a crimped side seam.
26	One knife-punched three-part cylindrical can, smashed and rusted, with crimped ends and side seam. Embossed "sanitary."
27	One two-part cylindrical canister, with crimped end and side seam and an external friction lid for closure, 11" tall and 4 1/4" in diameter; one two-part cylindrical lard-type bucket, smashed and rusted, with a stamped external end, crimped side seam, solder on lugs, no bail, and a machine soldered end and side seam. Artifacts located approximately 6 m apart.
28	One knife-punched solder dot can, smashed and rusted, with stamped external ends, and a crimped side seam. Embossed "EST 22, 28"
29	One two-part cylindrical bucket, smashed and rusted, with a stamped external end, crimped side seam, lugs with bail, and an external friction lid for closure (missing); three fragments of a metal canister, smashed and rusted, with no observable traits.
30	One knife-punched solder dot can, smashed and rusted, with stamped external ends, and a crimped side seam.
31	Two knife-punched solder dot cylindrical evaporated milk cans, smashed and rusted, with stamped external ends and crimped side seam.
32	One knife-opened hole-in-top can, hand soldered, 3 1/4" tall, 3" in diameter.
33	One two-part cylindrical canister (lard bucket), smashed and rusted. Has lugs with a wire handle and a stamped external end. The external friction lid is missing. Embossed with "Estab 2F".
34	One complete utilized brown chert secondary flake, 30 percent cortex, 38 mm x 20 mm x 15 mm.
35	One knife-punched hole-in-top can, smashed and rusted.
36	One complete red chert tertiary flake, 18 mm x 7 mm x 3 mm; one broken brown chert secondary flake, 60 percent cortex, 29 mm x 20 mm x 6 mm; located 15 m apart.
37	One complete white chert tertiary flake, 33 mm x 21 mm x 3 mm.

Table 2.1: Isolated Occurrences. (Continued)

IO No.	Description
38	One three-part cylindrical can, smashed and rusted. Key-strip opening, top missing, crimped ends and side seam, with a side seam that is machine soldered.
39	One complete pink rhyolite secondary flake, 60 percent cortex, 43 mm x 40 mm x 16 mm; one broken light gray chert tertiary flake, 19 mm x 14 mm x 2 mm; ten fragments of historic whiteware ceramic, all from a single tea cup vessel, with a clear glaze, 1/8" thick to 1/4" thick; one speed loader for ammunition, 1/2" wide and 4" long; two metal buttons with a concave front, 3/4" in diameter and 3/16" thick. All artifacts located in a 10 m diameter area.
40	One broken red and brown mottled rhyolite tertiary flake, 21 mm x 18 mm x 2 mm.
41	One three-part cylindrical can, smashed and rusted. Embossed "sanitary," with crimped ends and side seam and X-cut opened.
42	Five pieces of manganese decolorized (amethyst) bottle glass, 3/16" thick to 1/4" thick, all from a single vessel, located in a 1m x 1 m area.
43	One white chert drill tool, well-used and retouched on all edges, broken tip, 47 mm x 23 mm x 4 mm.

Table 2.2: Site Summary.

LA No.	Field No.	Description	Component	Eligibility
162362	1210-001	mid 20th century irrigation system represented by a series of agricultural ditches and associated features and materials.	NM Statehood-WWII to recent (A.D. 1935 to 1980s)	ineligible
162363	1210-002	possible homestead or refuse site, represented by a historic artifact scatter with a single rock feature of unknown function	NM Statehood-WWII to Recent (A.D. 1914 to 2009)	Undetermined
162364	1210-005	homestead site with a historic artifact scatter with five features	Euroamerican US Territorial to Recent (A.D. 1911 to 2009)	Eligible, D; Ineligible, C; Unevaluated A and B
162365	1210-006	homestead site with a historic artifact scatter with a stock-tank depression and remnants of a windmill.	Euroamerican US Territorial to Recent (A.D. 1911 to 2009)	Eligible, D; Ineligible, C; Unevaluated A and B.
162366	1210-007	probable refuse dump associated with a homestead site consisting of a historic artifact scatter and two historic artifact concentrations.	NM Statehood-WWII to Recent (A.D. 1939 to 1951)	Ineligible
162367	1210-008	single-episode dump associated with a homestead site consisting of a historic artifact scatter and concentration	NM Statehood-WWII (A.D. 1920 to 1945)	Ineligible
50343	LA 50343	historic trash dump with some buried artfacts	Hispanic NM Statehood-WWII (A.D. 1920 to 1945)	Previously determined eligible under Criterion D

Beck, Warren and Ynez D. Haase
1969 *Historical Atlas of New Mexico.* Norman: University of Oklahoma Press.

Beckett, Patrick H. and T.L. Corbett
1992 *The Manso Indians.* Las Cruces: COAS Publishing and Research.

Brown, David E.
1994 *Biotic Communities Southwestern United States and Northwestern Mexico.* Salt Lake City: University of Utah Press.

Carmichael, David L.
1985 Archaeological Excavations at Two Prehistoric Campsites Near Keystone Dam, El Paso, Texas. *Occasional Papers No. 14.* Las Cruces: New Mexico State University Museum Publications.

1986 Archaeological Survey in the Southern Tularosa Basin of New Mexico. *Historic and Natural Resources Report No. 3.* Environmental Management Office, Directorate of Engineering and Housing, United States Army Air Defense Artillery Center, Fort Bliss, Texas. Centennial Museum, University of Texas, El Paso.

Carson, H. Glenn
1991 *Ghost Sites of Southwest New Mexico.* Deming: Carson Enterprises.

Cordell, Linda S.
1984 *Prehistory of the Southwest.* New York: Academic Press, Inc.

Griffin, William B.
1983 Southern Periphery: East. In In A. Ortiz (ed.) *Handbook of North American Indians: Volume 10, Southwest,* pp. 329-342. Washington D.C.: Smithsonian Institution.

Gunnerson, James H.
1979 Southern Athabaskan Archaeology. In In A. Ortiz (ed.) *Handbook of North American Indians: Volume 9, Southwest,* pp. 162-169. Washington D.C.: Smithsonian Institution.

Hard, Robert J.
1983a Excavations in the Castner Range Archaeological District in El Paso, Texas. *Publications in Anthropology No. 11.* El Paso Centennial Museum, University of Texas, El Paso.

Hard, Robert J.
1983b *Settlement and Subsistence in the Chihuahuan Desert: Cultural-Ecological Models for Fort Bliss, Texas.* Proceedings of the Society for Conservation Archaeology.

Haury, Emil W.
1936 The Mogollon Culture of Southwestern New Mexico. *Medallion Papers 20.* Globe, Arizona: Gila Pueblo.

Jenkins, Myra Ellen, and Albert H. Schroeder
1974 *A Brief History of New Mexico.* University of New Mexico Press, Albuquerque.

John, Elizabeth A.H.
1975 *Storms Brewed in Other Men's Worlds.* Lincoln: University of Nebraska Press.

Julyan, Robert
1996 *Place Names of New Mexico. A*lbuquerque: University of New Mexico Press.

Kelley, Jane Holden
1984 The Archaeology of the Sierra Blanca Region of Southeastern New Mexico. *Anthropological Papers No. 74.* Ann Arbor: University of Michigan, Museum of Anthropology.

Kirkpatrick, David T.
2002 *Valley Telephone Fiber Optic Project Summary of Data Recovery Investigations: Site LA 50343.* Human Systems Research, Las Cruces, NM.

Kovel, Ralph M. and Terry H. Kovel
1986 *Kovels' New Dictionary of Marks.* New York: Crown Publishers.

LeBlanc, S.A., and M.E. Whalen
1980 *An Archaeological Synthesis of South-Central and Southwestern New Mexico.* Ms. on file, Bureau of Land Management, Las Cruces, New Mexico.

Lehmer, Donald J.
1948 The Jornada Branch of the Mogollon. *Social Science Bulletin No. 17.* Tucson: University of Arizona Press.

Lekson, Stephen H.
1992 *Archaeological Overview of Southwestern New Mexico.* Human Systems Research Inc., Las Cruces, New Mexico.

Main, Rhonda and Charles M. Haecker
1987 Cultural Resources Survey of Proposed Pit 87-5-S near Columbus Project No. F-01301(21). *New Mexico State Highway and Transportation Department Report No. 87-60.* New Mexico State Highway and Transportation Department, Santa Fe.

Mallouf, Michael G.
1984 Cultural Resources Clearance Investigation, Valley Telephone Co-op: Archaeological Survey Part 1 - Location for Placement of Buried Telephone Cable Along State Highway 9. *University of Texas at Austin Report 030-85-42, Addendum of March 17, 1985.* Bureau of Land Management.

Martin, Paul S.
1979 Prehistory: Mogollon. In A. Ortiz (ed.) *Handbook of American Indians 9, Southwest,* pp. 61-74. Washington: Smithsonian Institution.

Mauldin, R.
1996 Exploring Patterns in Late Archaic and Early Ceramic Residential. Occupation in the Northern Chihuahuan Desert. In B. J. Roth (ed.) "Early Formative adaptations in the Southern Southwest." *Monographs in World Archaeology No. 25.* Madison: Prehistory Press.

Myrick, David E.
1970 *New Mexico's Railroads: A Historical Survey.* Albuquerque: University of New Mexico Press.

Naylor, Billy J,
1981 An Archaeological ClearanceSurvey of Fourteen Proposed Pipeline Rights-of-way conducted for El Paso Natural Gas Company. *Report 81-SJC-004.* New Mexico State University San Juan Campus, Farmington, NM.

New Mexico Historic Preservation Division
2005 *New Mexico Register* Volume XVI

O'Laughlin, Thomas C.
1980 The Keystone Dam Site and Other Archaic and Formative Sites in Northwest El Paso, Texas. *Publications in Anthropology No. 8.* El Paso Centennial Museum, University of Texas, El Paso.

Perry, Richard J.
1991 *Western Apache Heritage: People of the Mountain Corridor.* Austin: University of Texas Press.

Pilles, Peter J., Jr.
1996 The Pueblo II Period along the Mogollon Rim: THe Honanki, Elden, and Turkey Hill Phases of the Sinagua. In Michael A. Adler (ed) *The Prehistoric Pueblo World, A.D. 1150-1350,* pp. 59-72. Tucson: University of Arizona Press.

Schaafsma, Polly
1980 *Indian Rock Art of the Southwest.* Albuquerque: University of New Mexico Press.

Snell, Dawn
2000 Cultural Resource Survey for a Proposed Fiber Optic Corridor Spanning Hidalgo, Grant, Luna, and Doña Ana Counties, New Mexico. *Lone Mountain Report 423.* Lone Mountain Archaeological Services, Inc., Albuquerque.

Stuart, David E. and Rory P. Gauthier
1984 *Prehistoric New Mexico: Background for Survey.* New Mexico Historic Preservation Bureau, Santa Fe.

Sumner, Lloyd W.
1999 *Ghosts of the Southline: El Paso and Southwestern Railroad Company.* Available at: http://home.swbell.net/lwsumner/ghosts.htm

Tainter, Joseph A.
1985 Perspectives on the Abandonment of the Northern Tularosa Basin. In Colleen M. Back (ed.) *Views of the Jornada Mogollon.* Portales: Eastern New Mexico University Press.

United States Department of Agriculture, Soil Conservation Service, and Department of the Interior, Bureau of Land Management
1977 *Soil Survey of Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico.* Prepared in Cooperation with New Mexico Agricultural Experiment Station.

Upham, Steadman
1984 Adaptive Diversity and Southwestern Abandonment. *Journal of Anthropological Research* 40: 235-256.

1991 Radiocarbon Dating. In "Mountains of Sunlit Silence: White Sands Missile Range Inventory Sample Survey of the Southern San Andres Mountains, New Mexico." *Human Systems Research Report No. 8855.* Tularosa: Human Systems Research.

Whalen, Michael E.
1978 Settlement Patterns of the Western Hueco Bolson. *Publications in Anthropology Paper No. 6.* Centennial Museum, University of Texas, El Paso.

1980 *Special Studies in the Archaeology of the Hueco Bolson.* Prepared by the El Paso Centennial Museum University of Texas, El Paso, for the U.S. Army Corps of Engineers, Fort Worth District.

1986 Small Site Analysis in the Hueco Bolson of Western Texas. *Journal of Field Archaeology* 13: 69-81.

Williams, Jerry L. and Paul E. McAllister (editors)
1979 *New Mexico in Maps.* Albuquerque: University of New Mexico Press.

REFERENCES CITED

This appendix contains site data and locational maps.

THIS INFORMATION IS CONFIDENTIAL AND RESTRICTED FROM PUBLIC DISCLOSURE UNDER 36 CFR 296.18

Table 1: Isolated Occurrences UTM Coordinates (NAD27, Zone 13).

IO No.	Northing	Easting	Description
1	3521172	235860	One pink rhyolite basin metate fragment, moderately ground on two surfaces, no reuse, 16 cm.
2	3520754	236234	One complete gray chert secondary flake, 10 percent cortex, 40 mm x 31 mm x 9 mm.
3	3520765	236336	One complete red chert secondary flake, 30 percent cortex, 36 mm x 40 mm x 8 mm.
4	3521105	236364	Four black basalt basin metate fragments, moderately ground on two surfaces, all from a single vessel, with some damage from plow, 5 cm, 12 cm, 10 cm, and 15 cm.
5	3520851	236760	One pink rhyolite basin metate fragment, with heavy use on two surfaces, no reuse, 15 cm.
6	3520690	237158	One complete black obsidian biface (possible preform), no retouch, all edges worked, 31 mm x 9 mm x 5 mm.
7	3520835	237307	Eight fragments of whiteware ceramic with a floral glaze, all from a single tea or coffee cup, 1/8" to 1/4" thick. The Maker's mark on base is could not be identified, but reads "HECHO EN MEX..., MCA., A...ORA, R...RDO AMANO."
8	3521268	238140	Three fragments of manganese decolorized (amethyst) bottle glass, all from a single vessel, 1/8" to 1/4" thick.
9	3520528	238373	One broken red, white, and gray mottled chert secondary flake, 10 percent cortex, 25 mm x 20 mm x 7 mm.
10	3521110	238540	One complete black vesicular basalt basin metate, moderately ground on one surface, no reuse, with some recent plow damage, 25 cm x 28 cm x 9 cm.
11	3520388	243870	One U.S. General Land Office Survey section marker, dated "1915"; two two-part oval tobacco canisters, double-hinged, with an external friction lid.
12	3519896	244724	One x-shaped knife-cut hole-in-top cylindrical can, top only.
13	3520775	244730	One barrel ring, riveted and extremely weathered, 1 1/2" wide.
14	3521353	244758	One cylindrical canister external friction lid, embossed "Woodburys Cold Cream," 2 1/2" in diameter and 1/4" wide.
15	3519755	244777	One piece of manganese decolorized (amethyst) bottle glass, 3/16" thick; one smashed and rusted sanitary-type can. Artifacts located 3 m apart.
16	3521967	244818	One knife-punched solder dot cylindrical evaporated milk can, smashed and rusted, with stamped external ends and a crimped side seam.
17	3521994	244836	One knife-punched solder dot cylindrical evaporated milk can, smashed and rusted, with stamped external ends and a crimped side seam.
18	3519643	244887	One knife-punched solder dot cylindrical can, with stamped external ends and a crimped side seam, 2 3/8" in diameter and 4 5/8" tall.
19	3521139	244897	One x-shaped knife-cut three-part cylindrical sanitary-type can, smashed and rusted, with crimped ends and side seam.

Table 1: Isolated Occurrences UTM Coordinates (NAD27, Zone 13). (Continued)

IO No.	Northing	Easting	Description
20	3521418	244912	Ten fragments of manganese decolorized (amethyst) bottle glass, all from a single vessel, 1/8" to 1/4" thick; one two-part rectangular canister, with a stamped external end, overlapped side seam, machine soldered end and side seam, and an external friction lid for closure (missing), 20" tall and 12" wide. All artifacts are in a 25 m x 10 m area.
21	3521107	244915	One knife-cut three-part cylindrical sanitary-type can, with crimped ends and side seam, 3 7/16" in diameter and 4 1/2" tall.
22	3521121	244930	One three-part rectangular kerosine-type canister, smashed and rusted, with crimped ends and an overlap side seam with machine soldering. Solder on handle and a screw-on cap spout.
23	3521666	244931	Two knife-punched solder dot three-part cylindrical canisters, smashed and rusted, with a crimped side seam; three knife-cut three part cylindrical canisters, smashed and rusted, with crimped ends and side seam; one two-part rectangular basin/tub, smashed and rusted, with a stamped external end, overlapped side seam, and hand soldered end and side seam. No handles. All artifacts are located in a 30 m x 20 m area.
24	3521214	244952	One knife-punched three-part cylindrical vent hole can, smashed and rusted, with stamped external ends, a crimped side seam, and machine soldered ends and side seam; one knife-cut hole-in-top cylindrical canister, smashed and rusted. Artifacts located 1 m apart.
25	3519953	244974	One three-part cylindrical solder dot evaporated milk can, smashed and rusted, with stamped external ends and a crimped side seam.
26	3521157	245007	One knife-punched three-part cylindrical can, smashed and rusted, with crimped ends and side seam. Embossed "sanitary."
27	3521337	245041	One two-part cylindrical canister, with crimped end and side seam and an external friction lid for closure, 11" tall and 4 1/4" in diameter; one two-part cylindrical lard-type bucket, smashed and rusted, with a stamped external end, crimped side seam, solder on lugs, no bail, and a machine soldered end and side seam. Artifacts located approximately 6 m apart.
28	3520548	245067	One knife-punched solder dot can, smashed and rusted, with stamped external ends, and a crimped side seam. Embossed "EST 22, 28"
29	3521265	245081	One two-part cylindrical bucket, smashed and rusted, with a stamped external end, crimped side seam, lugs with bail, and an external friction lid for closure (missing); three fragments of a metal canister, smashed and rusted, with no observable traits.
30	3521202	245085	One knife-punched solder dot can, smashed and rusted, with stamped external ends, and a crimped side seam.
31	3519982	245098	Two knife-punched solder dot cylindrical evaporated milk cans, smashed and rusted, with stamped external ends and crimped side seam.
32	3521682	245105	One knife-opened hole-in-top can, hand soldered, 3 1/4" tall, 3" in diameter.

Table 1: Isolated Occurrences UTM Coordinates (NAD27, Zone 13). (Continued)

IO No.	Northing	Easting	Description
33	3521308	245232	One two-part cylindrical canister (lard bucket), smashed and rusted. Has lugs with a wire handle and a stamped external end. The external friction lid is missing. Embossed with "Estab 2F".
34	3519532	245247	One complete utilized brown chert secondary flake, 30 percent cortex, 38 mm x 20 mm x 15 mm.
35	3521202	245333	One knife-punched hole-in-top can, smashed and rusted.
36	3519528	245359	One complete red chert tertiary flake, 18 mm x 7 mm x 3 mm; one broken brown chert secondary flake, 60 percent cortex, 29 mm x 20 mm x 6 mm; located 15 m apart.
37	3520757	245773	One complete white chert tertiary flake, 33 mm x 21 mm x 3 mm.
38	3519608	245908	One three-part cylindrical can, smashed and rusted. Key-strip opening, top missing, crimped ends and side seam, with a side seam that is machine soldered.
39	3519715	245924	One complete pink rhyolite secondary flake, 60 percent cortex, 43 mm x 40 mm x 16 mm; one broken light gray chert tertiary flake, 19 mm x 14 mm x 2 mm; ten fragments of historic whiteware ceramic, all from a single tea cup vessel, with a clear glaze, 1/8" thick to 1/4" thick; one speed loader for ammunition, 1/2" wide and 4" long; two metal buttons with a concave front, 3/4" in diameter and 3/16" thick. All artifacts located in a 10 m diameter area.
40	3520667	246019	One broken red and brown mottled rhyolite tertiary flake, 21 mm x 18 mm x 2 mm.
41	3519458	246299	One three-part cylindrical can, smashed and rusted. Embossed "sanitary," with crimped ends and side seam. X-cut opened.
42	3519496	246417	Five pieces of manganese decolorized (amethyst) bottle glass, 3/16" thick to 1/4" thick, all from a single vessel, located in a 1m x 1 m area.
43	3520545	248348	One white chert drill tool, well-used and retouched on all edges, broken tip, 47 mm x 23 mm x 4 mm.

Table 2: Site UTM Coordinates (NAD27, Zone 13).

LA No.	Northing	Easting	Description	Component	Eligibility
162362	3521853	236613	mid 20th century irrigation system represented by a series of agricultural ditches and associated features and materials.	NM Statehood-WWII to recent (A.D. 1935 to 1980s)	ineligible
162363	3521251	244794	possible homestead or refuse site, represented by a historic artifact scatter with a single rock feature of unknown function	NM Statehood-WWII to Recent (A.D. 1914 to 2009)	Undetermined
162364	3519760	244674	homestead site with a historic artifact scatter with five features	Euroamerican US Territorial to Recent (A.D. 1911 to 2009)	Eligible, D; Ineligible, C; Unevaluated A and B
162365	3519633	244759	homestead site with a historic artifact scatter with a stock-tank depression and remnants of a windmill.	Euroamerican US Territorial to Recent (A.D. 1911 to 2009)	Eligible, D; Ineligible, C; Unevaluated A and B.
162366	3519894	244948	probable refuse dump associated with a homestead site consisting of a historic artifact scatter and two historic artifact concentrations.	NM Statehood-WWII to Recent (A.D. 1939 to 1951)	Ineligible
162367	3519454	246123	single-episode dump associated with a homestead site consisting of a historic artifact scatter and concentration	NM Statehood-WWII (A.D. 1920 to 1945)	Ineligible
50343	3521980	244739	historic trash dump with some buried artfacts	Hispanic NM Statehood-WWII (A.D. 1920 to 1945)	Previously determined eligible under Criterion D

This appendix contains site data and locational maps.

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Table 1: Isolated Occurrences UTM Coordinates (NAD27, Zone 13).

IO No.	Northing	Easting	Description
1	3521172	235860	One pink rhyolite basin metate fragment, moderately ground on two surfaces, no reuse, 16 cm.
2	3520754	236234	One complete gray chert secondary flake, 10 percent cortex, 40 mm x 31 mm x 9 mm.
3	3520765	236336	One complete red chert secondary flake, 30 percent cortex, 36 mm x 40 mm x 8 mm.
4	3521105	236364	Four black basalt basin metate fragments, moderately ground on two surfaces, all from a single vessel, with some damage from plow, 5 cm, 12 cm, 10 cm, and 15 cm.
5	3520851	236760	One pink rhyolite basin metate fragment, with heavy use on two surfaces, no reuse, 15 cm.
6	3520690	237158	One complete black obsidian biface (possible preform), no retouch, all edges worked, 31 mm x 9 mm x 5 mm.
7	3520835	237307	Eight fragments of whiteware ceramic with a floral glaze, all from a single tea or coffee cup, 1/8" to 1/4" thick. The Maker's mark on base is could not be identified, but reads "HECHO EN MEX..., MCA., A...ORA, R...RDO AMANO."
8	3521268	238140	Three fragments of manganese decolorized (amethyst) bottle glass, all from a single vessel, 1/8" to 1/4" thick.
9	3520528	238373	One broken red, white, and gray mottled chert secondary flake, 10 percent cortex, 25 mm x 20 mm x 7 mm.
10	3521110	238540	One complete black vesicular basalt basin metate, moderately ground on one surface, no reuse, with some recent plow damage, 25 cm x 28 cm x 9 cm.
11	3520388	243870	One U.S. General Land Office Survey section marker, dated "1915"; two two-part oval tobacco canisters, double-hinged, with an external friction lid.
12	3519896	244724	One x-shaped knife-cut hole-in-top cylindrical can, top only.
13	3520775	244730	One barrel ring, riveted and extremely weathered, 1 1/2" wide.
14	3521353	244758	One cylindrical canister external friction lid, embossed "Woodburys Cold Cream," 2 1/2" in diameter and 1/4" wide.
15	3519755	244777	One piece of manganese decolorized (amethyst) bottle glass, 3/16" thick; one smashed and rusted sanitary-type can. Artifacts located 3 m apart.
16	3521967	244818	One knife-punched solder dot cylindrical evaporated milk can, smashed and rusted, with stamped external ends and a crimped side seam.
17	3521994	244836	One knife-punched solder dot cylindrical evaporated milk can, smashed and rusted, with stamped external ends and a crimped side seam.
18	3519643	244887	One knife-punched solder dot cylindrical can, with stamped external ends and a crimped side seam, 2 3/8" in diameter and 4 5/8" tall.
19	3521139	244897	One x-shaped knife-cut three-part cylindrical sanitary-type can, smashed and rusted, with crimped ends and side seam.

Table 1: Isolated Occurrences UTM Coordinates (NAD27, Zone 13). (Continued)

IO No.	Northing	Easting	Description
20	3521418	244912	Ten fragments of manganese decolorized (amethyst) bottle glass, all from a single vessel, 1/8" to 1/4" thick; one two-part rectangular canister, with a stamped external end, overlapped side seam, machine soldered end and side seam, and an external friction lid for closure (missing), 20" tall and 12" wide. All artifacts are in a 25 m x 10 m area.
21	3521107	244915	One knife-cut three-part cylindrical sanitary-type can, with crimped ends and side seam, 3 7/16" in diameter and 4 1/2" tall.
22	3521121	244930	One three-part rectangular kerosine-type canister, smashed and rusted, with crimped ends and an overlap side seam with machine soldering. Solder on handle and a screw-on cap spout.
23	3521666	244931	Two knife-punched solder dot three-part cylindrical canisters, smashed and rusted, with a crimped side seam; three knife-cut three part cylindrical canisters, smashed and rusted, with crimped ends and side seam; one two-part rectangular basin/tub, smashed and rusted, with a stamped external end, overlapped side seam, and hand soldered end and side seam. No handles. All artifacts are located in a 30 m x 20 m area.
24	3521214	244952	One knife-punched three-part cylindrical vent hole can, smashed and rusted, with stamped external ends, a crimped side seam, and machine soldered ends and side seam; one knife-cut hole-in-top cylindrical canister, smashed and rusted. Artifacts located 1 m apart.
25	3519953	244974	One three-part cylindrical solder dot evaporated milk can, smashed and rusted, with stamped external ends and a crimped side seam.
26	3521157	245007	One knife-punched three-part cylindrical can, smashed and rusted, with crimped ends and side seam. Embossed "sanitary."
27	3521337	245041	One two-part cylindrical canister, with crimped end and side seam and an external friction lid for closure, 11" tall and 4 1/4" in diameter; one two-part cylindrical lard-type bucket, smashed and rusted, with a stamped external end, crimped side seam, solder on lugs, no bail, and a machine soldered end and side seam. Artifacts located approximately 6 m apart.
28	3520548	245067	One knife-punched solder dot can, smashed and rusted, with stamped external ends, and a crimped side seam. Embossed "EST 22, 28"
29	3521265	245081	One two-part cylindrical bucket, smashed and rusted, with a stamped external end, crimped side seam, lugs with bail, and an external friction lid for closure (missing); three fragments of a metal canister, smashed and rusted, with no observable traits.
30	3521202	245085	One knife-punched solder dot can, smashed and rusted, with stamped external ends, and a crimped side seam.
31	3519982	245098	Two knife-punched solder dot cylindrical evaporated milk cans, smashed and rusted, with stamped external ends and crimped side seam.
32	3521682	245105	One knife-opened hole-in-top can, hand soldered, 3 1/4" tall, 3" in diameter.

Table 1: Isolated Occurrences UTM Coordinates (NAD27, Zone 13). (Continued)

IO No.	Northing	Easting	Description
33	3521308	245232	One two-part cylindrical canister (lard bucket), smashed and rusted. Has lugs with a wire handle and a stamped external end. The external friction lid is missing. Embossed with "Estab 2F".
34	3519532	245247	One complete utilized brown chert secondary flake, 30 percent cortex, 38 mm x 20 mm x 15 mm.
35	3521202	245333	One knife-punched hole-in-top can, smashed and rusted.
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37	3520757	245773	One complete white chert tertiary flake, 33 mm x 21 mm x 3 mm.
38	3519608	245908	One three-part cylindrical can, smashed and rusted. Key-strip opening, top missing, crimped ends and side seam, with a side seam that is machine soldered.
39	3519715	245924	One complete pink rhyolite secondary flake, 60 percent cortex, 43 mm x 40 mm x 16 mm; one broken light gray chert tertiary flake, 19 mm x 14 mm x 2 mm; ten fragments of historic whiteware ceramic, all from a single tea cup vessel, with a clear glaze, 1/8" thick to 1/4" thick; one speed loader for ammunition, 1/2" wide and 4" long; two metal buttons with a concave front, 3/4" in diameter and 3/16" thick. All artifacts located in a 10 m diameter area.
40	3520667	246019	One broken red and brown mottled rhyolite tertiary flake, 21 mm x 18 mm x 2 mm.
41	3519458	246299	One three-part cylindrical can, smashed and rusted. Embossed "sanitary," with crimped ends and side seam. X-cut opened.
42	3519496	246417	Five pieces of manganese decolorized (amethyst) bottle glass, 3/16" thick to 1/4" thick, all from a single vessel, located in a 1m x 1 m area.
43	3520545	248348	One white chert drill tool, well-used and retouched on all edges, broken tip, 47 mm x 23 mm x 4 mm.

Table 2: Site UTM Coordinates (NAD27, Zone 13).

LA No.	Northing	Easting	Description	Component	Eligibility
162362	3521853	236613	mid 20th century irrigation system represented by a series of agricultural ditches and associated features and materials.	NM Statehood-WWII to recent (A.D. 1935 to 1980s)	ineligible
162363	3521251	244794	possible homestead or refuse site, represented by a historic artifact scatter with a single rock feature of unknown function	NM Statehood-WWII to Recent (A.D. 1914 to 2009)	Undetermined
162364	3519760	244674	homestead site with a historic artifact scatter with five features	Euroamerican US Territorial to Recent (A.D. 1911 to 2009)	Eligible, D; Ineligible, C; Unevaluated A and B
162365	3519633	244759	homestead site with a historic artifact scatter with a stock-tank depression and remnants of a windmill.	Euroamerican US Territorial to Recent (A.D. 1911 to 2009)	Eligible, D; Ineligible, C; Unevaluated A and B.
162366	3519894	244948	probable refuse dump associated with a homestead site consisting of a historic artifact scatter and two historic artifact concentrations.	NM Statehood-WWII to Recent (A.D. 1939 to 1951)	Ineligible
162367	3519454	246123	single-episode dump associated with a homestead site consisting of a historic artifact scatter and concentration	NM Statehood-WWII (A.D. 1920 to 1945)	Ineligible
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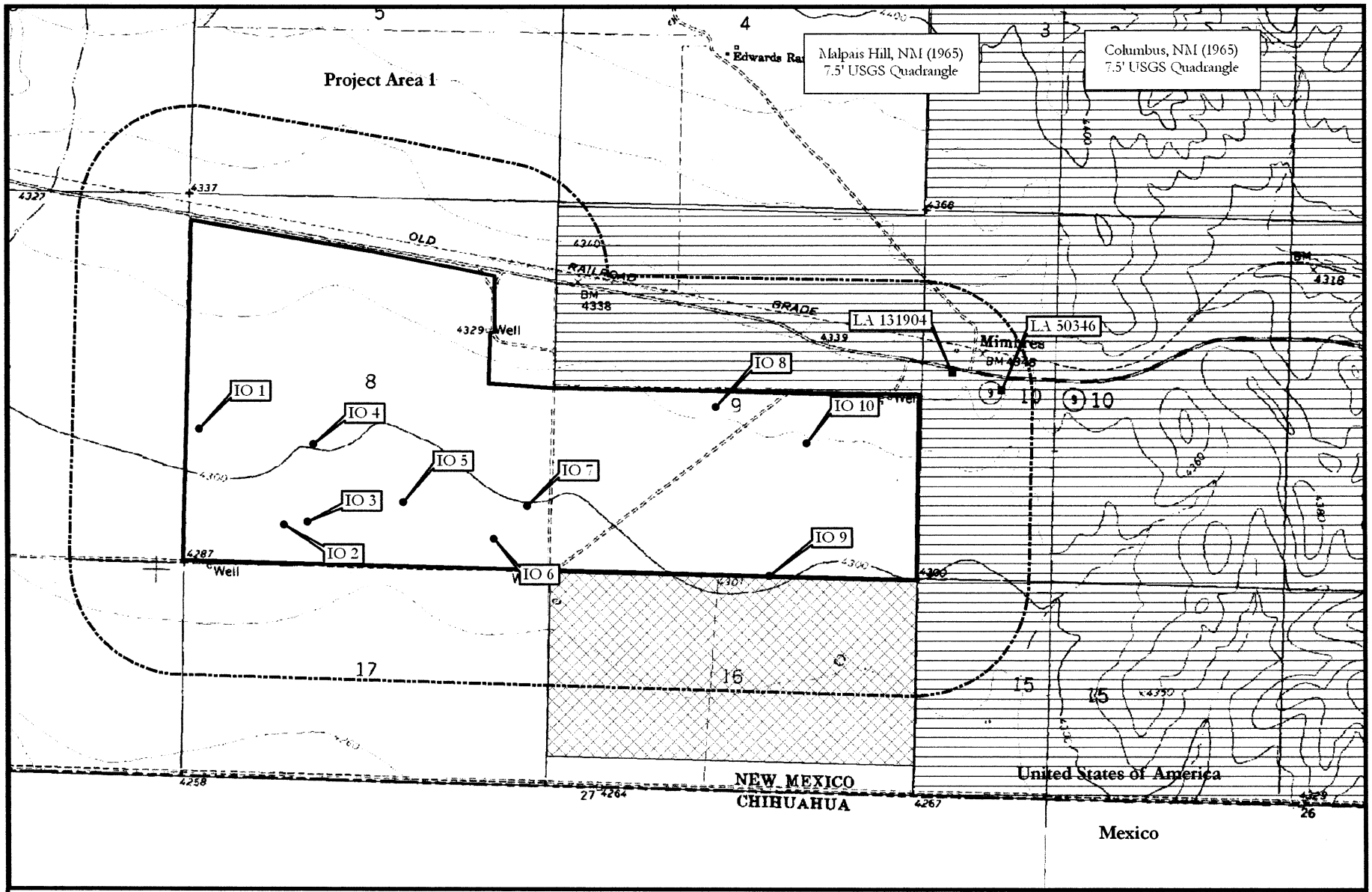


Legend

- Isolated Occurrence
- Previously Recorded Site
- Project Area
- ARMS Buffer (500 m)

Kilometers: 0, 0.5, 1, 1.5

Miles: 0, 0.5, 1

Land Ownership

- BLM
- Private
- State

N

T29S, R09W,
Sections 8 & 9
Luna County, NM

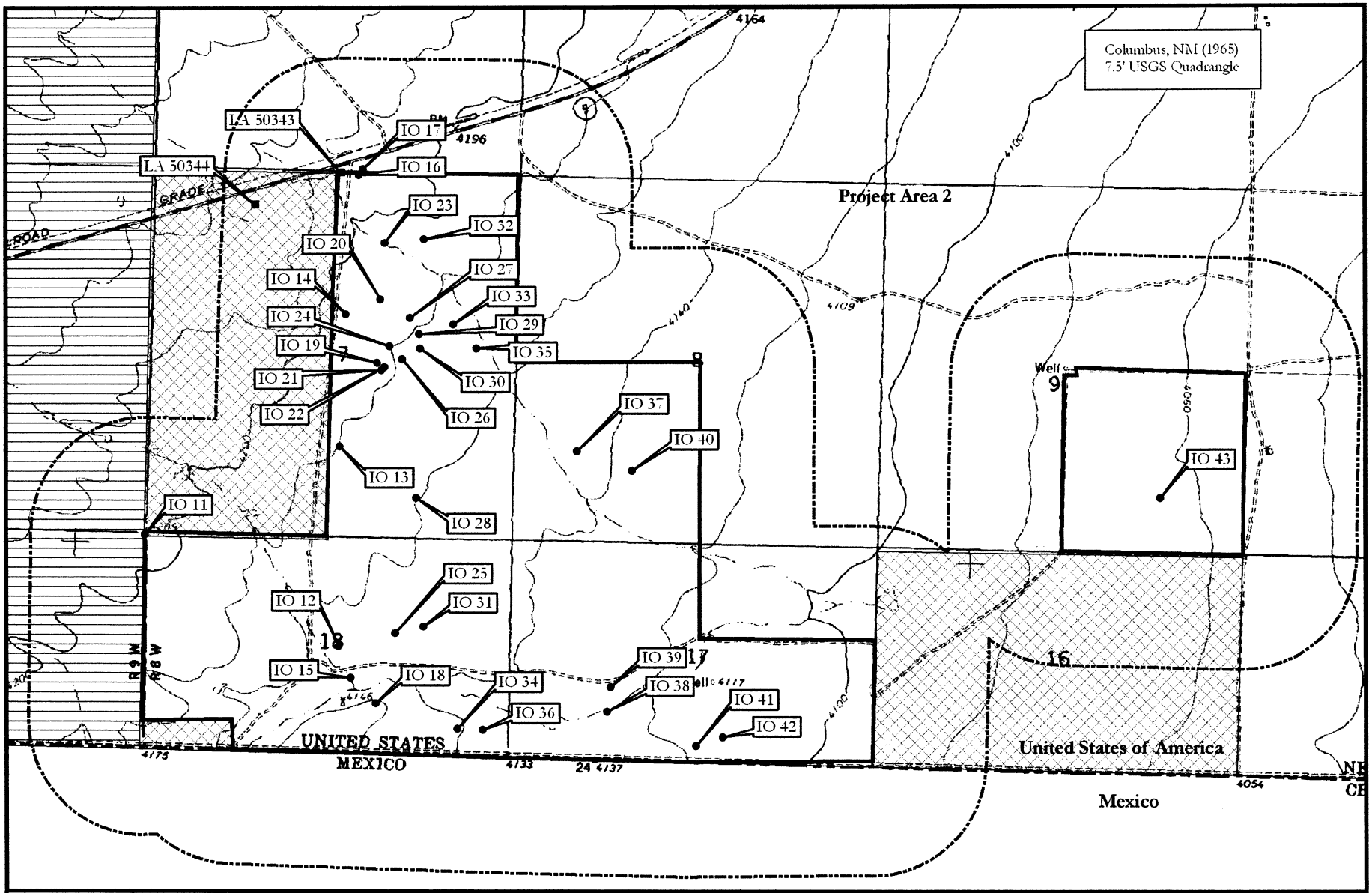
MIMBRES DUE DILIGENCE

Project Area Map Showing Isolated Occurrences & Previously Recorded Sites

Lone Mountain Archaeological Services, Inc.

Drawn by: S. Daras
LMAS No. 1210

Client:
Amec Geomatrix



Legend

- Isolated Occurrence
- Previously Recorded Site
- Project Area
- ARMS Buffer (500 m)

Kilometers: 0 0.5 1 1.5

Miles: 0 0.5 1

Land Ownership

- BLM
- Private
- State

N

T29S, R08W,
Sections 7, 8, 9, 17 & 18
Luna County, NM

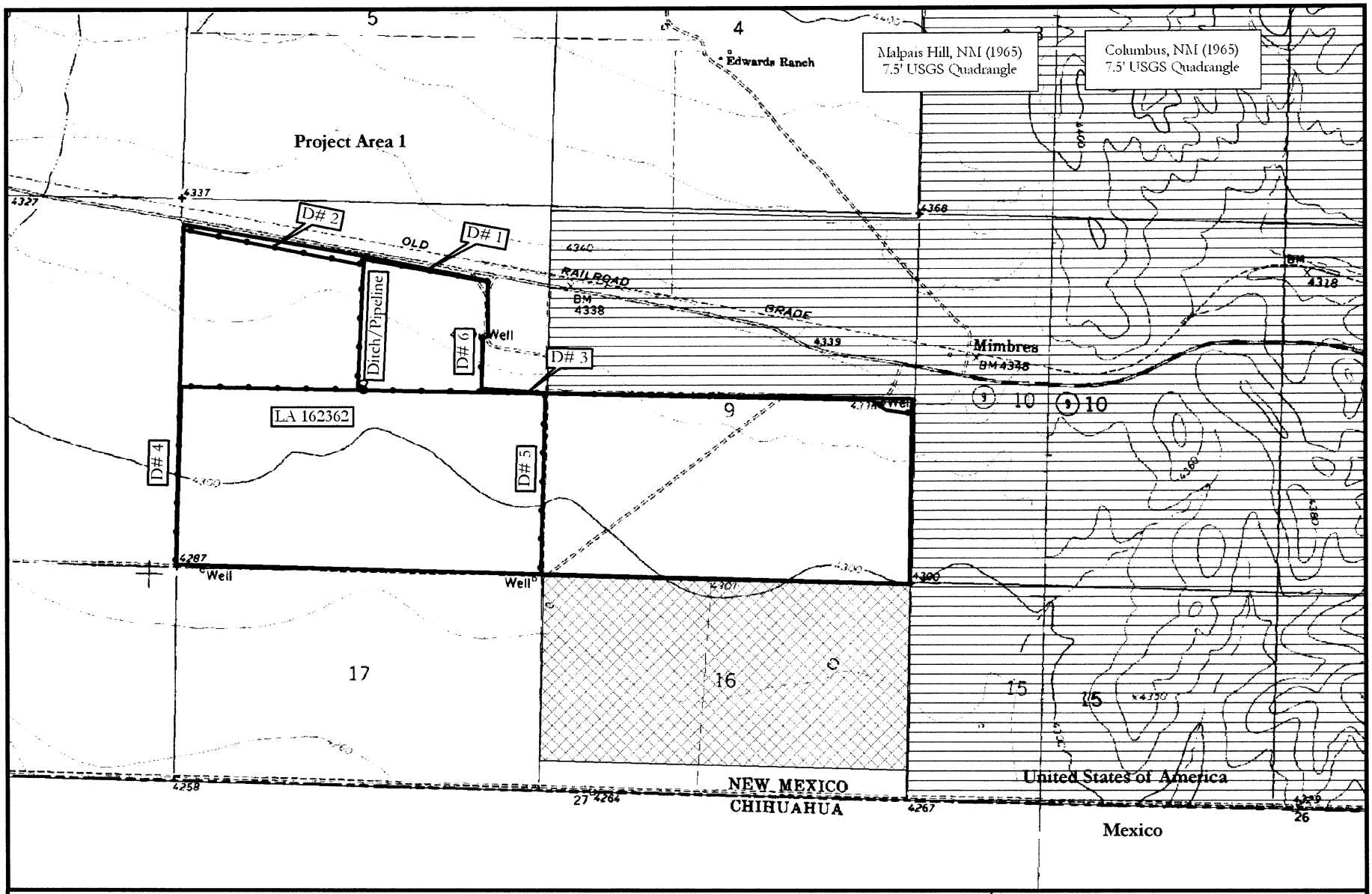
MIMBRES DUE DILIGENCE

Project Area Map Showing Isolated Occurrences & Previously Recorded Sites

Lone Mountain Archaeological Services, Inc.

Drawn by: S. Daras
LMAS No. 1210

Client:
Amec Geomatrix



Legend

- Ditch/Site Boundary
- Project Area

Kilometers: 0 — 0.5 — 1 — 1.5

Miles: 0 — 0.5 — 1

Land Ownership

- BLM
- Private
- State

N

T29S, R09W,
Sections 8 & 9
Luna County, NM

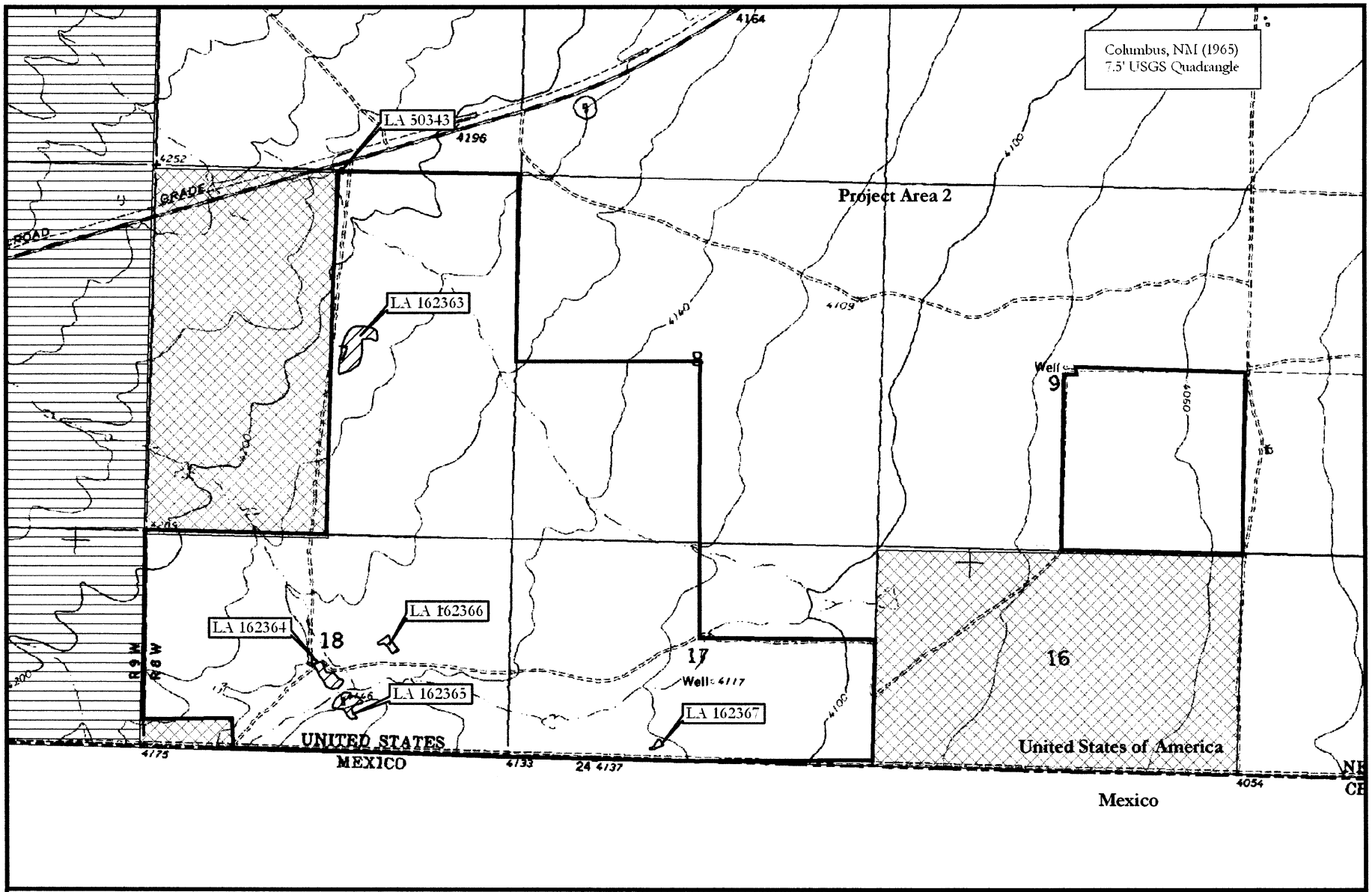
MIMBRES DUE DILIGENCE

Project Area Map Showing LMAS Recorded Archaeological Sites

Lone Mountain Archaeological Services, Inc.

Drawn by: S. Daras
LMAS No. 1210

Client:
Amec Geomatrix



Legend

- Site Boundary
- Project Area

Kilometers: 0 — 0.5 — 1 — 1.5

Miles: 0 — 0.5 — 1

Land Ownership

- BLM
- Private
- State

N

T29S, R08W,
Sections 7, 8, 9, 17 & 18
Luna County, NM

MIMBRES DUE DILIGENCE

Project Area Map Showing LMAS Recorded Archaeological Sites

Lone Mountain Archaeological Services, Inc.

Drawn by: S. Daras
LMAS No. 1210

Client:
Amec Geomatrix

Field Supervisor Thoras Dye and Peggy Allison and Field Technicians Francisco Britton, Richard Francisco, Noel Pacheco, and Timothy Ruiz Brown completed the field inventory between March 5 and March 17, 2009. The Principal Investigator for the project is Douglas Boggess. The survey was undertaken at the request of Tom Tangen of Amec Geomatrix. (Lone Mountain Project Number 1213). This inventory was conducted under NMCRIS Number 113215. New Mexico State Permit, NM 09-073 (exp. 12/31/2009).

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