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**REPORT ON THE RESULTS OF
SITE TESTING TO DETERMINE NATIONAL REGISTER ELIGIBILITY
FOR SITES 39GR32, 39GR53, 39LM33 and 39LM39,
IN THE LAKE FRANCIS CASE AREA, SOUTH DAKOTA**

VOLUME I: MAIN REPORT

by

R. PETER WINHAM

**With contributions by L. Adrien Hannus, Loren Horton,
Joseph Tiffany and Frederick Westin**



JUNE 1987

**Prepared for
U.S. ARMY CORPS OF ENGINEERS, OMAHA DISTRICT
CONTRACT NUMBER: DACW45-86-M-1517**

**ARCHEOLOGY LABORATORY OF THE CENTER FOR WESTERN STUDIES
AUGUSTANA COLLEGE, SIOUX FALLS, SOUTH DAKOTA 57105**

ARCHEOLOGICAL CONTRACT SERIES NUMBER 29

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FINAL REPORT

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39GR53, 39LM33 and 39LM39, IN THE LAKE FRANCIS CASE
AREA, SOUTH DAKOTA

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Ceramics	Scalp Creek Cemetery	Historic Dakota
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<p>The evaluation of four sites along the west bank of Lake Francis Case for nomination to the National Register of Historic Places was conducted in 1986. by the Archeology Laboratory, Augustana College, Sioux Falls, SD for the U.S. Army Corps of Engineers. Earlier work at these sites was assessed and on-site testing was implemented. Site 39GR32, a prehistoric/protohistoric cemetery, was found to have been completely eroded by wave action. Site 39GR53, a multi-component, prehistoric/historic site was determined to be inundated.</p>		

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Dinehart Village	Cutbank erosion	Missouri Trench
Deerfly Site	Radiocarbon dating	
Earthlodges	Keyhole depression	
Excavation	Hearths	
Soil Profile	Cache pits	

20. ABSTRACT

Site 39LM33, an Initial Middle Missouri village site, contained significant remains, including multiple earthlodge depressions. The site is undergoing active, severe lake bank erosion. Site 39LM39, a multi-component, prehistoric (Extended Coalescent) and nineteenth century historic site was determined to have significant extant deposits of both cultural components, although the prehistoric component is suffering extensive cutbank erosion.

National Register of Historic Places nomination forms were completed for the Lyman County sites. Both sites have the potential to contribute to research questions concerning cultural developments, interactions and processes within the Middle Missouri Area and Big Bend Archeological Region of South Dakota.

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ARCHEOLOGY LABORATORY OF THE CENTER FOR WESTERN STUDIES
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ABSTRACT

This report evaluates four sites along the west bank of Lake Francis Case for nomination to the National Register of Historic Places. Earlier work at these sites was assessed and on-site testing was implemented. The integrity of site 39GR32, a prehistoric/protohistoric cemetery, had been destroyed by wave action. Site 39GR53, a multi-component, prehistoric/historic site was determined to be completely inundated.

Site 39LM33, an Initial Middle Missouri village site, contained significant remains, including multiple earthlodge depressions. Site 39LM39, a multi-component, prehistoric (Extended Coalescent) and nineteenth century historic site was determined to have significant extant deposits representing both the prehistoric and historic cultural components.

National Register of Historic Places nomination forms were completed for the Lyman County sites, 39LM33 and 39LM39. Both sites have the potential to contribute to research questions concerning cultural developments, interactions and processes within the Middle Missouri Area and Big Bend Archeological Region of South Dakota.

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Ed Brodnicki expeditiously supplied archival information on hand at the Omaha District of the U.S. Army Corps of Engineers, and Dr. Anta Montet-White attempted, unfortunately without success, due to recataloging problems, to provide information from the archives of the Museum of Anthropology, University of Kansas.

Several specialists participated in this project in various capacities. Dr. Frederick Westin put in several long days evaluating the soils at sites 39GR53 and 39LM33; Dr. Joseph Tiffany and Dr. Robert Alex examined the ceramics from sites 39LM33 and 39LM39; Jan Griesenbrock produced the photographic enlargements for the National Register of Historic Places nomination forms; Rebecca L. Johnson provided the artifact illustrations; and William J. Soeffing identified faunal remains. James Buckley of Teledyne Isotopes expedited the C14 dating process.

The staff at the South Dakota Archaeological Research Center were very helpful in supplying information for this project, while Dr. L. Adrien Hannus and Lynette Rossum undertook the tasks of editing and final preparation of this report.

Following the completion of cultural resource inventories for Lake Francis Case (Lees, Brown and Mandel 1985; Winham and Lueck 1984; Olson and Zimmerman 1979), several sites were determined potentially eligible for nomination to the National Register of Historic Places. This report details the 1986 investigations undertaken to establish the National Register of Historic Places status of four sites, 39GR32, 39GR53, 39LM33 and 39LM39, on the right (west) bank of Lake Francis Case. All four of these sites were most recently investigated during field surveys in 1983; site 39LM33 was reported by Winham and Lueck (1984) and the other sites were reported by Lees, Brown and Mandel (1985).

This work was undertaken by the U.S. Army Corps of Engineers (Corps) in partial fulfillment of its commitments to protect cultural resources and in accordance with the various laws and regulations stated in the scope-of-work (Appendix 7). This report was prepared under a contract between the Archeology Laboratory of the Center for Western Studies (ALCWS), Augustana College, and the Omaha District of the U.S. Army Corps of Engineers.

Upon receipt of contract number DACW45-86-M-1517, dated March 18, 1986, ALCWS implemented the activities designated in its proposal (Appendix 8) to determine the National Register eligibility of the four sites in question. The geographic location of Lake Francis Case on the Missouri River and the four specific site areas currently being evaluated are presented in Figure 1. Two of the sites are located in Gregory County, within the Ft. Randall Archeological Region, and two are located in Lyman County, within the Big Bend Archeological Region (see revision to Buechler 1984, in progress). The fieldwork was accomplished at sites 39GR53 and 39LM33 between June 22 and June 24, 1986, and at 39GR32 and 39LM39 between July 18 and July 22, 1986.

This report chronicles the various stages of the evaluation of these sites, proceeding from a summary of previous work, through the on-site evaluations and testing programs, to the final recommendations. In terms of organization, each site is addressed in a separate chapter. All specific locational data and maps are included in Volume 2, Appendices 1, 2 and 3.

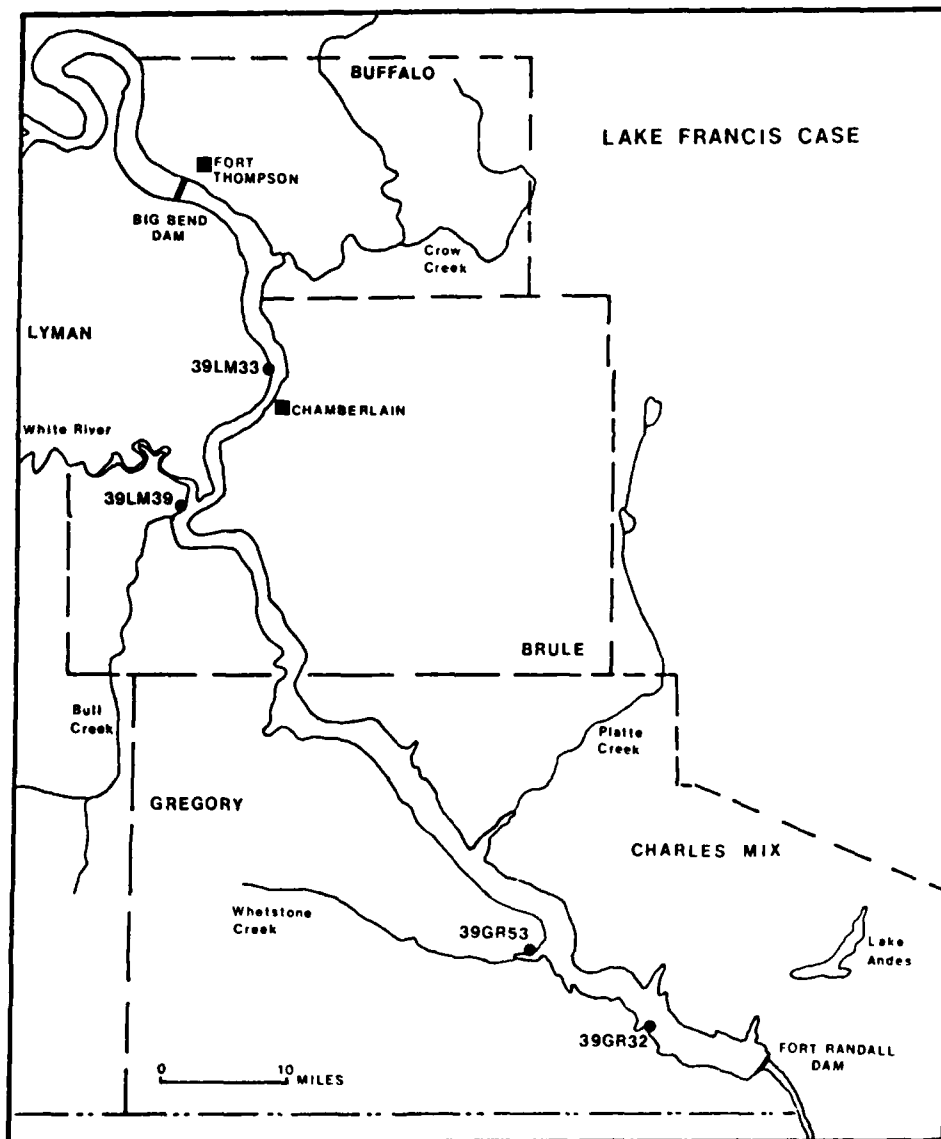
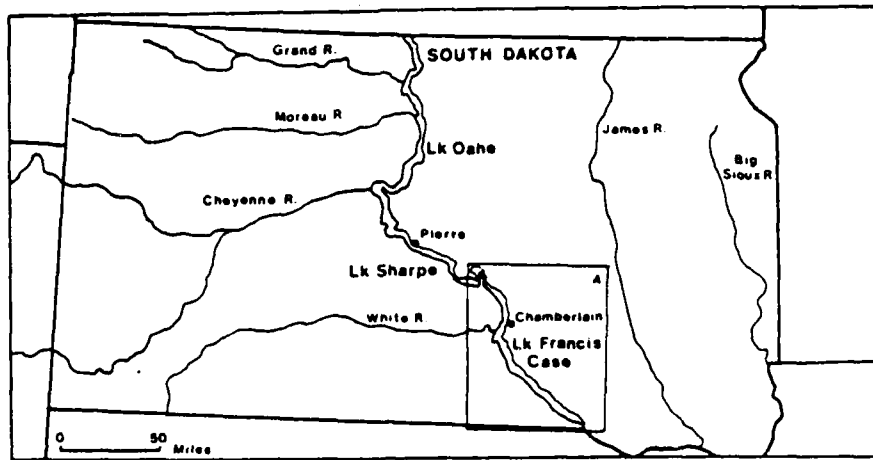


Figure 1. General location of Lake Francis Case and the four sites evaluated for National Register of Historic Places eligibility.

The general environmental setting of the region under investigation has been described in the earlier survey reports and will only be briefly summarized here. Specific site locational characteristics are a part of each particular site evaluation and are addressed as such in later chapters.

The Lake Francis Case Reservoir of the Missouri River is situated entirely within the physiographic region known as the Missouri Plateau. It is characterized by a butte and canyon topography, with stretches of hilly uplands, and a network of east-flowing rivers. The specific physical division occupied by the sites evaluated in this report is designated the Pierre Hills. The Pierre shales form smooth hills and ridges with convex tops, a landscape that is the product of weathering, mass wasting, and stream cutting. Pleistocene deposits in the project area consist mainly of alluvium, loess, and colluvium.

The sites are bordered on the east by the Missouri River, which supported deciduous forest communities, and on the west by the mixed grass prairie. The dominant vegetation of the mixed grass prairie is western wheatgrass, blue grama, needleandthread, and green needlegrass. The region's climate is the continental type, distinguished by cold winters and warm to hot summers.

Early human occupants of this area could have utilized both the resources of the Missouri River valley - where trees provided fuel and building materials, shelter and a habitat for various fauna - as well as resources found on the upland plateau, which was occupied by large herds of bison. The environmental constraints affecting the prehistoric inhabitants of the sites under evaluation would have been similar to those of today, including a limited growing season, severe weather patterns in both summer (drought) and winter (blizzards) and limited moisture availability for crops and livestock.

The research design set forth in ALCWS's proposal (Appendix 8) formed the basis for the work reported here. The important aspects of the sites under investigation, with regard to their eligibility for nomination to the National Register of Historic Places, consisted of their integrity and ability to yield information important in prehistory or history. One overriding consideration was the potential of the sites to address significant research questions involving culture patterns and culture processes.

The testing programs were designed to initially assess site content and integrity, and to determine whether what was known of the sites' research potential was sufficient for nomination to the National Register of Historic Places. Providing that the integrity of the cultural deposits could be validated at each locality, all would be considered eligible for the nomination process.

Since summaries had recently been prepared which detailed earlier investigations at the sites in question (Lees, Brown and Mandel 1985; Winham and Lueck 1984), only a limited records search was necessary prior to initiating the on-site fieldwork. The data search at the South Dakota Archaeological Research Center involved obtaining River Basin Survey records of the work that had been undertaken at site 39LM33 (Dinehart Village) in the 1950s.

Ed Brodnicki, Archeologist with the Omaha District, U.S. Army Corps of Engineers, provided pertinent original notes, negatives and maps of the University of Kansas's Museum of Anthropology survey. Equipped with this background information, the testing designs proposed for the specific sites (see Appendix 8) were implemented.

The research design guiding the on-site testing and evaluation of previous work was directed toward answering the question of what potential the sites currently possess to address important/significant research topics involving culture patterns and culture processes or activities important to the prehistory and history of the locality or wider region. All four sites had been previously evaluated as possessing the potential to contain significant intact cultural deposits, but documentation of the nature and extent of the extant resources required further work. Finally, if testing verified that cultural

deposits were indeed present, further discussion of the site's specific importance would be required.

The methodology guiding this investigation involved multiple stages, with the first priority being to determine whether extant cultural deposits at the sites in question were sufficiently well-preserved to allow the sites to be nominated to the National Register of Historic Places. At two sites, 39GR53 and 39GR32, no cultural deposits were found to be extant above the water level of Lake Francis Case; therefore, no additional research was undertaken at these sites. However, sites 39LM33 and 39LM39 both contained well-preserved deposits. Detailed documentation and background research for these two sites was, therefore, undertaken and represents a substantial portion of this report.

Overview - Culture History Summary

Two of the four sites evaluated in this report are located within the Big Bend region of the Middle Missouri subarea as defined by Lehmer (1971:29); the other two sites are situated further south, falling between the conventionally-defined Middle Missouri region to the north and the Central Plains region to the south.

Previously identified archeological sites in these areas represent four major prehistoric periods and two historic periods: 1) the Paleoindian period (10,000 - 6,000 B.C.), 2) the Plains Archaic or Foraging period (6,000 - 0 B.C.), 3) the Plains Woodland period (A.D. 1 - 900), 4) the Plains Village period (A.D. 900 - 1862), 5) the Early Historic period (A.D. 1700 - 1860), and 6) the Late Historic period (A.D. 1860 - present).

No evidence for occupation during the first two periods has been postulated to exist at the sites currently under investigation. The Paleoindian and Plains Archaic or Foraging periods are very poorly represented in this region. The Paleoindian tradition has been characterized as an adaptation to the hunting of Late Pleistocene megafauna, principally bison and mammoth. The Plains Archaic or Foraging period represents a nomadic, broad-spectrum foraging adaptation to the Plains, which is probably a readjustment of the Paleoindian lifeway resulting from the extinction of many species of Pleistocene megafauna and the changing Plains environment. The Plains Archaic period subsistence practices appear to be generalized resource exploitation based on both large and small game hunting and an apparent increase on the reliance of plant resources with a shift away from specialized big game hunting.

Two of the four sites (39GR32 and 39GR53) evaluated in this report produced no evidence of extant cultural deposits; both are considered to have been destroyed by lake shore erosion or to be totally inundated. The two extant sites, 39LM33 and 39LM39, are documented on the basis of earlier investigations, to contain cultural components which range in age from the Late Prehistoric Plains Village period to the Historic homesteading period. Site 39LM33, an Initial Middle Missouri earthlodge village from which a few Extended Middle Missouri ceramics have also

been recovered, may relate to the nearby King site (39LM55). Site 39LM39 is a multi-component site, with the most recent component being the twentieth century Jewell Ranch. This occupation was preceded by a late nineteenth century Dakota component related to the early reservation period. The prehistoric component is a probable Extended Coalescent occupation which may relate to two other nearby Extended Coalescent sites - the Spain site (39LM301) and the Clarkstown site (39LM47).

Since extensive culture histories of the area have been previously reported (e.g., Lees, Brown and Mandel 1985; Winham and Lueck 1984), this overview summarizes only those periods relating to the two extant sites being evaluated. This summary covers the Woodland period to the Historic period, and focuses specifically on the Great Oasis, Initial Middle Missouri, Extended Middle Missouri, Extended Coalescent and historic Dakota occupations.

Woodland, Great Oasis and the Plains Village Tradition

The Woodland period immediately precedes and gives rise to the Plains Village tradition and has recently been organized into four subperiods: Early Woodland (ca. 400 B.C. to 50 B.C.), Middle Woodland (50 B.C. to A.D. 300-400), Early Late Woodland (A.D. 300 to 700) and Late Late Woodland (A.D. 700 - 1200) (Benn 1982; Ludwickson et al. 1981).

Benn characterizes the Woodland period by three generalizations:

- 1) the intensification and elaboration of ritual behavior, symbolic artifacts, and cooperative construction efforts seemingly associated with birth (rebirth) and death;
- 2) improved technologies (e.g., bow and arrow, ceramics, agriculture) and more cooperative production by larger or more complex human aggregates (i.e. overall increase in productive efficiency);
- 3) a population increase that approaches limits perceived by Woodland people [Ludwickson et al. 1981:114-115, citing Benn n.d.].

The Early Woodland period is not well-represented in South Dakota. The earliest Middle Woodland manifestation is represented by the Valley phase. Valley phase subsistence suggests an emphasis on diffuse, riverine resources with bison being relatively unimportant (Kivett 1952,

1970). Identified sites in South Dakota include Scalp Creek (39GR1) and Ellis Creek (39GR2). The newly proposed Early Late Woodland period is based on recent work at the Rainbow (13PM91) and MAD sites (13CF101 and 13CF102) in western Iowa (Benn 1981a, 1981b). Research at these sites has provided significant information on the transition from Middle Woodland Valley phase configurations to Late Woodland Loseke Creek.

The Woodland period manifestation in the Middle Missouri subarea is primarily represented by what has been classified as the Sonota complex, established largely on the basis of mortuary remains, or mound building (Ludwickson et al. 1981:21). The Sonota complex extends throughout the central plains of North and South Dakota and southern Manitoba, with some sites also found in Saskatchewan and Alberta (Syms 1977:89).

The Late Woodland period is represented in South Dakota by the Loseke Creek phase. The Loseke Creek phase is characterized by "cord-roughened pottery having single-line cord-impressed decorations on the rim, generally in horizontal rows but occasionally in alternate triangles or oblique lines over the horizontal rows" (Nowak et al. 1982:25.17-25.18). It has been recognized in South Dakota at the Arp site (Gant 1967), the Hitchell site (Johnston 1967), the Tabor site (Hurt 1961), the Gavins Point site (Brown 1968), the Scalp Creek and Ellis Creek sites (Hurt 1952), Spawn Mound (Howard 1968) and the Split Rock Creek Mounds (Over and Meleen 1941). The ages of Loseke Creek phase Late Woodland sites are based primarily on four radiocarbon dates from the Arp site (Gant 1967) ranging from A.D. 420 to A.D. 810.

A separate Late Woodland manifestation recorded at the Truman Mounds near Ft. Thompson in central South Dakota is not considered assignable to Loseke Creek (Nowak et al. 1982:25.18). The transition from the Woodland tradition to the Plains Village tradition is a matter of considerable speculation, but the Great Oasis cultural phenomenon is the manifestation considered most likely to bridge the two on both economic and ceramic grounds (Nowak et al. 1982:25.18). Dates for Great Oasis sites range from A.D. 800 \pm 55 to as late as A.D. 1260 \pm 80 (Ludwickson et al. 1981:133), with the majority falling between A.D. 900 and A.D. 1100 (Henning 1981). A complete Great Oasis lodge, excavated in 1976 (Hannus 1976; Hannus, Winham, Lueck 1986) at the Heath site (39LN15), produced a radiocarbon age determination of 940 \pm 195 B.P.

(Teledyne Isotope # I-9499). The Heath site is located on a terrace above the Big Sioux River just east of Sioux Falls, South Dakota.

Great Oasis sites appear to cluster in northwestern Iowa, southeastern South Dakota, southwestern Minnesota and northeastern Nebraska (Henning 1971), although Great Oasis cultural materials, especially ceramics, are distributed over a wide area in the Plains region, from southeastern North Dakota (Anfinson 1979:87) to eastern Iowa (Caldwell 1961:118) and western Illinois (Henning 1967:189).

The Great Oasis complex lithic assemblage includes Woodland-type projectile points as well as other small triangular and side-notched points typical of the somewhat later Initial Middle Missouri variant of the Plains Village tradition (Henning 1981:36). Great Oasis ceramics have commonly been divided into two distinct ware groups on the basis of rim and neck form: Great Oasis High Rim and Great Oasis Wedge Lip (Henning and Henning 1978).

One significant aspect of the Great Oasis complex is that the occupation sites appear, in some instances, to be permanent or semi-permanent village settlements. Great Oasis people's subsistence practices seem to represent a broad spectrum of hunting and gathering with a major dependence on maize, but whether or not Great Oasis groups cultivated maize is a subject of some controversy.

Groups associated with the Plains Village period have been classified as belonging to the Plains Village tradition (or pattern), which is subdivided into two traditions, the Middle Missouri tradition and the Coalescent tradition. The Middle Missouri tradition is thought to have its cultural origins in populations arriving from Minnesota and northwestern Iowa at ca. A.D. 900 and 1100 (Lehmer 1971:98, 100). The Coalescent tradition represents influences from the Central Plains tradition which Lehmer (1971) associates with the westernmost part of Iowa, eastern and south-central Nebraska and the region in Kansas north of the Arkansas River drainage. With the exception of mound-building, the Plains Village period represents a continuity of lifeways from the Woodland period. Figure 2 shows the distribution of some of the Woodland, Great Oasis and early Plains Village sites in the project area.

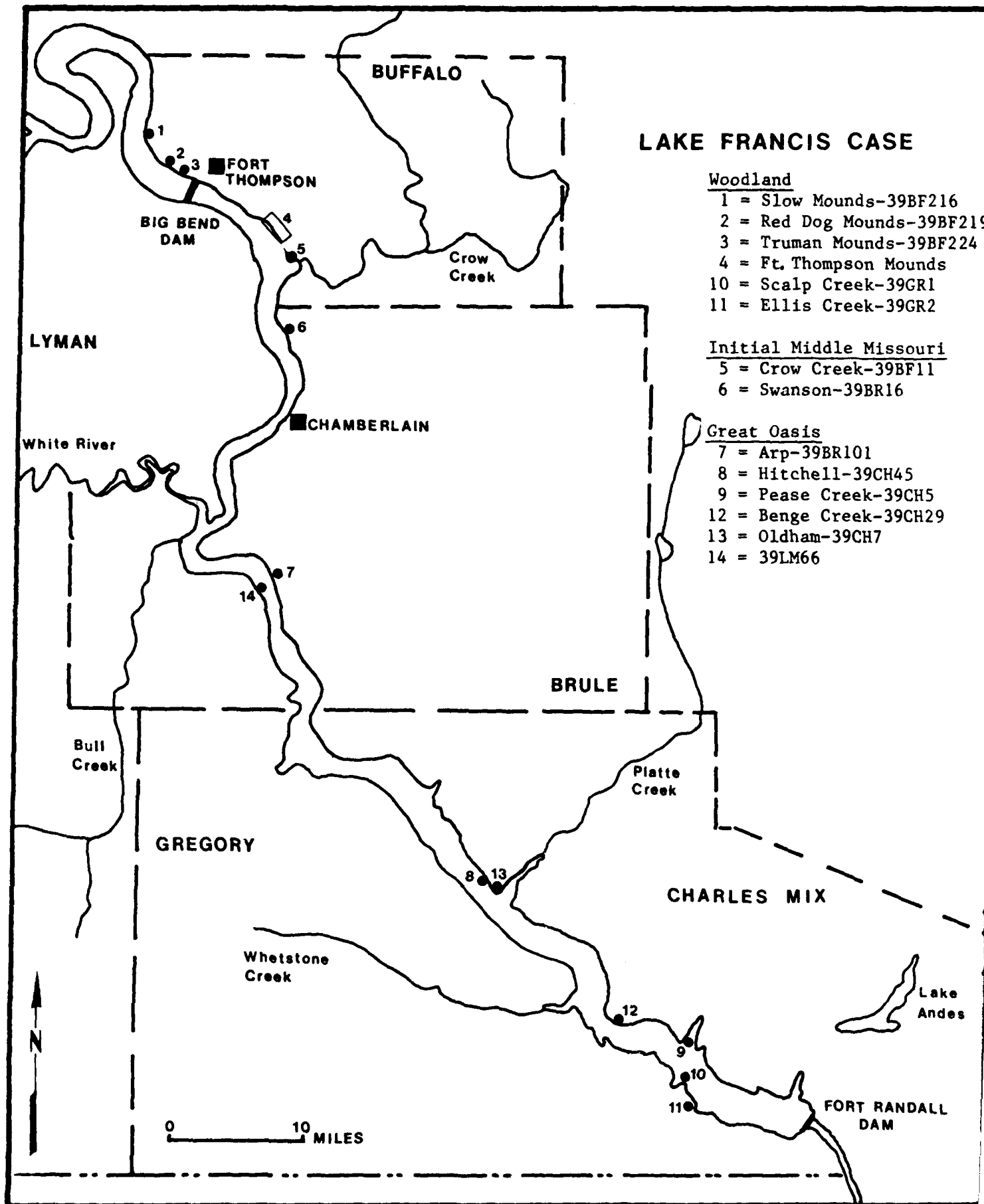


Figure 2. Map showing the distribution of selected Woodland and early Plains Village sites in the project area.

There is currently a debate in Plains Archeology over the nature of the occupation of this region from the period of the earliest Paleoindian groups to the arrival of the European traders and settlers. This debate centers on the role of diffusion in forming the observed changes in the archeological record - specifically those changes that might otherwise be seen as evolutionary, such as the development of village living and the practice of horticulture.

Contrary to popular opinion, the development of the Woodland culture in the Western Prairie Peninsula and Plains is viewed by Benn as having been an indigenous development that was not influenced by (diffused from) Eastern Woodland peoples. "The basic tenet emphasized here is that many Woodland patterns were formulated during the Archaic periods" (Benn 1981a:344). The evolution of Woodland culture in these areas was roughly parallel and "adaptation of common technologies and symbols was the result of similar cultural systems absorbing similar patterns to reinforce their ideologies and productive bases" (Benn 1982:38) [Lees, Brown, Mandel 1985:34].

Michlovic (1986), on the other hand, stresses continuity and stable adaptation based primarily on the hunting of bison.

Overwhelmingly, Plains archaeology reveals widespread continuity in the hunting-gathering lifestyle, from Paleo-Indian through Late Prehistoric times, with significant deviations attributable to the intrusion of social and technological innovations from the east and southwest....Of course, this is not to deny that an extremely significant adaptive shift occurred in late prehistoric times when village agriculture became an established cultural pattern along a number of larger waterways in the Plains....Even so, the bison herds, as well as many other elements of the nomadic lifeway, exerted a certain attraction for the villagers [Michlovic 1986:210-212].

Both the Middle Missouri and Coalescent traditions are subdivided into variants which are theoretically associated with temporally, spatially, qualitatively and quantitatively bounded periods of cultural change in the Middle Missouri subarea. Lehmer's (1971) cultural chronology for the region is organized as the Initial, Extended and Terminal variants of the Middle Missouri tradition and the Initial, Extended, Post-Contact and Disorganized variants of the Coalescent tradition. Ludwickson et al. (1981) recommend time spans of A.D. 1000

to 1300 for the Initial Middle Missouri variant in South Dakota and A.D. 1300 to 1500 for the Initial Coalescent variant.

Initial Middle Missouri

The Initial Middle Missouri variant has in the past been assigned three phase level taxa: the Over phase, the Anderson phase and the Grand Detour phase (cf. Brown 1974; Caldwell and Jensen 1969). Reported extensive excavations in the region which represent the inception of the Initial Middle Missouri variant include the Over phase components encountered at the Crow Creek (39BF11) and Swanson (39BR16) sites.

About 30 Initial Middle Missouri sites have been identified on both sides of the mainstream of the Missouri River in a stretch from the mouth of the White River to Chapelle Creek, and on the west bank above that point to the mouth of the Cheyenne (Lehmer 1971:66). Initial Middle Missouri settlements in the Missouri trench were located on terraces above the floodplain, often situated on narrow spurs which afforded protection on three sides, with a trench and stockade strategically placed across the end of the spur.

Other Initial Middle Missouri village sites occur in southeastern South Dakota along the upper Big Sioux and lower James River drainages. Sites contain as few as four houses and as many as a hundred. Houses are of the long rectangular form with an entry generally oriented to the south. Bison were exploited as the major prey species, with supplemental use of floodplain fauna and gardening, especially maize.

Extended Middle Missouri

Extended Middle Missouri village sites (A.D. 1100 - A.D. 1500) occur from a few miles south of the North Dakota-South Dakota border to the mouth of the Knife River in North Dakota. Outlying sites occur near the mouth of the Little Missouri River to the northwest and as far south as the Big Bend area of South Dakota. The only area of significant overlap in the distribution of the Initial Middle Missouri and Extended Middle Missouri sites is on the west bank of the Missouri River between the Bad and Cheyenne rivers in South Dakota. Here the construction of fortified villages by both groups suggests they engaged in open warfare.

Extended Middle Missouri ceramics have also been identified as far south as the King site (39LM55) and Dinehart Village site (39LM33) (Johnson 1979). The abandonment of southern Extended Middle Missouri villages and the discontinuance of fortifications in the Bad-Cheyenne Region in about A.D. 1250 are thought to be the result of a drier climate during the Pacific episode (Lehmer 1971:104-105). The hypothesis that the Hickey Brothers site (39LM4) reflects interaction between the peoples of the Initial and Extended Middle Missouri variants during the drier Pacific climatic episode is supported by the presence of a Thomas Riggs component representing the Extended variant and a possible Anderson component representing the Initial variant.

Figure 3 shows the distribution of recorded Initial Middle Missouri and Extended Middle Missouri sites in the project area.

Extended Coalescent

The Extended Coalescent variant apparently developed out of the Initial Coalescent variant at about A.D. 1500 and continued until about A.D. 1675 (Lehmer 1971:115, 120). The Initial Coalescent variant represents the blending of the Middle Missouri and Central Plains traditions, following a major population movement into the area from the Central Plains as the result of environmental stress (drought) (Lehmer 1970, 1971).

In Lehmer's (1971) view, the product of these movements of village peoples was a "coalescence" of village lifeways into later Coalescent variant groups, resulting from cultural contacts, conflicts, and the exchange of ideas. This process ultimately leads to the development of the well known Arikara, Mandan and Hidatsa village tribes...Historically, the Arikara are recognized as the village tribe who once occupied the subarea in South Dakota [Toom and Picha 1984:24].

The absence of fortifications, thin refuse deposits, and circular-like floor plans are major characteristics of sites of the Extended Coalescent variant (Lehmer 1971:115), although the house shapes can exhibit considerable variability (Lehmer 1971:115). The Extended Coalescent variant displays a significant increase in the number of villages and in the extent of the area occupied, with village fortifications being restricted to the northern and southernmost parts of the range (Lehmer 1971:115, 116).

LAKE FRANCIS CASE

Initial Middle Missouri

- 1 = Stricker-39LM1
Gilman-39LM226
- 2 = Medicine Creek-39LM2
- 3 = Jandreau-39LM225
- 4 = Jiggs Thompson-39LM208
- 6 = Crow Creek-39BF11
- 7 = Swanson-39BR16
- 9 = Dinehart Village-39LM33

Extended Middle Missouri

- 5 = Hickey Brothers-39LM4
- 8 = King-39LM55

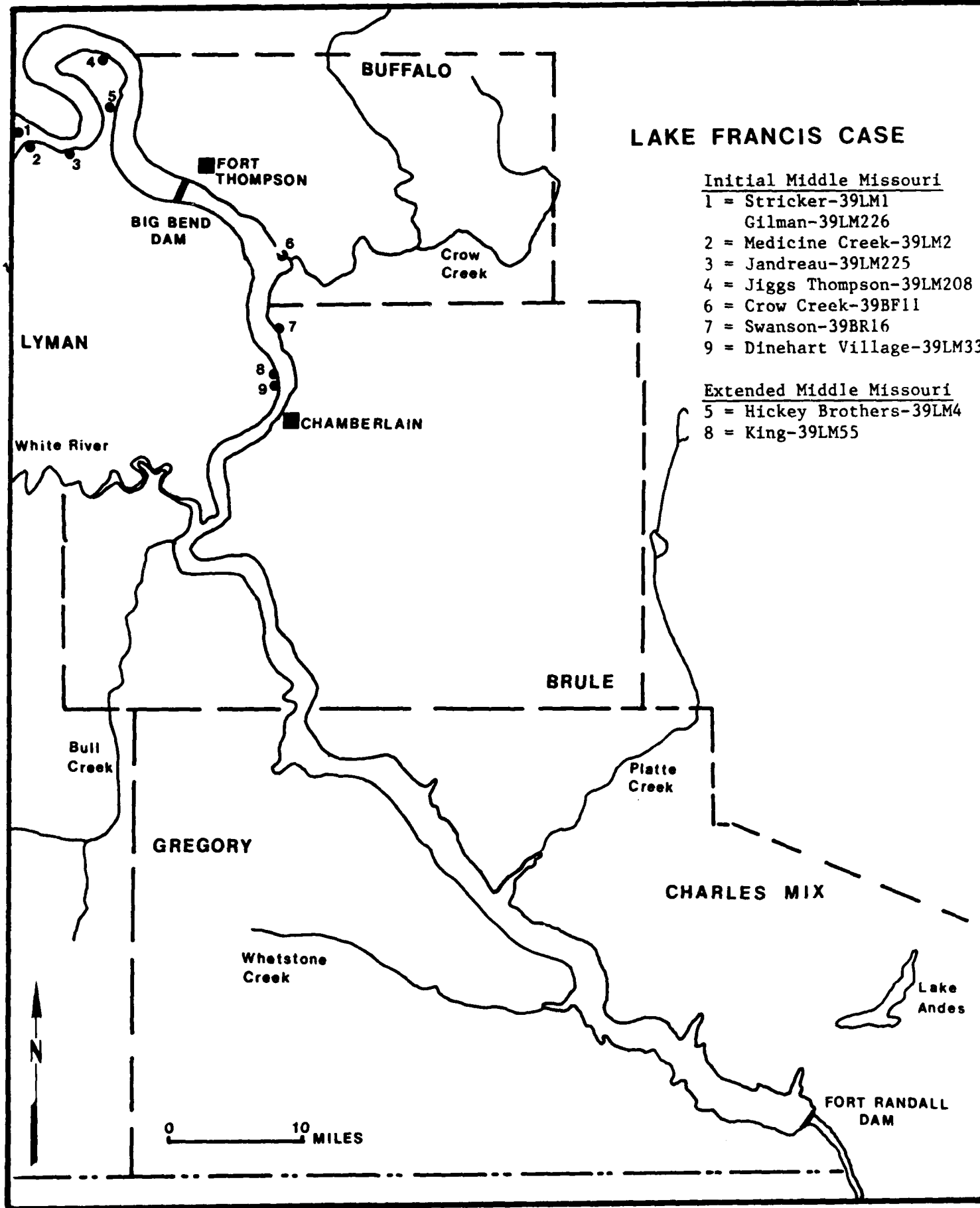


Figure 3. Map showing the distribution of Initial Middle Missouri and Extended Middle Missouri components in the project area.

The Extended Coalescent variant is represented by the Shannon phase at the Stricker (39LM1) and Spain sites, and by the La Roche focus of the Chouteau aspect at the Scalp Creek site. The Shannon phase is also represented at the Clarkstown site and Deerfly site (39LM39). Figure 4 shows the distribution of some of the Extended Coalescent sites within the project area.

After A.D. 1675 the village cultures formed transitional groups, known collectively as the Post-Contact Coalescent variant peoples, with which historically known tribes can be equated. The period associated with the Post-Contact Coalescent peoples begins with the inception of European influence in North America (Lehmer 1971:131), and ends with the smallpox epidemic of 1780 which disrupted the village tribes (Lehmer 1971:163).

Historic Dakota and Euro-American Occupation

The origins of the Dakota are not well understood since anthropologists have had little concrete data to examine. Based on linguistic evidence, the earliest entrance onto the Plains for the Dakota is calculated at about A.D. 1500. Lees (1985) and Lees, Brown and Mandel (1985) provide the most relevant summaries:

Prior to white contact, the Dakota were Woodland Indians occupying the southern two-thirds of present-day Minnesota and adjacent areas of the surrounding states...and were divided into seven bands. The Teton band...is the largest division, and consists of seven sub-bands including the Hunkpapa, Minniconjou, Blackfoot...Two Kettle, Sans Arc, Brule, and Oglala.

By about 1660 some of the Dakota, probably the Teton band, began moving southwestward as the result of pressure from other Indian groups and because of the abundance of bison on the prairies (Robinson 1904:20). According to Schusky (1975:14), the Teton "probably did not occupy the Missouri Valley continuously much before 1750"...By 1800, the White River was the main area occupied by the Brule [Lees, Brown and Mandel 1985:41].

In the first decades of the nineteenth century, the Dakota maintained a nomadic lifestyle with an economy based in large part on the pursuit of bison and with relatively insignificant Euro-American contacts. By 1820, however, an increasing demand for bison products drew the Dakota into the fur trade

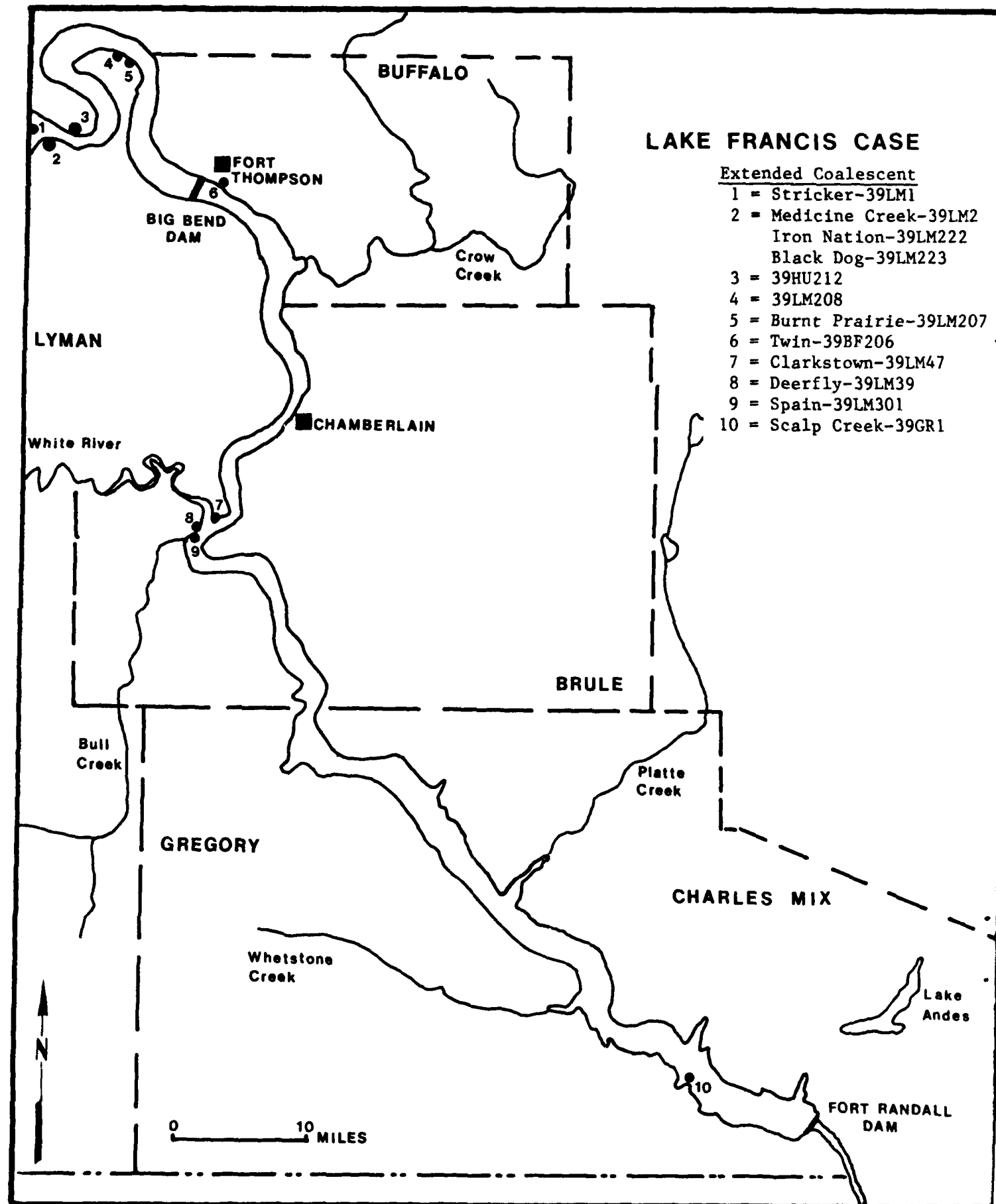


Figure 4. Map showing the distribution of selected Extended Coalescent sites in the project area.

which they came to dominate by 1840....During the last half of the nineteenth century, the Middle Missouri region was characterized by the establishment of a strong military presence and an ever-changing system of reservations. In 1868, the Treaty of Laramie resulted in the creation of a large reservation on the west bank of the Missouri for several Plains Dakota groups. Within this vast area, known as the "Great Sioux Reservation," the Lower Brule were assigned lands at the mouth of the White River (Scheel 1975:69-72; Schusky 1975:59)....In 1889, the Great Sioux Reservation was dissolved and was replaced with several smaller reservations interspersed among vast areas of ceded land. The Deerfly site is located on one of these areas of ceded lands [Lees 1985:104-106].

After 1780 the Middle Missouri villagers were subjected to increasing pressures from nomadic horse-mounted groups, especially the Dakota, as well as from white settlers arriving in the valley. "The 19th-century accounts leave no doubt that the Dakota were a constantly increasing danger" (Lehmer 1971:177). During the nineteenth century the United States Government became an increasingly important factor in the Middle Missouri valley. "The affairs of the village tribes were dealt with directly by the Upper Missouri Agency after it was established in 1819" (Lehmer 1971:178).

Euro-American settlement of the area began largely after the Civil War in 1868 when military posts, which provided protection from the Indians, were re-established (Chittick 1973:91). There were three boom periods in South Dakota but the third boom, from 1889 to 1910, was primarily represented by settlement and population increase west of the Missouri River. Both Oacoma and (Old) Lyman, in Lyman County, were established in 1890. Oacoma absorbed Old Lyman in 1893 when the Chicago, Milwaukee and St. Paul Railroad was built, but since 1922 has been in decline. The drought and worsened economy in the 1930s had far-reaching effects on the area. The drought, in part, motivated the construction of the large dams along the Missouri River, inundating much of the area and forcing the abandonment of a number of historic structures.

Previous Work at Site 39GR53

This site was first recorded on August 1, 1983, by a survey team from the Museum of Anthropology, University of Kansas (Lees, Brown and Mandel 1985:Vol. I, 96-97; and Vol. II). At that time a multi-component site with pre-historic and historic components was exposed. The site extended for over 400 meters along the shore of Lake Francis Case in Whetstone Bay (Plates 1 and 2). No materials were observed in situ, and extensive shovel testing inland from the lake shore failed to reveal any additional cultural materials.

Based on the presence of relatively thin sand/grit-tempered bodysherds which exhibited cord-marking, and the lack of simple stamped sherds, the site is postulated to relate to the Initial Middle Missouri tradition; it may also be associated with the Great Oasis complex. A variety of lithic materials were also observed. Historic materials included ceramic, glass and metal artifacts, with diagnostic ceramic wares suggesting a nineteenth century to early twentieth century occupation(s) at the site. The potential exists, therefore, that the site is associated with the Whetstone Indian Agency, located nearby between 1868 and 1872. The site may also have seen later occupation.

The conclusions reached by the survey team were: 1) that the observed material once formed the northern periphery of a now largely inundated site; or 2) that the site is totally inundated and the observed materials were washed to shore by wave action; or 3) that cultural deposits exist above the shore but are buried deeper than could be revealed through shovel testing.

1986 Testing at Site 39GR53

The testing of this site took place on June 22, 1986 (Plate 3). The field crew consisted of Peter Winham (Director) and Melinda Ritter. The site area was relocated using the maps prepared in 1983 (Lees, Brown and Mandel 1985). However, the level of Lake Francis Case at this time was 1361.0 feet amsl, as opposed to a level of only 1355 feet amsl (413 meters) in 1983. This 6 foot difference in the lake level meant that the "shoreline" that contained the cultural material identified in 1983 (Plate 2) was inundated.



Plate 1. Aerial photograph of the Bozarth site, 39GR53, facing west (Omaha District, Corps of Engineers Archive Photograph, KU 1983).



Plate 2. Shoreline at the Bozarth site (39GR53) in 1983, facing east (Omaha District, Corps of Engineers Archive Photograph, KU 1983).



Plate 3. Overview of testing the inland extent of site 39CR53, facing NNE. Backhoe at Trench #3; vehicle at temporary datum.

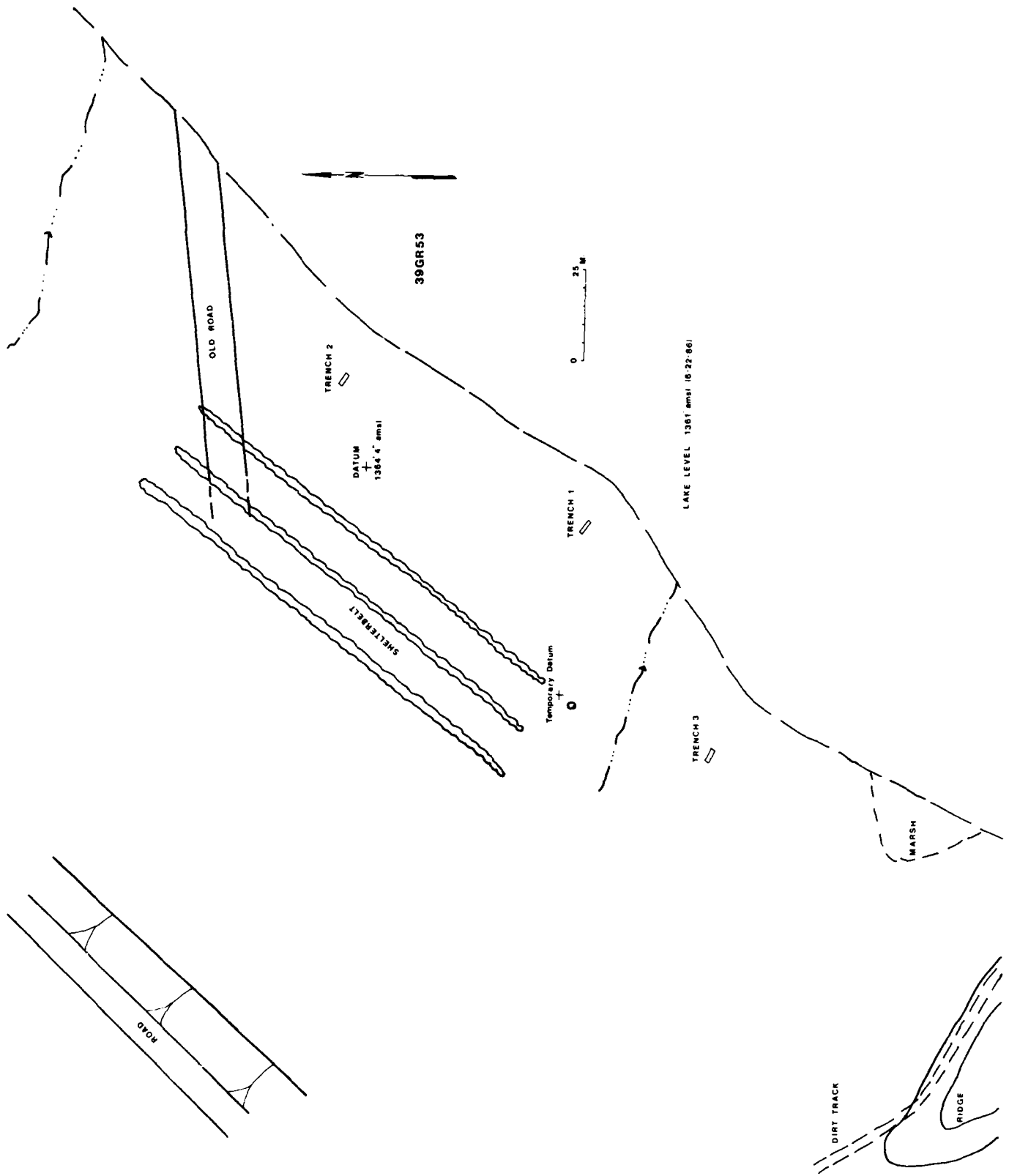


Figure 5. Plan of area tested near site 39GR53.

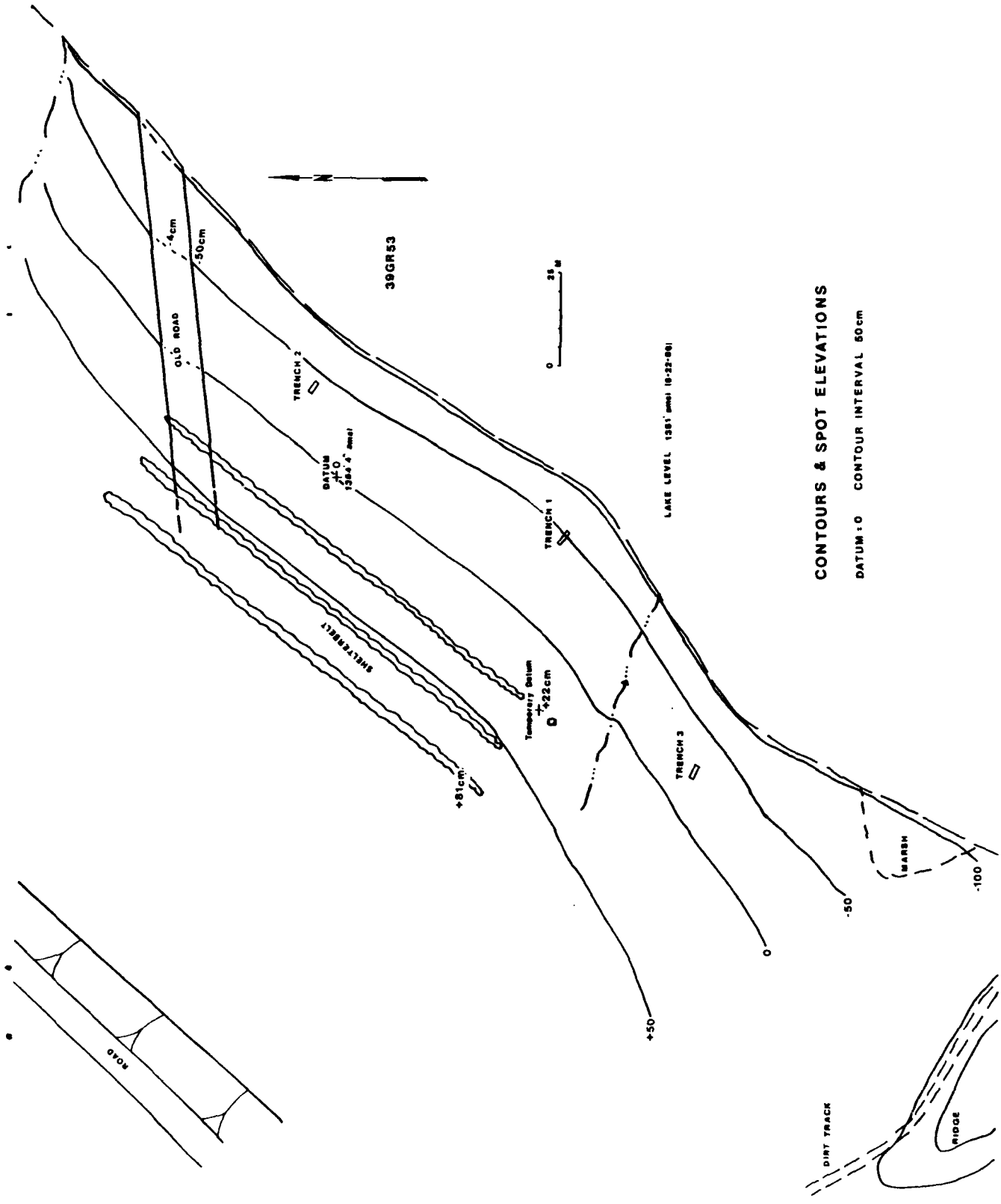


Figure 6. Plan of area tested near site 39GR53, showing contours and spot elevations.



Plate 4. Unloading backhoe for testing site 39CR53.

39GR53 - PROFILES

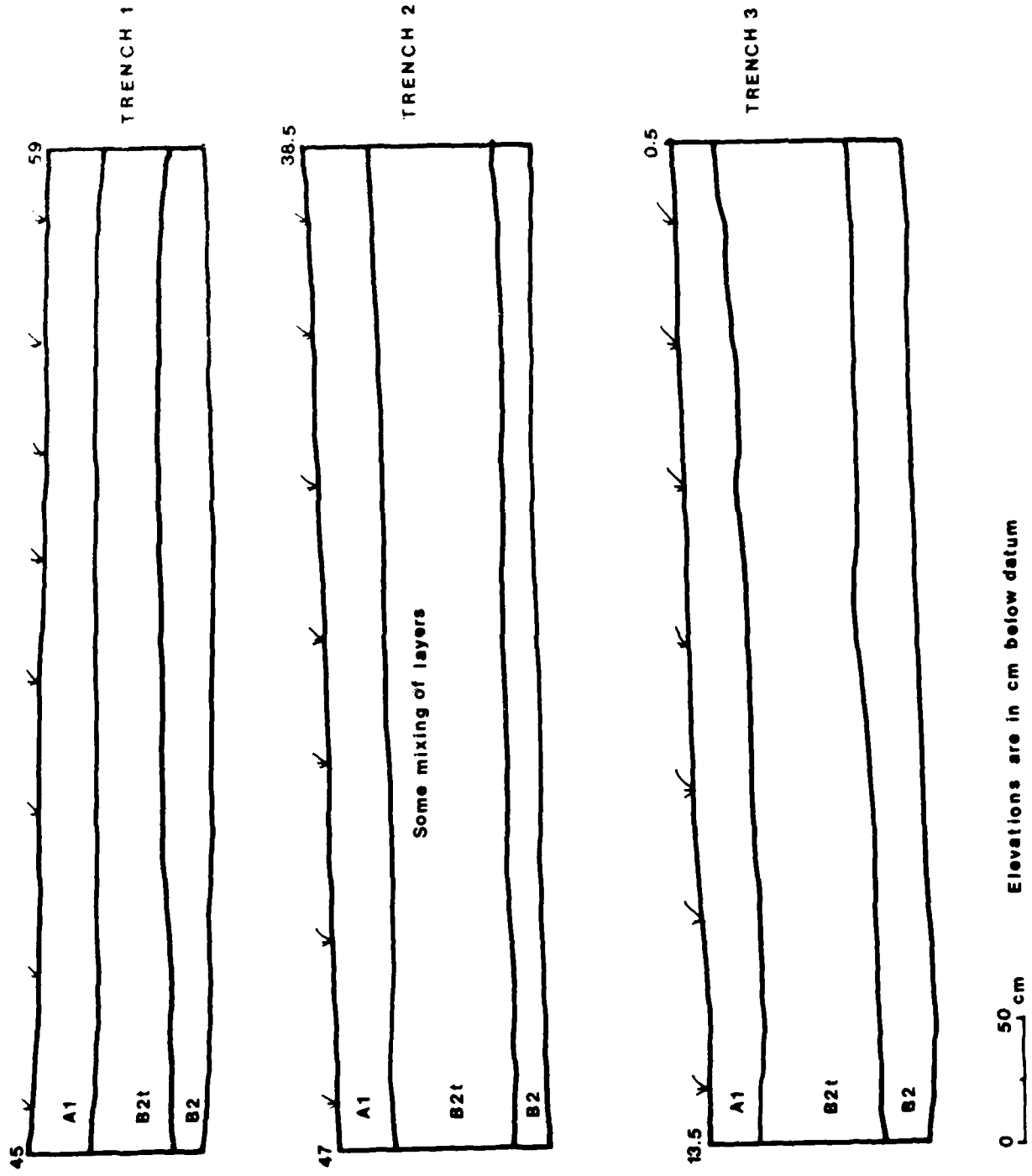


Figure 7. Southwest-facing profiles, Trenches 1 - 3, 39GR53.

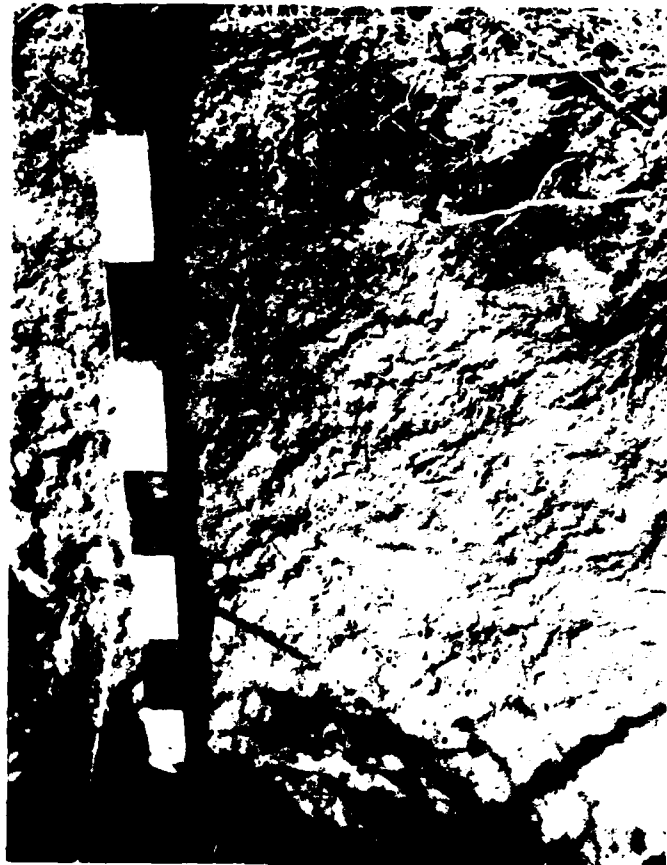


Plate 5. 39GR53, southwest-facing profile, Trench #1.

to moderate fine granular; hard, firm, sticky and plastic; weak effervescence; gradual smooth boundary.

- B2t 25-60cm Dark gray (2.5Y 4/1 dry), dark grayish-brown (2.5Y 4/1 moist) silty clay; weak, very coarse prismatic structure parting to moderate, medium and coarse blocky; extremely hard, very firm, very sticky and very plastic; shiny pressure faces on peds; common fine and medium tongues of A1 horizon; strong effervescence; gradual wavy boundary.
- B2 60-70cm Dark gray clay, colors similar to B2t horizon; massive structure, extremely hard, very firm, very sticky and very plastic; strong effervescence.

The entire profile was calcareous, although the A1 horizon had less effervescence than the B2t and B2 horizons. The evidence of uninterrupted soil development is the slight leaching of the A1 and the slight migration of clay from the A1 to B2t horizons.

A second trench was then excavated to the north of the first trench (Figure 5, Trench 2). A similar procedure was followed in its excavation, and the trench was taken down to 85cm b.s. The profile (Plate 6) was similar to that of Trench 1, except that the A1 horizon had been leached of free carbonates. There was also indication of pedoturbation or mixing by animals of lighter-colored, lower-lying materials with the darker-colored material from near the surface. This appeared to be a natural mixing and was not interrupted by human activity.

A third trench was excavated to the south of the first (Figure 5, Trench 3) to a depth of 90cm b.s. Again no cultural material or indication of human activity were present in the profile (Plate 7). All three trenches were then backfilled.

In discussions with Dr. Westin it was clear that the trenches revealed no evidence of human occupation, and the total lack of any cultural material further supports this observation. The trench profile revealed that soil was being redeposited through slope wash onto the bench from the uplands to the northwest. The trench depth was adequate to expose subsurface soil horizons which were evaluated to predate the occupations previously recorded at site 39GR53.



Plate 6. 39GR53, southwest-facing profile, Trench #2.



Plate 7. 39GR53, southwest-facing profile, Trench #3.

It is concluded that site 39GR53 is entirely inundated and does not meet the criteria for eligibility for nomination to the National Register of Historic Places. This conclusion is based on several factors previously discussed, which are summarized below:

- 1) The previous survey (1983) located material only on the exposed lake side beach area.
- 2) Previous extensive shovel testing (1983) inland of the beach area revealed no cultural material.
- 3) The profiles exposed in the current test trenches provided no evidence of subsurface cultural disturbances.
- 4) No cultural material was recovered from the 1986 excavations or noted during the surface survey of the potential site area.
- 5) Soil development was interpreted as requiring several hundred years - suggesting that the previous shovel testing should have located buried material if it existed.
- 6) The lake level at the time of the current survey was above the area of the previously recorded site and shovel testing.

Analysis and Evaluation of Site 39GR53

The report on the 1983 survey of this site concluded that:

Considering the large extent of this site along the shore and its relatively high density, we conclude that either the observed materials were once the northern periphery of a now largely inundated site, that the site is totally inundated and the observed materials were washed to shore by wave action, or cultural deposits exist above the shore but are buried deeper than could be revealed through shovel testing [Lees, Brown and Mandel 1985:96].

Because of the high lake level in 1986, the area tested was by necessity above the north/northwesterly limit of the site, as investigated in 1983. The total lack of prehistoric cultural material and/or indicators of subsurface cultural disturbances within the exposed soil profiles, coupled with the fact that the age of the soils some 40-50cm below the surface would be older than the recorded site, strongly suggest that the site does not extend this far inland. Whether the site recorded in 1983 was the northerly limit of "in situ" deposits or whether the deposits were washed in to the shore from a totally inundated site, cannot be determined by this evaluation. Regardless of

the circumstances, it is unlikely that any significant cultural deposits exist, and any that might have existed would have been inundated in 1986.

The 1986 soils evaluation suggests that the extensive shovel testing undertaken in 1983 probed to a subsurface depth adequate to reveal cultural deposits if they had existed at this site. It is concluded that the site is totally inundated and is not eligible for nomination to the National Register of Historic Places. No further work is recommended.

Previous Work at Site 39GR32

A survey team from the Museum of Anthropology, University of Kansas, first recorded site 39GR32 on July 24, 1983 (Lees, Brown and Mandel 1985:Vol. I, 66-67, 119-127; and Vol. II). At that time three concentrations of human bone were observed protruding from a high, actively eroding cutbank.

This site was evaluated to be a prehistoric or protohistoric cemetery having an estimated minimum size of 15m x 80m, and a maximum observed depth of 65cm. Between August 2 and 6, 1983 salvage excavations of two of the exposed burials were undertaken. The minimal remains of the third burial had been removed earlier; it had been located at a depth of 48cm below the surface and probably represented a single secondary burial.

Bone concentration/Burial 1 was situated 56cm below the surface and consisted of a cranium resting on a long bone in a fashion suggestive of a secondary burial. No burial pit was observed.

Bone concentration/Burial 2 represented the remains of at least three, and possibly four, individuals which were confused by intermixing. Close examination revealed two pits, one of which intruded into the other, with a third pit to the north. Human remains also occurred at a location above and between these three pits. Observations of the association of the bones and pit features at this location indicate that three to four individuals were present and that the interments were probably secondary bundle burials.

No cultural artifacts were located during the 1983 investigation of 39GR32. An association with the nearby Scalp Creek Village site is possible, but was neither supported nor refuted by the findings.

1986 Testing at Site 39GR32

Site 39GR32 was tested on July 18 and July 19, 1986 by Peter Winham (Director), Peter Froelich, Kurt Watzek and Melinda Ritter. Access to the site was accomplished by boat from the South Scalp Creek boat ramp.

Initial work consisted of an intensive pedestrian survey of the site area (Plate 8). Specifically, the cutbank was examined for possible eroding burials and to evaluate the development sequence for



Plate 8. View towards Scalp Creek Cemetery location, 39GR32, facing NE.

the A-B soil horizons at the site. The shoreline was inspected for any cultural material, the surface of the knoll/site was inspected for any features or cultural material, and an attempt was made to relocate the 1983 datum. Only one badly eroded bone fragment (unidentifiable) was noted along the shore, southwest of the knoll. Surface visibility averaged 25 percent, except along the shore (and cutbanks) where visibility was 100 percent. Visibility was also 100 percent in some more extensively eroded areas on the knoll.

The 1983 site map (Figure 8) had shown the datum to be at least 12 meters from the cutbank. The map also indicated the location of three juniper trees. The 1986 crew did relocate the datum, but it was now located within 2 meters of the cutbank! Clearly extensive cutbank erosion had taken place since 1983.

The 1983 datum position was used to establish the 1986 datum, and the current edge of the knoll and the juniper trees were plotted onto a site map. The locations of the soil cores and shovel tests were plotted, with the 1983 map data being superimposed onto the 1986 map (Figure 9).

Photographs of the current cutbank were taken for documentation purposes (Plates 9 and 10). These preliminary activities were followed by the actual testing procedures. The site datum was situated at the highest point of the knoll. The testing design for the site (Appendix 8) called for a series of 3-inch diameter soil core samples to be extracted in an intensive pattern across what remained of the knoll top. The rationale guiding this approach was based on the premise that prehistorically, as today, burials were often placed on high points.

Rather than implementing a grid system, a series of positions radiating in a circular configuration from the datum were cored. These points were placed at one meter intervals along five lines, each 10 meters in length, which were oriented at 270°, 240°, 210°, 180° and 150°, resulting in a total of 50 core probes (Figure 9).

Each core was excavated through the loess/sod level and into the subsoil, a clay rich in calcium carbonates. Usually the subsoil was no more than 20-30cm below the surface, although along lines 270°, 240° and 210°, cores were generally taken to a depth of 50cm and several were taken to 75cm as an additional confirmation of sterile deposits.

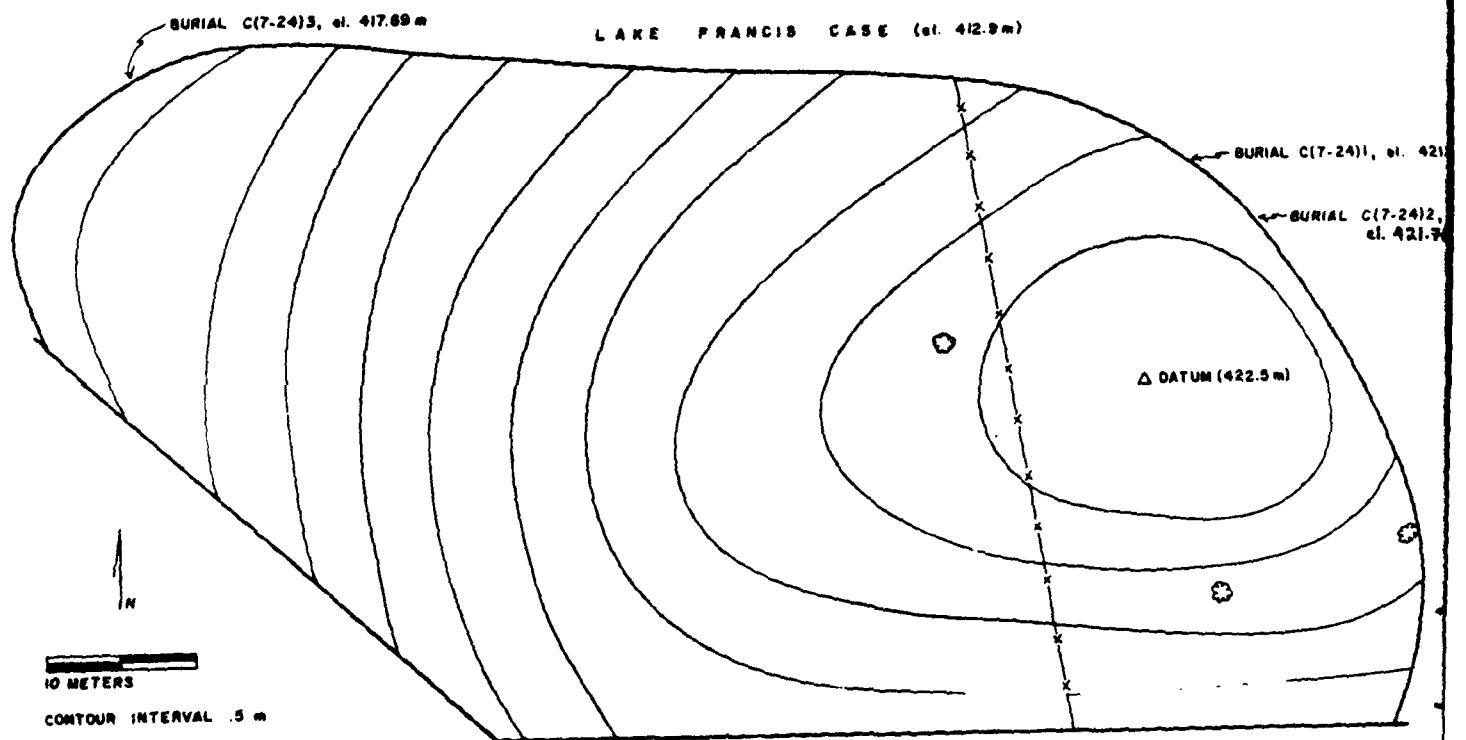


Figure 8. 1983 measured topographic map of the Scalp Creek Cemetery site, 39GR32 (from Lees, Brown and Mandel 1985:Fig. 23).

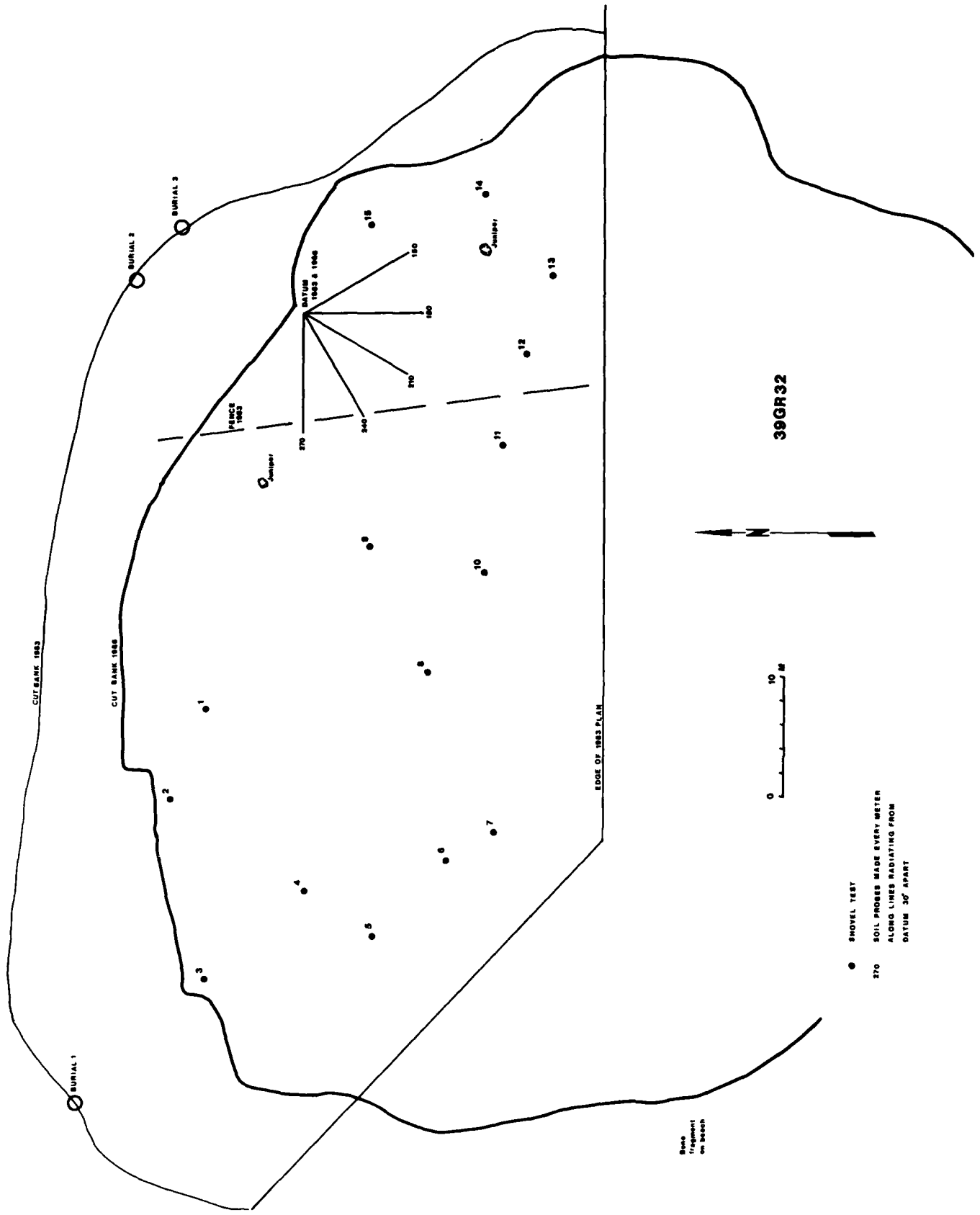


Figure 9. Plan of the area tested at the Scalp Creek Cemetery site (39GR32) in 1986, with the 1983



Plate 9. North and west-facing cutbank exposures at 39GR32.



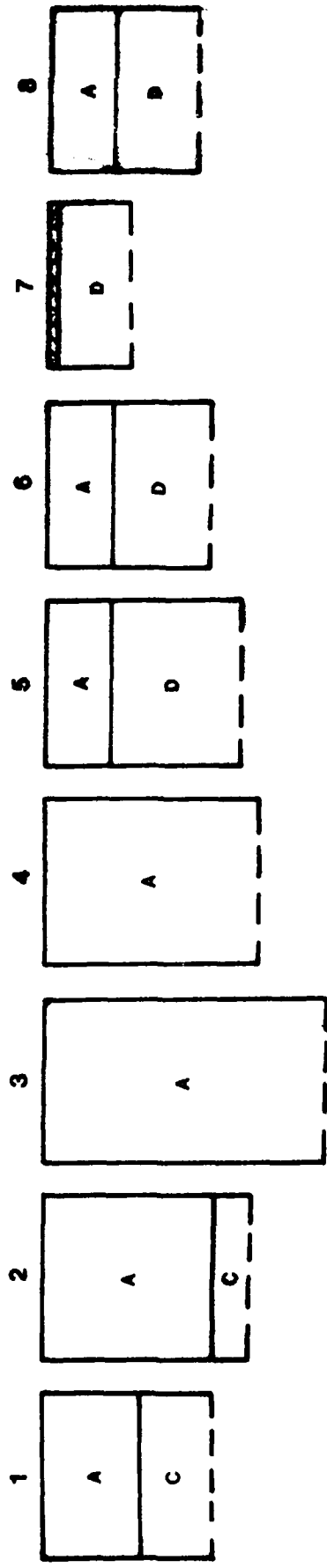
Plate 10. East-facing cutbank exposure at 39GR32.

All of the sediment from the core samples was passed through $\frac{1}{4}$ " mesh hardware cloth. No cultural material was present and in none of the cores was the loess deposit found to be greater than 30cm in thickness. Table 1 shows the depths of the soil cores taken.

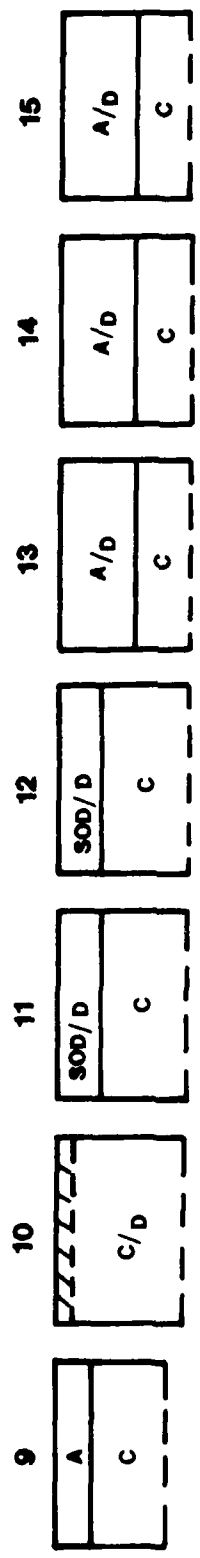
Table 1. Depths of Cores Along Lines Radiating From the Site Datum (39GR32).

CORE #	LINE				
	270°	240°	210°	180°	150°
1	78	68	39	34	35
2	67	61	35	23	26
3	72	68	54	30	26
4	48	67	53	39	31
5	67	65	62	34	39
6	64	68	63	30	24
7	59	52	47	22	29
8	55	53	42	25	27
9	55	68	59	23	20
10	62	45	47	26	25

The evidence strongly suggested that the substrate containing cultural materials was totally removed through erosion, but as a final check a series of 15 shovel tests were placed judgmentally over the knoll slopes (Figures 9 and 10). These tests included areas of apparent depressions, but the excavations indicated most were the result of differential vegetation growth, old animal burrows and/or possible subsurface slumping. These tests all proved negative. The upper layer was almost always a dark gray loess or sod layer with a maximum depth of 30cm, except in Tests 2, 3 and 4 (Figure 10) where the loess reached 85cm in depth. However, inspection of the cutbank in the vicinity of Tests 2-4 suggested that a natural depression accounted for the greater loess depth (Plate 9). Below the loess was either a calcium carbonated clay deposit and/or a clay deposit, sometimes friable, that did not



SHOVEL TESTS



39GR32 PROFILES

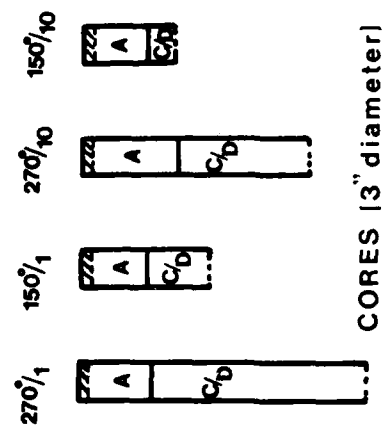


Figure 10. North wall profiles in shovel tests 1 - 15, 39GR32, and representative core profiles.

contain visible calcium carbonates. Table 2 summarizes the shovel tests conducted at the site.

Table 2. Shovel Tests - Depths and Profile Descriptions (39GR32).

PROFILE KEY: A = Dark gray loess; C = Clay with dense calcium carbonate deposits; D = Clay

TEST #	DEPTH (cm)	PROFILE (see Figure 10)
1	52	A 0-30cm, C 30-52+cm
2	63	A 0-62cm, C 62-63+cm
3	85	A 0-85+cm
4	65	A 0-65+cm
5	60	A 0-20cm, D 20-60+cm
6	50	A 0-20cm, D 20-50+cm
7	25	SOD 0-03cm, D 3-25+cm
8	45	A 0-20cm, D 20-45+cm
9	30	A 0-10cm, C 10-30+cm
10	35	Sod grading into friable clay 0-35+cm
11	35	SOD/D 0-12cm, C 12-35+cm
12	35	SOD/D 0-12cm, C 12-35+cm
13	35	A/D 0-20cm,* C 20-35+cm
14	35	A/D 0-20cm,* C 20-35+cm
15	35	A/D 0-20cm,* C 20-35+cm

* = with red oxide inclusions

The total lack of any cultural features or cultural material recorded by the current investigations, coupled with the documentation of extensive erosion of the cutbank occurring since 1983, suggest the integrity of the site has been destroyed. Lacking any further research potential, site 39GR32 does not meet the criteria to be eligible for nomination to the National Register of Historic Places.

Analysis and Evaluation of Site 39GR32

Based on the 1986 evaluations accomplished at 39GR32 it was possible to accurately document the fact that, since 1983, lake erosion has removed 11m from the site of Burial 3, 12m from Burial 2 and 13m from Burial 1 (Figure 9).

The total lack of cultural material or features noted during this survey, despite the intensive coring conducted at the highest point of the site immediately inland from the previously recorded locations of Burials 2 and 3, suggests the site has been totally eroded away. No further work is recommended.

Previous Work at Site 39LM33

The complex history of this site, a condition arising in part from the assignment of several different site numbers, has been reported by Winham and Lueck (1984:98-99). The site was initially recorded by W.H. Over in 1918 as the Dinehart Village (39LM33) (Sigstad and Sigstad 1973:149). The Dinehart Village site, as described by Over, is thought to have encompassed three sites, currently designated as 39LM55 (King site), 39LM33 (Dinehart Village site) and 39LM34 (Mallory site).

W.H. Over recorded the initial excavations undertaken at 39LM33. "On the edge of the terrace southeast of Marshall Dinehart's residence, we dug into what we supposed to be a refuse heap, and about 12 inches below the surface we found four skeletons, all badly decayed and the bones so intermingled that it was impossible to accurately separate them" (Sigstad and Sigstad 1973:152).

The site was mapped on June 26, 1953 (Figure 11), and test excavations were conducted by a team led by C.S. Smith of the University of Kansas, Museum of Natural History. A copy of the 1953 field report by Roger Grange, Jr. is presented in Appendix 9. Six "Test Trenches" were excavated at the site (Figure 11), three of which (Trenches 2, 3 and 6) were located in two house depressions (Figure 11, House 2). No evidence of prehistoric occupation was noted in Trenches 1 and 4, but the excavations in these units were shallow, reaching a maximum depth of 16 inches below the surface. Historic artifacts including tin, bolts and bricks were located in Trench 4, and an informant indicated this had been the site of an old house on the Dinehart Ranch. In Trench 5 three cache pits and a portion of Over's test unit were located.

The field map (Figure 11) shows five features (three round and two ovoid) suspected to be house depressions. This site was reexamined and further excavated by Paul L. Cooper of the Smithsonian Institution-River Basin Surveys (SI-RBS) program between August 26 and September 16, 1954. One house, not tested [and unmapped?] by Smith's crew in 1953, was completely excavated and four other test pits examined. All excavations were backfilled.

Two of Cooper's test excavation units were placed in an area north of the fence where the 1953 map showed a depression. No depression or

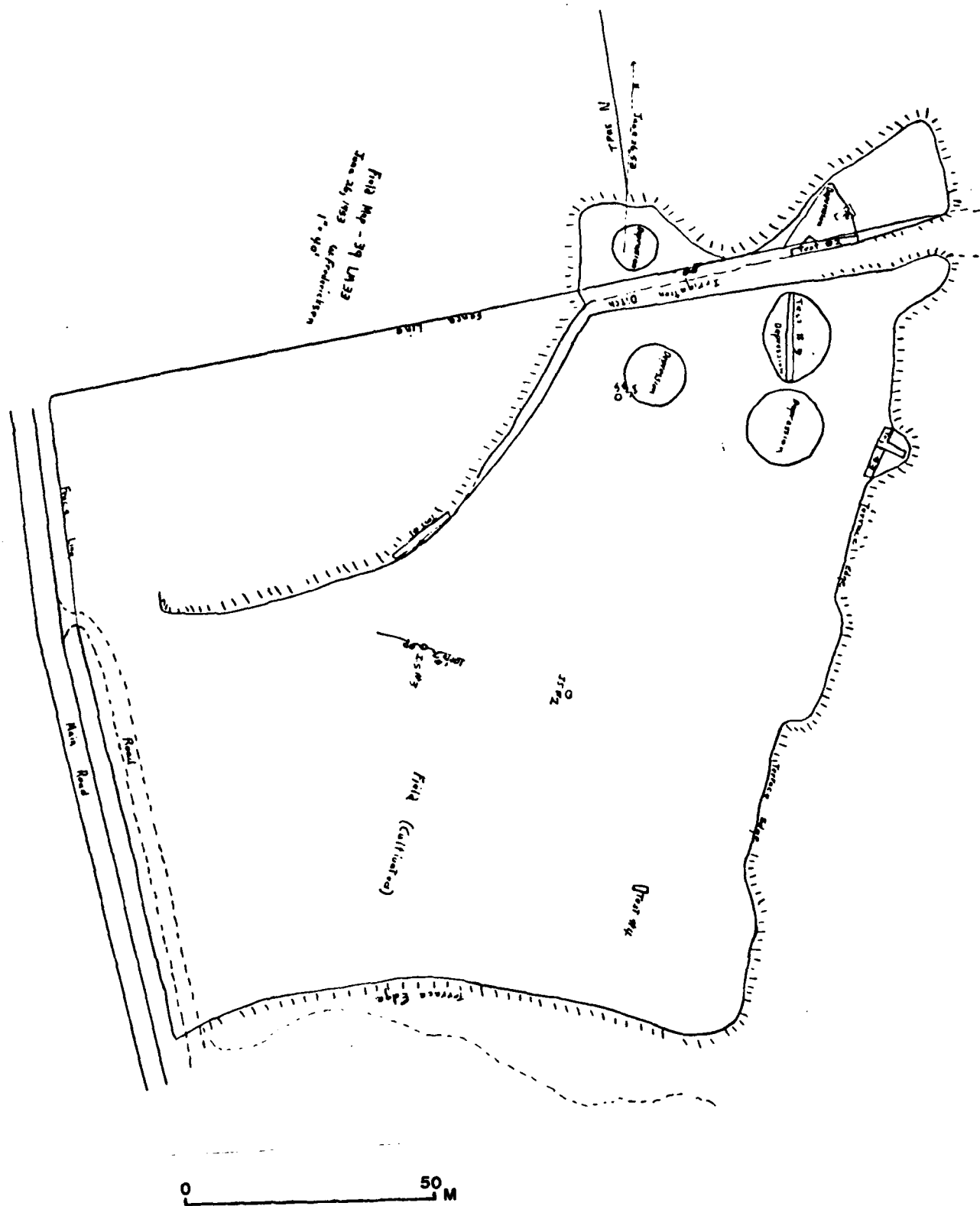


Figure 11. Reproduction of the 1953 site map of 39LM33.

vegetation contrast was observed at this time and the test units produced negative results. One excavation unit (Feature No. 30) was 3.5' x 3.5' x 2.2' deep and the other excavation unit (Feature No. 31) was 3.5' x 4.0' x 2.3' deep.

Two other test units were excavated in areas of depressions in the alfalfa field, but no occupational evidence was found. One of these units (Feature 34) was excavated to 2.4' b.s. while the other unit (Feature 35) was 3.0' x 3.0' x 2.0' deep.

No map documenting the exact location of the 1954 excavations has yet been found in the archives, although it appears such a map may exist. In the SI-RBS field notes the following description occurs, presumably relating to the smaller test excavation: "our excavations, near the corners of Smith's Tests #2 & #5, & fence line on N side of field located on map" (Page R7).

The field notes from 1953 and 1954 provide some plans of the general excavation areas, and plans and profiles of features. Specimen catalog sheets, including some analyses/identification of the bone and ceramics, have also been compiled. No overall plan of the house that was completely excavated in 1954 has been located, but there are photographs of the 1953 and 1954 work (see Appendix 10). The results of the 1953 and 1954 work have never been finalized, but the data do show a small rectangular earthlodge village of the Initial Middle Missouri tradition, apparently unfortified.

Since the 1954 excavations, no additional on-site work had been undertaken prior to the 1983 survey by ALCWS. However, the site has been referenced and discussed in several reports (see references in Winham and Lueck 1984:99 and below), with Johnson (1979:158) noting the recorded presence of Extended Middle Missouri Riggs and Fort Yates rims at the site. The 1983 survey essentially confirmed the presence of the site, noting material exposed in the actively eroding portion of the cutbank at 20-35cm and 60-75cm below the surface. On the terrace itself two areas of cultural material were located on the surface.

1986 Testing at Site 39LM33

The testing of site 39LM33 was accomplished between June 23 and June 24, 1986. The field crew consisted of Peter Winham (Director) and

Melinda Ritter; Dr. Frederick Westin served as soil scientist and Bill Lee operated the backhoe.

Several data recovery techniques were implemented at 39LM33, which included:

- 1) general reconnaissance and intensive pedestrian survey of the site area;
- 2) detailed mapping of the site and extant features (Figures 12 and 13);
- 3) detailed inspection of the cutbank;
- 4) relating the previous excavations to the present site circumstance;
- 5) soil coring (3-inch diameter cores); and
- 6) selective collection of exposed cultural materials and complete collection of cultural material recovered from coring/screening (Appendix 6).

Shovel testing and formal 1m x 1m testing were not undertaken as the above evaluations were sufficient to substantiate the site's integrity and significance, as detailed below.

The general site reconnaissance in 1986 indicated little apparent alteration had occurred since the 1983 survey, although no cultural material was noted on the surface during an intensive pedestrian survey of the site area. Surface visibility averaged 35 percent, with several areas and some vehicle tracks providing 75 percent surface visibility.

Some depressions were still visible in the locations mapped by the 1953 University of Kansas team. The site is within a zone of cultivation related to an old alfalfa field currently positioned on a bench or terrace 1-2 meters above the water (Plates 11 and 12). Subsurface coring documented the evidence of a plowzone in the soil profile. The soil material in general appeared to be a calcareous coarse silt (loess) wind-blown to its present position from the Missouri River bottomland before the inundation by the reservoir water.

A mapping station was established over an 18" rebar stake set nearly flush with the ground surface and flanked by two 1" x 2" wooden stakes. Sightings to other permanent markers on the site were

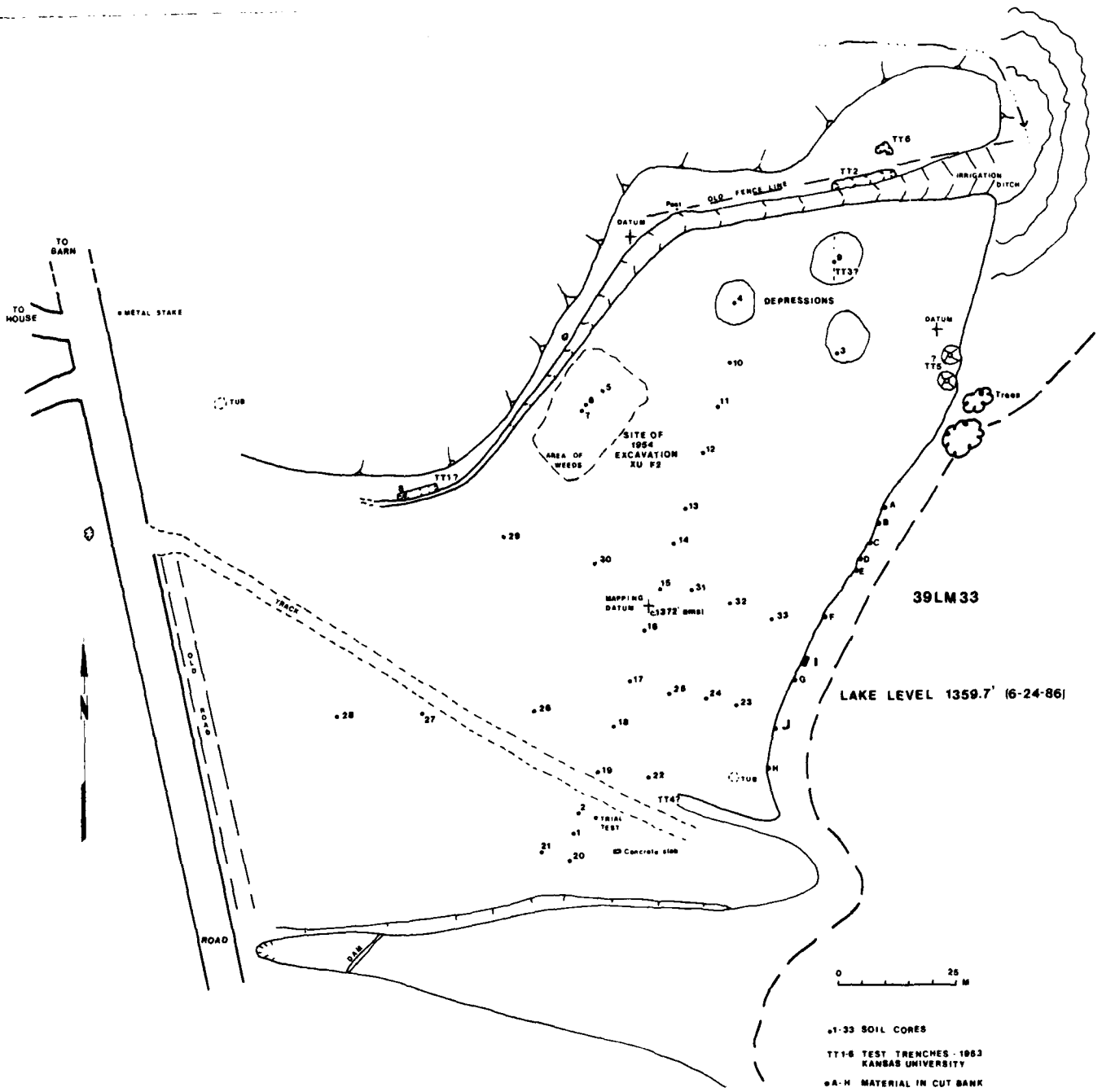


Figure 12. Plan of the testing and observed features at site 39LM33.

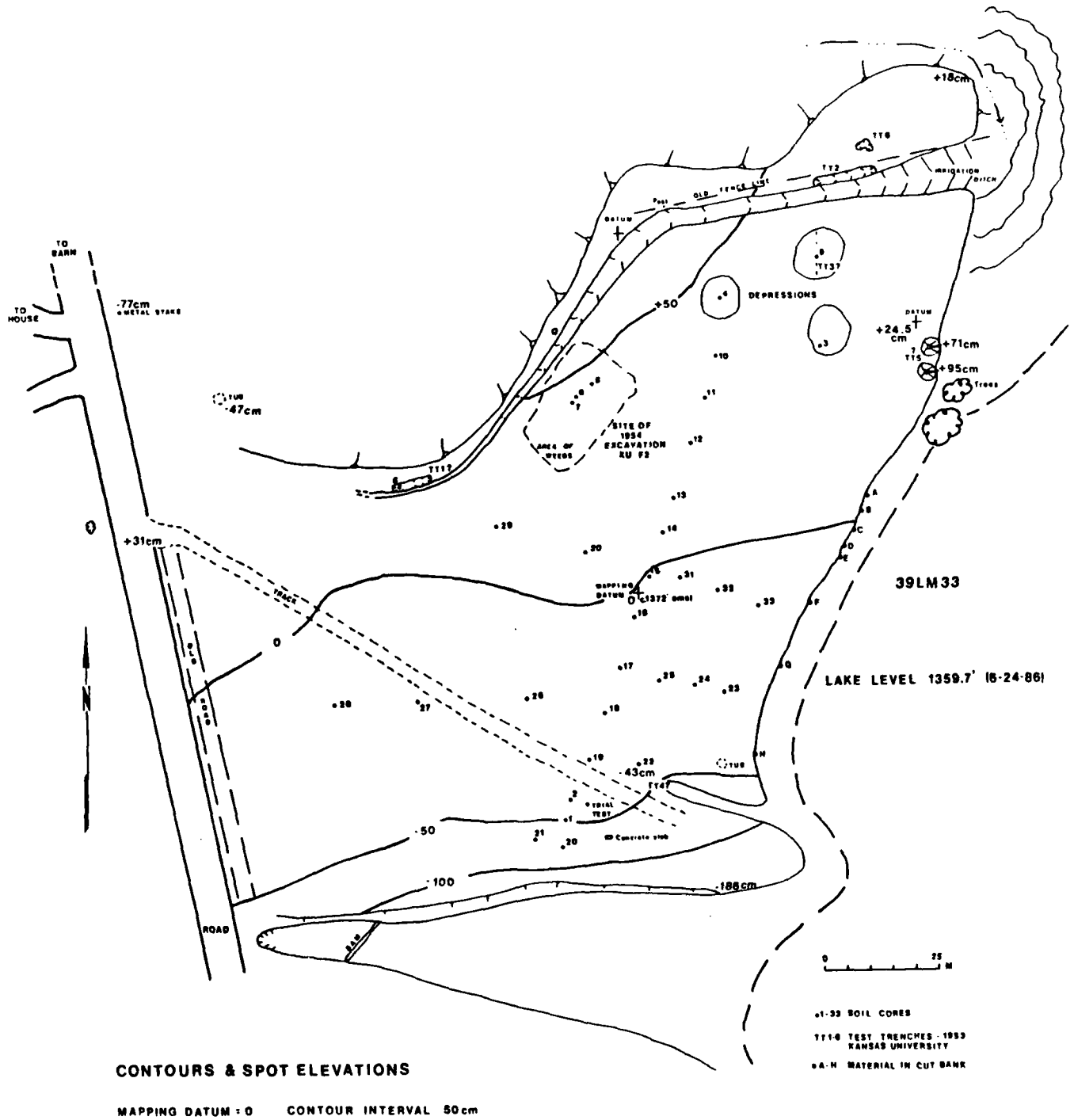


Figure 13. Plan of site 39LM33, showing contours and spot elevations.



Plate 11. View of Dinehart Village, 39LM33, facing NNE (center-right of frame).



Plate 12. View of Dinehart Village, 39LM33, facing SE (low terrace center-left of frame).

accomplished, including two metal posts set in concrete (Figure 12 - positions marked "DATUM").

A baseline for extracting soil cores was established parallel to the cutbank, with a slightly northeast to southwest orientation. This baseline was positioned to be sufficiently inland of the observed material in the cutbank to assure that coring would document the presence, or absence, of extensive cultural deposits away from the currently understood site focus. Cores were extracted approximately every ten meters along this baseline (Figure 12), avoiding any obviously disturbed areas (animal burrows). This spacing approximated the known dimensions of the visible depressions on this site. As specified in the proposal (Appendix 8), if there was no indication of extensive cultural deposits inland at this site, further testing would not be undertaken.

While the map datum and baseline were being established, the Giddings coring rig had been assembled and three initial cores were extracted to the south of the site (Figure 12 "Trial Test"; and Cores #1 and 2, Plate 13). These profiles (Figure 14) are described below.

Trial Test

- | | | |
|-----|---------|---|
| Alp | 0-20cm | Grayish-brown (10YR 5/2 dry), dark grayish-brown (10YR 4/2 moist) coarse silt to very fine sandy loam; weak fine granular structure; soft, very friable; no effervescence (noncalcareous); abrupt smooth boundary. |
| B21 | 20-50cm | Light brownish-gray (10YR 6/2 dry), dark grayish-brown (10YR 4/2 moist) coarse silt to very fine sand; weak coarse subangular blocky structure; slightly hard, very friable; slight effervescence; clear smooth boundary. |
| B22 | 50-65cm | Light brownish-gray (10YR 6/2 dry), dark grayish-brown (10YR 4/2 moist) coarse silt to very fine sand; weak subangular blocky structure; soft, very friable; moderate effervescence; clear smooth boundary. |



Plate 13. Giddings rig at Test #1, 391M33, facing SE.

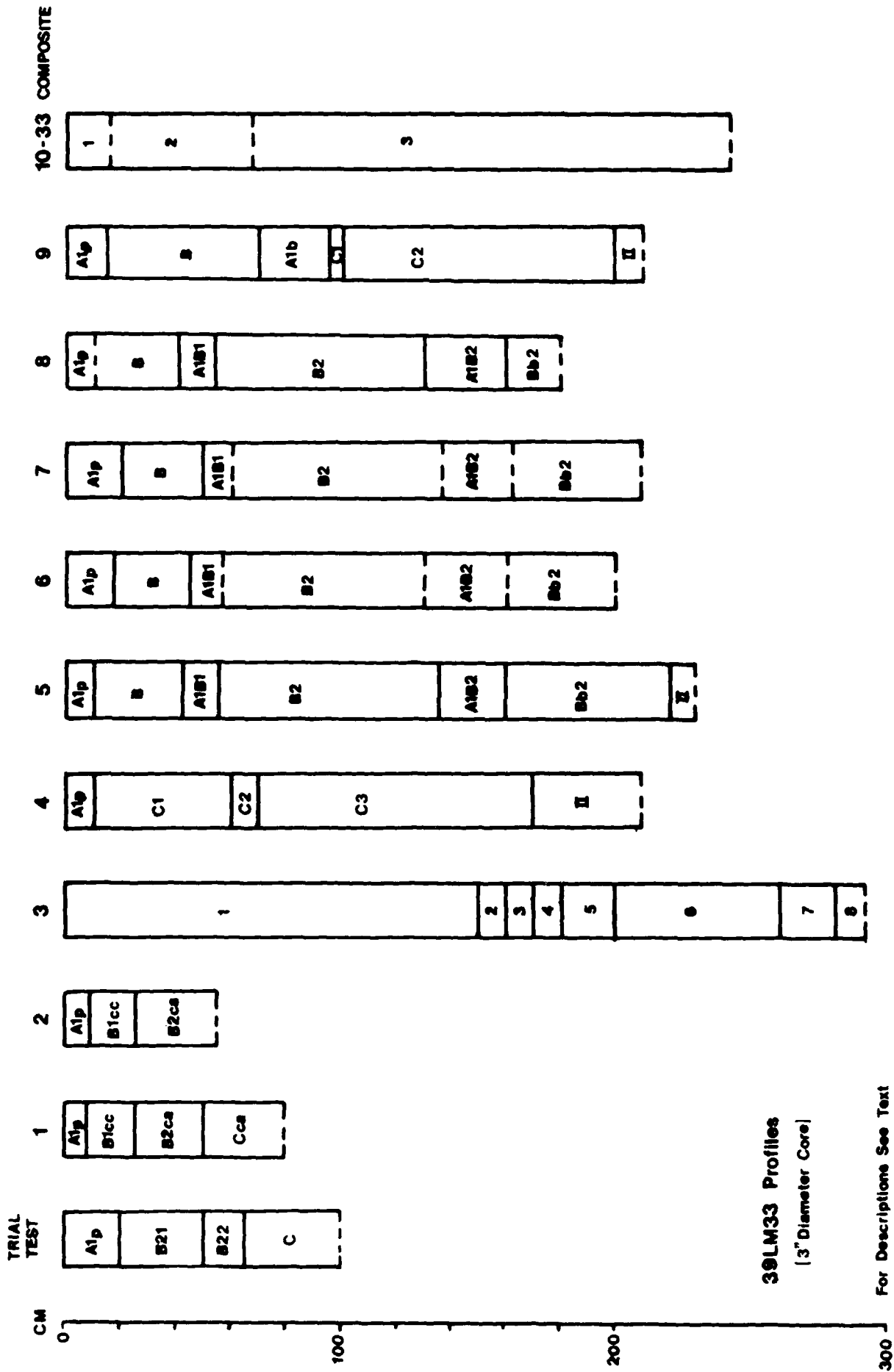


Figure 14. Soil core profiles, site 39LM33.

C 65-100cm+ Light brownish-gray (10YR 6/2 dry), grayish-brown (10YR 5/2 moist) coarse silt; massive structure; soft, very friable; strong effervescence.

Core #1 Profile

Alp 0-8cm Grayish-brown (10YR 5/2 dry), dark grayish-brown (10YR 4/2 moist) coarse silt to very fine sandy loam; weak platy structure; soft, very friable; no effervescence; abrupt smooth boundary.

Blcc 8-25cm Light brownish-gray (10YR 6/2 dry), dark grayish-brown (10YR 4/2 moist) coarse silt to fine sand; weak prismatic structure; slightly hard, very friable; moderate effervescence; clear smooth boundary.

B2ca 25-50cm Light brownish-gray (10YR 6/2 dry), dark grayish-brown (10YR 4/2 moist) very fine sand to coarse silt; weak prismatic structure; slightly hard, very friable; moderate effervescence; many soft white calcareous concretions; clear smooth boundary.

Cca 50-80cm+ Light brownish-gray (10YR 6/2 dry), grayish-brown (10YR 5/2 moist) coarse silt; massive structure; soft, very friable; strong effervescence.

Core #2 Profile

Alp 0-9cm Grayish-brown (10YR 5/2 dry), dark grayish-brown (10YR 4/2 moist) coarse silt to very fine sandy loam; weak platy structure; soft, very friable; no effervescence; abrupt smooth boundary.

Blcc 9-25cm Light brownish-gray (10YR 6/2 dry), grayish-brown (10YR 5/2 moist) coarse silt; weak prismatic structure; slightly hard, very friable; moderate effervescence; clear smooth boundary.

B2ca 25-55cm Light brownish-gray (10YR 6/2 dry), grayish-brown (10YR 5/2 moist) coarse silt; weak prismatic structure; slightly hard, very friable; moderate to strong effervescence.

The initial solid soil core profiles documented evidence of a plowzone, but did not indicate any additional subsurface disturbance by humans. The next core samples extracted (Cores 3 through 9) were collected from areas considered to represent disturbed contexts - presumed earthlodge depressions and previous excavation areas (Figure 12). Core #3 was extracted from a depression that was not considered to have been evaluated by the previous excavations at this site. This core contained charcoal at a depth of 90cm, with additional charcoal and fragmented bone recovered at 1m 80cm. At 2m 30cm b.s. additional charcoal was present. The entire soil column revealed subsurface disturbance (Plate 14). Below the fragmented bone, the soil material was finer-textured and olive in color, indicating weathered shale bedrock. The detailed profile description is given below.

Core #3 Profile

- 1 0-150cm Disturbed soil material consisting of light brownish-gray (10YR 6/2 dry), dark grayish-brown (10YR 3/2 moist) coarse silt to very fine sandy loam; massive; slightly hard, very friable; slight to moderate effervescence; abrupt boundary.
- 2 150-160cm Disturbed soil material consisting of dark gray (2.5Y 4/1 dry), very dark gray (2.5Y 3/1 moist) silty clay; massive; hard, firm, sticky and plastic; abrupt boundary.
- 3 160-170cm Disturbed soil material similar to 0-150cm layer.
- 4 170-180cm Disturbed soil material similar to 150-160cm layer.



Plate 14. Soil core from Test #3 (ground surface at top of frame; note bone cut through by core at lower end).

- | | | |
|---|-----------|--|
| 5 | 180-200cm | Disturbed soil material of light brownish-gray (10YR 6/2 dry), dark grayish-brown (10YR 3/2 moist) coarse silt to very fine sandy loam; massive; slightly hard, very friable; slight effervescence; abrupt boundary. Contains a large bone fragment. |
| 6 | 200-260cm | A continuation of the 180-200cm layer but lacking any bone fragments. |
| 7 | 260-280cm | Disturbed soil material consisting of dark gray (2.5Y 4/1 dry), very dark gray (2.5Y 3/1 moist) clay or silty clay; massive; hard, firm, sticky and plastic; slight effervescence; flecks of charcoal present; gradual irregular boundary. |
| 8 | 280+cm | Dark gray (2.5Y 4/1 dry), very dark gray (2.5Y 3/1 moist) clay shale, weakly bedded; hard, firm, sticky and plastic; moderate effervescence. |

Core #4 was placed to the west of Core #3 in a similar depression (see Figure 12). In this sample the soil was noncalcareous above 10cm, while at 60-70cm there was evidence of subsurface disturbance and charcoal and bone fragments were noted. A transition to shale occurred at 1m 70cm. The shale was high in gypsum content. A detailed description of profile #4 is presented below.

Core #4 Profile

- | | | |
|-----|---------|--|
| Alp | 0-10cm | Grayish-brown (10YR 5/2 dry), dark grayish-brown (10YR 4/2 moist) coarse silt to very fine sand; weak platy structure; soft, very friable; no effervescence; abrupt smooth boundary. |
| C1 | 10-60cm | Light brownish-gray (10YR 6/2 dry), dark grayish- |

brown (10YR 4/2 moist), coarse silt to very fine sand; massive; slightly hard, very friable; moderate effervescence; clear smooth boundary.

- C2 60-70cm Disturbed soil material having flecks of charcoal and bone present. The soil material is similar in color, consistency, and effervescence to the horizon above.
- C3 70-170cm Disturbed soil material similar to the 10-60cm horizon described above; abrupt smooth boundary.
- II 170-210cm Weakly bedded shale high in gypsum. The shale is dark gray (2.5Y N4/ dry), dark grayish brown (2.5Y 4/2 moist) clay; very sticky and very plastic.

Core #5 was placed in an area of dense vegetation believed to be the site of the house excavated in 1954, XU F2 (Plate 15). The profile was as follows:

Core #5 Profile

- Alp 0-10cm Grayish-brown (10YR 5/2 dry), dark grayish-brown (10YR 4/2 moist) coarse silt to very fine sand; weak platy structure; soft, very friable; no effervescence; abrupt smooth boundary.
- B1 10-42cm Light brownish-gray (10YR 6/2 dry), dark grayish-brown (10YR 4/2 moist) silt loam; weak prismatic structure; slightly hard, very friable; slight effervescence; clear smooth boundary.
- AlB1 42-55cm Dark grayish-brown (10YR 4/2 dry), very dark grayish-brown (10YR 3/2 moist) silt loam; weak fine blocky structure; slightly hard, very friable; slight effervescence; abrupt smooth boundary.



Plate 15. Giddings rig testing area of dense vegetation; site of 1954 excavation of rectangular earthlodge, XU F7, facing WSW.

- B2c 55-135cm Light brownish-gray (10YR 6/2 dry), grayish-brown (10YR 4/2 moist) silt loam; weak prismatic structure; slightly hard, very friable; moderate effervescence; gradual smooth boundary.
- A1B2 135-165cm Dark grayish-brown (10YR 4/2 dry), very dark grayish-brown (10YR 3/2 moist) coarse silt; weak fine blocky structure; slightly hard, very friable; moderate effervescence; gradual smooth boundary.
- Bb2 160-220cm Light brownish-gray (10YR 6/2 dry), dark grayish-brown (10YR 4/2 moist) coarse silt to very fine sand; very weak prismatic structure; slightly hard, very friable, moderate effervescence; abrupt smooth boundary.
- II Shale substratum. Dark gray (2.5Y 4/1 dry), dark grayish-brown (2.5Y 4/2 moist) clay; extremely hard dry, very sticky and very plastic moist.

Core samples #6 and #7 were also extracted in the densely vegetated area. Core #8 was extracted from a small trench immediately above the lower, swampy tributary stream bottom. Core profiles 5, 6, 7 and 8 were similar in major horizons but differed slightly in horizon thickness, especially the surface horizon. Each of the profiles demonstrated two discernible buried horizons. These profiles, called Fluvents, develop under floodplain conditions where streams drain from a watershed displacing material from dark-colored soils identified as Mollisols. These soil profiles may be referred to as multi-story or two or three-story profiles. At times the horizons are buried by alluvium and at other times by wind-blown silt called loess. The variation in the thickness of the surface horizons and the buried soils may in this circumstance be the result of backfilling an excavation.

Core #9 was extracted from a slight depression located to the north of the area sampled by Core #3 (Figure 12). This depression was thought to have been the one trenched during the 1953 excavations. Bone and

charcoal fragments occurred in the 70-95cm horizon, while shale was encountered at 2m. The profile documented subsurface disturbance.

Core #9 Profile

- | | | |
|-----|-----------|--|
| Alp | 0-15cm | Grayish-brown (10YR 5/2 dry), dark grayish-brown (10YR 4/2 moist) coarse silt to very fine sandy loam; weak fine granular structure; soft, very friable; no effervescence; abrupt smooth boundary. |
| B | 15-70cm | Light grayish-brown (10YR 6/2 dry), dark grayish-brown (10YR 4/2 moist) coarse silt to very fine sandy loam; very weak prismatic structure; slightly hard, very friable; slight effervescence; clear smooth boundary. |
| Alb | 70-95cm | Grayish-brown (10YR 5/2 dry), dark grayish-brown (10YR 4/2 moist) coarse silt to very fine sandy loam; weak fine granular structure; soft, very friable; slight effervescence; a few flakes of charcoal and bone; gradual smooth boundary. |
| C1 | 95-100cm | Light brownish-gray (10YR 6/2 dry), dark grayish-brown (10YR 4/2 moist) coarse silt to very fine sand; massive structure; soft, very friable; moderate effervescence; bone fragments; gradual smooth boundary. |
| C2 | 100-200cm | Morphological features similar to those of horizon above but at 140cm a slight darkening occurred which was interpreted to be a buried horizon. |
| II | 200cm+ | Dark gray (2.5Y 4/1 dark), dark grayish-brown (2.5Y 4/2 moist) silty clay; bedded shale; extremely hard dry, very sticky and very plastic wet; moderate effervescence. |

Next, a series of core samples (#10-#33) were extracted from north to south and from east to west across the site, essentially to map evidence of occupation activities as documented by cultural material, charcoal and disturbed profiles. The sediment from all the core samples was passed through $\frac{1}{4}$ " mesh hardware cloth. The profiles of all these core samples produced similar sequences, as follows:

- 1) a grayish-brown (10YR 5/2 dry) coarse silt A horizon above
- 2) a light grayish-brown (10YR 6/2 dry) coarse silt B horizon, above
- 3) a light brownish-gray (10YR 6/2 dry) coarse silt C horizon.

Table 3 and Figure 14 present the results of this testing.

In concert with the coring activity, the cutbank on the east side of the site was carefully inspected. At the north end of the site, along the cutbank line, a tributary drainage occurs which appears to have formed an alluvial fan on which a stand of trees has become established. These trees have apparently protected the bank from lake erosion, and in several areas there was a build up of water-borne debris which obscured the bank face.

Table 3. Summary of Coring at Site 39LM33.

CORE #	DEPTH (cm)	RESULTS (If nothing is indicated, profile appeared undisturbed, except for plowing, and no cultural material was located.)
Trial Test	100	
1	80	
2	55	
3	230	Lithics, ceramics, charcoal and bone at 40-60cm, 80-190cm and 230cm. Clay band noted at 155-165cm and 170-180cm.
4	300	Bone, charcoal and ceramics at 60-70cm and 75-200cm.
5	230	Buried darker soil zones at 42-55cm and 135-160cm.
6	200	Darker soil zone at 15-45cm.
7	210	Darker soil zone at 20-50cm.
8	180	
9	200	Bone and charcoal at 0-50cm and 70-95cm.
10	200	Charcoal, fire-cracked rock, ceramics and lithics at 0-90cm.
11	240	
12	205	
13	180	
14	170	
15	170	
16	185	
17	180	
18	180	
19	175	
20	165	
21	170	
22	180	
23	180	Stone fragments from ca. 100cm.
24	190	
25	185	
26	190	
27	175	
28	180	
29	180	
30	230	Bone and lithics at 0-50cm.
31	185	
32	185	Ceramics at 0-50cm.
33	180	Bone at 0-60cm.

Immediately south of the grove of trees, the cutbank is exposed to the lake wave action, and inspection indicated cultural material and features being eroded away. Table 4 describes the results of the cutbank inspection; the plots listed are recorded on Figure 12.

Table 4. Results of the Inspection of the Cutbank at Site 39LM33.

PLOT #	DESCRIPTION
A	Bone fragment at 45cm b.s. Darker soil band visible at this level (Plate 16).
B	Rimsherd at 45cm b.s. (Plate 17).
C	Ceramic fragments in cutbank.
D	Concentration of bone at 25cm b.s.
E	Cache pit (Plate 18).
F	Bone at 30cm b.s.
G	Layer of bone 3m long, 25cm b.s.
H	Bone at 20cm b.s.
I	Layer of bone 3-4m in length, 20cm b.s.
J	Bone at 35cm b.s.

The results of previous site mapping and excavations accomplished at 39LM33 during the 1953 and 1954 field phases were carefully compiled and documented through photographs and maps. These data were annotated onto the current site map (Figure 12) which accurately depicts the current site circumstance in relation to investigations which have been undertaken at the site in the past.

The features present at the site (Figure 12) are as follows:

a. Site of 1953 test excavations

- | | |
|-----------------|--|
| Test #1 | Probably relocated as a shallow linear depression next to irrigation ditch (Plate 19). |
| Tests #2 and #6 | Both relocated in 1983 and 1986 (Plate 20). |
| Test #3 | The depression was located and cored, but the original trench line was not clearly defined (Plate 21). |



Plate 16. View of cutbank at 39LM33. Dark soil zone visible with bone exposed by trowel above scale, facing WSW.

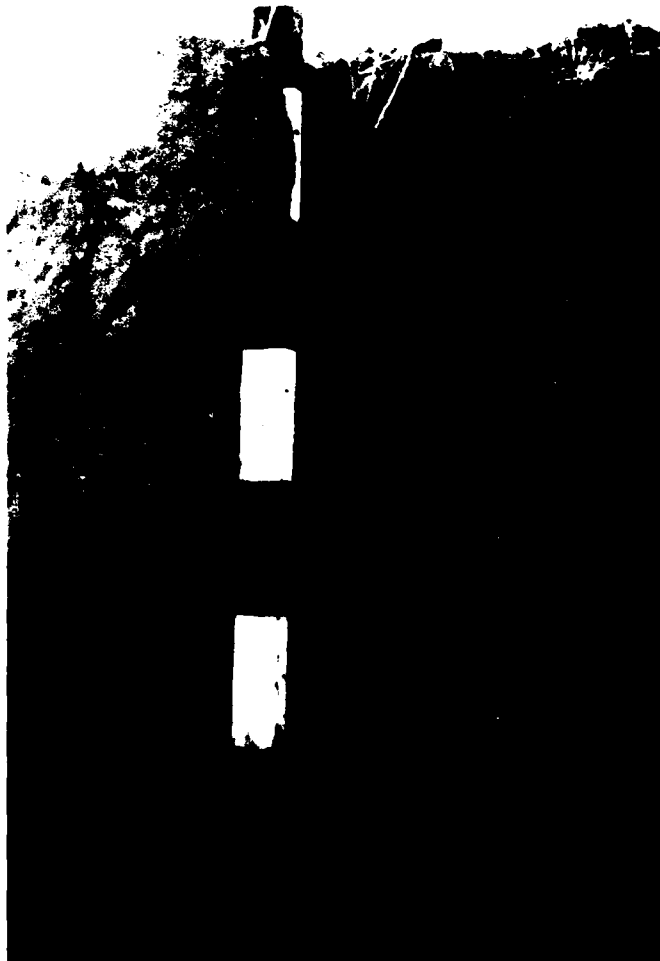


Plate 17. Rimsherd (Great Oasis-like Wedge Lip) in cutbank at 39LM33, facing NW.

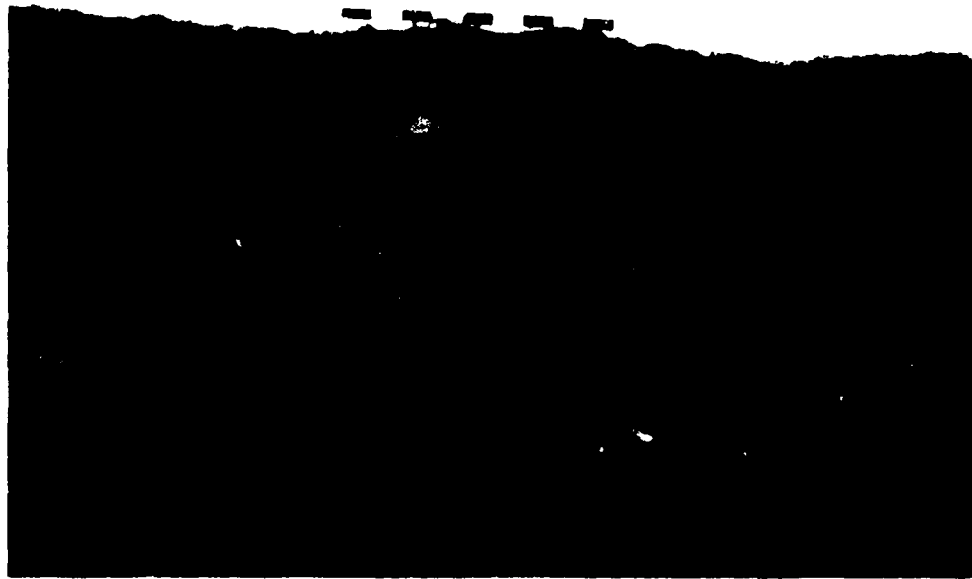


Plate 18. Cache pit exposed in cutbank at 39LM33, facing NW.

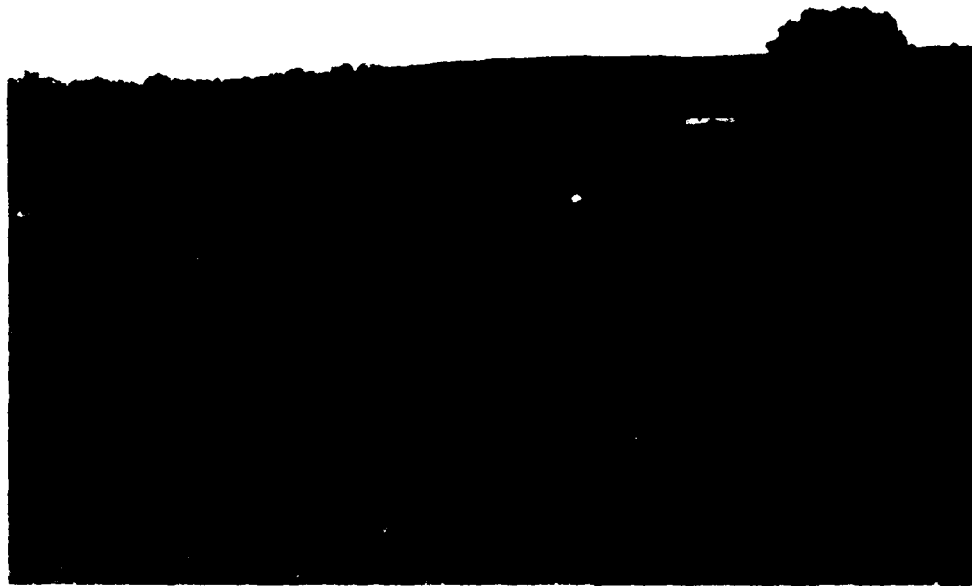


Plate 19. Probable area of 1953 Test Trench #1 (by flags) at 39LM33, facing ENE.



Plate 20. View of area of 1953 Test Trenches #2 and #6 (by flags), at 39LM33, facing WSW. The irrigation ditch is also visible.



Plate 21. View across shallow depression trenched (Test Trench #3) in 1953 (flag in foreground), to 1953 Test Trenches #2 and #6 (flags in background). Site 39LM33, facing NNE.

- Test #4 Not relocated. Core #22 (Figure 12) was placed on a patch of discolored grass, but no indication of subsurface disturbance was noted.
- Test #5 Considered to be in the area of two "mounds;" possible backdirt piles relating to the 1918 excavations of Over (Plate 22). The actual outline of the trenches is obscured.

b. Depressions

All the depressions noted on the 1953 map were relocated except the one shown north of the fence line that was not tested in 1953. The 1954 field party was not able to relocate this depression. It should be noted that the dense vegetation (Plate 15) marking the location of the 1954 excavation of House #2 does not relate to any features appearing on the 1953 map, although it presumably existed as a depression in 1953. Apart from the depression disturbed by the irrigation ditch, all the extant depressions were cored during the 1986 evaluation. Core #3 (Plate 22), Core #4 (Plate 23), and Core #9 (Plate 21) were placed within depressions as recorded on the site map (Figure 12).

c. Other features

All the other cultural features noted on the terrace itself relate to historic/recent activities. The old roadbed running parallel to the current gravel road was still visible, and an additional track crossed the terrace from NW to SE. A concrete slab and a metal tub (Figure 12) were located in the vicinity of the historic structure that once stood on the site. The irrigation ditch and remnants of the old fence lines were also able to be documented.

The results of the 1986 evaluations and testing activities at 39LM33, combined with data from previous investigations at the site, support the following conclusions: the site contains at least two extant earthlodges which are largely undisturbed; a third that has been tested by placing a trench across its center; and a fourth that has been partially excavated and partially impacted by an irrigation ditch. A fifth depression was totally excavated in 1954. In addition, cache pits and bone layers exposed in the cutbank indicate that a substantial area of prehistoric cultural material exists for evaluation. The site was,



Plate 22. Site of shallow depression investigated by Core #3 in 1986 (left center of frame), and probable site of Over's testing and 1953 Test Trench #5 (by low mounds at right of frame). Site 39LM33, facing E.



Plate 23. View across shallow depression investigated by Core #4 in 1986 (flag in center of frame), with a datum marker behind. Site 39LM33, facing WNW.

therefore, considered eligible for nomination to the National Register of Historic Places. Accordingly, additional site photographs were taken for documentation purposes, completing the on-site evaluation program. As discussed previously, no further testing (excavation units/shovel tests) was undertaken due to the lack of evidence for extensive cultural deposits away from the cutbank.

The site boundary shown on Figure 15 reflects the area within which direct evidence of cultural activity, in the form of cultural material and features, was observed. The prehistoric peoples occupying the earthlodges likely concentrated the majority of their activities in and around these lodges. Although it is to be expected that people moved about and undertook other activities within a broader area, the available data suggest these activities did not leave extensive cultural material deposits on the terrace outside of the site area as defined on Figure 15. Indeed, several of the core samples within this defined site area were negative, or produced minimal cultural material and did not reveal the presence of additional lodges.

The physiographic location of this site, on a terrace spur naturally defended on three sides, is consistent with other Initial Middle Missouri villages. However, there is no indication of a fortification ditch across the landward side of the spur.

Analysis and Evaluation of Site 39LM33

Based on the results of the fieldwork at 39LM33, further analysis was focused on the artifacts collected and on the results of the 1953 and 1954 site testing and excavations. All collected artifacts were processed (washed, marked, described, and cataloged) and diagnostic materials (ceramic rimsherds) were assigned to cultural affiliations and illustrated.

Comparisons of the data recovered in 1986 with that from the 1953 testing provide documentation of the major features at this site and the areas of most intensive occupation (i.e. along the eastern terrace edge). This evaluation was used to annotate the site map (Figure 15) with regard to site boundaries. The illustrated boundary encompasses all known prehistoric cultural material recorded from 39LM33. However, even within the currently defined site boundaries there are areas where testing proved negative, and it is likely that activities which have

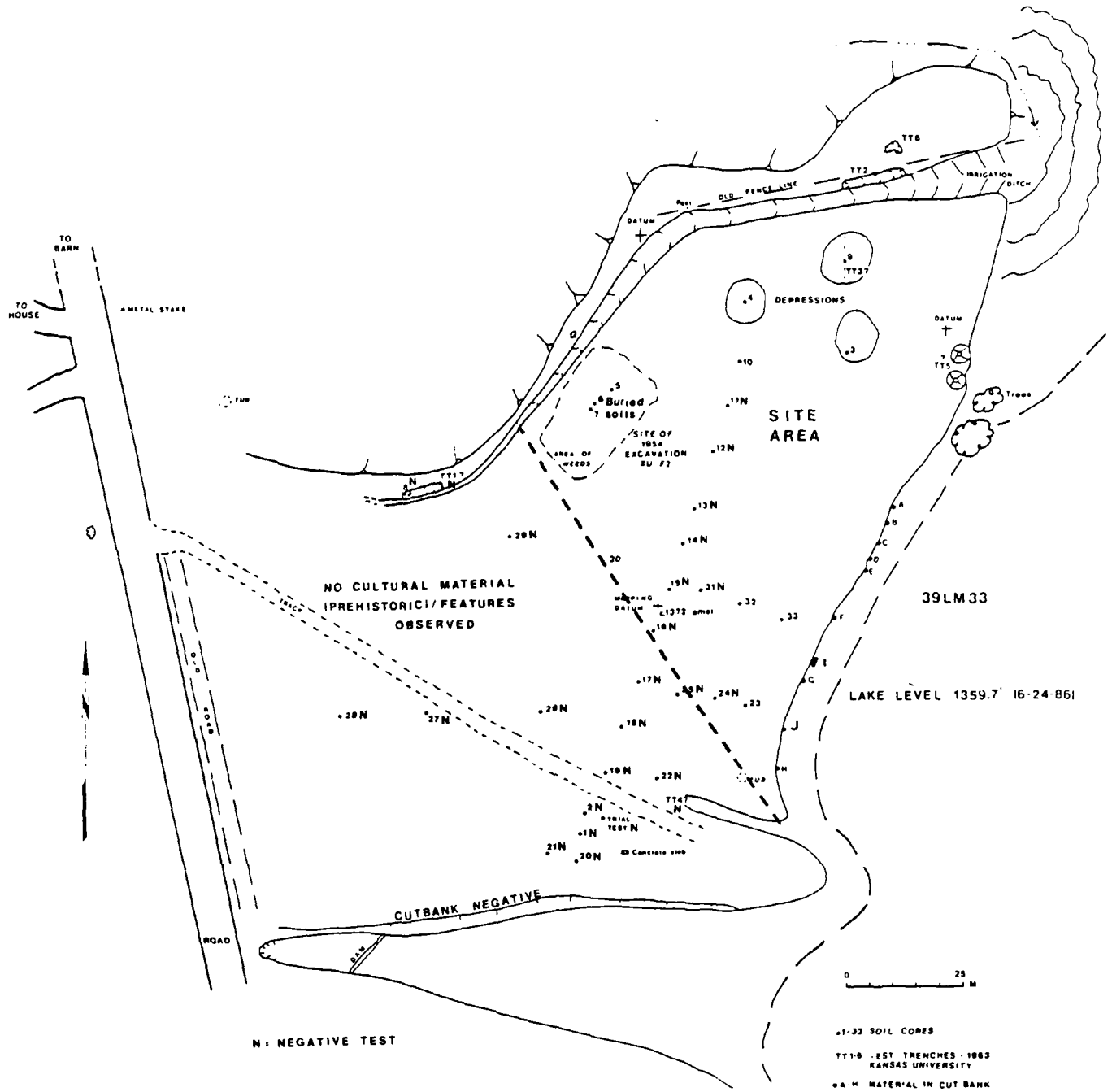


Figure 15. Results of site testing and evaluation at 39LM33. Limit of recorded cultural materials shown by a dashed line.

left extensive cultural material deposits at this site were restricted to the earthlodges and midden/cache pit deposits located along the eastern terrace edge. Extensive cultural deposits have not been documented in other areas of the site. Geomorphological studies show the entire terrace area to be a loess-covered bench with the potential for cultural material extending across the entire area. It might be expected that some village activities extended beyond the area delineated on Figure 15, but if this was the case no direct evidence in the form of cultural debris was detected.

The testing results and evaluation of the Dinehart Village site document the presence of at least two undisturbed earthlodge depressions. Another earthlodge depression was tested in 1953 by a single trench, and a more extensively tested fourth depression has been recently disturbed by an irrigation ditch. All four features are considered to possess adequate integrity to produce potentially significant cultural information. Furthermore, midden debris, cache pits and additional earthlodges may exist within the area of the site evaluated as containing cultural deposits (Figure 15). Minimally these deposits extend some 150 meters north to south from the northern terrace edge to the southernmost extent of cultural material exposed in the cutbank; and from the cutbank west to the area of the 1954 house excavation, a distance of some 75 meters.

A sufficient portion of this site remains intact to adequately evaluate the past occupation, with a substantial range of cultural, technological and subsistence questions which could be addressed. Additionally, data from the 1953 and 1954 tests and excavations could be more fully analyzed.

One such analysis, conducted on the chipped stone tools, has recently been undertaken by Craig M. Johnson (1984). His analysis expanded research previously conducted by Ahler (1977) and was designed to document and test hypotheses for the observed variations in raw materials used to manufacture chipped stone tools from several Middle Missouri and Coalescent tradition Plains Village components. Variations were evaluated in relation to the sites' period of occupation, taxonomic assignment, and relative geographic location to the raw material resource areas.

Johnson's analysis suggests that:

...the Middle Missouri tradition villagers relied more extensively on nonlocally available Knife River flint compared with Coalescent tradition peoples. The data also indicate that Initial Middle Missouri components contain relatively more Knife River flint than comparable Extended Middle Missouri villages although there is a "fall-off" in the exploitation of this material among Initial Middle Missouri villages with increasing distance from its resource area. Coalescent populations, on the other hand, relied more on local materials and other nonlocal resources such as flint and plate chalcedonies compared to Middle Missouri tradition groups [Johnson 1984:289].

Data exists at 39LM33 for further examination of this research topic. As Johnson states,

...it is difficult to determine if Knife River flint was procured through trade with intervening village groups to the north or by direct acquisition as might be expected during seasonal hunting movements into the area....In this context, counts and weights of lithic debitage would be useful in determining if Knife River flint and other nonlocal resources were brought into a village as preformed or finished tools rather than as cores to be reduced into artifacts at the village [Johnson 1984:298].

A summary of the data analyzed by Johnson at 39LM33 is provided in Table 5, below.

Material from the Dinehart Village site was also examined by Ward F. Weakly as part of a feasibility study of applying tree-ring dating methods to wood collected in South Dakota.

There are 60 pieces of wood and charcoal in the site collection representing 22 individual specimens. Nineteen of the specimens are juniper, one is populus, and two are not identified. A site chronology 166 years in length has been constructed using four specimens that cross-date with each other. I have not been able to date the site chronology [Weakly 1971:37].

In a study of faunal exploitation during the Initial Middle Missouri variant Chomko (1976) utilized faunal identifications (by whom is unknown) from the Dinehart site, noting the "severe limitations on the utility of the faunal remains from these sites for quantitative analyses" (Chomko 1976:35). Making several major assumptions about the data, Chomko concluded that his analysis of six Initial Middle Missouri

Table 5. Frequencies of Chipped Stone Tools According to Technological Class and Raw Material for 39LM33 (after Johnson 1984:Table 2).

	SMALL THIN BIFACIAL TOOLS	LARGE THIN BIFACIAL TOOLS	PATTERNED UNIFACIAL TOOLS	RETOUCHED/ UTILIZED FLAKES	TOTAL
<u>NONLOCAL</u>					
Smooth gray TRSS	0	0	0	0	0
KRF	12	2	12	9	35
Flattop chalcedony	1	1	1	0	3
Plate chalcedony	0	1	0	0	1
Bijou Hills silicified sediment	2	39	2	48	91
<u>LOCAL</u>					
Coarse yellow and red silici- fied sediment	0	0	0	0	0
Solid quartzite	9	1	1	10	21
Porous quartzite	1	1	0	6	8
Jasper/chert	15	8	15	30	68
Chalcedony/ silicified wood	17	3	19	26	65
TOTAL	57	56	50	129	292

TRSS = Tongue River silicified sediment

KRF = Knife River flint

variant sites showed a consistent pattern of faunal exploitation with "species in both grassland and forest biomes...exploited, with grassland species supplying between 94.8 to 98.9% of the useable meat" (Chomko 1976:41). The following species from the Dinehart Village provided more than 0.1 percent of useable meat: beaver (0.4 percent), deer (1.0 percent), antelope (0.5 percent) and bison (97.5 percent) (Chomko 1976:Table 10). Other species identified in the faunal material from Dinehart Village consisted of Lepus sp., Sylvilagus sp., prairie dog, Spermophilus sp., thirteen-lined ground squirrel, Thomomys sp., Canis sp., swift fox, and Odocoileus sp. (Chomko 1976:Table 15).

This Dinehart Village site has been previously identified as an Initial Middle Missouri earthlodge village. Mitchell, Foreman and Chamberlain ceramic types are reported from the 1953 test excavations, along with other types, including Fort Yates Cord Impressed and Riggs Straight Rim, which are Extended Middle Missouri types.

A Foreman cord marked rimsherd was recovered from Core #3 at 140-155cm b.s. during the 1986 testing (Figure 16b). However, a rim recovered from the cutbank (Figure 12, Plot B; Figure 16a) more closely resembles a Great Oasis Wedge Lip rim.

The current data base is insufficient to adequately evaluate the sequence of cultural affiliations involved in the prehistoric utilization of the site. The presence of Great Oasis-like ceramics and Extended Middle Missouri ceramics on an Initial Middle Missouri village strongly suggests that a more detailed analysis of the ceramics from this site may provide significant insights into this aspect of the Middle Missouri tradition occupation.

A consensus might be reached among archeologists working along the Missouri Trench that all village sites with extant components above the reservoirs should be considered significant cultural resources. In a sense they meet the four major criteria for considering properties eligible for nomination to the National Register of Historic Places; specifically, they are associated with events (agriculture, trade, culture change) that have made a significant contribution to the broad patterns of our history and may be likely to yield information important in prehistory or history. Their significance is further enhanced by the fact that such a large number of sites have been inundated by the reservoirs and are, therefore, unavailable for research. Additionally,

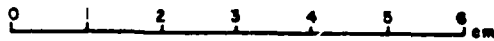
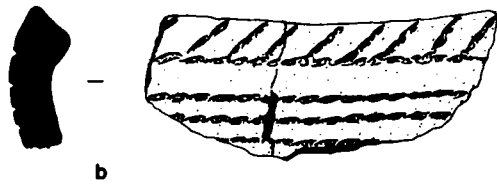
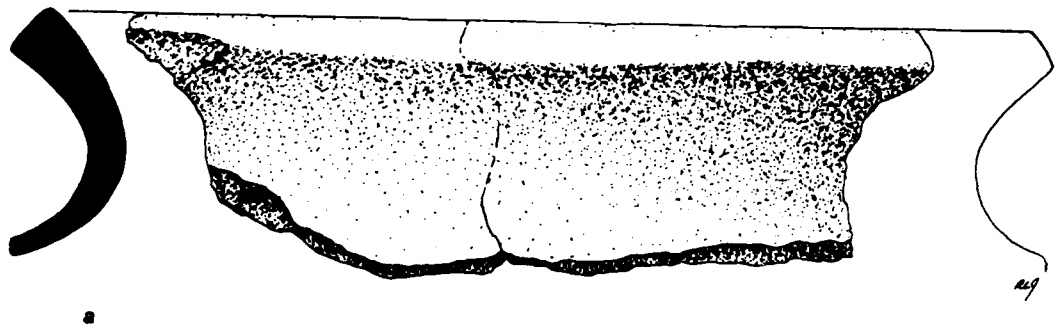


Figure 16. Artifacts from site 39LM33. a: Great Oasis-like Wedge Lip rimsherd (Cat. No. 1, 2); b: Foreman cord marked rimsherd (Cat. No. 19, 20).

many of those above the waters are gradually being destroyed by bank erosion, agricultural practices, and vandalism.

With regard to the Dinehart Village (39LM33), located in the Big Bend Archeological Region of South Dakota, several research questions relating to the Initial Middle Missouri (IMM) period are addressed by the State Plan (Buechler 1984 draft and amendment, in progress). These include: 1) Great Oasis/IMM relationships, 2) investigating taxonomic modifications to account for differences between the Big Bend area and the Chamberlain area IMM variant ceramic assemblages, 3) clarifying the relationship between IMM variant sites along the Missouri Trench with sites outside the Trench and along the James River, and 4) examining the relationship between IMM and Extended Middle Missouri sites.

The 1986 evaluations, coupled with past research at 39LM33, establish the fact that the site has the potential to address the above research questions and to make a significant contribution to our knowledge of culture history and culture processes of the Initial Middle Missouri period. Because of this capability a nomination to the National Register of Historic Places has been prepared for the site (Appendix 2). While the northern portion of the site appears to have changed little since Over's 1918 excavation, the southern area is exposed, and therefore subject to variable rates of cutbank erosion. The rate of this erosion has not been determined and will depend on the fluctuating reservoir levels. Every effort should be made to stabilize the bank in this area (an approximate 80 meter stretch) or to conduct salvage excavations before additional site area is destroyed.

Previous Work at Site 39LM39

The history of site 39LM39, the Deerfly site, has been outlined by Lees (1985:103-105) and Lees, Brown and Mandel (1985:102-104), and will only be summarized here. W.H. Over probably visited the site in 1919, describing it as a small fortified Indian village. Archeologists working for the Smithsonian Institution-River Basin Surveys in 1946 and 1947 observed the site, accepting Over's interpretation of it. Collections were made in June 1947 by Cooper and Bauxar and by T.R. Garth in October of 1950. Believing the depressions at the site resulted from earthlodges, University of Kansas archeologists, under the direction of Carlyle S. Smith, conducted excavations in 1953 (Grange 1953; Smith 1953; Smith and Grange 1958:126-127).

These excavations produced some evidence of an Extended Coalescent occupation at the site (Lehmer 1971:Figure 7; Mallory 1965:30), but the circular depressions and indeed the major occupation of the area proved to be historic in nature. In light of this discovery, the excavation program was abandoned, although a plan of the excavations was produced (Figure 17) and a site map was prepared (Figure 18).

On June 1, 1954, Paul L. Cooper of the SI-RBS visited the site. Two small test units were dug on the terrace surface south of the University of Kansas's main excavations. One excavation unit yielded considerable quantities of fragmented bone, charcoal flecks, and a few sherds. The second unit yielded very little. The latter excavation unit was located "ca. 50' from the terrace edge S. of 1st short draw indenting terrace border S. of Jewell Ranch buildings," with the former excavation unit located 50' north of this one.

Mallory visited the site in September, 1964 and also collected several items eroding out of the bank. At that time he noted that three possible house depressions were visible on knolls at the southwestern edge of the river bottom. He also reported that an informant had indicated that there were burials on the knoll at the western side of the site.

Research has shown that the Deerfly site was assigned several different site numbers - including 39LM20, 39LM39, 39LM97 and 39LM117 - all of which refer to the prehistoric occupations of the same area. In

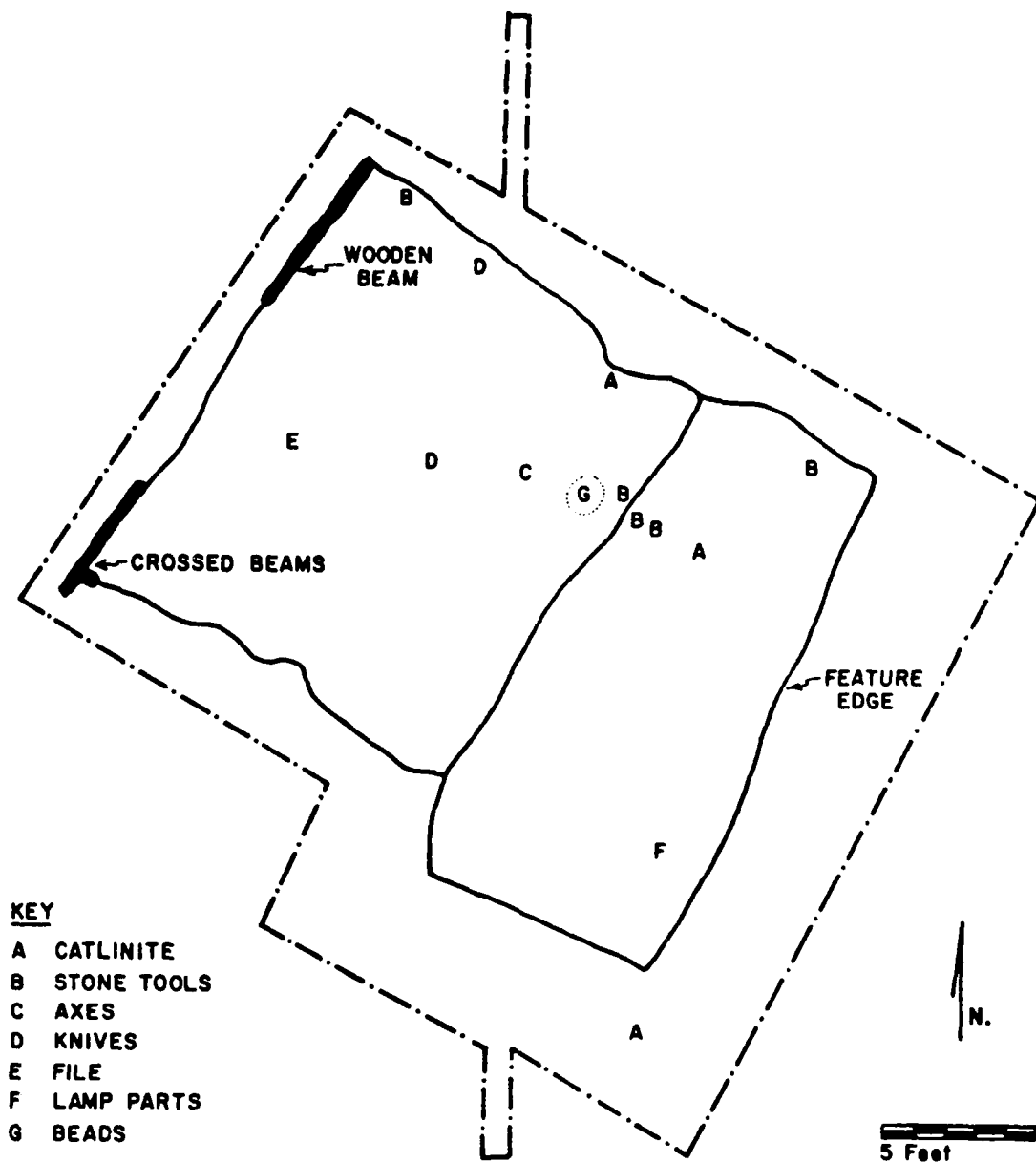


Figure 17. Plan of the 1953 University of Kansas excavations of Feature 3 at the Deerfly site, 39LM39 (from Lees, Brown and Mandel 1985:Fig. 20).

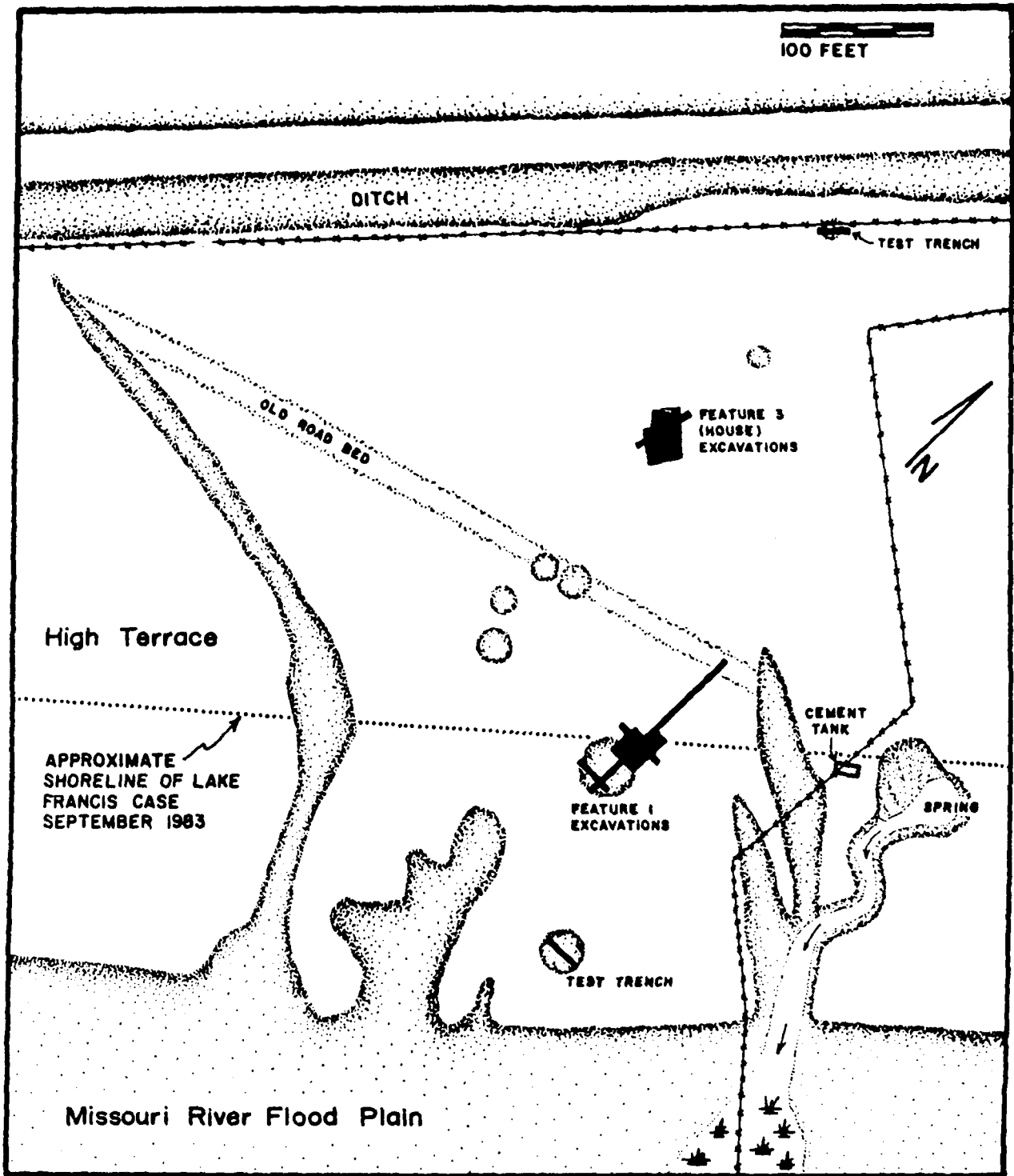


Figure 18. Plan of the 1953 University of Kansas excavations at the Deerfly site (39LM39). Location of modern shoreline was determined during the 1983 University of Kansas survey of the site area (from Lees, Brown and Mandel 1985:Fig. 11).

1978 Brad Logan of the University of Kansas prepared a manuscript on the site (Logan 1978) which included an analysis and interpretation of the Historic Dakota occupation.

The 1983 survey (Lees, Brown and Mandel 1985:99-106) identified additional historic loci which appear to be contemporaneous with the area investigated by Smith in 1953. Their report defines the following historic loci:

- C(9-9)16: A 20 x 50 meter low density scatter of historic artifacts.
- C(9-3)11 & 12: A scatter of historic materials in association with a classic, keyhole type dugout depression.
- C(9-3)12: A light scatter of historic materials on the surface of the terrace.
- C(9-3)10: A dense scatter of historic artifacts on the ravine slope.
- C(9-3)14: The headquarters settlement of the Jewell Ranch, whose buildings housed the 1953 University of Kansas expedition to this site.
- C(9-3)15: A light scatter of historic artifacts over a 25 x 25 meter area and a rough rectangular area enclosed by a very low earthen mound - possibly representing Smith's 1953 excavation of Feature 3.

In 1985 an article entitled "Dakota Acculturation During the Early Reservation Period: Evidence From the Deerfly Site (39LM39), South Dakota" was published (Lees 1985) which evaluated the material from the 1953 excavations, supplementing Logan's (1978) work. The article also summarized relevant information from the 1983 survey, particularly highlighting the extent of erosion that had taken place.

1986 Testing at Site 39LM39

Site 39LM39 was evaluated between July 20 and July 22, 1986 by a field crew comprised of Peter Winham (Director), Peter Froelich, Kurt Watzek and Melinda Ritter. Good access made it possible to drive within a few hundred meters of the site's north end with a 4-wheel drive truck.

The first stage in the evaluation of this site was an intensive pedestrian survey of the site area in an attempt to identify the various features and historic loci recorded during the 1983 survey and the 1953 excavations. As was indicated in the proposal and testing design for this site (Appendix 8), no comprehensive map of the site exists that clearly locates all features in relation to one another.

Because of the extensive nature of the site, specifically the north-south horizontal extent (Plate 24), the current reconnaissance took the form of a transect survey. Features and surficial cultural materials were flagged and noted. In this way the major elements of the site were located, and a plan for mapping the site was developed. As outlined in the proposal (Appendix 8), no general surface collection of this site was to be made and only diagnostic material would be collected.

The next stage was comprised of mapping the site, photographing the extant features, locating cultural material concentrations, and concomitantly determining what items would be selected for collection (Appendix 6).

This detailed reconnaissance of the site, as well as the mapping and photography, began at the north end and continued to the south. A series of five permanent datum points were established utilizing 18" steel rebar stakes set nearly flush with the ground surface and flanged by two 1" x 2" stakes; a temporary datum was required to facilitate the calculations between Datum 1 and Datum 2. As the mapping progressed, the site was partitioned into "areas," designated A-H, to facilitate the description of the site's contents and to add clarity to future reporting and/or investigations. Areas A-H were demarcated on the basis of topographic divisions (tributaries) and vegetational changes. The site was subsequently divided into 16 areas to record the locations of cultural features and artifact concentrations.

The final site map (Figures 19 and 20) and detailed area maps (Figures 21-24) document the visible features at the site and the concentrations of material, which were generally prehistoric. The historic loci recorded in 1983 are related in a general way to the site map, based on the 1986 survey results and on data derived from the field notebooks of the 1983 work. As is indicated on the maps, it was also possible to clearly identify features relating to the 1953 excavation.

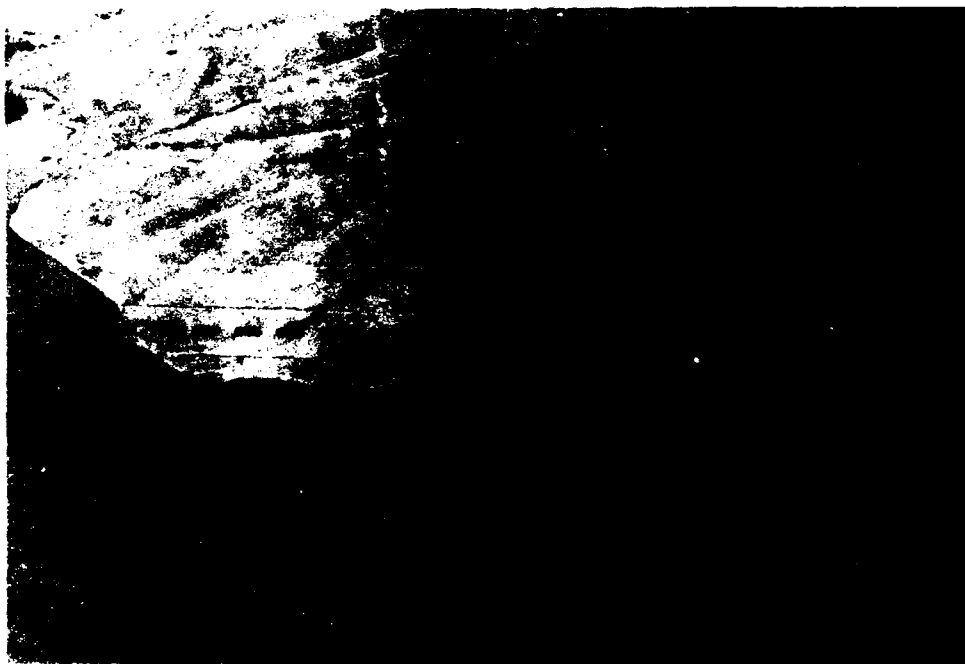


Plate 24. Aerial overview of southern portion of the Deerfly site, 39LM39 (Areas C to H), facing W (Omaha District, Corps of Engineers Archive Photograph, KU 1983).

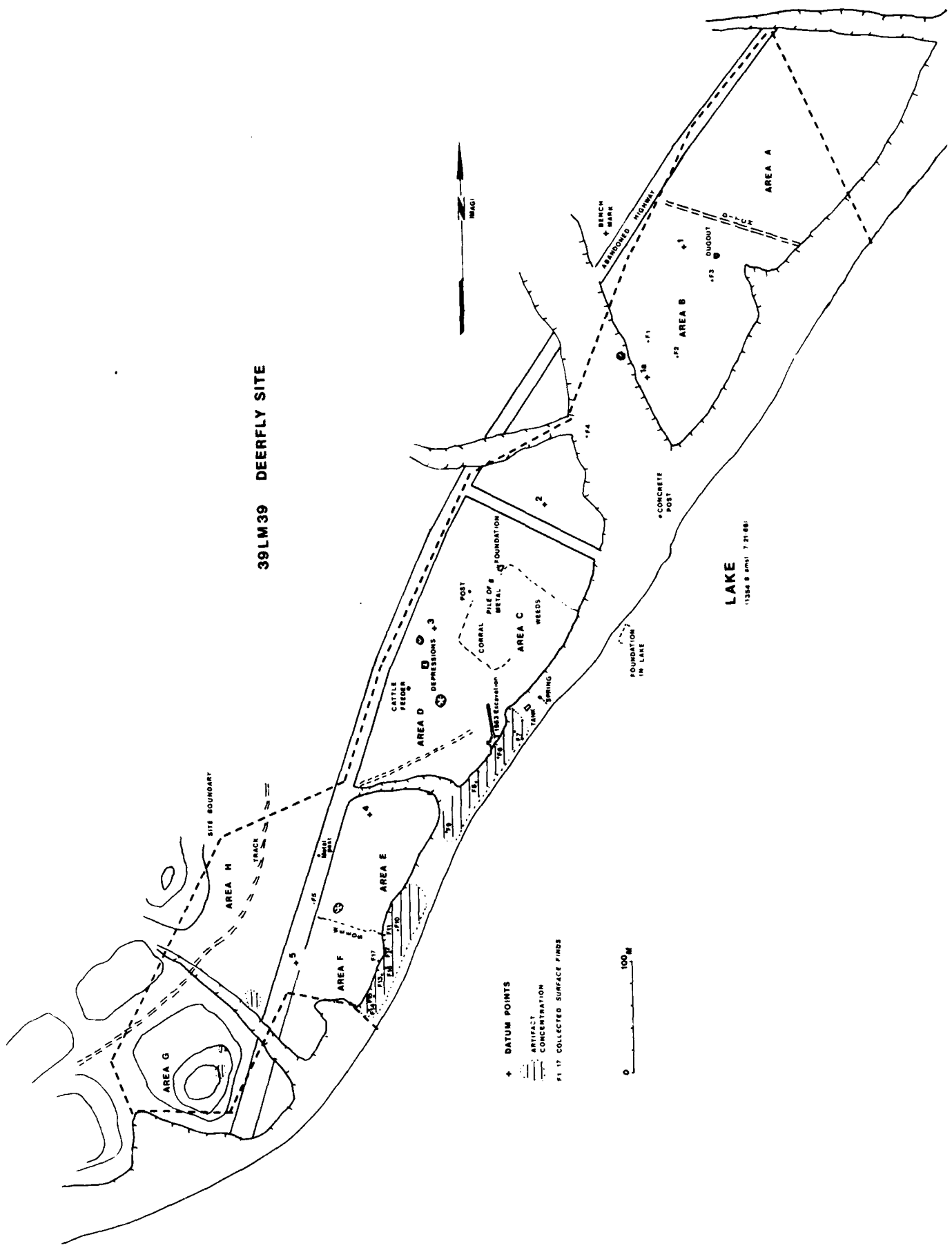


Figure 19. Overall plan of the Deerfly site, 39LM39, showing observed

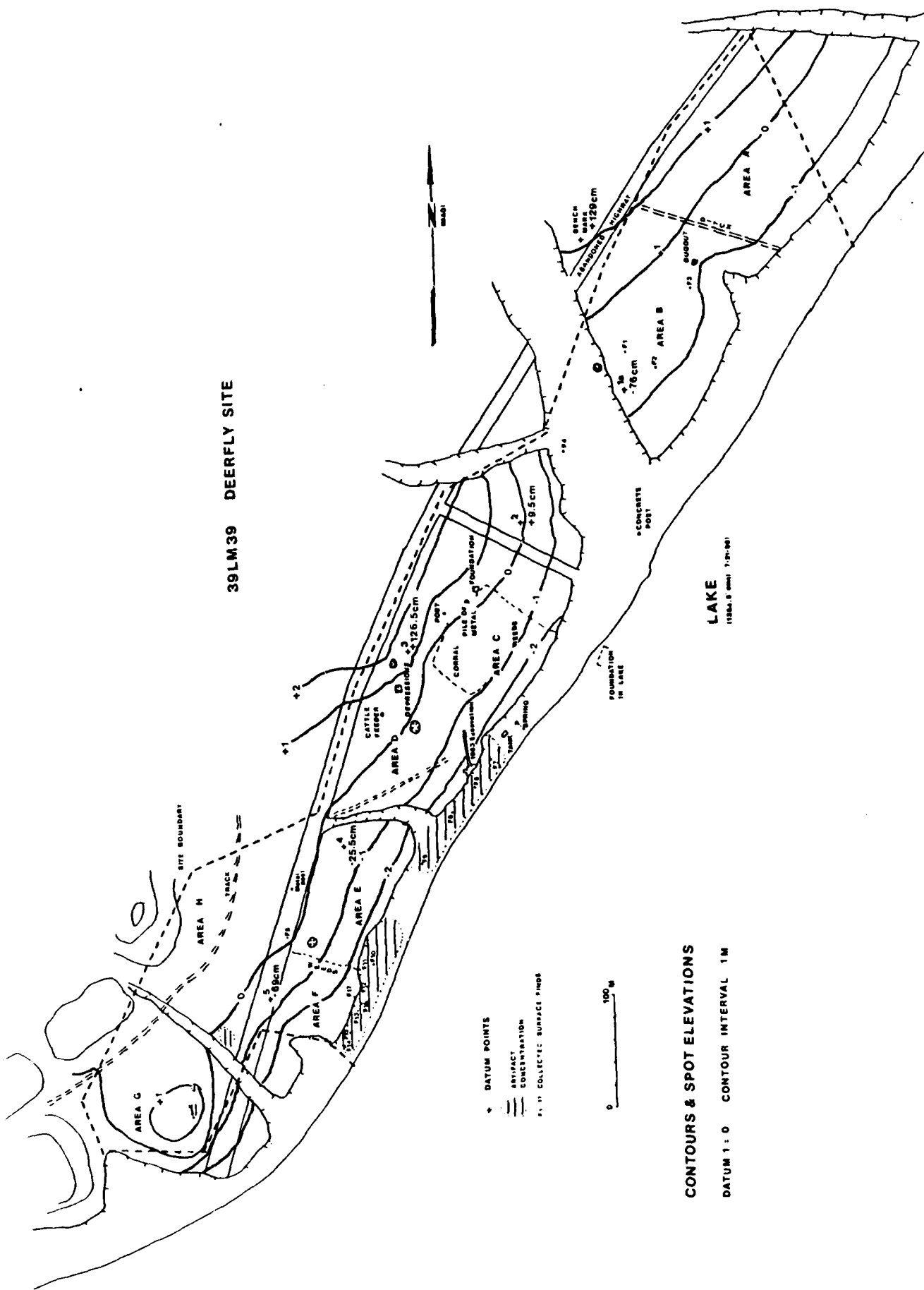


Figure 20. Plan of the Deerfly site, 39LM39, showing contours and spot elevations.

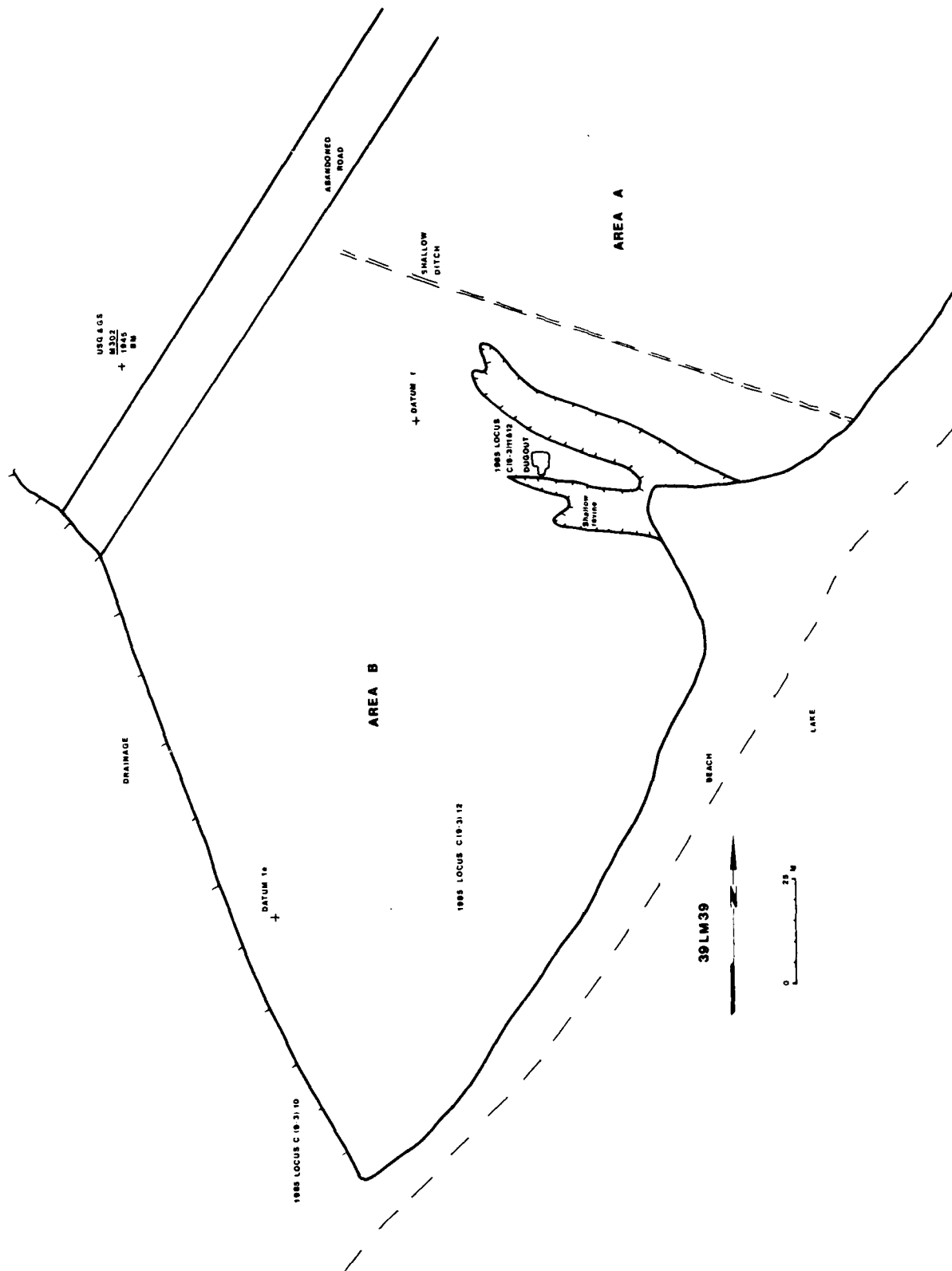


Figure 21. Plan of site 39LM39, Areas A and B.

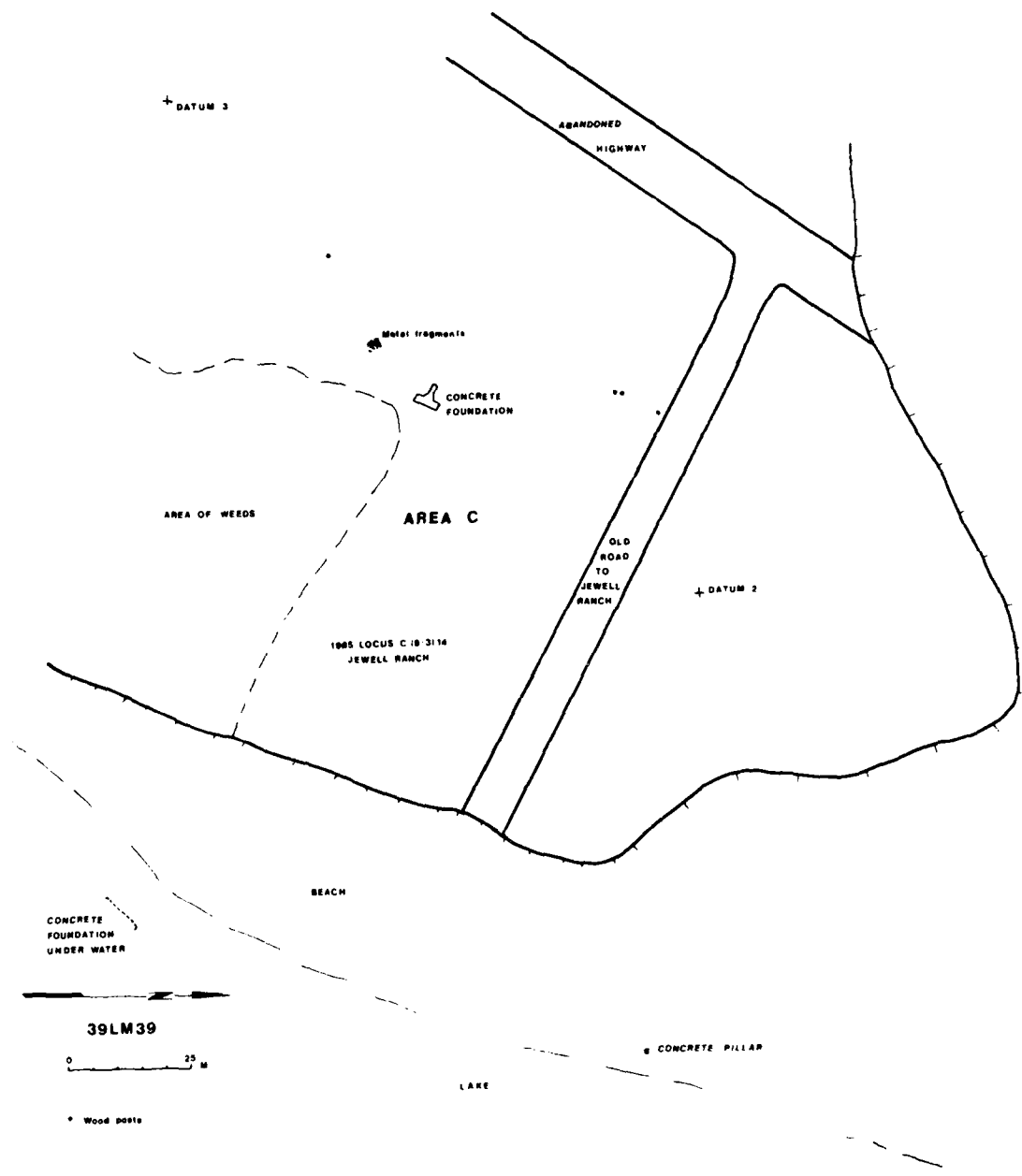


Figure 22. Plan of site 39LM39, Area C.

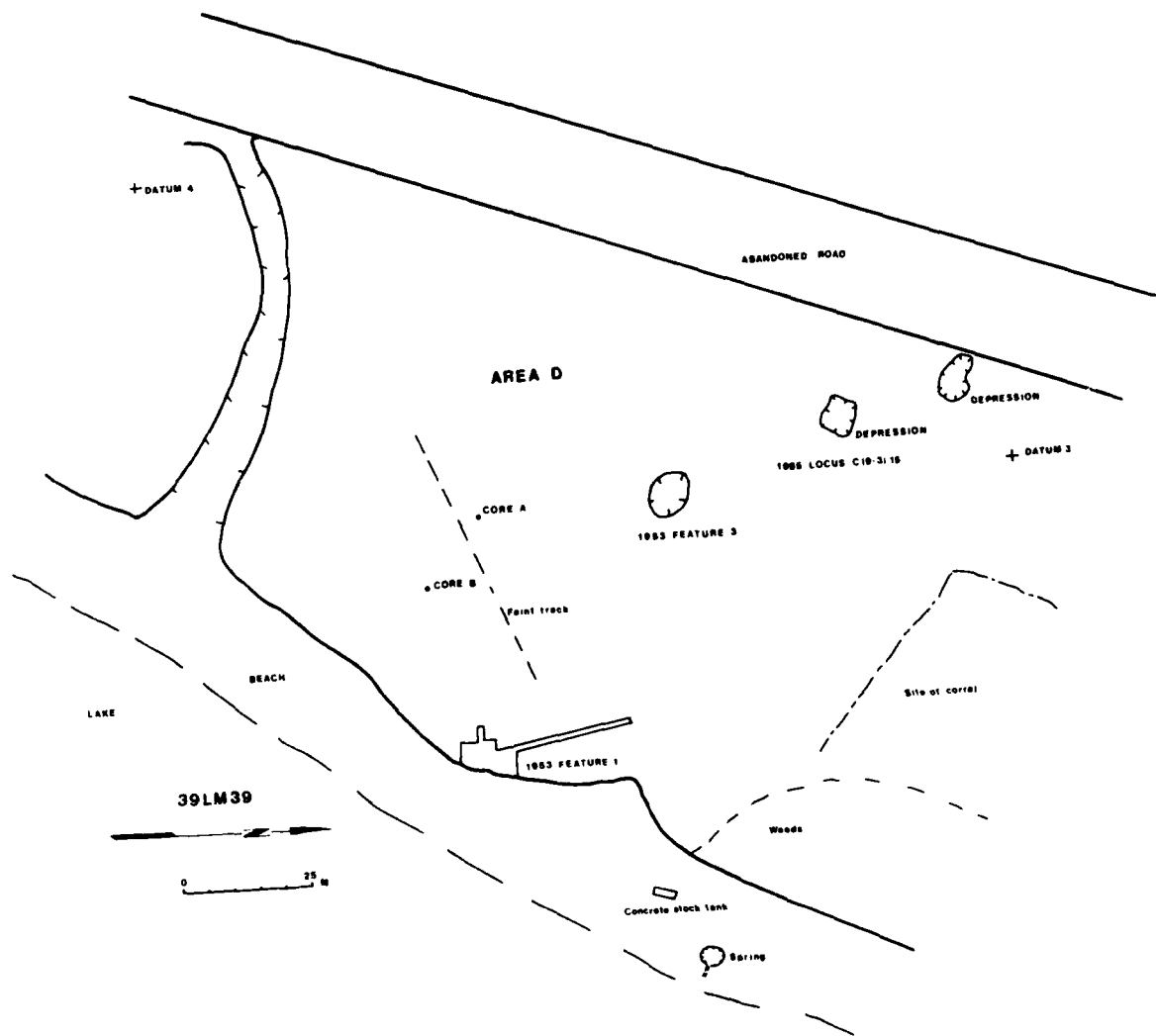


Figure 23. Plan of site 39LM39, Area D.

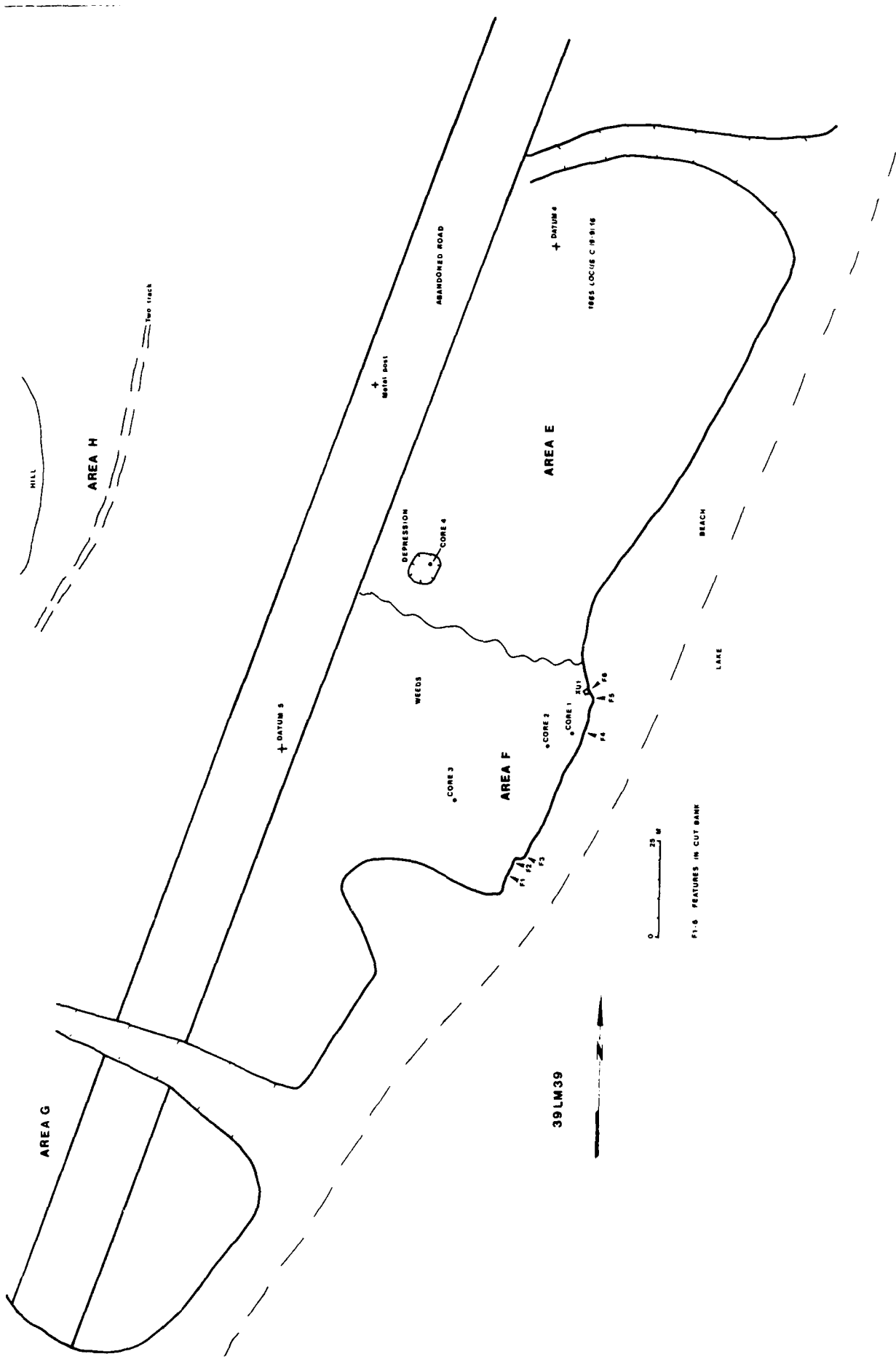


Figure 24. Plan of site 39LM39, Areas E, F, G and H.

The historic debris, other than concentrations of sheet metal from a barn and of barbed wire and posts from a corral, appeared relatively scattered and sparse. The concentrations that were observed occurred in association with features as described below. The concentrations in Area B (Figure 21) were not apparent, probably because they had been heavily collected in 1983.

Finally, the maps document the limited testing undertaken during the 1986 evaluation which included extraction of a series of cores and a 1m x 1m excavation placed above one of several features exposed in the cutbank. All material recovered from the subsurface evaluations was collected (Appendix 6).

Site Area Descriptions and Artifact Distributions

The proposed evaluation of this site (Appendix 8) stressed as a primary goal accurately mapping the site to spatially correlate all previous work accomplished at this site - specifically the 1953 excavation areas and the 1983 "loci".

A controlled surface mapping was undertaken, with diagnostic material collected and subsurface testing accomplished. The historic material at this site is not particularly diagnostic in terms of distinguishing between Historic Dakota and Euro-American occupation. For the prehistoric occupation, the most diagnostic of the materials present were the ceramic rimsherds. Therefore, the collection of surface material focused on prehistoric ceramics, with some stone and bone tools collected additionally. One fragment of early historic barbed wire was also collected.

All surface material was noted and point-plotted (mapped) as to its area of occurrence at the site (Figure 25). The description of surface material by areas is presented below.

Area A (Plate 25, Figures 19, 20 and 21)

This area is located to the north of a shallow linear depression/ditch and south of a drainage channel. Almost no indication of human occupation was present in the area; however, several nonidentifiable bone fragments were noted on prairie dog mounds and a couple of possible lithic items were noted in the abandoned highway.

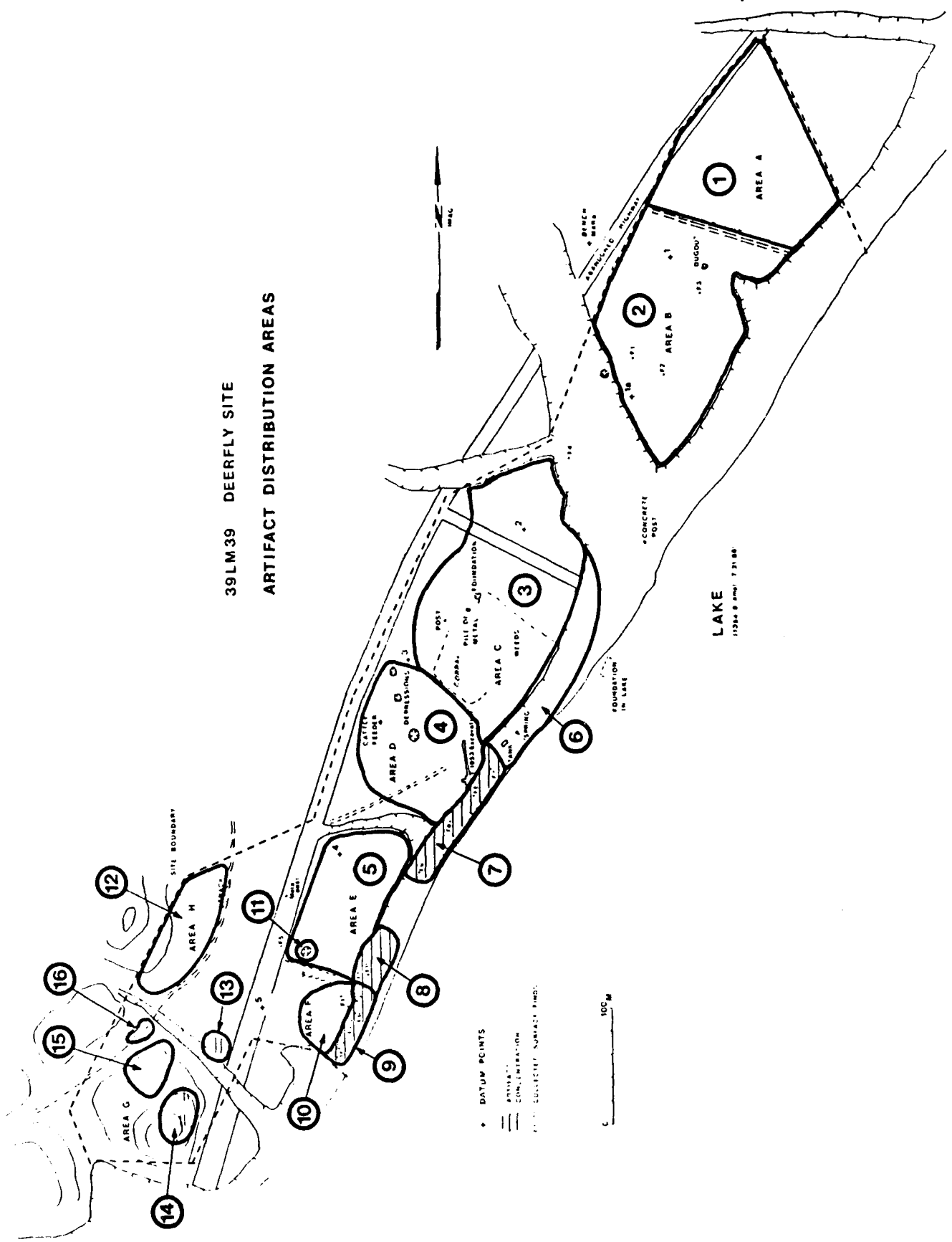


Figure 25. Plan of the Deerfly site, 39LM39, showing artifact distribution areas 1 - 16.



Plate 25. Overview of Area A (foreground) and Area B (center) at
39LM39, facing S.

Area B (Plate 26, Figures 19, 20 and 21)

Area B is bounded on the north by a linear ditch, on the south by a drainage ravine, on the west by the abandoned highway, and on the east by the lake cutbank. The linear ditch would appear to be an old road line associated with the abandoned highway. Just south of this road feature is a keyhole depression (Plates 27 and 28) "measuring 6.2 meters long (including the entranceway) by 4.5 meters wide" (Lees, Brown and Mandel 1985:106), associated with a very light scatter of historic and prehistoric material. This equates with the 1985 loci C(9-3)11 & 12. Three items were collected in 1986 from this terrace area (Figure 19, F1-F3), but association with the 1985 loci C(9-3)10 & 12 is impossible to document due to inadequate detail.

The items collected include:

1. A mached rifle shell casing 45-75 caliber, center fire WRACO (Winchester Repeating Arms Co.), which is expended; the number is undetermined. It would not be at all rare, and is probably twentieth century.
2. A length of barbed wire (single strand), manufactured with barbs cut on one side of a strip metal band. The barbs are 3/4" apart and are regular. This is an uncommon style of barbed wire for the Great Plains environment. The recovered section is well-galvanized and has resisted corrosion. It most closely resembles two models listed in Glover (1977). Number 312 is listed as "Allis Flat Ribbon Barbed Wire" patented by T.V. Allis, January 5, 1892. Number 623 is listed as "Buckthorn with Diamond Center Wire," patented by T.V. Allis, July 26, 1881. Extensive lengths of this type of wire were used for fencing-out or fencing-in, but were probably rather inefficient at this task and this style of barbed wire was expensive to produce. Use of this type of barbed wire would date from the date of patent (1881, 1892) until the particular model was no longer manufactured or distributed. Only chance would have brought such wire to this area, and it probably was not purchased after the mid-1890s.
3. A fragment of clear glass with a maximum dimension of 3/8", with nibbling/retouch apparent. The sample is too small to determine its manufacture.

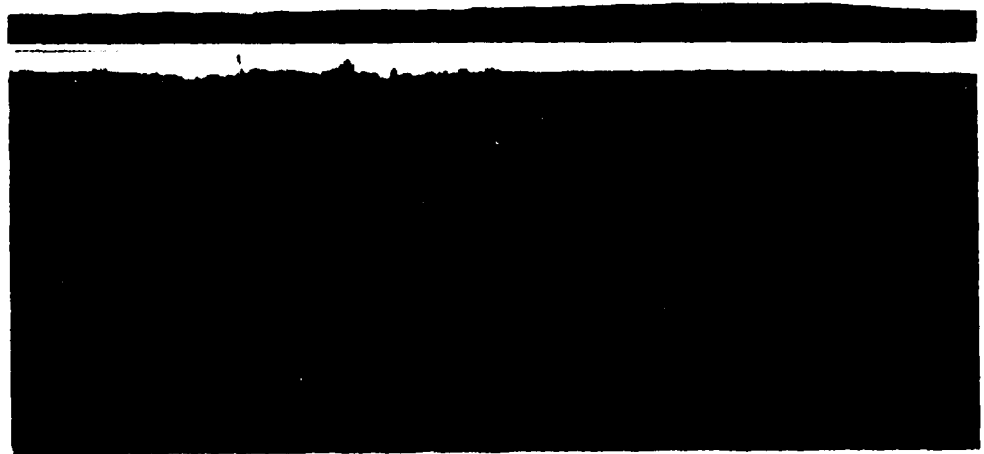


Plate 26. View from bench mark to datum 1 (at theodolite), site 39LM39,
Area B, facing E.



Plate 27. Keyhole depression (Area B) at 39LM39, facing SW.



Plate 28. Keyhole depression (Area B) at 39LM39, facing N.

The following items were also observed on the terrace in Area B (Figure 25 [2]) (no items were located on the shore):

Historic/Recent artifacts

One clear thin curved glass fragment.

One crock fragment.

Metal fragment, 1½ inches square, ?zinc.

Three fragments of the bottom of a transparent blue glass jar.

Fragment of cut nail.

Hook-shaped iron bar tool with notch in hooked end, ca. 17" x ½" x ½".

Small ironstone fragment, white with glaze on one side and red, white and blue decoration on the other side.

Small hard rubber fragment, ? from a mat, with ridges on one side; gray/black in color and ¾" in diameter.

Fragment of cast iron, 2" x 1½", curved, with a rim.

Fragments of leather boot sole.

Wire #9.

Whiteware fragment, ¾" thick.

Prehistoric artifacts [includes lithics and bone, some of which could have been modified in the historic period]

One Bijou Hills quartzite coarse biface fragment.

Small transverse scraper, 24 x 27 x 6mm.

Broken and retouched pebble of white chert.

Two prehistoric bodysherds, ¾" x ½".

Bone fragments.

Area C (Plate 29, Figures 19, 20 and 22)

This area represents the primary extant activity zone associated with Jewell Ranch. It is bounded on the north by a drainage ravine, on the west by the abandoned highway and on the east by the lake. On the south the boundary was placed at the edge of some weeds (in the southeast) along the line of a probable corral and proceeded west to the abandoned highway in line with Datum 3.

Only one item, Find #4, was collected from the slope of the drainage to the north. The specimen is a curved bodysherd (prehistoric)

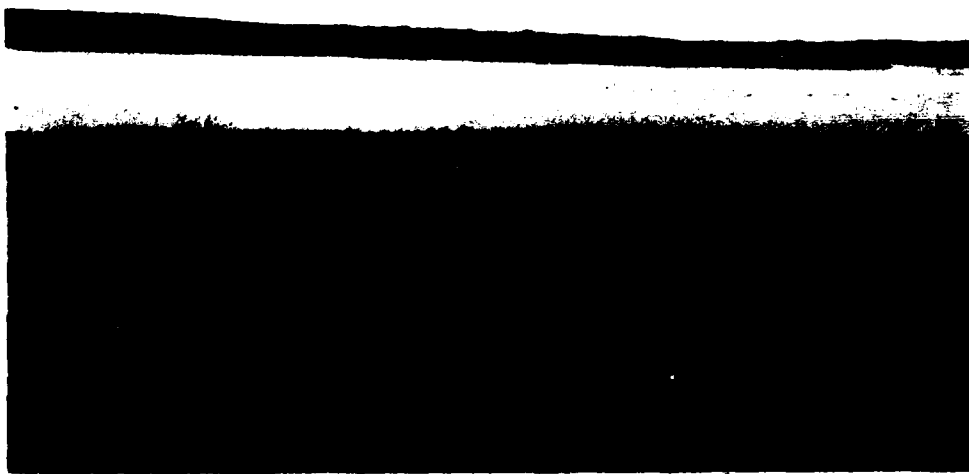


Plate 29. Overview of Area C, 39LM39, facing SE.

which exhibits a diagonal parallel incised line design on the exterior surface. The temper is angular grit.

Other materials observed in Area C are listed below:

Historic/Recent artifacts from the terrace (Figure 25 [3])

A pile of galvanized metal strips (Figure 12 - "Pile of Metal"), probably flashing from seams in a barn roof, and many other fragments scattered about the general area.

One transparent red glass fragment.

Bottom of a brown bottle.

Iron carriage bolt with a square nut.

Five flat glass fragments.

A general scatter of boards and posts, barbed wire and woven wire.

A cast iron flange, probably for a well pipe.

Two heavy bucket bails.

One steel can.

A clear glass jug bottom.

Historic/Recent artifacts from the beach (Figure 25 [6])

Metal latch handle/hook.

Glass bottle shoulder fragment, color shifted lavender due to manganese used in manufacture.

Prehistoric artifacts from the beach (Figure 25 [6])

Large Bijou Hills quartzite flake.

One plate chalcedony fragment.

One chalcedony flake.

One bifacially retouched plate chalcedony fragment.

White chert tertiary flake.

Bijou Hills quartzite biface fragment.

Large Bijou Hills quartzite unifacially retouched flake (immediately north of foundation in lake).

Features that are considered a part of Area C include a concrete post at the lake/drainage edge; a foundation jutting above the lake waters (Plate 30); a foundation recorded in 1983 as the footing for a cistern and windmill (?) (Lees, Brown and Mandel 1985:109), the plan of which (Lees, Brown and Mandel 1985:Figure 19) is reproduced here (Figure



Plate 30. Concrete foundation, part of Jewell Ranch, 39LM39, jutting above the waters of Lake Francis Case, facing S.

26, Plate 31); a spring with a corrugated culvert; and a poured concrete stock tank.

Area D (Plate 32, Figures 19, 20 and 23)

This locality encompasses the area evaluated/excavated in 1953. Its northern boundary abuts the southern boundary of Area C, the western and eastern boundaries are represented by the abandoned highway and the lake respectively, and the southern boundary is a drainage channel (dry).

Three items were collected from the beach in this area:

- F6. Prehistoric bodysherd and rimsherd.
- F7. Plate chalcedony biface.
- F8. Prehistoric rimsherd.

Other items noted in Area D include the following.

Historic/Recent artifacts from the terrace area (Figure 25 [4])

Two automobile headlights and lens fragments.

Stoneware fragment.

Brown bottle fragment.

Curved cast iron fragment, with rim.

Several light blue bottle and flat glass fragments.

Small scatter of purple glass fragments.

Small scatter of cast iron fragments.

Large spoon.

Four-hole button of white glass.

Ironstone fragment.

Wedge-shaped catlinite fragment.

Cut nail.

3/8" iron rod, threaded on one end.

Heavy iron strap.

Prehistoric artifacts from the terrace area (Figure 25 [4])

Tertiary flake of pink quartzite.

Two Bijou Hills quartzite biface fragments.

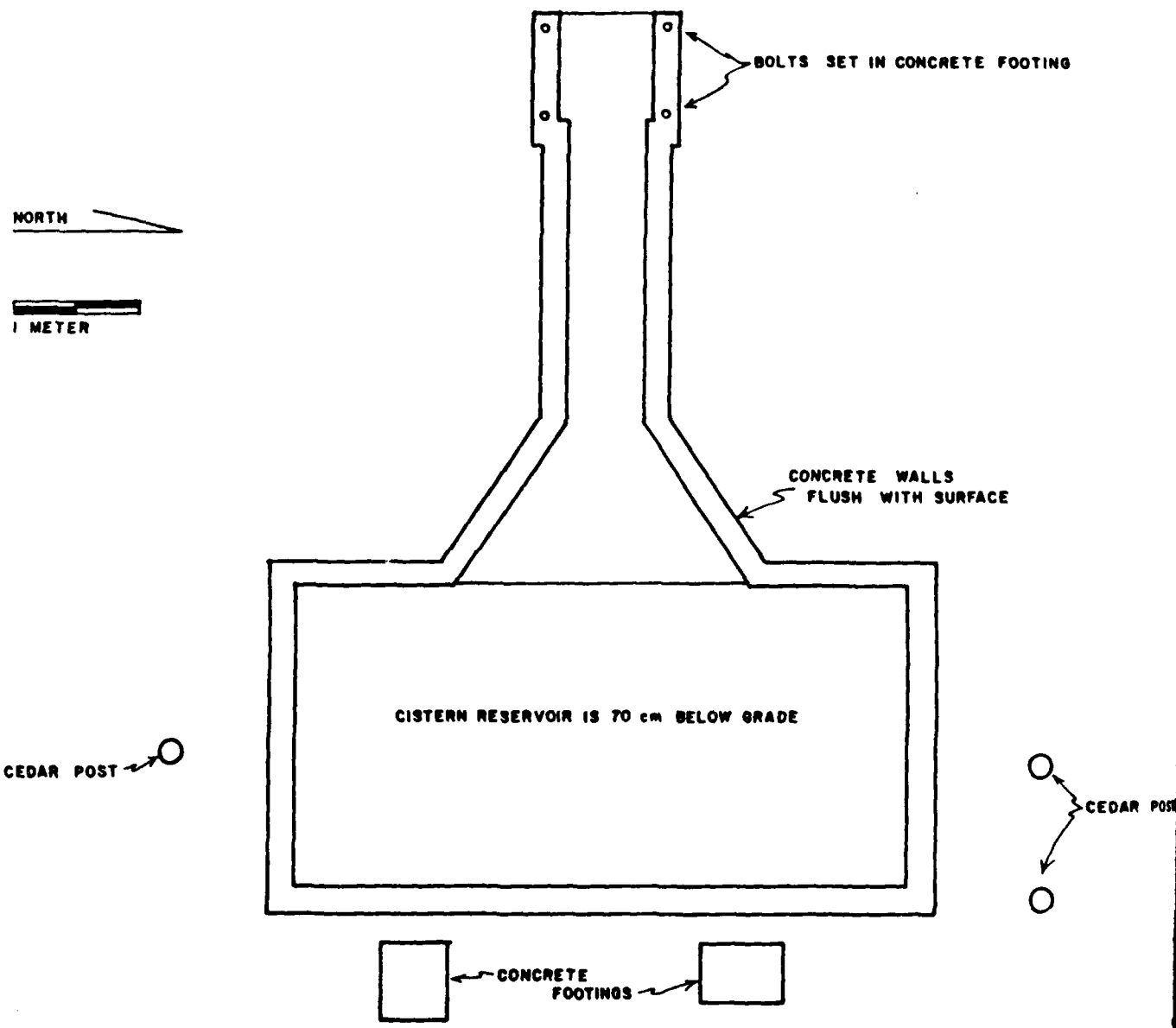


Figure 26. Plan of the twentieth century cistern/windmill base at 39LM39 (from Lees, Brown and Mandel 1985:Fig. 19).

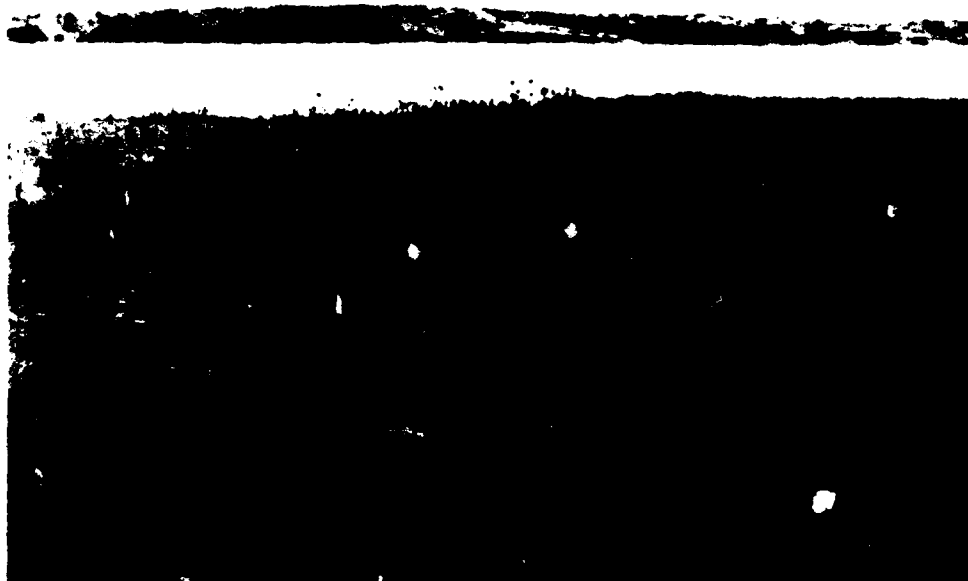


Plate 31. Remains of cistern/windmill foundation, Area C, 39LM39,
facing SE.



Plate 32. Overview of Area D, 39LM39, facing SE. Cattle feeder visible
to right of frame.

Historic/Recent artifacts from the beach area (Figure 25 [7])

Brown glass, 500ml medicine bottle with graduations on the side and a rubber, needle-top stopper (?veterinary). Located 60m west of foundation in water.

1/8" thick flat glass fragment.

Triangular cast iron fragment with "INCH" on it.

Cast iron fragment.

Ironstone china cup fragment.

Clear curved glass, 1/8" thick.

Blue glass, 1/4" thick.

Prehistoric artifacts from the beach area (Figure 25 [7])

Two tool-impressed prehistoric bodysherds.

Two thin prehistoric bodysherds (plain).

Seventeen prehistoric bodysherds (plain).

Tip of white chalcedony biface.

Large, brown chalcedony flake with one edge retouched.

Chalcedony shatter fragment.

Retouched flake, brown chalcedony.

Primary chalcedony flake.

Crude brown chalcedony transverse scraper.

Brown chalcedony shatter.

Chalcedony flake.

Plate chalcedony biface.

Three plate chalcedony biface fragments.

Plate chalcedony fragment, with flake removed.

Plate chalcedony fragment.

Brown silicified sediment tertiary flake.

Fragment of silicified sediment.

Biface tip of gray and black chert.

Retouched flake of yellow/brown chert.

Tertiary chert flake.

Transverse scraper of chert (similar to West Horse Creek chert).

Large brown mottled chert flake.

Small rough blank of white chert, ?heated.

Awl or punch of dark gray chert.

Triangular biface of red/brown chert.

Gray chert biface fragment.
Bijou Hills quartzite, unifacially retouched flake.
Six Bijou Hills biface fragments.
Four Bijou Hills quartzite tertiary flakes.
Quartzite tertiary flake.
Dark brown quartzite fragment.
Two quartz secondary flakes.
Scatter of bone (bison?), some burned.
Mandible fragment, deer?

Features located within Area D include: 1) a depression just southwest of Datum 3 [test-trenched in 1953] (Plate 33); 2) a second depression to the south of the depression described above (1), referred to in the 1983 survey report as Locus C(9-3)15 (Plate 34); and 3) a third depression to the southeast of the latter (Plate 35). The location of the third depression most closely approximates the data presented for the 1953 excavations of Feature 3. Disturbances resulting from the 1953 excavations of Feature 1 are clearly located in the cutbank and on the terrace edge (Plate 36). The faint traces of an old roadbed, recorded on the 1953 map, are still visible in places.

The 1953 map (Figure 18) indicates a cluster of four depressions, two in the line of the old roadbed and two to the south. These depressions could not be relocated. Two cores (Figure 23 - A and B) were extracted from the center of two vague undulations/depressions in this area. Core A produced homogeneous brown clay from 0-40cm, and dark brown clay from 40-50cm. Core B produced clay from 0-20cm, and clay with calcium carbonate deposits from 20-40cm. The core samples were passed through $\frac{1}{4}$ " hardware cloth. No cultural material was recovered. The only other feature in Area D was a modern, operational cattle feeder.

Area E (Plate 37, Figures 19, 20 and 24)

This locality represents an additional area of historic activity. It is defined to the north by a dry drainage channel, to the east by the lake, to the west by the abandoned highway, and to the south by a line of dense vegetation. Prehistoric and historic materials occur as a low density scatter on the terrace. A predominately prehistoric scatter



Plate 33. Depression nearest abandoned highway, 39LM39, Area D,
facing S.



Plate 34. Central of three depressions at 39IM39, Area D, facing NW.



Plate 35. Apparent depression, southernmost of three at 391M39, Area D, facing SE. This is probably the site of the 1953 excavations of Feature 3.



Plate 36. View of site of 1953 excavations at Feature 1, facing S. Person in foreground and flags mark narrow linear trench extending from main excavation area. Person in background standing at west edge of main excavation area.



Plate 37. View from 39LM39, Area G (foreground) to Areas F (center-right of frame) and E (left-center of frame in front of isolated tree), facing NE.

extends on the beach from Area D, is interrupted in Area E, then resumes and extends into Area F.

One item recovered from the abandoned highway, Find #5, was collected. An item from the northerly beach scatter, Find #9, and one from the southerly beach scatter, Find #10, also fall within Area E, as defined above. Find #5 is an opaque chalcedony scraper; Find #9 is a Bijou Hills quartzite biface; and Find #10 is a prehistoric bodysherd.

Other items noted from Area E include:

Historic/Recent artifacts from the general terrace area
(Figure 25 [5])

Curved bottle glass fragment, cloudy/clear, 5mm thick.

Iron rod, 5mm in diameter.

Two clear bottle glass fragments, 3mm thick.

Ax head, 180mm long and 83mm wide at hafted end, 102mm wide at blade end, 60mm long and 22mm wide at widest part of haft socket.

Prehistoric artifacts from the general terrace area (Figure 25 [5])

Three plain light gray ceramic bodysherds, 3-5mm thick.

Historic/Recent artifacts from around the depression
(Figure 25 [11])

Flat clouded glass fragment, 2mm thick.

Bluish-tinged glass fragment, side and part of base, 5mm thick.

Cast iron fragments, possibly stove parts.

Several small glass fragments.

Prehistoric artifacts from around the depression (Figure 25 [11])

Bijou Hills quartzite tertiary flake.

Gray chert tertiary flake.

Milky white chert tertiary flake.

Several Bijou Hills quartzite flakes.

Bone fragments.

Historic/Recent artifacts from the beach (Figure 25 [8])

Square iron nail.

Prehistoric artifacts from the beach (Figure 25 [8])

Numerous Bijou Hills quartzite flakes.

Two Bijou Hills quartzite retouched flakes.

Many large and small bone fragments.

Several ceramic bodysherds (plain).

Decorated ceramic bodysherd, 6mm thick.

Ceramic bodysherd with incised lines (lines 1mm wide).

Ceramic bodysherd, very hard, decorated with shallow incised lines, 5mm wide.

Quartz pebble shatter.

Quartz hammerstone (?) fragment.

Three white quartz flakes.

Quartz fragment.

Plate chalcedony knife fragment.

Plate chalcedony knife, 48mm x 33mm x 5mm, retouched on three margins, fourth margin broken.

Three dark gray chert retouched flakes.

Transverse scraper of opaque/light gray chert, 31mm x 22mm x 6mm.

Two gray-banded chert secondary flakes.

Jasper tertiary flake.

In addition to a metal post supporting an illegible sign which is located on the abandoned highway, the only other feature visible in Area E was a previously unrecorded circular depression, 7.0m-7.5m in diameter and 10cm in depth (Plate 38). A single core was placed in this depression (Figure 24, Core 4). This core is described below:

- | | |
|---------|---|
| 0-15cm | Dark brown silt with very minute fragments of bone and charcoal flecks present. |
| 15-25cm | Yellowish-brown silty clay with charcoal flecks. |
| 25-35cm | Dark brown and very dark grayish-brown silt with charcoal flecks continuing. |
| 35-40cm | Scraps of rusted sheet metal recovered. |
| 40-50cm | Below metal - numerous small stones/gravel in a dark gray silty clay matrix. |
| 50-60cm | Into a clay with calcium carbonates, dense and hard packed. No cultural material. |



Plate 38. View of depression, 39LM39, Area E, facing E.

Area F (Plate 37, Figures 19, 20 and 24)

This area includes that portion of the lake cutbank in which several prehistoric features are exposed, and a relatively dense scatter of prehistoric material on the beach. The northern boundary is the line of weeds which also forms the southern boundary to Area E; the abandoned highway is the west boundary; the lake forms the east boundary; and the south boundary is defined as the end of the beach scatter, which follows a slight inlet (Figure 24).

Little material was recovered from the actual terrace surface (Figure 25 [10]), but finds 11-17 (see Appendix 6) were collected from the beach/cutbank (Figure 25 [9]) and several features were noted. These finds and features are described below.

F11. Rimsherd.

F12. Two rimsherds and a bone tool.

F13. Rimsherd.

F14. A 40d nail, of common cut, which has undergone the annealing process to prevent rupture when clinched. This process was invented in 1871, so the nail postdates that time.

F15. Rimsherd.

F16. Rimsherd.

F17. Canine tooth (immediately above Feature 4).

Features exposed in the lake cutbank (Figures 27-32, Plates 39-44) are:

Feature 1. Ash and bone (Figure 27, Plate 39).

Feature 2. Ash and charcoal (Figure 28, Plate 40); soil/C14 sample taken.

Feature 3. Ash, charcoal and reddened earth (Figure 29, Plate 41).

Feature 4. Ceramics, bone, ash and charcoal (Figure 30, Plate 42); soil/C14 sample taken.

Feature 5. Pit? - bone and ceramics (Figure 31, Plate 43).

Feature 6. Ash, hearth? (Figure 32, Plate 44). This was later partially excavated (see Excavation of Feature 6) and soil/C14 samples collected.

Between Features 4 and 5 there is a pebble lens with scattered cultural material, suggesting an occupation layer.

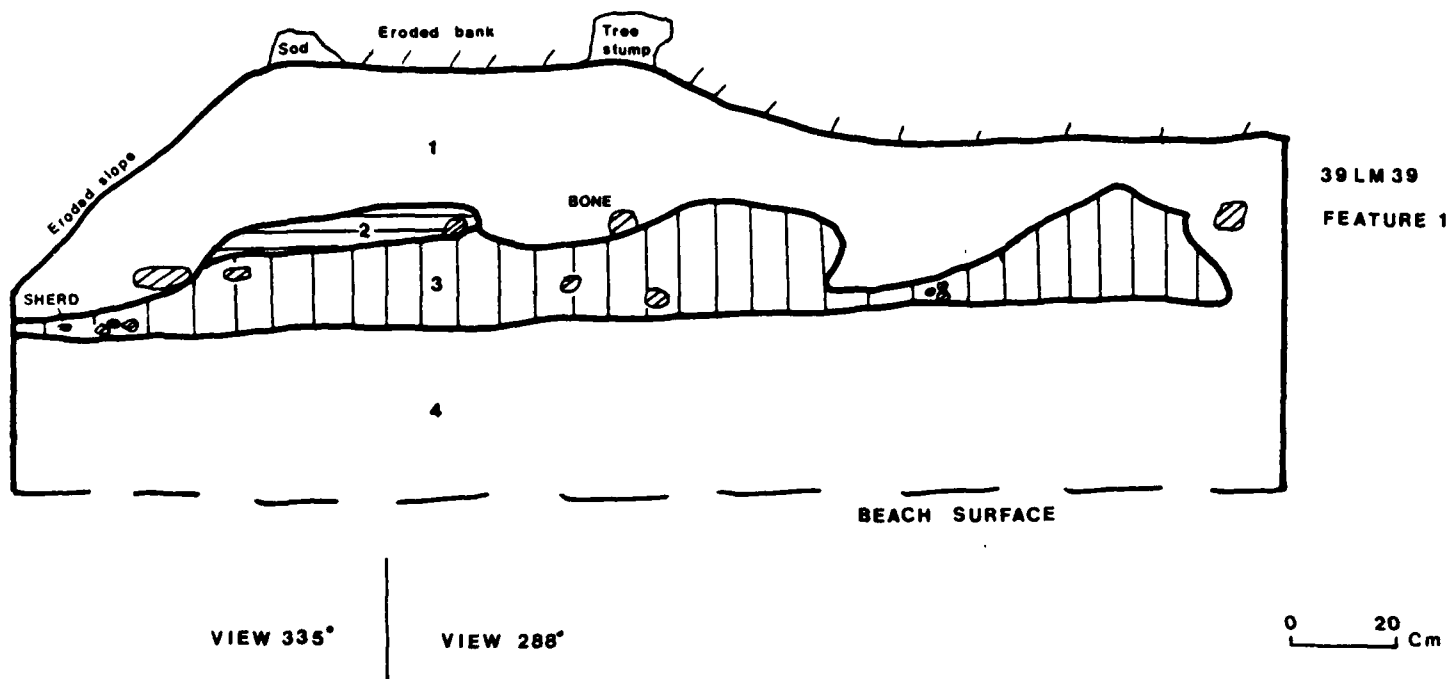


Figure 27. Cutbank profile of Feature 1, 39LM39.

- 1 = Dark black crumbly silty clay
- 2 = Light gray ash
- 3 = Mottled gray ashy clay
- 4 = Blocky gray/brown clay

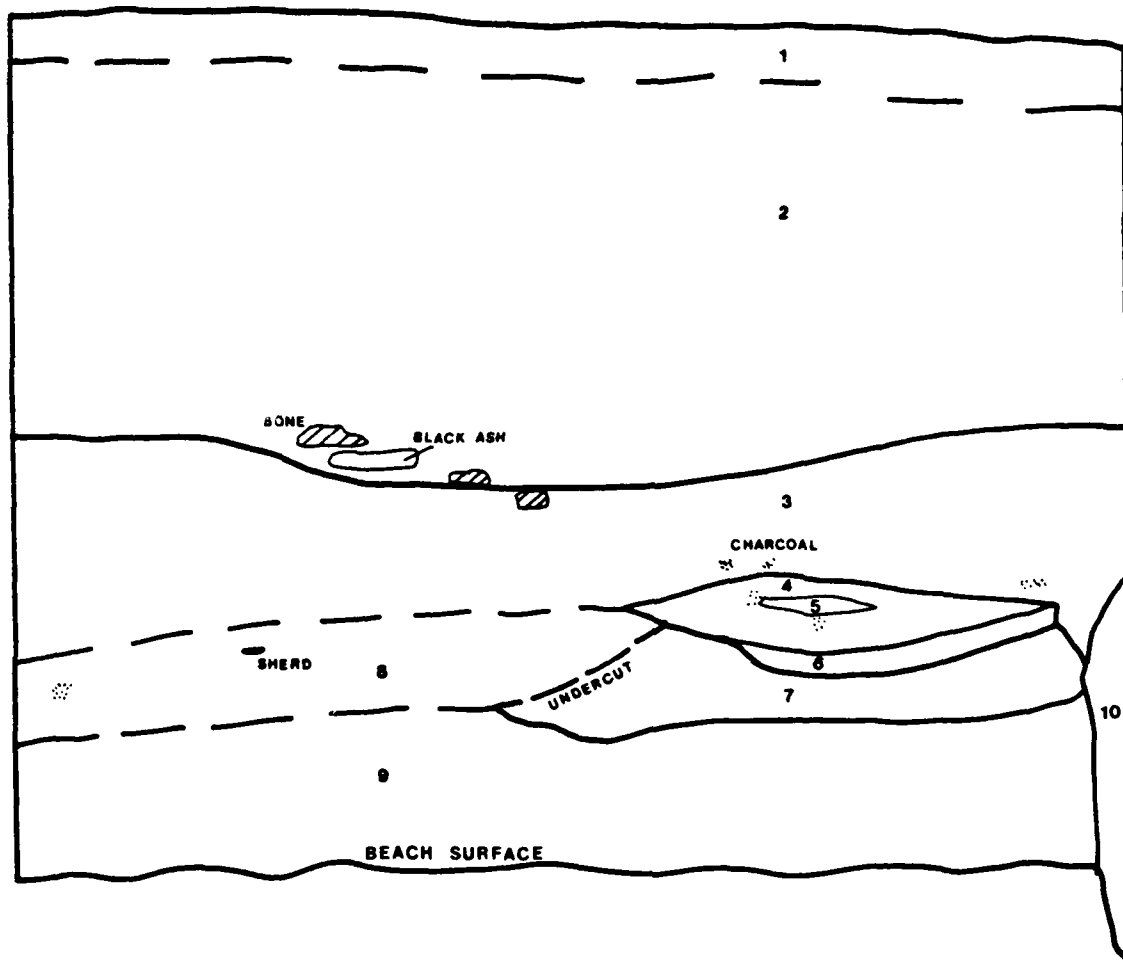


Figure 28. Cutbank profile of Feature 2, 39LM39.

- 1 = Top soil
- 2 = Dark gray blocky silty clay
- 3 = Blocky gray/brown clay
- 4 = Light gray ash
- 5 = Dark gray with charcoal
- 6 = Dark gray soil
- 7 = Brown clay with sand and pebbles
- 8 = Light gray soil
- 9 = Blocky brown clay
- 10 = Bank undercut by reservoir action

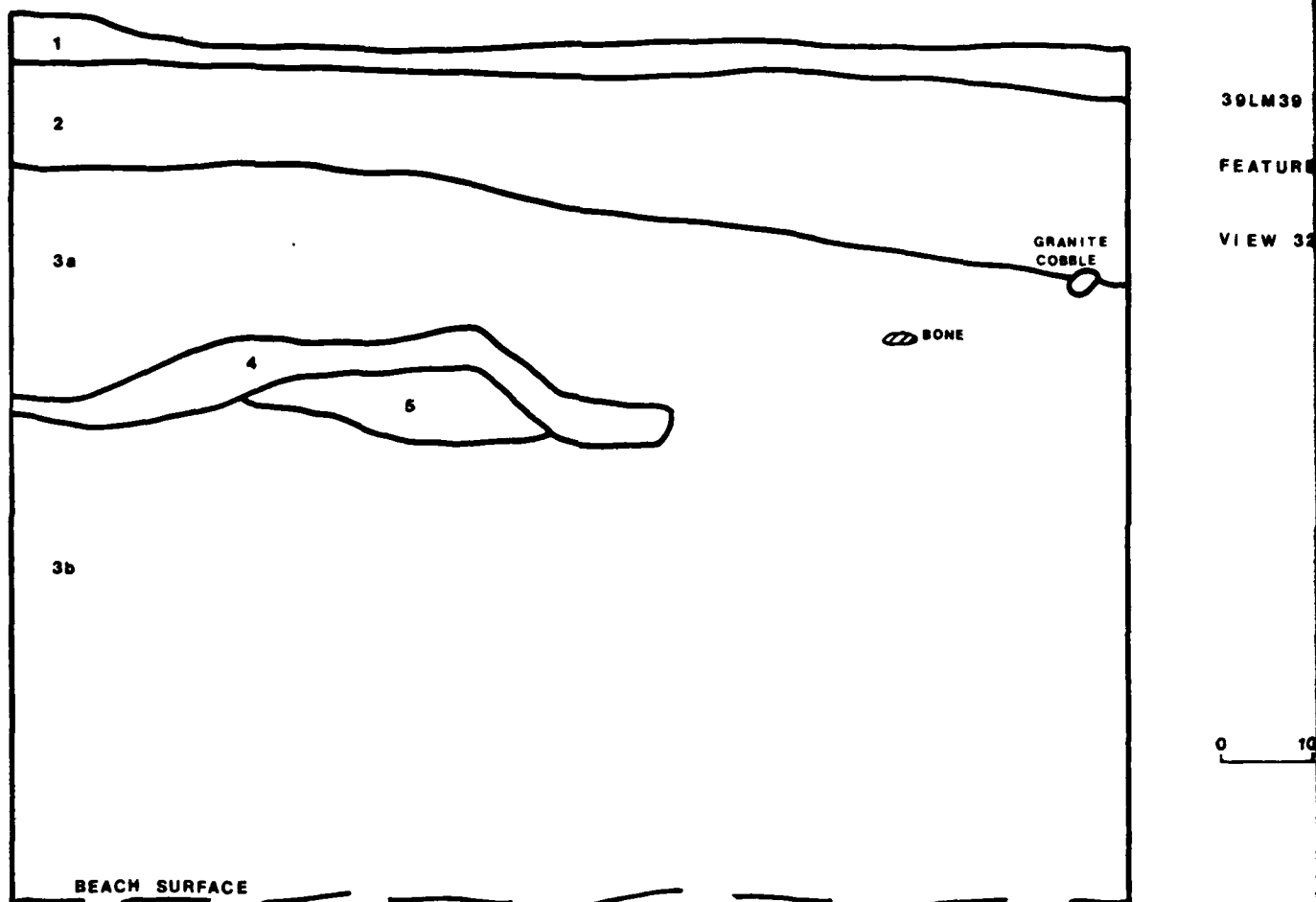


Figure 29. Cutbank profile of Feature 3, 39LM39.

- 1 = Top soil
- 2 = Dark soil zone
- 3a = Brown blocky soil
- 3b = Brown blocky clay
- 4 = Light gray/tan ash and charcoal fragments
- 5 = Gray blocky soil with caliche

39LM39
FEATURE 4
VIEW 250°

0 10 Cm

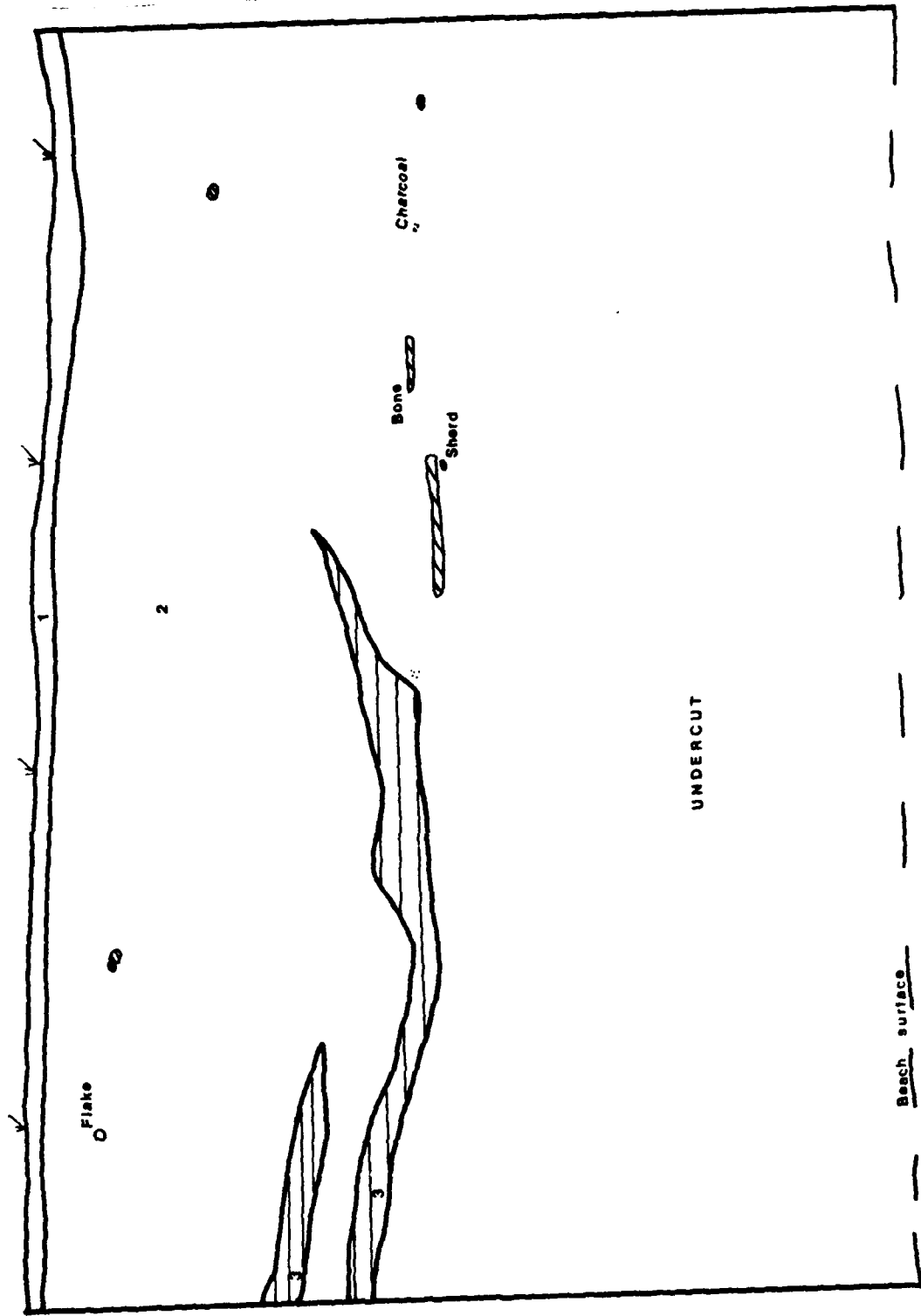


Figure 30. Cutbank profile of Feature 4, 39LM39.

1 = Humus layer; 2 = Blocky gray/brown clay; 3 = Light gray ash

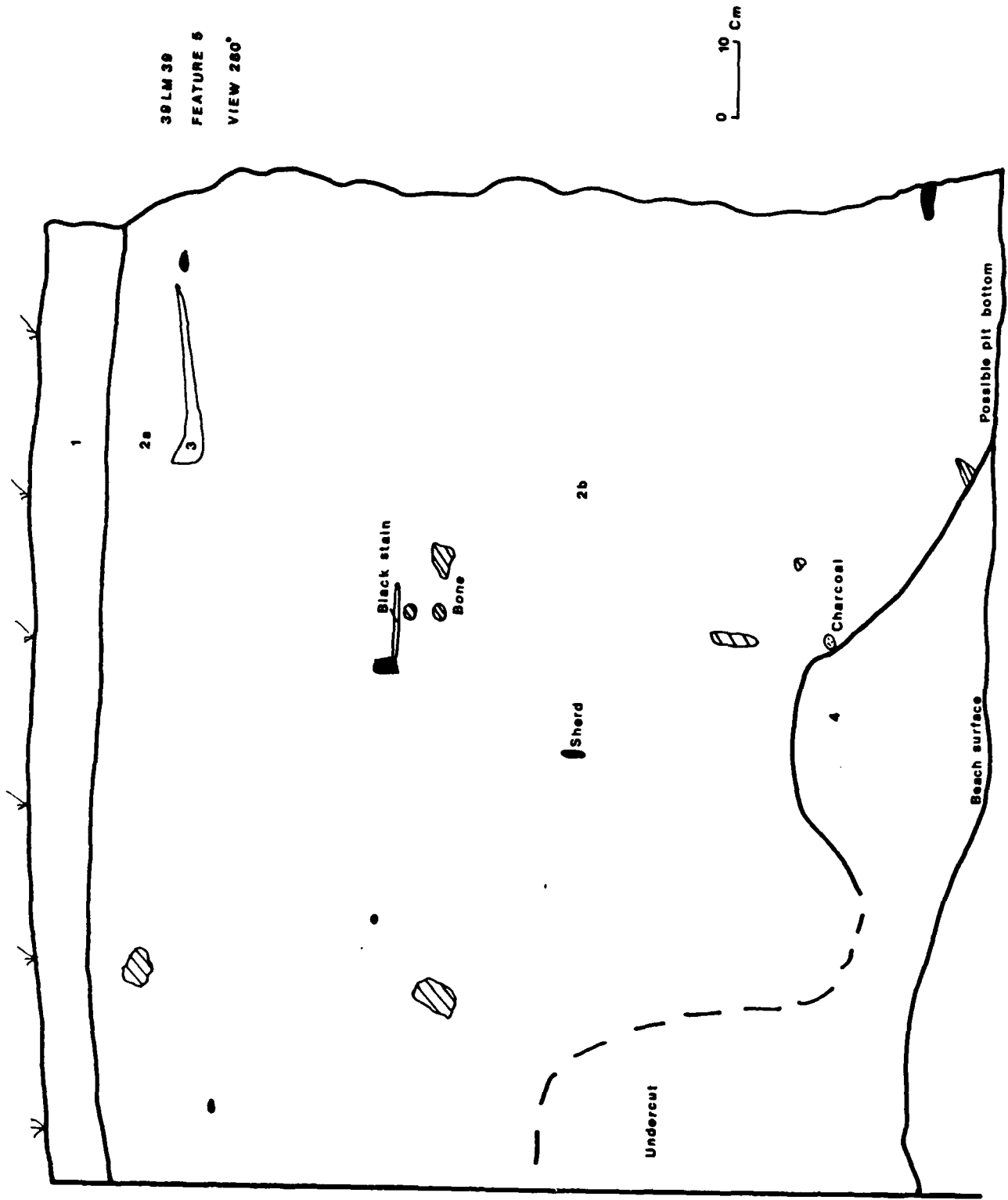


Figure 31. Cutbank profile of Feature 5, 39LM39.

- 1 = Humus layer; 2a = Blocky gray/brown clay; 2b = Dark gray clay;
- 3 = Red, white and dark gray mottled soil; 4 = Brown clay

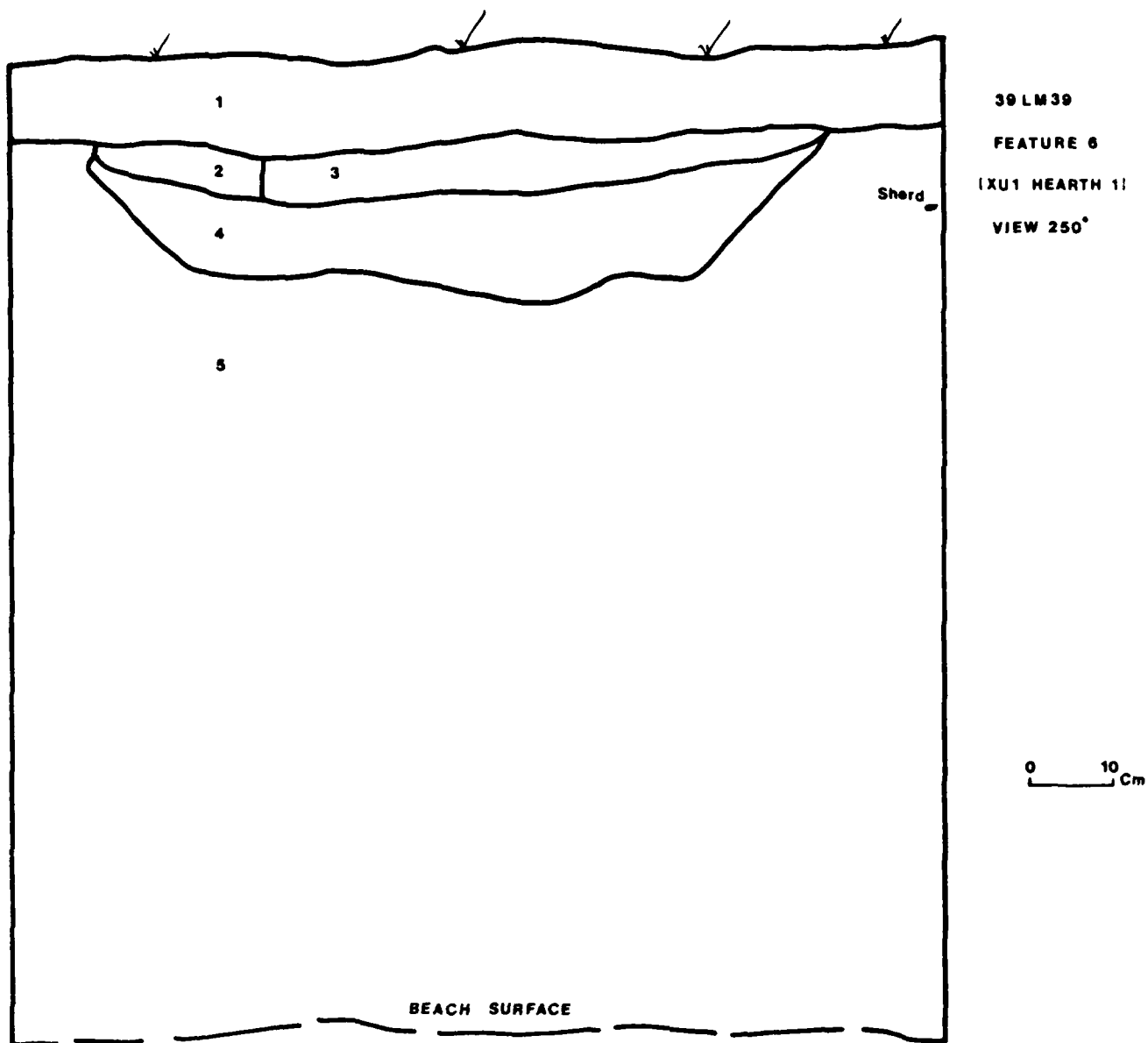


Figure 32. Cutbank profile of Feature 6, 39LM39 [Hearth 1, Excavation Unit 1].

- 1 = Sod layer
- 2 = Dark gray ash
- 3 = Light gray ash
- 4 = Reddish fired earth with ceramics and bone
- 5 = Blocky gray/brown soil



Plate 39. 39LM39, Feature 1, exposed in cutbank Area F, facing W.



Plate 40. 39LM39, Feature 2, exposed in cutbank Area F, facing W.



Plate 41. 39LM39, Feature 3, exposed in cutbank Area F, facing W.



Plate 42. 39LM39, Feature 4, exposed in cutbank Area F, facing W.



Plate 43. 39LM39, Feature 5, exposed in cutbank Area F, facing W.



Plate 44. 39LM39, Feature 6, exposed in cutbank Area F, facing W.

Three cores were extracted inland from the terrace edge (Figure 24, Cores 1, 2 and 3) and are described below.

Core #1	0-20cm	Dark brown silty clay loam. Two bodysherds.
	20-30cm	Bone cut through at 21cm b.s., charcoal flecks present.
	30-50cm	Dark brown silty clay. No cultural material.
Core #2	0-25cm	Very friable, brown silty clay. Two bone fragments recovered from screening.
	25-40cm	Still friable and more pebbles. Possibly an old burrow?
Core #3	0-20cm	Brown silty clay. Two small bone fragments.
	20-40cm	Very friable, brown silty clay. Two bodysherds.
	40-50cm	Clay and gravels - blocky matrix. No cultural material.

Other materials noted in Area F are listed below:

Prehistoric artifacts on south end of the terrace (Figure 25 [10])

Two plate chalcedony fragments.

Four Bijou Hills quartzite flakes.

A few bone fragments.

Prehistoric artifacts near Core #3

Bijou Hills quartzite primary flake.

Bone and burned bone fragments.

Historic/Recent artifacts west of Core #2

Two glazed whiteware fragments, 5mm thick, glazed on interior and exterior.

Historic/Recent artifacts from the beach (Figure 25 [9])

Lead fishing weight.

Iron bar with decorated latch-type figure.

Prehistoric artifacts from the beach (Figure 25 [10])

Smoothed over incised bodysherd.

Trailed bodysherd with large quartz grit temper, 5.7mm thick.

Trailed bodysherd.
Numerous incised bodysherds (some incised lines 1mm wide).
Numerous Bijou Hills quartzite flakes.
Occasional brown quartzite flakes.
Retouched dark gray shale fragment.
Scapula hoe, ridge removed.
Several bone fragments.
Worked bone fragment, polished and incised.
Several plate chalcedony fragments.
A few plate chalcedony knife fragments.
A variety of chert debitage.
Unifacially retouched pebble core of tan chert, 40mm x 30mm x 11mm.
Dark gray silicified wood flake.
Shell fragments.

Areas G and H (Plates 45 and 46, Figures 19, 20 and 24)

These two locales are the only areas defined to the west of the abandoned highway. Area G is the southernmost area defined at this site, the focus being a small knoll or hill containing concentrations of prehistoric materials. The boundary between Area G and Area H is a drainage channel (see Figure 19). Area H has no real focus, but there is some prehistoric material in the vicinity of a two-track and on the slopes of another knoll/hill. A small prehistoric cultural material scatter also occurs in the southeast portion of Area H, in a corner formed between the abandoned highway and the drainage channel.

No features were recorded in these areas; only scatters of prehistoric material and occasional historic/recent items were encountered. No material was collected.

The following materials were noted in Areas G and H:

Area G - Hilltop (Figure 25 [14])

Cast metal fragment.
Bone fragments.
Core shatter fragment of translucent gray chalcedony.
Quartz fragment, probably off a hammerstone.
Transverse scraper of gray chert, 34mm x 24mm x 8mm.
Bodysherd decorated with incised parallel lines.



Plate 45. View of 39LM39, Area G, facing SW.



Plate 46. View from 39LM39 Area G to Area H (north of drainage), facing NW.

Large retouched Bijou Hills quartzite tertiary flake, 60mm x 74mm x 10mm.

Fire-cracked granite fragments.

Two incised bodysherds.

One plain bodysherd.

Bijou Hills quartzite blade fragment.

Secondary flake of silicified wood.

Tertiary flake of gray chert.

Small scatter of Bijou Hills flakes.

Heat-treated white chert fragment.

Gray chalcedony tertiary flake.

Transverse scraper, milky white/dark gray chert (broken), 21mm x 26mm x 5mm, retouched on all margins.

Quartz shatter.

Gray chert shatter.

Tertiary flake, milky white chalcedony.

Shatter of light brown chert.

Flake struck off a pebble of dark brown chert.

Crude biface of light gray silicified wood, 40mm x 35mm x 10mm.

Area G - Between the hilltop and the drainage channel

(Figure 25 [15])

Brown amber bottle base fragment.

Clear curved glass fragment, 3mm thick.

Bijou Hills quartzite flake.

Gray/white chert shatter fragments.

Brown chalcedony tertiary flake.

Retouched gray chert flake.

Dark gray chert shatter.

Gray chert tertiary flake.

Brown chalcedony tertiary flake.

Cream, yellow and brown banded chert flake.

Area G - In two-track by drainage channel (Figure 25 [16])

Plain gray bodysherd, 6mm thick, with sparse, medium-sized grit tempering.

Scattered bone fragments.

Bifacially retouched plate chalcedony fragment.
Shell fragment.
Tertiary flake of quartz.

Area H - On hill slope and along two-track (Figure 25 [12])

Plain gray ceramic sherd, 3mm thick.
Tan/gray bodysherd, 4mm thick.
Shoulder sherd, 6mm thick.
Primary flake of tan/gray chert.
Bone fragments.
Quartz pebble fragment.
Plate chalcedony knife fragment.

Area H - Concentration between abandoned highway and drainage channel (Figure 25 [13])

Plain bodysherd, 3mm thick.
Plain bodysherd, 5mm thick.
Eleven+ plain bodysherds.
Decorated bodysherd, incised lines 4mm wide.
Light tan plain bodysherd, 9mm thick, very hard.
Brown chert shatter.
Bone fragments.
Quartz fragments.
Several Bijou Hills quartzite flakes.
Dark gray chert secondary flake.
Fire-cracked rock.
Quartz flake.
Brown/gray quartzite secondary flake.

Excavation of Feature 6

Given the features exposed in the erosional cut in Area F, the opportunity arose to retrieve samples of the prehistoric component at this site for C14 dating. With this in mind, a unit slightly larger than 1m x 1m was placed over the ash lens exposed in the erosional cut, designated Feature 6.

This unit was excavated as follows (Figure 33):

Level 1 0-7cm

Level 2 7-12cm The edge of Feature 6 (labeled Hearth #1) was defined at this level (Plates 47 and 48). The ash layer of Hearth #1 was removed (Plate 49), and collected as Sample 2. The reddened earth layer of Hearth #1 was removed and collected as Sample 3.

Level 3 12-20cm The west side of the unit was not excavated to the base of this level.

Level 4 20-25cm At this depth, a second circular-shaped ash deposit appeared (Plate 50) which was labeled Hearth #2, and a third, labeled Hearth #3, was visible in the south-facing section (Figure 33, Plate 50). Hearth #2 was half-sectioned; the ash deposit was 1-2cm in depth, with ceramics, bone, and charcoal flecks noted in a reddened soil for 2-3cm below that. The fill was sampled and labeled Sample 1.

At this point in the excavation, the complexity of the site could not be adequately evaluated on the basis of a 1m x 1m unit. Because we believed the goal of obtaining C14 samples had been accomplished, and a substantial quantity of cultural material had been collected (Appendix 6), no further excavation was undertaken and the unit was backfilled. A summary of the bone and lithic material recovered from this unit is presented in Tables 6 and 7.

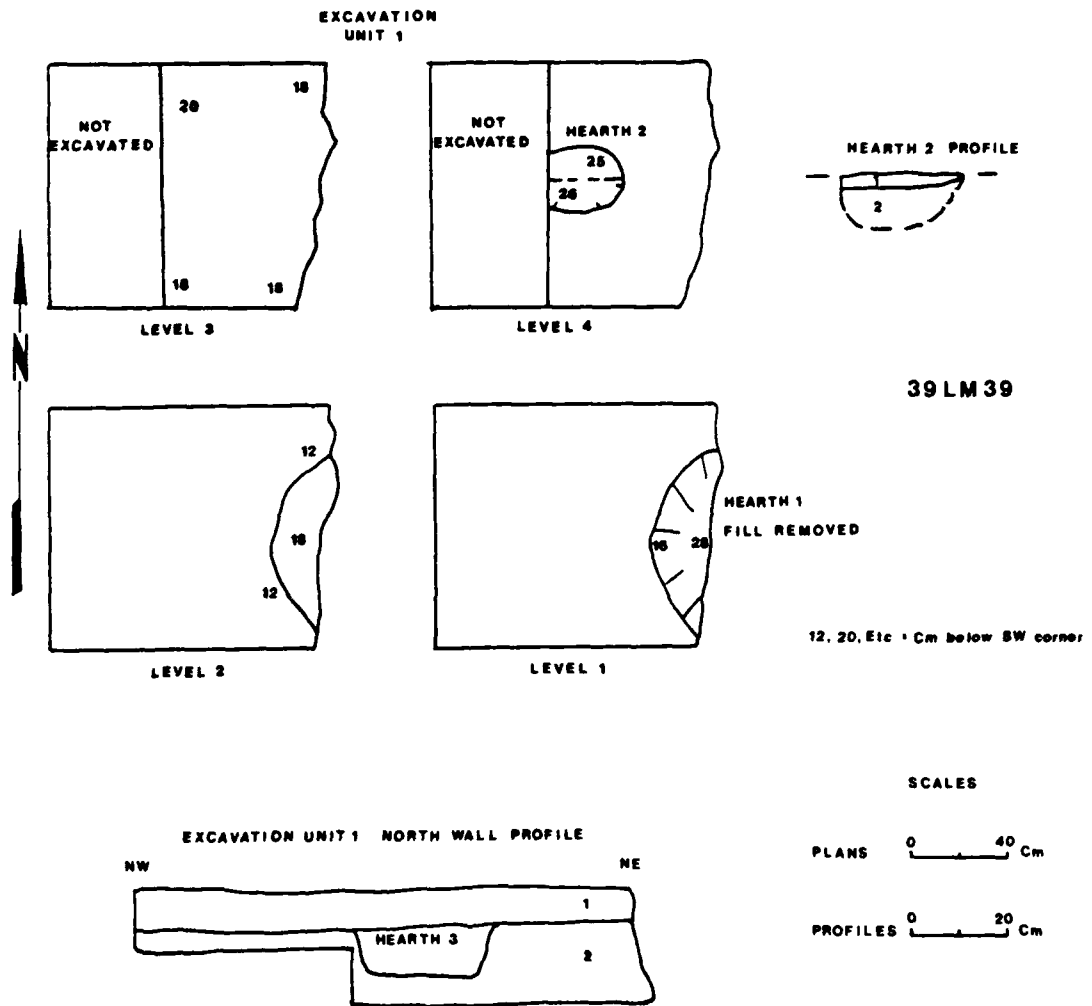


Figure 33. Plans of Excavation Unit 1, levels 1 to 4, and profiles of Hearths 2 and 3.

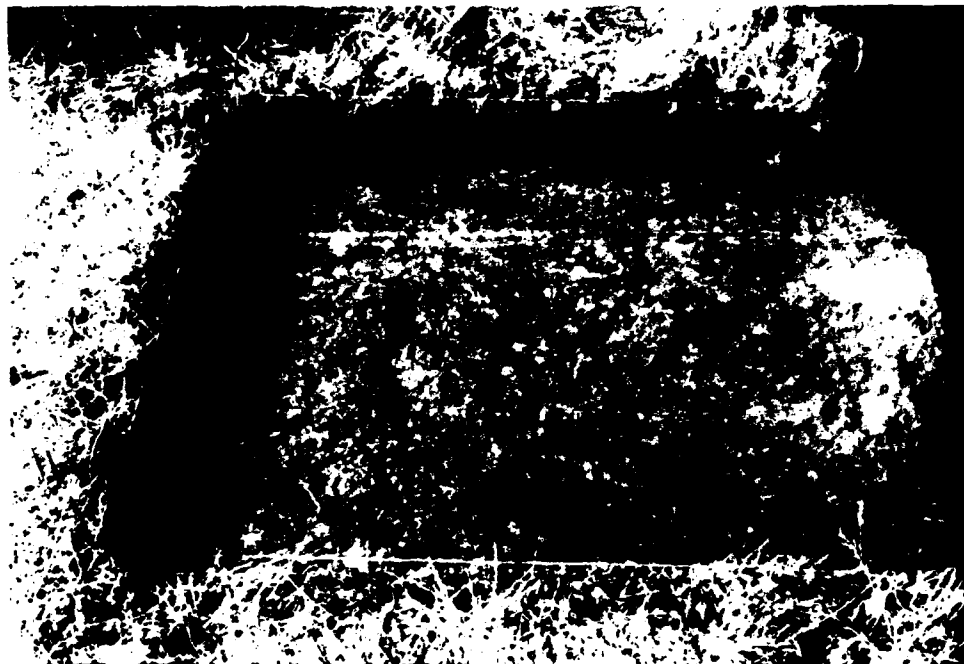


Plate 47. 39LM39, Excavation Unit 1, facing NW, prior to excavating
Hearth #1.



Plate 48. Detail of Hearth #1, Excavation Unit 1, 39LM39, prior to
excavation.

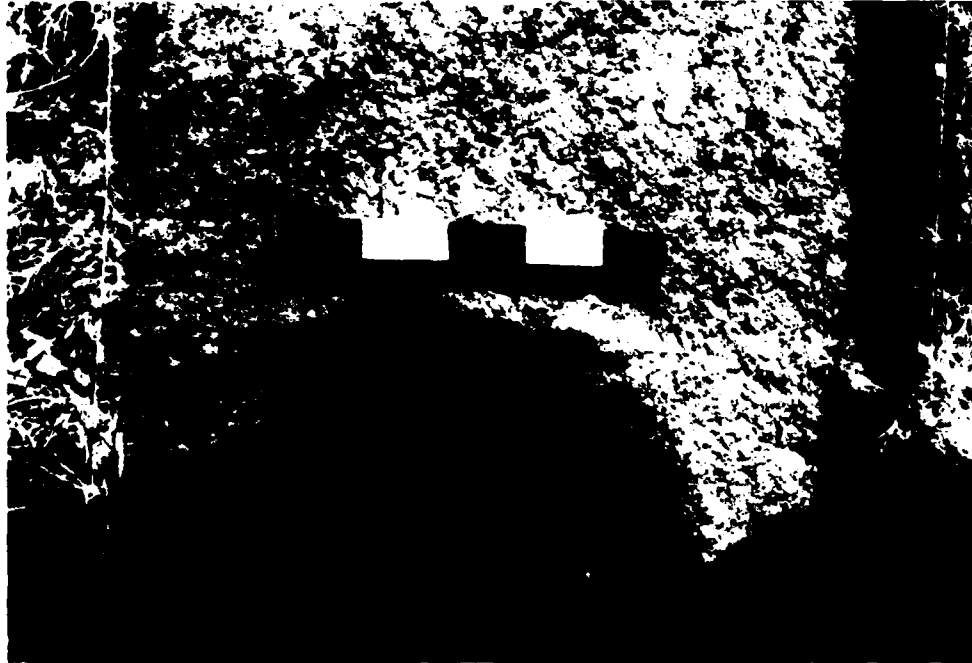


Plate 49. Detail of Hearth #1, Excavation Unit 1, 39LM39, after excavation.

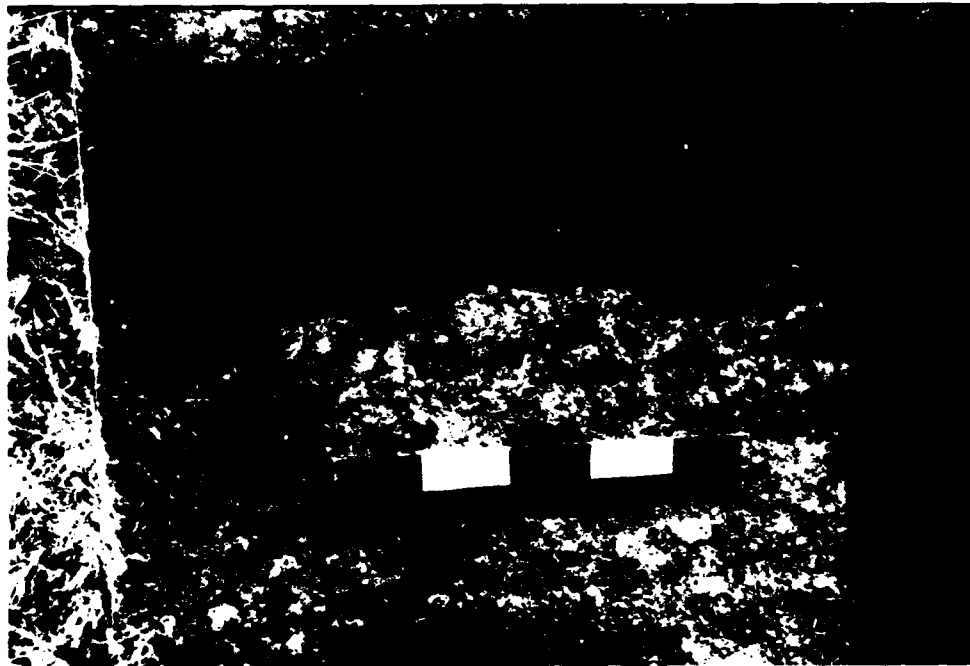


Plate 50. 39LM39, Excavation Unit 1; Hearth #2 exposed on floor (left center of frame) and Hearth #3 visible in south-facing profile.

Table 6. Summary of Bone and Chipped Stone (Excluding Core Fragments) from Excavation Unit 1 (Feature 6), 39LM39.

	BONE WEIGHT (g)	CHIPPED STONE NUMBER	CHIPPED STONE WEIGHT (g)
HEARTH 1	9.4	9	2.0
HEARTH 2	55.0	1	1.9
LEVEL 1	11.6	25	17.1
LEVEL 2	53.6	8	22.5
LEVEL 3	18.4	11	52.5
LEVEL 4	91.9	7	5.4

Table 7. Numbers of Chipped Stone Items (Debitage, Tool Fragments) by Location and Raw Material Type from Excavation Unit 1 (Feature 6), 39LM39.

RAW MATERIAL TYPE	HEARTH 1	HEARTH 2	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	TOTAL
Bijou Hills quartzite	0	0	3	0	0	0	3
Chert	1	1	0	2	2	2	8
Chalcedonies	3	0	15	3	6	0	27
Quartz	5	0	6	3	3	2	19
Quartzite	0	0	1	0	0	0	1
Petrified wood	0	0	0	0	0	2	2
Jasper	0	0	0	0	0	1	1
TOTAL	9	1	25	8	11	7	61

Analysis and Evaluation of Site 39LM39

The evaluation and analysis of the Deerfly site focuses on two of its components, the late nineteenth century/early twentieth century historic component, considered in part to include a nineteenth century Dakota occupation, and the prehistoric occupation, regarded as Extended Coalescent. The most recent cultural component, Jewell Ranch, is not discussed here, since the majority of the component has been destroyed and is now inundated by Lake Francis Case.

Laboratory methods consisted of processing all collected artifacts (washing, marking, describing, and cataloging), with a detailed examination of potentially diagnostic materials (ceramic rimsherds) to determine cultural affiliations. Technical illustrations of diagnostic materials and other selected artifacts were also accomplished.

Collected non-diagnostic materials (lithic debitage, bone fragments) and the historic artifacts (none of which could be definitely assigned to a nineteenth century Dakota occupation) were described, and the lithic and bone material was weighed. A summary of the lithic and bone material recovered from the excavation unit at 39LM39 has been presented above.

Additionally, comparisons of the data collected in 1983 with that generated by the 1986 evaluations were made and a general review of the topography, geomorphology and soils in relation to the cultural material distributions was accomplished.

Historic component

Prior work at this site, as it relates to the historic component, has been summarized by Lees (1985). Lees states that the 1953 investigations resulted in the examination of six possible cultural features, including four circular depressions and two possible fortification ditches. "These profiles of road ditches, prepared to evaluate two apparent fortifications, revealed little evidence for a cultural origin of these features. Similar results were obtained from two of the four tested depressions at 39LM39" (Lees 1985:106). Testing of what were designated Features 1 and 3, however, produced considerable cultural information.

Feature 1 (Figure 18) exposed a hearth in the center of the depression and a distinct layer of yellow clay flecked with whitish-colored ash and charcoal fragments, ranging from 2 to 4 inches in thickness.

...the vast majority of artifacts recovered in association with Feature 1 originated in the yellow clay zone. Overall, however, a very small number of artifacts were found in association with this feature. Of 118 artifacts, representing only 11% of the Deerfly assemblage, 83 were bones and teeth. Of the remaining 35 artifacts, most were bottle (22) and window glass (5) fragments [Lees 1985:107].

The excavation of Feature 3 (Figure 18) exposed a structure with a yellow-orange burned earth area similar to Feature 1, within which artifacts of European origin were recovered.

...the structure was defined as well as an area of yellow clay adjoining the structure to the southeast but separated from it by a ridge of hard packed clay. This was interpreted as a possible second structure or a lean-to room attached to the main structure...(see Figure 17)...several horizontally placed logs [were] along the northwest wall and corners. At the west corner of the structure, two logs were observed to cross one another. Overall, these features suggest the structure was probably of log construction [Lees 1985:107].

It was concluded that Features 1 and 3 were similar in origin, and Lees argues that the yellow clay zone represents the floor of these structures. Unlike Feature 1, Feature 3 produced numerous artifacts (831). A large percentage of these artifacts were associated with the yellow clay zone, and many were located in the eastern corner of the main room of the structure.

Lees's analysis of the Deerfly assemblage was designed to examine the hypothesis that the site equated to a historic Dakota occupation. For the hypothesis to be valid, it was necessary for Lees to show that 1) the site's assemblage is consistent in age with the known occupation of the area by the Dakota (i.e., dates prior to 1900), and 2) that the assemblage is significantly different from that which would be expected at a Euro-American settlement as is documented in the area after 1900 and which is possible prior to that date.

In reviewing Lees's article, Loren Horton (Historical consultant) made the following observations regarding the historical records and the age of the assemblage. Horton's complete report is located in Appendix 11.

Comments on the historical records (by L. Horton). The historical records show clearly that there was occupation by pre- and post-contact Indians at and near the site. Lees records documentary sources placing the Dakota at the mouth of the White River in the early years of the nineteenth century. The Dakota presence in the area in the nineteenth century was nomadic, based on bison migrations and fur trade, with the transition from traditional methods of livelihood to dependence on American governmental and military presence not taking full effect until the later decades of that century.

In 1868, an agency was established in the Big Bend region to serve the Lower Brule. In 1876, partly as a reflection of the significant Lower Brule settlement at the mouth of the White River, this agency was relocated to this vicinity at a site (39LM54) about 8 miles upriver from the Deerfly site on the Missouri River. This agency continued to serve the Lower Brule until sometime between 1890 and 1894, when it was moved to the new Lower Brule Reservation created in 1889....Lower Brule settlement at the mouth of the White River remained important after 1889, however. Substantial Lower Brule settlement continued at this location until 1894, when most Lower Brule relocated to their new reservation north of the White River. A few Lower Brule families remained south of the mouth of the White River until 1899 (Schusky 1975:153). Euro-American settlement of the Deerfly site vicinity dates from 1900, when Martin Knutson established title to the land (Lyman County, Deed Book 5:158). In 1904 this land passed to Charles S. Jewell, who owned it until 1913 (Lyman County, Deed Book 18:610). Jewell was probably responsible for the major development of this land since it was still referred to as Jewell Ranch when the Deerfly site was excavated in 1953 (Grange 1953) [Lees 1985:105].

The Lees conclusion (p. 106) that there is historical evidence of continuous occupation from at least 1876 to the 1950s is not really valid. What is presented indicates occupation 8 miles away in 1876, and possible occupation between 1894 and 1899 by Indians. White occupation is even more tenuous because Knutson owned the land from 1900 to 1904

and Jewell from 1904 to 1914. This is actually only a 20 year occupation proof, from about 1894 to about 1914, with some question marks in that....Archaeological evidence of human habitation on and near the site is stronger than that of the historical records. Indeed the concrete foundations evident at the site reflect early to mid-twentieth century occupation, and it is recorded that the buildings housed the University of Kansas expedition to this and other nearby sites in 1953 (Lees, Brown and Mandel 1985:107).

Lees also records that in 1919 W.H. Over visited a site that was probably the Deerfly site (Lees 1985:103) which he interpreted as an Indian Village - presumably there being nothing at that time to indicate its historic nature.

Comments on the age of the assemblage (by L. Horton). Lees examination of the artifacts from the site was inconclusive in determining whether this site was occupied prior to 1900 or not. Based on the overall preponderance of cut nails over wire nails, however, Lees suggested that "the Deerfly site was occupied before about 1900 - probably substantially before that date" (Lees 1985:108, emphasis added). In this Lees may err in placing too much credence on the replacement of cut nails by wire nails after 1900. There is much feeling that cut nails continued to be used for certain purposes for the first two or more decades of the twentieth century. Lees analysis of the rest of the historic artifacts is sound (that is I concur with it).

Lees concludes that:

Considering, however, that (1) no artifacts made exclusively after 1900 were identified in good contexts at the site, (2) a drastic shift is documented for the site vicinity in 1900, and (3) all the artifacts from this site appear to have been available between 1880 and 1900, it is reasonable to offer 1880 to 1900 as the period during which the Deerfly site was most likely occupied [Lees 1985:109].

Here Lees persists in placing the date of occupation earlier than I would based on the same evidence (I prefer a date around 1900 to 1910), although we can certainly be sure that there were people around here at the end of the nineteenth century and the beginning of the twentieth century. While it is possible that some of the aboriginal and trade

artifacts may come from an earlier occupation since cultural horizons do not seem to be that clear, a Euro-American occupation of this site probably would have been manifested with different collections of artifacts (as Lees states on p. 119). Historical records do indicate that it is more likely that the occupation prior to the turn of the century was Dakota than it was Euro-American. Both the records and the artifactual evidence also suggest that this was a slight and brief occupation.

Movement of white settlers, the railroads, and other disruptive elements make it more and more unlikely that there could have been a stable or significant Indian presence for any extended period of time. There was such overwhelming American intrusion close-by as to make manifest a tremendous artifactual and folkway change in the life styles of any Indians who chanced to live in the general vicinity. That was certainly true by 1880. Railroads and land booms are the dominant themes of that period in South Dakota history. Sporadic and erratic occupation by Sioux families in such an area would not be definably different from such occupation by casual white settlers. No documentary or artifactual evidence is convincing in making any conclusion about historical effect or significance from either action.

Current evaluation of the historical component. Of the features represented at the Deerfly site today, only the two depressions excavated in 1953 can be definitely associated with the late nineteenth century occupation, based on Lees's analyses. In the 1983 survey report, Lees, Brown and Mandel comment that

...an important opportunity to expand our view of the late 19th century Dakota occupation of this area exists. Significant questions about this occupation remain, and include questions concerning the patterning of Dakota activities outside the cabin (Logan 1978) as well as questions concerning the relationship of this locus of Dakota settlement to other 19th century loci observed at 39LM39 [Lees, Brown and Mandel 1985:109].

These other nineteenth century loci include the keyhole depression and artifact scatters in Area B (Figure 21), two depressions in Area D for which no specific information is available, and a depression with associated historic debris in Area E.

The 1986 evaluation located a very limited historic cultural assemblage. Observed (not collected) items are summarized below:

Glass: 27+ fragments of curved/bottle glass and a complete 500ml medicine (vaccine) bottle with a rubber stopper.

Seven+ fragments of flat (window) glass.

Ceramic/stone/ware/whiteware: Five fragments.

Ironstone: Three fragments.

Metal items: Nine+ cast iron fragments.

Three cut nails.

Two each - iron rods, bucket bails, other metal fragments.

One each - iron ax head, iron strap, hook-shaped iron bar tool, lead fishing weight, iron bolt, iron flange, steel can, iron latch handle, spoon, wire fragment.

Miscellaneous: Pile of galvanized metal strips, scatter of boards, barbed wire and posts; automobile headlights; leather boot sole; rubber mat fragment; glass button; and a wedged-shaped catlinite fragment.

All the materials observed could, and probably do, relate to the Euro-American occupation of this area. The paucity of materials observed in 1986 likely reflects the surface collections made earlier (Lees, Brown and Mandel 1985) and the lack of additional erosion since that time. This is in contrast to the prehistoric material which was more prevalent in 1986 than in 1983.

Although the direct association of the various historic loci defined above to the Dakota occupation has yet to be substantiated, the potential significance of the site for understanding the late nineteenth century and early twentieth century occupation of this area is considerable. Very few sites of this period are recorded above the reservoir, and, as Lees points out, the White River vicinity "should represent a significant source of information concerning the late nineteenth-century culture of these people [Dakota]" (Lees 1985:119).

The historic component at the Deerfly site, therefore, is recommended for nomination to the National Register of Historic Places (Appendix 2). The concern expressed over the lake bank erosion at the site as it relates to the historic component, is most immediate around

the area of the 1953 excavation of Feature 1. Although that feature has been almost completely destroyed, the potential for data on activities surrounding the structure exists. The other features (depressions) are in no immediate (next five years) danger, although possible threats could exist in the next 50 years, if the lake bank erosion continues at its present rate.

Prehistoric component

Prior work relating to the prehistoric component at this site has been summarized above. The only extensive investigation planned for the prehistoric component, by Smith and Grange in 1953, exposed the supposed earthlodges as late nineteenth century structures. They summarized the evidence as it related to the prehistoric component, which they called Occupation B, as follows:

Test trenches in the area yielded meager evidence of occupation B, characterized by 18 potsherds and a few artifacts of chipped and rough stone. The pottery is identical with that found at the Spain and Clarkstown sites. The three rims found are identifiable as Iona Indented, Talking Crow Straight Rim, and unclassified plain. Five of the body sherds are simple stamped; 10 are plain [Smith and Grange 1958:126-127].

The 1983 survey team summarized the prehistoric component as follows.

The prehistoric component of 391M39 is represented by an uneven distribution of lithic and ceramic artifacts over the entire site area. The density of this material is never great and is at times very sparse. Distinct clusters of material do exist but these are tied together by a general low density scatter and a general similarity in material. Except for an occasional dense scatter, of which only one was observed to be eroding into Lake Francis Case, the site is extremely low density compared to nearby sites such as Spain and Clarkstown (Smith and Grange 1958). Except for one 20 meter stretch almost no materials were observed on the shore of Lake Francis Case...Ceramics collected from this site include one Iona Indented rimsherd and a number of simple stamped and plain bodysherds. On the basis of ceramic evidence, the occupation of this period appears to have been during the Extended Coalescent Period [Lees, Brown and Mandel 1985:103-104].

The current evaluation of the Deerfly site places a slightly different perspective on the prehistoric component. Apparently a much denser and more extensive scatter of material was observed on the beach below Areas D, E and F (Figure 19) than was previously recorded. The materials observed and artifacts collected (Figures 34, 35 and 36) contain no items that would be out of cultural context on an Extended Coalescent site (Joseph Tiffany and Robert Alex, personal communication 1986). Table 8 summarizes the materials observed (not collected).

Of the thirteen prehistoric rimsherds collected during the evaluation, eight are from the surface and five are from Excavation Unit 1. None of the rims exhibit any cord marking. The rims are generally straight or slightly curved; two are strongly outflaring (Figure 35e and Figure 36a); and one was probably S-shaped (Figure 34c). This latter may be an Iona-S Rim (Smith and Grange 1958:101). Two of the rims are decorated with horizontal incised lines. Figure 34e illustrates a specimen similar to Gray Cloud Horizontal-Incised (Smith and Grange 1958:102-103). Vertical lines are present on several rims (Figure 35f and Figure 36a-c), while others are plain (Figure 34c, Figure 35c, e, g, Figure 36d). Lip decorations vary from none (Figure 35f) to simple diagonal impressions or incisions (Figure 34e, Figure 35a, c, f, Figure 36c-d), simple impressions (Figure 35e), and herringbone impressions (Figure 34c, Figure 36b). Figure 36a illustrates a specimen with extremely deep impressions on both the interior and exterior of the lip at the upper portion of the rim. This seems to most closely associate with a Hosterman Incised Rim illustrated in Miller (1964:Plate 20B [h]).

Also, several presumed prehistoric features, hearths/ash lenses, and pits were observed in the cutbank in Area F (Figure 24, Figure 25 [9]). The prehistoric component appears to be concentrated more to the south and west of the site (Figure 25 [7], [8], [9]), especially in the portion which is identified as Areas G and H (Figure 25 [13], [14]).

As discussed in relation to 39LM33 (above pp. 69-70), research comparing lithic raw material utilization between Middle Missouri and Coalescent groups (Ahler 1977; Johnson 1984) suggests Coalescent populations relied more on local and nonlocal materials such as flattop and plate chalcedonies than did Middle Missouri populations. Johnson's analysis suggests that:

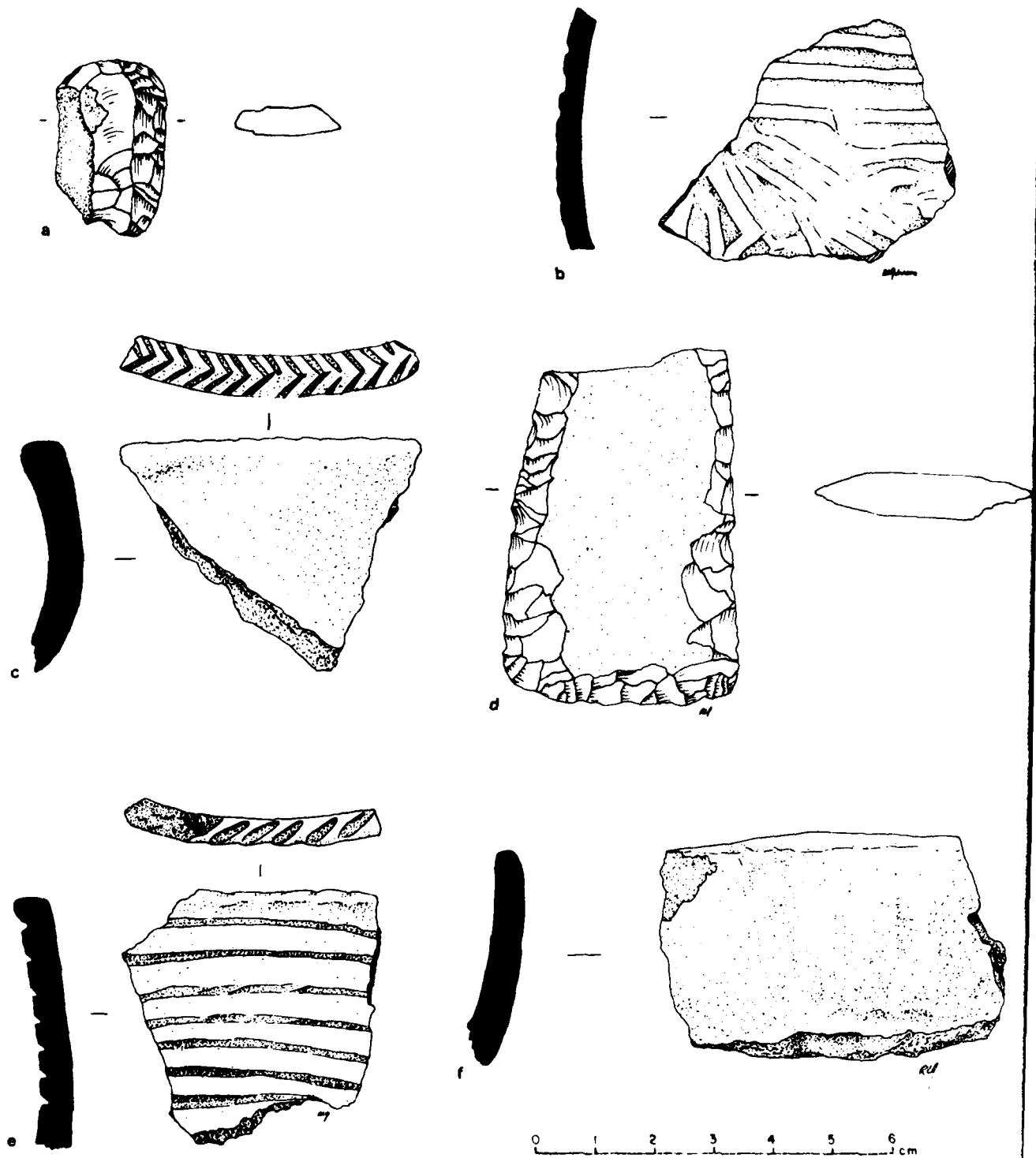


Figure 34. Surface artifacts from site 39LM39. a: Opaque chalcedony transverse scraper - Find #5 (Cat. No. 5); b: Bodysherd - Find #6 (Cat. No. 6); c: Rimsherd - Find #6 (Cat. No. 7); d: Plate chalcedony Badlands knife - Find #7 (Cat. No. 8); e: Rimsherd - Find #11 (Cat. No. 12); f: Rimsherd - Find #12 (Cat. No. 13).

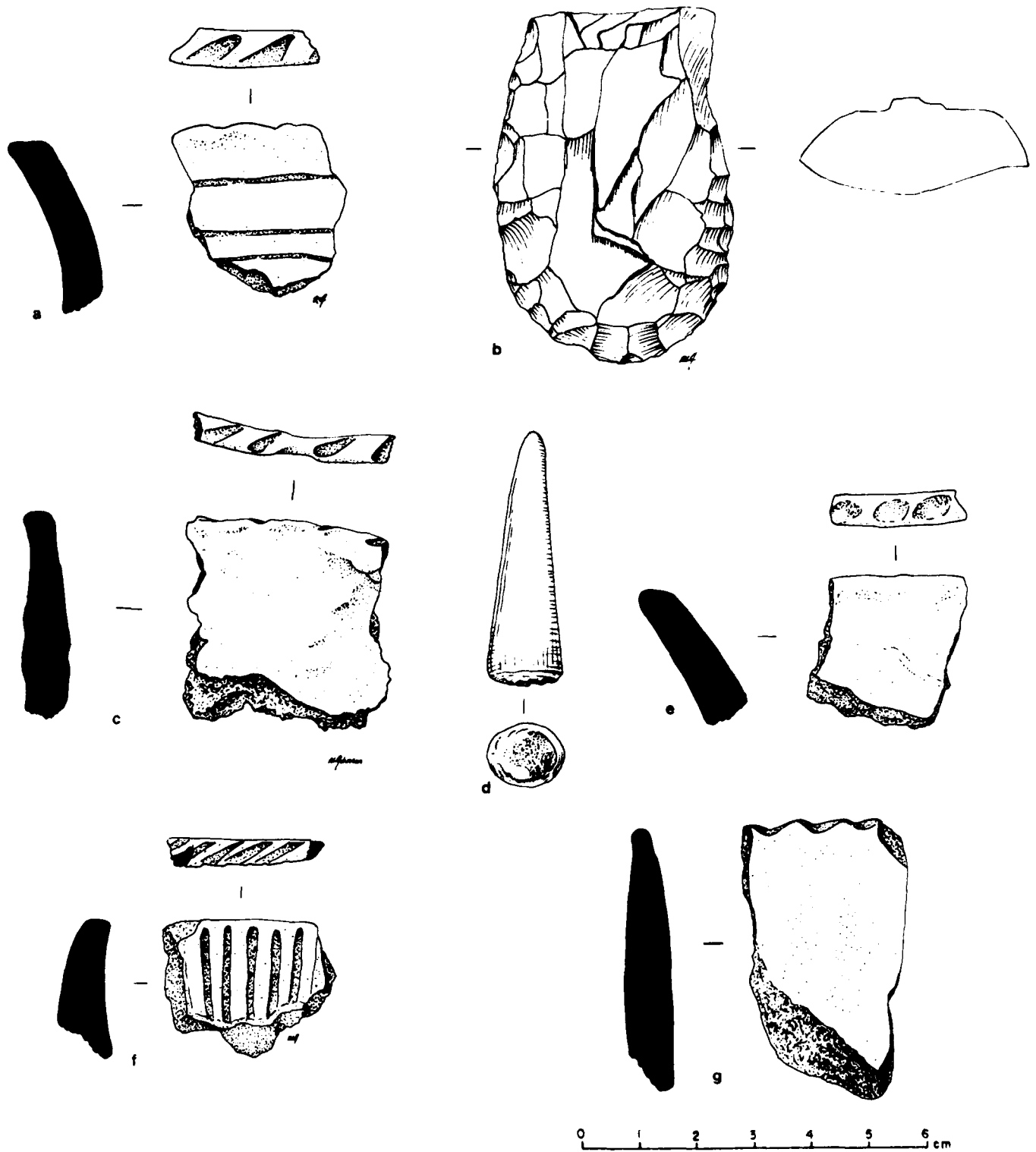


Figure 35. Surface artifacts from site 39LM39. a: Rimsherd - Find #8 (Cat. No. 9); b: Bijou Hills quartzite scraper - Find #9 (Cat. No. 10); c: Rimsherd - Find #12 (Cat. No. 14); d: Grooved antler tine - Find #12 (Cat. No. 15); e: Rimsherd - Find #13 (Cat. No. 16); f: Rimsherd - Find #15 (Cat. No. 18); g: Rimsherd - Find #16 (Cat. No. 19).

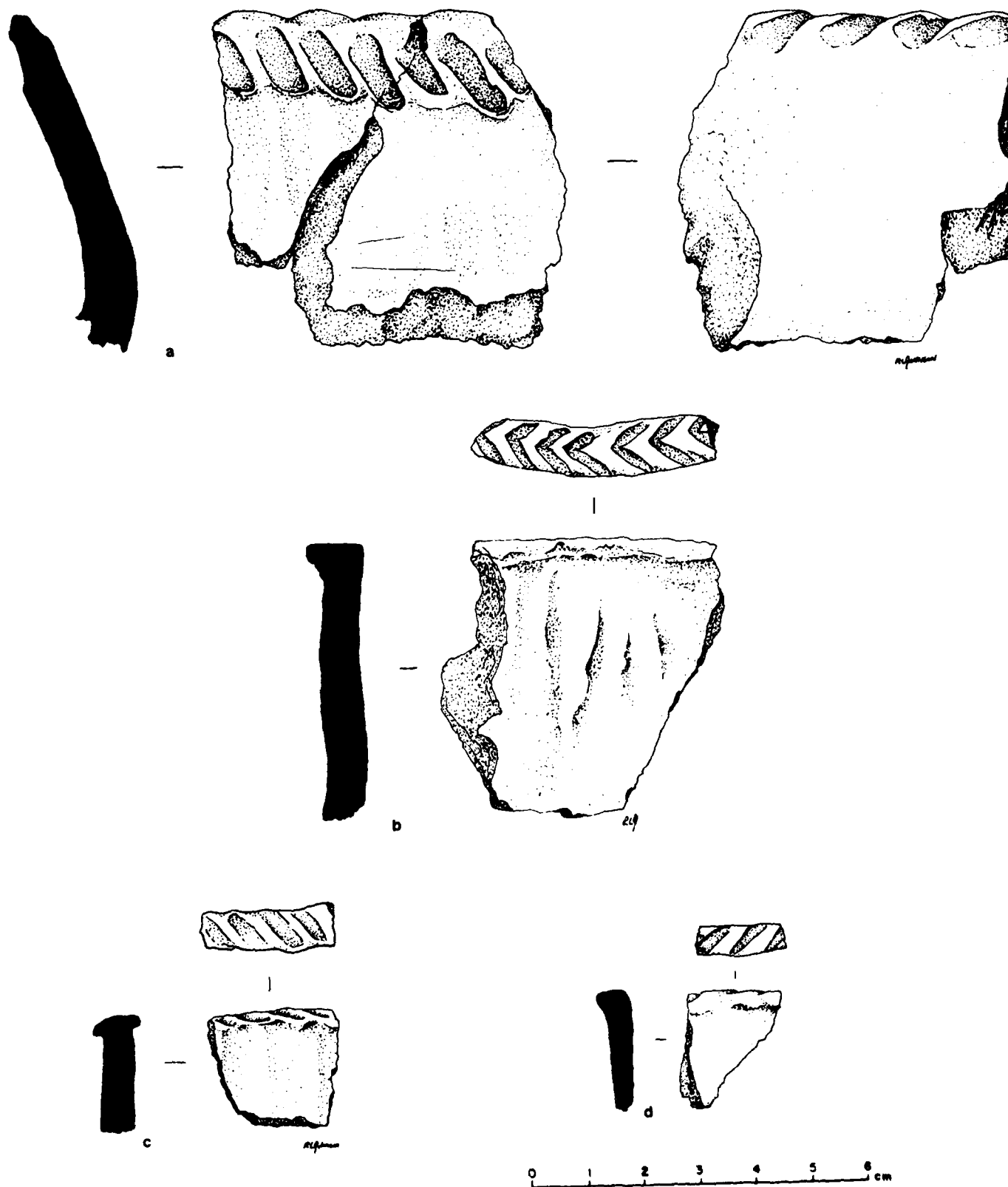


Figure 36. Rimsherds from Excavation Unit 1. a: Level 1 (Cat. No. 1-81); b: Level 2 (Cat. No. 2-1); c: Base of Hearth 1 (Cat. No. H-1-14); d: Level 4 (Cat. No. 4-9).

Table 8. Summary of Lithic Material Observed (Not Collected) at 39LM39.

RAW MATERIAL	FLAKES	SHATTER/ FRAGMENTS	RETOUCHED FLAKES	BIFACES/ PREFORMS	SCRAPERS	AWL	KNIFE	HAMMER STONES	FCR	TOTAL
BIJOU HILLS QUARTZITE	75+	0	5	10	0	0	0	0	0	90+
CHERTS	35+	10+	7	4	5	1	0	0	0	62+
PLATE CHALCEDONY	1	10+	3	4	0	0	5+	0	0	23+
CHALCEDONIES	7	3	2	1	1	0	0	0	0	14
QUARTZ	7	7+	0	0	0	0	0	2	0	16+
QUARTZITES	7+	1	0	0	0	0	0	0	0	8+
OTHER (JASPER, SHALE, SILICIFIED SEDIMENT, SILICIFIED WOOD)	4	1	1	1	0	0	0	0	0	7
GRANITE	0	0	0	0	0	0	0	0	5+	5+
TOTAL	136+	32+	18	20	6	1	5+	2	5+	225

In the lower Bad-Cheyenne and Big Bend regions... variation in the utilization of nonlocal materials during the Protohistoric period is related to the village's proximity to tributaries of the Missouri River which drain the resource areas containing these materials [Johnson 1984:289].

The limited data derived from the analysis of the lithic assemblage observed and collected during the current project suggests Knife River Flint (subsumed under chalcedonies) was not extensively utilized for chipped stone tools when compared with chert, Bijou Hills quartzite and plate chalcedony.

As indicated earlier, carbon samples were collected for age determination from the features exposed in the cutbank and from the excavated hearths. A hearth sample (Sample #1) was sent to Teledyne Isotopes in July 1986, but the charcoal it contained was too fine-grained for an adequate sample to be removed from the surrounding matrix. This limited sample was combined with a second sample (Sample #5) from Feature 2 (Figure 28) and was submitted in August. Although the resulting sample was still restricted in size, the combined material produced a date of 690 ± 140 B.P. or A.D. 1260 (I-14,633 - Appendix 4). This date is far too early to be associated with a postulated Extended Coalescent occupation, which should be around A.D. 1550 - 1675. The earlier date would be more consistent with an Initial Middle Missouri occupation, but due to potential discrepancies resulting from combining the samples, the date must be considered an anomaly until further investigations are accomplished.

The prehistoric component at the Deerfly site has been compared with components at the Spain (39LM301) and Clarkstown (39LM47) sites (Smith and Grange 1958). The Spain site is located directly below the Deerfly site. Assumptions based on their proximity, the similarities in their assemblages, and the perceived sparser artifact scatter at the Deerfly site, have led to the postulation that the Deerfly site has a "temporary and dependent function to 39LM301" (Lees, Brown and Mandel 1985:104). However, the current authors feel that without further, systematic data retrieval from 39LM39, this hypothesis must remain largely speculative.

Other Extended Coalescent sites in the region include the Stricker site (39LM1); the Meander site (39LM01); the Bice site (39LM31) -

closely related to the Spain A and Clarkstown B occupations (Smith and Grange 1958:115-126); Over's La Roche (39ST9); Bower's La Roche (39ST232); and 39LM64, the ceramics from which Mallory notes possibly relate to the "Deerfly 5 site (39LM20)" (Mallory 1965:21).

Specifically, with regard to the density of material at the Deerfly site, it should be noted that over 135 sherds were recovered from the incomplete excavation of a single 1 x 1 meter unit in 1986. It is likely that some 250 or more sherds would have been recovered had the total unit been excavated to the sterile substrate. While nearly 18,000 sherds were recovered from the Spain site excavations, the area excavated was extensive. One refuse area, measuring some 22 x 36 feet, was completely excavated. Assuming approximately 17,000 sherds came from the refuse area at the Spain site, the distribution would be ca. 21 sherds per square foot. The 1986 excavations at Deerfly project a distribution of 250 sherds from a 10 square-foot area, or 25 sherds per square foot. It is premature for a definitive statement to be made concerning the dissimilarity of the Deerfly site and the Spain site in terms of the type of occupation represented. However, extensive excavations at the Deerfly site along the cutbank of Area F (Figure 24) would, with some probability, reveal a dense artifact scatter and possibly one or more earthlodges. The soils in this area are of the Sansarc-Opal complex - grayish-brown to light brownish-gray clays - and the terrace area appears uniform, in that cultural deposits could be expected across this entire landform. On the steeper hills and knolls to the west erosion has removed more overburden, and what might be buried deposits on the terrace may appear as surface deposits. The overall potential for future research at this site, regarding both the prehistoric and historic components, is considered good.

It is our contention that the prehistoric component at the Deerfly site is a significant cultural resource in its own right, and that it contains a high potential to add to the understanding of the Extended Coalescent groups in the region in general. Unfortunately, at the present time the major prehistoric occupation area currently identified at 39LM39 is being rapidly removed by erosion. Other areas of dense occupation may be revealed in the future, but immediate action is recommended to salvage the data from along the cutbank in Area F and to undertake some form of bank stabilization should the occupation area be

shown to extend inland beyond the area mitigated. As it currently exists, the prehistoric component at the Deerfly site is a significant resource for increasing our understanding of the prehistory of the area and is therefore recommended for nomination to the National Register of Historic Places (Appendix 3).

8. SUMMARY AND RECOMMENDATIONS CONCERNING ELIGIBILITY OF SITES
FOR THE NATIONAL REGISTER OF HISTORIC PLACES

The four sites evaluated under the present contract include 39GR32, 39GR53, 39LM33 and 39LM39. All four sites were considered potentially eligible for nomination to the National Register of Historic Places prior to this evaluation. This investigation found that at two of the sites, 39GR32 and 39GR53, any remaining integrity had been destroyed; therefore, these sites do not meet the evaluation criteria for nomination to the National Register of Historic Places. The remaining two sites were shown to possess cultural deposits that will yield information important to the prehistoric and historic record.

Site 39LM33, the Dinehart Village site, is an Initial Middle Missouri village where at least two complete and two partially complete rectangular earthlodges are extant; other activity areas are also present.

Site 39LM39, the Deerfly site, contains a significant late nineteenth century Dakota occupation and an Extended Coalescent occupation. Early twentieth century occupation(s) are also represented. Several depressions are present at the site, but their cultural affiliation has not, in all cases, been determined.

While sites 39LM33 and 39LM39 are considered locally and regionally significant and should be preserved as National Register sites, both are subject to ongoing destruction, primarily from lake bank erosion. This erosion is severe in places at both sites and should be immediately addressed as a management consideration. Limited salvage work is recommended prior to finding a more permanent solution to this problem.

- Ahler, Stanley A.
1977 Lithic Resource Utilization Patterns in the Middle Missouri Subarea. Plains Anthropologist Memoir 13:132-150.
- Anfinson, Scott F. (compiler and editor)
1979 A Handbook of Minnesota Prehistoric Ceramics. Occasional Publications in Minnesota Anthropology 5. Minnesota Archaeological Society, Fort Snelling, St. Paul.
- Benn, David W.
1982 Woodland Cultures of the Western Prairie Peninsula: An Abstract. In Interrelations of Cultural and Fluvial Deposits in Northwest Iowa, edited by E. Arthur Bettis, III, and Dean M. Thompson, pp. 37-52. Association of Iowa Archeologists, University of South Dakota Archeology Laboratory-Vermillion, and Iowa Preservation Board.
- n.d. M.A.D. Site Investigations. Ms. in possession of author.
- Benn, David W. (editor)
1981a Archaeological Investigations at the Rainbow Site, Plymouth County, Iowa. Luther College Archaeological Research Center, Decorah, Iowa. Submitted to Interagency Archeological Services-Denver, Contract No. C3571(78).
- 1981b Archaeology of the M.A.D. Sites at Denison, Iowa. Draft Report. Office of Historic Preservation, Iowa State Historical Department, Des Moines, Iowa.
- Brown, Lionel A.
1968 The Gavins Point Site (39YK203). An Analysis of Surface Artifacts. Plains Anthropologist 13(40):118-131.
- 1974 The Archaeology of the Breeden Site. Plains Anthropologist Memoir 10.
- Buechler, Jeff
1984 Management Plan for Archaeological Resources in South Dakota. Part I: Study Units (working draft). Dakota Research Services, Rapid City. Prepared for South Dakota Archaeological Research Center, Rapid City, Contract No. 120401-405-004(85).
- Caldwell, Warren W.
1961 Archeological Investigations at the Coralville Reservoir, Iowa. River Basin Surveys Papers 22. Smithsonian Institution Bureau of Ethnology Bulletin 169.

- Caldwell, Warren W., and R. E. Jensen
 1969 The Grand Detour Phase. Smithsonian Institution River Basin Surveys, Publications in Salvage Archeology 13.
- Chittick, Douglas
 1973 A Recipe for Nationality Stew. In Dakota Panorama, edited by J. Leonard Jennewein and Jane Boorman, pp. 89-145. Pine Hills Press, Freeman.
- Chomko, Stephen A.
 1976 Faunal Exploitation in the Initial Middle Missouri Variant. In Fay Tolton and the Initial Middle Missouri Variant, edited by W. Raymond Wood, pp. 35-41. Missouri Archaeological Society Research Series 13. University of Missouri-Columbia and the Missouri Archaeological Society.
- Gant, R. D.
 1967 Archeological Investigations at the Arp Site, 39BR101, Brule County, South Dakota, 1961. Archeological Studies Circular 12. W.H. Over Museum, University of South Dakota, Vermillion.
- Glover, Jack
 1977 The "Bobbed Wire" V Bible. Cow Puddle Press, Sunset, Texas.
- Grange, R. T., Jr.
 1953 Field notes, University of Kansas Archeological Expedition, June 10-22, 1953. On file, University of Kansas Museum of Anthropology, Lawrence.
- Hannus, L. Adrien
 1976 Heath Site, 39LN15, Excavation Report. Unpublished field notes on file, Archeology Laboratory of the Center for Western Studies, Augustana College, Sioux Falls, South Dakota.
- Hannus, L. Adrien, R. Peter Winham, and Edward J. Lueck
 1986 Cultural Resource Reconnaissance Survey of Portions of Moody, Lincoln, and Union Counties, South Dakota [Within the Upper and Lower Big Sioux and Yankton Study Units], with Reports on the Heath Site and the Blood Run/Rock Island Site. Archeological Contract Series 26. Archeology Laboratory of the Center for Western Studies, Augustana College, Sioux Falls, South Dakota. Submitted to the Historical Preservation Center, Vermillion, South Dakota.
- Henning, Dale R.
 1967 Mississippian Influences on the Eastern Plains Border: An Evaluation. Plains Anthropologist 12(36):184-194.

- Henning, Dale R. (cont.)
 1971 Great Oasis Culture Distributions. In Prehistoric Investigations, edited by Marshall McKusick, pp.125-133. Report 3 of the Office of the State Archaeologist of Iowa. University of Iowa, Iowa City.
- Henning, Dale R., and Elizabeth Henning
 1978 Great Oasis Ceramics. In Some Studies of Minnesota Prehistoric Ceramics: Papers Presented at the First Council for Minnesota Archeology Symposium - 1976, edited by Alan R. Woolworth and Mark A. Hall, pp. 12-26. Occasional Publications in Minnesota Anthropology 2. Minnesota Archaeological Society, Fort Snelling, St. Paul.
- Henning, Elizabeth R. Potter
 1981 Great Oasis and the Middle Missouri Transition. In The Future of South Dakota's Past, edited by Larry J. Zimmerman and Lucille C. Stewart, pp. 33-38. Special Publications of the South Dakota Archaeological Society 2. Vermillion.
- Howard, James H.
 1968 Archeological Investigations at the Spawn Mound, 39LK201, Lake County, South Dakota. Plains Anthropologist 13:132-139.
- Hurt, Wesley R.
 1952 Report on the Investigation of the Scalp Creek Site 39GR1 and the Ellis Creek Site 39GR2, Gregory County, South Dakota. Archeological Studies Circular 7. Pierre.
 1961 Archaeological Work at the Tabor and Arp Sites. Museum News 22(8):1-6. W.H. Over Museum, University of South Dakota, Vermillion.
- Johnson, Ann M.
 1979 Extended Middle Missouri Components in the Big Bend Region, South Dakota. Special Publications of the South Dakota Archaeological Society 1. Vermillion.
- Johnson, Craig M.
 1984 Time, Space and Cultural Tradition as Factors in Lithic Resource Exploitation in the Middle Missouri Subarea. Plains Anthropologist 29:289-302.
- Johnston, R. B.
 1967 The Hitchell Site. Smithsonian Institution River Basin Surveys, Publications in Salvage Archeology 3. Lincoln.
- Kivett, Marvin F.
 1952 Woodland Sites in Nebraska. Nebraska State Historical Society Publications in Anthropology 1. Lincoln.

- Kivett, Marvin F. (cont.)
 1970 Early Ceramic Environmental Adaptations. In Pleistocene and Recent Environments of the Central Great Plains, edited by W. Dort, Jr., and J. K. Jones, Jr., pp. 93-102. Department of Geology Special Publication 3. University of Kansas Press, Lawrence.
- Lees, William B.
 1985 Dakota Acculturation During the Early Reservation Period: Evidence from the Deerfly Site (39LM39), South Dakota. Plains Anthropologist 30(108):103-122.
- Lees, William B., Marie E. Brown, and Rolfe D. Mandel
 1985 Cultural Resource Reconnaissance Along the Lower West Bank of Lake Francis Case in Gregory and Lyman Counties, South Dakota. University of Kansas Museum of Anthropology, Project Report Series 54. Submitted to U.S. Army Corps of Engineers, Omaha District, Contract No. DACW45-83-C-0236.
- Lehmer, Donald J.
 1970 Climate and Culture History in the Middle Missouri Valley. In Pleistocene and Recent Environments of the Central Great Plains, edited by W. Dort, Jr., and J. K. Jones, Jr., pp. 117-130. Department of Geology Special Publication 3. University of Kansas Press, Lawrence.
- 1971 Introduction to Middle Missouri Archeology. Anthropological Papers 1. National Park Service, U.S. Department of the Interior, Washington.
- Logan, B.
 1978 The Deerfly Site; Analysis and Interpretation of an Historic Dakota Settlement Site. Ms. on file, University of Kansas Museum of Anthropology, Lawrence.
- Ludwickson, John, Donald Blakeslee, and John O'Shea
 1981 Missouri National Recreation River: Native American Cultural Resources. Submitted to the Heritage Conservation and Recreation Service, Interagency Archeological Services-Denver, Contract No. C53011(80).
- Mallory, O. L.
 1965 Reappraisal of Archeological Sites in the Fort Randall Reservoir, South Dakota. Inter-Agency Archeological and Paleontological Salvage Program. Missouri Basin Project, Smithsonian Institution.
- Michlovic, Michael G.
 1986 Cultural Evolutionism and Plains Archaeology. Plains Anthropologist 31:207-218.

- Miller, Carl F.
1964 Archeological Investigations at the Hosterman Site (39P07), Oahe Reservoir Area, Potter County, South Dakota, 1956. River Basin Surveys Papers 35. Smithsonian Institution Bureau of American Ethnology Bulletin 189.
- Nowak, Timothy R., L. Adrien Hannus, and Edward J. Lueck
1982 A Prehistoric and Historic Overview of Northeastern South Dakota. In Archeology of the Northern Border Pipeline, South Dakota, Volume 4. L. Adrien Hannus, Principal Investigator, pp. 25.1-25.74. Archeology Laboratory, South Dakota State University. Submitted to Northern Natural Gas Company, Omaha, NE.
- Olson, Gary D., and Larry J. Zimmerman
1979 A Cultural Resources Reconnaissance of the Federal Lands on the East Bank of Lake Francis Case, South Dakota: Vol. 1 - Archeological and Historical Reconnaissance. Augustana Research Institute, Sioux Falls, and Archeology Laboratory, University of South Dakota, Vermillion. Submitted to U.S. Army Corps of Engineers, Omaha District, Contract No. DACW45-78-C-0018.
- Over, W. H., and Elmer E. Meleen
1941 A Report on an Investigation of the Brandon Village and the Split Rock Creek Mounds. Archaeological Studies Circular 3. University of South Dakota, Vermillion.
- Robinson, D.
1904 A History of the Dakota or Sioux Indians. Reprinted in 1974. Ross and Haines, Minneapolis.
- Scheel, H. S.
1975 History of South Dakota. University of Nebraska Press, Lincoln.
- Schusky, E. L.
1975 The Forgotten Sioux: An Ethnohistory of the Lower Brule Reservation. Nelson-Hall, Chicago.
- Sigstad, John S., and Joanita Kant Sigstad (editors)
1973 Archaeological Field Notes of W.H. Over. South Dakota State Archaeologist Research Bulletin 1. State of South Dakota.
- Smith, C. S.
1953 Miscellaneous field notes, feature forms and catalog sheets, 1953 University of Kansas Field Expedition to 39LM39. On file, University of Kansas Museum of Anthropology, Lawrence.

- Smith, C. S., and R. T. Grange, Jr.
1958 The Spain Site (39LM301), a Winter Village in Fort Randall Reservoir, South Dakota. River Basin Surveys Papers No. 11. Smithsonian Institution Bureau of American Ethnology Bulletin 169:79-128.
- Syms, E. Leigh
1977 Cultural Ecology and Ecological Dynamics of the Ceramic Period in Southwestern Manitoba. Plains Anthropologist Memoir 12.
- Toom, Dennis L., and Paul R. Picha
1984 An Archeological Survey of Selected Federal Lands on the West Bank of the Big Bend/Lake Sharpe Project Area, Lyman and Stanley Counties, South Dakota 1983. Contribution Number 199. Department of Anthropology and Archaeology, University of North Dakota, Grand Forks. Submitted to U.S. Army Corps of Engineers, Omaha District, Contract No. DACW45-83-C-0142.
- Weakly, Ward F.
1971 Tree-Ring Dating and Archaeology in South Dakota. Plains Anthropologist Memoir 8.
- Winham, R. Peter, and Edward J. Lueck
1984 Report of a Cultural Resources Reconnaissance of Selected Areas Along the White River and Along the West Bank of Lake Francis Case. Archeological Contract Series Number 11. Archeology Laboratory of the Center for Western Studies, Augustana College, Sioux Falls, South Dakota. Submitted to U.S. Army Corps of Engineers, Omaha District, Contract No. DACW45-83-C-0184.