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CULTURAL RESOURCES INTENSIVE SURVEY AND TESTING
OF MISSISSIPPI RIVER LEVEE BERMS
CRITTENDEN AND DESHA COUNTIES, ARKANSAS AND
MISSISSIPPI, SCOTT, CAPE GIRARDEAU AND PEMISCOT COUNTIES, MISSOURI

CONTRACT #DACW66-83-C-0030

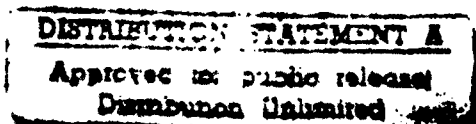
ITEM R-752 LAMBETHVILLE; CRITTENDEN COUNTY, ARKANSAS

Prepared for:

Department of the Army
Memphis District, Corps of Engineers
B-314 Clifford Davis Federal Building
Memphis, Tennessee 38103

Prepared by:

Heartfield, Price and Greene, Inc.
802 North 31st Street
Monroe, Louisiana 71201
Lorraine Heartfield, Ph.D. - Principal Investigator
David B. Waddell, Nancy W. Clendenen and David Hovde - Project Directors



May, 1984

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G

HEARTFIELD, PRICE AND GREENE, INC.

802 North 31st Street
Monroe, Louisiana 71201
(318) 388-4754

6621 Wharton
Houston, Texas 77055

LORRAINE HEARTFIELD, Ph.D.
G.R. DENNIS PRICE, B.A. (HON.)
GLEN S. GREENE, Ph.D.

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ABSTRACT

Heartfield, Price and Greene, Inc. of Monroe, Louisiana, was contracted by the Memphis District of the United States Army Corps of Engineers under contract number DACW66-83-C-0030, Item R-752, to conduct a background, archival and literature search, and an intensive resources survey of the project area of proposed Mississippi River levee berm stabilization in the vicinity of Lambethville, Crittenden County, Arkansas. The purpose of this project is to prevent further seepage through the levee during periods of flooding.

The area surveyed included: 1) a 94.4-167.6 meter (310-550 feet) right-of-way as measured perpendicular and landside from the centerline of the levee between Station 125/39+32 and Station 129/13+50 and 2) a 30.4-408.9 meter (100-1,200 feet) right-of-way as measured perpendicular to and riverside from the centerline of the levee between the same stations as above.

Heartfield, Price and Greene, Inc. began background research for the project on August 1, 1983. On-the-ground survey and limited testing was conducted between August 15 and August 22, 1982. Background investigations continued throughout the on-the-ground survey and limited testing interval.

A total of 16 cultural resources were documented. This included four prehistoric sites (3CT238, 3CT239, NLU-83-194 and NLU-83-200); four prehistoric/historic sites (3CT228, 3CT229, 3CT230 and 3CT231); and eight historic sites (3CT232, 3CT233, 3CT235, 3CT236, NLU-83-195, NLU-83-197, NLU-83-199 and NLU-83-201).

Of the 16 cultural resources reported, six (3CT228, 3CT229, 3CT230, 3CT231, 3CT232 and 3CT233) were believed to be potentially eligible for inclusion on the National Register of Historic Places. These six sites were additionally tested for significance between March 15 and March 24, 1984. Additional archival research was conducted concerning 3CT228, 3CT229, 3CT230 and 3CT233 during this time frame. In addition, a magnetometer search was made in order to attempt to locate the steamboat Pacific (3CT233).

During the additional testing, two sites (3CT235 and 3CT236) were located. It was determined that 3CT235 is located out of the right-of-way. Neither site is believed to be eligible for inclusion on the National Register of Historic Places. Therefore, no additional archeological research is recommended at these locations.

As a result of additional testing it is concluded that of the six sites, four (3CT228, 3CT239, 3CT230 and 3CT231) are not eligible for inclusion on the National Register of Historic Places. However, the data gathered from sites 3CT228, 3CT229, 3CT230 and 3CT231 is considered significant. In the case of two sites (3CT232 and 3CT233), no determination was made because neither of these sites are to be impacted by the proposed work.

As a result of the additional testing and the removal of 3CT232 and 3CT233 from the zone of impact, no additional archeological work is recommended at these locations. However, care should be taken that 3CT232 and 3CT233 are not affected by direct or indirect construction impacts.

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1.0 INTRODUCTION

Description of Project

Heartfield, Price and Greene, Inc. of Monroe, Louisiana, was contracted by the Memphis District of the United States Army Corps of Engineers under contract number DACW66-83-C-0030, Item R-752, to conduct a background, archival and literature search, and an intensive resources survey (with subsequent testing) of the project area of proposed Mississippi River levee berm stabilization in the vicinity of Lambethville, Crittenden County, Arkansas (Figure 1-1). The purpose of this project is to prevent further seepage through the levee during periods of flooding.

The area surveyed included: 1) a 94.4-167.6 meter (310-550 feet) right-of-way as measured perpendicular and landside from the centerline of the levee between Station 125/39+32 and Station 129/13+50 and 2) a 30.4-408.9 meter (100-1,200 feet) right-of-way as measured perpendicular to and riverside from the centerline of the levee between the same stations as above (Figure 1-2).

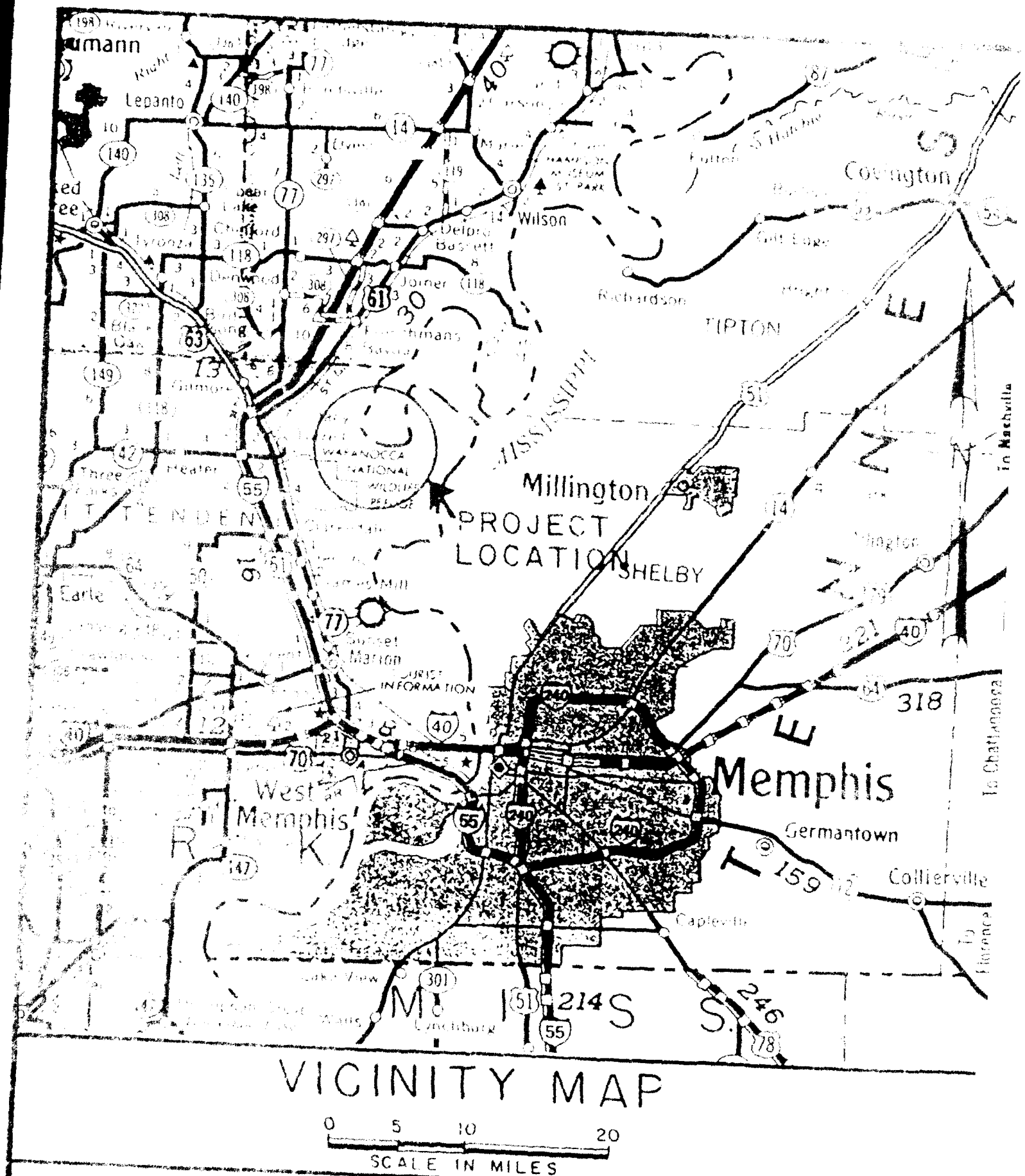
The levee stabilization work will consist of: 1) adding landside levee berms, 2) excavation of borrow material to construct the berms and 3) excavation of a landside drainage ditch. Construction of the levee berm will involve adding a blanket of soil (borrow material) to the landside of the levee. The berms will vary in depth from approximately 3.0-7.6 m. (10-25 feet) and will extend anywhere from 42.6-109.7 meters (140-360 feet) from the toe of the levee. It may be necessary to conduct surface preparations, such as removal of surface vegetation. Excavation of borrow material will be conducted in the two areas available for borrow. Actual extent and depth of borrow excavations will be dependent upon the amount of material required to construct the berms (location of berms and areas available for borrow are denoted in Figure 1-2). The landside drainage ditch will vary in width from .6 meters (2 feet) at the northern end to 1.2 meters (4 feet) at the southern end and, in depth, from .6 meters (2 feet) at the northern end to 1.2 meters (4 feet) at the southern end. The drainage ditch will be generally located 5 meters (16.4 feet) inside the landside right-of-way boundary.

Regulatory Criteria

The survey and subsequent testing were conducted in partial fulfillment of the Memphis District's obligations under the National Historic Preservation Act of 1966 (PL 89-665), as amended; the National Environment Policy Act of 1969 (PL 91-190); Executive Order 11593, "Protection and Enhancement of Cultural Environment," 13 May 1971; Preservation of Historic and Archeological Data, 1974 (PL 93-291), as amended; and the Advisory Council on Historic Preservation, "Procedures for the Protection of Historic and Cultural Properties" (36 CFR Part 800).

The National Register of Historic Places criteria for evaluation of significance (36 CFR Part 60.6) were applied to all cultural resources identified. These criteria are:

"The quality of significance in American history, architecture, archeology and culture is present in districts, sites, buildings, structures and objects of State and local importance



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Figure 1-1. General vicinity map of the proposed levee berm stabilization project

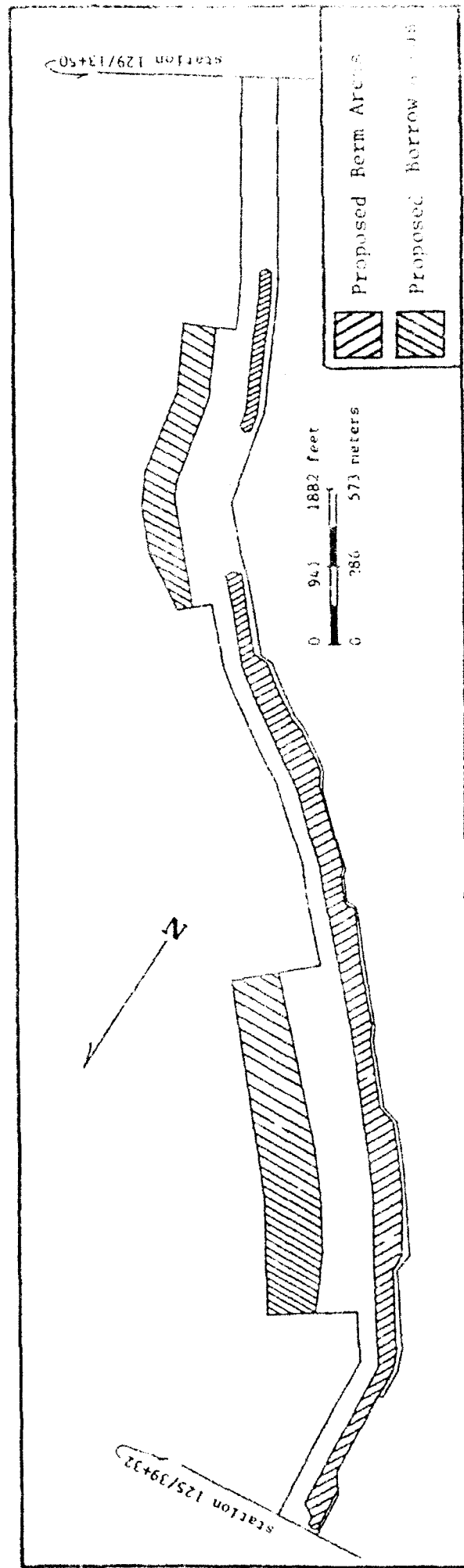


Figure 1-2. Map of the proposed levee berm stabilization project

that possess integrity of location, design, setting, materials, workmanship, feeling and association, and (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or (b) that are associated with the lives of persons significant in our past; or (c) that embody the distinctive characteristics of a type, period or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or (d) that have yielded, or may be likely to yield, information important in prehistory or history" (36 CFR Part 60.6).

It should be noted that certain classes of cultural resources are not ordinarily considered eligible for inclusion on the National Register of Historic Places. These are:

- cemeteries, birth places or graves of historic people;
- properties primarily of a religious or commemorative nature;
- properties that have been moved or reconstructed;
- properties that have become significant within the last 50 years.

Scope, Time Frame and Personnel

The Scopes of Work (Descriptions/Specifications) are included as Appendix A. The first document defines the tasks and requirements for the initial background, archival and literature search, and the intensive resources survey required by the contracting agency. Heartfield, Price and Greene, Inc. began background research for the project on August 1, 1983. On-the-ground survey and limited testing was conducted between August 15 and August 22, 1982. Background investigations continued throughout the on-the-ground survey and limited testing interval. The second document is for an additional testing phase and was based on the results of the initial survey. Additional testing as requested by the contracting office was begun March 15, 1984 and a magnetometer search for a possible sunken steamboat completed on March 24, 1984. Also additional archival research concerning Lambethville and the sinking of the steamboat Pacific was undertaken.

The project principal investigator was Lorraine Heartfield, Ph.D. The project directors were David B. Waddell, Nancy W. Clendenen and David Hovde.

The environmental overview was prepared by Edward L. Beene, David B. Waddell and Nancy W. Clendenen. The field work during the first phase was conducted by David B. Waddell, Michael R. Madden and Nancy W. Clendenen. Field work during the additional testing phase was directed by Lorraine Heartfield, Nancy Clendenen and David Hovde. The crew included Joe Brent, Ray Frye, Brian Gay, Missi Green, David Higginbotham, Renee Mussellwhite and Terry Prickett. Magnetometer investigations were carried out by Ervan Garrison, Ph.D., assisted by Bernard McKenzie. Cultural resources archival investigations were conducted by David B. Waddell, Nancy W. Clendenen (historic) and Laura Hirschenhoffer (historic).

Report preparation was a joint effort by the project director, project staff and principal investigator; particularly Lorraine Heartfield, David Waddell and Nancy Clendenen.

Curation

Artifacts (and full documentation) will be curated with the University of Arkansas Museum (Michael P. Hoffman, January 5, 1983:personal communication).

2.0 ENVIRONMENTAL SETTING

Physiography

The project area is located in the Mississippi River Alluvial Valley of the Central Gulf Coastal Plain physiographic province and, more specifically, within the Lower St. Francis Basin portion of the Eastern Lowlands. The Central Gulf Coastal Plain, which is co-extensive with the Atlantic Coastal Plain on the east, is located between Georgia and the Rio Grande River south of Texas and averages more than 321.8 km. (200 miles) in width as measured perpendicular to the Gulf of Mexico. The broad Mississippi River Alluvial Valley extends from north to south and divides the Coastal Plain about equally in half (Fisk 1944:26, 57-58).

The Lower St. Francis Basin is located in the southernmost portion of the Eastern Lowlands and includes the present meander belt of the Mississippi River, the abandoned St. Francis segment of the Mississippi River meander belt and the area between the two meander belts. The meanders of the St. Francis segment are similar in shape and size to those of the present Mississippi River meander belt (Fisk 1944:26).

The physiography of the region is characterized by floodplain and meander belt features that are related variations of the present meander belt of the Mississippi River and the abandoned St. Francis portion of the Mississippi's meander belt to the west. To the east, approximately 9.6 km. (6 miles), are the distinctive Bluff or Loess Hills which lie within a zone 8-40 km. (5-25 miles) along the edge of the Alluvial Valley (Fisk 1944:58). Within the project area, elevations range from 59-65 m. (195-215 feet) AMSL while the bluffs to the east rise to 99 meters (325 feet) AMSL.

Natural physiographic features within the Alluvial Valley include natural levee ridges, point bar ridges and sloughs, abandoned stream channels and backswamp deposits. Natural levee deposits consist of ridge-like masses of silts, sands and silty clays laid down by over-bank flow during periods of flooding. The deposits are thickest and coarsest at their crests along the riverbank but thin rapidly and become finer landward as they merge with backswamp deposits (Fisk 1944:18).

Point bar ridges are characterized by alternating, interbedded silty sands and clay deposits. Abandoned channel and point bar sloughs are characterized by deposits of fine-grained silts and clays. These are often referred to as "clay plugs." The point bar ridges and sloughs form arcuate patterns which form a distinctive ridge and swale topography (Fisk 1944:19).

The most extensive deposits of the floodplain are those laid down in the floodbasins beyond the natural levees. These backswamp deposits consist principally of interbedded, thinly laminated, silty clays and clays with a high organic content. Both backswamp deposits and natural levees tend to mask older strata. In contrast, the ridge and swale topography, in association with abandoned channels, can be used to identify areas that have been reworked by river meander activity (Fisk 1944:20).

In contrast to the physiographic features of the Alluvial Valley, the Bluff or Loess Hills were eroded from terrace deposits which follow and obscure the previously developed topography of the Eastern Hills section of the Central Gulf Coastal Plain. They are well dissected along the border of the Alluvial Valley and are characterized by a mantle of loess which provides a distinctive physiographic topography (Fisk 1944:58).

Geology

The project area is located in the northern division of the Lower Mississippi River Valley on the present floodplain of the Mississippi River. The existence of a buried valley system underlying the Mississippi Alluvial Valley has been recognized since 1881 when deep borings made by the Mississippi River Commission disclosed that the alluvium extended far below the maximum depth of the channel of the modern river. Fisk (1944:11, 69-70) suggests this buried valley was excavated during the last glacial stage, the Late Wisconsin, and was subsequently filled with Recent (Holocene) alluvium. This entrenchment would have been in response to a drop in sea level, with downcutting beginning at the Gulf of Mexico and working headward, resulting in stream gradients which steepened gulfward. The streams flowing along the steep slopes would have been able to transport the coarse material made available by erosion in the deeply weathered surface of the stream basins. Melting of the ice in each of the interglacial stages would have raised the base level of the streams, resulting in a decreased stream gradient, loss of ability to transport coarse sediments and the deposition of alluvium.

In contrast, utilizing more recent data, Saucier (n.d.:9) suggests the Mississippi River responded to sea level changes no further north than Baton Rouge, Louisiana. Whereas Fisk postulated that the Alluvial Valley was deeply entrenched throughout and "swept clean" of alluvium during waxing glaciation, it now appears that considerable valley fill was deposited by braided streams carrying coarse-grained glacial debris. These braided streams, although aggrading the valley, accomplished appreciable valley widening through lateral planation and valley deepening through periodic scouring of the underlying bedrock (Saucier 1974:2).

Saucier (1974:4) suggests that during each glacial cycle, a period was reached where stream sediment level and discharge declined to a point where the Mississippi River changed from a braided to meandering regime, starting at the Gulf and proceeding up valley. In the case of the last cycle (Late Wisconsin Glacial), the Mississippi River changed from a braided to meandering regime quite abruptly (about 12,000 years ago) south of Baton Rouge, while it did not do so until possibly 6,000 years ago north of Memphis, Tennessee.

If Saucier's interpretation is correct, then it appears the Alluvial Valley was never swept clean of sediments during maximum low sea level; rather, there would have remained a rather thick sequence of coarse alluvium. This implies the existence of a large number of buried land surfaces of appreciable antiquity. During the period 7,000-12,000 years ago the valley would have filled slowly resulting in discrete floodplain surfaces that would have remained relatively stable for periods as long as hundreds of years. The circa 12,000 B.P. (A.D. 10,000) surface would be only 1.5-6.1 meters (5-20 feet) below the present surface in areas undisturbed by river meander activity in the vicinity of Memphis (Saucier 1974:9-13).

The geologic deposits of the project area are completely of Cenozoic age and consist of an underlying base of the Claiborne Group overlain by intrusions of the Jackson Group (Eocene series) underlying Recent alluvium (Fisk 1944:plate 25). The Claiborne Group of sediments were massive formations of glauconitic sand and calcareous clay with local limestone concretions interbedded with thicker brackish water facies of sands and carbonaceous chocolate-colored silts and clays. In subsurface formations, the alternations of the lithologic group which occurs at the surface is largely unclear (Fisk 1944:62).

The Jackson Group of sediments consist of clays, sandy shales and sands with thin lignite beds in fluviatile and brackish-water deposits which interfinger with the massive deposits. The clays of this group contain marine fossils as far north as Memphis, Tennessee (Fisk 1944:62).

The Recent alluvium is a large mass of stream deposits which partially fills the Mississippi River entrenched valley system. The average thickness is 38.1 meters (125 feet) in the northern half of the valley. The alluvium consists of a sequence of sediments which grades irregularly upward from coarse gravelliferous sands into progressively finer deposits of sands, silts and clays. This general upward decrease in grain size values makes it possible to divide the recent alluvial section into a basal graveliferous unit and an upper non-graveliferous unit. The upper deposits can be further subdivided into pervious sands, gradational with the underlying graveliferous sediments of the top stratum and into relatively impervious sediments of the top stratum. Coarse materials also occur within the upper, generally non-graveliferous unit, especially within meander belts (Fisk 1944:17).

Alluvial History

Fisk (1944:Plate 22, Sheets 4 and 5) delineates five stage channels (10, 11, 17-19) of the Mississippi River within the project area. These include, from oldest to youngest, the number 10 channel during which time the drainage north of Rosedale, Mississippi had assumed essentially the form it has today, the number 11 channel during which time the Walnut Bayou course was abandoned through a diversion near Vicksburg, the number 17 channel as the location of the 1765 channel, the number 18 channel as the location of the 1820 channel, and the number 19 channel as the location of the 1880 channel. Saucier (1974) identifies a single Mississippi River Meander Belt (Number 5) within which the project area is located.

Fisk (1944:42) divided the history of the evolution of the present meander belt into 20 stages, numbered 1 to 20, separated by intervals of 100 years, each of which is represented by a reconstructed channel (stages 17 through 20 are marked by historic) courses. Thus, Fisk dates the number 10 channel to circa A.D. 1000, the number 11 channel to circa A.D. 1100, and the number 17-19 channels to A.D. 1715, A.D. 1820 and A.D. 1880, respectively.

However, there appears to be a problem with Fisk's historic channel dates. Examination of the General Land Office survey plat map (General Land Office 1823) indicates that Fisk's number 19 channel, which he dates to 1880, was active at the time the area was surveyed in 1823. Further, the G.L.O. map indicates that his number 18 channel, which he dates to 1820, was an abandoned channel at the time the survey was made and had been silted in, such that it

was only one-third as wide as the active number 19 channel. This suggests that the number 18 channel was probably active around the 1700's. This is a conservative estimate. The active 1823 channel (Fisk's number 19 channel) is now silted in to the same degree, which would suggest a span of approximately 160 years for a channel to be silted in to this degree. Therefore, a more reasonable estimate for the number 18 channel would be approximately A.D. 1700 \pm 100 while the number 19 channel would date to A.D. 1823. Finally, a reasonable estimate of age for the number 16 channel would be A.D. 1500 \pm 100, based upon the arguments above.

Further, Saucier (1974:1-2) suggests there is now reason to believe that the present meander belt was first established 2,800 years ago in the southern part of the valley, but as much as 6,000 years ago in the northern part of the valley. This suggests that the earlier numbered channels may be older than the estimates provided by Fisk.

A model utilizing the relative location of the channel meanders, both in and near the project area (as shown in Figure 2-1), will be helpful in determining the effect of river meander activity. For the development of this model, the following assumptions are made:

- 1) The channels designated by Fisk (1944) are correct in terms of their relative sequence.
- 2) The dates suggested by Saucier (1974) and the General Land Office survey (General Land Office 1823) are more correct as they are based on more recent data.
- 3) The landscape in the project area was composed of alluvial sediments with landforms typical of alluvial valleys (for example: natural levees, backswamps and ridge and swale topography).

Following this argument, approximately A.D. 1000 \pm 700 to A.D. 1200 \pm 700, a meander loop began progressing through the project area from east to west as evidenced by the position of the number 10, number 11 and number 12 channels. The result of this progression was the subsequent reworking of the alluvial sediments producing new land surfaces dating to A.D. 1000-1200 \pm 700. This reworking of sediments would have destroyed any cultural resources deposited prior to this period. Further, alluvial sediments would have been deposited within the project area after passage of the channels during periods of flooding. At the end of this period, it appears the number 13 channel (A.D. 1300 \pm 700) was cut off to the east of the project area, producing an abandoned channel within which Wapanocca Lake is now located (Corps of Engineers 1975).

Between A.D. 1300 \pm 700 and 1500 \pm 100, the project area remained relatively undisturbed, with the exception of alluvial flood deposition in low-lying areas. However, beginning about A.D. 1500 \pm 100 and prior to A.D. 1700 there appears to have been another meander loop progression through the northernmost portion of the project area from east to west again, as evidenced by the location of the number 16, 17 and 18 channels. This would have destroyed the land surfaces developed during the period A.D. 1000-1200 \pm 700 by the previous meander progression. Subsequent to A.D. 1700, it appears the number 18 channel was cut off to the east of the project area, producing an abandoned channel now identified as Chute 38 (Corps of Engineers 1975).

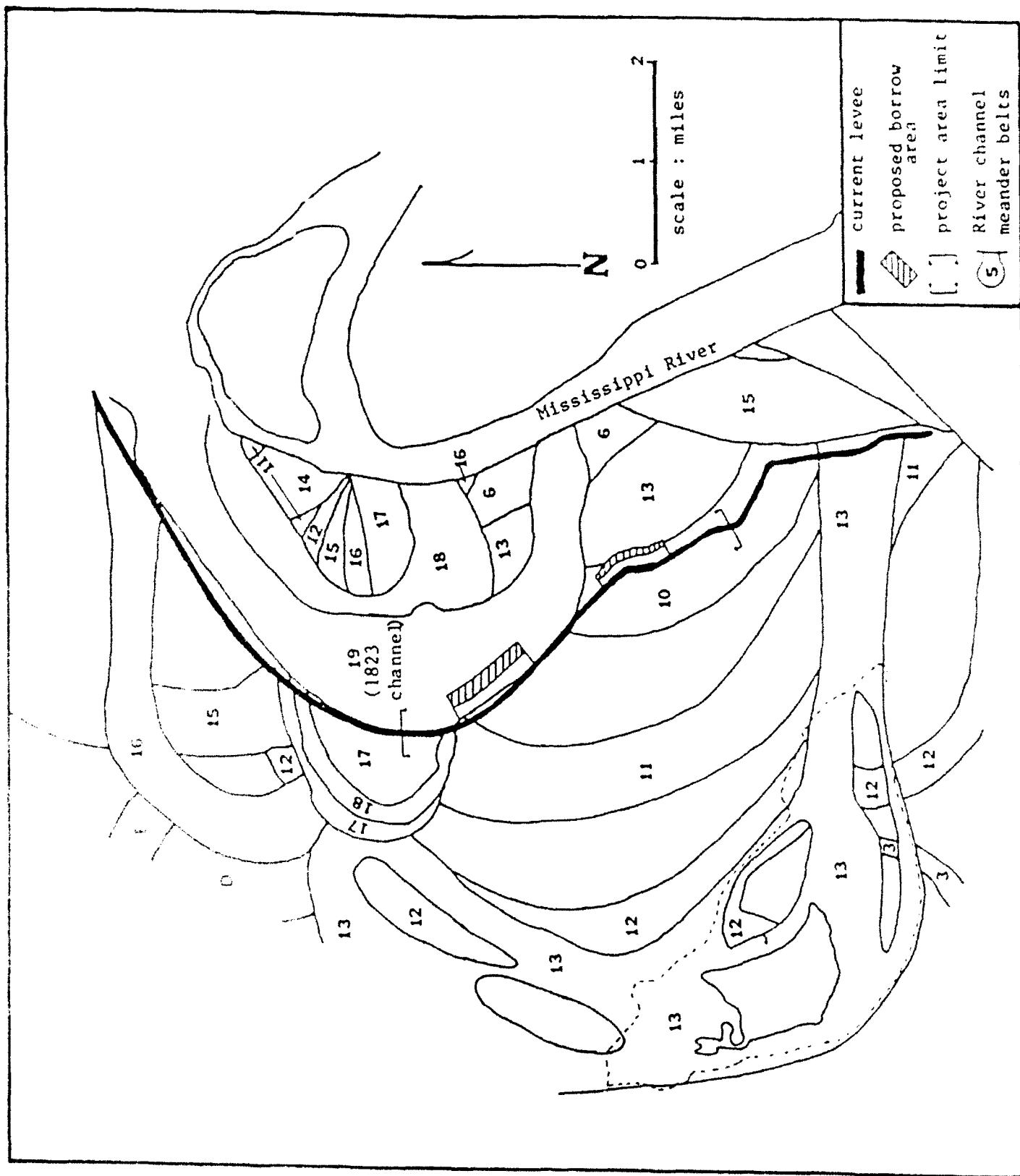


Figure 2-1. The relative location of channel meanders of the Mississippi River. (after Fisk 1944)

Between A.D. 1700 and A.D. 1823 a new meander developed to the east of the project area and moved westward to the location of the number 19 channel, at the eastern edge of the project area. The number 19 channel was subsequently cut off producing an abandoned channel now known variously as the Devil's Elbow, Old River or Barney Chute. Subsequent to A.D. 1823, it does not appear that the project area has been affected by river meander activity. However, alluvial deposition during flooding has affected low-lying areas.

The extremely wide temporal range of non-historic channel dates used in this discussion were assigned on the basis of two different forms of evidence. The first of these concerns Saucier's suggestion that the present meander belt may have been occupied as much as 6,000 years ago in this area. The second consists of archeological evidence. Examination of the temporal phases of known sites near the project area and within the locations of the number 10-13 channels indicates the earliest known occupations date to the Baytown Period (A.D. 400-700), although it is possible that Middle Woodland (Marksville) period (0 - A.D. 400) components might be present but unidentified.

Recent evidence suggests that prehistoric cultures were selecting recently abandoned channels (oxbow lakes) for habitation sites (Morse, August 15, 1983: personal communication; Waddell 1982). This would have provided numerous advantages, without the disadvantage of being located on an actively meandering channel. The advantages would include: 1) oxbow lakes would have provided a very high concentration of biotic resources that would have been seasonally replenished by flooding, 2) the relatively high natural levees associated with cutbanks of oxbow lakes would have been available for horticultural activities and habitation without fear of river meander destruction and 3) the oxbow lakes would have allowed access to biotic resources without the dangers of attack or warfare associated with the well-traveled main channel as historically documented (Bourne 1904).

Thus, we can reasonably expect that the Baytown sites in the vicinity of Wapanocca Lake (within the number 13 channel location) were not occupied until after the cutoff of the number 13 channel. According to Fisk (1944), this would have occurred sometime between A.D. 1300 and A.D. 1400. However, Morse (1982a:28) places the Baytown Period between A.D. 700 and A.D. 1000. It has been demonstrated that Fisk's later historic channel dates are in error and it would follow that this is the case concerning the number 13 channel. Following the supposition that channels have a life of approximately 160 years, the number 13 channel would date to A.D. 850 \pm 300 which would place it well within Morse's dating for Baytown.

The above model provides a basis for evaluating the age of land surfaces within the project (acknowledging that there has obviously been deposition of more recent alluvial sediments during periods of flooding).

Thus, it appears that the project area can be divided into three distinct areas on the basis of expected age of land surfaces. The oldest land surfaces would date to between A.D. 300 and A.D. 600. Land surfaces of this age occur on both the landside and riverside of the levee downstream from the number 18 channel (approximately Station 126/7+50 to Station 129/13+50), with the exception of the borrow area located on the east side of the abandoned 1823 channel (within the number 19 channel).

The second oldest land surfaces would date to between A.D. 1500 +100 and A.D. 1700 +100 (historic river channel dates, General Land Office 1823). Land surfaces of this age occur on both the landward and river sides of the levee upriver of the number 18 channel (approximately Station 125/39+32 to Station 126/7+50), again, with the exception of the borrow area located within the number 19 channel.

The youngest land surfaces would date to approximately A.D. 1823 (historic river channel date, General Land Office 1823). Land surfaces of this age occur on the riverside of the levee in the borrow area located within the number 19 channel (approximately Station 126/15+00 to Station 127/5+00).

As a final caveat, the estimated ages of the oldest land surfaces were based upon the temporal phases of recorded prehistoric sites within and near the project area. It is always possible that there are unrecorded sites (possibly buried) of greater antiquity which would imply an earlier age for the land surfaces than that estimated here.

Soils

Soils in the project area consist of the Commerce-Robinsonville association and the Sharkey association (Gray and Ferguson 1974). Soils of the Commerce-Robinsonville association are generally somewhat poorly drained and well drained, level, loamy soils occurring on natural levees. These soils are found in strips that are generally adjacent and parallel to the Mississippi River and includes the larger areas of young, loamy, natural levees deposited by the river. Most areas are level, but some are gently undulating (Gray and Ferguson 1974). The association consists of about 35% Commerce soils, 25% Robinsonville soils with the remaining 40% made up of Crevasse, Mhoon, Tunica and Sharkey soils and levees, borrow pits and areas of water.

Soils of the Sharkey association are generally poorly drained, level or gently undulating, clayey soils occurring on slack-water flats that are frequently flooded. These soils are found in scattered areas along the Mississippi River. Most of the Wapanocca National Wildlife Refuge lies within this association. The association consists of about 80% Sharkey soils with the remaining 20% made up of Bowdre, Crevasse and Tunica soils, and borrow pits, levees and areas of water.

Specifically, soils in the project area consist of Commerce silt loam, Robinsonville very fine sandy loam, frequently flooded Robinsonville very fine sandy loam, frequently flooded Sharkey silty clay, gently undulating Tunica clay and frequently flooded Tunica clay. Soils in the project area are depicted in Figure 2-2.

The Commerce series consists of poorly drained, level soils on the lower part of young natural levees and were formed in stratified beds of loamy sediments. A representative profile of these soils consists of a surface stratum of about 15 centimeters (6 inches) of dark grayish-brown silt loam. The sub-soil stratum consists of about 35.5 centimeters (14 inches) of a grayish-brown silt loam mottled predominantly with yellowish-brown. This is underlain by stratum consisting of about 167.6 centimeters (66 inches) of grayish-brown, light brownish-gray, and gray, stratified silty clay loam and silt loam deposits exhibiting yellowish-brown mottling. These soils are high in natural

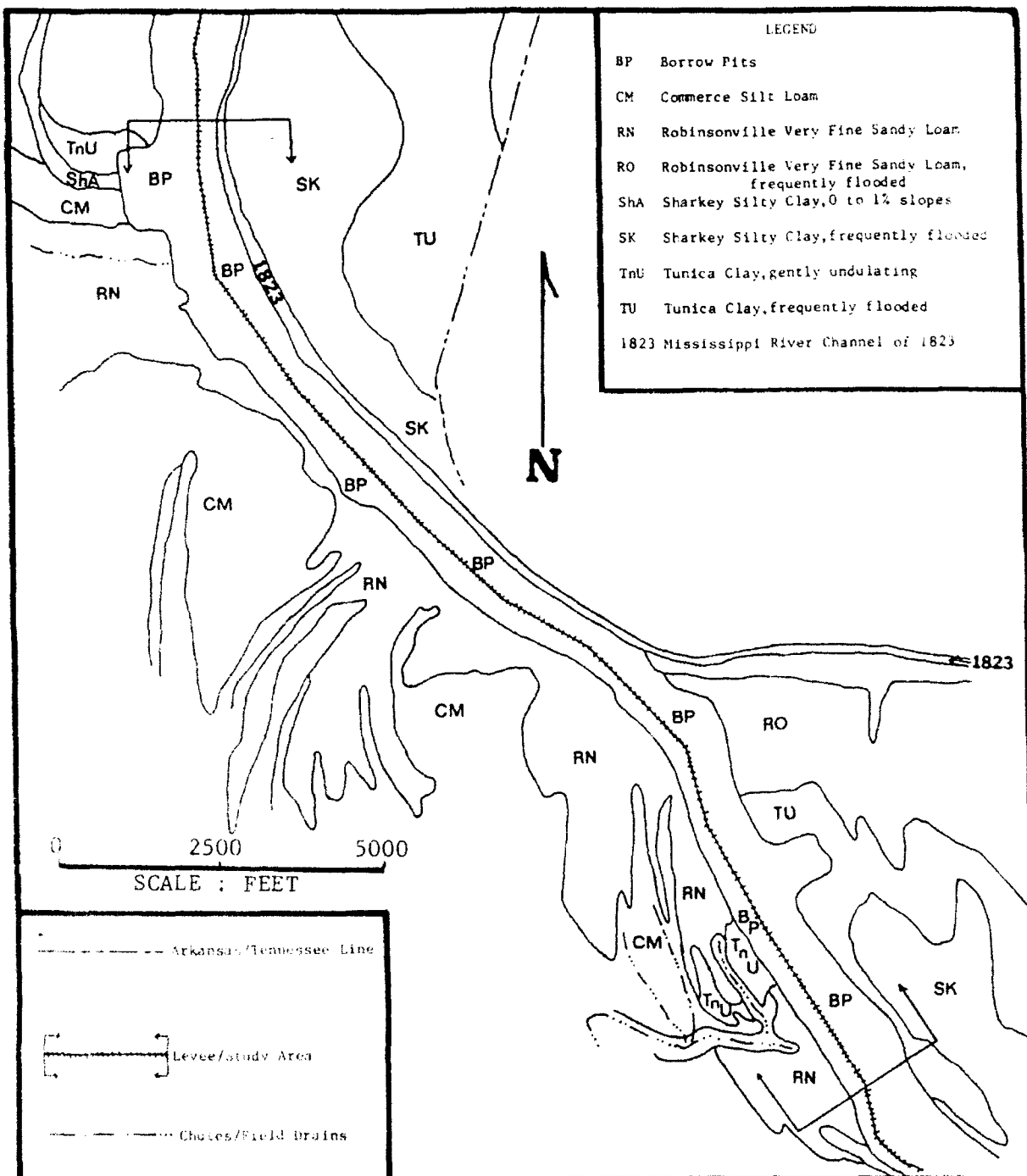


Figure 2-2. Specific soils within the vicinity of the project area (after Gray and Ferguson 1974)

fertility. Commerce silt loam has a capability unit of I-1 indicating that it has few limitations in terms of agriculture (Gray and Ferguson 1974:10-11).

The Robinsonville series consists of well drained, level soils on the higher parts of young natural levees and were formed in stratified loamy sediments. A representative profile of these soils consist of a surface stratum about 15 centimeters (6 inches) in depth of dark grayish-brown, very fine sandy loam. This is underlain by a subsoil stratum about 137.2 centimeters (54 inches) thick of brown, very fine sandy loam. Below this is a mottled grayish-brown silt loam. Robinsonville soils are moderate to high in natural fertility. Robinsonville very fine sandy loam is found on the higher parts of natural levees while Robinsonville very fine sandy loam, frequently flooded is found on the higher parts of natural levees, between the historic levee and the Mississippi River. Robinsonville very fine sandy loam has a capability unit of I-1 while its frequently flooded counterpart has a capability unit of IV-2, reflecting the limitations to agriculture imposed by frequent flooding. Both have profiles similar to the representative profile described for the series (Gray and Ferguson 1974:19-20).

The Sharkey series of soils consist of poorly drained, level and gently undulating soils in slack-water areas which were formed in thick beds of clayey sediments. A representative profile of these soils consists of a surface stratum about 20.3 centimeters (8 inches) thick of mottled, very dark grayish-brown and very dark gray silty clay. The subsoil stratum consists of about 101.6 centimeters (40 inches) of mottled dark gray and gray clay. This is underlain by a 10.2 centimeter (4 inch) thick stratum of mottled, gray silty clay loam underlain by mottled gray clay. These soils are high in natural fertility. Sharkey silty clay, frequently flooded, consists of level and gently undulating soils on broad flats between the historic levee and the Mississippi River. This soil has a capability unit of IVw-1 reflecting agricultural limitations imposed by flooding.

The Tunica series of soils consist of poorly drained, level and gently undulating soils in broad slack-water areas which were formed in thin beds of clayey sediments over coarser textured sediments. A representative profile of these soils consists of a surface stratum about 10.2 centimeters (4 inches) thick of very dark, grayish-brown clay. The subsoil stratum consists of about 40.6 centimeters (16 inches) of mottled, dark-gray and gray clay underlain by about 22.8 centimeters (9 inches) of mottled, gray silty clay. The subsoil is underlain by a stratum of mottled brown sandy loam underlain by yellowish-brown sand. These soils are moderate to high in natural fertility. Tunica clay, gently undulating, is found in broad slack-water tracts in areas of alternating long, narrow swales and low ridges that rise .6 to 1.5 meters (2 to 5 feet) above the swales. This soil has a capability unit of IIIw-1 reflecting the agricultural limitations of water accumulating in the swales. Tunica clay, frequently flooded, is found in slack-water areas between the historic levee and the Mississippi River and has a capability unit of IVw-1 reflecting the agricultural limitations of frequent flooding.

Paleoenvironment

The discussion of the paleoenvironment will be limited to 20,000 B.P. (before present) as this is generally believed to be the time of entry of the Paleo-Indian to North America. Principal references for the discussion

include Wharton (1978), Harshberger (1958), Simpson (1941; 1945), Mosimann and Martin (1975), King and Allen (1977) and Delcourt et al (1980).

A brief synopsis of major chronological events since 20,000 B.P. according to Wharton (1978) is provided. At 20,000 B.P. the Wisconsin Glacial Stage was at its peak, with its coolest temperature and southernmost extension of glaciers. By 14,000 B.P., the boreal forest had retreated to the north and sea level for the Gulf of Mexico had begun to rise. A warming trend started prior to 14,000 B.P. and accelerated through 11,000 B.P. The Wisconsin Glacial Stage ended in 10,000 B.P. (Miller 1974). The hypsithermal period began approximately 9,000 B.P. and continued for 3,000 years. By 2,500 B.P., the sea level had risen to present-day levels. A world-wide cooling trend was experienced in the 16th century (Wharton 1978).

Paleobotany

Based upon an arboreal pollen assemblage from Noconah Creek, located in the loess mantled Blufflands along the eastern wall of the Lower Mississippi Alluvial Valley in Tennessee, Delcourt et al (1980:125-127) suggests that, between approximately 23,000 B.P. and 13,000 B.P., spruce dominated the record with fir and larch present. This period would span the full and late glacial of the Woodfordian Substage of the Wisconsin Stage. However, the continuous representation of many deciduous forest taxa from full-glacial sediments, along with macrofossils of beech, yellow poplar and hickory suggests that at least small populations of deciduous tree species survived the full glacial at the Noconah Creek locality. From the pollen and fossil data they postulate that during the late Wisconsin continental glaciation, winters were cooler than at present but were not severe, with extremes in minimum temperature not exceeding -40°C.

Between approximately 16,500 and 13,000 B.P., Quercus pollen increased from 11 to 33%. Pollen of Nyssa, Castanea, Mirica type and Ilex type also occurred within the late glacial sequence. The increase in pollen of oak and other deciduous taxa reflects a local expansion of populations of deciduous taxa and the northward migration into the Memphis area of warm-temperature tree species from their full-glacial refuges (Delcourt et al 1980:127).

According to Harshberger (1958), the ancestral forests, remnants of a large Miocene deciduous forest that virtually covered the United States east of the Mississippi River were located through the central-eastern United States. As the glaciers retreated further north, the ancestral forest migrated south, east and north in concentric waves similar to those associated with a stone tossed in the water. Harshberger's proposed order of invasion is as follows:

WIND CARRIED SEEDS

- | | |
|--|------------------------------|
| 1. <u>Picea alba</u> (=P. <u>canadensis</u>),
farthest north | 6. <u>Betula papyrifera</u> |
| 2. <u>Picea nigra</u> (=P. <u>mariana</u>),
farthest north | 7. <u>Abies balsamea</u> |
| 3. <u>Larix americana</u> (=P. <u>laricina</u>) | 8. <u>Pinus strobus</u> |
| 4. <u>Populus balsamifera</u> | 9. <u>Thuja occidentalis</u> |
| 5. <u>Populus tremuloides</u> | 10. <u>Ulmus americana</u> |
| | 11. <u>Acer saccharum</u> |
| | 12. <u>Tsuga canadensis</u> |

ANIMAL CARRIED SEEDS

- | | |
|----------------------------|--|
| 13. <u>Quercus rubra</u> | 16. <u>Castania americana</u> (=dentata) |
| 14. <u>Fagus americana</u> | 17. <u>Juglars nigra</u> |
| 15. <u>Quercus alba</u> | |

The migratory forest generally continued the same genera as are present today, with the exception of chestnuts (Castanea), which have been killed by the Chestnut Blight. These genera include oaks (Quercus), ashes (Fraxinus), and hickories (Carya) (Harshberger 1958).

King and Allen's (1977:307-320) analysis of a Holocene peat section from the Old Field, a large swamp within the Morehouse Lowland at the northern end of the Mississippi Embayment, indicates there are fossil pollen sequences that contain evidence of the mid-Holocene warm/dry interval variously referred to as the Hypsithermal, the Altithermal and the Xerothermic. Analysis of the pollen column suggests that by 8,700 B.P., species associated with open swamp were declining while the herb and grass communities were expanding. The decline in swamp vegetation and its implications of a drier climate in southeastern Missouri and northeastern Arkansas coincides chronologically with the onset of drier conditions in the northern Midwest, a shift from forest to herbaceous vegetation in Iowa and an increase in eolian deposition at Graham Cane in Central Missouri.

After 5,000 years B.P., pollen percentages indicate renewed development of bottomland arboreal vegetation and an increase in swamp size. An increase in the oak pollen percentage may reflect an increase in oak trees in the Ozark uplands to the west. These changes suggest an increase in effective precipitation. However, the pollen record does not indicate a return to an environment similar to that which occurred prior to 8,700 B.P., since from 5,000 to 3,000 B.P. the arboreal community expands, but the effects of the relatively dry climate were still evident (King and Allen 1977:320-321).

Presettlement forests on the Loess-capped uplands east of the Mississippi Valley and on Crowley's ridge included mesic tree taxa such as beech (Fagus grandifolia), yellow poplar (Liriodendron tulipifera), oaks (Quercus spp.), hickories (Carya spp.), sugar maple (Acer saccharum), walnuts (Juglans spp.) and ashes (Fraxinas spp.) (Delcourt et al 1980:113).

Floodplain forests were dominated by willows (Salix spp.) and river birch (Betula nigra) where sedimentation was rapid. Poorly drained alluvial bottomlands favored oaks, gums (both Nyssa sylvatica and N. biflora) and bald cypress (Taxodium distichum). Elms (Ulmus spp.), ashes, cottonwoods (Populus spp.), maples, hackberry (Celtis laevigata), hickories, sycamore (Platanus occidentalis) and persimmon (Diospyros virginiana) occupied better drained immature alluvial soils. Soil development on bottomland sites favored vegetation succession to oak-hickory forest with the addition of sweetgum (Liquidambar styraciflua), beech, magnolia and hollies (Ilex spp.) (Delcourt et al 1980:113-114).

Swamp vegetation was characterized by black willow (Salix nigra), cottonwood (Populus deltoides), bald cypress, gum (Nyssa uniflora), many oaks, hickory (Carya aquatica), sweetgum, ash, planer-tree (Planera aquatica), persimmon, honey locust (Gleditsia triacanthos), red maple (Acer rubrum), silver

maple (Acer saccharinum) and cane (Arundinaria gigantea) (Delcourt et al 1980:114).

Paleozoology

Many exotic forms of animal life existed in the study area. According to Mosimann and Martin (1975), there were three genera of elephants, six genera of giant edentates, 15 genera of ungulates and various giant rodents and carnivores north of Mexico. Maps presented by Simpson (1945) indicate that the genus Tapirus (tapirs) occurred in the study area. Further, Mosimann and Martin (1975) stated that four genera of giant ground sloths were present in the United States, including Megatherium. As the study area was forested, it is highly probable that these forest dwellers did exist in the study area. Simpson (1941) also stated that three large felines occurred throughout the earlier United States. These included the puma (Felis concolor), jaguar (Panthera onca), and the giant jaguar (Panthera atrox).

By 15,000 B.P. the large megafauna had given way to that found during modern times.

Historic Environment

Climate

The climate of Crittenden County is one of warm summers and mild winters. Temperature extremes range from highs of 37.7°C (100°F) in the summer to lows of below -17.7°C (0°F) on occasion in the winter (Gray and Ferguson 1974:3).

Precipitation averages somewhat less than 127 centimeters (50 in.) per year and is fairly evenly distributed during the year (Gray and Ferguson 1974:3). Snowfall averages six to seven inches per year (Gray and Ferguson 1974:3). The average growing season is 230 days with the average last date of freezing March 21 and the first in the fall, November 14 (Gray and Ferguson 1974:3).

Flora

The study area is located in Harshberger's (1958) Lower Alluvial Forestland of the Arkansas-Louisiana District and in the Southeastern Lowlands Region of Arkansas (Steyermark 1963). Both authors describe a hydric bottomlands forest area or swampland, depending on frequency and duration of floodwaters. The dominants include Bald cypress (Taxodium distichum), oaks (Quercus lyrata, Q. phellos, Q. nigra), hickory (Carya aquatica), swamp cottonwood (Populus heterophylla), maple (Acer rubrum), gum (Nyssa sylvatica), ash (Fraxinus tomentosa), buttonbush (Cephalanthus occidentalis), honey locust (Gleditsia aquatica), Planer tree or water elm (Planera aquatica), wisteria (Wisteria macrostachya), grape (Vitis palmata), and Leitneria floridana (Harshberger 1958; Steyermark 1963).

In addition to the above, Steyermark (1963) lists the following dominant herbaceous and aquatic species (scientific name only): Arundinaria gigantea, Rhynchospora Carex louisianica, Wolffiella floridana, Hymenocallis occid, Iris fulva, Thalia dealbata, Cabomba caroliniana, Lincolata, Ludwigia glandulosa, Eryngium prostratum, Cadium digitatum, Lysimachia radicans, Asclepias pere,

Hydrolea uniflora, Justicia ovata, Diodia virginiana, Candia uniflora, Cayaponia grandifolia, Spilanthes anea var. repens, and Pluchea camphorata.

This type of forest provides an abundance of berries and nuts, as well as providing an excellent cover for game. Also various medicinal and poisoning species are present in such a forest.

Fauna

As the study area is located on the Mississippi River, a vast amount of aquatic fauna is present. Fishes include the following families: sturgeon (Acipenseridae), paddlefish (Polyodontidae), bowfish (Amiidae), pickerel (Esocidae), suckers (Catostomidae), catfish (Ictaluridae), temperate basses (Percichthyidae), sunfishes and bass (Centrarchidae) and drum (Sciaenidae). Turtles include snapping turtles (Chelydridae) and softshell turtles (Trionychidae). The frogs include the family of true frogs (Ranidae). The invertebrates include the clams (Phylum pelecypoda) and crayfish (Cambrus and Procambrus).

Terrestrial fauna available as a food source are limited to the aves and mammalia. Many families of avifauna may have been utilized as a food source during prehistoric times. Families used today include ducks, geese and swans (Anatidae), turkey (Meleagridae), quail (Phasianidae), and dove (Columbidae).

Mammalian families known to have been utilized as food sources during modern times include the squirrels (Sciuridae), rabbits (Leporidae), raccoon (Procyonidae), bear (Ursidae), and deer (Cervidae). The dog (Canis domesticus) may also have been utilized as a food source during prehistoric times.

3.0 PREVIOUS INVESTIGATIONS

Previous Archeological Investigations

American archeology as a scientific discipline is a relatively recent phenomenon. According to Willey and Sabloff (1974:40), "As of 1840, American archaeology as a scholarly entity simply did not exist." As the United States expanded its boundaries westward, it became apparent that North America possessed copious remains of prehistoric peoples in the form of mounds, earthworks and large village sites. An increased interest in the discovery and description of antiquities followed and developed into what is described by Willey and Sabloff (1974:42) as the Classificatory-Descriptive Period (1840-1914) of American archeology. During this time archeology became an established vocation. Museums, universities, scientific societies and the government-sponsored expeditions were designed to locate and record sites and collect specimens for their collections.

It was during the Classificatory-Descriptive Period that the first systematic study of the prehistory of the Mississippi Valley was conducted. Squire and Davis (1848) were commissioned by the Smithsonian Institution, with the support of the American Ethnological Society, to examine the mounds of the Ohio and Mississippi River Valleys in order to address the question of the origin of these tumuli. Although they believed they were constructed by a great race of mound builders, their study represents the first regional study of the antiquities of the Mississippi Valley and resulted in an impressive number of site plans along the Mississippi River.

Toward the end of the 19th century a number of investigations were carried out. Evers (1880) conducted a study of pottery vessels collected in southeastern Missouri. It is early studies like this which provided the basis for later interpretations of artifacts in adjacent areas such as northeast Arkansas.

William H. Holmes (1886) published his study of Mississippi Valley ceramics in which he divided the valley into upper, middle and lower provinces. The majority of his sample was taken from the Middle Mississippi Province in which the project area is located. Holmes (1886:371) described this province as "remarkably homogenous." His (1903) later work on pottery of the eastern United States subdivided the Middle Mississippi Province into several regions which were based on environmental rather than typological criteria.

During the period 1910-1911, Clarence B. Moore (1911) conducted a series of investigations throughout the southeastern United States, including the Mississippi Valley. On one such trip Moore attempted to record all prehistoric sites within three miles on each side of the Mississippi River from New Orleans, Louisiana, to a point somewhat above Wilson, Arkansas, not far from the southeastern boundary of Missouri. Emphasis was placed on descriptions of burials and associated ceramics rather than theoretical advancement.

Moore (1911:375) visited four sites in the general vicinity of the project area within Arkansas, including three in Crittenden County (Rhodes Place, Mound Place and Bradley Place) and one in Mississippi County (Pecan Point). Of these, the Bradley Place site (3CT7) is the closest, being located only

some 5.6 km. (3.5 miles) to the south of the project area (the other sites are located at distances greater than 16 km. (10 miles) from the project area).

At the Bradley Place site Moore (1911:427-435) did not dig in any of the four mounds present since they would have provided refuge to the local inhabitants during periods of flooding. He did conduct excavations off of the mounds, recovering 181 burials in 10.5 days using eight men to dig. The burials were located through the use of probe-rods and shovel tests. Of the burials 134 were adult, six were adolescent and 40 were children or infants. During this period 258 earthen ware vessels were recovered, most of these undecorated, and all but six associated with burials. None of the burials were more than 106.6 centimeters (42 inches) below the surface.

The introduction of stratigraphic excavation to American archeology, about 1914, produced a shift in research concerns of American archeologists. The central theme was a concern for chronology. Willey and Sabloff (1974:83) have divided this period, the Classificatory-Historical Period (1914-1960), into two subperiods: 1) Concern with Chronology (1914-1940) and 2) Concern with Context and Function (1940-1960). During the first subperiod the principle of seriation was developed in conjunction with stratigraphic studies. Typology and classification, which had their beginnings in the previous Classificatory-Descriptive Period, now became geared to seriation and stratigraphic procedures. Whereas earlier classifications of artifacts were for the purpose of describing material, they were now used as aids for plotting culture forms in time and space. The ultimate objective was the development of cultural-historical syntheses of New World regions and areas (Willey and Sabloff 1974:83).

The close relationship between American archeology and ethnology led easily to the use of ethnographic analogies in interpretations of use and function in prehistoric cultures. Further, the interest in the relationships between culture and the natural environment that had its beginnings in the culture area concepts of the ethnologists provided a base for cultural-ecological study. It was during the second subperiod that these concerns with contextual-functional approaches emerged. Willey and Sabloff (1974:130-131) divided the new contextual-functional approaches into three types: 1) the study of artifacts as the material relics of social and cultural behavior, 2) the study of settlement patterns and 3) the study of the relationships between culture and the natural environment.

During the period 1940-1947, Phillips, Ford and Griffin (1951) conducted an archeological survey and test excavation program within the northern two-thirds of the Alluvial Valley of the Lower Mississippi River: The Lower Mississippi Archeological Survey. The purpose of this survey was to examine the characters of pre-Mississippian cultures and to evaluate the reconstruction of prehistory that Ford had developed for the southern part of the Lower Valley, and to verify its applicability to the north.

They catalogued three sites in the immediate vicinity of the project area including the Bradley site (PF&G 11-P-2, 3CT7, which is Moore's Bradley Place site), the Golightly Place site (PF&G 11-P-3, 3CT19) and the Pacific site (PF&G 11-P-5, 3CT26). All of these sites are located within 5.6 km. (3.5 miles) of the project area. In addition, they catalogued several other sites in the general vicinity of the project area including the Shawnee Village site

(PF&G 11-P-1, 3MS7), located approximately 12.88 km. (8 miles) to the north of the project area.

The development of university supported archeological programs provided a renewed impetus to research in the Northern Mississippi Alluvial Valley, especially in Missouri which is to the north of the project area. Carl Chapman and his students conducted excavations such as that at the Hearn site (Klippel 1969). The University of Michigan sponsored a research program in the Central Mississippi Valley (Griffin and Spaulding 1951) and Stephen Williams (1954) of Yale conducted research in southeast Missouri. In Arkansas, the Gilcrease Foundation sponsored excavations at the Cherry Valley site and at the Banks site (Perino 1967). The Banks Village site (3CT13), at which Perino (1966) conducted excavations, is located approximately 7.2 km. (4.5 miles) to the west of the project area. John Moselage (1962), an amateur archeologist, with the help of Carl Chapman excavated and described the Lawhorn site. A layman-professional cooperative research program, the Ford-Redfield survey, was organized to locate Dalton sites in the valley (Redfield 1971). The American Museum of Natural History sponsored excavations by Dr. James Ford (1963) at the Helena Crossing site in 1960. Several amateur digs were sponsored by the Arkansas Archeological Society in northeast Arkansas (Davis 1969). Nash excavated part of the Chucalissa site located in Memphis, Tennessee.

During the latter half of the Classificatory-Historical Period, there were attempts to add the dimension of cultural evolutionary process to archeological syntheses of history and function. Such syntheses, with their cross-cultural or comparative orientation, were the beginnings of the search for process and explanation that became so important after 1960. Willey and Sabloff (1974:181-266) have termed this the Explanatory Period (1960-Present) which is most meaningfully characterized by what has been called the "new archeology." The new archeology is characterized by three basic approaches to ways of interpreting the data of prehistory: 1) use of a predominantly evolutionary point of view, 2) use of general systems theory to provide a systematic view of culture and society and 3) use of deductive reasoning.

Since the middle 1960's, archeology in the Northern Mississippi Alluvial Valley has tended to continue the cultural historical approach perfected by Phillips, Ford and Griffin (1951). However, several investigations of cultural-ecological systems have been initiated. In southwest Missouri, the University of Michigan Powers Phase Project, sponsored by the National Science Foundation, began a study of an entire archeological phase (Price 1973; Price 1978). In addition, a diverse set of man-man and man-land hypotheses have been addressed by the Cache River Archeological Project (Schiffer and House 1975), the Zebree Archeological Project (Morse and Morse 1980), the Village Creek Archeological Project (Klinger n.d.) and the St. Francis Basin Comprehensive Overview Program (Dekin et al 1978). Morse (et al 1980:NE3) notes these documents, with the addition of the classic Phillips, Ford and Griffin study, form the basis upon which much of the archeological research in this portion of the Mississippi Alluvial Valley has been conducted.

Recent cultural resources investigations in the vicinity of the study area include: 1) a survey of the Bledsoe Berm Project for the Memphis District, COE (McClurkin 1976), 2) a survey of the West Memphis Recreation Complex (Morse 1977), 3) a survey of the Wapanocca National Wildlife Refuge (Research

Institute 1979), 4) a survey of the proposed West Memphis Municipal Airport Improvements (Cande 1980), 5) a survey of archeological, architectural and historic resources of West Memphis (Kern 1981) and 6) a survey of the proposed sewer improvement project area for the city of West Memphis (Waddell 1981).

4.0 CULTURAL SEQUENCE

Prehistoric Sequence

Based on research by the Lower Mississippi Valley Survey (Phillips, Ford and Griffin 1951; c.f. Phillips 1970) for the Lower Mississippi Valley archeological area and on research conducted in northeastern Arkansas (Morse 1969, 1982a; Morse et al 1980; Morse and Morse 1980), a general chronological framework has been established for the Eastern Lowland-St. Francis Basin archeological region (Figure 4-1). As noted earlier, these studies have been augmented by work in the northeast Arkansas portion of the Lower Mississippi Valley (Schiffer and House 1975; Klinger n.d.; Dekin et al 1978).

The following sequence is presented by period in the sense that each broad unit is a period of time during which a specific cultural stage is most representative in the northern portion of the Lower Mississippi Valley and, more specifically, within the Eastern Lowland-St. Francis Basin archeological region. Each period is headed by a traditional eastern United States designation followed by a temporal span suggested by radiocarbon dates and comparative material. When applicable, an additional period designation style follows that of Morse and Morse (1980).

Paleo-Indian Period: Pre-8500 B.C.

The Paleo-Indian period represents the earliest archeological manifestation securely documented on the North American continent. Three distinctive artifact complexes (Clovis, Folsom and Plano) have been documented. These probably represent chronologically successive phases of a single adaptive system which was evident during the Late Pleistocene. Fluted Clovis and Folsom projectile points and a variety of unfluted, lanceolate "plano" forms are the primary diagnostic artifacts associated respectively with these three successive phases.

While over 100 fluted points have been recorded in northeastern Arkansas, no overall review has been accomplished. Two basic styles are present which may equate typologically with Clovis (9500-9000 B.C.) and Folsom (9000-8000 B.C.). The loci of these fluted points are old surfaces mainly associated with large riverine settings. The locus closest to the project area is located on the eastern escarpment of braided surfaces A and B (Fisk 1974), approximately 51.5 km. (32 miles) to the west (Morse and Morse 1980:1.9). Immediately east of the escarpment, prominent channels of a relict river interned Mammut, Tapirus and possibly Megalonyx within their deposits (Morse 1969). The other locus is located further west, across Crowley's Ridge in the Western Lowlands.

Material remains from both loci have been assigned to the Patteson phase which includes two major styles of points, Crowley's Ridge and Sedgewick, which are similar to Clovis and Folsom, respectively. Although all the points recorded have been surface finds, it is expected that buried sites are present (Morse 1982).

The Paleo-Indian period is a period when the glaciation of the Woodfordian substage of the Wisconsin Stage had receded and when the glacial period

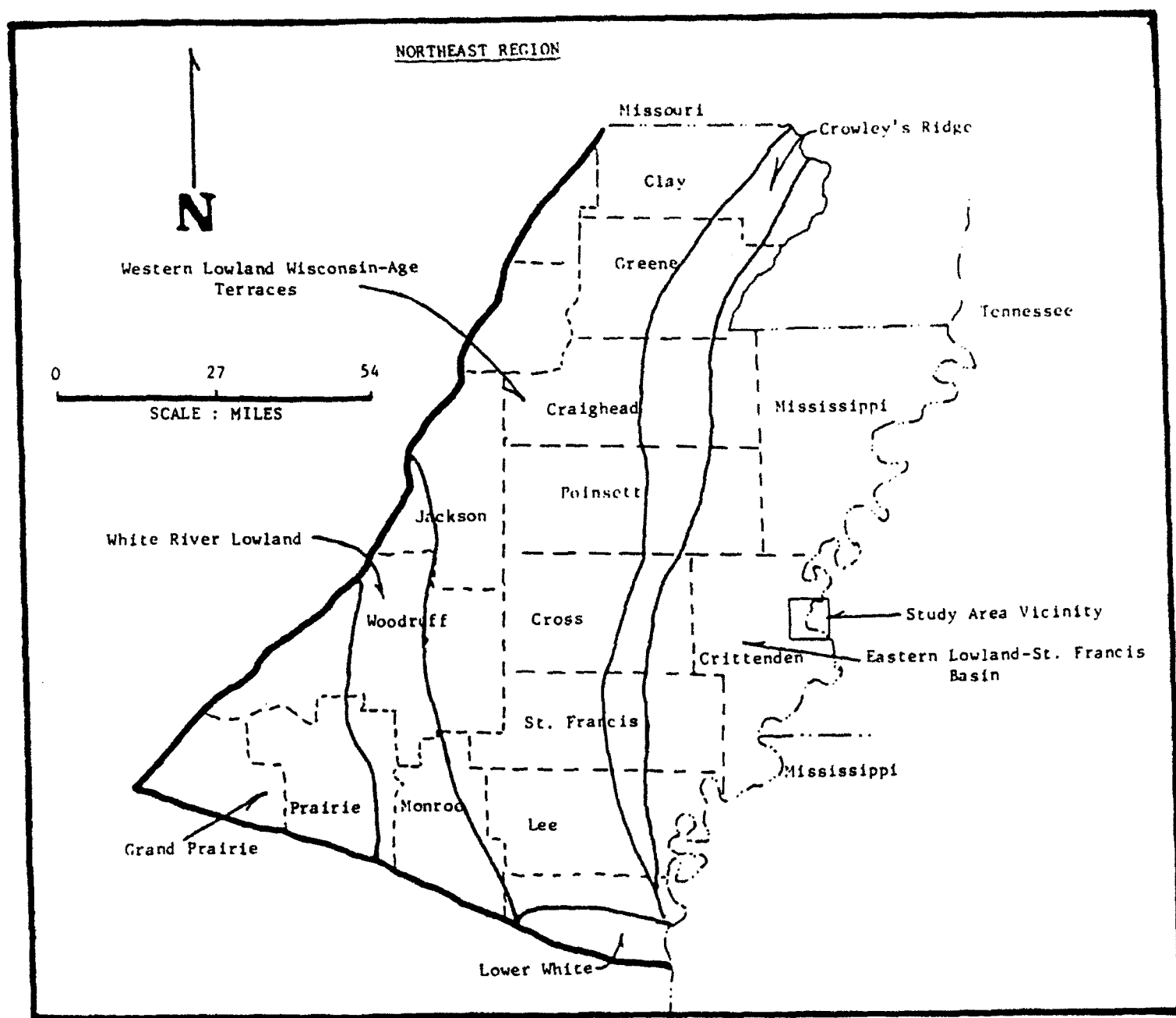


Figure 4-1. Eastern Lowland and St. Francis Basin archeological region (Morse et al 1980).

vegetation consisting of spruce and/or pine dominated boreal forests had been replaced by a deciduous forest. There is evidence that the shift occurred contemporaneously with the fluted point makers in Arkansas as evidenced by the increase in pollen of oaks and other deciduous taxa between approximately 16,500 B.P. and 13,000 B.P. (Delcourt et al 1980:127).

One major alteration of environmental potential at the end of the Pleistocene is the almost virtual extinction of Pleistocene megafauna. Martin (1967; c.f. Mosimann and Martin 1975) has suggested Paleo-Indian hunters played a role in bringing about this extinction through overkill. Alternative hypotheses suggesting that climatic changes were responsible (e.g. Guilday 1967) are gaining increasing favor, however.

Paleo-Indian cultures were initially characterized as nomadic, big game hunters on the basis of recorded association of Paleo-Indian artifacts with various species of Pleistocene megafauna at sites in the western United States. Paleo-Indians in the East were seen to represent a similar lifeway, even though direct associations had not been recorded. However, excavations at Kimmswick near St. Louis, Missouri in 1980 succeeded in demonstrating a link between Paleo-Indians and extinct Pleistocene mammals in eastern North America (Graham et al 1981). Of even more importance, were the remains of white-tailed deer, cottontail rabbit, wolverine, squirrel, weasel, pocket gopher, 13-line ground squirrel and many other species of small mammals found in association with the mastodon remains. This strongly suggests a broad spectrum subsistence strategy incorporating many species endemic to deciduous woodland and meadow habitats. This more generalized hunting and gathering strategy supports the hypothesis that environments supporting Paleo-Indian occupations were becoming increasingly diverse.

Paleo-Indian settlement patterns can only be imagined for northeastern Arkansas. However, Paleo-Indian sites in other parts of North America reflect settlement patterns involving multiple, functionally specific site types, including base camps and such special purpose sites as quarries, tool manufacturing sites and animal processing stations (Wilmsen 1970). Studies of sites in the Southwest of Paleo-Indian settlement locations suggest that the distributional patterns of these sites were sometimes modified in response to changing environments/circumstances (Judge and Dawson 1972). This implies that flexibility in settlement location might have been an adaptation to fluctuations in Late Pleistocene environments, rather than reflecting a nomadic settlement-subsistence system.

It has generally been assumed that Paleo-Indian social organization was at the "band level," but this term is meaningless in view of the extensive diversity exhibited among modern remnants of hunting and gathering societies (c.f. Birdsell 1958; Wilmsen 1973; Wobst 1974). In view of the paleoenvironmental flux during this period, possibly making important food resources unpredictable, a generalized subsistence strategy and flexible settlement system would have been an adaptive response to these conditions. Yellen (1977) has argued that an anucleate social organization is characteristic of hunter-gatherer adaptations to similarly unpredictable environments. Anucleate bands are not discreet as they maintain extensive inter-band ties via kinship and other mechanisms which allow rapid information dissemination and flexible adjustments in population distributions throughout the territory.

Dalton Period: 8500-7500 B.C.

The most diagnostic artifact of this period is the Dalton projectile point, a form of lanceolate biface belonging to the same technological industry of the preceding Paleo-Indian period. Dalton artifact assemblages, such as that of the Brand site (3PO139), have been well documented in Arkansas and consist of a variety of tools reflecting extensive functional diversity. The assemblage includes adzes, spokeshaves, cutting and scraping tools and ground stone abraders, reflecting the importance of woodworking; bone awls and needles along with scrapers and chipped-stone perforators suggesting hide working; and sandstone mortars, grinding stones and pestles suggesting a reliance on wild plant foods such as nuts, berries and seeds. As of 1974, at least 250 sites in northeast Arkansas have yielded Dalton projectile points (Goodyear 1974:4).

The Dalton period environment represented a continuation of early Holocene trends of replacement of the spruce dominated boreal forest as deciduous elements, including oak and elm, expanded as post-glacial fluvial systems were adjusting to more modern regimes. A mixed oak environment with numerous ponded relict channels was probably present (Morse 1982a:22).

As with the preceding Paleo-Indian period it is assumed that the subsistence strategy was dependent upon a wide spectrum of natural resources. The major large mammal secured for concentrated protein was almost certainly the white-tailed deer (Morse and Morse 1980:1.10). However, faunal remains recovered from the Dalton occupation of Rodgers' Shelter, 23BE125, in southwestern Missouri reflects a supplementary dependence upon raccoon, beaver, rabbits and squirrels, riverine species such as turtle and at least two vegetal resources indicated by hickory and walnut remains (Kay 1980).

Morse (1982a:22) suggests the L'Angville phase consisted of several cooperating bands, each occupying a major watershed with an upland component. There would have been permanent or major, seasonal base settlements in stable territories with associated hunting, gathering and quarry camps and cemeteries nearby. An alternative hypothesis has been offered by Schiffer (1975). He suggests that the groups of Dalton were indeed territorial but that it is unlikely that they would demarcate their social boundaries with regard to drainage basins "unless it was adaptively propitious to do so." He argues that the banana-shaped basins would not have formed natural liveable units as varying drainage basins do contain varying amounts of the available and exploitable resources necessary for the basic survival of the band. Schiffer (1975:164-256) concludes that these Dalton groups occupied territories which cross-cut major physiographic and/or resource zones, regardless of drainage boundaries.

In view of the continued fluctuations in the environment, the social organization of the Dalton period cultures were probably not substantially different from those of the preceding Paleo-Indian period. Local groups were probably small and the anucleate band organization probably continued. The added element of ceremonialism is now present in the form of Dalton cemeteries.

Early and Middle Archaic Periods: 7500 B.C.-3000 B.C.

Post-Dalton period artifacts range from rare to nonexistent during this period (Morse and Morse 1980). They suggest there was minimal human activity within the Mississippi Alluvial Valley in contrast to a great deal of activity in the Ozark Highlands to the west, the Ouachita Mountains to the southwest and within the Tennessee uplands to the east. The contrast before and after about 7500 B.C. and before and after about 3000 B.C. is so apparent, they suggest there must have been population movement out of the northern valley during this period (Morse and Morse 1980:1.11). There is little evidence of habitation in much of the northwestern Arkansas Lowlands except for side-notched points of unknown date (Morse 1982a:22).

Morse and Morse (1980:1.11) suggest a major climatological change was responsible for this shift in population demographics. As noted earlier, the Hypsithermal (6700-3000 B.C.) occurred during this period, producing drier conditions and lowered water tables and a corresponding shift from forests to grasslands (King and Allen 1977). In addition, several major drainage shifts probably took place during this period: 1) the eastern braided channels of the Mississippi River changed to a meandering channel, 2) the St. Francis River was rerouted from the Cache Basin into the Eastern Lowlands through a gap in Crowley's Ridge and 3) the Black River was rerouted from the Cache Basin westward to along the Ozark Highland escarpment (Morse 1982a:22).

Late Archaic (Poverty Point) Period: 3000 B.C.-500 B.C.

Morse and Morse (1980:1.11) note that this period has seen only limited investigation in the northern portion of the Lower Mississippi Alluvial Valley, which is surprising in view of the abundant remains available for study (Phillips 1970:869-871; Price, Price and Harris 1976:38; House 1975:156-157).

The lapidary industry is quite distinctive and includes steatite, banner stones (one carved with a perched bird on top) and beads. There are two distinctive projectile point styles: Big Creek and Gary, as well as the characteristic Poverty Point objects for use in earth ovens. Lapidary centers tend to cluster at the ends of medium-sized watersheds, which may be indicative of winter village loci of individual groups (Morse 1982a:22).

The Late Archaic is characterized by the Frierson phase in northeastern Arkansas. Artifacts associated with this culture include perforated atlatl weights, full-grooved axes, chipped and ground adzes, tubular stone beads (including one unidentified effigy), a tube pipe, plummets, well-chipped stone points and several varieties of Poverty Point objects (Morse 1969:19).

As noted earlier, the climate during this period was experiencing an increase in available moisture although conditions still remained relatively drier than those experienced before the Hypsithermal. As a result, there was a decrease in grasslands and an expansion of the deciduous forests.

The subsistence strategy during this period may have depended, to some degree, on horticulture of native and tropical cultigens. Theories concerning the origins of agriculture in the eastern United States can be split into essentially two types: 1) those that argue that an indigenous agricultural

complex was domesticated first and included such common species as lambs-quarter, pigweed, marshelder and sunflower (Fowler 1971; Struever and Vickery 1973) or 2) those that argue the occurrence of cucurbits at several Late Archaic sites preceded the appearance of domesticated native plant species (Chomko and Crawford 1978). Recent data from Phillips Spring leaves little doubt now that squash and gourd were the initial domesticates (Kay et al 1981). However, it must be remembered that even with the introduction of horticulture the subsistence strategy was still essentially one of hunting and gathering based upon a broad spectrum of natural resources.

The settlement pattern tends to reflect this dependence upon a broad spectrum of resources. House (1973) has hypothesized a basic settlement system in which a small group moves within a single minor drainage so that the maximum environmental diversity within a small area is exploited by a pattern of seasonal habitations. It is not known how widespread this basic settlement system was, or what kinds of alternative systems existed. However, studies along the Ozark Escarpment suggest a seasonal shift from the lowlands, up a narrow stream valley, and back again (Morse and Morse 1980:1.12). This is essentially a semi-sedentary settlement pattern with some degree of tethered mobility reflecting a seasonal round.

Around 1500 B.C. there is an apparent shift in the population demographics within the northern valley. Sites with Poverty Point-like artifacts shift from the Black River west of Crowley's Ridge and concentrate along the Mississippi River which at that time flowed near Blytheville and Parkin, Arkansas. A secondary cluster of sites occurred along the White River (Morse 1974). It is not known if this reflects a shift in subsistence to a more horticulturally based strategy.

Little is known about the social organization of this period although the basic pattern suggests a probable tribal organization in contrast to the earlier anucleate band system. This shift in social organization could have been in response to increased sedentarism and group size as suggested by Morse (1969:19) for the Frierson phase, based upon the large number of habitation mounds.

Early Woodland (Tchula) Period: 500 B.C.-0

The tendency toward clustering of sites noted in the latter half of the Late Archaic period increased in this period with human habitation apparently concentrated in the extreme east portion of northeastern Arkansas with a continuous distribution of known sites between southeastern Missouri and northwestern Mississippi (Morse and Morse 1980:1.12; Morse 1982a:28). Until recently the Tchula period was not known to be represented in the Eastern Lowlands of northeast Arkansas, although the Pascola phase had been defined in southeastern Missouri and Turkey Ridge phase components extended north to just south of Memphis (Phillips 1970:877-878). At this time no phase has been identified for northeastern Arkansas. A survey conducted in 1978 (G. P. Smith 1978:personal communication) located several sites along Big Creek that were reported as Tchula but probably are not. At the present time the only confirmed Tchula site in northeastern Arkansas is the McCarty site. This site was salvaged during the spring of 1981 and reported on by Morse (1982b).

The beginning of this period marks the first appearance of widespread pottery use in the Lower Mississippi Alluvial Valley. Diagnostic ceramic types include Comorant Cord-Stamped and, to a lesser degree due to its longevity, Withers Fabric Stamped (Phillips 1970:877). Further, Morse (1982a:28) has suggested a shift toward a greater reliance upon horticulture. However, the lack of research has resulted in more questions than answers concerning subsistence, settlement and social organization.

Three possible reasons have been suggested for the paucity of Tchula Period sites in northeast Arkansas: 1) a population shift, resulting in concentrations in southeast Missouri and northwest Mississippi could have left a void in northeastern Arkansas, 2) lack of recognition of sites may be due to the rare occurrence of diagnostic ceramics, such as Comorant Cord-Stamped, and 3) the possible continuation of cord-marked and fabric-marked ceramics into later periods would make recognition of Tchula sites difficult (Morse et al 1980:NE7). Finally, Morse (1982a:28) suggests an environmental shift may, at least, be partially responsible but there is no pollen data to support this hypothesis. He further suggests that any population shift occurring during this period would have involved less than 1,000 people. Morse (1982a) also concludes that a greater dependence on horticulture might be responsible for a site distribution pattern reflecting a low population density in northeastern Arkansas during this period.

Information from the north and the south suggests that social organization was organized on the tribal level during this period to allow for variations in the environment. These would have exhibited a wide range of variance with groups being small or large, cohesive or noncohesive, settled in compact villages or neighborhoods, poorly developed or highly developed, with the ability to migrate out of or into different regions (Morse and Morse 1980:1.13).

Middle Woodland (Marksville) Period: 0-A.D. 400

Marksville is the regional manifestation of a widespread complex, known elsewhere in North America as Hopewell. Identification of Marksville period components is based upon distinctive ceramic markers such as broad U-shaped incised lines; zoned dentate stamping and zoned rocker stamping both plain and dentate. Horizon markers for dating within the period include the "Hopewell" rim and the characteristic bird motif of early Marksville, and the compressed meanders and "flower-like" motifs of late Marksville times (Phillips 1970:886).

This culture is believed to have originated in the Ohio River Valley and spread southward from Ohio and Illinois. The period is named for the Marksville site (16AV1), the type site located in Avoyelles Parish, Louisiana. As noted above, the period is characterized by the introduction of very fine pottery, as well as well-made projectile points that appear to have been manufactured primarily for use as grave goods. There is a continuation in the Marksville period of Poverty Point concern with mounds and great earthworks, as well as the addition of elaborate burial techniques. Marksville culture is similar to other Hopewell manifestations, throughout much of the eastern part of the United States, in that there is a pronounced concern with mortuary ritual. Exotic grave goods such as copper beads, pipes, raw rare materials, and conch shells from the Gulf are common (Toth 1979).

Phillips (1970:887) has tentatively assigned the Marksville sites in the vicinity of the project area to the Turnage phase. However, as noted by Morse and Morse (1980:1.13), this phase is based solely on the presence of fabric impressed, grog-tempered ceramics. No Hopewell marker types have been recorded as yet, and these components may be early Woodland expressions extending north of Memphis and east of the Blytheville cluster of Poverty Point-like components associated with the abandoned meandering stream channels, as the Mississippi River would have shifted to its present locus by this time.

The absence of Marksville sites in this area may relate to the previous distribution of Tchula sites of the preceding period. Recall that there was a cluster of these sites in southeastern Missouri and another cluster south of Memphis in northwestern Mississippi. The Hopewellian concept of mortuary ritual was adopted throughout much of the eastern United States by indigenous cultures, defining the Hopewellian Interaction Sphere. To the south, there is a classic Marksville site near Helena, Arkansas and south of this area there are abundant Marksville sites which constitute the typical Hopewell of the Southern Mississippi Alluvial Valley. To the north, within the northernmost portion of the Alluvial Valley, particularly the Cairo Lowland area, there are fairly abundant Marksville sites (Morse and Morse 1980:1.13). As can be seen, this distribution mirrors the distribution of sites of the preceding Early Woodland (Tchula) Period. Further, Morse (1983:personal communication) feels that the sparseness of Tchula and Marksville sites in the area is due to an inability of archeologists to distinguish small ceramic assemblages at multiple component sites from typical Baytown assemblages. This he feels may be a recognition problem peculiar to northeast Arkansas.

Subsistence strategies of this period are generally consistent with the preceding period. Hunting and gathering of natural resources continue to be the most important subsistence activities. In addition, horticulture may have been practised. However, direct evidence of horticulture is rare and there is not enough evidence to support a hypothesis of the use of maize as a true staple in Marksville times (Yarnell 1976; Toth 1979:197).

The settlement systems of this period were probably a continuation of the preceding period. This system would have centered around a semi-sedentary adaptation consisting of summer and winter base camps with associated special activity sites. Phillips (1970:Figure 444) identified three sites with components of the Turnage Phase, the Carson Lake site (PF&G 10-P-1), the Notgrass Place site (PF&G 10-P-4) and the Nettle Ridge site (PF&G 10-P-3). These three sites are located approximately 19.3 km. (12 miles) to the north of the project area.

Marksville sites are represented by three types: conical burial mounds, villages with burial mounds and villages without mounds (Toth 1979:194). Marksville sites of all three types occur on higher land surfaces along the edges of alluvial valleys (Toth 1979:199). There appears to be little difference in those village sites with or without mounds (Toth 1979:197). This lack of differentiation or ranking would appear to be indicative of a tribal form of society (Toth 1979:197).

Mortuary ritual was evidently inspired by sporadic contact with Hopewellian groups from the Illinois Valley (Toth 1979:199). However, Marksville

mortuary ceremonialism varies considerably within the Lower Valley and in no way approximates that of the northern Hopewellian centers (Toth 1979:199). Evidence from mortuary practices point to a lack of major differences in social status. Burials in Marksville mounds, excepting the elaborate log tombs at Helena Crossing, indicate a weak social stratification and the cessation of mound burial in late Marksville indicates a fairly equalitarian social stratification (Toth 1979:197).

Late Woodland (Baytown) Period: A.D. 400-A.D. 700

The general disappearance of the Marksville traits from the archeological record marks the beginning of Late Woodland period in northeast Arkansas. There are basically two ceramic traditions during this period: 1) the Barnes Tradition (sand tempered ceramics), which originated in southeastern Missouri and spread south, and 2) the Baytown Tradition (grog-tempered ceramics), which developed to the south and spread northward. According to Morse (1982a:28) both cultures expanded into unpopulated regions and when they met Baytown expanded at the expense of Barnes.

Williams (1954) assigned those components with Barnes Tradition ceramics to the Dunklin phase. Diagnostic ceramic types include Kennet Plain and Barnes Cord Marked with a notable absence of red-filming in the Dunklin complex (Phillips 1970:903). Morse (1982a:Figures 3-9) indicates that Dunklin components occur from about the Right and Left Hand Chutes of the St. Francis River and extend westward. This would place these components some 40 km. (25 miles) to the northwest of the project area.

Those components of the Baytown Tradition have been assigned to the Baytown phase (Phillips 1970:903), although Morse (1980:NE8) notes that probably several phases will be eventually identified within the general name of Baytown. Diagnostic ceramic types include Baytown Plain, Mulberry Creek Cord-Marked and minorities of Larto Red, Evansville Punctated, Alligator Incised vars. Alligator and Oxbow and possibly some kind of Coles Creek Incised (Phillips 1970:903-904). Morse (1982a:Figure 3-9) indicates that generally all of northeastern Arkansas, with the exception of the area of the Dunklin phase, contains Baytown phase components. Further, Phillips (1970:904) notes that in the general area, just south of Memphis northward, there are a good number of Baytown components on sites that have small conical mounds. In particular, Pittman (PF&G 11-0-1), Emory (PF&G 11-0-5), Pinkston (PF&G 11-0-6) and Lewis (PF&G 11-0-7) are located approximately 20.8 km. (13 miles) to the west of the project area. The mounds are small, usually in groups, and in several instances strung out in lines along the crest of sand ridges. This is different from the nature and layout of Marksville Period burial mounds.

Even closer to the project area, Perino (1966:3; 1967) has interpreted the Banks Village site (3CT13) [located 7.6 km. (4.7 miles) to the west] as a multicomponent Baytown and Mississippian site. The Banks Mound 1 (3CT14), Banks Mound 2 (3CT15) and the Banks Mound 3 (3CT16) sites were assigned to the Baytown phase. However, this assessment does not appear to be correct at this time, since Perino's excavation of the Banks Mound 3 site indicate this was a Middle Mississippian Period, Cherry Valley phase mound (Dan Morse, August 30, 1983:personal communication). This raises questions about the phase assignment for the other two mounds as well as the Baytown mounds delineated by

Phillips (1970). It is possible these other mounds represent Middle Mississippian Period components also.

Subsistence strategies during this period probably involved an increased reliance upon horticulture, although hunting and gathering activities would have provided a substantial percentage of the total food supply. This strategy may have had a seasonal dimension. Settlement dates from the Zebree site (3MS20) and from a survey designed to identify sites in relationship to environmental zones suggest that during the winter, groups of up to four different households would congregate in a winter village. During the rest of the year they would fragment into individual households. Presumably during the winter, hunting and gathering activities would provide the major portion of food, while during the summer increased effort would have been assigned to horticultural activities.

Social organization for the two traditions (Dunklin and Baytown) appear to differ. Baytown, in apparent contrast to Dunklin, was a stronger, more politically structural society. The Baytown phase and the Coahoma phase (further south) were mostly known for their ceramics, but mound sites are characteristic and sites are apparently large, stable and relatively complex (Morse and Morse 1980:1.15). The demographic distribution of the Dunklin and Baytown phases (in which Baytown expanded at the expense of Dunklin) may be partially a function in this difference of social organizations.

Early Mississippian (Coles Creek) Period: A.D. 700-A.D. 1000

Around A.D. 700, Mississippian culture developed in the Cairo Lowlands and by A.D. 800, the Big Lake phase was in existence as a result of a migration into Arkansas. Also by A.D. 800, Baytown and/or Dunklin phase cultures adjacent to the Ozarks near the Arkansas-Missouri border and to the south became Mississippian. The Mississippianization process was complete for northeastern Arkansas by A.D. 1000 (Morse 1982a:28).

Thus, for the general vicinity of the project area, this was a period of adjustment to the Mississippian Period lifestyle. This adjustment would have involved the development of intensive agriculture, in contrast with earlier horticultural or hunting-gathering strategies. Concomitant with this would have been the development of a chiefdom level social organization (Morse and Morse 1980:1.15).

Phases in the vicinity of the project, as defined by Morse (1982a:Figures 3-10), are the Big Lake and Hayti phases, with the Big Lake phase being the closest to the study area.

The Big Lake phase is characterized by rectangular wall trench houses with associated 2 metric ton storage pits within palisaded or fenced villages. Ceramic vessels are shell-tempered and are stronger and lighter than those of the preceding Woodland period. Cooking jars exhibiting ladle damage are smaller (3.5 liters) suggesting a shift in household size from 10 to 5. Ceramics tend to be more flexible in style and salt pans underscore the importance of salt for consumption and trade. A microlith industry appears to be important for the production of conch shell beads (Morse 1982a:28). However, it must be remembered that this phase represents an actual intrusion of people from the Cairo Lowland to the north. Beyond the boundaries of this intrusion,

there would have been a slow transformational process in which the indigenous cultures of the preceding period would have been Mississippianized.

Thus, in the general vicinity of the project area, it is probable that the subsistence strategy of the preceding Late Woodland period would have been continued. However, there would have been a slow transformation from the limited horticulture/hunter-gatherer strategy to intensive agriculture with limited hunting and gathering.

Similarly, it is probable that the settlement pattern of small, semi-sedentary winter habitation villages with widespread hamlets occupied during the rest of the year would have been continued from the preceding period. Further, it is possible that the settlement pattern of rectangular wall trench houses within palisaded or fenced villages was never adopted by the indigenous population. Within the following period (Middle Mississippian) the settlement pattern consists of ceremonial centers with charnel structures and associated small villages and farmsteads. This suggests that palisaded villages were not necessary and as a result were never adopted from the Big Lake phase cultures simply because they were not needed.

Middle Mississippian Period: A.D. 1050-A.D. 1350

During this period, there appears to have been a population increase as evidenced by the increase in numbers of sites. Morse (1982a:33) notes that sites of this period are almost everywhere. The Banks phase is depicted by Morse (1982a:Figure 3-11) as encompassing the project area, although he notes that named phases for this period are mostly geographical constructs with little control for temporal changes. However, the Cherry Valley phase may date slightly earlier and Cherry Valley phase components may be evident within the project area (Morse and Morse 1980:1.18).

Between A.D. 1050 and A.D. 1150, sites ranged from ceremonial centers with charnel structures, to small villages and farmsteads. Burial furniture often included handled beakers, plates, loop-handled jars and bottles. Red-filming does not appear to be characteristic after about A.D. 1000.

Subsequent to this period, there was an interval (A.D. 1150-A.D. 1250) where villages with associated ceremonial components were characteristic. However, the mound at the Hazel site (3P06) is located away from the village area, and the field in which the Hazel site is located contains numerous farmsteads. At Hazel, the basal level is characterized by kitchen pottery including plain globular jars with strap handles and effigy headed bowls (Morse 1982a:33). By A.D. 1250, the predominant ceramic types were Matthews Incised and Manley Punctated. Villages were composed of ceremonial components with relatively small, permanent resident populations and "town houses" sparingly used by the occupants of farmsteads seemingly scattered everywhere (Smith 1978a).

Subsistence strategies during this period would have emphasized intensive agriculture, supplemented by hunting and gathering activities. Settlement patterns, as described above, would have been compatible with this mixed subsistence strategy. The small farmsteads would have maximized use of soils suitable for intensive agriculture while nucleated villages occupied during the winter would have allowed cooperative hunting and gathering activities (Morse and Morse 1980:1.17).

There is little doubt that strong, centralized social and political control was exercised and that centrally directed labor was available to build villages in a short time period. Strangely enough, there was little participation in the Southern Cult in the Northern Alluvial Valley, although occasional "Cult" artifacts are found (Morse and Morse 1980:1.17).

Late Mississippian Period: A.D. 1350-A.D. 1500

Some time around A.D. 1350, the Western Lowlands and southeastern Missouri experienced a demographic collapse. At the same time that these regions were abruptly depopulated, two areas in northeastern Arkansas experienced a sudden population increase. These areas included the St. Francis River downriver from Marked Tree and the area around Batesville on the White River floodplain (Morse and Morse 1980:1.19). This was the result of two separate processes: 1) considerable consolidation of sites and behavior took place with more people supported by less land and 2) there was a significant southward shift of population centers.

The project area is located at the extreme southern tip of the area associated with the Nodena phase culture (Morse 1982a:Figure 3-12). He notes that the Nodena phase was apparently the largest and most dominant in relation to the Walls, Parkin and Kent phases to the south, as they apparently controlled the basalt trade (Morse 1982a:33). Walls phase may well have been vassal to the Nodena phase if interpretation of the DeSoto accounts is valid (Morse 1969).

The settlement pattern consisted of tight fortified villages. There is no evidence of farmsteads at this time. It is possible that the fortifications were a response to warfare and the Nodena point may represent a special innovation for increased warfare (Morse 1982a:33). If there was increased warfare during this period, then there may have been an increased reliance upon intensive agriculture since fields close to the village could be protected while hunting and gathering parties away from the village would be vulnerable.

The DeSoto accounts clearly indicate a highly developed chiefdom organization. However, the usual archeological trait associated with a chiefdom, elaborate status burials, are absent (Morse and Morse 1980:1.20).

Protohistoric Period: A.D. 1500-A.D. 1650

The protohistoric period is the interval between the discovery of the Gulf of Mexico by the Spanish and the French accounts of ethnographically known tribal groups in the mid-17th century (Morse 1982a:33). During this period Mississippian cultures underwent a dramatic change. The numerous large villages described by the DeSoto chroniclers were not present when Marquette and Jolliet descended the Mississippi River in 1673. This could have been the result of either one or a combination of a number of causes, including: 1) European diseases, 2) the aftermath of the DeSoto's expedition's depletion of food surpluses, 3) a decrease in climatic suitability with regard to subsistence strategies or 4) a critical imbalance between technology and environment (warfare was characteristic, at least during the period of the DeSoto expedition) (Morse and Morse 1980:1.20).

These were still essentially Mississippian cultures as evidenced by Spanish beads, brass bells and other objects in association with catlinite disk pipes and beads in late Nodena, Parkin, Kent and contemporary phases (Morse 1982a:33). It is expected that subsistence and settlement strategies remained essentially the same as those of the preceding Late Mississippian Period, at least for the first portion of this period. However, sometime during this period there must have been a disruption of the traditional lifestyles, probably as a result of one or more of the reasons presented above. The Caborn-Walborn phase near the Ohio River has been interpreted as an intrusive culture from northeastern Arkansas at about this time (Williams 1977), suggesting that flight from the area may have been one mechanism for the disappearance of the large villages of the preceding period.

Historic Activity Periods

The periods used in this study are generally based on Stewart-Abernathy's proposal in the Arkansas State Plan (Stewart-Abernathy 1980:H1-57). However, not all periods are applicable to the area studied and as dates as used by Stewart-Abernathy (1980:H19) do not follow the historical events as found in the area, divergences from his plan will be made in order to make this study more meaningful and comprehensible.

Contact Period (1500-1840)

The contact period is that temporal period of history during which aboriginal and European populations increasingly interacted. It ended with the eventual removal of Indian groups from Arkansas, the dissolution of Indian lifeways and the loss of tribal land titles in the state (Stewart-Abernathy 1980:H20).

Direct Contact (1541-1720)

In 1541, the Spanish explorer DeSoto and his army crossed the Mississippi River into Arkansas, where they entered the province of Aquixxo, then traveled north through the lands of the province of Casqui to the main town of the province of Pacaha (Phillips, Ford and Griffin 1951:352-361). Pacaha was apparently the major political unit in the region (Morse 1969:24). Archeologically Pacaha should include the Pecan Point and Wilson area (Morse 1969:24) just northeast of the study area. The province of Casqui may be the cluster of sites of Late Saint Francis/Wells-Pecan Point type on Bradley Ridge about 4-5 miles west and southwest of the study area (Perino 1966:140).

Villages are described as being well built with temple mounds and stockades being present. The principal village of Pacaha was partially surrounded by a moat and had an island retreat which was used by the population upon DeSoto's appearance (Phillips, Ford and Griffin 1951:357).

The location of DeSoto's crossing point is debated. Three alternatives have been proposed: 1) Sunflower Landing, half-way between the mouth of the Arkansas River and Helena; 2) Commerce Landing about half-way between Helena and Memphis and 3) Memphis (Davis 1966:6). Swanton (1939) favors the southernmost Sunflower Landing, while Phillips, Ford and Griffin (1951) favor, on archeological grounds, the Commerce Landing crossing. More recently, Perino (1966:140) has suggested that archeological and geographic data from

the Wapanocca Lake area, just to the west of the study area, suggest to him the northernmost Memphis crossing. The Belle Meade site (3CR30), approximately 30 miles south of the study area, has also been considered as possibly being the great Pacaha Village (Brain, Toth and Rodriguez-Buckingham 1972). Phyllis Morse (1981) has summarized all the proposed DeSoto crossing possibilities and has concluded that the Commerce Landing is the most acceptable (Morse 1981:67).

The next contact with Europeans occurred after a hiatus of 132 years. In 1673, Marquette and Louis Joliet traveled down the Mississippi River from French Canada as far south as the Quapaw Village of Arkansia (Phillips, Ford and Griffin 1951:396-397). There having learned that the Mississippi flowed into the Gulf of Mexico 10 days journey away and that the lower river was infested with hostile Indian groups, the French expedition turned back up the river (Severin 1968:99).

There is evidence that during the 132 years that elapsed between DeSoto's first entry into Arkansas and Marquette and Joliet's travels, the Indian population decreased at least 80 percent (Phillips, Ford and Griffin 1951:419). The only group encountered in eastern Arkansas by this expedition were the Quapaw in the vicinity of the Arkansas River.

Cultural disintegration and political decentralization accompanied the population decline. Phillips, Ford and Griffin (1951:420-421) attribute the population loss to the aggressive nature of the Chickasaw. Morse (1969:24) adds to this possibility the introduction of European diseases to the aboriginal population and also the possible disruption of the Indian economic system caused by European consumption of stored agricultural produce.

In 1682, a second French expedition led by LaSalle traveled down the Mississippi River. Stopping near Memphis along the Chickasaw Bluffs, contact was made with some Chickasaw (Phillips, Ford and Griffin 1951:400). In March, they arrived at one of the Quapaw villages previously visited by Marquette and Joliet. In April, the expedition reached the Gulf of Mexico and LaSalle claimed the entire Mississippi drainage for France.

In 1686, a second expedition led by LaSalle set out to locate the Mississippi River mouth via the Gulf of Mexico. DeTonti, LaSalle's lieutenant, left Fort Saint Louis on the Illinois River to descend the Mississippi River and meet LaSalle at its mouth. Unknown to DeTonti, LaSalle missed the Mississippi River mouth, landed in Texas and was murdered by his own men. DeTonti, after waiting for LaSalle, returned upriver. At the mouth of the Arkansas, he left several men to establish what was the first permanent settlement in Arkansas (Phillips, Ford and Griffin 1951:403-405).

South of the study area about 4 miles is the Bradley Place site. Moore (1911:431) recorded two glass and one possible brass bead with a burial. He also stated that "at the Bradley Place was abundant evidence of aboriginal intercourse with the whites" (Moore 1911:435). Phillips, Ford and Griffen (1951:48, 445) date this site as early Mississippi (C-B). They date DeSoto's passage through the area in Late Mississippi (B-A) (Phillips, Ford and Griffen 1951:451) although Phillips would place it close to the beginning of this period (Phillips, Ford and Griffen 1951:451). It may be that these artifacts from the Bradley Place site are evidence of DeSoto's passage. The beads,

however, have never been carefully examined (Morse 1969:25) and care should be used in hypothesizing or theorizing about the events that led to their deposit at the site.

Co-existence Contact (1720-1770)

With the settlement at the mouth of the Arkansas River, European contact with the Indians of Arkansas and surrounding areas accelerated. Not all of these contacts were peaceful as evidenced by the description of the hostilities between Bienville and the Chickasaw in 1740 (Nuttall 1821:288-289).

Evidence for the occupation of the study area is non-existent for this period.

Resettlement Contact (1770-1840)

By the late 1700's, increasing pressure from Euro-American settlers in the eastern United States, as well as the intrusion of the Spanish in the Arkansas territory, caused several Indian groups to migrate into the territory (Faye 1945). The Kaskaskia, led by their hereditary chief, Jean Batiste du Doighe, moved into the Arkansas River region in the late 1770's. Other groups which moved west included the Delaware, Osage, Miami, Choctaw, Peoria and Chickasaw.

During his travels in Arkansas in 1819, Nuttall traded with a group of Shawnee south of Island 35 (Nuttall 1821:54-55). This would have been only 8 to 10 miles northeast of the study area. South of Island 35 at the fourth Chickasaw Bluffs his group visited a group of Chickasaw on the Tennessee side of the river (Nuttall 1821:55-56). No mention is made of any Indians in the actual study area.

In 1832 the United States began construction of what was called the Military Road. This road ran from Memphis to Little Rock and was constructed for the purpose of moving Indians from the eastern states to the western reservations (Woolfolk n.d.:2).

By 1840 the Indians as organized groups were gone from Arkansas, leaving only individuals who remained as hunters, squatters and legitimate landowners (Stewart-Abernathy 1980:H24).

European Period (1500-1803)

This period displays cultural patterns derived mainly from Continental Europe (Stewart-Abernathy 1980:H24). However, along the Mississippi River in the 1800's, American travelers and settlers were increasingly making their presence felt.

French Period (1673-1762)

French influence in northeastern Arkansas was minimal. French settlements were located further south, with the establishment in 1686 of the first Arkansas Post by DeTonti. No French settlement took place in the study area.

Spanish Period (1762-1803)

In 1762 France ceded to Spain all her lands west of the Mississippi River. Spanish rule lasted until 1801 when Spain, by secret treaty, gave Louisiana back to France. Just two years later in 1803 France sold Louisiana to the United States. However, during the two years France owned Louisiana again, Spanish officials continued administering the territory.

While the territory was under Spanish rule, settlement by Spaniards was encouraged by the practice of granting tracts of land to individuals who had served the Spanish government. However, early settlement was slow. Kniffen (1971:49) estimates that only approximately 2,000 people lived between New Madrid, Missouri and the Arkansas River at the time of the Louisiana Purchase, while south of the Arkansas the population figure approximated 34,000.

The earliest settler in the area destined to become Crittenden County is reported to be Benjamin Fooy. Fooy settled at Camp Hope, a Spanish fort across the Mississippi River from present day Memphis. He became the commandant of this fort and retained this position until France regained Louisiana (Woolfolk n.d.:2). Later Camp Hope became the town of Hopefield which eventually was completely eroded away by the Mississippi River (Hale n.d.).

Another early Spanish settler recorded in Crittenden County was Augustine Grandee, a Spanish officer who settled near the present day town of Marion in 1801. Other Spanish land grants were located exclusively along the Mississippi River. Evidently the Spanish did not find the lands away from the river suitable for settlement.

Although the project area is located along the main channel of the Mississippi River, no Spanish settlement took place in the area. Land in this region was not settled until the 1830's when land was offered for sale by the United States.

Anglo American Period (1780-2000)

This period is that during which people of British heritage plus a mixture of Eastern seaboard traditions change the pre-existing cultural landscape into one roughly stable for over a century (Stewart-Abernathy 1980:H28).

Pioneer (1780-1850)

With the Louisiana Purchase in 1803 the Mississippi Valley was opened to widespread settlement. Travelers and settlers moved westward into the new lands. Guides such as Zadok Cramer's (1814) Navigator informed emigrants and excursionists of what they might find. Others such as Nuttall (1821) and Flint (1826) wrote of their experiences in the "western" lands.

At this period Nuttall (1821:55) describes the area of the Devil's Elbow, which encompasses the study area, as follows:

"The whole surrounding country still continues a desolate wilderness, abandoned to inundation, presenting impenetrable cane brakes and gloomy forests: none of the trees, however, attain that enormous magnitude, which they so frequently present along the borders of the Ohio. This

appearance may perhaps be attributed, in part, to the perpetual revolutions of the soil, occasioned by the overwhelming force and inundations of the river."

The first landholdings confirmed in Crittenden County were 40 Spanish land grants (Woolfolk n.d.:1). The first of these was one owned by John J. Bowie, inventor of the Bowie knife, and was entered in 1828. In 1829 the first U.S. patent lands were filed on by Joseph Hudson (Goodspeed 1890:390).

General Land Office survey records provide the first accurate look at settlement in the study area. The earliest recorded land holdings in the survey area were recorded in 1835 in Section 25, T9N, R8E (U.S. Land Entry Book n.d.:18). Unfortunately the names of the landholders have been destroyed in the Land Entry Book.

The following 22 years found most of the land around the study area preempted (Figure 4-2) with most holdings being claimed in the period of 1840 to 1848 (Table 4-1).

TABLE 4-1
LAND PRE-EMPTION IN STUDY AREA, T9N, R9W and T9N, R8W

DATE	ACRES	NO.OF PARCELS	PERCENTAGE OF TOTAL CLAIM
1835	315.41	3	6.24
1836	150.96	1	2.98
1839	160	1	3.16
1842	160	1	3.16
1843	160	1	3.16
1846	480	3	9.49
1847	1031.96	12	20.40
1848	1160	12	22.93
1852	720	7	14.24
1857*	720	6	14.24
TOTAL	5058.33	47	100

* 120 acres a repatenting of an 1848 claim

The largest landholder in the study area was George S. Fogleman (Figure 4-3) who owned 2,200 acres. His first claim was filed in 1843 and by 1852 he owned 43.50 percent of the land in the area (Table 4-2). He continued to buy land and by the time of his death in 1865 owned 21 miles of Mississippi River frontage and 20,000 acres (Woolfolk 1983:35).

It was during the Pioneer Period that the towns of Crittenden County were founded and county government formed. In 1825 Crittenden County was formed by act of the Territorial Legislature. The county was formed from part of Arkansas County and contained its present holdings and part of present-day Cross, St. Francis and Lee Counties (Woolfolk n.d.:1). In 1826 Greenock, located about 5 miles southwest of the study area, was made the county seat. This town was destroyed through the action of the Mississippi River (Hale n.d.). In 1837 the county seat was moved to Marion where land had been donated for the purpose by Marion Tolbert, after whom the town was named (Goodspeed 1890:3910).

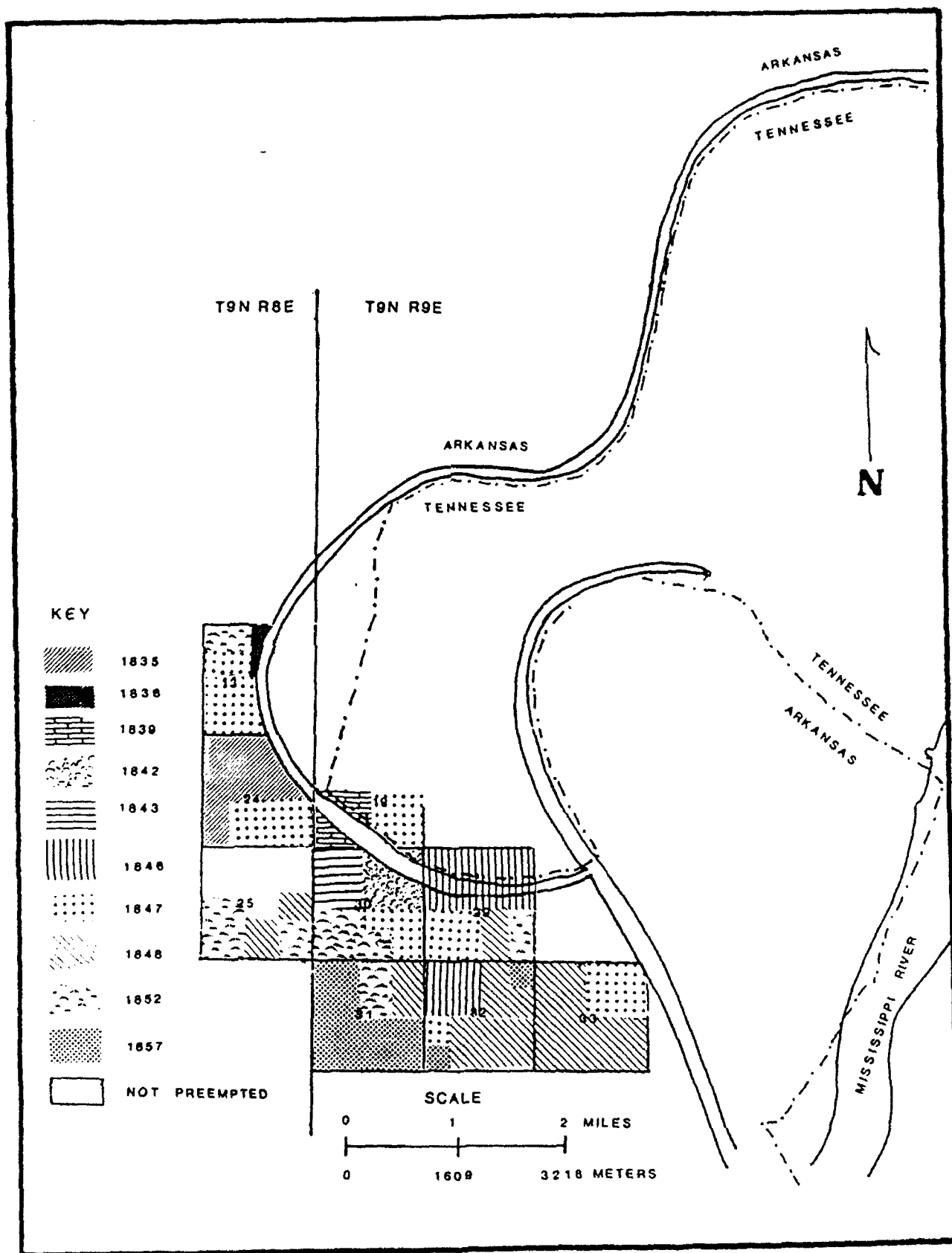


Figure 4-2. Preemption of landholdings (1835-1857) in study area (base map U.S. Army Corps of Engineers, Jericho, Ar., 15' topographic quadrangle, edition of 1975)

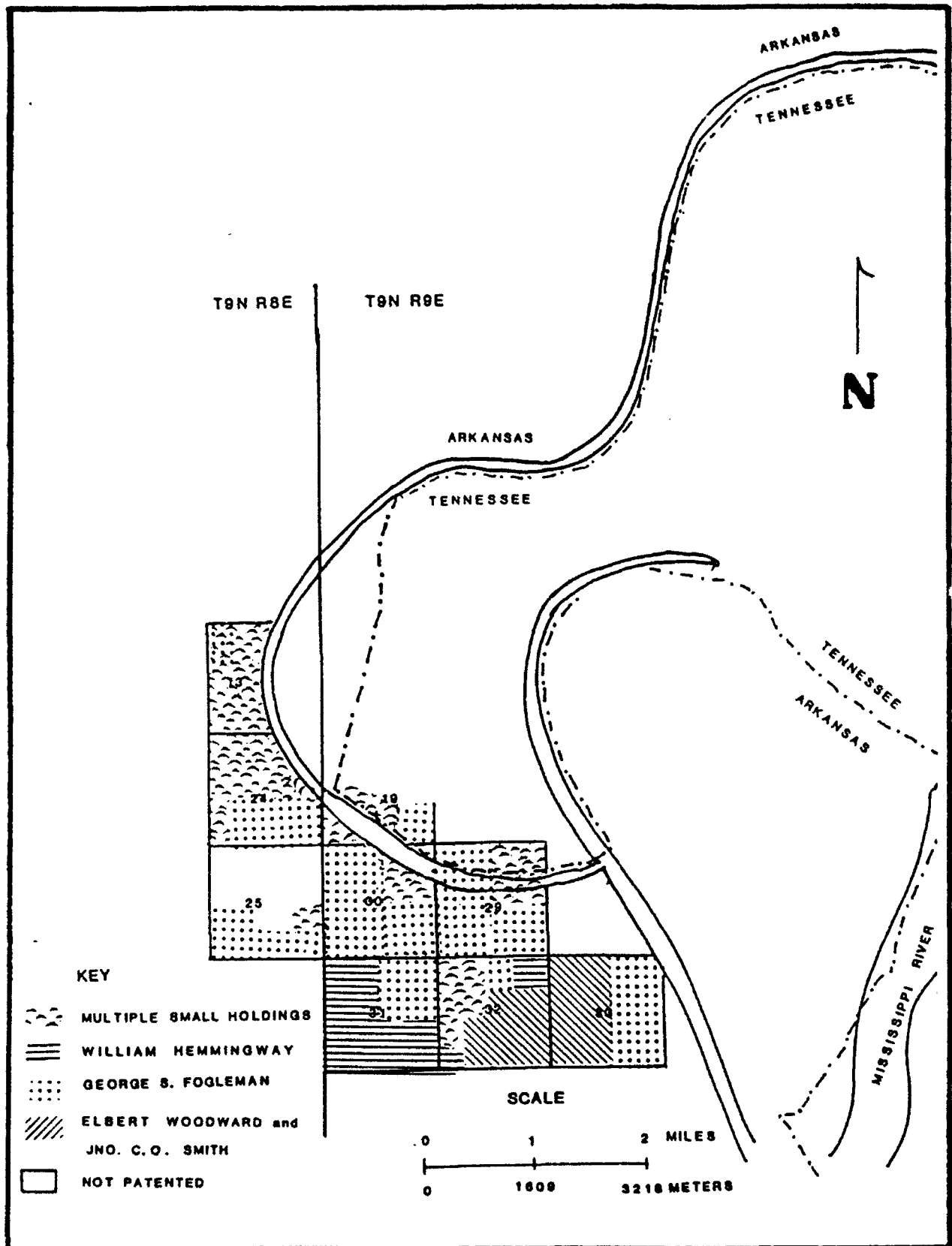


Figure 4-3. Land ownership in the study area(1835-1857). (base map U.S. Army Corps of Engineers, Jericho, Ar., 15' topographic quadrangle edition of 1975)

TABLE 4-2
LANDHOLDERS IN STUDY AREA

LANDHOLDER	ACREAGE	PERCENT OF TOTAL
George S. Fogleman	2200	43.50
*Elbert Woodward and Johnathan C. O. Smith	800	15.81
William Hemmingway	560	11.07
All other landholders	1498.33	29.62
TOTAL	5058.33	100.00

* 120 acres of this repatented in 1857 by Smith

Riverine Period (1780-1930) and the Settlement of Lambethville (1880-1939)

The Mississippi River has been a major artery of travel since aboriginal times. When Anglo-Americans spread out from the eastern states into the newly opened west the river took on major importance in furthering trade and emigration.

Early accounts of some of these travels have been left such as John Bradbury's description of the New Madrid Earthquake while aboard a keelboat (Bradbury 1968:148-154). In December of 1811 the first of the shocks that were to make up the New Madrid Earthquake were felt. Although its epicenter was located near New Madrid and Little Prairie, Missouri, its shocks were felt for thousands of miles. John Bradbury was at the time tied up for the night on the Mississippi River just above the Devil's Channel. This channel lies just above the Devil's Elbow which is part of the present project area. He described the extreme agitation of the river as if by storm and the caving in of the banks in vast masses (Bradbury 1968:150). By daylight Bradbury had counted 27 shocks (Bradbury 1968:151) and these continued off and on until December 21st (Bradbury 1968:154). He mentions passing 13 "arks, or Kentucky boats going with produce to Orleans" (Bradbury 1968:149). These were evidently flat boats as he says that they "only float with the stream" (Bradbury 1968:149) using no other means of propulsion.

Cramer (1814:183-185) in the Navigator describes the area of the Devil's Race Ground (Devil's Channel) and Devil's Elbow. This was a section of the river full of sand bars and islands, snags and sawyers. He notes that "the right channel is now the best and in fact the main one, though so bad a few years ago as to get the name of the Devil's Race Ground" (Cramer 1814:183). The Devil's Elbow, according to Cramer obtained its name from the river's turning to the left and forming a curious left hand point (Cramer 1814:185).

By the time Nuttall came down the river on a flatboat he found the Devil's Race Ground less formidable. Continuing on to the lower end of the Devil's Elbow he states that they "again found the difficulty greatly exaggerated" (Nuttall 1821:55).

Timothy Flint (1826:284-288) described the birth and death of his daughter on the Mississippi bank opposite the 2nd Chickasaw Bluff. This point is just 10 to 15 miles northeast of the study area. Flint described it as a wilderness with a vast cypress swamp on the opposite shore.

On April 9, 1832 the Brandywine, a side wheel steamboat, burned and sank (Berman:1972:273) at Brandywine Point southeast of the study area about 5 miles. The point and Brandywine Island take their names from this incident (Woolfolk 1983:31-32). Approximately 155 lives were lost in this accident, although exact figures are not known as the boat's records burned (Woolfolk 1983:31).

In 1835 when the first landholdings were claimed in the study area, steamboats were traveling the Mississippi River with regularity. This was of vital importance to these settlers as overland travel in the area was exceedingly arduous. From the Devil's Elbow it was a 25 mile trip to Memphis by land. By steamboat it was only 2 or 3 hours (Moore 1981:7). This state of affairs continued until the 1930's and 1940's when paved roads finally reached the area (J. O. Thresher 1983:personal communication).

Among the steamboats traveling the river in this early period was one named the Pacific. According to J. O. Thresher this boat sank in the channel of the Devil's Elbow and George S. Fogleman named his plantation, Pacific Place Landing, after it (J. O. Thresher 1983:personal communication). Thresher (1983:personal communication) also says that his stepfather told him of seeing the superstructure of this boat exposed during low water.

Examination of the records of steamboat sinkings disclosed a number of steamboats with the name Pacific.

The Encyclopedia of American Shipwrecks (Berman 1973:258, 287) lists the wrecks of three vessels named Pacific. One of these was reported as snagged near Cairo, Illinois on November 23, 1854, another foundered in Michigan while the third burned at Uniontown, Kentucky in 1860. Lytle (1975:167) notes 13 vessels named Pacific that were lost. Two of these are relevant to our study. The first, a vessel named Pacific, was lost in 1841 but the location is unknown. It regularly travelled between New Orleans and St. Louis. A snag or foundered location is listed for each of the remaining twelve. One of these is reported as having been lost on November 23, 1854 near Cairo, Illinois, undoubtedly duplicating an entry on the Berman list.

Col. Suter's 1874 map of the Mississippi River shows that a vessel named Pacific wrecked in Devil's Elbow, adjacent to Pacific Place Landing (previously known as the Charley Morris Place). Suter's map also shows the location of a second boat, the "Silver Spray" wrecked downstream from the Pacific. There is no scale on Suter's map but it is estimated that the two vessels are approximately 1,000 feet apart.

On November 23, 1854 a letter and clipping was received from Mr. William H. Tippitt (Appendix B) reporting that a vessel named the Pacific snagged at Devil's Elbow and reached the west bank of the river before sinking. This is documented by a clipping from the Daily Missouri Democrat (St. Louis), November 28, 1854. The vessel, a steamer, snagged on November 23, 1854. Although no lives were lost, the boat and cargo were a total loss.

Further information about the "Pacific" is found in the testimony of Captain J. S. Maingault while attending a hearing of a congressionally appointed Special Commission of 1918 created in order to determine the border between Tennessee and Arkansas. Commissioner Barton asked, "On the old map,

wasn't there a mark indicating where some steamboat was sunk called the 'Pacific'?" Captain Maingault answered, "Yes,...I think that is where it (Pacific Place) got its name from." Captain Maingault also testifies about how Charley Morris helped the river pilots. "He (Charley Morris) kicked about bringing the lamp for us and afterwards set up a pilot house on a steamboat that sunk, so they would not call him unless they wanted wood." Margaret Woolfolk notes that, "...a lantern lit tower the Morris family kept at their landing is credited with causing navigational lights to be placed along the Mississippi River" (Woolfolk 1983, manuscript:16). This lamp provided necessary light and access to fuel on the Devil's Elbow. It can therefore be hypothesized that the sunken "Pacific" actually was the foundation for an early lighthouse and fuel location on the river, if not indeed the first light tower (Woolfolk 1983).

It seems logical to conclude that both the Lytle list and Berman incorrectly report the location of the Pacific lost in 1854. It is probable that both of these refer to the vessel lost in Devil's Elbow.

At the time of the Pacific's sinking in 1854 the Devil's Channel and Devil's Elbow were still part of the active main channel of the river as the river made no substantial changes until 1876 (Moore 1981:5).

Examination of an 1890 River Commission map indicates the 1823 channel was still approximately 900 meters (2,952 feet) wide in the area when the vessel presumably sank. By 1874 major changes were beginning in the river's course. The main channel between Island 37 and Arkansas on the north was almost never used for navigation except during high water (Moore 1981:8). This part of the old river became known as Barnay Chute (Barney) (Figure 4-4).

On March 7, 1876 the river cut through the neck of land between Island 37 and Brandywine Island forming Centennial Island (Figure 4-4). This shortened the river's length by 20 miles (Moore 1981:11). Called the Centennial Cut-Off, the change in the river destroyed thousands of acres of plantation land, changed islands to peninsulas and peninsulas to islands and finally completely confused the Tennessee and Arkansas State boundary (Moore 1981:11-12). The result of this was a great deal of legal turmoil over the states' boundary lines as well as land ownership. The argument over state boundaries was not settled until 1918 when the United States Supreme Court determined that the boundary was the 1876 thalweg (Moore 1981:16). Suits concerning individual land ownership are continuing to this day (Moore 1981:18).

Steamboats continued to be an important source of transportation into the 1920's. Boats of the Lee Line would run up Brandywine Chute (Fogleman's) and then turn off at the mouth of Old River at Scudder and continue up it for some distance. By the 1900's this channel had become very narrow and shallow. Some of the boats going up it could not turn around to come back down and so would have to back down to the mouth and out into Brandywine Chute (J. O. Thresher 1983:personal communication).

In 1880 the Lambeth brothers, W. E., James T. and Warner, bought 400 acres of timber and 75 acres of improved land near the mouth of Old River. Here they erected a sawmill and cotton gin (Goodspeed 1890:427), around which grew the town of Lambethville. This settlement spread up Old River on the south bank and according to J. O. Thresher there were numerous houses, a school/

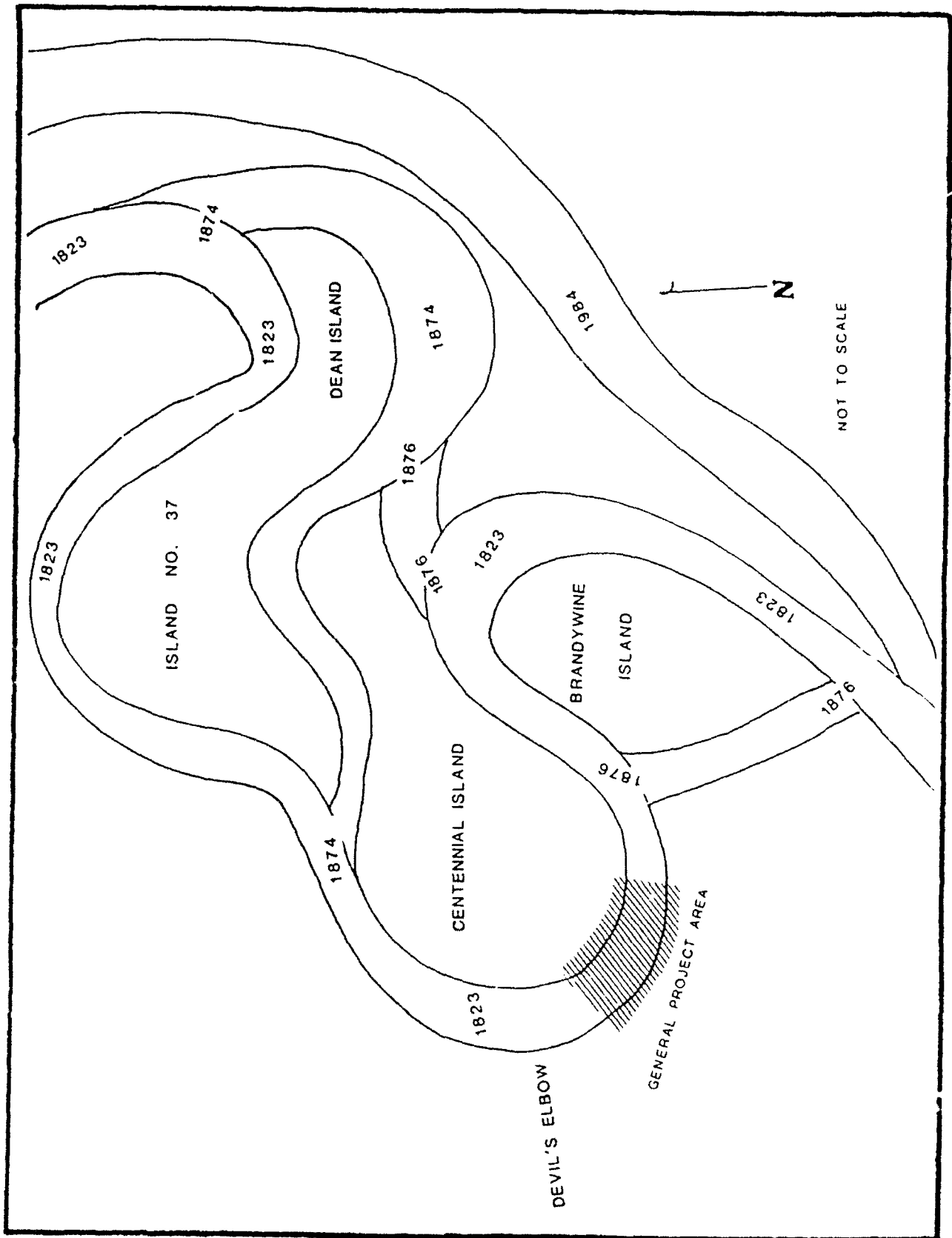


Figure 4-4. Changes in the Course of the Mississippi River in the vicinity of the Devil's Elbow.

Baptist church and store to be found (Figure 4-5). Lambethville's newcomers typically resided in tents until they were able to build a home, which was generally of the shotgun type. The economy of the settlement was until the 1900's based on the cutting of fire wood for steamboats and lumbering. Lumber was manufactured at the Lambethville saw mill and was sold to passing steamboats and also rafted to Memphis where it was sold (J. O. Thresher 1983, 1984: personal communication). Other goods were picked up and delivered at the various landings along Old River (Devil's Elbow). At the mouth of Old River, Point Scudder, was a warehouse where steamboats would pick up and leave goods for the inhabitants of the surrounding area. This landing was in use up to the 1940's (J. O. Thresher 1983:personal communication).

As more people moved into the area, annual flooding became a problem. The first levees were built by individual plantation owners and were only a foot or so high. These were constructed by simply digging the dirt out and heaping it up with a shovel (J. O. Thresher 1983:personal communication). During 1851 to 1858 levees were constructed in an intermittent line from the Commence Hills in Missouri to near the mouth of the Saint Francis River in Arkansas. These levees were on the west bank and were about 1 meter (3 feet) high (Clay 1976:13). Since then the system has been enlarged and heightened. With the enlargement of the levees, flooding on the riverside became more frequent and intensive. J. O. Thresher (1983:personal communication) remembers that in 1913, Lambethville was inundated by 15 feet of water. Thresher states, "Residents had to rush to save their livestock and the water coming in sounded like a train and looked like barrels rolling."

Eventually this flooding caused most of the inhabitants of Lambethville to move their village to the landside of the levee. This move occurred between 1916, which appears to be the peak of population, and 1930 (Figure 4-6) after the levee was finished (J. O. Thresher 1983:personal communication; Woolfolk 1983:33).

At the new location were constructed a school/Baptist church, store, cotton gins, mule lot and lumber mill (Woolfolk 1983:31). J. O. Thresher provided data for a sketch map of this area circa 1930-1940 (Figure 4-7). Further, Thresher reported that houses lined the west side of the road at the base of the levee for 1 mile north and 1/2 mile south of the crossroads in the center of Lambethville. The 1930 Corps of Engineers map shows three structures in the heart of the new location. The 1939 corps of Engineers map shows six (Figure 4-8). However, neither map shows a series of structures along the road at the base of the levee. Houses were not elaborate and were either single pen, double pen or bungalow in type (J. O. Thresher 1983:personal communication). Agriculture became the basis of the economy and cash crops such as corn, cotton, alfalfa and wheat became the basis of the economy after the mov (Thresher:personal communication).

Recreational activities included town picnics, horseback riding, fishing and chasing wild horses (Woolfolk 1983:17). Other social activity consisted of church and school meetings and two social womens' clubs (Weeks 1919:1). Mrs. C. D. Turner served as the county demonstration agent and assisted in the Womens' Club. Lambethville women were cited by Mrs. Turner as "very different in home economics" (Weeks 1919:1). Mr. Thresher remembers that most entertaining was done in the home.

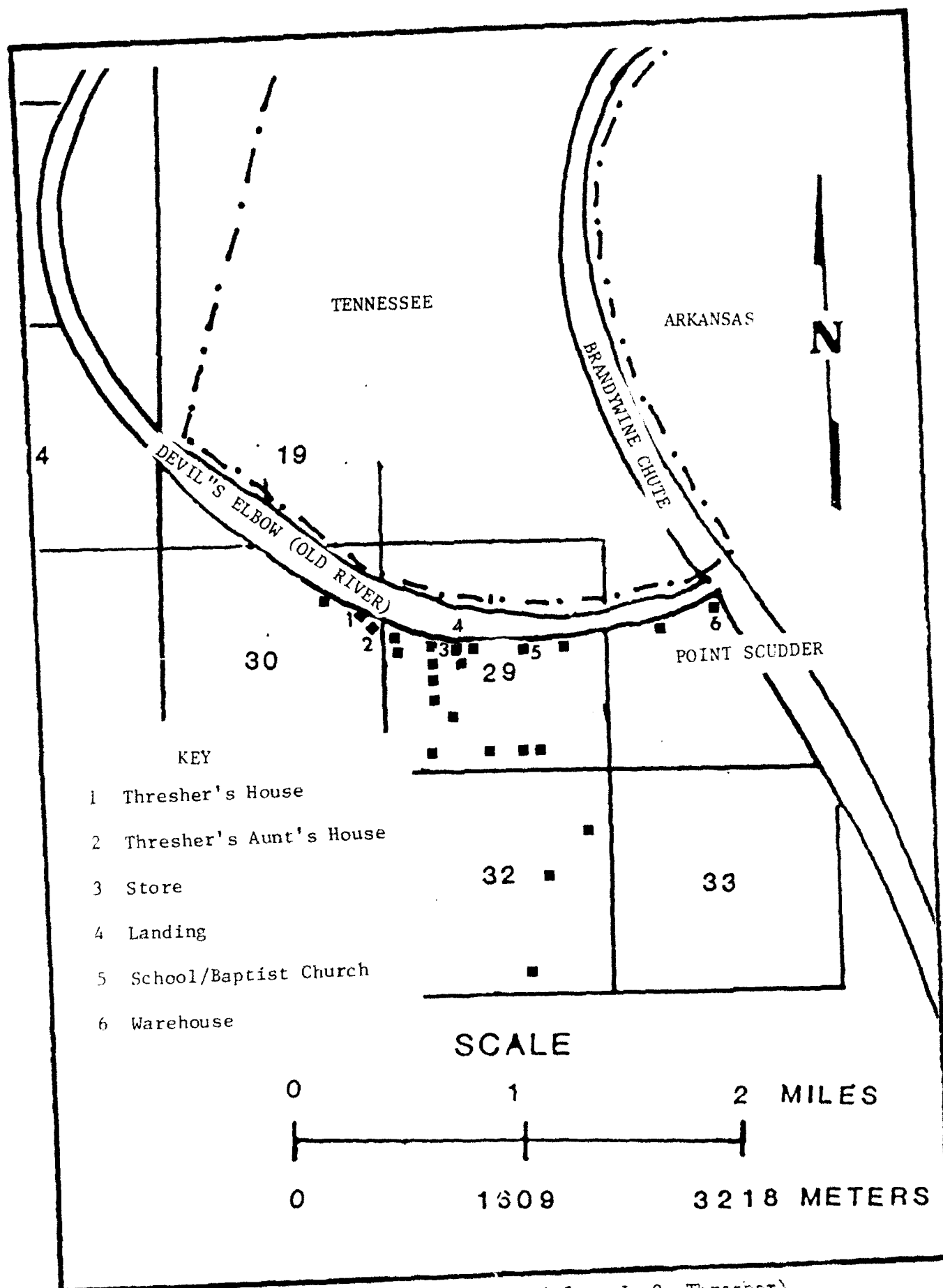


Figure 4-5. Old Lamberthville circa 1916 (after J. O. Thresher).

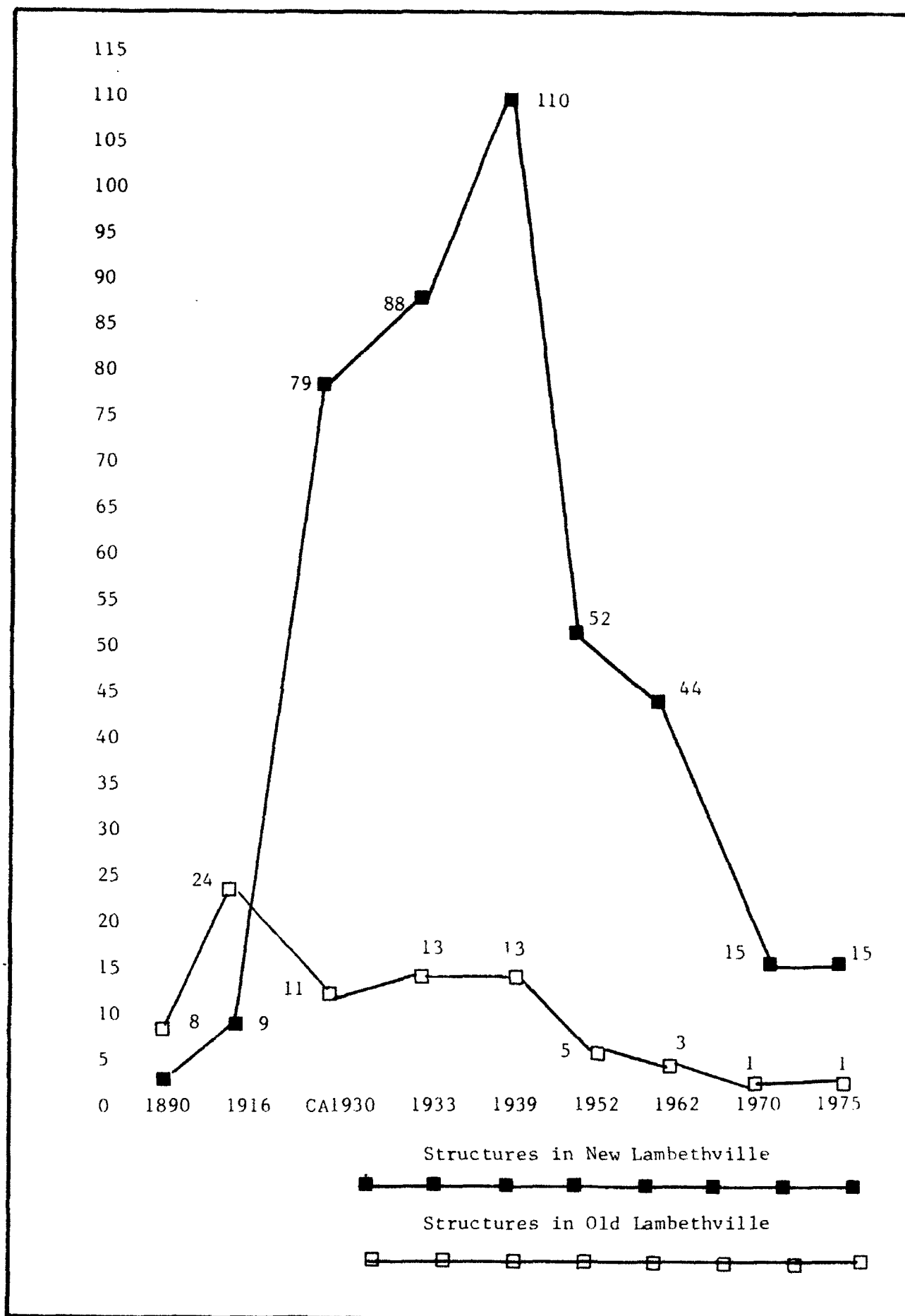


Figure 4-6. Comparison of the number of structures in Old and New Lambethville 1890-1975.

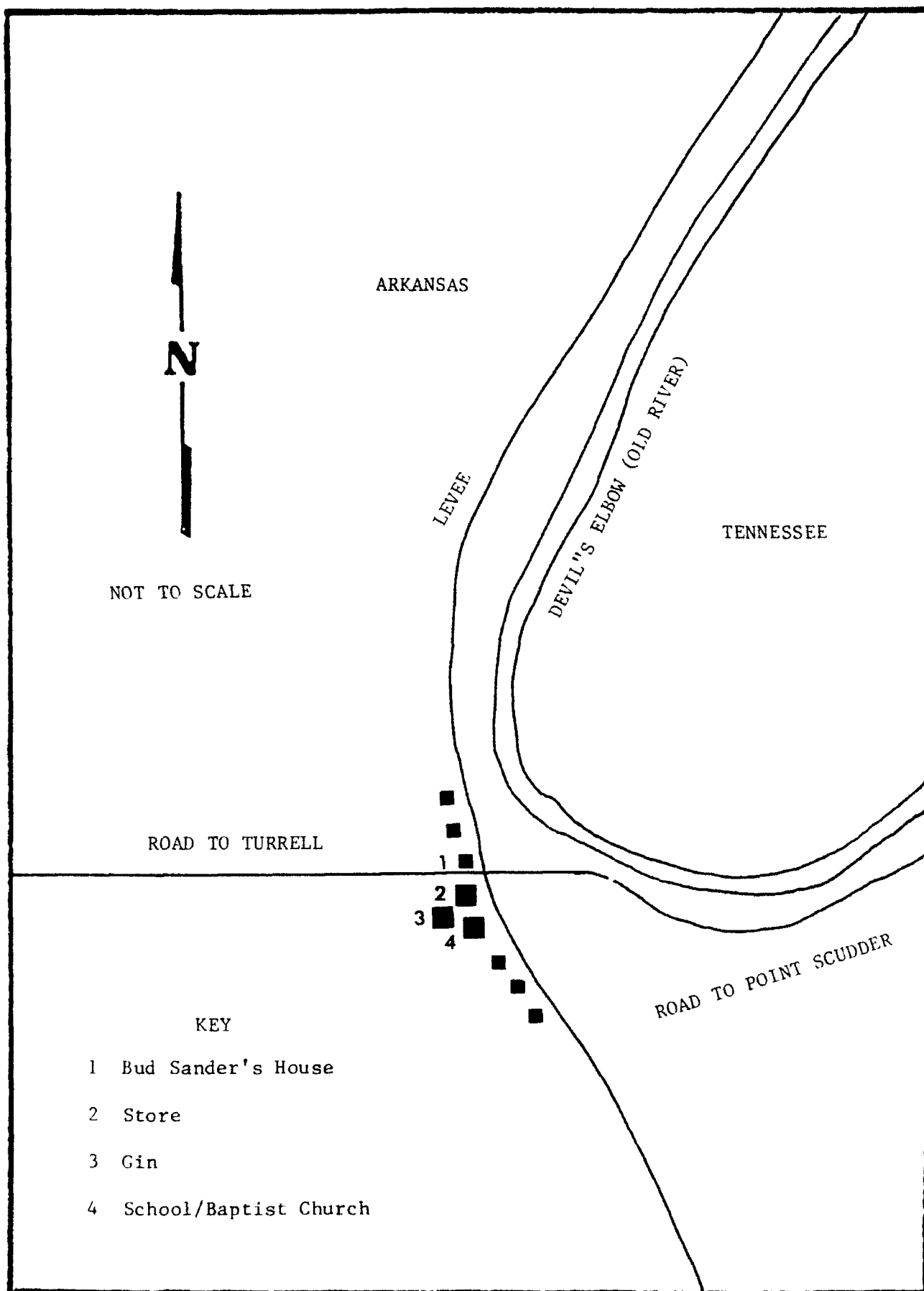


Figure 4-7. New Lambethville circa 1940 (after J. O. Thresher).

Medical care of the community was entrusted to Dr. Ramadeau who visited his patients in the home (Woolfolk 1983:15).

A newsworthy event took place in 1917 when a World War I trainer plane crashed in a hayfield. Many people gathered to watch as the pilot fixed his plane and flew away that same afternoon (Woolfolk 1983:18).

The political activities of Lambethville residents are not described in either archival records or the memories of former residents. It is likely that those who held large tracts of land, such as the Foglemans, Sanders and Golightlys, held more political power than the average inhabitant of the community.

The population of Lambethville peaked about 1939 and movement from the area began in the 1940's when the U.S. Government imposed cotton quotas (Figure 4-6) (J. O. Thresher 1983:personal communication). Abandoned houses were burned, torn down or given away and moved (J. O. Thresher 1983:personal communication). Further migration from Lambethville occurred as a result of World War II and the increase in job opportunities in the cities. After the war new methods of agriculture meant that fewer agricultural laborers were needed. Also land holdings were consolidated into large agri-business holdings. In the 1950's the area occupied by Lambethville came under the ownership of Mr. Weiner, who set up a large agri-business corporation based on the old Fogleman holdings and Danner Farms, another large agri-business. All remaining structures were torn down and in many cases the remnants after being burned were bulldozed into low-lying areas to act as fill.

Today there is only one house within the limits of what was Lambethville. All the others have been completely destroyed. Further, the main channel of the Mississippi has moved east of the old channels and the only traffic to be found on the old riverways is recreational.

Plantation Period (1835-2000)

Plantation holdings in the study area were originally held mainly by George S. Fogleman. Fogleman's plantation was called Pacific Place and the headquarters were located near where Frenchman's Bayou emptied into the Mississippi River. There is some debate as to the origin of the name. The common account attributes the name to the sinking of the steamboat Pacific in the area and the subsequent use of the name (J. O. Thresher 1983:personal communication). The Fogleman family claims the place was named for one of George S. Fogleman's daughters who was called Pacific (John A. Fogleman 1983:personal communication). Research has not brought a Fogleman daughter named Pacific to light (U.S. Census 1850 and 1860) but J. A. Fogleman (1983:personal communication) claims she is named in George S. Fogleman's will. It would appear that what actually took place was that the girl and plantation were named for the sunken steamboat. George S. Fogleman eventually owned some 21 miles of Mississippi River frontage on the Arkansas side.

Other large land holdings in the vicinity were owned by the Triggs, Bentons, Huddlestons and Masseys. These holdings were in that area later to be so drastically altered by the Centennial Cut-Off.

With these early landholdings as a base, this edge of Arkansas was incorporated into the slave economy of the Antebellum South. As a state, Arkansas ranked 13th among 15 slaveholding states, both in general population and in slaveholdings. Nonetheless, slavery was an important aspect of the pre-Civil War economy of northeast Arkansas (Walz 1953). There was a marked increase in general population growth and in the number of slaves in the state; from 1617 slaves and 12,638 free-persons in 1820, to 47,586 slaves and 162,797 free-persons in 1850 (Walz 1953). The large slaveholders, comprising less than 2% of the total population, dominated the Arkansas economy, owning some \$5,370,631 or 30.9 percent of the total \$17,372,524 assessed real estate value in 1850 (Walz 1953:51). Even if the figure is adjusted for the probable under-assessment of property, it remains a reflection of the economic power and influence that large plantation economy had in Arkansas.

In Crittenden County a total of 69 slaveholdings were recorded in 1850. These were primarily small holdings, with 63.7 percent having less than 10 slaves. Thirteen holdings had more than 20 slaves, representing 55 percent of the total number of slaves in Crittenden County (Table 4-3). Of the largest slaveholders in the county in 1850, not one was native to Arkansas (Table 4-4).

TABLE 4-3
SLAVEHOLDINGS IN CRITTENDEN COUNTY, ARKANSAS, IN 1850

Size of Holdings (Number of Slaves Owned)	Number of Owners	Percent Of Owners In County	Number Of Slaves In Category	Percent Of The 800 Slaves In County
1	7	10.1	7	.9
2	9	13.0	18	2.3
3	10	14.5	30	3.7
4	5	7.3	20	2.5
5-9	13	18.8	88	11.0
10-14	9	13.0	109	13.6
15-19	3	4.4	48	6.0
20-34	7	10.1	203	25.4
35-49	5	7.3	206	25.7
50-74	1	1.5	71	8.9
75+	0	0.0	0	0.0
TOTALS	69	100.0	800	100.0

Compiled from the manuscript returns of the United States Census of 1850.

Adapted from Walz (1953). 4-30

TABLE 4-4
LARGE SLAVEHOLDERS IN CRITTENDEN COUNTY, 1850

Name	Age	Birthplace	Occu- pation	Real Estate	Slaves	% Total Slaves in County
Bradley, Thomas H.	42	Virginia	Farmer	\$30,000	31	3.87
Burgett, Isaac	43	Missouri	Farmer	80,000	71	8.9
Collins, Thomas M.	38	Tennessee	Farmer	35,000	42	5.25
Fogleman, George S.	49	N. Carolina	Farmer	50,000	32	4
Cubbin (Gibben), Daniel	30	Alabama	Farmer	1,200	31	3.87
Hare, Starkey	54	Virginia	Farmer	25,000	42	5.25
Harklewodes, John	35	Missouri	Farmer	12,600	22	2.74
Higgins, Richard	45	Kentucky	Farmer	40,000	40	5
Merriwether, James H.	30	Virginia	Farmer	26,000	32	4
Redman, Reuben T.	33	Tennessee	Farmer	20,000	21	2.62
Reeves (Reves), Peter G.	56	Virginia	Farmer	20,000	42	5.25
Woodward, Linn	70	Virginia	Farmer	15,000	34	4.25

Based on Walz (1953).

Among these large slaveholders was George S. Fogleman. After his death, about 1865, some 17,000 acres of land in the study area and vicinity including Pacific Place were inherited by his daughter Mississippi. She had married Charles F. Morris in 1857 (Brown 1972:14) and he took over running the plantation. The 1882 and 1890 Mississippi River Commission maps show Morris as the landowner at Pacific Place at that time. Crops shown being grown on the Mississippi River Commission maps (1882, 1890, 1916) include cotton around the Pacific Place headquarters and grain crops to the south. Large amounts of forest are also shown. J. O. Thresher (1983:personal communication) reported that the timber back from the river was not completely cut until the 1950's and that large stands of virgin timber still stood during his childhood. He will be 82 in November of 1983.

In the 1890's Pacific Place was sold by the Morris family to Robert H. Golightly. He had his Memphis home dismantled, brought to the plantation and there reassembled (Woolfolk 1983:36). This house later burned and another now stands on its former location (J. O. Thresher 1983:personal communication). In the 1940's the Golightly holdings were sold to the Wieners of Memphis. This family continues to own the land and have added to the holdings running the plantation as an agri-business corporation (J. O. Thresher 1983:personal communication).

To the north of Frenchman's Bayou in the study area, the original holdings were filed by James W. Rodgers, Wiley Lewis and George S. Fogleman. These holdings were owned by T. Sexton on the 1882 and 1890 Mississippi River Commission maps. They are shown as being mostly wooded with a little cotton being cultivated (Mississippi River Commission 1882:7, 1890:7). The 1916 map shows some land in grain crops while that back from the river a quarter of a mile is wooded (Mississippi River Commission 1916:7). This land has since passed into the hands of the Wieners and is part of the Pacific Place agri-business corporation.

On the riverside of the levee plantations settlement occurred later. The 1823 channel ran through the study area and a portion of the area was not planted (Figure 4-9). When this land was claimed it was subject to flooding and changes in the river's course.

Sucessive changes in the river's course blurred the state lines and jurisdiction over the area was unsettled. This, as well as the remoteness and inaccessibility of the area, promoted unlawful activity on the islands (Moore 1981:18). This area already had a tradition of criminal activity. Island 37 was purported as one of the principal hideouts of the Murrell gang in the early 1800's (Moore 1981:18).

Because of the lawless situation in the area between 1909 and 1915, Arkansas, Mississippi and Tennessee passed acts granting each other concurrent jurisdiction over the parts of the Mississippi River lying opposite the territory of each state (Moore 1981:19). With the enactment of these laws, law officers began making raids on the islands in hopes of eliminating the unlawful activities taking place on them. On one such sortie, some 300 people from Arkansas purged Island 37 completely. They arrested all the people they found on the island, destroyed 200 gallons of whiskey and burned down every building on the island. Although the area raided was part of Tennessee, the people arrested were tried in Oscoola, Arkansas (Moore 1981:19).

In 1921 a young man killed his mother in the area of Lambethville. It was not known whether he had murdered her in Tennessee or Arkansas but he was eventually tried in Crittenden County, Arkansas under the concurrent jurisdiction laws (Moore 1981:20). J. O. Thresher remembers this young man as he was a frequent visitor at the Thresher home, although he lived on Centennial Island. Thresher remembers that the boy appeared at the Thresher home acting queerly. Thresher's mother remarked that she felt the boy had done something really bad and was in serious trouble. The "trouble" soon was known and the end result was 7 years in the penitentiary for the killing (J. O. Thresher 1983:personal communication).

Throughout the early 1900's the population of the area grew, reaching a peak around 1939 (Figure 4-6, Table 4-5). The decline came with the introduction of government cotton acreage regulations (J. O. Thresher 1983:personal communication). Undoubtedly World War II also played a considerable role in the change of population with the movement from the area of young people into the Armed Services and war jobs in the city.

Intensive logging started in the area with the Lambeth brothers and continued on a small scale until the 1950's. During World War II a tract of 2,500 acres of virgin cypress on the Golightly land was logged off (J. O. Thresher 1983:personal communication). This timber brought \$185,000 and its cutting was forced by the U.S. Government (J. O. Thresher 1983:personal communication). Today there are no large stands of timber on the west side of the levee and most of the land is under cultivation by large agri-business corporations. The riverside of the levee still has some timber along the channel banks but again most of the area is under cultivation.

Fractional Township 9 North of the line Range 9 East of the 1st P.M.

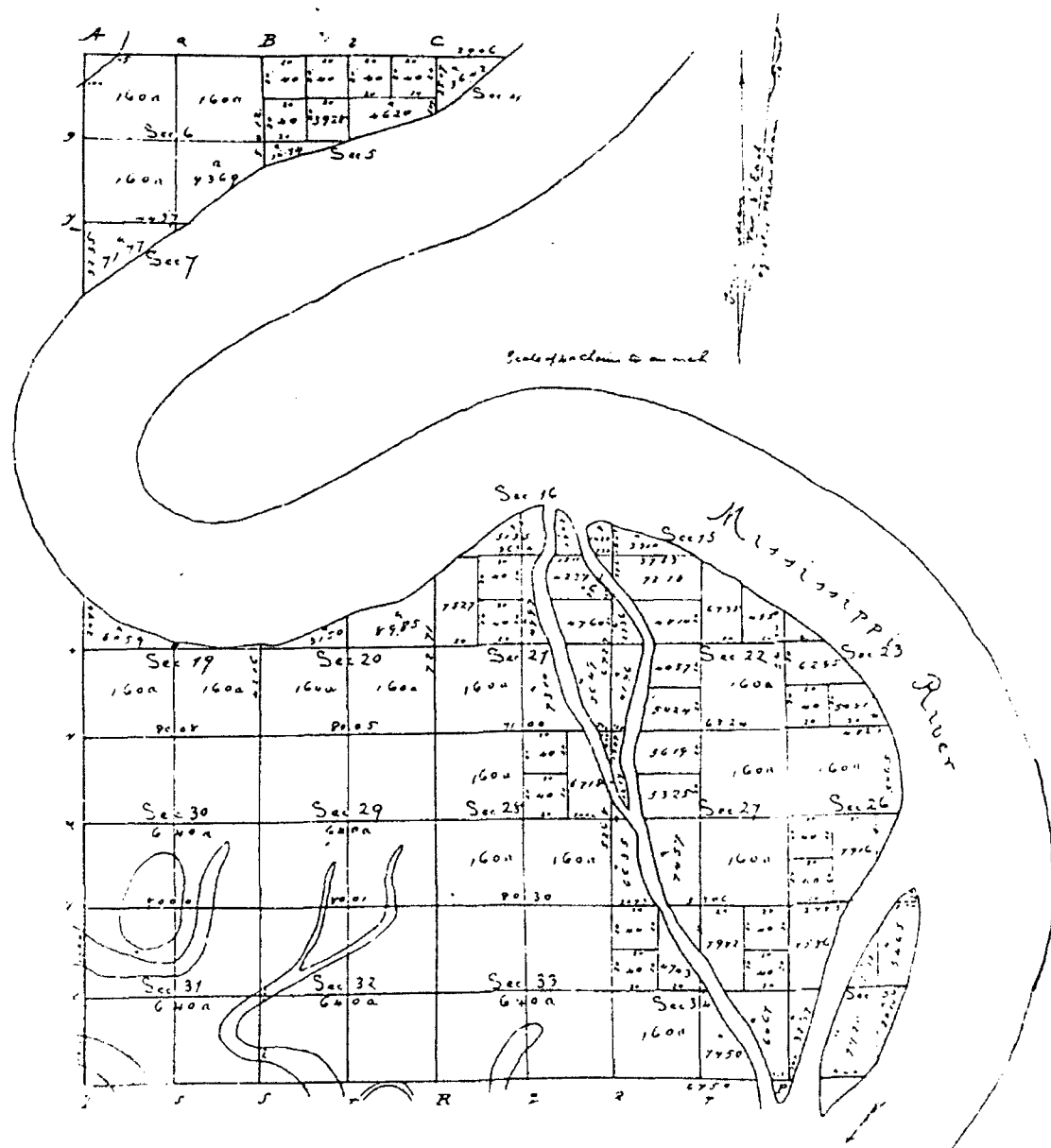


Figure 4-9. Original Survey, 1823, Devil's Elbow, Mississippi River, Township 9N, Range 9E. U. S. General Land Office.

TABLE 4-5
NUMBER OF STRUCTURES IN SECTIONS COVERED BY THE STUDY AREA

DATE	S13	S24	S19	S30	S29	S28	S32	TOTAL
circa 1930	10	14	1	26	4	7	7	79
1932-33	15	13	1	32	6	7	14	88
1939	17	16	1	40	6	7	22	110
1952	2	10	1	24	1	4	17	59
1962	10	12	0	10	0	3	9	44
1975	3	6	0	2	0	1	3	15

Data taken from U.S. Army Corps of Engineers 15' Jericho topographic quadrangles (Corps of Engineers circa 1930, Corps of Engineers circa 1932-33, Corps of Engineers 1939, Corps of Engineers 1952, Corps of Engineers 1962 and Corps of Engineers 1975)

Civil War and Reconstruction Period (1860-1875)

Crittenden County played but a small part in the Civil War. A small skirmish was fought near Mound City at the same time the Union Army was capturing Memphis across the river (Woolfolk n.d.:3).

The most exciting event of the period was the explosion of the steamboat Sultana near Mound City on April 27, 1865 (Berman 1972:291). Filled with discharged Federal soldiers returning home over 1,500 died in the explosion and sinking of this boat (Woolfolk n.d.:3). Subsequently a bar formed around the hull of the boat and cut Mound City off from the river. Today the town is almost deserted (Woolfolk n.d.:3).

With the end of the war came reconstruction. This was a time of anarchy and disruption in the county. Martial law was declared and State militia were stationed in the county for two years (Woolfolk n.d.:4). Murders were commonplace and the whole county was in constant turmoil. Also during this period, the first Black government officials were appointed. Between the Carpetbaggers' disregard for the welfare of the county and the Blacks' general inexperience in civil matters, it took many years to return the county to its former economic viability. The situation changed in 1874 with the election of Governor Baxter, the framing of a new State Constitution and the restoration of free election. Following this period normalcy returned to the county and prosperity slowly returned.

Railroad Period (1855-1950)

The advent of railroad building was a late development in Arkansas. In 1858 there were only 38 miles of railroad in all of Arkansas (Clark 1958:32). This small amount of track compared unfavorably with what was occurring in neighboring states (Table 4-6) and indicates the dominance of river travel in the state, as well as the states undeveloped nature.

TABLE 4-6
RAILROAD MILEAGE BY DECADES

STATE	1830	1840	1850	1860
Arkansas	-	-	-	38
Mississippi	-	-	4	817
Louisiana	-	62	89	335
Tennessee	-	-	48	1253

From Alvarez (1974:172)

During the Civil War some track was laid but this was almost all destroyed during the hostilities (Clark 1958:47). Following the Civil War railroad activity intensified and the total miles of track laid in Arkansas increased dramatically. This activity continued through 1910, when railroad construction declined sharply (Figure 4-10).

The influence of railroads was evident where they penetrated areas away from navigable streams (Clark 1958:84). Towns were established along these routes and there was a marked population increase in the state during the period (Table 4-7).

TABLE 4-7
POPULATION TRENDS IN ARKANSAS, 1860-1940

DATE	TOTAL POPULATION	INCREASE FROM PREVIOUS 10 YEARS
1860	435,450	225,553
1870	484,471	49,021
1880	802,525	318,054
1890	1,128,211	325,686
1900	1,331,564	203,353
1910	1,574,449	243,885
1920	1,752,204	177,755

After Harper (1968:54)

Among the towns established along the railways in Crittenden County were Earle, Turrell, Big, Edmondson, Vincent, Clarkdale, Gilmore, Jericho, and Proctor (Woolfolk n.d.:4).

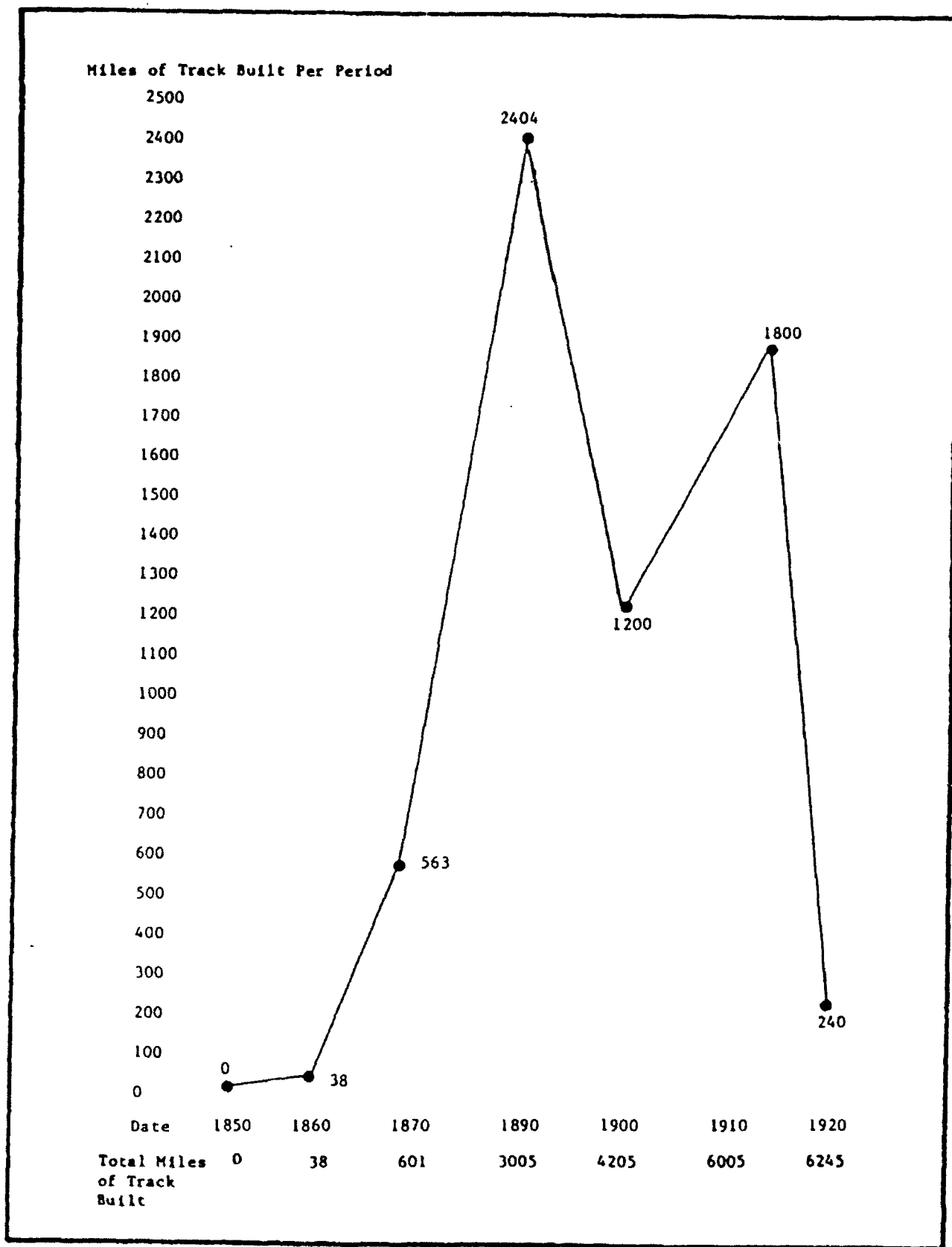


Figure 4-10. Railroad Milage Built in Arkansas 1850 to 1920

By 1920 railroad construction was virtually at a standstill (Clark 1958:256). Since then the advent of an extensive state highway system has affected the volume of railroad traffic. In 1929 when the state highway system was designated there was a total of 8449 miles of highway. In 1968 there was 14,235 with the system carrying almost all the heavy truck traffic and approximately three quarters of the total traffic in the state (Harper 1968:59).

5.0 ARCHIVAL SEARCH AND PERSONAL INTERVIEWS

Methodology

Prior to the beginning of the initial field investigations, the Office of the Arkansas State Archeologist at Fayetteville, Arkansas was contacted in order to ascertain the extent of previous work in the project area and to identify previously recorded archeological sites within the vicinity of the project area.

The National Register of Historic Places and its supplements were examined for listed sites.

Various libraries in Arkansas, Tennessee and Louisiana were visited and their holdings checked for pertinent information. In Arkansas the Crittenden County Public Library, Marion, Arkansas; the West Memphis City Library, West Memphis, Arkansas; the Arkansas State Historical Commission Library Archives and the Arkansas State Library, both in Little Rock, Arkansas, were visited. Also in Arkansas, Mullins Library, University of Arkansas; James Scholtz Memorial Library, Hotz Hall, University of Arkansas; and the Arkansas Archeological Survey Library, all in Fayetteville, Arkansas were visited. In Tennessee the Memphis/Shelby County Library and Information Center and the Memphis State University Library were consulted as to information pertinent to the project. In Louisiana the Ouachita Parish Public Library and Sandel Library, Northeast Louisiana University, both in Monroe, Louisiana were visited. Also Prescott Memorial Library, Louisiana Tech University, and the Lincoln Parish Public Library were both visited in Ruston, Louisiana.

State and Federal agencies consulted were the U.S. Army Corps of Engineers Office, Memphis, Tennessee; the Arkansas Archeological Survey, Jonesboro, Arkansas Station; U.S. Soil Conservation Service, Marion, Arkansas; and the Saint Francis Levee District, West Memphis, Arkansas.

Dr. Dan Morse of the Arkansas Archeological Survey, Jonesboro, Arkansas, was visited and consulted as to work done in the study area. Dr. Gerald Smith of Memphis State University, Memphis, Tennessee, was interviewed about any work that had been done in the project area.

The records at the courthouse in Crittenden County were examined for original land entry information such as plat maps, surveyors notes, old maps and patent books. Departments visited included the County Clerk's Office, Circuit Clerk's Office, Assessors Office and the County Judge's Office.

The files of the Memphis Commercial Appeal were examined for pertinent information about the sinking of the Pacific.

Historical societies consulted for information included the West Tennessee Historical Society, located in Frenchman's Bayou, Arkansas, and the Crittenden County Historical Society in Marion, Arkansas.

Other individuals interviewed during the course of the study were Mr. James O. Thresher, Turrel, Arkansas; Ms. Margaret Woolfolk, Marion, Arkansas; Judge John A. Fogleman, Little Rock, Arkansas; Mrs. Virginia McCarter, Marion,

Arkansas; Mr. Leroy Wiley, Lambethville, Arkansas; Mr. John Williams, St. Thomas, Arkansas; Mrs. Robert Stokes, Marion, Arkansas; and Mr. Bill Felty and Mr. Tom Peterson, West Memphis, Arkansas; Mrs. Joanne Collum Moore, Frenchman's Bayou, Arkansas; and two retired riverboat pilots, Mr. William Tippet, Hernando, Mississippi and Mr. Tom Tappan, Memphis, Tennessee.

Results

Prehistoric

There were no prehistoric sites recorded within the project area. However, there were 67 archeological sites recorded within a distance of 16.1 km. (10 miles) of the project area. These sites are listed below in Table 5-1.

Historic

No sites within the study area were listed on or nominated for the National Register of Historic Places. Copies of original General Land Office plats were obtained at the Crittenden County Courthouse. No Spanish or French land grants were shown in the area. These maps did indicate that the main channel of the Mississippi River ran through the project area in 1823. Land Entry Books located in the Crittenden County Courthouse indicated that the earliest settlement in the project area was in 1835. Surveyors notes from the same source indicated that vegetation was the same as that to be found in undisturbed areas today.

The Mississippi River Commission maps (1882, 1890 and 1916) were examined. These indicated the owners, land use and structures found in the area. U.S. Army Corps of Engineers topographic maps (circa 1930, 1932-33, 1939, 1952, 1962 and 1975) for the area were examined. These indicated settlement patterns for the study area.

Literary sources found gave descriptions of the area and life and activities on the Mississippi River dating from the early 1800's to the late 1800's. Other library sources divulged information on the general area of Crittenden County and Arkansas.

Local informants disclosed information about happenings in the specific project area. Specifically, information was obtained about the presence of a sunken steamboat in the project area and the location of buildings in Lambethville.

Further discussion of the results of the archival and personal interview search will be found in the Historic Activity section of the Cultural Sequence chapter; the Survey, Testing and Analysis chapter; and Appendices B and D.

TABLE 5-1
PREVIOUSLY RECORDED ARCHEOLOGICAL SITES WITHIN
16.1 KM (10 MILES) OF THE LAMBETHVILLE PROJECT AREA

STATE SITE NUMBER	SITE NAME	PHILLIPS, FORD AND GRIFFEN NUMBER	TEMPORAL PERIOD	SITE STRUCTURE
3MS1	Warren Place	NA	None recorded	None recorded
3MS7	Shawnee Village	11-P-1	Late Woodland/ Mississippian	Village with small mounds
3MS64	NA	NA	Woodland	None recorded
3MS65	NA	NA	Mississippian	None recorded
3MS68	NA	NA	Woodland	None recorded
3MS69	NA	NA	Woodland	None recorded
3MS70	NA	NA	Late Woodland	None recorded
3MS71	NA	NA	Mississippian	None recorded
3MS73	NA	NA	Mississippian	Village
3MS78	Pecan Point*	NA	Mississippian	Village with mound
3CT7	Bradley Place*	11-P-2	Mississippian	Village with plat- form mounds
3CT9	Wapanocca Mound	NA	Mississippian	Village with mound
3CT13	Banks Village Site	NA	Mississippian	Large cemetery and midden area
3CT14	Banks Mound 1	NA	Mississippian?	Mound
3CT15	Banks Mound 2	NA	Mississippian?	Mound
3CT16	Banks Mound 3	NA	Middle Mississippian	Mound
3CT19	Golightly Place	11-P-3	Middle Mississippian	Village with mounds
3CT26	Pacific	11-P-4	Middle Mississippian?	Small mounds
3CT27	Lambethville Cemetery	11-P-5	Middle Mississippian?	Small mounds
3CT40	NA	NA	Mississippian	Farmstead
3CT43	NA	NA	Middle Mississippian	None recorded
3CT44	Warner Smith	NA	Late Mississippian	Cemetery
3CT46	NA	NA	Late Mississippian	None recorded
3CT50	NA	NA	Woodland/ Mississippian	Village
3CT54	NA	NA	Woodland?/ Mississippian?	Scatter
3CT59	NA	NA	Woodland	None recorded
3CT63	NA	NA	None recorded/ Historic	Historic cemetery on large mound
3CT107	NA	NA	Historic	Scatter
3CT122	NA	NA	Mississippian/ Historic	Scatter

TABLE 5-1
Continued

STATE SITE NUMBER	SITE NAME	PHILLIPS, FORD AND GRIFFEN NUMBER	TEMPORAL PERIOD	SITE STRUCTURE
3CT123	NA	NA	Middle Mississippian	Scatter
3CT124	NA	NA	Historic	Scatter
3CT125	NA	NA	Woodland?/ Mississippian/ Historic	Historic cemetery on conical mound
3CT126	NA	NA	Mississippian	Scatter
3CT127	NA	NA	Historic	20th century mound
3CT128	NA	NA	Early Mississippian	Scatter
3CT129	NA	NA	Early Mississippian	Scatter
3CT130	NA	NA	Early Mississippian	Scatter
3CT131	NA	NA	Early Mississippian	Scatter
3CT132	NA	NA	Early Mississippian	Scatter
3CT133	NA	NA	Mississippian	Scatter
3CT134	NA	NA	Woodland	Scatter
3CT135	NA	NA	Late Woodland	Scatter
3CT136	NA	NA	Mississippian	Scatter
3CT137	NA	NA	Woodland	Scatter
3CT138	NA	NA	Early Mississippian	Scatter
3CT139	NA	NA	Mississippian	Scatter
3CT140	NA	NA	NA	1 sherd
3CT141	NA	NA	NA	1 sherd
3CT142	NA	NA	NA	1 flake
3CT143	NA	NA	NA	1 sherd
3CT144	NA	NA	Historic	Scatter
3CT145	NA	NA	Late Woodland	Scatter
3CT146	NA	NA	Woodland?/ Mississippian	Scatter
3CT147	NA	NA	Woodland?/ Mississippian	Scatter
3CT148	NA	NA	NA	1 flake
3CT149	NA	NA	NA	2 lithic fragments
3CT150	NA	NA	NA	1 sherd
3CT151	NA	NA	Mississippian	Cemetery
3CT152	NA	NA	NA	Lithic scatter
3CT153	NA	NA	Historic	Standing structure
3CT219	NA	NA	Woodland	Scatter
3CT220	NA	NA	Middle, Late Woodland	Scatter

TABLE 5-1
Continued

STATE SITE NUMBER	SITE NAME	PHILLIPS, FORD AND GRIFFEN NUMBER	TEMPORAL PERIOD	SITE STRUCTURE
3CT221	NA	NA	Middle Archaic- Middle Mississippian	Scatter
3CT222	NA	NA	Middle Archaic- Mississippian/ Historic	Village, cemetery and pumphouse
3CT223	NA	NA	Woodland	Scatter
3CT224	NA	NA	Woodland/Early, Middle Mississippian	Scatter
3CT225	NA	NA	Historic	Scatter

* Sites visited by C. B. Moore (1911)
? Indicates uncertain temporal association

6.0 HUMAN SETTLEMENT AND HABITAT EXPLOITATION

Based upon the reconstruction of the alluvial history of the project area presented earlier in this report, it is expected that land surfaces (or buried land surfaces) will not predate approximately A.D. 300. However, this date is based upon temporal associations of known prehistoric sites adjacent to the project area. It is possible that there are unknown sites that predate this period which would imply an older time period for the land surfaces. Throughout the alluvial history of the study area (at least since 12,000 B.P.) the region is believed to have been a riverine environment, either braided or meandering in nature.

Smith (1978b:480-483) delineated a number of geomorphological attributes associated with meander belt zones of major rivers. The dynamic regime of a river meander system results in a complex pattern of surface morphology. Aggrading rivers develop asymmetrical natural levees that slope back gradually into backswamp deposits. Lateral meandering of the river results in the reworking of these natural levee deposits, producing ridge and swale topography and the formation of cut-off or oxbow lakes. As a result, complex curvilinear bands of differing soil characteristics are developed.

These complex attributes of a riverine environment are associated with a number of environmental attributes. First, these meander zones represent a naturally subsidized, solar powered ecosystem (c.f. Odum 1975). In addition, the meander belt zone receives a power subsidy in the form of a constant, water-born flow of nutrients through the zone. Second, the differential characteristics associated with the curvilinear bands of soil result in plant communities of distinctive vegetative types in close association to each other. The result is long linear interfaces between distinct plant communities that support a variety of species of animals at relatively high population densities. Third, these meander belt zones are environmentally circumscribed. The energy subsidized, curvilinear bands of soils capable of supporting a high biomass are isolated from upland areas by parallel tracts of low backswamp areas (with the exception of areas where the river is adjacent to the valley escarpments).

Prehistoric

Specific human settlement and habitat exploitation patterns through time have been dependent to a large extent on the particular settlement and subsistence strategies employed by a culture during a specific time period. The discussion of changes in settlement habitat and exploitation through time is limited to the periods for which there is evidence of extant stable land surfaces. Therefore, the discussion will begin with the Middle Woodland (Marksville) Period (0-A.D. 500).

Since the beginning of the Middle Woodland Period, the subsistence strategies of prehistoric cultures within the northern portion of the Mississippi Alluvial Valley have undergone a slow transformation from an emphasis on hunting and gathering of natural resources supplemented by limited horticulture, to an emphasis on intensive agriculture supplemented by hunting and gathering. To a large extent, the settlement strategy of the different cultures were dependent upon the subsistence strategy. Thus, hunting and

gathering activities required a high degree of mobility to efficiently exploit seasonally available resources located in spatially discreet areas. This high degree of mobility may have taken the form of a seasonal round. Although no research on this type of subsistence and settlement system has been conducted for the Middle Woodland Period in this region, it is possible to hypothesize a general seasonal round based upon the seasonal availability of different faunal and floral species of the region. Smith (1975:122) suggests that exploitation of animal populations in the Mississippi Alluvial Valley can be divided into two basic seasons: 1) a summer season during which various species of fish were the most intensively exploited, with aquatic species of turtles and perhaps rabbits being of secondary importance and 2) a winter season of exploitation during which a wide variety of fauna, including deer, bear, squirrel, opossum, beaver, wild turkey, raccoon, rabbits and waterfowl were exploited. In addition, nuts, seeds and berries, as well as limited horticulture of native and tropical cultigens, were available in the spring, summer and fall.

Archeological evidence suggests that to encompass the variability associated with distinct resources, cultures were employing a settlement system in which a small number of households gathered together in a base camp during the fall to provide group participation for efficient hunting and gathering of natural resources. This group would probably remain together through the winter in a semi-permanent base camp.

In the spring, this group of households probably fragmented with each household moving to a new location near riverine resources to exploit spawning fish populations, as well as floral resources. During the summer, these individual households may have engaged in limited horticulture, supplemented by hunting and gathering activities. The result would have been series of semi-permanent bases consisting of single households. Associated with both the winter and summer base camps may have been a wide range of special activity sites for the purpose of resource extraction, resource preparation or tool kit maintenance.

It is possible to hypothesize that the shift to a greater emphasis on agriculture supplemented by hunting and gathering continued with similar subsistence and settlement pattern with some differences. Essentially, the shift to intensive agriculture may have allowed greater population densities. Thus, it is expected that the winter base camps consisted of relatively large villages of numerous households. During the summer, these villages fragmented into single households to allow efficient exploitation of easily tillable soils. However, during the Late Mississippian period (A.D. 1350-A.D. 1500), increased warfare may have required that people remain in fortified villages throughout the year, with occasional forages to manage centrally located fields, or for limited hunting or gathering.

Historic

During the Pioneer Period (1780-1850) Euro-Americans employed different settlement strategies than those of prehistoric Native Americans. The importance of the Mississippi River as a means of communication and transportation of goods predicated early settlement along its banks, particularly along the higher non-flooding areas. After the most desirable areas were settled, less desirable areas were eventually claimed. Land easily cultivated, such as the

sandy ridges, were cleared and planted first. Clayey bottoms were mostly left wooded and from these timber, game, fish and wild plant foods were obtained to supplement the subsistence agriculture that was the basic food procurement method of the period.

The Riverine Period (1780-1930) overlaps both the Pioneer and Plantation Periods. The emphasis during this period was the role the Mississippi River and its old channels played in structuring settlement and habitat exploration. As water transportation was the most practical form of movement in the area, settlements grew around the riverboat landings. These settlements serviced the outlying farms and plantations by providing goods that farmers did not produce themselves and by providing a market and/or transportation to market for the goods they produced. The other important economic activity during this period was the logging of the local forests and establishment of saw mills. People engaged in this activity lived in river landing settlements or logging camps. The merchants at the settlements provided items needed for subsistence in return for money earned as wages by the logging and saw mill crews.

The areas next to the river and its channels diminished in importance after the levees were built. With the confinement of flood waters to the riverside of the levees and the resultant increase in the depth of these waters, the population located in these areas moved to the landside of the levees.

The Plantation Period (1800 to present) is marked by the amalgamation of small landholdings into large ones. These holdings were in the earlier portion of the period (1800 to 1900) worked by labor who lived in nucleated settlements around each plantation headquarters. Other settlements were found at the sites of riverboat landings. Agriculture was based on one crop farming with small amounts of land set aside for food growing. Uncleared areas continued to provide dietary supplements.

Settlement patterns during the middle part of the Plantation Period (1900 to 1945) are distinguished by a scattering of the nucleated settlements into widely spread individual households. These households were attached to plantations as either tenants or sharecroppers. Each household farmed a small area around the home raising mostly cotton with perhaps a small garden on the side. Subsistence was provided by goods from the company store and dietary supplements from the uncultivated areas. Small settlements grew up in the interior based on the presence of a store, church, school or in some cases all of these. The river landings became less important with the building of interior roads and finally fell into complete disuse.

The latter part of the Plantation Period (1945-present) is marked by the widespread use of farm machinery and the subsequent lessening need for a large labor force. Landholdings are generally large with few, if any, people living on them. Agriculture is based on single crop farming and/or stock raising. The inhabitants of the area buy the items they need for subsistence. Some use is made of the uncleared portions of the area for hunting, fishing and gathering, although these activities have become for the most part recreational. Settlement is found along the all weather roads and is often concentrated at points where there are crossroads, stores or major plantation headquarters.

7.0 SURVEY, TESTING AND ANALYSIS

Initial Survey

Methodology

The areas surveyed were right-of-way corridors associated with proposed berm and borrow activities (Figure 1-2). All areas were traversed so that as much of the visible ground surface as possible was examined. Road grades, ditch bank walls and rodent holes within the rights-of-way were examined for evidence of subsurface cultural remains. As proposed, areas that were flooded were not surveyed. The interior portions of borrow pits were examined for surface evidence of recent cultural activity and exposed profiles of recent borrow pits were inspected for the presence of subsurface cultural material and to determine natural stratigraphy.

Since survey and testing of sites are qualitatively different in the types of activities conducted and the equipment required, two aspects of the initial project were split into two distinct phases for purposes of efficiency: 1) a survey phase and 2) a limited testing phase. During the survey phase two archeologists surveyed transects spaced approximately 30 meters apart or less by walking a zig-zag pattern such that the visible ground surface was thoroughly examined. In general, the degree and intensity of subsurface shovel testing was dictated by surface visibility and degree of disturbance by levee borrowing activities. In areas of low surface visibility that had not been disturbed by borrow activities, shovel tests were dug every 30 meters (98.4 feet). Further, these shovel tests were screened through 1/4" hardware cloth unless the soil matrix precluded screening (such as a massive clay). Soil profiles of these shovel tests were recorded. In areas of high surface visibility that had not been disturbed by borrow activities, shovel tests were dug approximately every 75-100 meters (246-328 feet) to record the soil profile and check for buried land surfaces or cultural material. These shovel tests were not screened, although the dirt was always finely divided and finger sieved. Finally, in areas disturbed by borrow activities, no shovel tests were dug, although surfaces were walked and cutbanks were examined.

The existing levees and berms were not surveyed.

When a site was found, it was recorded on the project aerial photo blue-lines and flagged with surveyor's flagging tape to allow easy identification during the testing phase.

Testing Procedures

After the survey was completed, each site was revisited for the purpose of testing to obtain additional data. The first step of the testing phase consisted of accurately establishing the right-of-way boundary. During the field survey it was not always possible to accurately define the right-of-way boundary. Further, the scope of work required that if any portion of a site was within the right-of-way, then the total site would have to be evaluated. Therefore, each site was recorded during the survey, but actual determination of a site's relationship to the right-of-way boundary was deferred until the testing phase.

If a site was found to be within the right-of-way then further investigation of the site was initiated. This consisted of establishing the site boundaries, accurately mapping the site boundaries and establishing permanent datums, making controlled surface collections, excavating at least one 1 x 1 meter test unit and, when needed, digging a series of shovel tests at the perimeter of the site to further define site boundaries.

Those sites determined to be out of the right-of-way were accurately plotted on the aerial photo bluelines for future reference and representative artifacts were observed and recorded. Beyond this, no further work was conducted.

All of the sites but one were located in soybean fields with .3 meters to .9 meters (1-3 feet) high soybean plants present. To facilitate mapping of the site boundaries, small poles with flagging tape attached were stuck in the ground at the edges of the surface expressions of cultural material. This served two purposes: 1) it allowed easy mapping of the site and 2) it allowed easy visualization of the form of the site which facilitated selection of locations for collection units, the 1 x 1 meter test units and, when necessary, further shovel testing to define site boundaries.

Mapping of the sites was conducted with the use of a transit and stadia rod. A temporary datum was established on each site and then tied into permanent datums. The permanent datums consisted of large trees (a nail was driven into each datum tree), gate posts on levee roads or levee mile markers. After the temporary datum was established, the perimeter of each site was mapped in, as well as relevant cultural features such as borrow pits, roads, toe of the levee and fences. The southwest corner of each collection unit and 1 x 1 meter test units and any further shovel tests were also mapped in.

The location of controlled surface collection units were based upon the character of each site. The major factor was a need for representiveness. Thus, in sites with a fairly homogenous distribution of artifacts, only one collection unit was necessary. However, if there were concentrations of different types of material, then more than one collection unit was collected to reflect this diversity in material. In one instance, no surface collection was made as there was no cultural material on the surface.

In a similar manner, the location of each 1 x 1 meter test unit was based upon the overall character of the site. Generally, 1 x 1 meter test units were placed near the center of sites in areas that exhibited high concentrations of surface material. It was assumed that high densities of surface material should reflect a high density of subsurface material if such deposits were present. All material excavated from the 1 x 1 meter test units was screened through 1/4" hardware cloth. Where possible, these test units were excavated by natural stratigraphy. Plow zones were excavated as a single unit. In areas exhibiting soil stratigraphy, each soil stratum was excavated in 10 centimeter levels. In areas with no soil stratigraphy, units were excavated in arbitrary 10 centimeter levels. At each site, the test units were extended to a depth of at least 20 centimeters below artifact bearing soils. In addition, one corner of each test unit was extended at least 40 centimeters below artifact bearing soils. Representative profiles of soils and stratigraphy were made for each test unit. After these activities, the test unit was backfilled and compacted to allow reasonable pedestrian safety. No test units were left open overnight.

If the excavation of the 1 x 1 meter test unit indicated there were subsurface cultural deposits extending below the plow zone, then a series of shovel tests (approximately 30 x 30 centimeters wide and 50 centimeter deep) were dug and the fill screened through 1/4" hardware cloth to determine if there were subsurface deposits extending beyonds the site boundaries identified by surface inspection.

These shovel tests were excavated along major axes of the site. The shovel tests were begun at the site boundary, identified by surface inspection and then extended outward from the site. Shovel tests were dug until three consecutive shovel tests indicated no evidence of subsurface cultural deposits. In every case, there were no subsurface cultural deposits beyond the site boundaries identified by surface examination. If the 1 x 1 meter test units indicated there were no cultural deposits extending below the plow zone, then the site boundaries identified by surface inspection were accepted.

Results

For the purpose of survey and report presentation, the project area was divided into sub-areas (Figure 7-1 and Table 7-1) based upon geomorphology and surface vegetation present in each sub-area. In the following sections, specific survey methodology and results for each sub-area are reported.

Sub-area A. This area (Figure 7-1) is located on the riverside of the levee, east of the 1823 channel (number 19 channel, Figure 2-1), and between Station 126/15+00 and Station 127/5+00. The area encompassed approximately 23.7 ha. (58.6 acres) with surface vegetation consisting of waist high soybeans approximately .9 meters (3 feet) high, limiting surface visibility to approximately 50-75%. Reconstruction of the alluvial history indicated land surfaces in this area should date to just prior to A.D. 1823. However, it is probable that land surfaces dating to this period are buried beneath more recent alluvium, especially since this area is located on the riverside of the levee. Construction of the levee system reduced flooding on the landward side of the levee, but increased both the intensity and duration of flooding on the riverside of the levee. This would have led to increased alluviation rates on the riverside of levees.

This area was surveyed by two archeologists walking transects spaced approximately 30 meters (98.4 feet) apart, parallel to the long axis of the area. Although surface visibility was good to excellent, shovel tests were dug approximately every 75-100 meters (246-328 feet) to determine if there were subsurface cultural deposits present. Since the soil in this area was deposited just prior to 1823, it was expected that any subsurface cultural deposits in this area would have been historic in nature. No cultural resources were observed in this area.

Sub-area B. This area (Figure 7-1) 7.1) is located on the riverside of the levee and consists of the abandoned 1823 channel (number 19 channel, Figure 2-1) between Station 126/15+00 and Station 127/5+00. This area was not surveyed as it was under water. This area encompasses approximately 4.3 ha. (10.6 acres) of the project right-of-way.

Although no cultural resources were recorded in Sub-areas A and B, information obtained from a local informant, supported by archival evidence,

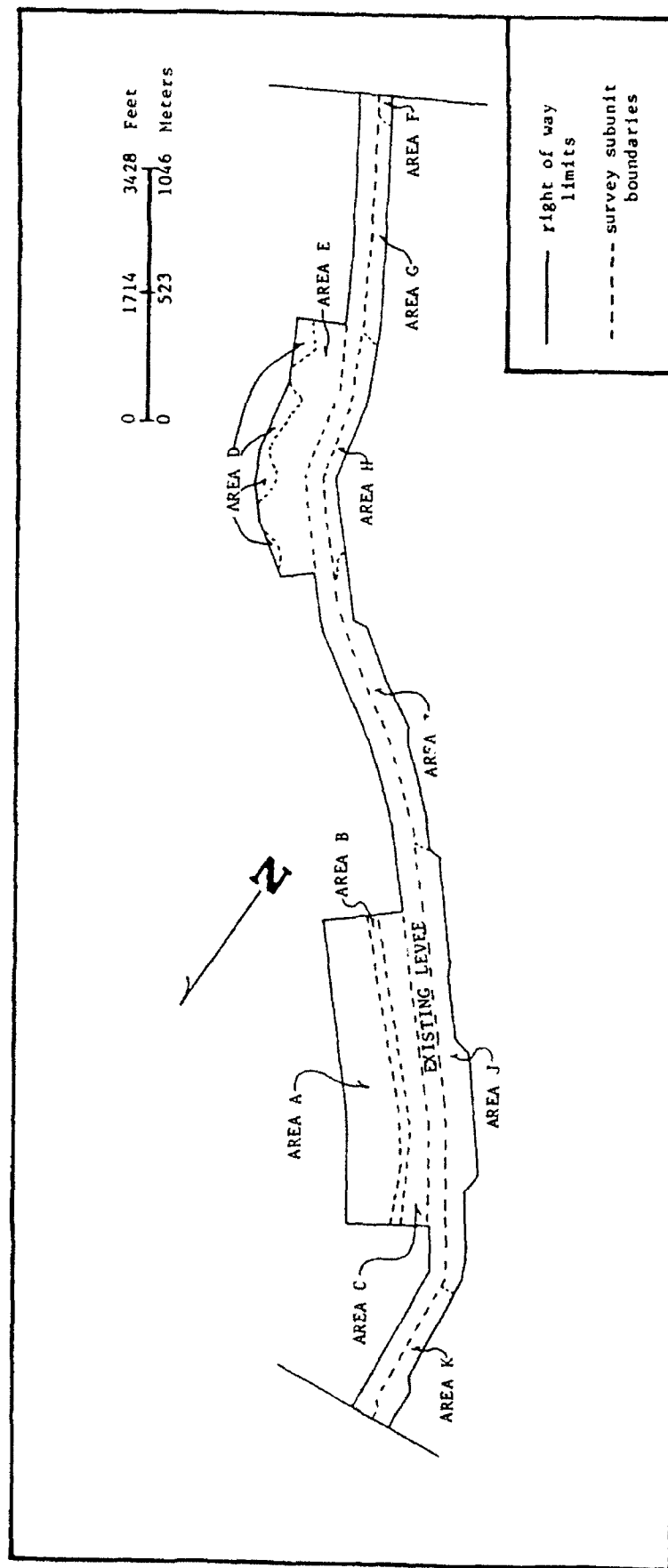


Figure 7-1. Location of Subareas "A through K" within the project area

TABLE 7-1
GEOMORPHOLOGICAL AND SURFACE VEGETATION ATTRIBUTES
OF SUBAREAS WITHIN THE PROJECT AREA

SUB- AREA	SURFACE AREA	AGE OF EARLIEST LAND SURFACES	SURFACE VEGETATION	SURFACE VISIBILITY
A	23.7 ha. (58.6 ac.)	A.D. 1823	Soybeans .9 m (3ft.) high	50-75%
B	4.3 ha. (10.6 ac.)	A.D. 1823	Water	NA
C	11.4 ha. (28.2 ac.)	A.D. 300 - A.D. 600	Wooded	0-20%
D	5.2 ha. (12.8 ac.)	A.D. 300 - A.D. 600	Soybeans .9 m (3ft.) high	50-75%
E	17.4 ha. (42.9 ac.)	A.D. 300 - A.D. 600	Wooded	0-20%
F	.6 ha. (1.6 ac.)	A.D. 300 - A.D. 600	Pasture	0-10%
G	4.9 ha. (12.1 ac.)	A.D. 300 - A.D. 600	Soybeans .3 m (1ft.) high	75-90%
H	4.8 ha. (11.8 ac.)	A.D. 300 - A.D. 600	Mixed pasture and woods	0-20%
I	10.0 ha. (24.7 ac.)	A.D. 300 - A.D. 600	Soybeans	75-90%
J	15.8 ha. (39.0 ac.)	A.D. 300 - A.D. 600	Mixed pasture and woods	0-20%
K	2.7 ha. (6.8 ac.)	A.D. 1700 - A.D. 1800	Woods	0-20%

suggested that the steamboat paddle-wheeler, Pacific, sank in 1841 in this general locality as a result of hitting a snag. Although its precise location was undetermined during the initial phase of the project, this cultural resource was recorded as historic site 3CT233. J. O. Thresher (personal communication) indicated his stepfather saw the superstructure of the boat at low water in the early part of the 1900's. Further, he indicated its location to be very close to the proposed rigid steel ramp that is to be constructed across the 1823 channel for access to borrow material for the proposed project. That vessel could be silted under in the open channel (Area B) or silted under the point bar deposits with Area A was noted. In either case, since the vessel did not burn, the potential for discovering intact remains left from the sinking of this vessel were noted.

Sub-area C. This area (Figure 7-1) was also located on the riverside of the levee, but between the abandoned 1823 channel (number 19 channel, Figure 2-1) and the levee, and between Station 126/15+00 and Station 127/5+00. This area encompassed approximately 11.4 ha. (28.2 acres). Within this area, there was a borrow pit adjacent to the levee and extending toward the abandoned channel. This borrow pit varied in width from 30 meters to 90 meters (98 to 295 feet). The portion of the area undisturbed by borrow pit was approximately 30 meters (98 feet) in width. Thus, approximately 3.7 ha. (9.1 acres) was undisturbed and 7.7 ha. (19.0 acres) was disturbed by borrow pit. Surface vegetation in both areas consisted of woods with understory vegetation limiting surface visibility to 0-20%. Reconstruction of the alluvial history indicated land surfaces could date to between A.D. 300 and A.D. 700. However, it is expected that land surfaces dating to this period would be buried under more recent alluvium, especially since this area is located on the riverside of the levee which would have increased alluviation rates.

Within the undisturbed portion, two archeologists walked parallel transects spaced approximately 15 meters (49.2 feet) apart. Shovel tests (30 x 30 centimeters wide and 50 centimeters deep) were dug approximately every 30 meters (98.4 feet). The shovel tests were not screened as the soil matrix consisted of a massive dark gray clay that extended beyond the depth of the shovel tests. Instead, the soil matrix was finely divided and finger-sieved for cultural material.

The soil matrix of dark gray clay, noted in the shovel tests, does not resemble the expected soil matrix. It was expected that the soil matrix in this area would consist of Robinsonville very fine sandy loam, frequently flooded. Examination of the soil distribution map (Figure 2-2) indicates a fairly wide band of Robinsonville soils along the outside bend of the 1823 channel, representing natural levee development associated with the 1823 channel when it was active. Absence of this expected soil matrix may reflect borrowing activities in the supposedly unborrowed portion of this area. If this is true, then all of Sub-area C has been disturbed by borrowing activities.

The area known to be disturbed by the borrow pit was not shovel tested although the surface was walked. Two archeologists walked parallel transects spaced approximately 30 meters (98.4 feet) apart to record any surface manifestations of cultural material. Cutbanks of the borrow pit were approximately 1.5 meters (4.9 feet) in height. Examination of these cutbanks indicated a solid, massive column of dark gray clay was present. No cultural deposits were noted.

Sub-area D. This area (Figure 7-1) was located on the riverside of the levee, between Station 128/0+00 and Station 128/35+00, and consisted of the southern area available for borrow that had not been disturbed by previous borrowing activities. This area encompassed approximately 5.2 ha. (12.8 acres). Surface vegetation consisted of waist-high soybeans (approximately .9 meters, 3 feet) that limited surface visibility to 50-75%. Reconstruction of the alluvial history indicated land surfaces in this area could date to between A.D. 300 and A.D. 600, although these have probably been buried by more recent alluviation.

This assessment of recent alluviation is supported by two different types of evidence. First, examination of topographic maps for the project area indicate extensive ridge and swale topography on the landside of the levee. However, this type of topography is missing on the riverside of the levee, even though both areas have similar alluvial histories in terms of age of land surfaces that could be expected. Second, examination of the soil maps (Gray and Ferguson 1974) indicates that there is a band approximately 900 meters (2,952 feet) wide of Robinsonville very fine sandy loam, frequently flooded, along the cutbank side of the 1823 channel. This soil matrix represents development of a natural levee associated with the 1823 channel when it was active. Beyond this there is a band approximately 400 meters (1,312 feet) wide of Tunica clay, frequently flooded, that represents development of a backswamp area beyond the natural levee. Thus, it appears that the A.D. 300 to A.D. 600 land surfaces have been buried by alluvial deposition of the 1823 channel, as well as episodes of alluvial deposition between these two periods.

The area was surveyed by two archeologists walking parallel transects spaced approximately 30 meters (98.4 feet). Shovel tests (30 x 30 centimeters wide and 50 centimeters deep) were dug at 75-100 meter (246-328 feet) intervals to check for subsurface cultural deposits. Given the reasonably good surface visibility, these shovel tests were not screened, however, representative soil profiles were recorded. Soil profiles were in accordance with the published soil maps (Gray and Ferguson 1974) which indicated that approximately the northern two-thirds of this area was composed of Robinsonville very fine sandy loam, frequently flooded and the southern one-third was composed of Tunica clay, frequently flooded. No cultural material was recorded in this area.

Sub-area E. This area (Figure 7-1) was located on the riverside of the levee, between Station 128/0+00 and Station 128/35+00, and consisted of the southern area available for borrow that had been disturbed by previous borrowing. This area encompassed approximately 17.4 ha. (42.9 acres). Surface vegetation consisted of woods with understory vegetation that limited surface visibility to 0-20%. Reconstruction of the alluvial history indicates land surfaces in this area could date to between A.D. 300 and A.D. 600, although it is probable that borrowing activities in this area have either disturbed or removed any land surfaces that would date to this period.

The area was surveyed by two archeologists walking parallel transects spaced approximately 30 meters (98.4 feet) apart to record surface manifestations of cultural material. No shovel tests were dug as this area had been disturbed by borrowing activities. Cutbanks of the borrow pit were approximately 2-3 meters (6.5-9.8 feet) in height. Examination of these cutbanks indicated that Robinsonville soils overlay a massive dark gray soil matrix in

the northern portion of the area. The Robinsonville soils thinned to the south and were replaced by Tunica soils. No difference could be distinguished between the Tunica clay and the underlying dark gray clay.

Although reconstruction of the alluvial history suggests that land surfaces in this area could date to approximately A.D. 300 and A.D. 600, no cultural resources were noted on the surface or in the cutbanks of the borrow pit.

Sub-area F. This area (Figure 7-1) was located on the landside of the levee approximately between Station 129/9+50 and Station 129/13+50. This area encompassed approximately .6 ha. (1.6 acres). Surface vegetation consisted of pasture that limited surface visibility to 0-10%. Reconstruction of the alluvial history indicated land surface in this area could date to between A.D. 300 and A.D. 600. Although it is possible that more recent alluviation has buried surfaces of this age, the obvious ridge and swale topography associated with the number 10, 11, 12 and 13 channels (Figure 2-1) suggests that alluvial deposition has not been as severe as that indicated for areas on the riverside of the levee.

The area was surveyed by two archeologists walking parallel transects spaced approximately 30 meters (98.4 feet) apart. Given the limited surface visibility, shovel tests (30 x 30 centimeters wide and 50 centimeters deep) were dug every 30 meters. An attempt was made to screen material from the shovel tests, however, the clay matrix found in this area precluded such attempts. Therefore, the soil was finely divided by shovel and sieved by hand.

The soil profiles recorded for these shovel tests indicated 0-20 centimeters (plow zone) of a dark gray clay (slightly mottled) overlying 30 centimeters of a massive dark gray clay. This soil matrix does not resemble the Robinsonville very fine sandy loam indicated on the soil map (Figure 2-2). This suggests this may be a borrow pit area from which the Robinsonville soil has been stripped to allow access to an underlying clay. The soil map indicates a borrow pit in this area, although these are not always accurate.

No cultural material was noted on the surface or in the shovel tests.

Sub-area G. This area (Figure 7-1) was located on the landside of the levee approximately between Station 128/32+50 and Station 129/9+50. The area encompassed approximately 4.9 ha. (12.1 acres). Surface vegetation consisted of soybeans approximately .3 meters (1 foot) high that limited surface visibility to 75-90%. Reconstruction of the alluvial history indicated land surfaces in this area could date to between A.D. 300 and A.D. 600. As in the case of Subarea F, it does not appear that recent alluviation has been as severe as that indicated for areas on the riverside of the levee.

The area was surveyed by two archeologists walking parallel transects spaced approximately 30 meters (98.4 feet) apart. Shovel tests were dug every 75-100 meters (246-328 feet) to check for subsurface deposits and to record representative profiles. Since there was excellent surface visibility these shovel tests were not screened. Soil profiles recorded for the shovel tests are in general agreement with the soil map (Figure 2-2). Representative soil profiles indicate 15 centimeters (plow zone) of a light gray-brown sandy silt,

overlying 15 centimeters of a gray-brown silt, underlain by 20 centimeters of brown sand. This type of soil profile was present at both ends of the area and is comparable to that expected for Robinsonville very fine sandy loam. Representative soil profiles from the middle portion of the area indicate 0-20 centimeters (plow zone) of a dark gray-brown clayey silt. This is comparable to Tunica clay.

A borrow pit was located along the western edge of this area. The area disturbed by this borrow pit was approximately 30 meters (98.4 feet) wide, as measured from the edge of the right-of-way back toward the levee, and extended the length of Sub-area G. The cutbanks of this borrow pit were gently sloped either as a result of erosion, farming activities or a combination of both, which made it impossible to examine cutbank profiles. However, the surface of the borrow pit was walked to check for evidence of cultural material. No shovel tests were dug in the area disturbed by borrow activities.

Six cultural resources were recorded during the survey of this area. Of these six, one (3CT231) was within the right-of-way, one (3CT232) was partially within the right-of-way and four (3CT238, NLU-83-197, 3CT239 and NLU-83-199) were determined to be outside the right-of-way.

For all sites recorded, physiographic data including geomorphology, soil unit/group complex, topography, elevation and water resource availability is provided in Table 7-2. In the following subsections, each archeological site within the right-of-way is briefly described and an interpretation of cultural association is made based upon analysis of the artifacts, site characteristics and the data provided in the background section concerning the biophysical setting.

Site 3CT231. This site was noted to cover a surface area of approximately 6,000 meters² (100 x 600 meters), with the long axis oriented parallel to the levee. This orientation may be the result of borrowing activities as the site extends into the borrow pit (probably as a result of plowing or land leveling activities).

The site consisted of a light surface scatter of prehistoric and historic material. The historic material was scattered throughout the limits of the site, while the prehistoric material was generally confined to an area 30 meters in diameter, centered around the location of the 1 x 1 meter test unit. All cultural material was limited to the plow zone.

Prehistoric material recovered from the site included both grog and shell tempered ceramics. One grog-tempered sherd may have been decorated, but it was so badly eroded and damaged by agricultural plowing that identification of mode of decoration was impossible. All other sherds were undecorated. This ceramic assemblage suggests a temporal interval of occupation during the Woodland or Mississippian period (500 B.C.-A.D. 1500).

Historic material recovered from the site included fragments of brick, stoneware and whiteware, as well as clear and white glass. One fragment of glass consisted of a machine-molded bottle neck which suggests a post-World War I date. The other material may date as early as the 1880's, however, most of this type of ceramics are still available on the market today. Examination

TABLE 7-2
 PHYSIOGRAPHIC SETTING FOR CULTURAL PROPERTIES
 RECORDED ALONG PORTIONS OF THE LAMBETHVILLE LEVEE PROJECT,
 LAMBETHVILLE, ARKANSAS

SITE NUMBER	GEOMORPHOLOGY	SOIL UNIT/ GROUP COMPLEX*	TOPOGRAPHIC FEATURE	ELEVATION (FEET AMSL)	WATER RESOURCE AVAILABILITY NAME/DISTANCE (METERS)/ DIRECTION
3CT 228	Alluvial	Borrow Pit & Robinsonville very fine sandy loam	Floodplain	225	1823 river channel 152 m NE
3CT 229	Alluvial	Borrow Pit & Robinsonville very fine sandy loam	Floodplain	223	1823 river channel 213 m NE
3CT 230	Alluvial	Borrow Pit & Robinsonville very fine sandy loam	Floodplain	225	1823 river channel 228 m NE
3CT 231	Alluvial	Borrow Pit Robinsonville very fine sandy loam	Floodplain	225	1823 river channel 1524 m N
3CT 232	Alluvial	Robinsonville very fine sandy loam Tunica Clay	Floodplain positive relief	225-230	1823 river channel 1219 m N
3CT 233	Alluvial	N/A	Abandoned channel	N/A	1823 river channel within
3CT 238	Alluvial	Robinsonville very fine sandy loam	Floodplain positive relief	230	1823 river channel 1310 m N
3CT 239	Alluvial	Robinsonville very fine sandy loam	Floodplain positive relief	230	1823 river channel 1767 m N
NLU-83- 194	Alluvial	Robinsonville very fine sandy loam	Floodplain positive relief	225	1823 river channel 365 m E
NLU-83- 195	Alluvial	Robinsonville very fine sandy loam	Floodplain positive relief	225	1823 river channel 365 m E
NLU-83- 197	Alluvial	Borrow Pit Tunica Clay	Floodplain	228	1823 river channel 1584 m N
NLU-83- 199	Alluvial	Tunica Clay	Floodplain positive relief	225	1823 river channel 1524 m N

TABLE 7-2
(Continued)

SITE NUMBER NLU-83-	GEOMOR- PHOLOGY	SOIL UNIT/ GROUP COMPLEX*	TOPOGRAPHIC FEATURE	ELEVATION (FEET AMSL)	WATER RESOURCE AVAILABILITY NAME/DISTANCE (METERS)/ DIRECTION
NLU-83- 200	Alluvial	Robinsonville very fine sandy loam	Floodplain positive relief	225	1823 river channel 822 m N
NLU-83- 201	Alluvial	Robinsonville very fine sandy loam	Floodplain positive relief	225	1823 river channel 914 m N

* Gray and Ferguson 1974:map sheet #10

of maps dating to 1890 indicate that there were no structures present at this location around 1890 (Mississippi River Commission 1890; Mississippi River Commission 1916; Corps of Engineers circa 1930; Corps of Engineers circa 1932-33; Corps of Engineers 1939; Corps of Engineers 1952; Corps of Engineers 1962; Corps of Engineers 1975). By 1930 there is a structure present, but it had been removed by 1952. Thus, archival evidence suggests a temporal interval of occupation subsequent to 1916 and prior to 1952.

The site is located on a land surface that has been relatively stable since approximately A.D. 300-A.D. 600. The soils in this area consist of Robinsonville very fine sandy loams, with the exception of the area disturbed by the borrow pit where a dark gray clay was present.

The prehistoric component of this site is interpreted as representing a small habitation site used for a single limited interval of occupation. This interpretation is based upon the absence of an extensive midden, which would suggest an extended interval of occupation or repeated reuse, and the presence of ceramics, which suggest habitation rather than a specialized activity or resource extraction use. This would fit in with the settlement and subsistence models of the Late Woodland (A.D. 400-A.D. 700), Early Mississippian (A.D. 700-A.D. 1000) and Middle Mississippian (A.D. 1000-A.D. 1350) periods during which small hamlets or farmsteads were occupied in the summer for horticultural or agricultural purposes. However, the presence of shell-tempered sherds suggests the occupation occurred during a post-Late Woodland interval. Thus, the prehistoric component is interpreted as representing a small summer farmstead of the Early or Middle Mississippian Periods. Subsistence activities would have included agricultural activities supplemented by hunting and gathering activities. The site was probably occupied by a single family, possibly of a limited, extended nature. This interpretation is supported by the presence of the Robinsonville soil, as this would have provided easily tillable soils for agricultural purposes.

The historic component is interpreted as representing a small habitation site, occupied between 1916 and 1952, as indicated by archival evidence. The

presence of the ceramics suggests a domestic rather than an industrial or commercial activity. This location would not have been part of Lambethville proper, although its presence in this location may be a result of the same process that resulted in the movement of Lambethville from the riverside to the landside of the levee (i.e., increased flooding). The occupants of this house could have been employed by commercial activities in Lambethville (cotton ginning, logging activities, etc.) or agricultural activities. Further, the household would probably have consisted of a large nuclear or extended family. This interpretation is based upon the popularity of bungalow houses in this area during the interval of occupation.

Site 3CT232. This site was noted to consist of two contiguous conical mounds with an intrusive historic cemetery located on the mounds. The mounds are roughly circular and approximately 2.0 meters in height. They are connected by a low camel back with combined dimensions of approximately 80 meters (262 feet) (north/south) by 30 meters (98 feet) (east-west). The two mounds are roughly oriented north-south.

An intensive surface and subsurface investigation was conducted around the mound periphery, however, no prehistoric or historic cultural material was located. The only cultural material on the surface of the mounds consisted of gravestone markers and burial plot fencing. A small prehistoric ceramic and lithic scatter (3CT238) was located approximately 60 meters (196 feet) south-east of the southernmost mound. However, no material could be found between the margins of the two sites.

Four historic grave markers were present on the southernmost mounds with indicated dates of burials ranging from 1906 to 1955. It is reported that there were numerous historic burials present on both mounds (J. O. Thresher: personal communication). Leroy Wiley (personal communication) reports that burials were present only on the southernmost mound. These burials are associated with the Bledsoe family who lived to the south of the mounds.

The site is located on a land surface that have been relatively stable since approximately A.D. 300-A.D. 600, as indicated by reconstruction of alluvial history. The soil on which the site is located consists of Robinsonville very fine sandy loams. There were three water oaks present on the mounds, one of which was between (3-4 feet) in diameter. This tree could be 150-175 years old (Don E. Martin:personal communication). The area between the mounds and the levee are slightly depressed, suggesting that borrowing activities may have occurred in this area, although if so, they were of a limited nature.

A 1 x 1.5 meter test unit located on the east face of the northernmost mound indicated a profile consisting of at least five strata. Boundaries between most of these strata were irregular suggesting a non-alluvial source of deposition. The bottom two strata match the soil profiles recorded in shovel tests around the mounds, suggesting that these two strata are part of the naturally deposited soils of the area.

This site was interpreted as consisting of two prehistoric conical mounds with an intrusive historic cemetery present on top of the mounds. Consideration of the mounds as prehistoric in origin was based upon the fact that there is a tree on the surface of the mound that is approximately 150-175 years old. Thus, these mounds may have been present since at least 1810-1830.

During this period, the area was essentially devoid of historic habitation. Thus, although it was believed possible that the mounds are of historic origin, it seemed more probable they are prehistoric.

Prehistoric mounds of this configuration are present from the Middle Woodland (Marksville) period, 0-A.D. 400, through the Middle Mississippian Period, A.D. 1050-A.D. 1350. However, as noted earlier, the mounds that have been identified as Late Woodland (Baytown) Period, A.D. 400-A.D. 700, have upon excavation turned out to be Middle Mississippian Period, Cherry Valley phase components.

If these are Middle Woodland (Marksville) mounds, then it would be expected that they would consist of two or more relatively large conical mounds that would contain one or more burials, usually at the base of the mound, with a limited amount of burial furniture or accompanying artifacts. If these are Middle Mississippian Period, Cherry Valley phase mounds, then they would consist of one or more conical mounds that would contain numerous bundle and extended burials, or rare cremated burials, with a large amount of associated grave furniture.

If these were Middle Mississippian mounds, then it could reasonably be expected that the intrusive historic burials would have impacted in situ prehistoric burials because: 1) there should be a large number of individuals with associated grave goods and 2) there should be more than one level of burials representing use of more than one charnel structure on the site. Presumably, this would have resulted in prehistoric material being redeposited on the surface of the mounds. In contrast, if these were Marksville then there would have been a lesser chance of an intrusive historic burial impacting in situ prehistoric burials, because: 1) they would be fewer in number with less grave goods and 2) they should be located at the base of the mound.

Thus, the absence of prehistoric material in the area of the intrusive historic burials suggests these mounds are Middle Woodland (Marksville) Period, 0-A.D. 400, which would be comparable to the earliest estimate of the age of the land surfaces, approximately A.D. 300-A.D. 600.

Finally, it is possible that the mounds may date to the Late Woodland (Baytown) or Early Mississippian Periods. Although excavation of mounds that were thought to be Baytown phase have turned out to be Middle Mississippian, it is still possible that there are mounds from these two periods. If so, they would be expected to be more similar to Middle Woodland (Marksville) mounds than to mounds of the Middle Mississippian since Late Woodland and Early Mississippian phases are generally a continuation of cultural developments initiated in the Middle Woodland while Middle Mississippian phases represent adaptation to and assimilation of an intrusive population and its culture.

Sites 3CT238, NLU-83-197, 3CT239 and NLU-83-199. As noted earlier, these sites were determined to be located just outside of the right-of-way. Extensive subsurface testing in the form of screened shovel tests revealed no evidence of cultural material within the right-of-way. As these sites will not be impacted by project activities, they will not be described in this section. However, descriptions of these sites can be found in Appendix E.

Sub-area H. This area (Figure 7-1) was located on the landside of the levee, approximately between Station 128/0+00 and Station 128/32+50. The area encompassed approximately 4.8 ha. (11.8 acres). Surface vegetation consisted of mixed woods and pasture that limited surface visibility to 0-20%. Reconstruction of the alluvial history indicated land surfaces in this area could date to between A.D. 300 and A.D. 600.

The entire surface of the area had been disturbed by borrow activities associated with a borrow pit that extended from the toe of the levee to the edge of the right-of-way. The cutbanks of this borrow pit were approximately 1 meter (3.2 feet) high.

This area was surveyed by two archeologists walking parallel transects spaced approximately 30 meters (98.4 feet) apart. The surface of the borrow pit was examined for evidence of cultural resources, but shovel tests were not dug. In addition, the cutbanks of the borrow pit were examined for evidence of cultural material. Examination of cutbank profiles indicated the presence of a grayish-brown sandy loam (0-40 centimeters) overlying a gray-brown clayey (40-100 centimeters). This is comparable to the Robinsonville very fine sandy loam (Figure 2-2) indicated for this area (Gray and Ferguson 1974).

No cultural material was noted on the surface of the borrow pit or in the cutbanks. However, two cultural resources were recorded just outside the borrow pit. These two sites (NLU-83-200 and NLU-83-201) were determined to be just outside the right-of-way. A series of shovel tests in the floor of the borrow pit and examination of the profile failed to reveal evidence of cultural material within the right-of-way (shovel tests were not screened due to the clayey nature of the soil matrix). As these sites will not be impacted by project activities, they will not be described in this section. However, descriptions of these site can be found in Appendix C.

Subarea I. This area (Figure 7-1) was located on the landside of the levee, approximately between Station 127/12+50 and Station 128/0+00. The area encompassed approximately 10.0 ha. (24.7 acres). Surface vegetation consisted of soybeans approximately .3-.6 meters (1-2 feet) high that limited surface visibility to 75-90%. Reconstruction of the alluvial history indicated land surfaces in this area could date to between A.D. 300 and A.D. 600. As in other subareas on the landside of the levee, it does not appear that recent alluviation has been as severe as that indicated for areas on the riverside of the levee.

A borrow pit, approximately 50-60 meters (164-196 feet) wide and extended parallel to the levee, was present throughout much of this area, starting at the northern end of the levee and extending southward. One edge of the borrow pit extended almost to the edge of the road that ran along the toe of the levee, while the western edge was located 60-70 meters (196-229 feet) out from the road and the toe of the levee. This left two strips (approximately 10 meters wide between the road and the borrow pit and 0-30 meters wide between the borrow pit and edge of right-of-way, depending upon right-of-way width) that had been undisturbed by borrow activities.

A portion of Sub-area I had not been borrowed from; a short segment located 100-500 meters (328-1,640 feet) above the downstream end. Local informants reported that when the present levee was enlarged around 1937, this

segment was specifically avoided for use as borrow due to the presence of several structures. They reported there was a school, a gin and several houses present, as well as a mule lot (Bill Felty and Tom Peters:personal communication).

The southern 100 meters of the area had also been disturbed by borrow activities. The borrow pit in this area was similar to the borrow pit in the northern portion described above.

Within the portions of the area disturbed by borrow activities, two archeologists walked the two undisturbed strips at the edges of the borrow pit. When possible, the surface of the borrow pit was also walked, although much of it was covered by standing water. The cutbanks of the borrow pits were gently sloped, either as a result of erosion, farming activities or a combination of both, which made it impossible to check cutbank profiles. Within the portion undisturbed by borrow activities, two archeologists walked parallel transects spaced approximately 30 meters (98.4 feet) apart.

Given the excellent surface visibility (75-90%), subsurface shovel testing was not conducted at 30 meter intervals. Rather, shovel tests were excavated at approximately 75-100 meter (246-328 feet) intervals. Soil profiles were recorded for each shovel test. Shovel tests were not screened.

The soil profiles recorded for these shovel tests generally indicated 20 centimeters (plow zone) of a mottled, gray-brown sandy silt overlying 30 centimeters of a gray-brown sandy silt. This soil is comparable to the Robinsonville very fine sandyloam indicated on the soil map (Figure 2-2).

Five cultural resources were recorded during the survey of this area. Of these, three (3CT228, 3CT229 and 3CT230) were within the right-of-way and two (NLU-83-194 and NLU-83-195) were determined to be just outside the right-of-way.

For all sites recorded, physiographic data including geomorphology, soil unit/group complex, topography, elevation and water resource availability is provided in Table 7-2. In the following subsections, each archeological site within the right-of-way is briefly described and an interpretation of cultural association is made based upon analysis of the artifacts, site characteristics and the data provided in the background section concerning the biophysical setting.

Site 3CT228. This site covers a surface area of approximately 4,950 meters² (110 x 45 meters), with the long axis oriented parallel to the levee. This orientation is probably the result of inherent biases in plowing patterns as the site extends along the toe of the levee, as defined by the levee fence.

This site was initially thought to consist of a light surface scatter confined to the plow zone. However, excavation of a 1 x 1 meter test unit indicated there was historic material to a depth of approximately 75 centimeters below the surface. All of this deposit had been seriously disturbed. Local informants indicated that a school and gin, as well as several trees, had been razed and bulldozed in the late 1960's. Presumably, the 75 centimeters of disturbed historic deposits were a result of this activity. There were two

distinct concentrations of material within the general scatter: 1) a brick/mortar concentration and 2) a historic trash dump (household).

Historic material recovered from the concentration of brick and mortar included fragments of brick, mortar, clear and aqua glass, and iron nails and wire. Based upon size and temper, there appeared to be four different kinds of brick in this concentration. There is nothing temporally diagnostic in the assemblage, but as a whole it suggests a turn of the century time period.

Historic material recovered from the historic trash dump included fragments of brick, porcelain (hotel ware), aqua, brown, white and clear glass, iron metal (cast and sheet) and miscellaneous fragments of asbestos shingle and some sort of melted rubber or plastic. There was also a Pepsi bottle, a brown bleach bottle and a screw top, clear glass jar. The molded design on the piece of porcelain suggests a temporal period of around 1930. The bleach bottle has had the same trademark since 1900 but the Pepsi bottle may date to 1958. The asbestos tile shingle and the melted rubber or plastic suggest a post-World War II association. As a whole, the assemblage suggests a postWorld War II temporal period.

Examination of maps dating back to 1890 indicates that two structures were present at this location between 1916 and 1930 (Mississippi River Commission 1890; Mississippi River Commission 1916; Corps of Engineers circa 1930; Corps of Engineers circa 1932-33; Corps of Engineers 1939; Corps of Engineers 1952; Corps of Engineers 1962; Corps of Engineers 1975). These structures were removed and/or destroyed prior to 1939 when the two later structures, presumably the school and the gin as reported by local informants, occupied this area. The school and gin are both present on the 1962 map but are absent from the 1975 map. Local informants reported they were razed and bulldozed under in the late 1960's, along with numerous trees in the area.

Recall that this area had not been borrowed from for levee construction because of the presence of the school and gin. Further, the site is located on a land surface that has been relatively stable since approximately A.D. 300-A.D. 600. The soils in this area consist of Robinsonville very fine sandy loams.

This site was interpreted as the remains of structures present between 1916-1930 and 1939-1975 as indicated by archival maps. The artifact assemblage from the area of the brick/mortar concentration indicates an initial late 19th, early 20th century occupation with a subsequent possibly intrusive, middle 20th century trash dump present. The artifact assemblage collected from the concentration of historic trash (household) suggests a post-World War II period. This assemblage could be interpreted one of two ways: 1) the concentration represents intrusive historic trash dump that was not a result of historic occupation at this site or 2) the concentration is associated with the later school and gin. Based upon general appearances of the feature (it looks like a roadside trash dump), the first interpretation is preferred.

As noted earlier, local informants indicated the school and gin had been razed in the late 1960's. It is not known whether the previous two structures indicated on a 1916 map were burned, razed or removed. However, the presence of four different types of bricks suggest that part of the historic assemblage recovered could have been from this initial occupation. Further,

there is little evidence to suggest whether these initial structures were domestic or commercial. The general absence of domestic debris suggests they were commercial structures. However, the historic material associated with these structures could have been displaced or buried during the razing of the gin and schoolhouse. At least the school and gin were part of the new Lambethville proper.

Site 3CT229. This site was noted to cover a surface area of approximately 480 meters² (60 x 80 meters) with the long axis oriented east-west. This coincided with the plowed rows of the soybean field, suggesting the oval shape of the site is a result of agricultural activities.

As in the case of the previous site, this site was thought to consist of a surface scatter of historic material confined to the plow zone. However, during excavation of the 1 x 1 meter test unit, a partially undisturbed historic trash pit was encountered that extended to a depth of 32 centimeters below the surface.

The surface scatter generally consisted of domestic historic material, although there was a concentration of brick in the western portion of the site. Material recovered from the general surface scatter included stone ware, white ware and aqua glass in very light densities. Material recovered from the 1 x 1 meter test unit included stone ware, white ware, aqua, brown, clear, purple glass, and fragments of iron and copper as well as three earthen ware marbles and one glass marble from the undisturbed trash pit (18-32 centimeters below surface). Some of the stone ware sherds from the plow zone were matched to sherds from the in situ trash pit. Finally, historic material recovered from the brick/mortar concentration included fragments of brick mortar, as well as some purple glass and iron and lead fragments.

The white ware fragments included rim embossed and transfer decorated pieces that suggest circa 1880-1920 association. This supported by the temporally diagnostic white ware sherd with a maker's mark that dates to post-1897. One brown bottle had body mold marks and an applied rim and neck suggesting a pre-World War I period. A few bottles with a laid on neck could date to the late 19th century. Fragments of depressed glass suggest a period during the 1920's and 1930's. The three earthen ware marbles suggest a pre-World War II association while the glass marble suggests a post-World War II association. As a whole, the assemblage suggests an early to middle 20th century occupation. This is supported by archival maps which depict a structure at this location between 1930 and 1962 (Mississippi River Commission 1890; Mississippi River Commission 1916; Corps of Engineers circa 1930; Corps of Engineers circa 1932-33; Corps of Engineers 1939; Corps of Engineers 1952; Corps of Engineers 1962; Corps of Engineers 1975).

Apparently this location was not borrowed from for reasons similar to those given for 3CT228. Further, the site is located on a land surface that has been relatively stable since approximately A.D. 300-A.D. 600. The soils in this area consist of Robinsonville very fine sandy loam.

The site was interpreted as the remains of a structure present between 1930 and 1962 as indicated by archival maps and the artifact assemblage. The domestic nature of the historic material recovered suggests this was a

domestic rather than a commercial site. A local informant indicated there were houses located in this area, south of the school and gin, that were considered part of the new Lambethville (J. O. Thresher:personal communication).

Thus, this historic site was interpreted as representing a small habitation site within Lambethville proper. The occupants of this house could have been employed by commercial activities in Lambethville (cotton ginning, logging activities, etc.) or agricultural activities. Further, the household would probably have consisted of a large nuclear or extended family. This interpretation is based upon the popularity of bungalow houses in this area during the interval of occupation.

Site 3CT230. This site was observed to cover a surface area of approximately 925 meters² (25 x 37 meters), with the long axis oriented north-south. This orientation is probably the result of inherent biases in plowing patterns as the long axis of the site was oriented with the rows of soybeans.

This site consisted of a light surface scatter of historic material, including building material and domestic debris, with no visible surface concentrations. Material recovered from the general surface scatter included fragments of brick, mortar, stone ware and white ware. Material recovered from the 1 x 1 meter excavation unit included similar types of artifact with the addition of a single square nail fragment.

All of the material recovered from the 1 x 1 meter test unit was confined to the plow zone. There were no undisturbed historic deposits or features identified.

None of the artifacts recovered from this site are temporally diagnostic, although the stone ware suggests a turn of the century association, as does the square nail. Some of the brick fragments were partially vitrified, suggesting the structure burned down, either accidentally or through deliberate razing. Examination of archival maps (Mississippi River Commission 1890; Mississippi River Commission 1916; Corps of Engineers circa 1930; Corps of Engineers circa 1932-33; Corps of Engineers 1939; Corps of Engineers 1952; Corps of Engineers 1962; Corps of Engineers 1975), dating back to 1890, indicates a structure was present at this location between 1930 and 1962. This supports the turn of the century temporal period suggested by the artifact assemblage.

The site is located on the edge and slight slopes of a sandy ridge overlooking the borrow pit in the southern end of this sub-area. Although part of the site is located on the slopes of the borrow pit, it is not believed to have been naturally located in the borrow pit. Rather, the structure was probably located on the crest of the sandy ridge and the scatter of historic material downslope towards the borrow pit is the result of agricultural activities, possibly enhanced by erosional factors. The site is located on a land surface that has been relatively stable since approximately A.D. 300-A.D. 600. The soils in this area consist of Robinsonville very fine sandy loam.

This site was interpreted as the remains of a structure present between 1930 and 1962 as indicated by archival maps, and to a lesser extent, the artifact assemblage. The domestic nature of the historic material recovered

suggests this was a domestic rather than a commercial site. A local informant indicated there were houses located in this area, south of the school and gin, that were considered part of the new Lambethville (J. O. Thresher:personal communication).

Thus, this historic site was interpreted as representing a small habitation site within Lambethville proper. The occupants of this house could have been employed by commercial activities in Lambethville (cotton ginning, logging activities, etc.) or agricultural activities. The lower density of historic material, as compared to the historic habitation site (3CT229), just to the northwest, suggests a smaller household or briefer period of occupation. However, the household would probably have consisted of a single nuclear or extended family.

Sites NLU-83-194 and NLU-83-195. As noted earlier, these sites were determined to be just outside the right-of-way. Extensive subsurface testing, in the form of screened shovel tests, revealed no evidence of cultural material within the right-of-way. As these sites will not be impacted by project activities, they will not be described in this section. However, descriptions of these sites can be found in Appendix D.

Extremely Low Density Historic Surface Scatter. Finally, it should be noted that there was an extremely low density historic surface scatter throughout much of Sub-area I. Examination of maps dating to 1890 indicate there were several structures present within the portions of this subarea that were disturbed by borrow activities during levee construction. Presumably, this low density historic scatter is a result of historic activities associated with these structures and the subsequent levee borrow activities.

This material was not of sufficient density to warrant identification as a site. For example, while surveying this area, a piece of white ware would be noted, 10 meters further on a piece of glass might be present, 6 or 7 meters later a piece of stone ware might be noted. Thus, although there was a generally low density historic surface scatter present, there were no concentrations of historic material other than the sites noted above.

Sub-area J. This area (Figure 7-1) was located on the landside of the levee, approximately between Station 126/7+50 and Station 127/12+50. The area encompassed approximately 15.8 ha. (39.0 acres). Surface vegetation consisted of mixed pasture and woods that limited surface visibility to 0-20%. Reconstruction of the alluvial history indicated land surfaces in this area could date to between A.D. 300 and A.D. 600.

However, all of this sub-area had been disturbed by borrow activities during levee construction. The borrow pit extended from the toe of the levee, out to the project right-of-way boundary.

The area was surveyed by two archeologists walking parallel transects spaced approximately 30 meters apart to identify recent historic surface manifestations. No shovel tests were dug as this area had been disturbed by borrow activities. When possible, the cutbanks of the borrow pit were examined for evidence of cultural material. The cutbanks along the edge of the right-of-way boundary ranged from 1.5 to 3 meters (4.9-9.8 feet) in height.

Trees on the top of the cutbank included water oaks .9-12 meters (3-4 feet) in diameter while vegetation in the borrow pit included much younger vegetation, such as walnuts 15 centimeters (6 inches) in diameter. The cutbanks along the edge of the levee were more gently sloped, possibly as a result of colluvial processes.

No cultural material was noted on the surface of the borrow pit or in exposed cutbanks in this area.

Sub-area K. This area (Figure 7-1) was located on the landside of the levee, approximately between Station 125/39+32 and Station 126/7+50. The area encompassed approximately 2.7 ha. (6.8 acres). Surface vegetation consisted of woods with understory growth that limited surface visibility to 0-20%. Reconstruction of the alluvial history indicated land surfaces in this area could date to between A.D. 1700 and A.D. 1800. However, all of this sub-area had been disturbed by borrow activities during levee construction. The borrow pit extended from the toe of the levee, out beyond the project right-of-way boundary.

This area was surveyed by two archeologists walking parallel transects spaced approximately 30 meters apart to identify recent historic surface manifestations. No shovel tests were dug as this area had been disturbed by borrow activities. It was not possible to examine cutbank profiles as those along the levee were gently sloped, possibly as a result of colluvial processes. The cutbanks of the borrow pit away from the levee were outside the right-of-way.

No cultural material was noted in this area.

Additional Testing

Because of the results of the initial survey the Corps of Engineers requested additional testing at six sites in the project area. These were 3CT228, 3CT229, 3CT230, 3CT231, 3CT232 and 3CT233). Also requested was additional archival research concerning Lambethville (3CT228, 3CT229 and 3CT230) and the steamboat Pacific (3CT233) as well as a magnetometer search for the latter. This requested work was divided into a number of tasks which were implemented as discussed below.

Testing Procedures

Task 1. Task 1, the additional testing of 3CT228, 3CT229, 3CT230 and 3CT231, can best be described in four parts.

Task 1a was the placement of a 5 meter grid system across each of the four sites. The site boundaries were established by visual observation of artifact concentrations and were then marked by pin flags. A grid at 5 meter intervals was then established by using transit and stadia rod as well as tape and compass. Each quadrant was then marked with a numbered stake in its southwest corner.

Task 1b was the gathering of a controlled surface collection from each 5 meter unit on each site. Brick and brick fragments were not collected but their presence or absence was noted. Also noted was the general concentration

of brick in each quadrant. All other artifacts were collected. Artifacts from each quadrant were bagged and labelled separately.

Task 1c consisted of the taking of core samples from the southwest corner of each quadrant. These samples were taken with a hand-held soil probe 1.905 centimeters (0.75 inches) in diameter and extended to a depth of at least 50 centimeters. Samples obtained were described in full and north-south and east-west cross sections were prepared.

Task 1d was the preparation of a map of each site showing the contours of the site as well as the superimposed grid. These maps were prepared using a transit and stadia rod and were related to the permanent datum established during the initial testing phase.

Task 2. Task 2, the additional testing of 3CT232, consisted of three sub-tasks. These were as follows:

Task 2a, the initial task performed at 3CT232 was the establishment of a grid over the area between the mounds and the fenceline along the edge of the berm. A datum was then established for the grid and the grid was mapped. Mapping was done with a Geotec Theodolite and a metric stadia rod. Following this, a general site datum was established. Both datums were related to levee centerline Station 128/35+00 and to the permanent datums established during the initial site investigations in the summer of 1983. The second phase of mapping involved establishing the placement of the physical features of the site, such as the fenceline, powerline poles, trees, etc. A contour map was then made of the area (Figure D-21) using 20 centimeter contour intervals.

During the next phase of Task 2a, two 2 x 2 meter test pits were established after the location of the centerline and bank of the landside ditch was determined. These test units were then mapped. Both the soil core grid and the 2 x 2 meter test units were aligned parallel to the levee.

Task 2b involved placing 31 soil cores 2.54 centimeters (1 inch) in diameter at pertinent grid points. All 31 cores were to a depth of 1 meter with the exception of Station A7. The dense clay layer prevented probing at this station beyond 80 centimeters. The soils were described using the standard soils terminology found in the Munsell color chart. Further, a subsurface profile at three points across the site was produced.

Task 2c involved the excavation of the two 2 x 2 meter test units to the depth of 152 centimeters as required in the scope of work. Prior to testing, the position of the landside bank of the drainage ditch was established. Both of the test units were positioned within the area of the proposed ditch. Excavation was undertaken in 20 centimeter levels. Elevations for each level were taken from the southwest corner of each unit using string, line level and metric tape. Black and white photographs were taken prior to the beginning of each unit. Photographs were also taken of the finished pit, profile walls and progressive stages of the work. All matrix from the test units was screened through 1/4 inch hardware cloth. The south and east walls of both pits were profiled and described using the standard soils terminology found in the Munsell color chart (Appendix D). All recovered artifacts were bagged separately in reference to the test unit and 20 centimeter level from which the artifacts were recovered. Artifacts were recovered from only the upper 20

centimeters, which is within the plow zone. Some difficulty was encountered in the excavation of the test units. Once the pits were excavated below the clay layers and into the sand, the walls repeatedly caved in, particularly in Test Unit B.

The final activity on the site was the removal of the soil core and mapping flags and the backfilling of the 2 x 2 meter units to insure pedestrian safety.

Task 3. Task 3 encompassed an in-depth archival examination of the establishment, organization, function, general history and demise of the riverside and landside communities of Lambethville, Arkansas. This was accomplished by searching archival sources in Little Rock, Arkansas and Marion, Arkansas, as well as contacting local historians and their societies and former residents of Lambethville.

Task 4. Task 4, the additional work on the location and background data of the steamboat Pacific (3CT233) can be divided into four parts.

Task 4a was a search for the Pacific (3CT233) using a proton-magnetometer within the limits of the proposed borrow area which extends from Station 126/15+00 to Station 127/5+00. The search for the Pacific was begun in the channel and was conducted by boat. The second area examined was a 100 foot corridor on the margin of the channel. Finally, the remaining portion of the borrow pit area was examined.

Survey transects were established using a transit and all anomalies found were precisely located and recorded.

Task 4b consisted of test excavations to confirm or refute anomalies as evidence of the Pacific. The magnetometer operator selected the anomalies to be tested. This was an in-the-field judgement. Fill from the excavated units of Task 4b was not screened. They were finger sorted, however, in an effort to locate cultural remains.

Task 4c involved the collection of cultural materials from and testing and mapping of two historic scatters (3CT238 and 3CT239) located during the establishment of the magnetometer transects. The surface limits of the scatters were delineated and marked with pin flags. Two 2 x 3 meter surface collection units were superimposed over the areas of greatest artifact concentration. At each site a 1 x 1 meter test unit was staked in the southwest corner of one of the collection units.

At 3CT235 the southwest corners of the collection and test units were mapped with a transit and stadia rod. Two permanent datums were established for the site.

All cultural material from within the two collection units was collected and bagged separately. The test unit was excavated and bagged in arbitrary 10 centimeter levels due to the lack of clear natural stratigraphy. All matrix was carefully finger screened.

At 3CT236 a sketch map was drawn of the site showing boundaries, collection units and test unit. All cultural materials on the surface of the two

collection units were carefully observed for identifying features (i.e., maker's marks). None of these remains were collected. The test unit was excavated in arbitrary 10 centimeter levels due to the lack of clear natural stratigraphy. All matrix was carefully finger screened.

Task 4d involved a background data compilation pertaining to the vessel Pacific. This was accomplished by searching archival and local historical sources as discussed in Chapter 5.

Results

Results obtained during the additional testing phase are briefly discussed below. A detailed discussion of each is found in Appendix D.

3CT228

As a result of additional investigations the size of this site was increased from a 45 x 110 meter (4,950 square meters) area to that of 75 x 120 meters (9,000 square meters). All artifacts located on the surface in this area were collected.

Present were prehistoric and historic components, although the prehistoric component is minimal; consisting of only 14 pot sherds and five flakes. The prehistoric component suggests a Woodland cultural association.

The historic component appears to represent two periods, one of domestic habitation and one as the commercial center of the Lambethville community. The first period appears to date from between 1890 to about 1930 at which time, according to the 1930 Corps of Engineers maps, structures were no longer extant on the site. Although aqua glass, which ceased to be manufactured about 1880, was found on the site, the artifact assemblage supports a late 1800's to early 1900's occupation. This assemblage includes domestic items such as purple glass, glass maker's marks, porcelain and colored transferware typical of the period. By 1939 new buildings are shown on the map. These are reported to have been a school/church, gin and store (J. O. Thresher 1984:personal communication). The school/church and gin remained standing until razed in the 1960's.

Although there is no hiatus in the artifact assemblage, glass maker's marks, clear glass, screw type bottle necks, soft drink bottles and modern pottery are evidence of the post-1930's use of the site. An institutional style porcelain plate and a slate fragment may be evidence of the school. All other items recovered might be associated with school, gin, household and farm activities.

It is concluded that site 3CT228 represents the remains of two to four structures. Apparently the earlier structures (1890-1930) were domestic. These were razed and the remains left to be scattered over the surface. About 1930 a school/church, gin and store were built, occupying the same area as the earlier structures. When the school and gin were razed the subsequent rubble from the early and late occupations were thoroughly mixed by bulldozer and continuous agricultural activity. Mixing of the deposits is substantiated by the subsurface soil profiles and the 1 x 1 meter unit excavated on the site. These show mixing to a depth greater than 50 centimeters.

3CT229

As a result of the additional investigations the areal limits of this site were reduced from 60 x 80 meters (4,800 square meters) to 40 x 55 meters (2,200 square meters).

All artifacts located within these areal limits were collected. Present were both prehistoric and historic components.

The prehistoric component was minimal consisting of four grog tempered sherds, suggesting a casual or temporary Woodland component.

Map evidence suggests that the first structure on this site was built between 1916 and 1930. Because no structure is shown on the 1952 Corps of Engineers maps, this early structure may have been destroyed before 1952 and another built on the site by 1962, when a structure was recorded on the Corps map. However, an error may have been made in 1952 and a single structure may have remained on the site through 1962. In either case, there were no structures on the site by 1975.

The artifact component is somewhat confusing. Buffware, spongeware and aqua glass and miscellaneous fragments suggest pre-1880 site use. These may be heirloom and/or practical items still in use in the 20th century or evidence of unrecorded use of the location before the latter 19th century.

Purple glass suggests a pre-1915 occupation. However, the large clear glass sample certainly suggests continuance into post-1915 times. Few domestic items, however, appear to post-date World War II.

Thus, several hypothesis can be made concerning the artifact assemblage. There may have been a structure on the site during the late 1800's and before 1915. This seems unlikely if the map evidence is considered. Perhaps the pre-1915 artifacts were from items in use in a post-1916 household.

Although many artifacts may post-date World War II, there is little confirmed household debris for a structure that may have persisted until the late 1960's. Recent agricultural use of the site is reflected in the artifact inventory. Casual hunting on the location is evident from shotgun shell casings.

In conclusion, it seems plausible to consider the possibility that this site represents an area of "scrape and fill." It may contain artifacts from early structures that were located nearby. Also, remains from structures located on this site may have been secondarily deposited in borrow areas nearby. Thus, artifacts on this site may include the remains of several habitation episodes.

3CT230

As a result of additional investigations the size of this site was increased from 25 x 37 meters (925 square meters) to 35 x 35 meters (1,225 square meters). All artifacts within the areal limits were collected. There were both prehistoric and historic components.

The prehistoric component consisted of 12 sherds. These may date to the Woodland Period.

The map evidence suggests that no structures were located on this site until after 1916 and remained until at least after 1930. It may have been destroyed before 1952 and another rebuilt by 1962 or a map error may have been made in 1952. In that case the earlier structure may have remained until after 1962. By 1975, no structures remained on the site.

The artifact assemblage is not easily correlated with the map data. Buffware, earthenware, pearlware and olive-green glass may be evidence of early (at least first one-half of the) 19th century occupation at the site. These may also be the remains of items still in use in the late 19th/early 20th century habitations on the site. Although the amber glass suggests a pre-1880 association, these items may be associated with the earlier component evidence of casual site use in the mid to late 1800's or items still in use after 1880. The purple glass suggests site use before or near 1916. These may be associated with a post-1916 structure.

Clear glass and many other domestic artifacts suggest a post-1916 occupation. These might be associated with the structures indicated on the maps of the area. Although some of the material remains may post-date World War II and reflect a circa 1960 occupation, the frequency of late remains is not high. The brick structural remains probably date to this late time frame.

In conclusion, several observations should be made. First, there may have been casual use or habitation on the site during the first half of the 19th century. There may have been a structure on the site during the late 1800's and before 1915. Considering the map evidence, this seems unlikely. Materials dating to the late 1800's may have been in use in a later, 20th century household. In fact, early 20th century items may also have been associated with a post-1916 household. Although many artifacts and the structural remains may post-date World War II, there is not a high frequency of these later materials.

It seems plausible to consider that most, if not all, of the debris is secondarily deposited on the site. It may have been scraped from contiguous areas and represent the remains of several habitation episodes.

Finally, recent agricultural use of the area for hunting is confirmed in the artifact inventory.

3CT231

Resulting from additional investigations the size of this site has been reduced from 60 x 100 meters (6,000 square meters) to 30 x 65 meters (1,950 square meters). All artifacts within these areal limits were collected. Present were both a prehistoric and historic component.

The prehistoric component was composed of 15 small sherds. Of these, one was shell tempered; the others grog. This may indicate both Woodland and Mississippian utilization of the area. A glass tubular bead among the artifact assemblage can not be confidently dated. It may date to European or Euro-American/Native American contact times.

Map evidence suggests that there were no structures on the site until after 1916. One structure stood from at least 1930 through 1939. It had been destroyed by 1952.

With the exception of the redware and aqua glass, most of the material items are easily associated with the 20th century and thus, compatible with the map data. Although purple glass manufactured before 1915 is among the sample, these and other early 20th century items may still have been in use when a structure was built after 1916. It should be noted that this structure is not believed a part of Lambethville.

Modern farming activities are also reflected among the material items.

3CT232 (Bledsoe Mounds)

As a result of additional work the size of the area investigated was increased from 30 x 80 meters (2,400 square meters) to 70 x 100 meters (7,000 square meters).

No prehistoric remains were identified in either surface or subsurface contexts in the impact area. Thus, there is no prehistoric component located between the mounds and the levee. Further, that the mounds are of prehistoric construction has not been confirmed.

If the mounds are not prehistoric in origin, they may have been formed by agricultural and levee building practices. That is, a cemetery may have been established on a natural rise or elevated portion of a ridge. Subsequent farming around the ridge, coupled with levee building, may have contributed to areal erosion and soil removal, emphasizing the elevation of the mounds.

The only historic remains recovered from the project impact area are whiteware, brown and clear glass and nail fragments. These were recovered from the upper 20 centimeters of the deposit. Although not temporally diagnostic, these may be associated with visitors to the cemetery, levee or agricultural workers. Thus, it is concluded that the area of impact that lies between the mounds and the levee should not be considered part of an archeological site; either prehistoric or historic.

3CT233 (Steamboat Pacific)

The additional testing phase revealed through archival research that the vessel Pacific sank in this location in 1854 rather than 1841 (Appendix B).

The field magnetometer search revealed an anomaly which may be the remains of the Pacific (Appendix F).

3CT235

This small historic scatter was located during the field magnetometer search and is located outside the right-of-way boundary. All cultural material was located in or above the plow zone. The site is interpreted as representing a small habitation site, probably occupied after 1920 to the time period near World War II.

3CT236

This site covers an approximate area of 15 x 32 meters (480 square meters). Cultural material was recovered only from the upper 14 centimeters of the 1 x 1 test unit. Only brick and metal fragments were present. Some brick was fire brick which suggests that this was a non-domestic site. The area may have been the site of a temporary workshop for the repair of farm equipment or perhaps for blacksmithing.

8.0 SIGNIFICANCE

In the following sections the cultural resources identified during the survey have been assessed for significance (potential eligibility for inclusion on the National Register of Historic Places). First, pertinent correspondence pertaining to the significance of each site is discussed. This is followed by a discussion of the significance of the data pertaining to Lambethville, a statement for each non-significant site and concluded with a brief comment about sites determined to be outside the right-of-way.

Correspondence

Upon completion of the initial investigations, Hester A. Davis, Arkansas State Archeologist, in a letter dated November 17, 1983, to Mr. Sam Morgan, Memphis District Corps of Engineers (Appendix B), commented that the significance or non-significance of the four historic sites (3CT228, 3CT229, 3CT230 and 3CT231) had not been established. She noted also that further testing would be necessary to determine the significance of sites 3CT232 (Bledsoe Mounds) and 3CT233 (Steamboat Pacific).

As reported in previous sections of this report, her recommendations were implemented with additional testing at the six sites. On May 3, 1984, Hester A. Davis, in a letter to Colonel John F. Hatch, Jr., District Engineer, Memphis District Corps of Engineers (Appendix B), reported that the individual sites 3CT228, 3CT229, 3CT230 and 3CT231 contain no further significant data and are not eligible for inclusion on the National Register of Historic Places. However, she noted that the data recovered from the sites is significant.

She also noted in this correspondence that site 3CT236 does not meet the criteria of eligibility for the National Register of Historic Places.

Significant Data

The data recovered from sites 3CT228, 3CT229, 3CT230 and 3CT231 are believed eligible for inclusion on the National Register of Historic Places. Primarily, these data meet the criteria for evaluation of significance (36 CFR Part 60.6) in that they have the potential to yield information important to the history of the area. These data relate specifically to the settlement of Lambethville (3CT228, 3CT229, 3CT230) and nearby homes (3CT231).

Although the data from these sites are not extensive or complete and the artifact assemblages are not from in situ contexts, the information is easily shown to be significant. The usefulness of these data for future research should be emphasized.

One valuable aspect of these data is for comparative purposes with other similar bodies of data. For example, these data can be used for comparison with the information gathered by Price (1979) from nearby southeastern Missouri. Another is as a contribution to a body of similar data that can be used to build a larger more extensive data base, e.g., the information gathered by Price (1979).

More specifically, the data from these sites provide information about the development and demise of small rural settlements that spanned the late 1800's through the first one-half of the 1900's; especially those along the Mississippi River. These show the transition from river-dependent settlements to interior roadway (or in some cases railroads) oriented towns. In the case of Lambethville, the data show changes in the economy and farm practices contributing to the development and collapse of the settlement.

Because archival evidence has provided evidence of historic settlement in the area before the town of Lambethville was established, broad patterns of settlement and economy can be discussed that extend (through both time and space) beyond the perimeters of Lambethville.

The data from Lambethville should provide valuable information about the limitations and usefulness of archival versus archeological information; providing continued refinement in both the method and interpretation of historic research. For instance, the archeological evidence is not always easily comparable to the archival/map data. This provides potential for valuable research directions.

Specifically, historic land use, settlement and structures may have occurred earlier and/or more intensely than recorded in the archival data. Certain classes of items recovered among the archeological sample may date later than previously expected. For example, the manufacture/distribution of aqua glass may have been common much later than 1880. The manufacture/distribution of spongeware items may have continued later than previously reported (Price 1979) for the area. These may have included heavy, thick items such as pitchers and wash basins; items not previously inventoried from the region.

The identification of heirloom items may be possible by identifying artifacts that pre-date other materials in the assemblage. The buffware, mocha-ware and certain glass items among the Lambethville inventory may be evidence of these.

The manufacturing (and shipping) origin of goods distributed in the area during the late 1800's and early 1900's may be identified. This should provide valuable information on trade patterns and the material items available.

The economic and social contexts for White rural communities can be explored through comparison of the artifact assemblages and archival data. Perhaps valuable information useful for comparison with the settlement patterns and material remains of Black communities from similar contexts can be compiled.

Nonsignificant Sites

3CT228. This site does not meet the criteria for inclusion on the National Register of Historic Places. The data has been completely collected from this site so that it contains no further significant information.

3CT229. The data has been completely collected from this site so that it contains no further significant information.

3CT230. This site does not meet the criteria for inclusion on the National Register of Historic Places. The data has been completely collected from this site so that it contains no further significant information.

3CT231. This site does not meet the criteria for inclusion on the National Register of Historic Places. The data has been completely collected from this site so that it contains no further significant information.

3CT232. The area investigated within the right-of-way contains no important or useful cultural information. The area does not meet the criteria for inclusion on the National Register of Historic Places. It must be emphasized that the Bledsoe Mounds are excluded from the assessment of significance.

3CT236. Site 3CT236 does not meet the criteria for inclusion on the National Register of Historic Places. The site contains no information important to interpreting the history of the area.

Sites Determined To Be Outside the Right-of-Way or Areas of Impact

Those sites determined to be outside the right-of-way or areas of impact were not assessed as to possible significance. It should be reiterated that Bledsoe Mounds (Cemetery) lie outside the right-of-way while the suspected location of the Pacific lies outside the zone of impact; thus, neither has been assessed for significance.

9.0 IMPACTS

Impacts will vary on the sixteen recorded cultural resources from none to possibly 100% destruction of the site (Table 9-1). Of the sixteen sites, nine sites (3CT235, 3CT236, 3CT239, NLU-83-194, NLU-83-195, NLU-83-197, NLU-83-199, NLU-83-200 and NLU-83-201) are located directly outside the project right-of-way and will not be impacted under the presently proposed work.

The remaining seven sites will be impacted as follows.

3CT228

This site will be impacted by construction of the landside levee berm which will bury the site under approximately 3 meters (10 feet) of landside levee berm. The surface of the site may be impacted by preparatory work, such as removal of vegetation.

3CT229

This site will be impacted by construction of the landside levee berm which will bury the site under approximately 3 meters (10 feet) of landside levee berm. The surface of the site may be impacted by preparatory work, such as removal of vegetation.

3CT230

This site will be impacted by construction of the landside levee berm which will bury the site under approximately 3 meters (10 feet) of landside levee berm. The surface of the site may be impacted by preparatory work, such as removal of vegetation.

3CT231

This site will not be impacted by landside levee berm construction. The site may be slightly impacted by construction of the landside drainage ditch which will be approximately 1.2 meters (4 feet) wide and 1.2 meters (4 feet) deep. Further, the site may be impacted by passage of heavy machinery.

3CT232

The impact zone that lies between the Bledsoe Mounds (Cemetery) and the levee will be impacted by construction of the landside levee berm and the landside drainage ditch. Construction of the landside levee berm may bury portions of this area under approximately 1.2 meters (4 feet) of landside levee berm. Portions of the surface may be impacted by preparatory work, such as removal of vegetation. Construction of the landside drainage ditch, which will be approximately 1.2 meters (4 feet) wide and 1.2 meters (4 feet) deep, will impact portions of this area. The Bledsoe Mounds (Cemetery) lie beyond the right-of-way margins and will not be impacted.

TABLE 9-1
PROPOSED WORK AND IMPACTS ON RECORDED CULTURAL RESOURCES

SITE NUMBER	LOCATION	NATURE OF WORK	IMPACT ON SITE
3CT228	Subarea I	Construction of landside levee berm	Bury site under 3 m (10') of landside levee berm and possible surface stripping
3CT229	Subarea I	Construction of landside levee berm	Bury site under 3 m (10') of landside levee berm and possible surface stripping
3CT230	Subarea I	Construction of landside levee berm	Bury site under 3 m (10') of landside levee berm and possible surface stripping
3CT231	Subarea G	Construction of landside drainage ditch	Excavation of 1.2 m wide by 1.2 m (4' x 4') deep ditch and possible passage of heavy machinery
3CT232	Subarea G	Construction of landside levee berm and drainage ditch	Bury part of area under 1.2 m (4') of landside levee berm excavation of 1.2 m wide x 1.2 m deep (4' x 4') ditch and possible surface stripping. Mounds will not be impacted (outside right-of-way)
3CT233	Subareas A and B	None proposed at this location	Site will not be impacted by presently proposed work
3CT235	Outside ROW	None proposed at this location	Site will not be impacted by presently proposed work
3CT236	Subarea A	Excavation of borrow material	Impact could range from 0% to 100% depending on amount of material borrowed
3CT238	Outside ROW	None proposed at this location	Site will not be impacted by presently proposed work
3CT239	Outside ROW	None proposed at this location	Site will not be impacted by presently proposed work
NLU-83-194	Outside ROW	None proposed at this location	Site will not be impacted by presently proposed work
NLU-83-195	Outside ROW	None proposed at this location	Site will not be impacted by presently proposed work
NLU-83-197	Outside ROW	None proposed at this location	Site will not be impacted by presently proposed work
NLU-83-199	Outside ROW	None proposed at this location	Site will not be impacted by presently proposed work
NLU-83-200	Outside ROW	None proposed at this location	Site will not be impacted by presently proposed work
NLU-83-201	Outside ROW	None proposed at this location	Site will not be impacted by presently proposed work

3CT233

The suspected location of the steamboat Pacific will not be impacted.

3CT236

This site may be partially or totally impacted by the removal of borrow material from the area.

10.0 RECOMMENDATIONS

Although sites 3CT228, 3CT229, 3CT230, 3CT231 and 3CT236 will be impacted by construction, none are eligible for inclusion on the National Register of Historic Places. Therefore, no additional archeological research is recommended at these locations.

The area between the Bledsoe Mounds (Cemetery) and the levee will be impacted. However, because no significant cultural resources were identified, there are no recommendations for additional work in the impact area. It is recommended that the Bledsoe Mounds (Cemetery) not be negatively impacted by indirect effects of ditch construction.

Care should be taken to insure that the area suspected to contain the remains of the Pacific is not affected by direct or indirect construction impacts.

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APPENDIX A
SCOPES OF WORK

SECTION C - DESCRIPTION/SPECIFICATIONS (SCOPE OF WORK)

C-1. GENERAL.

C-1.1. The Contractor shall conduct a background, archival and literature search and intensive survey investigation of select Mississippi River levee berms in Crittenden and Desha Counties, Arkansas, and Mississippi, Scott, Cape Girardeau, and Pemiscot Counties, Missouri. These tasks are in partial fulfillment of the Memphis District's obligations under the National Historic Preservation Act of 1966 (P.L. 89-665), as amended; the National Environment Policy Act of 1969 (P.L. 91-190); Executive Order 11593, "Protection and Enhancement of Cultural Environment," 13 May 1971 (36 F.R. 3921); Preservation of Historic and Archaeological Data, 1974 (P.L. 93-291), as amended; and the Advisory Council on Historic Preservation, "Procedures for the Protection of Historic and Cultural Properties" (36 CFR Part 800).

C-1.2. Personnel Standards.

a. The Contractor shall utilize a systematic, interdisciplinary approach to conduct the study. Specialized knowledge and skills will be used during the course of the study to include expertise in archeology, history, architecture, geology and other disciplines as required to produce acceptable reports. Techniques and methodologies used for the study shall be representative of the state of current professional knowledge and development.

b. The following minimal experiential and academic standards shall apply to personnel involved in cultural resources investigations described in this Scope of Work:

(1). Archeological Project Directors or Principal Investigator(s) (PI). Individuals in charge of an archeological project or research investigation contract, in addition to meeting the appropriate standards for archeologist, must have a publication record that demonstrates extensive experience in successful field project formulation, execution and technical monograph reporting. The Contracting Officer may also require suitable professional references to obtain estimates regarding the adequacy of prior work.

(2). Archeologist. The minimum formal qualifications for individuals practicing archeology as a profession are a B.A. or B.S. degree from an accredited college or university, followed by a minimum of two years of successful graduate study with concentration in anthropology and specialization in archeology and at least two summer field schools or their equivalent under the supervision of archeologists of recognized competence. A Master's thesis or its equivalent in research and publication is highly recommended, as is the M.A. degree.

(3). Other Professional Personnel. All non-archeological personnel utilized for their special knowledge and expertise must have a B.A. or B.S. degree from an accredited college or university, followed by a minimum of one year of successful graduate study with concentration in appropriate study.

(4). Other Supervisory Personnel. Persons in any archeological supervisory position must hold a B.A., B.S. or M. A. degree with a concentration in archeology and a minimum of 2 years of field and laboratory experience.

(5). Crew Members and Lab Workers. All crew members and lab workers must have prior experience compatible with the tasks to be performed under this contract. An academic background in archeology/anthropology is highly recommended.

c. All operations shall be conducted under the supervision of qualified professionals in the discipline appropriate to the data that is to be discovered, described or analyzed. Vitae of personnel involved in project activities may be required by the Contracting Officer at anytime during the period of service of this contract.

C-1.3. The Contractor shall designate in writing the name of the Principal Investigator. Participation time of the Principal Investigator shall average a minimum of 50 hours per month during the period of service of this contract. In the event of controversy or court challenge, the Principal Investigator shall be available to testify with respect to report findings. The additional services and expenses would be at Government expense, per paragraph 1.08 below.

C-1.4. The Contractor shall keep standard field records which may be reviewed by the Contracting Officer. These records shall include field notes, appropriate state site survey forms and any other cultural resource forms and/or records, field maps and photographs necessary to successfully implement requirements of this Scope of Work.

C-1.5. To conduct the field investigation, the Contractor will obtain all necessary permits, licenses, and approvals from all local, state and Federal authorities. Should it become necessary in the performance of the work and services of the Contractor to secure the right of ingress and egress to perform any of the work required herein on properties not owned or controlled by the Government, the Contractor shall secure the consent of the owner, his representative, or agent, prior to effecting entry on such property.

C-1.6. Innovative approaches to data location, collection, description and analysis, consistent with other provisions of this contract and the cultural resources requirements of the Government, are encouraged.

C-1.7. No mechanical power equipment shall be utilized in any cultural resource activity without specific written permission of the Contracting Officer.

C-1.8. The Contractor shall furnish expert personnel to attend conferences and furnish testimony in any judicial proceedings involving the archeological and historical study, evaluation, analysis and report. When required, arrangements for these services and payment therefor will be made by representatives of either the Corps of Engineers or the Department of Justice.

C-1.9. The Contractor, prior to the acceptance of the final report, shall not release any sketch, photograph, report or other material of any nature obtained or prepared under this contract without specific written approval of the Contracting Officer.

C-1.10. The extent and character of the work to be accomplished by the Contractor shall be subject to the general supervision, direction, control and approval of the Contracting Officer. The Contracting Officer may have a representative of the Government present during any or all phases of the described cultural resource project.

C-2. STUDY AREA.

C-2.1. Henrico (R-606). Within an imaginary plane figure beginning at station 57/0+00 and proceeding to station 61/6+07 bounded by 152.4m (500 ft) landside of the levee (as measured perpendicular to the centerline of the levee) and 457.2m (1,500 ft) or top bank riverside of the levee. Thence from station 61/6+07 to station 64/48+00 bounded by 152.4m (500 ft) landside of the levee and 457.2m (1,500 ft) riverside of the levee. This area is located in Desha County, Arkansas, and is shown on the Mellwood, Arkansas-Mississippi and Henrico, Arkansas, 15 minute quadrangle maps.

C-2.2. Knowlton (R-618). Within an imaginary plane figure beginning at station 49/0+00 and proceeding to station 50/0+00 bounded by 152.4m (500 ft) landside of the levee (as measured perpendicular to the levee centerline) and 609.6m (2,000 ft) or top bank riverside of the levee. Thence from station 50/0+00 to station 51/0+00 bounded by 152.4m (500 ft) landside of the levee and 304.8m (1,000 ft) riverside of the levee. Thence from station 51/0+00 to station 52/49+05 bounded by 152.4m (500 ft) landside of the levee and 457.2m (1,500 ft) or top bank riverside of the levee. This area is located in Desha County, Arkansas, and is shown on the Mellwood, Arkansas-Mississippi, 15 minute quadrangle map.

C-2.3. Porter Lake (R-703). Within an imaginary plane figure beginning at station 180/0+00 and proceeding to station 181/2+50 bounded by 0m (0 ft) landside of the levee (as measured perpendicular to the centerline of the levee) and 91.5m (300 ft) or top bank river side of the levee. This area is located in Crittenden County, Arkansas, and is shown on the Horseshoe Lake, Arkansas-Mississippi-Tennessee, 15 minute quadrangle map.

C-2.4. Lambethville (R-752). Within an imaginary plane figure beginning at station 125/39+00 and proceeding to station 129/10+00 bounded by 152.4m (500 ft) landside of the levee (as measured perpendicular to the centerline of the levee) and 457.2m (1,500 ft) or top bank riverside of the levee. This area is located in Crittenden County, Arkansas, and is shown on the Jericho, Arkansas-Tennessee, 15 minute quadrangle map.

C-2.5. Caruthersville (R-846). Within an imaginary plane figure beginning at station 26/0+00 and proceeding to station 28/0+00 bounded by top bank riverside of the levee. The area is located in Pemiscot County, Missouri, and is shown on the Caruthersville, Missouri-Tennessee-Arkansas, 15 minute quadrangle map.

C-2.6. Above Dorena, Parcel 2 (R-929). Within an imaginary plane figure beginning at station 60/38+00 and proceeding to station 62/34+00 bounded by 152.4m (500 ft) landside of the levee and 457.2m (1,500 ft) or top bank riverside of the levee. This area is located in Mississippi County, Missouri and is shown on the Hickman, Kentucky-Missouri-Tennessee 15 minute quadrangle map.

C-2.7. Nash Well Relief Channels (R-48.87 a.c.).

a. Ditch A. Within an imaginary plane figure beginning at station 8/34+00 and proceeding northeast along the toe of the existing levee to station 9/22+50; thence proceeding southeast to a point 107m (350 ft) distant from the toe of the levee; thence proceeding southwest and maintaining the 107m (350 ft) corridor to station 9/16+50; then proceeding to the northwest for 46m (150 ft); here turning again to the southwest and proceeding to station 8/34+00 while maintaining the 61m (200 ft) distance from the toe of the existing levee; and turning to close the figure. The work area is located within Cape Girardeau County, Missouri, and appears on the Morley, Missouri, 15 minute quadrangle map.

b. Ditch B. Within an imaginary plane figure beginning at station 9/22+50 and proceeding northeast along the toe of the existing levee to station 9/42+78; then turning roughly southwest to follow the proximal RR ROW limit (15m (50 ft) from the RR centerline) to a point 30m (100 ft) distant from the centerline of Ditch B at station 9/24+00 and moving south-southeast another 61m (200 ft); then proceeding to the southwest to station 9/22+50 while maintaining the 91m (300 ft) distance from the centerline of Ditch B and finally turning to close the figure. Ditch B is in Cape Girardeau County, Missouri, and is shown on the Morley, Missouri, 15 minute quadrangle map.

c. Ditch C. Within an imaginary plane figure beginning at station 11/0+00 and proceeding southwest along the proximal RR ROW limit until reaching station 9/45+00; thence proceeding roughly south for 4m (12 ft); then proceeding to the northeast to a point 8m (25 ft) distant from the RR ROW limit at station 9/50+00. Continuing to a point 9m (30 ft) distant from the RR ROW limit at station 10/16+00; now proceeding to the northeast to a point 46m (150 ft) distant from the RR ROW limit at station 10/19+00 and continuing

to the northeast to a point also 46m (150 ft) distant from the RR ROW limit at station 10/48+50; thence proceeding northwest for 21m (70 ft) and again proceeding northeast to a point 30m (100 ft) distant from the proximal RR ROW limit at station 11/0+00; thence turning to close the figure. The work area is within Cape Girardeau County, Missouri, and shown on the Morley, Missouri, 15 minute quadrangle map.

d. Ditch D. Within an imaginary plane figure beginning at station 13/7+59 and using the distal top bank of existing Ditch D as the southern boundary; proceeding west to Station 11/4+80; thence proceeding roughly north to the toe of the existing levee and following this line to the east (allowing for the inclusion of the illustrated disposal area), and closing the figure at station 13/7+59. Now beginning at station 11/4+80 proceeding southwest along the proximal boundary of the Railway right-of-way (RR ROW) (50 feet from the centerline of the tracks) to station 11/0+00; thence roughly south to a point 98m (320 ft) distant; then proceeding northeast and maintaining the 98m (320 ft) corridor; now turning to close the figure at station 11/4+80. These areas are shown on drawings 3 and 4, provided by the Government. The work area is with Cape Girardeau County, Missouri, and is shown on the Morley, Missouri, 15 minute quadrangle map.

e. Ditch Number One. There shall be a channel and floodway, hereinafter called Ditch Number One, constructed along a center line beginning at the northeast corner of the northwest quarter of Section Thirty-six, Township Thirty, Range Thirteen, thence west to the northwest corner of Section Thirty-five in said Township; thence south to the quarter section corner on the west line of Section Thirty-five; thence west through the middle of Sections Thirty-four and Thirty-three, to the quarter corner of the west line of Section Thirty-three; thence south to a point five hundred feet south of the southwest corner of said Section Thirty-three; thence south sixty-two degrees and thirty minutes west, seventy-three hundred feet; thence south twelve hundred and fifty feet to a point one hundred feet south of the center of the Saint Louis-Southwestern Railway, eight hundred and fifty feet west of its crossing with the Saint Louis, Memphis & Southeastern Railway in Section Five, Township Twenty-nine, Range Thirteen; thence south fifty-four degrees west, sixteen thousand feet (intersecting the west line of Section Thirteen, Township Twenty-nine, Range Twelve eleven hundred feet north of the quarter section corner, on the west line of said Section); thence south thirty-five degrees west, eighteen thousand three hundred feet, to a point six hundred and eighty feet south of the northeast corner of Section Thirty-three, Township Twenty-nine, Range Twelve; thence south to the southeast corner of said Section; thence south thirteen degrees west, to the southwest corner of the southeast quarter of the southeast quarter of Section Four, Township Twenty-eight, Range Twelve. Work area located within Scott County, Missouri, and shown on the Morley, Missouri, 15 minute quadrangle map. The work shall be performed within the impact areas as illustrated by drawings 21876; 101/356 (5), (6-Revised) and (7).

f. Ditch Number Four. Ditch Number Four is located along a center line beginning at the west side of the Rock Levee Road in the northeast quarter of Section Twenty-five, Township Thirty, Range Thirteen, and Twenty-five feet north of the south line of the right-of-way, described for Whitewater River

Deflection Channel and Levee, and extending west, parallel with said right-of-way line to a point fifty feet distant (measured at right angles) from the south right-of-way line at the St. Louis and San Francisco Railroad in Section Twenty-seven in said Township, thence southwest parallel to said railroad to the west line of Section Twenty-seven in said township, thence south along the west lines of sections Twenty seven and Thirty-four to intersect Ditch Number One. The work is within Scott and Cape Girardeau Counties, Missouri, and is shown on the Morley, Missouri, 15 minute quadrangle map. The work shall be performed within the impact area as illustrated by drawing 21876; 101/356(5).

g. Ditch Number Eight. Ditch Number Eight is located along a center line, beginning seventy feet, north twenty-eight degrees east from the trestle on the Saint Louis, Memphis & Southeastern Railroad, two thousand three hundred feet west of the east line of Section Twenty-nine, Township Thirty, Range Thirteen, measured along said Railroad; thence South Twenty-eight degrees west, ninety six hundred feet (intersecting the south line of Section Thirty-two in said Township, one hundred feet east of the southwest corner); thence south thirteen hundred feet to the intersection with Ditch Number One. The ditch alignment follows, in part, the boundary of Scott and Cape Girardeau Counties and appears on the Morley, Missouri, 15 minute quadrangle map. The work shall be performed within the impact area as illustrated by drawing 21876; 101/356(8).

C-3. DEFINITIONS.

C-3.1. "Cultural resources" are defined to include any buildings, site, district, structure, object, data, or other material relating to the history, architecture, archeology, or culture of an area.

C-3.2. "Background and Literature Search" is defined as a comprehensive examination of existing literature and records for the purpose of inferring the potential presence and character of cultural resources in the study area. The examination may also serve as collateral information to field data in evaluating the eligibility of cultural resources for inclusion in the National Register of Historic Places or in ameliorating losses of significant data in such resources.

C-3.3. "Intensive Survey" is defined as a comprehensive, systematic, and detailed on-the-ground survey of an area, of sufficient intensity to determine the number, types, extent and distribution of cultural resources present and their relationship to project features.

C-3.4. "Mitigation" is defined as the amelioration of losses of significant prehistoric, historic, or architectural resources which will be accomplished through preplanned actions to avoid, preserve, protect, or minimize adverse effect upon such resources or to recover a representative sample of the data they contain by implementation of scientific research and other professional techniques and procedures. Mitigation of losses of cultural resources includes, but is not limited to, such measures as: (1) recovery and preservation of an adequate sample of archeological data to allow for analysis and published interpretation of the cultural and environmental conditions prevailing at the time(s) the area was utilized by man; (2) recording, through

architectural quality photographs and/or measured drawings of buildings, structures, districts, sites and objects and deposition of such documentation in the Library of Congress as a part of the National Architectural and Engineering Record; (3) relocation of buildings, structures and objects; (4) modification of plans or authorized projects to provide for preservation of resources in place; (5) reduction or elimination of impacts by engineering solutions to avoid mechanical effects of wave wash, scour, sedimentation and related processes and the effects of saturation.

C-3.5. "Reconnaissance" is defined as an on-the-ground examination of selected portions of the study area, and related analysis adequate to assess the general nature of resources in the overall study area and the probable impact on resources of alternate plans under consideration. Normally reconnaissance will involve the intensive examination of not more than 15 percent of the total proposed impact area.

C-3.6. "Significance" is attributable to those cultural resources of historical, architectural, or archeological value when such properties are included in or have been determined by the Secretary of the Interior to be eligible for inclusion in the National Register of Historic Places after evaluation against the criteria contained in How to Complete National Register Forms.

C-3.7. "Testing" is defined as the systematic removal of the scientific, prehistoric, historic, and/or archeological data that provide an archeological or architectural property with its research or data value. Testing may include controlled surface survey, shovel testing, profiling, and limited subsurface test excavations of the properties to be affected for purposes of research planning, the development of specific plans for research activities and excavation, preparation of notes and records, and other forms of physical removal of data and the analysis of such data and material, preparation of reports on such data and material and dissemination of reports and other products of the research. Subsurface testing shall not proceed to the level of mitigation.

C-3.8. "Analysis" is the systematic examination of material data, environmental data, ethnographic data, written records, or other data which may be prerequisite to adequately evaluating those qualities of cultural loci which contribute to their significance.

C-4. GENERAL PERFORMANCE SPECIFICATIONS

C-4.1. The Contractor shall prepare for each of the project areas a draft and final report detailing the results of the individual studies and subsequent recommendations.

C-4.2 Background and Literature Search

a. This task shall include an examination of the historic and prehistoric environmental setting and cultural background of the study area and shall be

of sufficient magnitude to achieve a detailed understanding of the overall cultural and environmental context of the study area. It is axiomatic that the background and literature search shall normally precede the initiation of all fieldwork.

b. Information and data for the literature search shall be obtained, as appropriate, from the following sources: (1) Scholarly reports - books, journals, theses, dissertations and unpublished papers; (2) Official Records - Federal, state, county and local levels, property deeds, public works and other regulatory department records and maps; (3) Libraries and Museums - both regional and local libraries, historical societies, universities, and museums; (4) Other repositories - such as private collections, papers, photographs, etc.; (5) archeological site files at local universities, the State Historic Preservation Office, the office of the State Archeologist; (6) Consultation with qualified professionals familiar with the cultural resources in the area, as well as consultation with professionals in associated areas such as history, sedimentology, geomorphology, agronomy, and ethnology.

c. The Contractor shall include as an appendix to the draft and final reports written evidence of all consultation and any subsequent response(s), including the dates of such consultation and communications.

d. The background and literature search shall be performed in such a manner as to facilitate predictive statements (to be included in the study report) concerning the probable quantity, character, and distribution of cultural resources within the project area. In addition, information obtained in the background and literature search should be of such scope and detail as to serve as an adequate data base for subsequent field work and analysis in the study area undertaken for the purpose of discerning the character, distribution and significance of identified cultural resources.

e. In order to accomplish the objectives described in paragraph 4.02.d., it will be necessary to attempt to establish a relationship between landforms and the patterns of their utilization by successive groups of human inhabitants. This task should involve defining and describing various zones of the study area with specific reference to such variables as past topography, potential food resources, soils, geology, and river channel history.

C-4.3. Intensive Survey.

a. Intensive Survey shall include the on-the-ground examination of the project areas described in paragraph 2.0 sufficiently to insure the location and preliminary evaluation of all cultural resources in the study area and to fulfill report requirements.

b. Unless excellent ground visibility and other conditions conducive to the observation of cultural evidence occurs, shovel test pits, or comparable

subsurface excavation units, shall be installed at intervals no greater than 30 meters throughout the study area. Note that auger samples, probes, and coring tools will not be considered comparable subsurface units. Shovel test pits shall be minimally 30 x 30 centimeters in size and extend to a minimum depth of 50 centimeters. All such units shall be screened using 1/2" mesh hardware cloth. Additional shovel test pits shall be excavated in areas judged by the Principal Investigator to display a high potential for the presence of cultural resources. If, during the course of intensive survey activities, areas are encountered in which disturbance or other factors clearly and decisively preclude the possible presence of significant cultural resources, the Contractor shall carefully examine and document the nature and extent of the factors and then proceed with survey activities in the remainder of the study area. Documentation and justification of such action shall appear in the survey report. The location of all shovel test units and surface observations with respect to site geometry shall be recorded and appear in the draft and final reports.

c. When cultural remains are encountered, horizontal site boundaries shall be derived by the use of surface observation procedures (where surface conditions are highly conducive to the observation of cultural evidence) or by screened shovel cut units or by a combination of these methods and in such a manner as to allow precise location of site boundaries on Government project drawings and 7.5 minute U.S.G.S. quad maps when available. Methods used to establish site boundaries shall be discussed in the survey report together with the probable accuracy of the boundaries. The Contractor shall establish a datum at the discovered cultural loci which shall be precisely related to the site boundaries as well as to a permanent reference point (in terms of azimuth and distance). If possible, the permanent reference point used shall appear on Government blue-line (project) drawings and/or 7.5 minute U.S.G.S. quad maps. If no permanent landmark is available, a permanent datum shall be established in a secure location for use as a reference point. The permanent datum shall be precisely plotted and shown on U.S.G.S. quad maps and project drawings. All descriptions of site location shall refer to the location of the primary site datum.

d. Upon approval of the Contracting Officer or his authorized representative, the delineation of precise site boundaries may be deferred until the implementation of testing activities.

C-4.4 Testing Activities

a. Initial Site Testing

(1) Surface collection of the site area shall be accomplished in order to obtain data representative of total site surface content. Both historic and prehistoric items shall be collected. The Contractor shall carefully note and record descriptions of surface conditions of the site including ground cover and the suitability of soil surfaces for detecting cultural items (ex: recent rainfall, standing water or mud). If ground surfaces are not highly conducive to surface collection, screened shovel tests units shall be used to augment surface collection procedures.

(2) Care should be taken to avoid bias in collecting certain classes of data or artifact types to the exclusion of others (ex: debitage or faunal remains) so as to insure that collections accurately reflect both the full range and the relative proportions of data classes present (ex: the proportion of debitage to implements or types of implements to each other). Such a collecting strategy shall require the total collection of quadrat or other sample units in sufficient quantities to reasonably assure that sample data are representative of such discrete site subareas as may exist. Since the number and placement of such sample units will depend, in part, on the subjective evaluation of intrasite variability, and the amount of ground cover, the Contractor shall describe the rationale for the number and distribution of collection units. In the event that the Contractor utilizes systematic sampling procedures in obtaining representative surface samples, care should be taken to avoid periodicity in recovered data. No individual sample unit type used in surface data collection shall exceed 6 square meters in area.

(3) The Contractor shall undertake (in addition and subsequent to sample surface collecting) a general site collection in order to increase the sample size of certain classes of data which the Principal Investigator may deem prerequisite to an adequate site-specific and intersite evaluation of data.

(4) As an alternative to surface collecting procedures discussed above, where surface visibility is excellent, the Contractor may collect all visible artifacts. If such a procedure is undertaken, the precise proveniences of all individual artifacts shall be related to the primary site datum and recorded.

(5) Unless it can be conclusively and definitely demonstrated that no significant subsurface cultural resources occur at a site, the Contractor shall install in each appropriate site a minimum of one 1 X 1 meter subsurface test unit to determine the presence and general nature of subsurface deposits.

(6) Subsurface test units (other than shovel cut units) shall be excavated in levels no greater than 10 centimeters. Where cultural zonation or plow disturbance is present, however, excavated materials shall be removed by zones (and in 10 cm. levels within zones where possible). Subsurface test units shall extend to a depth of at least 20 centimeters below artifact bearing soils. A portion of each test unit, measured from one corner (of a minimum 30 X 30 centimeters), shall be excavated to a depth of 40 centimeters below artifact bearing soils. All excavated material (including plow zone material) shall be screened using a minimum of 1/4" hardware cloth. Representative profile drawings shall be made of excavated unit. Subsequent to preparation of profile drawings for each test unit, the unit shall be backfilled and compacted to provide reasonable pedestrian safety.

(7) During the course of the intensive survey, the Contractor should observe and record local environmental, physiographic, geological or other variables (including estimates of ground visibility and descriptions of soil characteristics) which may be useful in evaluating the effectiveness of survey procedures and providing comparative data for use in predictive statements which may be utilized in future Government cultural resource investigations.

(8) When sites are not wholly contained within the right-of-way limits, the Contractor shall survey an area outside the right-of-way limits large enough to include the entire site within the survey area. This shall be done in an effort to delineate site boundaries and to determine the degree to which the site will be impacted.

b. Additional Site Testing

(1) Multiple 1 X 1 meter subsurface test units may be required at many sites. The proposed number and distribution of such test units shall be determined by the Principal Investigator on a site specific basis. This determination shall be made based on such variables as site size and potential intrasite variability, including physiographic and geomorphological characteristics of the loci which may suggest variability in the presence or distribution of subsurface cultural deposits. The Contractor shall detail the rational(s) for the placement and numbers of such test units in the report of field activities. The placement and numbers of additional test units shall be negotiated with the Contracting Officer and if an agreement is reached a change order shall be issued prior to conduct of the work. Such testing will provide a data base of sufficient nature to allow a determination of site eligibility to the National Register of Historic Places.

(2) Subsurface test units (other than shovel cut units) shall be excavated in levels no greater than 10 centimeters. Where cultural zonation or plow disturbance is present, however, excavated materials shall be removed by zones (and in 10 cm levels within zones where appropriate). Subsurface test units shall extend to a depth of at least 20 centimeters below artifact bearing soils. A portion of each test unit, measured from one corner (of a minimum 30 X 30 centimeters), shall be excavated to a depth of 40 centimeters below artifact bearing soils. All excavated material (including plow zone material) shall be screened using a minimum of 1/4" hardware cloth. Representative profile drawings shall be made of excavated units.

(3) Stringent horizontal spatial control of testing will be maintained by relating the location of all collection and test units to the primary site datum.

(4) Other types of subsurface units may, at the Contractor's option, be utilized in addition to those units required by this Scope of Work.

(5) Subsurface investigations will be limited to testing and shall not proceed to the level of mitigation.

(6) In order to accurately relate a site to research domains, i.e., assess significance or insignificance, a variety of data gathering techniques may be required to insure recovery of the various types of data which may be present at the site. These techniques may include but not be limited to flotation and excavation of cultural features. When appropriate, these types of data gathering activities should be integral elements of the testing strategy.

C-4.5. Analysis and Curation. Unless otherwise indicated, artifactual and non-artifactual analysis shall be of an adequate level and nature to fulfill the requirements of this Scope of Work. All recovered cultural items shall be cataloged in a manner consistent with state requirements or standards of curation in the state in which the study occurs. The Contractor shall consult with appropriate state officials as soon as possible following the conclusion of fieldwork in order to obtain information (ex: accession numbers) prerequisite to such cataloging procedures. The Contractor shall have access to a depository for notes, photographs and artifacts (preferably in the state in which the study occurs) where they can be permanently available for study by qualified scholars. If such materials are not in Federal ownership, applicable state laws, if any, should be followed concerning the disposition of the materials after the completion of the final report. Efforts to insure the permanent curation of properly cataloged cultural resources materials in an appropriate institution shall be considered an integral part of the requirements of this Scope of Work.

C-5. GENERAL REPORT REQUIREMENTS.

C-5.1. The primary purpose of the cultural resources report is to serve as a planning tool which aids the Government in meeting its obligations to preserve and protect our cultural heritage. The report will be in the form of a comprehensive, scholarly document that not only fulfills mandated legal requirements but also serves as a scientific reference for future cultural resources studies. As such, the report's content must be not only descriptive but also analytic in nature.

C-5.2. Upon completion of all field investigation and research, the Contractor shall prepare reports detailing the work accomplished, the results, the recommendations, and appropriate alternative mitigation measures, when required, for each project area. The format suggested by Guidelines for Contract Cultural Resource Survey Reports and Professional Qualifications as prepared by the Missouri Department of Natural Resources should be reviewed and, to the extent allowed by this Scope of Work utilized as an aid in preparing the required report for work in Missouri. To the extent permitted by this Scope of Work, the work in Arkansas shall follow the Standards for Fieldwork and Reports as prepared by the Arkansas Archeological Survey.

C-5.3. The report shall include, but not necessarily be limited to, the following sections and items:

a. Title Page. The title page should provide the following information; the type of task undertaken, the cultural resources which were assessed (archeological, historical, architectural); the project name and location (county and state), the date of the report; the Contractor's name; the contract number; the name of the author(s) and/or the Principal Investigator; and the agency for which the report is being prepared.

b. Abstract. The abstract should include a summary of the number and types of resources which were surveyed, results of activities and the recommendations of the Principal Investigator.

c. Table of Contents.

d. Introduction. This section shall include the purpose of the report; a description of the proposed project; a map of the general area; a project map; and the dates during which the task was conducted. The introduction shall also contain the name of the institution where recovered materials will be curated.

e. Environmental Context. This section shall contain, but not be limited to, a discussion of probable past floral and faunal characteristics of the project area. Since data in this section will be used in the evaluation of specific cultural resource significance, it is imperative that the quantity and quality of environmental data be sufficient to allow subsequent detailed analysis of the relationship between past cultural activities and environmental variables.

f. Previous Research. This section shall describe previous research which may be useful in deriving or interpreting relevant background research data, problem domains, or research questions and in providing a context in which to examine the probability of occurrence and significance of cultural resources in the study area.

g. Literature Search and Personal Interviews. This section shall discuss the results of the literature search, including specific data sources, and personal interviews which were conducted during the course of investigations.

h. Survey, Testing and Analytical Methods. This section shall contain an explicit discussion of research and/or survey strategy, and should demonstrate how environmental data, previous research data, the literature search and personal interviews have been utilized in constructing such a strategy.

i. Survey, Testing and Analytical Results. This section shall discuss archeological, architectural, and historical resources surveyed, tested and analyzed; the nature and results of analysis, and the scientific importance or significance of the work. Quantified listings and descriptions of artifacts and their proveniences may be included in this section or added to the report as an appendix. Inventoried sites shall include a site number.

J. Recommendations.

(1) This section should contain the recommendations of the Principal Investigator based on the significance and degree of impact of the project on the cultural resources. Assessment of the eligibility of specific cultural properties for inclusion in the National Register of Historic Places shall be made for cultural resources.

(2) It will not be considered adequate to evaluate a resource on the basis of inferred potential with a recommendation for further testing in order to determine significance. Significance should be discussed explicitly in terms of previous regional and local research and relevant problem domains. Statements concerning significance shall contain a detailed, well-reasoned argument for the property's research potential in contributing to the understanding of cultural patterns, processes or activities important to the history or prehistory of the locality, region or nation, or other criteria of significance. Conclusions concerning insignificance likewise, shall be fully documented and contain detailed and well-reasoned arguments as to why the property fails to display adequate research potential or other characteristics adequate to meet National Register criteria of significance. For example, conclusions concerning significance or insignificance relating solely to the lack of contextual integrity due to plow disturbance or the lack of subsurface deposits will be considered inadequate. Where appropriate, due consideration should be given to the data potential of such variables as site functional characteristics, horizontal intersite or intrasite spatial patterning of data and the importance of the site as a representative systemic element in the patterning of human behavior. The Contractor should be guided, in this regard, by Archaeological Property Nominations by Tom King (Published in 11593, Vol. 1, No. 2). All report conclusions and recommendations shall be logically and explicitly derived from data discussed in the report.

(3) The significance or insignificance of cultural resources can be determined adequately only within the context of the most recent available local and regional data base. Consequently the evaluation of specific individual cultural loci examined during the course of contract activities shall relate these resources not only to previously known cultural data but also to a synthesized interrelated corpus of data generated in the present study.

(4) The Contractor shall provide appropriate alternative mitigation measures for significant resources which will be adversely impacted. Data will be provided to support the need for mitigation and the relative merits of each mitigation design will be discussed. The Contractor shall also provide time and cost estimates for implementation of each mitigation design. Time and cost estimates may be submitted as a readily removable appendix. The impact of destruction or alteration of a cultural resource should be measured against the extent to which that resource contributes to the understanding of man's activities in the region, its potential for future research and its preservability. Preservation of significant cultural resources is nearly always considered preferable to recovery of data through excavation. When a significant site can be preserved for an amount reasonably comparable to, or less than the amount required to recover the data, full consideration shall be given to this course of action.

k. References (American Antiquity style).

1. Appendices (Maps, correspondence, etc.). A copy of this Scope of Work shall be included as an appendix in all reports.

C-5.4. The above items do not necessarily have to be discrete sections; however, they should be readily discernable to the reader. The detail of the above items may vary somewhat with the purpose and nature of the study.

C-5.5. In order to prevent potential damage to cultural resources, no information shall appear in the body of the report which would reveal precise resource location. All maps which indicate or imply precise site locations shall be included in reports as a readily removable appendix (ex: envelope).

C-5.6. No logo or other such organizational designation shall appear in any part of the report (including tables or figures) other than the title page.

C-5.7. Unless specifically authorized by the Contracting Officer, all reports shall utilize permanent site numbers assigned by the state in which the study occurs.

C-5.8. All appropriate information (including typologies and other classificatory units) not generated in these contract activities shall be suitably referenced.

C-5.9. Reports detailing testing activities shall contain site specific maps. Site maps shall indicate site datum(s), location of data collection units (including shovel cuts, subsurface test units and surface collection units); site boundaries in relation to proposed project activities, site grid systems (where appropriate) and such other items as the Contractor may deem appropriate to the purposes of this contract.

C-5.10. Information shall be presented in textual, tabular, and graphic forms, whichever are most appropriate, effective and advantageous to communicate necessary information. All tables, figures and maps appearing in the report shall be of publishable quality.

C-5.11. Any abbreviated phrases used in the text shall be spelled out when the phrase first occurs in the text. For example use "State Historic Preservation Officer (SHPO)" in the initial reference and thereafter "SHPO" may be used.

C-5.12. The first time the common name of a biological species is used it should be followed by the scientific name.

C-5.13. In addition to street addresses or property names, sites shall be located on the Universal Transverse Mercator (UTM) grid.

C-5.14. All measurements should be metric. If the Contractor's equipment is in the English system, then the metric equivalents should follow in parentheses.

C-5.15. As appropriate, diagnostic and/or unique artifacts, cultural resources or their contexts shall be shown by drawings or photographs.

C-5.16. Black and white photographs are preferred except when color changes are important for understanding the data being presented. No instant type photographs may be used.

C-5.17. Negatives of all black and white photographs and/or color slides of all plates included in the final report shall be submitted so that copies for distribution can be made.

C-6. SUBMITTALS.

C-6.1. A brief management summary describing the approximate size and general nature of all cultural resources detected shall be supplied to the Contracting Officer within 10 days of the completion of intensive survey field activity.

C-6.2. The Contractor shall submit 10 copies of the draft report and one original and 50 bound copies each of the final report which include appropriate revisions in response to the Contracting Officer's comments.

C-6.3. The Contractor shall submit under separate cover 6 copies of appropriate 15' quadrangle maps (7.5' when available) or other site drawings which show exact boundaries of all cultural resources within the project area and their relationship to project features, and single copies of all forms, records and photographs described in paragraph 1.04.

C-6.4. The Contractor shall submit to the Contracting Officer completed National Register forms including photographs, maps, and drawings in accordance with the National Register Program if any sites inventoried during the survey are found to meet the criteria of eligibility for nomination and for determination of significance. The completed National Register forms are to be submitted with the final report.

C-6.5. At any time during the period of service of this contract, upon the written request of the Contracting Officer, the Contractor shall submit, within 30 calendar days, any portion or all field records described in paragraph 1.04 without additional cost to the Government.

C-6.6. When cultural resources are located during intensive survey activities, the Contractor shall supply the appropriate State Historic Preservation Office with completed site forms, survey report summary sheets, maps or other forms as appropriate. Blank forms may be obtained from the State Historic Preservation Office. Copies of such completed forms and maps shall be submitted to the Contracting Officer within 30 calendar days of the end of fieldwork.

C-6.7. The Contractor shall prepare and submit with the final report, a site card for each identified resource or aggregate resource. These site cards do

not replace state approved prehistoric, historic, or architectural forms or Contractor designed forms. These 5 X 8 inch cards shall be color-coded. White cards shall be used for prehistoric sites, blue cards for historic sites, green for architectural sites and yellow cards for potentially significant sites. Sites fitting two or more categories will have two or more appropriate cards. This site card shall contain the following information, to the degree permitted by the type of study authorized:

- a. site number
- b. site name
- c. location: section, township, and UTM coordinates (for procedures in determining UTM coordinates, refer to How to Complete National Register Forms, National Register Program, Volume 2.)
- d. county and state
- e. quad maps
- f. date of record
- g. description of site
- h. condition of site
- i. test excavation results
- j. typical artifacts
- k. chronological position (if known)
- l. relation to project
- m. previous studies and present contract number
- n. additional remarks

C-7. SCHEDULE.

C-7.1. The Contractor shall, unless delayed due to causes beyond his control and without his fault or negligence, complete all work and services under this contract within the following time limitations.

<u>Activity</u>	<u>Completion Time</u> (In days beginning with acknowledged date of receipt of notice to proceed)	
Porter Lake, AR (R-703)	draft report	40
	final report	95
Nash Well Relief Channels, MO (R48.87 a.c.)	draft report	70
	final report	115
Caruthersville, MO (R-846)	draft report	80
	final report	115
Lambethville, AR (R-752)	draft report	220
	final report	295
Knowlton, AR (R-618)	draft report	280
	final report	355
Henrico, AR (R-606)	draft report	340
	final report	415
Above Dorena, Parcel 2, MO (R-929)	draft report	400
	final report	475

C-7.2. The Contractor shall make any required corrections after review by the Contracting Officer of the reports. In the event that any of the Government review periods (55 days) are exceeded and upon request of the Contractor, the contract period will be extended on a calendar day for day basis. Such extension shall be granted at no additional cost to the Government.

C-4.4. Testing Activities

c. Additional Site Testing - Lambethville (R-752) Item.

(1) The Contractor shall conduct a detailed examination of the establishment, organization (to include political, social, financial, and physical aspects), function, general history and demise of the communities of Lambethville, Arkansas. This examination shall be substantially more in depth than performed earlier and reported in the draft report of September 8, 1983. This work shall be initiated at the commencement of additional site testing for Lambethville and the results must be available for interpretation within fourteen days of issuance of Notice-to-Proceed.

(2) The Contractor shall conduct controlled surface collections across the defined limits of sites 3CT228, 229, 230 and 231. Collection units shall be five by five (5 x 5) meter quadrats. All site areas of 3CT228, 229, 230 and 231 shall be subjected to these collecting procedures. Strict reporting of materials by provenience shall be observed and a contour map shall be developed to illustrate contours in relation to collection quadrats. The results of this effort shall be available within fourteen days of issuance of Notice-to-Proceed.

(3) Core samples (1.905 cm [0.75 inch] or 2.54 cm [1.0 inch]) shall be taken at the southwest corner of each surface collection unit (i.e. every five [5] meters). Core shafts shall extend to a depth of not less than 50 centimeters (cm). Core samples shall be taken at 3CT228, 229, 230 and 231. The results shall be analyzed and interpreted with regard to indications of cultural deposits; nature of such deposits, if any; correlation with results of surface collection; and resultant changes, if any, in individual site interpretations from those offered in the September 8, 1983 draft report. A map illustrating the identified subsurface deposits, in relation to the established grid system, shall be produced. The results of this effort shall be available within fourteen days of issuance of Notice-to-Proceed.

(4) The Contractor shall perform an in-depth archival search concerning the vessel Pacific (3CT233). The objectives shall be to precisely locate the vessel and to further support significance/non-significance opinions by description of the vessel's typical cargo, specific cargo when snagged, salvage activities, and the importance of the Pacific to Lambethville. This work shall be initiated at the commencement of additional site testing for Lambethville and the results must be available for interpretation within fourteen days of issuance of Notice-to-Proceed.

(5) The Contractor shall undertake an on-the-ground search for the Pacific (3CT233) using a proton-magnetometer and within the limits of the proposed borrow area which extends from station 126/15+00 to station 127/5+00 (Drawing No. 2, Serial 21967, File 41L/180). This activity shall be performed systematically, beginning at the most probable location as derived from archival or ethnographic sources. This activity shall precisely locate and record those anomalies which may reasonably be the remains of the Pacific as determined by magnetic signature, size, orientation, or shape. Necessary excavations to confirm or refute recorded anomalies as the Pacific shall be limited to a maximum surface area of 60 square meters. Such excavations shall begin at the most probable anomaly as judged from

archival, ethnographic and instrument data. Should the Principal Investigator and Contracting Officer agree that an anomaly has been sufficiently identified as the Pacific, excavations shall be halted before the maximum of 60 square meters has been reached.

(6) The Contractor shall seek to determine the presence or absence of cultural deposits within the impact area and associated with site 3CT232. This shall be accomplished by the use of two by two (2 x 2) meter test pits which shall extend to a minimum depth of 152 centimeters. Two such test pits shall be installed within the impact area associated with 3CT232 and intersecting the proposed landside ditch alignment. Additionally, a systematic series of core samples (1.905 cm [0.75 inch] or 2.54 cm [1.0 inch]) shall be placed within the impact area between the proximal edge of the mound group and the alignment of the proposed levee berm. No fewer than 30 such core samples shall be installed and each shall extend a minimum of 50 cm in depth. A map illustrating the identified subsurface deposits, in relation to the mound group and test units, shall be produced.

(7) All additional work, unless specifically excepted, shall conform to standards described within Section C - Description/Specifications (Scope of Work) of Contract No. DACW66-83-C-0030. Note that surface collection quadrats, core sample loci and test unit loci shall be related to permanent datum established in previous field work and described in the draft report of September 8, 1983. An appropriate reporting of methods, field conditions, results, analyses, and interpretations pertaining to this additional work shall be integrated with the text of the September 8, 1983 draft report and shall be submitted as an interim report.

C-7.1.

<u>Activity</u>	<u>Completion Time</u> (In days beginning with acknowledged date of receipt of notice to proceed)	
Porter Lake, AR (R-703)	draft report	40
	final report	95
Caruthersville, MO (R-846)	draft report	70
	final report	125
Nash Well Relief Channels, MO (R48.87 a.c.)	draft report	80
	final report	115
Lambethville, AR (R-752)	draft report	220
	interim report	399
	final report	484
Knowlton, AR (R-618)	draft report	280
	final report	355
Henrico, AR (R-606)	draft report	340
	final report	415
Above Dorena, Parcel 2, MO (R-929)	draft report	400
	final report	475

C-7.2. The Contractor shall make any required corrections after review by the Contracting Officer of the reports. In the event that any of the Government review periods (55 days) are exceeded and upon request of the Contractor, the contract period will be extended on a calendar day for day basis. Such extension shall be granted at no additional cost to the Government.

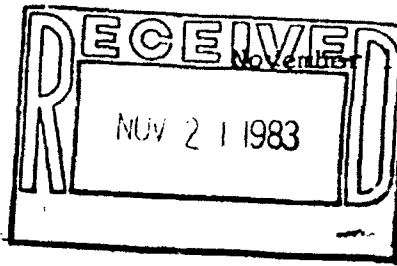
APPENDIX B
CORRESPONDENCE



OFFICE OF THE STATE ARCHEOLOGIST

P.O. Box R
Fayetteville, AR 72702

Phone: 501/575-3457



, 1983

Mr. Sam Morgan
Memphis District
Corps of Engineers
668 Clifford Davis Federal Building
Memphis, Tennessee 38103

RE: Review of Draft Report of Cultural Resources Intensive Survey and Testing of Mississippi River Levee Berms, Crittenden and Desha Counties, Arkansas and Mississippi, Scott, Cape Girardeau and Pemiscot Counties, Missouri: Item R-752, Lambethville, Crittenden County, Arkansas; by Heartfield, Price and Greene, Inc.

Dear Mr. Morgan:

Dr. Morse has reviewed this report, as has one member of my staff here, and I have also read it and the comments of the other reviewers. We feel that overall the report is in excellent detail, and as Dr. Morse says "reflects a very conscientious and thorough effort to investigate the potential impact of this project." We do have some general and a few specific comments which I will enumerate below.

1. One basic problem I see is that two areas of the requirements in the Scope of Work have not been met. First, assessment of eligibility of the recorded sites has not been made as required by Section C-5.3j(1). Section C-5.3j(2) indicates that "inferred potential eligibility" is not adequate to meet the Scope, but this is what has been done for two sites with recommendations for further testing. I would imagine that this is a problem of both lack of flexibility in the Scope and in the proposal and budget by HP&G, or lack of ability on someone's part to renegotiate the contract in order to provide time to do sufficient testing to determine eligibility. Certainly further testing is necessary at both sites, but it seems to me that the presence of prehistoric graves or construction stages of -192 might have been determined through some core augering during the testing phase of this project. No question but what that now needs to be done to determine whether it is worth the Corps' time and money to avoid the site or mitigate the impact.

Second, the justification of nonsignificance of the four historic sites is inadequate both as far as the Standards for Report Writing and as far as the Scope is concerned. The Scope says in Section C-5.3j(2) that statements of "insignificance . . . shall be fully documented and contain detailed and well-reasoned arguments as to why the property fails to display adequate research potential or other characteristics adequate to meet National Register criteria of significance." In the case of the four sites specifically said to be nonsignificant, there are only two justifications given:

1) lack of in situ material (specifically indicated in the Scope as insufficient justification), and 2) "this site was not associated with events that have made a significant contribution to the broad patterns of our history nor is it associated with the lives of persons significant in our past." The information in the report not only is inadequate to justify this conclusion, but the justifications on pages 8.2 and 8.3 don't relate back to the State Plan Study Units which were reviewed so well in Chapter 4. With regard to broad patterns of our [Arkansas] history, the establishment of a sawmill and cotton gin in what became Lambethville are beautiful examples of the economic and social life of that part of the state in the late 19th and early 20th century. For all of northeast Arkansas, lumbering and cotton were THE significant activities around which life revolved. These activities certainly represent a major and significant pattern in the history of northeast Arkansas and cannot be dismissed. To be frank, it is my opinion that there has not been an adequate analysis of either the potential of these sites or of the background of Lambethville itself. For example, there is no map which shows me where the "numerous houses, a school, church, and stores" of Lambethville were nor where the "new" town on the landside of the levee was where there was "school, store, gins, and lumber mill" between 1916 and 1930. Again and again historic sites have been shown to have discrete features which are difficult if not impossible to find through shovel tests and 1 x 1 meter tests. In the case of NLU-83-189, the test pit did find an undisturbed trash area--that site in NOT destroyed. Further research is necessary before the significance or nonsignificance of these sites can be established.

Now for some specific comments:

1. In paragraph four of the Abstract there is some confusion in lines 3 and 4, since "eight historic sites" is repeated but the site numbers are not the same.

2. In Section 2, starting on page 2.3, the reliance on Fisk is not appropriate. A short summary of Fisk's work is appropriate, but work since 1944 has shown the dates of his channels and, therefore, associated sites to be inaccurate or skewed. The dating of Baytown on page 2.6 should not be related to Fisk's data.

3. Page 2.12, in the Paleozoology paragraph, a line has been left out between lines 4 and 5.

4. Page 3.2, four sites are said to be recorded by PF&G, but only three are mentioned.

5. Page 4.1-4.3, Dr. Morse points out that in Arkansas Paleo-Indian is not known to be associated with Woodfordian or a spruce forest.

6. Bottom of page 4.6, the "Tchula" sites recorded by Smith along Big Creek are probably not Tchula sites. Morse's paper on the McCarty site, given at the SEAC in 1982, should be referenced with regard to Tchula in northeast Arkansas.

7. Page 4.7, Brose and Greger 1979, is a better, more up-to-date reference for Hopewell.

8. Page 4.8, last sentence in first full paragraph: Tchula is Early Woodland, not Middle Woodland. Dr. Morse adds: "I think the sparseness of Tchula and Marksville period components is due to our inability to distinguish small ceramic samples at multiple component sites from a typical Baytown period assemblage. It may be a recognition problem peculiar to this region."

9. Page 4.10-4.11. Morse believes the Middle Mississippian occupation at Zebrae to have been fenced rather than palisaded. The date for Matthews Incised is A.D. 1250 not A.D. 1350.

10. Page 4.13. Phyllis Morse's 1981 report on Parkin should be included in any discussion of where DeSoto went in eastern Arkansas. It is the most up-to-date summary. Belle Meade is south not west of the study area.

11. Page 5.1. It is the Office of the State Archeologist that was contacted for information on previous work and sites, not the Arkansas Archeological Survey.

12. Page 7.1. It is NEVER possible to examine 100% of the ground surface. That gives a wrong impression. The text goes on to say, for example, that the people were spaced 30 meters apart.

13. Page 7.2. The Standards for Fieldwork in Arkansas indicate that collections should be made for all sites recorded if there is material observable on the surface. This was not done for those sites outside of the right of way.

14. Page 7.17, last paragraph. This discussion of NLU-83-189 and the conclusion that the structure at that location dates between 1930-1962 is relying on a map, not on the archeological evidence which has material which might date between 1880-1920. Elsewhere, it is admitted that one of the maps seem to miss a structure which was there. I question the reliability of the Corps map of 1916, which seemed to have no structures on it at all. Being an archeologist, I would prefer to take the information in the ground as "true" before I would take an historic document as "true."

15. Page 8.1. Dr. Morse suggests additional reasons why NLU-83-192 could be significant: Mounds are time capsules and are now relatively rare in northeast Arkansas. If this is a Marksville site, human remains from this period are rare indeed, and the presence of such could be studied by bioarcheologists to add considerably to our current information on the populations of this time period. It is after all, people that we should really be interested in! The historic cemetery must also be considered a part of this potentially significant resource and constitutes an important aspect of the life/death of the rural community in this area.

11/17/83

Again, let me say that this is a well written report, with detail that allows reviewers to understand what was done and, in general, how conclusions were reached. The only deficiency in detail is with regard to the location of Lambethville itself and information, other than from Mr. Thatcher, about its history.

If I can be of further service in any way, please let me know.

Sincerely,

Hester A. Davis
State Archeologist

HAD:pnh

cc: State Historic Preservation Officer
Heartfield, Price and Greene, Inc.
David Waddell
Dan Morse

OFFICE OF THE STATE ARCHEOLOGIST

P.O. Box R
Fayetteville, Arkansas 72702-1597
Phone: 501 575-3457

COPY

May 3, 1984

Colonel John F. Hatch Jr.
District Engineer
Memphis District, Corps of Engineers
668 Clifford Davis Federal Building
Memphis, Tennessee 38103

RE: Management Summary of survey and testing of Mississippi River
levee berms, Lambethville, Crittenden County, Arkansas by
Heartfield, Price & Greene.

Dear Don:

In our conference today with Lorraine Heartfield and Bernard McKenzie of Heartfield, Price & Greene, Inc., Don Martin of the Memphis Corps, George Sabo and Jerry Hilliard of the Arkansas Archeological Survey in attendance, we examined the artifacts collected from the historic sites 3CT228, 3CT229, 3CT130, and 3CT231 and discussed those sites as well as NLU-84-103.

As a result of this meeting and the information in the Interim Report of March 28, 1984, I agree that site NLU-84-103 is not significant and, therefore, not eligible for the National Register of Historic Places.

As a result of the review of the artifacts and the discussions today, I believe that sufficient information has been recovered from the individual sites 3CT228, 3CT229, 3CT230, and 3CT231 themselves, that they contain no further significant data and therefore are not eligible for the National Register. As an aggregate, however, the data recovered from these sites is significant and has the potential to provide unique information about Lambethville and possibly earlier occupation in the area. I presume that this potential will be addressed in Heartfield Price and Greene's report on their testing.

Sincerely,

Hester A. Davis
State Archeologist

cc: SHPO
HP&G
Morse

March 23, 1984

Ms. Laurie Hirschenhofer,
105 Mayfair,
Jackson, Ms. 39212

Subject: Pacific and Grand Tower.

Inclosed are two reports from the Daily Missouri Democrat which some contain the information that you recently requested.

Grand Tower:

~~Pacific~~: While the report does not give the exact location of the rock, it could have been what was known as Bacon Rock situated in the Ohio river about where the Kentucky Highway Bridge now crosses the river, which would be about 3/4 mile below the steamboat landing on the Ohio river side of Cairo.

There is also the possibility that she might have struck one of the many reported conglomerate knobs in the Mississippi above Cairo Point and near the channel from Illinois shore to Bird's on the Missouri shore. Most probably it was Bacon Rock, which was removed after the Civil War by dynamite.

Pacific: struck a snag at Devil's Elbow according to this report which was about 30 miles above Memphis then by river. According to this report she encountered the snag as she was rounding the point and was able to reach the west bank or main bank of Arkansas.

I was fortunate in contacting my friend in St. Louis and as the weather up there was very stormy he spent the day at the Library. I have not received a report from my contact in Cairo, the odds are against us there in getting information for the Cairo Trust Property logs on steamboats are no longer available.

Sincerely,

Am. H. Tippitt,
182 Hollywoods St.,
Birmingham, Ms. 35632

Am. H. Tippitt

Am. H. Tippitt
182 Hollywoods St.
Birmingham, Ms. 35632

Daily Democrat.

WILLIAM M'KEE..... PROPRIETOR.
Office No. 37 Locust street
B. SEATE BROWN..... EDITOR.
Daily Democrat, per annum..... \$4 00
Tri-weekly..... \$3 00
Weekly..... \$2 00

See First Page.

Highly Interesting News by Telegraph.
We call the attention of our readers to the highly interesting news in our columns. The Baltic has arrived, and brings further news from the east of war.

A Long Hunt for a Lamp.
Aladin and his Lamp was a somewhat wonderful personage in his day, and even in the present age a work called the Lamp-lighter has attracted considerable degree of attention, but we find in our late California exchanges a "Lamp affair," based upon fact and not upon fancy which throws both of them decidedly into the shade.

The San Francisco Herald in giving an account of the late lamentable shipwreck of the Yankee Blade, on the coast of California, only twenty-four hours out of port, and describing the sunken rocks and logs which prevail at Point Conception, where the disaster took place, attributes it and four other disasters at the same place, to a want of a light in the light-house, or a bell, or a whistle and says:

"Point Conception has a light-house, but no light in it. An officer has been for the last two years in France to get lanterns for the light-house on this coast. It is to be hoped that when they arrive one will be put on Point Arguello, and besides a good for bell or whistle."

Two years gone for lamps, and none come yet! And it is an "officer" that has gone to Paris for these lamps, and made so long a hunt without getting them, while ships are dashing to pieces, lives being lost, and property destroyed. He doubt the officer has a pleasant time of it in Paris, and can have but few inducements to quit that luxurious capital, it being the rule we believe, to allow "expatriation" in addition to pay in the case of officers so employed. But what officer can this be that has thus been sent after a lamp, and who finds it so hard to get back? Who is he? More than all, is one that has been educated at West Point, and at the public expense, to qualify him for the military profession, and who has thus gone into the lamp business, and with such bad prospects of success? We opine it is one of these graduates, and think so for this reason, to-wit: that at the last session of Congress, Mr. Stanton, of Kentucky, read a list in the House of Representatives, of one hundred and seven West Point officers, who were employed in two branches of civil employment alone, namely: the surveying of the coast, and the care of the light-houses. Upon this information, we presume this slow messenger who has been so long hunting lamps in Paris for the California coast, while so much ruin is going on at sea, is one of these one hundred and seven graduates, whose names were so read by Mr. Stanton. If so, he is who he may, this "officer" who has been so long in hunting lamps without finding them, deserves to be bludgeoned himself, and the whole hundred and seven should be

GREAT DISASTER ON THE MISSISSIPPI.

Two Steamboats Sunk.

We have been informed by Captain R. H. Miller, pilot of the steamer Grand Tower, who arrived here last evening, by Railroad from Cairo, that that boat struck upon a rock on Saturday morning the 25th inst, shortly after leaving Cairo on her way up to this port. The Grand Tower had just rounded out into the stream and sunk in twenty three feet water. A break was made in her hull in the vicinity of her wheel house by the collision which caused her to fill so rapidly that no time was afforded for saving the cargo.

The boat is considered a total loss, as she broke in two immediately after striking, and lies at present with bow and stern submerged. She had aboard a large number of German emigrants, and cabin passengers.

Her freight consisted of two thousand bats of catfish, in addition to a great deal of valuable merchandise.

So rapidly did the vessel sink that the passengers had scarcely time to escape to a barge which the Grand Tower had in tow. Notwithstanding the confusion which prevailed, and the imminence of the danger, we are happy to learn that no lives were lost. This fortunate result is, we learn, chiefly attributable to the intrepid conduct of Capt. Yore on the occasion, who, while the steamer was careening and breaking up, had the presence of mind to cut the barge loose from her, which saved it from swamping with the boat.

The weather was intensely cold, and from the fact that many of the passengers were compelled to remain in the water while cordelling the barge along shore, much personal suffering was experienced. Men, women and children exhibited, however, the greatest fortitude, and they are all now comfortably quartered at Cairo.

Mr. Miller informs us that, though in great danger, they were unable to obtain any assistance notwithstanding they rang their bell and blew their steam whistle as signals of distress within hearing of the boat lying at Cairo. The steamer David Gibson, on her way to St. Louis, passed them at the time of the accident, yet she did not offer them any relief, nor did she even stop her engines in order to make a single inquiry, but passed on heedless of the repeated requests for aid. The Grand Tower was owned principally by Capt. J. J. Roe of this city.

THE PACIFIC.

We also learn from Capt. Miller that the steamer Pacific, on her downward trip from this port to New Orleans, struck a snag on the morning of the 23d inst, at Devil's Elbow; but succeeded in reaching the western shore of the river where she sunk. The Grand Tower rendered her every assistance, and had some of the Pacific's passengers aboard at the time of her own unfortunate wreck. The boat and cargo are reported a total loss—the latter consisting chiefly of corn, flour and hemp. No lives lost.

The foregoing information came to hand at so late an hour last evening that we were unable to make any inquiries, or to obtain any information in regard to amount of loss, insurance, &c., or to procure copies of the manifests of the two boats. We shall in all probability, however, obtain full particulars of the disasters during the day, and those interested can have access to the same by calling at our office.

Latent from New Mexico.

Arrival of the Santa Fe Mail.

We have received late numbers of the Santa Fe Gazette from which we clip the following items of interest:

Council with the Ute.

Governor Morrisweather has held a "talk" with the Ute. He reached Rio Arriba on the 17th, travelling under the escort of a company of United States dragoons, commanded by Captain Ewell. Agent Carson, with Chico Velasquez band of Ute, came to the Ute valley afternoon, but from some cause another the Capote band failed to come in. The Indians were assembled next morning, some two hundred in number, when a "big talk" was held between the chiefs and the Governor, after which presents were distributed among those present. The conference was productive of much good feeling; the Indians returning to their country well satisfied, and gave assurance of remaining at peace with our people.

There had recently been some little disturbance between the Ute and the whites, by reason of a Mexican in that county, killing one of the former, and the latter, in return, has stolen a number of animals from the inhabitants, and made threats of hostile intentions. They were induced, to return most of the animals stolen, on the assurance that the Mexicans who killed the Indian should be arrested, and punished. While at Abiquiu, the Governor learned the whereabouts of the murderers, and had him arrested and placed in custody, which pleased the Indians, who expressed themselves as satisfied, and also promised to remain at peace. The presents, intended for the Capote Ute, were left in the care of Agent Labadie, who will distribute the same whenever the Indians come in.

Army Movements—Arrivals and Departures, &c.
Captain Ewell, with his company of sixty dragoons, returned to town Saturday evening, the 14th, from a scout among the mountains between Santa Fe and Teos. He was sent out by General Garland, on the representation of Mr. Albino Chisco, who had had some animals run off by the Apache. He accompanied Captain Ewell to the place where the Indians had been encamped, who had left some time previously. In the scout the troops ascended to the top of the Jacarilla mountains, one of the highest peaks in this part of the territory. Lieut. Surges, with his company of dragoons, arrived in Santa Fe, Sunday, the 15th inst., from Fort Fillmore, and for the present he will remain at headquarters. In company with Lieutenant Stargis' command, camp near Fort Stanton, United States army, who had been in the southern section of the territory nearly two months, paying the troops. Dr. Sutherland, assistant surgeon United States army, ordered to report at headquarters, and Lieut. McCook and Walker, on leave. Assistant surgeon Langworthy left for the United States Thursday, the 12th inst.

A detachment of one hundred United States recruits arrived in Santa Fe the 23d from Fort Leavenworth, under the command of Major Grider. He had in charge about fifty horses for the artillery at Fort Defiance. The following officers came in company—Major Morris, Captain Stanton, and Lieutenants Carlisle, Trevitt, and Wilkins. Captain Bowen, commissary at Albuquerque and Surgeon Abadie of the same post were in town the beginning of the week, but have returned home.

A company of dragoons under Captain Ewell arrived in Santa Fe from Las Lunas, Monday the 16th inst. Assistant surgeon Langworthy, U. S. A., arrived here from Fort Defiance, en route for the United States, Saturday the 7th inst.—He brings no news, and reports everything quiet in the Navajo nation.

News from the Mesilla Valley.

We understand from a gentleman who came from Dona Ana county this week, that the inhabitants of the Mesilla valley have acknowledged the jurisdiction of the United States over them, and claim the protection of our laws and institutions. We also learn that they have surrendered two or three fugitives who have escaped from justice.

Arrivals from Fort Union.

Captain Sykes and lady, and Miss McCrea from Fort Union, arrived in town Tuesday the

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draw the attention of the Advertiser to this solution of the problem by our huge and copious contemporary: *Nov. 29, 1857*

There have been numerous inquiries made of late in regard to the authorship of the Doesticks letters. As we are acquainted with the author, or rather authors, we take the liberty to relieve the public curiosity. The first letter, "Doesticks at Niagara," was written by J. Sterling Morton, at that time editor and proprietor of the "Pioneer Quarterly and University Magazine," a periodical published at Detroit, but now discontinued. The second letter was written by Mr. Morton and a college friend and society brother, Mr. Mortimer Thompson. Mr. Morton then resigned his interest in the *com de place* to Mr. Thompson, who has written the rest of the letters as they have appeared in the Detroit Advertiser. Morton passed through this city the other day on his way to Nebraska. Thompson is now in New York, and will continue, we hope, to favor the public with his racy lucubrations. He has a stringent style of satire. He should continue to assail all kinds of shams and humbugs.

It is certain there is but one Doesticks, and he, according to the statements of those who best and only know him, remains to this day "wrapped in the solitude of his own originality," and named "J. Sterling Morton, editor and proprietor of the Pioneer Quarterly and University Magazine." The public curiosity is not yet relieved by the Republicans, and we suggest that its authors lay out their woolly wits to work, and confuting their fancies and visual observations with their own doors, tell us who Doesticks is.

Particulars of the Steamboat Disaster.

We have in addition to our publication of yesterday morning that the steamer Grand Tower was wrecked by Capt. P. York, who commanded her, St. John Skyles, her clerk, Capt. J. J. Rod and Messrs. McAllister & Co., of our city.

The boat was worth about \$30,000, and was insured for about \$77,000 in different offices. She was considered a safe and sound boat, and had done her or any good service.

Following is the memorandum of her

Wrecked and sunk, shipped by Row & Co.,
Sailed from New York
Arrived at New York
Capt. P. York, St. John Skyles, her clerk, Capt. J. J. Rod and Messrs. McAllister & Co., of our city.

She was expected to arrive in our city last night.

Fire

At eight o'clock, a fire broke out at the residence of Mr. Clark's leather store on Main Street. The alarm was so promptly given and the engines arrived so soon upon the spot, that but little injury was sustained by the building; and most of the stock in Mr. Clark's store was saved. We did not ascertain to what cause the origination of the fire was to be attributed, but when we left no fear was entertained of its extending to the adjoining buildings on Main Street, subdued by the energetic conduct of the firemen.

Thomas P. Cope died at his residence in Philadelphia lately, aged 87. He was the originator of Cope's line of Liverpool packages, and for half a century occupied high positions in Philadelphia. He is supposed to be worth about \$750,000. He was a Quaker, and commenced business in Philadelphia.

rather, must pay, the balance of *Ninety-five millions*. This constant drain of coin, is the great cause of all our embarrassments, and until, it ceases, it is in vain to anticipate, a more healthy state of money affairs. We are now exporting the money which constitutes the basis of the credit of the banks, merchants, manufacturers, ship owners, carpenters, bricklayers, machinists, and other industrial classes—paying it to foreigners—and which enables all the people we just named, to effect the exchanges of society. Exchanges are therefore, gradually ceasing.

We extract the following paragraph from among many we see of a similar character—from the Trenton State Gazette, showing that the work of reduction is going on—

"Three hundred hands are about to be discharged from the Rolling Mill of the Trenton Iron Company."

On the above paragraph, we proceed to remark, that the laborer gets no wages and he ceases to be a customer at the store. The store keeper cannot sell cloth and he ceases to be a customer to the manufacturer. The manufacturer cannot sell and he ceases to wait iron. The iron maker cannot sell and he ceases to wait coal. The coal man cannot sell and he ceases to wait miners, and thus, because of a deficiency of exchange, the labor power of the country, is approaching to idleness and unproductiveness.

While bonds could be sold to European capitalists—that is, where we could obtain railroad iron, cloth, and other articles, upon our promises to pay, at some future time—we kept a part of the gold, we were receiving semi-monthly from California, at home—but now, and for the past year, the scene has changed, and by every departure of British and American steamers for Liverpool, we are shipping coin to the amount of two millions a week, and receiving from California, not over two millions a fortnight. The circulation of our banks, which 12 months ago, was 301 millions of dollars, has decreased, within the past six months, more than forty millions—and, this process is still going on.

Such is the condition of things, and the great—the only remedy, in our opinion, to check the downward tendency of things—to restore confidence, and to cause real prosperity, is, to cease being extravagant, and to have our imports and exports to balance at the end of the fiscal year. And then, with the surplus gold of California, as the basis of credit, our banks can rightfully expand, and we need fear no undue contractions in the circulating medium of the country.

Another great cause, of the present embarrassment, is to be found in the disposition to enter lands by the farming interests of the country—to add farm to farm, and lot to lot, and thus keep millions of coin (which would otherwise circulate among the people) locked up in the Sub-treasury vaults of the country—but on this and other minor causes, we have not space to enlarge.

In regard to our money market, during the past month, we may say, that in consequence of the great contraction in the circulation, caused by the suspension of the Free Banks of Indiana, and a portion of those of Illinois, money has been difficult to obtain, at even very high rates.

Prudence has dictated, to both banks and bankers, in our city, that it was needful to fortify themselves, and the facilities usually granted to our merchants and traders are now in a great

our gold and silver for their own difficulties, the collection, provision and the maintenance of them, which require the progress of the circulation, and the rapid fall of prices, and I feel soiled to say that in New York I have suffered in consequence from an individual high in the confidence of the people's representatives.

I feel that in my upward climb, I have found in you a true ally, that together in brilliant deeds, the past days struggle and rough, and I am sure there were many such as you, and that would drive the program to the end.

At the conclusion of these remarks please pass verification. They were mirably delivered by the lady, and the unmistakable sympathy of the audience.

Statement of Bishop Halliday Father Brady Case.

The great excitement in regard to the remains of Rev. Mr. Brady, is tentatively published throughout the city give below the statement of Bishop Halliday the other side of picture:

To the Editor of the Providence Journal

As you have copied a most liberal and fair statement in my regard, you will be put yourself and others right. I was not in the first place, asked to place in front of the church to the Rev. Mr. Brady.

Secondly—The church fronts on within a few feet of the sidewalk, the burying was never contemplated in place in connection with the church.

Thirdly—The Rev. Mr. Brady died of a burial ground, where I had respect his interment, unless informed to the contrary.

Fourthly—I was not informed of Brady's request to be buried "near" until about 11 o'clock of the day of ment.

Fifthly—There is no railing in the church, and none contemplated to be; consequently the place was unfit for a place as any enclosure raised in front of would be much out of place, and did from the appearance of the church.

Sixthly—The church at Hartford me; it cost something over \$40,000 to assume its entire debt, about \$77,000 once was paid by the people; and any friend of the deceased wishes in there, I should have been informed of.

Seventhly—Had I been informed of the so called request of the deceased termed "near the church," I would, as directed its interment in the church would, in the case have been the proper.

You will observe then—that the committee as to the interment of Rev. by the movers, or movers, in the matter, that these movers selected a place and never intended as a burial place; that they selected it without consulting prior of the place selected for interment.

These are facts that cannot be these facts show that I have been presented, and that some editors themselves to be imposed on by the of the public.

I removed the deceased from the charge of the congregation last July, which justified me so far as to leave an alternative before conscience. Conscience justified myself before conscience in a long him to the charge of the same as I would most cheerfully have done so entertained any personal ill will towards. In season, I offered him resignation, considering myself justified as in a new place the same obstacles material success would not exist, and I can find no ground for self-right matter; did a similar case occur again be impelled to act as I did in this case, I became willing to sacrifice conscience to the interests of religion.

As in the action of the people in

APPENDIX C
PERSONS CONSULTED

APPENDIX C
PERSONS CONSULTED

DATE	PERSON/ADDRESS	SUBJECT
8-15-83	Dr. Dan Morse Jonesboro, AR	Meeting with Arkansas Archeological Survey Station Archeologist to discuss archeology of area
8-16-83	Mr. Don E. Martin Mr. Doug Prescott US Army Corps of Engineers, Memphis District, TN	Visited during survey - observed general procedures/methodology. Visited NLU-83-192 (Bledsoe Mounds)
8-16-83	Virginia McCarter Crittenden County Library, Marion, AR	General information about the Lambethville area
8-16-83	Mr. Leroy Wiley Lambethville, AR	Indicated that headstone of Harriett Pruitt had been moved to its current location 4-7 years ago from the St. Marks Cemetery
8-17-83	Mr. John Williams St. Thomas, AR	Indicated Subarea A was cleared between 1974 and 1975. Said that there had never been any historic occupation in the area as it was frequently flooded
8-17-83	Don Martin US Army Corps of Engineers, Memphis District, TN	Obtained old maps available at Corps office
8-17-83	Dr. Gerald Smith Chucalissa Museum, Memphis, TN	Got information about lack of work by Memphis State in the project area. Checked his site maps as to sites noted. No different from what had already been obtained
8-17-83	Margaret Woolfolk Marion, AR	Discussed Ms. Woolfolk's work in the Lambethville area. Got a copy of the Lambethville chapter of the History of Turrell she is writing. Also other material applicable to the project area. Suggested an interview James O. Thresher of Turrell, AR
8-18-83	James O. Thresher Turrell, AR	Mr. Thresher told of his boyhood in Old Lambethville and the move of the town to west of the levee. Located generally some buildings and mentioned the sinking of the steamboat Pacific
8-19-83	Mr. Don E. Martin Ms. Joan Koch US Army Corps of Engineers Memphis District, TN	Visited during initial testing at NLU-83-188. Visited NLU-83-192 and NLU-83-196, primarily to determine proximity of NLU-83-196 to project right-of-way
8-21-83	Margaret Woolfolk Marion, AR	Got more information on the Pacific. Also the comment that Pacific Place Plantation was named after Fogleman's daughter not the steamboat. Suggested contacting Mrs. Robert Stokes for information about this

DATE	PERSON/ADDRESS	SUBJECT
8-22-83	Mr. Bill Felty and Mr. Tom Patterson West Memphis, AR	Levee Board engineers; indicated area of NLU-83-188, 189 and 190 had contained a school, gin, houses and mule lot. Avoided for pit borrow during levee construction
8-22-83	James O. Thresher Turrell, AR	Pointed out remembered point of sinking of Pacific. Also location of some of the buildings in New Lambethville
8-26-83	Mrs. Robert Stokes Marion, AR	Called to find out about story of Fogleman's daughter Pacific. Was referred to Mrs. Stokes' brother, J. A. Fogleman
8-26-83	Judge J. A. Fogleman Little Rock, AR	Checked on existence of Pacific Fogleman. He knows of her only from her fathers will
3-18-84	Mr. William Tippet Hernando, MS	Discused the riverboat Pacific. Tippet is a retired river pilot
3-20-84	Mr. Berle Fair West Memphis, AR	Checked on names of local historians
3-20-84	Mr. James O. Thresher, Turrell, AR	Discussed location of houses and history of Lambethville
3-21-84	Margaret Woolfolk Marion, AR	Discussed history of Lambethville and the riverboat Pacific
3-22-84	Mrs. Joanne Collum Moore, Frenchman's Bayou, AR	Discussed history of Lambethville and riverboat. Examined old maps in her possession.
3-22-84	Don Martin COE, Memphis TN	Examined Col. Sutter's map and found the riverboat Pacific marked

APPENDIX D

RECORDED CULTURAL RESOURCES WITHIN
THE PROPOSED PROJECT RIGHT-OF-WAY

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APPENDIX D

RECORDED CULTURAL RESOURCES WITHIN THE PROPOSED PROJECT RIGHT-OF-WAY

The seven cultural resources within the proposed right-of-way documented as a result of the on-the-ground survey are described herein. Artifacts collected during the project are tabulated by category and provenience and discussed. Efforts were made to assign the sites and/or artifacts to a known cultural and/or temporal framework based on the artifact assemblages as well as written and/or oral histories.

3CT228

Location and Physical Setting

This site (Figure D-1) occupies level to nearly level alluvial floodplain deposits at an elevation of approximately 68 meters (225 feet) AMSL (Corps of Engineers 1975). Soils include Robinsonville very fine sandy loam and Borrow Pit associations (Gray and Ferguson 1974). The site area is separated from the adjacent toe of the existing levee by the levee right-of-way fenceline. At the time of the initial survey the entire area was planted in soybeans which were approximately 30 to 45 centimeters (12" to 16") in height. During the additional testing phase the site was a fallow field. A large cottonwood tree was located along the northwestern perimeter of the site at the levee fenceline.

Site History

The earliest obtainable map of the study area depicting structures, the Mississippi River Commission map of 1890, does not depict any structures at this location. The Mississippi River Commission map of 1916 depicts two structures in the immediate vicinity. The 1930 and 1932-33 Corps of Engineers maps do not depict any structures at the location. The 1939 and 1962 Corps of Engineers Maps depict two structures. In fact, the 1939 map suggests that the area is part of the Lambethville center in the immediate vicinity. No buildings are depicted on the 1952 Corps of Engineers map. However, this may be an error in mapping as both a school and gin were present on this site at this time (J. O. Thresher 1983:personal communication). No buildings are depicted at the location on the 1975 Corps of Engineers Map.

Map information was substantiated and supplemented by informant interviews. James O. Thresher, a local resident, stated that a school/church, gin, mule lot and store were present at the location in the late 1930's. Bill Felty and Tom Peterson, engineers with the St. Francis Levee Board, stated that when the levee was enlarged, circa 1937, the site area was specifically avoided because of the presence of the school and gin. They also said that the school and gin were abandoned prior to the 1950's but were not razed until the late 1960's. The demolition date was confirmed by James O. Thresher. At that time large trees and brush in the general area as well as the remains of the structures were bulldozed into the lower lying areas in an effort to reclaim as much land as possible (Bill Felty and Tom Peterson 1983:personal communication). Since the buildings were demolished, the area has been used for agriculture.

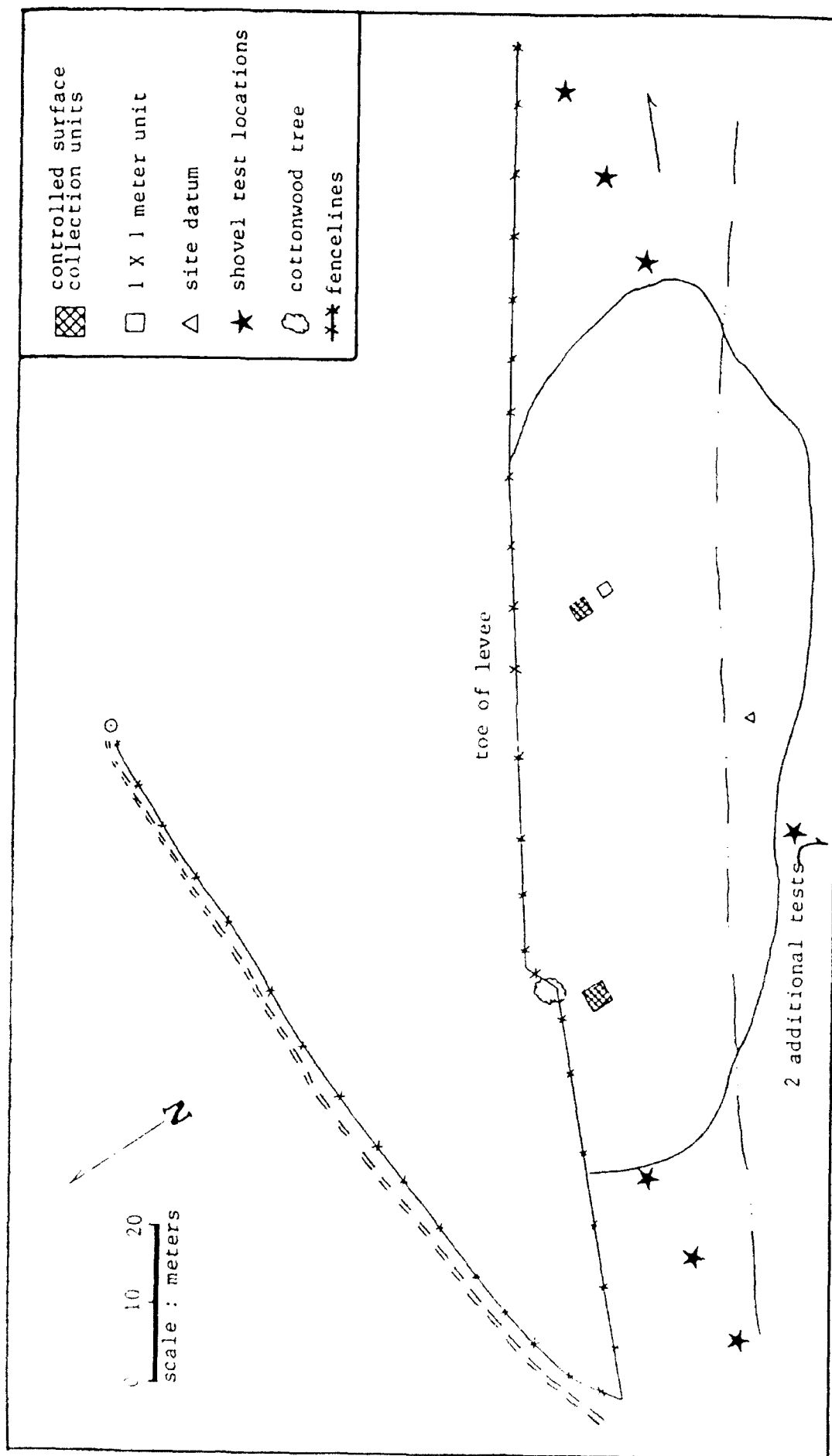


Figure D-1. Original site map, 3CT228.

Methodology

Initial Survey and Testing

The site was observed during the survey on August 16, 1983 as historic building and household debris scattered over the ground surface. It was then noted that separate discrete areas of concentration (e.g., building materials versus household debris) were apparent over the site surface. The surface area was 75-90% visible, therefore, subsurface shovel testing was not conducted at 30 meter intervals. Rather, shovel tests were excavated at approximately 75-100 meter (246-300 feet) intervals. Thus, a single shovel test was excavated at this location, during the initial visit. The shovel test was excavated in the vicinity of the household refuse concentration and revealed cultural material to be within the upper 6 centimeters of topsoil, well within plow mixed deposits. The site location was plotted on large scaled aerial blue-line maps and flagged for return investigations.

When revisited on August 19, 1983, a site datum/mapping station was established. Representatives of the U.S. Army Corps of Engineers, Mr. Don Martin and Ms. Joan Koch, observed a portion of the testing conducted. The site limits as manifested on the surface, were marked with poles and flagging. These points, delineating the limits of the surface scatter were then mapped in with a transit and stadia rod. Permanent datums were established at the nearby gate/fence corner post and a concrete monument, both of which are on top of the levee. Two controlled surface collection units, each 3 x 3 meters in plan were superimposed over the concentrations of household debris and building materials, respectively. The southwest corner of each collection unit was mapped in place and all cultural material within the unit and on the surface was systematically collected. As the household debris concentration was restricted to the upper 6 centimeters, a single 1 x 1 meter excavation unit was located nearer the brick concentration. It was believed the brick concentration would be more likely to yield data regarding the structure as opposed to a possible single episode dumping of household debris. The southwest corner of the 1 x 1 meter square was then mapped in and the unit excavated by natural levels. All matrix excavated was passed through a 1/4" steel mesh shaker screen. The cultural material which was thoroughly mixed between the surface and 75 centimeters was collected as a single unit, as meaningful provenience was absent. No cultural material of any kind was located below this extremely disturbed level.

Additional Testing

The site was relocated using blue-lines that had been marked during the survey of August 1983. A north-south base line was established along the western edge of the site using a transit. The site's boundaries were determined by observing the point at which cultural material concentrations diminished to a negligible number. These points were flagged. A five meter grid was then placed over the entire area of the site, using a plot frame and tape and compass to establish the grid. Stakes, which were subsequently numbered, were placed in the southwest corner of each square. A total of 199 units were located in the grid. Material from each unit was bagged separately and labeled as to location.

Soil cores 1.905 (0.75 inches) x 50 centimeters deep were made to at least 50 centimeters in depth in the southwest corner of each 5 meter unit.

A topographic map was made of the site (Figure D-2) using a transit and stadia rod and was tied into the permanent datums established during the initial survey.

Stratigraphy

Initial Survey and Testing

The south wall profile of the test unit is depicted in Figure D-3. Extremely disturbed deposits were encountered from the surface to approximately 75 centimeters below the surface. No cultural material of any kind was located below this extremely disturbed level.

The profile observed in the south wall of the 1 x 1 meter unit is described below.

- 0-18 cm: Plow zone-mottled brown (10YR4/3) and gray very fine sand and silt with a small amount of clay-cultural material throughout;
- 18-75 cm: Extremely disturbed-severely mottled brown, light brown and gray fine sandy clay and clay, cultural material sparse throughout;
- 75-121 cm: Undisturbed-massive grayish-brown (10YR5/2) clay with iron (southwest concretions. No cultural material. quadrant)

Additional Testing

Profiles of the subsurface stratigraphy of the site are shown in Figures D-4 and D-5. These diagrams are oriented south to north across the entire site.

The profiles exposed by the coring program are consistent.

- a. 0-+12 cm: 10YR3/2 (very dark grayish brown) silty clay, slightly sticky, slightly plastic, structureless, fine, diffuse boundary.
- b. 12-+13 cm: 10YR5/4 (yellowish brown) silty clay, slightly sticky, slightly plastic, structureless, fine, diffuse boundary. Distinguished from "a" by color and density (i.e. slightly more compact).
- c. 23-+35 cm: 10YR4/3 (brown) silty clay, slightly sticky, slightly plastic, structureless, fine, diffuse boundary. Distinguished from "a" by color, density (slightly less compact) and higher water content.
- d. 35-+53 cm: 10YR4/2 (dark grayish brown) silty clay, slightly sticky, plastic, very fine, mottled. Boundary clear with some mixing of "e" in lower portion. Where this profile exceeds approximately 50 centimeters in depth, color darkens with depth.

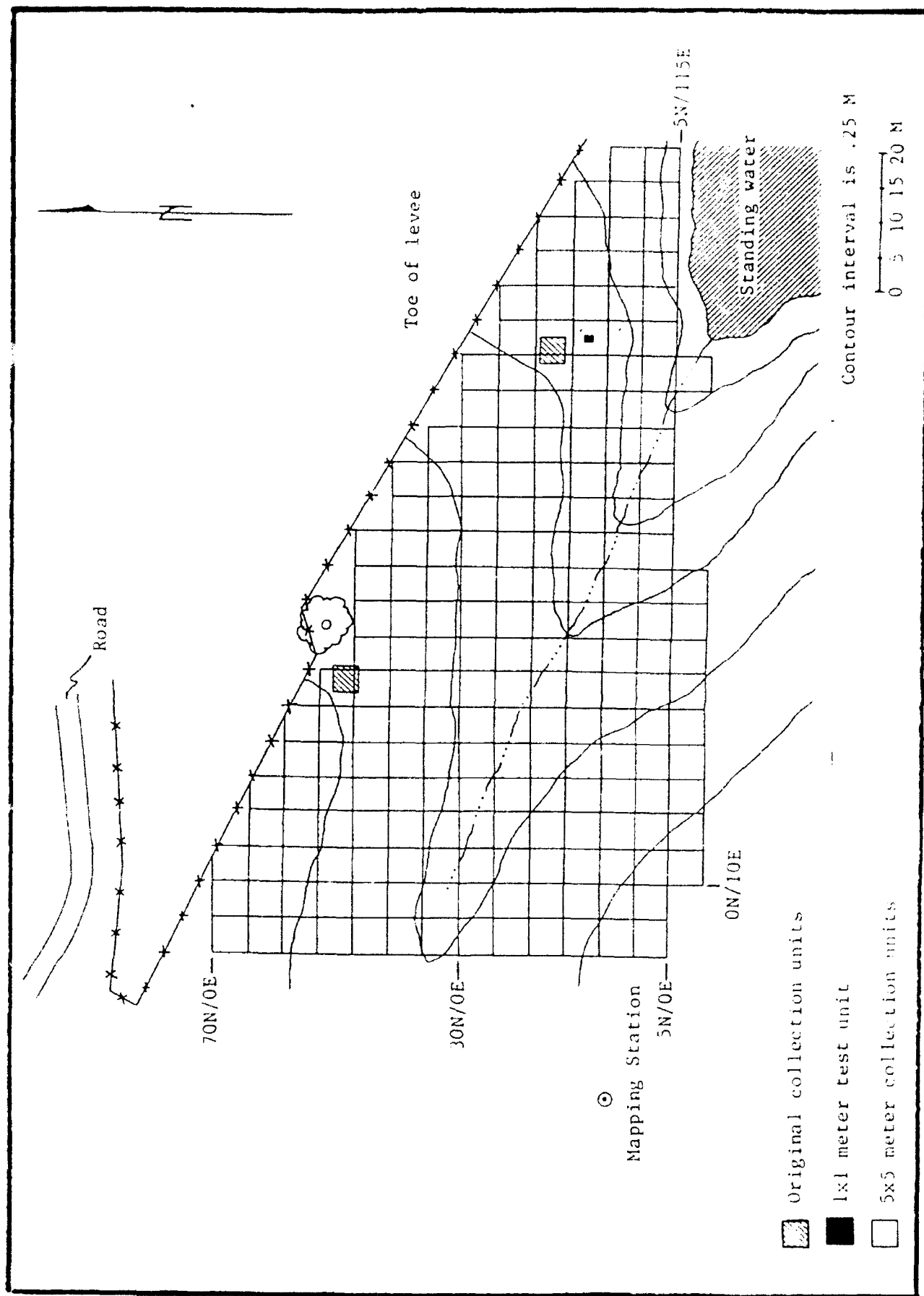


Figure D-2. Contour map, 3CT228.

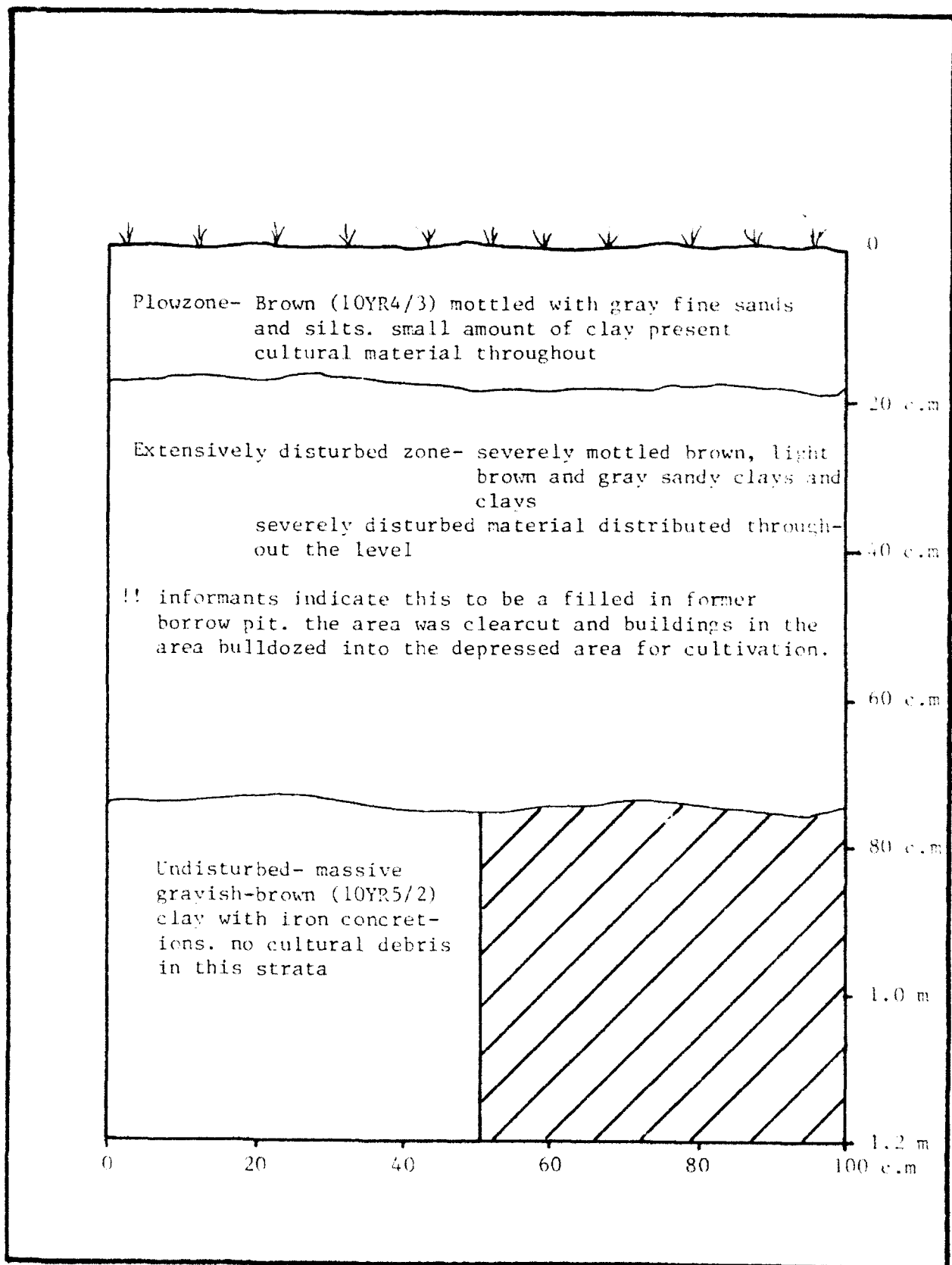


Figure D-3. South wall profile, Test Unit 1, 3CT228.

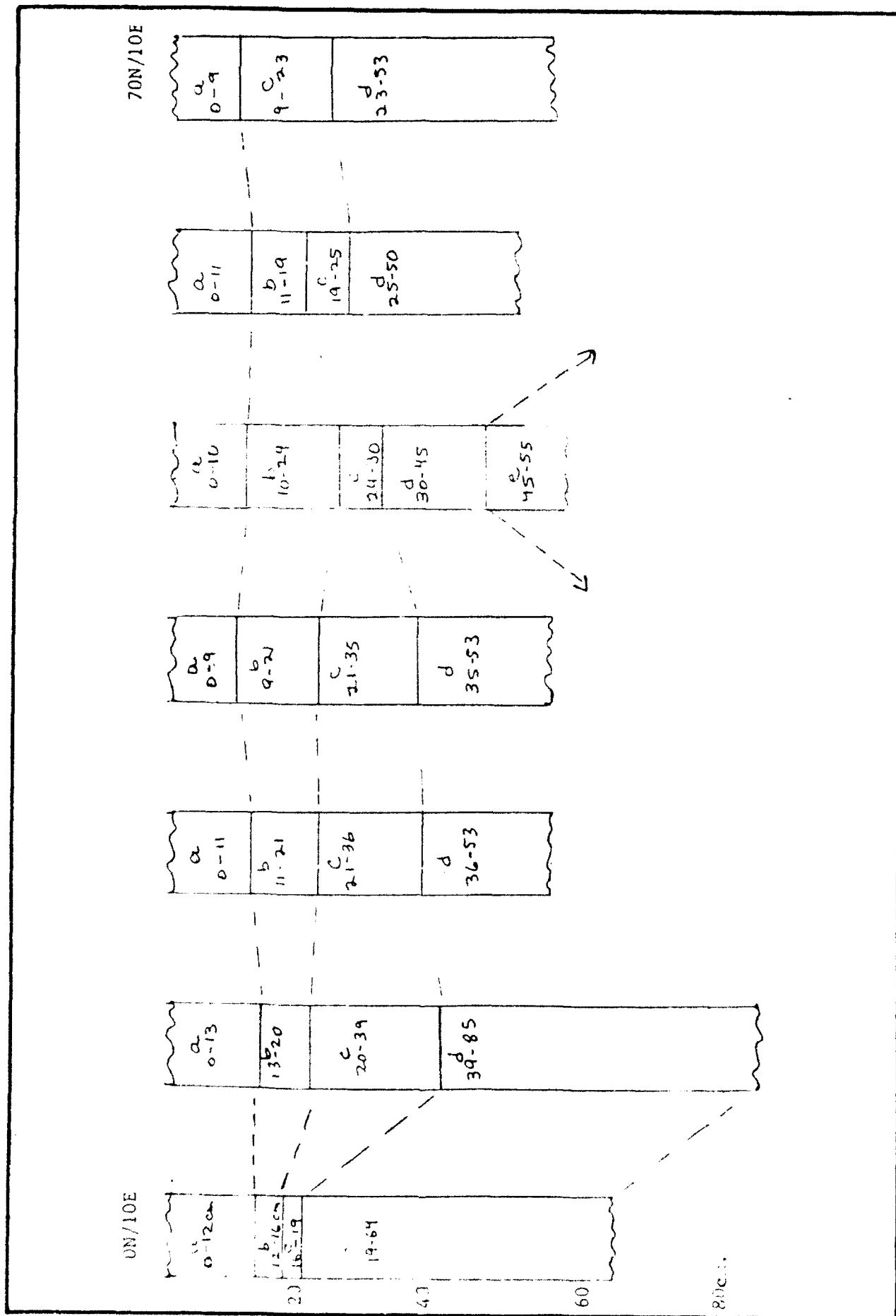


Figure D-4. Site 3CT228, profile 08/10E-70N/101.

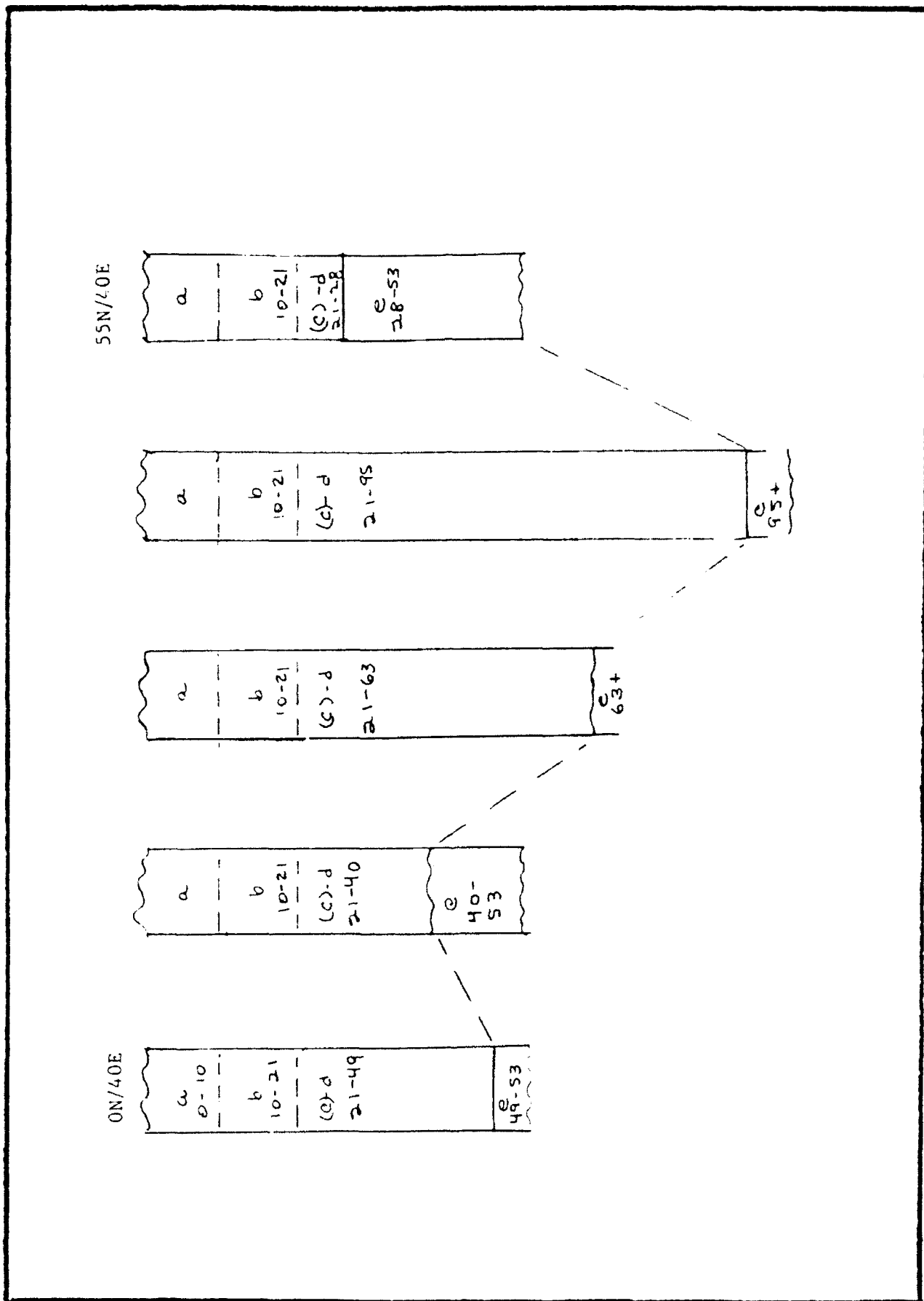


Figure D-5. Site 3CT228, profile ON/40E-55N/40E.

- e. 53+ cm: 10YR3/3 (dark brown) sand, slightly sticky, not plastic indicative of some clay content).

Elements a-d to 45-50 centimeters are recently disturbed probably chisel plowed sediments. The probe literally "fell through" much of this portion of the profile. Elements a-d are believed to be the same or closely related parent material. Differences of color and compactness appear to be distinguishing features, but these are minimal and probably are the result of modern land use practices. Based on the history of the site, it appears that elements a-d are disturbed throughout most of the profile to below 50 centimeters.

The sand is believed to be naturally deposited material. Further, no middens or intact subsurface features were noted.

Material Remains

A total of 4,513 artifacts and 31 faunal items were recovered. The distribution of all categories are shown in Table D-1.

Prehistoric Artifacts

A total of 14 pot sherds and five flakes comprised the prehistoric sample. The sherds are grog tempered and suggest a Woodland cultural association.

Historic Artifacts

The historic assemblages includes 4,499 items excluding brick.

During the initial investigations, four categories of brick were found. Type A has dimensions of 20.5 x 10.1 x 5.7 centimeters. Color is dark reddish brown (2.5YR3/4) to reddish brown (2.5YR4/4). One of the fragments included the partial impressed legend "CUBB_." Type B has dimensions of 20.0 x 9.0 x 5.4 centimeters. Color range is the same as for type A, i.e. dark reddish brown (2.5YR3/4) to reddish brown (2.5YR4/4). One of the fragments included the partial impressed legend "_BIN_." Type C has width and thickness dimensions of 10.4 x 5.9 centimeters. No full length fragments were included in the collected sample. Color range is the same as for types A and B, i.e. dark reddish brown (2.5YR3/4) to reddish brown (2.5YR4/4). None of the type C fragments included maker's marks. Type D bricks were identified on the basis of color and hardness. No fragments were collected which allowed dimensions to be obtained. Color range was red (2.5YR5/6) to light red (2.5YR6/6, 2.5YR6/8). The bricks appeared to be less hard with more friable surfaces. Forty-eight brick fragments greater than 5 centimeters in diameter could belong to types A-C on the basis of color. 2.1 kilos (4.7 pounds) of brick and cement fragments less than 5 centimeters in diameter from level 1 of the test unit were not analysed. None of the brick fragments was temporally diagnostic. However, the two bricks with partial maker's marks were machine-made and are typical of modern bricks.

Although no brick was collected during the additional testing phase, brick was noted in 139 of the 199 collection units.

Among the 343 item historic pottery inventory are earthenware, 3; porcelain, 22; stoneware, 67; and whiteware, 251.

TABLE 3.1
ARTIFACTS, 3CT228

PROVENIENCE	TEST UNIT 1/pz	TEST UNIT 1/11	COLL. UNIT 1	COLL. UNIT 2	7ON/ OE	6SN/ OE	6ON/ OE	5SN/ OE	5ON/ OE	4SN/ OE	4ON/ OE	3SN/ OE	3ON/ OE	2SN/ OE	2ON/ OE	1SN/ OE	1ON/ OE	1ON/ SE	15N/ SE	20N/ SE	25N/ SE	30N/ SE	35N/ SE	40N/ SE	45N/ SE	SUB ITL
Brick	+	+	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ceramics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Earthen ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Porcelain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stone ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
White ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Glass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aqua	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Blue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brown	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Green	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Milk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Olive-Amber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Purple	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrome	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper-Brass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Graphite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickle-Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Steel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unidentified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leather	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metal and	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
ceramic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mother of	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pearl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plastic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slag	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Textile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prehistoric	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sherds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Flakes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Floral/Faunal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Charcoal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Teeth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turtle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

+ = present
 - = not present
 ++ = concentration

TABLE 12-1
(Continued)

PROVENIENCE	50N/ 5E	60N/ 5E	65N/ 5E	70N/ 5E	70N/ 10E	65N/ 10E	60N/ 10E	55N/ 10E	45N/ 10E	40N/ 10E	35N/ 10E	30N/ 10E	25N/ 10E	20N/ 15E	15N/ 15E	10N/ 15E	5N/ 15E	5N/ 10E	10N/ 10E	15N/ 10E	20N/ 10E	25N/ 15E	30N/ 15E	SUB TTL	
Brick *	+	+	+	+	+	+	+	+	+	+	-	-	-	-	-	-	+	-	-	-	-	-	+	---	
Ceramics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Earthen ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Porcelain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	
Stone ware	1	1	-	-	-	-	1	-	-	-	3	2	2	4	1	-	-	-	-	-	-	-	-	13	
White ware	1	1	-	1	-	-	-	-	1	3	-	-	-	7	16	40	1	1	1	1	2	4	-	13	
Glass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Amber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Aqua	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	
Blue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	
Brown	2	1	1	-	-	1	1	2	-	1	4	4	9	8	13	41	1	1	9	7	8	2	16	134	
Clear	6	4	6	5	2	-	4	4	1	3	36	36	78	80	299	10	7	23	33	41	76	22	5	816	
Green	2	-	1	2	2	-	-	3	-	-	1	-	-	18	16	4	1	1	3	1	7	-	6	68	
Milk	-	-	-	-	-	-	-	-	-	-	-	-	-	1	5	7	-	-	2	-	-	-	-	16	
Olive-Amber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Purple	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Metal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Aluminum	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8	
Chrome	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Copper-Brass	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	1	1	-	-	-	-	-	-	10	
Graphite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	
Iron	2	3	-	2	5	4	5	2	-	1	5	9	10	13	28	59	2	4	7	3	10	7	23	205	
Lead	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Nickle-Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Steel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Unidentified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Leather	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Metal and ceramic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Mother of Pearl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Plastic	1	1	1	2	-	-	-	1	-	1	3	2	1	1	3	17	3	1	-	-	3	1	-	6	50
Rubber	-	1	-	-	-	-	-	1	-	3	-	3	3	1	1	-	1	1	-	2	-	-	5	19	
Slag	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
Tar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
Textile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	2	
Prehistoric	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Sherds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	
Flakes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Floral/Faunal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Charcoal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Bone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Teeth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	

- + = present
- = not present
- + = 100% penetration

TABLE 2-1
(Continued)

		3SN 1SE	40N/ 1SE	45N/ 1SE	50N/ 1SE	60R/ 1SE	65N/ 1SE	70N/ 1SE	80N/ 1SE	90N/ 1SE	100N/ 1SE	110N/ 1SE	120N/ 1SE	130N/ 1SE	140N/ 1SE	150N/ 1SE	160N/ 1SE	170N/ 1SE	180N/ 1SE	190N/ 1SE	200N/ 1SE	210N/ 1SE	220N/ 1SE	230N/ 1SE	240N/ 1SE	250N/ 1SE	260N/ 1SE	270N/ 1SE	280N/ 1SE	290N/ 1SE	300N/ 1SE	310N/ 1SE	320N/ 1SE	330N/ 1SE	340N/ 1SE	350N/ 1SE	360N/ 1SE	370N/ 1SE	380N/ 1SE	390N/ 1SE	400N/ 1SE	410N/ 1SE	420N/ 1SE	430N/ 1SE	440N/ 1SE	450N/ 1SE	460N/ 1SE	470N/ 1SE	480N/ 1SE	490N/ 1SE	500N/ 1SE	510N/ 1SE	520N/ 1SE	530N/ 1SE	540N/ 1SE	550N/ 1SE	560N/ 1SE	570N/ 1SE	580N/ 1SE	590N/ 1SE	600N/ 1SE	610N/ 1SE	620N/ 1SE	630N/ 1SE	640N/ 1SE	650N/ 1SE	660N/ 1SE	670N/ 1SE	680N/ 1SE	690N/ 1SE	700N/ 1SE	710N/ 1SE	720N/ 1SE	730N/ 1SE	740N/ 1SE	750N/ 1SE	760N/ 1SE	770N/ 1SE	780N/ 1SE	790N/ 1SE	800N/ 1SE	810N/ 1SE	820N/ 1SE	830N/ 1SE	840N/ 1SE	850N/ 1SE	860N/ 1SE	870N/ 1SE	880N/ 1SE	890N/ 1SE	900N/ 1SE	910N/ 1SE	920N/ 1SE	930N/ 1SE	940N/ 1SE	950N/ 1SE	960N/ 1SE	970N/ 1SE	980N/ 1SE	990N/ 1SE	1000N/ 1SE	1010N/ 1SE	1020N/ 1SE	1030N/ 1SE	1040N/ 1SE	1050N/ 1SE	1060N/ 1SE	1070N/ 1SE	1080N/ 1SE	1090N/ 1SE	1100N/ 1SE	1110N/ 1SE	1120N/ 1SE	1130N/ 1SE	1140N/ 1SE	1150N/ 1SE	1160N/ 1SE	1170N/ 1SE	1180N/ 1SE	1190N/ 1SE	1200N/ 1SE	1210N/ 1SE	1220N/ 1SE	1230N/ 1SE	1240N/ 1SE	1250N/ 1SE	1260N/ 1SE	1270N/ 1SE	1280N/ 1SE	1290N/ 1SE	1300N/ 1SE	1310N/ 1SE	1320N/ 1SE	1330N/ 1SE	1340N/ 1SE	1350N/ 1SE	1360N/ 1SE	1370N/ 1SE	1380N/ 1SE	1390N/ 1SE	1400N/ 1SE	1410N/ 1SE	1420N/ 1SE	1430N/ 1SE	1440N/ 1SE	1450N/ 1SE	1460N/ 1SE	1470N/ 1SE	1480N/ 1SE	1490N/ 1SE	1500N/ 1SE	1510N/ 1SE	1520N/ 1SE	1530N/ 1SE	1540N/ 1SE	1550N/ 1SE	1560N/ 1SE	1570N/ 1SE	1580N/ 1SE	1590N/ 1SE	1600N/ 1SE	1610N/ 1SE	1620N/ 1SE	1630N/ 1SE	1640N/ 1SE	1650N/ 1SE	1660N/ 1SE	1670N/ 1SE	1680N/ 1SE	1690N/ 1SE	1700N/ 1SE	1710N/ 1SE	1720N/ 1SE	1730N/ 1SE	1740N/ 1SE	1750N/ 1SE	1760N/ 1SE	1770N/ 1SE	1780N/ 1SE	1790N/ 1SE	1800N/ 1SE	1810N/ 1SE	1820N/ 1SE	1830N/ 1SE	1840N/ 1SE	1850N/ 1SE	1860N/ 1SE	1870N/ 1SE	1880N/ 1SE	1890N/ 1SE	1900N/ 1SE	1910N/ 1SE	1920N/ 1SE	1930N/ 1SE	1940N/ 1SE	1950N/ 1SE	1960N/ 1SE	1970N/ 1SE	1980N/ 1SE	1990N/ 1SE	2000N/ 1SE	2010N/ 1SE	2020N/ 1SE	2030N/ 1SE	2040N/ 1SE	2050N/ 1SE	2060N/ 1SE	2070N/ 1SE	2080N/ 1SE	2090N/ 1SE	2100N/ 1SE	2110N/ 1SE	2120N/ 1SE	2130N/ 1SE	2140N/ 1SE	2150N/ 1SE	2160N/ 1SE	2170N/ 1SE	2180N/ 1SE	2190N/ 1SE	2200N/ 1SE	2210N/ 1SE	2220N/ 1SE	2230N/ 1SE	2240N/ 1SE	2250N/ 1SE	2260N/ 1SE	2270N/ 1SE	2280N/ 1SE	2290N/ 1SE	2300N/ 1SE	2310N/ 1SE	2320N/ 1SE	2330N/ 1SE	2340N/ 1SE	2350N/ 1SE	2360N/ 1SE	2370N/ 1SE	2380N/ 1SE	2390N/ 1SE	2400N/ 1SE	2410N/ 1SE	2420N/ 1SE	2430N/ 1SE	2440N/ 1SE	2450N/ 1SE	2460N/ 1SE	2470N/ 1SE	2480N/ 1SE	2490N/ 1SE	2500N/ 1SE	2510N/ 1SE	2520N/ 1SE	2530N/ 1SE	2540N/ 1SE	2550N/ 1SE	2560N/ 1SE	2570N/ 1SE	2580N/ 1SE	2590N/ 1SE	2600N/ 1SE	2610N/ 1SE	2620N/ 1SE	2630N/ 1SE	2640N/ 1SE	2650N/ 1SE	2660N/ 1SE	2670N/ 1SE	2680N/ 1SE	2690N/ 1SE	2700N/ 1SE	2710N/ 1SE	2720N/ 1SE	2730N/ 1SE	2740N/ 1SE	2750N/ 1SE	2760N/ 1SE	2770N/ 1SE	2780N/ 1SE	2790N/ 1SE
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* = present
- = not present
+ = not present

TABLE D-1
(Cont Inued)

PROVENIENCE	30N/25E	35N/25E	40N/25E	45N/25E	50N/25E	55N/25E	60N/25E	60N/30E	55N/30E	50N/30E	45N/30E	40N/30E	35N/30E	30N/30E	25N/30E	20N/30E	15N/35E	10N/35E	5N/35E	5N/30E	10N/30E	15N/35E	20N/35E	25N/35E	30N/35E	SUB TTL	
Brick *	+	-	-	-	+	+	+	+	-	+	-	-	+	+	+	+	+	+	++	++	++	+	+	+	+	+	---
Ceramics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Earthen ware	-	-	-	-	-	1	-	-	1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Porcelain	-	-	-	-	-	-	2	-	-	3	3	-	-	-	-	1	-	1	-	-	-	-	-	-	1	-	12
Stone ware	-	-	-	-	-	1	1	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	3	-	-	-	18
White ware	-	-	-	3	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Glass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Amber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
Aqua	-	-	-	-	-	-	1	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Blue	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	35
Brown	-	-	3	3	2	2	1	2	14	1	3	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	183
Clear	2	-	7	8	4	12	10	11	3	18	7	1	4	6	21	15	5	5	4	5	4	10	5	9	10	6	19
Green	2	-	-	1	-	-	-	-	-	10	-	-	-	2	2	1	-	-	-	-	-	-	-	-	-	-	4
Milk	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
Olive-Amber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Purple	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Metal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Aluminum	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Chrome	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Copper-Brass	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Graphite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Iron	1	3	1	1	-	4	4	5	5	4	7	2	1	2	4	4	6	6	1	4	3	2	14	2	3	-	83
Lead	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Nickle-Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Steel	-	-	-	-	-	3	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Tin	-	-	-	-	-	-	-	1	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
Zinc	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
Unidentified	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Leather	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Metal and ceramic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Mother of Pearl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Pearl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Plastic	2	-	-	-	-	-	3	2	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
Rubber	1	-	2	2	-	-	1	1	1	1	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	13
Slag	-	-	-	4	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Tar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Textile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Prehistoric	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Sherds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Flakes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Floral/Faunal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Charcoal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Bone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Teeth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---

* = present
- = not present
++ = not present

TABLE 2-1
(Continued)

PROVENIENCE	35N/35E	40N/35E	45N/35E	50N/35E	55N/35E	50N/40E	45N/40E	40N/40E	35N/40E	30N/40E	25N/40E	20N/40E	15N/40E	10N/40E	5N/40E	5N/45E	10N/45E	15N/45E	20N/45E	25N/45E	30N/45E	35N/45E	40N/45E	45N/45E	50N/45E	SUB TTL	
Brick *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Ceramics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Earthen ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Porcelain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Stone ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
White ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Glass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Amber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Aqua	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Blue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Brown	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Clear	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Green	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Milk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Olive-Amber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Purple	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Metal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Chrome	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Copper-Brass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Graphite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Lead	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Nickel-Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Steel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Unidentified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Leather	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Metal and ceramic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Mother of Pearl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Plastic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Rubber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Slag	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Tar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Textile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-</											

* = present
- = not present
.. = concentration

TABLE 2-1
(Continued)

PROVENIENCE	50N/50E	45N/50E	40N/50E	35N/50E	30N/50E	25N/50E	20N/50E	15N/50E	10N/50E	5N/50E	25N/55E	20N/55E	15N/55E	10N/55E	5N/55E	30N/55E	35N/55E	40N/55E	45N/55E	50N/55E	40N/60E	35N/60E	30N/60E	25N/60E	20N/60E	SUB ITL
Brick *	++	+	++	+	+	+	++	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	++	-	-	---
Ceramics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Earthen ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Porcelain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Stone ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
White ware	-	1	-	-	-	-	-	-	1	-	1	-	2	-	-	3	-	-	-	-	-	1	-	1	-	10
Glass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Amber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Aqua	1	4	-	-	-	-	-	-	-	-	-	1	1	-	-	-	2	-	-	-	-	-	1	4	3	19
Blue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Brown	-	-	1	-	-	-	3	2	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	1	11
Clear	1	4	4	3	2	1	2	12	2	2	1	2	10	-	-	1	-	-	3	-	-	5	7	12	1	8
Green	-	1	2	-	-	-	2	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	92
Milk	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Olive-Amber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Purple	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Metal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Chrome	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Copper-Brass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Graphite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Iron	3	2	3	2	2	-	-	2	1	2	1	1	1	1	1	1	1	1	1	1	1	1	6	1	7	53
Lead	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Nickle-Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Steel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Unidentified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Leather	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Metal and ceramic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Mother of Pearl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Plastic	-	2	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	4
Rubber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Slag	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Tar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Textile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Prehistoric	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Sherds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Flakes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Floral/faunal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Charcoal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Bone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Teeth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Turtle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---

* = present
- = not present
++ = concentration

TABLE D-1
(Continued)

PROVENIENCE	15N/ 60E	10N/ 60E	10N/ 65E	15N/ 65E	20N/ 65E	25N/ 65E	30N/ 65E	30N/ 70E	35N/ 70E	40N/ 70E	45N/ 65E	45N/ 70E	40N/ 75E	35N/ 75E	30N/ 75E	25N/ 75E	20N/ 75E	15N/ 75E	10N/ 75E	10N/ 70E	15N/ 70E	20N/ 70E	25N/ 70E	30N/ 75E	35N/ 80E	30N/ 80E	SUB ITL
Brick *	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Ceramics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Earthen ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Porcelain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stone ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
White ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Glass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amber	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aqua	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Blue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brown	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clear	1	8	3	6	1	4	5	3	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Green	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Milk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Olive-Amber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Purple	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrome	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper-Brass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Graphite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	5	3	2	-	1	5	-	5	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickle-Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Steel	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unidentified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leather	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metal and ceramic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mother of Pearl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plastic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slag	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Textile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prehistoric	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sherds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Flakes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Floral/Faunal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Charcoal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Teeth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turtle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* = present
- = not present
+ = concentration

TABLE D-1
(Continued)

PROVENIENCE	25N/80E	20N/80E	15N/80E	10N/80E	10N/85E	15N/85E	20N/85E	25N/85E	30N/85E	35N/85E	30N/90E	25N/90E	20N/90E	15N/90E	10N/90E	10N/95E	15N/95E	20N/95E	25N/95E	20N/100E	15N/100E	10N/100E	10N/105E	15N/105E	20N/105E	SUB TTL
Brick *	+	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	++	---
Ceramics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Earthen ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Porcelain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Stone ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
White ware	3	1	-	4	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13
Glass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Amber	3	4	7	4	1	2	4	-	-	-	5	4	10	8	5	8	1	1	3	4	-	-	-	-	-	77
Aqua	-	-	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Blue	-	-	3	3	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13
Brown	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	89
Clear	-	4	7	32	9	-	4	2	1	-	4	-	1	1	2	3	5	2	2	1	2	1	3	3	-	3
Green	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Milk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Olive-Amber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Purple	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Metal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Chrome	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Copper-Brass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Graphite	7	8	4	3	4	3	3	2	3	-	2	1	4	8	5	-	1	4	5	-	2	3	5	-	-	77
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Lead	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Nickle-Silver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24
Steel	-	-	-	4	-	-	-	1	-	-	3	1	5	-	-	-	-	-	-	-	-	-	-	-	-	---
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Unidentified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Asbestos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Leather	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Metal and ceramic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Mother of Pearl	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Plastic	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Rubber	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Slag	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Tar	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Textile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Prehistoric	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Sherds	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Flakes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Floral/Faunal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Charcoal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Bone	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Teeth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Turtle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---

* = present
- = not present
++ = concentration

TABLE 17-1
(Cont Inued)

PROVENIENCE	15N/110H	10N/110H	5N/80E	ON/80E	GRAND TOTAL
Brick *	-	+	-	-	-
Ceramics	-	-	-	-	-
Earthen ware	-	-	1	-	3
Porcelain	-	-	-	-	22
Stone ware	-	-	-	-	67
White ware	-	-	-	-	251
Glass	-	-	-	-	-
Amber	-	-	-	-	2
Aqua	-	-	1	3	216
Blue	-	-	-	-	60
Brown	-	2	4	-	367
Clear	-	-	2	5	2136
Green	-	-	-	-	175
Milk	1	-	-	-	57
Olive-Amber	-	-	-	-	1
Purple	-	-	-	-	18
Miscellaneous	-	-	-	-	1
Metal	-	-	-	-	-
Aluminum	-	-	-	-	19
Chrome	-	-	-	-	1
Copper-Brass	-	-	2	-	16
Graphite	-	-	-	-	4
Iron	-	2	-	5	730
Lead	-	-	-	-	11
Nickle-Silver	-	-	-	-	2
Steel	-	-	2	-	86
Tin	-	-	-	-	11
Zinc	-	-	-	-	17
Unidentified	-	-	-	-	1
Miscellaneous	-	-	-	-	-
Asbestos	-	-	-	-	1
Coal	-	-	-	-	3
Leather	-	-	-	-	1
Metal-and ceramic	-	-	-	-	1
Mother of Pearl	-	-	-	-	1
Plastic	-	-	1	1	117
Rubber	-	-	-	-	73
Slag	-	-	-	-	14
Slate	-	-	-	-	2
Tar	-	-	-	-	3
Textile	-	-	-	-	5
Prehistoric	-	-	-	-	-
Sherds	-	-	1	1	14
Flakes	-	-	-	-	5
Floral/Faunal	-	-	-	-	-
Charcoal	-	-	-	-	??
Bone	-	-	-	-	21
Teeth	-	-	-	-	10
Turtle	-	-	-	-	??

* + = present
- = not present
++ = concentration

The earthenware category includes one marble. It is believed to be a 19th or early 20th century example. One sherd, glazed clear yellow on both faces, may be from a pottery ale or stout bottle.

Among the porcelain are four sherds that have a drab green floral border around the rim; one from a thick plate or platter. Two thick porcelain plates or platter fragments have a scalloped embossed design around the rim. To the interior of the embossing is a single red stripe. The thickness of these sherds suggests manufacture for public institution (e.g., hotel or cafeteria). The semi-vitrified nature of the paste suggests a manufacture date no earlier than the late 1920's or 1930's. Other porcelain fragments from 3CT228 are the feet of a small figurine, a fragment from a bath tub and a spark plug.

The pottery includes 67 examples. Among these are: clear/white glaze on both surfaces, 35; clear/white on one face and albany slip glaze on the other, 24; albany slip glaze on both faces, seven; brown on one face and exfoliated on the other, one.

A broad range of pastes are represented among the stonewares with colors ranging from gray to buff and cream. Variations in glaze maturation and paste textures among the sample are indicative of a broad range of firing temperatures. Salt glazed examples are common throughout the sample.

Most examples appear to be the remains of crockery vessels. One crockery sherd has a single cobalt blue line.

Among the stone ware is a single sherd of thick, coarse grained sewer pipe.

Among the whiteware inventory are pink, red and green transfer sherds. The pink specimen has a fragment of a circular maker's mark that bears "...OPERATIVE PU...; UNIVERSAL.C...;" and "MADE IN." It may be from Universal Pottery of Longton, England. This has not been confirmed, however. Green, painted floral patterns are also among the sample.

Two sherds have a burgandy color glaze on the interior. Finally, two modern sherds are from a plate with a silver, turquoise and green pattern.

Among the glass fragments are amber, 2; aqua, 216; blue, 60; brown, 367; clear, 2,136; green, 175; milk, 57; olive-amber, 1; purple, 18; and miscellaneous, 1.

The amber glass includes a snuff bottle base with two embossed dots. It dates circa 1960 (Munsey 1970:80).

The aqua glass includes both bottle and window glass fragments and a single tube. None are specifically diagnostic although one thick flat fragment is embossed with "7." A machine-made (post-1903) base is embossed with "...S"; "...BY"; "...CO". Because aqua glass was probably commonest in the late 19th century, prior to the use of manganese to clarify glass circa 1880 (Munsey 1970:37, 55); these examples may date to the late 1800's and early 1900's.

Blue glass includes bottle and window fragments, as well as a marble.

Among the brown glass fragments are several datable examples. These include fragments of two snuff bottle bases with an Owens scar that dates about 1960 (Munsey 1970:80); a base fragment with an Owens scar that dates after 1954 (Toulouse 1971:403); another Owens scar that post-dates 1903 (Toulouse 1971:393-397). The remains of two brown bleach bottles were also found. One is embossed with the mark used by the Thatcher Manufacturing Co. of Elmira, New York between 1900 and 1946, and the Thatcher Glass Manufacturing Co. between 1946 and present (Toulouse 1971:496-499). The general appearance of the bottle suggests the later time span.

The clear glass sample includes embossed painted and undecorated examples. One base fragment is from the Knox Glass Bottle Company of Jackson, Mississippi. It dates between 1932-1953 (Toulouse 1971:271). One example embossed "BALL" and the number "19" was probably manufactured in the last 30 years (Ibid:66-68). Another "BALL" fragment has a screw lip.

Numerous clear base fragments show the mark of the Owens-Illinois Glass Company. These date after 1954 (Toulouse 1971:403). One has the year 1953 embossed on the base. Earlier marks for Owens Glass Company date after 1903 or 1929-1954 (Ibid:393-397, 403).

One clear glass bottle is a 10 fluid ounce (300 c.c.) Pepsi-Cola bottle. The legend "PEPSI-COLA" in red script on a white diagonal band across a clear circle within a red square is printed in paint on the bottle body. "PEPSI-COLA" is also embossed in wavy, almost-vertical lines six times around the shoulder of the bottle. The base bears the embossed figures and numerals "14 N 58". The N indicates that the bottle was made by the Ober-Nester 16-A Glass Co. of East St. Louis post-1915 (Toulouse 1971:373-375), possibly in 1958.

Fragments of a wide-mouthed, screw top double Cola bottle were found. The label is printed in white.

Other printed or painted bottle labels include one pink example with a cowboy/calf motif, one from an insecticide bottle and several unidentified fragments.

A small machine-made perfume bottle and a fragment from a thick embossed item (possibly a platter or cake rest) were also recovered.

In summary, the clear glass sample appears to post-date 1915, when the use of selenium and later arsenic as a glass decolorizing agent became widespread (Munsey 1970:55). The latest examples date at least to the late 1950's.

Among the green glass fragments are bottle and window glass fragments. These include the base of a Coca-Cola bottle embossed "...T CITY", a base fragment with a post-1954 Owens-Illinois Glass Co. mark (Toulouse 1971:403), a Crown bottle neck with a seam pattern that dates after 1904 (Munsey 1970:40-41). A modern green cats eye marble was also collected.

The milk glass sample includes bottle, canning lid and miscellaneous fragments. Among these is a sherd with gold paint.

The only olive-amber colored sherd is a bottle body fragment.

Among the purple glass are bottle, stopper and handle fragments. None post-date 1915 (Munsey 1970:55). The miscellaneous glass example is a pink colored fragment.

The metal inventory includes chrome and aluminum. Copper and brass are represented by shotgun shells, tubing, pipe fittings and a snap. Cores from batteries comprise the fraphite sample. A silver Mercury drive dating 1942 was also found.

Among the iron debris are belt buckle, zippers, barbed wire, chain, nuts, washers, machine parts, round and square nails, saw blades, stove foot, sheeting and a host of other miscellaneous items. In fact, the sample even includes the left barrel hammer of an exposed firing pin shotgun. The debris covers a range of farm, home and commercial items.

Lead, tin and steel complete the metal inventory. The steel items are a knife and spoon.

Among the remaining items in the historic inventory are plastic, rubber, slate, tar, textile and asbestos sheeting fragments.

Artifact Distribution

Figure D-6 shows the frequency of the distribution of artifacts on site 3CT228. The few prehistoric items show a non-patterned distribution across the site surface.

Brick concentrations do not always correlate with areas of high artifact concentration. In fact, only three areas show notable artifact densities. One lies within an area of brick concentration, one includes and extends beyond a small area of brick concentration and one is not associated with brick concentrations.

Site Size, Distribution and Interpretation Based on Investigations

The surface debris covers an approximate 75 x 120 meter area (9,000 square meters) and is oriented northwest-southeast. The large size of the scatter is believed directly associated with continuous agricultural activities as well as the initial bulldozing activities conducted. The subsurface component of the site is thoroughly mixed and disturbed, completely lacking meaningful provenience.

As a result of the investigation it seems tenable to conclude that if structures existed on the site between 1891 and circa 1930, these were domestic and not associated with the commercial Lambethville settlement center.

Structures on the site that date after 1930 were probably associated with the settlement center and may have included a store, gin, church/school and mule lot. These structures may have stood until the 1960's.

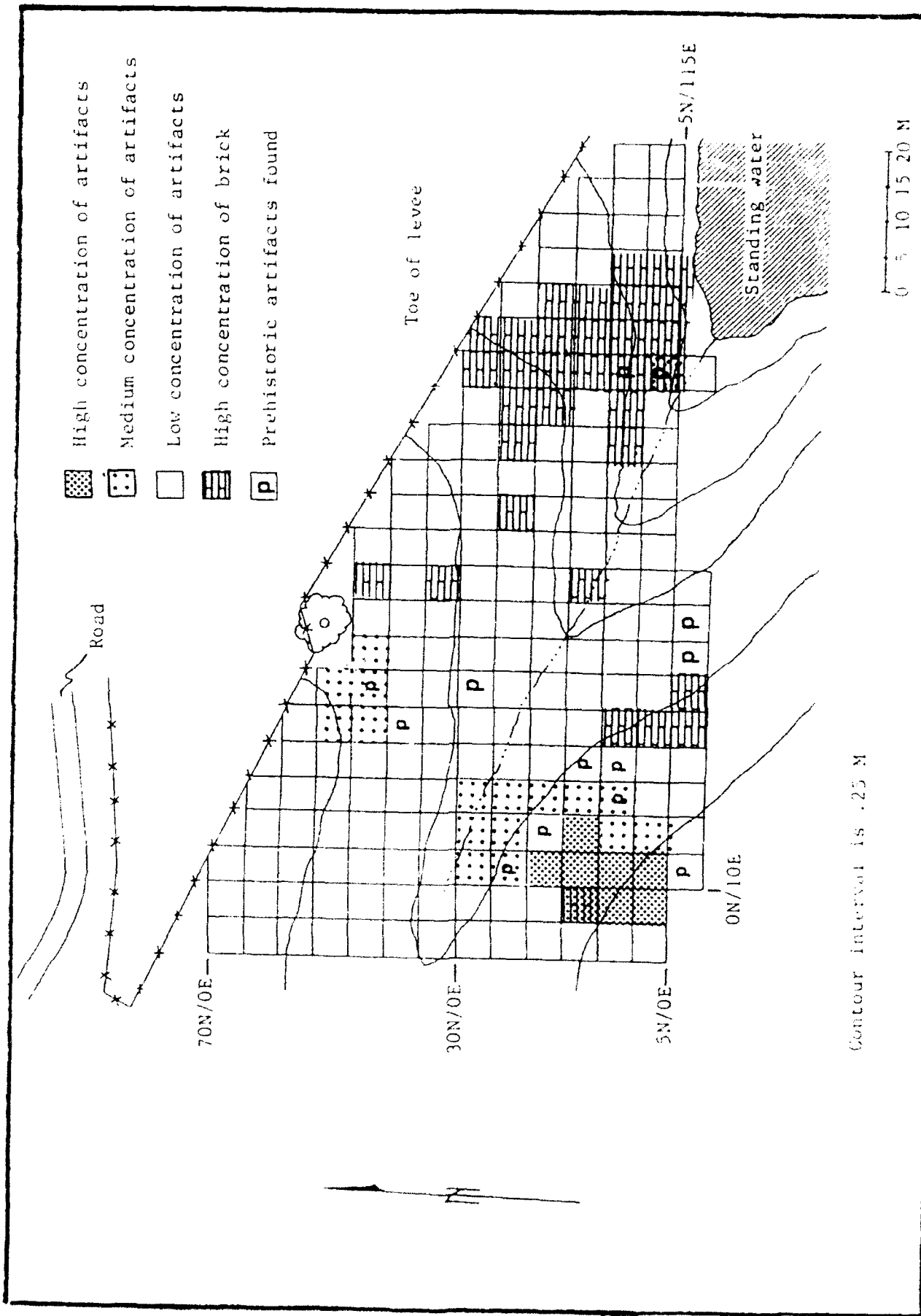


Figure D-6. Artifact distribution, 3CT228.

A late 1800's to early 1900's occupation is supported by aqua glass which ceased to be manufactured about 1880, and purple glass, which does not post-date 1917. Glass maker's marks, porcelain and colored transferware also support this time frame.

As might be expected, no temporal hiatus in the artifact assemblage can be identified. However, glass makers' marks, screw type bottle necks, soft drink bottles and modern pottery are markers of the post-1930's use of the area. The "institutioned-like" porcelain plate and a slate fragment may be evidence of a school but the sample is too small for confirmation. Soft drink bottles support school, gin, and/or household interpretations. Modern pottery might also be associated with all three kinds of structures.

The metal debris reflects multi-uses of the site. The dime shows use of the area in or after 1942. The nails certainly support evidence of structures on the site. Both square and round nails may be evidence of the two building periods. Among the remaining metal debris, some may be from gin activities but the ubiquitous nature of most metal precludes sorting of items between gin and/or general farming activities.

Thus, it is believed that this site represents the remains of two to four structures. Apparently the earlier structures (1890-1930) were razed and their remains left to be scattered over the surface. About 1930 a school/church, gin and store were built, occupying the same area as the earlier structures. When the school and gin were razed the subsequent rubble from the early and late occupations were thoroughly mixed by bulldozer and continuous agricultural activity. Unfortunately, as observed in the 1 x 1 meter unit excavated the entire assemblage is thoroughly mixed as a result of land clearing and reclamation. In fact, it is likely that at the upper portion of the profile (greater than 50 centimeters in depth) is disturbed. This substantiates the report that the buildings in the area were razed and then bulldozed into the borrow pit at the base of the levee. Continued obliteration of the site is occurring through the intensive agriculture.

3CT229

Location and Physical Setting

This site (Figure D-7) occupies a low-lying slightly depressed area, possibly a former borrow pit at an elevation of approximately 67.97 meters (223 feet) AMSL (Corps of Engineers 1975). Soils in the immediate area belong to the Borrow Pit and Robinsonville very fine sandy loam associations (Gray and Ferguson 1974). The site lies southwest of the toe of the levee, as marked by the levee right-of-way fenceline. At the time of the initial survey the entire site area was planted in soybeans approximately 22-30 centimeters (8-12 inches) in height. During the additional testing phase the entire site area was a fallow soybean field.

Site History

The earliest map depicting a structure at this location is the circa 1930 Corps of Engineers Map. Thus, the structure was built between 1916 (when no structure is depicted on the Mississippi River Commission map of 1916) and 1930. Although the structure is not depicted on the 1952 Corps of Engineers

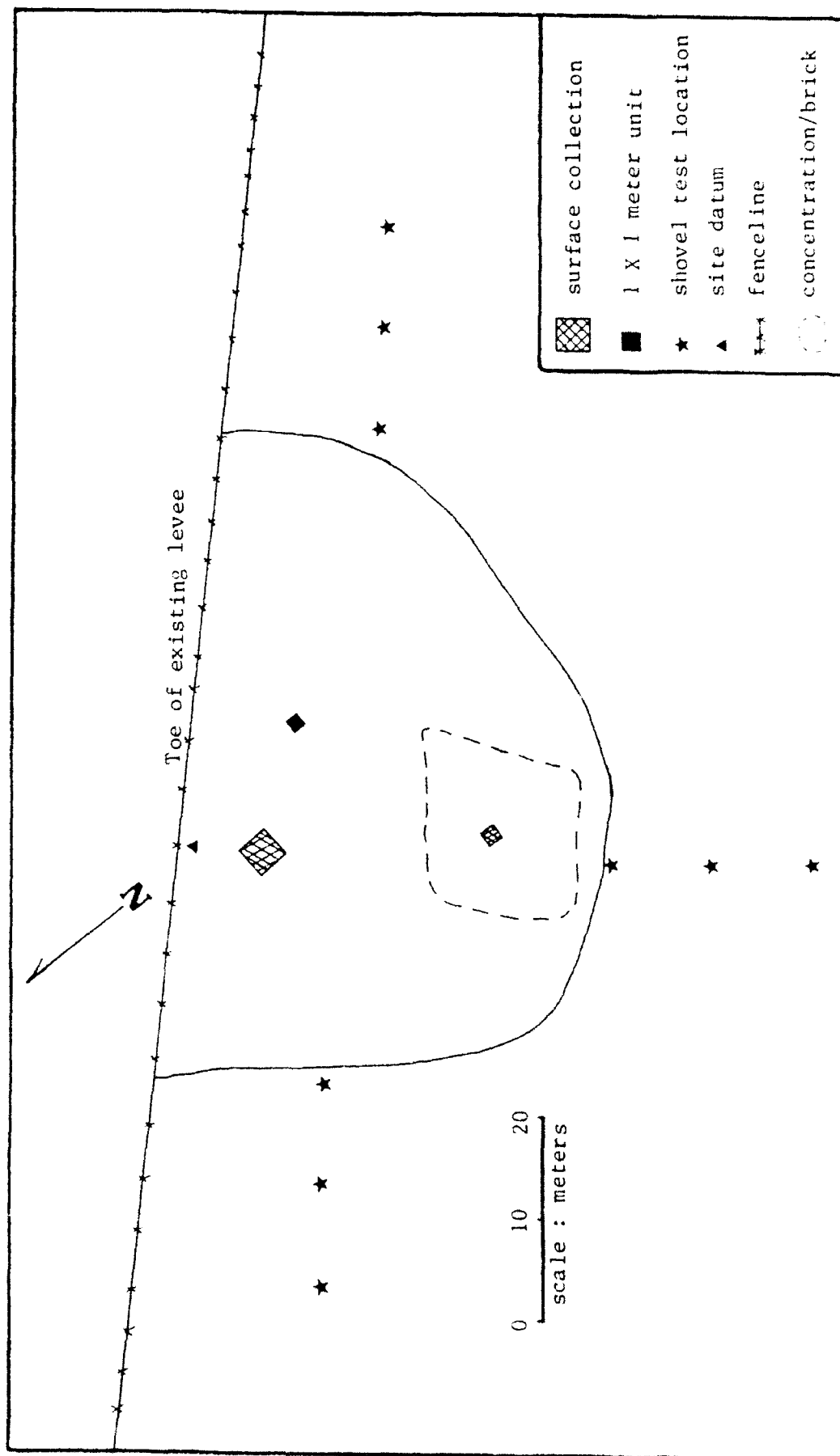


Figure D-1. Original site map, 3CT229.

map, it, or another, is depicted on the 1962 Corps of Engineers Map. No structure is depicted at the location on the 1975 Corps of Engineers map.

Methodology

Initial Survey and Testing

The site was initially observed during survey on August 16, 1983. At that time a medium density surface scatter of historic building materials and household debris was observed between bean rows and in a shallow gully depression. Shovel testing was conducted, however, no subsurface cultural material or features were encountered.

The site location was plotted on large scaled aerial blueline maps and flagged for return investigations. When revisited on August 20, 1983, the site limits (surface) were determined and marked with flagged poles. The site limits as manifested on the surface were then mapped with a transit. During the mapping, two areas of concentrated cultural debris, one scatter of household debris and the other a scatter of building materials, were observed. Controlled surface units were then superimposed over each concentration, being 3 x 3 meters and 2 x 2 meters in plan, respectively. The southwest corner of each surface unit was mapped in and all material on the surface within the units were then systematically collected and bagged separately. Recall, subsurface shovel tests excavated during the survey phase were negative in that no cultural materials were encountered. Therefore, the location of the 1 x 1 meter excavation unit was located arbitrarily in the vicinity of the household debris scatter. The excavation unit was staked out and the southwest corner mapped in. The unit was excavated in natural stratigraphic levels. The matrix from each level was passed through a 1/4" steel mesh shaker screen. All cultural materials encountered were then bagged by stratigraphic level.

An intact trash pit or lense was encountered immediately below the plow zone. Therefore, a series of probes were made in effort to determine the horizontal extent of the intact materials. It was concluded that the pit or lense covers an approximate 2 x 2 meter area. Because the trash pit/lense was intact/undisturbed a series of subsurface shovel tests (screened) were excavated beyond the mapped site limits. These tests were excavated at 10 meter intervals. No cultural materials or features were encountered below the heavily disturbed plow zone.

Additional Testing

The site was relocated using the marked bluelines from the August 1983 survey. The site limits, as expressed by artifact concentrations, were established by visual observations and marked with pin flags. A 5 x 5 meter grid was placed over the entire site using tape and compass. Pin flags were then placed in the southwest corner of each unit. A total of 59 units was established on the grid. All cultural material in each unit, except brick, was then collected. Collections from each unit were bagged and labeled separately.

Soil cores 1.905 (0.75 inches) x 50 centimeters were taken from the southwest corner of each square and are described below.

A topographic contour map (Figure D-8) was made of the site using a transit and stadia rod. The grid system was also mapped. This map was then related to the permanent datums established during the August 1983 survey.

Stratigraphy

Initial Survey and Testing

Two distinct profiles were observed in the subsurface shovel tests and the 1 x 1 meter excavation unit. The shovel test and 1 x 1 meter unit profiles are described below and the north wall profile of the excavation unit is depicted in Figure D-9.

Shovel test profile:

- 0-16-18 cm: plow zone - grayish brown (10YR5/2) very fine sandy silty loam, no cultural material;
- 16-18-59 cm: subplow zone - grayish brown (10YR5/2) harder packed fine silty loam, no cultural material.

1 x 1 meter unit (north wall)

- 0-18 cm: plow zone - dark grayish brown (10YR4/2) very fine sandy loam, sparse cultural material;
- 18-32 cm: trash lense/pit (undisturbed) dark gray (10YR4/1) silty, sandy clay, cultural material throughout;
- 32-53 cm: grayish brown (10YR5/2) very fine sandy loam, no cultural material;
- 53-70 cm: brown (10YR5/3) silty very fine sandy clay, no cultural material;
- 70-82 cm: pale brown (10YR6/3) fine silty, no cultural material.

Additional Testing

A typical profile of the subsurface stratigraphy of the site is shown in Figure D-10. The diagram is oriented west to east across the entire site.

The profile exposed by the coring program is consistent throughout the site with only minor variations.

- 0-+12 cm: 10YR3/2 (very dark grayish brown) silty clay with some sand fraction. Slightly sticky, slightly plastic, structureless, fine, diffuse boundary. Brick fragments evident.
- 19-33 cm: 10YR5/8 and 10YR5/2 (yellowish brown and grayish brown) or +63 cm. mottled, slightly sticky, slightly plastic, structureless, fine, boundary clear. Distinguished from overlying material by color and density (i.e. slightly more compact). Brick fragments evident.
- 33 cm +: 10YR3/2 (dusky red) sand with minor clay fraction, not sticky, slightly plastic, structureless, medium sized particles.

The entire silty clay fraction of the profile appears to be disturbed. It probably represents spreading and leveling of the upper portion of the profile. The sand is believed to be naturally deposited material.

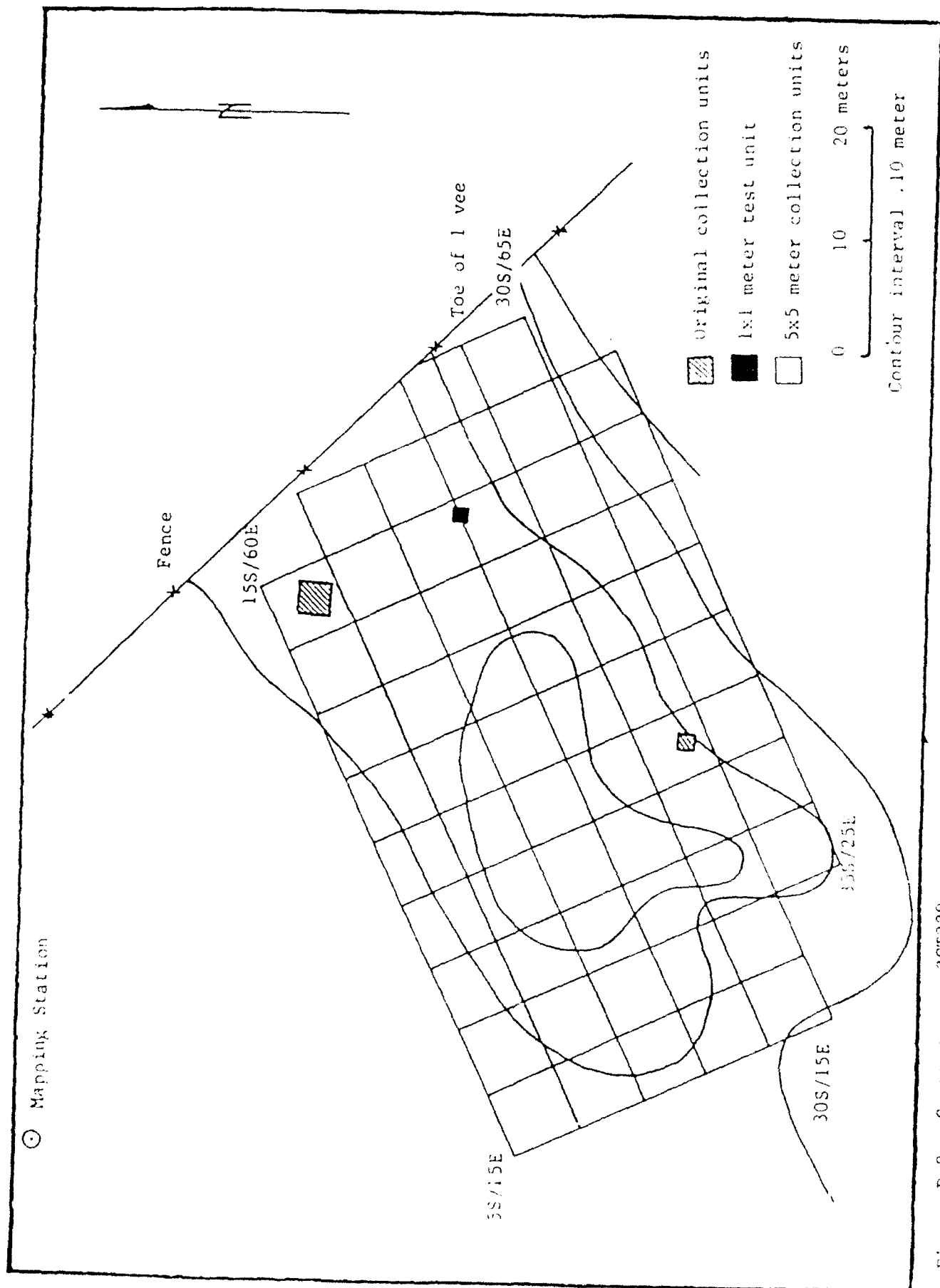


Figure D-8. Contour map, 3CT229.

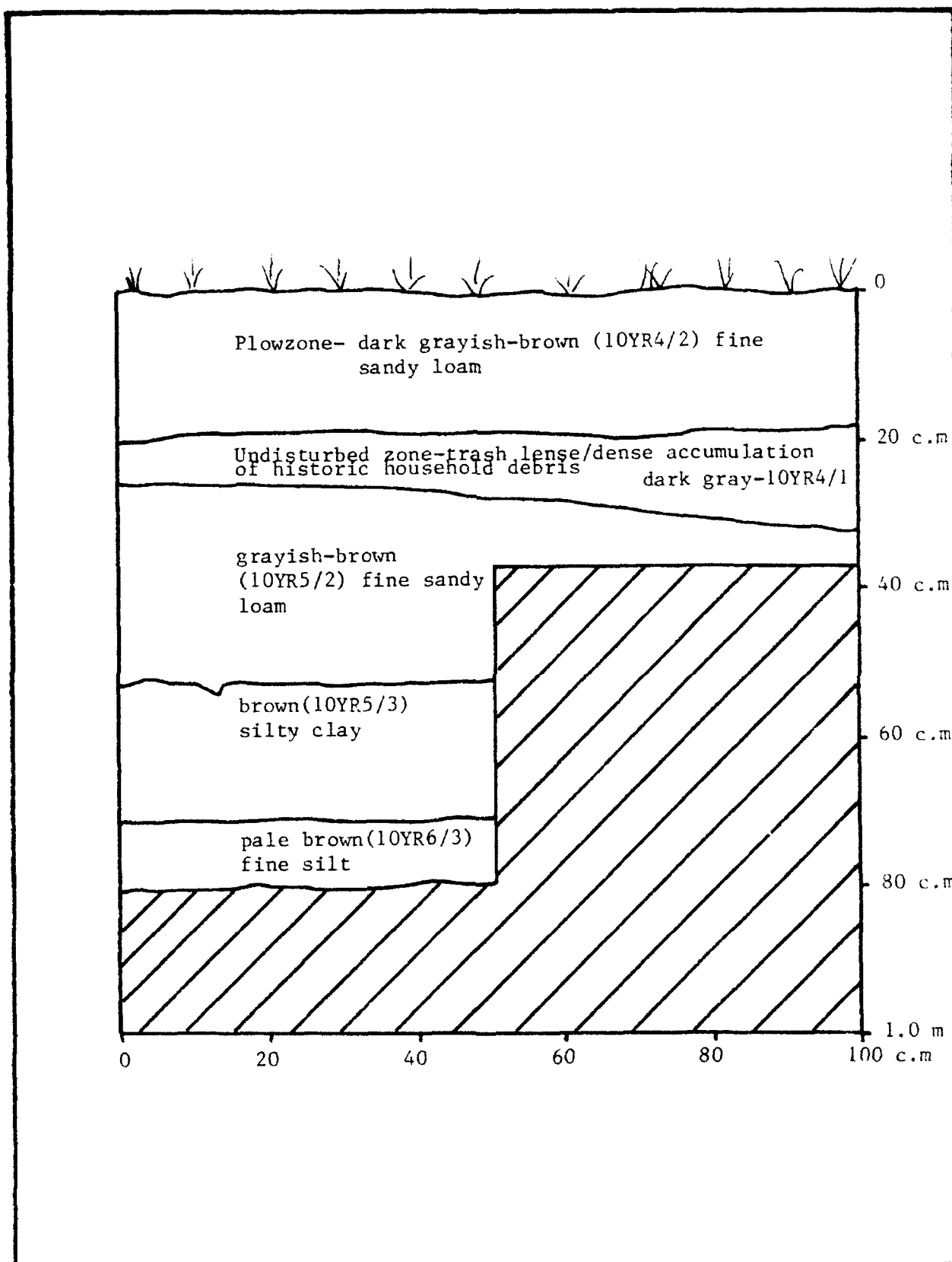


Figure D-9. North wall profile, Test Unit 1, 3CT229.

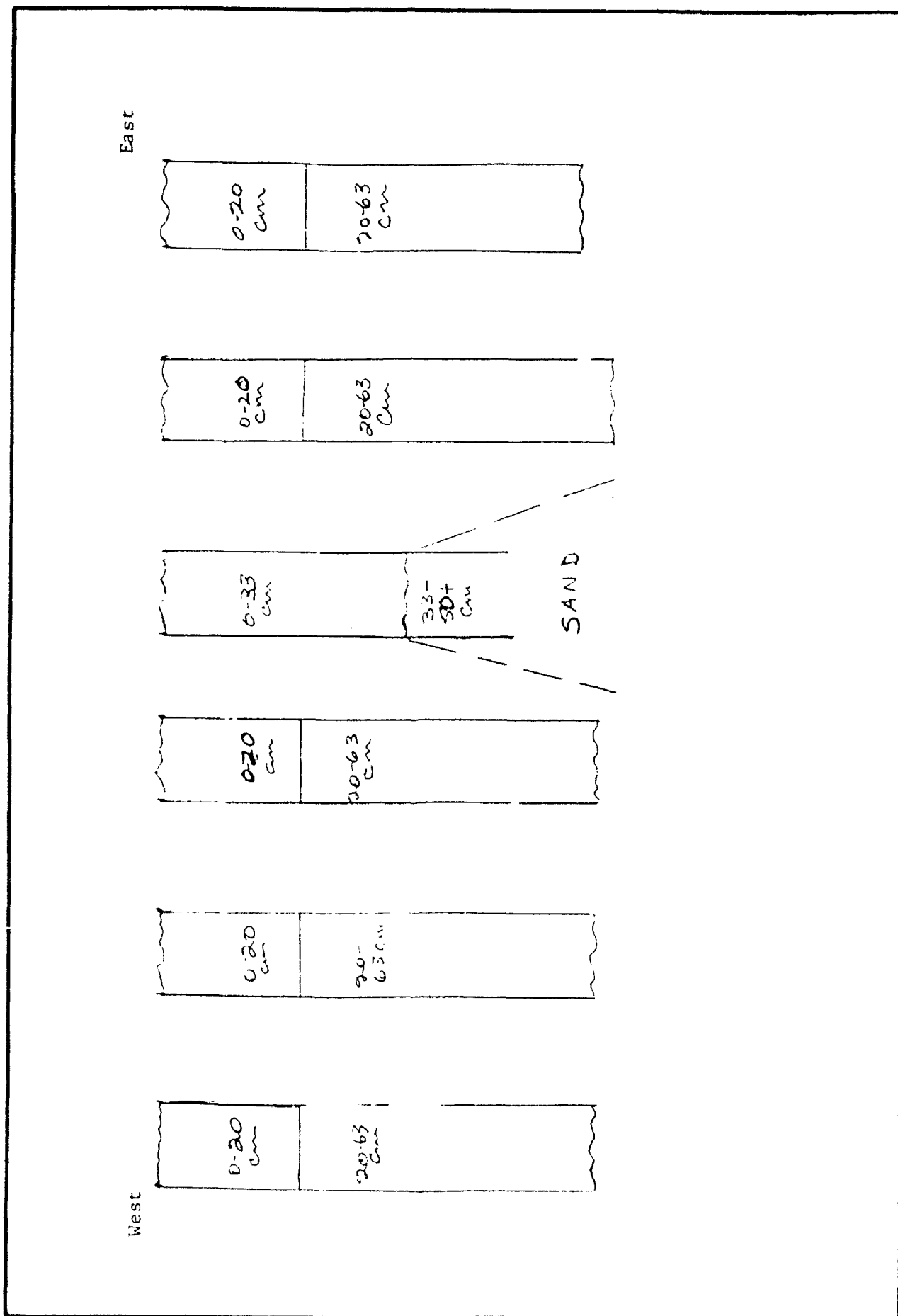


Figure D-10. West to east soil profile, 3CT229.

No intact subsurface features were noted during coring activities.

Material Remains

A total of 1,955 artifacts and 28 faunal items were collected from the site. Material remains categories are shown in Table D-2.

Prehistoric Artifacts

Four grog tempered potsherds comprise the prehistoric inventory. None are decorated.

Historic Artifacts

The historic assemblage includes 1,951 items. During initial survey and testing cement and brick fragments were collected. The brick fragments collected from the site were representative of three brick types. Type A, from collection unit 2, is equivalent to type A from 3CT228. Width and thickness are 10.1 x 5.7 centimeters, respectively, and color is dark reddish brown (2.5YR3/4). One of the fragments includes the partial impressed legend "BB". Two fragments from test unit 1, level 1, of unit 1 were also tentatively identified as type A. The two type D fragments from collection unit 2 are comparable to the type D fragments from 3CT228. No dimensions could be determined. Color is red (2.5YR5/6). Paste was slightly less hard than the other types. The type E fragments from collection unit 2 were identified on the basis of a coarse, gritty paste. The grit, greater than 2 mm. in diameter, left a very rough surface on broken faces. No dimensions could be determined. Color was reddish brown (2.5YR4/4). Fragments of brick smaller than 5 centimeters in diameter were not analyzed. A mass of 112.5 grams (0.25 pounds) was collected from collection unit 2. None of the brick types were temporally diagnostic. Although no brick was collected during the additional testing phase, brick/brick fragments were observed in 52 of the 59 collection units.

Among the 1,031 ceramic fragments are buffware, one; earthenware, four; porcelain, 46; stoneware, 188; whiteware, 317; and yellowware, one.

The porcelain inventory includes one embossed rim fragment and three printed fragments. One is green and red, one is green and purple, and the third is green. All are delicate floral patterns and all are from tableware. Two fragments of a porcelain door knob were also recovered.

The stoneware inventory includes examples with clear/white glaze on both surfaces, 24; clear/white on one face and albany slip on the other, 80; albany slip glaze on both surfaces, 43; albany slip glaze on one surface and unglazed on the other, five; albany slip glaze on one surface and exfoliated on the other, three; clear/white on one face and exfoliated on the other, three; yellow on one face and albany slip glaze on the other, one.

A broad range of pastes are represented among the stonewares with colors ranging from gray to buff and cream. Variations in glaze maturation and paste textures among the sample are indicative of a broad range of firing temperatures. Salt glazed examples are common throughout the sample.

TABLE D-1
ARTIFACTS, 3CT229

PROVENIENCE	TEST UNIT 1 0-20	TEST UNIT 2 20-26	COLL. UNIT 1	COLL. UNIT 2	10S 55E	10S 40E	10S 35E	10S 30E	10S 25E	10S 20E	10S 15E	15S 15E	15S 20E	15S 25E	15S 30E	15S 35E	15S 40E	15S 45E	15S 50E	15S 55E	15S 60E	20S 60E	SUB TTL	
Brick *	-	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	---	
Ceramics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Buff ware	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
Earthen ware	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	
Porcelain	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	
Stone ware	8	21	2	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	58	
White ware	8	63	2	-	10	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	130	
Yellow ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
Glass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Amber	-	8	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
Aqua	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	
Blue	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	
Brown	1	19	-	-	4	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	
Clear	11	53	-	-	17	3	4	2	2	3	5	3	3	5	3	1	5	6	6	6	12	24	180	
Green	-	-	-	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	
Milk	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	
Olive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Purple	8	5	-	-	9	4	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	68	
Metal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Copper-Brass	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	
Graphite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Iron	5	41	-	-	6	14	5	9	6	11	5	3	18	4	1	10	3	6	2	10	6	3	13	
Lead	-	1	-	-	-	-	2	-	3	1	8	1	1	1	4	5	3	-	-	-	-	-	32	
Peewee	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Leather	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
Plastic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
Rope	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
Rubber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Slag	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Faunal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Teeth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
Turtle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Unidentified bone	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5	
Prehistoric	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---	
Ceramics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	
TOTAL	45	223	5	4	51	40	26	13	12	13	28	10	9	24	10	13	22	11	16	14	45	47	63	788

* + = present
- = not present

TABLE D-2
(Cont. from D-1)

PROVENIENCE	20S/55E	20S/50E	20S/45E	20S/40E	20S/35E	20S/30E	20S/25E	20S/20E	20S/15E	20S/10E	25S/15E	25S/10E	25S/5E	25S/0E	25S/45E	25S/40E	25S/35E	25S/30E	25S/25E	25S/20E	25S/15E	25S/10E	25S/5E	25S/0E	30S/65E	30S/60E	30S/55E	30S/50E	SUB TTL
Brick *	+		+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	---
Ceramics																													---
Buff ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Earthen ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Porcelain	5	2	2																										28
Stone ware	4	10	3	3	1																								100
White ware	9	3	4	3	1																								141
Yellow ware																													---
Glass																													---
Amber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Aqua	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
Blue	3	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25
Brown	-	3	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Clear	15	9	10	3	7	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48
Green	4	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	196
Milk	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	47
Olive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Purple	17	6	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	101
Metal																													---
Aluminum	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Copper-Brass	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Graphite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Iron	18	5	4	1	4	4	2	4	8	4	2	3	4	4	2	2	2	2	2	2	2	2	2	2	2	2	2	2	102
Lead	1	-	-	2	3	1	4	3	4	4	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19
Pewter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Miscellaneous																													---
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Leather	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Plastic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Rope	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Rubber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Slag	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Slate	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Faunal																													---
Teeth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Turtle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Unidentified bone	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Pleistocene																													---
Ceramics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
TOTAL	78	42	33	13	17	10	7	10	18	13	16	6	5	11	6	15	39	83	53	35	101	87	110	45	853				

* + = present
- = not present

Table 2
(Cont Inued)

PROVENIENCE	30S 45E	30S 40E	30S 35E	30S 30E	30S 25E	30S 20E	30S 15E	35S 25E	35S 30E	35S 35E	35S 40E	35S 45E	35S 50E	35S 55E	35S 60E	SUB TTL	GRD TTL
Brick *	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ceramics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Buff ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Earthen ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Porcelain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	46
Stone ware	2	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	188
White ware	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	317
Yellow ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Glass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Amber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Aqua	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	28
Blue	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40
Brown	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	111
Clear	2	3	15	3	7	16	4	4	5	5	8	1	3	19	18	113	489
Green	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	92
Milk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19
Olive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Purple	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Metal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	192
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Copper-Brass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
Graphite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Iron	1	2	5	-	6	9	12	2	1	-	-	-	1	6	-	46	337
Lead	-	-	-	-	-	4	5	2	4	1	-	-	-	-	-	18	68
Pewter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Tin	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Leather	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Plastic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Rope	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Rubber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	?
Slag	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Slite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Faunal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Teeth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Turtle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Unidentified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
bone	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prehistoric	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ceramics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
TOTAL	9	6	22	6	16	34	24	8	12	11	18	2	18	95	61	342	1983

* + = present
- = not present

Most examples appear to be the remains of crockery vessels. Nine fragments appear to be from the same vessel, a jug. The exterior is glazed a glossy white and the interior is a glossy black, probably albanv slip glaze. Three other fragments are from the same jug. The upper portion of the shoulder has a glossy dark brown albanv slip glaze on the exterior. The shoulder seam, marked by a distinct ledge, is unglazed. The body has a glossy white exterior glaze. The interior has a glossy black albanv slip glaze. The remains of a third jug is represented by body, base, strap handle and shoulder fragments. This specimen also had albanv slip glaze on the interior. One fragment is part of the mouth of a crock. Another is a handle fragment.

Seven stoneware sherds are decorated with maker's marks. One sherd has a vertical row of stamped roseate circles or flowers. To the left is "N". The roseate row may be a border around the printed message. The pattern is dark blue/black. Two other sherds are decorated with a zoned area with "...ARE." The zone line is zig-zagged. Below is a fragment of a leaf pattern. The pattern is blue. One sherd has black block letters "...HIS..." Two sherds bear the partial legend "...GAN T" in black. Finally, one fragment has a complex scroll-like pattern with "...NEW..." and "CO" remaining. The pattern is blue.

None of the stoneware fragments is temporally discrete. However, use of internal glaze, at least on jugs, dates generally to the 20th century (Munsey 1970:140).

The whiteware fragments appear to be the remains of tableware; such as cups, saucers, plates, etc. Five sherds of sponge ware were recovered. The overall body glaze is light yellow with a blue glaze sponged on both faces. At least two of the sherds may be from long thick vessels such as a wash basin. These sherds may be from vessels manufactured between 1830 and 1860 (Price 1979:19).

The seven embossed whiteware sherds are all rim fragments, with the embossing confined to the edge. One cup fragment and one bowl fragment are decorated with a line of dots between a pair of horizontal lines paralleling the lip. One saucer or plate fragment is decorated with a sinuous line paralleling the lip. One plate or bowl fragment is decorated with a floral tendril motif. One plate fragment is decorated with a line of dots between a pair of lines paralleling the rim. Inside this group of lines is a further line with pendant floral (squash-blossom?) motif. The final embossed sherd has a radiating fluted design. Although not discretely dateable, all of the embossed sherds were fashionable during the late 19th century (Price 1979).

Six of the transfer decorated whiteware sherds appear to be from the same vessel. Decoration consists of small green leaves and stems with small pink flowers. Another transfer decorated sherd also has a motif of pink flowers and green leaves, but is a different pattern. None of the sherds could be discretely dated, but they probably date to the early 20th century. Two blue and two brown transferware sherds were found. One brown sherd is a thick handle fragment. Purple, black and green are also represented. Delicate floral patterns among some of the whiteware fragments may be hand painted. One hand painted whiteware sherd is decorated with a large brown floral motif. The underside of the sherd includes a portion of the maker's mark used by Alfred Meakin of England post-1897 (Godden 1964:425, 426).

Only two other maker's marks were found. One sherd with "HOTEL CHINA" enclosed in a circular border is from the Homer Laughlin China Co., East Liverpool, Ohio (Barber n.d.:110-111). The mark dates after 1879. Another has "ALF..." on a ribbon. Above is "TOYA..." This mark has not been identified.

Among the 1,760 glass fragments are amber, four; aqua, 51; blue, 69; brown, 211; clear, 865; green, 162; milk, 34; olive, three; and purple, 361. The amber and aqua sherds are bottle or jar fragments. Three of the aqua fragments have molded screw threads which suggest canning jar fragments. One aqua sherd is embossed with fragment of the notation "BREWERY" and "MILWAUKEE." Aqua glass sherds were probably commonest in the 19th century, prior to the use of manganese to clarify glass circa 1880 (Munsey 1970:37, 55). However, the molded screw threads and surface condition of the sherds indicates a 20th century date. Most of the blue glass sherds are from bottles. The remainder are of uncertain classification. One sherd is the base of what appears to be a Vick's jar. The partial legend "D-1" is embossed on the base. The sherd could date to almost any period of the 20th century. Two others are embossed but the patterns can not be identified.

Among the brown glass are bottle or bottle fragments, stoppers and unidentified sherds.

The brown bottle has a rectangular body (2.6 x 2.0 centimeters) with a cylindrical cork-closed, hand applied neck. Total height of the bottle is 7.3 centimeters. The number "349" is embossed on the base. This could not be identified with a maker. The hand applied neck indicates that the bottle was probably made prior to the twentieth century, or in the first two decades of the 20th century. Other brown glass fragments are from rectangular snuff bottles. One basal fragment is embossed with three dots. The sherds date to the 20th century. One brown glass sherd consists of the hand applied neck of a cork-stoppered beer bottle. This probably dates between 1870 and 1900 (Munsey 1970:116, 117). The clear glass sample includes bottle fragments, bottle stoppers, lamp chimney fragments, window glass and unidentified sherds. Among the sample are a machine-made bottle fragment. Among the embossed examples is one sherd embossed "CHATTANOOGA," one fragment from an impressed glass bowl (with a diamond pattern), a marble (1.5 centimeters in diameter) with a yellow cats eye center. All of the clear glass post-dates 1915 (Munsey 1970:55), and the glass marble probably post-dates World War II.

Among the green glass fragments are bottle fragments of which several are embossed. Two insulator fragments and miscellaneous fragments complete the sample. None can be discretely dated.

The milk glass sample includes miscellaneous bottle fragments, canning jar sherds, purple swirl fragments, green colored and miscellaneous or unidentified sherds.

Both olive glass are from bottle(s).

The purple glass sample includes bottle fragments, stoppers and unidentified sherds. Embossing occurs among the bottle sample. One base fragment bears an Owens Co. mark (post-1903-1977). Another fragment, a neck, appears to pre-date 1903. Two sherds are from hand applied, cork-stoppered bottle necks. All undoubtedly date between 1880 and 1915 (Munsey 1970:55).

Among the 781 item metal sample is an aluminum can. Six brass shotgun shells, one rifle shell, a lock and a charm? fragment make up the copper-brass inventory. One graphite battery core was recovered.

Among the iron inventory are belt buckles, flat iron, bolts, hasps, straps, wire hooks, spikes and other miscellaneous items. Among the nail sample are 10 square nails, 36 wire nails and 43 unidentified nails.

Lead nail caps and one miscellaneous lead item were collected. Tin sheeting and a pewter toy wagon wheel complete the metal inventory.

Other items collected include coal, leather, plastic, rope, rubber, slag and slate.

Artifact Distribution

Figure D-11 shows the frequency of the artifact distribution at site 3CT229. The distribution of the prehistoric items is non-patterned.

Among the historic items note that the artifacts occur in all collection units. These are most frequent on the eastern margin of the site.

Site Size, Distribution and Interpretation Based on Investigations

As a result of the investigations it is concluded that the areal limits of the surface scatter were approximately 40 x 55 meters (2,200 square meters) with the long axis being east-west. There do not appear to be in situ deposits on the site. The trash lens located during initial survey and testing may be an accidental trash accumulation.

The prehistoric materials suggest a casual or temporary Woodland component.

Map evidence indicates that no historic structure existed on the site before 1916, but that one had been built there by 1930. Because no structure is shown on a 1952 map but one is present on a 1962 map, either: 1) the 1930 structure was destroyed by 1952 and another built before 1962 or 2) an error was made on the 1952 map and the 1930 structure stood until after 1962. In either case, all structures were gone by 1975.

The artifact component is somewhat confusing. Buffware, spongeware and aqua glass and miscellaneous fragments are suggestive of pre-1880 site use. These may be heirloom and/or practical items still in use in the 20th century or evidence of unrecorded use of the location before the latter 19th century.

The purple glass suggests a pre-1915 occupation. However, the large clear glass sample certainly suggests continuance into post-1915 times. Few domestic items, however, appear to post-date World War II.

In summary, several hypothesis can be made concerning the 20th century remains. There may have been a structure on the site during the late 1800's and before 1915. This seems unlikely if the map evidence is considered. Perhaps the pre-1915 artifacts were from items in use in or post-1916 household.

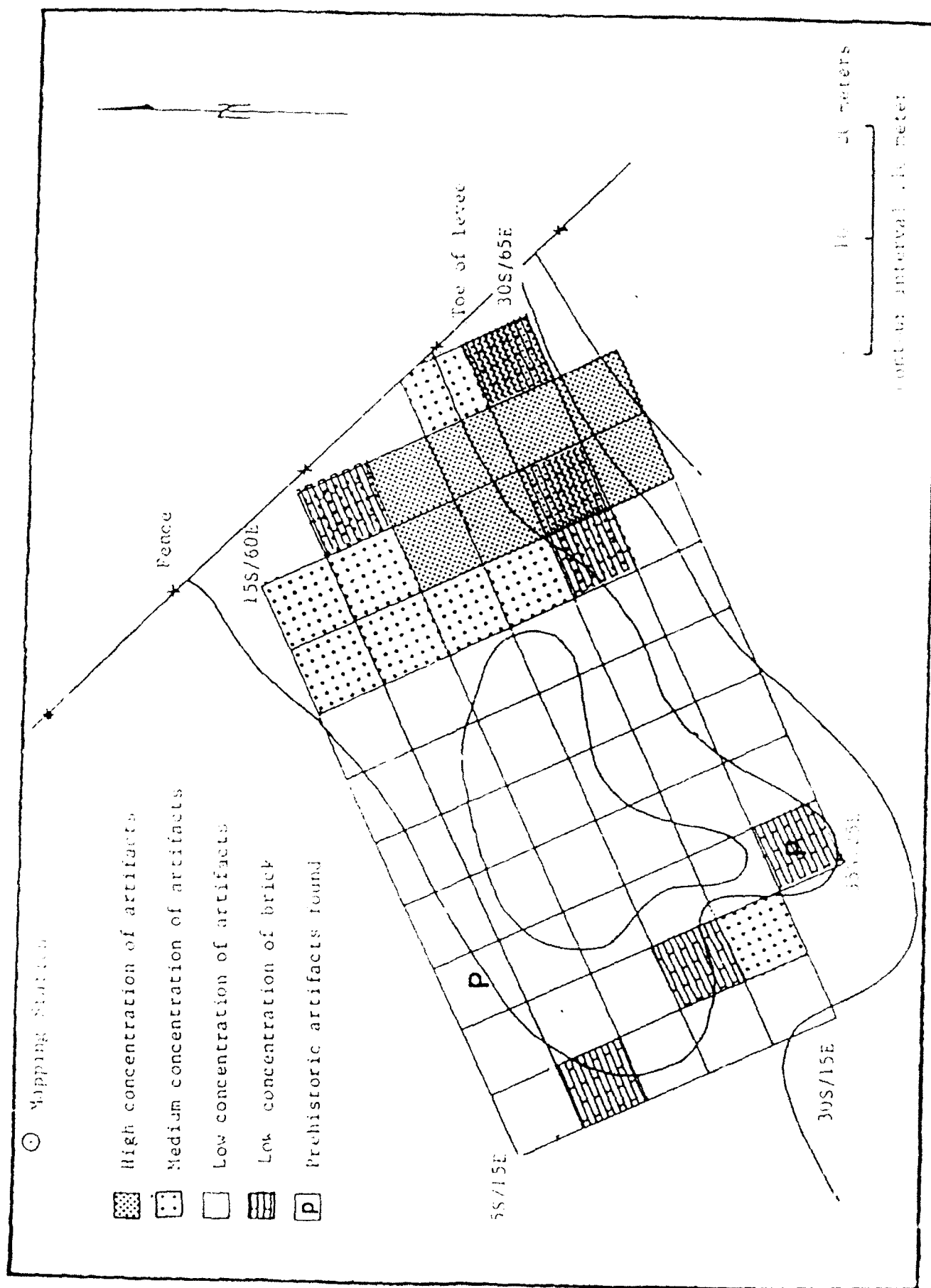


Figure D-11. Artifact distribution, 3CT229.

Although many artifacts may well post-date World War II, there is little confirmed household debris for a structure that may have persisted until the late 1960's. Recent agricultural use of the site is reflected in the artifact inventory. Casual hunting on the location is evident from shotgun shell casings.

Therefore, it seems plausible to consider the possibility that this site represents an area of "scrape and fill." It may contain artifacts from early structures that were located nearby. Also, remains from structures located on this site may have been secondarily deposited in borrow areas nearby. Thus, remains on this site may include the remains of general habitation episodes.

3CT230

Location and Physical Setting

This site (Figure D-12) is located on the slight slopes and crest of a sandy ridge overlooking a former borrow pit area. Soils in the vicinity include: Borrow Pit and Robinsonville very fine sandy loam (Gray and Ferguson 1974) and the elevation is approximately 68.58 meters (225 feet) AMSL (Corps of Engineers 1975). The site is separated from the toe of the levee by the levee right-of-way fenceline to the east. At the time of the initial survey, vegetation consisted entirely of soybeans approximately 30-45 centimeters (12-16 inches) in height. During the additional testing phase the site was a fallow soybean field.

Site History

The earliest map depicting a structure at this location is the circa 1930 Corps of Engineers map. Thus, the structure, a house, was possibly built between 1916 (when no structure was depicted on the Mississippi River Commission map of 1916) and 1930. The 1952 Corps of Engineers map does not depict any structure at the location; however, the 1962 Corps of Engineers map depicts the structure, or another, at the site. No structure is depicted on the 1975 Corps of Engineers Map. Thus, by 1975 the structure had been demolished and the area was being used for agriculture. A local informant indicated there were houses located in this area, south of the school and gin, that were considered part of the new Lambethville (J. O. Thresher:personal communication).

Methodology

Initial Survey and Testing

The site was observed during the survey on August 16, 1983 as a moderate accumulation of historic building materials and a very low density scatter of household debris. It was observed on the cultivated surface (between bean rows) of a slight ridge slope and crest, overlooking a former borrow pit area to the east. As the site was discovered during survey, subsurface shovel tests were excavated in the vicinity of the scatter. These tests failed to produce cultural material and no subsurface features were observed. The site location was plotted on large scaled aerial blueprints and flagged for return investigations.

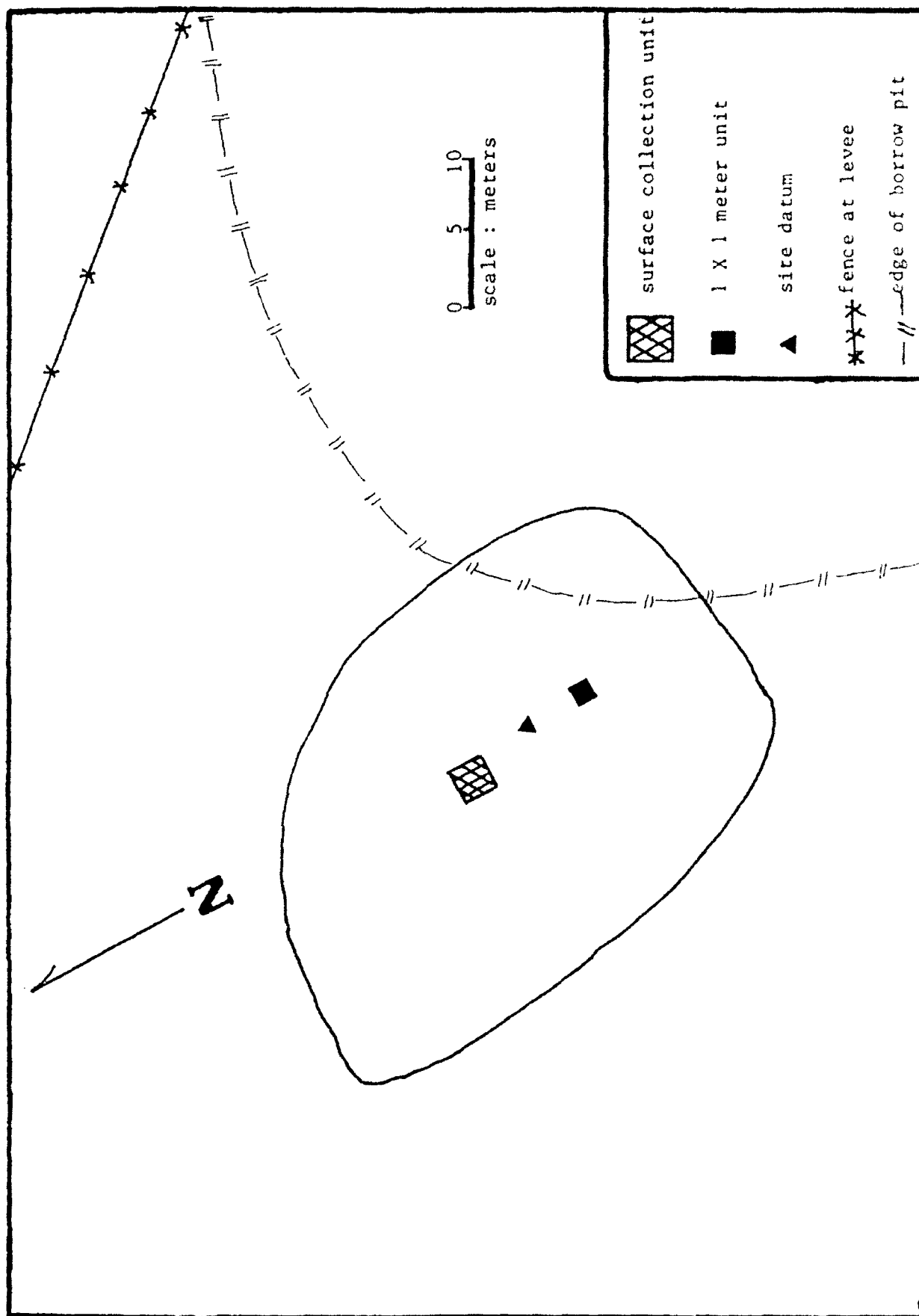


Figure D-12. Original site map, 3CT230.

When revisited on August 19, 1983, the surface limits of the scatter were delineated and marked with flagged poles. Also delineated was a concentration of brick and mortar fragments. The site limits were mapped with a transit and a 3 x 3 meter collection unit was superimposed over the concentration of debris. The southeast corner of the surface unit was mapped and all material on the surface within the unit systematically collected and bagged separately. A single 1 x 1 meter excavation unit was staked out near the concentration and the southwest corner mapped with the transit.

The unit was excavated in natural stratigraphic levels and all matrix passed through 1/4" steel mesh shaker screen.

Additional Testing

The site was relocated using the location plotted on survey bluelines. The site limits as expressed by artifact concentrations were established by visual observation and marked with pin flags. A 5 x 5 meter grid was then placed over the site using tape and compass and stakes were placed in the southwest corner of each unit. Thirty-eight units were located on the grid. All cultural material except for brick found on the surface in each unit was collected. Collections from each unit were bagged separately.

Soil cores 1.905 (0.75 inches) x 50 centimeters were taken at the southwest corner of each unit.

A topographic contour map was made of the site using a transit and stadia rod. This map was tied into the permanent datums established during the August survey. The 5 x 5 meter grid established over the site was mapped using a transit and stadia rod. This too was related to the permanent datums established during the previous survey (Figure D-13).

Stratigraphy

Initial Survey and Testing

As the subsurface shovel tests and the 1 x 1 meter unit excavated at this site were similar the north wall profile of the 1 x 1 meter unit is described below and depicted in Figure D-14.

- 0-16 cm: plow zone - mottled brown and yellowish brown (10YR5/4) very fine sandy loam, sparse cultural material to 14 cm.;
- 18-28 cm: dark yellowish brown (10YR4/4) hard packed fine sandy loam, no cultural material;
- 28-66 cm (35-66 cm. in northwest quadrant only): white, coarse-grained, loosely packed sand, no cultural material.

Additional Testing

A typical profile of the subsurface stratigraphy of the site is shown in Figure D-15. It is oriented west to east.

The profile exposed by the coring program is consistent throughout the site with only minor variations.

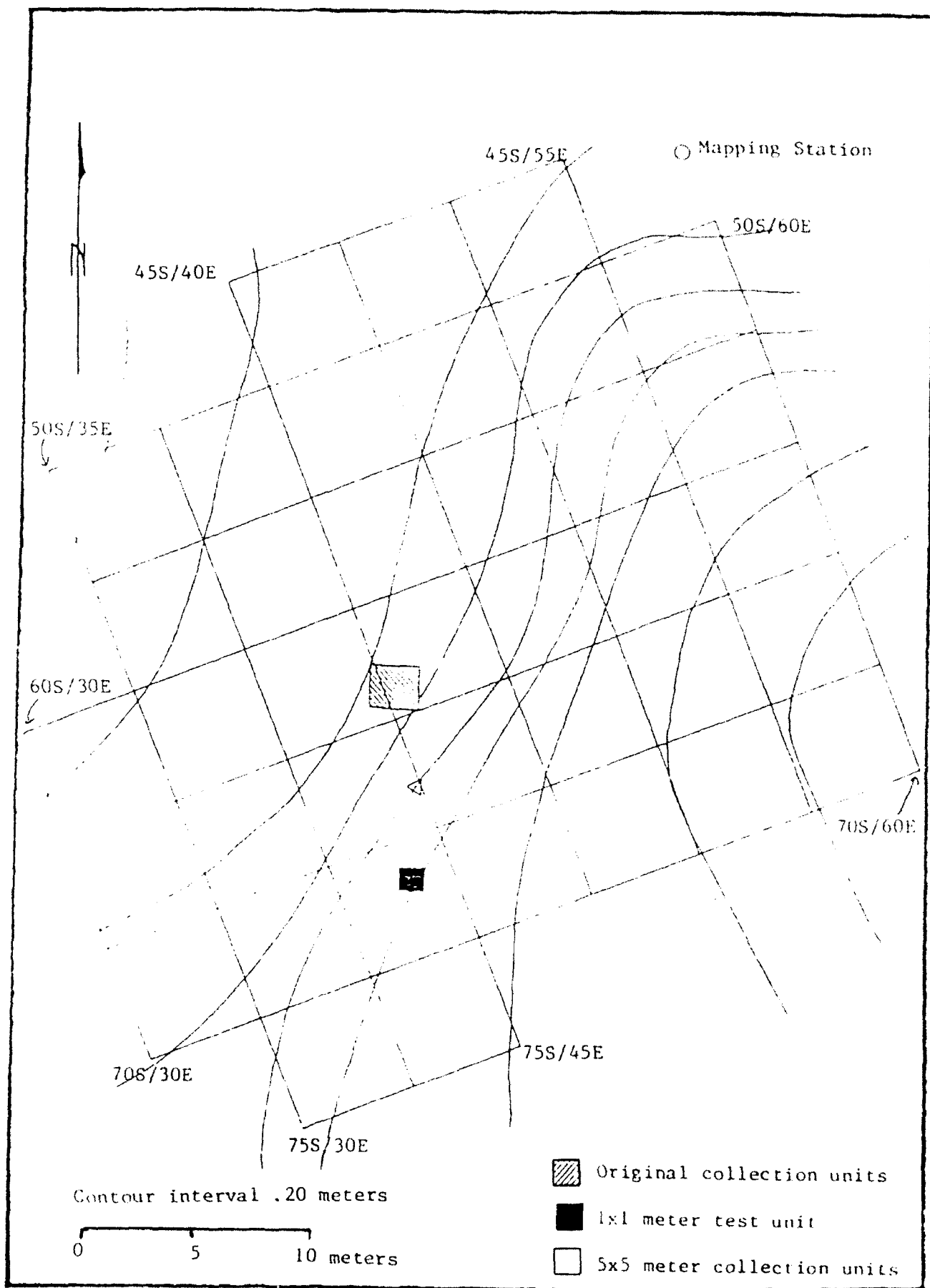


Figure D-13. Contour map, 3CT230.

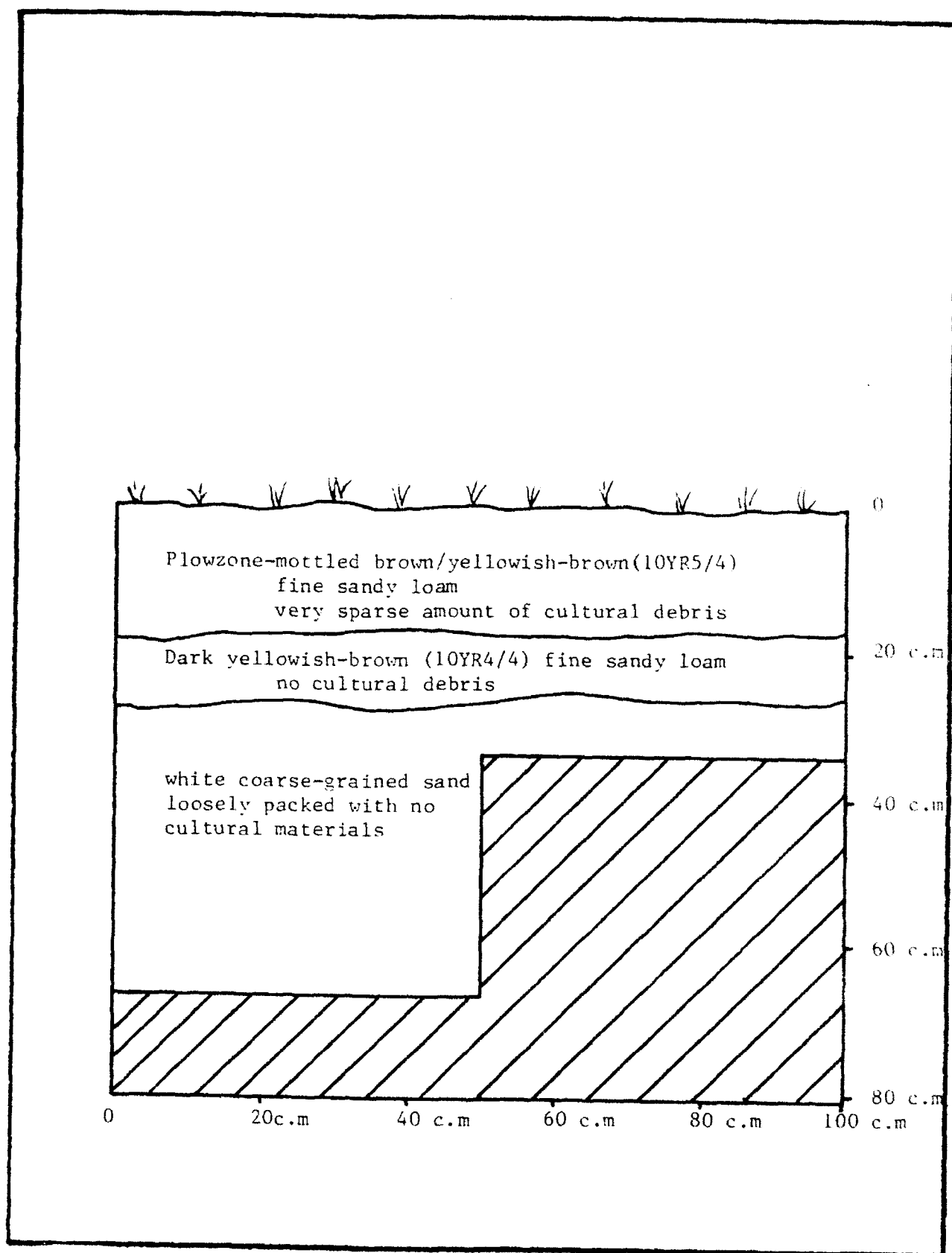


Figure D-14. North wall profile, Test Unit 1, 3CT230.

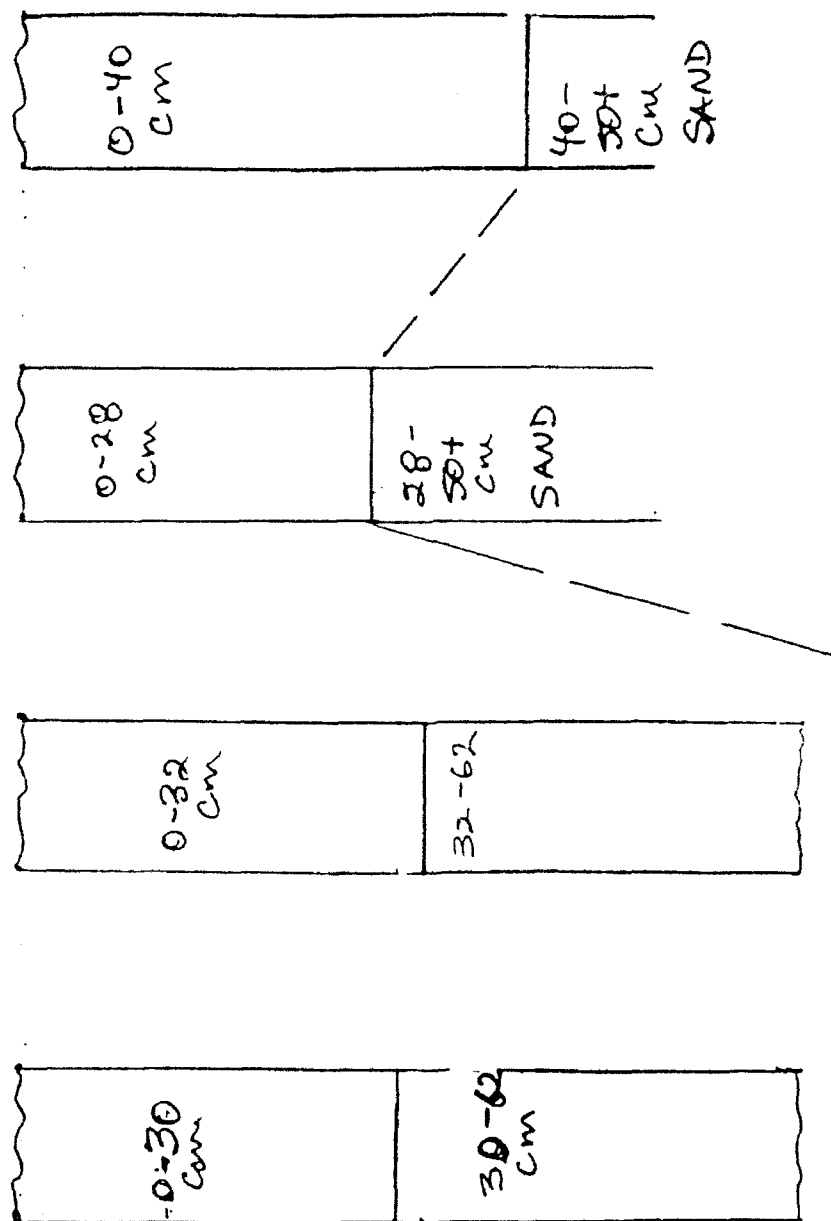


Figure D-15. Coring profile, 3C1230.

- 0-+30 cm: 10YR3/2 (very dark grayish brown) silty clay with some sand fraction, slightly sticky, slightly plastic, structureless, fine, boundary sharp where present. Historic materials mixed into this portion of the profile.
- +30 cm: 10YR3/2 (very dark grayish brown) sand with minor clay fraction. Not sticky, slightly plastic, structureless, medium sized particles.

The entire silty clay fraction of the profile appears to be disturbed. It probably represents spreading and leveling of the upper portion of the profile. The sand is believed to be naturally deposited material.

No intact subsurface features were noted.

Material Remains

A total of 950 artifacts and two tooth fragments were recovered from 3CT230. All material remains categories are shown in Table D-3.

Prehistoric Artifacts

Twelve prehistoric sherds were collected. All are undecorated and grog tempered. These sherds appear to date to the Woodland Period.

Historic Artifacts

The historic assemblage includes 938 items. During initial survey and testing brick fragments were recorded over the majority of the site. A concentration was located near the center on a small rise. Bricks in this location were still mortared together and appeared to be the remains of building piers. No other structural remains occurred on the site. None of the brick fragments were large enough to determine original brick size. Seventeen of the brick fragments were reddish brown (2.5YR4/4) in color. The others, two from the test unit and one from collection unit 1 were partially vitrified and dark gray (5YR4/1) in color. The vitrification and color change are probably the result of accidental heating of the reddish-brown bricks. They may also indicate burning of structural remains though no charcoal was observed. The brick fragments are not temporally diagnostic.

The cement fragments found at this time were hard and non-friable. They almost certainly date to the 20th century. Although no brick was collected during the additional testing phase, brick/brick fragments were observed in 35 of the 38 collection units.

Among the 195 ceramic fragments are: buffware, six; porcelain, four; redware, three; stoneware, 77; earthenware, five; whiteware, 92; yellowware, eight; and tile, one.

The buffware sherds appear to be from a single vessel. The exterior is olive-green on all sherds. The interior on five sherds is olive-green and black on one. The black fragment may be evidence of an immature glaze rather than variation in glaze materials.

Among the porcelain fragments are two from saucers. One of these displays a scalloped, embossed decoration. None of the others is decorated.

TABLE D-3
ARTIFACTS, 3CT210

PROVENIENCE	COLL. UNIT	TEST UNIT	45S/55E	45S/50E	45S/45E	50S/35E	50S/40E	50S/45E	50S/50E	50S/55E	50S/60E	55S/60E	55S/55E	55S/45E	55S/40E	55S/35E	60S/30E	60S/35E	TTL
Brick *	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	---
Ceramics																			
Buff ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Earthen ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Porcelain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Red ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Stone ware	1	1	2	4	1	1	1	2	1	1	4	6	6	3	4	2	1	1	40
White ware	2	1	5	9	1	1	3	4	2	2	5	6	5	4	2	1	1	1	57
Yellow ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Glass																			
Amber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Aqua	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21
Blue	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14
Brown	-	-	-	3	-	1	1	1	1	2	3	3	3	4	2	1	-	-	26
Clear	-	-	7	10	4	2	-	-	-	-	2	2	2	6	3	2	2	2	63
Green	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9
Milk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Olive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Olive-Amber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Purple	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13
Metal																			
Copper-Brass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
Iron	-	1	9	6	-	12	1	-	2	2	4	9	9	7	3	4	2	2	76
Lead	-	-	2	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	5
Miscellaneous																			
Bone-teeth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Plastic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Rubber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Slag	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Prehistoric Sherds	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
TOTAL	3	3	34	35	9	17	7	8	10	16	35	48	54	26	21	17	14	7	369

* + = present
- = not present

TABLE 2-3
(Continued)

PROVENIENCE	60S/ 40E	60S/ 45E	60S/ 50E	60S/ 55E	60S/ 60E	65S/ 50E	65S/ 55E	65S/ 60E	65S/ 40E	65S/ 35E	70S/ 30E	70S/ 35E	70S/ 40E	70S/ 45E	70S/ 50E	70S/ 55E	70S/ 60E	75S/ 35E	75S/ 40E	ITL
Brick	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	---
Ceramics																				
Buff ware	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Earthen ware	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Porcelain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2
Red ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Stone ware	2	3	2	2	5	1	3	-	-	-	-	-	-	1	1	3	3	1	1	38
White ware	-	2	2	5	2	3	-	-	1	-	1	-	2	-	-	1	3	1	2	35
Yellow ware	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	4
Glass																				
Amber	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Aqua	1	1	1	1	5	-	2	1	-	-	-	-	-	-	-	-	-	-	-	8
Blue	1	1	-	2	1	-	-	1	-	-	-	-	-	1	-	-	1	-	-	13
Brown	-	-	1	1	-	-	-	-	-	-	1	-	-	1	1	-	2	1	-	8
Clear	-	4	2	3	-	1	-	-	1	-	-	-	2	1	1	-	1	1	2	23
Green	1	-	-	1	1	-	-	-	-	-	-	-	-	2	-	-	-	-	-	8
Milk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
Olive	-	2	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	6
Olive-Amber	1	-	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
Purple	-	-	-	4	1	1	-	-	-	-	-	-	-	-	-	-	1	-	-	7
Metal																				
Copper-Brass	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	2
Iron	-	-	-	3	6	4	4	-	3	1	1	-	-	-	1	-	2	-	-	31
Lead	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Miscellaneous																				
Bone-teeth	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Plastic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2
Rubber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Slag	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Prehistoric																				
Sherds	-	-	-	-	-	2	-	-	-	1	-	-	-	-	-	2	2	1	-	8
TOTAL	6	12	10	26	37	20	15	10	7	9	4	-	4	6	5	7	16	7	6	215
GRAND TOTAL																				584

* + = present
- = not present

One thin red ware body fragment with a raised dot decoration was found. It has clear glaze on both interior and exterior surfaces.

The stoneware includes examples with clear/white glaze on both surfaces, 10; clear/white on one face and albany slip glaze on the other, 26; albany slip glaze on both faces, two; clear/white on one face and unglazed on the other, 28; clear/white on one face and exfoliated on the other, two; albany on one face and light tan on the other, two; light tan on one face and unglazed on the other, one; tan on both faces, four; tan on one face and exfoliated on the other, one; tan and brown on one face and white on the other, one.

A broad range of pastes are represented among the stone wares with colors ranging from gray to buff and cream. Variations in glaze maturation and paste textures among the sample are indicative of a broad range of firing temperatures. Salt glazed examples are common throughout the sample.

Most examples appear to be the remains of crockery vessels. One jug lip/rim fragment is among the sample. Although one fragment with tan on both faces is a fragment of a crockery vessel, probably a mixing bowl; other tan colored examples may be fragments of stout/ale bottles (Bristol Beer). One clear/white base fragment also appears to be the remains of a stout/ale bottle.

One stoneware fragment is a body sherd. The exterior has a tan slip (apparently a horizontal banded pattern) on part of the exterior. The entire exterior has a light clear glaze (possibly from salting). The interior has a white opaque glaze. In fact, the opacity of both surfaces suggests that maximum firing temperature was not reached. The dark paste color may indicate that manganese was added to the clay body.

Most of the stoneware samples probably dates to the late 19th (post-1890) or early 20th centuries (Munsey 1970:140-141).

The five earthenware sherds include one rim fragment of a large crockery vessel. A light greenish lead glaze is evident on interior and exterior surfaces. It puddles to a dark greenish black where caught in ridges of the surfaces. One other small body sherd may be a fragment of the same vessel. One thick body sherd is mustard yellow on the exterior and dark greenish black on the interior. Another sherd may be from the same vessel but the exterior glaze is exceptionally thin or eroded away. Finally, one earthenware sherd with a thin mustard colored glaze on the exterior has a dark brown-albany slip colored glaze on the interior. All of the mustard colored glazes are suspected to be lead glazes.

The 92 whiteware fragments appear to be the remains of tableware, cups, saucers, plates, etc. On one body sherd, the bluish cast to the white glaze suggests that it may be an example of pearlware. The edges of the blue design on a blue transferware example are indistinct. This attribute and the bluish cast to the white areas suggest a pearlware, possibly "flow blue" classification. The dating of pearlware is uncertain at best. According to Noel Hume (1969:391) it may date as early as the late 1700's. The date that it ceased to be manufactured is debatable. According to Hume (1972:85) it was not manufactured after the 1830's. South, however, suggests that manufacture of pearlware may have persisted until the 1890's (South 1972:85, 1974:333).

One blue "feather-edge" rim fragment from a plate is among the sample. The edge of the plate is not embossed.

Among the transferware fragments is a small blue rim fragment. It is too small for the design to be discerned. Another may be a body fragment from a cup. There is a blue-black floral pattern on both faces.

One thick fragment, perhaps from a bowl or pitcher, has a fragment of a blue-green floral pattern on the interior. The blue-green pattern on the exterior has been overlain with green on the leaves and purple on the flowers. The overlay is imprecise.

Finally, a small fragment that has been burned has both an embossed and colored floral pattern. The original may have been blue.

Among the 12 yellowware sherds is one decorated example. It has a tan/white/brown annular pattern with a dendridie "mochaware" pattern.

A total of 247 glass artifacts were collected. These include: amber, five; aqua, 29; blue, 27; brown, 34; clear, 86; green, 17; milk, two; olive, 11; olive-amber, 16; and purple, 20.

Among the amber colored fragments are neck and body bottle fragments. One rim fragment has a "laid on" or applied lip. A seam on the neck meets the applied lip margin. The specimen may date as late as 1913 (Newman 1970:74).

The aqua sample includes bottle and possibly plate glass fragments. Among the bottle sample are two fragments of a roughly finished bottle body and base. A seam is evident on the body as are the embossed letters "N J SMITH" and "...SVILLE" and bubbles are apparent throughout the matrix. Another is a panel fragment from the side of a medicinal bottle. It is embossed with "...RCH PA." Although an applied lip or a neck fragment suggests a post-1900 date (Newman 1970:74) for that item, most aqua glass was manufactured before 1880 (Munsey 1970:37, 55).

A fragment of a blue machine-made bottle has a portion of a triangle and the number "9" embossed on the base. It is surely a 20th century example.

Among the brown glass sample is a faceted or paneled bottle. Panel seams extend across the base. Another fragment may be a lip and shoulder fragment of a snuff bottle.

Among the clear glass fragments are 83 bottle fragments, nine window pane pieces and four lamp chimney fragments. None of the clear glass can be dated but all post-dates 1915 (Munsey 1970:55).

All of the green glass appears to be bottle fragments. One small, light green example shows evidence of a hollow rod pontil. It may date to the mid to late 19th century.

Only two sherds of milk glass were found. At least one of these is a canning jar cover.

All of the olive colored fragments are from bottles. Three are thick basal fragments and one is a thick neck/lip fragment. The lip has been laid

on or applied suggesting at least a late 19th century date. One olive-amber fragment is from a wide-mouth bottle, possibly an extract bottle dating between 1815-1885 (Reher 1977:240 and Newman 1970:74).

The purple glass includes three purple base fragments and one neck/lip fragment that date between 1880-1915 (Munsey 1970:55).

Among the metal fragments are 11 copper-brass items. These include a button or rifle cartridge, seven shotgun shells, a ring and an eyelet. The cartridge and shotgun shells are modern.

Among the iron items are buttons, bolts, machine parts, nuts, rings, staples, pipe screw joints, wire and a pipe screw joint. Forty-one nails were recovered. Of these, 20 are round, 14 are square and seven are unidentified.

Five lead items were collected. These include a nail cap or .69 caliber bullet (possibly from a Springfield dating 1858-1865).

Coal, plastic, rubber and slag complete the historic debris.

Only one faunal item was collected. It is a deer's tooth.

Artifact Distribution

Figure D-16 shows the frequency of distribution of artifacts across site 3CT230. Note that the prehistoric remains appear non-patterned in distribution.

Historic remains were recovered from all but one collection unit. This unit is in the southwest portion of the site and is in the area of lowest artifact frequency.

The highest frequency of historic remains occurs in the north portion of the site.

Site Size, Distribution and Interpretation Based on Investigations

The areal extent of the site is 35 x 35 meters (1,225 square meters) with the long axis being north-south. Cultural material is restricted to the upper 14 centimeters of topsoil, well within plow disturbed deposits. No subplow zone cultural material or features were encountered in any of the subsurface tests excavated.

The prehistoric materials at this site are sparse with only 12 ceramic sherds being recovered. This suggests the destruction of the prehistoric component or may be an expression of redeposition of prehistoric materials from a nearby area by agricultural and/or land fill practices. The prehistoric remains suggest Woodland association.

Map evidence suggests that no structure existed on the site until after 1916. As at site 3CT229, there appears to have been: 1) a hiatus between 1930 and 1962 during which there was no structure on the location or 2) a 1952 Corps of Engineers map is in error for not showing a structure on the site.

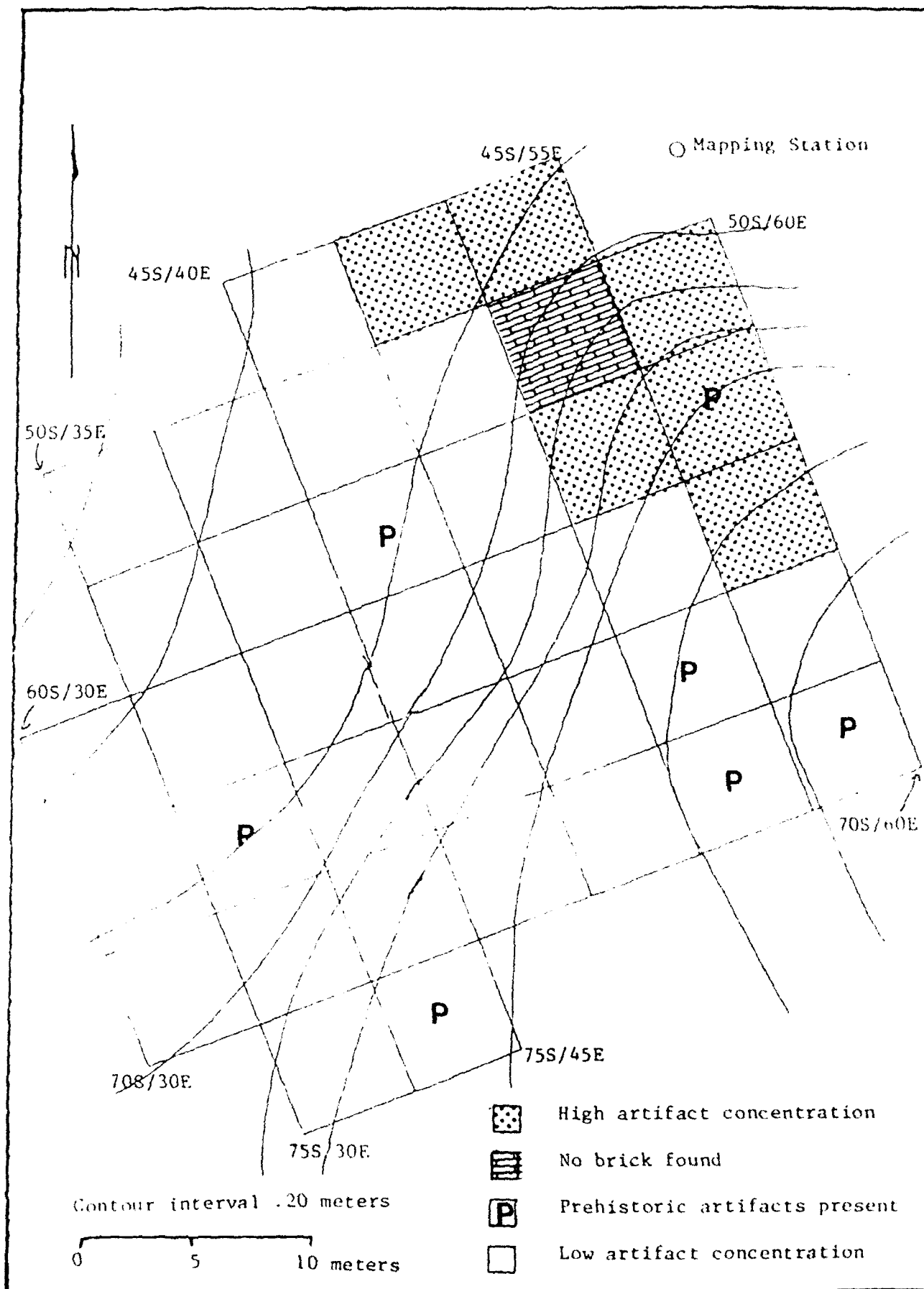


Figure D-16. Artifact distribution, 3CT230.

When compared to the map evidence, the artifact assemblage is puzzling. Buffware, earthenware, pearlware and olive-green glass may be evidence of early (at least first one-half of the) 19th century occupation at the site. These items may also be items still in use in the late 19th/early 20th century habitations on the site.

Although the amber glass suggests a pre-1880 association, these items may be associated with the earlier component evidence of casual site use in the mid to late 1800's or items still in use after 1880.

The purple glass suggests site use before or near 1915. These may be associated with a post-1916 structure. Clear glass and many other artifacts suggest a post-1915 occupation.

Although some of the material remains may post-date World War II and reflect a circa 1960 occupation, the frequency of late remains is not overwhelming. However, the brick structural remains probably date to this late time frame.

In conclusion, several observations should be made. There may have been casual use or habitation on the site during the first half of the 19th century.

There may have been a structure on the site during the late 1800's and before 1915. Considering the map evidence, this seems unlikely. Materials dating to the late 1800's may have been in use in a later, 20th century household. In fact, early 20th century items may also have been associated with a post-1916 household.

Although many artifacts and the structural remains may post-date World War II, there is not a high frequency of these later materials.

It seems plausible to consider that most, if not all, of the debris is secondarily deposited on the site. It may have been scraped from contiguous areas and represent the remains of several habitation episodes.

Finally, recent agricultural use of the area for hunting is confirmed in the artifact inventory.

3CT231

Location and Physical Setting

This site is located between the toe of the existing levee and a former borrow pit area. Soils in the immediate area belong to the Borrow Pit association (Gray and Ferguson 1974), however, the soils present consist of silts and very fine to medium grained sands. It is unknown whether the soils are naturally developed or redeposited colluvial wash from the levee, but they are consistent with those described as Robinsonville very fine sandy loam. The elevation is approximately 68.58 meters (225 feet) AMSL (Corps of Engineers 1975). site is bordered on the east by the right-of-way fenceline marking the toe of the levee. The southern and western limits of the site are marked by an existing farm road and the borrow pit, respectively. At the time of the initial survey the entire site area supported cultivated soybeans generally

less than 15 centimeters (6 inches) in height. During the period of additional testing the site area was fallow.

Site History

The earliest map depicting a structure at this location is the circa 1930 Corps of Engineers map. Thus, the structure was probably built between 1916 (when no structure was depicted on the Mississippi River Commission map of 1916) and 1930. The structure is depicted on the 1939 Corps of Engineers map, but had apparently been razed by 1952 as no structure is depicted on the 1952 Corps of Engineers map.

Methodology

Initial Survey and Testing

The site (Figure D-17) was initially identified/observed during the survey on August 17, 1983 as a medium density surface scatter of historic building and household debris. Also observed was a single prehistoric undecorated sherd. It occupies a slight sandy rise between the base of the levee (toe) and a former borrow pit. Shovel testing was conducted on the site during the survey, however, no cultural materials or features were encountered below plow disturbed deposits. The site location was plotted on large scaled aerial blue-line maps and flagged for return investigations.

When revisited on August 19, 1983, a site datum was established and the site limits were marked with flagged poles. The site limits were then mapped in with a transit while an intensive surface inspection of the site area was made. During this inspection, it was observed that a prehistoric component (rather than a single sherd) was present. The prehistoric component was restricted to an approximate 225 meter² (15 x 15 meters) (50 x 50 feet) area whereas the historic material was distributed over the entire sandy ridge between the levee fence and the borrow pit.

A single collection unit measuring 4 x 4 meters in plan was superimposed within the prehistoric/historic concentration. The southeast corner of the surface was systematically collected and bagged. A single 1 x 1 meter excavation unit was staked out within this concentration of prehistoric/historic materials. The southwest corner was mapped in and the unit excavated in natural stratigraphic levels. All matrix from the unit was passed through a 1/4" steel mesh shaker screen.

The site was relocated using the marked blue-lines from the August 1983 survey. The site limits were established by visually observing the limits of artifact presence. These limits were then flagged with pin flags. A 5 x 5 meter grid was placed over the entire site using tape and compass. The southwest corner of each unit was marked with a stake or pin flag. Each unit was then collected, bagged and labeled separately. A total of 51 units were collected.

A topographic contour map and a map (Figure D-18) showing the overlying grid was made using a transit and stadia rod. These maps were related to the permanent datums established during the August 1983 survey.

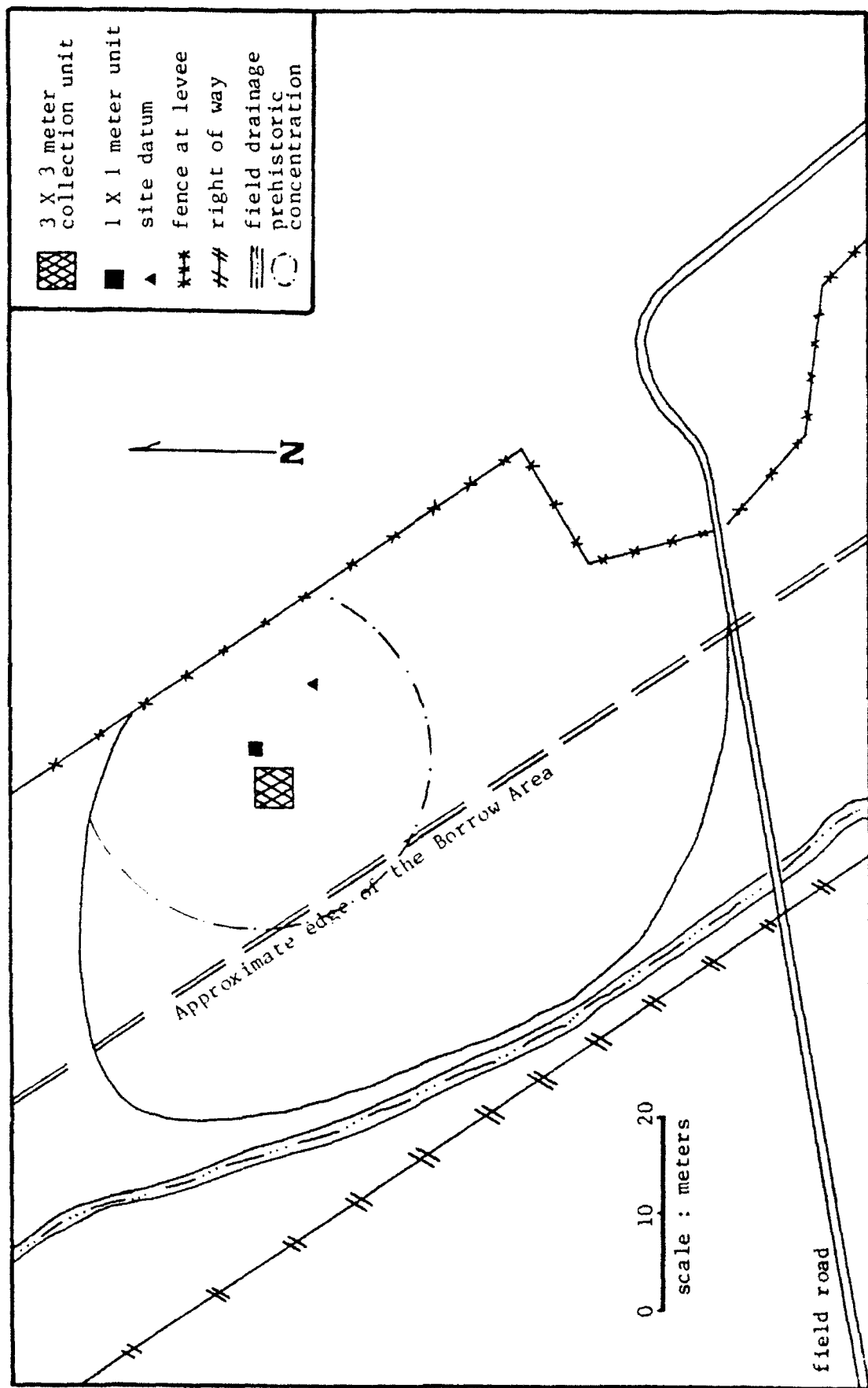


Figure D-17. Original site map, 3CT231.

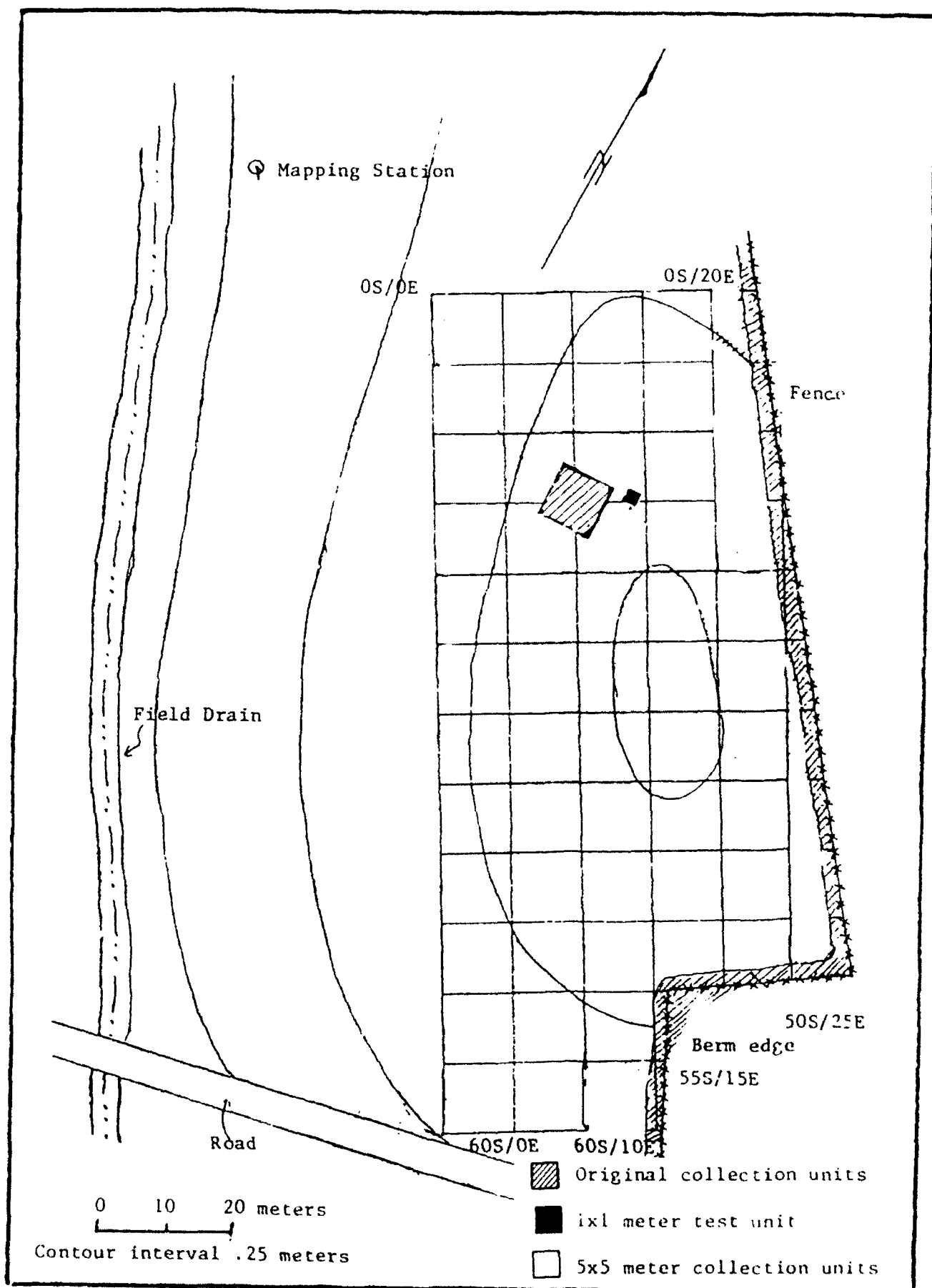


Figure D-18. Contour map, 3CT231.

Soil cores 1.905 (0.75 inches) x 50 centimeters were taken from the southwest corner of each collection unit.

Stratigraphy

Initial Survey and Testing

Both the shovel tests and the 1 x 1 meter excavation unit revealed similar profiles, therefore, the profile of the east wall of the 1 x 1 meter unit is described below and depicted in Figure D-19.

- 0-15 cm: Plow zone - grayish brown (10YR5/2) fine to very fine sandy loam, sparse prehistoric and historic cultural materials;
- 15-33 cm: dark grayish brown (10YR4/2) water stained silty sand, no cultural material;
- 33-71 cm: brown (10YR5/3) silty sand, loose and moist, no cultural materials;
- 71-78 cm: yellowish brown (10YR5/6) hardpacked, moist sandy loam, no cultural materials.

Additional Testing

A typical profile of the subsurface stratigraphy of the site is shown in Figure D-20. The diagram is oriented west to east across the entire site.

The profile exposed by the coring program is consistent across the site with only minor variation.

- C-27 cm: 10YR3/2 (very dark grayish brown) sandy silt, slightly sticky, plastic, structureless. Boundary vague.
- 27-49 cm: same as above but more compact with several color variations.
- 49+ cm: 10YR6/6 sand. Not sticky, slightly plastic.

Material Remains

A total of 1,020 artifacts and 35 floral/faunal items were collected. All material remains categories are shown in Table D-4.

Prehistoric Artifacts

Fifteen small, severely eroded sherds were collected. Fourteen are grog tempered. One of these may have been incised. A single undecorated sherd was shell tempered. The shell was leached leaving tabular cavities in the sherd matrix. Perhaps both Woodland and Mississippian use of the site is indicated.

Four cryptocrystalline flakes complete the prehistoric inventory. These include three flakes and one shatter fragment.

Historic Artifacts

The historic artifact assemblage includes 1,005 items. Although only two brick fragments were collected, brick/brick fragments were observed in 24 of the 51 collection units.

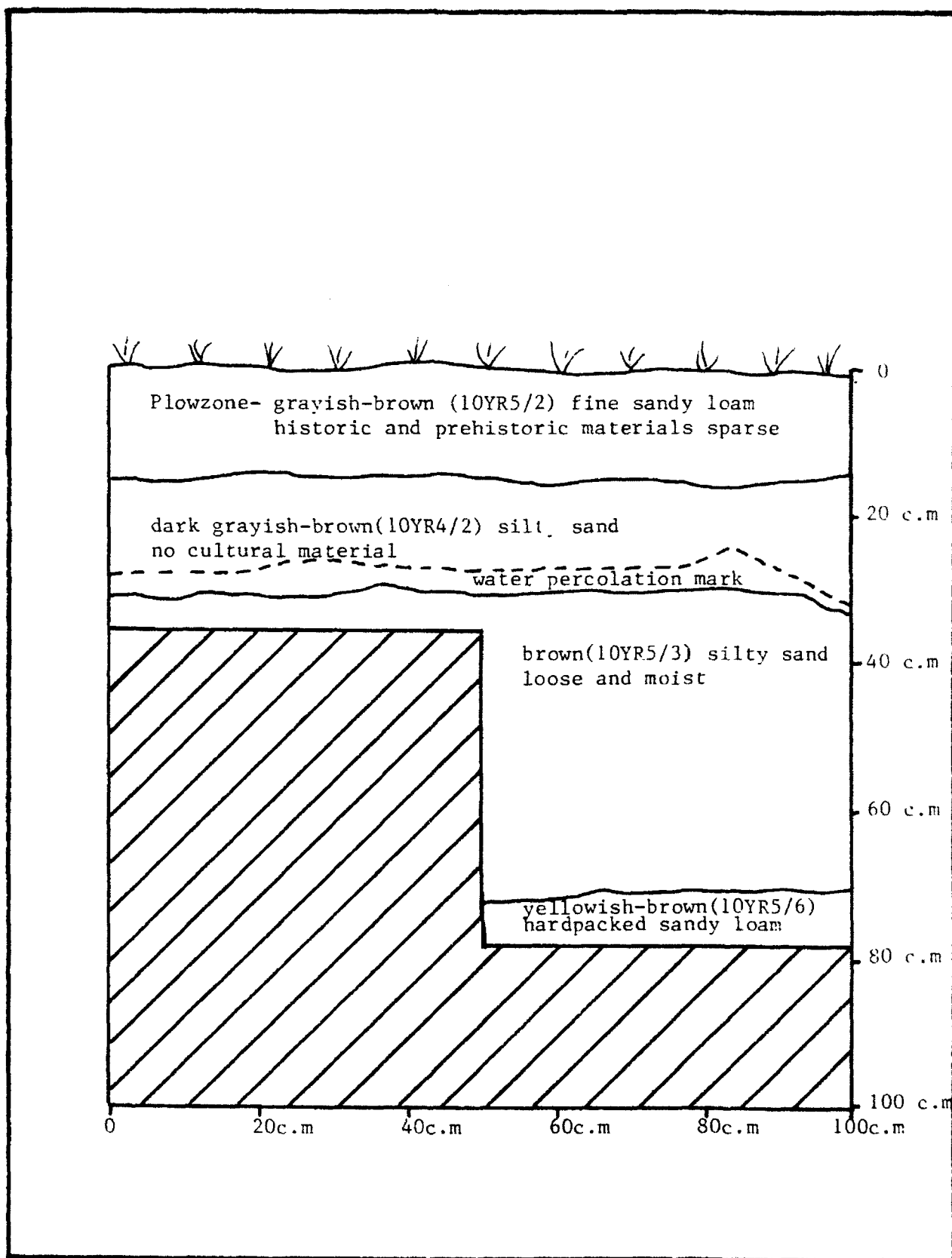


Figure D-19. East wall profile, Test Unit 1, 3CT231.

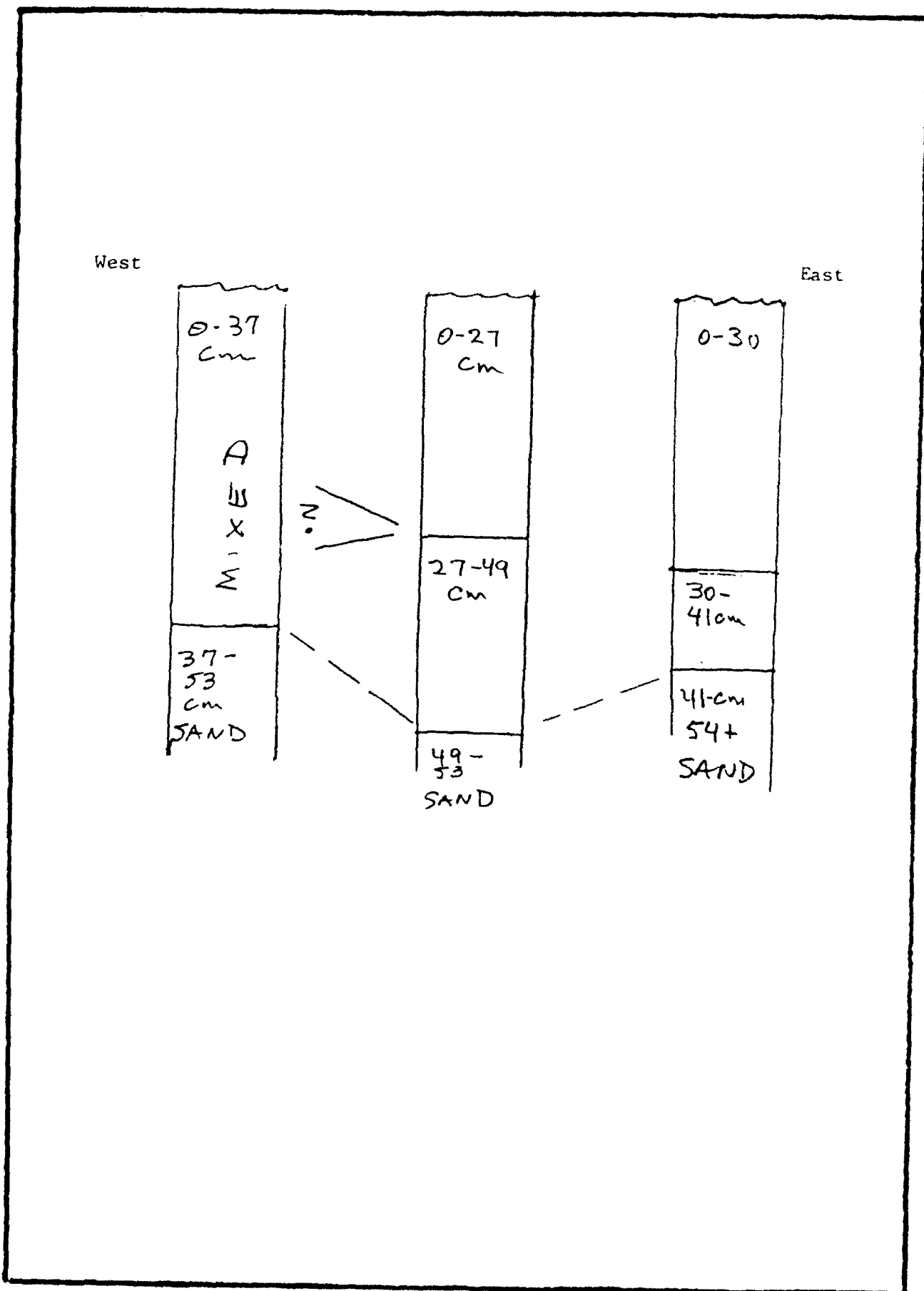


Figure D-20. West to east soil profile, 3CT231.

TABLE D-4 - ARTIFACTS, 3CT231

PROVENIENCE	TEST UNIT	COLL. UNIT	5S/ 15E	5S/ 10E	5S/ 5E	5S/ 10E	5S/ 5E	10S/ 10E	10S/ 5E	10S/ 15E	15S/ 10E	15S/ 5E	15S/ 0E	20S/ 0E	20S/ 5E	20S/ 10E	20S/ 15E	25S/ 20E	25S/ 15E	ITL
Brick *	+	+	-	-	-	-	-	-	-	+	-	-	-	-	+	-	-	-	-	-
Ceramics	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pearl ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Porcelain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Red ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stone ware	2	4	-	-	2	-	-	1	1	1	1	-	1	3	-	4	6	1	-	33
Tile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
White ware	-	1	-	-	2	-	-	1	6	-	2	-	-	-	-	-	-	1	-	15
Glass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aqua	-	-	1	1	-	-	-	-	2	-	1	1	-	-	-	1	1	-	-	9
Blue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brown	-	-	-	1	2	-	-	-	1	3	1	1	-	-	1	2	2	-	-	15
Clear	1	1	4	-	-	-	-	1	-	-	1	-	2	-	4	2	1	1	-	26
Frosted	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Green	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Milk	1	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	3
Olive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Purple	-	-	-	-	-	-	-	-	5	-	2	2	2	-	-	-	1	4	-	25
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper-Brass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Graphite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	7	-	1	-	1	3	-	6	-	-	7	1	1	1	4	3	3	3	-	45
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leather	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plastic	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Rubber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Floral/Faunal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Charcoal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Turtle	-	6	-	-	2	-	-	-	-	-	12	-	-	-	-	2	1	-	-	22
Unidentified	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	2
Prehistoric	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sherds	3	4	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	9
Flakes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shatter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	14	16	5	5	11	8	2	26	12	6	8	24	8	7	16	17	13	1	1	216

* + = present
 - = not present

TABLE 2-4 (Continued)

PROVENIENCE	25S/ 10E	25S/ 5E	25S/ OE	30S/ OE	30S/ 5E	30S/ 10E	30S/ 15E	30S/ 20E	35S/ 20E	35S/ 15E	35S/ 10E	35S/ 5E	35S/ OE	40S/ OE	40S/ 5E	40S/ 10E	40S/ 15E	40S/ 20E	45S/ 20E	45S/ 15E	TTL
Brick *	+	+	-	-	+	-	-	+	+	-	-	+	-	+	+	-	-	+	-	+	
Ceramics																					
Pearl ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Porcelain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Red ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Stone ware	1	-	1	-	3	4	4	4	2	6	1	10	5	3	15	10	5	3	3	-	80
Tile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
White ware	5	1	1	-	-	-	6	2	5	4	3	2	-	2	1	5	5	4	-	2	48
Glass																					
Aqua	-	-	-	-	-	1	1	1	1	1	-	1	-	3	-	5	4	5	-	1	24
Blue	-	-	-	-	-	1	1	-	-	1	2	-	-	-	-	-	-	2	-	-	4
Brown	-	1	-	1	-	1	-	2	-	1	2	-	1	1	-	-	2	2	1	3	18
Clear	4	3	-	-	2	3	15	12	5	6	8	-	5	10	3	4	6	9	1	2	98
Frosted	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	1	-	3
Green	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	2
Milk	-	-	-	-	-	1	-	-	1	1	-	-	-	-	-	-	-	-	-	1	4
Olive	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Purple	3	-	-	2	3	-	3	7	-	6	4	2	1	1	-	3	2	1	4	2	44
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Metal																					
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Copper-Brass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Graphite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Iron	9	2	1	-	1	2	3	19	-	7	4	4	-	8	-	7	13	7	1	8	96
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Miscellaneous																					
Coal	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Leather	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Plastic	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	2
Rubber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	2
Floral/Faunal																					
Charcoal	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Turtle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Unidentified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Prehistoric																					
Sherds	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	4
Flakes	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Shatter	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
TOTAL	27	8	3	4	9	12	33	50	14	35	23	19	12	28	19	36	42	43	14	19	450

* + = present

- = not present

TABLE D-4 (Continued)

PROVENIENCE	45S/ 1OE	45S/ 5E	45S/ OE	50S/ OE	50S/ 5E	50S/ 1OE	50S/ 15E	50S/ 20E	55S/ 1OE	55S/ 5E	55S/ OE	60S/ OE	60S/ 5E	TTL
Brick *	+	-	+	+	+	-	+	+	-	+	-	-	-	---
Ceramics	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Pearl ware	-	1	-	-	1	1	1	-	-	-	3	-	-	7
Porcelain	-	-	-	-	-	-	-	-	-	1	-	-	-	1
Red ware	-	-	-	-	-	-	-	-	-	-	-	-	-	25
Stone ware	1	5	1	-	8	1	2	4	1	-	-	-	-	---
Tile	-	-	-	-	-	-	-	-	-	-	-	-	-	---
White ware	6	3	1	5	1	12	4	3	4	1	5	2	6	52
Glass	2	-	-	-	1	1	4	4	-	5	1	-	2	20
Aqua	-	1	-	-	-	-	-	-	-	-	1	-	2	4
Blue	-	-	-	1	2	1	4	-	-	1	1	2	6	18
Brown	-	-	-	6	1	6	12	3	5	12	7	12	23	90
Clear	1	1	1	-	-	-	-	-	-	-	-	-	-	---
Frosted	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Green	-	-	-	-	-	-	-	3	-	-	-	1	1	12
Milk	2	1	-	1	-	-	1	-	-	2	-	-	-	2
Olive	-	-	-	-	-	-	-	-	-	-	-	2	1	22
Purple	3	-	2	1	2	2	-	-	-	7	2	-	-	---
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Metal	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	1	---
Copper-Brass	-	-	-	-	-	-	-	-	-	1	-	-	-	1
Graphite	-	-	-	-	-	-	-	-	-	-	-	-	-	118
Iron	1	-	-	6	2	13	13	2	28	12	5	7	29	---
Zinc	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Leather	-	-	-	-	-	-	-	1	-	-	-	-	-	2
Plastic	-	-	-	-	-	-	1	-	-	1	-	-	-	---
Rubber	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Slate	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Floral/faunal	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Charcoal	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Turtle	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Unidentified	-	-	-	-	-	-	-	-	3	1	-	-	3	7
Prehistoric	-	-	-	2	-	-	-	-	-	-	-	-	-	2
Shards	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Flakes	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shatter	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	16	12	4	23	18	37	42	24	41	45	25	26	76	389

* + = present

- = not present

Among the 273 ceramic fragments are: porcelain, 16; redware, two; stoneware, 138; whiteware, 115; tile, two.

Among the porcelain are two fragments of a decorative item; perhaps a figurine. The fragments have a molded pattern. The edge of one appears to be a base that was broken from an adjoining part. Another fragment is from a flatware item such as a plate or saucer. The edge has a scalloped shell/floral pattern.

Among the redware fragments, one appears to have a black slip on the exterior and a clear glaze on the interior. The other is clear glazed, on one surface and unglazed on the other.

The stoneware includes examples with clear/white glaze on both faces, 50; clear/white on one face and albany slip glaze on the other, 48; albany slip glaze on both faces, 25; albany slip glaze on one face and unglazed on the other, three; black opaque glaze (probably an albany slip) on both faces, three; clear/white on one face and exfoliated (destroyed on the other), one; albany slip glaze on one face and exfoliated on the other, one. No decorative patterns or maker's marks were found. A broad range of pastes are represented with colors ranging from buff to cream. Variations in glaze maturation and paste textures among the sample are indicative of a broad range of firing temperatures. Salt glazing is indicated; particularly among examples with clear exterior glaze and albany slip glaze on the interior. One sherd with clear glaze on the exterior and albany slip glaze on the interior has a gray clay body. Three sherds with the black opaque glaze are from the same vessel and have a gray paste. All four of four of these sherds are from salt glazed vessels. Fragments from body, base and rim portions are represented. All appear to be from crock or crock-like vessels.

Among the stoneware fragments is a thick rim fragment from a crockery vessel. The interior surface has a thin, light blue cobalt glaze. The glaze surface is slightly opaque and covered with small "pin-holes." This phenomena may be the result of incomplete maturation of the glaze or a poorly formulated glaze recipe. The exterior of the vessel has a thick unglazed color around the rim with a thin white or clear glaze on the body. A light blue cast to this exterior glaze suggests the migration of cobalt ions during firing. Although no jug fragments are among the sample the stoneware sherds probably date around the turn of the century, 1890-1915, or later (Munsey 1970: 140, 141).

Of the 115 whiteware fragments, all appear to be the remains of tableware; such as, cups, saucers, plates and platters. Only four fragments are notable. One bears a fragment of the maker's mark of Charles Meakin (1883-1889) or J and G Meakin (1890+) (Godden 1964:426-427). Another bears the mark "WARR" and part of a crest. This is an ironstone fragment of the D. E. McNicol Pottery Company. The company began operations in 1892 in the East Liverpool Pottery District of England. The mark fragment is similar to marks used by this plant circa 1900. It should be mentioned, however, that the company established a plant in West Virginia in 1914. The range of marks used at this locality are not known (Gates and Ormerod 1982:185-186).

Two transferware sherds were found. One has part of a brown floral pattern and the other, an unidentified blue pattern.

Completing the ceramic sample are two tile fragments. One is a granular sewer-like pipe. The other is a fine grained dark red material.

Among the glass sample are 448 fragments. These include: aqua, 53; blue, eight; brown, 51; clear, 214; frosted, four; green, five; milk, 19; olive, two; purple, 91; miscellaneous, one.

Among the aqua examples are fragments of bottle necks, bodies and bases. Thirty fragments are unidentified but most are probably from bottles. Two fragments have embossed letters. One may be from a "Golden State" mason jar. If so, it was produced about 1910 (Toulouse 1971:226). Keep in mind, however, that aqua glass is generally pre-1880 (Munsey 1970:37, 55). The other embossed fragment can not be identified. Among the blue glass fragments are four from bottle necks and bodies. Four fragments can not be identified but one is a modern machine-made bottle.

The brown colored glass inventory includes 29 bottle fragments. Twenty-one fragments can not be identified by functional category. None of the brown glass can be dated.

The 214 clear glass sherds include bottle fragments, one canning jar fragment, six chimney fragments, five window glass and four carriage or car light fragments. The remaining 112 examples can not be identified by functional category.

One clear glass fragment is from an embossed gradulated panel of a medicine bottle and another has the letters "OE" embossed. One embossed bottle fragment has the letters "CO" and "EW" while another has "PAT NO 8." Although none of these can be precisely dated, a bottle base from the Owens Bottle Company was manufactured between 1911 to 1929 in Charleston, West Virginia or Sheator, Illinois (Toulouse 1971:393-397). Two crew type or threaded neck fragments were recovered. These are modern. Note that Munsey (1970:55) dates clear glass after 1915.

Among the green glass fragments are three bottle and two unidentified fragments. One is a Coca Cola bottle base with the letters "MAR." It may be a fragment of a Coke bottle that was filled in Marion, Arkansas. It appears to be modern.

The milk glass includes two bottles, one canning jar lid and 11 unidentified fragments. All are white. Two fragments are from a single white and purple swirled container. It was faceted (apparently in a mold) with an embossed pattern.

The 91 purple glass fragments include 14 neck fragments, seven base, 23 body and 28 miscellaneous bottle parts. In addition, there are fragments of: canning jar lid, one; chimneys, six; window glass, five; buggy headlights, four; and 112 unidentified fragments. All predate 1915 (Munsey 1970:55).

Among the rim neck fragments were two neck fragments and a fragment embossed with "CM" on one line and "MIC" on the line below.

A single miscellaneous glass fragment is a tubular bead. The bead is of opaque blue with white and pink striped pattern. It can not be confidently

dated but a European or Euro-American/Native American contact time frame should not be discounted.

Among the metal fragments are one tab from a modern aluminum drink can, two brass button/snaps, reminiscent of "overall" snaps, two zinc fragments from canning lids and the graphite core from a battery. The iron inventory comprises 259 examples. These include barbed wire, bolt, buckle, lock, staples, spike, tubes and hasps, and a portion of a spring loaded snap hook and a tea-pot shaped kettle. The cast iron kettle has a maximum diameter of 22.5 centimeters and a height of 15 centimeters. There is a spout at one end and an iron loop swivel handle. The bottom is missing. A button which originally had a wire loop with to affix it to a garment is also among the sample. The front of the button bears the legend "LOOPDELOOP" "PAT" around the edge. eight square nails and 45 round nails complete the sample. Although these items can not be specifically dated, all are comparable to 20th century items.

Coal, one; leather, one; plastic, five; rubber, three; slate, three; and styrofoam, two; complete the historic inventory.

Finally, floral/faunal remains are among the items collected from the units. These include charcoal, two; turtle bone, carapace/plastron, 23; and unidentified bone fragments, 10.

Artifact Distribution

Figure D-21 shows the frequency of the distribution of artifacts on site 3CT231. Artifacts were found in all collection units. The prehistoric artifacts are distributed almost the entire length of the site. None were found on the eastern margin.

Historic remains were concentrated in the southeastern portion of the site.

Site Size, Distribution and Interpretation Based on the Investigation

The site covers an approximate 1,950 meters² area (65 x 30 meters) and cultural material is restricted to the upper 15 centimeters, entirely within plow disturbed deposits. During the investigations no cultural material or features were located below plow disturbed deposits. It appears that numerous activities conducted in the area have effectively destroyed the sites integrity. These activities include but are not limited to: levee construction; borrow activities; road construction; drainage channelization; and continuous agricultural activities.

The prehistoric remains at the site may date to Woodland or Mississippian cultures. European or Euro-American contact with Native Americans may be indicated by the glass bead recovered from the site. The materials are too sparse for further speculation.

Map evidence suggests that there was no structure on the site until after 1916. There was certainly a structure there by 1930, extant in 1939 and razed by 1952.

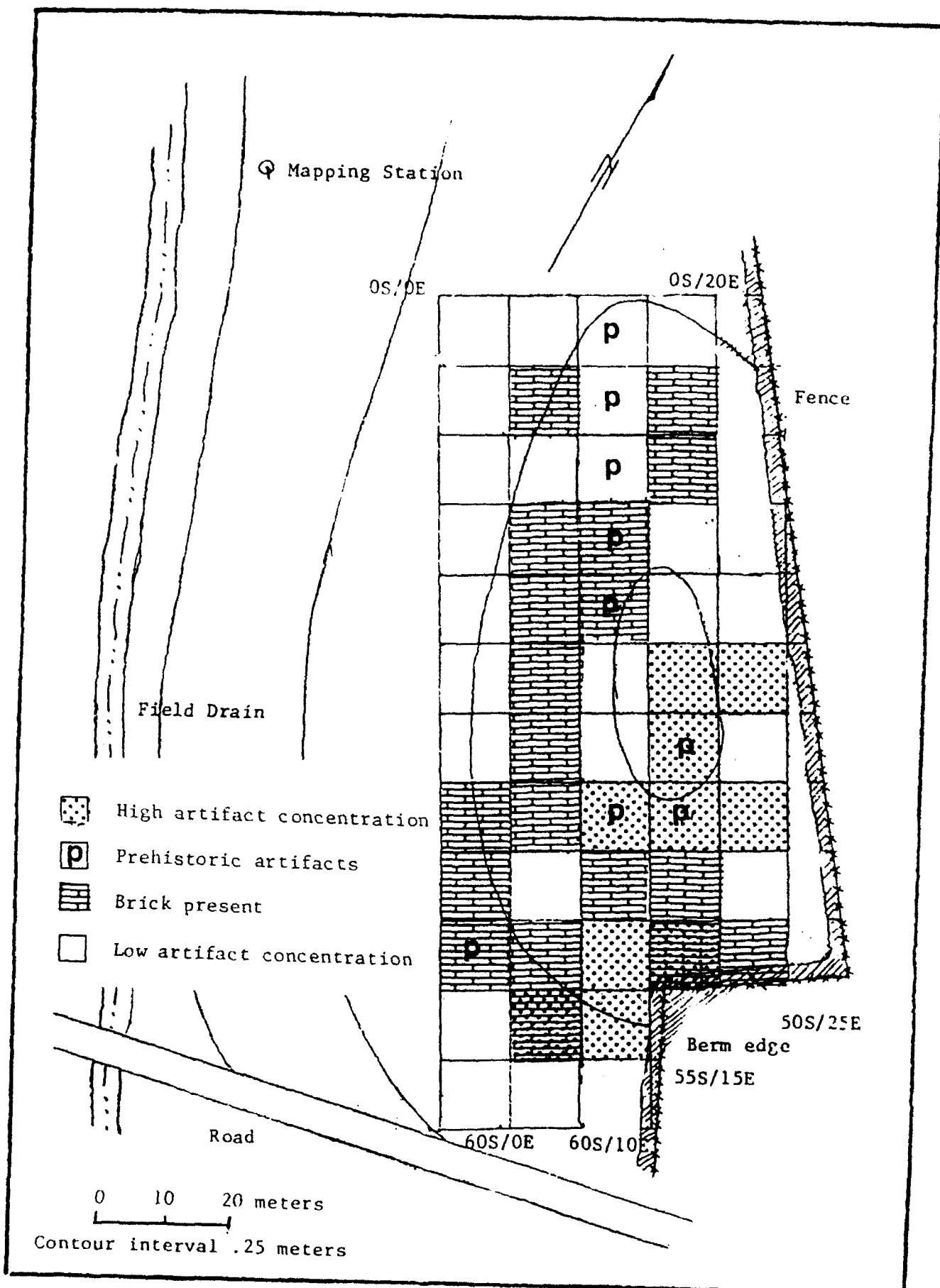


Figure D-21. Artifact distribution, 3CT231.

With the exception of the redware and aqua glass, most of the material items are easily associated with the 20th century. Although purple glass manufactured before 1915 is among the sample, these and other early 20th century items may still have been in use when a structure was built after 1916. It should be noted that this structure is not believed a part of Lambethville.

Modern farming activities are also reflected among the material items.

3CT232 (Bledsoe Mounds)

Location and Physical Setting

This site (Figure D-22) occupies an elevated sandy ridge overlooking a former borrow pit to the northeast. The site was first recognized as two mounds; a historic cemetery and possible prehistoric mound site.

The mounds were overgrown with weeds and grasses. Three water oaks ranging in size from 10-15 centimeters (4-6 inches) to 1-1.5 meters (3-4 feet) in diameter were also present on the mounds. The largest tree may possibly be 150-175 years old (Don E. Martin 1983:personal communication). At the time of the original survey, vegetation surrounding the mounds consisted of cultivated soybeans. When revisited for additional testing, the field was fallow.

According to Gray and Ferguson (1974), soils in the vicinity include Robinsonville very fine sandy loam and Tunica clay. However, during the survey no evidence of Tunica clay was observed. The elevation ranges between approximately 68.58 to 70.1 meters (225-230 feet) AMSL (Corps of Engineers 1975). At the time of the original survey, approximately one-third of the site lay within the proposed project right-of-way. That is, the right-of-way boundary roughly bisected the northernmost mound, leaving +40 meters (131 feet) beyond the proposed right-of-way boundary. Prior to the additional testing phase, the project right-of-way boundary was changed to exclude the mounds entirely. The present landside boundary of the project area runs approximately 20 feet from the edge of the mounds (Memphis District, Corps of Engineers, Item No. R-752, Lambethville, Arkansas, Serial 21967, file 41L/181(3.3), March 1984). Thus, the additional testing phase was concerned with the area between the mounds and the levee; altering the site description.

Site History

The presence of the large water oak, estimated to be 150-175 years old, implies that the mounds were present by 1810-1830. During this historic interval the study area was described as a vast swamp with little, if any, settlement.

By 1906, a grave headstone indicates that the mounds were utilized by local inhabitants of the area as a cemetery. Other dates on the marked headstones indicate continued use during 1915 and 1919 with the last marked grave being interred in 1955. There are currently four marked graves on the southernmost mound (Table D-5) and an undetermined number of depressions on both mounds, possibly indicating additional interments. Local informants indicate a "lot of burials" were put there but the exact number is currently unknown (J. O. Thresher, Leroy Wiley 1983:personal communication).

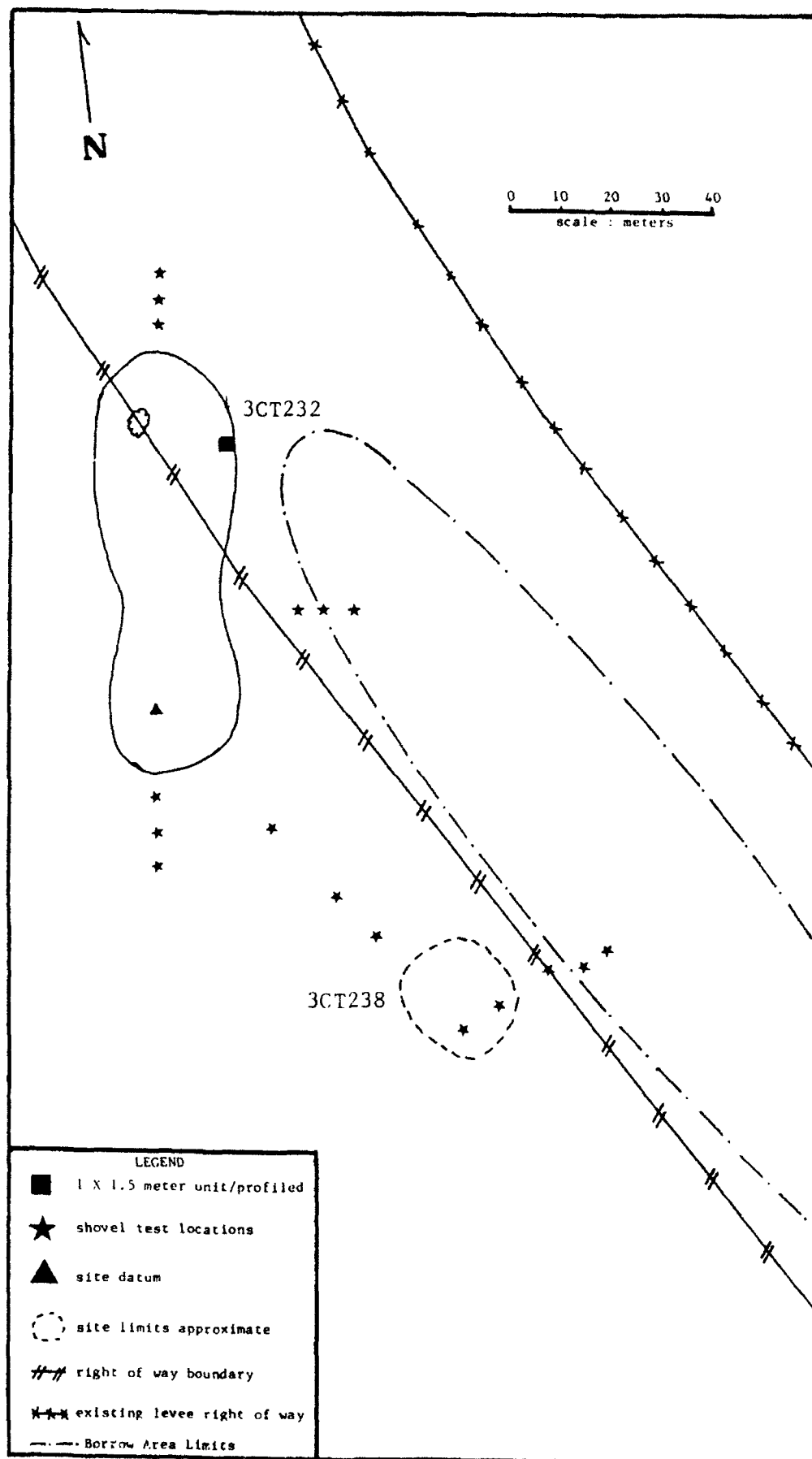


Figure D-22. Original site map, 3CT232 and 3CT238.

TABLE D-5
TOMBSTONES LOCATED ON THE BLEDSOE MOUNDS

NAME	BORN	DIED	AGE AT DEATH	REMARKS
Cora Shutt	10/30/1870	11/7/1906	36	Member Union Paradise Church for 15 years
Frank Bledsoe	1843	4/17/1915	72	Mason
Fannie Bledsoe	1850	10/21/1919	69	Eastern Star, White Swan Charter 108
Pearl Bledsoe	10/14/1886	6/29/1955	69	Private U.S. Army World War I

The intrusive historic cemetery is associated with the Bledsoe family, a Black family who lived south of the mounds (Leroy Wiley 1983:personal communication). This family farmed the area around their house, which was located outside the present study area boundaries (Leroy Wiley 1983:personal communication). Today no Bledsoes live in the area. The Bledsoes were not considered a part of the Lambethville Community.

During the early 20th century the area between the mounds and the present day levee was exploited for borrow material. It is unknown if the mounds were impacted at that time. However, local informants indicate the mounds today look like they did in the early 1900's (J. O. Thresher 1983:personal communication). Thus, it is unlikely that the mounds were directly impacted during the early levee construction and subsequent upgrading.

Methodology

Initial Survey and Testing

The mounds were observed during survey on August 16, 1983. At that time, an intensive inspection of the ground surface around the mounds was conducted. A small scatter of prehistoric ceramic and lithic debris (3CT238) was located approximately 50 meters southeast of the mounds. The mounds were overgrown with dense weeds and grasses and because historic burials were present, no subsurface shovel tests were excavated within the mounds. Representatives of the Memphis District, US Army Corps of Engineers, Don E. Martin and Douglas E. Prescott, were present during this initial visit.

The headstones marking four burials were observed and the inscriptions noted. The mound locations were marked on large scaled aerial blue-line maps and flagged for return investigations.

When revisited on August 19, 1983, the crew was joined in the field by Don E. Martin and Joan Koch, representatives of the Memphis District, U.S. Army Corps of Engineers. Later that day, a site datum was established on the southernmost mound. While the mapping of the mounds was being conducted a series of north-south/south-north transects or sweeps were made over the entire lengths of the mounds in an effort to locate previously undetected historic interments. Although no additional "marked" graves were encountered numerous depressed areas, possibly indicating interments were encountered. These depressed areas were located on both mounds but appeared to be absent from the camel back joining them.

Upon completion of the mapping and the search for additional historic graves, an excavation unit (1 x 1.5 meters) was located along the northeast edge of the northernmost mound (Figure D-23). It was excavated by natural stratigraphic units and to a depth of slightly more than 1.0 meters (3.2 feet) below the mound surface. It was excavated to: 1) gain specific stratigraphic knowledge regarding the mound construction and 2) to obtain artifact samples should they be present. The matrix from the unit was passed through a 1/4" steel mesh shaker screen. During the unit excavation, a series of shovel tests each 50 x 50 centimeters in plan were excavated between the southernmost mound and the small prehistoric scatter (3CT238) to the southeast. These tests were excavated to determine if an association between the two sites could be confirmed and to locate buried cultural materials. In addition, shovel tests were excavated on the north, east and south edges of the mound. The tests were excavated to at least 50 centimeters below surface, with several excavated to a depth of +75 centimeters below the surface. All matrix from these tests was passed through a 1/4" steel mesh shaker screen.

Additional Testing

The initial task performed at 3CT232 was the establishment of a grid over the area between the mounds and the fenceline along the edge of the berm. A datum was then established for the grid and the grid was mapped. Mapping was done with a Geotec Theodolite and a metric stadia rod. Following this, a general site datum was established. Both datums were related to levee centerline station 128/35+00 and to the permanent datums established during the initial site investigations in the summer of 1983. The second phase of mapping involved establishing the placement of the physical features of the site, such as the fenceline, powerline poles, trees, etc. A contour map was then made of the area (Figure D-24) using 20 centimeter contour intervals.

During the next phase of work two 2 x 2 meter test pits were established after the location of the centerline and bank of the landside ditch was determined. These test units were then mapped. Both the soil core grid and the 2 x 2 meter test units were aligned parallel to the levee.

Thirty-one soil cores, 1 inch in diameter, were placed at pertinent grid points. All 31 cores were to a depth of 1 meter with the exception of station A7. The dense clay layer prevented probing at this station beyond 80 centimeters. The soils were described using the standard soils terminology found in the Munsell color chart.

The final task involved the excavation of two 2 x 2 meter test units to the depth of 152 centimeters as required in the scope of work. Prior to testing, the position of the landside bank of the drainage ditch was established. Both of the test units were positioned within the area of the proposed ditch. Excavation was undertaken in 20 centimeter levels. Elevations for each level were taken from the southwest corner of each unit using string, line level and metric tape. Black and white photographs were taken prior to the beginning of each unit. Photographs were also taken of the finished pit, profile walls and progressive stages of the work. All matrix from the test units was screened through 1/4 inch hardware cloth. The south and east walls of both pits were profiled and described using the standard soils terminology found in the Munsell color chart (Figures D-25, D-26, D-27

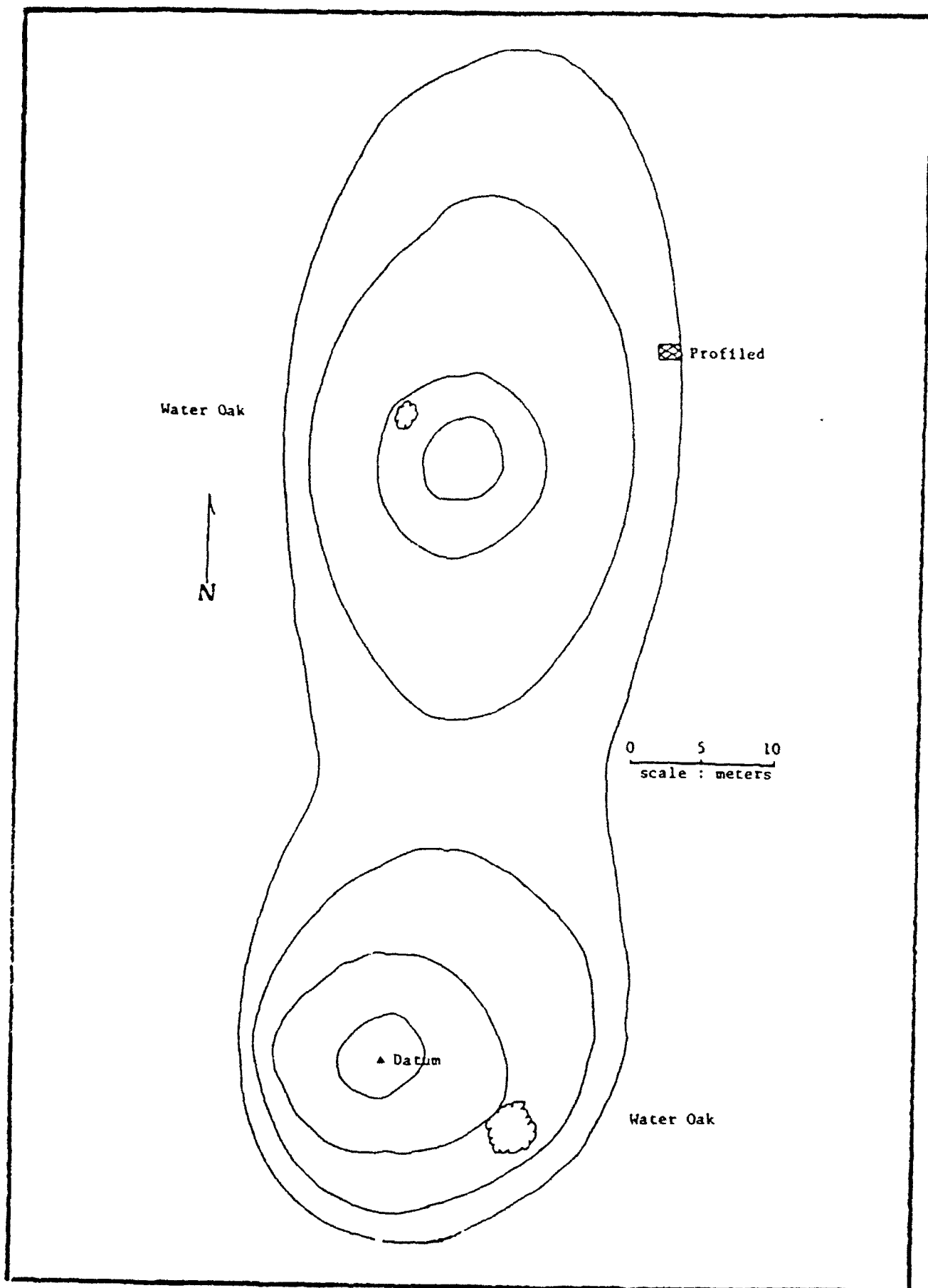


Figure D-23. Contour map of mounds, 3CT232.

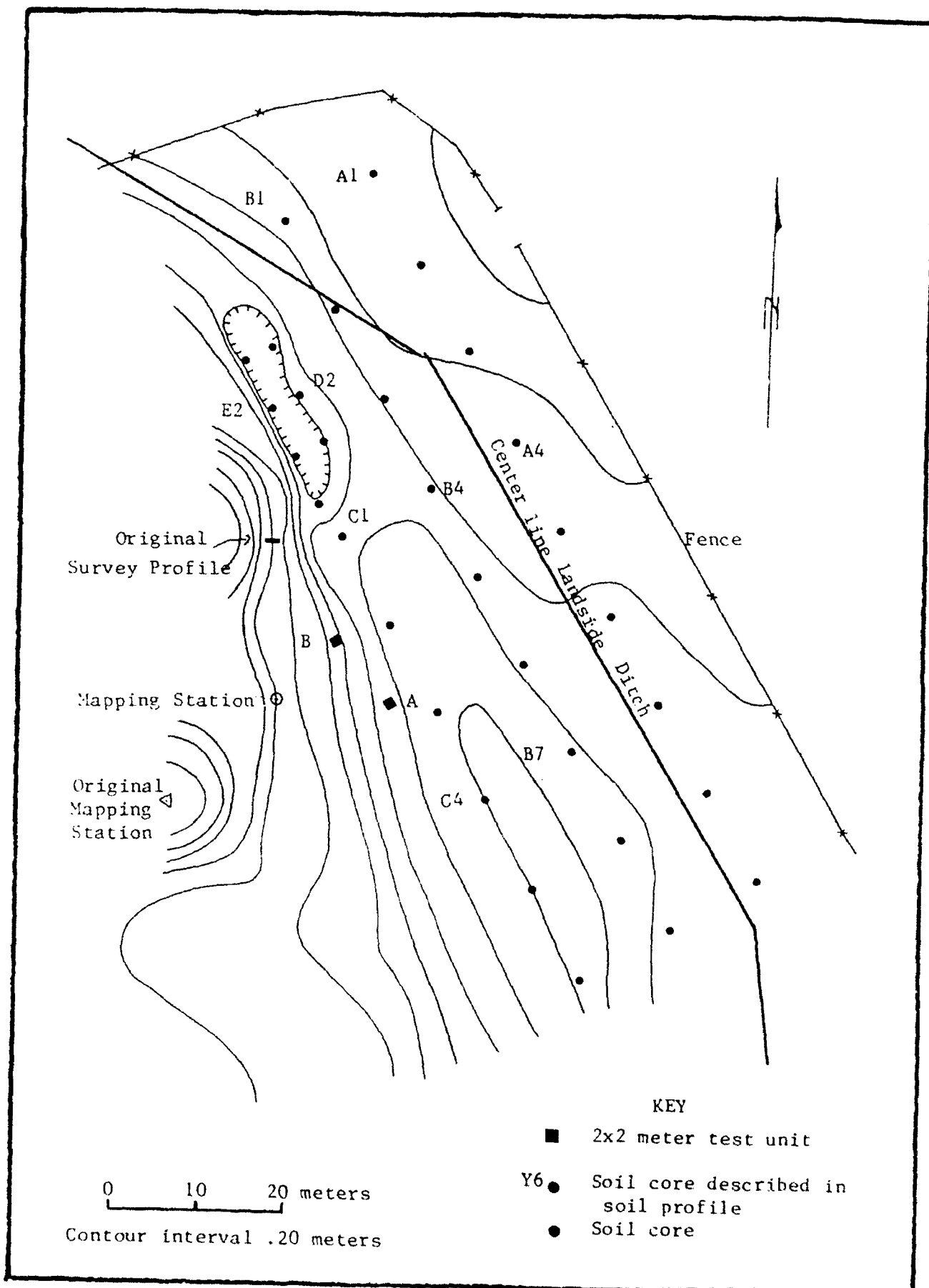


Figure D-24. Contour map, 3CT232.

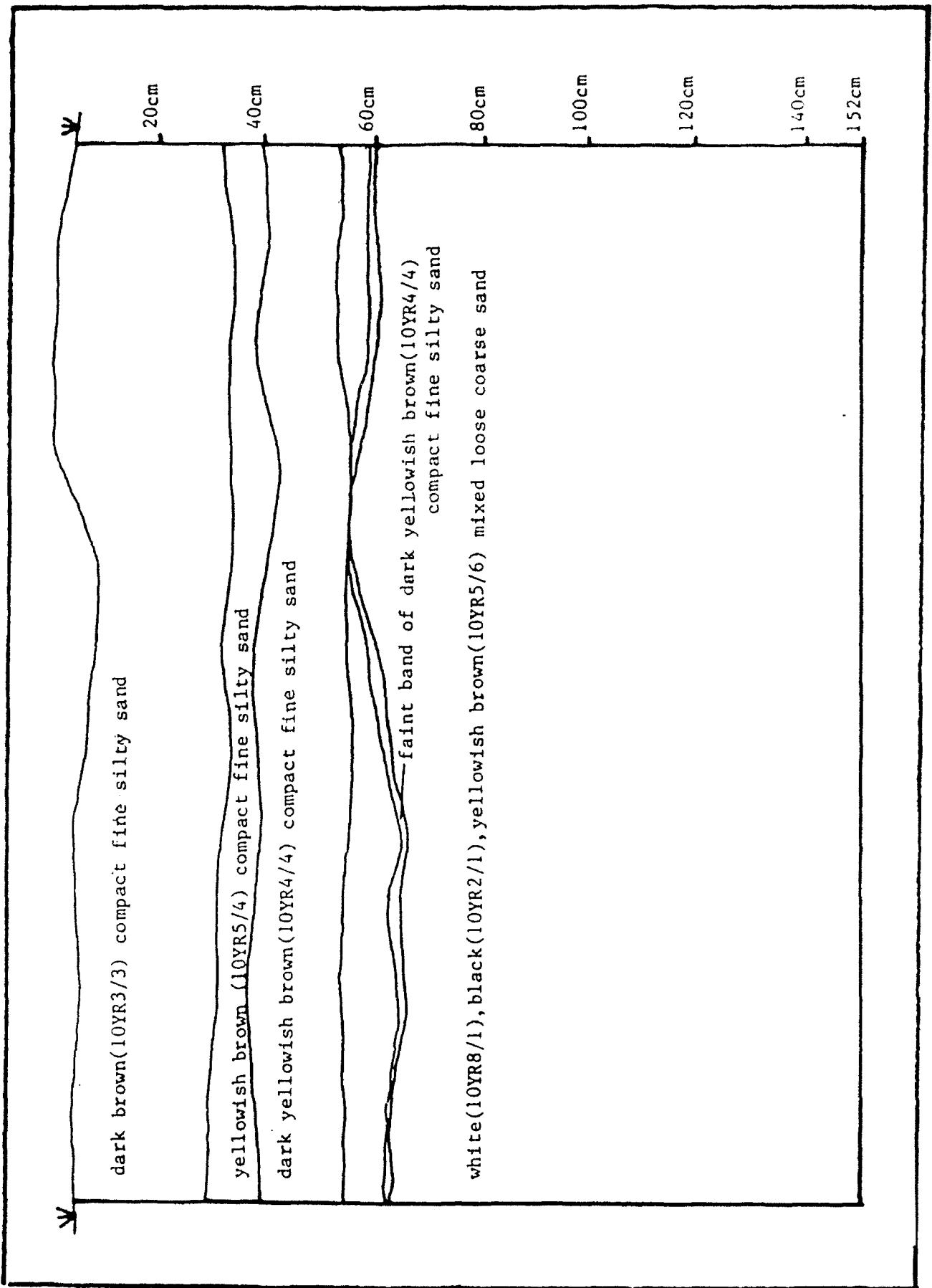


Figure D-25. South wall profile, Unit A, 3CT232.

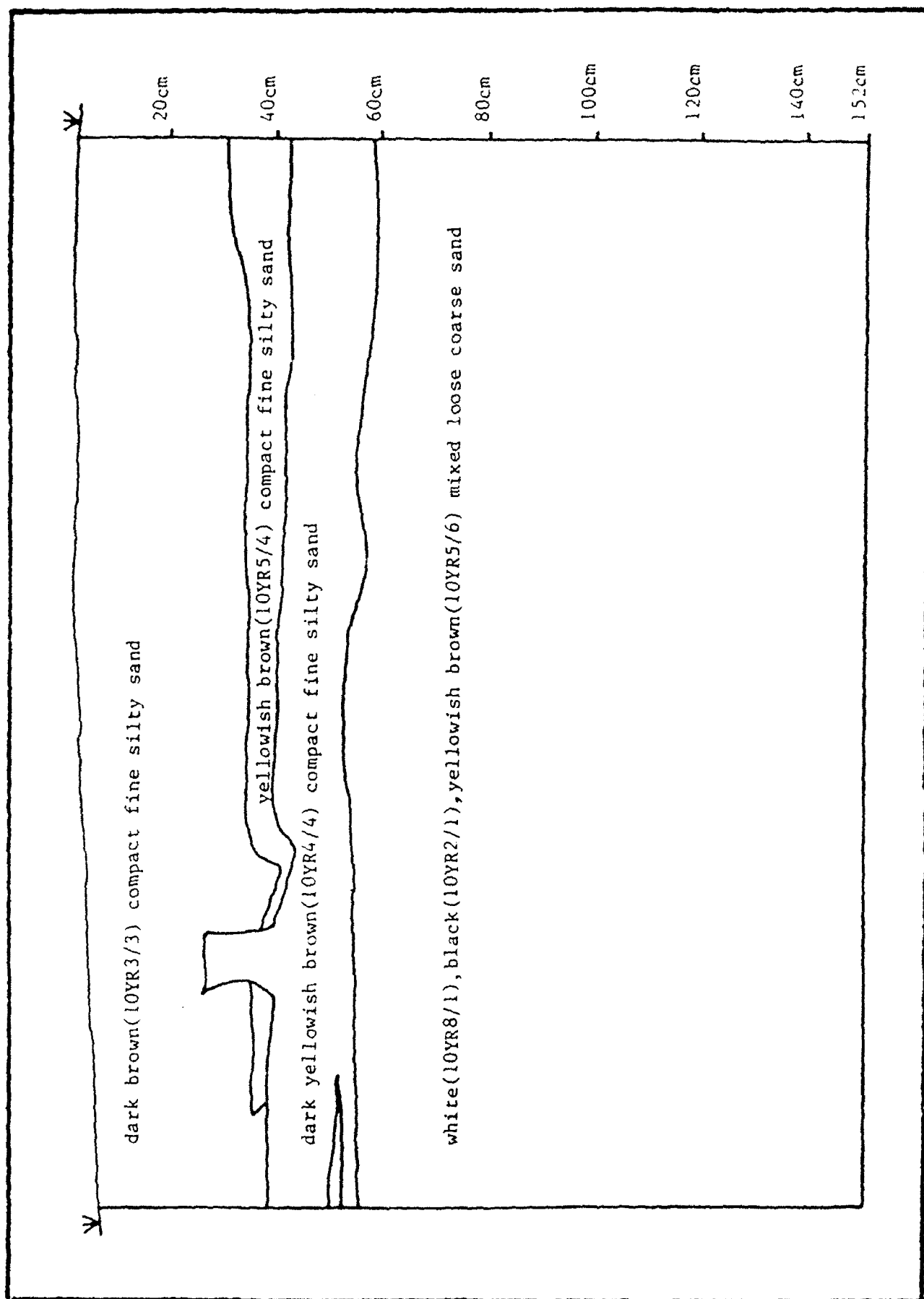


Figure D-26. East wall profile, Unit A, 3CT232.

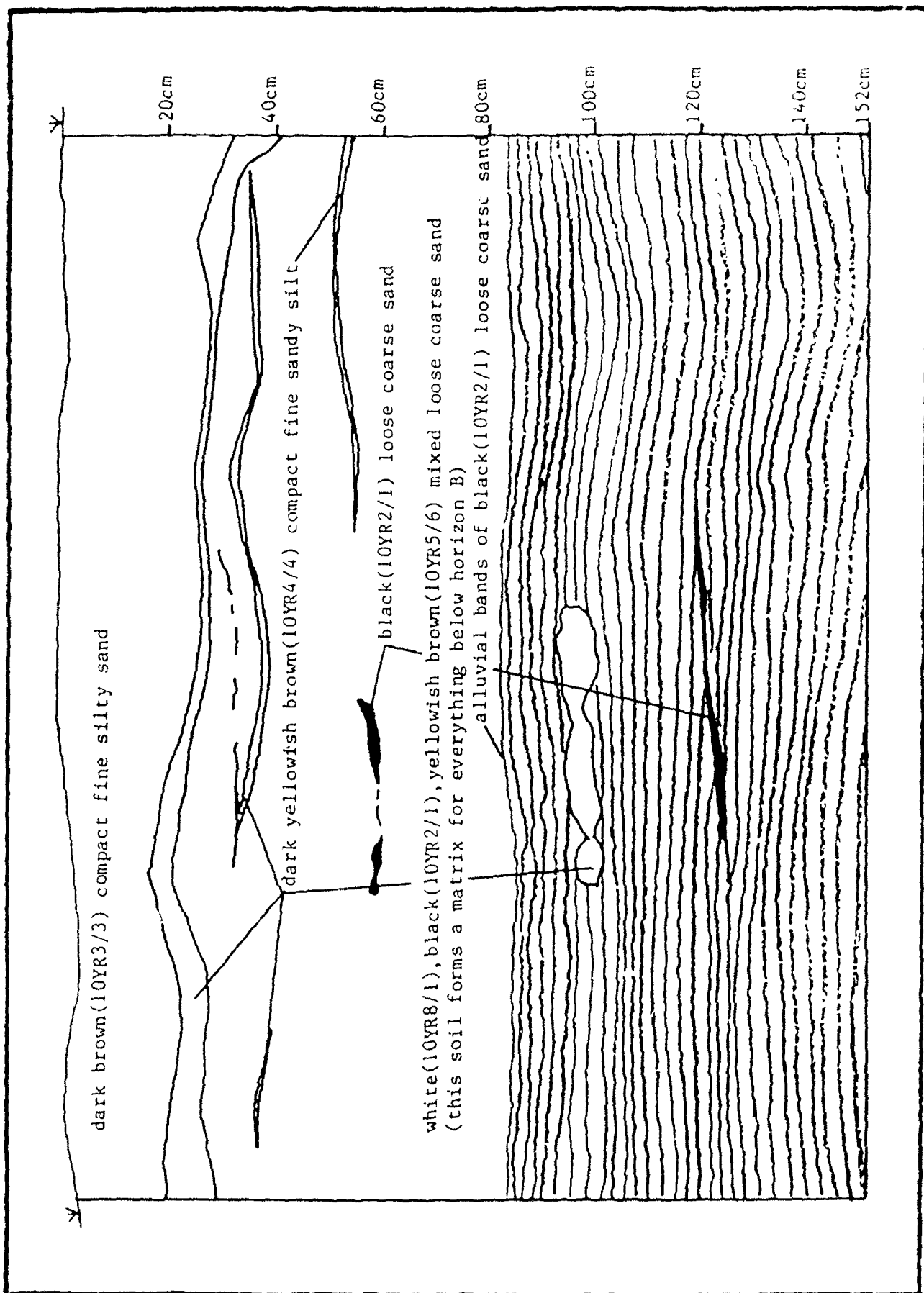


Figure D-27. South wall profile, Unit B, 3CT232.

and D-28). All recovered artifacts were bagged separately in reference to the test unit and 20 centimeter level from which the artifacts were recovered. All artifacts were recovered from only the upper 20 centimeters, which is within the plow zone. Some difficulty was encountered in the excavation of the test units. Once the pits were excavated below the clay layers and into the sand, the walls repeatedly caved in, particularly in Test Unit B.

The final activity on the site was the removal of the soil core and mapping flags and the backfilling of the 2 x 2 meter units to insure pedestrian safety.

Stratigraphy

Initial Survey and Testing

The profile of the 1 x 1.5 meter excavation unit on the mound revealed five distinct strata. The upper three were irregular and undulating, whereas the lower two strata observed were comparable to the profile observed in nearby shovel tests excavated through presumably natural stratigraphy. The profile obtained from this unit is described below and depicted in Figure D-29.

- 0-32 (irregular boundary) cm: light brown (10YR4/2) compact fine sandy loam;
- 32-44 (irregular boundary) cm: light yellowish brown (10YR4/3) compact fine sandy loam;
- 44-72 (irregular boundary) cm: yellowish brown (10YR5/3) compact fine sandy loam;
- 72-90 (irregular boundary) cm: light yellowish brown (10YR5/3) loose, fine sandy silt loam;
- 90-100 (level to nearly level boundary) cm: light brown/white (mixed) loose, coarse grained sand.

Additional Testing

Three series of soil cores (Figure D-30) running perpendicular to the levee were chosen to demonstrate the site stratigraphy. Another series of cores were removed from the area adjacent to Mound A on a surface that appeared to have been a part of Mound A. The three core series are described below from north to south.

North Series - Soil Probe A1:

- 0-13 cm: 10YR4/2 - sandy clay loam, structureless, very fine platy, wet slightly sticky, slightly plastic, abrupt boundary.
- 13-65 cm: sandy silt clay, weak, very fine granular, moist, plastic, gradual boundary.
- 65-100 cm: 10YR6/4 - sandy, structureless, fine granular, moist, non-plastic.

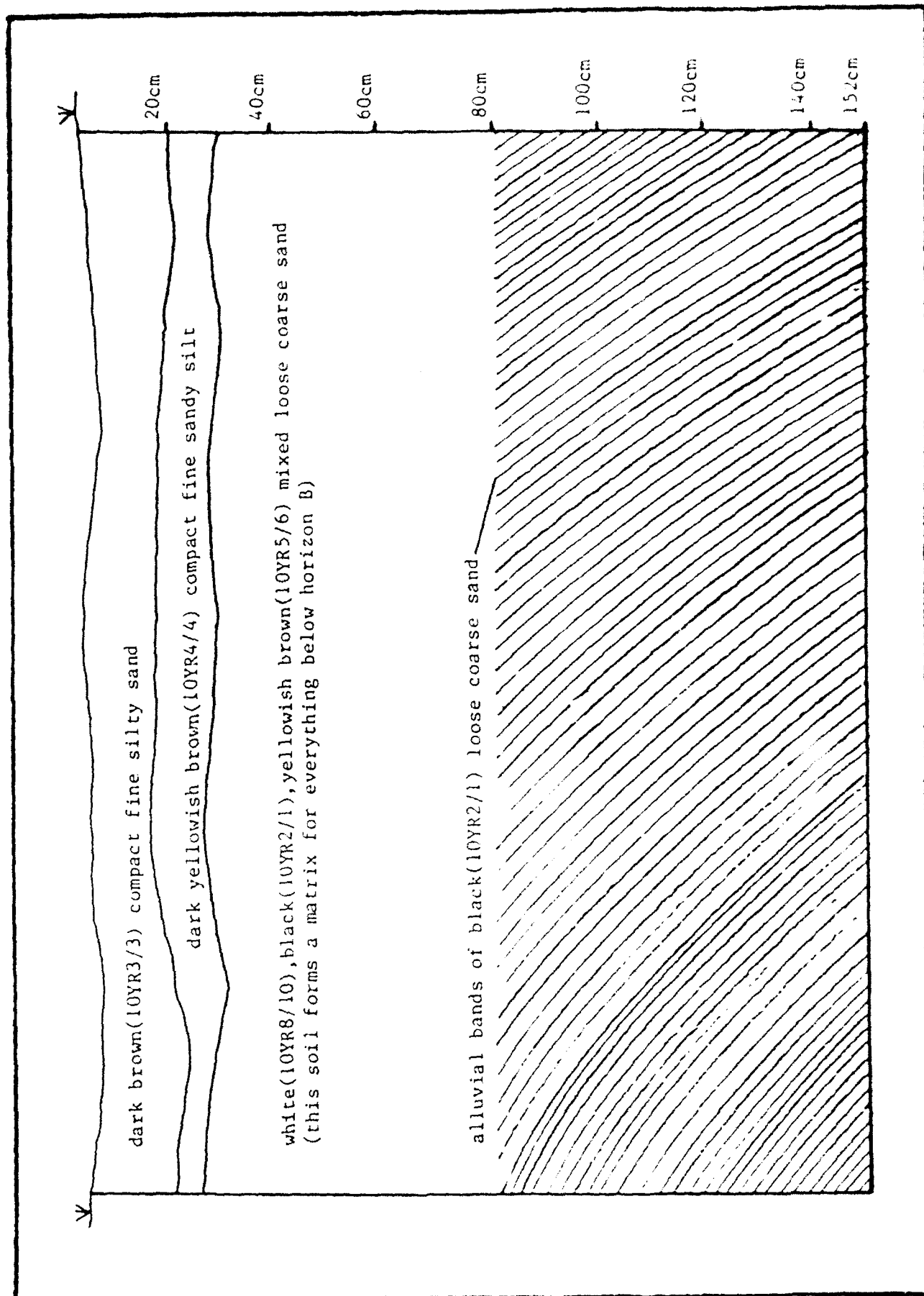


Figure D-28. East wall profile, Unit B, 3CT232.

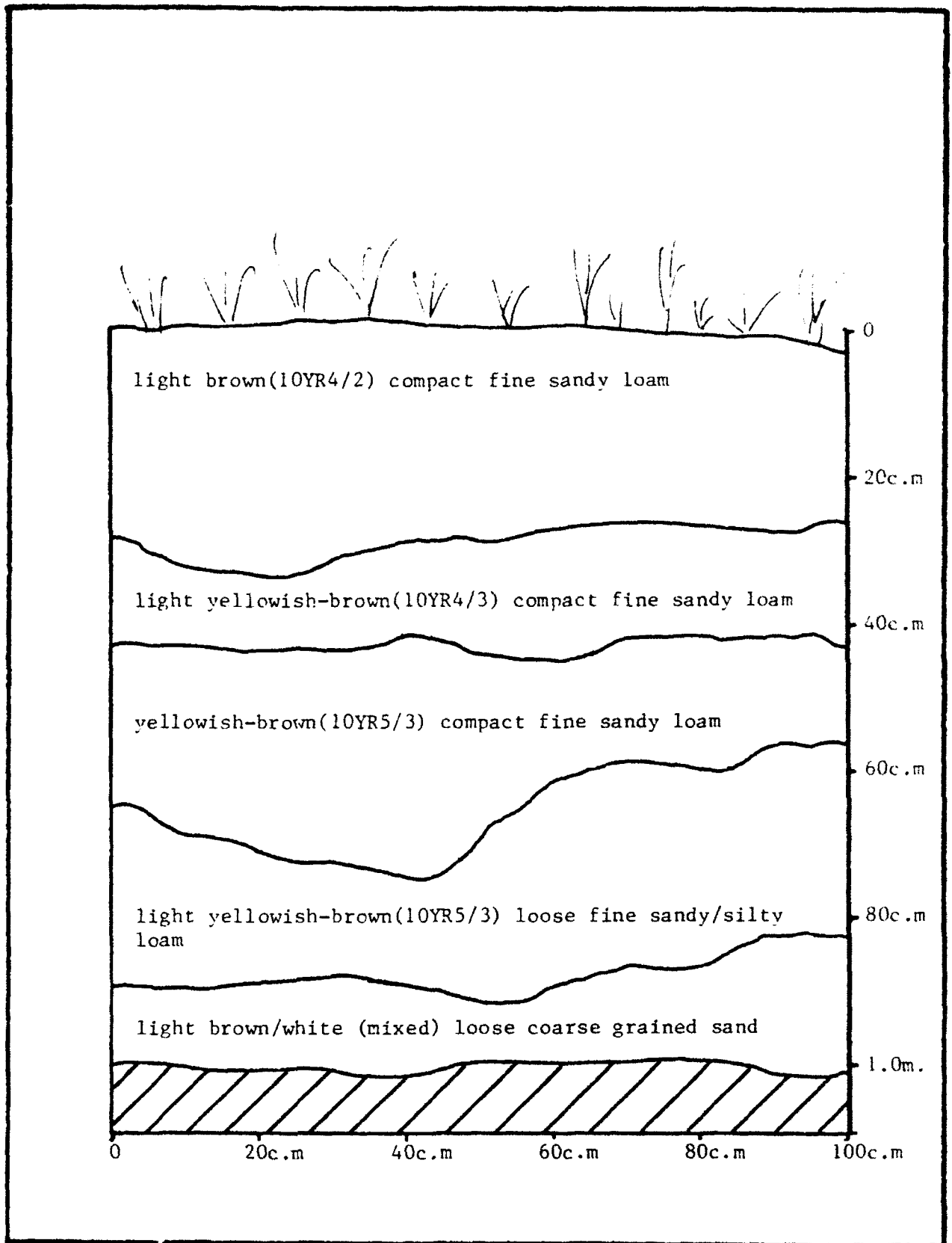


Figure West wall profile at "Bledsoe Mounds" taken from the east face of the northern most mound.

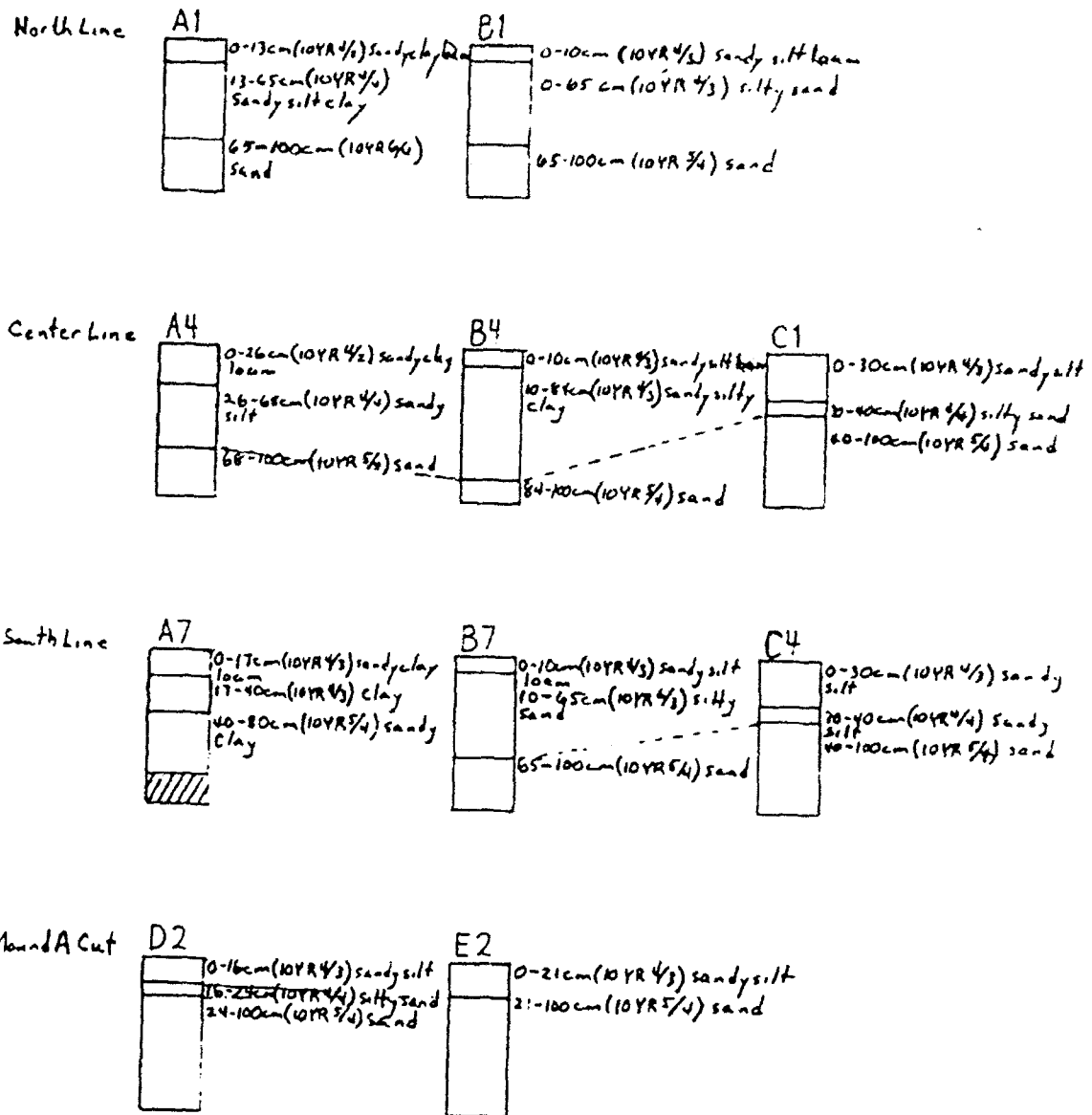


Figure D-30. Coring profiles, site 3CT232.

North Series - Soil Probe B1:

- 0-10 cm: 10YR4/3 - sandy silt loam, structureless, very fine, wet, non-plastic, gradual boundary.
- 10-65 cm: 10YR4/3 - silty sand, structureless, fine, moist, non-plastic, abrupt boundary.
- 65-100 cm: 10YR5/4 - sand, structureless, fine, moist, non-plastic.

Center Series - Soil Probe A4:

- 0-26 cm: 10YR4/2 - sandy clay loam, structureless, very fine, wet, slightly plastic, gradual boundary.
- 26-68 cm: 10YR4/4 - sandy silt, very fine, granular, moist, very slightly plastic, gradual boundary.
- 68-100 cm: 10YR5/4 - sand, fine, granular, moist, non-plastic.

Center Series - Soil Probe B4:

- 0-10 cm: 10YR4/3 - sandy silt loam, structureless, very fine, wet, non-plastic, gradual boundary.
- 10-84 cm: 10YR4/3 - sandy silty clay, structureless, fine, moist, non-plastic, abrupt boundary.
- 84-100 cm: 10YR5/4 - sand, structureless, fine, moist, non-plastic.

Center Series - Soil Probe C1:

- 0-30 cm: 10YR4/3 - sandy silt, structureless, very fine, wet, non-plastic, gradual boundary.
- 30-40 cm: 10YR4/4 - silty sand, structureless, fine, moist, non-plastic, gradual boundary.
- 40-100 cm: 10YR5/4 - sand, structureless, fine, moist, non-plastic.

South Series - Soil Probe A7:

- 0-17 cm: 10YR4/3 - sandy clay loam, structureless, very fine, wet, slightly sticky, slightly plastic.
- 17-40 cm: 10YR4/3 - clay, strong structure, thin platy, moist, very plastic.
- 40-80 cm: 10YR5/4 - sandy clay, medium structure, medium granular, moist, plastic.

South Series - Soil Probe B7:

- 0-10 cm: 10YR4/3 - sandy silt loam, structureless, very fine, wet, non-plastic, gradual boundary.
- 10-65 cm: 10YR4/3 - silty sand, structureless, fine, moist, non-plastic, abrupt boundary.
- 65-100 cm: 10YR5/4 - sand, structureless, fine, moist, non-plastic.

South Series - Soil Probe C4:

- 0-30 cm: 10YR4/3 - sandy silt, structureless, very fine, wet, non-plastic, gradual boundary.

30-40 cm: 10YR4/4 - silty sand, structureless, fine, moist, non-plastic, gradual boundary.
 40-100 cm. - 10YR5/4 - sand, structureless, fine, moist, non-plastic.

Mound A Area Series - Soil Probe D2:

0-16 cm: 10YR4/3 - sandy silt, structureless, very fine, wet, non-plastic, gradual boundary.
 16-24 cm: 10YR4/4 - silty sand, structureless, fine, moist, non-plastic, gradual boundary.
 24-100 cm: 10YR5/4 - sand, structureless, fine, moist, non-plastic.

Mound A Area Series - Soil Probe E2:

0-21 cm: 10YR4/3 - sandy silt, structureless, very fine, wet, non-plastic, gradual boundary.
 21-100 cm: 10YR5/4 - sand, structureless, fine, moist, non-plastic.

Artifacts

During the investigations at 3CT232, no cultural material of any kind was observed. Therefore, no collection from the site was made at that time. During the additional testing phase, cultural material was recovered from the upper 20 centimeters of both test units. This material is listed in Table D-6 and described below.

TABLE D-6
ARTIFACTS, 3CT232

	UNIT A		UNIT B	
	S1/2	N1/2	S1/2	N1/2
Ceramics				
Whiteware	-	-	1	2
Glass				
Brown	1	-	-	-
Clear	-	2	-	-
Metal	-	3	3	-

The three plain whiteware fragments were all found in Unit B. The largest is 2.5 x 1.0 centimeters in size and the thickest is 0.5 centimeters. The brown glass fragment is 1.0 x 0.5 x 0.3 centimeters. The largest clear glass fragment is 1.0 x 0.3 x 0.3 centimeters. Three of the six metal fragments appear to be the rusted remains of round wire nails. The other three pieces are unidentifiable.

Site Size, Distribution and Interpretation Based on Investigations

During the original survey only the mounds were investigated. The original area surveyed encompasses an area approximately 30 x 80 meters (2,400 square meters) and the mounds are approximately 1.5 to 2.0 meters (4-7 feet) in height.

The area of investigations was expanded during the period of additional testing to include the area of impact between the mounds and the levee. This

area encompasses an area approximately 40 x 100 meters (4,000 square meters). Coupled with the mounds the total area investigated during the survey and additional testing phases is approximately 70 x 100 meters (7,000 square meters).

The purpose of investigations at 3CT232 was to determine the presence or absence of cultural deposits within the impact area (between the Bledsoe Mounds and the present levee) and the determination of the association of cultural material, if any, with the Bledsoe Mounds. No prehistoric cultural material was noted within the impact area either on the surface or in the sub-surface deposits. Further, no recognized subsurface culturally modified soil horizons were noted either in the soil coring (Figure D-30) or in the two 2 x 2 meter test units (Figures D-25, D-26, D-27 and D-28). Thin bands of organically stained sand and peat were encountered in Test Unit B (Figures D-27 and D-28), but these appear to be natural paleosols. The entire artifact assemblage consisted of a few small historic fragments of ceramics, glass and metal. All cultural material was found in the plow zone. The paucity of the glass and ceramics indicates limited activity in the immediate area of the mounds. These artifacts may be associated with visitors to the cemetery, or the remains of lunch breaks taken by farmers or levee construction workers. The large oak is a convenient shade tree and wind break as recently left lunch remains attested during investigation of the site. The nails may be the remains of a coffin or a possible fence surrounding the cemetery. It should be noted that no evidence of burials (i.e. bone fragments or subsurface soil disturbances) was noted during the investigation.

The site is interpreted as consisting of two mounds with an intrusive historic cemetery present on top of the mounds. It can not be confirmed that the mounds were built in prehistoric times. To fully explore the potential prehistoric origin of the mounds, however, the following observations should be made.

Prehistoric mounds of this configuration are present from the Middle Woodland (Marksville) Period, 0-A.D. 400, through the Middle Mississippian Period, A.D. 1050-A.D. 1350. However, as noted earlier, mounds that have been identified as Late Woodland (Baytown) Period, A.D. 400-A.D. 700, have upon excavation, turned out to be Middle Mississippian Period, Cherry Valley phase components.

If these are Middle Woodland (Marksville) mounds, then it would be expected that they would consist of two or more relatively large conical mounds that would contain one or more burials, usually at the base of the mound, with a limited amount of burial furniture or accompanying artifacts. If these are Middle Mississippian Period, Cherry Valley phase mounds, then they would consist of one or more conical mounds that would contain numerous bundle and extended burials, or rare cremated burials, with a large amount of associated grave furniture.

If these are Middle Mississippian mounds, then it can reasonably be expected that the intrusive historic burials will have impacted in situ prehistoric burials because 1) there should be a large number of individuals with associated grave goods and 2) there should be more than one level of burials representing use of more than one charnel structure on the site. Presumably,

this will have resulted in prehistoric material being redeposited on the surface of the mounds. In contrast, if these are Marksville then there will have been a lesser chance of an intrusive historic burial impacting in situ prehistoric burials, because 1) they will be fewer in number with less grave goods and 2) they should be located at the base of the mound.

Thus, the absence of prehistoric material in the area of the intrusive historic burials suggests these mounds are Middle Woodland (Marksville) Period, 0-A.D. 400, which is comparable to the earliest estimate of the age of the land surfaces, approximately A.D. 300-A.D. 600.

Finally, it is possible that the mounds may date to the Late Woodland (Baytown) or Early Mississippian Periods. Although excavation of mounds that were thought to be of the Baytown phase have turned out to be Middle Mississippian, it is still possible that there are mounds from this and the Early Mississippian Periods. If so, they would be expected to be more similar to Middle Woodland (Marksville) mounds than to mounds of the Middle Mississippian since Late Woodland and Early Mississippian phases are generally a continuation of cultural developments initiated in the Middle Woodland while Middle Mississippian phases represent adaptation to and assimilation of an intrusive population and its culture.

If the mounds are not of prehistoric origin, they may represent mounds artificially formed by agricultural and levee building practices. That is, a cemetery may have been established on a natural rise or elevated portion of a ridge. Subsequent farming around the ridge, coupled with levee building, may have contributed to areal erosion and soil removal, emphasizing the mounds elevation.

3CT233 (Steamboat Pacific)

Location and Physical Setting

This site is reported to be located within the present day bankline or channel of the abandoned Mississippi River cut-off oxbow lake known locally as the "Devil's Elbow". It is reported to be underwater and/or heavily silted in. The elevation is less than 68.58 meters (225 feet) AMSL (Corps of Engineers 1975). The abandoned channel area is surrounded by bottomland hardwood forest with varying percentages of dense and open understory. The reported location is in the vicinity of the proposed "R.S. Ramp" construction area on the riverside (borrow) portion of the levee.

Initial Survey and Testing

Archival evidence suggested that this is the location of a 19th century steamship that is reported to have snagged and sunk in the vicinity of Pacific Landing. It was reported to be located opposite the Golightly house, an extant structure west of the project area. The sidewheel paddle steamer Pacific, built in Cincinnati, Ohio in 1829, reportedly sank on March 16, 1841. Her home port was New Orleans, Louisiana and no lives were lost when she sank (Lytle 1975:228, 167).

J. O. Thresher, a local resident, informed us that his stepfather saw the superstructure of the vessel in the early 1900's (pre-1905) when the water

level dropped. The vessel was not observed in the field during the initial survey and testing.

Additional Testing

During the additional testing phase, archival search revealed that the Pacific apparently sunk in 1854 rather than 1841.

A field magnetometer search was initiated to locate the remains of the vessel. This is reported in detail in Appendix F.

3CT236

Location and Physical Setting

This site (Figure D-31) is located on a low alluvial ridge approximately 152 meters east of Devil's Elbow. Soils in the vicinity include: Tunica clay, frequently flooded and Sharkey silty clay, frequently flooded (Gray and Ferguson 1974). The elevation of the site is approximately 68.58 meters (225 feet) AMSL (Corps of Engineers 1975). When identified, the entire site area was a fallow soybean field.

Site History

No structures are depicted on any of the maps examined (Mississippi River Commission 1890, 1916; Corps of Engineers 1930, 1932-33, 1939, 1952, 1962, 1975). No mention of structures in the area was made by any of the local informants contacted.

Methodology

The site was initially observed during a magnetometer survey as a low density scatter of brick fragments and metal farm implement parts. The surface limits of the scatter were delineated and marked with pin flags. Two 2 x 3 meter surface collection units were superimposed over the areas of greatest artifact concentration. A 1 x 1 meter test unit was staked in the southwest corner of Collection Unit A. A sketch map was drawn of the site showing boundaries, collection units and test unit.

All cultural materials on the surface of the two collection units were carefully observed for identifying features (i.e., maker's marks). None of these remains were collected. The test unit was excavated in arbitrary 10 centimeter levels due to the lack of clear natural stratigraphy. All matrix was carefully finger screened.

Stratigraphy

The south wall profile of the 1 x 1 meter test unit is described below and depicted in Figure D-32).

South Wall Profile

0-14 cm: dark yellow brown (5Y3/2) dense clay; end of plow zone;
14-50 cm: dark yellow brown (5Y3/2) dense clay.

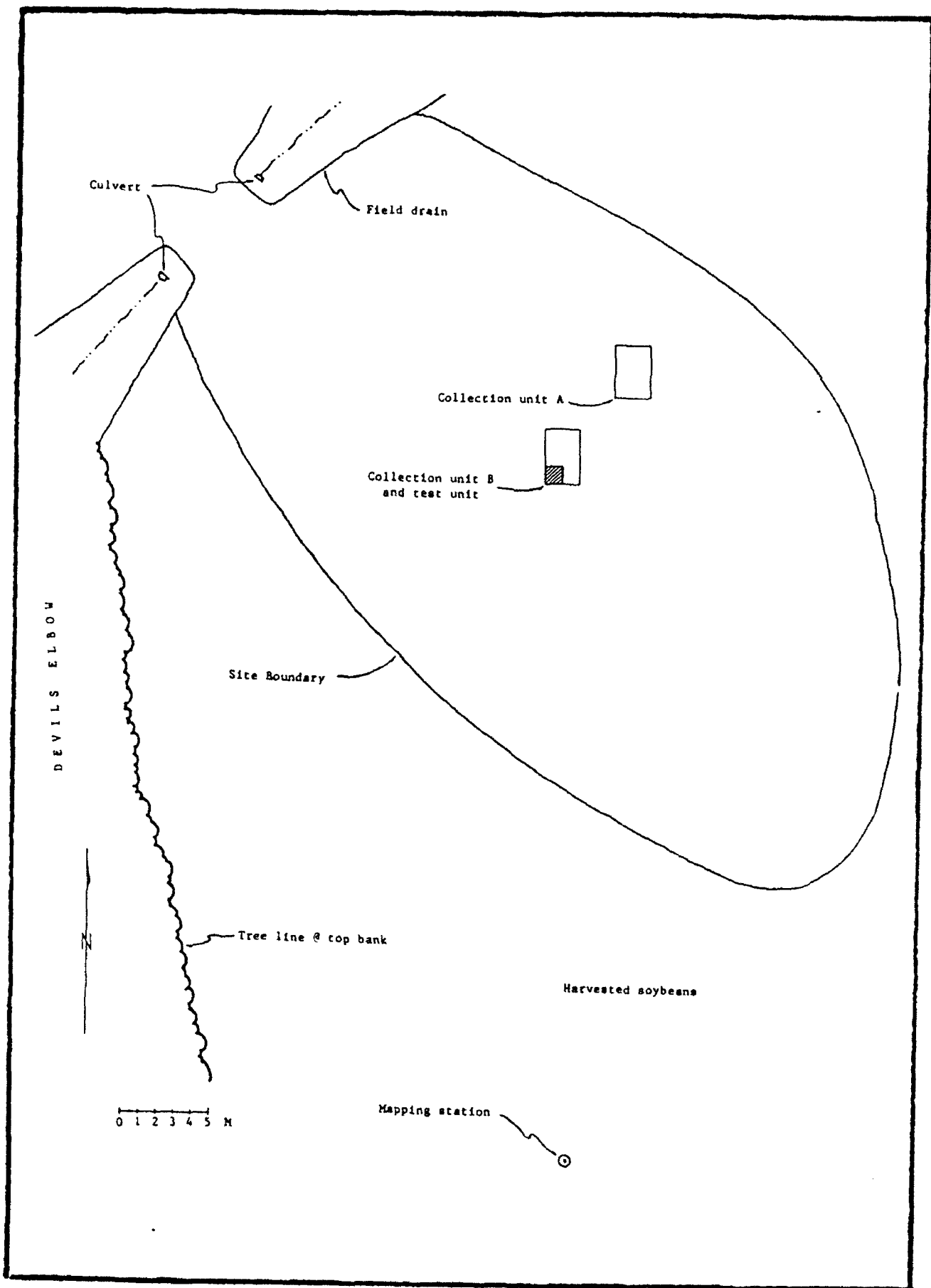


Figure D-31. Site map, 3CT236.

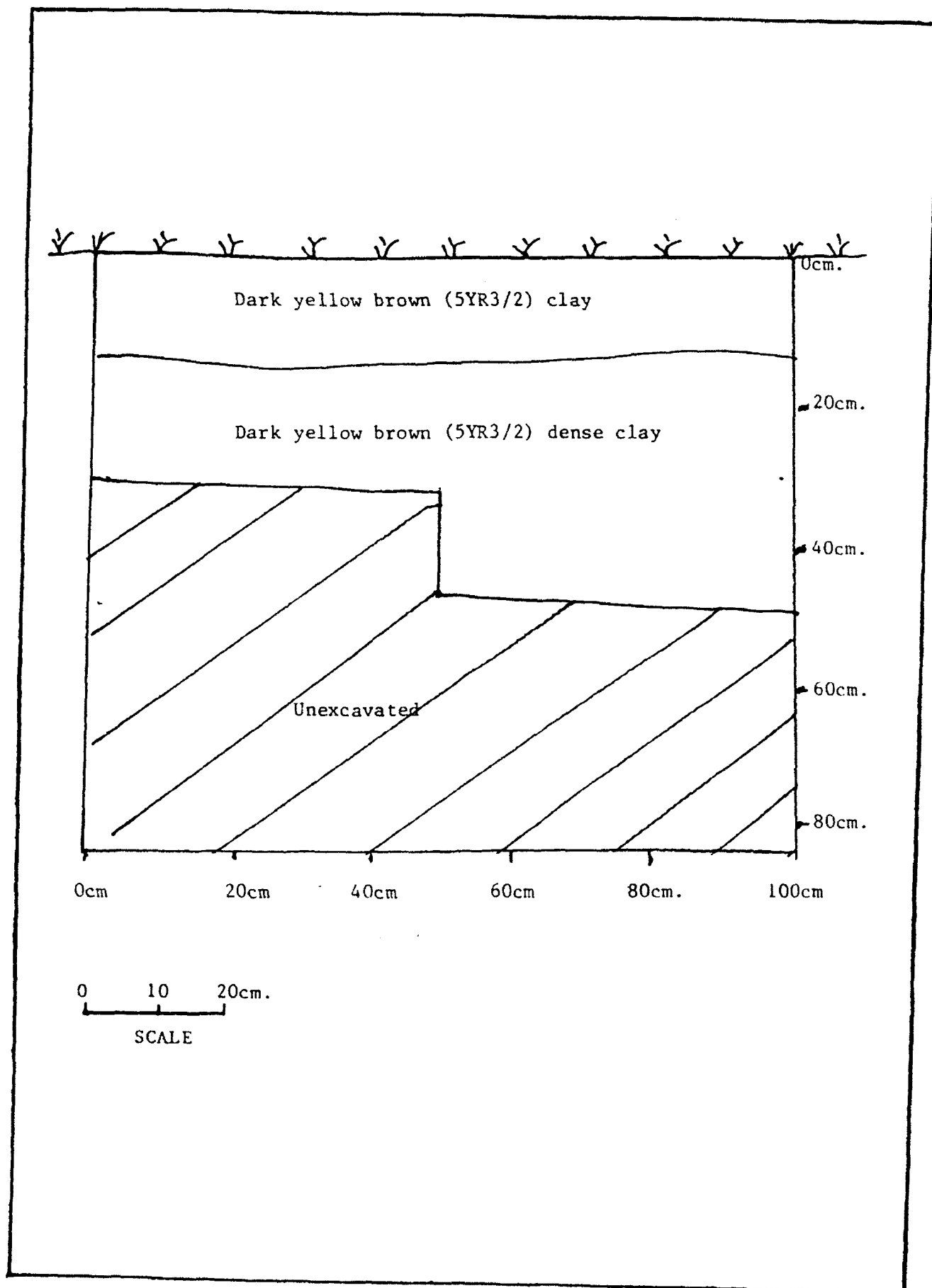


Figure D-32. Profiles, Test Unit 1, 3CT236.

No cultural materials were recovered from below the plow zone.

Materials Remains

Prehistoric Artifacts

No prehistoric artifacts were observed on this site.

Historic Artifacts

The cultural material on the surface at this site consists of brick and metal fragments. All bricks on the site appeared to be machine made. One of these had a maker's mark of "LACLEDE, ST. LOUIS." One fragment had an unidentifiable mark. The Laclede-Christy Brick Company of St. Louis was a manufacturer of fire brick, specializing in this material. Their bricks were marked with the mark "LACLEDE" (Nancy Clendenen 1984:personal communication).

Site Size, Distribution and Interpretation Based on the Investigation

The site covers an approximate area of 32 x 15 meters (480 square meters). Cultural material is restricted to the upper 14 centimeters, entirely within the plow disturbed deposits. It appears that agricultural activities have destroyed and scattered the site.

Interpretation of site function is tenuous at best. The presence of brick, some of which is fire brick, and metal suggests that this was a non-domestic site. The site may have been used as a temporary workshop for the repair of farm equipment or perhaps for blacksmithing.

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APPENDIX E

CULTURAL RESOURCES RECORDED OUTSIDE
THE PROPOSED RIGHT-OF-WAY

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APPENDIX E
CULTURAL RESOURCES RECORDED OUTSIDE OF
THE PROPOSED PROJECT RIGHT-OF-WAY

During investigations of the project area it was determined that nine of the 15 cultural resource sites were out of the proposed project right-of-way and thus would not be subject to adverse impact. The following appendix lists each of the nine sites and provides a brief description. This was done for future reference and planning in the event proposed rights-of-way were altered to include these cultural resources.

3CT235

Location and Physical Setting

This site (Figure E-1) is located on a low alluvial ridge 20 meters east of Devil's Elbow, adjacent to and just south of an east-west running field drain. Soils in the vicinity include: Tunica clay, frequently flooded and Sharkey silty clay, frequently flooded (Gray and Ferguson 1974). The elevation of the site is approximately 68.58 meters (225 feet) AMSL (U.S. Army Corps of Engineers 1975). At the time of the survey the entire site area was a fallow soybean field.

Methodology

The site was initially observed during a magnetometer survey as a low density scatter of historic building material and household debris. The surface limits of the scatter were delineated and marked with pin flags. The site limits were mapped with a transit and stadia rod. Two 2 x 3 meter surface collection units were superimposed over the main concentration of artifacts. A 1 x 1 meter test unit was staked out in the southwest corner of Collection Unit B. The southwest corner of the units were mapped with a transit and stadia rod. Two permanent datums were established for the site.

All cultural material from within the two collection units was collected and bagged separately. The test unit was excavated and bagged in arbitrary 10 centimeter levels due to the lack of clear natural stratigraphy. All matrix was carefully finger screened.

Results

Stratigraphy

The 1 x 1 meter test unit is described below and depicted in Figure E-2.

South Wall Profile

- 0-12 cm: medium yellow brown (7.5YR3/2) fine grained clayey silt loam;
- 12-13 cm: medium yellow brown (5Y4/3) fine grained silt;
- 13-20 to 22 cm: dark yellow brown (2.5Y3/2) fine grained clayey silty clay;

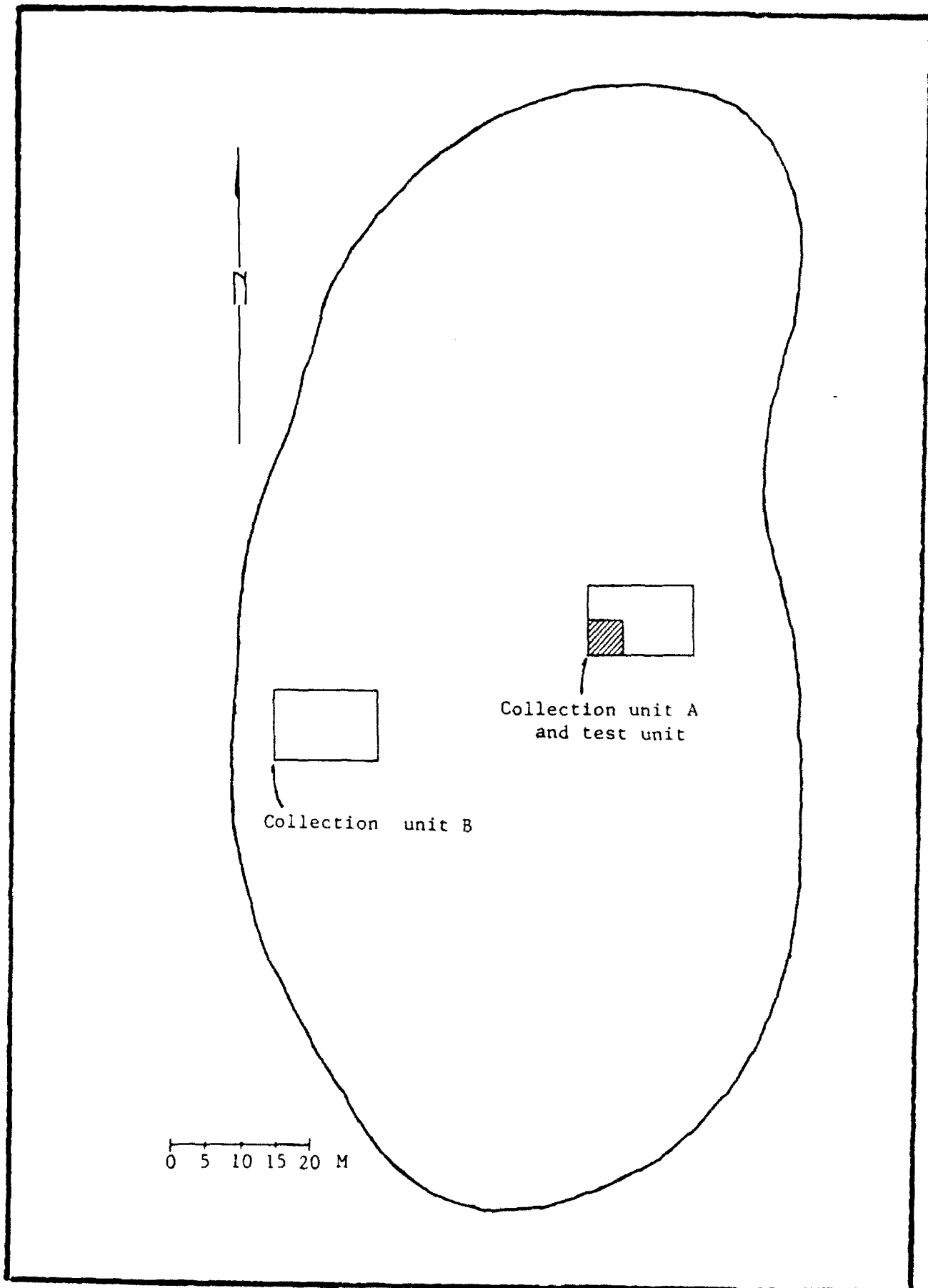


Figure E-1. Site map, 3CT235.

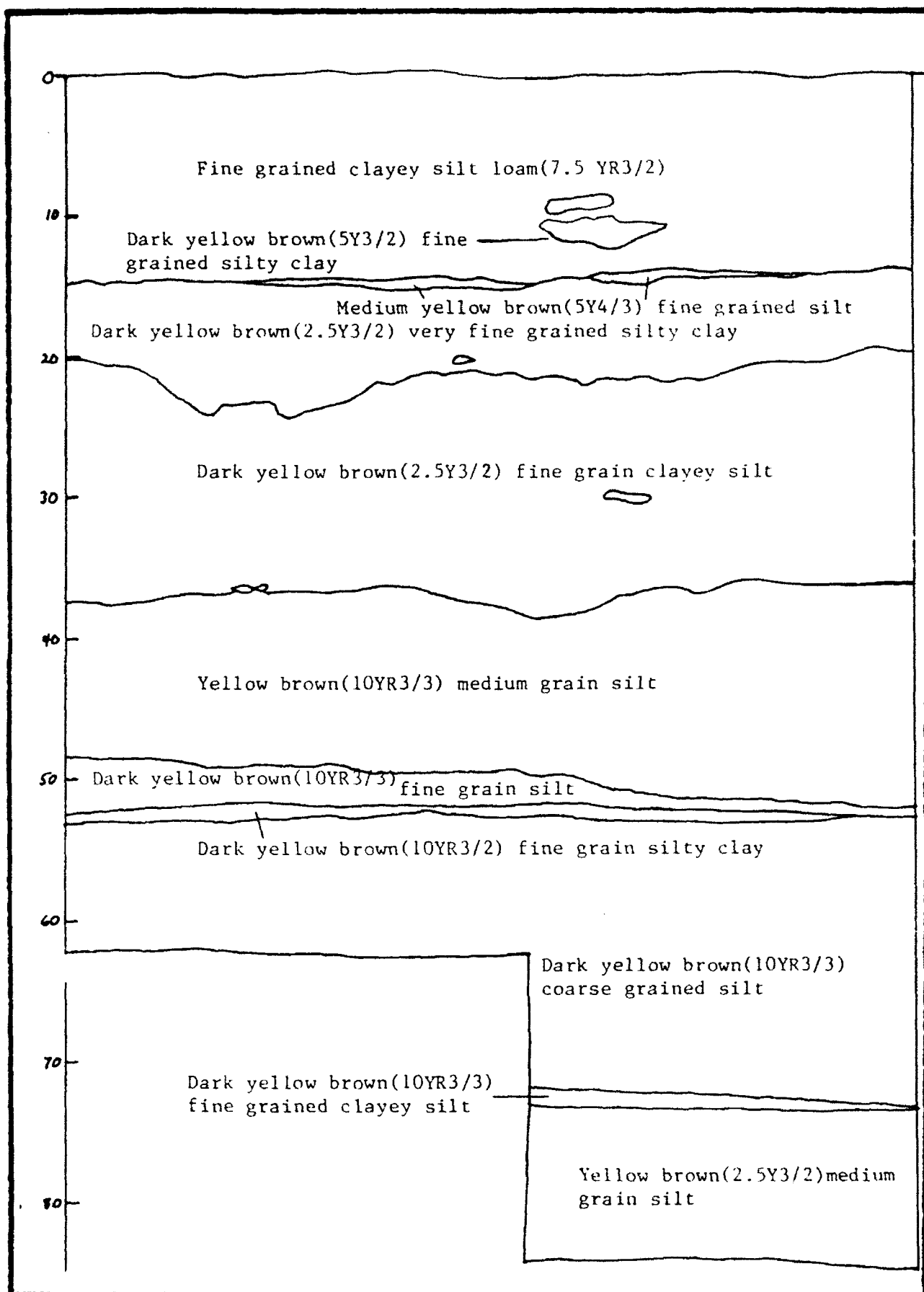


Figure E-2. Profile south wall, 3CT235.

20-22 to 35 cm: dark yellow brown (2.5Y3/2) fine grained clayey silt;
35-47 to 49 cm: dark yellow brown (10YR3/3) fine grained silt;
47-49 to 50 cm: dark yellow brown (10YR3/3) fine grained silt;
50-51 cm: dark yellow brown (10YR3/2) fine grained silty clay;
51-70 cm: dark yellow brown (10YR3/3) coarse grained silt;
70-71 cm: dark yellow brown (10YR3/3) fine grained clayey silt;
71-82 cm: dark yellow brown (10YR3/3) fine grained clayey silt.

No cultural materials were recovered from below the plow zone.

Artifacts

Prehistoric

No prehistoric artifacts were recovered from this site.

Historic

The cultural material collected from this site includes ceramics, glass and metal. The ceramic category includes stoneware, whiteware and porcelain items. Little decorated ware is present.

The majority of glass fragments from this site are clear window glass. Other glass fragments include one green canning jar fragment, one cobalt blue glass fragment and a medicine bottle neck. Only one small piece of purple glass was recovered suggesting the site was established after 1920.

Of the metal artifacts recovered, the majority are wire drawn nails. Also included were one piece of pipe, two pieces of sheet metal, one piece of sheet aluminum, two shotgun shell bases and many unidentifiable metal fragments.

Interpretations

This historic site is interpreted as representing a small habitation site because of the low concentration of household artifacts and building materials. The site does not appear on any early maps, all of which show the area to be wooded. The site may possibly have been a hunting/fishing camp considering its proximity to the Devil's Elbow cutoff. Artifacts suggest that the site was probably occupied after 1920 to the time period around World War II. Children were apparently occupants at the site at some period as suggested by a porcelain doll arm and a glass marble.

A large percentage of the artifacts show signs of burning indicating that the structure may have been destroyed by fire.

Significance

Due to the lack of structural remains, the highly disturbed nature of the site, and the fact that there are no cultural materials or features below the plow zone, this site is not believed to be eligible for inclusion on the National Register of Historic Places.

Location and Physical Setting

This site is located on a ridge of recent alluvium (Fisk 1944). The elevation is approximately 70.1 meters (230 feet) (U.S. Army Corps of Engineers 1975). The soils belong to the Robinsonville very fine sandy loam association (Gray and Ferguson 1974). Vegetation consists entirely of soybeans less than 24 centimeters (8 inches) in height. The site is located approximately 7-8 meters (22-25 feet) north and west of the proposed project right-of-way.

Description

The site (Figure E-3) consists of a low density surface scattering of pre-historic, grog tempered ceramics and a few broken river chert pebbles. Additionally, a moderate amount of historic household debris (white ware, stone ware and purple glass) were observed in the same vicinity but appears to be concentrated to the west of the prehistoric scatter limits. It occupies a ridge overlooking a former borrow pit to the east and north and covers an approximate 25 x 25 meter (82 x 82 feet) area. Cultural material is restricted to the surface of the ridge and very slight side slope. Subsurface shovel tests excavated during the survey failed to locate any cultural materials or features. Because of the site's proximity to the proposed right-of-way, 7-8 meters (22-25 feet), the site was revisited to ensure cultural debris associated with the site did not extend into the right-of-way. Thus, while mapping was conducted at NLU-83-192 (Bledsoe Mounds), a series of eight shovel tests, each 50 x 50 centimeters (18 x 18 inches) in plan, were excavated between 50-75 centimeters (18-27 inches) below the surface. The matrix from each of these tests was passed through a 1/4" steel mesh shaker screen. The tests were so located as to determine: 1) if material extended east into the project right-of-way and 2) if material from this site extended north and west, possibly indicating a direct association with the mounds 60 meters (196 feet) to the north. All of these tests were negative. That is, no cultural material or features were encountered. Thus, the site does not extend into the right-of-way either on or below the ground surface. Further, this site is not believed to be directly associated with the mounds. However, additional testing between the sites would be necessary in order to properly and adequately evaluate the association or non-association of the two sites.

Artifacts observed on the site surface (not collected) include seven grog tempered, extremely weathered sherds. Of the seven sherds, one was a thick, undecorated rim sherd which exhibited a light brown exterior surface and dark gray to black paste and interior surface. Thickness was 10 mm. and the rim was rounded and slightly tapered or inverted towards the interior. The remaining six body sherds are too weathered for identification but may have been rocker stamped or fabric/reed impressed. All have strong brown to brown exterior and interior surfaces as well as paste. They range in thickness from 7 to 12 mm.

Historic material observed include: undecorated white ware; salt glazed stone ware; purple and dark green bottle glass. As with other historic sites, the presence of the purple and green glass may be indicative of a late 19th/early 20th century occupation.

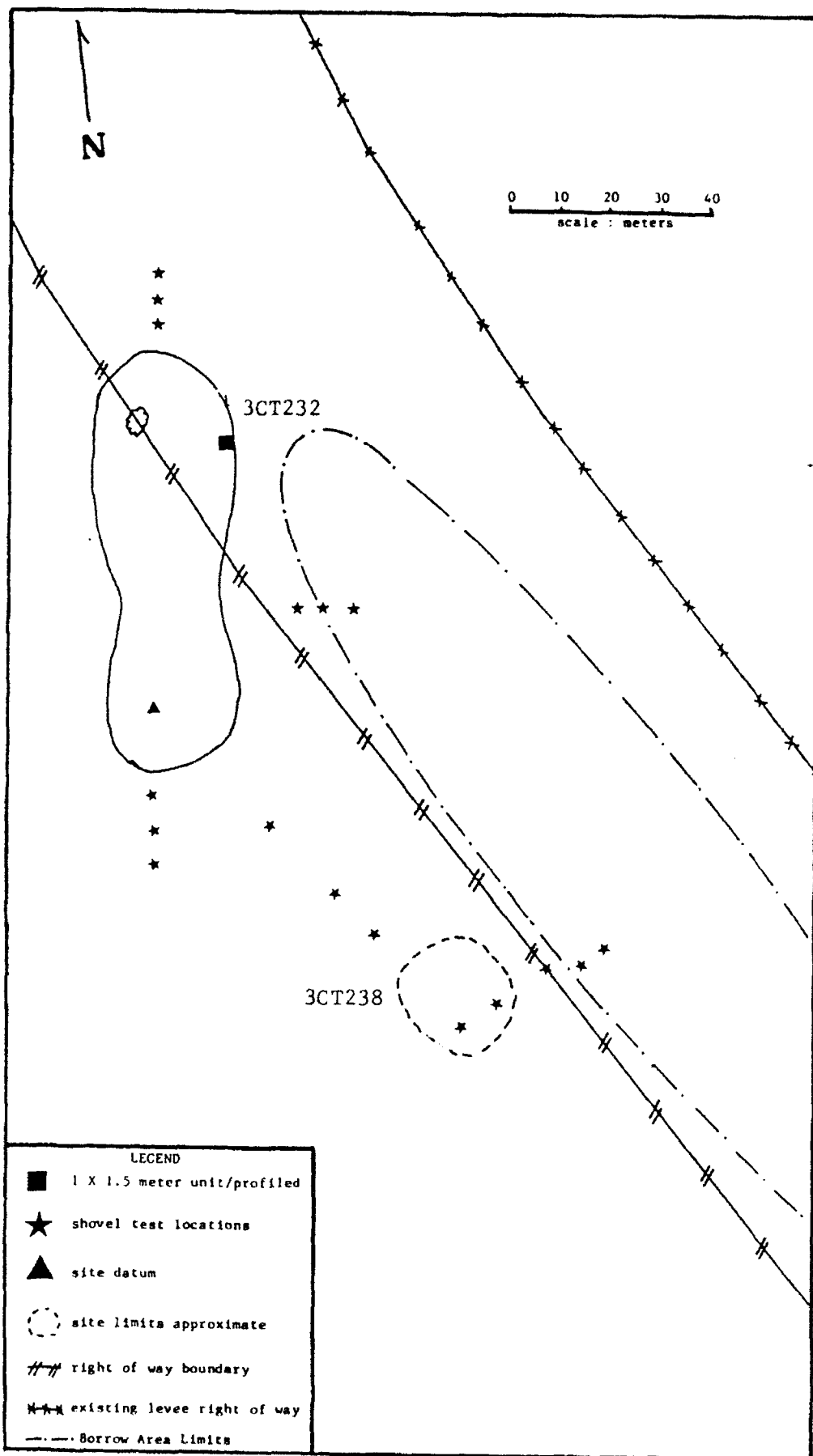


Figure E-3. Site map, 3CT232 and 3CT238.

Location and Physical Setting

This site is located on a ridge crest of recent alluvium (Fisk 1944). The elevation is approximately 70.1 meters (230 feet) AMSL (U.S. Army Corps of Engineers 1975). The soils belong to the Robinsonville very fine sandy loam association (Gray and Ferguson 1974). Vegetation consists entirely of soybeans between 54-73 centimeters (18-24 inches) in height. The site is located approximately 14-15 meters (45-49 feet) south and west of the proposed project right-of-way.

Description

This site consists of a low density surface scatter of prehistoric ceramics and a few specimens of lithic debitage. It occupies an elevated ridge overlooking a former borrow pit to the north and east. It was initially observed between rows of beans during the survey. As it was discovered during the survey, shovel tests were excavated, however, no evidence of subsurface cultural material or features were encountered. The site location was plotted on aerial blueprints and flagged for return investigation. The site was revisited and measurements were made to determine if the site extended into the right-of-way. As a result, it was discovered that the site is approximately 14-15 meters (45-49 feet) out of the right-of-way and the scatter extended away from the right-of-way (south) for an undetermined distance. Additional surface and subsurface investigations were not conducted and no collections were made because the site was out of the project area and not subject to adverse impacts.

NLU-83-194

Location and Physical Setting

This site is located on a ridge of recent alluvium (Fisk 1944). The elevation is approximately 68.58 meters (225 feet) AMSL (U.S. Army Corps of Engineers 1975). The soils belong to the Robinsonville very fine sandy loam association (Gray and Ferguson 1974). Vegetation consists entirely of soybeans approximately 54-73 centimeters (18-24 inches) in height. The site lies approximately 14-15 meters (45-50 feet) west of the proposed right-of-way boundary.

Description

The site consists of a very low density surface scatter of prehistoric ceramics and a few specimens of lithic debitage. It was initially observed on the surface between rows of beans. Shovel testing in the vicinity failed to locate any subsurface cultural deposits. Soil profiles obtained during the shovel testing indicate a well developed plow zone of mottled gray/brown silts approximately 20 centimeters thick. Below this, to a depth of 50 centimeters, is an undisturbed (homogenous) grayish-brown fine sandy silty loam. Cultural material observed on the surface included: grog tempered body sherds and a few very small chert chips and/or chunks. Two rim sherds exhibited diagonal incised/impressed lines. As the site was recorded out of the right-of-way and

would not be impacted by the proposed project, additional surface and subsurface investigations were not conducted and the cultural material was left on the site.

NLU-83-195

Location and Physical Setting

This site is located on a ridge of recent alluvium (Fisk 1944). The elevation is approximately 68.58 meters (225 feet) AMSL (U.S. Army Corps of Engineers 1975). The soils belong to the Robinsonville very fine sandy loam association (Gray and Ferguson 1974). Vegetation consists entirely of soybeans approximately 54-73 centimeters (18-24 inches) in height. The site is located approximately 48 meters (157 feet) west and north of the proposed project right-of-way.

Description

This site consists of a moderate surface scattering of historic building and household debris. It was initially observed between rows of beans during survey. Subsurface shovel tests were excavated in the vicinity, however, no cultural materials or features were encountered below the well developed plow zone. The soil profiles observed are consistent with those observed at NLU-83-194. As the site was recorded well out of the proposed right-of-way and would not be impacted, additional surface and subsurface investigations were not conducted and the cultural material observed was not collected. The material observed was similar to that material observed on sites in the right-of-way. It appears to conform quite well with artifact assemblages common in the late 19th/early 20th century time period.

NLU-83-197

Location and Physical Setting

This site is located within and adjacent to a borrow pit remnant. The elevation is approximately 69.49 meters (228 feet) AMSL (U.S. Army Corps of Engineers 1975). The soils belong to the Borrow Pit and Tunica Clay associations (Gray and Ferguson 1974). Vegetation consists entirely of soybeans less than 24 centimeters (8 inches) in height. The site is located approximately 10 meters (32 feet) north and west of the proposed project right-of-way.

Description

The site consists of a low density surface scatter of historic building and household debris. It was initially observed on the extremely eroded surface of a farm road. The scatter continues south of the road into a former borrow pit which has been reclaimed for agriculture. Much of the area is currently in soybeans. As the site was observed during the survey, subsurface shovel tests were excavated. However, no cultural material or features were observed in any of these tests. Material observed on the surface includes but is not limited to: brick and mortar fragments; salt glazed stone ware; undecorated white ware; clear and amber glass; and metal, probably from implement pieces.

As the site was out of the right-of-way and would not be subject to adverse impact additional surface and subsurface investigations were not conducted. Further, no collection of artifacts was made. were made because the site was out of the project area and not subject to adverse impacts.

NLU-83-199

Location and Physical Setting

This site is located on the edge of an existing borrow pit. The elevation is approximately 68.58 meters (225 feet) AMSL (U.S. Army Corps of Engineers 1975). The soils belong to the Tunica Clay association (Gray and Ferguson 1974). Vegetation where present consists entirely of soybeans approximately 30 centimeters (12 inches) in height. The site is located approximately 10 meters (32 feet) south and west of the proposed project right-of-way.

Description

This site consists of a medium density surface scattering of historic building and household debris. It occupies the slopes of a reclaimed borrow pit and portions of the adjacent sandy ridge overlooking the borrow pit. It is directly west of (across the borrow pit) site 3CT231 and may easily be a redeposited portion of that site. It was observed during survey on an eroded sloping surface as well as between bean rows occupying the ridge. Shovel testing was conducted, however, no additional cultural materials or features associated with the scatter could be located. The site was plotted on aerial blueines and flagged for return investigations.

The site was revisited and measurements taken. It was then determined that the site was 7-8 meters (22-25 feet) beyond the project right-of-way, therefore no additional surface or subsurface investigations were carried out and no collection was made.

NLU-83-200

Location and Physical Setting

This site is located on a sloping ridge of alluvial deposits (Fisk 1944). The elevation is approximately 68.58 meters (225 feet) AMSL (U.S. Army Corps of Engineers 1975). The soils belong to the Robinsonville very fine sandy loam association (Gray and Ferguson 1974). Vegetation consists entirely of soybeans approximately 54-73 centimeters (18-24 inches). The site is approximately 15-20 meters (49-65 feet) west of the proposed project right-of-way boundary.

Description

This is the location of two prehistoric ceramic sherds. They were grog tempered and appeared to be undecorated although both were extremely weathered. They were observed west of the treeline marking the right-of-way limit on a ridge sloping eastward towards an existing borrow pit. The entire area was intensively inspected on the surface for associated materials, however, none were observed. As the site was beyond the right-of-way and

would not be impacted no subsurface investigations were conducted and no collection was made.

NLU-83-201

Location and Physical Setting

This site is located on the edge of an existing borrow pit. The elevation is approximately 67.97 meters (223 feet) AMSL (U.S. Army Corps of Engineers 1975). The soils belong to the Robinsonville very fine sandy loam association (Gray and Ferguson 1974). Vegetation consists entirely of soybeans approximately 30-42 centimeters (12-16 inches) in height. The entire site lies more than 10 meters (32 feet) west of the proposed project right-of-way.

Description

This site consists of a low density surface scatter of historic ceramics (white ware) and pieces of farm implements. The white ware was observed beyond the treeline marking the western extent of the proposed right-of-way and the pieces of farm implement were 14-15 meters to the west, upslope and out of the right-of-way. An intensive surface inspection was conducted in the immediate area, however, no additional specimens were observed. Further, no evidence of a structure such as brick, mortar, nails or sheet metal were observed. As the site was out of the right-of-way additional surface and subsurface investigations were not conducted beyond the right-of-way (treeline) and no collection was made.

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APPENDIX F

MAGNETOMETER SURVEY OF SUBAREAS A AND B,
ITEM R-752 LAMBETHVILLE; CRITTENDEN COUNTY, ARKANSAS

BY

ERVAN C. GARRISON, Ph.D.

MAGNETOMETER SURVEY OF SUBAREAS A AND B,
ITEM R-752 LAMBETHVILLE; CRITTENDEN COUNTY, ARKANSAS

BY

ERVAN G. GARRISON, Ph.D.

INTRODUCTION

The following report is a description of a magnetometer survey and discussion of its results in subareas A and B, between stations 126/15+00 and 127/5+00 (Figure 1). These areas were located on the riverside of the Mississippi River levee in the area of Lambethville, Crittenden County, Arkansas along the 1823 channel called "Devil's Elbow" (see Heartfield, Price and Greene, 1983:2.6-2.7; 4.20-4.21). The objective of this survey was to precisely locate and evaluate, instrumentally, anomalies that could be the sunken steamboat, PACIFIC, 3CT233, lost in the vicinity of these subareas (see Heartfield, Price and Greene, 1983:4.20-4.21; 7.5-7.6; 8.1-8.2, 10.2-10.3).

The methodology, specific survey techniques, and survey results are presented in the following sections. Based on the evaluation of the results of the magnetometer, two areas or "sites" were found that clearly were the result of historical cultural activity. One of the sites was clearly not a steamboat but rather a scatter of historic artifacts some of which were metallic creating significant readings on the magnetometer. This site was located in the northeast corner of subarea A. A larger, vessel-size anomaly was located in subarea B with associated anomalies located along the bank line of the channel. Correlation of bathymetric, magnetometric and archival results gave a conclusion that this anomaly area has a high probability of being the sinking site of the PACIFIC. Confirmation of this conclusion must await a complete evaluation of the feature by archaeological testing.

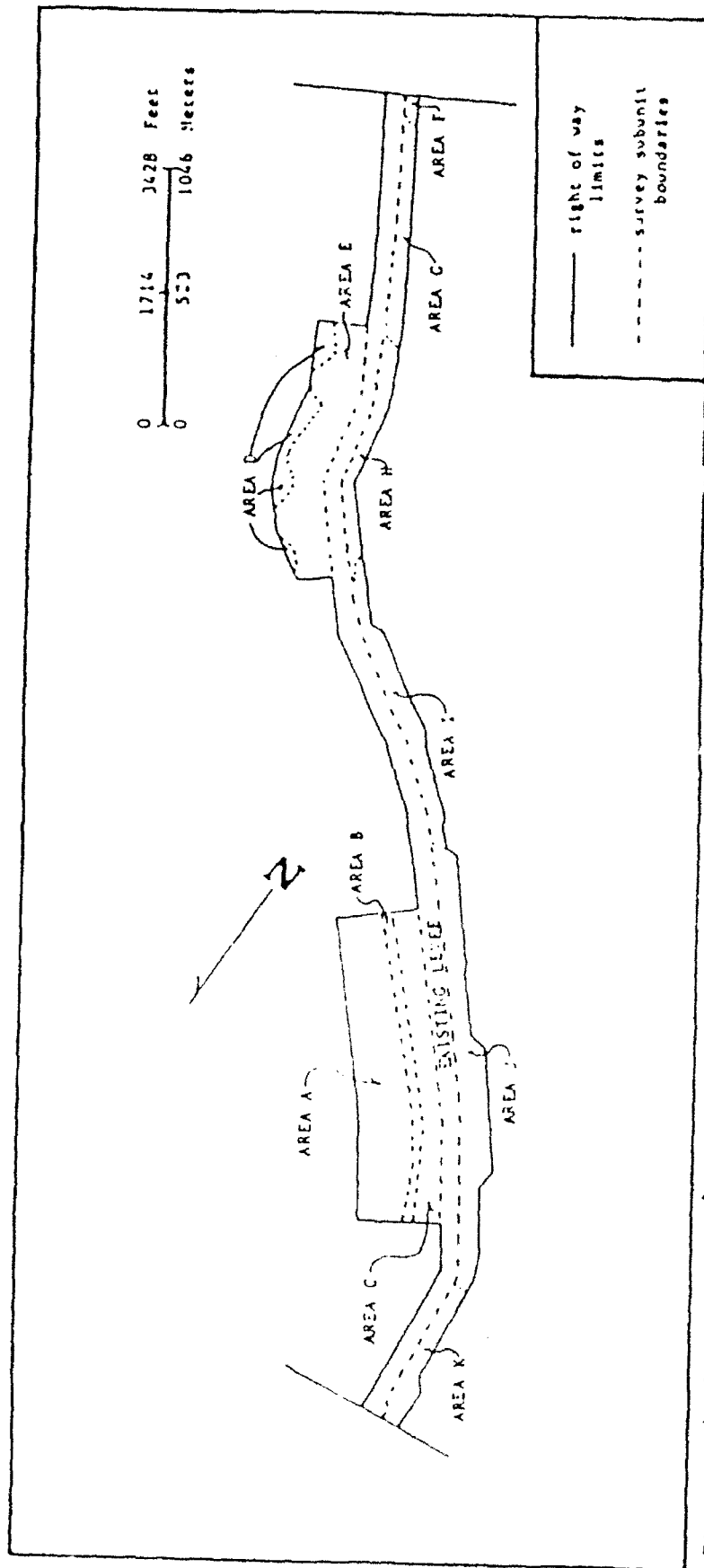


Figure 1. Location of Subareas "A through K" within the project area

METHODOLOGY

The utilization of the magnetometer in the detection of ship wrecks is well established as a principal instrument in search methodology (Hall 1966; Breiner 1973, 1975; Clausen 1966; and Clausen and Arnold 1976). These instruments, operating on various physical principles (Aitken 1970), can detect localized variations in the earth's magnetic field, H_0 , due to contrasts in the magnetic susceptibility of cultural features and their burial matrix. These contrasts can vary from ferromagnetic materials such as the metal fittings and machinery of vessels to subtle variation in the paramagnetism of weakly magnetic items or non-magnetic materials such as wood (Tite and Mullin, 1971). It is the scale and variety of these magnetic contrasts that are of importance in the detection and characterization of features such as sunken steamboats like the PACIFIC.

The specific methodology in deriving instrumental parameters for steamboat wrecks has been carried out by the author and other investigators (Garrison et al, 1978; Garrison, 1981, and 1983; Arnold, 1974; Hudson, n.d.; and Arnold, 1980). Of these various works, Arnold's (1980) studies of the magnetic features of a variety of shipwreck-related phenomena is the most exhaustive and informative. The results of these studies has allowed surveyors to develop a set of expected characteristics or attributes as to the magnetic signature of a ship-sized anomaly such as a steamboat. These attributes can be characterized as:

1. Multipoint, dipolar and monopolar, anomalies typically detected on closely spaced (ca. 75 feet) survey lines.
2. Magnetic contrasts typically between 2-3 orders of magnitude but dependent upon the character, size, and distance of the vessel remains from the sensor.
3. A distribution of magnetic features that correlate in a spatial sense

with the general distribution of the vessel's remains.

These attributes and their detection is further enhanced by the common occurrence of these vessels on or buried within weakly magnetic soils such as alluvium or sand.

Given these plausible and empirically derived assumptions about the expected nature of magnetic anomalies associated with a steamboat such as the PACIFIC, it is then possible to construct a survey methodology wherein the detection probability of such as craft is maximized. Following Breiner 1975 and Arnold 1980, a search survey methodology involves the systematic evaluation of a survey grid by a series of traverses on a spatial interval scaled to the specific size of the object being searched for. Figure 2 gives a typical arrangement of traverses used during search procedures. In the particular case of the PACIFIC, with an overall length of over 200 feet, traverses with a proton magnetometer should easily pick up the vessel at a distance of 100 feet given the occurrence of metallic materials of significant size.

Figure 3 is a nomogram which gives typical magnetic intensity values (in gammas, 1 gamma = 10^{-5} oersted or 1 nanotesla) for various types of objects. Many of these objects, in terms of material and mass, will be analogous to objects or fixtures of a sunken riverboat notably items of iron ranging from 1 pound to 1 ton in mass. One can easily extrapolate approximate intensities for anomalies created by objects of like size. Of course, shape factors are not factored into the nomogram which can contribute to the magnetic response of a particular anomaly depending upon dimension and orientation. A classic example of this is a pipe which has significant overall mass but presents, in relation to overall size, a very small section to a magnetometer sensor. In most calculations of nomograms, the object is assumed to be compact in terms of overall size and geometrically regular in shape such as a cube or sphere. Nonetheless, an approximation of

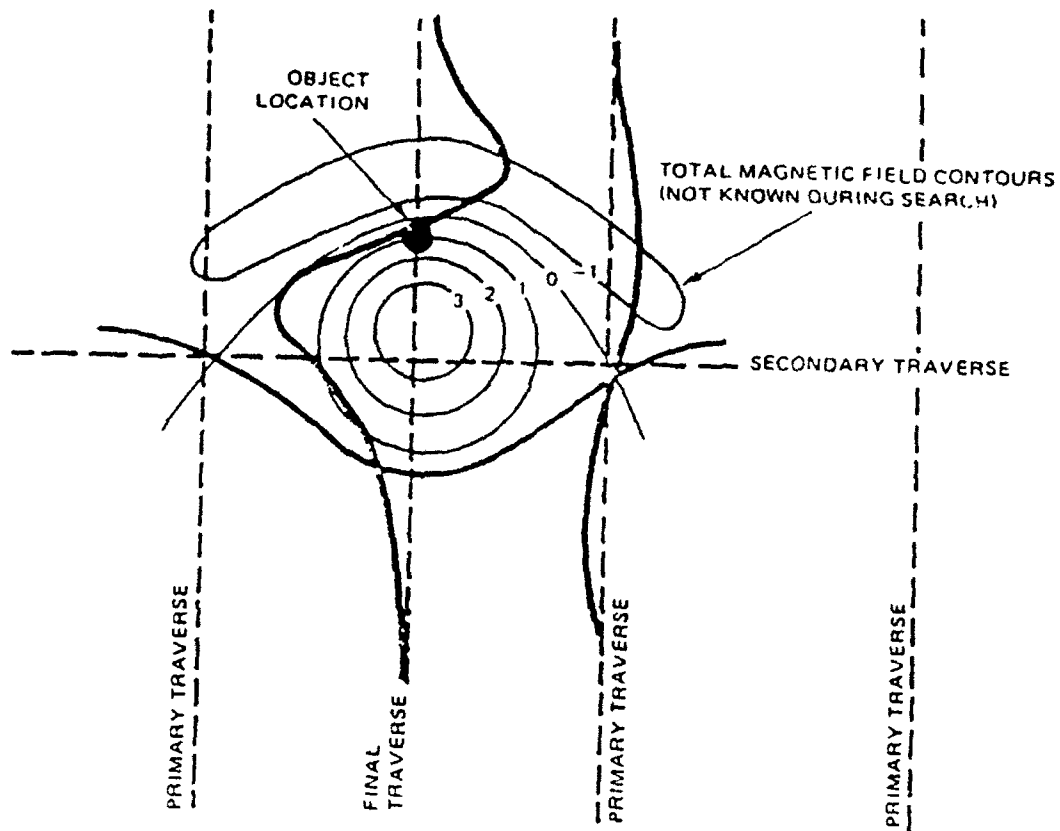


Figure 2 . Typical sequence of traverses during search procedures. Profile shown on respective traverse lines.

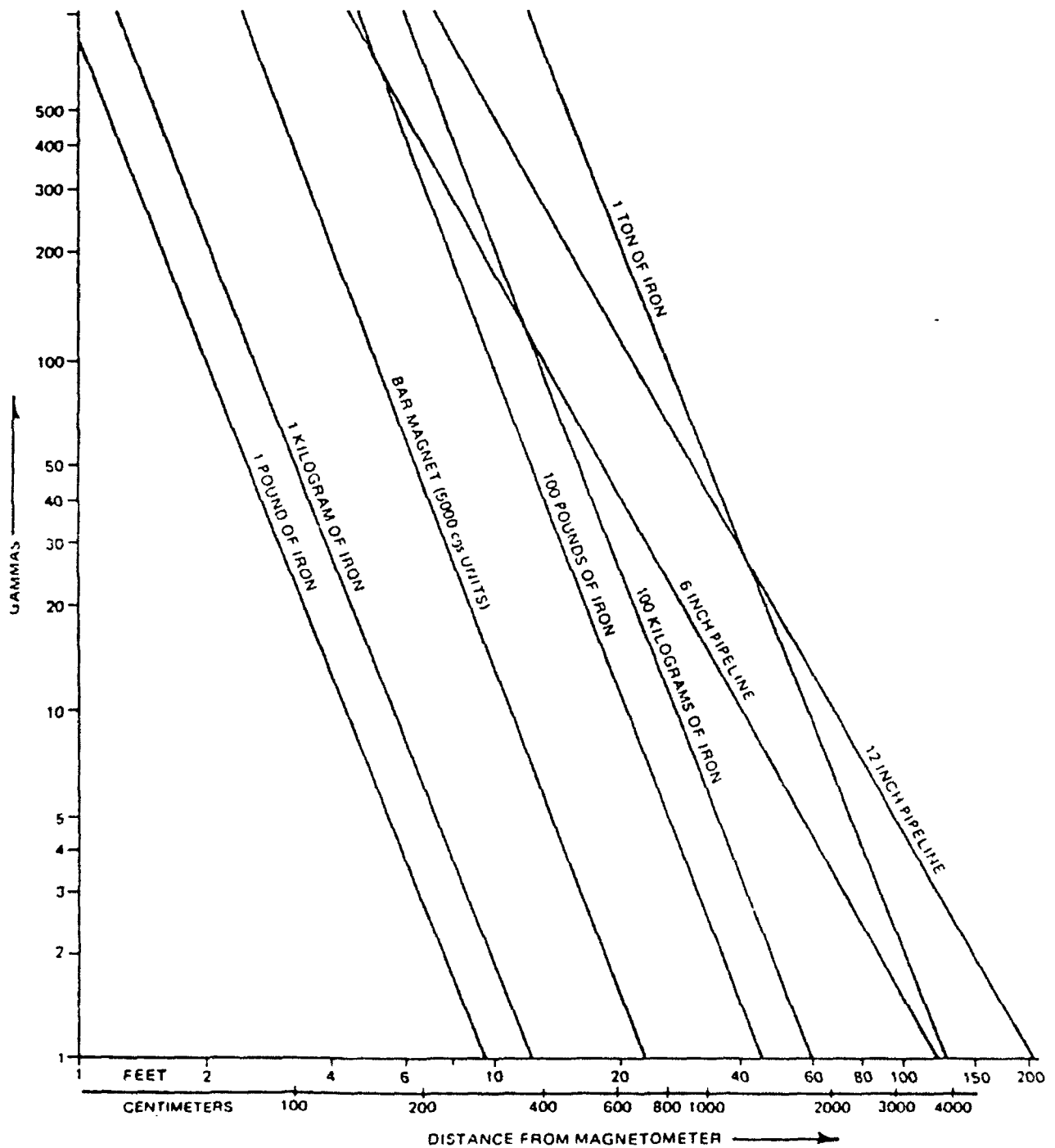


Figure 3 . Nomogram for estimating anomalies from typical objects (assuming dipole moment $M = 5 \times 10^5$ cgs/ton, i.e., $k = 8$ cgs. Estimates valid only within order of magnitude).

object distance can be obtained which can be refined by more than one traverse about the item as well as varying sensor height which considers the inverse cube response of object distance and magnetic intensity (cf. Breiner, 1973; 1975). The point in all this is that given a reasonable grid interval (or line offset) and sensor height one can roughly estimate either size and/or burial depth of an object. This particularly is so for a sharply defined anomaly with a narrow peak-width in either monopolar or dipolar configuration. Broadened magnetic signals with large peak-widths tend to be either deeply buried metallic objects, which follow the expected behavior of peak broadening with overall reduction in intensity of shallow-to-moderate depth features that are non-ferromagnetic such as intrusive soil strata, geological facies or structures made of brick, stone or wood. Given the composite nature of 19th century steamboats - fired brick beds for ash troughs, massive wooden architecture, and extensive iron machinery and fittings - one would methodologically expect an amalgam of magnetic signatures that correlate to specific occurrences of these features in a spatial sense.

SURVEY METHODS

Specific survey methods utilized will be keyed to the specific survey area, e.g., subareas A and B. This will be done as the nature of the subareas were contrasting - subarea A being a land survey area and subarea B being the remnant of the 1823 Mississippi River channel (cf. Heartfield, Price and Greene 1983: 4.21).

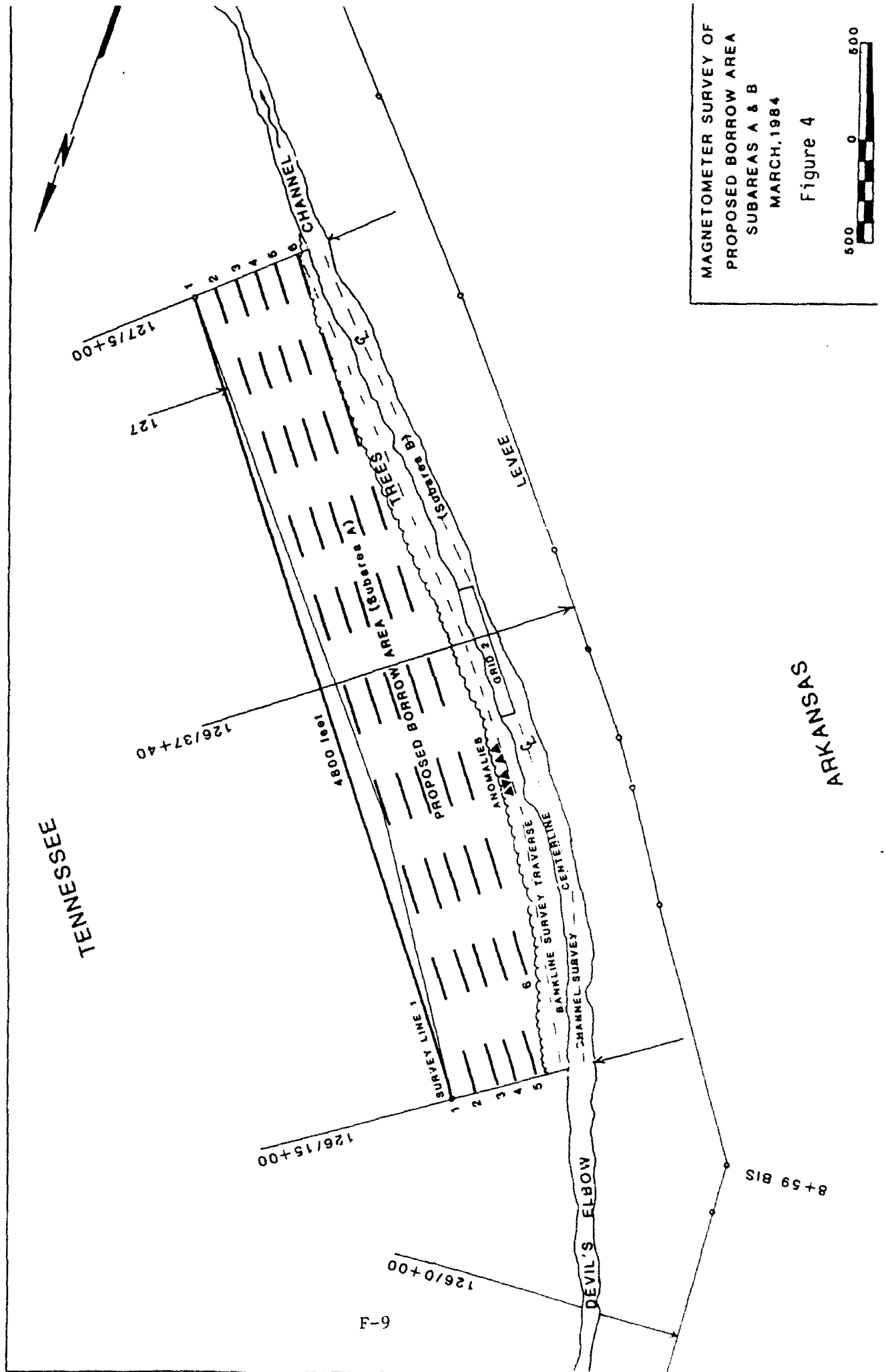
Subarea A - This 58.6 acres (23.7 hectares) is located riverside of the current levee (see Figure 1) and its western aspect forms the east shoreline of subarea B. during the survey, it was in cultivation but with no standing crops. Levee Board survey markers were evident and well marked delineating endline stations 126/15+00 and 127/5+00 as well as 126/37+40 which corresponds to the

centerline (C) of a proposed channel crossing for machinery to be used in the borrow area (Figure 4). Where possible survey transects were tied to these markers to allow ease of correlation with existing plans and cartography as well as relocation of any anomalies that would require subsurface testing.

A traverse was surveyed from station 8+59 BIS to a point just north of 126/15+00 on the west shore of subarea B. This traverse was subsequently tied in to 126/15+00 and used as northern boundary of the area encompassed in magnetometer survey of subarea B. The station erected on the west shore was utilized to create a temporary baseline on this bank for the magnetometer survey of the channel that is subarea B.

At the northwest corner of the proposed borrow area (Sta. 126/15+00) a baseline transect was shot to station 127/5+00 at the southeast corner of the proposed borrow area. This distance is 4800 feet. Along this transect, metal flag stakes were placed at 150 foot intervals creating convenient reference stations along the survey line. This transect was designated survey line 1. Four survey lines were established at 100-foot intervals eastward of line 1 designated 2-5. A sixth line was established with a northern end point at 450 feet south of 126/15+00 due to the presence of interfering vegetation so close to the channel. This line, termed survey line 6, terminated at the southwest corner of the proposed borrow area at station 127/5+00 (see Figure 4).

A recording proton magnetometer set at a 5-second sampling rate was used to traverse each survey line. A staff member was designated to carry the sensor at a height of 4.6 feet (1.4 meters) above the terrain while the operator followed at a distance of 25 feet with the console. At a constant, comfortable pace, 5-6 readings could be taken between survey line stations. Some reduction in the background sensitivity was experienced which raised the effective background "noise" from 1 to 2 nanoteslas to 3-5 nanoteslas. This was of no significance to



the survey as has been discussed in the previous section. Anomalies expected on the order of 100 or more nanoteslas could easily be detected. Survey of the complete borrow area required roughly 8 hours as the field was slightly muddy from recent rains.

Subarea B - Again located between stations 126/15+00 and 127/5+00 (see Figures 1 and 4), this survey area was completely within the present channel called "Devil's Elbow". The total area was estimated (Heartfield, Price and Greene 1983:7.5) at 10.6 acres (4.3 hectares). The channel is treelined and several large trees were within the edge of the channel depending upon water level which in turn varies with runoff and flooding. During the course of the March survey, the water level rose roughly 3 feet due to heavy showers in the area over the course of a week. Log jams due to deadfall and driftwood occur along the length of the channel but the section between stations 126/15+00 and 127/5+00 was relatively clear from 50 feet offshore to center channel. The overall width of the channel varied from 225 to 300 feet again depending upon water depth in the channel. Soundings taken at center channel on 17 March 84 indicated an average bottom depth of 15 feet at mid-channel along much of the subarea's length.

As stated earlier, a baseline had been established along the west shore at 300 feet intervals. A total length of 5100 feet was traversed. Buoy lines of 2 buoys/end point and 1/mid-line were set along and at each end of the channel survey lines. Three survey lines were established with one at center line of the channel and a line either side of the channel as vegetation would permit. Typically a clear channel width of just over 100 feet was obtained with 150 feet possible along some sections. Again remembering the discussion in the methodology section of this report, it was felt that this was adequate coverage of the channel to facilitate detection of a complex of anomalies expected for a sunken steamboat.

In conditions where such a series of magnetic features were indeed detected a

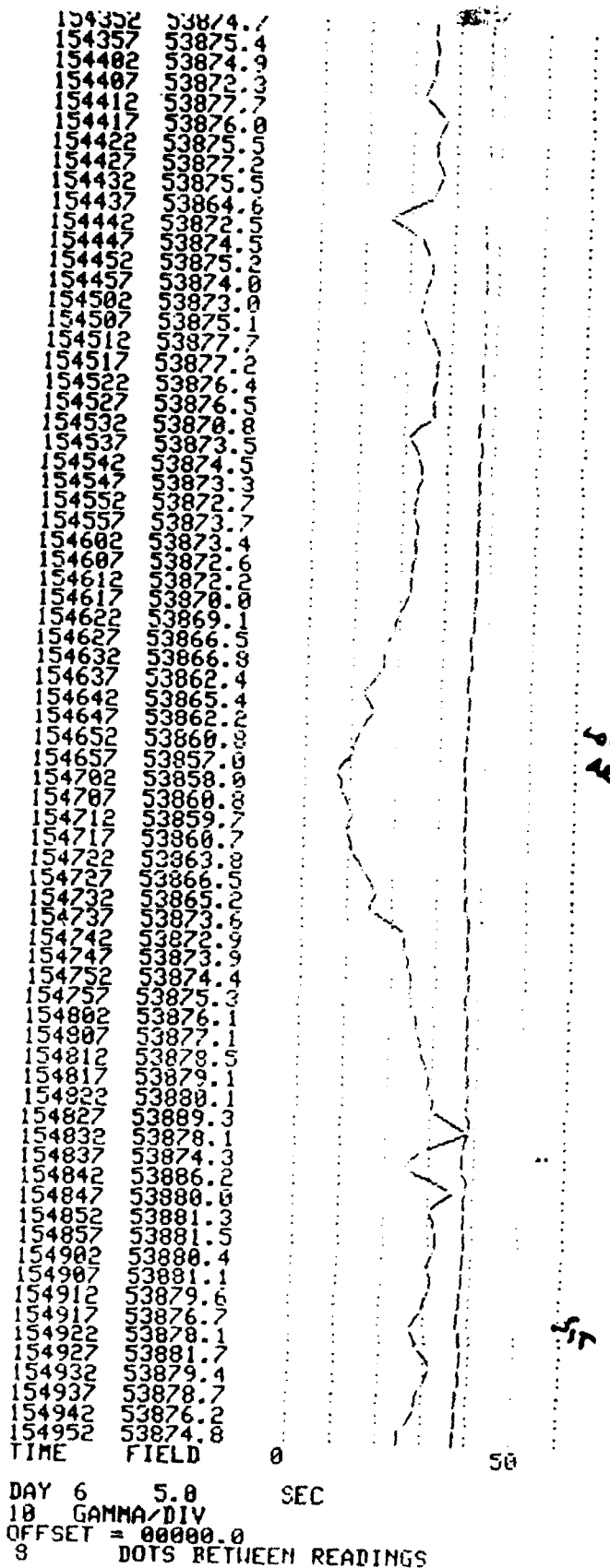
smaller grid was established in the vicinity of the anomaly or anomalies. This is seen in Grid 2 for Subarea B (Figure 4). This grid was on a tighter interval for enhanced resolution of magnetic features. The number of shore reference stations were increased with an interval of 50 feet between stations while survey line offset was reduced to 25 feet between transects. The transects were run from center channel to as near the shore as vegetation and sunken obstructions would permit.

During the channel survey, an average of 60 readings were taken between 300 foot stations. Vessel speed was roughly 2.5-3.0 knots over the course of the channel survey. In the course of the Grid 2 survey vessel, speed was reduced to accomodate nearshore obstructions such as brush, logs, and standing trees.

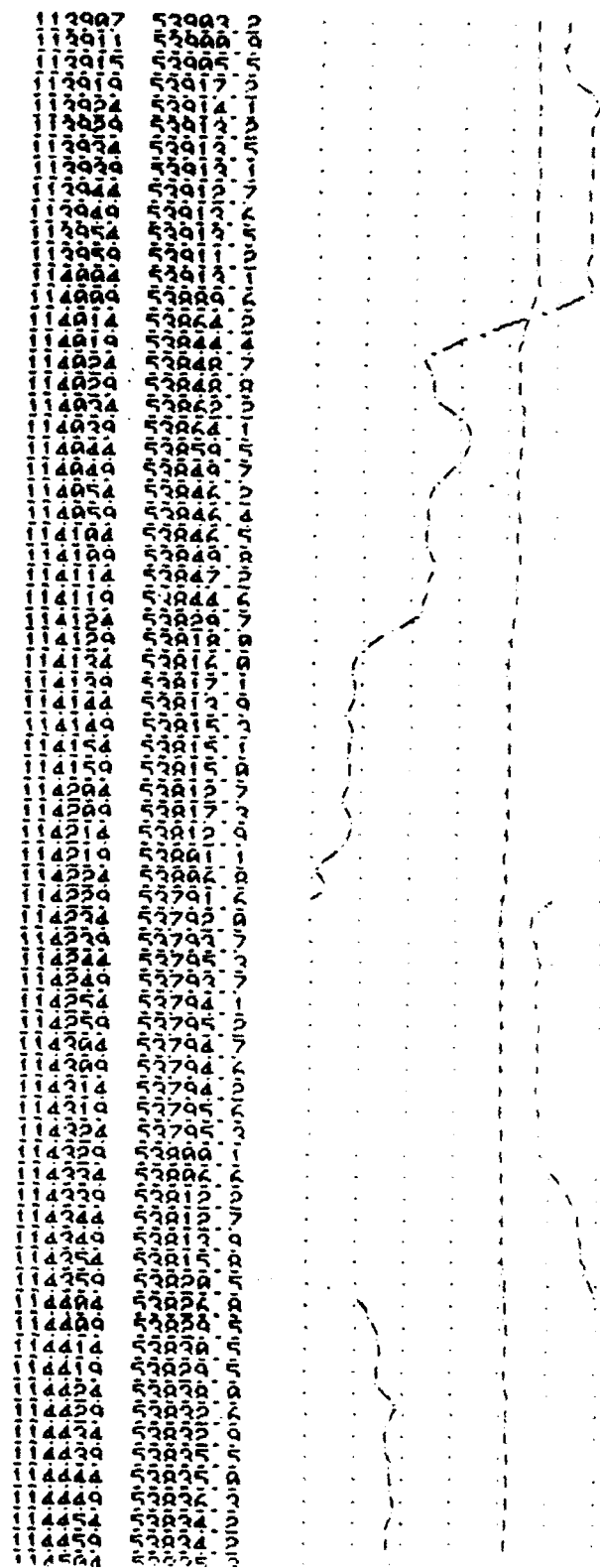
SURVEY RESULTS

Subarea A - Only one area of small magnetic anomalies was found in the cultivated portion of the proposed borrow area. These were clearly associated with a historic artifact scatter located in the northwest aspect of the area nearby to station 126/15+00 (see Figure 1). Surface artifacts included metal, in the form of wire nails, cast iron, and pipe; whiteware sherds; and glass, both bottle and window pane sherds. The magnetometer detected the ferromagnetic artifacts quite readily as seen in the example of the strip chart shown in Figure 5a. Point source objects such as cast iron fragments produced dipolar readings of a maximum of 12 nanoteslas. These values are quite in line with the magnitude and distances shown in Figure 3. No vessel size anomalies were detected in the cultivated area.

The traverse of the treeline and bank slope was more productive, in terms of anomaly location, than lines 1-6. A series of magnetic anomalies were located at the field margin along the bank top and upper slope (see Figure 4). Point source



a

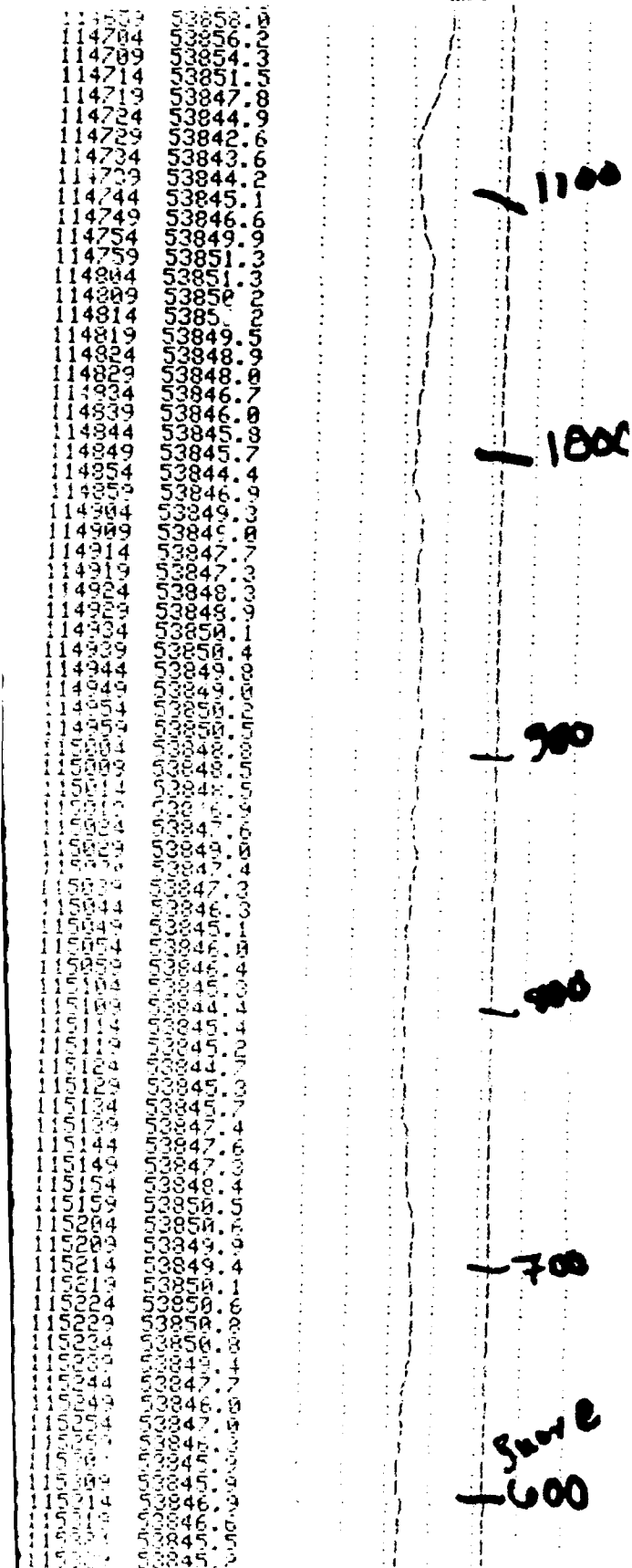


b

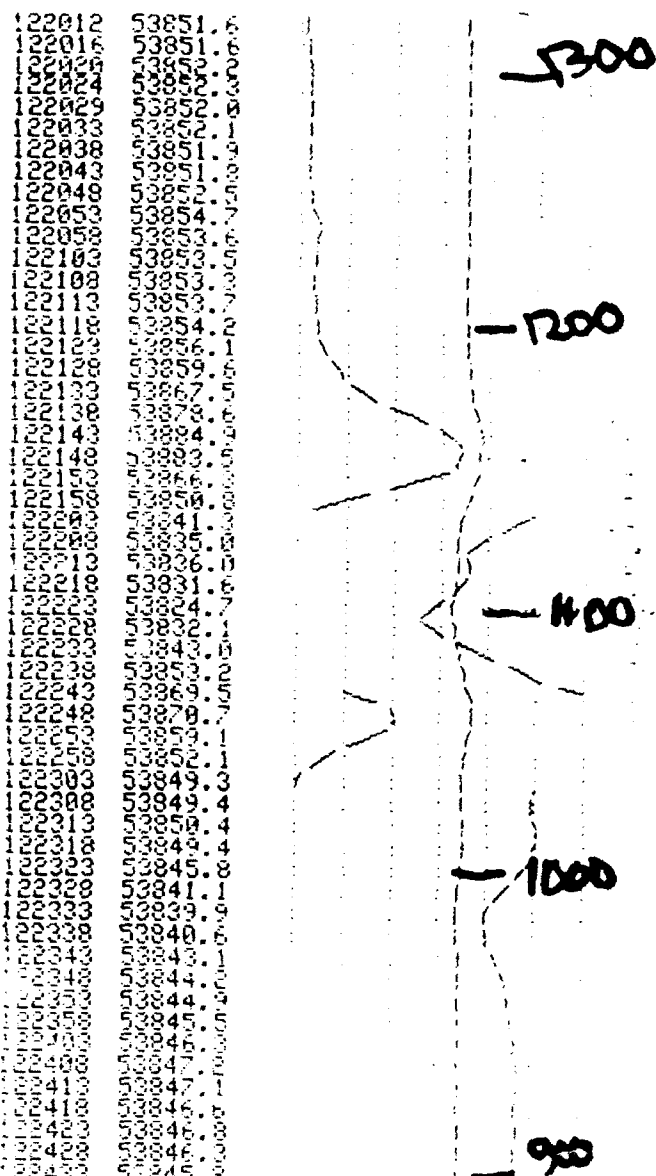
Figure 5.a. Magnetic profile of anomalies, historic site, subarea A, 5.b. Magnetic profile of anomalies, bankline, subarea A



F-13



a



b

Figure 7.a. Typical magnetic profile of Devil's Elbow Channel
b. Magnetic profile of feature in subarea B, center channel survey line

DAY 3 S.W. SEC
 10 JANUARY 1974
 OFFSET = 00000.0
 8 DOTS BETWEEN READINGS

Start Line 50' off
 EAST SHORE 000
 Sta. 1200

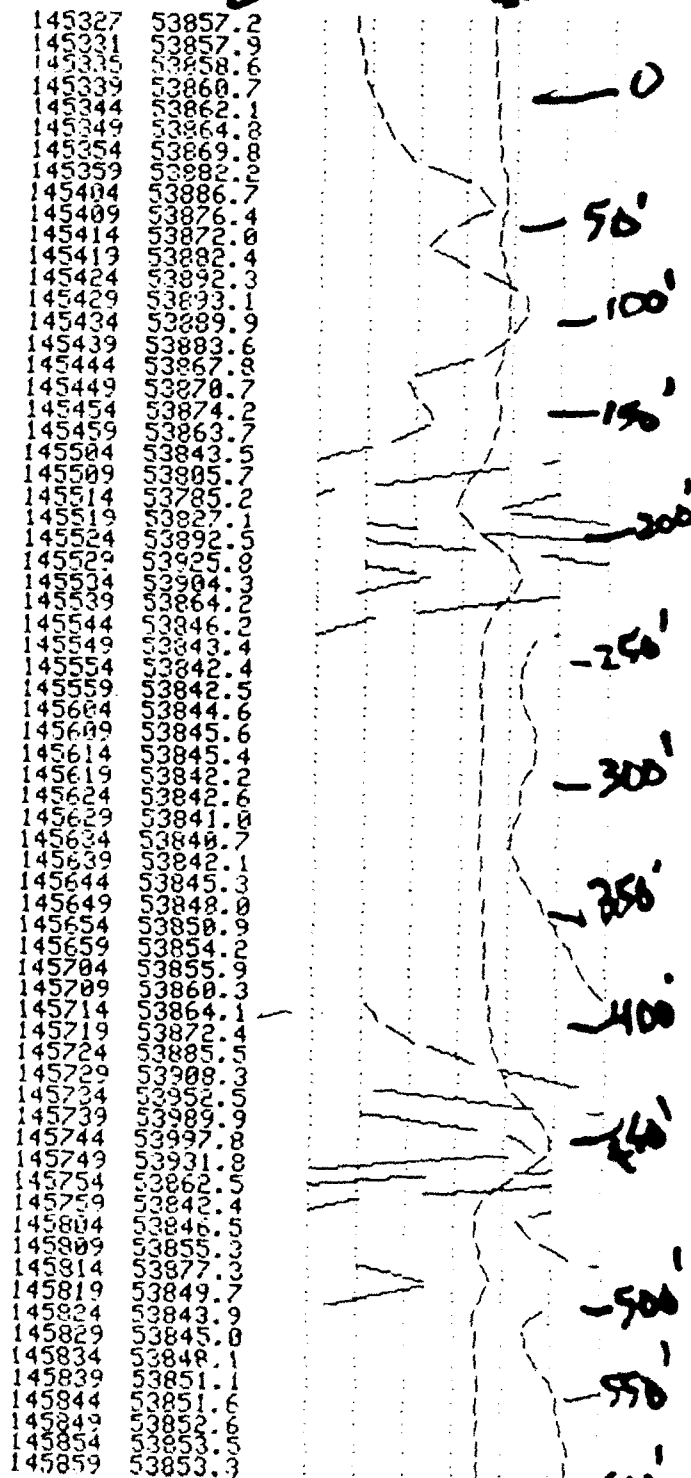


Figure 8. Magnetic profile of feature in subarea B, Grid 2, 50 feet off east shore

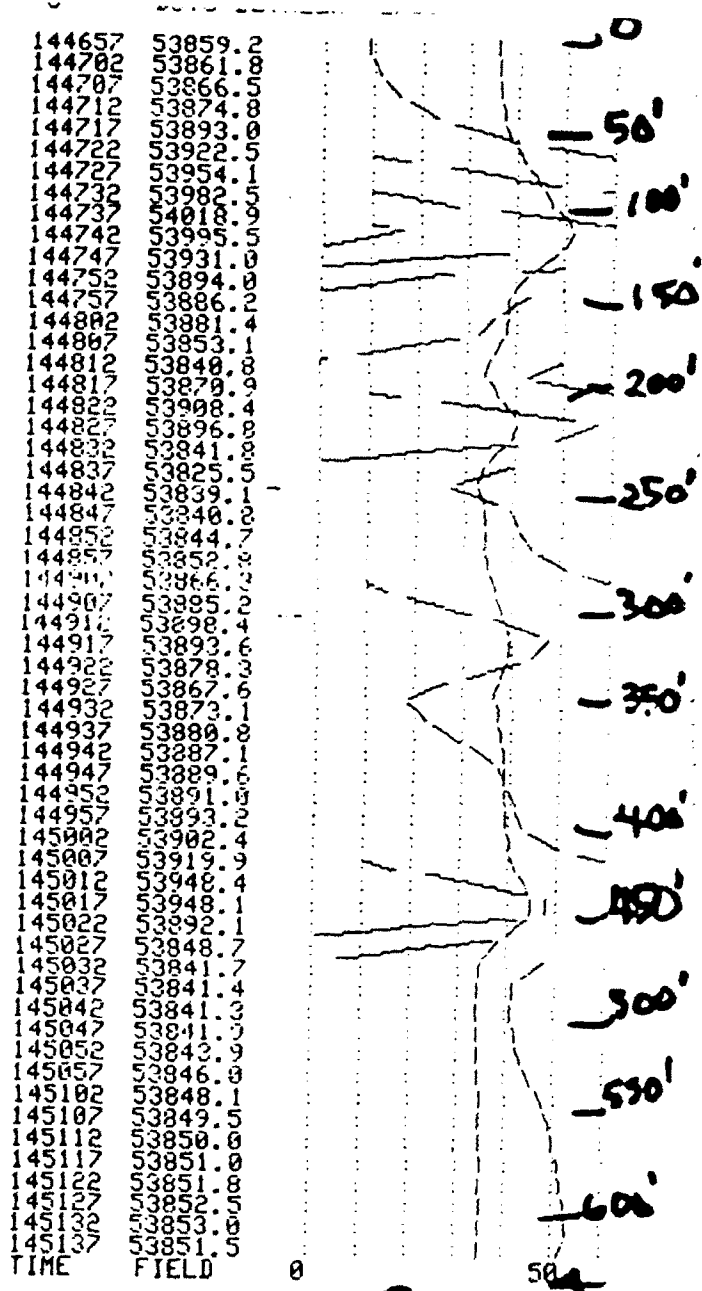


Figure 9. Magnetic profile of feature in subarea B, Grid 2, 75 feet off east shore

values for the 5 anomalies ranged from a negative 49 nanoteslas to a positive 86 nanoteslas. The negative values were associated with a broad overall trend in the magnetic field for over 100 feet (Figure 5b). The positive anomalies were more discrete in nature (Figure 6) and more probably associated with individual objects. The area of these anomalies begins roughly 300 feet north of the upstream end of Grid 2 (Figure 4). It is interesting to speculate on a connection between the two general anomaly areas in terms of two general anomaly areas in terms of associated debris originating from a wrecksite but until trial excavations establish the exact nature of the source of the anomalies they can as easily be discarded items such as broken plow parts as seen exposed nearby on the field edge.¹

Subarea B - A large (ca. 450 feet in length), complex magnetic feature was found during the survey of subarea B in the vicinity of 126/37+40 (see Figure 4). the remainder of the survey area was remarkably clear of magnetic anomalies as can be seen from inspection of Figure 7a. Figure 7b illustrates the first indication of the large magnetic feature as it was detected from the center channel survey line. The overall magnetic character of the feature is two distinct areas of positive magnetism separated by a broad negatively magnetic area (see Figure 7b). this "bipolar" overall signature may have phenomenological significance relative to the expected magnetic response of a steamboat wreck such as the PACIFIC and merits discussion as a possible interpretation for the source of this feature.

Figures 8 and 9 represent survey runs made over the feature at 25 feet offsets beginning 50 feet off the east shore of the Devil's Elbow Channel. Figure 8 repeats the overall bipolar signature of the feature while Figure 9 is more

¹ Note added in proof: Trial excavations conducted to shallow depths (ca. 1 meter) at the site of the bankline anomalies, recovered nothing identifiable as possible sources.

complex. A magnetic contour map of the feature is shown in Figure 10. The spatial extent of the feature is clearly seen. The maximum concentration of magnetic features is 100 feet offshore trending to out toward center channel. The inshore survey line, 75 feet offshore, is less complex and correlates with fewer metallic sources. Interestingly, a bank line traverse in the area of Grid 2 produced few definable anomalies indicating a concentration of the overall feature in the channel itself.

What is the source of this feature? Magnetic data alone is not enough to assign a positive identification. To aid in an instrumental evaluation hydrographic data is a great aid. To this end, bathymetric data was taken over the feature at the same grid interval as used in the magnetic survey. Soundings were made with a weighted surveyor tape and the results are displayed in the bathymetric contour map shown in Figure 11. A somewhat irregular bottom contour is seen across the Grid 2 area but it is difficult to say if this is unusual for the Devil's Elbow Channel without more extensive bathymetric data for the channel as a whole.

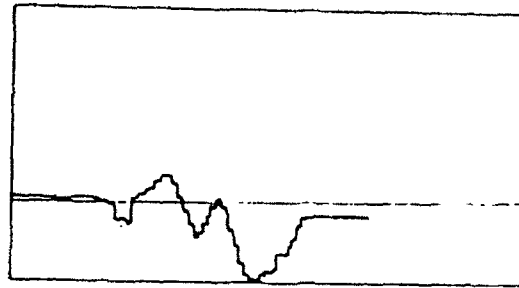
The identity of the magnetic feature in the vicinity of station 126/47+30 may be a sunken steamboat. In a spatial sense, the distribution of magnetic anomalies within the feature agree well with the layout of principal drive machinery of a 19th century riverboat particularly that of a sidewheel design. This distribution was roughly symmetrical in terms of the placement of major propulsion components along the long axis of the hull. In all cases of side paddle boats, the boilers were placed forward of amidships while the engines and paddles were placed just aft of amidships. This arrangement distributed the mass of these components across the broad, shallow draft hull creating two principal concentrations that balanced one another much like a teeter-totter or a beam balance.

In a magnetic sense one would expect to see a general repetition of this

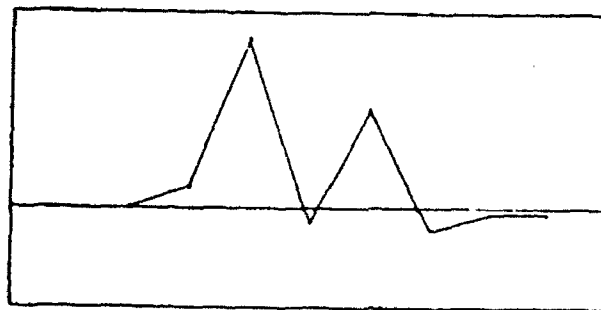
distribution of this drive machinery arrangement in a profile plot of a traverse taken lengthwise over the long axis of a steamboat. In Figure 12c is shown such a profile taken over the feature in the vicinity of 126/37+40. It is distinctly bipolar in form. Shown in Figure 12a and 12b are two separate profiles taken by different surveys over the steamboat BLACK CLOUD, a 19th century sidewheel vessel lost in the Trinity River near Liberty, Texas (Arnold 1974). The bipolar profile is quite obvious in all cases. The wreck of the BLACK CLOUD is parallel to the shoreline so if the Devil's Elbow Channel feature is a sunken steamboat, its orientation must be likewise.

In terms of overall size and depth of the feature, magnetic data can only provide an approximation. In terms of size, the magnetic feature in the Devil's Elbow Channel is not 450 feet long (see Figure 10). Steamboats commonly exceeded 200 feet but only the rare boat approached 300 feet in length (Hunter 1949). The true spatial extent of the magnetic feature's source is masked by the responses of the magnetometer to it which entails a detection of an anomaly before and after the sensor crosses it. This results in a broadening (or lengthening) of a feature in a "size" sense. No general rule exists for a correlation of magnetic size to actual physical size although it is appropriate to say that the spatial distribution of the magnetic feature can correspond to the hull, fittings and scatter of wreckage about a wreck quite easily. The depth of the object contributes to the magnetic feature's size as well.

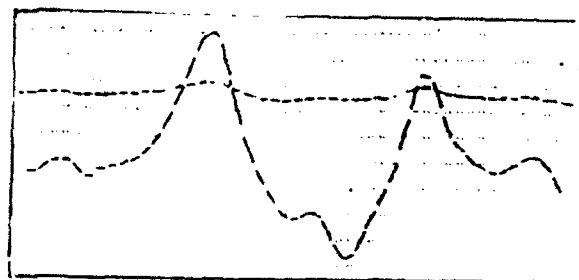
The larger the buried item or anomaly, the broader the detection region typically becomes. Burial depth can only be approximated by formula or by reference to a device like Figure 3. One must estimate certain parameters, such as mass, dipole moment, etc., to use such a nomogram. I have estimated a magnetic anomaly of 1 ton given the typical mass of fire tube boilers, engines and wheel "spiders". This is probably an underestimate but will not differ by more than an



a



b



c

Figure 12. Bipolar magnetic profiles of the steamboat BLACK CLOUD (a,b), and feature in subarea B, Grid 2 (c)

order of magnitude (ca. 10 tons). Entering the nomogram at the 100 to 200 nanoteslas (gammas) range, we obtain a buried depth range of 20 to 30 feet. Assuming a height of 15 feet for the sensor above the channel bottom, a burial depth of between 5 to 15 feet can be determined.

SUMMARY AND CONCLUSIONS

Subarea A - A small historic midden and surface artifact scatter was detected in the northwest corner of the proposed borrow area near station 126/15+00. Five anomalies were detected along the bankline of the southern edge of the proposed borrow area. These features begin roughly 750 feet north of station 126/37+40 and are spread over a 400 foot traverse running toward station 126/15+00. No interpretation can be made concerning the exact nature of these features except to suggest they are point source anomalies except for the broad feature shown in Figure 7b. The sources are most probably ferric materials of a historic nature either associated with the midden located to the north (a dump?) or with the feature in the channel just to the south.

Subarea B - A large bipolar anomaly feature with many smaller mono- and dipolar anomaly was found on the east side of the Devil's Elbow Channel almost exactly bisected by station 126/37+40. The exact nature of this feature cannot be determined instrumentally but its overall parameters in magnetic profile, shape and distribution suggest that it is a sunken vessel, possibly the steamboat PACIFIC, 3CT233.

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TABLE B-4 - ARTIFACTS, 3CT231

PROVENIENCE	TEST UNIT	COLL UNIT	5S/ 15E	5S/ 10E	5S/ 5E	10S/ OE	10S/ 5E	10S/ 10E	10S/ 15E	15S/ 15E	15S/ 10E	15S/ 5E	15S/ OE	20S/ OE	20S/ 5E	20S/ 10E	20S/ 15E	25S/ 20E	25S/ 15E	TTL
Brick *	+	+	-	-	-	-	+	-	+	+	-	-	-	-	+	+	-	-	-	
Ceramics																				
Pearl ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Porcelain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33
Red ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15
Stone ware	2	4	-	-	2	-	1	5	1	1	1	-	1	3	-	4	6	1	-	
Tile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
White ware	-	1	-	1	2	1	-	1	-	-	2	-	-	-	-	-	-	1	-	
Glass																				
Aqua	-	-	1	1	-	-	2	-	1	-	1	1	-	-	-	1	1	-	-	9
Blue	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15
Brown	-	-	-	1	2	-	1	-	3	1	1	1	-	-	1	2	2	1	1	26
Clear	1	1	4	-	-	1	3	1	-	2	1	-	2	-	-	4	2	-	-	1
Frosted	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Green	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Milk	1	-	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	
Olive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25
Purple	-	-	-	1	1	-	5	2	-	3	2	2	2	-	1	1	4	-	-	
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Metal																				
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Copper-Brass	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	45
Graphite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Iron	7	-	1	-	1	-	6	3	-	1	7	1	1	1	4	3	3	-	-	
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Miscellaneous																				
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Leather	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Plastic	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Rubber	-	-	-	-	-	-	-	-	-	-	-	2	1	-	-	-	-	-	-	3
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Floral/Faunal																				
Charcoal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
Turtle	-	6	-	-	2	-	-	-	-	-	12	-	-	-	-	2	-	-	-	22
Unidentified	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-	-	-	-	2
Prehistoric																				
Sherds	3	4	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	9
Flakes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Shatter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
TOTAL	14	16	6	5	11	8	2	26	12	6	8	8	28	4	7	16	17	13	1	216

* + = present

- = not present

TABLE B-4 (Continued)

PROVENIENCE	25S/ 10E	25S/ 5E	25S/ OE	30S/ OE	30S/ 5E	30S/ 10E	30S/ 15E	30S/ 20E	35S/ 20E	35S/ 15E	35S/ 10E	35S/ 5E	35S/ OE	40S/ OE	40S/ 5E	40S/ 10E	40S/ 15E	40S/ 20E	45S/ 20E	45S/ 15E	TTL
Brick *	+	+	-	-	+	-	-	+	-	-	-	+	-	+	+	-	-	+	-	+	TTL
Ceramics																					
Pearl ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Porcelain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
Red ware	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Stone ware	1	-	1	-	3	4	4	4	2	6	1	10	5	3	15	10	5	3	3	-	80
Tile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
White ware	5	1	1	-	-	-	6	2	5	4	3	2	-	2	1	5	5	-	-	2	48
Glass																					
Aqua	-	-	-	-	-	1	1	1	1	1	-	1	-	3	-	5	4	-	-	1	24
Blue	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	4
Brown	-	1	-	1	-	1	-	2	-	1	2	-	1	1	-	-	2	1	1	3	18
Clear	4	3	-	-	2	3	15	12	5	6	8	-	5	10	3	4	6	1	1	2	98
Frosted	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Green	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Milk	-	-	-	-	-	1	-	-	1	1	-	-	-	-	-	-	-	-	-	1	4
Olive	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Purple	3	-	-	2	3	-	3	7	-	6	4	2	1	1	-	3	2	1	4	2	44
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Metal																					
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Copper-Brass	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Graphite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Iron	9	2	1	-	1	2	3	19	-	7	4	4	-	8	-	7	13	1	1	8	96
Zinc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Miscellaneous																					
Coal	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Leather	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Plastic	-	-	-	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	2
Rubber	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Slate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2
Floral/Faunal																					
Charcoal	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Turtle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Unidentified	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Prehistoric																					
Sherds	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	4
Flakes	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Shatter	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
TOTAL	27	8	3	4	9	12	33	50	14	35	23	19	12	28	19	36	42	43	14	19	450

* + = present

TABLE B-4 (Continued)

PROVENIENCE	45S/ 10E	45S/ 5E	45S/ OE	50S/ OE	50S/ 5E	50S/ 10E	50S/ 15E	50S/ 20E	55S/ 10E	55S/ 5E	55S/ OE	60S/ OE	60S/ 5E	TTL
Brick *	+	-	+	+	+	-	+	+	-	+	-	-	-	
Ceramics														
Pearl ware	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Porcelain	-	1	-	-	1	-	-	-	-	-	3	-	-	7
Red ware	-	-	-	-	-	-	-	-	-	1	-	-	-	1
Stone ware	1	5	1	-	1	1	2	4	1	-	-	-	2	25
Tile	-	-	-	-	-	-	-	-	-	-	-	-	-	---
White ware	6	3	1	5	1	12	4	3	4	1	5	2	6	52
Glass														
Aqua	2	-	-	-	1	1	4	4	-	5	1	-	2	20
Blue	-	1	-	-	-	-	-	-	-	-	1	-	2	4
Brown	-	-	-	1	2	1	4	-	-	1	1	2	6	18
Clear	1	1	1	6	1	6	12	3	5	12	7	12	23	90
Frosted	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Green	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Milk	2	1	-	1	-	-	1	3	-	2	-	1	1	12
Olive	-	-	-	-	-	-	-	1	-	1	-	-	-	2
Purple	3	-	2	1	2	2	-	-	-	7	2	2	1	22
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Metal														
Aluminum	-	-	-	-	-	-	-	-	-	-	-	-	1	1
Copper-Brass	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Graphite	-	-	-	-	-	-	-	-	-	1	-	-	-	1
Iron	1	-	-	6	2	13	13	2	28	12	5	7	29	118
Zinc	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Miscellaneous														
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Leather	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Plastic	-	-	-	-	-	-	1	-	-	1	-	-	-	2
Rubber	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Slate	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Floral/Faunal														
Charcoal	-	-	-	-	-	-	-	-	-	-	-	-	-	---
Turtle	-	-	-	-	-	-	-	1	-	-	-	-	-	1
Unidentified	-	-	-	-	-	-	-	-	3	1	-	-	3	7
Prehistoric														
Sherds	-	-	-	2	-	-	-	-	-	-	-	-	-	2
Flakes	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Shatter	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	16	12	4	23	18	37	42	24	41	45	25	26	76	389

* 1 = percent