



***Marron  
and Associates, Inc.***

CULTURAL RESOURCE REPORT

A Class I and Class II Cultural Resource Survey of  
247.6 Hectares (612 Acres) for the  
Mesa del Sol Development,  
Bernalillo County, New Mexico



PREPARED BY  
Marron and Associates, Inc.  
7511 Fourth Street NW  
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PREPARED FOR  
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7601 Jefferson NE, Suite 100  
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SEPTEMBER 2006

## NMCRIS INVESTIGATION ABSTRACT FORM (NIAF)

<b>1. NMCRIS Activity No.:</b> 101166	<b>2a. Lead (Sponsoring) Agency:</b> City of Albuquerque, Bernalillo County	<b>2b. Other Permitting Agency(ies):</b> SHPO	<b>3. Lead Agency Report No.:</b>
<b>4. Title of Report:</b> A Class I and Class II Cultural Resource Survey of 247.6 Hectares (612 Acres) for the Mesa del Sol Development, Bernalillo County, New Mexico <b>Author(s)</b> Mary Quirolo, J. Robert Estes, Marie E. Brown, and Kenneth L. Brown		<b>5. Type of Report</b> <input type="checkbox"/> Negative <input checked="" type="checkbox"/> Positive	
<b>6. Investigation Type</b> <input type="checkbox"/> Research Design <input checked="" type="checkbox"/> Survey/Inventory <input type="checkbox"/> Test Excavation <input type="checkbox"/> Excavation <input type="checkbox"/> Collections/Non-Field Study <input checked="" type="checkbox"/> Overview/Lit Review <input type="checkbox"/> Monitoring <input type="checkbox"/> Ethnographic study <input type="checkbox"/> Site specific visit <input type="checkbox"/> Other			
<b>7. Description of Undertaking (what does the project entail?):</b> This report presents the results of a Class I (records search) and Class II (20 percent field inventory) cultural resource survey by Marron and Associates, Inc. (Marron) for proposed commercial and residential development at Mesa del Sol, Bernalillo County, New Mexico. The project area consists entirely of private land, some of which was acquired from the New Mexico State Land Office in July 2006. The project includes commercial development, single- and multiple-family housing, recreation areas, schools, and open space. The project Area of Potential Effect (APE) consists of approximately 1214.5 ha (3001 ac) of which 87 ha (215 ac) are west of I-25, 182.9 ha (452 ac) are east of I-25 in the flats and badlands bordering the East Mesa, and 944.6 ha (2334 ac) are on the gently rolling terrain of the East Mesa. A total of 247.6 ha (612 ac)—20 percent of the 1214.5 ha (3001 ac)—was surveyed using 22 122-m (400-ft) wide transects in the project APE. The built environment APE includes buildings with construction dates prior to 1962 that are within 30 m (100 ft) of the 22 transects. Marron conducted the cultural resource survey for Dekker, Perich and Sabatini, Inc. between June 26 and July 10, 2006 under New Mexico State Survey Permit No. NM-06-160-S. The project is being funded with private monies.  The 22 transects were placed in six delineated areas based on the parcel location and size. Areas are numbered from one to six, with the smallest designated one and the largest designated six. Area 1 is northwest of the I-25 and NM 47 intersection and is 5.7 ha (14 ac). Area 2 is southwest of the I-25 and NM 47 intersection and is 9.7 ha (24 ac). Area 3 is in the northeast corner of the project APE and is 16.2 ha (40 ac). Area 4 is west of I-25 south of Tijeras Arroyo and is 81.3 ha (201 ac). Area 5 borders the east side of I-25 from the I-25 and NM 47 intersection at the south end for a distance of about 4 km (2.5 mi) north and it is 173.2 ha (428 ac). Finally, Area 6 is on the flats of the East Mesa south and east of the Journal Pavilion and sports facilities and is 928.4 ha (2294 ac).		<b>8. Dates of Investigation:</b> (from: June 26 to: July 10, 2006)	
		<b>9. Report Date:</b> September 25, 2006	
<b>10. Performing Agency/Consultant:</b> Marron and Associates, Inc. <b>Principal Investigator:</b> Kenneth L. Brown <b>Field Supervisor:</b> J. Robert Estes <b>Field Personnel Names:</b> Hansene Gustafson, Mary Quirolo, Keith Thomas		<b>11. Performing Agency/Consultant Report No.:</b> Marron Report No. 0199	
		<b>12. Applicable Cultural Resource Permit No(s):</b> New Mexico State Survey No. NM-06-160-S	
<b>13. Client/Customer (project proponent):</b> Dekker, Perich, and Sabatini, Inc. <b>Contact:</b> Will Gleason <b>Address:</b> 7601 Jefferson NE, Suite 100, Albuquerque, New Mexico 87109 <b>Phone:</b> (505) 761-9700		<b>14. Client/Customer Project No.:</b>	

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

Land Owner	Acres Surveyed	Acres in APE
City of Albuquerque, Bernalillo County	612	3001
<b>TOTALS</b>	612	3001

16 Records Search(es):

Date(s) of ARMS File Review	May 16, 2006	Name of Reviewer(s)	J. Robert Estes	
Date(s) of NR/SR File Review	May 16, 2006	Name of Reviewer(s)	J. Robert Estes	
Date(s) of Other Agency File Review		Name of Reviewer(s)		Agency

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

Albuquerque East	35106-A5
Hubbell Spring	34106-H5
Isleta	34106-H6

c. County(ies): Bernalillo

17. Survey Data (continued):

d. Nearest City or Town: Albuquerque

e. Legal Description:

T9N, R3E		T8N, R3E	
Section 14	SE¼ and NE¼	Section 6	NE¼ and SE¼
Section 15	SW¼ and SE¼		
Section 20	SW¼		
Section 21	SE¼		
Section 22	SW¼ and NE¼ and SE¼		
Section 26	NE¼ and SE¼ and SW¼ and NW¼		
Section 27	NE¼ and SE¼ and SW¼ and NW¼		
Section 28	NE¼ and SE¼		
Section 29	SE¼ and SW¼ and NW¼		
Section 32	NW¼ and NE¼		
Section 35	NW¼		

Projected legal description? Yes  , No                       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): varying lengths x 400 ft wide     other survey units

(specify):

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

**Coverage Method:**  systematic pedestrian coverage  other method (describe) 20% sample

**Survey Interval (m):** 15 **Crew Size:** 4 **Fieldwork Dates:** June 26 to July 10, 2006

**Survey Person Hours:** 121 **Recording Person Hours:** 100 **Total Hours:** 221

**Additional Narrative:** A four-person crew from Marron conducted a Class II (20 percent) cultural resource survey of the project APE between June 26 and July 10, 2006. The project APE consists of 1214.5 ha (3001 ac) on the slope and top of the East Mesa. A series of 22 122-m (400-ft) wide arbitrary sample transects were surveyed within the project APE. The built environment APE includes buildings with construction dates prior to 1962 that are within 30 m (100 ft) of the transects. The project area was not marked or flagged prior to the survey, and the project boundaries were located using maps provided by the project engineer. An aerial photo of the project area was also consulted. Pedestrian transects spaced no greater than 15 m (50 ft) apart were walked within the 22 transects. A total of 247.6 ha (612 ac), consisting entirely of private land, was surveyed.

The 22 transects were placed in six delineated areas based on the area location and size. Areas are numbered from one to six, with the smallest designated one and the largest designated six. Area 1 is northwest of the I-25 and NM 47 intersection and is 5.7 ha (14 ac). Area 2 is southwest of the I-25 and NM 47 intersection and is 9.7 ha (24 ac). Area 3 is in the northeast corner of the project APE and is 16.2 ha (40 ac). Area 4 is west of I-25 south of Tijeras Arroyo and is 81.3 ha (201 ac). Area 5 borders the east side of I-25 from the I-25 and NM 47 intersection at the south end for a distance of about 4 km (2.5 mi) north and it is 173.2 ha (428 ac). Finally, Area 6 is on the flats of the East Mesa south and east of the Journal Pavilion and sports facilities and is 928.4 ha (2294 ac).

Except for Transect 15, which was oriented east-west, all of the transects were oriented north-south. Transect placement was done to maximize coverage of the different physiographic features represented in the project APE. The physiographic features include the relatively flat East Mesa, the rolling hills and knolls of the west escarpment of the East Mesa, and the slightly sloping to undulating terrain bordering the east Rio Grande valley. Also, the north-south orientation of transects reduced the resurveying of previously surveyed areas, particularly OCA's 1989 sample survey (Doleman 1989). Doleman (1989:5-6) oriented OCA's transects east-west.

Three previously recorded sites—LA 69517, LA 69520, and LA 153415—were revisited, and seven new sites—LA xx2, xx4, xx5, xx6, x7, xx9, and xx10—and 54 isolated occurrences (IOs) were recorded. The following criteria were used to identify an archaeological site: (1) 10 or more artifacts of two or more artifact classes or types within a 20-by-20-m (66-by-66-ft) area; or (2) the presence of a structure, feature, or midden. Resources not meeting these criteria were recorded as IOs—single artifacts, small clusters of less than 10 artifacts, and *descansos*. No buildings with construction dates prior to 1962 are in the transects or within 30 m (100 ft) of them.

Cultural resources were documented using standard procedures and forms. No artifacts were collected and no subsurface testing of any kind was done. A datum, consisting of a rebar with an aluminum cap stamped "Marron—Do Not Disturb" and a sequential field number (1, 2, 3) was placed in each previously or newly recorded site with the exception of LA 153415 (the historic road) where a datum had been placed during a recent cultural resource survey by Marron (Estes et al. 2006). Locational information was obtained with a Trimble XT GPS unit using the Western U.S., 1927 North American Datum (NAD). Post-field differential correction of the data used the Albuquerque CORS1 base station and yielded an error of less than 1 m (3.3 ft). The GPS unit was also used to map the sites. The project area, sites, and selected artifacts were photographed with an Olympus Stylus 300 digital camera with 3.2 megapixels and a 3X zoom lens.

Heavy rains fell on several evenings during the survey, but climatic conditions during the survey were generally warm and sunny. Ground disturbances along the 22 transects were minimal, generally consisting of old blading scars, unimproved dirt roads, and cattle paths. Ground visibility averaged between 85 percent on the mesa top and 95 percent on portions of the west escarpment.

19. Environmental Setting (NRCS soil designation; vegetative community; elevation; etc.): see attachment

20. a. Percent Ground Visibility: 90 percent b. Condition of Survey Area (grazed, bladed, undisturbed, etc.): grazing, erosional gullies, two-track roads, power lines, blading, landfill

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

<b>22. Required Attachments (check all appropriate boxes):</b> <input checked="" type="checkbox"/> USGS 7.5 Topographic Map with sites, isolates, and survey area clearly drawn <input checked="" type="checkbox"/> Copy of NMCRIS Mapserver Map Check <input checked="" type="checkbox"/> LA Site Forms - new sites ( <i>with sketch map &amp; topographic map</i> ) <input checked="" type="checkbox"/> LA Site Forms (update) - previously recorded & un-relocated sites ( <i>first 2 pages minimum</i> ) <input type="checkbox"/> Historic Cultural Property Inventory Forms <input checked="" type="checkbox"/> List and Description of isolates, if applicable <input type="checkbox"/> List and Description of Collections, if applicable		<b>23. Other Attachments:</b> <input type="checkbox"/> Photographs and Log <input type="checkbox"/> Other Attachments (Describe):
<b>24. I certify the information provided above is correct and accurate and meets all applicable agency standards.</b>  Principal Investigator/Responsible Archaeologist: Signature <u><i>Walter L. Buecum</i></u> Date <u>9/23/06</u> Title (if not PI):		
<b>25. Reviewing Agency:</b> Reviewer's Name/Date  Accepted ( ) Rejected ( )  Tribal Consultation (if applicable): <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>26. SHPO</b> Reviewer's Name/Date:  HPD Log #: SHPO File Location: Date sent to ARMS:	

### CULTURAL RESOURCE FINDINGS

*[fill in appropriate section(s)]*

<b>1. NMCRIS Activity No.:</b> 101166	<b>2. Lead (Sponsoring) Agency:</b> City of Albuquerque, Bernalillo County	<b>3. Lead Agency Report No.:</b>
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**SURVEY RESULTS:**

Sites discovered and registered: 7

Sites discovered and NOT registered: 0

Previously recorded sites revisited (site update form required): 3

Previously recorded sites not relocated (site update form required): 0

TOTAL SITES VISITED: 10

Total isolates recorded: 54

Non-selective isolate recording? 

Total structures recorded (new and previously recorded, including acequias): 0

**MANAGEMENT SUMMARY:** This report presents the results of a Class I (records search) and Class II (20 percent field inventory) cultural resource survey by Marron for proposed commercial and residential development at Mesa del Sol, Bernalillo County, New Mexico. The project area consists entirely of private land, some of which was acquired from the New Mexico State Land Office in July 2006. The project includes commercial development, single- and multiple-family housing, recreation areas, schools, and open space. The project APE consists of approximately 1214.5 ha (3001 ac) of which 87 ha (215 ac) are west of I-25, 182.9 ha (452 ac) are east of I-25 in the flats and badlands bordering the East Mesa, and 944.6 ha (2334 ac) are on the gently rolling terrain of the East Mesa. A total of 247.6 ha (612 ac)—20 percent of the 1214.5 ha (3001 ac)—was surveyed using 22 122-m (400-ft) wide transects in the project APE. The built environment APE includes buildings with construction dates prior to 1962 that are within 30 m (100 ft) of the 22 transects.

The 22 transects were placed in six delineated areas based on the parcel location and size. Areas are numbered from one to six, with the smallest designated one and the largest designated six. Area 1 is northwest of the I-25 and NM 47 intersection and is 5.7 ha (14 ac). Area 2 is southwest of the I-25 and NM 47 intersection and is 9.7 ha (24 ac). Area 3 is in the northeast corner of the project APE and is 16.2 ha (40 ac). Area 4 is west of I-25 south of Tijeras Arroyo and is 81.3 ha (201 ac). Area 5 borders the east side of I-25 from the I-25 and NM 47 intersection at the south end for a distance of about 4 km (2.5 mi) north and it is 173.2 ha (428 ac). Finally, Area 6 is on the flats of the East Mesa south and east of the Journal Pavilion and sports facilities and is 928.4 ha (2294 ac).

Three previously recorded sites—LA 69517, LA 69520, and LA 153415—were revisited, and seven new sites—LA xx2, xx4, xx5, xx6, xx7, xx9, and xx10—and 54 isolated occurrences (IOs) were recorded. Two previously recorded sites, LA 69517 and LA 69520 and five newly recorded sites—LA xx2 and LA xx4 thru LA xx7—are recommended eligible for listing on the National Register of Historic Places (NRHP) under Criterion D, information potential. One previously recorded site, LA 153415, is recommended eligible for listing under Criterion A, association with events that have made a significant contribution to the broad patterns of our history. Newly recorded sites LA xx9 and LA xx10 are recommended ineligible for the NRHP.

Site summaries and recommendations.

Site LA	Affiliation	Remains	NRHP Recommendation	NRHP Effects
69517	Unknown prehistoric	Lithics	Eligible, D	Adverse effect
69520	Unknown prehistoric	Lithics, feature	Eligible, D	Adverse effect
153415	Euroamerican	Road, artifacts	Eligible, A	Adverse effect
xx2	Unknown prehistoric	Lithics, features	Eligible, D	Adverse effect
xx4	Unknown prehistoric	Lithics, feature	Eligible, D	No adverse effect
xx5	Unknown prehistoric	Lithics, feature	Eligible, D	No adverse effect
xx6	Unknown prehistoric	Lithics	Eligible, D	No adverse effect
xx7	Unknown prehistoric	Lithic tools	Eligible, D	No adverse effect
xx9	Euroamerican	Military, artifacts	Not eligible	No effect
xx10	Euroamerican	Farmstead, artifacts	Not eligible	No effect

LA 69517, a chipped stone artifact scatter recommended eligible for the NRHP, is entirely within the project APE. Although its location is scheduled for use as park or open space, the site will probably experience increased visitation as the mesa is populated. The proposed Mesa del Sol development project, therefore, will have an adverse effect on LA 69517.

LA 69520, a lithic artifact scatter with intact subsurface cultural deposits, is recommended eligible for the NRHP. The site is entirely within the proposed APE and is in an area slated for commercial development. The proposed Mesa del Sol development project, therefore, will have an adverse effect on LA 69520.

LA 153415, a historic road that connects Atrisco to the Hell's Canyon Road and the salt flats east of the Manzano Mountains, has appeared on published maps since 1864 and is currently used as a ranch road. A 3.2-km (2-mi) segment of the road, which is recommended eligible for the NRHP, is in the project APE. Proposed residential and commercial development will alter the characteristics that qualify the site for the NRHP by changing its nature and use. The proposed Mesa del Sol development project, therefore, will have an adverse effect on LA 153415. The segment of LA 153415 within the project APE, however, has been

documented and no additional investigations regarding this portion of the road are recommended.

LA xx2 contains a chipped stone artifact scatter, a hearth, and buried cultural materials. The site, which is recommended eligible for the NRHP, is entirely within the project APE and its location is scheduled for commercial development. The proposed Mesa del Sol development project, therefore, will have an adverse effect on LA xx2.

LA xx4 is a chipped stone artifact scatter with a possible hearth. The site, which is recommended eligible for the NRHP, is entirely within the project APE, in the proposed Trunk Open Space Network. If this open space remains as currently planned, the proposed Mesa del Sol development project will have no adverse effect on LA xx4.

LA xx5 is a chipped stone artifact scatter with a fire-cracked rock scatter. The site, which is recommended eligible for the NRHP, is entirely within the project APE, in the proposed Trunk Open Space Network. If this open space remains as currently planned, the proposed Mesa del Sol development project will have no adverse effect on LA xx5.

LA xx6 is a chipped stone artifact scatter. The site, which is recommended eligible for the NRHP, is entirely within the project APE, in the proposed Trunk Open Space Network. If this open space remains as currently planned, the proposed Mesa del Sol development project will have no adverse effect on LA xx6.

LA xx7 is a lithic procurement and stone tool manufacturing site that contains undisturbed, buried cultural materials. The site, which is recommended eligible for the NRHP, is entirely within the project APE, in the proposed Trunk Open Space Network. If this open space remains as currently planned, the proposed Mesa del Sol development project will have no adverse effect on LA xx7.

LA xx9, a World War II to Cold War radar ranging station, is entirely within the proposed APE, in the area scheduled for Phase I commercial development. Although the site will be disturbed or destroyed by the proposed project, it is recommended ineligible for the NRHP. The proposed Mesa del Sol development project, therefore, will have no effect on LA xx9.

LA xx10, a razed farm, is entirely within the project APE, in an area scheduled for commercial development. Although the site will be disturbed or destroyed by the proposed project, it is recommended ineligible for the NRHP. The proposed Mesa del Sol development project, therefore, will have no effect on LA xx10.

In general, little research has focused on prehistoric lithic procurement sites in the Albuquerque area. It is very probable that the research potential of the seven lithic procurement sites—LA 69517, LA 69520, LA xx2, and LA xx4 thru LA xx7—revisited or recorded during the present survey, as well as other lithic procurement sites recorded in the area (e.g., see Brown 1997; Doleman 1989, 2000; Gossett 1989), is greater than what is generally assumed and what is usually obtained from cursory in-field artifact analyses. These sites can potentially yield important information concerning prehistoric land-use and lithic procurement strategies. In addition, obsidian hydration dates can be obtained for sites with obsidian artifacts (e.g., LA xx6 and LA xx7) and the features on some sites may contain datable charcoal. The dating of these sites would undoubtedly provide information concerning the continuity of, or changes in, land-use and lithic procurement strategies through time.

The 54 IOs have been recorded and are not likely to yield important information beyond what has been documented. None is eligible for the NRHP and no additional investigations are recommended concerning the IOs. In addition, no buildings with construction dates prior to 1962 are in the 22 transects or within 30 m (100 ft) of them.

No additional cultural resource investigations are recommended at this time. If cultural materials or human burials are encountered during construction, work in that area should stop and a qualified cultural resource specialist should be notified. In addition, in the case of human burials, the local law enforcement agency, the New Mexico OMI, and the New Mexico SHPO must also be notified immediately.

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)
Xx2	2	Yes, Criteria D
Xx4	4	Yes, Criteria D
Xx5	5	Yes, Criteria D
Xx6	6	Yes, Criteria D
Xx7	7	Yes, Criteria D
Xx9	9	No
Xx10	10	No

Previously recorded revisited sites:

LA No.	Field/Agency No.	Eligible? (Y/N, applicable criteria)
69517	3	Yes, Criteria D
69520	1	Yes, Criteria D
153415	8	Yes, Criteria A

MONITORING LA NUMBER LOG (site form required)

Sites Discovered (site form required) :      Previously recorded sites (Site update form required):

LA No.	Field/Agency No.	LA No.	Field/Agency No.

Areas outside known nearby site boundaries monitored? Yes , No  If no explain why:

TESTING & EXCAVATION LA NUMBER LOG (site form required)

Tested LA number(s)	Excavated LA number(s)

Previous Research:

Previously recorded sites within 0.5 km (0.3 mi) of the project area.

LA #	Cultural Affiliation	Reference	NMCRIS
12570	Unknown Archaic, 5500 BC-AD 900	Seaman 1975 Doleman 1989 Gossett 1989	NA 25187 39571
53444	Anglo Euroamerican AD 1940-1950	Haecker 1985	10636
69495	Early Archaic, 5500-3000 BC	Doleman 1989 Doleman 2000	25187 66394
69496	Unknown prehistoric, 9500 BC-AD 1850	Doleman 1989	25187
69497	Unknown prehistoric, 9500 BC-AD 1993 Pueblo IV, AD 1300-1600	Doleman 1989	25187
69498	Unknown Archaic, 5500 BC-AD 900	Doleman 1989 Doleman 2000	25187 66394
69506	Unknown prehistoric, 9500 BC-AD 1850	Doleman 1989 Gossett 1989 Winter and Doleman 1989	25187 39571 58370
69507	Unknown Archaic, 5500 BC-AD 900	Doleman 1989 Gossett 1989 Winter and Doleman 1989	25187 39571 58370
69509	Unknown Archaic, 5500 BC-AD 900	Doleman 1989 Gossett 1989 Doleman 2000	25187 39571 66394
69511	Unknown prehistoric, 9500 BC-AD 1993 Unknown Anasazi, AD 1-1600	Doleman 1989	25187
69512	Unknown prehistoric, 9500 BC-AD 1993 Euramerican, AD 1900-1945	Doleman 1989	25187
69517	Unknown prehistoric, 9500 BC-AD 1993	Doleman 1989	25187
69518	Unknown Archaic, 5500 BC-AD 900	Doleman 1989 Doleman 2000	25187 66394



69520	Unknown prehistoric, 9500 BC–AD 1850	Doleman 1989 Doleman 2000	25187 66394
69521	Unknown prehistoric, 9500 BC–AD 1850	Doleman 1989 Doleman 2000	25187 66394
69522	Unknown Archaic, 5500 BC–AD 900	Doleman 1989 Doleman 2000	25187 66394
72052	Unknown prehistoric, 9500 BC–AD 1880	Gossett 1989	39571
108649	Puebloan, Basketmaker III, AD 500–700	McKenna 1995	48580
108650	Unknown prehistoric, 9500 BC–AD 1880	McKenna 1995	48580
108651	Puebloan, AD 1175–1400	McKenna 1995	48580
112793	Unknown prehistoric, 9500 BC–AD 1850	Brown 1997 Ecosystem Management 2000	51993 66898
112794	Anasazi, AD 100–1600	Brown 1997 Brown 2002	51993 79007
112795	Anasazi, AD 100–1600	Brown 1997	51993
112796	Anasazi, AD 100–1600	Brown 1997 Ecosystem Management 2000	51993 66898
112797	Anasazi, AD 100–1600	Brown 1997 Ecosystem Management 2000	51993 66898
113556	Unknown prehistoric, 9500 BC–AD 1550	Evaskovich et al. 1997	52308
126711	Unknown prehistoric, 9500 BC–AD 1550	Goar and Acklen 1999a	64317
128182	Unknown prehistoric, 9500 BC–AD 1550	Goar and Acklen 1999b	65751
128810	Unknown Archaic, 5500 BC–AD 900 Early Pueblo III, AD 1200–1250	Doleman 2000 Goar 2000a	66394 72196
128811	Late Archaic, 800 BC–AD 400	Doleman 2000 Goar 2000b	66394 72230
129145	Unknown prehistoric, 9500 BC–AD 1550	Goar and Acklen 1999b Goar 2000a	65751 72196
130419	Unknown prehistoric, 9500 BC–AD 1999	Goar and Acklen 2000	70894
153415	Euroamerican, AD 1860–2006	Estes et al. 2006a Estes et al. 2006b	100115 100120

## Environment:

### Albuquerque Basin

The project area lies within the Mexican Highland Section of the Basin and Range Physiographic Province (Hawley 1986:24). It is east of the Rio Grande, the only perennial river in the area. The Rio Grande Valley in New Mexico consists of a series of north-south oriented basins that comprise part of the Rio Grande depression or rift belt that stretches across the state. These basins are linked by narrow valleys and structural bedrock constrictions situated at either end of the basins (Kelley 1977:7, 35). The project area is part of the Albuquerque Basin of central New Mexico. This basin, the largest in the Rio Grande Rift, is 164 km (102 mi) long (north-south) and 40 to 64 km (25–40 mi) wide (east-west). It is bounded on the west by the Colorado Plateau and on the east by the Sandia, Manzano, and Los Pinos fault blocks (i.e., mountains) that tilt eastward. “These mountains consist of granitic igneous rocks of Precambrian age and metamorphic rocks of schist, gneiss, and quartzite on the rugged west face” (Pease 1975:118). The foothills consist of limestones, sandstones and shale (Pease 1975:118). The north end of the Albuquerque Basin is the Cerrillos constriction that separates it from the Española Basin and the south end is the Socorro constriction that connects with the San Marcial Basin. The Albuquerque Basin is drained by the Rio Puerco in the west and by the Rio Grande in the east. Both drainages are deeply entrenched into a former high basin surface that is preserved in the Ceja Mesa divide between the two drainages (Kelley 1977:7–8, 35, 43).

This integrated system of linked basins varies in depth. The fill consists of sand, silt, mud, and gravel that eroded from the neighboring mountains. These sediments are generally referred to as the Santa Fe Formation or Group (Miocene-Pliocene) and are thousands of feet thick. The Santa Fe formation contains sandstone, mudstone, gravel, and redeposited shales (Fitzsimmons 1959:114; Kelley 1977:7). The gravels of this formation include cherts, chalcedonies, quartzites, and obsidian that were important lithic raw materials for the prehistoric inhabitants of the area. The Santa Fe formation is overlain by the more recent (Pleistocene) “relatively thin alluvial pediment gravel and sand of the Ortiz surface” (Kelley 1977:20). This widespread erosion surface ranges from 1.5 m (5 ft) to as much as 45.7 m (150 ft) thick (Kelley 1977:20–21, 25).

### East Mesa

The project area is on the East Mesa of the Albuquerque Basin. The East Mesa is a preserved remnant of the former widespread basin surface into which the present Rio Grande is deeply entrenched. The surface of this mesa is the Ortiz surface (Kelley 1977:25, 28, 30). It is capped by aeolian sand blankets and dunes along the mesa edge. “The largest area of sand blanket and dunes lies east of the Rio Grande along the western edge of the Ortiz surface between Tijeras Arroyo on the north and Abo Arroyo on the south. . . . The sand blanket and dunes lie on the well-developed caliche cap of the Ortiz surface and in places are piled up in low hills behind the edge of the mesa” (Kelley 1977:21, 23).

These wind-blown deposits are post-Pleistocene in age (Kelley 1977:21). The soils of East Mesa are gently sloping to undulating. The topography is defined by broad, shallow, closed depressions and by wide, poorly defined terraces (Pease 1975:118). The vegetation of East Mesa was formerly grassland. Elevation above mean sea level of the proposed commercial and residential development location ranges between 1509 m (4950 ft) near I-25, and 1615 m (5300 ft) on the East Mesa.

### The Rio Grande

The Rio Grande drains the Albuquerque Basin in the vicinity of the project area. This perennial river flows 3018 km (1885 mi) from southern Colorado to the Gulf of Mexico at the extreme end of southern Texas. "From 1598 until the arrival of the Americans, the river in New Mexico was generally known as the Rio del Norte" (Scurlock 1998:184). Formerly, the Rio Grande was a braided, aggrading river with a shifting sand substrate (Crawford et al. 1993:16). A broad valley with low relief characterizes the river in the project vicinity. Prior to settlement of the valley by Anglo-Americans, evidence indicates the river was perennial throughout its course in New Mexico. Even the most arid portions of the Rio Grande had numerous marshes, oxbow pools, and fringe forests of cottonwoods, willows, and shrubby phreatophytes. The former presence of the shovelnose sturgeon near Albuquerque and the recovery of blue sucker remains from Bandelier National Monument and the Cochiti Dam site (Sublette et al. 1990:216, 345) indicate the Rio Grande was formerly a larger river with a perennial flow (Miller 1961). In addition, the former occurrence of other big river fishes, such as the gray redhorse, longnose gar, blue catfish, flathead catfish, and freshwater drum, in the Valencia area (Brown and Brown 1997:327) is also indicative of the former increased flow of the Rio Grande. After the Civil War, the increased western migration of Anglo-American settlers resulted in a greater population and more intensified ranching and farming activities. By 1880, nearly all irrigable land in the Rio Grande Valley was under development, resulting in water shortages. By the end of the nineteenth century, the grasslands were overgrazed and stream flows were erratic. Soil erosion accelerated, resulting in wider, shallower stream channels (Sublette et al. 1990:10).

The present Rio Grande Valley was eroded during the early Holocene. Aggradation since that time, however, has resulted from decreased flow and increased aridity (Kelley 1977:33). Prior to channelization in 1957, the river filled its bed with sediments. "It slowly shifted its channel and released its suspended load in bank overflow, thus forming levees higher than the outlying alluvial flats" (Sargeant 1985:2.2). Consequently, the river channel is elevated above many surrounding surfaces, producing areas known as yazoos that become marshlands or swamps during periods of increased runoff. In order to increase flow and transport more sediments downriver, much of the Rio Grande is channelized (Kelley 1977:33).

Periodic flooding was a normal event along the Rio Grande. "A minimum of 82 moderate to major floods occurred during the historic period, 1591–1942" (Scurlock 1998:23). Spring floods resulted from melting snows in the mountains. As noted by Fray Francisco Atanasio Dominguez in 1776,

This river [the Rio Grande] is in flood from mid-April to the end of June. The force of the freshets depends on whether the winter snows have been heavy or light, but they never fail, for it always snows more or less. In a very rainy year the flood season lasts a long time, and the longer it lasts, the greater the damage it does, whether to people or cattle who are drowned, or to farmlands that are swept away, or even to nearby houses that are carried off [Adams and Chavez 1956:7–8].

Some 50 major to moderate floods have been documented for the main stem of the Rio Grande from 1849 to 1942 (Scurlock 1998:32). Beginning in the 1870s, however, the severity and frequency of major flooding along the river increased. This was caused primarily by more sophisticated farming methods, intensive grazing, and the clearing of upland forests that resulted in an aggrading riverbed and increased, more rapid runoff (Scurlock 1998:32; Wozniak 1987).

Floods commonly caused shifts in the river course. Fields and residential locations that were inundated too frequently or over a prolonged period were destroyed or abandoned. The benefits of floods, however, were recognized. These benefits included "the deposition of nutrient-rich sediments for cultigens and native flora, the wetting of their farmlands, and perhaps even the flushing of salts from their fields and irrigation systems" (Scurlock 1998:32).

Damage caused by floods was compounded by the natural levees that prevented floodwaters from flowing back into the river and by the high water table produced by the aggrading river that prevented water from soaking into the ground. In the 1930s, however, the construction of "a comprehensive system of diversion dams, irrigation and drainage ditches, levees, and limited river-training works" (Happ 1948:1192) by the Middle Rio Grande Conservancy District (MRGCD) eased the danger of flooding. Dams built within the Rio Grande watershed have also reduced the threat of floods. In 1957, the Rio Grande was confined to its present channel (Sargeant 1985:2.2).

Coring in the Middle Rio Grande Valley in the early 1900s (Nelson et al. 1914:44) indicated the water table varied in depth from 0.15 to 1.83 m (0.5–6 ft) over more than 90 percent of the valley floor, with an average depth of approximately 58 cm (23 in). The water table was highest from early March until July, when the volume of water in the Rio Grande, resulting from snowmelt from areas farther north, was greatly increased. The water table varied with the rise and fall of the river. The degree of fluctuation was less in the underlying deposits. The river is probably the source of most of the ground water in the valley. As mentioned earlier, the Rio Grande channel is higher than the adjacent valley in many areas (Nelson et al. 1914:45).

## **Tijeras Arroyo**

Tijeras Arroyo, the nearest drainage to the project APE, is an intermittent drainage that originates in Tijeras Canyon and flows west to the Rio Grande. The canyon divides the Sandia and Manzano mountains. Currently, the arroyo only carries water during periods of heavy precipitation. The broad arroyo is deeply entrenched in alluvial deposits. Prehistorically and historically, Tijeras Arroyo has served as a passageway through the mountains between the Rio Grande and the Plains.

## **Soils**

Recorded archaeological sites occur on four general soil associations—the Bluepoint-Kokan association (hilly), Bluepoint loamy fine sand (1 to 9 percent slopes), Madurez loamy fine sand (1 to 5 percent slopes), and Madurez-Wink association—occur within the proposed project APE (Hacker 1977:General Soil Map). This level to moderately sloping soil association consists of well drained loamy soils on piedmonts (Hacker 1977:Sheet Nos. 49 and 50).

### **Bluepoint-Kokan association, hilly (BKD)**

The Bluepoint-Kokan association, hilly (BKD) consists of 50 percent Bluepoint loamy fine sand and 40 percent Kokan gravelly sand. The Bluepoint soil is gently rolling to rolling and has 5 to 15 percent slopes. The Kokan soil is hilly and steep with 15 to 40 percent slopes. The Bluepoint soil is on fans between gravelly ridges of the Kokan soil. Runoff of the Bluepoint-Kokan association is slow. The water erosion hazard is moderate to severe. This soil association is a major source of sand and gravel (Hacker 1977:13–14). Most of the recorded sites in the project sample areas—LA xx1, LA xx3, LA xx4, LA xx5, LA xx6, and LA xx7—occur on the Bluepoint-Kokan association, hilly (BKD).

“The Bluepoint series consists of deep, somewhat excessively drained soils that formed in sandy alluvial and eolian sediments on alluvial fans and terraces” (Hacker 1977:13). The Bluepoint soil varies with depth from a pale brown loamy fine sand (0–20 cm [0–8 in]) to a pale brown (20–51 cm [8–20 in]) to a light yellowish brown (51–152+ cm [20–60+ in]) loamy sand. It is slightly calcareous. The gravel content ranges from 0 to 15 percent (Hacker 1977:13).

“The Kokan series consists of deep, excessively drained soils that formed in old alluvial sand and gravel of mixed sources from the Santa Fe geological formation on dissected terraces” (Hacker 1977:22). Typically, the Kokan soil is a very pale brown, stratified gravelly to very gravelly sand (0–152+ cm [0–60+ in]) that is slightly calcareous. The gravel content is 45 to 75 percent (Hacker 1977:22–23).

### **Bluepoint loamy fine sand, 1 to 9 percent slopes (BCC)**

Bluepoint loamy fine sand, 1 to 9 percent slopes (BCC) has a profile representative of the series, but about 10 percent of the surface layer is sand on 10 percent of the acreage. Runoff is slow and the hazard of soil blowing is severe (Hacker 1977:13). Two sites, LA xx2 and LA xx10, occur on Bluepoint loamy fine sand, 1 to 9 percent slopes (BCC).

### **Madurez loamy fine sand, 1 to 5 percent slopes (MaB)**

The Madurez loamy fine sand (1 to 5 percent slopes) (MaB) is a deep, well drained soil “that formed on piedmonts in old unconsolidated alluvium modified by wind” (Hacker 1977:26). Runoff is slow and permeability is moderate. The wind erosion hazard is severe. Typically, the Madurez loamy fine sand varies with depth from a light brown loamy fine sand (0–10 cm [0–4 in]) to a brown sandy clay loam (10–33 cm [4–13 in]) to a light brown heavy fine sandy loam (33–53 cm [13–21 in]) to a pink heavy sandy loam (53+ cm [21+ in]) (Hacker 1977:26–27). LA 153415, LA xx8, and LA xx9 occur on the Madurez loamy fine sand, 1 to 5 percent slopes (MaB).

### **Madurez-Wink association, gently sloping (MWA)**

The Madurez-Wink association, gently sloping (MWA) consists of 55 percent Madurez fine sandy loam with 1 to 5 percent slopes and 25 percent Wink fine sandy loam with 1 to 7 percent slopes. Small areas of other soils represent 20 of the association. Permeability is moderate and runoff is slow. The wind erosion hazard is moderate to severe (Hacker 1977:26–27). One site, LA xx9, occurs on the Madurez-Wink association, gently sloping (MWA).

The Madurez soil is mainly on slightly convex piedmont fans. Typically, the Madurez soil varies with depth from a brown fine sandy loam (0–10 cm [0–4 in]) to a brown sandy clay loam (10–33 cm [4–13 in]) to a light brown heavy fine sandy loam (33–53 cm [13–21 in]) to a pink heavy sandy loam (53–89 cm [21–35 in]) to a pinkish gray sandy loam (89–129 cm [35–51 in]) to a light brown sandy loam (129–152+ cm [51–60+ in]). The Madurez soil is moderately alkaline throughout and is calcareous below 33 cm (13 in) (Hacker 1977:26–27).

Wink soils “formed in old unconsolidated alluvium modified by wind on piedmonts” (Hacker 1977:43). These soils are deep and well drained. Typically, the Wink fine sandy loam varies with depth from a brown fine sandy loam (0–10 cm [0–4 in]) to a brown sandy loam (10–28 cm [4–11 in]) to a light brown sandy loam (28–68 cm [11–27 in]) to a pinkish gray sandy loam (68–89 cm [27–35 in]) to a pinkish white sandy loam (89–152+ cm [35–60+ in]). The Wink soil is calcareous and moderately alkaline (Hacker 1977:27, 43–44).

## **Climate**

The project APE has an arid, continental climate characterized by low rainfall, warm summers, and mild winters. The average annual precipitation is 203 mm (8 in), of which 55 percent—112 mm (4.4 in)—falls from July through October in the form of brief, often heavy thunderstorms. The Gulf of Mexico is the main source of moisture during this period (Houghton 1977:95–96). “Moisture is supplied by the general southeasterly circulation of moist air over the Gulf of Mexico from the Bermuda high pressure area, which shifts westward in summer”

(Houghton 1977:95). During winter, precipitation is provided by eastward-moving Pacific Ocean storms. Most of the moisture, however, is lost in the mountains west of New Mexico. Snowfall averages 254 mm (10 in) annually in the valley and occurs from November to early April. In general, however, precipitation varies greatly from month to month and from year to year (Houghton 1977:95).

The average annual temperature is 14°C (57°F). Within the project area, temperatures of at least 32°C (90°F) are reached an average of 75 days annually. The average frost-free season is 190 days. The annual relative humidity averages 43 percent, varying from a high of 60 percent in the early morning to a low of 30 percent in the afternoon. In June, the afternoon relative humidity averages about 20 percent. Winds are primarily southerly in summer and northerly in winter. Although winds are light throughout most of the year, averaging 14.5 km (9 mi) per hour, spring is the windy season. During this time, the winds are mainly from the southwest. In addition, winds entering the Rio Grande Valley through Tijeras Canyon can gust up to 80 km (50 mi) per hour (Houghton 1977:95–96).

### Vegetation

The project APE is within Bailey's (1913:27) Upper Sonoran Zone and Shreve's (1942:236) Chihuahuan Desert as amended by Schmidt (1979). The vegetation of East Mesa is variously classified as Plains-Mesa Sand Scrub (Dick-Peddie 1993a, 1993b:124, 128–129), Plains and Great Basin Grassland (Brown 1994:115–121; Brown and Lowe 1994), and desert grassland (Castetter 1956). Most of the Plains-Mesa Sand Scrub areas occur in former mesa grassland sites. Drought and overgrazing since 1850 have drastically reduced the grass cover (Dick-Peddie 1993b:128, 131). As a result, forbs and shrubs have replaced the various bunch grasses (e.g., grama species) favored by livestock. The deep sands of the project area "are dominated by species which are deep-sand tolerant or even deep-sand adapted" (Dick-Peddie 1993b:128). Vegetation within the project area includes four-wing saltbush, various bunch grasses, snakeweed, Mormon tea, narrowleaf yucca, juniper, and various cacti.

### Fauna

A wide variety of vertebrate fauna inhabit the valley and adjacent uplands of the Albuquerque area. The taxonomic composition of the area, however, has been greatly affected by flood control measures, irrigation, and urbanization. Formerly, the Rio Grande and its associated marshes supported a variety of fish and aquatic birds and mammals. The river valley is a central flyway for migratory birds such as ducks, geese, shorebirds, and wading birds. Raptors, such as hawks and owls, hunt in the valley and uplands (Freehling 1982:20). A variety of perching birds (e.g., ravens, finches, juncos, jays, robins, sparrows) are also present (Bailey 1928; Peterson 1990). Various mammalian species—cottontail, jackrabbit, prairie dog, beaver, muskrat, coyote, fox, raccoon, badger, bobcat, mule deer—occur in the area (Bailey 1931; Findley et al. 1975; Ivey 1957).

The prehistoric inhabitants of the project area hunted a variety of animals for food, hides, and body parts. All available environmental zones and landforms were exploited. Important game animals were pronghorn, deer, wapiti, bighorn sheep, bison, and leporids—cottontails, jackrabbits. Mammals such as bears, wolves, beavers, bobcats, foxes, and river otters were hunted for their pelts. Turkeys, owls, hawks, eagles, and various perching birds were hunted or raised for their feathers. Quail and waterfowl were procured as secondary food resources. Animals were observed during the current project included jackrabbits, coyotes, round-tailed horned toads, New Mexico whiptail and other lizards, desert box turtles, red tailed hawks, turkey buzzards, nighthawks, doves, and songbirds.

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Isolated Occurrences:

Isolated occurrences locations.

IO	UTM Coordinates		Description
	Easting	Northing	
1	348049	3868312	Massive flake, silicified wood, noncortical Flake, silicified wood, primary Flake, chert, primary Angular debris, chalcedony, noncortical Flake, chalcedony, tertiary Angular debris, chalcedony, noncortical Angular debris, chert, secondary
2	347926	3868986	Flake, silicified wood, primary
3	347937	3869019	Flake, chalcedony, secondary
4	347967	3869042	Pipe, metal, 8-inch diameter, crushed and partly buried
5	347956	3869092	Flake, chalcedony, secondary
6	349052	3872049	Tested cobble, chalcedony, cortical
7	348958	3871489	Multidirectional core, silicified wood, cortical
8	349052	3872049	Flake, chalcedony, tertiary
9	349065	3872057	Flake, fossiliferous chert
10	349056	3872157	Flake, chalcedony, secondary
11	349082	3872180	Flake, chalcedony, secondary
12	349112	3872245	Flake, chalcedony, primary
13	349153	3872424	Flake, silicified wood, primary
14	349193	3872669	Flake, chalcedony, secondary
15	349206	3872704	Three flakes, chalcedony, secondary
16	349243	3872938	Flake, chert, tertiary
17	349152	3872953	Core or tested cobble, chalcedony, cortical
18	349172	3872907	Insulator, aqua glass, fragmentary, "U.S.A." embossed on skirt
19	349088	3872621	Core or tested cobble, chalcedony, cortical
20	348919	3871451	Tested cobble, chalcedony, cortical
21	348921	3871416	Flake, chalcedony, secondary
22	348403	3868545	Flake, fossiliferous chert, secondary Flake, chalcedony, secondary Flake, chalcedony, primary
23	348369	3868535	Trash can, flip-top, cylindrical metal with dome top, painted label "Sanette"
24			Number not used, see LA 69517
25			Number not used, see LA xx4
26	349299	3871393	Retouched flake, chalcedony, unifacial retouch along one edge, secondary
27	349209	3870868	Flake, chalcedony, secondary

28	349219	3870813	Flake, chalcedony, secondary
29	349203	3870681	Flake, chalcedony, tertiary Flake, chalcedony, tertiary
30	349131	3870381	Flake, chalcedony, secondary
31	349024	3870654	Flake, chalcedony, tertiary
32	353157	3872347	Flake, chalcedony, tertiary
33	354119	3870694	Flake, chalcedony, secondary
34	353929	3871256	Metate, sandstone, 29 by 19 cm with irregular 10-by-9-cm depression
35	353870	3871394	Flake, chert, secondary
36	354458	3872562	Flake, obsidian, secondary
37	350323	3871079	Tested cobble, obsidian, cortical
38	350373	3870759	Tested rock, silicified wood, cortical Tested rock, chalcedony, cortical
39	350302	3870713	One tested cobble, chalcedony, cortical Two tested cobbles, obsidian, cortical
40	350297	3870994	Two tested cobbles, obsidian, cortical Flake, obsidian, secondary
41	350258	3871074	Core, obsidian, secondary
42	350233	3871126	Two flakes, chalcedony, secondary
43	350293	3871497	Three flakes, obsidian, secondary Flake, obsidian, tertiary Flake, silicified wood, tertiary Angular debris, obsidian, cortical
44	350263	3871575	Flake, limestone, secondary
45	352012	3871650	Cone-top can, brake fluid (?), 3.5-inch diameter, flat seams, three stepped rings on can body Rectangular can with pull-tab, 1 gallon, marked "Prestone," "antifreeze for your protection" Can, crushed, 1 gallon, entire top missing, 9-3/8 inches high, 6-3/8 inches wide, "Mobil," "Arctic SAE-20W" Can, crushed, 1 gallon, top edge punctured for bail (no grommet), top removed with bayonet-type opener, 7-5/8 inches high, diameter approximately 6¼ inches, 4 rings on base, "Mobil," "06932990A" Can, crushed, 1 gallon, with friction lid
46	352062	3872827	Electronic device, Viz Corporation, probably a radiosonde, fragmentary. Wires, circular capacitors, rheostat-like dial, small sheet metal cone
47	352049	3872470	Flake, chalcedony, secondary
48	351176	3872092	Flake, chalcedony, secondary Flake, chalcedony, primary
49	355108	3874904	Flake, bipolar, obsidian, primary Flake, obsidian, secondary Aluminum tubing with fittings, tube diameter 1¼ inches, chromate green possibly airplane part Bottle, amber glass, embossed applied base, no side or shoulder seams, probably turn-mold, complete except for finish
50	355117	3875118	Flake, silicified wood, secondary Flake, chalcedony, secondary, heavily patinated
51	355098	3871652	Flake, chalcedony, tertiary
52	355064	3870989	Can with friction lid, 4½ inches high, diameter 3-1/8 in
53	355007	3871314	Flake, chalcedony, secondary
54	353276	3872973	Flake, chalcedony, secondary
55	353243	3872512	Hammerstone, quartzite Flake, obsidian, secondary
56	351592	3872867	Flake, obsidian, tertiary Bifacially retouched flake, obsidian, tertiary



*Cultural Resource Report*

**A Class I and Class II Cultural Resource Survey of  
247.6 Hectares (612 Acres) for the  
Mesa del Sol Development,  
Bernalillo County, New Mexico**

By

Mary Quirolo, J. Robert Estes, Marie E. Brown, and Kenneth L. Brown

Edited By

Mary Quirolo, Kenneth L. Brown, and Marie E. Brown

Under

New Mexico State Survey Permit No. NM-06-160-S

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**Cultural Resource Report No. 0199  
NMCRIS No. 101166**

**Marron Project 06044.09**

September 2006

## ABSTRACT

This report presents the results of a Class I (records search) and Class II (20 percent field inventory) cultural resource survey by Marron and Associates, Inc. (Marron) for proposed commercial and residential development at Mesa del Sol, Bernalillo County, New Mexico. The project area consists entirely of private land, some of which was acquired from the New Mexico State Land Office in July 2006. The project includes commercial development, single- and multiple-family housing, recreation areas, schools, and open space. The project Area of Potential Effect (APE) consists of approximately 1214.5 ha (3001 ac) of which 87 ha (215 ac) are west of I-25, 182.9 ha (452 ac) are east of I-25 in the flats and badlands bordering the East Mesa, and 944.6 ha (2334 ac) are on the gently rolling terrain of the East Mesa. A total of 247.6 ha (612 ac)—20 percent of the 1214.5 ha (3001 ac)—was surveyed using 22 122-m (400-ft) wide transects in the project APE. The built environment APE includes buildings with construction dates prior to 1962 that are within 30 m (100 ft) of the 22 transects. Marron conducted the cultural resource survey for Dekker, Perich and Sabatini, Inc. between June 26 and July 10, 2006 under New Mexico State Survey Permit No. NM-06-160-S. The project is being funded with private monies.

The 22 transects were placed in six delineated areas based on the parcel location and size. Areas are numbered from one to six, with the smallest designated one and the largest designated six. Area 1 is northwest of the I-25 and NM 47 intersection and is 5.7 ha (14 ac). Area 2 is southwest of the I-25 and NM 47 intersection and is 9.7 ha (24 ac). Area 3 is in the northeast corner of the project APE and is 16.2 ha (40 ac). Area 4 is west of I-25 south of Tijeras Arroyo and is 81.3 ha (201 ac). Area 5 borders the east side of I-25 from the I-25 and NM 47 intersection at the south end for a distance of about 4 km (2.5 mi) north and it is 173.2 ha (428 ac). Finally, Area 6 is on the flats of the East Mesa south and east of the Journal Pavilion and sports facilities and is 928.4 ha (2294 ac).

Three previously recorded sites—LA 69517, LA 69520, and LA 153415—were revisited, and seven new sites—LA xx2, xx4, xx5, xx6, x7, xx9, and xx10—and 54 isolated occurrences (IOs) were recorded. LA 69517 is a scatter of chipped stone artifacts. LA 69520 is a lithic scatter with intact subsurface cultural deposits. LA 153415 is a historic road that connects Atrisco to the Hell's Canyon Road and the salt flats east of the Manzano Mountains. It has appeared on published maps since 1864 and is currently used as a ranch road. LA xx2 contains a scatter of chipped stone artifacts, a hearth, and buried cultural remains. LA xx4 is a scatter of chipped stone artifacts and a possible hearth. LA xx5 is a chipped stone artifact scatter containing a scatter of fire-cracked rock. LA xx6 is a scatter of chipped stone artifacts. LA xx7 is a lithic procurement and stone tool manufacturing site that has undisturbed, buried cultural materials. LA xx9 is a World War II to Cold War era radar ranging station, and LA xx10 is a razed farm.

Two previously recorded sites, LA 69517 and LA 69520 and five newly recorded sites—LA xx2 and LA xx4 thru LA xx7—are recommended eligible for inclusion on the National Register of Historic Places (NRHP) under Criterion D, information potential. One previously recorded site, LA 153415, is recommended eligible for listing under Criterion A, association with events that have made a significant contribution to the broad patterns of our history. Newly recorded sites LA xx9 and LA xx10 are recommended ineligible for the NRHP.

The 54 IOs have been recorded and are not likely to yield important information beyond what has been documented. None is eligible for the NRHP and no additional investigations are recommended concerning the IOs. In addition, no buildings with construction dates prior to 1962 are in the 22 transects or within 30 m (100 ft) of them.

No additional cultural resource investigations are recommended at this time. If cultural materials or human burials are encountered during construction, work in that area should stop and a qualified

cultural resource specialist should be notified. In addition, in the case of human burials, the local law enforcement agency, the New Mexico Office of the Medical Investigator (OMI), and the New Mexico State Historic Preservation Officer (SHPO) must also be notified immediately.

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## INTRODUCTION

This report presents the results of a Class I (records search) and Class II (20 percent field inventory) cultural resource survey by Marron and Associates, Inc. (Marron) for proposed commercial and residential development at Mesa del Sol, Bernalillo County, New Mexico (Figures 1–4). The project area consists entirely of private land, some of which was acquired from the New Mexico State Land Office in July 2006. The project includes commercial development, single- and multiple-family housing, recreation areas, schools, and open space (Figure 5). The project Area of Potential Effect (APE) consists of approximately 1214.5 ha (3001 ac) of which 87 ha (215 ac) are west of I-25, 182.9 ha (452 ac) are east of I-25 in the flats and badlands bordering the East Mesa, and 944.6 ha (2334 ac) are on the gently rolling terrain of the East Mesa. A total of 247.6 ha (612 ac)—20 percent of the 1214.5 ha (3001 ac)—was surveyed using 22 122-m (400-ft) wide transects in the project APE. The built environment APE includes buildings with construction dates prior to 1962 that are within 30 m (100 ft) of the 22 transects. Marron conducted the cultural resource survey for Dekker, Perich and Sabatini, Inc. between June 26 and July 10, 2006 under New Mexico State Survey Permit No. NM-06-160-S. The project is being funded with private monies.

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No additional cultural resource investigations are recommended at this time. If cultural materials or human burials are encountered during construction, work in that area should stop and a qualified

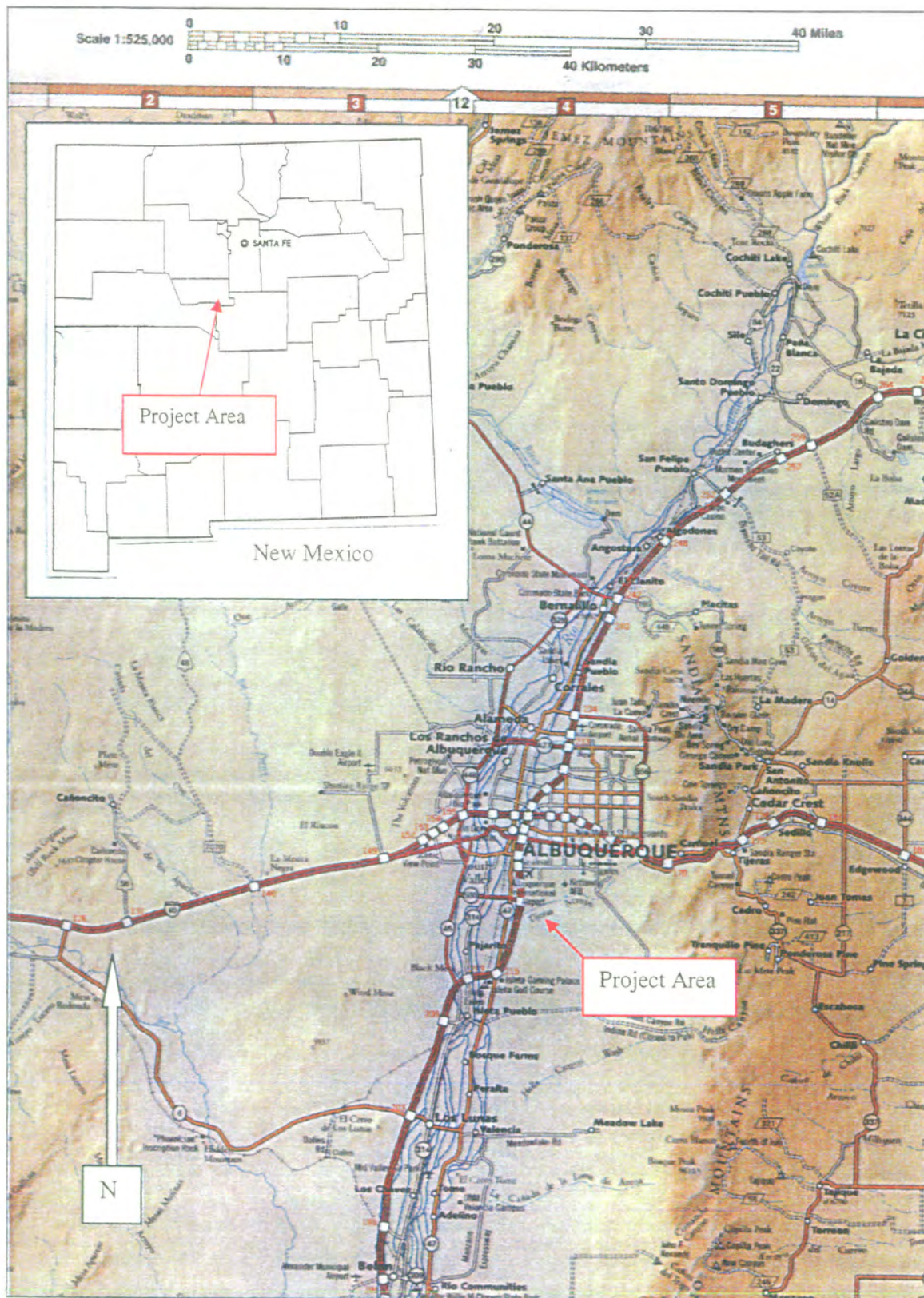


Figure 1. Project area in north-central New Mexico (from Benchmark Maps)



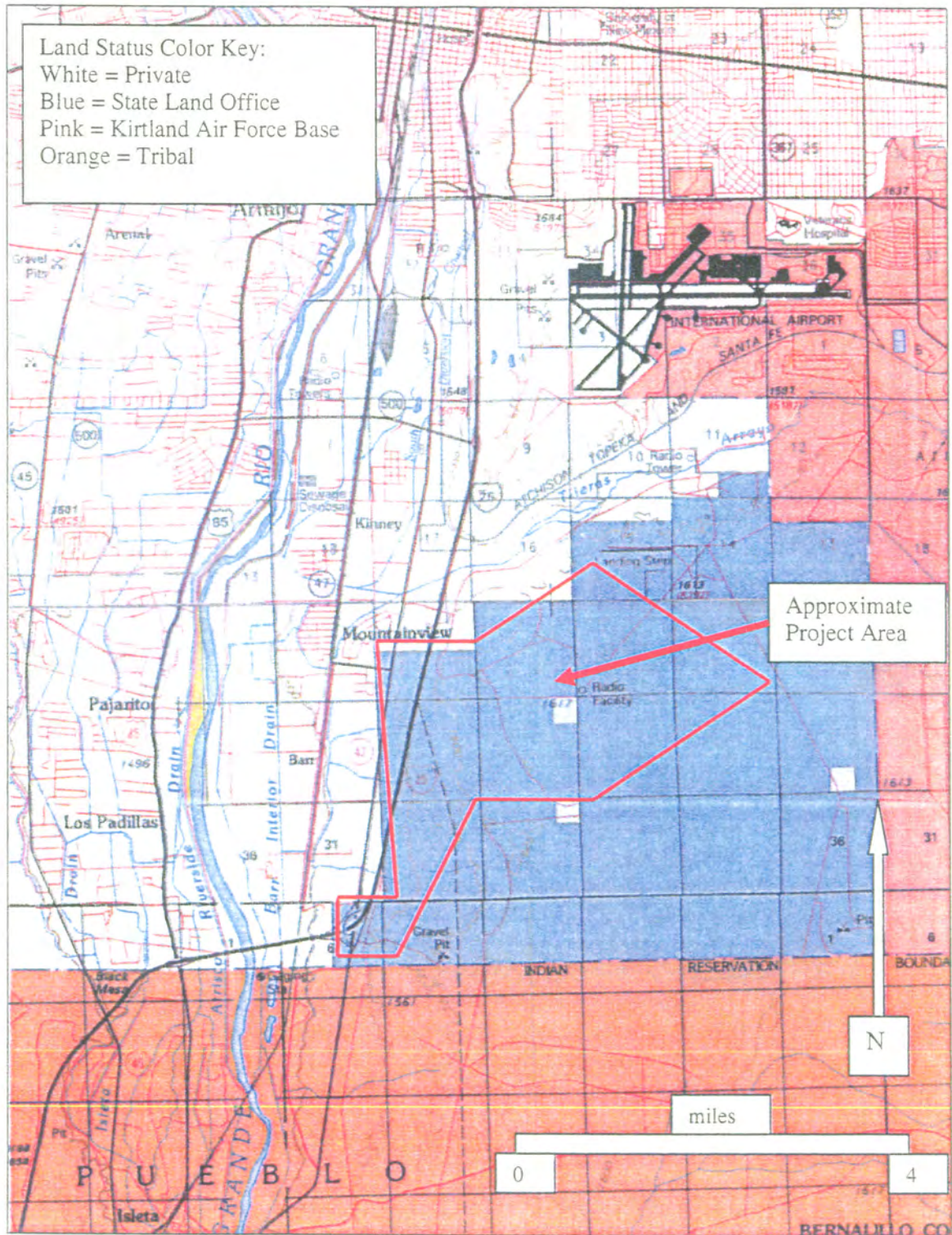
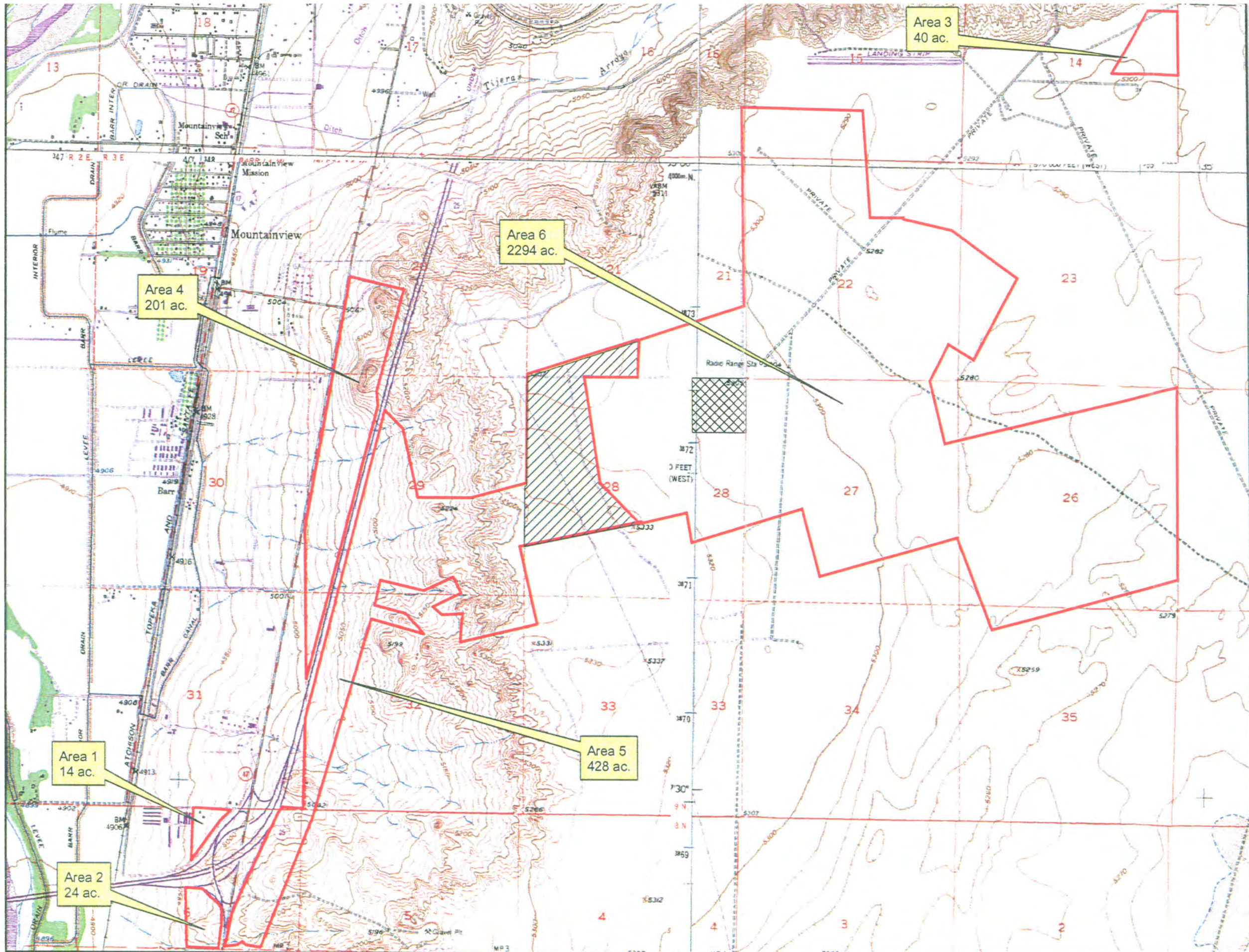


Figure 2. Project area land status (from BLM land status map).



- Legend:
- Project area boundaries
  - Landfill
  - Private property

**Figure 3**  
Project Area and  
Location Map

USGS 7.5 Minute  
Albuquerque East, Albuquerque West,  
Isleta, and Hubbell Springs,  
NM Quadrangles

0 260 520 780 1,040  
Meters

1:28,000

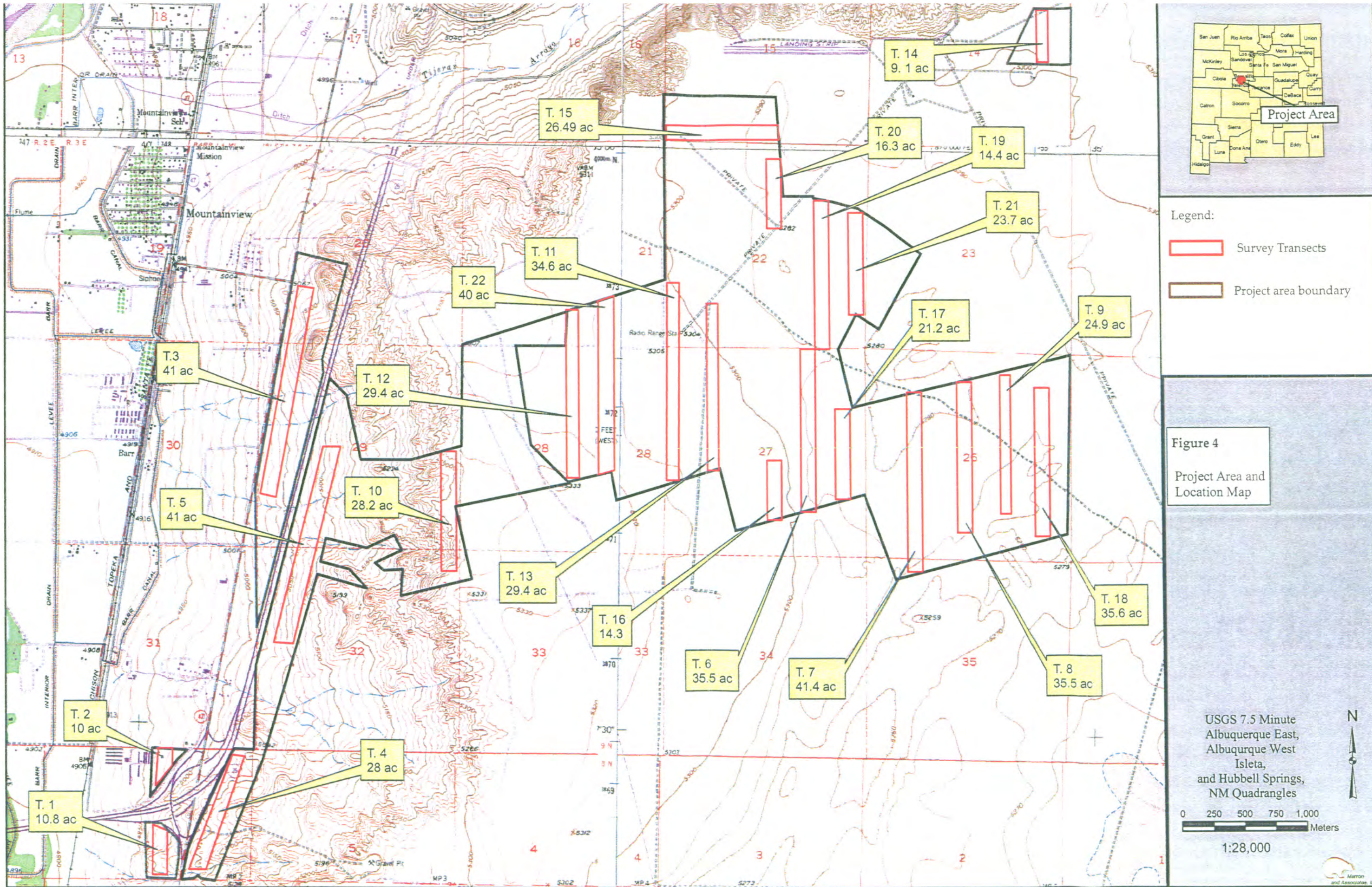


Figure 4  
Project Area and Location Map

USGS 7.5 Minute  
Albuquerque East,  
Albuquerque West  
Isleta,  
and Hubbell Springs,  
NM Quadrangles

0 250 500 750 1,000  
Meters

1:28,000

# MASTER PLAN Mesa del Sol

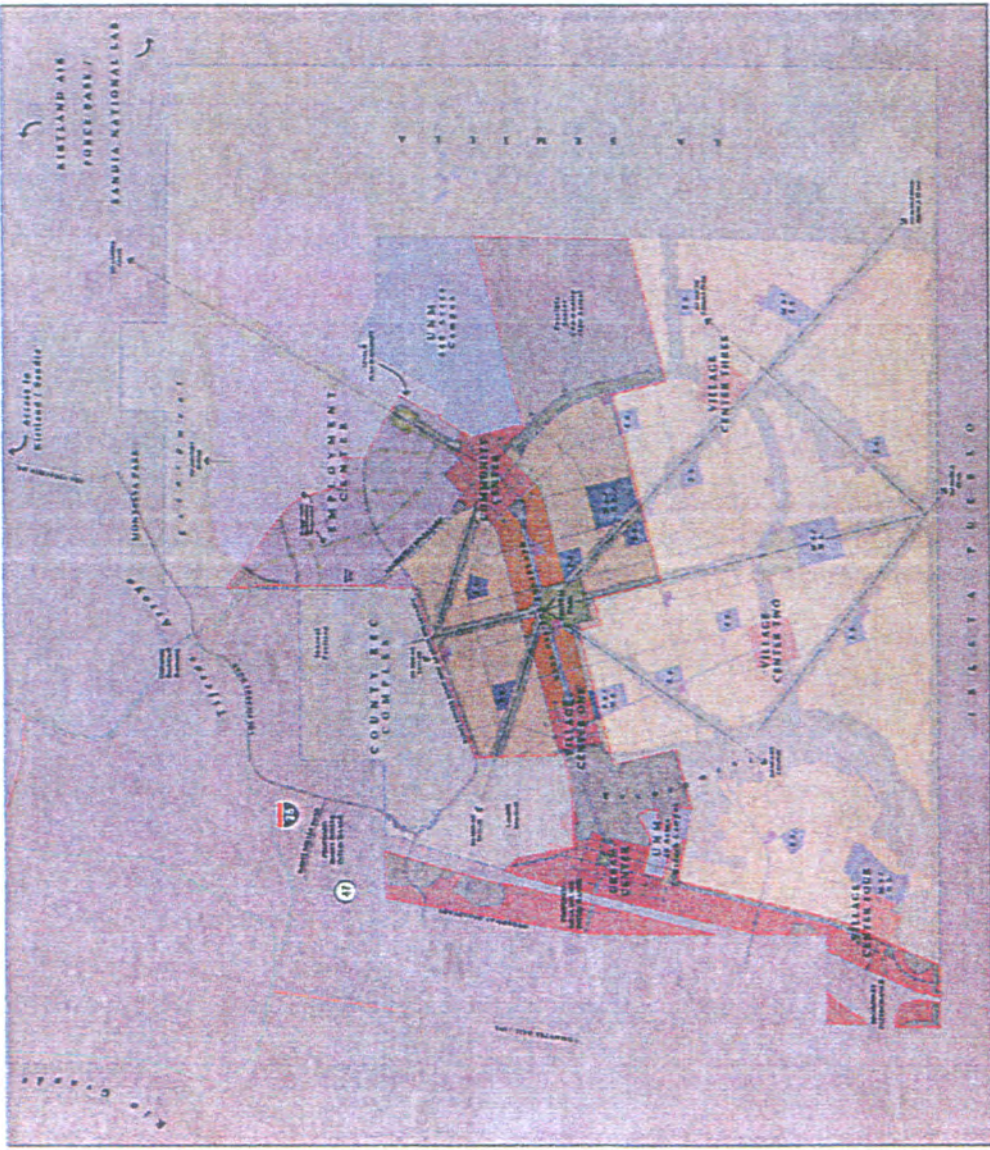
Albuquerque, New Mexico

Date: 5/2004



**LEGEND**  
Land Use

[Red]	Mixed Use Center
[Purple]	Employment Center
[Orange]	Community Center
[Light Blue]	Office / R&D
[Green]	Residential
[Yellow]	Open Space / Recreational
[Dark Green]	Forest / Wetland
[Dark Blue]	Water



**MESA DEL SOL**  
Project: Mesa del Sol, Albuquerque, New Mexico

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 TEL: (303) 555-1600 FAX: (303) 555-1601 WWW.CALTERRA.COM

Figure 5. Project plan map.

cultural resource specialist should be notified. In addition, in the case of human burials, the local law enforcement agency, the New Mexico Office of the Medical Investigator (OMI), and the New Mexico State Historic Preservation Officer (SHPO) must also be notified immediately.

This undertaking complies with the provisions of the New Mexico Cultural Properties Act, the New Mexico Cultural Properties Protection Act, and applicable regulations. The report is consistent with applicable state standards for cultural resource management. Kenneth L. Brown served as the Principal Investigator. J. Robert Estes conducted the archival searches and supervised the field survey. Hansene Gustafson, Mary Quirolo, and Keith Thomas assisted in the field survey. A total of 221 person-hours (not including driving time) and a total driving distance of 720 km (450 mi) were required to complete the cultural resource survey.

## PROJECT LOCATION

The project is south of Tijeras Arroyo on Albuquerque's East Mesa and on the escarpment and flats bordering the mesa edge. It consists entirely of private land, some of which was acquired from the New Mexico State Land Office in July 2006. The project APE consists of approximately 1214.5 ha (3001 ac) of which 87 ha (215 ac) are west of I-25, 182.9 ha (452 ac) are east of I-25 in the flats and badlands bordering the East Mesa, and 944.6 ha (2334 ac) are on the gently rolling terrain of the East Mesa. The built environment APE includes buildings with construction dates prior to 1962 that are in or within 30 m (100 ft) of the 22 122-m (400-ft) wide transects. A total of 247.6 ha (612 ac)—20 percent of the 1214.5 ha (3001 ac)—was surveyed for the project. The proposed commercial and residential development area is on the Albuquerque East (35106-A5), Hubbell Spring (1952/1975, 34106-H5), and Isleta (34106-H6) 7.5-minute USGS quadrangles (Figure 3). The project APE is in Township 9 North, Range 3 East, Sections 14, 15, 20, 21, 22, 26, 27, 28, 29, 32, 35, and Township 8 North, Range 3 East, Section 6, Bernalillo County, New Mexico (Figure 3). Table 1 summarizes the legal locations.

Table 1. Project sample area legal descriptions.

T9N, R3E		T8N, R3E	
Section 14	SE $\frac{1}{4}$ and NE $\frac{1}{4}$	Section 6	NE $\frac{1}{4}$ and SE $\frac{1}{4}$
Section 15	SW $\frac{1}{4}$ and SE $\frac{1}{4}$		
Section 20	SW $\frac{1}{4}$		
Section 21	SE $\frac{1}{4}$		
Section 22	SW $\frac{1}{4}$ and NE $\frac{1}{4}$ and SE $\frac{1}{4}$		
Section 26	NE $\frac{1}{4}$ and SE $\frac{1}{4}$ and SW $\frac{1}{4}$ and NW $\frac{1}{4}$		
Section 27	NE $\frac{1}{4}$ and SE $\frac{1}{4}$ and SW $\frac{1}{4}$ and NW $\frac{1}{4}$		
Section 28	NE $\frac{1}{4}$ and SE $\frac{1}{4}$		
Section 29	SE $\frac{1}{4}$ and SW $\frac{1}{4}$ and NW $\frac{1}{4}$		
Section 32	NW $\frac{1}{4}$ and NE $\frac{1}{4}$		
Section 35	NW $\frac{1}{4}$		

The 22 transects were placed in six delineated areas based on the area location and size (Table 2) (Figure 4). Areas are numbered from one to six, with the smallest designated one and the largest designated six. Area 1 is northwest of the I-25 and NM 47 intersection and is 5.7 ha (14 ac). Area 2 is southwest of the I-25 and NM 47 intersection and is 9.7 ha (24 ac). Area 3 is in the northeast corner of the project APE and is 16.2 ha (40 ac). Area 4 is west of I-25 south of Tijeras Arroyo and is 81.3 ha (201 ac). Area 5 borders the east side of I-25 from the I-25 and NM 47 intersection at the south end for a distance of about 4 km (2.5 mi) north and it is 173.2 ha (428 ac). Finally, Area 6 is on the flats of the

Table 2. Project sample area sizes and landmark UTM coordinates.

Project Area	Project Landmarks (see Figure 3)	Surveyed Hectares (Acres)	UTM Coordinates (Zone 13)	
			Easting	Northing
Area 2	Transect 1 south end	4.4 ha	347949	3868629
	Transect 1 north end	(10.8 ac)	347753	3868670
Area 1	Transect 2 south end	4 ha	347935	3869220
	Transect 2 north end	(10 ac)	347961	3869271
Area 4	Transect 3 south end	16.6 ha	348850	3871313
	Transect 3 north end	(41 ac)	349168	3872981
Area 5	Transect 4 south end	11.3 ha	348226	3868291
	Transect 4 north end	(28 ac)	348582	3869228
	Transect 5 south end	16.6 ha	348909	3870126
	Transect 5 north end	(41 ac)	349308	3871681
Area 6	Transect 6 south end	14.4 ha	353118	3871166
	Transect 6 north end	(35.5 ac)	353118	3872463
	Transect 7 south end	16.8 ha	354018	3870687
	Transect 7 north end	(41.5 ac)	354021	3872115
	Transect 8 south end	14.4 ha	354413	3870998
	Transect 8 north end	(35.5 ac)	354419	3872193
	Transect 9 south end	9.9 ha	354742	3871147
	Transect 9 north end	(24.5 ac)	354746	3872250
Area 5	Transect 10 south end	11.4 ha	350308	3870692
	Transect 10 north end	(28.2 ac)	350289	3871650
Area 6	Transect 11 south end	16.2 ha	352096	3871420
	Transect 11 north end	(40 ac)	352102	3872985
	Transect 12 south end	11.9 ha	351292	3871440
	Transect 12 north end	(29.4 ac)	351296	3872769
	Transect 13 south end	11.9 ha	352410	3871502
	Transect 13 north end	(29.4 ac)	352412	3872821
Area 3	Transect 14 south end	3.7 ha	355077	3874722
	Transect 14 north end	(9.1 ac)	355073	3875131
Area 6	Transect 15 west end	10.7 ha	352060	3874164
	Transect 15 east end	(26.5 ac)	352952	3874162
	Transect 16 south end	5.8 ha	352900	3871106
	Transect 16 north end	(14.3 ac)	352902	3871576
	Transect 17 south end	8.6 ha	353450	3871268
	Transect 17 north end	(21.2 ac)	353452	3871984
	Transect 18 south end	14.4 ha	355033	3870969
	Transect 18 north end	(35.6 ac)	355037	3872151
	Transect 19 south end	14.4 ha	353291	3872458
	Transect 19 north end	(35.6 ac)	353295	3873627
	Transect 20 south end	6.6 ha	352912	3873411
	Transect 20 north end	(16.3 ac)	352912	3873953
	Transect 21 south end	9.6 ha	353568	3872734
	Transect 21 north end	(23.7 ac)	353565	3873528
Area 6	Transect 22 south end	14 ha	351556	3871483
	Transect 22 north end	(34.6 ac)	351569	3872860

East Mesa south and east of the Journal Pavilion and sports facilities and is 928.4 ha (2294 ac) (Figures 6–21).

The Universal Transverse Mercator (UTM) coordinates for the project were obtained with a Trimble XT GPS unit using the Western U.S., 1927 North American Datum (NAD). Post-field differential correction of the data used the Albuquerque CORS1 base station and yielded an error of less than 1 m (3.3 ft). Project area landmark UTM coordinates (Zone 13) are listed in Table 2. The landmarks are start and end points of the 22 pedestrian transects within the project APE sample areas (Figure 3).

## NATURAL ENVIRONMENT

### Albuquerque Basin

The project area lies within the Mexican Highland Section of the Basin and Range Physiographic Province (Hawley 1986:24). It is east of the Rio Grande, the only perennial river in the area. The Rio Grande Valley in New Mexico consists of a series of north-south oriented basins that comprise part of the Rio Grande depression or rift belt that stretches across the state. These basins are linked by narrow valleys and structural bedrock constrictions situated at either end of the basins (Kelley 1977:7, 35). The project area is part of the Albuquerque Basin of central New Mexico. This basin, the largest in the Rio Grande Rift, is 164 km (102 mi) long (north-south) and 40 to 64 km (25–40 mi) wide (east-west). It is bounded on the west by the Colorado Plateau and on the east by the Sandia, Manzano, and Los Pinos fault blocks (i.e., mountains) that tilt eastward. “These mountains consist of granitic igneous rocks of Precambrian age and metamorphic rocks of schist, gneiss, and quartzite on the rugged west face” (Pease 1975:118). The foothills consist of limestones, sandstones and shale (Pease 1975:118). The north end of the Albuquerque Basin is the Cerrillos constriction that separates it from the Española Basin and the south end is the Socorro constriction that connects with the San Marcial Basin. The Albuquerque Basin is drained by the Rio Puerco in the west and by the Rio Grande in the east. Both drainages are deeply entrenched into a former high basin surface that is preserved in the Ceja Mesa divide between the two drainages (Kelley 1977:7–8, 35, 43).

This integrated system of linked basins varies in depth. The fill consists of sand, silt, mud, and gravel that eroded from the neighboring mountains. These sediments are generally referred to as the Santa Fe Formation or Group (Miocene-Pliocene) and are thousands of feet thick. The Santa Fe formation contains sandstone, mudstone, gravel, and redeposited shales (Fitzsimmons 1959:114; Kelley 1977:7). The gravels of this formation include cherts, chalcedonies, quartzites, and obsidian that were important lithic raw materials for the prehistoric inhabitants of the area. The Santa Fe formation is overlain by the more recent (Pleistocene) “relatively thin alluvial pediment gravel and sand of the Ortiz surface” (Kelley 1977:20). This widespread erosion surface ranges from 1.5 m (5 ft) to as much as 45.7 m (150 ft) thick (Kelley 1977:20–21, 25).

### East Mesa

The project area is on the East Mesa of the Albuquerque Basin. The East Mesa is a preserved remnant of the former widespread basin surface into which the present Rio Grande is deeply entrenched. The surface of this mesa is the Ortiz surface (Kelley 1977:25, 28, 30). It is capped by aeolian sand blankets and dunes along the mesa edge. “The largest area of sand blanket and dunes lies east of the Rio Grande along the western edge of the Ortiz surface between Tijeras Arroyo on the north and Abo Arroyo on the south. . . . The sand blanket and dunes lie on the well-developed caliche cap of the Ortiz surface and in places are piled up in low hills behind the edge of the mesa” (Kelley 1977:21, 23). These wind-blown deposits are post-Pleistocene in age (Kelley 1977:21). The soils of East Mesa are



Figure 12. Transect 10, north aspect.



Figure 13. Transect 11, south aspect.





Figure 16. Transect 16, south aspect.



Figure 17. Transect 17, south aspect.



Figure 18. Transect 18, south aspect.



Figure 19. Transect 19, north aspect.



Figure 20. Transect 20, north aspect.

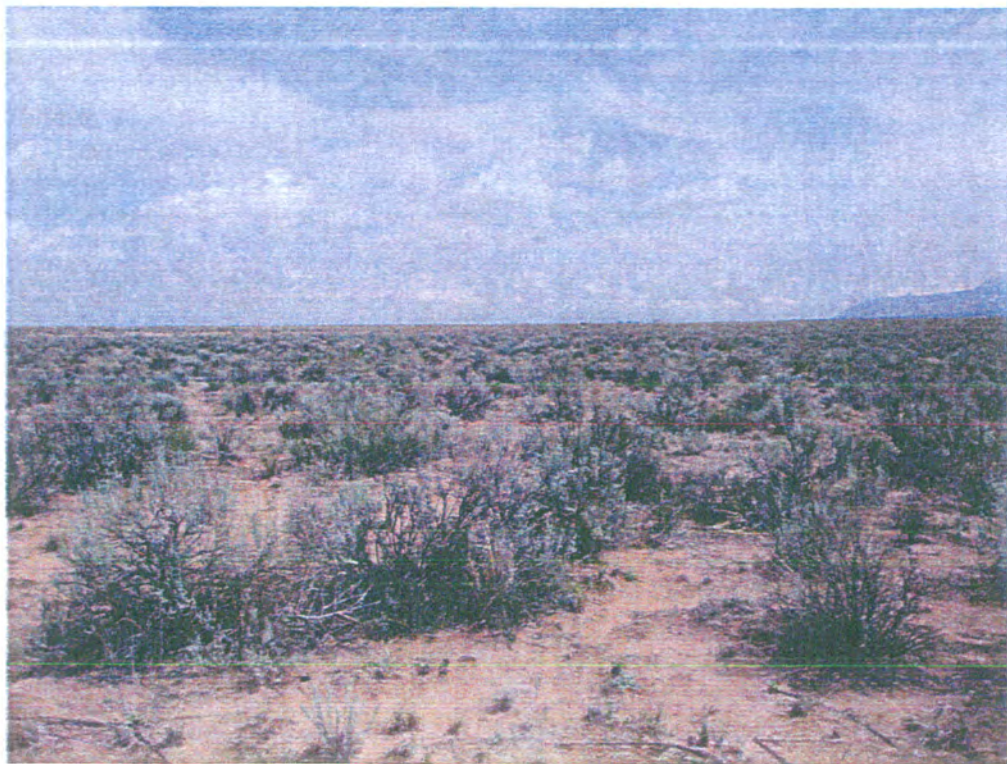


Figure 21. Transect 21, north aspect.

gently sloping to undulating. The topography is defined by broad, shallow, closed depressions and by wide, poorly defined terraces (Pease 1975:118). The vegetation of East Mesa was formerly grassland. Elevation above mean sea level of the proposed commercial and residential development location ranges between 1509 m (4950 ft) near I-25, and 1615 m (5300 ft) on the East Mesa (Figure 3).

## The Rio Grande

The Rio Grande drains the Albuquerque Basin in the vicinity of the project area. This perennial river flows 3018 km (1885 mi) from southern Colorado to the Gulf of Mexico at the extreme end of southern Texas. "From 1598 until the arrival of the Americans, the river in New Mexico was generally known as the Rio del Norte" (Scurlock 1998:184). Formerly, the Rio Grande was a braided, aggrading river with a shifting sand substrate (Crawford et al. 1993:16). A broad valley with low relief characterizes the river in the project vicinity. Prior to settlement of the valley by Anglo-Americans, evidence indicates the river was perennial throughout its course in New Mexico. Even the most arid portions of the Rio Grande had numerous marshes, oxbow pools, and fringe forests of cottonwoods, willows, and shrubby phreatophytes. The former presence of the shovelnose sturgeon near Albuquerque and the recovery of blue sucker remains from Bandelier National Monument and the Cochiti Dam site (Sublette et al. 1990:216, 345) indicate the Rio Grande was formerly a larger river with a perennial flow (Miller 1961). In addition, the former occurrence of other big river fishes, such as the gray redhorse, longnose gar, blue catfish, flathead catfish, and freshwater drum, in the Valencia area (Brown and Brown 1997:327) is also indicative of the former increased flow of the Rio Grande. After the Civil War, the increased western migration of Anglo-American settlers resulted in a greater population and more intensified ranching and farming activities. By 1880, nearly all irrigable land in the Rio Grande Valley was under development, resulting in water shortages. By the end of the nineteenth century, the grasslands were overgrazed and stream flows were erratic. Soil erosion accelerated, resulting in wider, shallower stream channels (Sublette et al. 1990:10).

The present Rio Grande Valley was eroded during the early Holocene. Aggradation since that time, however, has resulted from decreased flow and increased aridity (Kelley 1977:33). Prior to channelization in 1957, the river filled its bed with sediments. "It slowly shifted its channel and released its suspended load in bank overflow, thus forming levees higher than the outlying alluvial flats" (Sargeant 1985:2.2). Consequently, the river channel is elevated above many surrounding surfaces, producing areas known as yazoos that become marshlands or swamps during periods of increased runoff. In order to increase flow and transport more sediments downriver, much of the Rio Grande is channelized (Kelley 1977:33).

Periodic flooding was a normal event along the Rio Grande. "A minimum of 82 moderate to major floods occurred during the historic period, 1591–1942" (Scurlock 1998:23). Spring floods resulted from melting snows in the mountains. As noted by Fray Francisco Atanasio Dominguez in 1776,

This river [the Rio Grande] is in flood from mid-April to the end of June. The force of the freshets depends on whether the winter snows have been heavy or light, but they never fail, for it always snows more or less. In a very rainy year the flood season lasts a long time, and the longer it lasts, the greater the damage it does, whether to people or cattle who are drowned, or to farmlands that are swept away, or even to nearby houses that are carried off [Adams and Chavez 1956:7–8].

Some 50 major to moderate floods have been documented for the main stem of the Rio Grande from 1849 to 1942 (Scurlock 1998:32). Beginning in the 1870s, however, the severity and frequency of major flooding along the river increased. This was caused primarily by more sophisticated farming

methods, intensive grazing, and the clearing of upland forests that resulted in an aggrading riverbed and increased, more rapid runoff (Scurlock 1998:32; Wozniak 1987).

Floods commonly caused shifts in the river course. Fields and residential locations that were inundated too frequently or over a prolonged period were destroyed or abandoned. The benefits of floods, however, were recognized. These benefits included “the deposition of nutrient-rich sediments for cultigens and native flora, the wetting of their farmlands, and perhaps even the flushing of salts from their fields and irrigation systems” (Scurlock 1998:32).

Damage caused by floods was compounded by the natural levees that prevented floodwaters from flowing back into the river and by the high water table produced by the aggrading river that prevented water from soaking into the ground. In the 1930s, however, the construction of “a comprehensive system of diversion dams, irrigation and drainage ditches, levees, and limited river-training works” (Happ 1948:1192) by the Middle Rio Grande Conservancy District (MRGCD) eased the danger of flooding. Dams built within the Rio Grande watershed have also reduced the threat of floods. In 1957, the Rio Grande was confined to its present channel (Sargeant 1985:2.2).

Coring in the Middle Rio Grande Valley in the early 1900s (Nelson et al. 1914:44) indicated the water table varied in depth from 0.15 to 1.83 m (0.5–6 ft) over more than 90 percent of the valley floor, with an average depth of approximately 58 cm (23 in). The water table was highest from early March until July, when the volume of water in the Rio Grande, resulting from snowmelt from areas farther north, was greatly increased. The water table varied with the rise and fall of the river. The degree of fluctuation was less in the underlying deposits. The river is probably the source of most of the ground water in the valley. As mentioned earlier, the Rio Grande channel is higher than the adjacent valley in many areas (Nelson et al. 1914:45).

## Tijeras Arroyo

Tijeras Arroyo, the nearest drainage to the project APE, is an intermittent drainage that originates in Tijeras Canyon and flows west to the Rio Grande. The canyon divides the Sandia and Manzano mountains. Currently, the arroyo only carries water during periods of heavy precipitation. The broad arroyo is deeply entrenched in alluvial deposits. Prehistorically and historically, Tijeras Arroyo has served as a passageway through the mountains between the Rio Grande and the Plains.

## Soils

Recorded archaeological sites occur on four general soil associations—the Bluepoint-Kokan association (hilly), Bluepoint loamy fine sand (1 to 9 percent slopes), Madurez loamy fine sand (1 to 5 percent slopes), and Madurez-Wink association—occur within the proposed project APE (Hacker 1977:General Soil Map). This level to moderately sloping soil association consists of well drained loamy soils on piedmonts (Hacker 1977:Sheet Nos. 49 and 50).

### **Bluepoint-Kokan association, hilly (BKD)**

The Bluepoint-Kokan association, hilly (BKD) consists of 50 percent Bluepoint loamy fine sand and 40 percent Kokan gravelly sand. The Bluepoint soil is gently rolling to rolling and has 5 to 15 percent slopes. The Kokan soil is hilly and steep with 15 to 40 percent slopes. The Bluepoint soil is on fans between gravelly ridges of the Kokan soil. Runoff of the Bluepoint-Kokan association is slow. The water erosion hazard is moderate to severe. This soil association is a major source of sand and gravel

(Hacker 1977:13–14). Most of the recorded sites in the project sample areas—LA xx1, LA xx3, LA xx4, LA xx5, LA xx6, and LA xx7—occur on the Bluepoint-Kokan association, hilly (BKD).

“The Bluepoint series consists of deep, somewhat excessively drained soils that formed in sandy alluvial and eolian sediments on alluvial fans and terraces” (Hacker 1977:13). The Bluepoint soil varies with depth from a pale brown loamy fine sand (0–20 cm [0–8 in]) to a pale brown (20–51 cm [8–20 in]) to a light yellowish brown (51–152+ cm [20–60+ in]) loamy sand. It is slightly calcareous. The gravel content ranges from 0 to 15 percent (Hacker 1977:13).

“The Kokan series consists of deep, excessively drained soils that formed in old alluvial sand and gravel of mixed sources from the Santa Fe geological formation on dissected terraces” (Hacker 1977:22). Typically, the Kokan soil is a very pale brown, stratified gravelly to very gravelly sand (0–152+ cm [0–60+ in]) that is slightly calcareous. The gravel content is 45 to 75 percent (Hacker 1977:22–23).

### **Bluepoint loamy fine sand, 1 to 9 percent slopes (BCC)**

Bluepoint loamy fine sand, 1 to 9 percent slopes (BCC) has a profile representative of the series, but about 10 percent of the surface layer is sand on 10 percent of the acreage. Runoff is slow and the hazard of soil blowing is severe (Hacker 1977:13). Two sites, LA xx2 and LA xx10, occur on Bluepoint loamy fine sand, 1 to 9 percent slopes (BCC).

### **Madurez loamy fine sand, 1 to 5 percent slopes (MaB)**

The Madurez loamy fine sand (1 to 5 percent slopes) (MaB) is a deep, well drained soil “that formed on piedmonts in old unconsolidated alluvium modified by wind” (Hacker 1977:26). Runoff is slow and permeability is moderate. The wind erosion hazard is severe. Typically, the Madurez loamy fine sand varies with depth from a light brown loamy fine sand (0–10 cm [0–4 in]) to a brown sandy clay loam (10–33 cm [4–13 in]) to a light brown heavy fine sandy loam (33–53 cm [13–21 in]) to a pink heavy sandy loam (53+ cm [21+ in]) (Hacker 1977:26–27). LA 153415, LA xx8, and LA xx9 occur on the Madurez loamy fine sand, 1 to 5 percent slopes (MaB).

### **Madurez-Wink association, gently sloping (MWA)**

The Madurez-Wink association, gently sloping (MWA) consists of 55 percent Madurez fine sandy loam with 1 to 5 percent slopes and 25 percent Wink fine sandy loam with 1 to 7 percent slopes. Small areas of other soils represent 20 of the association. Permeability is moderate and runoff is slow. The wind erosion hazard is moderate to severe (Hacker 1977:26–27). One site, LA xx9, occurs on the Madurez-Wink association, gently sloping (MWA).

The Madurez soil is mainly on slightly convex piedmont fans. Typically, the Madurez soil varies with depth from a brown fine sandy loam (0–10 cm [0–4 in]) to a brown sandy clay loam (10–33 cm [4–13 in]) to a light brown heavy fine sandy loam (33–53 cm [13–21 in]) to a pink heavy sandy loam (53–89 cm [21–35 in]) to a pinkish gray sandy loam (89–129 cm [35–51 in]) to a light brown sandy loam (129–152+ cm [51–60+ in]). The Madurez soil is moderately alkaline throughout and is calcareous below 33 cm (13 in) (Hacker 1977:26–27).

Wink soils “formed in old unconsolidated alluvium modified by wind on piedmonts” (Hacker 1977:43). These soils are deep and well drained. Typically, the Wink fine sandy loam varies with

depth from a brown fine sandy loam (0–10 cm [0–4 in]) to a brown sandy loam (10–28 cm [4–11 in]) to a light brown sandy loam (28–68 cm [11–27 in]) to a pinkish gray sandy loam (68–89 cm [27–35 in]) to a pinkish white sandy loam (89–152+ cm [35–60+ in]). The Wink soil is calcareous and moderately alkaline (Hacker 1977:27, 43–44).

## Climate

The project APE has an arid, continental climate characterized by low rainfall, warm summers, and mild winters. The average annual precipitation is 203 mm (8 in), of which 55 percent—112 mm (4.4 in)—falls from July through October in the form of brief, often heavy thunderstorms. The Gulf of Mexico is the main source of moisture during this period (Houghton 1977:95–96). “Moisture is supplied by the general southeasterly circulation of moist air over the Gulf of Mexico from the Bermuda high pressure area, which shifts westward in summer” (Houghton 1977:95). During winter, precipitation is provided by eastward-moving Pacific Ocean storms. Most of the moisture, however, is lost in the mountains west of New Mexico. Snowfall averages 254 mm (10 in) annually in the valley and occurs from November to early April. In general, however, precipitation varies greatly from month to month and from year to year (Houghton 1977:95).

The average annual temperature is 14°C (57°F). Within the project area, temperatures of at least 32°C (90°F) are reached an average of 75 days annually. The average frost-free season is 190 days. The annual relative humidity averages 43 percent, varying from a high of 60 percent in the early morning to a low of 30 percent in the afternoon. In June, the afternoon relative humidity averages about 20 percent. Winds are primarily southerly in summer and northerly in winter. Although winds are light throughout most of the year, averaging 14.5 km (9 mi) per hour, spring is the windy season. During this time, the winds are mainly from the southwest. In addition, winds entering the Rio Grande Valley through Tijeras Canyon can gust up to 80 km (50 mi) per hour (Houghton 1977:95–96).

## Vegetation

The project APE is within Bailey’s (1913:27) Upper Sonoran Zone and Shreve’s (1942:236) Chihuahuan Desert as amended by Schmidt (1979). The vegetation of East Mesa is variously classified as Plains-Mesa Sand Scrub (Dick-Peddie 1993a, 1993b:124, 128–129), Plains and Great Basin Grassland (Brown 1994:115–121; Brown and Lowe 1994), and desert grassland (Castetter 1956). Most of the Plains-Mesa Sand Scrub areas occur in former mesa grassland sites. Drought and overgrazing since 1850 have drastically reduced the grass cover (Dick-Peddie 1993b:128, 131). As a result, forbs and shrubs have replaced the various bunch grasses (e.g., grama species) favored by livestock. The deep sands of the project area “are dominated by species which are deep-sand tolerant or even deep-sand adapted” (Dick-Peddie 1993b:128). Vegetation within the project area includes four-wing saltbush, various bunch grasses, snakeweed, Mormon tea, narrowleaf yucca, juniper, and various cacti.

## Fauna

A wide variety of vertebrate fauna inhabit the valley and adjacent uplands of the Albuquerque area. The taxonomic composition of the area, however, has been greatly affected by flood control measures, irrigation, and urbanization. Formerly, the Rio Grande and its associated marshes supported a variety of fish and aquatic birds and mammals. The river valley is a central flyway for migratory birds such as ducks, geese, shorebirds, and wading birds. Raptors, such as hawks and owls, hunt in the valley and uplands (Freehling 1982:20). A variety of perching birds (e.g., ravens, finches, juncos, jays, robins,

sparrows) are also present (Bailey 1928; Peterson 1990). Various mammalian species—cottontail, jackrabbit, prairie dog, beaver, muskrat, coyote, fox, raccoon, badger, bobcat, mule deer—occur in the area (Bailey 1931; Findley et al. 1975; Ivey 1957).

The prehistoric inhabitants of the project area hunted a variety of animals for food, hides, and body parts. All available environmental zones and landforms were exploited. Important game animals were pronghorn, deer, wapiti, bighorn sheep, bison, and leporids—cottontails, jackrabbits. Mammals such as bears, wolves, beavers, bobcats, foxes, and river otters were hunted for their pelts. Turkeys, owls, hawks, eagles, and various perching birds were hunted or raised for their feathers. Quail and waterfowl were procured as secondary food resources. Animals were observed during the current project included jackrabbits, coyotes, round-tailed horned toads, New Mexico whiptail and other lizards, desert box turtles, red tailed hawks, turkey buzzards, nighthawks, doves, and songbirds.

## CULTURAL ENVIRONMENT

The project APE is on the East Mesa and the west escarpment of the East Mesa. The west escarpment is crossed by paralleling north-south oriented I-25 and NM 47. I-25 and NM 47 are separated by a narrow strip of project APE land. The APE is bounded on the north by Tijeras Arroyo, on the east by the Manzano Mountains, on the south by the Isleta Pueblo Land Grant, and on the west by businesses on the Rio Grande floodplain. With the exception of scattered businesses along the project west boundary and recent construction in the Journal Pavilion vicinity, the area is undeveloped rural rangeland. The Journal Pavilion, athletic fields, and local built environs are of recent construction, dating less than 10 years. The businesses on the west boundary along NM 47 are less than 50 years old. The project APE is experiencing change with new construction in the vicinity of the Journal Pavilion, especially with the nearly completed extension of University Boulevard. Prior to the Journal Pavilion, the northeast portion of the project APE was associated with World War II and Cold War military operations and with an abandoned airfield and related facilities discernible on the present landscape.

The previous military operations and present development along the escarpment of Tijeras Arroyo has greatly altered the landscape. Large land tracts have been leveled for the Journal Pavilion and for parking and athletic fields, constructed for concerts and recreational activities. The nearly completed University Boulevard extension project has greatly altered the south escarpment along Tijeras Arroyo with major road cuts and blading. These activities have undoubtedly destroyed unknown cultural resources and may have exposed previously buried ones. There is no evidence of vandalism or looting of cultural resources within the recently developed portion of the project APE.

The open rangeland is crossed by cattle trails and several unimproved dirt roads. Some of the dirt roads are used as service roads for maintaining overhead power lines and radio towers. Except for the types of dominant vegetation, the rangeland has essentially remained unchanged for the past several centuries. The cattle trails and dirt roads have undoubtedly contributed to some wind and water erosion on archaeological sites, but disturbances have probably been minimal. There is no evidence of vandalism or looting of cultural resources within the rangeland portion of the project APE.

## CULTURE HISTORY

The project APE lies in the Middle Rio Grande Valley. The prehistory and history of this area consists of four major cultural-temporal periods—Paleoindian, Archaic, Puebloan, and Historic. Cordell (1979) and Lintz et al. (1988) have provided excellent general cultural overviews for the area. More detailed summaries are available for the Paleoindian (Judge 1973), Archaic (Irwin-Williams 1973), Late



Archaic/Early Pueblo (Reinhart 1968), Pueblo (Cordell 1979, 1984; Wendorf and Reed 1955), and historic (Simmons 1982) periods. Seven sites—LA 69517, LA 69520, LA xx2, and LA xx4 thru LA xx7—are chipped stone scatters, some with discernible features, of undetermined prehistoric affiliation. LA 153415, LA xx9, and LA xx10 are historic sites.

### **Paleoindian Period (10,000–5500 BC)**

The earliest well-documented human occupation in New Mexico, the Paleoindian period (10,000–5500 BC), is characterized by stylistically distinct projectile points found associated with late Pleistocene and early Holocene megafauna. In addition, Paleoindian lithic assemblages exhibit a very refined and standardized technology. The period is divided into three subperiods—Clovis (10,000–9000 BC), Folsom (9000–8000 BC), and Plano (8000–5500 BC)—named for different cultural groupings. Clovis was associated with the hunting of mammoths and other late Pleistocene fauna. Folsom and Plano cultures were associated with the hunting of now-extinct forms of bison. By the end of the period, only modern fauna remained. In addition to hunting megafauna, the early Holocene hunters and foragers also exploited a variety of floral and smaller faunal resources (Cordell 1979:20, 1997:96, 99; Martin and Plog 1973:159–160).

Judge's (1973) investigations of the central Rio Grande Valley document Paleoindian occupation of the area throughout the entire temporal span of the period. Paleoindian exploitation of this area, however, was less intense than that in the Great Plains. In general, Paleoindian sites in the central Rio Grande Valley were occupied for short periods, probably not more than several weeks at a time. In addition, the region may have been abandoned periodically due to the paucity or lack of game (Judge 1973:310–311). Within the Albuquerque area, Paleoindian materials are most commonly found as isolated surface finds of partial or complete diagnostic projectile points. Some assemblages with stratified deposits, however, have been identified in the region (Judge 1973). No Paleoindian cultural material was found during the present survey.

### **Archaic Period (5500 BC–AD 400)**

The climate became more arid during the Archaic (5500 BC–AD 400). Paleoenvironmental data suggest the Paleoindian period was marked by fluctuating climatic changes that decreased effective moisture. By 5500 BC, as a result of the cumulative effect of these changes, the environment of northwestern New Mexico was probably unable to support large herds of herbivores, such as bison. Paleoindian groups, therefore, may have abandoned the area (Irwin-Williams 1973:4; Irwin-Williams and Haynes 1970). Because no generic connection was discerned between the Late Paleoindian and Early Archaic occupations of the region, Irwin-Williams (1973:4–5) postulated a hiatus. Judge (1982:49), however, contends Early Archaic phases (e.g., Jay and Bajada) represent a basically Paleoindian (i.e., focal) hunting adaptation to essentially modern faunal and floral resources. If Judge is correct, the Early Archaic artifact assemblages of northwestern New Mexico may reflect technological adjustments to a changing resource base by Paleoindian groups present in the area, rather than indicating an influx of new peoples (Cordell 1979:25–26; Stuart and Gauthier 1984:33).

Although the mobile hunting and gathering pattern of the Paleoindian period continued during the Archaic, there was a shift towards resource diversification. In other words, the Archaic adaptation was a "diffuse" economy (Judge 1982:49). The resource base included a variety of plants and the modern suite of Southwest fauna. The Archaic populations of western New Mexico probably had a primary dependence on plant foods and a seasonally mobile settlement pattern. As a response to changing economic opportunities, the social structure was flexible, varying in group size and composition. Areas where the density and distribution of key plant resources were predictable on a seasonal basis

were reoccupied (Judge 1982:49). A greater dependence on plant foods is reflected in the higher frequency of ground stone during the Archaic. In addition, maize horticulture first appeared in the Southwest between 1500 and 1000 BC (Cordell 1997:129) but it was not a dominant component of the Late Archaic subsistence strategy.

Although the Archaic period has been divided into phases by Reinhart (1968), most researchers in the Albuquerque area use the Oshara tradition sequence developed by Irwin-Williams (1973) on the basis of work in the Arroyo Cuervo area, 56 km (35 mi) northwest of Albuquerque, between the Rio Puerco and the Jemez River. The Oshara was the hunter-gatherer predecessor of the Puebloan period and is divided into five Archaic phases—Jay (5500–4800 BC), Bajada (4800–3200 BC), San Jose (3200–1800 BC), Armijo (1800–800 BC), and En Medio (800 BC–AD 400). The En Medio phase spans most of the Basketmaker II period (AD 1–500), which is considered transitional between the Late Archaic and early Puebloan periods. The Oshara phases may reflect successive adaptations to fluctuating climatic conditions. “The Jay and Bajada phases may reflect generalized hunting and foraging strategies by small groups; the San Jose, Armijo, and En Medio phases may represent increasingly heavy reliance on plant foods by larger groups in an increasingly crowded landscape” (Wase et al. 2000:1.21).

Archaic sites are usually identified as lithic artifact scatters with fire-cracked rock, hearths, ground stone tools, and specific projectile point types. Distinctive Archaic artifacts include a variety of stemmed or corner-notched dart point styles, basin metates, and one-hand manos. Although varied, the remainder of the stone tool assemblage—scrapers, drills, choppers, knives—is undiagnostic and chipping debris is abundant (Cordell 1984, 1997). The Archaic is also associated with a bifacial-oriented chipped stone technology and a diversity of lithic raw materials (Lintz et al. 1988). Pottery is absent.

In general, the earlier Archaic phases (Jay, Bajada, and San Jose) are poorly known in the Albuquerque area. Most Archaic sites assigned to phases are classified as late Archaic (Doleman 1989:14–15; Lintz et al. 1988:136). Archaic sites are generally above the Rio Grande floodplain on eroded surfaces cut by arroyos and many are associated with sand dunes (Cordell 1979:41). This observed pattern, however, may be a product of sampling bias—low site visibility and a research emphasis on architectural sites (Lintz et al. 1988:136). Reconstructions of the Archaic are based largely on survey data. As assessed by Lintz et al. (1988:137), “At this time, particularly for the Albuquerque area, little about the Archaic adaptation, the settlement pattern, subsistence, demographics, or chronology is known.”

Few Archaic sites have been found in the uplands east and southeast of Albuquerque. Wozniak (1981) documented four possible Archaic campsites on Isleta Reservation along the rim of the mesa above Hell’s Canyon south of the proposed project area, and 10 sites with Archaic components were recorded south of Tijeras Arroyo in the Mesa del Sol area (Doleman 1989). No Archaic sites were identified during the present survey.

### **Puebloan Period (AD 450–1600)**

Although maize and other cultigens were introduced into the Southwest during the Late Archaic, agriculture was not a major subsistence strategy. The Puebloan period, however, was an era of increasing dependence on cultigens—maize, beans, squash—and was marked by population growth, greater residential sedentism, the appearance of the bow and arrow and pottery, increasing dependence on storage of foods, and developments in architecture and sociopolitical organization.

### **Basketmaker III–Pueblo I (AD 450 or 500–900)**

The transition between Basketmaker III and Pueblo I was gradual. During the Basketmaker III–Pueblo I period (AD 450 or 500–AD 900) (Cordell 1979:42), agriculture became the dominant subsistence strategy. Lino Gray was the major ceramic type. At later sites, Alma Neck-banded, Kiatuthlanna Black-on-white, La Plata Black-on-red, and Abajo Black-on-orange are also present (Wendorf and Reed 1955:138). The artifact inventory includes basketry, matting, sandals, turquoise pendants, *Olivella* shell beads, one-hand manos, and basin and slab metates. Specialized storage facilities increased in frequency and ground stone morphology changed. Dwellings increased in size, were more substantial, and were probably occupied for longer periods both during the year and from year to year (Cordell 1979:42).

Basketmaker III–Pueblo I sites in the Albuquerque area typically consist of one to four pitstructures that are generally round or round with a slight concavity on the eastern side. Both interior and exterior storage facilities are present. Where identified, floors consist of hard-packed clay or plaster. Central hearths, sometimes with adobe collars, are present. Ventilator shafts are oriented toward the east. Roof support posts are variable, with two or four posts common (Cordell 1979:42–43).

These sites generally have a low visibility. They are not indicated by surface depressions. Basketmaker III–Pueblo I sites commonly appear on the surface as burn areas and fire-cracked rock scatters that may be misidentified as Archaic in the absence of pottery (Cordell 1979:43). Identified sites of this period in the Albuquerque area were exposed as the result of erosion, road cuts, and surface stripping activities (Frisbie 1967; Reinhart 1968). Basketmaker III–Pueblo I sites in this area are commonly situated on gravel bluffs, low terraces, and sandy hills adjacent to intermittent tributaries of the Rio Grande (Cordell 1979:43). In addition, sites are also present on the floodplain (Gerow 1990:10–11). Site locations, however, are not necessarily correlated with a permanent water source (Reinhart 1968). Numerous Basketmaker III–Pueblo I sites have been recorded within the Rio Grande floodplain between Cochiti Reservoir (Biella 1979) and Belen (Wiseman 1988). Several have been excavated (Allen and McNutt 1955; Oakes 1979; Peckham 1957; Schorsch 1962; Skinner 1965; Vivian and Clendenen 1965; Vytlačil and Brody 1958). No Basketmaker III–Pueblo I sites were found during the present survey.

### **Pueblo II (AD 900–1200)**

The Pueblo II period (AD 900–1200) was not characterized by any dramatic changes in either settlement pattern or material culture. The diagnostic ceramic type for this period is Red Mesa Black-on-white. It is frequently associated with San Marcial Black-on-white. A local variety of Kwahe'e Black-on-white may also be present. Surface structures of jacal or adobe are more common. Although no abrupt architectural changes are evident, pitstructure features are more standardized. A four-post roof support pattern, ladder holes, ash pits, and sipapus are more common (Cordell 1979:43–44). Technological innovations include full-grooved axes and two-hand manos (Vytlačil and Brody 1958).

Although the paucity of recorded Pueblo II sites in the Albuquerque area may indicate a local population decline, this trend may be artificial. The data suggest a number of earlier pitstructure sites continued to be occupied into the Pueblo II period (Cordell 1979:43–44). In addition, Pueblo II occupation in the Tijeras Arroyo area has been identified (Blevins and Joiner 1977). No Pueblo II sites were found during the present survey.

### **Pueblo III (AD 1200–1300)**

The Pueblo III period (AD 1200–1300) (Cordell 1979:44) corresponds to the Coalition period defined by Wendorf and Reed (1955:143–148). The beginning of this period coincides with a shift from mineral to organic paint for ceramics. This change is marked by the introduction of Santa Fe Black-on-white, the diagnostic ceramic type for Pueblo III. This period, however, is characterized by a great diversity of painted ceramic types. In the Albuquerque area, these include Chupadero Black-on-white, Socorro Black-on-white, Galisteo Black-on-white, some St. Johns Polychrome, and a persistence of Kwahe'e Black-on-white (Cordell 1979:43–44).

The Pueblo III is marked by architectural diversity as evidenced by the transition to substantial above-ground structures. Although pitstructures were still present, surface masonry and jacal roomblocks of varying sizes became dominant. In the Albuquerque area, roomblocks sometimes incorporated rectangular kivas (Cordell 1979:44).

An increase in the number of habitation sites during this period suggests an increase in population. Disagreement exists concerning whether this increase was the result of internal growth within the Rio Grande Valley (Frisbie 1967; Wendorf and Reed 1955:146–147) or of migration from the San Juan Basin (Marshall 1989; Stuart and Farwell 1983:152). Pueblo III sites are generally situated immediately adjacent to major drainages and arable land, away from upland settings. Frisbie (1967) believes this settlement pattern change may reflect an adjustment both to population expansion in the central Rio Grande Valley and to a decrease in agricultural land resulting from rainfall change and arroyo cutting.

Ceramic data suggest the Albuquerque area was the northern periphery of the Socorro area until the late Pueblo III. In addition, settlement data indicate limited occupation of the area. Sites show repeated use and abandonment. The Rio Grande floodplain, therefore, was an important locus, agriculturally, during prolonged droughts. Tijeras Canyon and piedmont settings in the Albuquerque area served as dispersed farming areas during periods of increased rainfall. During both drought and wet periods, the uplands provided a variety of wild plant and animal resources for subsistence exploitation (Anschuetz 1987:158). No Pueblo III sites were found during the present survey.

### **Pueblo IV (AD 1300–1600)**

The beginning of the Pueblo IV period (AD 1300–1600) (Cordell 1979:45) corresponds with the introduction of glaze-decorated, red-slipped ceramics. Also known as the Rio Grande Classic (Wendorf and Reed 1955), it is characterized as a period of cultural florescence (Wendorf and Reed 1955:153). The population of the northern Rio Grande attained its maximum prehistoric extent during this period. An "elaboration" of material culture was expressed by mural paintings, decorated pipes, stone effigies, the variety of vessel forms, elaborate stone axes, and carved bone tools (Cordell 1979:45). The richly-detailed kiva murals preserved at Kuaua (Dutton 1963) and Pottery Mound (Hibben 1955, 1975) are examples of this cultural elaboration in the Albuquerque area. Ditch irrigation along major rivers probably commenced during this period. In addition, a variety of farming techniques were used (Lang 1977). The observed land-use pattern suggests primary occupation of the pueblos, with numerous outlying fields and frequent logistical forays to procure a variety of wild faunal and floral resources (Gerow 1990:13).

The presence of glaze-decorated ceramics is one of the principal diagnostics for the Pueblo IV period. Polychromes were produced later in the period. Black-on-white pottery was quickly replaced by glazewares. Although Shepard (1942:197–199) interpreted the introduction of glazewares as a migration from the Little Colorado and Zuni areas, Wendorf and Reed (1955:150, 161) attributed it to

diffusion. Glazewares probably imitated Little Colorado and Zuni ceramics. "Although small amounts of western glazewares . . . occur at Classic Period sites, the predominant amount of early Glaze was produced locally" (Cordell 1979:45).

During the Classic period, the scattered hamlets of Pueblo III coalesced to form nuclear villages in the Rio Grande Valley (Marshall 1989:14). The dramatic population increases of this period are attributed both to indigenous growth and to an influx of peoples from the San Juan region. The marked population instability of the Rio Grande Valley during this period is cited as evidence for this migration (Cordell 1979:103). Widespread trade networks and alliances were standard features of the Puebloan adaptive system. Consequently, as groups in the San Juan region were forced to abandon the area, these networks facilitated entry into the Rio Grande area (Cordell 1979:103). The union of these populations in the Albuquerque area signaled the inception of the ancestral Southern Tiwa (Marshall 1989:15).

Although numerous new settlements were established, many settlements were abandoned throughout the period (Cordell 1979:45; Lambert 1954). The reasons for this are unclear. Probable causes include overpopulation, overexploitation of resources, warfare, and drought (Cordell 1979:45; Wendorf and Reed 1955:153). Whatever the causes for abandonment, progressive adjustments to internal strife and resource imbalances occurred.

The Classic period terminated when European incursions began to directly affect Rio Grande peoples (Cordell 1979:45). During the hiatus between Coronado's expedition of AD 1540 to 1542 and major Spanish colonization, which began in AD 1598, Puebloan populations in the Rio Grande area probably declined as the result of diseases (e.g., measles, smallpox) introduced by various Spanish expeditions. Consequently, fewer villages were occupied when Spanish colonization efforts began in earnest (Marshall 1989:16). No Pueblo IV sites were found during the present survey.

### Historic Period (AD 1540–Present)

The 1540–1542 *entrada* of Francisco Vasquez de Coronado was the first official European entry into the present Albuquerque area. At that time, Coronado's expedition found 12 large pueblos clustered along the Rio Grande between present-day Bernalillo and Isleta, and two to four smaller villages to the south. The pueblos, occupied by southern Tiwa groups, were referred to collectively as the Tiguex Province.

After the "failure" of the Coronado expedition, the Spanish ignored New Mexico for almost 40 years. The Rodríguez-Chamuscado expedition of 1581 traveled up the Rio Grande as far north as Galisteo Creek (Ortiz 1979:280) and included the bison plains east of the Pecos River. In 1582, Antonio de Espejo and Fray Bernaldino Beltrán led an expedition to discover the fate of the priests from the previous expedition. After reaching the Tiwa pueblos and learning that the priests had been killed, the expedition went to Pecos and then followed the Pecos River to Mexico. In 1590, Gaspar Castaño de Sosa led an unauthorized expedition up the Pecos River to Pecos and then to the villages of the upper Rio Grande. He was arrested by a pursuing Spanish force and taken back to Mexico. Another unauthorized, ill-fated expedition occurred in 1593 when Captain Francisco Leyva de Bonilla and Juan de Humaña led a small group of soldiers looking for gold up the Rio Grande to San Ildefonso and eastward onto the plains of Kansas where Bonilla was killed during a quarrel with Humaña. Later, Indians killed the rest of the party. Juan de Oñate, leading a group of 400 soldiers, friars, and colonists into the Rio Grande valley in 1598, founded the first European settlement—San Gabriel—in New Mexico. This settlement, near the confluence of the Rio Grande and Rio Chama, was the first capital and marked the beginning of a permanent Spanish presence in the region. In 1610, Santa Fe was

founded as the Spanish capital of New Mexico (Athearn 1992:3–4; Jenkins and Schroeder 1974:17, 19; Roberts and Roberts 1988:29–37).

Although Spanish settlement of the Rio Grande valley and adjacent areas increased steadily between 1610 and 1680, life was far from peaceful. Quarreling between religious and civil leaders was common. In spite of laws to the contrary, the Pueblos were often mistreated. By 1675, rumors of a possible Indian revolt reached authorities in Santa Fe. Drought, famine, and increased Apache attacks added to the tension between settlers and the Pueblos. By 1680, conditions were ripe for a revolt. One major cause for the uprising on August 10, 1680, was the suppression of Puebloan religion by Franciscans. As a result, a clash between these two vastly different cultures was inevitable. The Spaniards were expelled from New Mexico for 12 years. The reconquest of New Mexico (1692–1696) was under the leadership of Governor Diego de Vargas Zapata y Lujan Ponce de León. With the reestablishment of Spanish rule in New Mexico under Vargas, Spain became committed to the region (Athearn 1992:8–9, 15; Jenkins and Schroeder 1974:20, 22–23).

The dominant Spanish settlement pattern in the New Mexico of the 1600s was dispersed, consisting of isolated farms, ranches, and hamlets throughout the rural areas (Simmons 1969:10). Several dozen estancias—later abandoned during the Pueblo Revolt—had been established near present-day Bernalillo and between the pueblos of Sandia and Isleta by the mid-1660s. Spanish settlement of the Albuquerque area, however, largely post-dates the reconquest. The population of Albuquerque, founded in 1706 by Governor Francisco Cuervo y Valdés with 12 (Armijo 1929:274) or 19 (Simmons 1980:201; 1982:89) families, and its surrounding communities grew rapidly during the early 1700s. By 1750, colonists were petitioning for land on the Rio Puerco to the west. During the 1700s and the early 1800s, Albuquerque was primarily a farming and ranching area. Because of its position along the Camino Real, however, Albuquerque became a staging area for trading caravans to Mexico. Consequently, merchants, traders, and weavers settled in the area.

When American traders attempted to establish trade with the Taos and Santa Fe areas in the early 1800s, they were arrested and Spanish authorities confiscated their goods. The trade situation changed in 1821, when Mexico declared its independence from Spain. The Republic of Mexico was established in January 1822. The previous prohibition against trade with the U.S. was dropped and open trade became possible and legal. William Becknell of Missouri began trading in the fall of 1821 (Athearn 1992:90). Becknell's route, the Mountain Branch of the Santa Fe Trail, crossed northeastern New Mexico by way of Raton Pass. The Santa Fe Trail served as a major trade route between the United States and New Mexico, as well as Mexico, from 1821 to the coming of the railroad. The first railroad entered New Mexico at Raton Pass in December 1878 (Myrick 1990:xiv, 4).

The establishment of the Republic of Texas in 1836 and the annexation of Texas by the United States in 1844 led to poor relations between Mexico and the United States and eventually resulted in the outbreak of war in 1846. New Mexico was captured by General Stephen Watts Kearny's military force. The Treaty of Guadalupe Hidalgo, which ended the Mexican War in 1848, ceded nearly all of present-day New Mexico to the United States. The Territory of New Mexico was created in 1850 and New Mexico became a state in 1912 (Jenkins and Schroeder 1974).

Because Albuquerque was near the center of the territory and troops could be provisioned locally, "Albuquerque became an important hub of military activity" (Simmons 1982:149). Consequently, the Albuquerque Post was created in 1848. At that time, a single company of dragoons was garrisoned there. A variety of military units—dragoons, artillery, cavalry, infantry—were posted at Albuquerque until 1867, when the regular garrison was discontinued, but a true fort was never built. Housing, military facilities (e.g., offices, a hospital, warehouses), and stables and corrals were rented from the local populace. In 1852, Albuquerque became the headquarters and primary supply depot for all forces in New Mexico. The military presence introduced the local citizens to a new language, new customs,

and new social and economic styles (Simmons 1982:149, 151). The presence of the military in Albuquerque was a boon to the local economy. “The garrison purchased local farm products, provided civilian jobs, rented quarters, and, of course, patronized merchants and saloon keepers” (Simmons 1982:152).

Confederate forces commanded by General Henry Hopkins Sibley briefly occupied Albuquerque in 1862, during the Civil War. After the war, Albuquerque continued to prosper. By 1870, it was a leading commercial center of the far Southwest. As the demand for manufactured goods increased, merchants expanded their retail enterprises. The arrival of the Atchison, Topeka, and Santa Fe (AT&SF) Railway in 1880 allowed greater economic growth. The railroad’s depot and yards were built a little more than a mile east of the plaza (Old Town). Consequently, a new townsite (New Town) was planned and built around the railroad facilities (Simmons 1982:218, 224). “By 1881 a building boom was well under way in what would become the business district of New Town” (Simmons 1982:225).

The present tourist industry of the Albuquerque and New Mexico owes a large debt of gratitude to the railroad. The Santa Fe Railway and Albuquerque were able to exploit a nationwide interest in the cultures of Southwestern Indians. Many Easterners discovered the wonders of the Southwest. Tourist traffic increased steadily during the first quarter of the twentieth century. In 1925, the Santa Fe Railway began bus tours through New Mexico’s scenic Pueblo country, allowing rail passengers to make side excursions into the back country for several days (Simmons 1982:330). “By that time, the railway and the city had already compiled a respectable record in joint cooperation, having found over the years that their respective commercial interests often dovetailed” (Simmons 1982:330). Tourism expanded even more with the opening of Route 66 in the 1920s and later with the construction of Interstates 40 and 25, as automobiles eclipsed travel by rail. Currently, Albuquerque is experiencing unprecedented growth in population and economy. Development at Mesa del Sol is part of this growth. LA 153415, a segment of a historic road, was revisited during the present survey. The historic farm site LA xx10 and a World War II-era radar ranging station, LA xx9, were recorded during the present survey.

## PREVIOUS ARCHAEOLOGICAL RESEARCH

Prior to field work, an electronic review of the site records maintained by the Archaeological Records Management Section (ARMS) of the Museum of New Mexico in Santa Fe on May 16, 2006 identified 33 previously recorded archaeological sites within 0.5 km (0.3 mi) of the project area (Table 3). Of these, three—LA 69517, LA 69520, and LA 153415—are in the sample transects. The Office of Contract Archeology (OCA) of the University of New Mexico has conducted the major survey in the project APE, a Class II pedestrian survey of the East Mesa in which eight pedestrian transects were walked in an east-west orientation (Doleman 1989) (Figure 22). The ARMS search also identified at least two previous surveys—Brown 2005 (NMCRI 91947) and Estes 2005 (NMCRI 96048)—with no recorded sites within 0.5 km (0.3 mi) of the 22 transects.

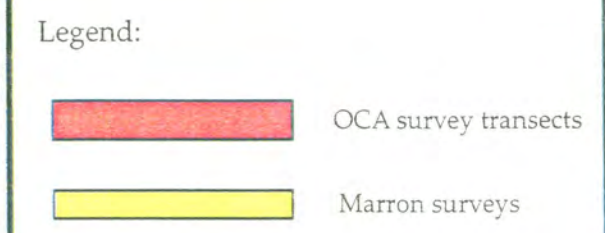
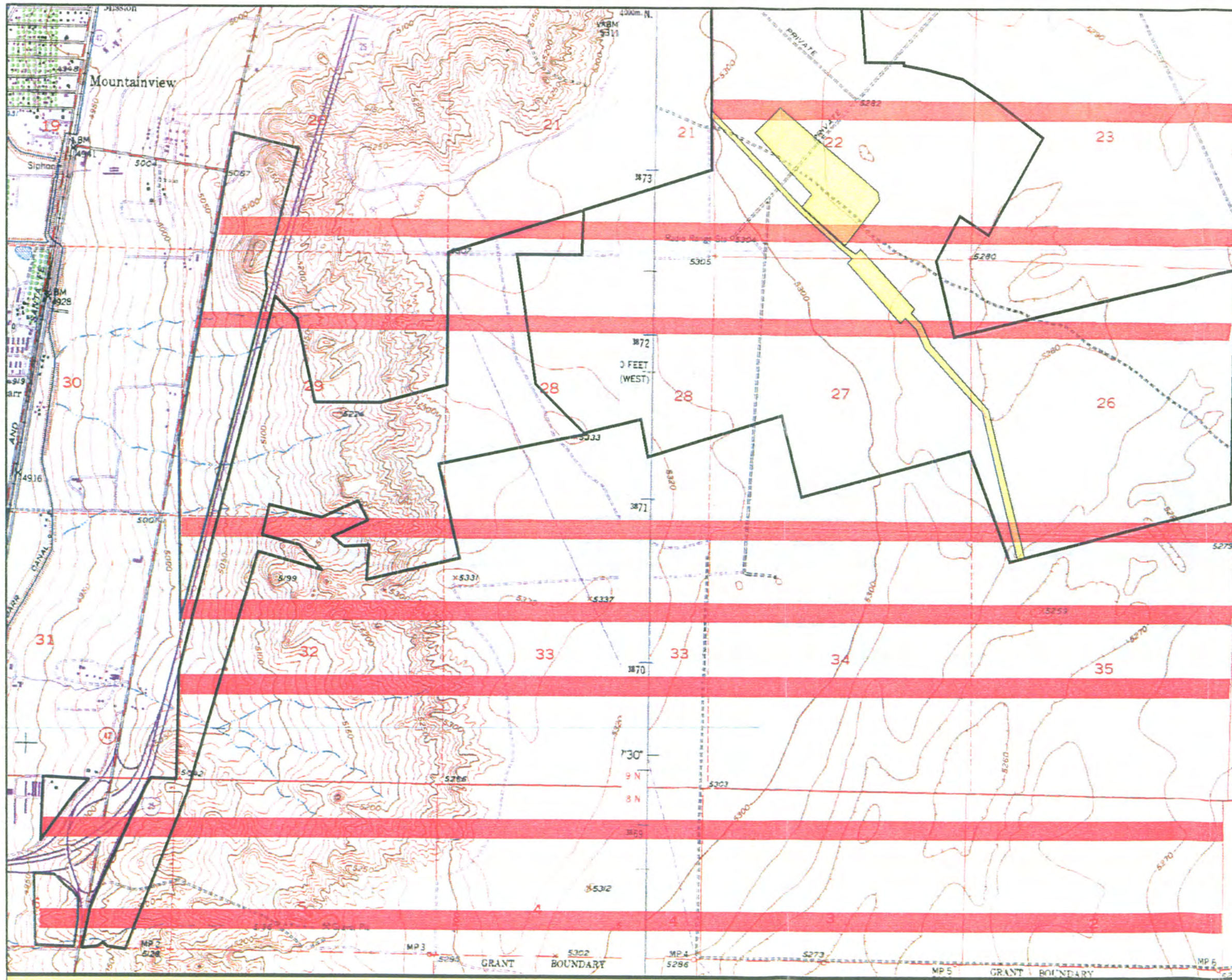


Figure 22  
Previous surveys  
in project area

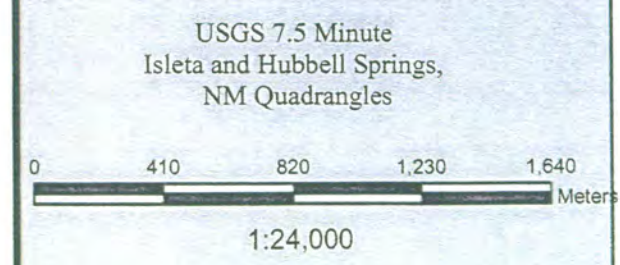




Table 3. Previously recorded sites within 0.5 km (0.3 mi) of the project area.

LA #	Cultural Affiliation	Reference	NMCRIS
12570	Unknown Archaic, 5500 BC–AD 900	Seaman 1975 Doleman 1989 Gossett 1989	NA 25187 39571
53444	Anglo Euroamerican AD 1940–1950	Haecker 1985	10636
69495	Early Archaic, 5500–3000 BC	Doleman 1989 Doleman 2000	25187 66394
69496	Unknown prehistoric, 9500 BC–AD 1850	Doleman 1989	25187
69497	Unknown prehistoric, 9500 BC–AD 1993 Pueblo IV, AD 1300–1600	Doleman 1989	25187
69498	Unknown Archaic, 5500 BC–AD 900	Doleman 1989 Doleman 2000	25187 66394
69506	Unknown prehistoric, 9500 BC–AD 1850	Doleman 1989 Gossett 1989 Winter and Doleman 1989	25187 39571 58370
69507	Unknown Archaic, 5500 BC–AD 900	Doleman 1989 Gossett 1989 Winter and Doleman 1989	25187 39571 58370
69509	Unknown Archaic, 5500 BC–AD 900	Doleman 1989 Gossett 1989 Doleman 2000	25187 39571 66394
69511	Unknown prehistoric, 9500 BC–AD 1993 Unknown Anasazi, AD 1–1600	Doleman 1989	25187
69512	Unknown prehistoric, 9500 BC–AD 1993 Euramerican, AD 1900–1945	Doleman 1989	25187
69517	Unknown prehistoric, 9500 BC–AD 1993	Doleman 1989	25187
69518	Unknown Archaic, 5500 BC–AD 900	Doleman 1989 Doleman 2000	25187 66394
69520	Unknown prehistoric, 9500 BC–AD 1850	Doleman 1989 Doleman 2000	25187 66394
69521	Unknown prehistoric, 9500 BC–AD 1850	Doleman 1989 Doleman 2000	25187 66394
69522	Unknown Archaic, 5500 BC–AD 900	Doleman 1989 Doleman 2000	25187 66394
72052	Unknown prehistoric, 9500 BC–AD 1880	Gossett 1989	39571
108649	Puebloan, Basketmaker III, AD 500–700	McKenna 1995	48580
108650	Unknown prehistoric, 9500 BC–AD 1880	McKenna 1995	48580
108651	Puebloan, AD 1175–1400	McKenna 1995	48580
112793	Unknown prehistoric, 9500 BC–AD 1850	Brown 1997 Ecosystem Management 2000	51993 66898
112794	Anasazi, AD 100–1600	Brown 1997 Brown 2002	51993 79007
112795	Anasazi, AD 100–1600	Brown 1997	51993
112796	Anasazi, AD 100–1600	Brown 1997 Ecosystem Management 2000	51993 66898
112797	Anasazi, AD 100–1600	Brown 1997 Ecosystem Management 2000	51993 66898
113556	Unknown prehistoric, 9500 BC–AD 1550	Evaskovich et al. 1997	52308
126711	Unknown prehistoric, 9500 BC–AD 1550	Goar and Acklen 1999a	64317
128182	Unknown prehistoric, 9500 BC–AD 1550	Goar and Acklen 1999b	65751
128810	Unknown Archaic, 5500 BC–AD 900 Early Pueblo III, AD 1200–1250	Doleman 2000 Goar 2000a	66394 72196
128811	Late Archaic, 800 BC–AD 400	Doleman 2000 Goar 2000b	66394 72230
129145	Unknown prehistoric, 9500 BC–AD 1550	Goar and Acklen 1999b	65751

		Goar 2000a	72196
130419	Unknown prehistoric, 9500 BC–AD 1999	Goar and Acklen 2000	70894
153415	Euroamerican, AD 1860–2006	Estes et al. 2006a	100115
		Estes et al. 2006b	100120

## NATIONAL AND STATE REGISTER PROPERTIES AND NATIONAL AND STATE MONUMENTS

An examination of the current listings of the National Register of Historic Places (NRHP) and State Register of Cultural Properties (SRCP) on May 16, 2006 indicated no registered properties occur within 0.5 km (0.3 mi) of the project APE. The proposed Mesa del Sol residential and commercial development will have no effect on any registered properties. In addition, no national or state monuments are in the project vicinity.

## TRADITIONAL CULTURAL PROPERTIES

The project APE is a rural environment and no cultural or geographic features in the project APE have characteristics of known Traditional Cultural Properties (TCPs). Because the project does not involve any federal land, funds, or permits, TCP consultation is not required. If these conditions (e.g., funding source or permit requirements) change, then Dekker, Perich, and Sabatini, Inc. will address the NHPA Section 106 requirements for tribal consultations concerning TCPs.

## FIELD METHODS

A four-person crew from Marron conducted a Class II (20 percent) cultural resource survey of the project APE between June 26 and July 10, 2006. The project APE consists of 1214.5 ha (3001 ac) on the slope and top of the East Mesa. A series of 22 122-m (400-ft) wide arbitrary sample transects were surveyed within the project APE. The built environment APE includes buildings with construction dates prior to 1962 that are within 30 m (100 ft) of the transects. The project area was not marked or flagged prior to the survey, and the project boundaries were located using maps provided by the project engineer. An aerial photo of the project area was also consulted. Pedestrian transects spaced no greater than 15 m (50 ft) apart were walked within the 22 transects. A total of 247.6 ha (612 ac), consisting entirely of private land, was surveyed.

The 22 transects were placed in six delineated areas based on the area location and size (Figure 4). Areas are numbered from one to six, with the smallest designated one and the largest designated six. Area 1 is northwest of the I-25 and NM 47 intersection and is 5.7 ha (14 ac). Area 2 is southwest of the I-25 and NM 47 intersection and is 9.7 ha (24 ac). Area 3 is in the northeast corner of the project APE and is 16.2 ha (40 ac). Area 4 is west of I-25 south of Tijeras Arroyo and is 81.3 ha (201 ac). Area 5 borders the east side of I-25 from the I-25 and NM 47 intersection at the south end for a distance of about 4 km (2.5 mi) north and it is 173.2 ha (428 ac). Finally, Area 6 is on the flats of the East Mesa south and east of the Journal Pavilion and sports facilities and is 928.4 ha (2294 ac).

Except for Transect 15, which was oriented east-west, all of the transects were oriented north-south. Transect placement was done to maximize coverage of the different physiographic features represented in the project APE. The physiographic features include the relatively flat East Mesa, the rolling hills and knolls of the west escarpment of the East Mesa, and the slightly sloping to undulating terrain bordering the east Rio Grande valley. Also, the north-south orientation of transects reduced the

resurveying of previously surveyed areas, particularly OCA's 1989 sample survey (Doleman 1989). Doleman (1989:5–6) oriented OCA's transects east-west (Figure 22).

Three previously recorded sites—LA 69517, LA 69520, and LA 153415—were revisited, and seven new sites—LA xx2, xx4, xx5, xx6, x7, xx9, and xx10—and 54 isolated occurrences (IOs) were recorded. The following criteria were used to identify an archaeological site: (1) 10 or more artifacts of two or more artifact classes or types within a 20-by-20-m (66-by-66-ft) area; or (2) the presence of a structure, feature, or midden. Resources not meeting these criteria were recorded as IOs—single artifacts, small clusters of less than 10 artifacts, and *descansos*. No buildings with construction dates prior to 1962 are in the transects or within 30 m (100 ft) of them.

Cultural resources were documented using standard procedures and forms. No artifacts were collected and no subsurface testing of any kind was done. A datum, consisting of a rebar with an aluminum cap stamped "Marron—Do Not Disturb" and a sequential field number (1, 2, 3) was placed in each previously or newly recorded site with the exception of LA 153415 (the historic road) where a datum had been placed during a recent cultural resource survey by Marron (Estes et al. 2006). Locational information was obtained with a Trimble XT GPS unit using the Western U.S., 1927 North American Datum (NAD). Post-field differential correction of the data used the Albuquerque CORS1 base station and yielded an error of less than 1 m (3.3 ft). The GPS unit was also used to map the sites. The project area, sites, and selected artifacts were photographed with an Olympus Stylus 300 digital camera with 3.2 megapixels and a 3X zoom lens.

Heavy rains fell on several evenings during the survey, but climatic conditions during the survey were generally warm and sunny. Ground disturbances along the 22 transects were minimal, generally consisting of old blading scars, unimproved dirt roads, and cattle paths. Ground visibility averaged between 85 percent on the mesa top and 95 percent on portions of the west escarpment.

## SURVEY RESULTS

Three previously recorded sites, seven new sites, and 54 IOs were recorded in the 22 sample transects. No buildings with construction dates prior to 1962 are in the transects or within 30 m (100 ft) of them.

### Previously Recorded Site

#### LA 69517

FIELD NUMBER: Marron-3	TOPOGRAPHIC LOCATION: ridge and slope
SITE TYPE: lithic scatter	VEGETATION: grasses
LAND STATUS: private	NO. OF COMPONENTS: 1
QUADRANGLE: Isleta (1952/1974)	CULTURAL AFFILIATION: unknown prehistoric
ELEVATION (MSL): 1546 m (5051 ft)	FEATURES: none
SITE DIMENSIONS: 225 by 144 m (738 by 472 ft)	ARTIFACTS: cores, chipping debris
ELIGIBILITY: eligible. Criterion D	

SITE DESCRIPTION: LA 69517, a medium-density chipped stone artifact scatter with one concentration, was originally recorded by OCA in 1989 (Doleman 1989:79). The site extends eastward from rolling terrain near the edge of the East Mesa along the steep-sided ridges at the edge of the escarpment (Figure 23, Appendix A1, A2). Doleman (1989:79) described the site as lying on the slopes of two gravel knolls in the lower western escarpment. The site is open in all directions and has an unrestricted view of the Rio Grande valley to the west and the Sandia Mountains to the east. The

nearest perennial drainage is the Rio Grande 1.6 km (1 mi) to the west. The vegetation is grassland with about 40 percent ground surface visibility. Abundant lithic raw materials are available on-site and in the gravel-bearing escarpment ridges to the east. Soils are classified as the Bluepoint-Kokan association, hilly (BKD) (Hacker 1977:13–14, Sheet No. 49). Kokan soils containing cobbles useful for the manufacture of chipped stone tools form the gravelly ridges, while Bluepoint soils are on fans between ridges.



Figure 23. LA 69517, west aspect.

The site appears to be a lithic procurement locus about 2500 square meters or less in area. It contains two proveniences, one on each knoll. Provenience 1 has more chalcedony tertiary flakes than Provenience 2, which has more cores and chert. No cultural features were discerned and 27 lithic specimens were recorded (Doleman 1989:79). The site situation has not changed much since it was first recorded in 1989.

The site is subject to deflation and slope erosion. The flats near the edge of the mesa and the ridge tops are wind deflated, and slopes below the ridges are sheet washed, displacing some artifacts. Larger artifacts observed on the lower slopes are embedded in 3 cm (1 in) or more of sand. Water flowing between the ridges during seasonal storms has cut channels up to 15 cm (6 in) deep. A utility line that crosses the east edge of the site may have disturbed deposits in its path, but its maintenance road is only a slightly incised unimproved dirt road, and there is no evidence of off-road traffic. A dirt road crosses the site between the two proveniences. Cattle grazing on the site have left shallow trails. The estimated depth of the cultural deposits is 10 cm (4 in) or less. An estimated 50 percent of the site remains intact.

**FEATURES:** No features were found.

**ARTIFACTS:** Hundreds of chipped stone artifacts are present. The artifacts occur in two concentrations. An arbitrary representative 15 percent sample (N=50) was recorded in the general site scatter, and all

artifacts in Concentration 1 (N=11) were recorded (Tables 4 and 5). The assemblage consists mostly of cores and chipping debris made from raw materials available in the Kokan gravels. One tool, a bifacially chipped knife, was in Concentration 1. No diagnostic artifacts were noted, and the site is assigned an unknown prehistoric age. A two-pound iron weight marked "CHAMPION" near the site datum is intrusive.

Table 4. Arbitrary representative artifact sample, LA 69517.

Description	Count
Chalcedony angular debris, cortical	4
Chalcedony core, cortical, irregular, exhausted	2
Chalcedony flake or split pebble, primary	1
Chalcedony flakes, secondary	11
Chalcedony flakes, primary	7
Chalcedony flake, tertiary	10
Chalcedony flakes, retouched, secondary	2
Chert angular debris, primary	1
Chert core, cortical, irregular, exhausted	1
Chert flakes, secondary	5
Chert flake, tertiary	1
Silicified wood, angular debris, secondary	1
Silicified wood angular debris, retouched, secondary	1
Silicified wood flake, primary	1
Silicified wood flake, secondary	1
Rhyolite flake, secondary	1
<b>Total</b>	<b>50</b>

Table 5. Concentration 1 artifact assemblage, LA 69517.

Description	Count
Chert flakes, cortical	4
Chalcedony flake, secondary	1
Chalcedony flake fragment, tertiary	2
Silicified wood flake, tertiary	1
Chalcedony angular debris	1
Chalcedony core, 30% cortex, exhausted	1
Basalt knife, bifacially retouched on three edges, noncortical	1
<b>Total</b>	<b>11</b>

PRELIMINARY EVALUATION: LA 69517 is a medium-dense scatter of chipped stone cores and debitage, with one artifact concentration that also contains a tool. None of the observed artifacts were diagnostic. Although additional artifacts may be buried 3 cm (1 in) in waterborne sediments deposited on the slopes below the ridge, the site is not likely to contain intact, buried cultural materials. Its research value, however, lies in its potential for understanding lithic procurement along the escarpment of the East Mesa. LA 69517 is recommended eligible for inclusion on the NRHP under Criterion D, information potential (Doleman 1989:79).

PROJECT IMPACT: LA 69517, which is recommended eligible for the NRHP, is entirely within the project APE. Although its location is scheduled for use as park or open space, the site will probably

experience increased visitation as the mesa is populated. The proposed Mesa del Sol development project, therefore, will have an adverse effect on LA 69517.

### LA 69520

FIELD NUMBER: Marron-1	TOPOGRAPHIC LOCATION: ridge and slope
SITE TYPE: lithic scatter with feature	VEGETATION: Mormon tea, bunchgrass, yucca
LAND STATUS: private	NO. OF COMPONENTS: 1
QUADRANGLE: Isleta (1952/1974)	CULTURAL AFFILIATION: unknown prehistoric
ELEVATION (MSL): 1525 m (5003 ft)	FEATURES: hearth (1)
SITE DIMENSIONS: 131 by 64 m (430 by 210 ft)	ARTIFACTS: cores, chipping debris
ELIGIBILITY: eligible, Criterion D	

SITE DESCRIPTION: LA 69520, a large scatter of chipped stone artifacts and a hearth, is on the tops and slopes of eroded ridges between seasonal drainages at the west escarpment of the East Mesa overlooking the Rio Grande valley to the west (Figure 24, Appendix A1, A3). The site was first recorded by OCA in 1989 (Doleman 1989:86). Doleman (1989:86) recorded the site as lying on the top and slopes of a gravel knoll at the western end of a lower escarpment ridge overlooking the Rio Grande floodplain. Abundant lithic raw materials are available in on-site gravels and the nearby escarpment ridges. About 30 percent of the ground surface is visible. The site consists of a lithic scatter that has an estimated depth of no depth on the top of the ridges to greater than 20 cm (8 in) on the grassy slopes. No features were noted. The lithic assemblage is mostly tested rocks and primary debitage from local-available materials. The site's dating potential is limited due to the absence of features and obsidian. The grassy slope should be tested for buried cultural deposits (Doleman 1989:87-88). The nearest perennial drainage is the Rio Grande 1363 m (4471 ft) to the west.

The site has not changed greatly from when it was first reported by Doleman (1989:87). The present survey did record a possible hearth that was not revealed in 1989. Artifacts include tested cobbles, cores, and flakes made from lithic raw materials that are available in the local gravels. The soils, gravelly sands with 15 to 40 percent slope, are classified as the Bluepoint-Kokan association, hilly (BKD) (Hacker 1977:13-14, Sheet No. 49). Kokan soils containing cobbles of useful lithic raw materials from the gravelly ridges, while Bluepoint soils are on fans between ridges. LA 69520 is in desert grassland and is open on all sides. The local plant community includes Mormon tea, bunchgrass, narrowleaf yucca, and Russian thistle. One juniper is in the artifact scatter. Vegetation is sparse, and ground visibility is 90 percent.

Wind and water erosion are the principal sources of disturbance, and materials that are windblown or washed from the ridges are deposited down slope. Materials between the ridges—including cultural materials—are redistributed by runoff during wet seasons. Although the site may have been used for grazing during the historic period, bioturbation from cattle or burrowing animals was not observed. An estimated 75 percent of the site remains intact.

FEATURES: Feature 1 is an 86-cm (34-in) diameter cluster of basalt, chalcedony and quartzite cobbles and two pieces of sandstone. It is on the eroded, southeast-facing slope of a ridge at the northwest end of the site, within a relatively dense scatter of debitage (Figure 25). The largest cobble in the cluster is 12 by 15 by 10 cm (4.7 by 5.9 by 3.9 in). None of the rocks is burned nor is there a discernible ash stain, but the rock configuration suggests a hearth.

ARTIFACTS: Hundreds of chipped stone artifacts are present, and an arbitrary representative 15 percent sample (N=70) was recorded (Table 6). The majority (n=57) is made from chalcedony. Chalcedony artifacts included four tested cobbles, five cores, 46 flakes, one piece of angular debris, and one

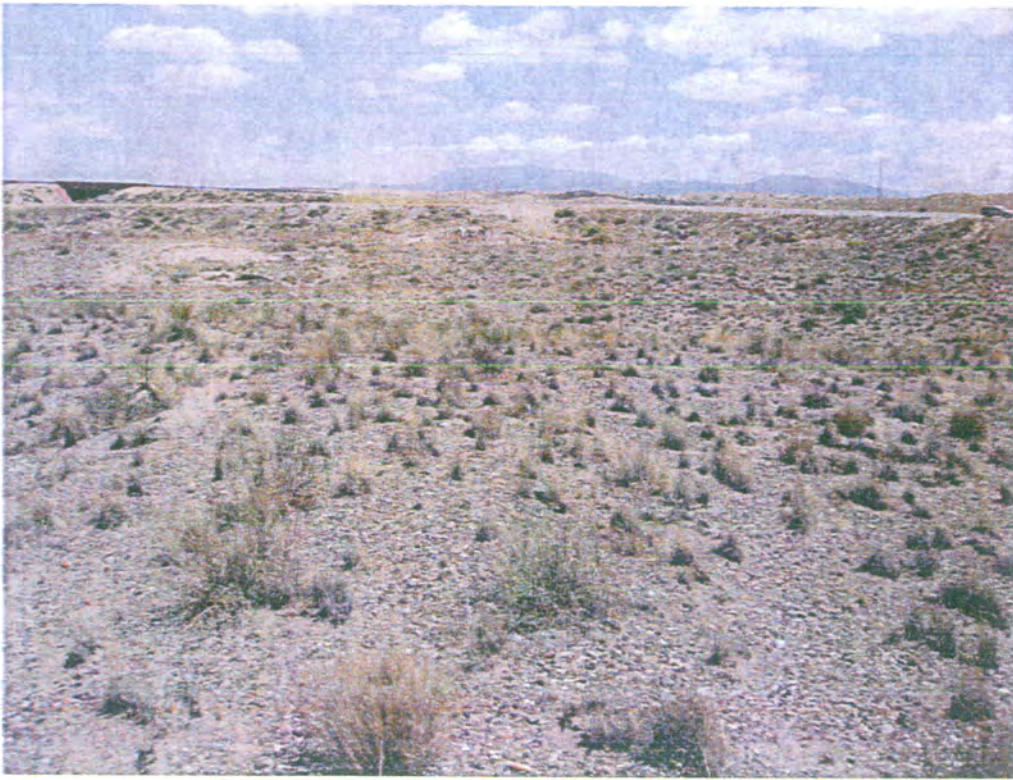


Figure 24. LA 69520, overview, northeast aspect.



Figure 25. LA 69520, Feature 1.

retouched flake—the only tool observed on the site (Figure 26). Two cores, one tested cobble, and three flakes were made of chert. One core, one tested cobble, and three flakes were silicified wood, and one core and one flake were quartzite. Unaltered examples of each material type that was observed in the assemblage was also observed in the gravelly ridges. No hammerstones were noted.

Table 6. Arbitrary representative artifact sample, LA 69520.

Description	Count
Chalcedony angular debris, secondary	1
Chalcedony core, cortical, irregular	2
Chalcedony core, exhausted, cortical	1
Chalcedony core, exhausted, noncortical	1
Chalcedony core, irregular, noncortical	1
Chalcedony flakes, secondary	15
Chalcedony flakes, secondary	7
Chalcedony flake, primary	7
Chalcedony flake, tertiary	20
Chalcedony retouched flake, secondary	1
Chalcedony tested (split) cobble, primary	2
Chalcedony tested cobble, secondary	2
Chert core, cortical	1
Chert core, exhausted, cortical	1
Chert flake, primary	1
Chert flake, secondary	2
Chert flake, tertiary	1
Chert tested cobble, cortical	1
Silicified wood core, exhausted, cortical	1
Silicified wood flake, secondary	3
Silicified wood tested cobble, cortical	1
Quartzite core, cortical	1
Quartzite flake, secondary	1
<b>Total</b>	<b>70</b>

PRELIMINARY EVALUATION: LA 69520 is a locus where lithic raw materials were procured for manufacturing chipped stone implements. Tested cobbles, cores with partial cortex, large and generally cortical flakes, and the absence of small, noncortical flakes and formal tools suggest most activities involved preparing raw materials for later use at other locations. However, the presence of a possible hearth suggests the site was used for more than lithic procurement. Although burned materials or ash-stained soil were not evident at the surface, these materials may be present beneath the rocks that form Feature 1. Artifacts on the lower slopes and in the drainage are partly buried as much as 3 cm (1 in) in soils that have eroded from the ridges. The site contains buried cultural materials, some of which may be datable. The research value of the site is in its potential for understanding lithic procurement along the escarpment of the East Mesa. LA 69520 is recommended eligible for inclusion on the NRHP under Criterion D, information potential.





Figure 26. LA 69520, retouched flake.

PROJECT IMPACT: LA 69520, which is recommended eligible for the NRHP, is entirely within the proposed APE and is within an area slated for commercial development. The proposed Mesa del Sol development project, therefore, will have an adverse effect on LA 69520.

#### LA 153415

FIELD NUMBER: Marron-8

SITE TYPE: road

LAND STATUS: private, State Land Office

QUADRANGLE: Hubbell Spring (1952/1974)

ELEVATION (MSL): 1606 (5270 ft)

SITE DIMENSIONS: 3500 by 3 m (11375 by 9.8 ft)

ELIGIBILITY: eligible, Criterion A

TOPOGRAPHIC LOCATION: mesa top plain

VEGETATION: yucca, cholla, grasses

NO. OF COMPONENTS: 1

CULTURAL AFFILIATION: Euroamerican

FEATURES: none

ARTIFACTS: stoneware sherds

SITE DESCRIPTION: LA 153415, a segment of a historic road that connects Atrisco to the Hell's Canyon Road, is on a plain on East Mesa (Figure 27, Appendix A1, A4 and A5). The road segment originates on the south terrace of Tijeras Arroyo and continues southeast for 6 km (3.7 miles) to the McCormick Ranch. From there, the road continues southeast for 6.2 km (3.9 mi) to Hubbell Spring and then south for 2.4 km (1.5 mi) to Hell's Canyon Road. The site is in desert grassland and is open on all sides. The local plant community includes narrowleaf yucca, cholla, and grasses. Ground visibility is 90 percent across the site (Estes et al. 2006a:19). The soil, a loamy sand, is classified as Madurez loamy fine sand, 1 to 5 percent slopes (MaB) (Hacker 1977:26–27, Sheet No. 50). The nearest perennial drainage is the Rio Grande 4.8 km (3 mi) to the west.

LA 153415 was not recorded northwest of Bobby Foster Road, or east of the project APE. An abandoned segment of LA 153451, between Bobby Foster Road and the boundary of Sections 21 and

22 of T9N, R3E, is a narrow swale that is 18 meters (60 ft) long, 3 meters (9.8 ft) wide, and about 40 cm (16 in) deep. The swale is overgrown with snakeweed and grasses, and no ruts are present. Another segment of LA 153415 that crosses the project APE consists of parallel ruts that begin at the boundary of Sections 21 and 22 and continues southeast to the McCormick Ranch (Estes et al. 2006a:19).



Figure 27. LA 153415, ruts and two-track road, southeast aspect.

Disturbances include cattle grazing, civic and commercial development, and road construction. The site's current use as a ranch road begins at the boundary between Sections 21 and 22 and continues southeast. Northwest of the project APE, LA 153415 has been disturbed by road construction, a sanitary landfill, a holding pond, barbed-wire fences, and the Journal Pavilion. An estimated 95 percent of the site remains intact (Estes et al. 2006a:19).

FEATURES: LA 153415 has no discernible features (Estes et al. 2006a:21).

ARTIFACTS: All artifacts observed on the surface (N=14) were recorded in the field during a previous survey (Estes et al. 2006a:21). All were sherds from a salt-glazed or Bristol-glazed stoneware crock with a brown glazed interior (Figures 28 and 29). Several sherds could be refitted to form more than half of the base of an 18-cm (7-inch) diameter (one gallon) container. The exterior bears a blue transfer print label reading in part "& Co...Dealers".

PRELIMINARY EVALUATION: LA 153415 is a segment of a historic road. Military maps produced in 1846 and 1851 indicate Hell's Canyon Road was the primary access between the communities of Isleta and Los Padillas and the Salinas District on the east side of the Manzano Mountains (Figures 30 and 31). The Salinas salt lakes, which provided salt for the prehistoric and historic populations throughout central New Mexico, were the eastern terminus of the Hell's Canyon Road on the 1846 map. In contrast, the 1851 map omits the salt lakes and emphasizes the settlements on the eastern slopes of the Manzano Mountains. An 1864 Military Department of New Mexico map shows LA 153415 connecting the community of Atrisco and the Hell's Canyon Road, and was probably surveyed



Figure 28. Historic ceramics, LA 153415.

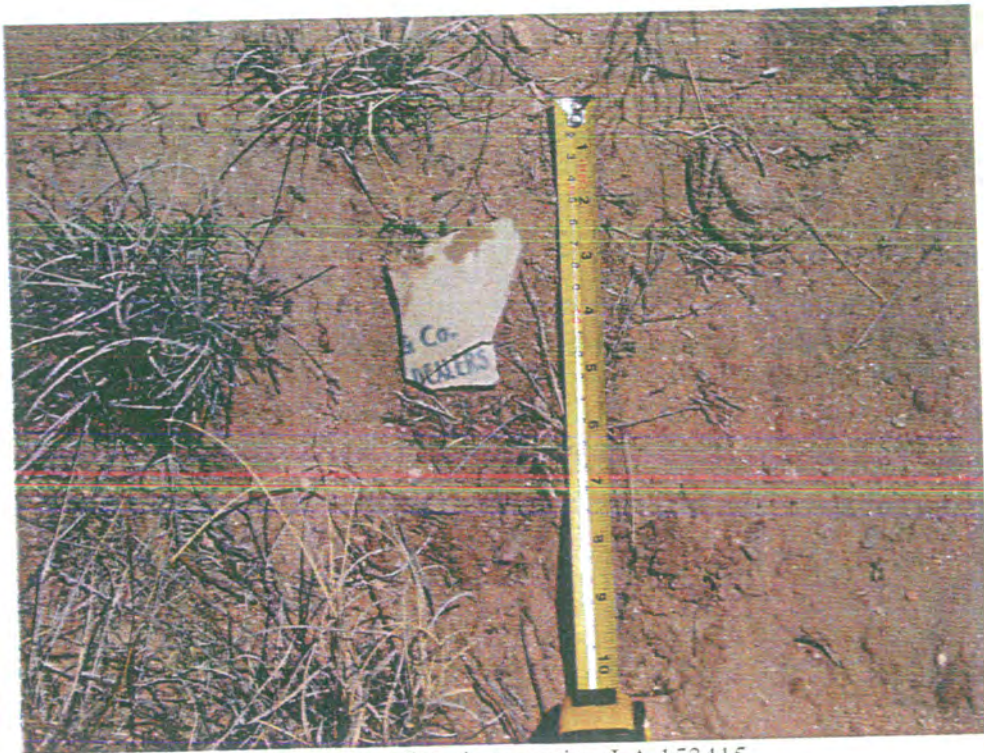


Figure 29. Historic ceramics, LA 153415.

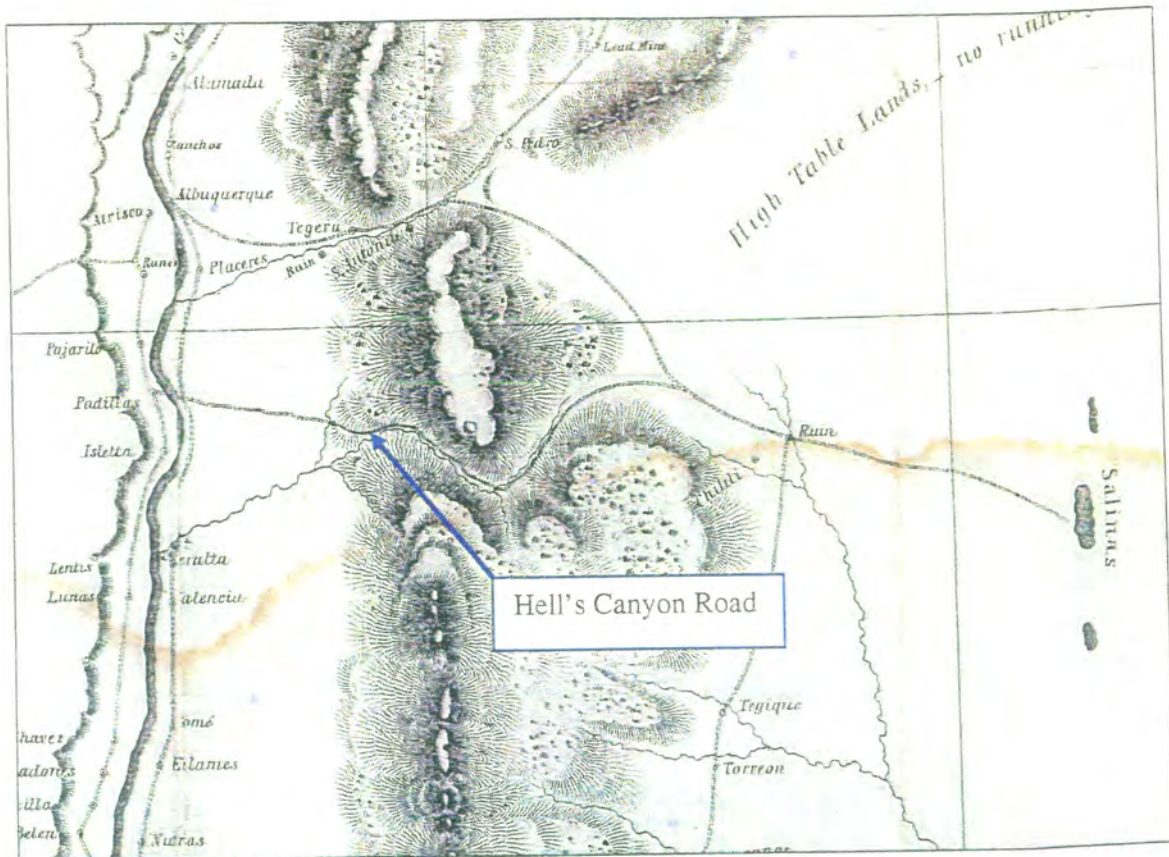


Figure 30. 1846 military map of New Mexico for the project area.

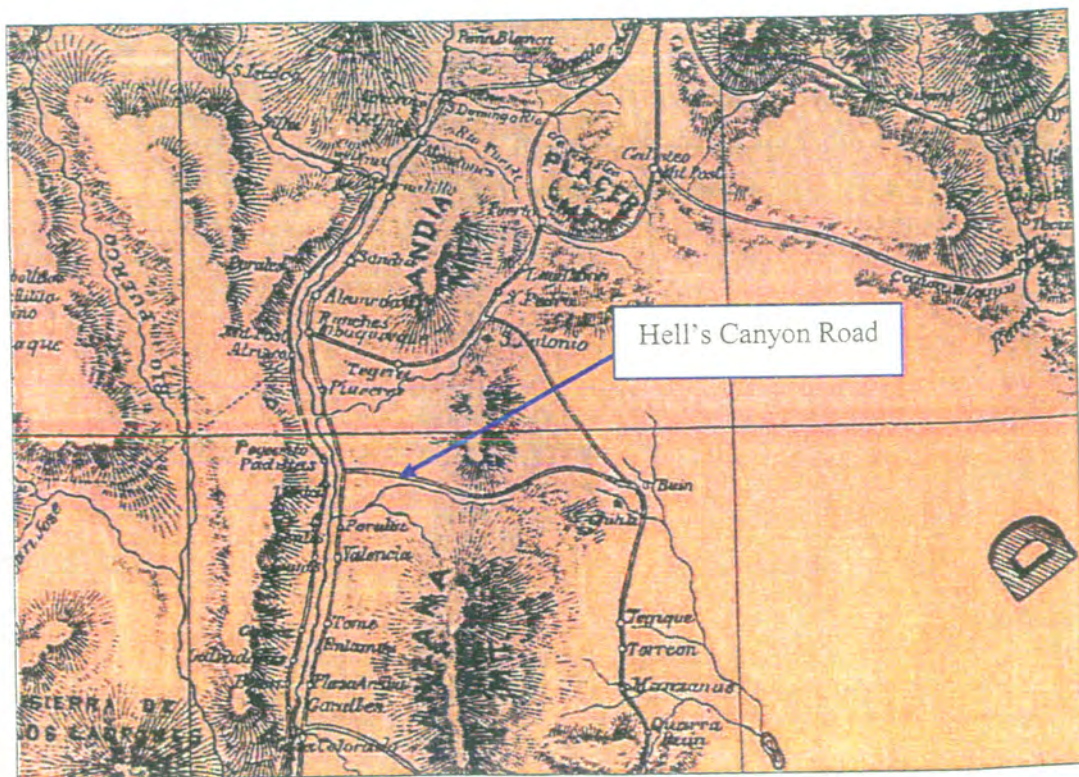


Figure 31. 1851 military map of New Mexico for the project area.

for its military potential during the Civil War (Figure 32). LA 153415 appears as a ranch road on the 1934 7.5-minute USGS quadrangle (Appendix A5). This historic road has appeared in the same location on published maps for 140 years. Given its historic context as an important salt route and a military route during the Civil War, LA 153415 is recommended eligible for inclusion on the NRHP under Criterion A.

PROJECT IMPACT: A 3.2-km (2-mi) segment of LA 153415, which is recommended eligible for the NRHP, is in the project APE (Appendix A6). Proposed residential and commercial development will alter the characteristics of the site that qualify it for the NRHP by changing its nature and use. The proposed Mesa del Sol development project, therefore, will have an adverse effect on LA 153415. The segment of LA 153415 within the project APE, however, has been documented and no additional investigations regarding this portion of the road are recommended.

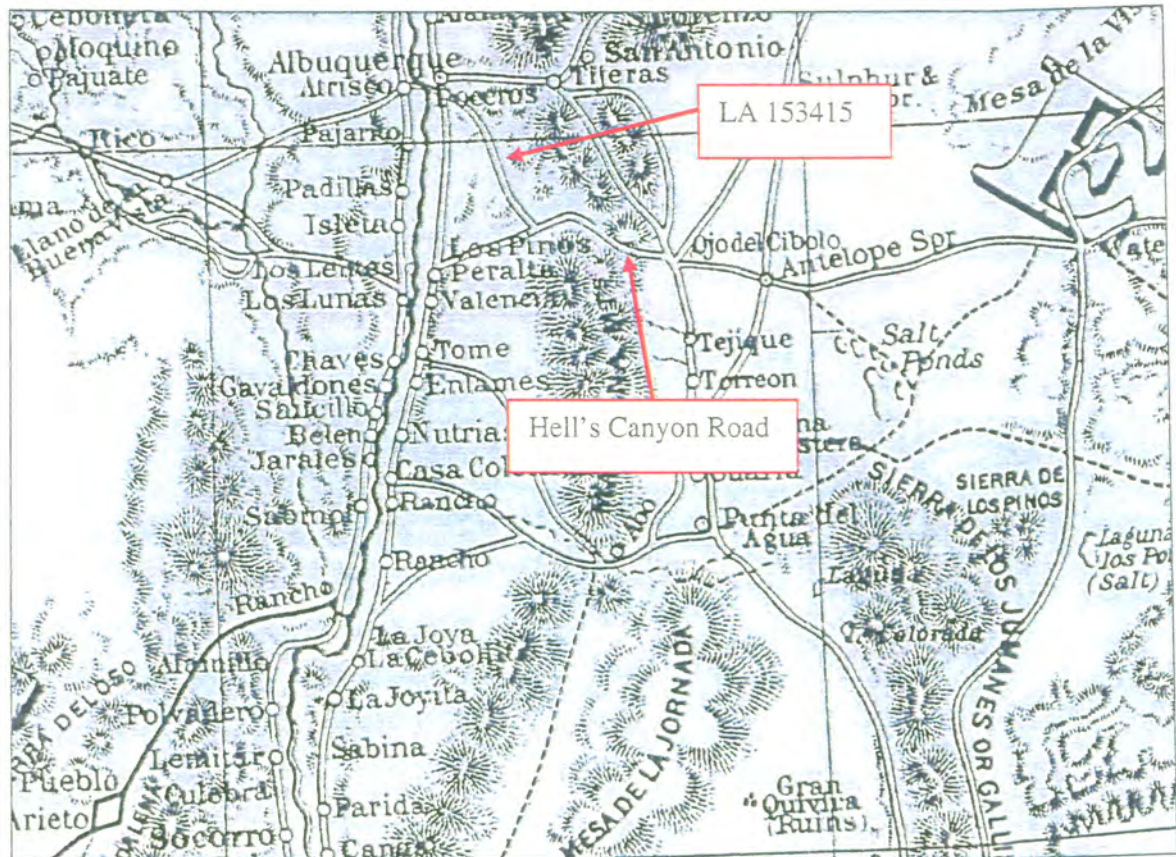


Figure 32. 1864 military map of New Mexico showing the project area.

### Newly Recorded Sites

#### LA xx2

FIELD NUMBER: Marron-2	TOPOGRAPHIC LOCATION: ridge and slope
SITE TYPE: lithic scatter, features	VEGETATION: Mormon tea, grasses, snakeweed
LAND STATUS: private	NO. OF COMPONENTS: 1
QUADRANGLE: Isleta (1952/1974)	CULTURAL AFFILIATION: unknown prehistoric
ELEVATION (MSL): 1561 m (5121 ft)	FEATURES: hearth (1), possible hearth (1)
SITE DIMENSIONS: 116 by 76 m (380 by 249 ft)	ARTIFACTS: core, chipping debris

ELIGIBILITY: eligible, Criterion D

SITE DESCRIPTION: LA xx2, a low-density surface scatter of chipped stone debitage with one hearth and one possible hearth, is near the base of the East Mesa on a ridge between seasonal drainages (Figure 33, Appendix A1, A6). It is open in all directions. Artifacts include cores, flakes, and angular debris made from lithic raw materials that are available in the local gravels. A low sandstone outcrop is immediately south of the hearths.

The site has been partially bladed, but local desert scrub vegetation, including Mormon tea, Russian thistle, bunchgrass, and snakeweed, has reestablished, and only the leveled terrain and a bulldozer cut near Feature 1 indicate the previous disturbance. The ridge top is wind deflated, and minor sheet wash is evident on the slopes. Soils are classified as Bluepoint Loamy fine sand (1 to 9 percent slopes) (BCC), and are subject to severe wind erosion and slow runoff (Hacker 1977:13, Sheet No. 49). Ground visibility is 50 percent. The site is about 70 percent intact. Cultural remains may 20 cm (8 in) deep based on a rock feature. The nearest perennial drainage is the Rio Grande 12.8 km (1.8 mi) to the west.



Figure 33. LA xx2, overview, southeast aspect.

FEATURES: Feature 1 is a 3-by-2.5-m (9.8-by-8.2-ft) cluster of three pieces of fire-cracked rock among seven rounded stones that are 20 cm (8 in) in maximum dimension (Figure 34). Except within Feature 2, similar stones are not found elsewhere on the site. Feature 1 probably represents the wind-eroded or bladed remnants of a hearth.

Feature 2 is a 1.75-by-1-m (5.7-by-3.2-ft) cluster of four rounded rocks and one chalcedony flake (Figure 35). The rounded rocks are similar to those observed in Feature 1, but no fire-cracked rock was associated with this feature. This rock cluster probably represents the wind-eroded or bladed remnants of a hearth.



Figure 34. LA xx2, Feature 1.



Figure 35. LA xx2, Feature 2.

ARTIFACTS: Nineteen chipped stone artifacts were observed and all were recorded (Table 7). The assemblage, consisting of cores and primarily cortical chipping debris, is indicative of collection and testing of lithic raw materials available in the local gravels. No diagnostic chipped stone tools were found, and the site is assigned an unknown prehistoric age.

Table 7: Artifact assemblage. LA xx2.

Description	Count
Chalcedony core, cortical	1
Chalcedony flakes, secondary	3
Chalcedony flake, tertiary	4
Chert core, irregular, cortical	1
Chert flake, secondary	5
Chert flake, primary	2
Chert flake, tertiary	2
Silicified wood flake, secondary	1
<b>Total</b>	<b>19</b>

PRELIMINARY EVALUATION: LA xx2 is a low-density core and debitage scatter. One, and possibly two, hearths suggest the site was used repeatedly. The site has been bladed, and an examination of a bulldozer cut near Feature 1 did not reveal buried cultural materials. However, Feature 1 contains fire-cracked rock, and may contain buried, datable cultural material. Additional artifacts may also be buried in 3 cm (1 in) of waterborne sediments on the slope below the ridge top. The site probably contains intact cultural deposits and its research value lies in its potential for understanding lithic procurement along the escarpment of the East Mesa. LA xx2 is recommended eligible for inclusion on the NRHP under Criterion D, information potential.

PROJECT IMPACT: LA xx2, which is recommended eligible for the NRHP, is entirely within the project APE and its location is scheduled for commercial development. The proposed Mesa del Sol development project, therefore, will have an adverse effect on LA xx2.

#### LA xx4

FIELD NUMBER: Marron-4

SITE TYPE: lithic scatter, feature

LAND STATUS: private

QUADRANGLE: Isleta (1952/1974)

ELEVATION (MSL): 1538 m (5046 ft)

SITE DIMENSIONS: 75 by 23 m (246 by 75 ft)

ELIGIBILITY: eligible, Criterion D

TOPOGRAPHIC LOCATION: ridge and slope

VEGETATION: Mormon tea, grass, yucca, snakeweed

NO. OF COMPONENTS: 1

CULTURAL AFFILIATION: unknown prehistoric

FEATURES: hearth (1)

ARTIFACTS: hammerstones, cores, chipping debris

SITE DESCRIPTION: LA xx4 is a medium-density lithic scatter with one concentration of chipped stone artifacts, a rock concentration representing a probable hearth, and a diffuse scatter of fire-cracked rocks on low ridges and slopes (Figure 36, Appendix A1, A8). It is on the west escarpment of the East Mesa and is open on all sides. Soils are the Bluepoint-Kokan association, hilly (BKD) (Hacker 1977:13-14, Sheet No. 49). The gravelly ridges consist of Kokan soils containing cobbles of useful lithic raw materials, and the fans between ridges contain Bluepoint soils. Local vegetation includes Mormon tea, bunchgrass, narrowleaf yucca, snakeweed, Russian thistle, and a few cacti. Ground visibility is 50 percent. The nearest perennial drainage is the Rio Grande 1.9 km (1.2 mi) to the west.





Figure 36. LA xx4, overview, northwest aspect.

Disturbances include wind, water, and grazing cattle. The ridge top and upper slopes are wind-deflated, and sheet-wash deposited sands are on the lower ridge slopes. A few artifacts were observed on and near a 5-cm (2-in) deep cattle trail that crosses the site, but buried cultural materials were not seen in the trail. On the site artifacts and unaltered stones on the ridge top are in the sand and are probably in their primary context. Artifacts observed on the slopes are lying on sand and have likely been displaced from more level areas on top of the ridge. Additional artifacts may be present beneath the wind and water deposited sands. Cultural remains may be buried 10 cm deep based on a rock hearth. Construction and maintenance of a power transmission line about 70 m (230 ft) down slope has not affected the site. LA xx4 is estimated to be between 50 and 75 percent intact.

**FEATURES:** Feature 1, a 1.2-by-1-m (3.9-by-3.3-ft) cluster of unaltered rocks and one piece of fire-cracked rock, is near the crest of the ridge (Figure 37). Although no ash or charcoal staining was evident, the fire-cracked rock and the cluster of stones up to 15 cm (6 in) in diameter suggest Feature 1 is the remains of a hearth.

**ARTIFACTS:** Hundreds of chipped-stone artifacts are present. An arbitrary representative 50 percent sample (N=50) was recorded from the general site area (Table 8), and all surface artifacts in Concentration 1 (N=25) were recorded (Table 9). The assemblage consists of cores, tested cobbles, waste flakes and shatter made from the chalcedonies, silicified wood, cherts, and obsidian that are locally available in the Kokan soils. Most artifacts are fully to partially cortical chipping debris and cores, however a few non-cortical reduction flakes, including one biface thinning flake, were noted. Tools include one quartzite hammerstone, one quartz hammerstone, and one silicified wood hammerstone. The assemblage represents lithic raw material procurement and initial chipped stone



Figure 37. LA xx4, Feature 1.

implement manufacture. However, the assemblage does not contain diagnostic artifacts and is of unknown prehistoric affiliation.

Table 8. Arbitrary representative artifact sample, LA xx4.

Description	Count
Chalcedony core, exhausted, noncortical	1
Chalcedony core, cortical	1
Chalcedony core, bifacial, noncortical	1
Chalcedony core, exhausted, cortical	1
Chalcedony core, irregular, cortical	5
Chalcedony core, noncortical	1
Chalcedony core, unidirectional, cortical	1
Chalcedony flake, secondary	7
Chalcedony flake, primary	1
Chalcedony flake, tertiary	15
Chalcedony flake, tertiary, biface thinning flake	2
Chalcedony flake, retouched, secondary	1
Chert core, cortical	2
Chert flake, secondary	1
Chert flake, tertiary	1

Description	Count
Chert flake, retouched, secondary	1
Obsidian flake, tertiary	2
Silicified wood core, bidirectional, cortical	1
Silicified wood flake, secondary	1
Silicified wood flake, tertiary	1
Quartzite flake, primary	1
Quartz hammerstone	1
Quartzite hammerstone	1
<b>Total</b>	<b>50</b>

Table 9: Artifacts in Concentration 1, LA xx4.

Description	Count
Chalcedony core, cortical, exhausted	1
Chalcedony core, noncortical, exhausted, multidirectional	1
Chalcedony tested cobble, cortical	1
Chalcedony flake, secondary	3
Chalcedony flake, primary	1
Chalcedony flake, tertiary	6
Chert tested cobble, cortical	1
Chert flake, secondary	3
Chert flake, primary	1
Chert flake, tertiary	4
Silicified wood core, cortical	1
Silicified wood hammerstone	1
<b>Total</b>	<b>25</b>

PRELIMINARY EVALUATION: LA xx4 is a lithic procurement site of unknown prehistoric affiliation. One hearth and hundreds of pieces of debitage suggest that the site was occupied on more than one occasion. Aeolian and waterborne sand deposits likely contain buried artifacts and the hearth suggests intact cultural deposits are present. Its research value lies in its potential for understanding prehistoric land-use and lithic procurement strategies along the escarpment of the East Mesa. The site is recommended eligible for inclusion on the NRHP under Criterion D, information potential.

PROJECT IMPACT: LA xx4, which is recommended eligible for the NRHP, is entirely within the project APE, in the proposed Trunk Open Space Network. If this open space remains as currently planned, the proposed Mesa del Sol development project will have no adverse effect on LA xx4.

#### LA xx5

FIELD NUMBER: Marron-5  
 SITE TYPE: lithic scatter, feature  
 LAND STATUS: private

TOPOGRAPHIC LOCATION: ridge and slope  
 VEGETATION: Mormon tea, grasses, snakeweed  
 NO. OF COMPONENTS: 1

QUADRANGLE: Isleta (1952/1974)

ELEVATION (MSL): 1541 m (5056 ft)

SITE DIMENSIONS: 146 by 80 m (479 by 262ft)

ELIGIBILITY: eligible, Criterion D

CULTURAL AFFILIATION: unknown prehistoric

FEATURES: rock concentration (1)

ARTIFACTS: bifaces, cores, chipping debris

SITE DESCRIPTION: LA xx5 is a chipped stone tool, core, and debitage scatter with one rock concentration on ridges and slopes on the west escarpment edge of the East Mesa (Figure 38, Appendix A1, A9). The site is open in all directions, with a panoramic view of the Rio Grande valley. The local plant community is desert scrub, including Mormon tea, bunchgrass, snakeweed, and Russian thistle. Vegetation is relatively sparse, and ground visibility is 95 percent. The gravelly, sandy soil is classified as the Bluepoint-Kokan association, hilly (BKD) (Hacker 1977:13–14, Sheet No. 49). The ridges are formed by Kokan soils containing cobbles of useful lithic raw materials, and Bluepoint soils are on fans between ridges. Water-deposited sands are on the slopes and between ridges. The nearest perennial drainage is the Rio Grande 1.9 km (1.2 mi) to the west.

Livestock have grazed the site, but no cattle trails were observed within the site boundaries. The principal disturbances are wind deflation and water erosion. Gravels at the top of the ridge are wind-polished and are bedded in sand. Water erosion has displaced artifacts from the ridge and upper slopes. Some of the artifacts on the lower slopes are partly buried in colluvial sand, and it is likely that other artifacts are completely buried. Cultural remains may be buried 10 cm (4 in) based on a rock feature. An estimated 50 percent of the site is intact.

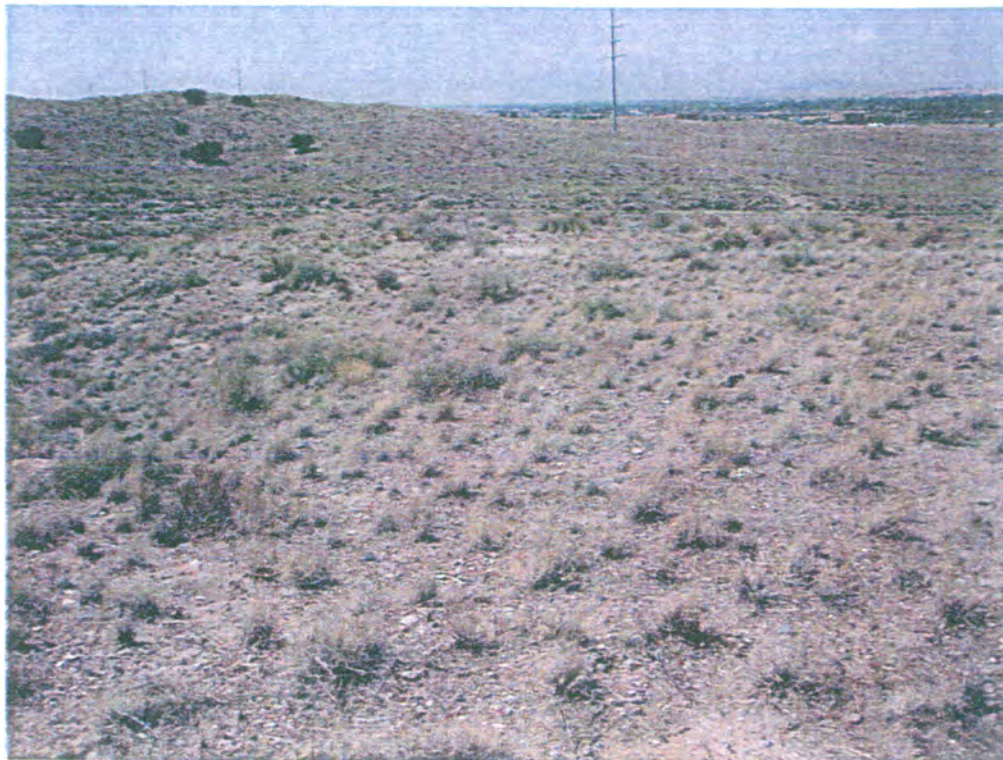


Figure 38. LA xx5, overview, south aspect.

FEATURES: One feature, a 60-by-90-cm (24-by-35-in) concentration of 13 volcanic and metamorphic rocks, is near the edge of the mesa at the highest point in the site. Isolated examples of similar rocks were observed elsewhere on the ridge (Figure 39). No fire-cracked rock, charcoal, or soil stain was observed within or near the concentration. It appears to be the remains of a hearth or cairn.



Figure 39. LA xx5, Feature 1.

**ARTIFACTS:** The total surface artifact assemblage consists of 40 specimens, including chipped stone tools, cores, and debitage (Table 10). Eight formal and expedient tools include a chalcedony biface, a silicified wood cobble chopper, a silicified wood biface, one chert scraper, one chert uniface, and two retouched chalcedony flakes. The tools, cores, and waste flakes are from raw materials available in the local gravels. The assemblage indicates cutting, chopping, and scraping activities and stone tool production and maintenance. Most of the waste flakes are cortical, suggesting that raw materials were selected at the site and prepared as cores for transport and later use. No diagnostic artifacts are present, and the site is of unknown prehistoric age and affiliation.

Table 10. Artifact assemblage, LA xx5.

Description	Count
Chalcedony biface, cortical	1
Chalcedony retouched flake, tertiary	2
Chalcedony core, cortical, irregular	1
Chalcedony flake, secondary	9
Chalcedony flake, primary	5
Chalcedony flake, tertiary	3
Chert uniface, noncortical	1
Chert core	1
Chert core, irregular, noncortical	1
Chert flake, primary	1
Chert flake, secondary	2
Chert flake, tertiary	1
Chert scraper, uniaxially flaked	1
Silicified wood biface, cortical	1
Silicified wood bifacially-flaked chopper	1

Description	Count
Silicified wood tested cobble, cortical	1
Silicified wood flake, primary	1
Silicified wood flake, tertiary	1
Quartz retouched flake, tertiary	1
Quartz core, cortical	1
Quartz flake, secondary	1
Quartz flake, primary	1
Quartzite flake, secondary	1
Rhyolite flake, tertiary	1
<b>Total</b>	<b>40</b>

PRELIMINARY EVALUATION: LA xx5 is a low-density chipped stone tool and debitage scatter with one rock feature representing a hearth or a cairn. The site is a prehistoric occupation of unknown affiliation. Buried cultural materials may be present beneath the rocks of the hearth or cairn, and displaced, but possibly diagnostic, artifacts may be buried by water laid sands on the slopes below the ridge. Its research value lies in its potential for understanding prehistoric land-use and lithic procurement strategies along the escarpment of the East Mesa. LA xx5 is recommended eligible for inclusion on the NRHP under Criterion D, information potential.

PROJECT IMPACT: LA xx5, which is recommended eligible for the NRHP, is entirely within the project APE, in the proposed Trunk Open Space Network. If this open space remains as currently planned, the proposed Mesa del Sol development project will have no adverse effect on LA xx5.

#### LA xx6

FIELD NUMBER: Marron-6

SITE TYPE: lithic scatter

LAND STATUS: private

QUADRANGLE: Isleta (1952/1974)

ELEVATION (MSL): 1608 m (5276 ft)

SITE DIMENSIONS: 55 by 48 m (180 by 157 ft)

ELIGIBILITY: eligible, Criterion D

TOPOGRAPHIC LOCATION: ridge and slope

VEGETATION: Mormon tea, grasses

NO. OF COMPONENTS: 1

CULTURAL AFFILIATION: unknown prehistoric

FEATURES: none

ARTIFACTS: hammerstones, cores, chipping debris

SITE DESCRIPTION: LA xx6 is a chipped stone artifact scatter on the top and upper slopes of a ridge that extends west from the west escarpment of the East Mesa (Figure 40, Appendix A1, A10). The site is open on all sides. Although shallow seasonal drainages flow between ridges, no permanent water sources are present. A few juniper trees are scattered in catchments. Widely spaced clumps of Mormon tea and bunch grass grow on the ridge, with more dense stands of bunch grass on the slopes. Surface visibility is about 95 percent. The sandy, gravelly soils are in the Bluepoint-Kokan association, hilly (BKD) (Hacker 1977:13-14, Sheet No. 49). Kokan soils containing cobbles of useful lithic raw materials form the ridges, and Bluepoint soils occur between ridges. The nearest perennial drainage is the Rio Grande 4.3 km (2.7 mi) to the west.

Disturbances include wind deflation and sheet wash. The ridge top is wind deflated. Artifacts and unaltered rocks on the ridge are lightly sand polished and patinated. A few artifacts have been displaced down slope and are loose on the surface of water-laid sands. Cattle have grazed on the site, but no tracks or trails are present. A 5-cm (2-in) deep cattle trail is on an adjacent ridge. Cultural remains are surficial with little likelihood of buried cultural deposits. An estimated 75 percent of the site remains intact.



Figure 40. LA xx6, overview, west aspect.

FEATURES: No features were found.

ARTIFACTS: The site contains about 100 artifacts, and an arbitrary representative 50 percent sample (N=50) was recorded in the field (Table 11). The assemblage is comprised of chipped stone tools, cores, and debitage made of materials that are available in the gravels of the ridge. The assemblage represents procurement of lithic raw materials and stone tool manufacture and maintenance. A chalcedony uniface and a bifacially retouched obsidian flake indicate scraping or cutting activities. The site contains a larger proportion of obsidian artifacts than are contained in nearby sites, but the assemblage is otherwise similar to those at LA 69517, LA xx4, and LA xx5. None of the artifacts is diagnostic, and the site is of unknown prehistoric age and affiliation.

Table 11. Arbitrary representative artifact sample, LA xx6.

Description	Count
Chalcedony angular debris, secondary	2
Chalcedony flake, primary	1
Chalcedony flake, secondary	10
Chalcedony flake, tertiary	8
Chalcedony irregular core, cortical	1
Chalcedony irregular core, noncortical	1
Chalcedony retouched flake, secondary	1
Chalcedony uniface, noncortical	1
Chert flake, bifacial retouch on distal end, secondary	1
Chert retouched flake, secondary	1
Obsidian flake, secondary	1
Obsidian core, exhausted, cortical	1
Obsidian flake, primary	1

Description	Count
Obsidian flake, secondary	4
Obsidian flake, tertiary	6
Obsidian retouched flake, secondary	2
Obsidian retouched flake, tertiary	1
Obsidian tested cobble, cortical	1
Silicified wood flake, secondary	1
Silicified wood tested cobble, cortical	1
Quartz hammerstone	1
Quartzite flake, tertiary	1
Quartzite hammerstone	1
Quartzite tested cobble, cortical	1
<b>Total</b>	<b>50</b>

PRELIMINARY EVALUATION: LA xx6 is a small, medium-density artifact scatter of unknown prehistoric age and affiliation. No features were found, and although sands on the slopes may have buried some artifacts, those artifacts are probably in secondary context. Although the site is probably surficial, it appears to be relatively undisturbed and obsidian is available for chronometric dating. Further research at the site, therefore, may provide important information concerning prehistoric land-use and lithic procurement strategies along the escarpment of the East Mesa. LA xx6 is recommended eligible for inclusion on the NRHP under Criterion D, information potential.

PROJECT IMPACT: LA xx6, which is recommended eligible for the NRHP, is entirely within the project APE, in the proposed Trunk Open Space Network. If this open space remains as currently planned, the proposed Mesa del Sol development project will have no adverse effect on LA xx6.

### LA xx7

FIELD NUMBER: Marron-7

SITE TYPE: lithic scatter

LAND STATUS: private

QUADRANGLE: Isleta (1952/1974)

ELEVATION (MSL): 1612 m (5290 ft)

SITE DIMENSIONS: 145 by 88 m (476 by 289 ft)

ELIGIBILITY: eligible, Criterion D

TOPOGRAPHIC LOCATION: ridge and slope

VEGETATION: juniper, grasses, yucca, Mormon tea

NO. OF COMPONENTS: 1

CULTURAL AFFILIATION: unknown prehistoric

FEATURES: none

ARTIFACTS: biface, scraper, cores, chipping debris

SITE DESCRIPTION: LA xx7 is a medium-density chipped stone artifact and fire-cracked rock scatter on ridges at the edge of the west escarpment of the East Mesa (Figure 41, Appendix A1, A11). It is open in all directions. The local plant community includes widely spaced junipers, Mormon tea, bunchgrass, narrowleaf yucca, and a variety of seasonal forbs. Vegetation is sparse and ground visibility is about 95 percent. The soil is gravelly sand, and some silt is evident in drainages between ridges. Soils are classified as the Bluepoint-Kokan association, hilly (BKD) (Hacker 1977:13-14, Sheet No. 49). The Kokan soils that make up the ridges contain cobbles of useful lithic raw materials and the Bluepoint soils occur between ridges. The nearest perennial drainage is the Rio Grande 4.3 km (2.7 mi) to the west.

Disturbances include wind erosion on the ridge tops, sheet wash on the slopes, and bioturbation. Examination of a blowout adjacent to a juniper on the east edge of the site indicates cultural material may be buried between 10 and 30 cm (4-12 in) below the surface. Heavy rains occurred during the survey, and water ripples were observed in colluvial sands that had recently washed down slope. A 5-



to 10-cm (2- to 4-in) deep cattle trail follows the ridgeline and crosses the site, but no artifacts were found in the trail. An estimated 60 percent of the site remains intact.

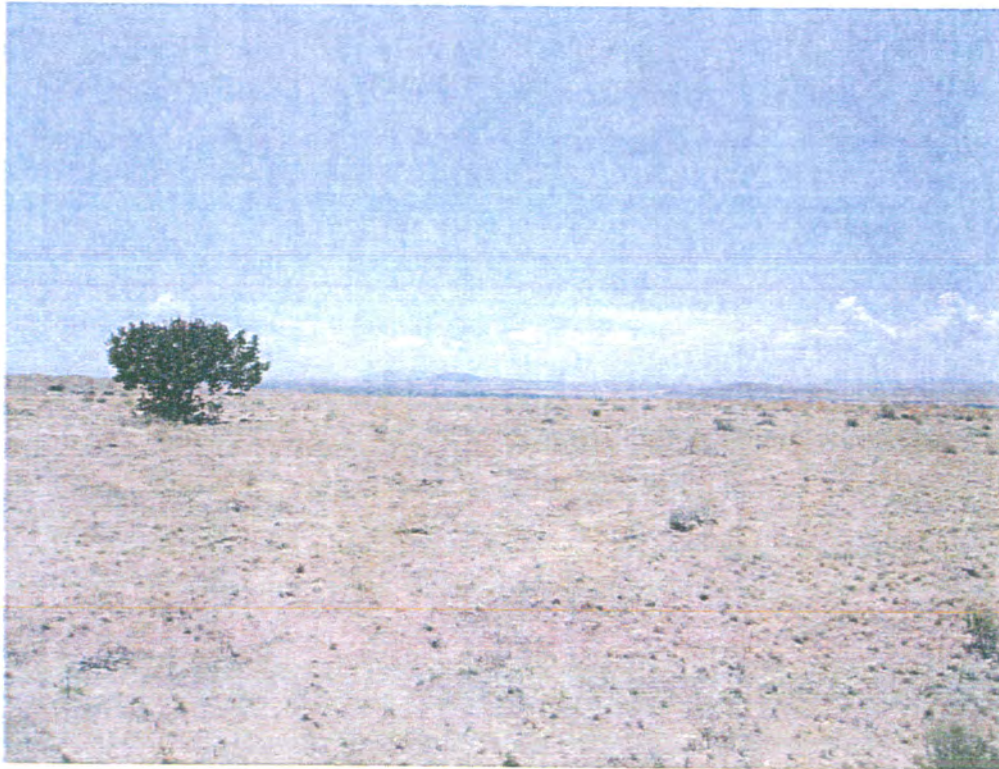


Figure 41. LA xx7, overview, southwest aspect.

FEATURES: No features were found.

ARTIFACTS: The site contains hundreds of chipped stone artifacts, and an arbitrary representative 25 percent sample (N=51) was recorded (Table 12). Two chalcedony bifaces—possibly preforms—were recorded, along with a limestone scraper (Figure 42).

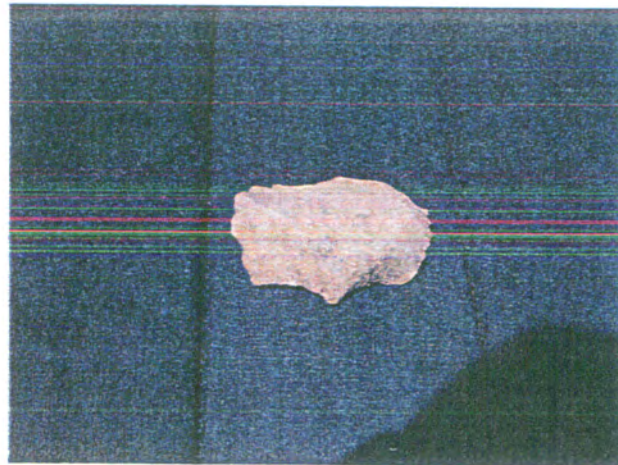


Figure 42. LA xx7, scraper.

Eleven flakes had edge damage, at least some of which is due to cattle trampling while other damage may have resulted from use as expedient tools. The formal and informal cutting and scraping tools

indicate meat and hide processing activities. Cores, hammerstones, and debitage indicate stone tool production and maintenance. The lithic material types are available on the site. None of the artifacts are diagnostic, and the site is of unknown prehistoric affiliation.

Table 12. Arbitrary representative artifact sample, LA xx7.

Description	Count
Chalcedony biface, noncortical	2
Limestone scraper, unifacial retouch on 3 edges	1
Quartz hammerstone	1
Quartzite hammerstone	2
Quartzitic sandstone core, cortical	1
Chalcedony core, exhausted	1
Chalcedony irregular core, cortical	2
Chert core, exhausted, noncortical	1
Chalcedony biface thinning flake, tertiary	3
Obsidian biface thinning flake, tertiary	1
Silicified wood biface thinning flake	1
Chalcedony flake, secondary	3
Chalcedony flake, tertiary	18
Chert flake, secondary	2
Chert flake, tertiary	5
Obsidian flake, primary	1
Obsidian flake, secondary	1
Obsidian flake, tertiary	2
Silicified wood flake, secondary	1
Silicified wood flake, tertiary	2
<b>Total</b>	<b>51</b>

PRELIMINARY EVALUATION: LA xx7 is a medium-density lithic procurement and chipped stone tool manufacturing site of unknown prehistoric affiliation. No features were found, but examination of an eroded area at the east end of the site indicates cultural materials are buried 10 to 30 cm (4–12 in) below surface. LA xx7 probably contains intact subsurface cultural deposits. It also contains obsidian for chronometric dating. Its research value lies in its potential for understanding prehistoric land-use and lithic procurement strategies along the escarpment of the East Mesa. LA xx7 is recommended eligible for inclusion on the NRHP under Criterion D, information potential.

PROJECT IMPACT: LA xx7, which is recommended eligible for the NRHP, is entirely within the project APE, in the proposed Trunk Open Space Network. If this open space remains as currently planned, the proposed Mesa del Sol development project will have no adverse effect on LA xx7.

#### LA xx9

FIELD NUMBER: Marron-9  
 SITE TYPE: military radar ranging station  
 LAND STATUS: private  
 QUADRANGLE: Albuquerque East (1972)  
 ELEVATION (MSL): 1596 m (5237 ft)  
 SITE DIMENSIONS: 40 by 31 m (131 by 102 ft)

TOPOGRAPHIC LOCATION: mesa  
 VEGETATION: snakeweed, yucca, grasses  
 NO. OF COMPONENTS: 1  
 CULTURAL AFFILIATION: Euroamerican  
 FEATURES: wooden pole alignment (1)  
 ARTIFACTS: glass, metal, wood

ELIGIBILITY: not eligible

SITE DESCRIPTION: LA xx9 is the decommissioned remains of a World War II and early Cold War era radar ranging station (Figure 43, Appendix A1, A12). It consists of an alignment of heavy wooden poles that may have been pilings for a structure, three radar target wooden poles, and a scatter of historic artifacts. The site is on the level to rolling East Mesa immediately north of the Ardent Technologies construction site and east of the newly constructed University Boulevard extension. It overlooks the Rio Grande valley to the west and is open on all sides. Local vegetation includes snakeweed, narrowleaf yucca, and grasses. Soil is classified as Madurez loamy fine sand (1 to 5 percent slopes) (MaB) (Hacker 1977:Sheet No. 50). Ground surface visibility was about 90 percent. The nearest perennial drainage is the Rio Grande 5.9 km (3.7 mi) to the west.

Any superstructures and most of the equipment at this site were intentionally removed when the site was decommissioned. Bullet holes in the radar targets indicate they have since been used for target practice. After decommission, the locality was leased as rangeland, but no cattle trails are evident on or adjacent to the site. Natural disturbance is limited to wind deflation. Cultural remains are surficial based on the historic artifact scatter and structural remains. The decommissioned site is less than 25 percent intact.

FEATURES: Feature 1, a pentagonal alignment of five heavy wooden pole stubs, may have been piers for a frame building (Figure 43). Wood pole heights and diameters are similar but not identical, and average about 60 cm (24 in) in height and 25 to 30 cm (10–12 in) in diameter. Four poles are arranged in a 1.8-m (6-ft) square, and the fifth pole is offset 45 cm (18 in). A partially buried electrical ground wire is on the east side of the alignment.

A radar ranging target tops one of three utility poles (Figures 43 and 44) east of the pentagonal alignment, and a second target is on the ground east of the utility poles. A tangle of barbed-wire fencing bounds the site on the east and north.

ARTIFACTS: The entire artifact assemblage (N=21) was recorded (Table 13). Three seven-prong vacuum tubes (Figure 47), a string of fuses or capacitors on a thin wire (Figure 48), and the radar target (Figure 49) to the east of the target poles, relate to the site's function as a radar ranging station. A metal conduit and toggle switch may relate to the site's function. Other construction-related artifacts probably reflect a former structure. Based on its form, a fragmentary green glass Coca Cola bottle is likely contemporary with the radar range site, and one knife-opened tuna may also date to that period.

PRELIMINARY EVALUATION: LA xx9 is a World War II and/or Cold War era radar range station that was largely removed when it was decommissioned. No structures are present, although Feature 1 may be piers for a frame building. An electrical ground wire is buried near Feature 1, but no other evidence of buried cultural materials was observed. Military records are likely to provide more information about the site than is present in the artifact scatter. The site is not unique, and more intact examples of radar range stations have been documented and preserved. LA xx9 is recommended ineligible for inclusion on the NRHP.

PROJECT IMPACT: LA xx9 is entirely within the proposed APE, in the area scheduled for Phase I commercial development. Although the site will be disturbed or destroyed by the proposed project, it is recommended ineligible for the NRHP. The proposed Mesa del Sol development project, therefore, will have no effect on LA xx9.



Figure 43. LA xx9 overview and Feature 1, wooden posts, west aspect.

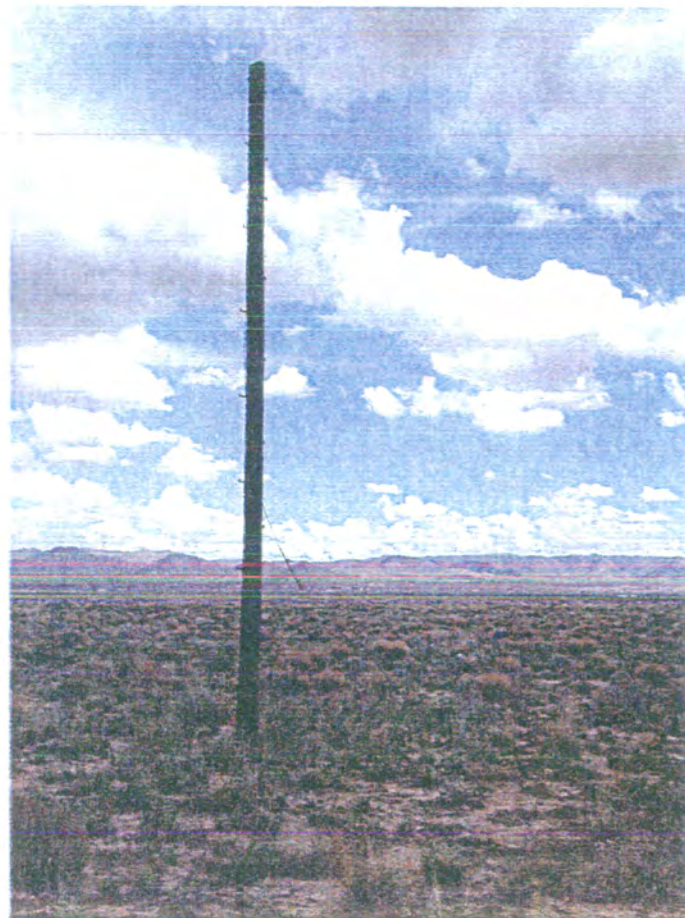


Figure 44. LA xx9, Pole 1.

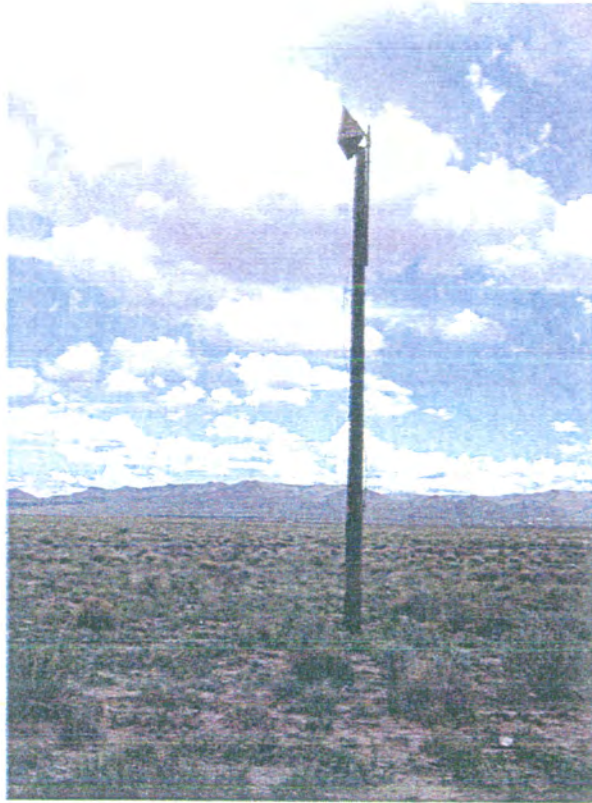


Figure 45. LA xx9, Pole 2 with radar target.

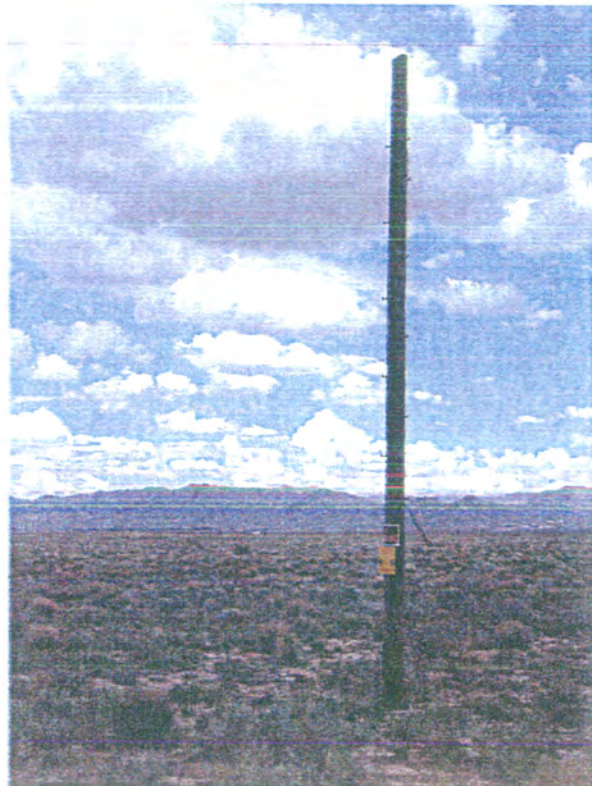


Figure 46. LA xx9, pole 3.



Figure 47. LA xx9, vacuum tubes and insulator.



Figure 48. LA xx9, electrical wiring.

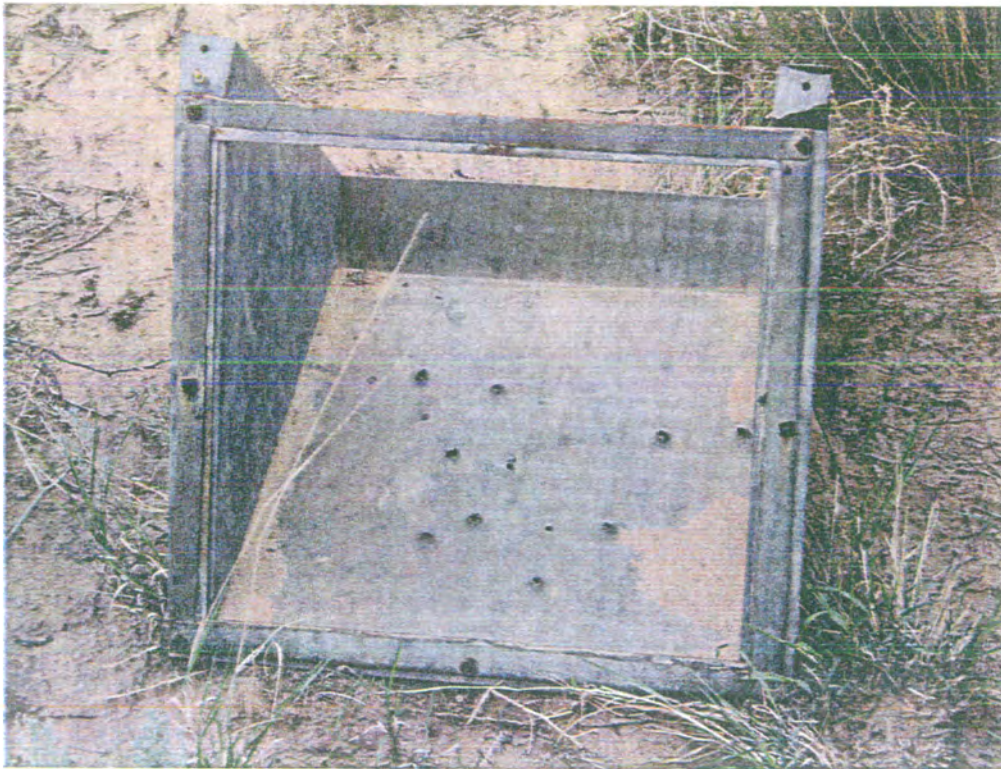


Figure 49. LA xx9, radar target.

Table 13. Artifact assemblage, LA xx9.

Description	Count
Radar target	1
7-prong vacuum tube bases, glass broken	3
Small fuses or capacitors on one fine wire	1
Metal conduit with toggle switch	1
Florescent light tube base, two-prong	1
Insulator, brown ceramic	1
Porcelain light bulb fixture, white glazed	1
Paint can with handle	1
Metal strapping	1
Angle brace fragments	3
Galvanized finishing nail, 3½ in	1
Common nail, 2 in	1
Rebar	1
Window screen wire fragment	1
Barbed wire, loose strand	1
Coke bottle body fragment, green glass	1
Tuna can, knife opened, 3.5 in diameter, 2 in tall	1
<b>Total</b>	<b>21</b>

## LA xx10

FIELD NUMBER: Marron-10

SITE TYPE: farmstead

LAND STATUS: private

QUADRANGLE: Isleta (1952/1974)

ELEVATION (MSL): 1514 m (4968 ft)

SITE DIMENSIONS: 100 by 68 m (328 by 223 ft)

ELIGIBILITY: not eligible

TOPOGRAPHIC LOCATION: mesa

VEGETATION: saltbush, snakeweed, grasses

NO. OF COMPONENTS: 1

CULTURAL AFFILIATION: Euroamerican

FEATURES: corrals, trash dumps

ARTIFACTS: glass, metal, wood

SITE DESCRIPTION: LA xx10 contains concentrations of historic refuse, collapsed buildings, and a corral that is the remains of an abandoned farm (Figure 50, Appendix A1, A13). It is on the first terrace above the Rio Grande on a leveled area west of Broadway Avenue. It is open in all directions. Although no well was found, it is likely that the farm had a well. Ground visibility is 50 percent or greater. Soils are classified as Bluepoint Loamy fine sand (1 to 9 percent slopes) (BCC), and are subject to severe wind erosion and slow runoff (Hacker 1977:13, Sheet No. 49). The local plant community is desert scrubland with fourwing saltbush and snakeweed being the most frequently observed plants. The nearest perennial drainage is the Rio Grande 1563 m (51.27 ft) to the west.

The site has been bladed and most of the razed debris was removed when the farm was abandoned. A substantial ditch parallels a bladed road along the north edge of the site, and an erosion channel is between the abandoned farm and an operating farm to the west. The site is in an aeolian environment and is also subject to sheet erosion, particularly near the edges of the drainages. Cultural remains are surficial based on the historic artifact scatter and structural remains. LA xx10 is less than 25 percent intact.



Figure 50. LA xx10, overview, southwest aspect.





Figure 52. LA xx10, Feature 3, north aspect.



Figure 53. LA xx10, Feature 4, south aspect.



Figure 54. LA xx10, Feature 5, north aspect.



Figure 55. LA xx10, Feature 6.



Figure 57. LA xx10, bottle artifacts.

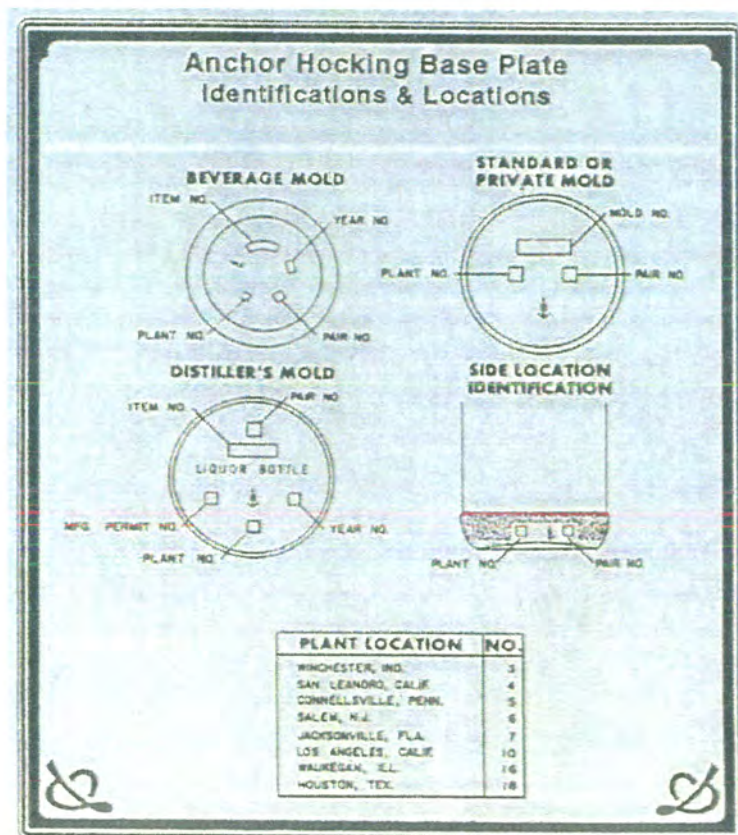


Figure 58. Anchor Hocking base plate patent on bottles (Whitten 2006).

consistent with medicine bottles (e.g., Phillips' Milk of Magnesia or Bromo Seltzer), and three milk glass jar fragments are consistent with glass cosmetic jars. Several home-canning jars, in addition to a glass liner and metal rings, were among the artifacts observed and recorded (Figure 59). Similar jars and bottles are still being manufactured, but the medicine and cosmetic in particular were more common prior to about 1970, as plastics began to replace glass containers. One plastic artifact, a toy die, indicates recreation.

Historic metal artifacts include vehicle parts that reflect use and maintenance of farm and personal vehicles, and sheet metal related to the razed structures. A fragment of a New Mexico government license plate may be intrusive. Most of the metal artifacts are food cans that include meat, fish, milk, and fruits or vegetables, and household equipment including part of an enameled metal double boiler and a galvanized washtub. A removable-lip lid has a rotating, variable closure typical of containers that held a granular or powdered substance. Although a few metal artifacts, such as a key-opened, slip-on coffee can lid embossed "regular grind", are marked, none are diagnostic. As a whole the metal assemblage suggests the mid-1950s to mid-1960s period (Figure 60).

PRELIMINARY EVALUATION: LA xx10 is a mid-1950s to mid-1960s farmstead that has been razed. No structures are present, although one feature may be a residence and two features may be outbuildings. One feature is a corral and two are domestic refuse dumps. There is no evidence of buried cultural materials. The site is not unique, and more intact examples of mid-1950s to mid-1960s farmsteads occur in the Albuquerque area. LA xx 10 is recommended ineligible for inclusion on the NRHP.

PROJECT IMPACT: LA xx10 is entirely within the proposed APE, in the area scheduled for commercial development. Although the site will be disturbed or destroyed by the proposed project, it is recommended ineligible for the NRHP. The proposed Mesa del Sol development project, therefore, will have no effect on LA xx10.



Figure 59. LA xx10, bottle fragments.



Figure 60. LA xx10, metal clip.

### Isolated Occurrences

A total of 54 IOs were recorded in the 22 sample transects (Table 15, Figures 61–63, Appendix B1). IOs 1 thru 3, 5 thru 17, 19 thru 22, 26 thru 44, 47 thru 51, and 53 thru 56 are chipped stone artifacts reflecting Native American use of the East Mesa and first terrace of the Rio Grande. Euroamerican use of these areas is represented by IOs 4, 18, 23, 45, 46, and 52. Two IOs—24 and 25—were incorporated into archaeological sites. IO 24 is part of LA 69517 and IO 25 is part of LA xx4. The IOs have been recorded and are not likely to yield important information beyond what has been documented. None is eligible for listing on the NRHP and no additional investigations are recommended concerning the IOs.

Table 15. Isolated occurrence summaries.

IO	Environment	Description
1	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Massive flake, silicified wood, noncortical Flake, silicified wood, primary Flake, chert, primary Angular debris, chalcedony, noncortical Flake, chalcedony, tertiary Angular debris, chalcedony, noncortical Angular debris, chert, secondary
2	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Flake, silicified wood, primary
3	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley.	Flake, chalcedony, secondary

	snakeweed and grasses	
4	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Pipe, metal, 8-inch diameter, crushed and partly buried
5	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Flake, chalcedony, secondary
6	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Tested cobble, chalcedony, cortical
7	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Multidirectional core, silicified wood, cortical
8	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Flake, chalcedony, tertiary
9	Noncortical, ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Flake, fossiliferous chert
10	Multiple dorsal flake scars, ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Flake, chalcedony, secondary
11	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Flake, chalcedony, secondary
12	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Flake, chalcedony, primary
13	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Flake, silicified wood, primary
14	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Flake, chalcedony, secondary
15	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Three flakes, chalcedony, secondary
16	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Flake, chert, tertiary
17	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Core or tested cobble, chalcedony, cortical
18	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Insulator, aqua glass, fragmentary, "U.S.A." embossed on skirt
19	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Core or tested cobble, chalcedony, cortical
20	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley,	Tested cobble, chalcedony, cortical

	snakeweed and grasses	
21	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Flake, chalcedony, secondary
22	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Flake, fossiliferous chert, secondary Flake, chalcedony, secondary Flake, chalcedony, primary
23	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Trash can, flip-top, cylindrical metal with dome top, painted label "Sanette"
24		Number not used, see LA 69517
25		Number not used, see LA xx4
26	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Retouched flake, chalcedony, unifacial retouch along one edge, secondary
27	In drainage between ridges at base of East Mesa, among sparse snakeweed and grasses	Flake, chalcedony, secondary
28	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Flake, chalcedony, secondary
29	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Flake, chalcedony, tertiary Flake, chalcedony, tertiary
30	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Flake, chalcedony, secondary
31	Ridge-and-slope terrain at base of East Mesa overlooking Rio Grande valley, snakeweed and grasses	Flake, chalcedony, tertiary
32	On mesa top among snakeweed, grasses, narrowleaf yucca, sparse juniper	Flake, chalcedony, tertiary
33	On mesa top among snakeweed, grasses, narrowleaf yucca	Flake, chalcedony, secondary
34	In two-track on mesa top among snakeweed, grasses, narrowleaf yucca	Metate, sandstone, 29 by 19 cm with irregular 10-by-9-cm depression
35	On mesa top among snakeweed, grasses, narrowleaf yucca	Flake, chert, secondary
36	On mesa top among snakeweed, grasses, narrowleaf yucca	Flake, obsidian, secondary
37	On mesa top among snakeweed, grasses, narrowleaf yucca	Tested cobble, obsidian, cortical
38	On mesa edge among snakeweed, grasses, narrowleaf yucca	Tested rock, silicified wood, cortical Tested rock, chalcedony, cortical
39	On mesa edge among snakeweed, grasses, narrowleaf yucca	One tested cobble, chalcedony, cortical Two tested cobbles, obsidian, cortical
40	On mesa edge among snakeweed, grasses, narrowleaf yucca	Two tested cobbles, obsidian, cortical Flake, obsidian, secondary
41	On mesa edge among snakeweed, grasses, narrowleaf yucca	Core, obsidian, secondary

42	On mesa edge among snakeweed, grasses, narrowleaf yucca	Two flakes, chalcedony, secondary
43	On mesa edge among snakeweed, grasses, narrowleaf yucca	Three flakes, obsidian, secondary Flake, obsidian, tertiary Flake, silicified wood, tertiary Angular debris, obsidian, cortical
44	On mesa edge among snakeweed, grasses, narrowleaf yucca	Flake, limestone, secondary
45	On mesa top adjacent to fence, among grasses, snakeweed	Cone-top can, brake fluid (?), 3.5-inch diameter, flat seams, three stepped rings on can body Rectangular can with pull-tab, 1 gallon, marked "Prestone," "antifreeze for your protection" Can, crushed, 1 gallon, entire top missing, 9-3/8 inches high, 6-3/8 inches wide, "Mobil," "Arctic SAE-20W" Can, crushed, 1 gallon, top edge punctured for bail (no grommet), top removed with bayonet-type opener, 7-5/8 inches high, diameter approximately 6¼ inches, 4 rings on base, "Mobil," "06932990A" Can, crushed, 1 gallon, with friction lid
46	On mesa top among snakeweed and grasses.	Electronic device, Viz Corporation, probably a radiosonde, fragmentary (Figure 61). Wires, circular capacitors, rheostat-like dial, small sheet metal cone
47	On mesa top among snakeweed, grasses, narrowleaf yucca	Flake, chalcedony, secondary
48	On mesa top among snakeweed, grasses, narrowleaf yucca	Flake, chalcedony, secondary Flake, chalcedony, primary
49	On mesa top among snakeweed, grasses, narrowleaf yucca	Flake, bipolar, obsidian, primary Flake, obsidian, secondary Aluminum tubing with fittings, tube diameter 1¼ inches, chromate green possibly airplane part Bottle, amber glass, embossed applied base, no side or shoulder seams, probably turn-mold, complete except for finish (Figures 62 and 63)
50	On mesa top among snakeweed, grasses, narrowleaf yucca	Flake, silicified wood, secondary Flake, chalcedony, secondary, heavily patinated
51	In low area between dunes on mesa top, snakeweed, grasses, narrowleaf yucca	Flake, chalcedony, tertiary
52	On mesa top among snakeweed, grasses, narrowleaf yucca	Can with friction lid, 4½ inches high, diameter 3-1/8 inches
53	In low area between dunes on mesa top, snakeweed, grasses, narrowleaf yucca	Flake, chalcedony, secondary
54	On mesa top among snakeweed, grasses, narrowleaf yucca	Flake, chalcedony, secondary
55	On low rise on mesa top among snakeweed, grasses, narrowleaf yucca	Hammerstone, quartzite Flake, obsidian, secondary
56	On road edge on mesa top among snakeweed, grasses, narrowleaf yucca	Flake, obsidian, tertiary Bifacially retouched flake, obsidian, tertiary



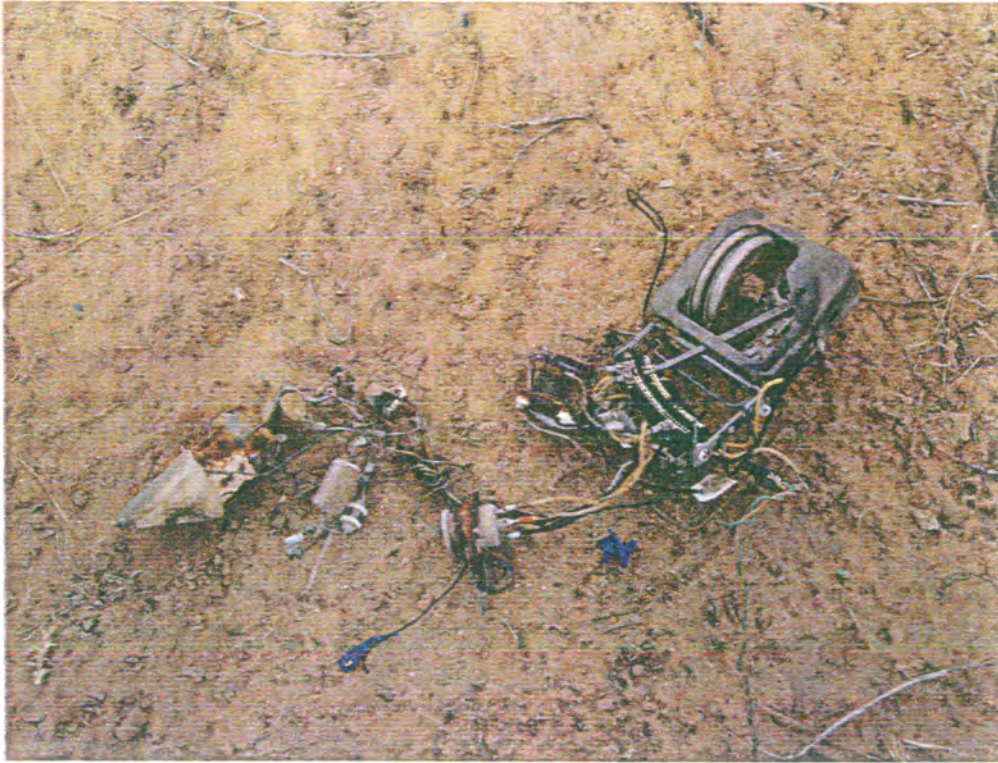


Figure 61. IO-46, radiosonde.



Figure 62. IO-49, amber bottle, Transect 14.



Figure 63. IO-49, amber bottle, base, Transect 14.

## CULTURAL RESOURCE MANAGEMENT

This report presents the results of a Class I (records search) and Class II (20 percent field inventory) cultural resource survey by Marron for proposed commercial and residential development at Mesa del Sol, Bernalillo County, New Mexico. The project area consists entirely of private land, some of which was acquired from the New Mexico State Land Office in July 2006. The project includes commercial development, single- and multiple-family housing, recreation areas, schools, and open space. The project APE consists of approximately 1214.5 ha (3001 ac) of which 87 ha (215 ac) are west of I-25, 182.9 ha (452 ac) are east of I-25 in the flats and badlands bordering the East Mesa, and 944.6 ha (2334 ac) are on the gently rolling terrain of the East Mesa. A total of 247.6 ha (612 ac)—20 percent of the 1214.5 ha (3001 ac)—was surveyed using 22 122-m (400-ft) wide transects in the project APE. The built environment APE includes buildings with construction dates prior to 1962 that are within 30 m (100 ft) of the 22 transects.

The 22 transects were placed in six delineated areas based on the parcel location and size. Areas are numbered from one to six, with the smallest designated one and the largest designated six. Area 1 is northwest of the I-25 and NM 47 intersection and is 5.7 ha (14 ac). Area 2 is southwest of the I-25 and NM 47 intersection and is 9.7 ha (24 ac). Area 3 is in the northeast corner of the project APE and is 16.2 ha (40 ac). Area 4 is west of I-25 south of Tijeras Arroyo and is 81.3 ha (201 ac). Area 5 borders the east side of I-25 from the I-25 and NM 47 intersection at the south end for a distance of about 4 km (2.5 mi) north and it is 173.2 ha (428 ac). Finally, Area 6 is on the flats of the East Mesa south and east of the Journal Pavilion and sports facilities and is 928.4 ha (2294 ac).

Three previously recorded sites—LA 69517, LA 69520, and LA 153415—were revisited, and seven new sites—LA xx2, xx4, xx5, xx6, x7, xx9, and xx10—and 54 isolated occurrences (IOs) were

recorded. Two previously recorded sites, LA 69517 and LA 69520 and five newly recorded sites—LA xx2 and LA xx4 thru LA xx7—are recommended eligible for listing on the National Register of Historic Places (NRHP) under Criterion D, information potential. One previously recorded site, LA 153415, is recommended eligible for listing under Criterion A, association with events that have made a significant contribution to the broad patterns of our history. Newly recorded sites LA xx9 and LA xx10 are recommended ineligible for the NRHP (Table 16).

Table 16. Site summaries and recommendations.

Site LA	Affiliation	Remains	NRHP Recommendation	NRHP Effects
69517	Unknown prehistoric	Lithics	Eligible, D	Adverse effect
69520	Unknown prehistoric	Lithics, feature	Eligible, D	Adverse effect
153415	Euroamerican	Road, artifacts	Eligible, A	Adverse effect
xx2	Unknown prehistoric	Lithics, features	Eligible, D	Adverse effect
xx4	Unknown prehistoric	Lithics, feature	Eligible, D	No adverse effect
xx5	Unknown prehistoric	Lithics, feature	Eligible, D	No adverse effect
xx6	Unknown prehistoric	Lithics	Eligible, D	No adverse effect
xx7	Unknown prehistoric	Lithic tools	Eligible, D	No adverse effect
xx9	Euroamerican	Military, artifacts	Not eligible	No effect
xx10	Euroamerican	Farmstead, artifacts	Not eligible	No effect

LA 69517, a chipped stone artifact scatter recommended eligible for the NRHP, is entirely within the project APE. Although its location is scheduled for use as park or open space, the site will probably experience increased visitation as the mesa is populated. The proposed Mesa del Sol development project, therefore, will have an adverse effect on LA 69517.

LA 69520, a lithic artifact scatter with intact subsurface cultural deposits, is recommended eligible for the NRHP. The site is entirely within the proposed APE and is in an area slated for commercial development. The proposed Mesa del Sol development project, therefore, will have an adverse effect on LA 69520.

LA 153415, a historic road that connects Atrisco to the Hell's Canyon Road and the salt flats east of the Manzano Mountains, has appeared on published maps since 1864 and is currently used as a ranch road. A 3.2-km (2-mi) segment of the road, which is recommended eligible for the NRHP, is in the project APE. Proposed residential and commercial development will alter the characteristics that qualify the site for the NRHP by changing its nature and use. The proposed Mesa del Sol development project, therefore, will have an adverse effect on LA 153415. The segment of LA 153415 within the project APE, however, has been documented and no additional investigations regarding this portion of the road are recommended.

LA xx2 contains a chipped stone artifact scatter, a hearth, and buried cultural materials. The site, which is recommended eligible for the NRHP, is entirely within the project APE and its location is scheduled for commercial development. The proposed Mesa del Sol development project, therefore, will have an adverse effect on LA xx2.

LA xx4 is a chipped stone artifact scatter with a possible hearth. The site, which is recommended eligible for the NRHP, is entirely within the project APE, in the proposed Trunk Open Space Network. If this open space remains as currently planned, the proposed Mesa del Sol development project will have no adverse effect on LA xx4.

LA xx5 is a chipped stone artifact scatter with a fire-cracked rock scatter. The site, which is recommended eligible for the NRHP, is entirely within the project APE, in the proposed Trunk Open Space Network. If this open space remains as currently planned, the proposed Mesa del Sol development project will have no adverse effect on LA xx5.

LA xx6 is a chipped stone artifact scatter. The site, which is recommended eligible for the NRHP, is entirely within the project APE, in the proposed Trunk Open Space Network. If this open space remains as currently planned, the proposed Mesa del Sol development project will have no adverse effect on LA xx6.

LA xx7 is a lithic procurement and stone tool manufacturing site that contains undisturbed, buried cultural materials. The site, which is recommended eligible for the NRHP, is entirely within the project APE, in the proposed Trunk Open Space Network. If this open space remains as currently planned, the proposed Mesa del Sol development project will have no adverse effect on LA xx7.

LA xx9, a World War II to Cold War radar ranging station, is entirely within the proposed APE, in the area scheduled for Phase I commercial development. Although the site will be disturbed or destroyed by the proposed project, it is recommended ineligible for the NRHP. The proposed Mesa del Sol development project, therefore, will have no effect on LA xx9.

LA xx10, a razed farm, is entirely within the project APE, in an area scheduled for commercial development. Although the site will be disturbed or destroyed by the proposed project, it is recommended ineligible for the NRHP. The proposed Mesa del Sol development project, therefore, will have no effect on LA xx10.

In general, little research has focused on prehistoric lithic procurement sites in the Albuquerque area. It is very probable that the research potential of the seven lithic procurement sites—LA 69517, LA 69520, LA xx2, and LA xx4 thru LA xx7—revisited or recorded during the present survey, as well as other lithic procurement sites recorded in the area (e.g., see Brown 1997; Doleman 1989, 2000; Gossett 1989), is greater than what is generally assumed and what is usually obtained from cursory in-field artifact analyses. These sites can potentially yield important information concerning prehistoric land-use and lithic procurement strategies. In addition, obsidian hydration dates can be obtained for sites with obsidian artifacts (e.g., LA xx6 and LA xx7) and the features on some sites may contain datable charcoal. The dating of these sites would undoubtedly provide information concerning the continuity of, or changes in, land-use and lithic procurement strategies through time.

The 54 IOs have been recorded and are not likely to yield important information beyond what has been documented. None is eligible for the NRHP and no additional investigations are recommended concerning the IOs. In addition, no buildings with construction dates prior to 1962 are in the 22 transects or within 30 m (100 ft) of them.

No additional cultural resource investigations are recommended at this time. If cultural materials or human burials are encountered during construction, work in that area should stop and a qualified cultural resource specialist should be notified. In addition, in the case of human burials, the local law enforcement agency, the New Mexico OMI, and the New Mexico SHPO must also be notified immediately.

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**APPENDIX A: SITE LOCATIONS****LA 69517**

FIELD NUMBER: Marron 3	ELEVATION (MSL): 1540 m (5050 ft)
SITE TYPE: lithic scatter	TOPOGRAPHIC LOCATION: ridge and slope
LAND STATUS: private	VEGETATION: grass
UTM COORDINATES: 348306 E, 3868451 N	NO. OF COMPONENTS: 1
QUADRANGLE: Isleta (1952/1974)	CULTURAL AFFILIATION: unknown prehistoric
LEGAL: T8N, R3E, NW/NE/SE, Sec. 6	FEATURES: none
SITE DIMENSIONS: 225 by 144 m (738 by 472 ft)	ARTIFACTS: cores, chipping debris
ELIGIBILITY: eligible, Criterion D	

**LA 69520**

FIELD NUMBER: Marron 1	ELEVATION (MSL): 1525 m (5003 ft)
SITE TYPE: lithic scatter, feature	TOPOGRAPHIC LOCATION: ridge and slope
LAND STATUS: private	VEGETATION: Mormon tea, bunchgrass, yucca
UTM COORDINATES: 348014 E, 3868422 N	NO. OF COMPONENTS: 1
QUADRANGLE: Isleta (1952/1974)	CULTURAL AFFILIATION: unknown prehistoric
LEGAL: T8N, R3E, NW/NW/SE, Sec. 6	FEATURES: hearth (1)
SITE DIMENSIONS: 131 by 64 m (430 by 210 ft)	ARTIFACTS: cores, chipping debris
ELIGIBILITY: eligible, Criterion D	

**LA 153415**

FIELD NUMBER: Marron 8	ELEVATION (MSL): 1606 m (5270 ft)
SITE TYPE: road	TOPOGRAPHIC LOCATION: mesa top plain
LAND STATUS: State Land Office, private	VEGETATION: yucca, cholla, grasses
UTM COORDINATES: 355211 E, 3871341 N	NO. OF COMPONENTS: 1
QUADRANGLE: Hubbell Spring (1952/1974)	CULTURAL AFFILIATION: Euroamerican
LEGAL: T9N, R3E, Secs. 21, 22, 25, 26, 27, 36	FEATURES: none
SITE DIMENSIONS: 3500 by 3 m (11375 by 9.8 ft)	ARTIFACTS: stoneware sherds
ELIGIBILITY: eligible, Criterion A	

**LA xx2**

FIELD NUMBER: Marron 2	ELEVATION (MSL): 1561 m (5121 ft)
SITE TYPE: lithic scatter, features	TOPOGRAPHIC LOCATION: ridge and slope
LAND STATUS: private	VEGETATION: Mormon tea, grasses, snakeweed
UTM COORDINATES: 349053 E, 3872393 N	NO. OF COMPONENTS: 1
QUADRANGLE: Isleta (1952/1974)	CULTURAL AFFILIATION: unknown prehistoric
LEGAL: T9N, R3E, NE/NW/NW, Sec. 29	FEATURES: hearth (1), possible hearth (1)
SITE DIMENSIONS: 116 by 76 m (380 by 249 ft)	ARTIFACTS: core, chipping debris
ELIGIBILITY: eligible, Criterion D	

**LA xx4**

FIELD NUMBER: Marron 4  
 SITE TYPE: lithic scatter, feature  
 LAND STATUS: private  
 UTM COORDINATES: 348569E, 3869009N  
 QUADRANGLE: Isleta (1952/1974)  
 LEGAL: T8N, R3E, SE NE NE Sec. 6  
 SITE DIMENSIONS: 75 by 23 m (246 by 75 ft)  
 ELIGIBILITY: eligible, Criterion D

ELEVATION (MSL): 1538 m (5046 ft)  
 TOPOGRAPHIC LOCATION: ridge and slope  
 VEGETATION: Mormon tea, snakeweed, grasses  
 NO. OF COMPONENTS: 1  
 CULTURAL AFFILIATION: unknown prehistoric  
 FEATURES: hearth (1)  
 ARTIFACTS: hammerstones, cores, chipping debris

**LA xx5**

FIELD NUMBER: Marron 5  
 SITE TYPE: lithic scatter, feature  
 LAND STATUS: private  
 UTM COORDINATES: 348491E, 3868711N  
 QUADRANGLE: Isleta (1952/1974)  
 LEGAL: T8N, R3E, NW SE NE Sec. 6  
 SITE DIMENSIONS: 146 by 80 m (479 by 262 ft)  
 ELIGIBILITY: eligible, Criterion D

ELEVATION (MSL): 1541 m (5056 ft)  
 TOPOGRAPHIC LOCATION: ridge and slope  
 VEGETATION: Mormon tea, snakeweed, grasses  
 NO. OF COMPONENTS: 1  
 CULTURAL AFFILIATION: unknown prehistoric  
 FEATURES: rock concentration  
 ARTIFACTS: bifaces, cores, chipping debris

**LA xx6**

FIELD NUMBER: Marron 6  
 SITE TYPE: lithic scatter  
 LAND STATUS: private  
 UTM COORDINATES: 350288E, 3870777N  
 QUADRANGLE: Isleta (1952/1974)  
 LEGAL: T9N, R3E, NE NE NE Sec. 32  
 SITE DIMENSIONS: 55 by 48 m (180 by 157 ft)  
 ELIGIBILITY: not eligible

ELEVATION (MSL): 1608 m (5276 ft)  
 TOPOGRAPHIC LOCATION: ridge and slope  
 VEGETATION: Mormon tea, grasses  
 NO. OF COMPONENTS: 1  
 CULTURAL AFFILIATION: unknown prehistoric  
 FEATURES: none  
 ARTIFACTS: hammerstones, cores, chipping debris

**LA xx7**

FIELD NUMBER: Marron 7  
 SITE TYPE: lithic scatter  
 LAND STATUS: private  
 UTM COORDINATES: 350237E, 3871200N  
 QUADRANGLE: Isleta (1952/1974)  
 LEGAL: T9N, R3E, NE SE SE Sec. 29  
 SITE DIMENSIONS: 145 by 88 m (476 by 289 ft)  
 ELIGIBILITY: eligible, Criterion D

ELEVATION (MSL): 1612 m (5290 ft)  
 TOPOGRAPHIC LOCATION: ridge and slope  
 VEGETATION: juniper, grasses, yucca, Mormon tea  
 NO. OF COMPONENTS: 1  
 CULTURAL AFFILIATION: unknown prehistoric  
 FEATURES: none  
 ARTIFACTS: biface, scraper, cores, chipping debris

**LA xx9**

FIELD NUMBER: Marron 9  
SITE TYPE: military, radar range station  
LAND STATUS: private  
UTM COORDINATES: 352145E, 3874156N  
QUADRANGLE: Albuquerque East (1972)  
LEGAL: T9N, R3E, SW SW SW Sec. 15  
SITE DIMENSIONS: 40 by 31 m (131 by 102 ft)  
ELIGIBILITY: not eligible

ELEVATION (MSL): 1596 m (5237 ft)  
TOPOGRAPHIC LOCATION: mesa  
VEGETATION: snakeweed, yucca, grasses  
NO. OF COMPONENTS: 1  
CULTURAL AFFILIATION: Euroamerican  
FEATURES: wooden pole alignments  
ARTIFACTS: glass, metal, wood

**LA xx10**

FIELD NUMBER: Marron 10  
SITE TYPE: farmstead  
LAND STATUS: private  
UTM COORDINATES: 348043E, 3869231N  
QUADRANGLE: Isleta (1952/1974)  
LEGAL: T8N, R3E, NW NW NE Sec. 6  
SITE DIMENSIONS: 100 by 68 m (328 by 223 ft)  
ELIGIBILITY: not eligible

ELEVATION (MSL): 1514 m (4968 ft)  
TOPOGRAPHIC LOCATION: mesa  
VEGETATION: saltbush, snakeweed, grasses  
NO. OF COMPONENTS: 1  
CULTURAL AFFILIATION: Euroamerican  
FEATURES: corrals, trash dumps  
ARTIFACTS: glass, metal, wood

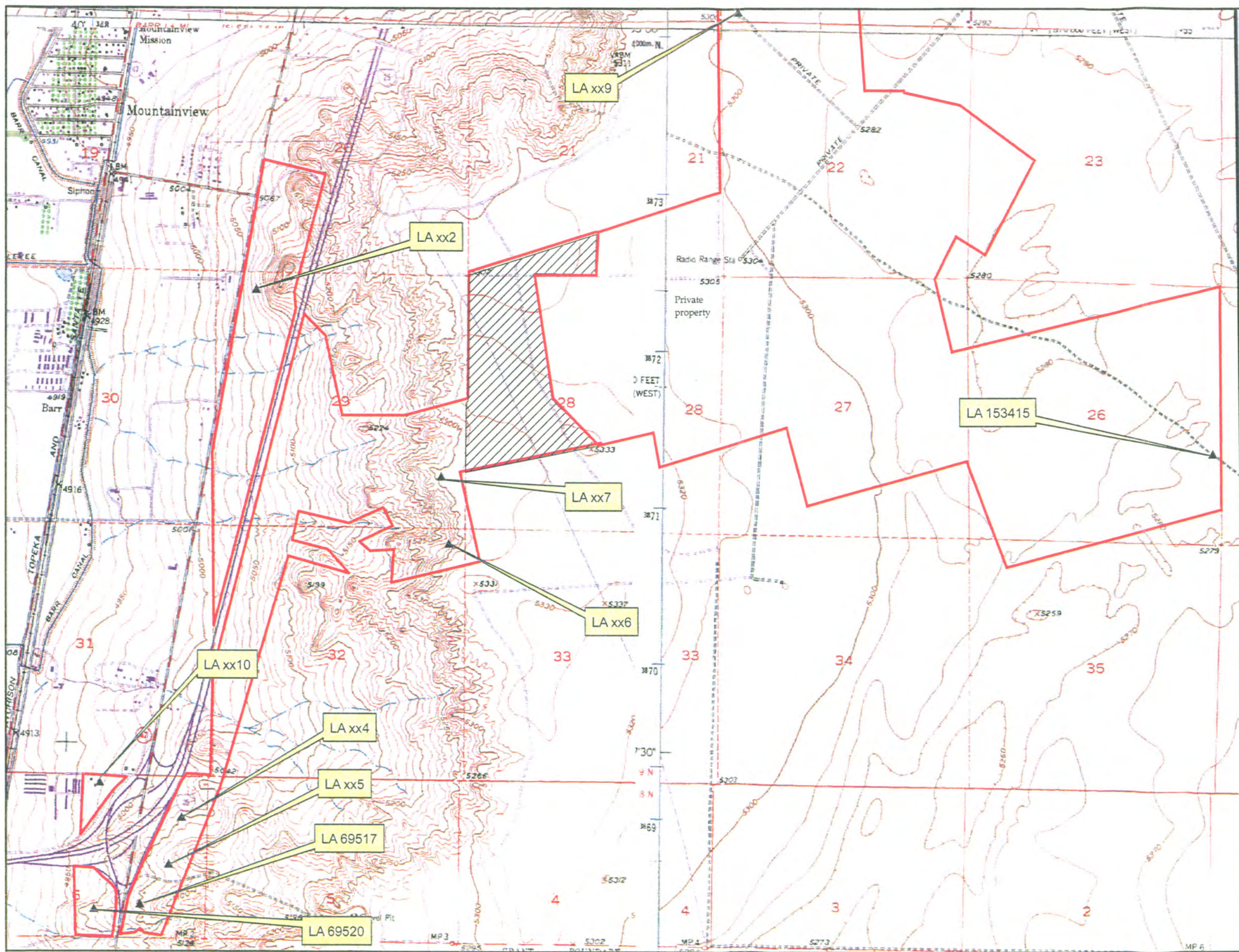
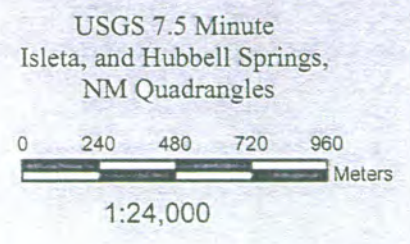
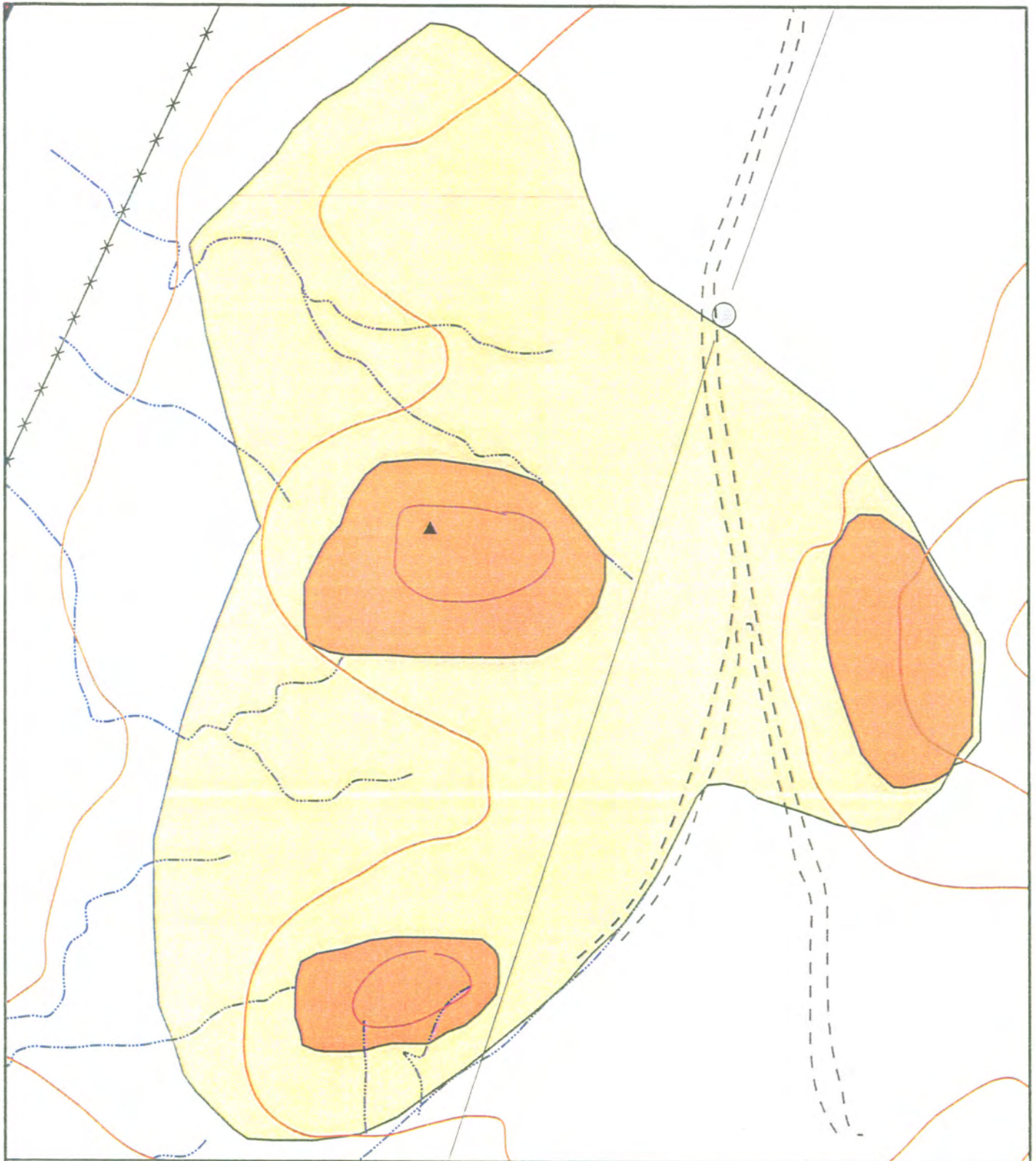


Figure A1  
Project Area and  
Location Map







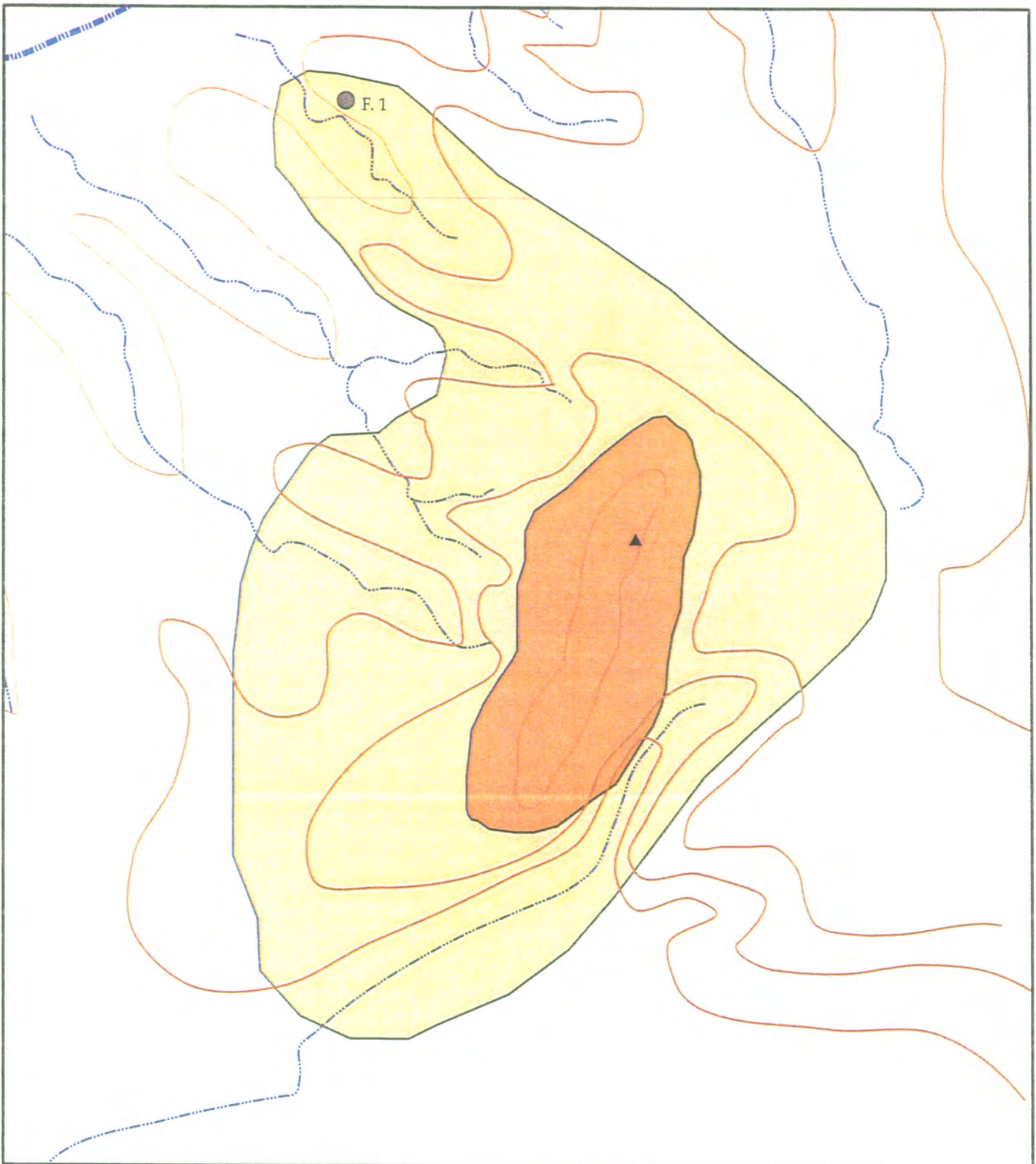
**LEGEND:**

- |                          |                           |
|--------------------------|---------------------------|
| ▲ Site datum             | ×-× NM 47 r-o-w fence     |
| ● Power pole             | - - - Erosional drainages |
| □ Site boundary          | = = Two track road        |
| ■ Artifact concentration | ■ NM 47/I 25 on ramp      |
| — 3 m (10 ft) contour    | — Powerline               |

Figure A2  
LA 69517  
Site map

0 8 16 24 32 Meters  
1:1,128

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**LEGEND:**

- ▲ Site datum
- Feature
- Site boundary
- Artifact concentration
- - - - - Erosional drainages

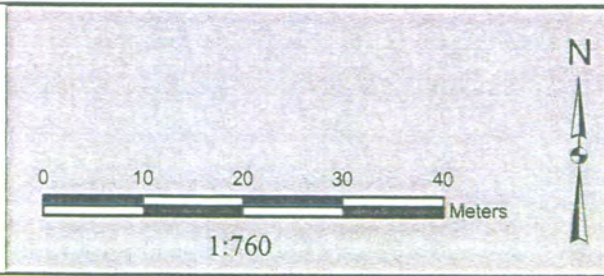
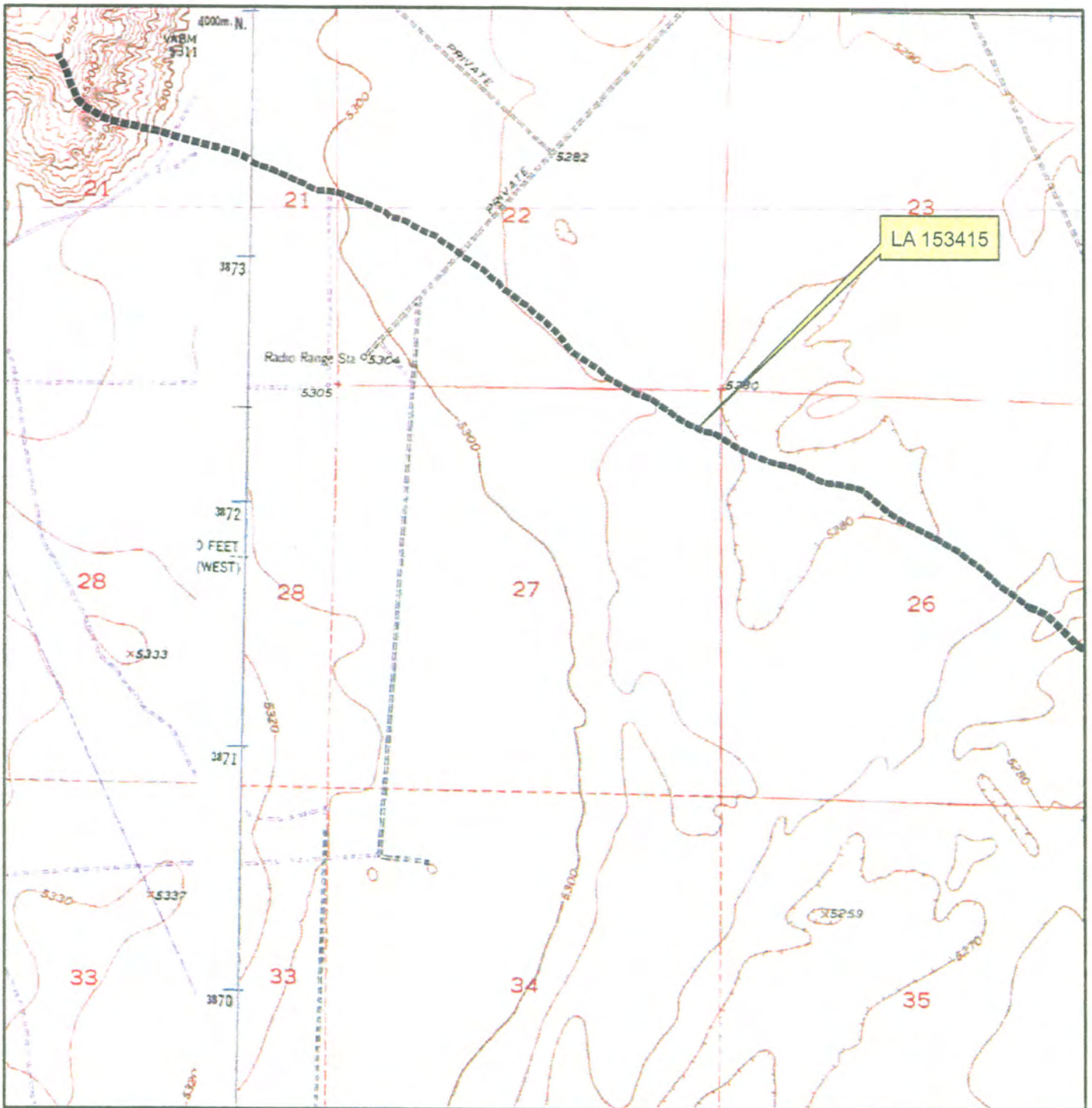


Figure A3  
LA 69520  
Site map



**Mesa del Sol 20 Percent Survey Project**



USGS 7.5 Minute Quadrangle  
Hubbell Springs, Isleta NM

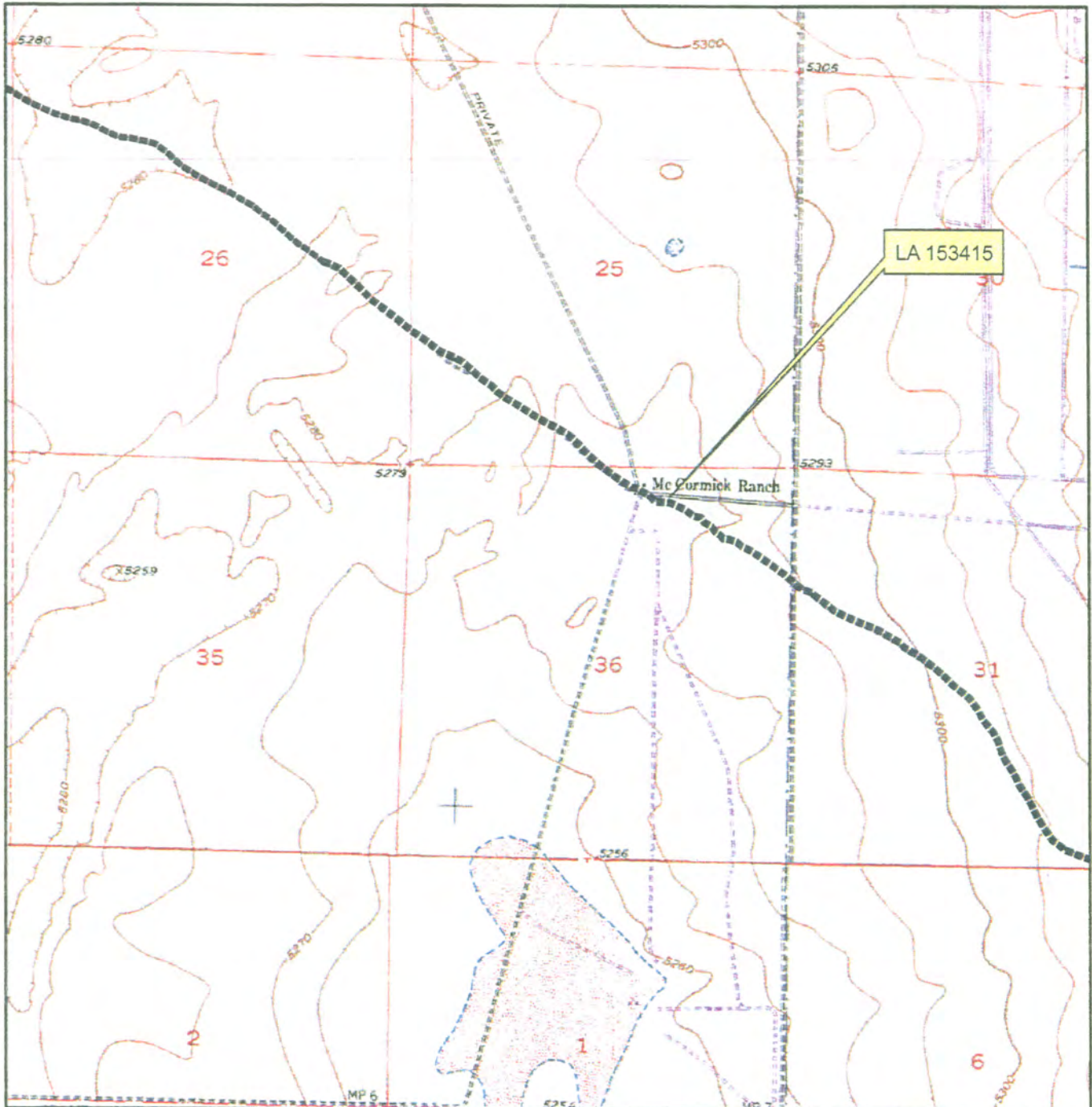


Figure A4a  
Site Location Map:  
LA 153415



1:24,000





USGS 7.5 Minute Quadrangle  
Hubbell Spring, NM Quadrangle

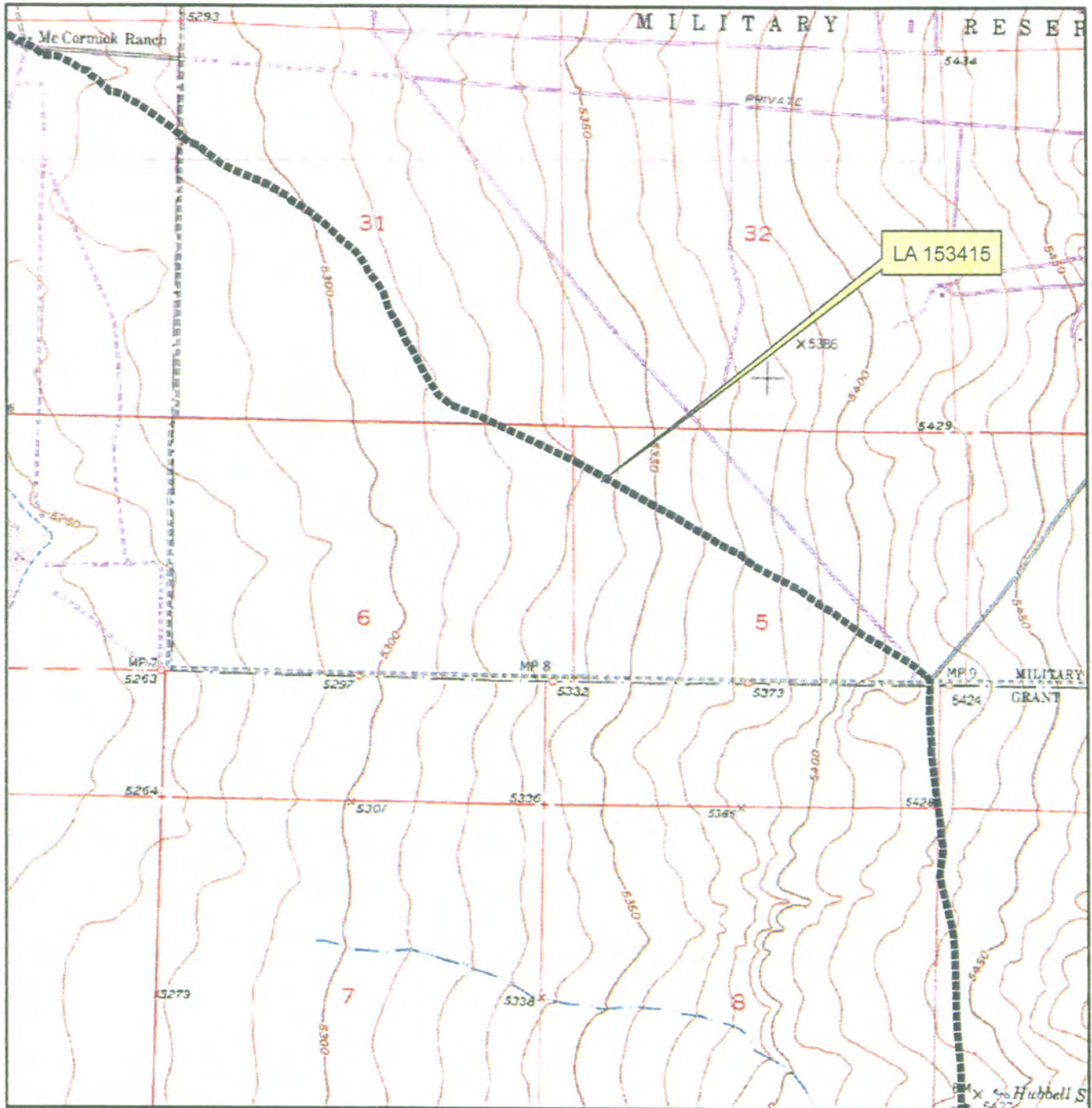


Figure A4b  
LA 153415  
Site Location Map:



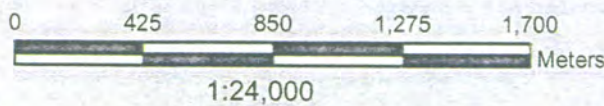
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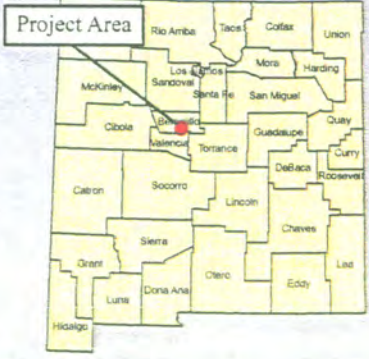
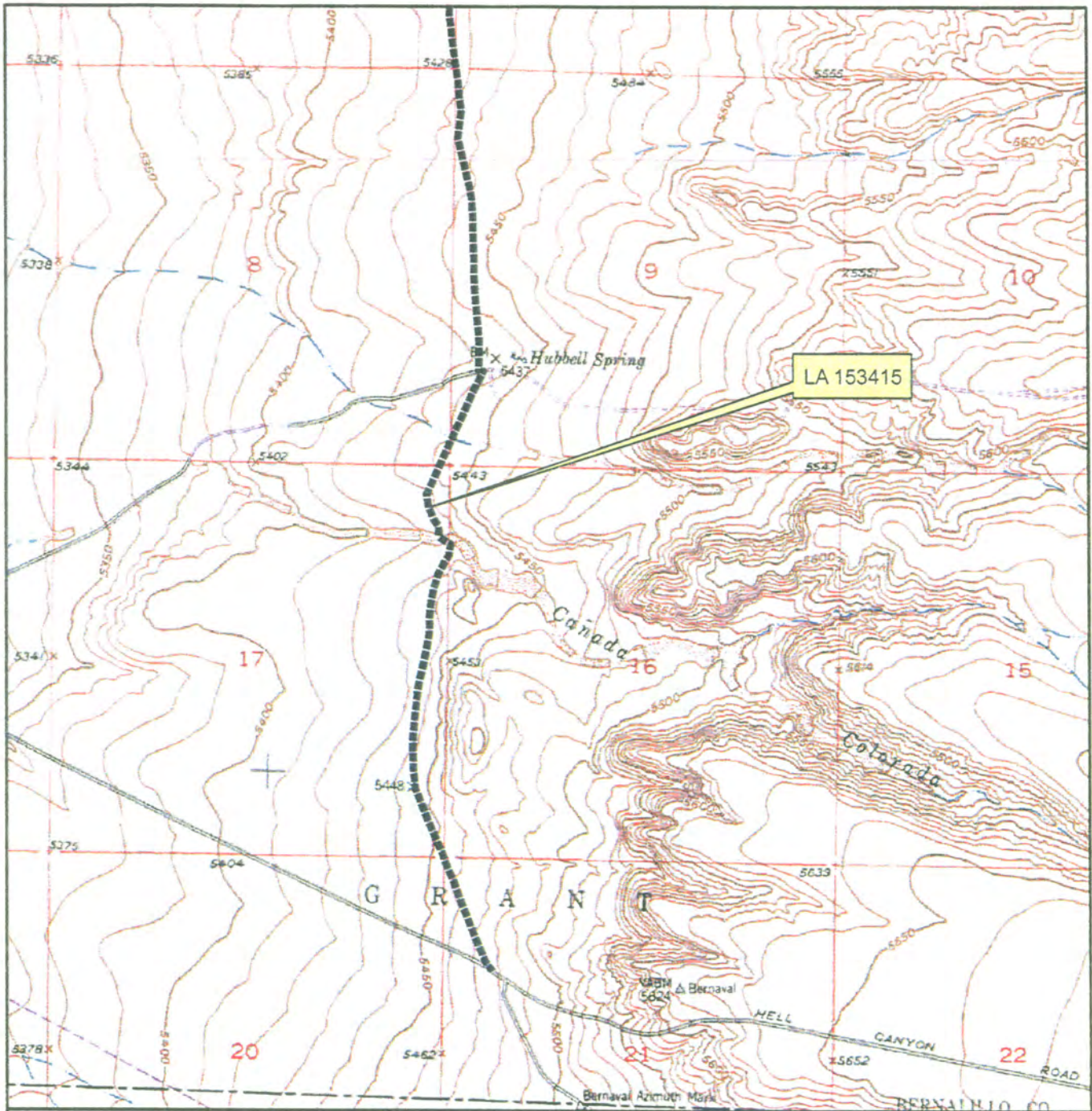




USGS 7.5 Minute Quadrangle  
Hubbell Spring, NM Quadrangle

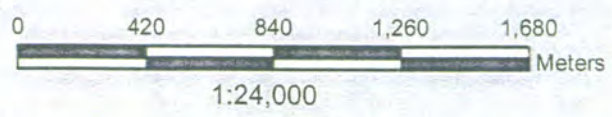
Figure A4c  
LA 153415  
Site Location Map:





USGS 7.5 Minute Quadrangle  
Hubbell Spring, NM Quadrangle

Figure A4d  
LA 153415  
Site Location Map:



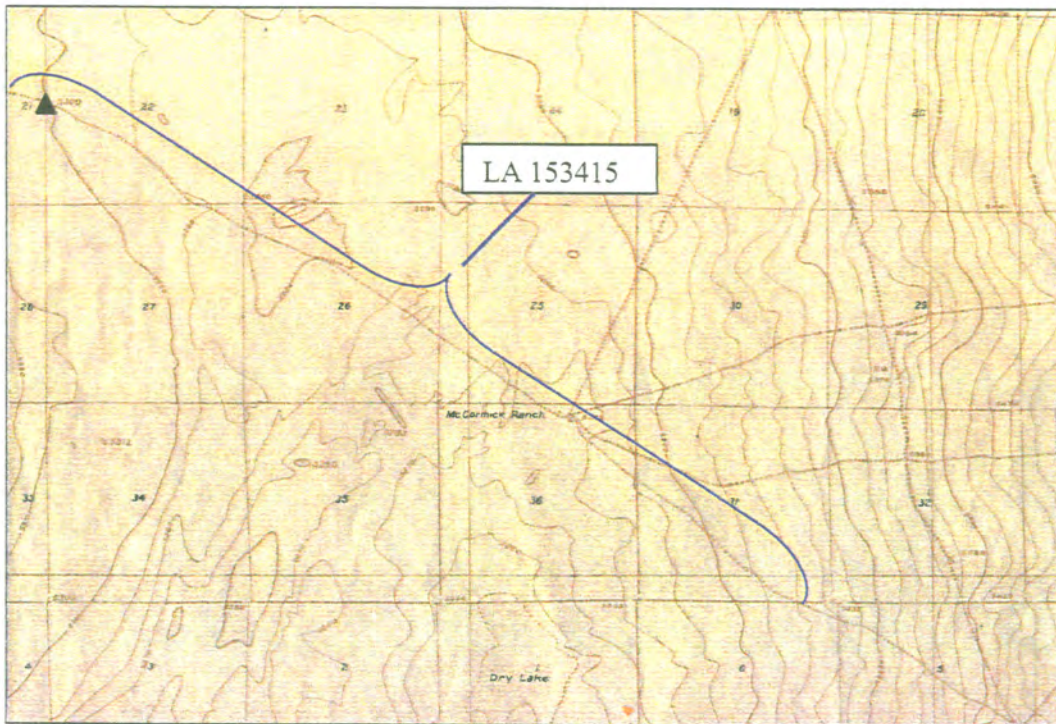
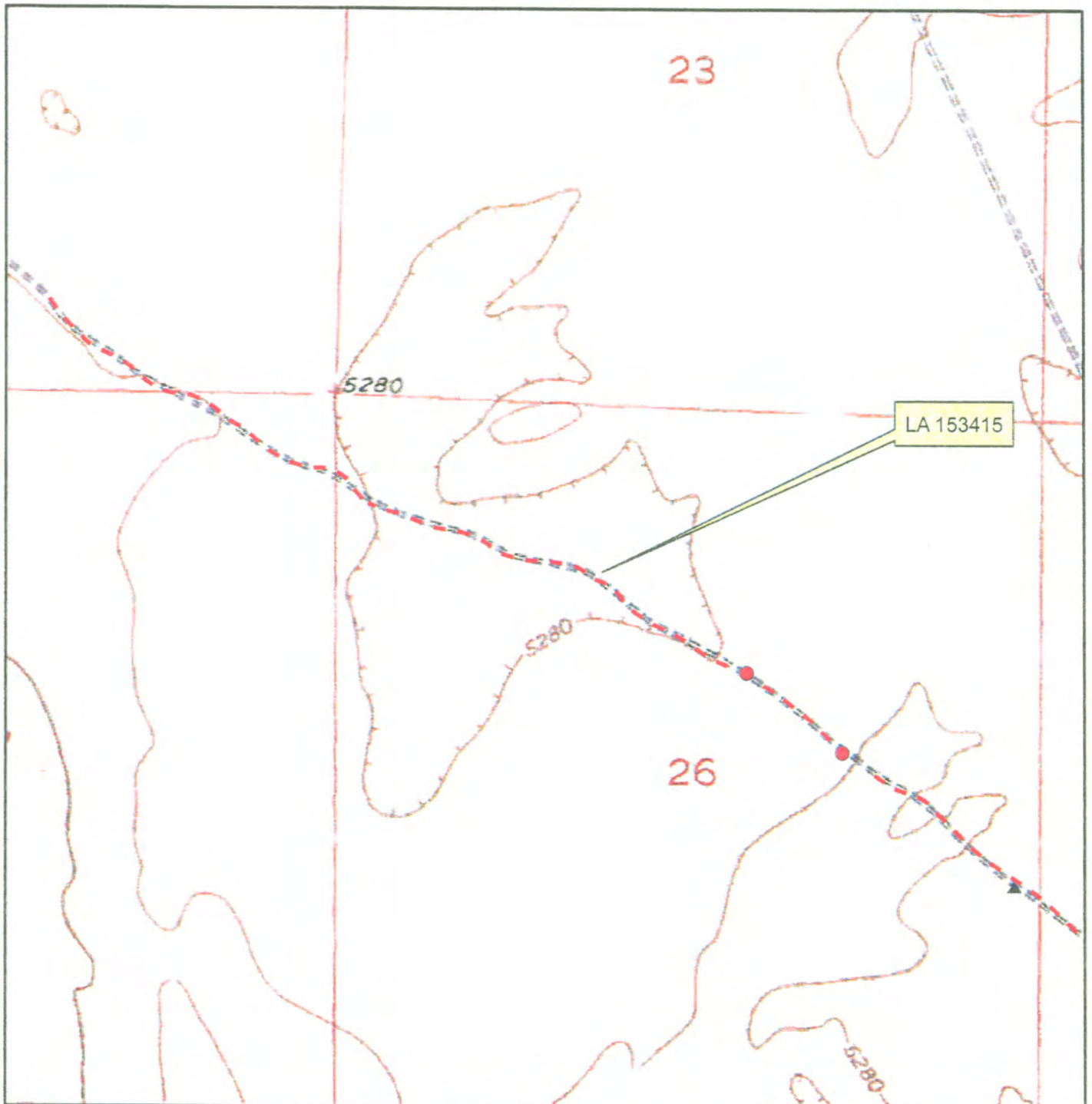


Figure A5. LA 153415 on the 1934 Hubbell Springs, NM USGS 7.5 min quadrangle.



Legend:

- ▲ Site datum
- - - Site boundary newly recorded
- Artifacts

USGS 7.5 Minute Quadrangle  
Hubbell Springs, Isleta NM



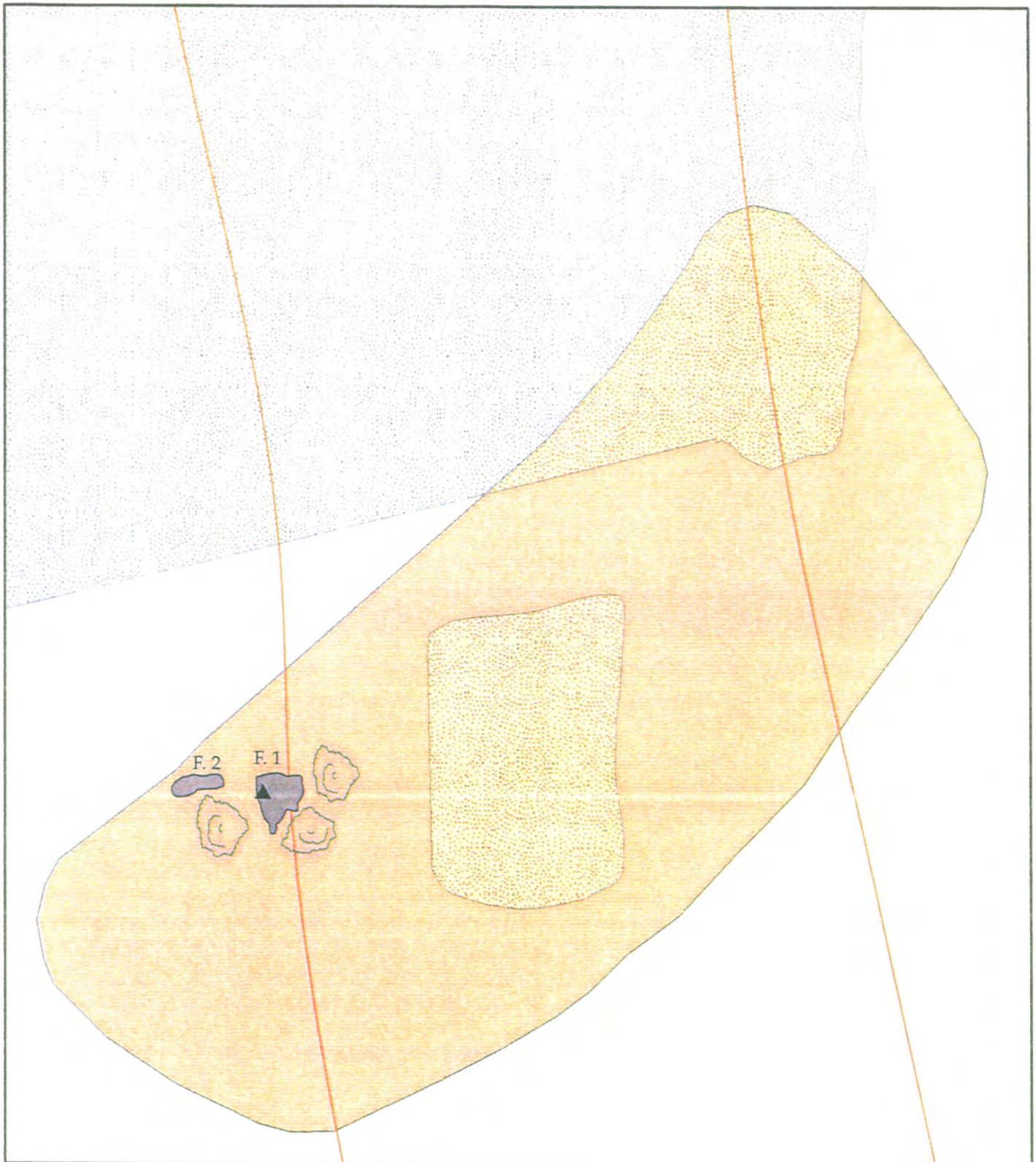
Figure A6  
LA 153415  
Site map



1:13,500







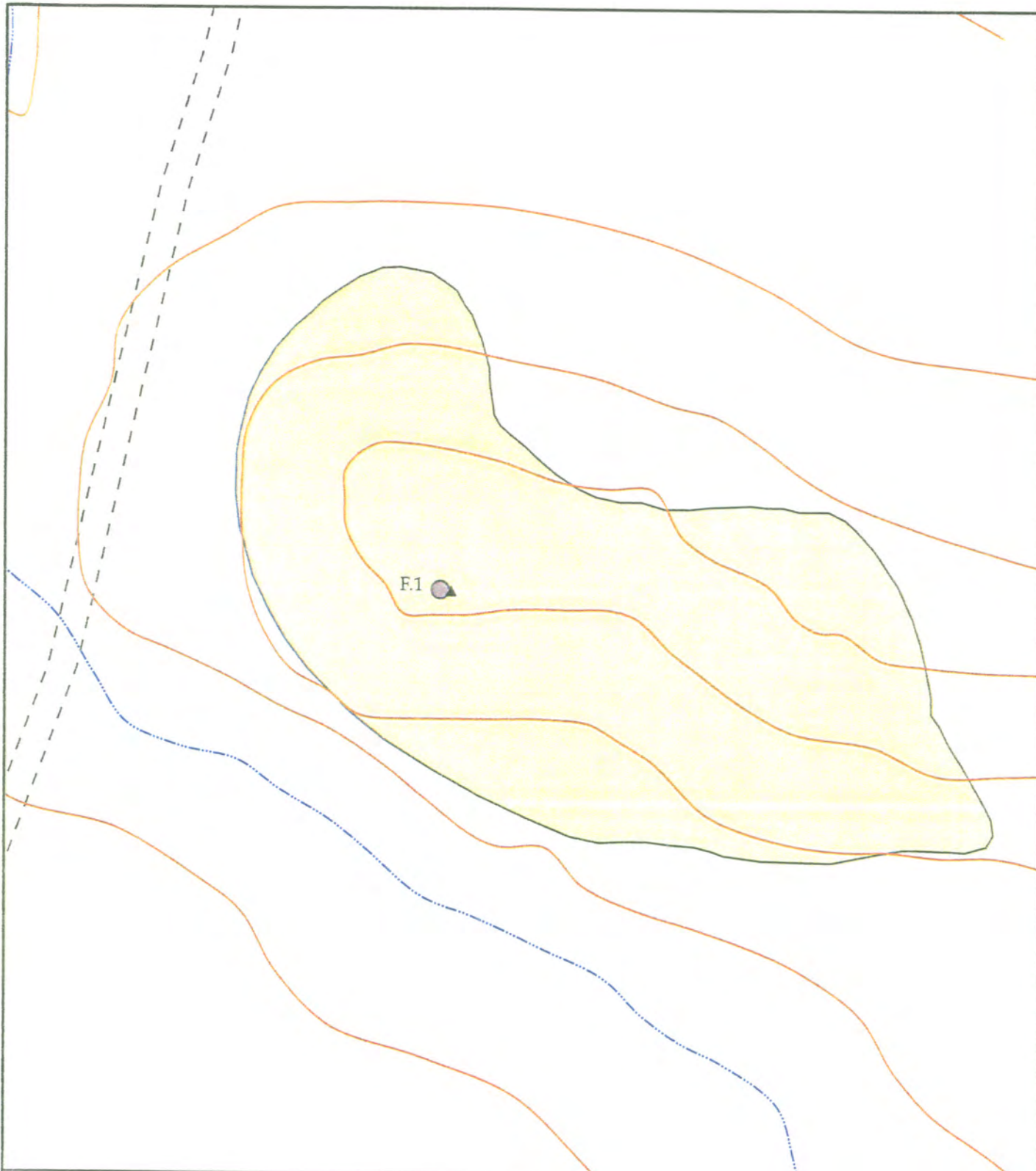
**LEGEND:**

- ▲ Site datum
- Bushes
- Site boundary
- Bladed areas
- Features
- 3 m (10 ft) contour



**Figure A7**  
LA xx2  
Site map





**LEGEND:**

- ▲ Site datum
- Feature
- Site boundary
- Erosional drainages
- = = Two track road
- 2 m (10 ft) contour

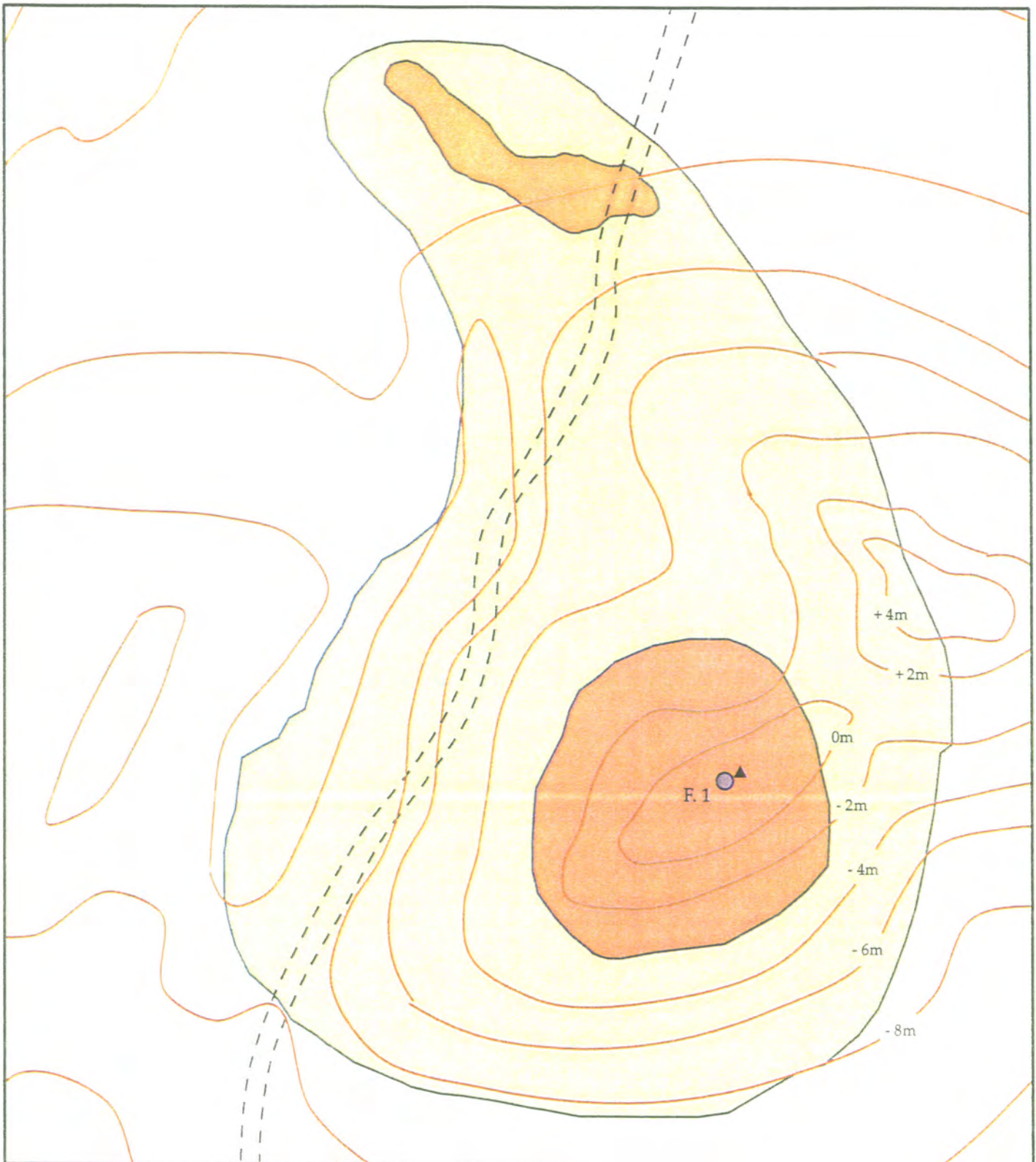


1:492



**Figure A8**  
LA xx4  
Site map





**LEGEND:**

- ▲ Site datum
- Feature
- Site boundary
- Artifact concentration
- == Two track road
- 2 m (6.5 ft) contour

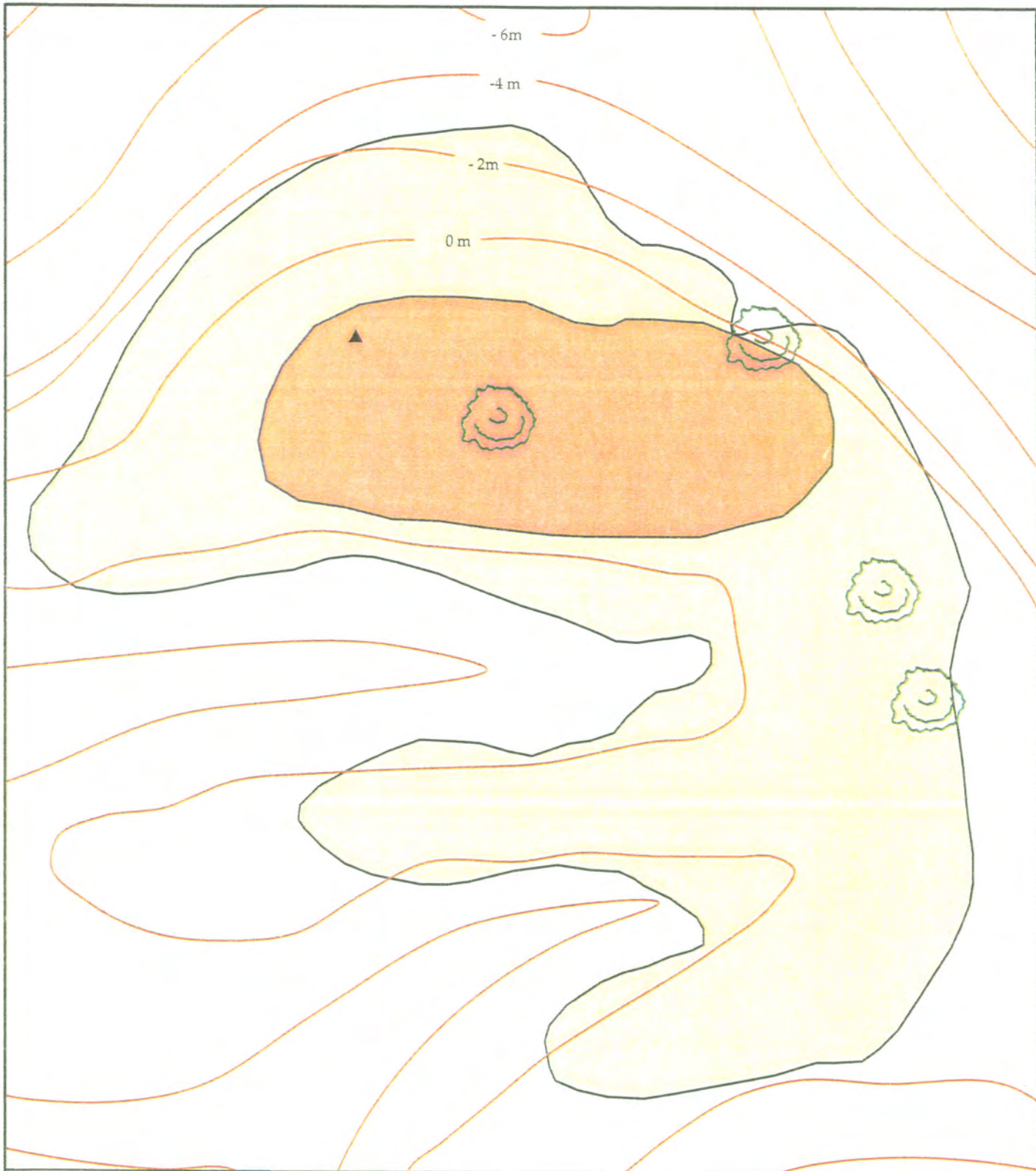
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Meters

1:854

N

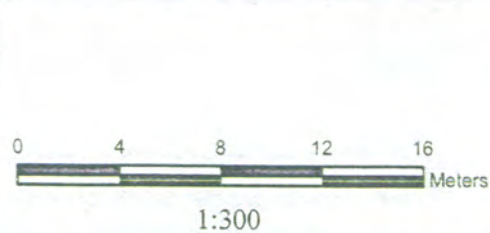
**Figure A9**  
LA xx5  
Site map

Marron  
and Associates, Inc.



**LEGEND:**

- ▲ Site datum
- ◉ Juniper
- ◻ Site boundary
- ◻ Artifact concentration
- 2 m (6.5 ft) contour










**Figure A10**  
LA xx6  
Site map





**LEGEND:**

- |   |                         |   |                   |
|---|-------------------------|---|-------------------|
|  | Site datum              |  | Hammerstone       |
|  | Site boundary           |  | Scraper           |
|  | Artifact concentrations |  | Fire-cracked rock |
|  | 1 m (3.3 ft) contour    |   |                   |

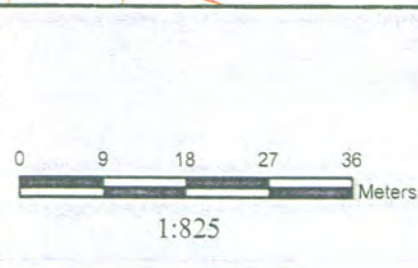
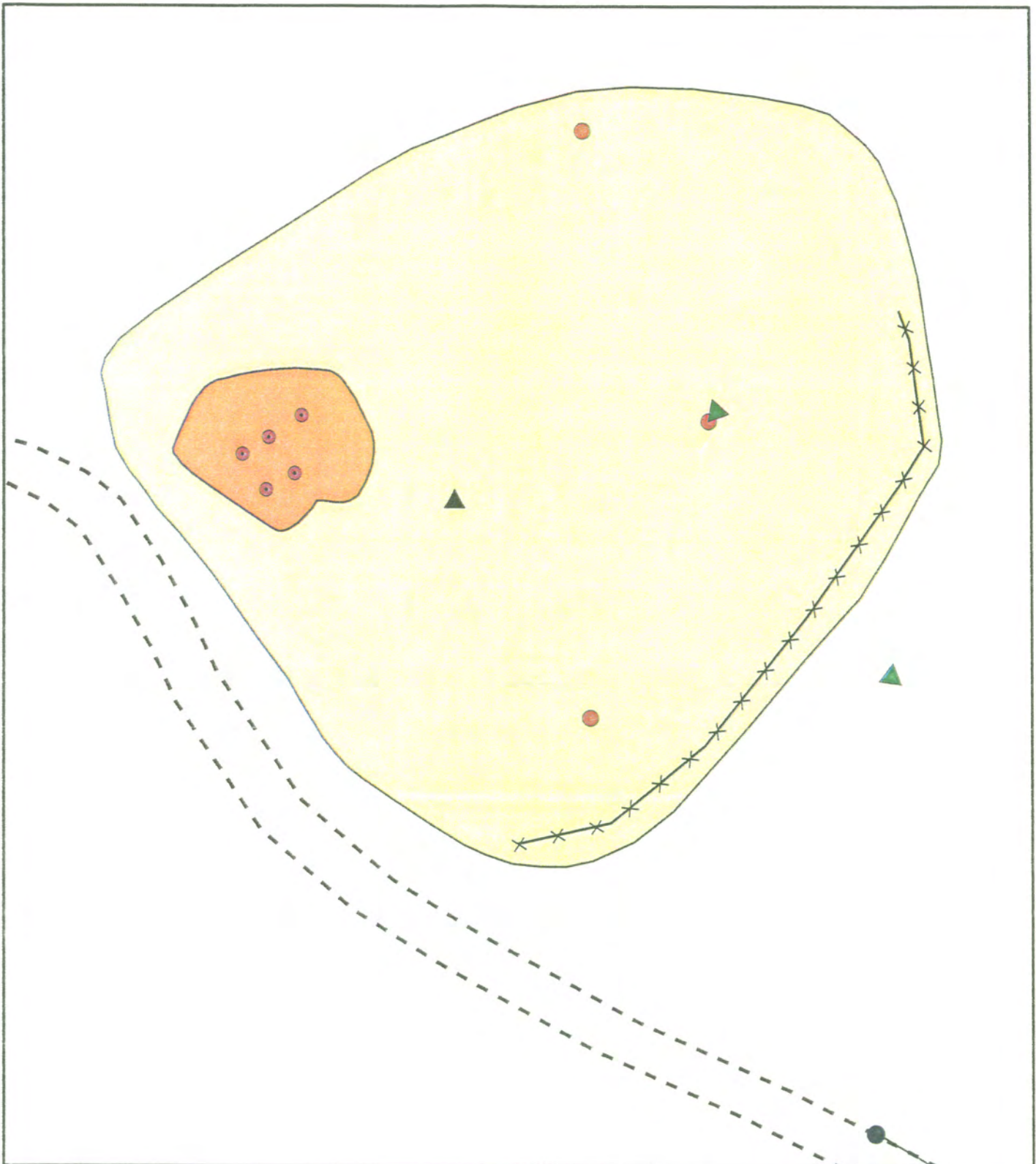





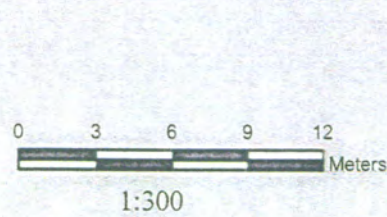
Figure A11  
LA xx7  
Site map





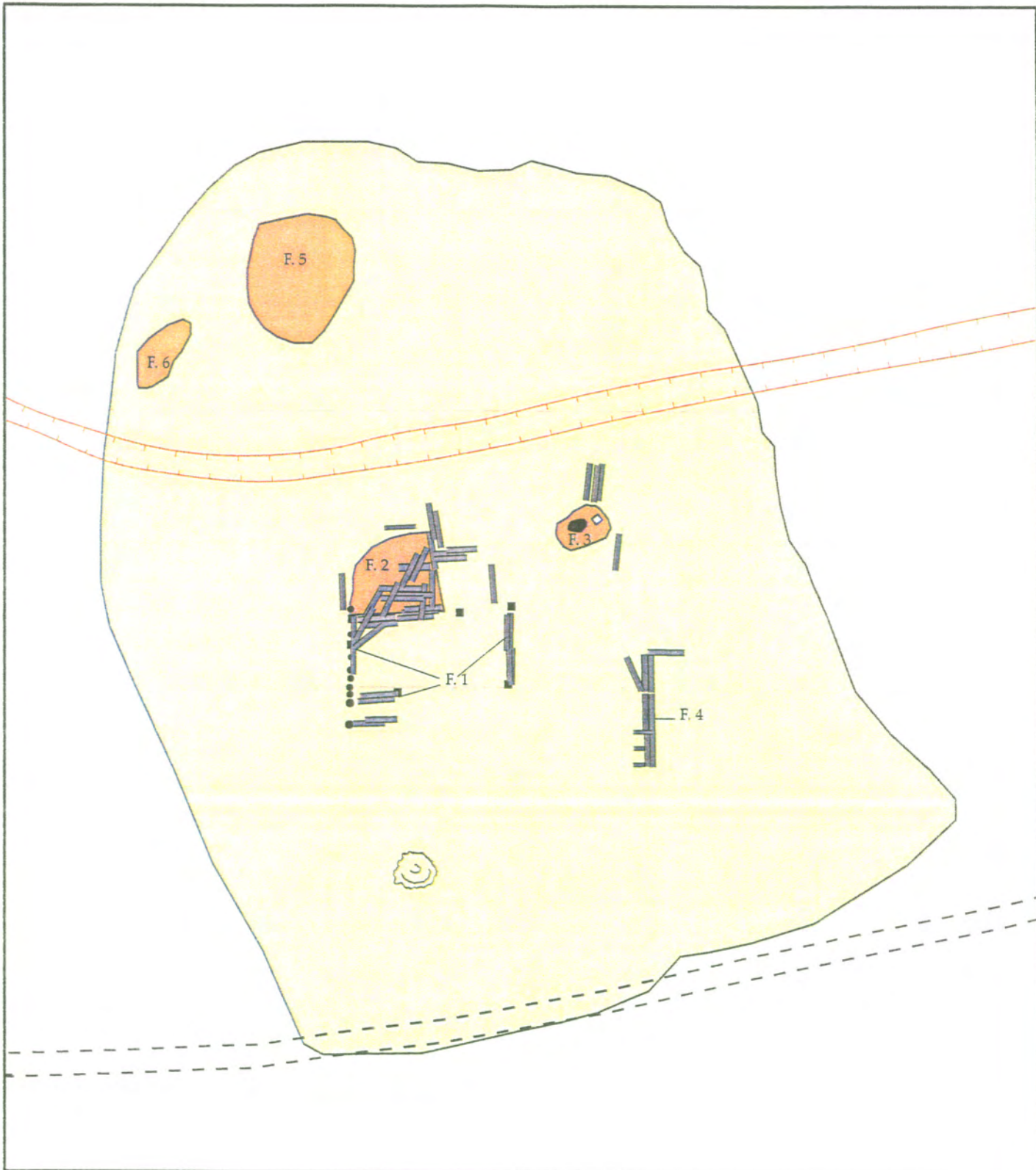
**LEGEND:**

- |   |                        |   |                 |
|---|------------------------|---|-----------------|
|  | Site datum             |  | Radar reflector |
|  | Site boundary          |  | Utility pole    |
|  | Artifact concentration |  | Powerline       |
|  | Wood pole              |   |                 |
|  | Wood post              |   |                 |



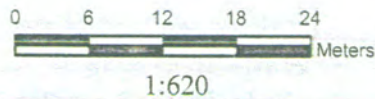
**Figure A12**  
LA xx9  
Site map





**LEGEND:**

- |                 |                      |
|-----------------|----------------------|
| ▲ Site datum    | ■ Lumber fence post  |
| ■ Feature       | ● Juniper fence post |
| □ Site boundary | ○ Cinderblocks       |
| ▬ Milled lumber | == Two-track road    |
|                 | — Drainage ditch     |



**Figure A13**  
LA xx10  
Site map



**APPENDIX B: ISOLATED OCCURRENCE LOCATIONS**

Isolated occurrences locations.

IO	UTM Coordinates		Description
	Easting	Northing	
1	348049	3868312	Massive flake, silicified wood, noncortical Flake, silicified wood, primary Flake, chert, primary Angular debris, chalcedony, noncortical Flake, chalcedony, tertiary Angular debris, chalcedony, noncortical Angular debris, chert, secondary
2	347926	3868986	Flake, silicified wood, primary
3	347937	3869019	Flake, chalcedony, secondary
4	347967	3869042	Pipe, metal, 8-inch diameter, crushed and partly buried
5	347956	3869092	Flake, chalcedony, secondary
6	349052	3872049	Tested cobble, chalcedony, cortical
7	348958	3871489	Multidirectional core, silicified wood, cortical
8	349052	3872049	Flake, chalcedony, tertiary
9	349065	3872057	Flake, fossiliferous chert
10	349056	3872157	Flake, chalcedony, secondary
11	349082	3872180	Flake, chalcedony, secondary
12	349112	3872245	Flake, chalcedony, primary
13	349153	3872424	Flake, silicified wood, primary
14	349193	3872669	Flake, chalcedony, secondary
15	349206	3872704	Three flakes, chalcedony, secondary
16	349243	3872938	Flake, chert, tertiary
17	349152	3872953	Core or tested cobble, chalcedony, cortical
18	349172	3872907	Insulator, aqua glass, fragmentary, "U.S.A." embossed on skirt
19	349088	3872621	Core or tested cobble, chalcedony, cortical
20	348919	3871451	Tested cobble, chalcedony, cortical
21	348921	3871416	Flake, chalcedony, secondary
22	348403	3868545	Flake, fossiliferous chert, secondary Flake, chalcedony, secondary Flake, chalcedony, primary
23	348369	3868535	Trash can, flip-top, cylindrical metal with dome top, painted label "Sanette"
24			Number not used, see LA 69517
25			Number not used, see LA xx4
26	349299	3871393	Retouched flake, chalcedony, unifacial retouch along one edge, secondary
27	349209	3870868	Flake, chalcedony, secondary
28	349219	3870813	Flake, chalcedony, secondary
29	349203	3870681	Flake, chalcedony, tertiary Flake, chalcedony, tertiary
30	349131	3870381	Flake, chalcedony, secondary
31	349024	3870654	Flake, chalcedony, tertiary
32	353157	3872347	Flake, chalcedony, tertiary
33	354119	3870694	Flake, chalcedony, secondary
34	353929	3871256	Metate, sandstone, 29 by 19 cm with irregular 10-by-9-cm depression



35	353870	3871394	Flake, chert, secondary
36	354458	3872562	Flake, obsidian, secondary
37	350323	3871079	Tested cobble, obsidian, cortical
38	350373	3870759	Tested rock, silicified wood, cortical Tested rock, chalcedony, cortical
39	350302	3870713	One tested cobble, chalcedony, cortical Two tested cobbles, obsidian, cortical
40	350297	3870994	Two tested cobbles, obsidian, cortical Flake, obsidian, secondary
41	350258	3871074	Core, obsidian, secondary
42	350233	3871126	Two flakes, chalcedony, secondary
43	350293	3871497	Three flakes, obsidian, secondary Flake, obsidian, tertiary Flake, silicified wood, tertiary Angular debris, obsidian, cortical
44	350263	3871575	Flake, limestone, secondary
45	352012	3871650	Cone-top can, brake fluid (?), 3.5-inch diameter, flat seams, three stepped rings on can body Rectangular can with pull-tab, 1 gallon, marked "Prestone," "antifreeze for your protection" Can, crushed, 1 gallon, entire top missing, 9-3/8 inches high, 6-3/8 inches wide, "Mobil," "Arctic SAE-20W" Can, crushed, 1 gallon, top edge punctured for bail (no grommet), top removed with bayonet-type opener, 7-5/8 inches high, diameter approximately 6¼ inches, 4 rings on base, "Mobil," "06932990A" Can, crushed, 1 gallon, with friction lid
46	352062	3872827	Electronic device, Viz Corporation, probably a radiosonde, fragmentary. Wires, circular capacitors, rheostat-like dial, small sheet metal cone
47	352049	3872470	Flake, chalcedony, secondary
48	351176	3872092	Flake, chalcedony, secondary Flake, chalcedony, primary
49	355108	3874904	Flake, bipolar, obsidian, primary Flake, obsidian, secondary Aluminum tubing with fittings, tube diameter 1¼ inches, chromate green possibly airplane part Bottle, amber glass, embossed applied base, no side or shoulder seams, probably turn-mold, complete except for finish
50	355117	3875118	Flake, silicified wood, secondary Flake, chalcedony, secondary, heavily patinated
51	355098	3871652	Flake, chalcedony, tertiary
52	355064	3870989	Can with friction lid, 4½ inches high, diameter 3-1/8 in
53	355007	3871314	Flake, chalcedony, secondary
54	353276	3872973	Flake, chalcedony, secondary
55	353243	3872512	Hammerstone, quartzite Flake, obsidian, secondary
56	351592	3872867	Flake, obsidian, tertiary Bifacially retouched flake, obsidian, tertiary

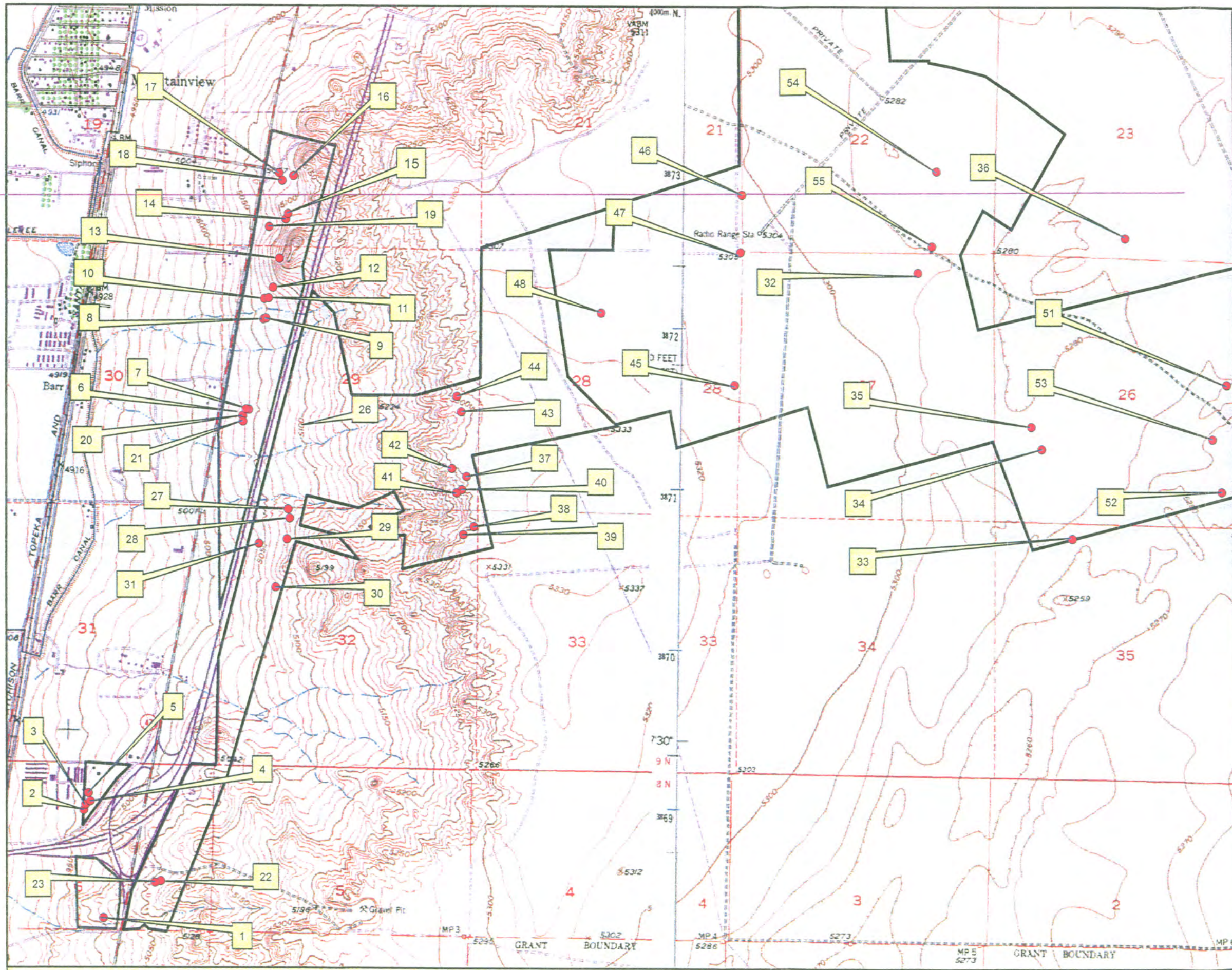
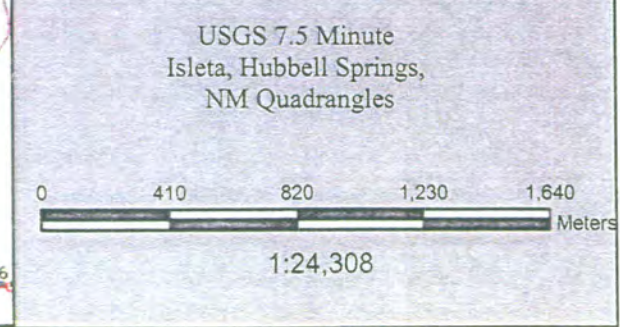


Figure B1a  
Project Area and  
Location Map



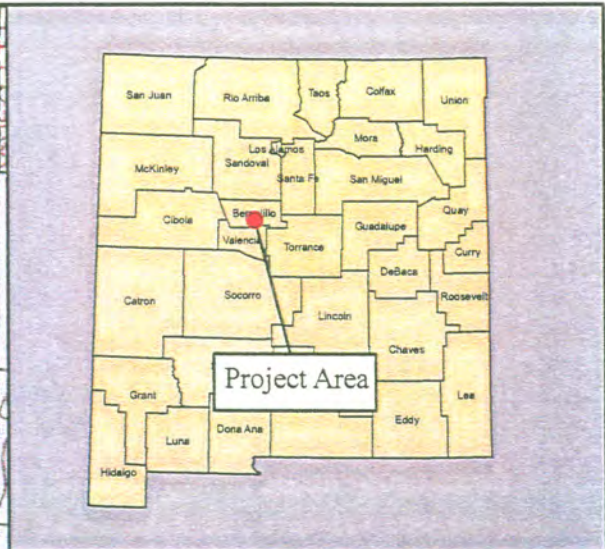
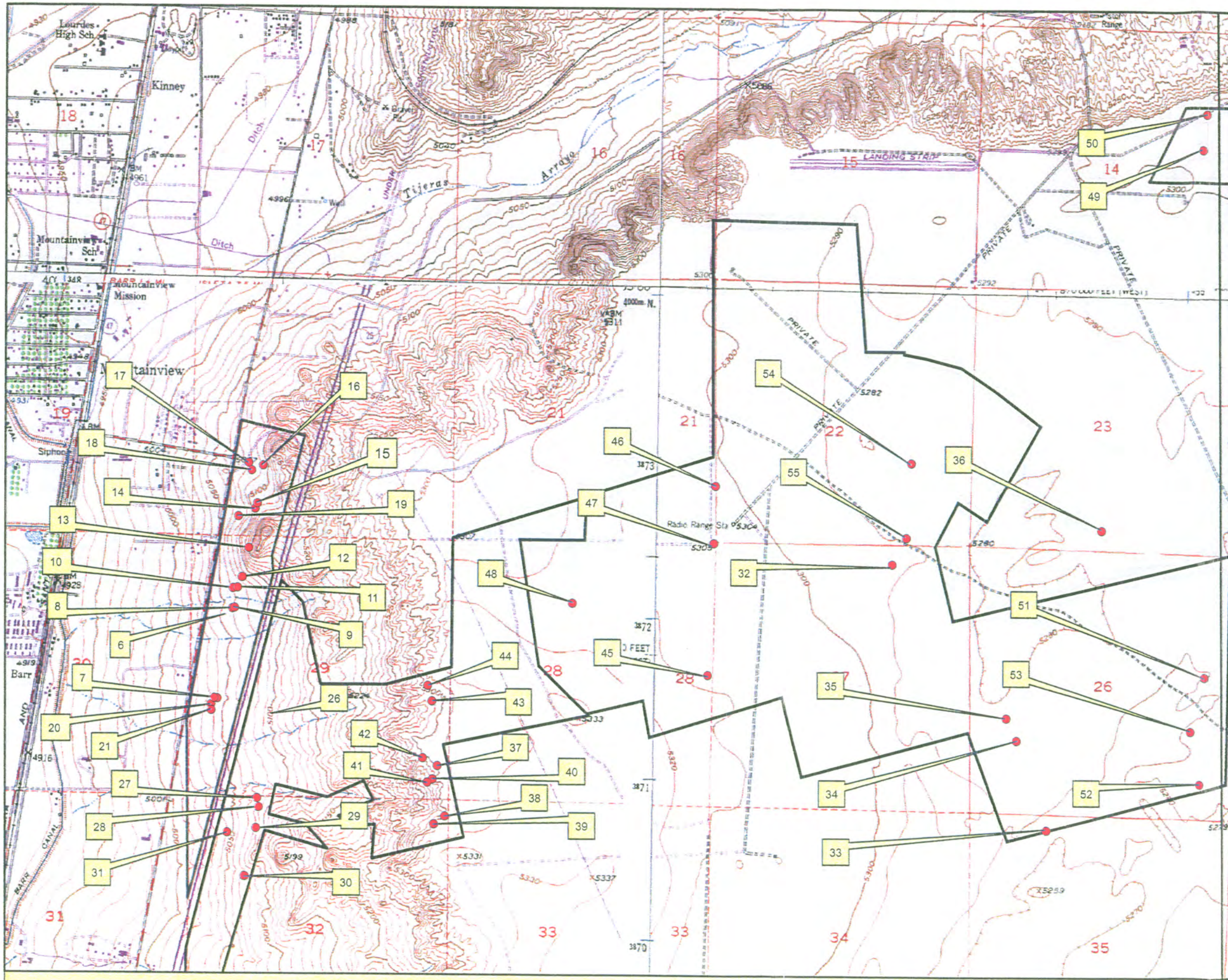


Figure B1b  
Project Area and  
Location Map

