ELBEE VILLAGE SITE (32ME408)

2003 ARCHEOLOGICAL TEST EXCAVATIONS
KNIFE RIVER INDIAN VILLAGES NATIONAL HISTORIC SITE
MERCER COUNTY, NORTH DAKOTA

by

Dennis L. Toom, Michael A. Jackson, Carrie F. Jackson,
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Contribution No. 389

work performed for and report submitted to

Midwest Archeological Center
National Park Service
Lincoln NE 68508-3873

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endorsement

Dennis L. Toom, Ph.D., Principal Investigator

ABSTRACT

In June 2003 the UND archeological field school conducted test excavation work at the Elbee archeological site (32ME408) in the Knife River Indian Villages National Historic Site, Stanton, North Dakota. The work was done at the request of the National Park Service (NPS) to determine if action was needed to mitigate the impacts of erosion along the Knife River cutbank in the extreme northern site area. A magnetometer survey was conducted by NPS personnel in the fall of 2002 in order to target potential archeological features for excavation in the testing effort. Middle period Plains Village artifacts were found to be restricted to the plowzone in the north site area, except for those contained in subsurface features such as pits and hearths. The excavations uncovered three Plains Village archeological features, including two large undercut storage pits and one basin-shaped hearth. The northern part of the Elbee site was therefore determined to contain the remains of a single Plains Village archeological component, radiocarbon dated to the mid-A.D. 1500s, and affiliated with the Scattered Village complex. No evidence of an earlier, preceramic component was found in the excavations. Scattered recent historic debris believed to relate to the William Russell farmstead component also was found in the north site area. The presence of intact portions of subsurface Plains Village archeological features within the bounds of the Elbee site makes it clear that the site contains significant archeological deposits. Thus, the status of the site as a historic property has been reaffirmed and can be extended to most of the north site area as well. While it is difficult to precisely predict rates of cutbank erosion along rivers, which tend to be more episodic than incremental, the available data do suggest that significant archeological deposits in the northern part of the Elbee site will not be seriously threatened by erosion for some time to come.

ACKNOWLEDGEMENTS

We wish to thank Terry O'Halloran, Dorothy Cook, and the rest of the staff at the Knife River Indian Villages National Historic Site for making our time at Elbee pleasant as well as productive. Thanks are due to Tom Thiessen of the Midwest Archeological Center in Lincoln for bringing the Elbee testing project to the University of North Dakota. We are also grateful for the efforts of the field school students who participated on the project and made it a success. Carrie Jackson is credited for preparing the line drawings and artifact illustrations that appear in the report. LoAnn Hirsch proofed and compiled the report for duplication. Preliminary identification work on the botanical remains was done by Carrie Jackson. Zach Wilson, now a graduate student in anthropology at Washington State University, did the preliminary faunal identification work. Jane Monson did her usual superb job on the routine laboratory processing and inventory work with the collections.

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Chapter 1
INTRODUCTION AND BACKGROUND

The Elbee Site and Its Setting

The Elbee site (32ME408) is located near the confluence of the Knife and Missouri rivers in west-central North Dakota (Figure 1.1). It is one of a number of significant American Indian archeological sites concentrated in the confluence area and forming the nucleus of the Knife River Indian Villages National Historic Site (KNRI). Elbee is a multi-component occupation site that may contain as many as eight archeological components, both prehistoric and historic. The most prominent component at the site, and the one that has been the focus of previous investigations, is a Plains Village tradition earthlodge village occupation dating to ca. A.D. 1520-1630 (Ahler 1984). Remains associated with this component include village archeological features, such as pits, a hearth, and a pattern of postholes indicative of the remains of a circular house, or earthlodge. The site also was found to contain quantities of portable artifacts, mainly ceramic, lithic, and faunal materials.

The site area is situated on the right (south) bank of the Knife River, approximately 2.5 km upstream from the present mouth of the Knife. The site itself consists of a narrow point of land situated between the Knife River and Mercer County Highway 37 (Figure 1.2). It occupies the surface of the first terrace above the present Knife River and its floodplain, what Reiten (1983) has identified as the A terrace (Figure 1.3). The Knife River floodplain tends to be wooded, while its terraces are grassland. The eastern boundary of the site is formed by the Knife River and its floodplain. A short, shallow drainage way crossed by the county highway makes up the western site boundary, and the southern boundary is rather arbitrary defined in relation to other sites. The southern part of the site was once occupied by outbuildings of the William Russell farmstead, as indicated on Figure 1.2. The surface of the site has been thoroughly disturbed by decades of past cultivation down to a depth of about 25 cm. Even though the integrity of surficial archeological deposits at the site has been destroyed by cultivation, the major portions of subsurface village archeological features, such as pits, hearths, and postholes, remain intact and well preserved.

The primary village component at Elbee was initially assigned to the Scattered Village complex (Lovick and Ahler 1982:237). The Scattered Village complex, dated to ca. A.D. 1400-1600 (Ahler and Mehrer 1984:300), is a rather loosely defined taxonomic unit intended to distinguish the less prominent villages at Knife River, like Elbee, from the major villages (i.e., Big Hidatsa, Sakakawea, Lower Hidatsa, and Amahami). A succinct descriptive statement along these lines is provided for the complex:

> All such components [Scattered Village] have been descriptively classified as less prominent villages, reflecting the lack of visible architectural remains on the ground surface, lack of midden piles, and the dispersed nature of artifacts which contrast so strongly with the highly prominent major village components (Lovick and Ahler 1982:209).

In addition, Scattered Village complex ceramic assemblages differ in important ways from those of the more or less contemporary Nailati phase:

> Turning to the remaining scattered village complex sites, we have already noted that the S-rim and straight rim pottery at these sites is similar to but distinct from the named wares applied to the foregoing [Nailati] collections, namely Fort Yates ware, Riggs ware, Le Beau S-rim ware, and Knife River ware . . . In particular, lip forms are distinctive on the pottery from these sites [Scattered Village], with high frequencies of flattened, T-shaped, L-shaped, and beaded forms occurring. Also, the S-rim pottery exhibits a wide variety of decorative techniques including plain, horizontal trailing, and stab-and-drag which are not commonly associated with Fort Yates ware. On this basis, these collections and these components stand apart from the Nailati phase as well as from other major village component phases previously discussed (Lovick and Ahler 1982:211-212).

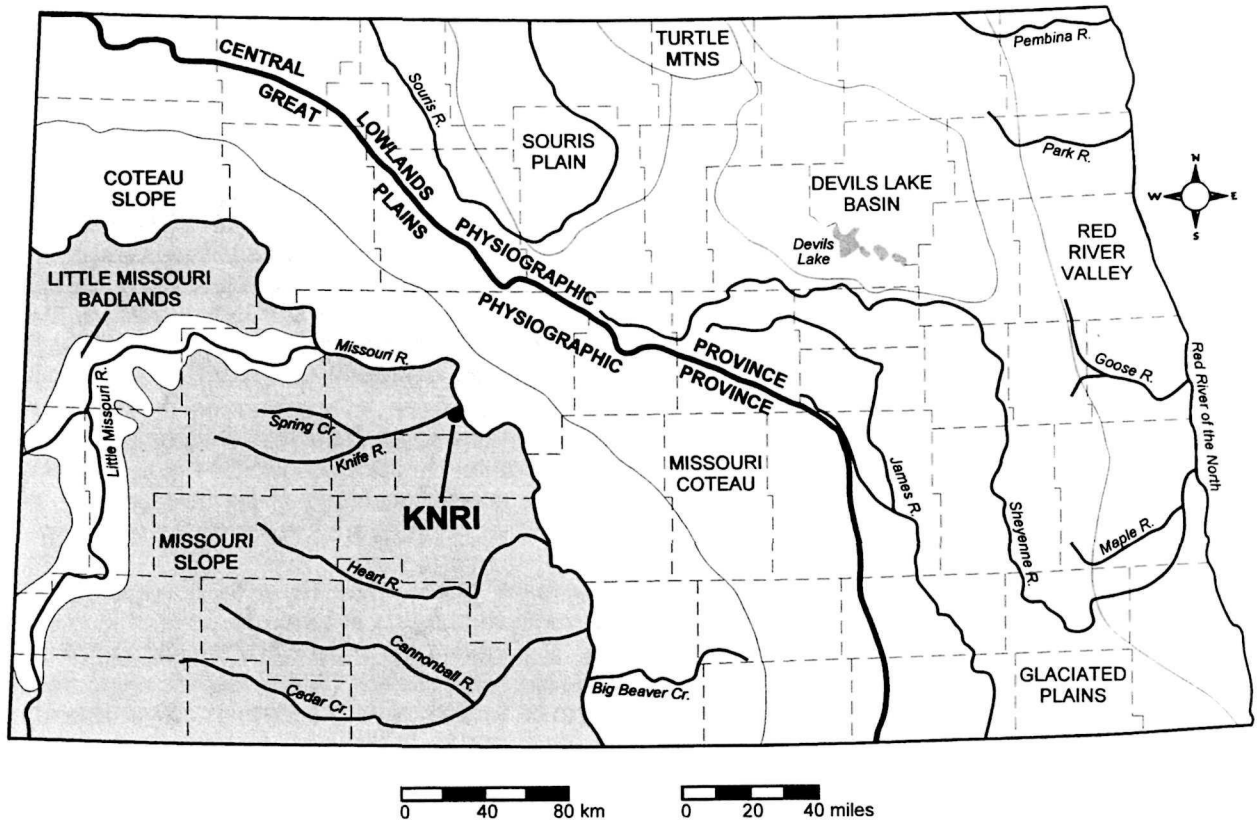


Figure 1.1. General location of the Elbee site (32ME408) at the Knife River Indian Villages National Historic Site (KNRI) in western North Dakota.

In the report on the 1978 excavations at Elbee, which did not come out until 1984, the assignment of the primary village component to the Scattered Village complex was repudiated and a linkage made to the Extended Coalescent variant of north-central South Dakota on the basis of architectural and ceramic similarities (Ahler 1984:208-210). Repudiation of a Scattered Village complex affiliation was based on certain perceived ceramic differences between the Elbee sample and samples from other Scattered Village complex sites, to wit, more straight rims with horizontally trailed decoration in the Elbee sample as opposed to more S-rims and cord-impressed decoration in the other Scattered Village samples (Ahler 1984:116). In the synthesis of The Phase I Archeological Research Program for the KNRI, the main village component at Elbee is left unassigned as to phase, complex, or ethnic tradition (Ahler 1993:76). However, in a recent reassessment it is suggested that the main village component at Elbee is a relatively late manifestation of the Scattered Village complex, which is in turn linked to the Northeastern Plains Village complex (Toom 2004). One of the more interesting aspects of the present investigations will be to see how these various cultural-historical interpretations and reinterpretations play out in light of new data.

The Knife River Indian Villages National Historic Site is located in the northwestern extremity of the Southern Missouri River Study Unit of the *Archeological Component of the North Dakota Comprehensive Plan for Historic Preservation* (SHSND 1990). The reader is referred to this document for background information on the larger environmental setting and cultural-historical context of the KNRI and its archeological sites. These topics are covered in much greater detail in the four-volume report on The Phase I Archeological Research Program for the KNRI (Thiessen, ed. 1993). The reader likewise is referred to these volumes for particular background information of interest.

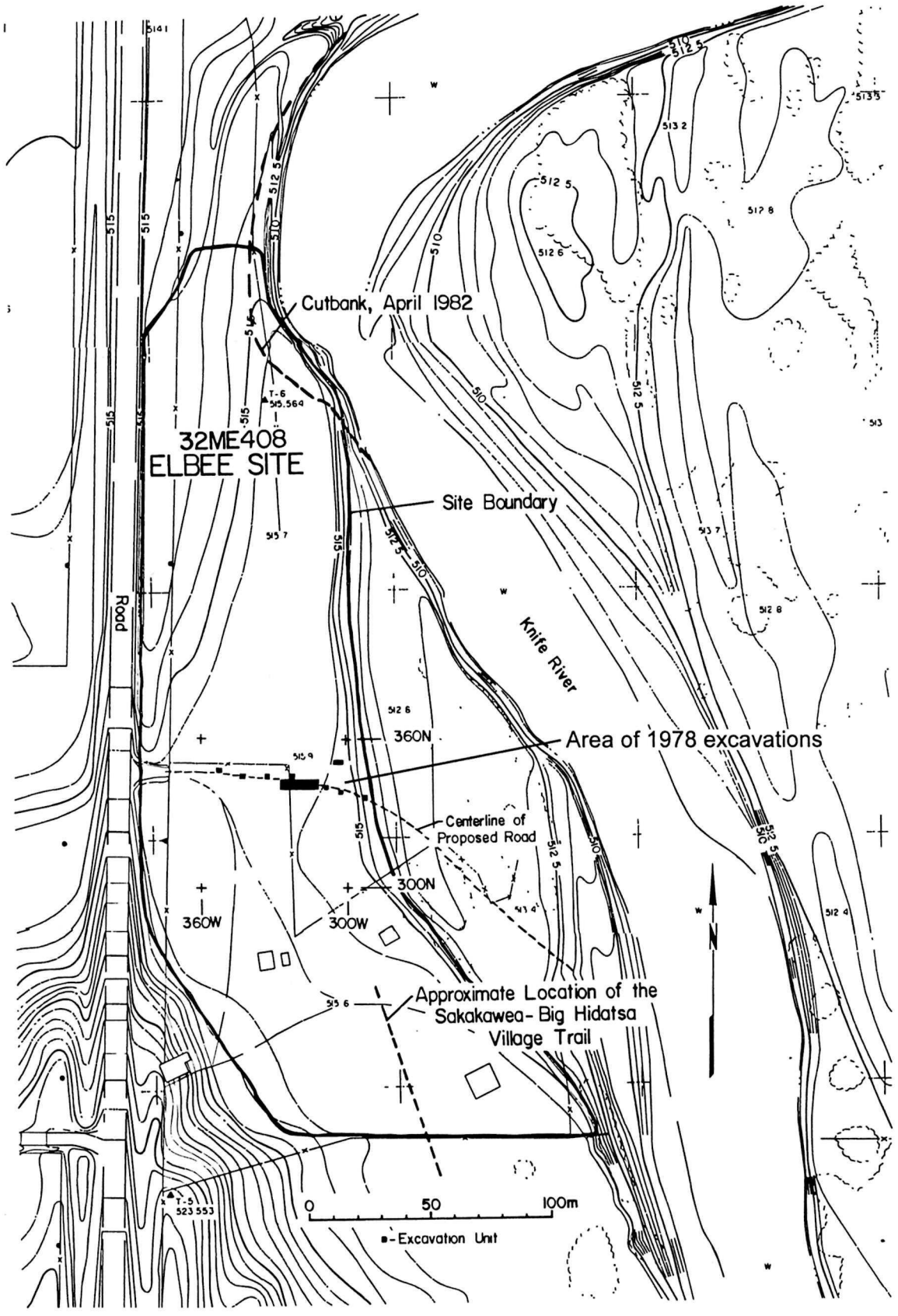


Figure 1.2. Contour map of the Elbee site (32ME408) showing the location of the 1978 excavations and the Knife River cutbank as mapped in 1982 (from Ahler 1984:8; KNRI Base Map Sheets 15 and 16, 0.5 meter contour interval).

a

b

Figure 1.3. Photos of the northern part of the Elbee site (32ME408). a: The Elbee site on the A terrace (center, with vehicles and people) and the Knife River and its wooded floodplain (left) (south view; EB03-CP13). b: Elbee site on the A terrace (with people) from the Knife River floodplain (northwest view; EB03-CP16).

Project Description

The Midwest Archeological Center (MWAC) of the National Park Service (NPS), Lincoln, Nebraska, requested that the Anthropology Research section of the Department of Anthropology, University of North Dakota (UND), Grand Forks, conduct evaluative archeological test excavation work at the Elbee Village site (32ME408), a Plains Village period occupation site located at the Knife River Indian Villages National Historic Site (KNRI) near Stanton, North Dakota. Previous evaluative excavation work was done at the site in 1978 by UND. These test excavations were immediately expanded into mitigative (salvage) excavations upon the discovery of intact village features in the path of a proposed access road through the central part of the site (Ahler 1984). The 1978 excavations were mainly limited to that part of the site where road construction would directly impact significant village features, leaving open the question of northern and southern site boundaries. The present testing work was restricted to the northern part of the site area, north of the access road, which had not yet been formally evaluated (Figure 1.2). The extreme northern part of the Elbee site is being actively eroded by the Knife River. Therefore, the primary purpose of the present testing work was to evaluate the archeological content and significance of the north site area in order to better evaluate the erosion threat to the archeological site and the possible need for bank stabilization work or some other mitigative action. The 2003 UND Archeological Field School was the main participant in the conduct of the testing work.

The KNRI is federal property managed by the U.S. Department of the Interior, National Park Service (NPS). It is operated by the NPS as an archeological preserve and interpretive center. The principal archeological sites at the KNRI are earthlodge villages of the Plains Village tradition that are mainly affiliated with the Hidatsa Indian tribe, and, to a lesser extent, the Mandan Indian tribe. The Hidatsa and Mandan Indians, along with the Arikara Indians, make up the Mandan, Hidatsa, and Arikara Nation (MHA Nation), and are also known as the Three Affiliated Tribes. The MHA Nation occupies the Fort Berthold Reservation in west-central North Dakota. Tribal headquarters are located in New Town, North Dakota. Prior to the initiation of fieldwork, MHA Nation tribal representatives were consulted on the conduct of the proposed project, as was the North Dakota State Historic Preservation Office (ND-SHPO) at the State Historical Society of North Dakota (SHSND), Bismarck. These project consultations were undertaken by NPS personnel at the KNRI.

The proper treatment of cultural resource (archeological) sites at the KNRI is the responsibility of the NPS under federal law. Authority for the work reported here resides in various federal laws and regulations, including the National Historic Preservation Act of 1966, the Archeological and Historic Preservation Act of 1974, the National Environmental Policy Act of 1969, 36 CFR 800--Protection of Historic and Cultural Properties, and 43 CFR Part 7--Protection of Archaeological Resources: Uniform Regulations.

The evaluative test excavations conducted at the Elbee site in 2003 were the logical continuation of the program of archeological investigations initiated by the NPS at the KNRI some 25 years ago (see Thiessen, ed. 1993). The Elbee site is a historic property listed on the National Register of Historic Places (NRHP) as a contributing element of the Knife River Indian Villages National Historic Site Archeological District. Nevertheless, questions still remain regarding the exact spatial limits of its archeological deposits, particularly to the north and the south of the access road that crosses the central part of the site. Testing of the north site area is aimed at evaluating its archeological content and significance, if any, with respect to established NRHP site evaluation criteria (see Little et al. 2000; NPS 1998). If the north site area at Elbee is found to contain significant archeology, then mitigation of impacts to the site as a result of bank erosion by the Knife River may be necessary.

Previous Archeological Investigations and Findings

The Elbee site was discovered and first recorded in April 1978 as part of an archeological survey conducted for a construction access road and staging area needed for bank stabilization work at the nearby Sakakawea Village site (Ahler 1984:1). The site was test excavated in June and July 1978. Plains Village features, consisting of a large pit and the remains of a house floor, were identified in the access road right-of-way (Figure 1.2). Rather than shift the road to another location where it was probable that other

archeological features would be encountered, it was decided to conduct limited salvage excavation of the features within the path of the road (Ahler 1984:2).

Excavations at the site in 1978 included the initial evaluative testing and subsequent salvage excavation in the central part of the site, along the proposed access road route (Ahler 1984). The site area had been plowed in the past, so the first step in the 1978 excavations was to strip off the plowzone and search for intact sub-plowzone features. Of particular importance was the partial exposure of the remains of a circular earthlodge. Features making up and associated with the larger earthlodge feature included a central hearth, two cache pits, a smaller pit, and numerous postholes. A shallow trench-like feature interpreted as the remains of an early historic period trail running between Big Hidatsa and Sakakawea villages also was encountered. The presence of intact village features unequivocally revealed the Elbee site as a significant archeological resource. Still, the question of site limits remained open because the areal extent of village features had not been adequately explored, particularly to the north and south of the access road area. Further investigations were therefore needed to better define the horizontal boundaries of the site and its village features.

The 1978 excavation work was preceded by a magnetometer survey aimed at locating subsurface archeological features. This effort met with very limited success because of the many recent ferrous (iron) artifacts scattered about the site. In anticipation of the testing work reported here, a magnetometer survey was conducted of the northern part of the site in the fall of 2002 in order to suggest archeological feature locations (Volf 2002). Metal detecting of as many survey blocks as time would allow was done to eliminate interference from historic debris. The 2002 magnetic survey did identify a number of small-sized and large-sized anomalies. The larger anomalies are of dubious archeological origin and may simply reflect stochastic patterning in the data. The smaller anomalies are believed to be archeological features, most likely hearths or pits. These were the focus of the 2003 test excavations.

Project Personnel and Contributors

The Elbee testing project was conducted as part of the 2003 UND summer archeological field school. The field school was instructed by Dr. Dennis L. Toom, associate professor; Cynthia Kordecki was the assistant instructor; and Zach Wilson was the advanced archeological assistant. Field school students who participated on the project were: Rikke Andresen, Miriam Bunow, Brandon Evans, Tyler Leben, Thomas Petredean, Jason Rundell, and Kathleen (KC) Smith.

Basic laboratory processing and inventory work was done by Jane Monson. Most analysis work was done by Dennis Toom, the principal investigator and senior report author. Michael Jackson wrote the faunal identification section based on identification work by Zach Wilson. Carrie Jackson did the preliminary botanical identification work. Robert Nickel of Lincoln, Nebraska, checked and refined the initial botanical identifications done by Jackson. Dr. Phoebe Stubblefield of the UND Human Identification Laboratory, Department of Anthropology, kindly donated her time in examining two human teeth recovered from the site.

Agency Coordination and Consultation

All phases of the project were done in close coordination with NPS personnel. Tom Thiessen handled project matters at the MWAC and Terry O'Halloran was the main project contact at the KNRI. As noted previously, KNRI personnel handled tribal consultation issues with representatives of the Mandan, Hidatsa, and Arikara Nation, as well as project consultation with the ND-SHPO.

Disposition of Artifacts and Records

The 2003 archeological collection from Elbee and all related documentation will be held at the Knife River Indian Villages National Historic Site, Stanton, North Dakota, as Accession 210. Other archeological collections and documentation pertaining to the KNRI also are held on-site at the park.

Report Organization

The Elbee report is organized into seven chapters and a number of supporting appendices. Following this introduction, Chapter 2 presents information on the research design that guided the fieldwork and the subsequent laboratory processing and analysis of recovered materials. Chapter 3 details the fieldwork that was completed at the site and characterizes the physical stratigraphy encountered in the excavations. Chapter 4 presents detailed information on artifact and other analyses and the basic findings of the project. Chapter 5 covers the salient findings of the investigations in terms of archeological research topics identified in the research design. The project is summarized in Chapter 6, which also contains recommendations for future work as well as certain other observations regarding the site. References cited are listed in Chapter 7. Finally, computer coding formats, ancillary data reports, and other information are presented as appendices at the end of the report.

Chapter 2
RESEARCH DESIGN

General Research Objectives

The research objectives of government-sponsored archeological testing and evaluation projects like this one are divisible into two major categories: (1) management concerns and (2) scientific concerns. This division is not meant to imply that management and scientific goals are mutually exclusive, quite the contrary, they complement each other at a number of key junctures. However, such a division is useful here for purposes of discussion because the emphasis placed on one or the other of these concerns will largely dictate the conduct of archeological research projects, or aspects of a project at different sites.

Management Objectives

Management objectives are those designed to meet the needs of regulatory agencies, both state and federal, that have been charged with the documentation and preservation of significant cultural resources, such as archeological sites like Elbee. These objectives are largely concerned with federal legislation and related regulations regarding the identification of significant cultural resource sites on federal lands and the development of measures or plans for their proper management in order to meet present and future research and interpretive needs that are in the public interest. The more important of these laws are the Antiquities Act of 1906, the Historic Sites Act of 1935, the National Historic Preservation Act of 1966, the National Environmental Policy Act of 1969, the Archeological and Historic Preservation Act of 1974, the Archeological Resources Protection Act of 1979, the American Indian Religious Freedom Act, and the Native American Graves Protection and Repatriation Act. Applicable regulations are 36 CFR 800—Protection of Historic and Cultural Properties, and 43 CFR Part 7—Protection of Archaeological Resources: Uniform Regulations.

The National Register of Historic Places evaluation process is central to the achievement of many management objectives. However, because the Elbee site is already listed on the National Register as a contributing property of the Knife River Indian Villages National Historic Site Archeological District, National Register eligibility per se is not at issue. What is at issue is the question of site boundaries, which need to be well defined under National Register guidelines (Little et al. 2000; NPS 1998). Therefore, determining the northern boundary of the Elbee site, in relation to the eroding Knife River cutbank presently marking the northern limit of the site, is the primary management goal to be addressed by the present study.

Scientific Research Objectives

Scientific objectives in cultural resources studies revolve around the generation of information on aspects of human history, including prehistory, and human behavior with respect to the sites under study, their deposition and environmental contexts, and their relationships to relevant cultural complexes. General research topics of primary interest in contemporary archeological studies, at least those that are grounded in cultural materialism (see Harris 1968, 1979), are divisible into five main groups: (1) chronology and culture history, (2) cultural reconstruction (settlement and subsistence patterns), (3) cultural interaction, (4) environmental reconstruction, and (5) cultural ecology (cf. Binford 1968, 1972). These general topics are also compatible with more specific research domains outlined in *The North Dakota Comprehensive Plan for Historic Preservation: Archeological Component* (SHSND 1990, as updated). The scale, or size, of the excavation project, its scope and level of funding, as well as the quality of the archeological site itself, will determine to what extent such research topics can be addressed. Nevertheless, any such project must be capable of advancing our knowledge of the past in at least some of these areas if we are to gain anything by its conduct. Survey, or inventory projects generally make the least contribution to scientific studies; evaluative test excavation projects typically make a middle range contribution; and data recovery (large-scale excavation, or mitigation) projects usually make the highest contribution to science.

Objectives Specific to Archeological Site Evaluations

Evaluative archeological test excavations are often concerned primarily with management research goals. To this end, information is generated on the age, cultural-historical affiliation, function, artifact content, boundaries (horizontal and vertical), integrity, and research potential of the sites being evaluated, insofar as is possible by the extent of the fieldwork and the inherent limitations of the sites themselves. These data constitute the basis for evaluating the site significance and assessing eligibility for listing on the National Register of Historic Places (Little et al. 2000; NPS 1998), or clarifying certain issues such as boundary definition. Standard archeological documentation and analysis techniques are typically employed in the acquisition of this information, as discussed in subsequent sections.

An integral part of the National Register process involves the development of recommendations or management plans that are concerned with the mitigation of present and perceived future impacts to significant cultural resource sites. Measures directed at the preservation of significant archeological sites are always preferred, but it is recognized that preservation is not always practical or cost effective. In such instances, it may be necessary to recommend data recovery (excavation) as the only viable management option. In this regard, management recommendations and recommendations for future research are developed for the Elbee site.

General Excavation Design

Small 2-x-2-meter (m) block excavations were proposed for purposes of the Elbee testing project because location of near surface archeological features was a primary goal of the project. Smaller 1-x-1-m or 1-x-2-m test units may not be large enough to precisely find such features or uncover them fully. In addition, two 1-x-1-m squares in the two northernmost block units were taken deep to explore for the presence of more deeply buried archeological materials.

Horizontal provenience within the block units was minimally maintained according to standard 1-x-1-m squares making up the blocks. Vertical provenience was maintained in natural stratigraphic levels within the plowzone, shifting to standard 10 cm arbitrary levels for sub-plowzone deposits. Features were dug according to their unique shapes as a single excavation unit. Plowzone sediments were passed through one-quarter-inch mesh hardware cloth screens. Feature sediments were subjected to a combination of one-sixteenth-inch water screening and very-fine-mesh flotation screening. The bulk of the sediments from features were water screened in the field, with a generous portion retained for flotation processing in the lab. All materials remaining in the screens were retained for examination and sorting under laboratory conditions; field sorting of screened materials is not done.

A separate field catalog number was assigned to each individual provenience unit that was defined and excavated or collected at a site. Field catalog numbers serve to label and track material while in the field, and they form the basis of the cataloging system subsequently used in the lab for this same purpose. The field catalog itself contains all basic locational and descriptive data pertaining to a particular catalog number (excavated or collected provenience). In addition, detailed information on each completed excavation unit level (square and level or feature) was recorded on standard forms and cross-referenced by field catalog numbers. Catalog numbers were assigned sequentially as the fieldwork progressed at the site. The excavations were photographed periodically as the work progressed. All features and test unit profiles were photographed and drawn, as were any particularly interesting artifacts found in situ, such as time diagnostics.

General Site Mapping Procedures

UND Anthropology Research relies almost exclusively on electronic means for its archeological site mapping endeavors, however, sometimes circumstances dictate the use of simpler, non-electronic methods. Electronic site mapping is conducted in reference to Universal Transverse Mercator (UTM) coordinates, based on the metric system, obtained through the Global Positioning System (GPS). All UTM coordinates at Elbee were acquired with a Satloc SLX-2001 Series Differential GPS (D-GPS)

receiver that records differentially corrected GPS/UTM coordinates in the field that are accurate, under ideal conditions, to within ±1 m. Previously established permanent datums were used for data control and to relate new map data to existing maps. For Elbee, permanent datums T-5 and T-6 were used for these purposes, as illustrated on earlier site maps (e.g., Ahler 1984:8).

For high precision site mapping, a Sokkia Set 5 total station and Sokkia SDR33 external data collector were used to acquire topographic and archeological point data that are accurate to within ±5 mm. Point data recorded by either the D-GPS receiver or total station were downloaded to a computer, and various software programs were used to produce detailed and highly accurate archeological site maps. Because the Elbee site area had been mapped in detail before using high precision photogrammetry, collection of new map data was kept to a minimum, mainly to document the present Knife River cutbank location and to tie in the excavation grid and assign UTM coordinates. The excavation grid employed at the site was the same as that established for the magnetometer survey (Volf 2002).

Basic Laboratory Processing Procedures

Recovered materials were processed and inventoried (cataloged) employing a standardized set of laboratory procedures. For the sake of consistency, these procedures are essentially the same as those used for virtually all excavation projects conducted by UND for various public agencies and private concerns.

Individually provenienced collections, each designated by a unique catalog lot number (i.e., the field catalog number), were first washed (if necessary), then size graded, sorted, and quantified. The one-quarter-inch dry screened materials from the site were routinely washed, but water screened and flotation materials only rarely require washing. Sorted materials from each provenience unit were kept together until basic quantitative data were recorded for all individual classes.

Size grading was accomplished using a mechanical aggregate shaker with nested wire mesh screens. The five screens used for size grading have the following size openings and size grade designations:

- G1 - Grade 1 = 25.0 mm (1 inch)
- G2 - Grade 2 = 12.5 mm (0.5 inch)
- G3 - Grade 3 = 5.6 mm (0.223 inch)
- G4 - Grade 4 = 2.80 mm (0.110 inch)
- G5 - Grade 5 = 1.18 mm (0.046 inch)

Larger-sized materials were hand-manipulated through the size grade 1 and 2 (G1 and G2) screens to ensure proper distribution. The smaller-sized materials in size grades 3-5 (G3, G4, and G5) are mechanically shaken for about 30 seconds through the screens. The minimum screen size used was, of course, set in the field by the selection of the field recovery screen for a particular excavation unit or fraction thereof.

The process of size grading produces a set of standard-sized lots of material from each basic excavation unit (square and level). Subsequent sorting and quantification operations are guided by these size divisions. Size grade data have considerable utility. They can be used to bolster inferences regarding human behavior and site formation processes based on mass analysis techniques. They also provide convenient cutoff points for sorting recovered materials into artifact and other material classes.

Sorting was the next step in material processing. All artifacts and other recovered materials were separated into material groups and more specific artifact classes following uniform guidelines (Table 2.1). Recent organic debris such as insect parts, roots, twigs, and grass were removed and discarded. After each individually provenienced sample is sorted, artifacts and materials from each class were packaged separately, some by lot and some individually, in plastic bags. All sorted materials and residues are rebagged by provenience while awaiting a check of the initial sort.

Table 2.1. Sorting Specifications for Dry Screened and Water Screened Excavation Samples, Elbee Site (32ME408), 2003 UND Testing.

Material or Artifact Groups in First Sort	Material or Artifact Classes in Second Sort	Size Grade Sorted From[a]				
		G1	G2	G3	G4	G5
Chipped or Ground Modified Stone	Stone Tools	X	X	X	X	
	Chipped Stone Flaking Debris	X	X	X	X	
	Pipestone (Catlinite) Debris	X	X	X	X	X
Native Ceramics (Pottery)	Rim Sherds	X	X	X		
	Body Sherds	X	X	X		
	Other (e.g., ball, bead, figurine)	X	X	X		
Vertebrate Fauna (Bone)	Modified Bone	X	X	X	X	X
	Unmodified Identifiable Bone	X	X	X	X	TE
	Unmodified Unidentifiable Bone	X	X	X		
Shell	Modified Shell	X	X	X	X	X
	Unmodified Identifiable Shell	X	X	X		
	Unmodified Unidentifiable Shell	X	X	X		
Fire-Cracked Rock	Check for Tools	X	X	X		
Natural Clinker (Scoria)	Check for Tools	X	X	X		
Burned Earth		X	X	X		
Fired Clay		X	X	X		
Ash (Consolidated)		X	X	X		
Ochre/Pigment		X	X	X		
Miscellaneous Native American Material	Glass Trade Beads	X	X	X	X	X
	Other Trade Glass	X	X	X	X	ID
	Trade Metal	X	X	X	X	ID-C
	Other	X	X	X	X	ID
Miscellaneous European American Material	Glass	X	X	X	X	
	Ceramics	X	X	X	X	
	Metal	X	X	X	X	
	Other (e.g., coal clinker)	X	X	X	X	
Floral/Botanical	Wood/Charcoal	X	X	X		
	Seeds (Burned)	X	X	X	X	
Natural Rock		X	X	X		
Unsorted Residue					X	X

[a]Size grades G1, G2, and G3 apply to one-quarter-inch dry screen samples; size grades G1, G2, G3, and G4 apply to 2-mm water screen samples; all five size grades apply to one-sixteenth-inch water screen samples.

Table Abbreviations:
TE = teeth only (complete cranial elements).
ID = typically identifiable objects only; formed or worked specimens, not amorphous pieces or scraps.
ID-C = identifiable objects and copper (Native American trade metal).

Quantification involves the recording of counts and/or weights for all items in all artifact and material classes by size grade. Standard forms are used to record this information for each catalog lot number. These basic quantitative data are then entered into computer database files to compile artifact inventory data and expedite artifact distributional analyses. All materials recovered from the Elbee site, both artifactual and non-artifactual, were retained for inclusion in the permanent site collection at the request of the NPS.

Provenience Key

A computerized provenience key was developed to enable better control over the excavation unit data generated for the site. The provenience key is constructed around the field catalog numbers, which are the same as the laboratory catalog numbers, and includes information on location, recovery, and context for all excavated provenience units. The provenience key computer codes and data for the Elbee site are listed in Appendix A (on CD-ROM). Computer coding of provenience data was done using Microsoft Access™ 2000 software.

Artifact Inventories

Five basic artifact (and other material) inventories were generated by computer for the 2003 Elbee collections, including Bone, Ceramics, Historic, Lithics, and Miscellaneous. The Bone database contains information on vertebrate faunal remains recovered from the site; the Ceramics database provides information on native pottery artifacts; the Historic database contains information on historic materials; the Lithics database contains information on stone tools, flake debris, and fire-cracked rock; and the Miscellaneous database provides information on an assortment of other classes of artifacts and materials. The inventory data in each database are keyed to the appropriate provenience data by catalog number. Artifact inventory codes and selected data are listed in Appendix B (on CD-ROM). Computer coding of inventory data also was done using Microsoft Access™ 2000 software.

Basic Artifact Analysis Procedures

Selected artifact classes such as stone tools, flake debris, ceramics, and identifiable faunal and floral remains are subjected to more rigorous, detailed analytical procedures on a routine basis than the simple size grading and quantification described above. Analytical procedures for other, less common classes of artifacts are developed on a case-by-case basis. The detailed analytical systems used for most studies are discussed in the following paragraphs.

Native Ceramics

The analysis and coding of native ceramics, or pottery, follows from the ceramic analysis methods used for the James River archeological projects (Toom 2002). Analysis of native ceramics begins by separating these artifacts into rim sherd and body sherd groups, representing portions of ceramic vessels, and "other" ceramic objects, which tend to be rare. Body sherds are maintained in their size grade class for further analysis, with the exception of body sherds that can be conjoined with rim sherds. Rim sherds are treated on an individual basis. All individual rim sherds are matched in an attempt to identify rims from the same ceramic vessel. Matches consist of both direct fits between conjoinable rims and unjoined rims that are basically similar in form, decoration, and paste. Matched rims and single rims without a match are then referred to as vessels and are numbered accordingly.

Rim sherds representing pottery vessels are computer coded to facilitate analysis. The ceramic vessels (matched rim sherds) in the collection are described and classified where possible according to established wares and types. To this end, the Middle Missouri ceramic key compiled by Johnson (1980), the Knife-Heart region ceramic coding manual put together by Ahler and Swenson (1985a), and the article on Northeastern Plains Village pottery by Michlovic and Swenson (1998) are useful sources in structuring the description, classification, and analysis of Plains Village period ceramics. Another useful source containing general guidelines on reporting Plains ceramics is Johnson et al. (1991). Primary variables used to classify rim sherds and vessels under these systems include: (1) rim form, (2) lip form, (3) exterior surface treatment, (4) area of decoration, (5) decoration technique, and (6) decoration motif.

Body sherd surface treatments are recorded for size-grades 1-2 (G1-2) specimens as part of the ceramic analysis process. Grade 3 specimens are typically excluded from this procedure because they are often too small for a definite determination of surface treatment. However, surface treatment of G3-sized sherds may be recorded if sufficient numbers of larger sherds are not present in a collection.

Surface treatment data are useful in distinguishing among the various archeological taxa of the ceramic period in the Northern Plains region when viewed in conjunction with vessel ware and type information.

Maximum thicknesses of G1-2 body sherds also are recorded so as to arrive at a simple, consistent value (mean maximum thickness) for purposes of making between-site comparisons. Body sherd thickness has been shown to be a temporally sensitive variable in certain cases (e.g., Ahler and Weston 1981:183-185; Toom 2003). Its systematic measurement here is intended to add to available data on the relationship between time and body sherd thickness for Northern Plains ceramic assemblages.

Stone Tools

Stone tools were individually computer coded using an adapted version of the coding scheme applied to the Big Hidatsa Village site (Ahler and Swenson 1985a:79-84), as updated for the laboratory manual for the Lake Ilo project (Root et al. 1999). The variables recorded for all stone tools include: (1) descriptive category, (2) computer sequence number, (3) technological class, (4) morphological class, (5) functional class, (6) use-phase class, (7) raw material type, (8) burning, (9) heat treatment, (10) patination intensity, (11) recycled, (12) multipurpose (multifunction), (13) cortex, (14) completeness, and (15) weight in grams. Additional comments on important aspects of the stone tool analysis follow.

The main thrust of the stone tool analysis is the determination and interpretation of tool function(s). The initial placement of stone tools in various descriptive categories is simply a means of organizing the tools according to general technological and morphological characteristics for purposes of further study. Descriptive categories in and of themselves are not considered to be useful analytic groups, although they do provide concise information on the makeup of a collection. A four-digit sequence number is assigned to each tool within the descriptive categories. This number, in combination with the descriptive category code, forms a six-digit number referred to as the "computer number." Computer numbers provide each tool with a unique identifying number.

Technological classes are a means of describing "a general technological trajectory or suite of technological permutations often applied in a complex fashion to produce a desired end product" (Ahler and Swenson 1985a:82). In essence, technological classes provide succinct information on simple as well as complex stone tool manufacture operations and probable manufacture pathways. Morphological classes, most of which relate to various projectile points and other patterned tool types, are an attempt to succinctly capture the form of various tools and tool fragments. Other than projectile point forms, morphological classes receive little analytical attention.

The functional classification of stone tools is a complex operation involving macromorphological and micromorphological observations (e.g., see Ahler 1979). Specific functional classes provide detailed information on tool use and tool work material. These specific functional classes are collapsed into a number of general functional groups to facilitate summarization and intersite comparisons. Detailed definitive information on the specific functional classes can be found in Ahler and Swenson (1985a:329-341). The specific class composition of the general functional groups is listed in updated form in Root et al. (1999).

Use-phase classification places each tool in one of four groups that provide information on its probable position in the manufacture-use-discard trajectory. The four use-phase classes, as presented in Ahler and Swenson (1985a:81), are: (1) unbroken, potentially useful, manufacture incomplete; (2) broken or rejected, manufacture incomplete; (3) unbroken, potentially useful, manufacture complete; and (4) broken, exhausted, or rejected, manufacture complete. The number preceding each use-phase class is its code or numerical designation for purposes of tabular presentation of use-phase data.

Raw material analyses are primarily concerned with the identification of local and nonlocal (exotic) lithic resources, and the determination of lithic resource utilization patterns for various archeological taxa. It is therefore necessary to approach raw material analyses from a regional or areal perspective in order to distinguish among local and distant resources. Considerable use is made of the UND lithic type comparative collection in identifying the raw material types within a particular collection. Lithic raw material types applied to the Big Hidatsa Village collection are detailed in Ahler and Swenson (1985a:342-347); updated lithic raw material type definitions can be found in Root et al. (1999).

The data thus acquired on the stone tool assemblage from the site are used to determine the basic activity structure of the site, which are in turn used in interpretations of overall site function. The quantities and kinds of local versus exotic lithic raw material types in the assemblage are used to make inferences regarding territoriality and possible trade relations.

Flake Debris

After initial size grading, sorting, and quantification, the flake debris samples are analyzed and requantified according to size grade and raw material type. As with the tools, the UND lithic type comparative collection forms the basis for the raw material identifications. Counts and weights of flakes for each identified lithic raw material type are recorded for each size grade lot by catalog number. These data are recorded in a computer database table.

The flake debris size grade data are used to determine the technological derivation of the debitage sample from the site using a technique referred to as "mass analysis." Mass analysis allows for a relatively quick and accurate interpretation of general tool production technology at a site by analyzing flaking debris en masse, rather than piecemeal, through comparisons to experimental data (see Ahler 1989; Ahler and Christensen 1983). Mass analysis has certain advantages over individual flake analysis in terms of analytical economy, and it has been proven accurate in determining general stone tool manufacturing procedures for a particular site collection.

Identifiable Faunal and Botanical Remains

Analysis and coding of modified and unmodified, identifiable vertebrate faunal remains (i.e., animal bone) generally follows the methods described for the James River archeological projects (Bozell 2002). Comparative faunal and botanical reference collections and reference books are used to make species identifications for the specimens in the collection that are complete enough to identify with certainty. Botanical (seed) identifications are typically made only on materials from archeological features (i.e., contained contexts) as the floodplain and terrace settings of most sites makes the introduction of extraneous, non-archeological botanical materials highly likely. The data thus acquired are used to interpret subsistence practices at the site. Furthermore, the identification of exotic faunal materials, particularly shell, and determining their source or point of origin, is used to suggest trade relations and patterns of regional interaction for the occupants of the site.

Chapter 3
FIELDWORK AND STRATIGRAPHY

Introduction

The research design for the test excavation work at Elbee included site mapping and test excavation tasks. In addition, the high Knife River cutbank in the northern part of the site was examined for exposures of features and other artifacts. The test excavation work was closely coordinated with the findings of the magnetometer survey, in consultation with NPS personnel. The main objectives of the overall site investigation and evaluation program were to determine the presence or absence of (1) the main village component, (2) intact archeological features, and (3) more deeply buried, earlier cultural components in the northern part of the site.

In order to accomplish these objectives, four small block units were dug at Elbee in 2003, designated Excavation Units 1-4 (XU1-4). Each XU was started as a 2-x-2-m block of four squares that was dug through the plowzone layer to the top of the intact sub-plowzone soil, identified in the profiles as an AB horizon. The general plowzone layer at the site, found to be comprised of two sub-layers, extended as deep as 30 cm surface depth (sd). In addition, one 1-x-1-m square each in XU3 and XU4 were excavated to depths of 100 cm sd and 110 cm sd, respectively, penetrating through the uppermost buried A horizon identified in the site profile. Excavated volume for Elbee in 2003 totaled about 7.07 m^3. This breaks down to around 1.37 m^3 for XU1, 1.70 m^3 for XU2, 2.00 m^3 for XU3, and 2.00 m^3 for XU4, including the three feature excavations in XU1, XU2, and XU3 (Table 3.1).

Detailed Site Mapping

The Elbee site has been mapped in detail by photogrammetric methods (Figure 1.2). The existing map of the site was used as a base map for the present project in order to precisely locate excavation units and identified archeological features (Figure 3.1). The Knife River cutbank at the site was mapped in detail and was added to the base map to check on the progress of erosion. High-precision map data were taken using a total station electronic mapping instrument (Sokkia model Set 5F). Additional map data were collected using a differential global positioning system (D-GPS) unit (Satloc model SL 2001) in order to convert coordinates to the universal transverse mercator (UTM) system.

The excavation grid is the same as that used for the magnetometer survey conducted by NPS personnel in the fall of 2002 (Volf 2002). The datum for this grid was set at point 500NE500, located just inside the fence and immediately north of the roadway entering the site (Figure 3.1). All excavation unit grid coordinates stated in the present report are in reference to this datum.

Test and Feature Excavations

As mentioned above, four 2-x-2-m test excavation units (XUs) were dug at the site. XU1, XU2, and XU3 were placed over the locations of high interest magnetic anomalies, thought to mark the locations of archeological features such as pits or hearths. XU1 was placed over Anomaly A, XU2 was placed over Anomaly E, and XU3 was placed over Anomaly I, as indicated in the NPS magnetic survey report (Volf 2002) (Figure 3.2). Selection of these particular high interest anomalies yielded a dispersed pattern of testing along the eastern margin of the north site area. Such a dispersed testing pattern was considered desirable because it gave broad areal coverage relative to the small number of excavation units (Figure 3.3). XU4 was placed in the far northern part of the site near the Knife River cutbank to examine this area in particular with respect to site erosion impacts vis-à-vis its archeological components (Figure 3.1).

Table 3.1. Excavation Unit Summary Data, Elbee Village Site (32ME408), 2003 UND Fieldwork.

Excavation Unit	Square Coordinates	General Level or Feature	Depth Range (cm sd)	Number of Levels	Excavated Volume (m^3)
XU1	501NE550	General Level	0-27	2	0.27
		Feature 102	24-88	1	~0.40
	501NE551	General Level	0-22	2	0.22
	502NE550	General Level	0-27	2	0.27
	502NE551	General Level	0-21	2	0.21
Subtotal, XU1					**1.37**
XU2	537NE552	General Level	0-28	2	0.28
	537NE553	General Level	0-28	2	0.28
		Feature 103	25-109	1	~0.60
	538NE552	General Level	0-27	2	0.27
	538NE553	General Level	0-27	2	0.27
Subtotal, XU2					**1.70**
XU3	570NE555	General Level	0-100	9	1.00
	570NE556	General Level	0-28	2	0.28
	571NE555	General Level	0-33	2	0.33
	571NE556	General Level	0-31	2	0.31
		Feature 101	20-47	1	~0.08
Subtotal, XU3					**2.00**
XU4	610NE540	General Level	0-110	10	1.10
	610NE541	General Level	0-32	2	0.32
	611NE540	General Level	0-28	2	0.28
	611NE541	General Level	0-30	2	0.30
Subtotal, XU4					**2.00**
Grand Total					**7.07**

A fifth 2-x-2 m test excavation unit was originally planned for the extreme northern site area, in the vicinity of grid line 680N (Figure 3.1). However, upon inspection, it was found that this area occupies the bottom of an intermittent drainage way. It is unlikely that Plains Village archeological features would be found in such a physiographic setting, so the fifth unit was not excavated. Furthermore, rain delays and the excavation of three archeological features, including two large pits, did now allow for the excavation of a fifth test unit within the available time.

Test excavation work began by skimming the plowzone from the surface of the four 2-x-2-m excavation units (Figure 3.4). Two plowzone layers were discerned at the site, an upper plowzone (Ap1) that typically extended to a depth of about 15 cm sd, and a lower plowzone (Ap2) that extended to about 25 cm sd. The overall depth of the two plowzone layers could vary by as much as 5 cm up or down depending on the location. Horizontal provenience was maintained according to individual 1-x-1-m squares within the XUs. The two plowzone layers were taken out as two separate excavation levels, designated Levels 1 and 2. All of the plowzone matrix was dry screened through one-quarter-inch mesh hardware cloth to enhance artifact recovery, with some exceptions. In the southwest square of each XU, the lower (Level 2) plowzone matrix was subjected to more rigorous screening, with eight-ninths (89%) dry screened through one-quarter-inch mesh screen and a one-ninth sample (11%) water screened through one-sixteenth-inch mesh screen. The one-ninth sample was consistently taken as a 33.3-x-33.3-cm sample block from the southwest corner of the square. The main purpose of these shallow, 2-x-2-m units was to locate the intact surfaces of sub-plowzone archeological features pertaining to the primary Plains Village component.

Intact portions of archeological features were found beneath the plowzone in all three of the excavation units placed over high interest magnetic anomalies, the suspected locations of archeological features. XU1 and XU2 uncovered the tops of large undercut pits, designated Features 102 and 103,

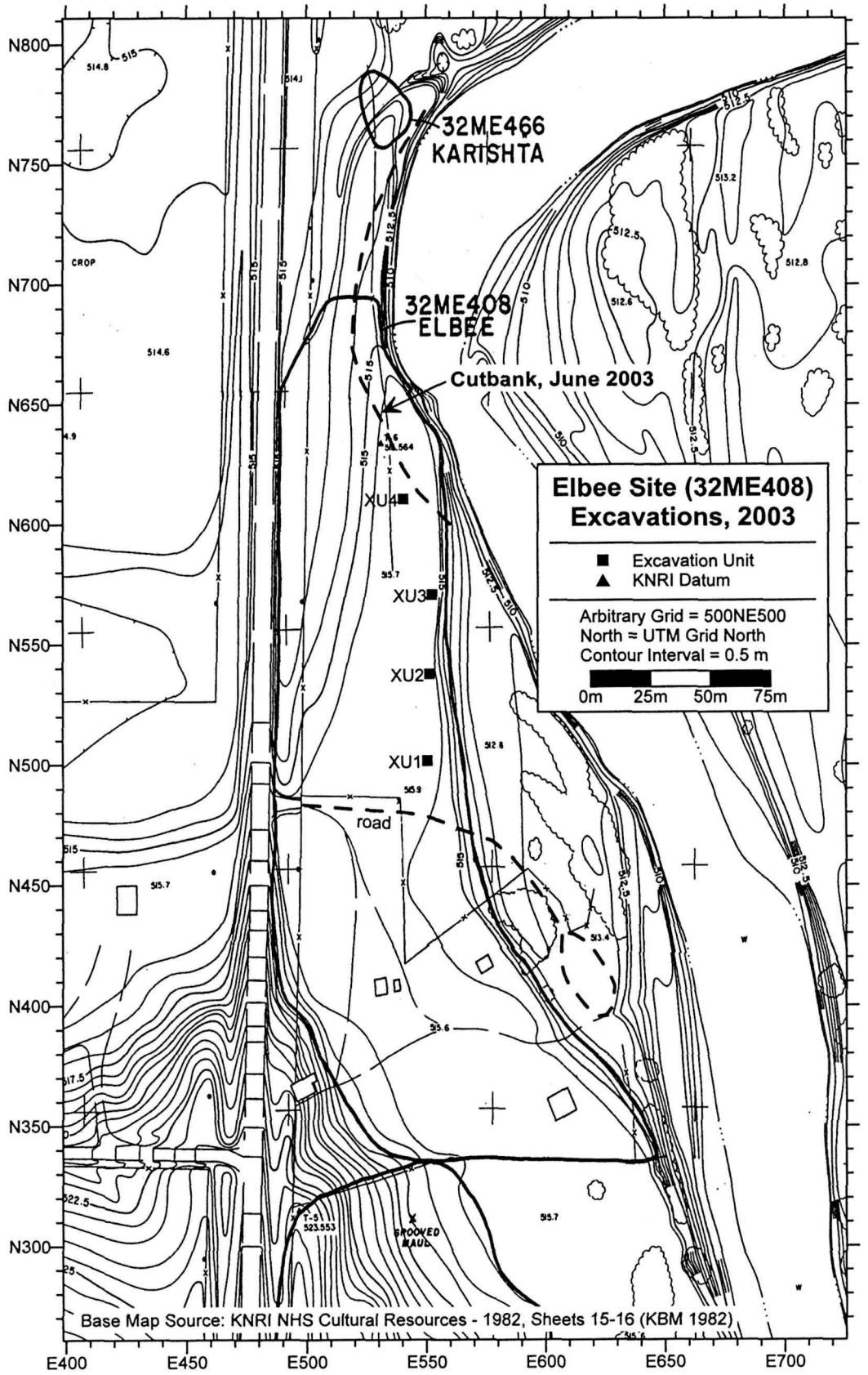


Figure 3.1. Contour map of the Elbee site (32ME408) showing the location of the 2003 excavations and the Knife River cutbank as mapped in 2003.

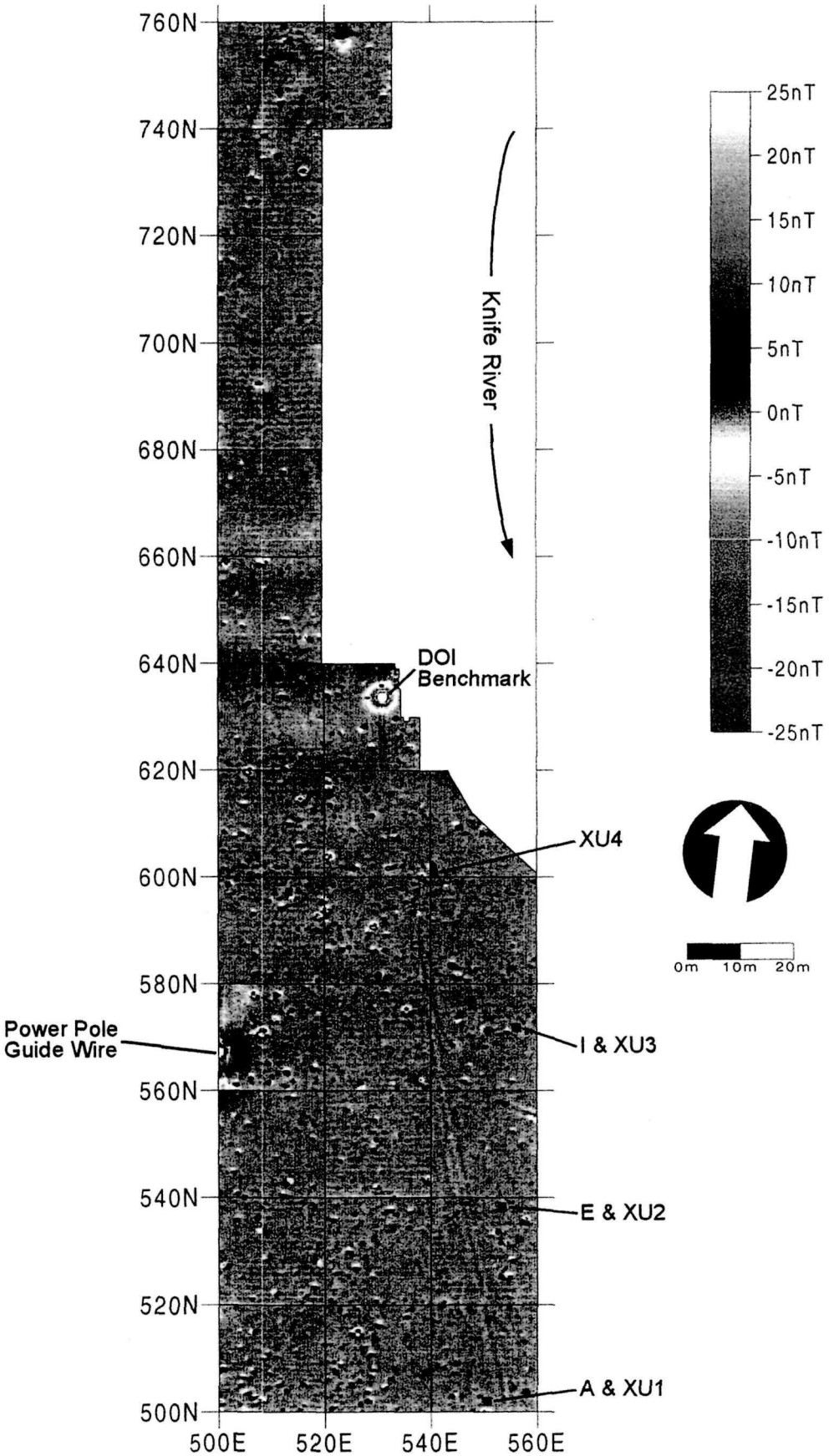


Figure 3.2. Magnetic gradient map of the northern part of the Elbee site (32ME408) showing the locations of the 2003 Excavation Units (XU1-4) in relation to Magnetic Anomalies A, E, and I (adapted from Volf 2002:20).

a

b

Figure 3.3. North site area excavation photos, Elbee site (32ME408), 2003 UND Fieldwork. a: Overview of excavations from County Highway 37 (northeast view; EB03-CP25). b: Overview of excavations on the A terrace surface (north view; EB03-CP17).

a

b

Figure 3.4. North site area excavation photos, Elbee site (32ME408), 2003 UND Fieldwork. a: Stripping plowzone from XU1 (southwest view; EB03-CP2). b: Stripping plowzone from XU3; note the wooded Knife River floodplain in the background (southeast view; EB03-CP6).

respectively (Figures 3.5 and 3.6). XU3 contained an oval-shaped basin hearth designated Feature 101 (Figure 3.7). XU4 did not uncover any archeological features, but it was not placed over any high interest magnetic anomalies (Figure 3.8).

All three of the exposed archeological features were completely excavated, with the exception of a small portion of the basin hearth, Feature 101, which extended beyond the northern limit of XU3. All feature matrix was processed by one-sixteenth-inch water screening, except for a generous sample of feature fill, amounting to several liters, that was retained for finer water flotation processing in the lab. The matrix of the two pits was comprised mainly of an ashy fill that contained varying amounts of general artifactual debris, including animal bone, pottery, and stone. The basin hearth contained an ashy fill with burned earth and few other artifacts, except for flake debris, which was relatively abundant.

Two 1-x-1-m squares, one the southwest square of XU3 (570NE555) and one the southwest square of XU4 (610NE540), were dug to 100 cm sd and 110 cm sd, respectively, in order to penetrate to the depth of the preceramic component identified at the site in 1978 (Figures 3.7 and 3.8). This component was apparently associated with a prominent buried A horizon found at about this depth in the site profile (Ahler 1984:24). All sub-plowzone matrix removed from the deep test units was subjected to the eight-ninths dry screen and one-ninth water screen sampling regimen described above. No definite evidence of any more deeply buried archeological deposits was found in these two deep test squares in the north site area.

The maximum unit of horizontal provenience used during excavation was the 1-x-1-m square. Vertical provenience units consisted of the plowzone itself, ranging from about 20-30 cm thick, and 10 cm arbitrary levels in sub-plowzone deep test units. The archeological features were excavated as single units without the use of vertical levels. All materials recovered by screening or point plotting were transported to UND archeology laboratory facilities in Grand Forks for processing, inventory, and analysis work. Field sorting of screened materials was not done. Field cataloging, standard excavation forms, and photography were used to document the excavation work. Detailed stratigraphic profiles were made of selected units, including the deep test units. The pit and hearth features were excavated as separate units and documented accordingly.

Cutbank Examination

The high Knife River cutbank in the far north site area was examined for feature and artifact exposures (Figure 3.9). While a few widely scattered large artifacts were noted, mainly in association with Plains Village stratigraphic contexts, no artifact concentrations or other definite indications of archeological deposits or features were observed. A search of the slump area along the base of the cutbank also revealed only a few widely scattered artifacts, mainly consisting of large animal bone and fire-cracked rock.

Two different landforms are visible in the Knife River cutbank exposure at the north end of the site. The first is the high A terrace cutbank seen on the left in Figure 3.9a and in close-up in Figure 3.9b. The second is a younger cut-and-fill channel visible on the right in Figure 3.9a. Notice how the younger stratigraphic units in the cut-and-fill channel ride up on the older A terrace landform and merge with its near-surface stratigraphic units of approximately the same age. This indicates that preceramic-age archeological deposits are unlikely to be found in the cut-and-fill channel feature. On the other hand, preceramic-age deposits could be present in the A terrace landform.

Soil Associations and Profile Descriptions

The surface of the A terrace at the Elbee site is mapped as a Straw Loam soil, 3 to 6 percent slopes (map unit 91B) (Wilhelm 1978:Map 42). The Straw Loam is a deep, well drained, gently sloping or undulating soil formed in loamy alluvial parent material on low terraces and bottomlands adjacent to major streams such as the Knife River. The typical surface layer of this soil is about 20 inches thick. The depth

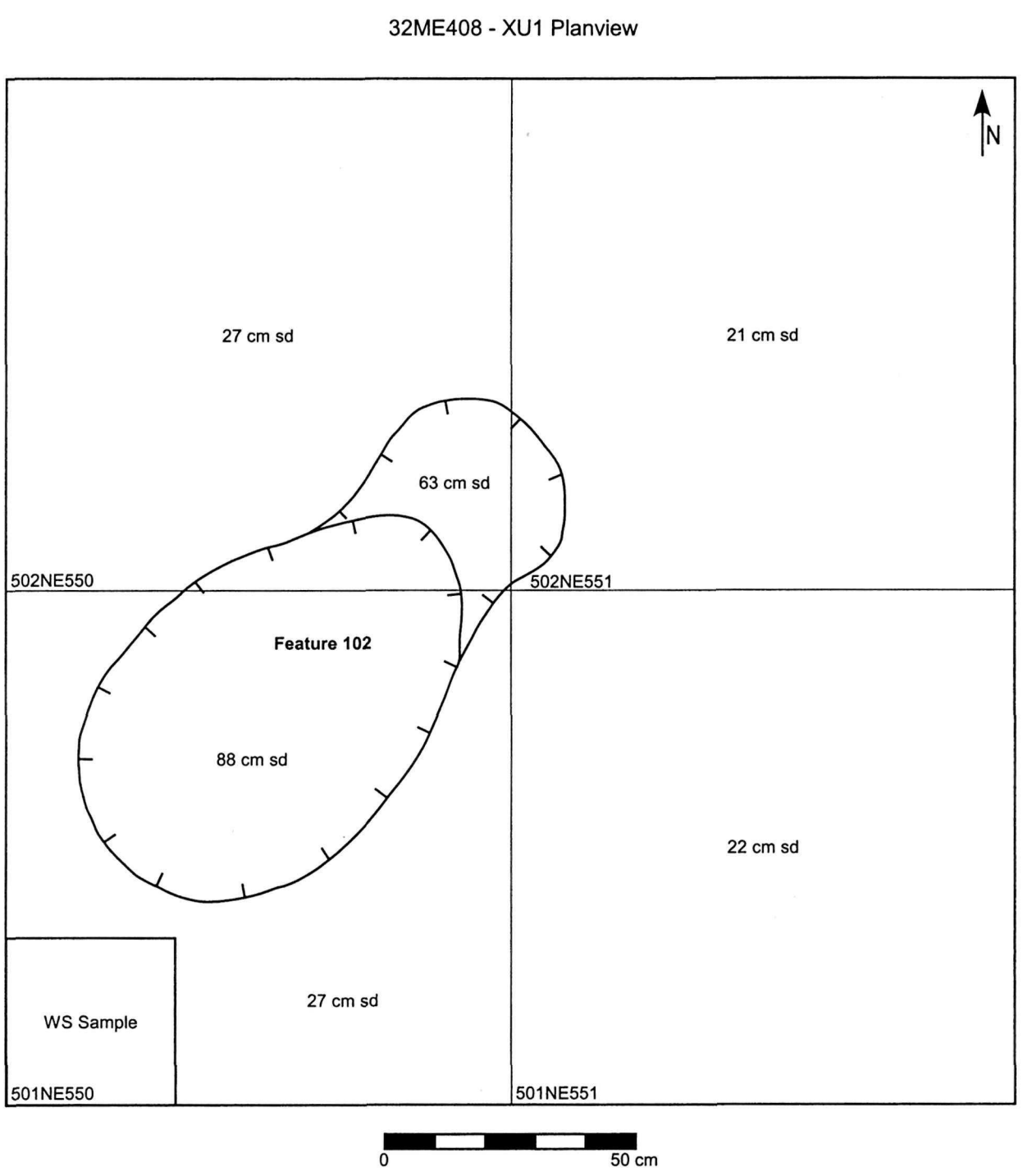


Figure 3.5. Plan map of XU1 and F102, Elbee site (32ME408), 2003 UND fieldwork.

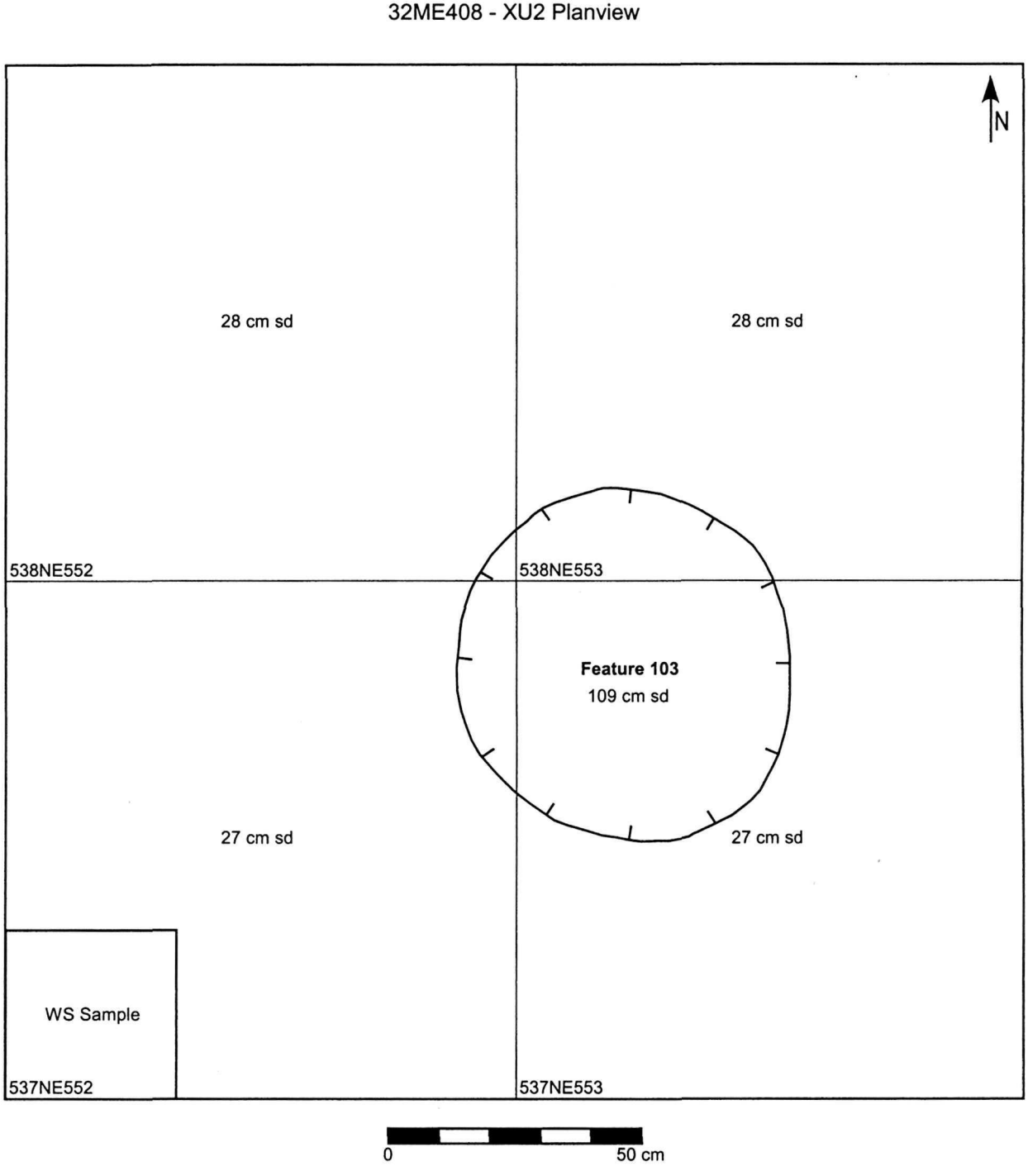


Figure 3.6. Plan map of XU2 and F103, Elbee site (32ME408), 2003 UND fieldwork.

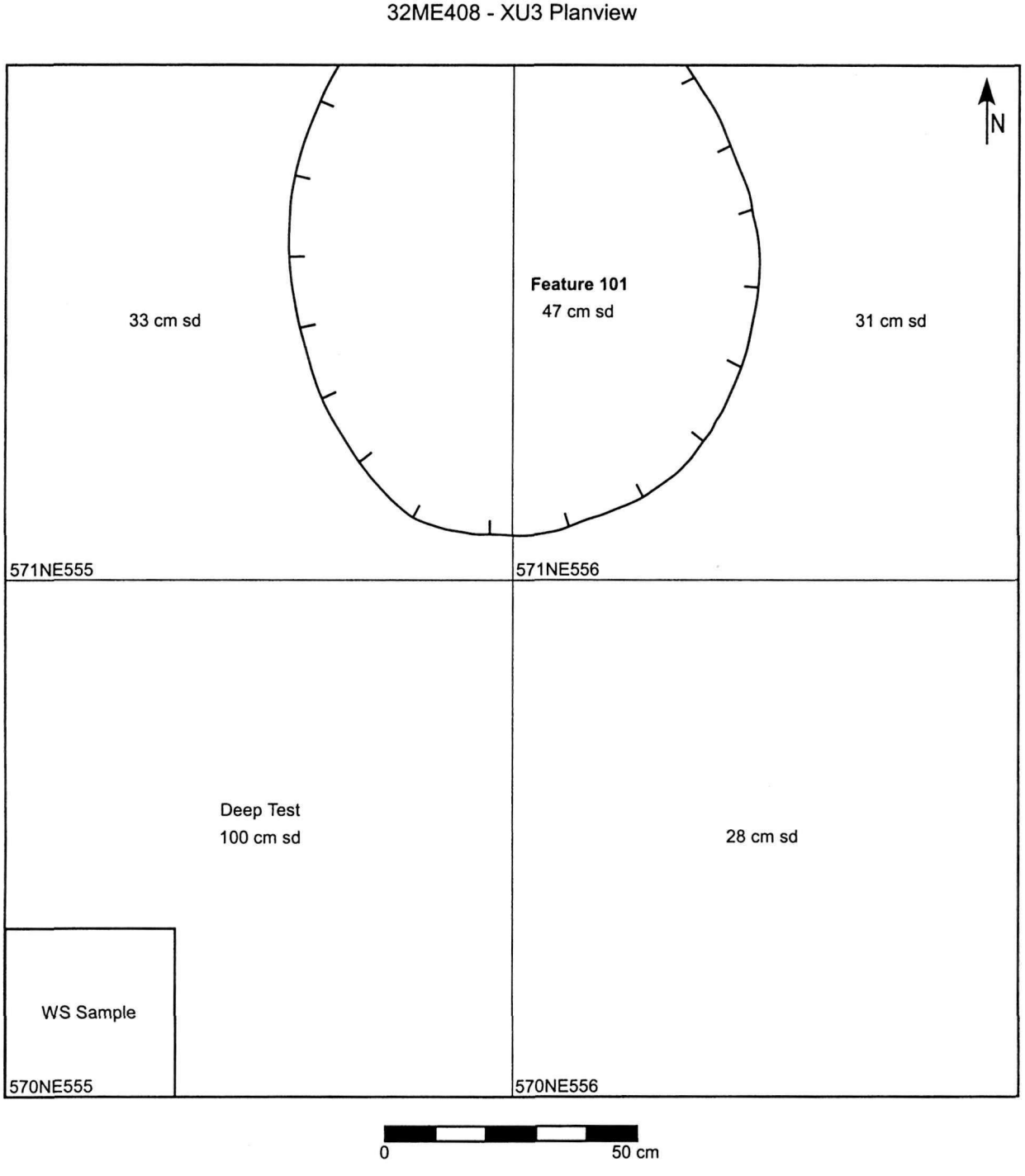
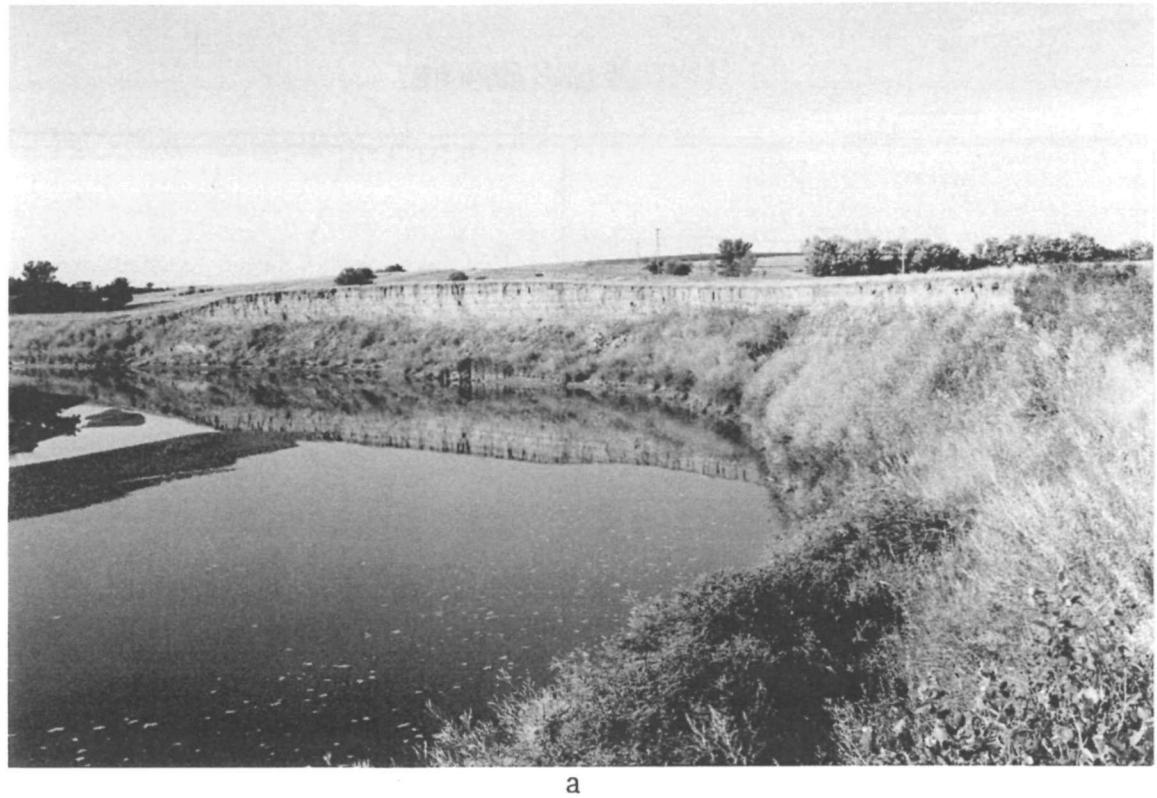
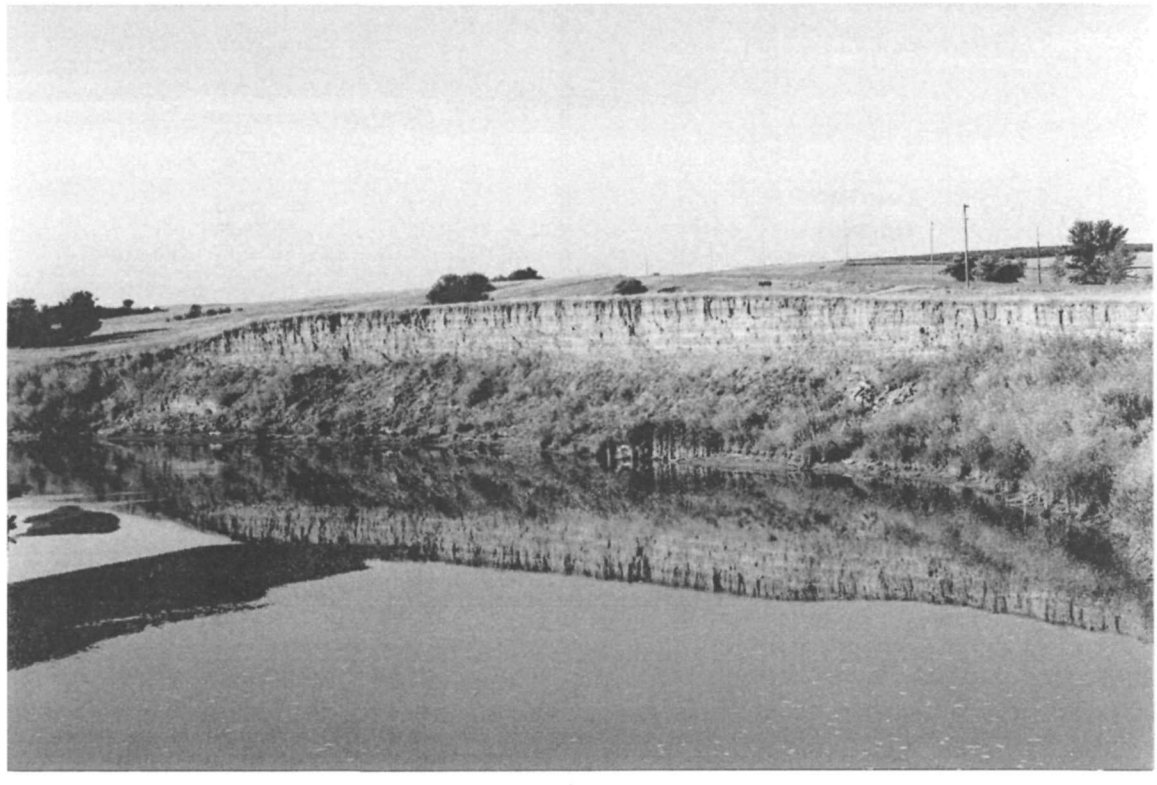


Figure 3.7. Plan map of XU3 and F101, Elbee site (32ME408), 2003 UND fieldwork.

Figure 3.8. Plan map of XU4, Elbee site (32ME408), 2003 UND fieldwork.



a



b

Figure 3.9. Knife River cutbank photos, Elbee site (32ME408), 2003 UND fieldwork. a: Overview of cutbank with the A terrace at left and the younger cut-and-fill channel at right (southwest view; EB03-CP84). b: Close-up of the high A terrace cutbank (south-southwest view; EB03-CP85).

and texture of the substratum are variable, but generally tend to be dark-colored loams to a depth of 60 inches; a subsoil layer is sometimes present. Dark "buried layers" can be present in both the surface layer and the substratum (Wilhelm 1978:59). As a series, Straw soils are classified as mollisols. In the typical profile, the depth to carbonates ranges from 7-20 inches, the thickness of the solum (A and B horizons) is between 20-35 inches, and the mollic epipedon is from 16-30 inches thick (Wilhelm 1978:101).

The excavation profiles recorded at the Elbee site in 2003 generally agree with the Straw Loam association, with one exception. Rather than being a loam, the soil capping the site "feels" more like a silt loam. Moreover, it is thought that this silt loam unit represents a cap of aeolian sediment that covers the A terrace at this location. Such aeolian silt caps are commonly found on alluvial terraces bordering on the Missouri River and its tributaries (see Clayton et al. 1976; Coogan 1987; Toom 1992a). Finding it here at the Elbee site, then, comes as no surprise.

The excavation profile descriptions that follow generally conform to soil horizon nomenclature presented in Birkeland (1999). Soil colors are from standard Munsell soil color charts. Soil textures were determined by "feel" and are best approximations. No physical or chemical laboratory analyses of soil samples were performed in support of the interpretations made here. Only the upper one meter or so of the site stratigraphy is described in the present report, which represents the maximum depth of excavation. A detailed description of the full stratigraphic profile exposed in the Knife River cutbank at the site would have been desirable, but was beyond the scope of the present investigations.

XU3 Deep Profile

Square 570NE555 in XU3 was dug deep to 100 cm sd. It served as the control profile for the north site area excavations. The plowzone in the XU3 profile was subdivided into upper (Ap1) and lower (Ap2) units, with the "p" subordinate departure indicating plowing and the numbers indicating sequence. Beneath this was the intact, lower portion of the surface A horizon, which exhibited indications of a transition to a B horizon (areas of lighter color), hence by the mixed AB designation on the profile (Figures 3.10 and 3.11a). Underlying the AB horizon are Bk1 and Bk2 horizons that are indicated by progressively increasing amounts of calcium carbonate and lighter color. Soil carbonate accumulation, indicated by the "k" subordinate departure, is estimated at the stage I (SI) level for the Bk1 and the stage I+ (SI+) level for the Bk2. The first and only buried soil horizon in the excavation profile is designated as Abk, with the "b" subordinate departure indicating burial and the "k" identifying calcium carbonate accumulation; these subordinate departures are listed in their order of development priority. Soil carbonate accumulation in the Abk horizon took place after burial of the master horizon and is estimated to have reached the stage II filamentous (SIIf) level. The very top of the underlying Bbk horizon was encountered at the bottom of the unit whereupon excavation was terminated.

Soil textures were uniformly recorded as silt loam (SiL) throughout the full depth of the XU3 profile. A large disturbance from an animal burrow (rodent run, or "RR") was noted in the profile, extending downward from the AB horizon into the Bk1 and Bk2 horizons. It can be noted that signs of animal burrowing were common in the site excavations, which can cause substantial displacement of artifacts.

XU4 Deep Profile

Square 610NE540 in XU4 also was dug deep, to 110 cm sd. Except for extending slightly deeper, its profile did not differ from that just described for XU3 (Figures 3.11b and 3.12). XU4 was dug near the present Knife River cutbank mainly to provide a deep exploration in proximity to this active erosional feature. The unit penetrated through the first buried soil horizon, designated Abk, where previllage-age materials may be expected to be found. No artifacts were recovered in association with the Abk horizon in either the XU4 deep test square or the XU3 deep test square.

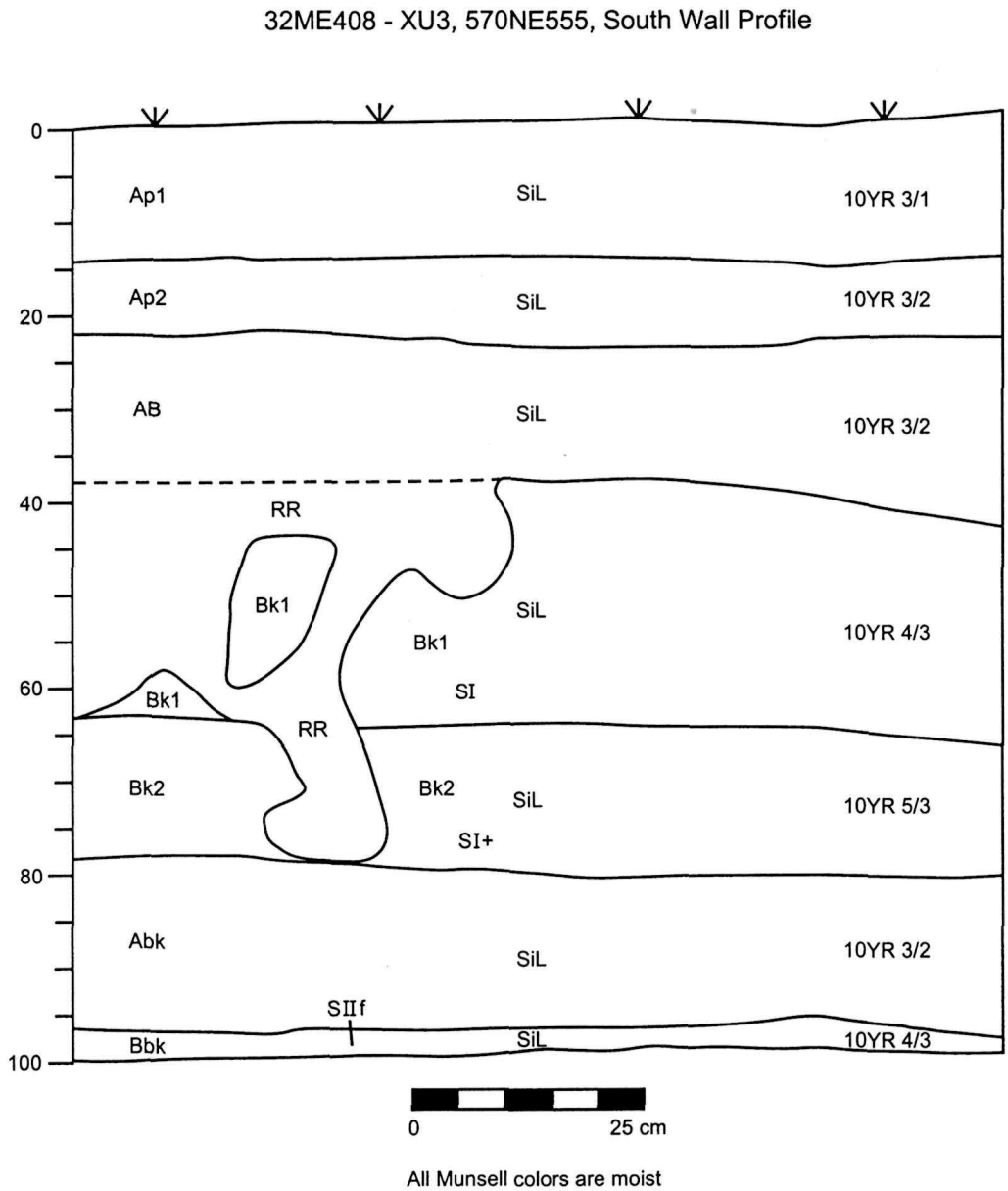
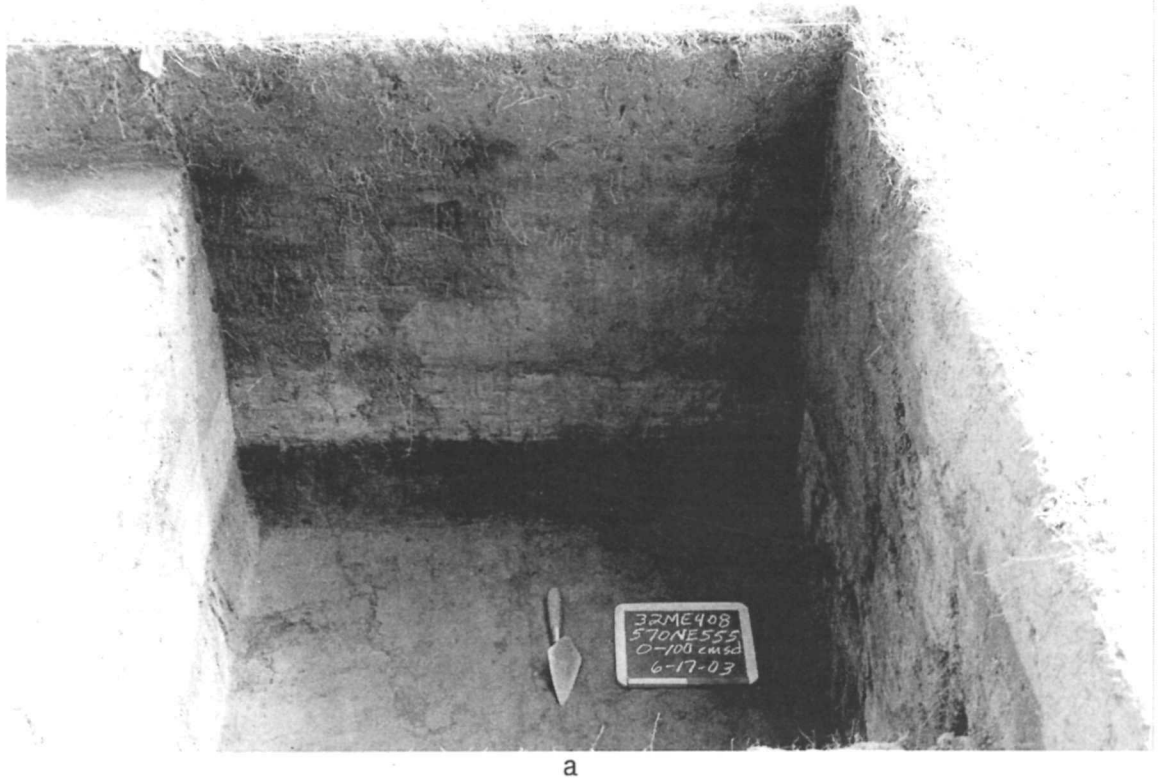
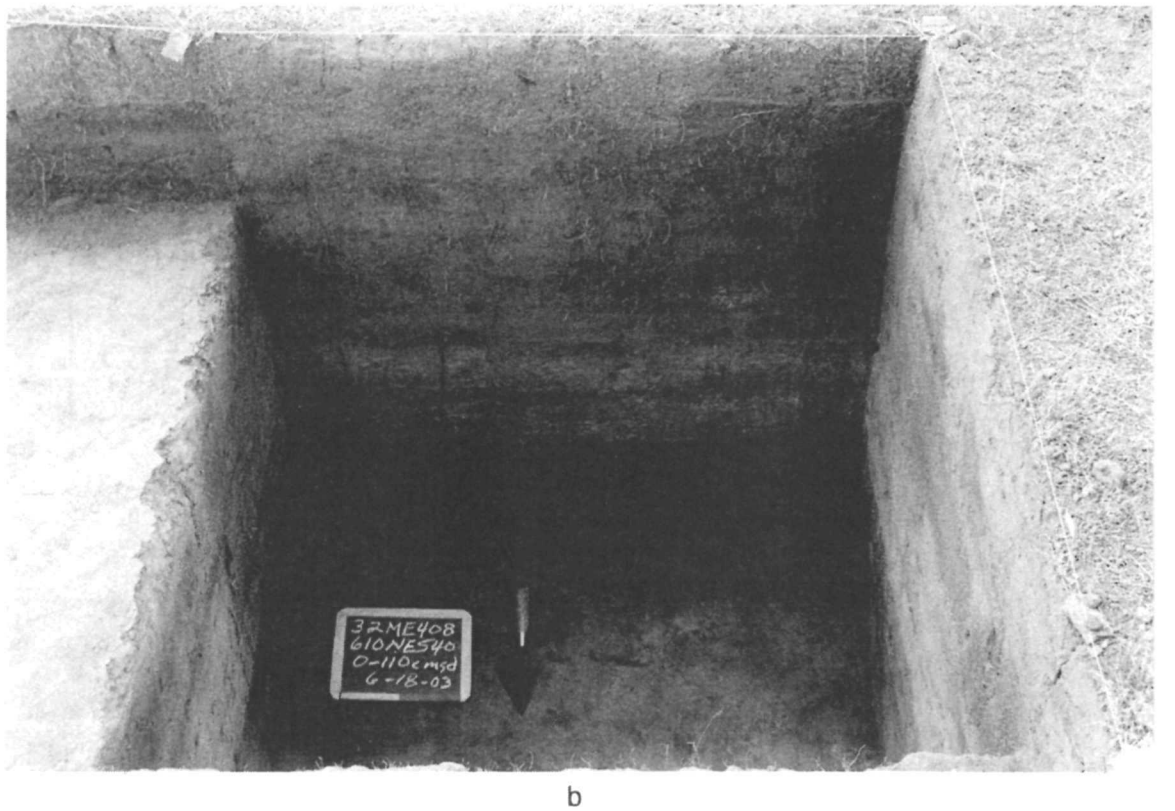


Figure 3.10. Deep profile drawing of XU3, square 570NE555, Elbee site (32ME408), 2003 UND fieldwork.



a



b

Figure 3.11. Deep profile photos, Elbee site (32ME408), 2003 UND fieldwork. a: XU3, square 570NE555, south wall (south view; EB03-CP75). b: XU4, square 610NE540, south wall (south view; EB03-CP81).

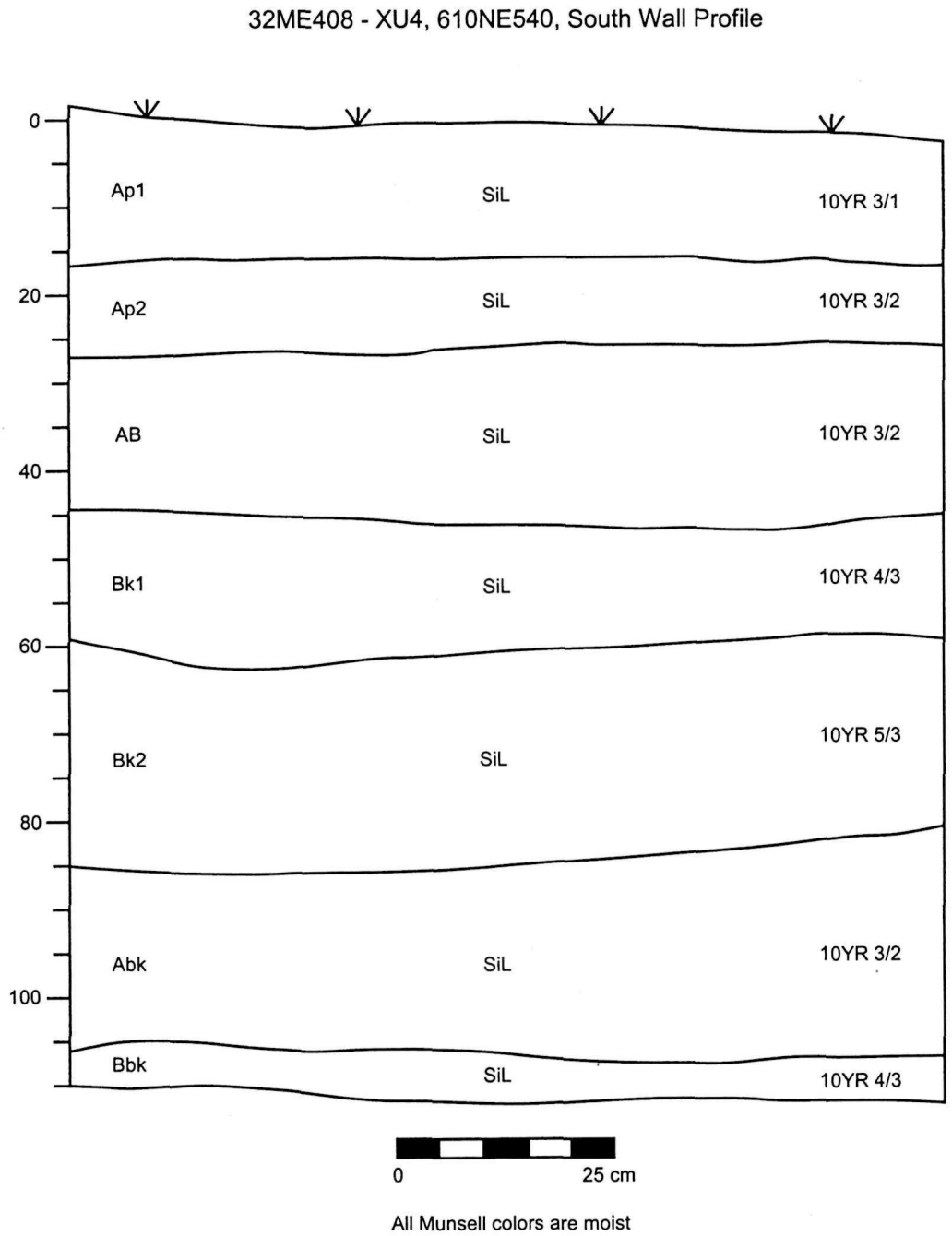
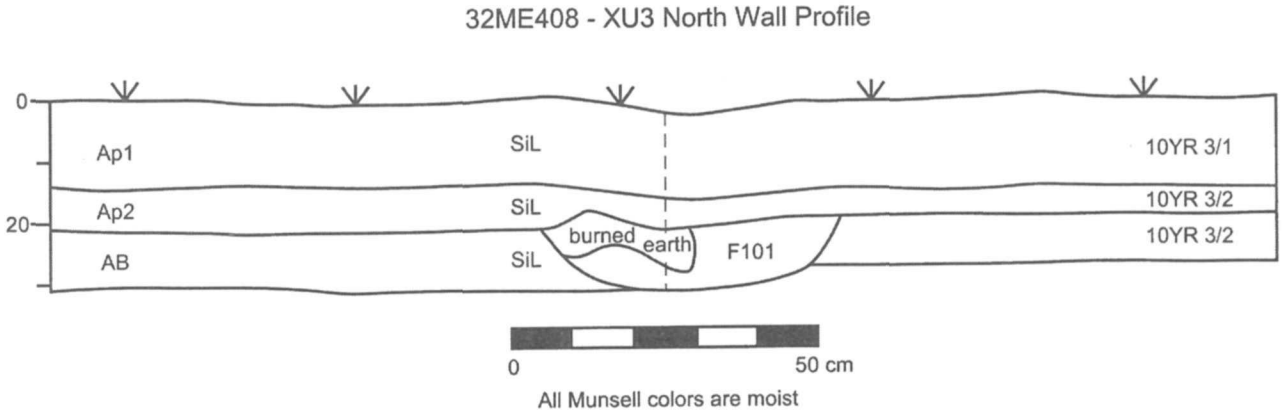


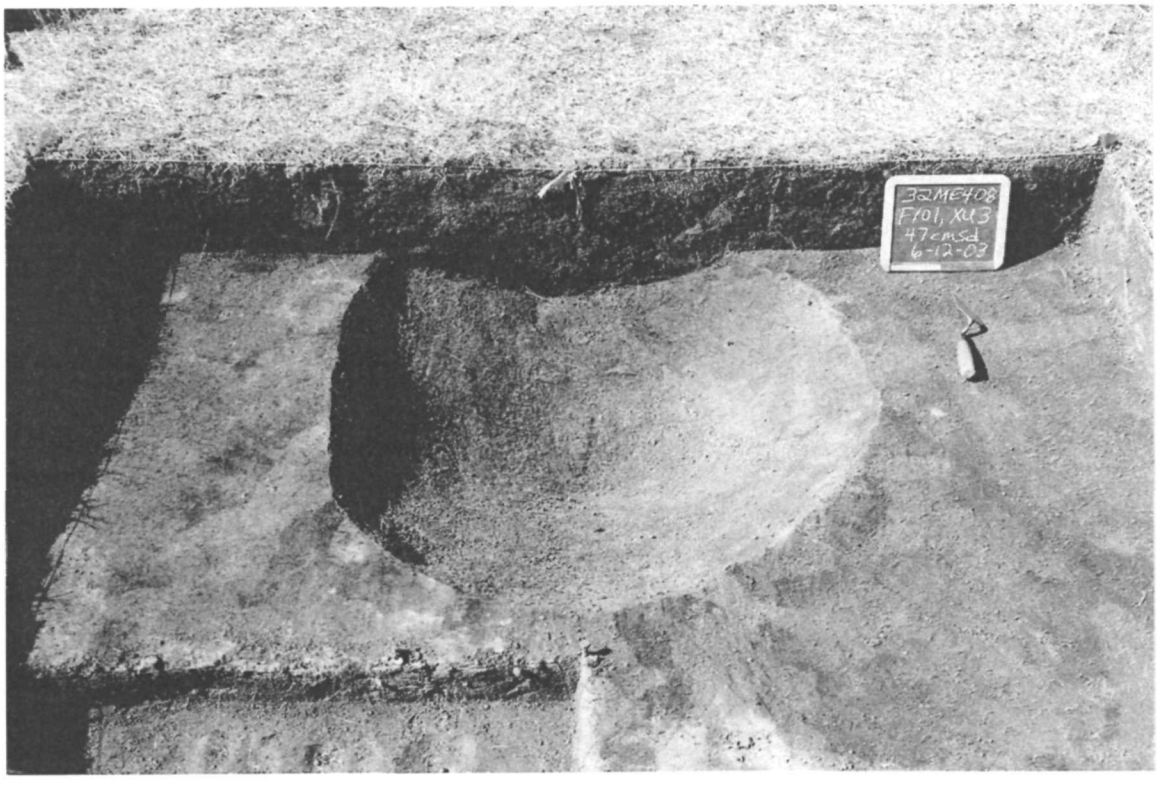
Figure 3.12. Deep profile drawing of XU4, square 610NE540, Elbee site (32ME408), 2003 UND fieldwork.

XU3 Feature 101 Profile

The profile of the north wall of XU3, retaining a portion of the basin hearth designated Feature 101 (F101), is enlightening in regard to the stratigraphic position of the primary Plains Village component at Elbee. The top of the hearth has been truncated by plowing, indicating that it originated in either the lower Ap1 or the upper Ap2 horizon (Figure 3.13). This clearly points to the upper part of the general surface A horizon (combined Ap and AB horizons) at the site as containing the former village occupation surface. Unfortunately, this stratigraphic unit has been thoroughly disturbed by decades of mechanical cultivation. Still, F101 and other features excavated at the site are an unequivocal indication of the presence of the intact lower portions of village features beneath the plowzone.



a



b

Figure 3.13. Profile of F101 in XU3, Elbee site (32ME408), 2003 UND fieldwork. a: Profile drawing of north wall of XU3 with F101. b: Profile photo of north wall of XU3 and F101 excavated (north view; EB03-CP47).

Chapter 4
ANALYSIS AND FINDINGS

Artifact Distributions and Densities

The vertical distribution of artifacts from the two deep test squares excavated at Elbee, one in XU3 (570NE555) and one in XU4 (610NE540), clearly indicates that general (non-feature) archeological deposits are entirely surficial in the northern part of the site. With only a few exceptions, all artifacts were recovered from the first two excavation levels in association with the Ap1 and Ap2 (plowzone) horizons (Table 4.1). The XU3 square did yield a few artifacts from Levels 3, 4, and 5, in the AB and Bk1 horizons, but these are thought to represent nothing more than materials displaced downward in the profile by natural disturbance process (e.g., burrowing animals). The XU4 square produced only two small pieces of bone in levels deeper than Level 2, which are not necessarily artifacts. Significantly, only one small bone fragment was found in levels associated with the Abk horizon (Table 4.1). The Abk is the horizon associated with the preceramic component identified by previous excavations at the site (Ahler 1984). The lack of artifacts from the Abk horizon gives every indication that the preceramic component does not extend into the northern site area.

Artifact density data by archeological context unit also indicate that the archeological deposit in the northern site area originates near the surface. Plowzone and feature archeological contexts show more or less consistently high artifact density values, while sub-plowzone context values are low to non-existent (Table 4.2). The highest density values come from the XU1 plowzone and Feature 102 in XU1, an undercut pit, and from the XU3 plowzone and Feature 101 in XU3, a basin hearth. These numbers suggest higher artifact-producing activities at these locations, which may in turn suggest the locations of former house floors. XU2 had relatively low density numbers for its plowzone, and the feature it contained, Feature 103, a large undercut pit, was not especially productive either for its size. Such lower numbers may point to an extramural context for XU2. XU4 also produced low artifact density values in the plowzone; it did not contain a village feature, so its values would be the lowest overall. On this basis, it can be concluded that XU4 is at or near the northern margin of the Elbee site.

The distribution of artifacts within the north site area test excavations clearly points to a single, near-surface archeological deposit associated with the surface A horizon. Village features uncovered in the excavations, including two pits and one hearth, all once originated in the surface A horizon as well, where their upper extremities have been truncated by plowing. Except for the intact portions of subsurface village features, the surficial archeological deposit at Elbee has been thoroughly disturbed and mixed by years of cultivation. Nevertheless, it is the presence of these intact portions of village features that maintains the research potential of the site and its significance as an archeological resource.

Archeological Components and Analytic Units

Temporal-cultural diagnostic artifacts and radiocarbon dates were used to determine the component makeup of the north site area at Elbee, as discussed in the paragraphs that follow. The observations made on diagnostic artifacts in this section are for purposes of analytic unit definition only and are more fully supported later in the respective analytical sections.

Diagnostic Artifacts

Five more or less complete and classifiable arrow points were recovered from the test excavations. All five are typed as Plains Side-Notched arrow points. The Plains Side-Notched point is the latest type in the Small Side-Notched Point System of the Northern Plains devised by Kehoe (1966, 1973). Plains Side-Notched points are diagnostic of Plains Village period assemblages in the Middle Missouri subarea.

Table 4.1. Selected Vertical Artifact Data for the Two Deep Test Squares, Elbee Village Site (32ME408), 2003 UND Fieldwork.

XU	Square	Level	Soil Horizon	G1-3 Native Ceramics (n)	G1-4 Stone Tools (n)	G1-4 Flake Debris (n)	G1-3 Fire-Cracked Rock Debris (n)	G1-3 Animal Bone Debris (n)	Total (n)
XU3	570NE555	1	Ap1	67	1	26	17	73	184
		2	Ap2-AB	46	2	36	6	5	95
		3	AB-Bk1	4	1	5		2	12
		4	Bk1			1			1
		5	Bk1			2			2
		6	Bk1-Bk2						
		7	Bk2-Abk						
		8	Abk						
		9	Abk-Bbk						
			Subtotal	117	4	70	23	80	294
XU4	610NE540	1	Ap1	8		2	8	14	32
		2	Ap2	6		6	4	6	22
		3	AB					1	1
		4	AB-Bk1						
		5	Bk1						
		6	Bk1-Bk2						
		7	Bk2						
		8	Bk2-Abk					1	1
		9	Abk						
		10	Abk-Bbk						
			Subtotal	14	0	8	12	22	56
			Total	**131**	**4**	**78**	**35**	**102**	**350**

Table 4.2. Artifact Density Data by Archeological Context Unit, Elbee Village Site (32ME408), 2003 UND Fieldwork.

XU	ACU	G1-3 Native Ceramics (n)	G1-3 Stone Tools (n)	G1-3 Flake Debris (n)	G4 Flake Debris (n)	G1-3 Fire-Cracked Rock Debris (n)	G1-3 Animal Bone Debris (n)	Total (n)
XU1	Plowzone	405	25	140	[a]216	81	198	1065
	n/m^2	101.25	6.25	35.00	54.00	20.25	49.50	266.25
	Feature 102	278	36	162	560	57	5095	6188
	n/m^3	695.00	90.00	405.00	1400.00	142.50	12737.50	15470.00
XU2	Plowzone	70	7	55	[b]0	62	63	257
	n/m^2	17.50	1.75	13.75	0.00	15.5	15.75	64.25
	Feature 103	145	11	92	357	42	462	1109
	n/m^3	241.67	18.33	153.33	595.00	70.00	770.00	1848.33
XU3	Plowzone	397	24	295	[a]576	89	148	1529
	n/m^2	99.25	6.00	73.75	144.00	22.25	37	382.25
	Sub-Plowzone	4	1	5	[a]27	0	2	39
	n/m^2	4.00	1.00	5.00	27.00	0.00	2.00	39.00
	Feature 101	76	8	135	480	8	16	723
	n/m^3	950.00	100.00	1687.50	6000.00	100.00	200.00	9037.50
XU4	Plowzone	56	10	36	[a]144	60	83	389
	n/m^2	14.00	2.50	9.00	36.00	15.00	20.75	97.25
	Sub-Plowzone	0	0	0	0	0	2	2
	n/m^2	0.00	0.00	0.00	0.00	0.00	2.00	2.00

[a] Estimated value based on small water screen sample.
[b] Water screen sample failed to yield any G4 flake debris.

Rim sherds from the Elbee excavations all derive from everted-rim vessels with straight to out-curved rim forms. The vessels represented fall within three ware groups: (1) Buchanan ware, (2) Riggs ware, and (3) Knife River ware. Buchanan ware is associated with the Northeastern Plains Village complex (Michlovic and Swenson 1998), dating to the Middle and Late periods of the complex, from ca. A.D. 1300-1800 (Toom 2004). Riggs ware covers a broad time frame, extending from ca. A.D. 1200 into the A.D. 1700s. Riggs ware is most commonly associated with the Extended and Terminal variants of the Middle Missouri tradition (Calabrese 1972; Lehmer 1966; Wood 1967; Wood and Woolworth 1964), but it is also found in northern Post-Contact variant assemblages of the Coalescent tradition (e.g., Lehmer et al. 1978). More recently, Riggs ware has been linked to certain Plains Village complexes defined in the Knife River region (Ahler and Swenson 1993). Knife River ware is common to later Plains Village complexes of both the Knife River and Heart River areas (Ahler 1997; Lehmer et al. 1978). It becomes increasingly common in assemblages post-dating ca. A.D. 1600 in the Knife River area (Ahler and Swenson 1993:124, 133).

The combination of vessels classifiable as Buchanan ware, Riggs ware, and Knife River ware in the 2003 Elbee ceramic assemblage is indicative of a Middle period Plains Village component, dating between ca. A.D. 1300-1600, and of probable Scattered Village complex affiliation. The single Knife River ware specimen is informative, indicating a late Middle period date, because this pottery is not common to Knife River area assemblages until after A.D. 1600.

2003 Radiocarbon Dates

Five radiocarbon dates were run on samples collected from the Elbee site in 2003 (Table 4.3). All are accelerator mass spectrometer (AMS) dates done by the National Ocean Sciences AMS facility at the Woods Hole Oceanographic Institution, Woods Hole, MA. Three dates were run on wood charcoal samples, one was a corn (*Zea mays*) sample, and one was a carbon residue sample from the exterior of a large rim sherd.

As a group, the five radiocarbon dates offer a rather broad temporal range, with laboratory ages separated by as much as 145 years (Table 4.3). Averaging of the five dates is inappropriate because they are not statistically equivalent at the 95% probability level (df=4, T=16.7 [5% 9.5]). Assuming that we are dealing with a single Plains Village component of relatively short duration, as indicated by the diagnostic artifacts and artifact distribution and density data, the discordant values for the suite of radiocarbon dates obtained for the site leaves us with some problems of interpretation.

The three wood charcoal dates were the first samples to be submitted. Each represents small-sized pieces of charcoal, believed to be from twigs, collected from the fill of each of the three excavated features. By selecting what we thought were twig-sized pieces, it was hoped that the problem of dating old wood (old-growth material) could be avoided (see Schiffer 1986). The three wood charcoal dates show considerable variation among themselves, so it was decided to run two more dates, one on corn (maize) and one on carbon residue from a ceramic vessel. Corn is an annual plant that should give superior results vis-à-vis the date of occupation because archeological association and old-growth problems do not apply. We also have had good results in dating carbon residue on ceramics sherds, which allows for direct dating of ceramic vessels. While corn did not enjoy a very favorable reputation as a reliable sample material in the early years of radiocarbon dating, work by Creel and Long (1986) has shown that corn dates are just as accurate as dates based on other materials when the laboratory ages are properly normalized. Normalization is a correction factor that takes into account isotopic fractionation differences among various organic materials. Isotopic fraction differences, particularly between woody C_3 (Calvin cycle) and non-woody C_4 (Slack-Hatch cycle) plants can produce significant radiocarbon age differences in the absence of normalization (see Taylor 1987:120-123). Corn dates must be normalized to make them comparable to wood dates because corn is a non-woody C_4 plant and wood, a C_3 plant, is the standard for radiocarbon dating. In fact, it is now routine to normalize all laboratory radiocarbon ages to the -25‰ PDB standard for wood.

Values of $\delta^{13}C$ also are useful in confirming or even determining identifications of sample materials (see Taylor 1987:Figure 5.7). For example, the $\delta^{13}C$ value of -10.10‰ for the corn date (OS-45301) indicates that the maize (*Zea mays*) identification for this sample is correct because it is near the average value for C_4 plants and consistent with other Middle Missouri corn dates. The carbon residue

Table 4.3. Radiocarbon Dates and Sample Information for the Elbee Village Site (32ME408), 2003 UND Fieldwork. Calibration data are from the OxCal v3.9 program, Bronk Ramsey (2003), based on atmospheric data from Stuiver et al. (1998).

Laboratory Number	Provenience	UND Sample Number	Sample Material and Other Data	Laboratory Age (RCYBP)[a]	Calibrated One Sigma Range	Calibrated Two Sigma Range
OS-44007	XU3, Feature 101, basin hearth, water screen sample (catn 1033)	32ME408-1	0.1 g wood charcoal, twig-sized; $\delta^{13}C$ -25.16‰	470±35	A.D. 1416-1448	A.D. 1400-1485
OS-44008	XU1, Feature 102, storage pit, hand-picked sample (catn 1046)	32ME408-2	0.1 g wood charcoal, twig-sized; $\delta^{13}C$ -24.99‰	495±30	A.D. 1414-1438	A.D. 1330-1450
OS-44009	XU2, Feature 103, storage pit, hand-picked sample (catn 1038)	32ME408-3	0.1 g wood charcoal, twig-sized; $\delta^{13}C$ -25.57‰	390±30	A.D. 1440-1620	A.D. 1430-1630
OS-45301	XU1, Feature 102, storage pit, water screen sample (catn 1039)	32ME408-4	2 burned corn kernel fragments (Zea mays); $\delta^{13}C$ -10.10‰	325±35	A.D. 1510-1640	A.D. 1480-1650
OS-45412	XU1, Feature 102, storage pit, plotted artifact sample (catn 1040)	32ME408-5	0.1 g carbon residue from exterior of rim sherd; $\delta^{13}C$ -24.88‰	435±25	A.D. 1437-1469	A.D. 1425-1490

[a] RCYBP: radiocarbon years before present (before A.D. 1950), 5568-year radiocarbon half-life, laboratory corrected for isotopic fractionation.

taken from the exterior of a large rim sherd, comprising the sample material for OS-45412, derives from firewood, rather than food. We know this because its $\delta^{13}C$ value of -24.88‰ is near the average for woody C_3 plants, as are the $\delta^{13}C$ values for the other three dates, which are based on wood charcoal. We thus have four dates based on wood materials and one date based on corn. The wide disparity between the four wood-based dates, assuming a single component occupation of short duration, as noted above, is indicative of the use of old-growth wood of variable ages as sample material. This strongly suggests that the wood-based dates are more or less inaccurate with respect to the date of occupation for the site.

Given the foregoing considerations, the corn date (OS-45301) alone will be used to determine a date of occupation for the Plains Village component at the Elbee site. The normalized and calibrated two-sigma range of this date is A.D. 1480-1650 (Table 4.3), with a mid-point date of ca. A.D. 1565. The date of occupation for the Elbee Village site is therefore placed in the mid-A.D. 1500s. If we were to use the wood-based dates for this purpose, then the date of occupation would be in the mid-A.D. 1400s, a difference of around 100 years. While not an overly large number in relation to the limits of precision in radiocarbon dating, 100 years difference is large enough to significantly affect archeological interpretations in later prehistoric times, when culture change oftentimes can be measured in decades *rather than centuries*.

1978 Radiocarbon and TL Dates

Three previous radiocarbon dates for the primary Plains Village component at Elbee were obtained from wood charcoal samples collected in 1978 from the same archeological feature, Feature 4, a large storage pit (Ahler 1984:33-37). These three dates show a broad range of values, not unlike the 2003 wood-based samples, with laboratory ages spanning some 170 years (Table 4.4). The 1978 dates are all from the same feature, whose construction and eventual filling would represent a short duration event. The association of three radiocarbon dates of variable ages in the same archeological feature lends considerable support to the contention that the variation in ages noted among the wood-based radiocarbon dates from Elbee is mainly the result of variable-age wood samples, not variable-age archeological features.

One of the 1978 wood charcoal radiocarbon ages (SMU-1101) is younger than the 2003 corn radiocarbon age (OS-45301), and another of the 1978 ages (SMU-1103) is nearly the same as the 2003 corn age. All three of these ages have basically the same calibrated, two-sigma date ranges, from A.D. 1480-1650/80 (Tables 4.3 and 4.4). Such agreement is more than mere coincidence and supports the conclusion made previously to date the primary Plains Village occupation at Elbee to the mid-A.D. 1500s.

Ahler averaged the three 1978 radiocarbon dates from Elbee, calculating a central tendency of A.D. 1515-1620 for the calibrated, weighted average of the three dates. This date range agrees well with that stated above based on the 2003 corn date. This concordance of dates for the Plains Village component may be largely serendipitous, however, because the three 1978 radiocarbon dates are not statistically equivalent (df=2, T=9.4 [5% 6.0]), making averaging problematic. The older radiocarbon age of SMU-797 is the cause of this discrepancy, and is probably the result of old-growth sample material, like the 2003 wood-based dates.

Four thermoluminescence (TL) dates also were obtained from pottery sherds recovered in 1978 from Feature 4 (Table 4.5), the same storage pit that produced the wood charcoal radiocarbon samples. These dates also show considerable variation, with differences of up to 250 years between ages, for an apparent short duration event, the filling of the pit. Nevertheless, the two-sigma range of the average of the TL dates, ca. A.D. 1465-1685, agrees fairly well with the central tendency of the radiocarbon dates.

TL dating often yields highly variable results because it is subject to a number of environmental variables that are difficult to control for, such as soil moisture and local radiation sources. For this reason, it never gained wide acceptance as an archeological dating technique in the United States. Still, there is some comfort in finding agreement between two essentially independent dating techniques for the same archeological component.

Table 4.4. Radiocarbon Dates and Sample Information for the Elbee Village Site (32ME408), 1978 UND Fieldwork (Ahler 1984:34). Calibration data are from the OxCal v3.9 program, Bronk Ramsey (2003), based on atmospheric data from Stuiver et al. (1998).

Laboratory Number	Provenience	UND Sample Number	Sample Material and Other Data	Laboratory Age (RCYBP)[a]	Calibrated One Sigma Range	Calibrated Two Sigma Range
SMU-797	Feature 4, Level 2, storage pit, water screen sample (catn 71)	n/a	Wood charcoal; not fractionation corrected	440±40	A.D. 1425-1480	A.D. 1400-1630
SMU-1101	Feature 4, Level 2, storage pit, hand-picked sample (catn 71)	n/a	Wood charcoal; fractionation corrected.	270±40	A.D. 1520-1670[b]	A.D. 1480-1680[b]
SMU-1103	Feature 4, Level 4, storage pit, water screen sample (catn 91)	n/a	Wood charcoal; fractionation corrected.	330±30	A.D. 1490-1640	A.D. 1480-1650

[a] RCYBP: radiocarbon years before present (before A.D. 1950), 5568-year radiocarbon half-life.
[b] Date ranges of low probability and obviously too young were discarded (1σ 1780-1800; 2σ 1770-1810 and 1930-1950).

Table 4.5. Thermoluminescence Dates and Sample Information for the Elbee Village Site (32ME408), 1978 UND Fieldwork (Ahler 1984:34).

Laboratory Number	Provenience	UND Sample Number	Sample Material and Other Data	Laboratory Age (TLYBP)[a]	One Sigma Calendar Date Range	Two Sigma Calendar Date Range
WU-TL84j1	Feature 4, Level 1, storage pit (catn 64)	n/a	pottery sherd	360±30	A.D. 1590-1650	A.D. 1560-1680
WU-TL84j2	Feature 4, Level 1, storage pit, (catn 71)	n/a	pottery sherd	310±25	A.D. 1645-1695	A.D. 1620-1720
WU-TL84j3	Feature 4, Level 2, storage pit, (catn 72)	n/a	pottery sherd	560±45	A.D. 1375-1465	A.D. 1330-1510
WU-TL84j4	Feature 4, Level 4, storage pit, (catn 86)	n/a	pottery sherd	390±35	A.D. 1555-1625	A.D. 1520-1660
	Average TL Date			405±55	A.D. 1520-1630	A.D. 1465-1685

[a] TLYBP: thermoluminescence years before present (before A.D. 1980).

Analytic Unit Definition

The 2003 Elbee excavations can be broken down into three major analytic units for purposes of reporting: (1) plowzone, (2) features, and (3) sub-plowzone. These analytic units correspond to the major archeological context units identified at the site. The plowzone and feature analytic units contained virtually all of the recovered artifacts. The sub-plowzone unit was essentially devoid of artifacts, except for a few items in near-surface levels that were vertically displaced from above.

Artifact distribution and density data and diagnostic artifacts indicate that materials from all three archeological context units relate to a single Middle period Plains Village component of probable Scattered Village complex affiliation. The component is dated to the mid-A.D. 1500s based on the interpretation of two separate series of radiocarbon dates. The Scattered Village complex interpretation is controversial, however, because of the lack of S-rim pottery in the assemblage. Nevertheless, the presence of pottery classifiable as Buchanan ware clearly points to a connection to the Northeastern Plains Village complex, the proposed predecessor of the Scattered Village complex (Toom 2004).

Cultural Features

Three cultural features were uncovered and excavated by the Elbee test excavations. Feature numbers for the 2003 excavations were started at 101 to clearly differentiate them from features of the 1978 excavations. Feature 101, found in XU3, was a basin-shaped hearth; Feature 102, found in XU1, was a storage pit; and Feature 103, located in XU2, was another storage pit. The location of each of these features was indicated by the magnetometer survey of the site (Volf 2002), the findings of which were used to guide the placement of the 2003 excavations.

Feature 101

Feature 101 (F101) was a basin-shaped hearth located in the northern two squares of XU3. A small portion of the feature extended beyond the northern limit of XU3 and was not excavated (Figure 4.1). The surface of the feature was first detected as a roughly circular area of ashy soil that appeared at about 20 cm sd at the very bottom of the plowzone (Figure 4.2a). Excavation of the feature itself began by cross sectioning the basin (Figure 4.2b) so that a profile drawing could be made of the fill of the hearth (Figure 4.1). After cross sectioning, the rest of the hearth basin was excavated (Figure 4.3). The hearth was excavated as a single unit, with its fill divided between a larger water screen sample and a smaller flotation sample. The volume of the flotation sample for F101 was measured at 18 liters in the lab.

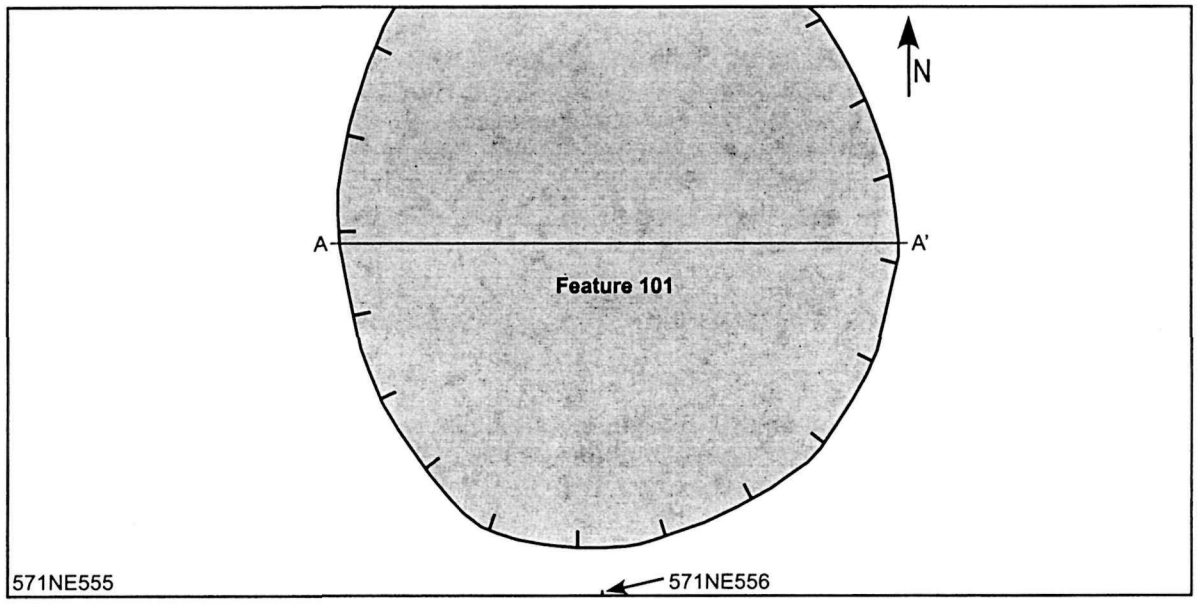
The full basin of the hearth was oval-shaped, measuring approximately 95 cm east-west by 105 cm north-south. Maximum depth of the basin was recorded as 27 cm (20-46 cm sd), but anywhere from 5-10 cm of the upper portion of the hearth was destroyed by plowing. The excavated volume of the intact portion of the hearth is estimated at 0.08 m^3. The hearth contained a fill of mostly ashy soil and some burned earth. The bottom of the hearth exhibited a thin layer of burned earth. Artifacts recovered from the hearth included ceramic sherds, stone tools, flake debris, and some fire-cracked rock and animal bone debris. Small-sized (G4) flake debris was especially abundant in the hearth fill (Table 4.2).

Hearths of this kind are typically found in Plains Village houses, the earthlodge. Previous excavation work at Elbee yielded definite evidence of the remains of circular house floors at Elbee (Ahler 1984). It is concluded that F101 was probably the central hearth of such a structure. However, additional excavation work aimed at uncovering additional subfloor house features, such as postholes and pits, would be required to confirm such a conclusion.

Feature 102

Feature 102 (F102) was an undercut storage pit located in XU1. This particular pit was somewhat unusual in that it had two distinct parts: a central pit that extended to 88 cm sd and a small pit, attached to the larger one, that extended to 63 cm sd (Figure 4.4). The surface of the feature was first detected as a roughly oval-shaped soil stain found just below the plowzone at around 24-27 cm sd.

32ME408 - XU3, Feature 101 Planview



32ME408 - XU3, Feature 101 Profile

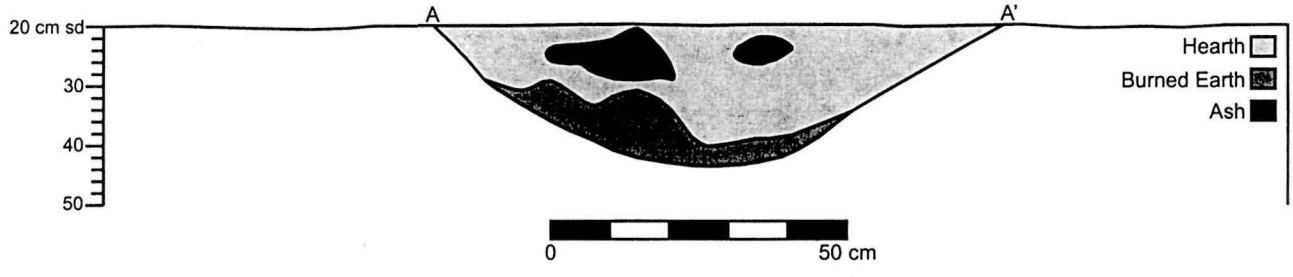
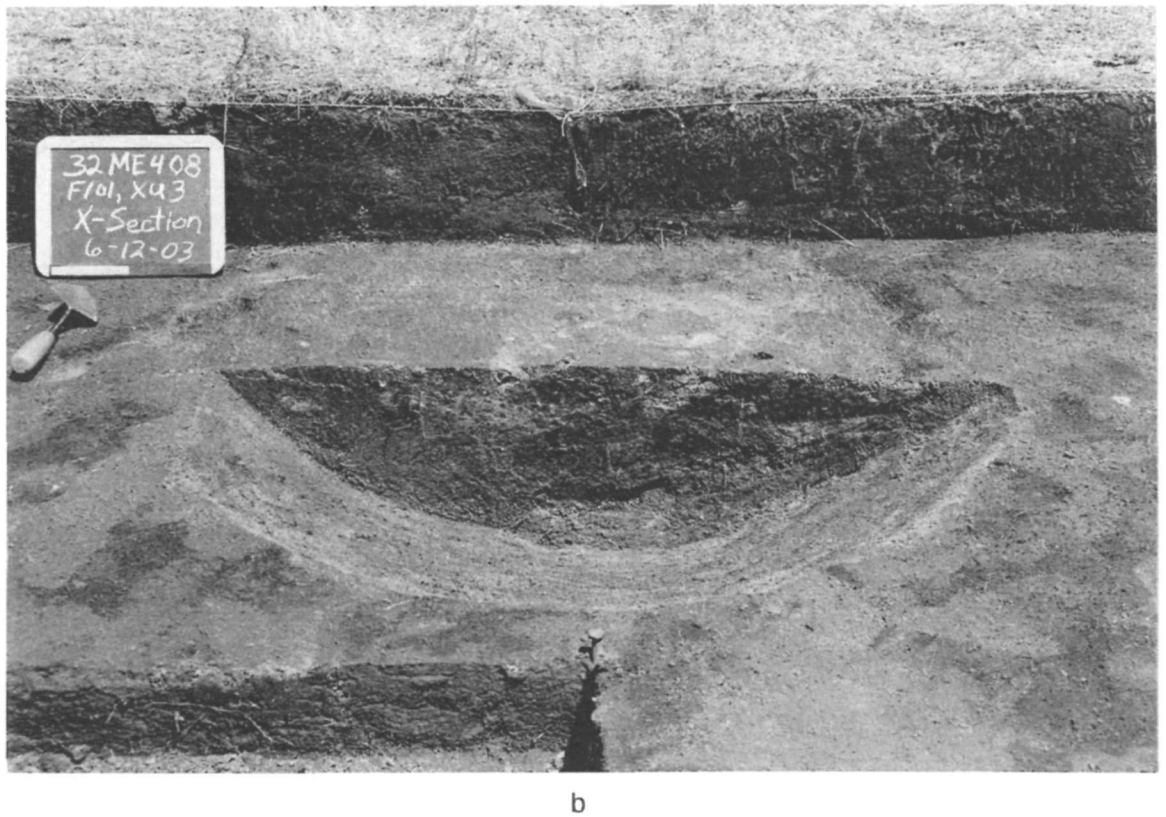


Figure 4.1. Feature 101, basin hearth, plan view and profile drawings, Elbee site (32ME408), 2003 UND fieldwork.

a



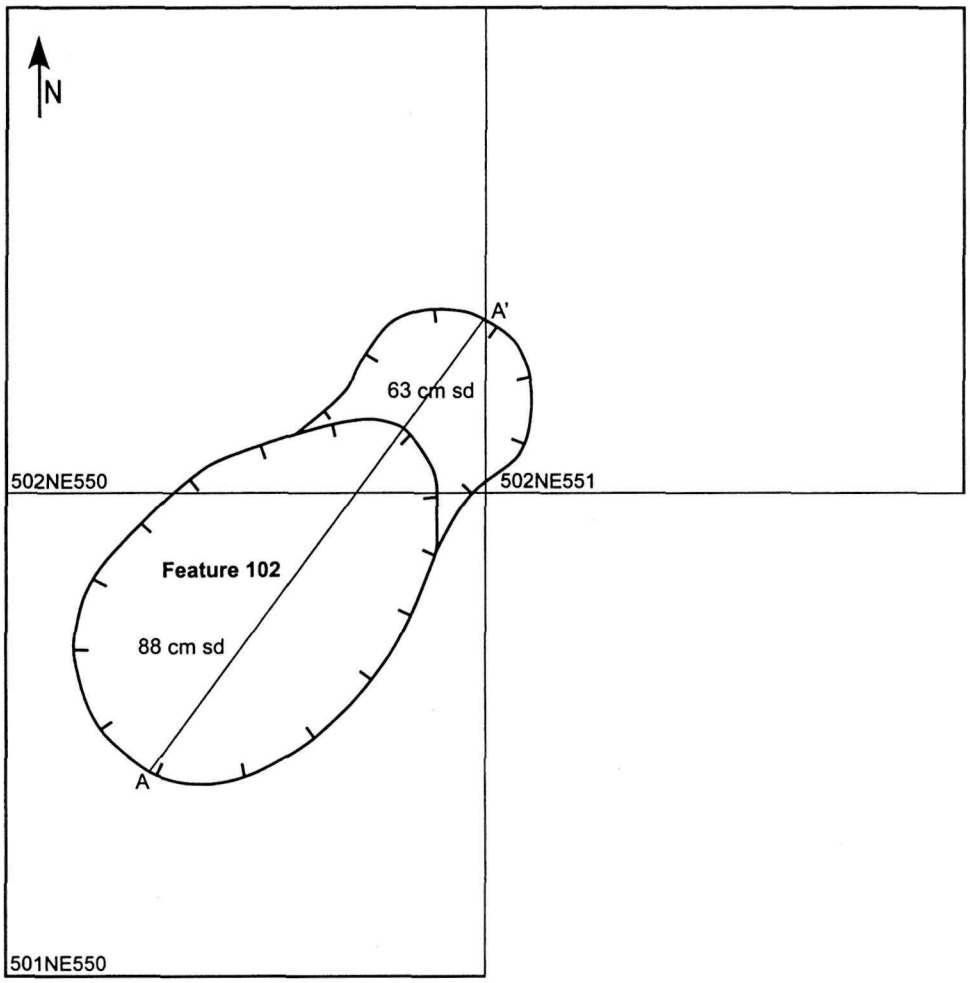
b

Figure 4.2. Feature 101, basin hearth, photos, Elbee site (32ME408), 2003 UND fieldwork. a: Surface of detection beneath plowzone, center (north view; EB03-CP29). b: Cross section of hearth basin (north view; EB03-CP33).

a

b

Figure 4.3. Feature 101, basin hearth, photos, Elbee site (32ME408), 2003 UND fieldwork. a: KC Smith and Brandon Evans excavating Feature 101 (north view; EB03-CP37). b: Excavated hearth basin (north view; EB03-CP49).



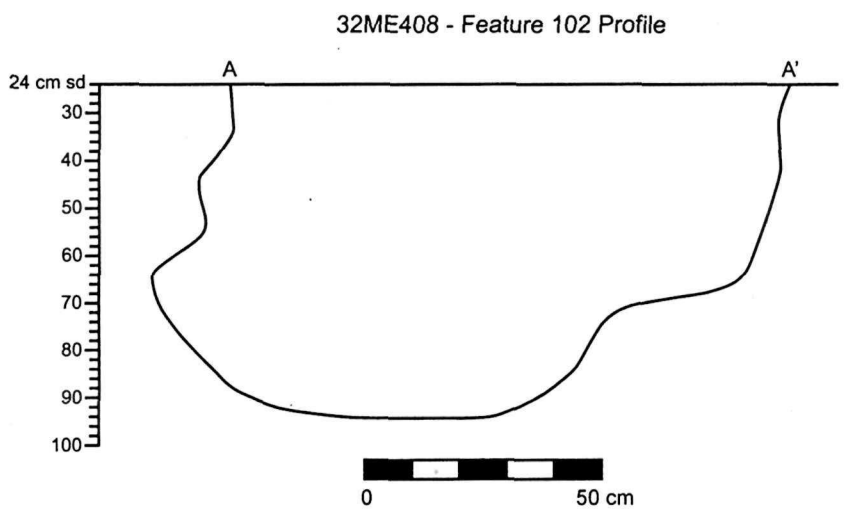


Figure 4.4. Feature 102, undercut pit, plan view and profile drawings, Elbee site (32ME408), 2003 UND fieldwork.

Numerous rodent burrows leaving and entering the feature gave its surface a diffuse look (Figure 4.5a). The feature was excavated as a single unit, with the fill divided between a larger water screen sample and a smaller flotation sample (Figure 4.5b). The volume of the flotation sample for F102 was measured at 14 liters in the lab. The completed excavation was shaped like a figure eight, or double pit, given the two parts to the general pit feature (Figure 4.6).

Two adjoining pits, or parts of the same pit, made up the figure-eight-shaped outline of F102. The larger pit was oval-shaped and measured approximately 60 cm by 90 cm, with a maximum depth of 64 cm (24-88 cm sd). The smaller pit was more or less circular with a diameter of about 35 cm, except where it was truncated by the larger pit (Figure 4.4). The small pit had a maximum depth of 39 cm (24-63 cm sd). As much as 5-10 cm of the upper portion of the feature was lost to plowing, so overall depth could be increased by these numbers. The total excavated volume of F102, including both pit parts, is estimated at 0.40 m^3.

Undercut storage pits can be found in either intramural (within house) or extramural (outside house) contexts in Plains Village sites. This particular pit yielded a relative abundance of artifacts, including ceramic sherds, stone tools, flake debris, and some fire-cracked rock; animal bone fragments were particularly numerous (Table 4.2). Partially because of its relatively rich artifact content, it is thought that F102 was an intramural pit. Moreover, the smaller pit may have functioned as a step, making it easier to get into and out of the larger pit, which proved to be the case during excavation. A storage pit with a "stepped entrance" would most likely have been in a house. As was the case with F101, speculated to have been an in-house hearth, additional excavation work would be required to confirm such an interpretation.

Feature 103

Feature 103 (F103) was a typical undercut, or bell-shaped, storage pit located in XU2 (Figure 4.7). The orifice of the pit was generally circular, measuring from 65-70 cm in diameter. It was first seen as a circular stain isolated at about 28 cm sd just beneath the plowzone (Figure 4.8a). Like the other features, F103 was excavated as a single unit, with the fill divided between a larger water screen sample and a smaller flotation sample (Figures 4.8b). The volume of the flotation sample for F103 was measured at 20 liters in the lab. The completed excavation was circular-shaped at the surface, hiding much of its girth underground. The finished pit had a maximum depth of 82 cm (27-109 cm sd), but, like the other features, as much as 5-10 cm of its top had been truncated by plowing. The maximum interior diameter of the finished pit was about 95 cm toward the bottom (Figure 4.7). The overall excavated volume of F103 is estimated at 0.60 m^3.

As mentioned above, undercut storage pits can be found in either intramural (within house) or extramural (outside house) contexts in Plains Village sites. Feature 103 contained a relative dearth of artifacts given its larger volume (Table 4.2), leading to the conclusion that it was probably an extramural pit. The fill of the pit did contain a relative abundance of wood charcoal and ash, suggesting that it was filled with fireplace debris.

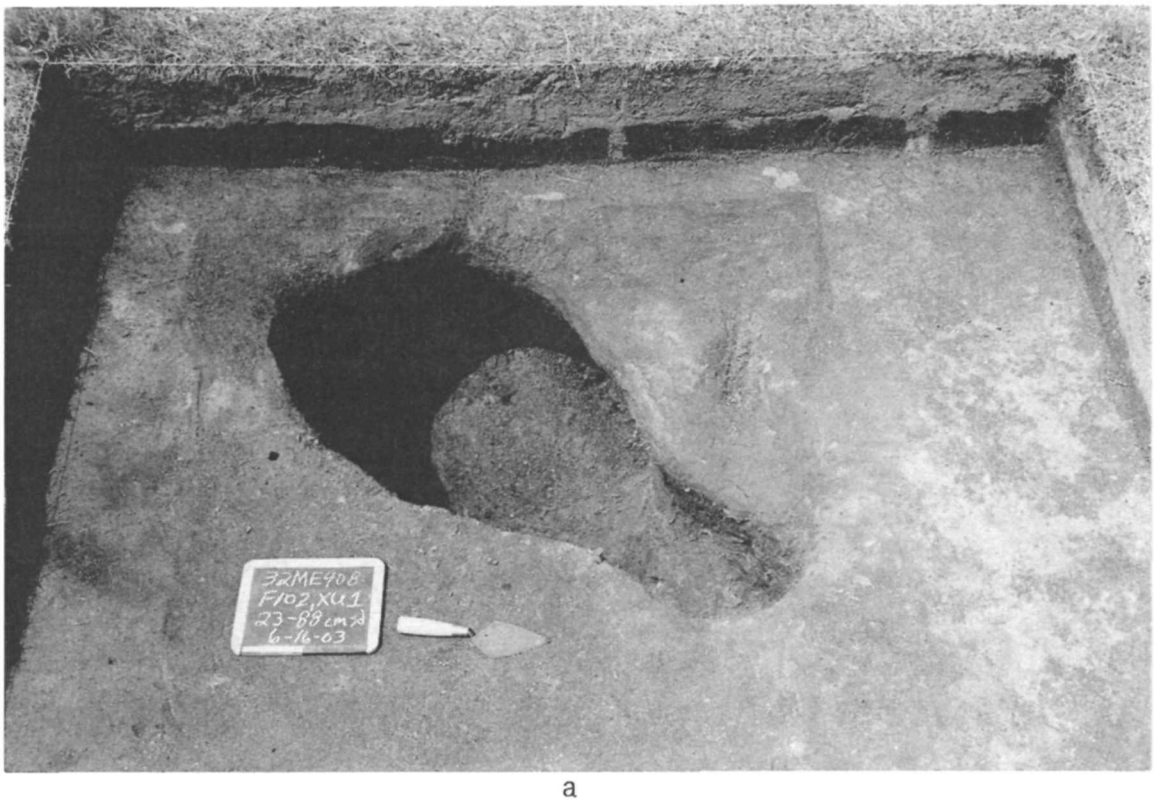
Native Ceramics

Native ceramic sherds recovered from the 2003 excavations at the Elbee site total 1,431 size grade 1-3 (G1-3) specimens, weighing a total of 1,176.9 g (Table 4.6). These totals include rim sherds and body sherds combined. Rim sherds were counted at 23 specimens, leaving a count of 1,408 body sherds. No other native ceramic objects, such as balls or figurines, were identified in the collection. The majority of the sherds derive from plowzone proveniences (928 or 64.9%), with lesser numbers from feature contexts (427 or 29.8%). Relatively few sherds were found in sub-plowzone proveniences (76 or 5.3%) and all of these were from near-surface levels just below the plowzone.

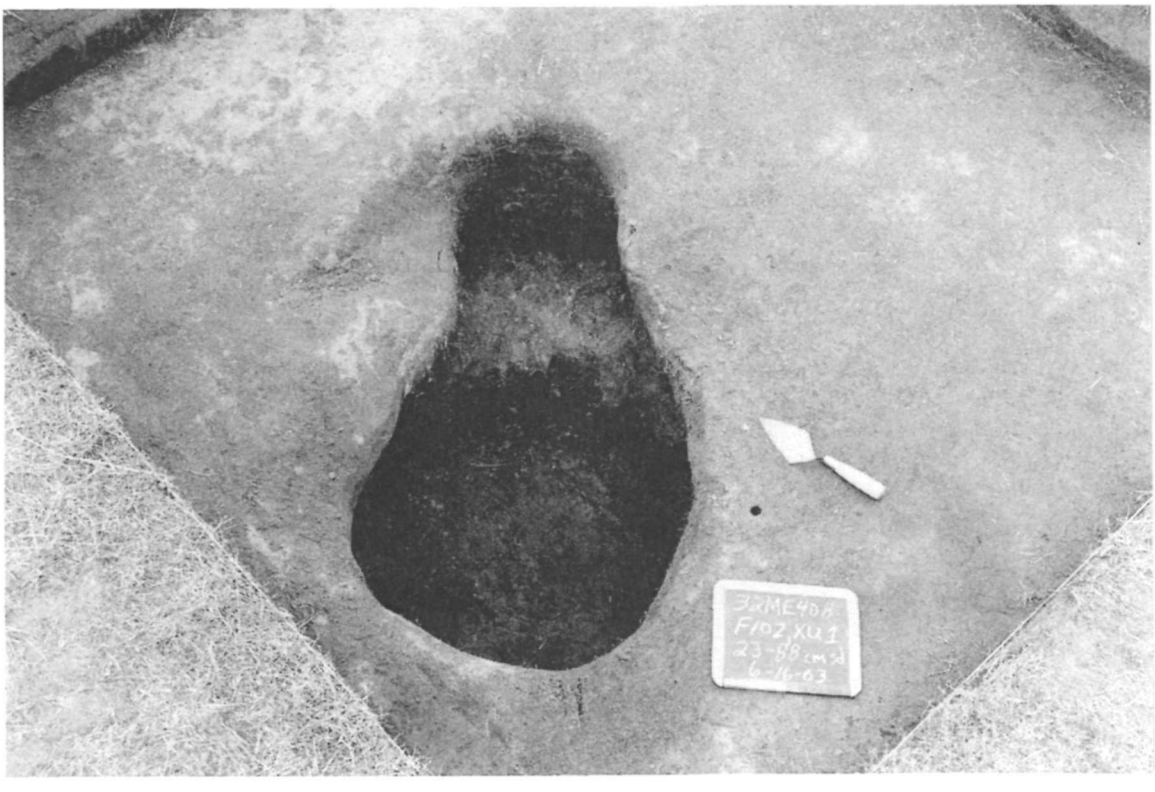
a

b

Figure 4.5. Feature 102, undercut pit, photos, Elbee site (32ME408), 2003 UND fieldwork. a: Surface of detection beneath the plowzone, center (west view, not north; EB03-CP39). b: Mimi Bunow and Tom Petredean excavating Feature 102 (south view; EB03-CP56).



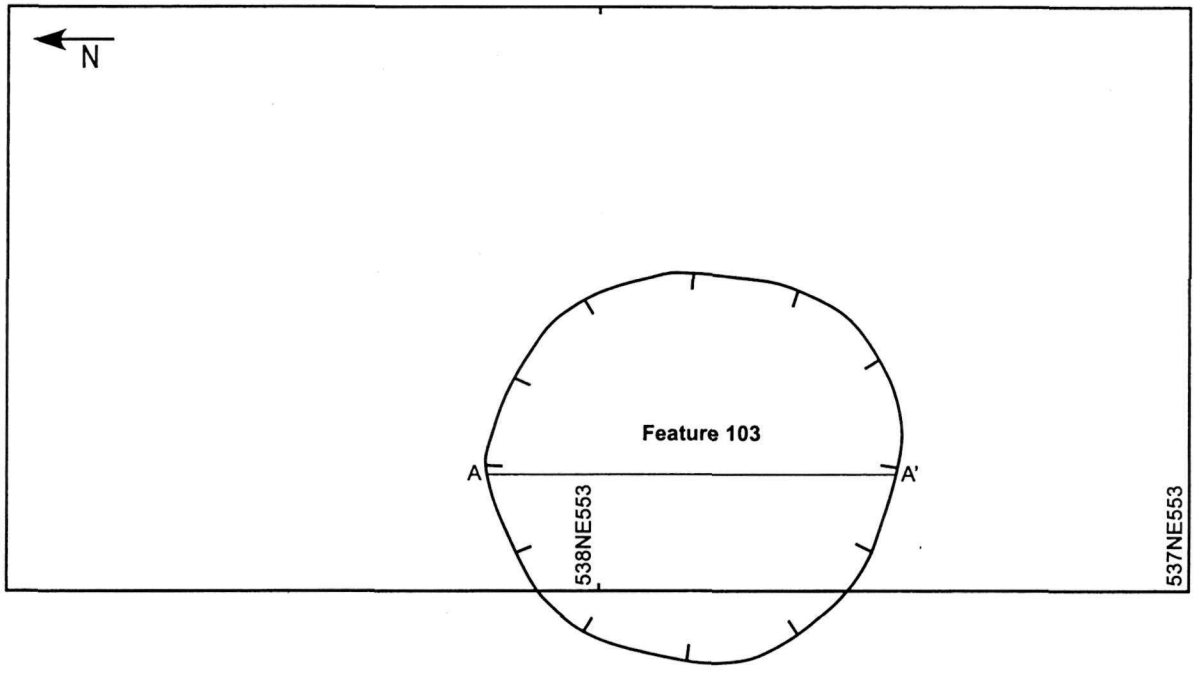
a



b

Figure 4.6. Feature 102, undercut pit, photos, Elbee site (32ME408), 2003 UND fieldwork. a: Undercut pit after excavation (west view; EB03-CP63). b: Undercut pit after excavation; note attached step-like structure or smaller pit to the northeast (northeast view; EB03-CP67).

32ME408 - XU2, Feature 103 Planview



32ME408 - XU2, Feature 103 Profile

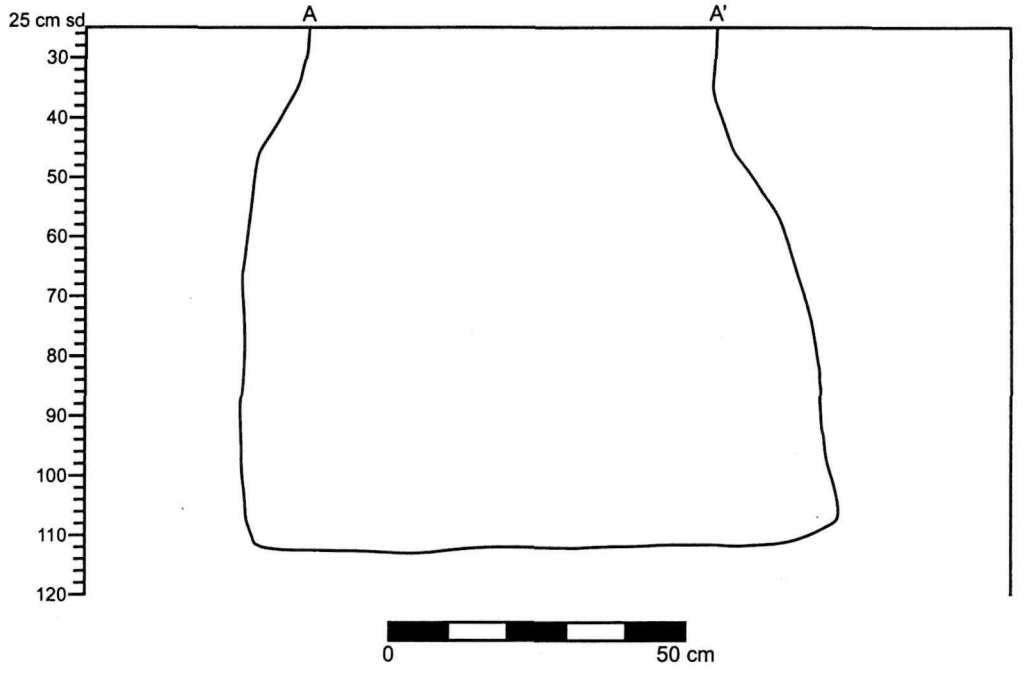
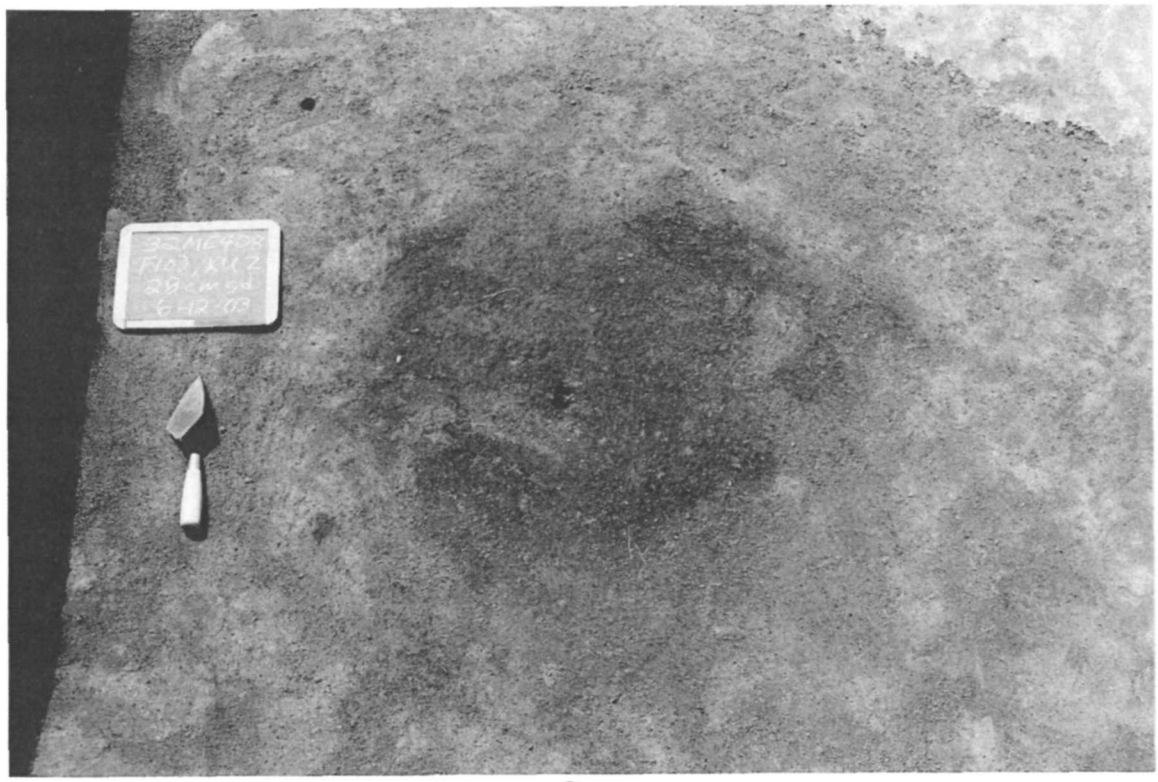


Figure 4.7. Feature 103, undercut pit, plan view and profile drawings, Elbee site (32ME408), 2003 UND fieldwork.



a

b

Figure 4.8. Feature 103, undercut pit, photos, Elbee site (32ME408), 2003 UND fieldwork. a: Surface of detection beneath the plowzone, center (north view; EB03-CP41). b: Rikke Andresen and Jason Rundell excavating Feature 102 (northwest view; EB03-CP57).

Table 4.6. Native Ceramics Size Grade Data by Excavation Unit and Archeological Context Unit, Elbee Village Site (32ME408), 2003 UND Fieldwork.

Unit	ACU	Native Ceramics Count					Native Ceramics Weight (g)					Rims	Other
		G1	G2	G3	Total	%	G1	G2	G3	Total	%	G1-3	G1-3
XU1	Plowzone	0	28	377	405	28.3	0.0	74.9	186.7	261.6	22.2	5	0
XU1	F102	1	33	244	278	19.4	102.3	98.6	116.8	317.7	27.0	4	0
Subtotal		*1*	*61*	*621*	*683*	*47.7*	*102.3*	*173.5*	*303.5*	*579.3*	*49.2*	*9*	*0*
%		*0.1*	*8.9*	*90.9*	*99.9*		*17.7*	*29.9*	*52.4*	*100.0*			
XU2	Plowzone	0	5	65	70	4.9	0.0	24.0	32.2	56.2	4.8	3	0
XU2	F103	2	21	122	145	10.1	38.1	89.7	58.6	186.4	15.8	2	0
Subtotal		*2*	*26*	*187*	*215*	*15.0*	*38.1*	*113.7*	*90.8*	*242.6*	*20.6*	*5*	*0*
%		*0.9*	*12.1*	*87.0*	*100.0*		*15.7*	*46.9*	*37.4*	*100.0*			
XU3	Plowzone	1	13	383	397	27.7	19.7	42.4	185.9	248.0	21.1	7	0
XU3	Sub-plowzone	1	6	69	76	5.3	16.8	13.8	31.8	62.4	5.3	0	0
XU3	F101	0	0	4	4	0.3	0.0	0.0	2.7	2.7	0.2	0	0
Subtotal		*2*	*19*	*456*	*477*	*33.3*	*36.5*	*56.2*	*220.4*	*313.1*	*26.6*	*7*	*0*
%		*0.4*	*4.0*	*95.6*	*100.0*		*11.7*	*17.9*	*70.4*	*100.0*			
XU4	Plowzone	0	2	54	56	3.9	0.0	8.8	33.1	41.9	3.6	2	0
XU4	Sub-plowzone	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0	0
Subtotal		*0*	*2*	*54*	*56*	*3.9*	*0.0*	*8.8*	*33.1*	*41.9*	*3.6*	*2*	*0*
%		*0.0*	*3.6*	*96.4*	*100.0*		*0.0*	*21.0*	*79.0*	*100.0*			
Total		**5**	**108**	**1318**	**1431**	**99.9**	**176.9**	**352.2**	**647.8**	**1176.9**	**100.0**	**23**	**0**
%		**0.3**	**7.5**	**92.1**	**99.9**		**15.0**	**29.9**	**55.0**	**99.9**			

The size grade breakdown shows quite clearly that the sample is highly fragmented, with 92.1% of the sherds falling into size grade 3 (G3), the smallest size grade applied to ceramic remains (Table 4.1). The plowzone context for the majority of the sherds undoubtedly contributed to their extreme fragmentation. No complete or nearly complete and reconstructable vessels are present in the sample. Vessel size and shape are therefore difficult to estimate with any precision. Suffice it to say that nothing was observed in the sample that would suggest anything other than the globular-shaped pots that are so typical of Plains Village tradition ceramics.

General Ceramic Characteristics

Ceramics in the sample are typical Plains Village on the basis of technology and style. Plains Village ceramics show great refinement in manufacturing technique, with typically thin-walled bodies and compact paste. Construction, or manufacture, of ceramic vessels at the site was probably done by mass modeling (see Johnson et al. 1991:13; Shepard 1985:55-57). The modeling technique is also referred to as drawing (Rye 1981:72). Following initial modeling of the vessel by hand, final shaping and thinning was accomplished by what is known as the paddle and anvil technique. In this technique, a paddle is used against the outside (exterior) of the vessel, in opposition to an anvil held against the vessel interior (Johnson et al. 1991:13; Shepard 1985:55, 59). Mass modeling and paddle and anvil finishing of ceramic vessels are described by Gilmore (1925) for the Arikaras and by Wilson (1977) for the Mandans and Hidatsas in the ethnographic literature of the Northern Plains.

Simple-stamped exterior surface treatment was identified on the majority of the body sherds for which a positive determination could be made, excluding smoothed (plain) and burnished specimens, indicating that the paddle applied to the vessel exterior had had linear grooves cut into it, probably to provide a better purchase on the clay. Smoothing of upper vessel exteriors (shoulder and rim areas), a characteristic of Plains Village vessels, was found to be common, but smoothing to the point of burnishing (polishing), while present, was rare.

The paste (clay body) of the pottery from the site would have been made from locally available clay, probably a montmorillonite (a constituent of bentonite), although no analyses were performed to confirm this. The paste was typically moderately compact and uniformly grit tempered with crushed granite. Vessel form was typically globular with well-defined neck and shoulder areas. Vessels showed a very strong tendency for everted (out-flaring) rims. A few rims did seem to have had a vertical orientation, but this was difficult to assess because of generally small sherd sizes. A variety of decorative elements were applied to the vessels, including cord-impressed, tool-impressed, incised/trailed, and possibly pinched decoration. There was a clear preference for tool-impressed and incised/trailed decoration, particularly on vessel lip and shoulder areas. Rim areas proper were usually plain, except for two horizontally incised/trailed specimens. Plain (undecorated) vessels are also represented.

Sherd colors were mainly light to dark gray, but brown and black sherds also occurred; the black sherds were mostly from vessels that were burnished-black. The exteriors of a few sherds were covered with a burned-on carbon residue, or "scale," for lack of a better term. Some of this material was used for radiocarbon dating, but it was not analyzed beyond that. It is thought to be residue from wood fires because it was usually found on vessel exteriors, and because the one sample that was used for radiocarbon dating (OS-45412) produced a $\delta^{13}C$ value of –24.88‰, near the average value for woody plants (Taylor 1987:Figure 5.7).

No particular functional assessment was made of the ceramics owing to the highly fragmented condition of the sample. It can be noted, however, that the Elbee vessels were a kind of utilitarian pottery produced for general domestic purposes, such as cooking and perhaps storage. The pottery was probably made on-site for the most part, exclusively for on-site use, and eventually broken and discarded on-site when it was abandoned. For a thoughtful consideration of ceramic vessel function based on data from the Helb site, an Extended Middle Missouri village on the Missouri River in north-central South Dakota, the reader is referred to Rosebrough (1995).

Body Sherds

Body sherds, as the term is generally applied here, are essentially all ceramic sherds lacking a lip; sherds with lips are grouped as rim sherds. The aggregate body sherd sample contains 1,408 individual specimens, including 3 G1 sherds, 100 G2 sherds, and 1,305 G3 sherds. Body sherd surface treatments, specifically excluding elements considered decoration, were recorded for G1 and G2 sized specimens only (Appendix X). The total of 102 G1 and G2 sherds analyzed for surface treatment differs from the grand total of 103 G1 and G2 sherds in the aggregate sample because two matched sherds were counted as one. Size grade 3 specimens are usually too small to make a positive determination of surface treatment and other definitive attributes and were excluded from detailed analysis accordingly.

The Elbee body sherds show predominantly smoothed (55.4%) and simple-stamped (32.7%) surface treatments. Other, minor surface treatments observed are brushed (5.0%), burnished (5.0%), check-stamped (1.0%), and possible cord-roughened (1.0%) (Table 4.7). The high incidences of smoothing and simple stamping and the low incidence of brushing are expected of a Middle period Plains Village assemblage.

Fourteen G1 and G2 body sherds exhibited decoration in the site sample. These consist of ten sherds decorated with incised/trailed lines, one tool-impressed sherd, two incised/trailed and tool-impressed sherds, and one sherd with incised/trailed lines, tool impressions, and finger impressions. The later specimen, from the F102 storage pit (catn 1039), appears to be a shoulder/body juncture segment of a miniature vessel. All but one of the decorated body sherds exhibit smoothed surface treatment, preparing them to receive rather complex decorative treatments in the Plains Village style. The exception is the incised/trailed, tool-impressed, and finger-impressed sherd, which exhibits simple stamping. Most, if not all, of the decorated sherds are probably from the vessel shoulders, which frequently show the most decoration of this kind, and is common to Middle period Plains Village pottery. Little patterning to the decoration could be discerned because of small sherd sizes. On the Elbee specimens, narrow, closely spaced, parallel incised/trailed lines were the most frequent pattern observed.

No variability was seen in body sherd temper. All of the G1 and G2 body sherds in the sample were tempered with crushed granitic rock, referred to as grit temper. No shell or sand tempering was specifically identified in the assemblage.

Average maximum thickness for the 102 body sherds so measured was 5.31±1.44 mm. Such a value is consistent with the relatively thin-walled vessels of Middle period Plains Village pottery.

Rim Sherds and Vessels

The Elbee excavations produced a total of 23 rim sherds, including 2 G1 rims, 8 G2 rims, and 13 G3 rims. The 10 G1 and G2 rims were used as the analytical sample. G3 rims are usually too small and fragmentary for reliable classification and were not analyzed further, except, perhaps, for rare instances when a G3 rim was matched to a larger rim. After matching, the 10 G1 and G2 rims were found to represent as many as nine different ceramic vessels. These were assigned vessel numbers 201-209 to clearly distinguish them from the vessels in the 1978 collection. Each vessel is classified and described below. The ceramic vessel code and coding data are present in Appendix X.

Classified rims in the sample relate to three different wares and as many as six different types (Table 4.8). Buchanan ware, associated with the Northeastern Plains Village complex, is represented by two decorative types: Horizontal Incised/Trailed and Cord-Impressed Lip. Knife River ware, most commonly found in Post-Contact Coalescent assemblages, is represented by a single decorative type: Tool Impressed. Riggs ware, typically of Middle Missouri tradition affiliation, but also found in certain Post-Contact Coalescent assemblages, is represented by three decorative types: Decorated Lip, Plain (Undecorated), and possibly Pinched (Wavy). When found in this combination, these ceramic wares and types are indicative of a late Middle period Plains Village component, one showing affinities to both the Middle Missouri tradition and the Northeastern Plains Village complex. It is also of interest to note that the three wares are uniformly distributed among the archeological context units listed in Table 4.8, except for Knife River ware of which there is only a single specimen. This indicates that we are dealing with only a single Plains Village component.

Table 4.7. Native Ceramic Body Sherd Surface Treatment Data by Archeological Context Unit (ACU), Size Grades 1 and 2 Only, Elbee Village Site (32ME408), 2003 UND Fieldwork.

ACU		Brushed	Burnished	Check Stamped	Cord Roughened?	Simple Stamped	Smoothed	Total Classified	Indeter-minate	Total Sample
PZN	n	4	1	1	1	12	23	42	1	43
	%	9.5	2.4	2.4	2.4	28.6	54.8	100.1		
F101	n					1	6	7		7
	%					14.3	85.7	100.0		
F102	n		1			17	14	32		32
	%		3.1			53.1	43.8	100.0		
F103	n	1	3			3	13	20		20
	%	5.0	15.0			15.0	65.0	100.0		
Total	**n**	**5**	**5**	**1**	**1**	**33**	**56**	**101**	**1**	**102**
	%	**5.0**	**5.0**	**1.0**	**1.0**	**32.7**	**55.4**	**100.1**		

Table 4.8. Distribution of Native Ceramic Wares and Types by Archeological Context Unit (ACU), Elbee Village Site (32ME408), 2003 UND Fieldwork.

		Ware			Type	
ACU	**Ware**	**n**	**%**	**Decorative Type**	**n**	**%**
PZN	Buchanan	1	20	Horizontal Incised/Trailed	1	20
	Knife River	1	20	Tool Impressed	1	20
	Riggs	3	60	Decorated Lip	2	40
				Pinched? (Wavy?)	1	20
	Subtotal	5	100		5	100
F102	Buchanan	1	50	Cord-Impressed Lip	1	50
	Riggs	1	50	Plain (Undecorated)	1	50
	Subtotal	2	100		2	100
F103	Buchanan	1	50	Horizontal Incised/Trailed	1	50
	Riggs	1	50	Plain (Undecorated)	1	50
	Subtotal	2	100		2	100
	Total	**9**	**100**		**9**	**100**

Buchanan Ware. Buchanan ware is associated with the Northeastern Plains Village (NEPV) ceramic group of the northern Plains Village tradition, or, more specifically, the Northeastern Plains Village complex (Gregg et al. 1996; Michlovic and Swenson 1998; Toom 2004). Originally referred to as Buchanan Flared Rim ware, it was first defined by Wheeler (1963) in his description of the ceramic collection from the Hintz site, located on the James River in Stutsman County, North Dakota. Vessels are typically globular-shaped with strong shoulder expression and somewhat constricted orifice and neck widths—what is thought of as the typical Plains Village vessel form. Constituent wares of the NEPV group, as defined by Michlovic and Swenson (1998), include Lisbon ware and Owego ware in addition to Buchanan ware. All three wares have the same everted, straight to out-curved rim form and are differentiated primarily on the basis of surface treatment: Lisbon ware is cord roughened, Owego ware is check stamped, and Buchanan ware is simple stamped. Smoothed (plain) and burnished surface treatments are also classified as Buchanan ware. Various kinds of decorative elements, such as tool impressions, cord impressions, incised and trailed lines, and punctations, are then used to define specific types. Undecorated, or plain, types also occur. S-shaped rims and braced (thickened-lip) rims are not recognized attributes of NEPV ceramics (Michlovic and Swenson 1998).

Some practical problems have been recognized in the classification of Northeastern Plains Village ceramics, following the format recently proposed by Michlovic and Swenson (1998). These problems are considered in some detail by Toom (2003) for the Kirschenman-III site on the James River in eastern North Dakota, but need not be discussed here because we can reliably infer that the representative NEPV ware is Buchanan. This inference rests on the fact that the predominant positive surface treatment identified among the body sherds was simple stamping, as discussed previously. Nevertheless, a single check-stamped body sherd was identified in the collection (Table 4.7), possibly indicative of Owego ware, a companion to Buchanan ware. Owego wear is comparatively rare, however, and a single check-stamped sherd is not necessarily a definite indicator of Owego ware in this context.

Two types of Buchanan ware were identified in the Elbee sample: Buchanan Cord Impressed and Buchanan Horizontal Incised/Trailed. These are described in outline form below.

Buchanan Cord Impressed: n=1; Vessel 201; Figure 4.9a.

Ware: Buchanan (NEPV Group) Type: Cord Impressed
Rim form: everted, out-curved.
Exterior surface treatment: burnished.

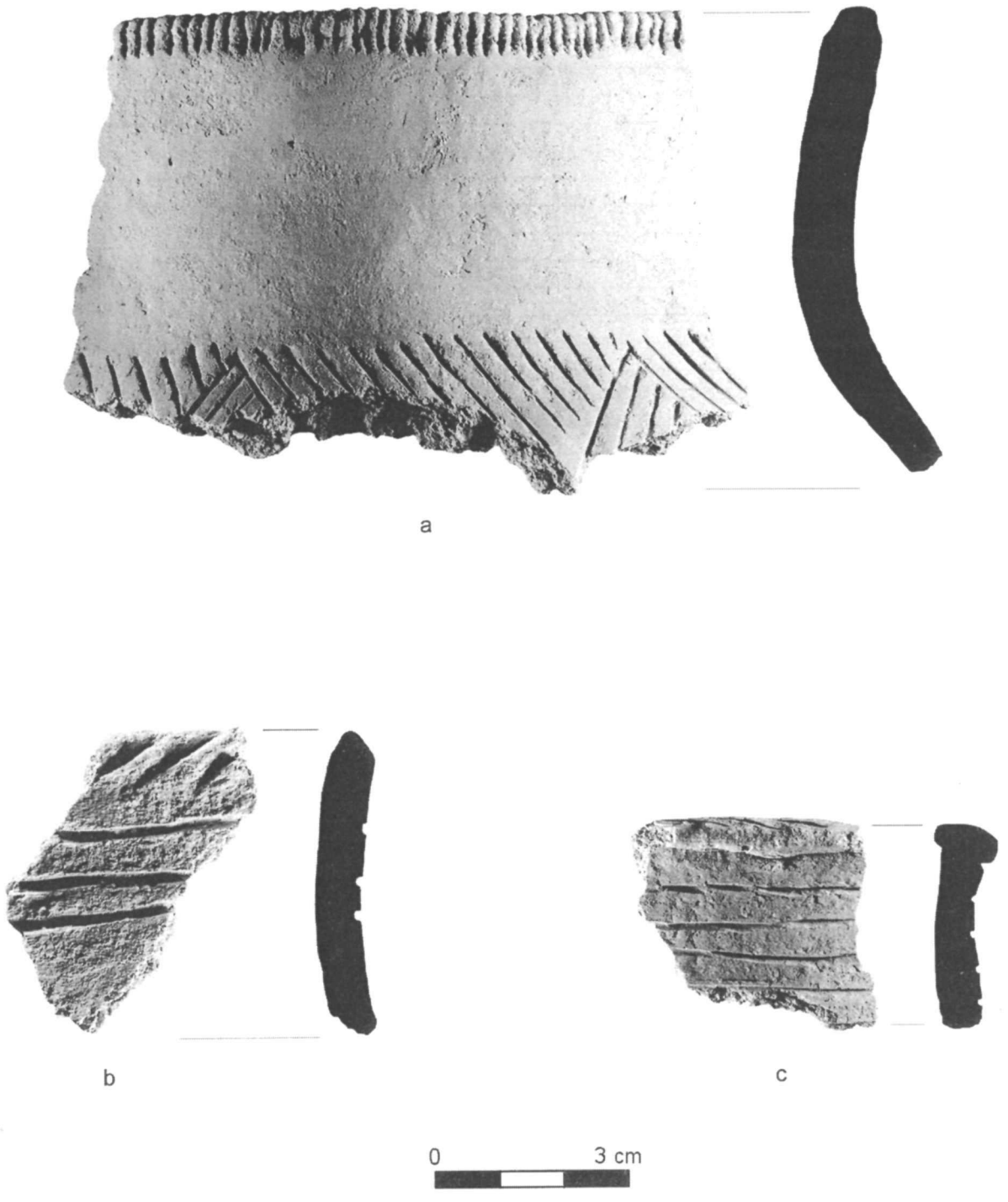


Figure 4.9. Ceramic vessel rim sherd photos, Buchanan ware, Elbee site (32ME408), 2003 UND fieldwork. a: Buchanan Cord-Impressed Lip (vessel no. 201). b: Buchanan Horizontal Incised/Trailed (vessel no. 202). c: Buchanan Horizontal Incised/Trailed (vessel no. 203).

Rim decoration: plain (undecorated).
Rim decorative motif: not applicable.
Lip decoration: cord impressed.
Lip decorative motif: short, closely spaced, repetitive cord impressions perpendicular to (across) the lip.
Lip form: round.
Shoulder decoration: incised lines.
Shoulder decoration motif: alternating triangles of multiple diagonal lines (herringbone).
Temper: grit (crushed granite).
Paste: medium compact.
Color: black-gray-brown.
Orifice diameter estimate: 20 cm.
Appendages: none present.
Vessel rim wall thickness:
Vessel 201--maximum 9.07 mm, minimum 6.24 mm.
Exterior Carbon Residue Radiocarbon Date (Vessel 201): 435±25 RCYBP (OS-45412).
Type Reference: Michlovic and Swenson (1998:15).

Comments: The cord-impressed lip decoration on this vessel is unusual, if not unique. Cord-impressed decoration is not a recognized attribute of Riggs ware, as presently defined (cf. Lehmer 1966:32), so the specimen cannot be accommodated under that ceramic group.

Buchanan Horizontal Incised/Trailed: n=2; Vessels 202, 203; Figure 4.9b-c.

Ware: Buchanan (NEPV Group) Type: Horizontal Incised/Trailed
Rim form: everted, out-curved.
Exterior surface treatment: smoothed.
Rim decoration: incised/trailed lines.
Rim decorative motif: multiple horizontal lines.
Lip decoration: tool impressed.
Lip decorative motif: horizontally repetitive diagonals.
Lip form: peaked (1), T-shaped (1).
Shoulder decoration: unknown, indeterminate.
Temper: grit (crushed granite).
Paste: medium compact.
Color: black-gray (1), gray (1).
Appendages: none present.
Orifice diameter estimate: indeterminate, too small for estimate.
Vessel rim wall thickness:
Vessel 202--maximum 7.60 mm; minimum 6.41 mm.
Vessel 203--maximum 6.37 mm; minimum 5.04 mm.
Type Reference: Michlovic and Swenson (1998:17).

Comments: Vessels with rims that are decorated with horizontal incised/trailed lines are not recognized for Riggs ware as it is presently defined. The incised/trailed type combines two similar kinds of decoration under one name to avoid classificatory confusion. Incised lines made in wet clay are generally deeper than they are broad, whereas trailed lines are broader than they are deep. This distinction is not always easy to make, hence the combined type. In the case of the two Elbee vessels, one is narrowly trailed (Vessel 202) and the other is incised (Vessel 203). Broad-trailed decoration is another distinctive type, but it does not occur in the Elbee collection.

Riggs Ware. Riggs ware, named for the Thomas Riggs site in South Dakota (Hurt 1953), is typically a Middle Missouri tradition ceramic ware, but specimens also occur in Post-Contact Coalescent assemblages, such as those of the Knife River phase (Lehmer et al. 1978). Riggs ware usually exhibits a relatively high, everted, straight to out-curved rim form with simple-stamped or, to a lesser extent, check-stamped surface treatment. Simple stamping and check stamping are one of the hallmarks of later Middle Missouri tradition pottery, namely the Extended and Terminal Middle Missouri variants. Decoration on Riggs ware rims, when present, is typically restricted to the lip area and most often

consists of finger impressions, tool impressions, and incised lines; thin bands of clay encircling the rim, known as fillets, are a minor decorative element. Small nodes or tabs applied to the exterior lip/rim juncture are another distinguishing characteristic of Riggs ware.

The name Riggs ware was first used by Kleinsasser (1953) in his ceramic typology for the Thomas Riggs site in South Dakota. Wood and Woolworth (1964) substantially modified and adapted Kleinsasser's typology to the ceramic collection from the Paul Brave site in North Dakota. Then, Lehmer (1966) and Wood (1967) collaborated and devised another somewhat modified typology for Riggs ware that was applicable to both Extended and Terminal Middle Missouri assemblages. With certain refinements, the Lehmer-Wood typology has enjoyed wide application and is still the basis for classificatory systems used today (e.g., Ahler and Swenson 1993; Calabrese 1972; Griffin 1984; Lee 1980; Sperry 1968, 1995; Thiessen 1995; Wood 1999).

According to Ahler (2001:35), Riggs ware "grades" into Stanton ware. Stanton ware is really a broadly defined ceramic group that includes diverse types of everted, straight rim and straight, braced rim pottery (Ahler 2001:38). Stanton ware is too eclectic to be analytically useful, in Toom's opinion, because it includes specimens that might otherwise be better classified as either Riggs ware or Knife River ware. Moreover, its overly broad definitive criteria tend to mix attributes, like braced and unbraced rims, that were used in previous Middle Missouri ceramic studies to define separate wares, such as Riggs ware and Knife River ware (e.g., see Lehmer et al. 1978). For these reasons, Stanton ware will not be used in the present study. It can be noted, however, that all of the vessels represented in the 2003 ceramic assemblage from Elbee could be classified as Stanton ware.

Three types of Riggs ware were identified in the Elbee ceramic sample from the 2003 excavations: Riggs Decorated Lip, Riggs Plains, and possibly Riggs Pinched. Outline descriptions of the three types follow.

Riggs Decorated Lip: n=2; Vessels 204 and 205; Figure 4.10a-b.

Ware: Riggs Type: Decorated Lip
Rim form: everted, straight.
Exterior surface treatment: brushed.
Rim decoration: plain (undecorated).
Rim decorative motif: not applicable.
Lip decoration: tool impressed.
Lip decorative motif: horizontally repetitive.
Lip form: flat (1), beaded-in (1).
Shoulder decoration: unknown, indeterminate.
Temper: grit (crushed granite).
Paste: medium compact.
Color: gray.
Orifice diameter estimate: indeterminate, too small for estimate.
Appendages: none present.
Vessel rim wall thickness:
Vessel 204--maximum 6.86 mm, minimum 6.09 mm.
Vessel 205--maximum 4.97 mm, minimum 3.76 mm.
Type Reference: Lehmer (1966:29); Wood (1967:65).

Comments: The brushed surface treatment on these two specimens precludes their classification as Buchanan ware, but they are similar in all other respects to Buchanan Tool Impressed. Brushing is not a recognized surface treatment of Buchanan ware (cf. Michlovic and Swenson 1998:15).

Riggs Plain: n=2; Vessels 206, 208; Figure 4.10c, e.

Ware: Riggs Type: Plain (Undecorated)
Rim form: everted, straight (1), out-curved (1).
Exterior surface treatment: smoothed (1), brushed (1).

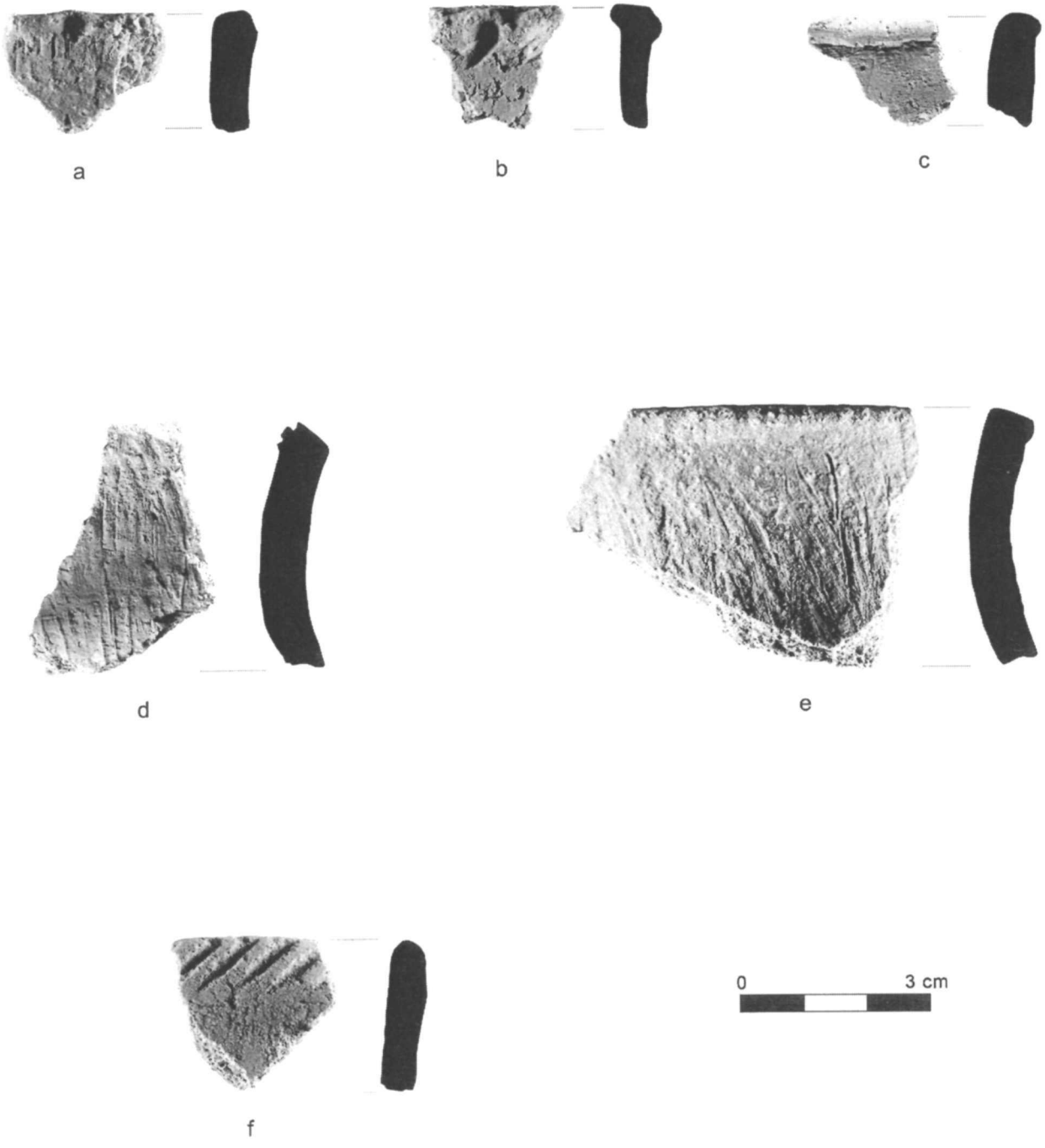


Figure 4.10. Ceramic vessel rim sherd photos, Riggs and Knife River wares, Elbee site (32ME408), 2003 UND fieldwork. a: Riggs Decorated Lip (vessel no. 204). b: Riggs Decorated Lip (vessel no. 205). c: Riggs Plain (vessel no. 206). d: Riggs Pinched? (vessel no. 207). e: Riggs Plain (vessel no. 208). f: Knife River Tool Impressed (vessel no. 209).

Rim decoration: plain (undecorated).
Rim decorative motif: not applicable.
Lip decoration: plain (undecorated).
Lip decorative motif: not applicable.
Lip form: round (1), flat (1).
Shoulder decoration: unknown, indeterminate.
Temper: grit (crushed granite).
Paste: medium compact.
Color: brown (1), gray (1).
Appendages: none present.
Orifice diameter estimate: indeterminate, too small for estimate.
Vessel rim wall thickness:
Vessel 206--maximum 7.95 mm; minimum 6.84 mm.
Vessel 208--maximum 7.56 mm; minimum 6.41 mm.
Type Reference: Lehmer (1966:29); Wood (1967:64).

Comments: Except for the brushed surface treatment clearly visible on at least one of these specimens (Vessel 208), they are in all other respects like Buchanan Undecorated (Plain). Brushing is not a recognized surface treatment of Buchanan ware (cf. Michlovic and Swenson 1998:15).

Riggs Pinched?: n=1; Vessel 207; Figure 4.10d.

Ware: Riggs Type: Pinched?
Rim form: everted, out-curved.
Exterior surface treatment: brushed.
Rim decoration: plain (undecorated).
Rim decorative motif: not applicable.
Lip decoration: pinched?
Lip decorative motif: horizontally repetitive?
Lip form: indeterminate.
Shoulder decoration: unknown, indeterminate.
Temper: grit (crushed granite).
Paste: medium compact.
Color: gray.
Appendages: none present.
Orifice diameter estimate: indeterminate, too small for estimate.
Vessel rim wall thickness:
Vessel 207--maximum 7.52 mm; minimum 6.52 mm.
Type Reference: Lehmer (1966:31); Wood and Woolworth (1964:20).

Comments: This vessel was originally thought to be plain (undecorated) until what might be a partial finger pinch was observed on the exterior lip area. There is nothing comparable to Riggs Pinched under Buchanan ware as it is currently defined (cf. Michlovic and Swenson 1998:15).

Knife River Ware. Knife River ware is everted, straight to out-curved rim pottery that has rim bracing as a primary definitive attribute. For the uninitiated, rim bracing is a thickening of the lip and upper rim of the vessel by adding an extra fold or fillet of clay around the full circumference of the upper rim (Ahler and Swenson 1985b:15; Johnson 1980:41). Bracing is most common on the rim exterior, but interior braces are known and both interior and exterior braces can occur on the same vessel. When computer coding ceramic vessels, the brace is treated as an appendage to the vessel lip.

Knife River ware, as originally described, was one of the defining characteristics of the Post-Contact Coalescent variant, Knife River phase (Lehmer et al. 1978). Decoration, when present, is typically restricted to the rim brace and includes cord impressions, tool impressions, finger impressions, pinching or wavy rim, and short incised lines. Brushed surface treatment on rims, between the neck and the brace, is common and another distinguishing attribute, particularly in later assemblages. Body sherds

exhibit simple-stamped surface treatment almost exclusively. Knife River ware occurs relatively late in Plains Village assemblages in the upper Middle Missouri and is generally associated with the Post-Contact Coalescent variant. It is not commonly found in Knife River area assemblages until after A.D. 1600 (Ahler 1993:87-88; Ahler and Swenson 1993:124, 133).

Only one type of Knife River ware was present in the 2003 Elbee ceramic assemblage: Knife River Tool Impressed. Its description follows in outline form.

Knife River Tool Impressed: n=1; Vessel 209; Figure 4.10f.

Ware: Knife River Type: Tool Impressed
Rim form: everted, straight.
Exterior surface treatment: smoothed.
Rim decoration: plain.
Rim decorative motif: not applicable.
Lip/brace decoration: tool impressed.
Lip decorative motif: horizontally repetitive diagonals.
Lip form: round.
Shoulder decoration: unknown, indeterminate.
Temper: grit (crushed granite).
Paste: medium compact.
Color: gray.
Appendages: thin brace.
Orifice diameter estimate: indeterminate, too small for estimate.
Vessel rim wall thickness:
Vessel 209--maximum 6.40 mm; minimum 5.65 mm.
Type Reference: Lehmer et al. (1978:195-196).

Comments: The specimen is only thinly braced, but within the range of Knife River ware.

Stone Tools

A total of 130 stone tools and tool fragments was recovered from the 2003 Elbee excavations. After matching tool fragments, 123 individual tools were identified. Coding of the 123 individual tools resulted in a new total of 125 functional occurrences because two tools had been recycled, with each occurrence in the recycling sequence coded and counted as a separate tool. All but one of the tools came from plowzone or archeological feature contexts. The lone exception derives from a shallow sub-plowzone level.

The 125 stone tools represent 13 different descriptive categories (Table 4.9). The most numerous of these were unpatterned flake tools (DC29), patterned biface fragments (DC09), end scrapers (DC15), and unpatterned ground stone tools (DC13). Two new descriptive categories were added for purposes of the Elbee analysis: fire-cracked rock tools (DC98) and indeterminate tools (DC99). Fire-cracked rock tools are pieces of fire-cracked rock that show clear signs of use as stone tools. Indeterminate tools are specimens that are too badly fragmented, usually as a result of burning, to be reliably coded. Indeterminate tools were counted for inventory purposes but not analyzed further. Eliminating the seven indeterminate tools (DC99) from the tool count leaves us with a total of 118 specimens for analysis.

Tool Technology

The 118 tools in the analytical sample were assigned to one of 11 technological classes, cross tabulated by excavation unit and archeological context unit (Table 4.10). Unpatterned flake tools (TC05), patterned small thin bifaces (TC01), patterned flake tools (TC04), patterned large thin bifaces (TC02), and unpatterned pecked/ground stone tools (TC09) were the most frequent specimens. No unpatterned thick

Table 4.9. Stone Tool Descriptive Category Data for the Elbee Village Site (32ME408), 2003 UND Fieldwork.

DC Code	Descriptive Category	Count	%
01	Triangular and lanceolate bifaces, complete and incomplete	1	0.8
03	Notched or stemmed bifaces, complete and incomplete	7	5.6
08	Pointed and ovoid bifaces, complete	1	0.8
09	Patterned biface fragments	25	20.0
15	End scrapers, complete and incomplete	16	12.8
19	Marginally retouched platy or tabular pieces	3	2.4
24	Acutely pointed flake tools	1	0.8
29	Unpatterned flake tools	43	34.4
30	Bipolar cores and tools	3	2.4
34	Unpatterned ground stone tools	13	10.4
39	Patterned ground stone tools	4	3.2
98	Fire-cracked rock tools	1	0.8
99	Indeterminate tools	7	5.6
Total		**125**	**100.0**

bifacial cores/tools (TC06) and no unpatterned nonbipolar cores/tools (TC07) were present in the sample. The highest numbers of tools came from XU1 and F102. The plowzone unit of XU3 also yielded a large number of tools (Table 4.10).

Technology and Lithic Raw Materials

Lithic raw material types identified in the analytical sample are listed in Table 4.11, cross tabulated by technological class. With one exception, all of the lithic raw materials are locally available; i.e., available within about 100 km of the site, most from western North Dakota sources (see Root et al. 1999). The only truly exotic (non-local) material tentatively identified in the collection is catlinite, a red pipestone material obtained from quarry sites in southwestern Minnesota, now located within Pipestone National Monument (Penman and Gundersen 1999). No mineralogical analysis of these specimens was done to confirm the presence of true catlinite, which is necessary for a positive identification.

Knife River flint (KRF) is by far the most common lithic raw material type, accounting for 74.6% of all stone tool material. The proportion of KRF increases to 88.0% when only the chipped stone tool technological classes are considered (less TC09, 10, and 98). All other chipped stone tool raw material types occur only infrequently in comparison to KRF (Table 4.11). This comes as no surprise considering that the Elbee site is located near the mouth of the Knife River, as little as 50 km from the main quarry areas upstream to the west.

Function and Use-Phase

Data on the functional and use-phase classification of stone tools in the Elbee analytical sample are presented in Table 4.12. Selected specimens are illustrated in Figure 4.11. The 118 functional tool occurrences in the analytical sample fall within 23 different functional classes, which are collapsed into as many as 16 functional groups. The variety of functional classes present in the sample indicates that stone tool use at the site was general rather than specialized, involving any number of different tasks.

The projectile points and weapons functional group contains 13 projectile points assigned to functional class 01 (FC01). Four of the specimens are use-phase 2 (UP2), incomplete tools broken in manufacture, and nine are use-phase 4 (UP4), completed tools broken in use. All of the projectile points

Table 4.10. Stone Tool Technological Class Data by Excavation Unit and Archeological Context Unit, Elbee Village Site (32ME408), 2003 UND Fieldwork.

Unit	ACU	Technological Class Codes [a]											Total	%
		01	02	03	04	05	06	07	08	09	10	98		
XU1	Plowzone	2	2	1	2	6				4	3		20	16.9
XU1	F102	7	8	2	7	7			2	4		1	38	32.2
Subtotal		*9*	*10*	*3*	*9*	*13*	*0*	*0*	*2*	*8*	*3*	*1*	*58*	*49.1*
%		*15.5*	*17.2*	*5.2*	*15.5*	*22.4*	*0.0*	*0.0*	*3.4*	*13.8*	*5.2*	*1.7*	*99.9*	
XU2	Plowzone	2				4					1		7	5.9
XU2	F103	5			1	4							10	8.5
Subtotal		*7*	*0*	*0*	*1*	*8*	*0*	*0*	*0*	*0*	*1*	*0*	*17*	*14.4*
%		*41.2*	*0.0*	*0.0*	*5.9*	*47.1*	*0.0*	*0.0*	*0.0*	*0.0*	*5.9*	*0.0*	*100.1*	
XU3	Plowzone	2	2		5	11			1	2			23	19.5
XU3	F101		2		1	6							9	7.6
XU3	Sub-plowzone					1							1	0.8
Subtotal		*2*	*4*	*0*	*6*	*18*	*0*	*0*	*1*	*2*	*0*	*0*	*33*	*27.9*
%		*6.1*	*12.1*	*0.0*	*18.2*	*54.5*	*0.0*	*0.0*	*3.0*	*6.1*	*0.0*	*0.0*	*100.0*	
XU4	Plowzone	2				5				3			10	8.5
XU4	Sub-plowzone												0	0.0
Subtotal		*2*	*0*	*0*	*0*	*5*	*0*	*0*	*0*	*3*	*0*	*0*	*10*	*8.5*
%		*20.0*	*0.0*	*0.0*	*0.0*	*50.0*	*0.0*	*0.0*	*0.0*	*30.0*	*0.0*	*0.0*	*100.0*	
Total		**20**	**14**	**3**	**16**	**44**	**0**	**0**	**3**	**13**	**4**	**1**	**118**	**99.9**
%		**16.9**	**11.9**	**2.5**	**13.6**	**37.3**	**0.0**	**0.0**	**2.5**	**11.0**	**3.4**	**0.8**	**99.9**	

[a] Technological Class Codes: (01) patterned small thin bifaces, (02) patterned large thin bifaces, (03) unpatterned irregular bifaces, (04) patterned flake tools, (05) unpatterned flake tools, (06) unpatterned thick bifacial cores/tools, (07) unpatterned nonbipolar cores/tools, (08) unpatterned bipolar cores/tools, (09) unpatterned pecked/ground/cobble tools, (10) patterned pecked/ground/cobble tools, and (98) fire-cracked rock tools.

Table 4.11. Stone Tool Raw Material Data by Technological Class, Elbee Village Site (32ME408), 2003 UND Fieldwork.

Code	Lithic Raw Material Type	Technological Classes [a]									Total	%
		01	02	03	04	05	08	09	10	98		
Western North Dakota Group												
01	Smooth Tongue River silcrete		1			1					2	1.7
06	Jasper/chert					1					1	0.8
08	Clear/gray chalcedony	2		1		2					5	4.2
10	Dark brown chalcedony							1			1	0.8
17	Porcellanite	3									3	2.5
19	Basalt					1		4		1	6	5.1
21	Sandstone							3			3	2.5
23	Clinker							3			3	2.5
28	Knife River flint	15	13	2	16	39	3				88	74.6
35	Metaquartzite							2			2	1.7
37	Siltstone, mudstone, or limestone								2		2	1.7
Subtotal		*20*	*14*	*3*	*16*	*44*	*3*	*13*	*2*	*1*	*116*	*98.1*
%		*17.2*	*12.1*	*2.6*	*13.8*	*37.9*	*2.6*	*11.2*	*1.7*	*0.9*	*100.0*	
Southwestern Minnesota Group												
24	Catlinite								2		2	1.7
Subtotal		*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2*	*0*	*2*	*1.7*
%		*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*100.0*	*0.0*	*100.0*	
Total		**20**	**14**	**3**	**16**	**44**	**3**	**13**	**4**	**1**	**118**	**99.8**
%		**16.9**	**11.9**	**2.5**	**13.6**	**37.3**	**2.5**	**11.0**	**3.4**	**0.8**	**99.9**	

[a] Technological Class Codes: (01) patterned small thin bifaces, (02) patterned large thin bifaces, (03) unpatterned irregular bifaces, (04) patterned flake tools, (05) unpatterned flake tools, (06) unpatterned thick bifacial cores/tools, (07) unpatterned nonbipolar cores/tools, (08) unpatterned bipolar cores/tools, (09) unpatterned pecked/ground/cobble tools, (10) patterned pecked/ground/cobble tools, and (98) fire-cracked rock tools.

Table 4.12. Stone Tool Functional Class Data by Use-Phase for the Elbee Village Site (32ME408), 2003 UND Fieldwork.

General Functional Group			Use-Phase				Total	%
		Specific Functional Class	1	2	3	4		
01		Projectile Points, Weapons						
	01	Projectile points		4		9	13	11.0
02		Knives						
	03	Cutting tools used on soft materials				3	3	2.5
	04	Transverse-edged cutting tools				1	1	0.8
	07	Bilateral cutting tools used on soft materials, long duration				1	1	0.8
	10	Unilateral cutting tools, soft materials			1	2	3	2.5
	15	Bifacial cutting tools, not further specified		3		7	10	8.5
03		Indeterminate Knives or Projectile Points						
	44	Patterned bifacial tools, unknown function		6		1	7	5.9
04		Hide Working Tools						
	02	Perforators				1	1	0.8
	06	Light duty transverse scrapers used on soft materials			5	2	7	5.9
	20	Transverse scraping tools, not further specified		1		6	7	5.9
05		Light-Duty Bone, Antler, Woodworking Tools						
	17	Scrapers used on hard materials				2	2	1.7
	22	Utilized or retouched flakes used on moderately resistant materials			1	25	26	22.0
	25	Indeterminate bipolar cores or wedges				1	1	0.8
	26	Bipolar wedges or chisels				1	1	0.8
	45	Notched flake tools (spokeshaves)				2	2	1.7
06		Heavy-Duty Woodworking Tools						
		(none)						
07		Stone Working Tools						
		(none)						
08		Flake Tools and Expedient Cutting Tools						
	23	Retouched or utilized flakes used on soft materials				14	14	11.9
09		Grooving, Incising Tools						
		(none)						
10		Heavy-Duty Core Tools						
	14	Choppers or pounding tools				1	1	0.8
11		Cores and Tested Cobbles						
	21	Cores				1	1	0.8
12		Grinding Tools						
	33	Flat and convex abrading stones			5	4	9	7.6
	36	Grinding slabs or milling stones				1	1	0.8
	37	Burnishing tools			1		1	0.8
13		Hammerstones, Anvils						
		(none)						
14		Ornaments, Nonutilitarian Items						
	50	Smoking pipes				3	3	2.5
15		Practice Pieces						
		(none)						
16		Miscellaneous, Other Items						
	99	Unknown tool function				3	3	2.5
Total			**0**	**14**	**13**	**91**	**118**	**99.3**
%			**0.0**	**11.9**	**11.0**	**77.1**	**100.0**	

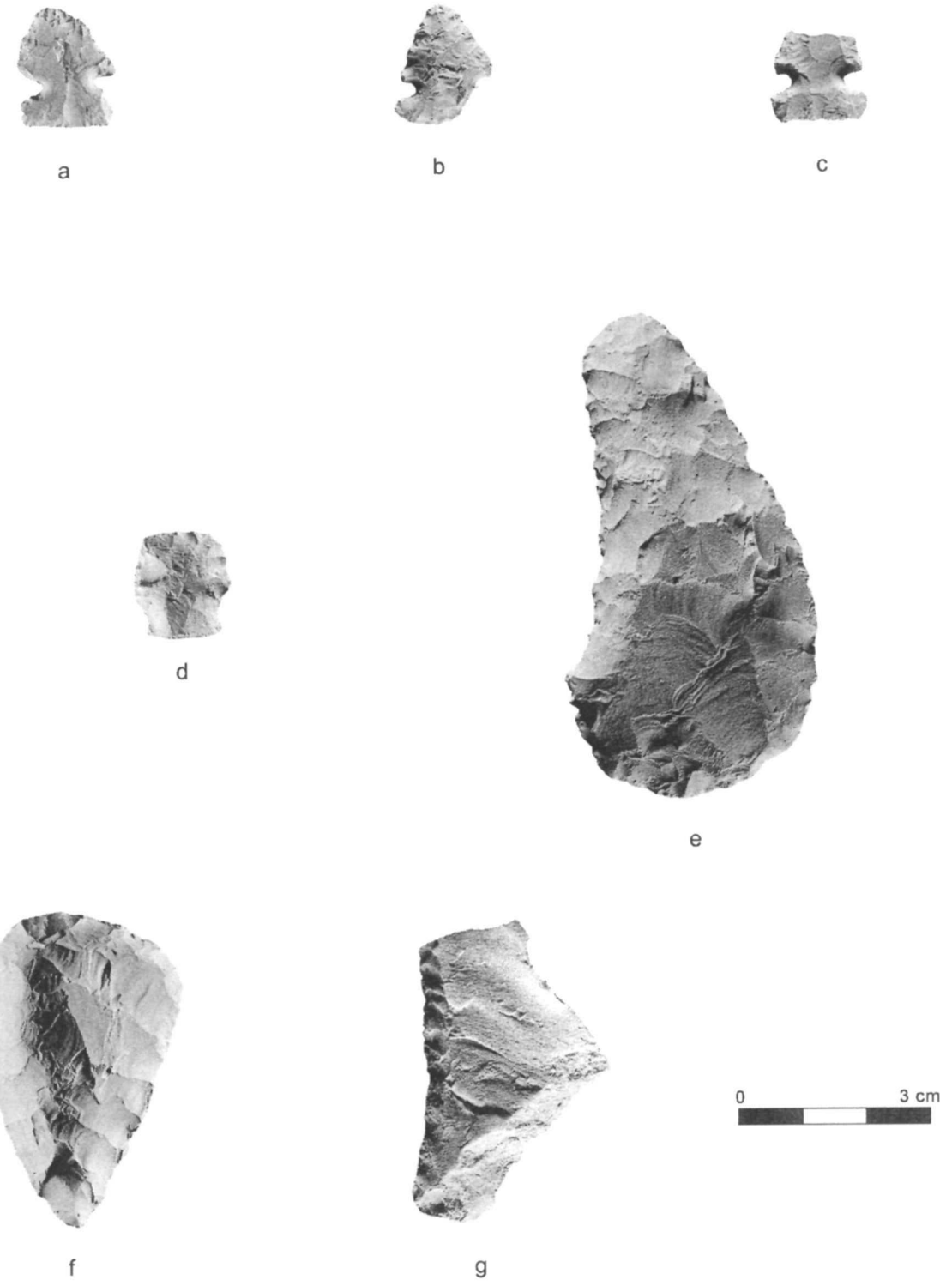


Figure 4.11. Stone tool photos, Elbee site (32ME408), 2003 UND fieldwork. a-c: Plains Side-Notched arrow points (cpnos 030202, 030205, 030206). d: Notched or stemmed point, type indeterminate, recycled into a transverse-edged cutting tool (cpno 030203). e: Unilateral cutting tool (cpno 080201). f: Transverse scraping tool (cpno 150210). g: Broken spokeshave (cpno 290213).

were small, thin, pressure flaked arrow point forms. Five specimens were classifiable as Plains Side-Notched type (Figure 4.11a-c). Six others were pointed fragments (tips), one was triangular and symmetrical, and the other was an anomalous notched or stemmed point form of indeterminate type (Figure 4.11d). This latter specimen appears to have been recycled into a transverse cutting tool.

Eighteen tools are assigned to the knives functional group under five different functional classes. Most of the knives are bifacial cutting tools whose functions could not be further specified because of fracture (FC15). Also present in the knives group are a number of cutting tools used on soft materials, including bilateral and unilateral specimens. An especially nice example of a unilateral cutting tool (FC10) is illustrated in Figure 4.11e. A transverse-edged cutting tool that was apparently recycled from a broadly side-notched projectile point is also represented in the knives group (Figure 4.11d). Another seven possible knives are in the indeterminate knives or projectile points group as patterned bifacial tools of unknown function (FC44). All but one of these was broken in manufacture (UP2). It is likely that these were in a manufacturing path to knives because larger dart-sized projectile points are unknown in the Elbee tool sample.

Fifteen tools are in the hide working tools group, including one perforator (FC02), seven transverse (end) scrapers used on soft materials (FC06), and seven transverse scrapers that could not be further specified as to function because of fracture but were probably hide scraping tools (FC20). A complete and fully functional transverse hide scraping tool (FC06) is illustrated in Figure 4.11f.

Light-duty bone, antler, or woodworking tools are the most numerous functional group, numbering 32 tools in five functional classes. Utilized or retouched flakes used on harder materials (FC22) were especially numerous, accounting for 26 of the 32 tools in the group. Other tools in this group include transverse scrapers used on hard materials (FC17), bipolar wedges or chisels (FC25 and 26), and notched (concave-edged) flake tools referred to as spokeshaves (FC45). A rather nice example of a broken (UP4) spokeshave is illustrated in Figure 4.11g.

The flake tool and expedient cutting tool group is well represented, but only by a single functional class consisting of 14 retouched or utilized flakes used on softer materials (FC23). Ordinarily, a number of larger general-purpose bifacial cutting tools (FC08) also would be present in this group, but none were identified in the Elbee sample. For that matter, no heavy-duty woodworking tools, stone working tools, or grooving and incising tools were identified in the collection, either, and heavy-duty core tools and cores and tested cobbles were rare, at only one example each (Table 4.12).

Grinding tools were fairly numerous, but mainly consisted of flat and convex abrading stones (FC33) used to manufacture or finish other items. Only one food processing tool was present in the grinding tools group, and that was a piece of a grinding slab or milling stone (FC36). A small burnishing tool (FC37) was also present. No hammerstones or anvils (pounding tools) were identified in the collection.

Ornaments and nonutilitarian items consisted of three small fragments of smoking pipes (FC50). Two of these were tentatively identified as catlinite (red pipestone) and the other was made of a very fine-grained siltstone. All three pipe fragments are use-phase 4 specimens (complete and used but broken). Two are small bowl fragments that show signs of use in the form of charring; the third is a shaped exterior fragment, possibly from the base or arm of a pipe. All three are too small for effective illustration, and too fragmentary to gain much sense about the shapes of the complete pipes from which they derive. The two possible catlinite pieces represent the only really exotic (non-local) lithic raw materials noted in the tool sample. The siltstone specimen is also of interest because the source of this material may have been in the Heart Butte area on the Heart River, where a very similar material was collected and used to make stone beads (Jackson et al. 2001:10.48-54).

Three coded specimens of questionable tool status whose functions are unknown are present in the collection. Two are unpatterned ground/pecking tool forms (cpno 340203 and 340206) and one is a patterned ground/pecked tool form (cpno 390201). The two unpatterned specimens are small pieces of fire-cracked rock or other broken rock that may be fragments of tools but use-wear is uncertain; it is possible they are pieces of grinding stones. The patterned specimen is an oddly shaped piece of broken siltstone that may or may not be an artifact.

Flake Debris

Flake debris is the byproduct of chipped stone tool manufacture. It is often recovered from prehistoric archeological sites in large numbers, and Elbee is no exception. Flake debris from the Elbee excavations totals 2,333 G1-4 pieces, weighing a total of 751.4 g (Table 4.13). By count, most of the flakes fall in the smallest G4 size grade (60.6%). The next largest size grade, G3, accounts for 36.5% of the flakes, G2 accounts for 2.9%, and the largest size grade, G1, accounts for a mere 0.1%. Even though the G4-sized flakes are the most numerous, these raw counts are biased somewhat to the larger size grades (G1-3) because G4 flakes were not recovered from most plowzone and sub-plowzone excavated proveniences. The plowzone and sub-plowzone excavations were one-quarter-inch dry screened, except for certain small water screened samples, and G4 flakes are smaller than one-quarter-inch. Therefore, only the one-sixteenth-inch water screened proveniences will give true size grade ratios for flake debris. The majority of the flake debris (76.5% by count) comes from the three excavated features, with nearly all of the remainder (23.1% by count) associated with the plowzone (Table 4.13), which in large part reflects the flake debris size grade biases, according to recovery screen size, that were just mentioned. Because of these biases, the flake debris analyses that follow are limited to the larger water screened feature samples from F102 and F103. Collectively, the flake debris from these two excavated samples comprises 47.7% of the total site sample.

Lithic Raw Materials

Seven lithic raw material types are identified in the analytical sample of flake debris (Table 4.14). All of these are locally available materials found in western North Dakota, with the possible exception of a single piece of G4 obsidian, which also could be nonvolcanic natural glass. Knife River flint (KRF) wholly dominates the sample at 95.2%, just as it did the stone tool sample.

Mass Analysis

Experimental archeology has identified patterns in the size grade distribution of flakes that are directly related to stone tool manufacturing operations and, hence, provide information on stone tool technology (e.g., Ahler 1989). The ratio of the number of G4:G1-3 flaking debris can be used to broadly determine what types of lithic reduction activities occurred at a given site or location. Replicative knapping experiments using Knife River flint in the application of various technological operations produced different ratios of G4:G1-3 flakes. Core reduction and heavy percussion flaking of bifaces yielded G4:G1-3 ratios between 1.63:1 and 4.03:1, and pressure flaking and light percussion flaking of small flake tools (including final manufacturing and maintenance activities) produced a mean G4:G1-3 ratio of about 13.3:1 (Ahler and Christensen 1983:372-378). It also has been noted that ratios that fall in between these two extremes often occur at village sites because some combination of these two basic types of technological operations had occurred (Ahler and Swenson 1985a:193).

The G4:G1-3 flake ratio for KRF was calculated for the flake debris analytic sample (Table 4.14). Ratios were not calculated for the other lithic types represented because of their small numbers (all less than 5% of the sample overall). The ratio of 3.6:1 for KRF falls within the upper range of core reduction and heavy percussion flaking of bifaces. The stone tool sample contains little evidence of such operations, and certainly not as the predominant lithic reduction activity. We can therefore only conclude that the flake debris sample is somehow numerically biased to the larger size grades. Considering that the sample derives from two trash-filled storage pits, it seems likely that many of the smaller (G4) pieces of flake debris did not make it into the pits when they were being filled. Whatever the case, we would expect a site like Elbee to have a higher G4:G1-3 flake debris ratio for KRF, one more indicative of mixed lithic reduction activities like those identified at other villages, such as Big Hidatsa (Ahler and Swenson 1985a:Table 56).

Table 4.13. Flake Debris Size Grade Data by Excavation Unit and Archeological Context Unit, Elbee Village Site (32ME408), 2003 UND Fieldwork.

Unit	ACU	Flake Debris Count						Flake Debris Weight (g)					
		G1	G2	G3	G4	Total	%	G1	G2	G3	G4	Total	%
XU1	Plowzone	0	8	132	3	143	6.1	0.0	54.8	59.5	0.3	114.6	15.3
XU1	F102	1	25	136	560	722	30.9	34.9	105.5	55.8	24.0	220.2	29.3
Subtotal		*1*	*33*	*268*	*563*	*865*	*37.0*	*34.9*	*160.3*	*115.3*	*24.3*	*334.8*	*44.6*
%		*0.1*	*3.8*	*31.0*	*65.1*	*100.0*		*10.4*	*47.9*	*34.4*	*7.3*	*100.0*	
XU2	Plowzone	0	2	53	0	55	2.4	0.0	3.2	26.6	0.0	29.8	4.0
XU2	F103	0	6	86	357	449	19.2	0.0	16.0	34.0	14.3	64.3	8.6
Subtotal		*0*	*8*	*139*	*357*	*504*	*21.6*	*0.0*	*19.2*	*60.6*	*14.3*	*94.1*	*12.6*
%		*0.0*	*1.6*	*27.6*	*70.8*	*100.0*		*0.0*	*20.4*	*64.4*	*15.2*	*100.0*	
XU3	Plowzone	0	18	277	8	303	13.0	0.0	51.2	126.6	0.6	178.4	23.7
XU3	F101	0	7	128	480	615	26.4	0.0	26.1	43.7	20.1	89.9	12.0
XU3	Sub-plowzone	0	0	5	3	8	0.3	0.0	0.0	1.0	0.3	1.3	0.2
Subtotal		*0*	*25*	*410*	*491*	*926*	*39.7*	*0.0*	*77.3*	*171.3*	*21.0*	*269.6*	*35.9*
%		*0.0*	*2.7*	*44.3*	*53.0*	*100.0*		*0.0*	*28.7*	*63.5*	*7.8*	*100.0*	
XU4	Plowzone	1	1	34	2	38	1.6	30.5	1.1	21.2	0.1	52.9	7.0
XU4	Sub-plowzone	0	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal		*1*	*1*	*34*	*2*	*38*	*1.6*	*30.5*	*1.1*	*21.2*	*0.1*	*52.9*	*7.0*
%		*2.6*	*2.6*	*89.5*	*5.3*	*100.0*		*57.7*	*2.1*	*40.1*	*0.2*	*100.1*	
Total		**2**	**67**	**851**	**1413**	**2333**	**99.9**	**65.4**	**257.9**	**368.4**	**59.7**	**751.4**	**100.1**
%		**0.1**	**2.9**	**36.5**	**60.6**	**100.1**		**8.7**	**34.3**	**49.0**	**7.9**	**99.9**	

Table 4.14. Flake Debris Lithic Raw Material Type Data by Size Grade for the Analyzed Sample [a], Elbee Village Site (32ME408), 2003 UND Fieldwork.

Code	Lithic Raw Material Type	G1	G2	G3	G4	Total	%	G4:G1-3
Western North Dakota Group								
01	Smooth Tongue River silcrete				4	4	0.4	
06	Jasper/chert			2	5	7	0.6	
08	Clear/gray chalcedony		2	7	29	38	3.4	
17	Porcellanite			1		1	0.1	
28	Knife River flint	1	29	200	830	1060	95.2	3.6
35	Metaquartzite				3	3	0.3	
Subtotal		*1*	*31*	*210*	*871*	*1113*	*100.0*	*3.6*
%		*0.1*	*2.8*	*18.9*	*78.3*	*100.1*		
Western North America/North Dakota Group								
18/40	Obsidian or nonvolcanic glass				1	1	0.1	
Subtotal		*0*	*0*	*0*	*1*	*1*	*0.1*	
%		*0.0*	*0.0*	*0.0*	*100.0*	*100.0*		
Total		**1**	**31**	**210**	**872**	**1114**	**100.1**	**3.6**
%		**0.1**	**2.8**	**18.9**	**78.3**	**100.1**		

[a] The analytic flake debris sample derives from the Feature 102 and 103 water screen samples; catalog numbers 1037 (F103) and 1039 (F102).

Fire-Cracked Rock

Fire-cracked rock (FCR) is the byproduct of the use of heated stones for cooking and other purposes, such as heat generation for sweat baths. A total of 399 pieces of G1-3 FCR was recovered from the Elbee excavations, weighing a total of 4465.9 g (Table 4.15). The FCR size grade data clearly illustrate the inverse relationship between the number (count) and weight of specimens among the three size grades. The 18 pieces of G1 FCR amount to only 4.5% of the total number of pieces in the collection, but they comprise a whopping 87.0% of the total sample weight. Conversely, the 338 pieces of G3 FCR make up 84.7% of the total number, but contribute a mere 5.6% to the total weight. Obviously, a few pieces of G1 FCR can make up a much more substantial mass of material than will many pieces of G3 or even G2 FCR. Therefore, weight is seen as a better quantitative variable in the interpretation of FCR than is the number of pieces.

According to weight, most FCR in the Elbee collection (75.6%) was recovered from the two pit features, F102 and F103 (Table 4.15). This reflects the discard of this waste material in abandoned pits. Nevertheless, FCR was not an especially numerous artifact material in the Elbee collection, like it is at certain other sites. This finding may indicate that cooking with heated stones was not an especially common activity at the site.

Vertebrate Faunal Remains

Over 5 kg (5154.7 g; n=6065) of G1-3 animal bone was recovered from the 2003 excavations at Elbee. By size grade weight, there are 1279.3 g of G1 bone (24.8%), 2166.3 g of G2 bone (42.0%), and 1709.1 g of G3 bone (33.2%) (Table 4.16). This aggregate sample includes all bone in the G1-3 size grades, including unidentifiable bone debris, identifiable specimens, and modified specimens. The recovered pieces are highly fragmented. On average, each bone piece weighs 0.85 g. Such intensive breakage is attributed to crushing and pounding of the bone for boiling and grease production (e.g., see Vehik 1977).

Table 4.15. Fire-Cracked Rock Size Grade Data by Excavation Unit and Archeological Context Unit, Elbee Village Site (32ME408), 2003 UND Fieldwork.

Unit	ACU	FCR Count					FCR Weight (g)				
		G1	G2	G3	Total	%	G1	G2	G3	Total	%
XU1	Plowzone	1	7	73	81	20.3	111.4	66.4	49.5	227.3	5.1
XU1	F102	6	5	46	57	14.3	1144.2	36.9	36.9	1218.0	27.3
Subtotal		*7*	*12*	*119*	*138*	*34.6*	*1255.6*	*103.3*	*86.4*	*1445.3*	*32.4*
%		*5.1*	*8.7*	*86.2*	*100.0*		*86.9*	*7.1*	*6.0*	*100.0*	
XU2	Plowzone	1	5	56	62	15.5	163.4	34.7	43.0	241.1	5.4
XU2	F103	4	6	32	42	10.5	2077.4	57.3	23.4	2158.1	48.3
Subtotal		*5*	*11*	*88*	*104*	*26.0*	*2240.8*	*92.0*	*66.4*	*2399.2*	*53.7*
%		*4.8*	*10.6*	*84.6*	*100.0*		*93.4*	*3.8*	*2.8*	*100.0*	
XU3	Plowzone	0	13	76	89	22.3	0.0	82.8	59.7	142.5	3.2
XU3	Sub-plowzone	1	1	6	8	2.0	25.2	6.3	2.6	34.1	0.8
XU3	F101	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal		*1*	*14*	*82*	*97*	*24.3*	*25.2*	*89.1*	*62.3*	*176.6*	*4.0*
%		*1.0*	*14.4*	*84.5*	*99.9*		*14.3*	*50.5*	*35.3*	*100.1*	
XU4	Plowzone	5	6	49	60	15.0	362.2	45.5	37.1	444.8	10.0
XU4	Sub-plowzone	0	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal		*5*	*6*	*49*	*60*	*15.0*	*362.2*	*45.5*	*37.1*	*444.8*	*10.0*
%		*8.3*	*10.0*	*81.7*	*100.0*		*81.4*	*10.2*	*8.3*	*99.9*	
Total		**18**	**43**	**338**	**399**	**99.9**	**3883.8**	**329.9**	**252.2**	**4465.9**	**100.1**
%		**4.5**	**10.8**	**84.7**	**100.0**		**87.0**	**7.4**	**5.6**	**100.0**	

Table 4.16. Bone Size Grade Data by Excavation Unit and Archeological Context Unit, Elbee Village Site (32ME408), 2003 UND Fieldwork.

Unit	ACU	Aggregate Bone Count					Aggregate Bone Weight (g)					Identifiable Bone	Mod. Bone
		G1	G2	G3	Total	%	G1	G2	G3	Total	%	G1-3	G4-5	G1-5
XU1	Plowzone	0	10	186	196	3.2	0.0	38.2	72.7	110.9	2.2	2	2	0
XU1	F102	41	668	4384	5093	84.0	893.2	1997.6	1328.4	4219.2	81.9	11	11	7
Subtotal		*41*	*678*	*4570*	*5289*	*87.2*	*893.2*	*2035.8*	*1401.1*	*4330.1*	*84.1*	*13*	*13*	*7*
%		*0.8*	*12.8*	*86.4*	*100.0*		*20.6*	*47.0*	*32.4*	*100.0*				
XU2	Plowzone	0	2	61	63	1.0	0.0	5.4	22.9	28.3	0.5	1	0	0
XU2	F103	6	36	420	462	7.6	386.1	108.0	181.6	675.7	13.1	3	150	1
Subtotal		*6*	*38*	*481*	*525*	*8.6*	*386.1*	*113.4*	*204.5*	*704.0*	*13.6*	*4*	*150*	*1*
%		*1.1*	*7.2*	*91.6*	*99.9*		*54.8*	*16.1*	*29.0*	*99.9*				
XU3	Plowzone	0	2	146	148	2.4	0.0	6.6	59.7	66.3	1.3	55	0	0
XU3	Sub-plowzone	0	0	2	2	0.0	0.0	0.0	0.5	0.5	0.0	0	1	0
XU3	F101	0	0	16	16	0.3	0.0	0.0	4.4	4.4	0.1	2	36	0
Subtotal		*0*	*2*	*164*	*166*	*2.7*	*0.0*	*6.6*	*64.6*	*71.2*	*1.4*	*57*	*37*	*0*
%		*0.0*	*1.2*	*98.8*	*100.0*		*0.0*	*9.3*	*90.7*	*100.0*				
XU4	Plowzone	0	3	80	83	1.4	0.0	10.5	36.4	46.9	0.9	0	0	0
XU4	Sub-plowzone	0	0	2	2	0.0	0.0	0.0	2.5	2.5	0.0	0	1	0
Subtotal		*0*	*3*	*82*	*85*	*1.4*	*0.0*	*10.5*	*38.9*	*49.4*	*0.9*	*0*	*1*	*0*
%		*0.0*	*3.5*	*96.5*	*100.0*		*0.0*	*21.3*	*78.7*	*100.0*				
Total		**47**	**721**	**5297**	**6065**	**99.9**	**1279.3**	**2166.3**	**1709.1**	**5154.7**	**100.0**	**74**	**201**	**8**
%		**0.8**	**11.9**	**87.3**	**100.0**		**24.8**	**42.0**	**33.2**	**100.0**				

Most of the bone (81.9%; 4219.2 g) was recovered from Feature 102, which was excavated within XU1. Feature 103, excavated within XU2, also contained a moderate amount of bone (13.1%; 675.7 g). Very minor amounts of bone were recovered from all other excavation contexts (Table 4.16).

Included in the bone aggregate sample are 74 G1-3 identifiable pieces. An additional 201 G4-5 potentially identifiable pieces are also present, but these are not tabulated in the G1-3 aggregate sample data. Lastly, eight G1-5 modified pieces are in the collection; seven of these are G1-3 in size and are also included in the aggregate sample (Table 4.16). Additional analyses have been carried out on the identifiable and modified bone artifacts, as described in the sections that follow.

Identifiable Bone

Identifiable elements in the collection total 74 G1-3 pieces and 201 G4-5 pieces (Table 4.16). The 74 G1-3 pieces were analyzed in an attempt to determine what animal species were hunted and consumed as food by the site inhabitants. Two pieces of modified bone (scapula hoes) could also be identified to species, which brought the total number of G1-3 identifiable specimens to 76 (Table 4.17). The 201 G4-5 identifiable specimens were not analyzed because most, if not all, are ecofacts unrelated to the archeological deposit. If some of these small pieces are in fact archeological in origin, then they were from relatively small animals that would not have made a significant contribution to the diets of the site inhabitants.

The following description and analysis of G1-3 identifiable specimens is organized according to body size categories. This is useful because very large and large animals would have had higher food values than medium and small animals. Food value, as used here, is a relative measure of the amount of calories received through consumption compared to the amount of calories expended in procurement and processing tasks. In theory, very large and large animals have the highest food values, because they returned the most meat for the same amount of energy expended in hunting and processing tasks (cf. Simms 1987). The very large and large animals were also important resources of raw materials used to make clothing, tools, and shelter. In contrast, medium and small animals would have been much less important in terms of caloric yield and utility as raw material resources.

Taxonomic faunal identifications were made with reference to the UND Department of Anthropology comparative faunal collection and various faunal identification guides (Balkwill and Cumbaa 1992; Brown and Gustafson 1979; Gilbert 1990; Glass 1973; Olsen 1960, 1964, 1968, 1979). Genus and species level identifications were made whenever possible, but the fragmented condition of the identifiable and potentially identifiable bones in the collection often precluded such specific identifications.

Very Large Animals. This body size category includes those species whose adult males weigh in excess of 225 kg. At Elbee this category contains both bison and bison or elk/wapiti elements. The Number of Identified Specimens (NISP) for American bison (*Bison bison*) is nine (11.8%). Identified bison elements include three scapulas, three carpals, one phalange, one radius, and one horn core fragment (in three refitable pieces). The Minimum Number of Individuals (MNI) for bison can be calculated as two, on the basis of two left, distal scapulas. One of these, along with a second medial scapula fragment, were modified for use as scapula hoes.

The NISP for the bison or elk group (Bison/Cervus) is six (7.9%). These elements are too weathered, too fragmentary, or have insufficient variation between species to allow more precise taxonomic identifications to be made. Bison/Cervus elements in the Elbee collection include two rib fragments, two sesamoids, one vertebra, and one heavily worn premolar. The MNI for this generalized taxonomic group was not calculated because of potential sampling errors; the MNI for all other generalized taxonomic groups were, likewise, not calculated. Given the presence of nine identified bison elements and the complete lack of definitive elk elements in the collection, it is reasonable to assume that most or all of the elements in this group are in fact bison.

At face value, bison and bison/elk appear to constitute a fairly small portion (19.7%) of the identifiable bone collection. However, the low percentage of bison and bison/elk pieces is biased by the large number of snake vertebrae (n=55) recovered from the plowzone in XU3, L1. If those 55 snake

Table 4.17. G1-3 Identifiable Bone from the Elbee Village Site (32ME408), 2003 UND Fieldwork.

Common Name	Taxonomic Name	NISP [a]	NISP %	MNI [b]
Very Large Animal (bison, elk, grizzly bear, etc.)				
American Bison	*Bison bison*	9 [c]	11.8	2
Bison/Elk	*Bison/Cervus*	6	7.9	n/a
Subtotal, Very Large Animals		*15*	*19.7*	--
Large Animal (deer, wolf, black bear, etc.)		1	1.3	n/a
Subtotal, Large Animals		*1*	*1.3*	--
Medium Animal (coyote, raccoon, large birds, etc.)		1	1.3	n/a
Subtotal, Medium Animals		*1*	*1.3*	--
Small Animal (mice, small birds, squirrels, snakes, etc.)				
Small Rodents	Rodentia	3	3.9	n/a
Snakes	Serpentes	55	72.4	n/a
Small Birds	Aves (small)	1	1.3	n/a
Subtotal, Small Animals		*59*	*77.6*	--
Total		**76**	**99.9**	**--**

[a] Number of Identified Specimens.
[b] Minimum Number of Individuals. This is calculated only for genus level taxons.
[c] Two identifiable bison elements have been modified into bone tools (scapula hoes).

elements are removed from consideration, then the total NISP drops to 21. Bison would then account for 42.9% of the new, reduced total NISP, and bison/elk amount to 28.6% of the total. Together, these very large animal elements would amount to 71.5% of the total NISP. This percentage is what one would expect for a northern Plains Village assemblage.

Large Animals. The large animal body size class consists of species where the adult male weighs between 27-225 kg. One element (1.3%), which could not be assigned to a reliable genus or taxonomic group, comprises this class. It is a caudal vertebra that is complete, and one end of it is burned.

Medium Animals. The medium animal body size class is composed of species where the adult male weighs between 2-27 kg. One element (1.3%), a distal humerus fragment, comprises this class. It could not reliably be assigned to a genus or taxonomic group. It is unfused and heavily weathered. A juvenile animal is suggested by the lack of epiphyseal fusion on the bone.

Small Animals. The small animal body size category includes species whose adult males weigh less than 2 kg. Fifty-nine elements (77.6%) belong to this class. As previously stated, it is unlikely that any of these elements reflect human predation and consumption. Most of the elements (72.4%; n=55) are snake vertebrae recovered from the plowzone in XU3, L1. Most likely, these elements are from a single snake that died and was added to the site deposit by natural means. It may have died in a rodent burrow or was brought to the site as the dinner of a carnivore. There are three (3.9%) rodent elements (Order Rodentia) that were recovered. These include two mandible fragments and one fused tibia/fibula. The final element (1.3; n=1) is from a small bird (Class Aves), possibly a small song bird; it is a carpometacarpus.

Modified Bone

Eight G1-5 modified bone specimens were recovered from the site (Table 4.16). Seven were found in Feature 102 (XU1), and the eighth was recovered from Feature 103 (XU2). The eight modified bone specimens consist of two scapula hoes, one pick, one knife, one awl, one bead, one piece of bead manufacturing debris, and one "other" modified specimen. Each is considered under the appropriate category in the paragraphs that follow.

Scapula Hoes. Parts of two bison scapula hoes (digging tools) are present in the collection, one from F102 (catn 1039) and one from F103 (catn 1037). The first specimen (catn 1039) is a left medial scapula piece that comprises most of a broken hoe blade (Figure 4.12a). It shows considerable edge rounding and polish, along with surface polish and striations, which are indicative of use as a digging tool. The second specimen (catn 1037) is a left distal scapula piece that was the haft element of a broken hoe. The posterior spinal process has been trimmed off the tool, and the tool shows anterior medial edge polish (arrows), presumably where it was lashed to a handle (Figure 4.12b). The anterior distal edges of the tool also show some polish and striations, down where the blade would begin, most likely from use as a digging tool. Scapula hoes are the most common type of bone tool recovered from Plains Village sites in the upper Knife-Heart region (Weston and Ahler 1993:281).

Bone Pick. A dense, fairly thick piece of bone that may have been the tip of a pick-like digging tool came from F102 (catn 1039). The specimen shows step flaking wear on one surface of a broadly rounded tip-edge that was apparently broken from a larger tool body. The tool also shows some lateral edge rounding and blunting, as well as slight surface polish, all indications of use as a digging tool. The step flaking wear on the tip suggests fairly hard force application, like that of a pick.

Bone Knife. One fragmentary specimen that is probably from a bone knife was found in F102 (catn 1039). It exhibits a portion of an edge that is rounded and blunted, suggesting the knife, or cutting tool, function. In addition, a portion of one surface of the piece, that adjacent to the worn edge, is rather polished. We are fairly sure the specimen is not a scapula hoe fragment because it looks more like a piece of vertebral spine or rib.

Bone Awl. The pointed tip of a bone sewing awl was recovered from F102 (catn 1039). The specimen is highly polished and striated and exhibits burning (Figure 4.12c). It appears to have been made from a thin splinter of mammal long bone. Awls such as this were used to perforate pliable material, such as leather, in preparation for sewing. They also were used to push sinew though perforations in leather while sewing. Awls are among the most common bone tools recovered from Plains Village sites in the upper Knife-Heart region (Weston and Ahler 1993:281).

Bone Bead. The longitudinal half of a tubular bone bead also was found in F102 (catn 1039). It is a short, shaped diaphysis segment of a small long bone from a small mammal. The piece is highly polished and has rounded ends (Figure 4.12d). Bozell and Toom (2003:9.3) note that, "Beads such as these were manufactured by cutting small long bones at two places on the diaphysis and grinding the resulting ends smooth. Many of the shafts appear artificially smoothed, but small mammal and bird bones are naturally rather smooth."

Bone Bead Manufacturing Debris. A piece of bone bead manufacturing debris also was recovered from F102 (catn 1039). It is a short diaphysis segment cut from the long bone of a medium-sized mammal, possibly a canid, which is split longitudinally (Figure 4.12e). The specimen appears to be an end trimmed from a bead blank, hence its classification as bead manufacturing debris. Alternatively, it could be a piece of a bead broken in manufacture. Whatever the case, the specimen appears to have been unfinished and unused.

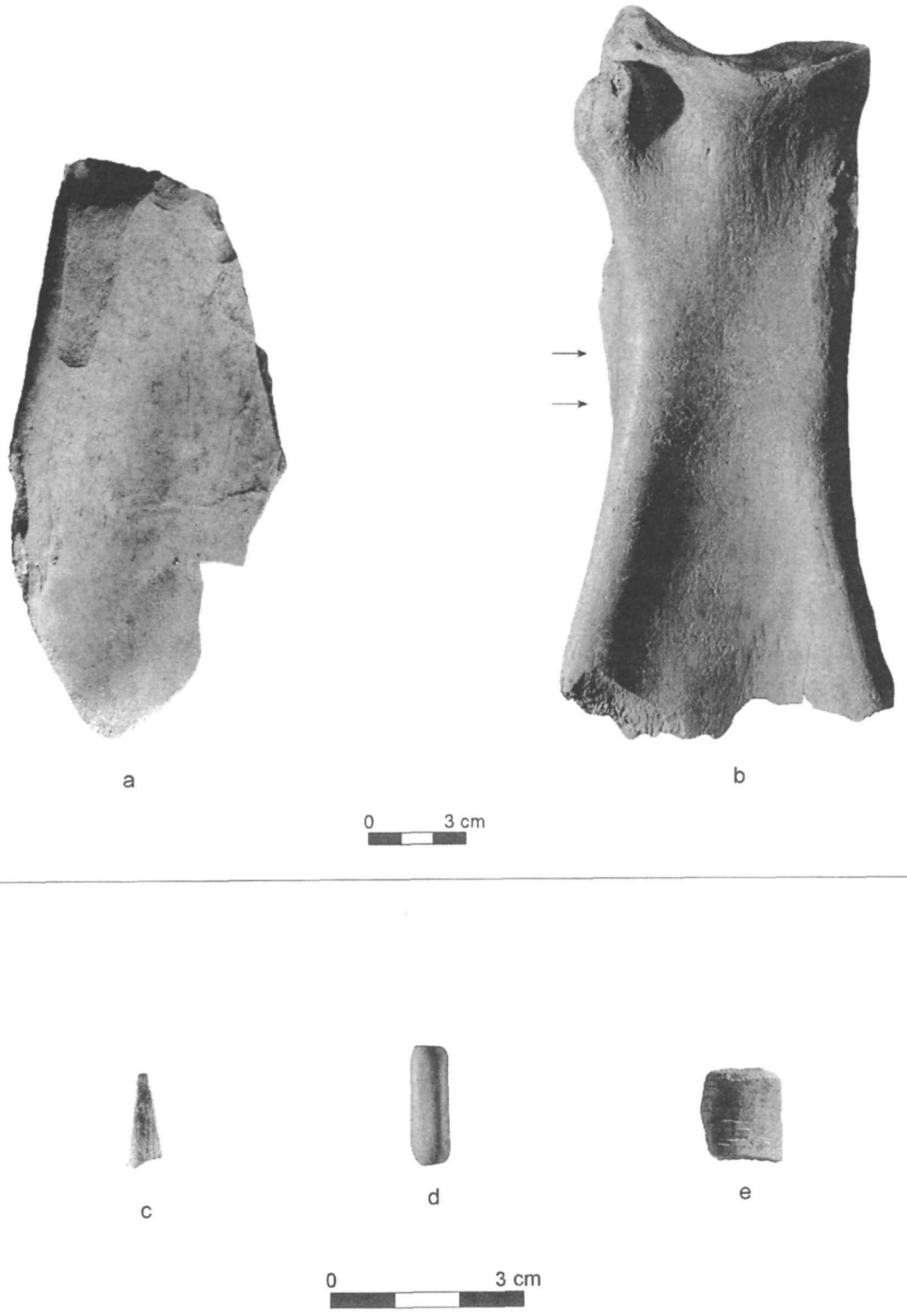


Figure 4.12. Stone tool photos, Elbee site (32ME408), 2003 UND fieldwork. a: Partial scapula hoe blade (catn 1039). b: Scapula hoe haft element (catn 1037). c: Awl tip (catn 1039). d: Bone bead (catn 1039). e: Bone bead manufacturing debris (catn 1039).

Other Modified Bone. One "other" piece of modified bone came from F102 (catn 1039). It is a small piece of thin, flat bone that is highly polished and striated. One unbroken edge is curved and heavily worn and rounded. We are uncertain what tool this small piece of modified bone derives from, but it could be from a shaft wrench made on a thin piece of scapula.

Human Bone

Two human teeth were recovered from the plowzone in Level 1 of XU1. Procedures consistent with the requirements of the Native American Graves Protection and Repatriation Act (NAGPRA) were initiated once the identification of human remains was made in the lab during the course of the faunal analysis, and verification of the preliminary identification could be made by UND forensic anthropologist, Dr. Phoebe Stubblefield. Present plans call for the return of the two human teeth to the KNRI for reburial.

The following quotation describing the two teeth is taken from Dr. Stubblefield's report, which is presented in full as Appendix F.

> Two human teeth are present. The first is a permanent left upper central incisor with extensive apical wear. Interproximal grooves are present at the cervix on the mesial and distal surfaces. The second tooth consists of the crown of a very worn deciduous molar, as indicated by a clear bulge of enamel over the cervix. The length of the crown suggests it is a second deciduous molar, but insufficient material remains to more accurately determine its place in the dentition (Stubblefield 2004).

Other Artifacts and Materials

Other artifacts and materials present in the Elbee collection include shell, natural clinker, burned earth, fired clay, ash, wood charcoal, other, natural rock, and unsorted residue (Table 4.18). Each is considered in some detail in the paragraphs that follow.

Shell

The aggregate shell (invertebrate fauna) sample consists of 50 G1-3 fragments from freshwater mussels (bivalves), weighing a total of 42.0 g (Table 4.18). This is a rather small amount of shell, comprising a minor artifact class. Most of the fragments are small, consisting of G3-sized pieces. Both thin- and thick-shelled species are represented in the sample. At least two of the unmodified specimens are considered to be identifiable, but no formal species identification was attempted.

Modified shell includes those specimens that were made into tools or ornaments, or are the debris from tool or ornament manufacture. Ten (20%) of the 50 shell pieces in the sample show some fairly clear signs of modification. This is a rather high percentage of modified specimens, indicating that shell at the site was collected primarily as a tool or ornament raw material rather than as a food item. Eight of the modified specimens are manufacture debris and two are parts of tools or ornaments. Manufacture debris was distinguished by the presence of straight-line cuts or breaks, but no other indications of modification beyond simple shaping. Tool and ornament specimens show clear signs of modification beyond simple shaping, such as complex morphologies, edge wear, polish, and fine striations. One of the later specimens is a small (G4) edge fragment from an unknown piece, probably an ornament (catn 1033). It exhibits a smoothed and polished edge, with a highly polished surface that also shows some very fine striations. The other non-debris specimen is an edge-worn fragment that may have been part of a shell spoon or scoop (catn 1039). One other very small specimen (G4), interpreted as manufacturing debris, exhibited a number of shallow incisions on its interior surface, suggesting that it might have been something more than mere debris (catn 1039).

Table 4.18. Miscellaneous Material Classes by Excavation Unit and Archeological Context Unit, Elbee Village Site (32ME408), 2003 UND Fieldwork.

Unit	ACU	Total Shell	Total Shell	Ident. Shell	Modified Shell	Natural Clinker	Burned Earth	Fired Clay	Ash	Wood Charcoal	NA Metal	EA Historic	Natural Rock	Unsorted Residue
		G1-3 (n)	G1-3 (g)	G1-3 (n)	G1-5 (n)	G1-3 (n)	G1-3 (g)	G1-3 (g)	G1-3 (g)	G1-3 (g)	G1-5 (n)	G1-4 (n)	G1-3 (g)	G4-5 (g)
XU1	Plowzone	13	4.5	0	4	12	0.0	5.4	4.5	0.3	0	3	292.4	5.0
XU1	F102	11	16.5	1	5	6	19.4	37.3	54.0	15.8	0	0	32.1	1155.4
	Subtotal	*24*	*21.0*	*1*	*9*	*18*	*19.4*	*42.7*	*58.5*	*16.1*	*0*	*3*	*324.5*	*1160.4*
XU2	Plowzone	4	1.3	0	0	24	20.1	1.4	1.4	5.6	0	15	277.5	2.1
XU2	F103	4	13.5	1	0	4	476.9	14.8	22.9	259.7	0	0	8.8	1584.6
	Subtotal	*8*	*14.8*	*1*	*0*	*28*	*497.0*	*16.2*	*24.3*	*265.3*	*0*	*15*	*286.3*	*1586.7*
XU3	Plowzone	13	4.0	0	0	22	8.5	29.2	59.2	1.2	0	4	205.0	17.0
XU3	F101	2	1.4	0	1	1	24.6	44.6	481.4	0.2	1	1	7.7	785.0
XU3	Sub-plowzone	0	0.0	0	0	0	0.0	0.4	0.8	0.3	0	0	1.5	4.3
	Subtotal	*15*	*5.4*	*0*	*1*	*23*	*33.1*	*74.2*	*541.4*	*1.7*	*1*	*5*	*214.2*	*806.3*
XU4	Plowzone	3	0.8	0	0	12	0.1	0.1	0.0	0.0	0	26	291.7	8.3
XU4	Sub-plowzone	0	0.0	0	0	1	0.0	0.0	0.0	0.0	0	0	1.7	2.3
	Subtotal	*3*	*0.8*	*0*	*0*	*13*	*0.1*	*0.1*	*0.0*	*0.0*	*0*	*26*	*293.4*	*10.6*
Total		**50**	**42.0**	**2**	**10**	**82**	**549.6**	**133.2**	**624.2**	**283.1**	**1**	**49**	**1118.4**	**3564.0**

Natural Clinker

Clinker is a very porous, lightweight stone of coal-burn origin that occurs naturally in western North Dakota (Root et al. 1999). Resembling pumice, clinker was commonly used as an abrading tool material. Eighty-two G1-3 pieces of natural clinker are present in the Elbee collection (Table 4.18). This material is thought to be debris from the manufacture and use of clinker abrading tools at the site.

Burned Earth and Fired Clay

Burned earth and fired clay are the byproducts of the use of fire at the site. They differ only in textural grade and, perhaps, intended use. Burned earth, with its loamy texture, is the incidental byproduct of fire use at the site, such as from a hearth. Fired clay, with its finer texture, is somewhat different in this regard and may be the byproduct of ceramic manufacture or uses of clay at the site.

Most of the burned earth in the collection came from the large pit in XU2, F103. This likely represents material cleaned from hearths and dumped in the pit as trash. The fired clay shows a much more uniform distribution within the site, but with the majority associated with one of the three excavated features (Table 4.18).

Ash and Wood Charcoal

Ash and wood charcoal are also the byproducts of fire. The majority of the consolidated ash in the collection comes from F101, the basin hearth in XU3 (Table 4.18). The wood used to fuel the fire in this hearth must have been completely consumed because it contained only a small amount of charcoal. On the other hand, a considerable quantity of charcoal was found in F103, the large pit in XU2. This coincides with the relative abundance of burned earth in F103, with the charcoal, too, likely being material cleaned from hearths and disposed of in the pit as trash.

Native American Metal

One small (G4), thin (0.46 mm), irregularly shaped piece of sheet copper was recovered from the fill of the basin hearth, F101, in XU3 (Table 4.18). The specimen appears old and weathered. Under magnification it can be seen that it was cut and scored along its margins, leading to the conclusion that it is a piece of metal scrap from the shaping of some other object. It has the appearance of copper sheet stock cut from copper kettles used in the fur trade, but it also could be a piece of native copper from the upper Great Lakes area. For these reasons, we chose to classify the specimen as Native American rather than European American, recognizing full well that its actual provenance could be European American.

Three alternatives come to mind regarding this specimen: (1) it may be a piece of native copper traded in from the upper Great Lakes region, (2) it may be an early fur trade piece of ultimate European American origin, or (3) it may be an out-of-context piece displaced from the historic European American component. There is presently insufficient information to choose among these three alternatives. However, a small (G4), thin (0.52 mm) piece of iron sheet scrap also was recovered from F101. The specimen is too corroded to give any particular indication as to its provenance, but its presence does make it possible to discount somewhat the first alternative listed above for the copper piece.

European American Historic Artifacts

Forty-nine pieces of historic material of European American origin are in the site collection (Table 4.18). Included among these are 27 pieces of metal, 11 glass shards, four ceramic sherds, and seven pieces of other materials. Nearly all are small-sized pieces in the G2 and G3 size grades. All of the historic European American materials were recovered from plowzone contexts at the site, with one exception. The exception is a small piece of iron sheet scrap found in F101, also considered above under Native American metal. With the possible exception of this small iron piece from F101, all of these

materials are believed to relate to the historic European American farmstead component documented at the site.

All of the metal specimens are iron (ferrous metal), consisting mainly of small pieces of rusted iron scrap, excepting one small scrap of sheet lead or zinc. The iron scrap is mostly thin sheet stock, probably from cans, but two pieces of heavier bar stock also are present. Identifiable iron specimens include two wire-cut nails and one round tobacco tag. The tobacco tag is too rusted to retain any identifying marks. No sheet copper is present. One small piece of sheet lead or zinc is the only non-iron specimen among the metal pieces. The material is rather hard so we think it is zinc.

The glass shards in the collection consist entirely of pieces of clear, flat window glass. The few ceramic sherds are from a clear-glazed white ware, except for one well-worn piece of porcelain. Other European American materials include a few small pieces of tar and concrete and a small fragment of asphalt shingle.

Natural Rock

Natural rock in the G1-3 size grades totaling 1118.4 g was recovered from the Elbee excavations (Table 4.18). Excavated volume for the site is estimated to total 7.07 m^3, yielding an average of a mere 158.2 g of natural rock per cubic meter across the excavated part of the site. This relatively small quantity of natural rock is indicative of the generally fine-grained character of the site sediments. Natural rock is ordinarily discarded after quantification, but in this case it was retained in the site collection at the request of the NPS.

Unsorted Residue

Water screen residue remaining in the G4 and G5 size grades after sorting, referred to as unsorted residue, totaled 3564.0 g in the Elbee collection (Table 4.18). This material, consisting mainly of sand-sized rock particles, bone debris, and other extremely small artifactual debris, is considered to be of no analytical value. Unsorted residue, like natural rock, is usually discarded after quantification, but in this case it was retained in the site collection at the request of the NPS.

Identified Botanical Remains

Identifiable botanical remains in the Elbee collection derive primarily from feature flotation and feature water screen samples. Final identifications of feature botanical remains, according to sample recovery type, are presented in Table 4.19. Both cultivated plants (cultivars) and wild plants are represented in the feature samples. Initial, preliminary identification work was done by Carrie Jackson of the UND staff. Final identification work was done by Robert Nickel of Lincoln, Nebraska, who confirmed Jackson's identifications and added a few others to the preliminary identification list.

A few identifiable botanical specimens also were recovered from general level plowzone contexts in XU3. XU3 contained the basin-shaped hearth (F101), thought to have been the central hearth of an earthlodge structure at the site. The presence of identifiable botanical remains from XU3 general levels, and only XU3 general levels, tends to support this interpretation. These few general level specimens consist of cultivars and wild fruits, like those identified in the feature samples (Table 4.20). All were burned so it is reasonably certain that they relate to the primary Plains Village archeological component and are not the byproduct of historic farming activities at the site. Initial identification work on the general level specimens, like that for the features, was done by Jackson and confirmed by Nickel.

Cultivars

Four cultivars were positively identified in the Elbee feature samples: (1) corn, or maize (*Zea mays*), (2) bean (*Phaseolus vulgaris*), (3) sunflower (*Helianthus annuus*), and (4) squash (*Cucurbita pepo*). Except for tobacco, these are the primary cultivars known to have been used by northern Plains

Table 4.19. Final Identification of Botanical Remains from Excavated Feature Contexts, Elbee Site (32ME408), 2003 UND Fieldwork.

Feature	Catalog No.	Recovery	n	Species Identification
101	1031	Flotation	12	*Zea mays* (corn)
			361	*Chenopodium sp.* (goosefoot)
			588	*Portulaca oleracea* (purslane)
			5	*Helianthus annuus* (sunflower)
			4	*Iva xanthifolia* (sumpweed)
			2	*Polygonum sp.* (knotweed)
			3	Unidentified seeds
			25	Miscellaneous, other
101	1033	Water Screen (G4)	31	*Zea mays* (corn)
			1	*Cucurbita pepo* (squash)
			1	*Helianthus annuus* (sunflower)
			2	Miscellaneous, other
Feature 101, Hearth, Total			*1035*	
102	1041	Flotation	2	*Zea mays* (corn)
			7	*Chenopodium sp.* (goosefoot)
			2	*Helianthus annuus* (sunflower)
			1	*Iva xanthifolia* (sumpweed)
			13	*Prunus virginiana* (chokecherry)
			3	*Cornus stolonifera* (dogwood)
			6	Unidentified seeds
			21	Miscellaneous, Other
102	1039	Water Screen (G4)	30	*Zea mays* (corn)
			2	*Prunus americana* (plum)
			24	*Prunus virginiana* (chokecherry)
			1	*Cornus stolonifera* (dogwood)
			7	*Shepherdia argentea* (buffaloberry)
			1	*Phaseolus vulgaris* (bean)
			3	Unidentified seeds
			20	Miscellaneous, other
Feature 102, Pit, Total			*143*	
103	1036	Flotation	71	*Zea mays* (corn)
			37	*Chenopodium sp.* (goosefoot)
			3	*Portulaca oleracea* (purslane)
			2	*Helianthus annuus* (sunflower)
			1	*Rosa sp.* (wild rose)
			1	*Prunus virginiana* (chokecherry)
			7	Unidentified seeds
			91	Miscellaneous, other
103	1037	Waterscreen (G3)	9	*Zea mays* (corn)
			1	*Phaseolus vulgaris* (bean)
103	1037	Waterscreen (G4)	211	*Zea mays* (corn)
			12	*Prunus virginiana* (chokecherry)
			46	*Cornus stolonifera* (dogwood)
			1	*Phaseolus vulgaris* (bean)
			1	Unidentified seed
			43	Miscellaneous, other
Feature 103, Pit, Total			*535*	

Table 4.20. Final Identification of Botanical Remains from General Level Plowzone Contexts, Elbee Site (32ME408), 2003 UND Fieldwork.

XU	Catalog No.	Recovery	n	Species Identification
XU3	1019	Dry Screen (G3)	2	*Prunus americana* (plum)
XU3	1020	Water Screen (G4)	1	*Zea mays* (corn)
XU3	1024	Dry Screen (G3)	1	*Prunus americana* (plum)
			1	*Phaseolus vulgaris* (bean)
XU3	1028	Water Screen (G4)	4	*Zea mays* (corn)

Village peoples (e.g., see Toom 1992b). All three features yielded corn kernel and corncob (cupule) fragments in some abundance, but mainly from F103, the large undercut pit (Table 4.19). The presence of corncob fragments indicates that corn was grown nearby, probably on the adjacent Knife River floodplain. A few bean fragments were found in the fill of the two pits (F102 and F103), but not in the hearth (F101). Sunflower remains were recovered from all three features. The single identified squash seed was from the hearth (F101).

Two corn kernel pieces from the water screen sample of F102 (catn 1039) were destroyed by radiocarbon dating. As discussed in the radiocarbon dating section above, the $\delta^{13}C$ value of -10.10‰ for the dated corn sample (OS-45301) indicates that the *Zea mays* identification for this material is correct.

Wild Plants

The rest of the seeds and other identifiable plant parts represent a variety of wild plants, including weeds and herbs and those with fruits. Feature 101 (F101), the basin-shaped hearth, produced the most identifiable seeds, but these were mainly goosefoot and purslane (Table 4.19). Goosefoot (*Chenopodium*) is a member of the cheno-am family of weedy annuals, which also includes pigweed (*Amaranthus*), whose greens and seeds could be eaten. Purslane (*Portulaca oleracea*) is a succulent herb that was sometimes eaten as a potherb or in salads. Both of the pits, especially F103, yielded seeds of dogwood (*Cornus stolonifera*). Known as Kinnikinnick, the dried inner bark of this species of red dogwood was used for smoking (Gilmore 1977:56).

Identified wild fruits were plum (*Prunus americana*), chokecherry (*Prunus virginiana*), and buffaloberry (*Shepherdia argentea*). All of the wild fruit specimens were recovered from the two pits. Of the three, chokecherry was the most numerous.

Chapter 5
SYNTHESIS AND INTERPRETATION

As many as eight components, both prehistoric and historic, were identified in the central part of the Elbee site in 1978, including a primary Plains Village component, complete with village features, and a more ephemeral preceramic component (Ahler 1984). The present investigations in the north site area were able to positively identify only the primary Plains Village component, except for scattered debris of recent provenance that relates to a historic European American farmstead component. No evidence of the presence of a preceramic period component was found in the two deep test units that were dug in the north site area. Therefore, the discussion that follows relates only to this single identified component.

Culture History and Chronology

The northern part of the Elbee site was found to contain evidence of a single Plains Village archeological component, radiocarbon dated to the mid-A.D. 1500s, and affiliated with, or at least related in some way to, the Scattered Village complex. The Scattered Village complex, generally dated to ca. A.D. 1400-1600, was originally defined to account for certain less prominent village components within the KNRI that exhibited ceramic assemblages that were not fully compatible with existing wares (Lovick and Ahler 1982:209-212). Key components of the complex are found at the Forkorner, Hump, and Youess sites in the KNRI (Ahler and Mehrer 1984). Such an interpretation is controversial, however, because a Scattered Village complex affiliation was denied by the earlier study of the central part of Elbee, which instead suggested a relationship to the Extended Coalescent variant of north-central South Dakota (Ahler 1984). In the summary of Plains Village cultural taxonomy for the upper Knife-Heart region, the Plains Village component at Elbee was left unclassified as to phase, complex, or ethnic tradition, with the previous Extended Coalescent variant assignment apparently dropped (Ahler 1993:76). Furthermore, use of the Scattered Village complex was discontinued altogether in the taxonomic summary, replacing it with two newly defined phases: the Scattered Village phase and the Mandan Lake phase (Ahler 1993:80-85). Be this as it may, a recent reassessment of the Scattered Village complex vis-à-vis the Northeastern Plains Village complex lends some credibility to the Scattered Village complex as a viable archeological taxon, as well as supporting a Scattered Village complex interpretation for Elbee, particularly in light of its age and ceramic attributes (Toom 2004).

Subsistence Economy

Like most other Middle Missouri village components, the occupants of the Elbee village had a tripartite subsistence economy based on (1) bison hunting, (2) horticulture, or garden agriculture, and (3) broad spectrum hunting and gathering, or foraging (cf. Toom 1992b). The very large animal fraction of the faunal assemblage was wholly dominated by bison or probable bison elements. In fact, the entire assemblage is dominated by bison remains when likely non-subsistence (small animal) elements are eliminated from consideration. The presence of a minority of elements from large- and medium-sized animals is indicative of some general hunting as well.

Four native cultivars were identified in feature flotation and water screen samples: (1) corn, or maize (*Zea mays*), (2) bean (*Phaseolus vulgaris*), (3) sunflower (*Helianthus annuus*), and (4) squash (*Cucurbita pepo*). These four species represent the primary native food cultivars grown by northern Plains Village peoples (Toom 1992b). Wild plants identified in the samples include weeds and herbs, as well as fruit-bearing shrubs and small trees. Goosefoot and purslane seeds were especially numerous in F101, the basin hearth. Goosefoot (*Chenopodium*) is a member of the cheno-am family of weedy annuals whose greens and seeds could be eaten. Purslane (*Portulaca oleracea*) is a succulent herb that was sometimes eaten as a potherb or in salads. Both of the pits, especially F103, yielded seeds of dogwood (*Cornus stolonifera*). Known as Kinnikinnick, the dried inner bark of this species of red dogwood was used for smoking (Gilmore 1977:56). Identified wild fruits were plum (*Prunus Americana*), chokecherry (*Prunus virginiana*), and buffaloberry (*Shepherdia argentea*). All of the wild fruit remains were recovered from the two pits. Of the three, chokecherry was the most numerous.

The presence of native cultivars, especially corn, is a sure sign that horticulture, or garden agriculture, was a significant aspect of the subsistence economy of the occupants of Elbee. The added presence of wild plant foods of various kinds indicates that gathering was of considerable importance as well.

Settlement Pattern

A settlement pattern describes the way a people occupy and distribute themselves across the landscape in order to acquire or produce subsistence goods. The position of site components within a general settlement system is inferred through considerations of site function based on detailed artifactual and ecofactual analyses. In other words, determining the function of a site occupation through in-depth technological and subsistence (economic) studies is a key first step in identifying its particular position in the overall settlement pattern of a prehistoric culture. The components in question can then be assigned to recognized settlement types such as those proposed by Binford (1980), which seem to have considerable relevance to the late prehistoric cultures of the region.

For example, the mixed economy of Plains Village peoples, which, as we have seen, is based on a combination of big game hunting, horticulture, and general foraging, would require a logistical organizational strategy for the procurement of plant and animal resources. Under a logistical strategy, specific resources were produced by specially organized task groups.

> Logistical strategies are labor accommodations to incongruent distributions of critical resources or conditions which otherwise restrict mobility. Put another way, they are accommodations to the situation where consumers are near one critical resource but far from another equally critical resource. Specially constituted labor units - task groups - therefore leave a residential location, generally moving some distance away to specifically selected locations judged most likely to result in the procurement of specific resources (Binford 1980:10).

It is the horticultural practices of Northern Plains Villagers at their permanent villages, most of which were located in the Missouri River valley, that would have been the primary factor restricting mobility at various times of the year among these semisedentary peoples. Special task groups dispatched from the villages would have included hunting and gathering parties whose main task was the collection of wild plant and animal resources between periods of maximum horticultural activity (see Hurt 1969; Richtsmeier 1980; Toom 1992b). The acquisition of other raw materials (e.g., plant foods and lithics) was probably a secondary concern of these task groups.

The logistical organization of Plains Villagers indicates a collector type of settlement-subsistence system (Binford 1980:10-12). General site types identified for collectors include: (1) residential bases, (2) locations, (3) field camps, (4) stations, and (5) caches. The residential base is "the hub of subsistence activities, the locus out of which foraging [collecting] parties originate and where most processing, manufacturing, and maintenance activities take place" (Binford 1980:9). The permanent or recurrently occupied earthlodge villages of Plains Villagers were their residential bases. Locations, which are also often referred to as activity areas, are special-purpose sites devoted exclusively to resource production or acquisition. In the case of Plains Villagers, these would have included garden plots, animal-kill and kill processing (butchering) sites, gathering areas, quarries, and similar specialized activity loci. A field camp is a temporary base of operations for a task group while it is away from the main residential base. Stations are special-purpose sites used by task groups to gather information. And caches are sites where bulk subsistence goods are temporarily stored in the field while awaiting transportation to the residential base. Individual burial sites and cemeteries are other special-purpose site types, or feature types within a larger site complex, that can be added to this model for late prehistoric cultures in the Northern Plains.

Given the presence of domestic village features at Elbee, including pits, hearths, and house remains, it is clear that the site functioned as a residential base (earthlodge village) in the overall settlement pattern of its occupants.

Technology

The general technology in use at the Elbee village site was typical of the Middle Plains Village period in the Northern Plains. Ceramic vessels were used for cooking and perhaps for storage. Bone tools were also common, especially bison scapula hoes, or gardening tools. A variety of chipped stone tools and pecked and ground stone tools were utilized at the site for various manufacturing and maintenance tasks. The bow and arrow was the primary projectile weapon used for hunting and defense. Knife River flint was used almost exclusively in the manufacture of chipped stone tools, as one would expect given the location of the site on the Knife River not far from the main Knife River flint quarries. Other western North Dakota lithic resources were also used but only in very small quantities.

Finally, of particular note at Elbee is the solid evidence for use of earthlodge-type houses. Both direct and indirect evidence for the presence of earthlodges was found at the site. It is this feature of the site—the earthlodge—that is one of its most definitive characteristics. Direct evidence of earthlodges was found in 1978 by the partial excavation of a circular pattern of house floor features. Indirect evidence of houses in the 2003 excavations consists of the presence of an earthlodge-type basin hearth and a possible intramural storage pit in two of the excavation units.

Artifact and Feature Style

The pottery assemblage from the 2003 excavations consists of a group of three different traditionally defined wares: Buchanan ware, Riggs ware, and Knife River ware. All have everted, straight to out-curved rim forms. The differences in ware classification mainly involve certain subtleties of decoration and surface treatment. All could be classified as the newly defined Stanton ware (Ahler 2001) if one chooses to abandon the older wares. It is significant that no S-rims were identified in the assemblage, suggesting that the occupants of Elbee had not lived on the Missouri River for any length of time, and had had little contact with the long-term residents of the upper Middle Missouri region prior to their arrival.

Except for the absence of S-rims, the ceramic sample from the 2003 excavations compares quite favorably with that from 1978. S-rims comprise 14.3% of the 1978 sample (Ahler 1984:100), so this vessel form is not entirely absent from the composite Elbee ceramic assemblage. The remaining 85.7% of the vessels in the 1978 sample have straight, everted rims, including straight unbraced rims at 57.1% and straight braced rims at 28.6% (Ahler 1984:100, 249). The straight braced rims are classifiable as Knife River ware, and the straight unbraced rims are classifiable as either Buchanan ware or Riggs ware depending on their particular decorative application and surface treatment. Therefore, except for the S-rims, there is little difference between the two Elbee ceramic samples. Of special note are the several horizontally incised or trailed straight-rim vessels, all of which are classifiable as Buchanan ware. One of these Buchanan Horizontally Incised/Trailed specimens in the 1978 sample exhibits what appears to be a channeled lip (Ahler 1984:Figure 20[24]). Lip channeling is an attribute specifically associated with the Northeastern Plains Village complex (Toom 2004:287); it also has been tentatively identified on a number of Scattered Village complex vessels from the Forkorner, Hump, and Youess sites illustrated by Ahler and Mehrer (1984). The commonality of such a specific decorative attribute, some might say a symbol, leaves little doubt that some kind of relationship exists between the Elbee ceramic assemblage and those of the other Scattered Village complex sites. The emphasis in these assemblages on horizontally incised or trailed line decoration is another obvious connecting factor, regardless of whether they are on straight rims or S-rims.

Turning to the other Scattered Village complex components in the KNRI at the Forkorner, Hump, and Youess sites, composite ceramic data do indicate a preponderance of S-rim vessels in their samples. Overall, 79.3% of the classified vessels were assigned to Unnamed S-Rim ware, and 18.7% were assigned to Unnamed Straight Rim ware (Table 5.1). The remaining 2.0% of other classified vessels were also S-rims, either Le Beau or Fort Yates. The overwhelming numbers of S-rims in the other Scattered Village complex assemblages certainly do constitute a significant departure from the Elbee assemblage, which exhibits a preponderance of straight rims over S-rims. Explaining such a discrepancy in terms other than sampling bias is not readily done. Perhaps what we are looking at are temporal or

Table 5.1. Summary of Classified Ceramic Vessels from Scattered Village Complex Sites in the KNRI (Ahler and Mehrer 1984:216, 230, 245, 263, and 284)

Site Name		Unnamed Straight Rim	Unnamed S-Rim	Other Classified
Forkorner	n	14	108	1
	%	11.4	87.8	0.8
Hump	n	2	10	1
	%	15.4	76.9	7.7
Youess	n	31	81	3
	%	27.0	70.4	2.6
Total	**n**	**47**	**199**	**5**
	%	**18.7**	**79.3**	**2.0**

phase differences within the larger Scattered Village complex itself. In this regard, it is of interest to note that only one straight braced rim is recorded in the Forkorner, Hump, and Youess samples, accounting for a mere 0.5% of the combined samples. This suggests that the other Scattered Village complex components are somewhat earlier than the Elbee component, which has 25.5% straight braced rims overall in its composite ceramic sample. Such a conclusion is born out by the radiocarbon dating of the Forkorner, Hump, and Youess components, which places their occupations in the early A.D. 1400s (Ahler 1984).

Projectile point styles are of no assistance in resolving the problem of ceramic interpretation because all classifiable specimens in the 2003 Elbee stone tool sample were uniformly of the Plains Side-Notched type, which is generally consistent with all Early to Middle period Plains Village assemblages in the upper Middle Missouri.

The presence of at least one circular earthlodge at Elbee is of considerable importance regarding house style. The circular earthlodge was a relatively late development in the Northern Plains and is definitive of what is generally referred to as the Plains Village Coalescent tradition (see Lehmer 1971). Just why a circular house is present at Elbee at a time when one might expect to find the earlier rectangular-style earthlodge still in use is presently unclear (cf. Ahler 1984:208-209). Perhaps the occupants of Elbee were relatively recent arrivals on the Missouri River and were among the first to adopt the new house form. On the other hand, simple circular houses may have been typical of the Scattered Village complex and its suggested predecessor, the Northeastern Plains Village complex. Unfortunately, the house type of the Northeastern Plains Village complex is unknown, at least in its earlier phases (Toom 2004).

Other features excavated in 2003 were more or less typical of those at other Plains Village components in the region. These included a basin-shaped hearth, believed to be the central hearth of an earthlodge, and two undercut storage pits, one of which is thought to be an intramural pit. This latter pit was somewhat unusual in that it had a figure eight or double pit configuration. It was speculated that the smaller of the two adjoining pits allowed easier access to the larger pit.

Regional Interaction and Territoriality

If the proposed connection between the Northeastern Plains Village complex and the Scattered Village complex is correct (Toom 2004), at least in terms of the Elbee site, then it can be posited that the occupants of Elbee were originally residents of eastern North Dakota. The preponderance of straight-rim vessels in the Elbee collection, as well as vessels directly classifiable as Buchanan ware, makes such a relationship seem highly likely. S-rim vessels are unknown in Northeastern Plains Village complex assemblages prior to ca. A.D. 1600, and an emphasis on straight-rim vessels with decorated lips and

horizontally incised or trailed line decoration are among the hallmarks of Middle period Northeastern Plains Village assemblages. The presence of two smoking pipe fragments possibly made of catlinite is another Northeastern Plains Village indicator, pointing to the eastern Dakotas and the catlinite quarries in southwestern Minnesota. Michael Gregg, writing in the North Dakota State Plan, states that "regular occurrence of catlinite artifacts" is one of the defining characteristics of the Northeastern Plains Village complex (SHSND 1990:B.36).

Environmental Reconstruction and Cultural Ecology

The investigations at Elbee in 2003 were not extensive enough to provide much in the way of new information on the related topics of environmental reconstruction and cultural ecology. It can be noted that the primary Plains Village component at the site, situated in the surface of the Knife River A terrace, was associated with the present surface A soil horizon. This obvious lack of any major depositional or erosional events in relation to the former occupation surface suggests that the climate of the past, when the site was occupied, differed little from the climate of today.

Chapter 6
SUMMARY, RECOMMENDATIONS, AND OTHER OBSERVATIONS

In June 2003 the UND archeological field school conducted test excavation work at the Elbee archeological site (32ME408) in the Knife River Indian Villages National Historic Site, Stanton, North Dakota. The work was done at the request of the National Park Service (NPS) to determine if action was warranted to mitigate the impacts of erosion along the Knife River cutbank in the extreme northern site area. A magnetometer survey was conducted by NPS personnel in the fall of 2002 in order to target potential archeological features for excavation in the testing effort. Four 2-x-2-m excavation units (XUs) were dug at the site, three over high interest magnetic anomalies where features were likely to be present. The fourth XU was dug in the far northern part of the site, near the Knife River cutbank, to specifically examine this location for archeological deposits. Two 1-x-1-m squares in the two northernmost XUs were dug down to at least 100 cm to check for the presence of more deeply buried archeological deposits.

Plains Village period artifacts were found to be restricted to the plowzone in the north site area, except for those contained in subsurface features such as pits and hearths. The excavations uncovered three Plains Village archeological features, including two large undercut storage pits and one basin-shaped hearth. These features were completely excavated and their contents account for the bulk of the artifacts recovered from the site. On the basis of these excavations, the northern part of the Elbee site was determined to contain the remains of a single Plains Village archeological component, radiocarbon dated to the mid-A.D. 1500s, and affiliated with the Scattered Village complex. Scattered recent historic debris believed to relate to the William Russell farmstead component also was found in the north site area.

Excavation Units 1, 2, and 3 (XU1-3) were placed over predicted feature locations based on the interpretation of magnetic survey data (Figure 6.1). The fact that all three XUs were actually positive for archeological features is remarkable and attests to the accuracy of the magnetic survey and the interpretation of the magnetic survey data (Volf 2002). Two of the features (F102, XU1, Anomaly A and F103, XU2, Anomaly E) were large undercut storage pits that had been intentionally filled with earth and trash following their primary use. One is thought to have been an intramural (within house) storage pit because of the richness of its artifact content and its atypical double-pit configuration, while the other is believed to have been an extramural (outside house) storage pit. Nevertheless, because indications of other house features were not apparent in the excavations or the magnetic data surrounding either pit, it is entirely possible that both were extramural storage pits. Storage pits such as these are typically found in or near Plains Village tradition earthlodge villages, and are one of the hallmarks of the tradition. The third feature, a basin-shaped hearth (F101, XU3, Anomaly I), was typical of those found as central hearths in earthlodge-type structures. Other magnetic anomalies surrounding the F101 anomaly could be other house features, such as larger postholes or pits. Additional excavation work would be required to positively make such a determination, however, as also would be the case for determining intramural versus extramural context for the two pits.

Given the findings of the test excavation work vis-à-vis the magnetic survey results, it can be concluded that all high interest anomalies identified by the magnetic survey likely represent archeological features such as pits or hearths. Some or all of these features could be associated with house remains whose magnetic signatures have been obscured by plowing. All high interest anomalies are located in the eastern and south-central parts of the north site area, south of grid line 580N. Therefore, it is concluded that the main Plains Village component at the Elbee site was concentrated in the eastern part of the site, along the terrace scarp overlooking the Knife River bottom. It is further concluded that areas of the site located north of grid line 580N are unlikely to contain significant Plains Village archeological deposits. This means that erosion of the high Knife River cutbank in the northern part of the site would have to progress another 50 meters or so into the site area before significant archeological features would be threatened. Comparing the 1982 cutbank location in Figure 1.2 to the 2003 cutbank location in Figure 3.1, it can be seen that the Knife River cutbank has receded anywhere from 10 to 20 m over a period of some 20 years. While it is difficult to precisely predict rates of cutbank erosion along rivers, which tend to be more episodic than incremental, the available data do suggest that significant archeological deposits in the northern part of the Elbee site will not be seriously threatened by erosion for decades to come.

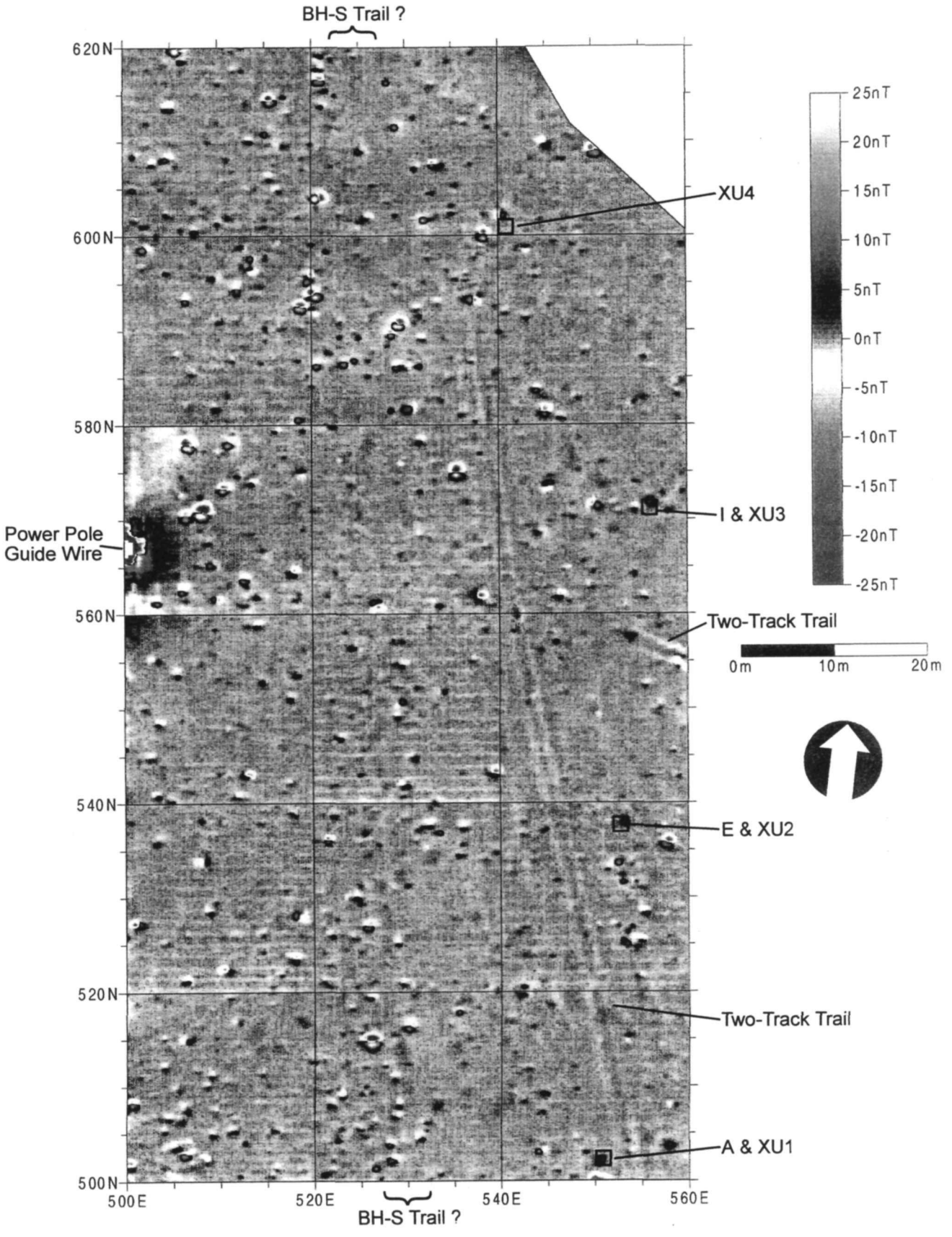


Figure 6.1. Enlarged south half of the magnetic gradient map of the northern part of the Elbee site (32ME408) showing the locations of the 2003 Excavation Units (XU1-4) in relation to Magnetic Anomalies A, E, and I, as well as certain linear features or trails (adapted from Volf 2002:21).

Aside from recent historic debris, the 2003 test excavations found no evidence of archeological components in the north site area other than the primary Plains Village component. Cutbank examination and deep testing in the northern part of the site, at the XU3 and XU4 locations, did not reveal any definite indications of older, preceramic-age components. It is possible that a segment of the Big Hidatsa-Sakakawea (BH-S) trail runs through the northern part of the site, but no definite evidence of this was uncovered by the present investigations, except for some suggestive linear patterning in the magnetic data. The magnetic survey map produced for the present project shows faint signs of a single-track trail running more or less parallel to the A terrace scarp between grid points 500NE535 and 620NE525 (Figure 6.1). We also thought that we could see a slight linear depression running lengthwise across the field at this same location when the area was examined on the ground. This is farther west of the location suggested for the Big Hidatsa-Sakakawea trail in the 1978 excavation report, which purported to have uncovered a short segment of the trail (Feature 2, trench) at the eastern end of the main excavation (Ahler 1984:32). The 2002 magnetic map of the northern site area reveals this particular feature to be part of a two-track trail, probably some kind of later historic wagon road or farm road (Figure 6.1). The double linear feature that shows so well on the magnetic survey map was confirmed on the ground to be a two-track trail of probable recent historic origin. Another two-track trail coming up from the Knife River floodplain at grid point 555NE560 joins the main two-track trail on the A terrace at grid point 570NE540. The main two-track trail continues north where it runs straight off the Knife River cutbank just past the location of the Department of Interior (DOI) benchmark that was placed at the site (Figure 6.2).

The presence of intact portions of subsurface Plains Village archeological features within the bounds of the Elbee site makes it clear that the site contains significant archeological remains. Thus, the status of the site as a historic property has been reaffirmed by the present investigations and can be extended to most of the north site area as well. Future investigations of the site would do well to examine the south site area, that part of the site located to the south of the access road, which still remains unevaluated. The combination of magnetic survey work and ground-truth test excavation work that proved so effective in the investigation of the north site area is likewise recommended for the south site area. The question of a segment of the Big Hidatsa-Sakakawea trail running through the site also should be investigated further. In this regard, it can be noted that little or no surface expression of the trail could be expected at the Elbee site due to obscuration by plowing. Therefore, examination of early maps, aerial photos, and other historic documents would be the best starting point from which to approach the location of the trail.

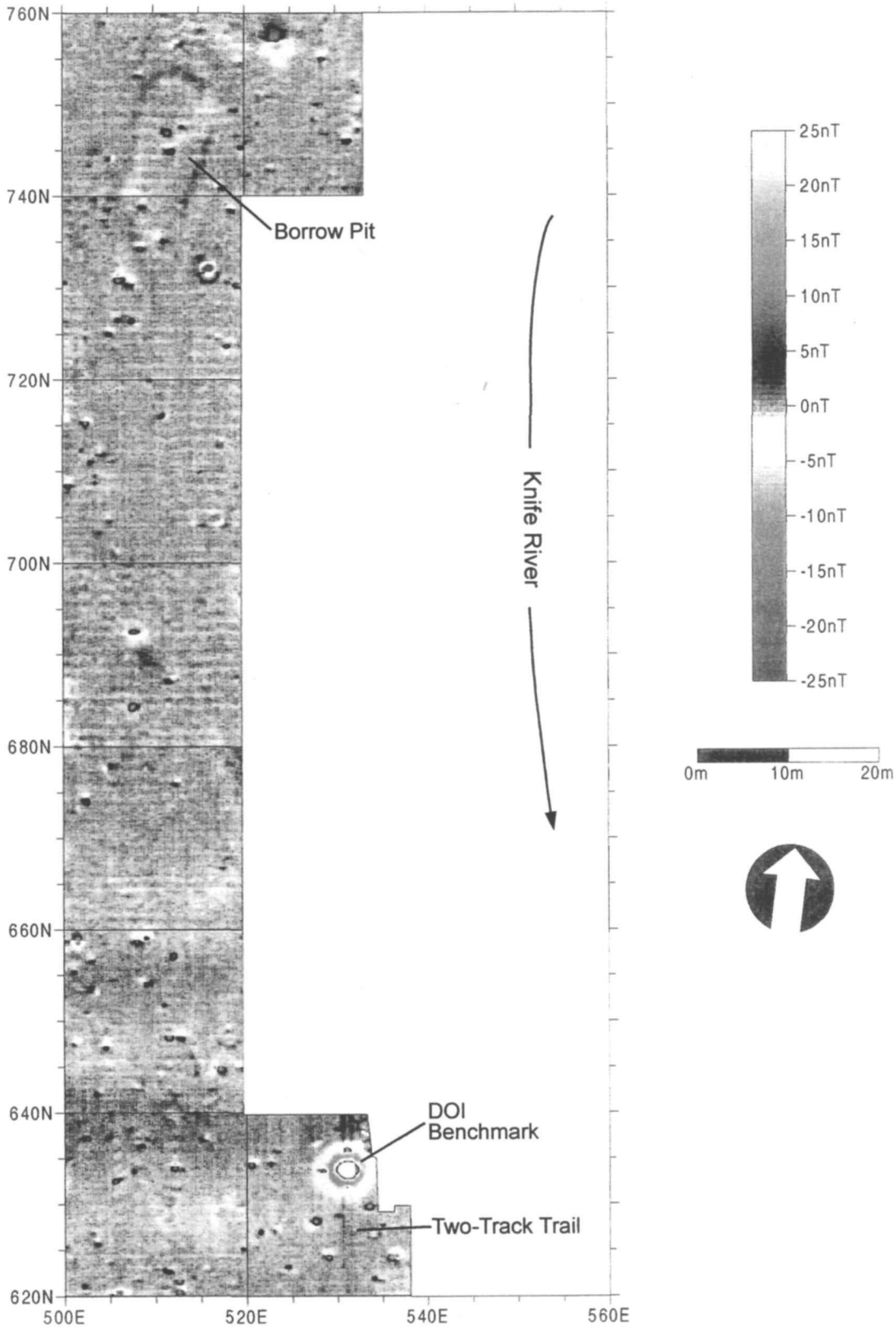


Figure 6.2. Enlarged north half of the magnetic gradient map of the northern part of the Elbee site (32ME408) showing the location of the two-track trail as it drops off the Knife River cutbank (adapted from Volf 2002:22).

Chapter 7
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APPENDIX A

Provenience Code and Data for the Elbee Site (32ME408), 2003 UND Fieldwork.

Table A.1. Provenience Coding Format, Elbee Site (32ME408), 2003 UND Fieldwork.

Field Name	Code	Description/Code Value
CATN		CATALOG NUMBER
XUN		EXCAVATION UNIT NUMBER
SCGN		SQUARE COORDINATE GRID NORTH
SCGE		SQUARE COORDINATE GRID EAST
SLN		SQUARE LEVEL NUMBER
FLN		FEATURE LEVEL NUMBER
SURFDEPTH		SURFACE DEPTH (cm sd)
RCT		RECOVERY TYPE
	QDS	Quarter-inch dry screen
	SWS	Sixteenth-inch water screen
	FLT	Flotation sample/lab water screen
	CCS	Charcoal sample (radiocarbon dating)
	GSC	General surface collected (unscreened)
	PPS	Point-plotted surface artifact
	PPE	Point-plotted excavated artifact
	UNS	Unscreened
	N/A	Not applicable
	VAR	Variable, see excavation form
PES		PERCENT OF EXCAVATED SAMPLE
	100	100%
	089	89% (8/9 dry screen sample)
	011	11% (1/9 water screen sample)
	N/A	Not applicable (surface collected, point-plotted, etc.)
	VAR	Variable, see excavation form
FTN-1		FIRST FEATURE NUMBER (primary feature)
FTN-2		SECOND FEATURE NUMBER (secondary feature in primary)
FTT-1		FIRST FEATURE TYPE (primary feature)
	FORT	Fortification Ditch
	HRTH	Hearth (fire pit or surface fire)
	CPIT	Cache pit (storage pit)
	OPIT	Other pit (roasting, stone boiling, etc.)
	POST	Post
	PSTH	Posthole (Postmold)
	ARTC	Artifact concentration
	ASHD	Ash deposit
	OTHR	Other, unknown, indeterminate
	RARB	Rodent/animal run/burrow
	CCLS	Charcoal Lense

Table A.1 (cont.).

Field Name	Code	Description/Code Value
FTT-2		SECOND FEATURE TYPE (secondary feature in primary)
	[see FFT-1]	[see FFT-1]
SOILHORIZN		SOIL HORIZON ASSOCIATION
	[from profile]	[see profile]
	SUR	Surface collected
	GEN	General (e.g., auger probes)
ACU		ARCHEOLOGICAL CONTEXT UNIT
	PZN	Plowzone
	SPZ	Sub-plowzone
	FTR	Feature
	GLV	General level
	OTR	Other, unknown, indeterminate
	AGP	Auger probe
	SUR	Surface
	MUL	Mixed upper layer
AZN		ARCHEOLOGICAL ZONE
	01	Zone 1: surface A horizon association
CTU		CULTURAL-TEMPORAL UNIT (Component)
	MPV	Middle Plains Village
NOTES		REMARKS (memo field)

Table A.2. Provenience Data According to Unit and Level, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408 — **Provenience Data (x xun, sln, fln, catn)** — **UND ACN: 2003-0004**

CATN	XUN	SCGN	SCGE	SLN	FLN	SURFDEPTH	RCT	PES	FTN-1	FTN-2	FTT-1	FTT-2	SOILHORIZN	ACU	AZN	CTU	NOTES
1001	01	501	550	01		0-17	QDS	100					Ap1	1PZN	01	MPV	
1004	01	501	551	01		0-15	QDS	100					Ap1	1PZN	01	MPV	
1007	01	502	551	01		0-14	QDS	100					Ap1	1PZN	01	MPV	
1012	01	502	550	01		0-17	QDS	100					Ap1	1PZN	01	MPV	
1015	01	501	550	02		17-27	QDS	089					Ap2	1PZN	01	MPV	
1016	01	501	550	02		17-27	SWS	011					Ap2	1PZN	01	MPV	
1023	01	502	550	02		17-27	QDS	100					Ap2	1PZN	01	MPV	
1027	01	502	551	02		14-21	QDS	100					Ap2	1PZN	01	MPV	
1032	01	501	551	02		15-22	QDS	100					Ap2	1PZN	01	MPV	
1039	01	501	550	03	01	24-88	SWS	100	F102		CPIT		Ap2	2FTR	01	MPV	ALSO 502NE550 & 502NE551
1040	01	501	550	03	01	44	PPE	N/A	F102		CPIT		Ap2	2FTR	01	MPV	RIM SHERD
1041	01	501	550	03	01	24-88	FLT	100	F102		CPIT		Ap2	2FTR	01	MPV	ALSO 502NE550 & 502NE551; 14 liter flotatio
1046	01	501	550	03	01	24-88	CCS	100	F102		CPIT		Ap2	2FTR	01	MPV	ALSO 502NE550 & 502NE551
1002	02	537	552	01		0-18	QDS	100					Ap1	1PZN	01	MPV	
1005	02	537	553	01		0-18	QDS	100					Ap1	1PZN	01	MPV	
1008	02	538	553	01		0-18	QDS	100					Ap1	1PZN	01	MPV	
1013	02	538	552	01		0-18	QDS	100					Ap1	1PZN	01	MPV	
1017	02	537	552	02		18-28	QDS	089					Ap2	1PZN	01	MPV	
1018	02	537	552	02		18-28	SWS	011					Ap2	1PZN	01	MPV	
1022	02	538	552	02		18-27	QDS	100					Ap2	1PZN	01	MPV	
1026	02	538	553	02		18-27	QDS	100					Ap2	1PZN	01	MPV	
1030	02	537	553	02		18-28	QDS	100					Ap2	1PZN	01	MPV	
1036	02	537	553	03	01	25-109	FLT	100	F103		CPIT		Ap2	2FTR	01	MPV	ALSO 537NE552 & 538NE553 & 538NE552; 2
1037	02	537	553	03	01	25-109	SWS	100	F103		CPIT		Ap2	2FTR	01	MPV	ALSO 537NE552 & 538NE553 & 538NE552
1038	02	537	553	03	01	25-109	CCS	100	F103		CPIT		Ap2	2FTR	01	MPV	ALSO 537NE552 & 538NE553 & 538NE552
1003	03	570	555	01		0-16	QDS	100					Ap1	1PZN	01	MPV	
1006	03	570	556	01		0-16	QDS	100					Ap1	1PZN	01	MPV	
1009	03	571	555	01		0-18	QDS	100					Ap1	1PZN	01	MPV	
1010	03	571	556	01		0-19	QDS	100					Ap1	1PZN	01	MPV	

Table A.2. Provenience Data According to Unit and Level, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408 — **Provenience Data (x xun, sln, fln, catn)** — **UND ACN: 2003-0004**

CATN	XUN	SCGN	SCGE	SLN	FLN	SURFDEPTH	RCT	PES	FTN-1	FTN-2	FTT-1	FTT-2	SOILHORIZN	ACU	AZN	CTU	NOTES
1019	03	570	555	02		16-31	QDS	089					Ap2-AB	1PZN	01	MPV	
1020	03	570	555	02		16-31	SWS	011					Ap2-AB	1PZN	01	MPV	
1024	03	571	555	02		18-33	QDS	100					Ap2-AB	1PZN	01	MPV	
1025	03	570	556	02		16-28	QDS	100					Ap2-AB	1PZN	01	MPV	
1028	03	571	556	02		19-31	QDS	100					Ap2-AB	1PZN	01	MPV	
1042	03	570	555	03		31-40	QDS	089					AB-Bk1	3SPZ			
1043	03	570	555	03		31-40	SWS	011					AB-Bk1	3SPZ			
1031	03	571	556	03	01	20-47	FLT	100	F101		HRTH		Ap2	2FTR	01	MPV	ALSO 571NE555; 18 liter flotation sample
1033	03	571	556	03	01	20-47	SWS	100	F101		HRTH		Ap2	2FTR	01	MPV	ALSO 571NE555
1044	03	570	555	04		40-50	QDS	089					Bk1	3SPZ			STERILE
1045	03	570	555	04		40-50	SWS	011					Bk1	3SPZ			
1047	03	570	555	05		50-60	QDS	089					Bk1	3SPZ			STERILE
1048	03	570	555	05		50-60	SWS	011					Bk1	3SPZ			
1049	03	570	555	06		60-70	QDS	089					Bk1-Bk2	3SPZ			STERILE
1050	03	570	555	06		60-70	SWS	011					Bk1-Bk2	3SPZ			
1052	03	570	555	07		70-80	QDS	089					Bk2-Abk	3SPZ			STERILE
1053	03	570	555	07		70-80	SWS	011					Bk2-Abk	3SPZ			
1058	03	570	555	08		80-90	QDS	089					Abk	3SPZ			STERILE
1059	03	570	555	08		80-90	SWS	011					Abk	3SPZ			
1064	03	570	555	09		90-100	QDS	089					Abk-Bbk	3SPZ			
1065	03	570	555	09		90-100	SWS	011					Abk-Bbk	3SPZ			
1011	04	610	540	01		0-14	QDS	100					Ap1	1PZN	01	MPV	
1014	04	610	541	01		0-16	QDS	100					Ap1	1PZN	01	MPV	
1021	04	611	540	01		0-13	QDS	100					Ap1	1PZN	01	MPV	
1029	04	611	541	01		0-16	QDS	100					Ap1	1PZN	01	MPV	
1034	04	610	540	02		14-29	QDS	089					Ap2	1PZN	01	MPV	
1035	04	610	540	02		14-29	SWS	011					Ap2	1PZN	01	MPV	
1051	04	610	541	02		16-32	QDS	100					Ap2	1PZN	01	MPV	
1054	04	611	541	02		16-30	QDS	100					Ap2	1PZN	01	MPV	
1057	04	611	540	02		13-28	QDS	100					Ap2	1PZN	01	MPV	

Table A.2. Provenience Data According to Unit and Level, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408 — **Provenience Data (x xun, sln, fln, catn)** — **UND ACN: 2003-0004**

CATN	XUN	SCGN	SCGE	SLN	FLN	SURFDEPTH	RCT	PES	FTN-1	FTN-2	FTT-1	FTT-2	SOILHORIZN	ACU	AZN	CTU	NOTES
1055	04	610	540	03		29-40	QDS	089					AB	3SPZ			
1056	04	610	540	03		29-40	SWS	011					AB	3SPZ			
1060	04	610	540	04		40-50	QDS	089					AB-Bk1	3SPZ			
1061	04	610	540	04		40-50	SWS	011					AB-Bk1	3SPZ			
1062	04	610	540	05		50-60	QDS	089					Bk1	3SPZ			
1063	04	610	540	05		50-60	SWS	011					Bk1	3SPZ			
1066	04	610	540	06		60-70	QDS	089					Bk1-Bk2	3SPZ			STERILE
1067	04	610	540	06		60-70	SWS	011					Bk1-Bk2	3SPZ			
1068	04	610	540	07		70-80	QDS	089					Bk2	3SPZ			STERILE
1069	04	610	540	07		70-80	SWS	011					Bk2	3SPZ			
1070	04	610	540	08		80-90	QDS	089					Bk2-Abk	3SPZ			
1071	04	610	540	08		80-90	SWS	011					Bk2-Abk	3SPZ			
1072	04	610	540	09		90-100	QDS	089					Abk	3SPZ			STERILE
1073	04	610	540	09		90-100	SWS	011					Abk	3SPZ			
1074	04	610	540	10		100-110	QDS	089					Abk-Bbk	3SPZ			STERILE
1075	04	610	540	10		100-110	SWS	011					Abk-Bbk	3SPZ			

Table A.3. Provenience Data According to Catalog Number, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408 — **Provenience Data (x catn)** — **UND ACN: 2003-0004**

CATN	XUN	SCGN	SCGE	SLN	FLN	SURFDEPTH	RCT	PES	FTN-1	FTN-2	FTT-1	FTT-2	SOILHORIZN	ACU	AZN	CTU	NOTES
1001	01	501	550	01		0-17	QDS	100					Ap1	1PZN	01	MPV	
1002	02	537	552	01		0-18	QDS	100					Ap1	1PZN	01	MPV	
1003	03	570	555	01		0-16	QDS	100					Ap1	1PZN	01	MPV	
1004	01	501	551	01		0-15	QDS	100					Ap1	1PZN	01	MPV	
1005	02	537	553	01		0-18	QDS	100					Ap1	1PZN	01	MPV	
1006	03	570	556	01		0-16	QDS	100					Ap1	1PZN	01	MPV	
1007	01	502	551	01		0-14	QDS	100					Ap1	1PZN	01	MPV	
1008	02	538	553	01		0-18	QDS	100					Ap1	1PZN	01	MPV	
1009	03	571	555	01		0-18	QDS	100					Ap1	1PZN	01	MPV	
1010	03	571	556	01		0-19	QDS	100					Ap1	1PZN	01	MPV	
1011	04	610	540	01		0-14	QDS	100					Ap1	1PZN	01	MPV	
1012	01	502	550	01		0-17	QDS	100					Ap1	1PZN	01	MPV	
1013	02	538	552	01		0-18	QDS	100					Ap1	1PZN	01	MPV	
1014	04	610	541	01		0-16	QDS	100					Ap1	1PZN	01	MPV	
1015	01	501	550	02		17-27	QDS	089					Ap2	1PZN	01	MPV	
1016	01	501	550	02		17-27	SWS	011					Ap2	1PZN	01	MPV	
1017	02	537	552	02		18-28	QDS	089					Ap2	1PZN	01	MPV	
1018	02	537	552	02		18-28	SWS	011					Ap2	1PZN	01	MPV	
1019	03	570	555	02		16-31	QDS	089					Ap2-AB	1PZN	01	MPV	
1020	03	570	555	02		16-31	SWS	011					Ap2-AB	1PZN	01	MPV	
1021	04	611	540	01		0-13	QDS	100					Ap1	1PZN	01	MPV	
1022	02	538	552	02		18-27	QDS	100					Ap2	1PZN	01	MPV	
1023	01	502	550	02		17-27	QDS	100					Ap2	1PZN	01	MPV	
1024	03	571	555	02		18-33	QDS	100					Ap2-AB	1PZN	01	MPV	
1025	03	570	556	02		16-28	QDS	100					Ap2-AB	1PZN	01	MPV	
1026	02	538	553	02		18-27	QDS	100					Ap2	1PZN	01	MPV	
1027	01	502	551	02		14-21	QDS	100					Ap2	1PZN	01	MPV	
1028	03	571	556	02		19-31	QDS	100					Ap2-AB	1PZN	01	MPV	
1029	04	611	541	01		0-16	QDS	100					Ap1	1PZN	01	MPV	
1030	02	537	553	02		18-28	QDS	100					Ap2	1PZN	01	MPV	
1031	03	571	556	03	01	20-47	FLT	100	F101		HRTH		Ap2	2FTR	01	MPV	ALSO 571NE555; 18 liter flotation sample

Table A.3. Provenience Data According to Catalog Number, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408 — **Provenience Data (x catn)** — **UND ACN: 2003-0004**

CATN	XUN	SCGN	SCGE	SLN	FLN	SURFDEPTH	RCT	PES	FTN-1	FTN-2	FTT-1	FTT-2	SOILHORIZN	ACU	AZN	CTU	NOTES
1032	01	501	551	02		15-22	QDS	100					Ap2	1PZN	01	MPV	
1033	03	571	556	03	01	20-47	SWS	100	F101		HRTH		Ap2	2FTR	01	MPV	ALSO 571NE555
1034	04	610	540	02		14-29	QDS	089					Ap2	1PZN	01	MPV	
1035	04	610	540	02		14-29	SWS	011					Ap2	1PZN	01	MPV	
1036	02	537	553	03	01	25-109	FLT	100	F103		CPIT		Ap2	2FTR	01	MPV	ALSO 537NE552 & 538NE553 & 538NE552; 2
1037	02	537	553	03	01	25-109	SWS	100	F103		CPIT		Ap2	2FTR	01	MPV	ALSO 537NE552 & 538NE553 & 538NE552
1038	02	537	553	03	01	25-109	CCS	100	F103		CPIT		Ap2	2FTR	01	MPV	ALSO 537NE552 & 538NE553 & 538NE552
1039	01	501	550	03	01	24-88	SWS	100	F102		CPIT		Ap2	2FTR	01	MPV	ALSO 502NE550 & 502NE551
1040	01	501	550	03	01	44	PPE	N/A	F102		CPIT		Ap2	2FTR	01	MPV	RIM SHERD
1041	01	501	550	03	01	24-88	FLT	100	F102		CPIT		Ap2	2FTR	01	MPV	ALSO 502NE550 & 502NE551; 14 liter flotatio
1042	03	570	555	03		31-40	QDS	089					AB-Bk1	3SPZ			
1043	03	570	555	03		31-40	SWS	011					AB-Bk1	3SPZ			
1044	03	570	555	04		40-50	QDS	089					Bk1	3SPZ			STERILE
1045	03	570	555	04		40-50	SWS	011					Bk1	3SPZ			
1046	01	501	550	03	01	24-88	CCS	100	F102		CPIT		Ap2	2FTR	01	MPV	ALSO 502NE550 & 502NE551
1047	03	570	555	05		50-60	QDS	089					Bk1	3SPZ			STERILE
1048	03	570	555	05		50-60	SWS	011					Bk1	3SPZ			
1049	03	570	555	06		60-70	QDS	089					Bk1-Bk2	3SPZ			STERILE
1050	03	570	555	06		60-70	SWS	011					Bk1-Bk2	3SPZ			
1051	04	610	541	02		16-32	QDS	100					Ap2	1PZN	01	MPV	
1052	03	570	555	07		70-80	QDS	089					Bk2-Abk	3SPZ			STERILE
1053	03	570	555	07		70-80	SWS	011					Bk2-Abk	3SPZ			
1054	04	611	541	02		16-30	QDS	100					Ap2	1PZN	01	MPV	
1055	04	610	540	03		29-40	QDS	089					AB	3SPZ			
1056	04	610	540	03		29-40	SWS	011					AB	3SPZ			
1057	04	611	540	02		13-28	QDS	100					Ap2	1PZN	01	MPV	
1058	03	570	555	08		80-90	QDS	089					Abk	3SPZ			STERILE
1059	03	570	555	08		80-90	SWS	011					Abk	3SPZ			
1060	04	610	540	04		40-50	QDS	089					AB-Bk1	3SPZ			
1061	04	610	540	04		40-50	SWS	011					AB-Bk1	3SPZ			
1062	04	610	540	05		50-60	QDS	089					Bk1	3SPZ			

Table A.3. Provenience Data According to Catalog Number, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408 **Provenience Data (x catn)** **UND ACN: 2003-0004**

CATN	XUN	SCGN	SCGE	SLN	FLN	SURFDEPTH	RCT	PES	FTN-1	FTN-2	FTT-1	FTT-2	SOILHORIZN	ACU	AZN	CTU	NOTES
1063	04	610	540	05		50-60	SWS	011					Bk1	3SPZ			
1064	03	570	555	09		90-100	QDS	089					Abk-Bbk	3SPZ			
1065	03	570	555	09		90-100	SWS	011					Abk-Bbk	3SPZ			
1066	04	610	540	06		60-70	QDS	089					Bk1-Bk2	3SPZ			STERILE
1067	04	610	540	06		60-70	SWS	011					Bk1-Bk2	3SPZ			
1068	04	610	540	07		70-80	QDS	089					Bk2	3SPZ			STERILE
1069	04	610	540	07		70-80	SWS	011					Bk2	3SPZ			
1070	04	610	540	08		80-90	QDS	089					Bk2-Abk	3SPZ			
1071	04	610	540	08		80-90	SWS	011					Bk2-Abk	3SPZ			
1072	04	610	540	09		90-100	QDS	089					Abk	3SPZ			STERILE
1073	04	610	540	09		90-100	SWS	011					Abk	3SPZ			
1074	04	610	540	10		100-110	QDS	089					Abk-Bbk	3SPZ			STERILE
1075	04	610	540	10		100-110	SWS	011					Abk-Bbk	3SPZ			

APPENDIX B

Artifact Inventory Codes and Data for the Elbee Site (32ME408), 2003 UND Fieldwork.

Table B.1. Native Ceramics Inventory Coding Format, Elbee Site (32ME408), 2003 UND Fieldwork.

Field/Variable	Variable Name/Description
CATN	Catalog number
XUN	Excavation unit number
SLN	Square level number
FLN	Feature level number
FTN-1	First feature number (primary feature)
ACU	Archeological context unit
G1SHN	Grade 1 native ceramic sherds number
G2SHN	Grade 2 native ceramic sherds number
G3SHN	Grade 3 native ceramic sherds number
TLSHN	Total grade 1-3 native ceramic sherds number
G1SHW	Grade 1 native ceramic sherds weight (to 0.1 g)
G2SHW	Grade 2 native ceramic sherds weight (to 0.1 g)
G3SHW	Grade 3 native ceramic sherds weight (to 0.1 g)
TLSHW	Total grade 1-3 native ceramic sherds weight (to 0.1 g)
G1RMN	Grade 1 native ceramic rim sherds number
G2RMN	Grade 2 native ceramic rim sherds number
G3RMN	Grade 3 native ceramic rim sherds number
TLRMN	Total grade 1-3 native ceramic rim sherds number
G1OTN	Grade 1 other native ceramic object number
G2OTN	Grade 2 other native ceramic object number
G3OTN	Grade 3 other native ceramic object number
TLOTN	Total grade 1-3 other native ceramic object number

Table B.2. Native Ceramics Inventory Data According to Catalog Number, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408

Native Ceramics Inventory Data (x catn)

UND ACN: 2003-0004

CATN	XUN	SLN	FLN	FTN-1	ACU	G1SHN	G2SHN	G3SHN	TLSHN	G1SHW	G2SHW	G3SHW	TLSHW	G1RMN	G2RMN	G3RMN	TLRMN	G1OTN	G2OTN	G3OTN	TLOTN
1001	01	01			1PZN	0	4	90	94	0.0	9.4	40.6	50.0	0	0	2	2	0	0	0	0
1002	02	01			1PZN	0	1	8	9	0.0	4.3	3.8	8.1	0	1	0	1	0	0	0	0
1003	03	01			1PZN	0	2	65	67	0.0	4.2	35.4	39.6	0	0	3	3	0	0	0	0
1004	01	01			1PZN	0	3	54	57	0.0	7.6	28.4	36.0	0	0	0	0	0	0	0	0
1005	02	01			1PZN	0	0	10	10	0.0	0.0	5.4	5.4	0	0	0	0	0	0	0	0
1006	03	01			1PZN	0	2	82	84	0.0	6.3	31.6	37.9	0	0	0	0	0	0	0	0
1007	01	01			1PZN	0	1	52	53	0.0	1.8	27.3	29.1	0	0	0	0	0	0	0	0
1008	02	01			1PZN	0	0	8	8	0.0	0.0	3.7	3.7	0	0	0	0	0	0	0	0
1009	03	01			1PZN	0	1	48	49	0.0	1.6	21.7	23.3	0	0	0	0	0	0	0	0
1010	03	01			1PZN	0	1	76	77	0.0	2.1	39.8	41.9	0	0	0	0	0	0	0	0
1011	04	01			1PZN	0	0	8	8	0.0	0.0	3.2	3.2	0	0	0	0	0	0	0	0
1012	01	01			1PZN	0	4	45	49	0.0	11.2	22.2	33.4	0	1	0	1	0	0	0	0
1013	02	01			1PZN	0	1	14	15	0.0	8.2	6.3	14.5	0	0	0	0	0	0	0	0
1014	04	01			1PZN	0	0	6	6	0.0	0.0	4.9	4.9	0	0	0	0	0	0	0	0
1015	01	02			1PZN	0	9	68	77	0.0	27.9	34.3	62.2	0	0	0	0	0	0	0	0
1016	01	02			1PZN	0	0	5	5	0.0	0.0	3.5	3.5	0	0	0	0	0	0	0	0
1017	02	02			1PZN	0	0	2	2	0.0	0.0	0.9	0.9	0	0	0	0	0	0	0	0
1018	02	02			1PZN	0	0	1	1	0.0	0.0	0.6	0.6	0	0	0	0	0	0	0	0
1019	03	02			1PZN	0	0	35	35	0.0	0.0	17.7	17.7	0	0	0	0	0	0	0	0
1020	03	02			1PZN	0	2	9	11	0.0	14.4	5.3	19.7	0	2	0	2	0	0	0	0
1021	04	01			1PZN	0	0	8	8	0.0	0.0	4.0	4.0	0	0	0	0	0	0	0	0
1022	02	02			1PZN	0	1	3	4	0.0	1.7	3.2	4.9	0	0	0	0	0	0	0	0
1023	01	02			1PZN	0	6	35	41	0.0	15.1	15.5	30.6	0	0	1	1	0	0	0	0
1024	03	02			1PZN	1	3	37	41	19.7	8.4	15.8	43.9	0	0	1	1	0	0	0	0
1025	03	02			1PZN	0	2	16	18	0.0	5.4	10.9	16.3	0	0	0	0	0	0	0	0
1026	02	02			1PZN	0	0	4	4	0.0	0.0	2.2	2.2	0	0	0	0	0	0	0	0
1027	01	02			1PZN	0	0	18	18	0.0	0.0	9.8	9.8	0	0	1	1	0	0	0	0
1028	03	02			1PZN	0	0	15	15	0.0	0.0	7.7	7.7	0	0	1	1	0	0	0	0
1029	04	01			1PZN	0	0	3	3	0.0	0.0	1.6	1.6	0	0	0	0	0	0	0	0
1030	02	02			1PZN	0	2	15	17	0.0	9.8	6.1	15.9	0	2	0	2	0	0	0	0

Table B.2. Native Ceramics Inventory Data According to Catalog Number, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408

Native Ceramics Inventory Data (x catn)

UND ACN: 2003-0004

CATN	XUN	SLN	FLN	FTN-1	ACU	G1SHN	G2SHN	G3SHN	TLSHN	G1SHW	G2SHW	G3SHW	TLSHW	G1RMN	G2RMN	G3RMN	TLRMN	G1OTN	G2OTN	G3OTN	TLOTN
1031	03	03	01	F101	2FTR	0	2	18	20	0.0	5.0	8.5	13.5	0	0	0	0	0	0	0	0
1032	01	02			1PZN	0	1	10	11	0.0	1.9	5.1	7.0	0	0	0	0	0	0	0	0
1033	03	03	01	F101	2FTR	1	4	51	56	16.8	8.8	23.3	48.9	0	0	0	0	0	0	0	0
1034	04	02			1PZN	0	0	5	5	0.0	0.0	1.6	1.6	0	0	0	0	0	0	0	0
1035	04	02			1PZN	0	0	1	1	0.0	0.0	0.5	0.5	0	0	0	0	0	0	0	0
1036	02	03	01	F103	2FTR	0	0	2	2	0.0	0.0	2.3	2.3	0	0	0	0	0	0	0	0
1037	02	03	01	F103	2FTR	2	21	120	143	38.1	89.7	56.3	184.1	1	1	0	2	0	0	0	0
1039	01	03	01	F102	2FTR	0	32	234	266	0.0	96.1	113.4	209.5	0	1	2	3	0	0	0	0
1040	01	03	01	F102	2FTR	1	0	0	1	102.3	0.0	0.0	102.3	1	0	0	1	0	0	0	0
1041	01	03	01	F102	2FTR	0	1	10	11	0.0	2.5	3.4	5.9	0	0	0	0	0	0	0	0
1042	03	03			3SPZ	0	0	2	2	0.0	0.0	1.6	1.6	0	0	0	0	0	0	0	0
1043	03	03			3SPZ	0	0	2	2	0.0	0.0	1.1	1.1	0	0	0	0	0	0	0	0
1051	04	02			1PZN	0	1	17	18	0.0	3.0	13.1	16.1	0	0	2	2	0	0	0	0
1054	04	02			1PZN	0	0	2	2	0.0	0.0	2.6	2.6	0	0	0	0	0	0	0	0
1057	04	02			1PZN	0	1	4	5	0.0	5.8	1.6	7.4	0	0	0	0	0	0	0	0
Totals						**5**	**108**	**1318**	**1431**	**176.9**	**352.2**	**647.8**	**1176.9**	**2**	**8**	**13**	**23**	**0**	**0**	**0**	**0**

Table B.3. Lithics Inventory Coding Format, Elbee Site (32ME408), 2003 UND Fieldwork.

Field/Variable	*Variable Name/Description*
CATN	Catalog number
XUN	Excavation unit number
FTN-1	First feature number (primary feature)
ACU	Archeological context unit
TLSTL	Total grade 1-4 stone tools number
G1FKN	Grade 1 flake debris number
G2FKN	Grade 2 flake debris number
G3FKN	Grade 3 flake debris number
G4FKN	Grade 4 flake debris number
TLFKN	Total grade 1-4 flake debris number
G1FKW	Grade 1 flake debris weight (to 0.1 g)
G2FKW	Grade 2 flake debris weight (to 0.1 g)
G3FKW	Grade 3 flake debris weight (to 0.1 g)
G4FKW	Grade 4 flake debris weight (to 0.1 g)
TLFKW	Total grade 1-4 flake debris weight (to 0.1 g)
G1FCRN	Grade 1 fire-cracked rock number
G2FCRN	Grade 2 fire-cracked rock number
G3FCRN	Grade 3 fire-cracked rock number
TLFCRN	Total grade 1-3 fire-cracked rock number
G1FCRW	Grade 1 fire-cracked rock weight (to 0.1 g)
G2FCRW	Grade 2 fire-cracked rock weight (to 0.1 g)
G3FCRW	Grade 3 fire-cracked rock weight (to 0.1 g)
TLFCRW	Total grade 1-3 fire-cracked rock weight (to 0.1 g)

Table B.4. Lithics Inventory Data According to Catalog Number, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408

Lithics Inventory Data (x catn)

UND ACN: 2003-0004

CATN	XUN	FTN-1	ACU	TLSTL	G1FKN	G2FKN	G3FKN	G4FKN	TLFKN	G1FKW	G2FKW	G3FKW	G4FKW	TLFKW	G1FCRN	G2FCRN	G3FCRN	TLFCRN	G1FCRW	G2FCRW	G3FCRW	TLFCRW
1001	01		1PZN	2	0	0	22	0	22	0.0	0.0	10.8	0.0	10.8	0	1	15	16	0.0	5.4	11.3	16.7
1002	02		1PZN	1	0	2	4	0	6	0.0	3.2	1.2	0.0	4.4	0	1	6	7	0.0	12.4	5.0	17.4
1003	03		1PZN	1	0	0	26	0	26	0.0	0.0	12.5	0.0	12.5	0	3	14	17	0.0	20.5	13.2	33.7
1004	01		1PZN	3	0	0	19	0	19	0.0	0.0	7.3	0.0	7.3	0	0	8	8	0.0	0.0	2.8	2.8
1005	02		1PZN	3	0	0	7	0	7	0.0	0.0	3.2	0.0	3.2	1	0	11	12	163.4	0.0	7.6	171.0
1006	03		1PZN	7	0	7	44	0	51	0.0	16.6	25.3	0.0	41.9	0	5	18	23	0.0	39.2	15.5	54.7
1007	01		1PZN	5	0	4	21	0	25	0.0	36.1	10.8	0.0	46.9	1	0	9	10	111.4	0.0	6.4	117.8
1008	02		1PZN	2	0	0	11	0	11	0.0	0.0	6.8	0.0	6.8	0	1	9	10	0.0	11.0	8.9	19.9
1009	03		1PZN	6	0	3	35	0	38	0.0	9.1	16.3	0.0	25.4	0	4	17	21	0.0	19.6	11.7	31.3
1010	03		1PZN	7	0	6	76	0	82	0.0	20.7	32.6	0.0	53.3	0	1	11	12	0.0	3.5	8.7	12.2
1011	04		1PZN	0	0	0	2	0	2	0.0	0.0	0.8	0.0	0.8	0	0	8	8	0.0	0.0	4.7	4.7
1012	01		1PZN	5	0	2	22	0	24	0.0	12.7	10.1	0.0	22.8	0	2	11	13	0.0	15.1	7.1	22.2
1013	02		1PZN	1	0	0	10	0	10	0.0	0.0	3.8	0.0	3.8	0	1	17	18	0.0	2.5	11.2	13.7
1014	04		1PZN	1	0	0	3	0	3	0.0	0.0	1.6	0.0	1.6	0	4	10	14	0.0	36.8	9.7	46.5
1015	01		1PZN	7	0	2	21	0	23	0.0	6.0	10.2	0.0	16.2	0	3	19	22	0.0	36.2	14.8	51.0
1016	01		1PZN	0	0	0	0	3	3	0.0	0.0	0.0	0.3	0.3	0	0	1	1	0.0	0.0	0.3	0.3
1017	02		1PZN	0	0	0	1	0	1	0.0	0.0	0.2	0.0	0.2	0	0	2	2	0.0	0.0	3.0	3.0
1018	02		1PZN	0	0	0	1	0	1	0.0	0.0	0.1	0.0	0.1	0	0	0	0	0.0	0.0	0.0	0.0
1019	03		1PZN	2	0	1	22	0	23	0.0	2.7	8.6	0.0	11.3	0	0	4	4	0.0	0.0	3.0	3.0
1020	03		1PZN	0	0	0	5	8	13	0.0	0.0	1.6	0.6	2.2	0	0	2	2	0.0	0.0	2.5	2.5
1021	04		1PZN	2	0	1	3	0	4	0.0	1.1	5.9	0.0	7.0	0	0	8	8	0.0	0.0	7.6	7.6
1022	02		1PZN	0	0	0	5	0	5	0.0	0.0	3.2	0.0	3.2	0	1	4	5	0.0	2.7	2.3	5.0
1023	01		1PZN	5	0	0	19	0	19	0.0	0.0	7.1	0.0	7.1	0	0	7	7	0.0	0.0	4.0	4.0
1024	03		1PZN	0	0	1	31	0	32	0.0	2.1	16.5	0.0	18.6	0	0	1	1	0.0	0.0	0.7	0.7
1025	03		1PZN	1	0	0	11	0	11	0.0	0.0	3.9	0.0	3.9	0	0	5	5	0.0	0.0	2.2	2.2
1026	02		1PZN	0	0	0	4	0	4	0.0	0.0	3.3	0.0	3.3	0	1	3	4	0.0	6.1	2.7	8.8
1027	01		1PZN	0	0	0	3	0	3	0.0	0.0	1.2	0.0	1.2	0	0	1	1	0.0	0.0	1.4	1.4
1028	03		1PZN	0	0	0	27	0	27	0.0	0.0	9.3	0.0	9.3	0	0	4	4	0.0	0.0	2.2	2.2
1029	04		1PZN	3	1	0	12	0	13	30.5	0.0	3.7	0.0	34.2	0	0	9	9	0.0	0.0	7.4	7.4
1030	02		1PZN	0	0	0	10	0	10	0.0	0.0	4.8	0.0	4.8	0	0	4	4	0.0	0.0	2.3	2.3
1031	03	F101	2FTR	1	0	1	39	160	200	0.0	1.2	13.5	6.1	20.8	0	0	1	1	0.0	0.0	0.4	0.4
1032	01		1PZN	0	0	0	5	0	5	0.0	0.0	2.0	0.0	2.0	0	1	2	3	0.0	9.7	1.4	11.1
1033	03	F101	2FTR	10	0	6	89	320	415	0.0	24.9	30.2	14.0	69.1	1	1	5	7	25.2	6.3	2.2	33.7
1034	04		1PZN	0	0	0	4	0	4	0.0	0.0	2.2	0.0	2.2	1	0	2	3	33.7	0.0	1.1	34.8
1035	04		1PZN	0	0	0	0	2	2	0.0	0.0	0.0	0.1	0.1	0	0	1	1	0.0	0.0	0.4	0.4

Table B.4. Lithics Inventory Data According to Catalog Number, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408 — **Lithics Inventory Data (x catn)** — **UND ACN: 2003-0004**

CATN	XUN	FTN-1	ACU	TLSTL	G1FKN	G2FKN	G3FKN	G4FKN	TLFKN	G1FKW	G2FKW	G3FKW	G4FKW	TLFKW	G1FCRN	G2FCRN	G3FCRN	TLFCRN	G1FCRW	G2FCRW	G3FCRW	TLFCRW
1036	02	F103	2FTR	0	0	0	4	23	27	0.0	0.0	1.6	0.8	2.4	0	0	3	3	0.0	0.0	0.8	0.8
1037	02	F103	2FTR	11	0	6	82	334	422	0.0	16.0	32.4	13.5	61.9	4	6	29	39	2077.4	57.3	22.6	2157.3
1039	01	F102	2FTR	37	1	25	128	538	692	34.9	105.5	52.4	22.8	215.6	6	5	44	55	1144.2	36.9	35.7	1216.8
1041	01	F102	2FTR	2	0	0	8	22	30	0.0	0.0	3.4	1.2	4.6	0	0	2	2	0.0	0.0	1.2	1.2
1042	03		3SPZ	1	0	0	5	0	5	0.0	0.0	1.0	0.0	1.0	0	0	0	0	0.0	0.0	0.0	0.0
1045	03		3SPZ	0	0	0	0	1	1	0.0	0.0	0.0	0.2	0.2	0	0	0	0	0.0	0.0	0.0	0.0
1048	03		3SPZ	0	0	0	0	2	2	0.0	0.0	0.0	0.1	0.1	0	0	0	0	0.0	0.0	0.0	0.0
1051	04		1PZN	3	0	0	4	0	4	0.0	0.0	2.2	0.0	2.2	3	2	6	11	219.1	8.7	3.5	231.3
1054	04		1PZN	0	0	0	3	0	3	0.0	0.0	1.1	0.0	1.1	0	0	1	1	0.0	0.0	1.1	1.1
1057	04		1PZN	1	0	0	3	0	3	0.0	0.0	3.7	0.0	3.7	1	0	4	5	109.4	0.0	1.6	111.0
Totals				**130**	**2**	**67**	**851**	**1413**	**2333**	**65.4**	**257.9**	**368.4**	**59.7**	**751.4**	**18**	**43**	**338**	**399**	**3883.8**	**329.9**	**252.2**	**4465.9**

Table B.5. Bone Inventory Coding Format, Elbee Site (32ME408), 2003 UND Fieldwork.

Field/Variable	Variable Name/Description
CATN	Catalog number
XUN	Excavation unit number
SLN	Square level number
FLN	Feature level number
FTN-1	First feature number (primary feature)
ACU	Archeological context unit
G1BNN	Grade 1 total bone number
G2BNN	Grade 2 total bone number
G3BNN	Grade 3 total bone number
TLBNN	Total grade 1-3 total bone number
G1BNW	Grade 1 total bone weight (to 0.1 g)
G2BNW	Grade 2 total bone weight (to 0.1 g)
G3BNW	Grade 3 total bone weight (to 0.1 g)
TLBNW	Total grade 1-3 total bone weight (to 0.1 g)
G13IDB	Grade 1-3 identifiable bone total number
G45IDB	Grade 4-5 identifiable bone total number
TLMDB	Total grade 1-5 modified bone number

Table B.6. Bone Inventory Data According to Catalog Number, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408 — **Bone Inventory Data (x catn)** — **UND ACN: 2003-0004**

CATN	XUN	SLN	FLN	FTN-1	ACU	G1BNN	G2BNN	G3BNN	TLBNN	G1BNW	G2BNW	G3BNW	TLBNW	G13IDB	G45IDB	TLMDB
1001	01	01			1PZN	0	2	32	34	0.0	11.5	16.8	28.3	1	0	0
1002	02	01			1PZN	0	0	4	4	0.0	0.0	1.2	1.2	0	0	0
1003	03	01			1PZN	0	1	72	73	0.0	3.9	28.7	32.6	55	0	0
1004	01	01			1PZN	0	0	18	18	0.0	0.0	6.0	6.0	0	0	0
1005	02	01			1PZN	0	0	10	10	0.0	0.0	4.9	4.9	0	0	0
1006	03	01			1PZN	0	0	16	16	0.0	0.0	4.0	4.0	0	0	0
1007	01	01			1PZN	0	1	10	11	0.0	1.2	3.9	5.1	0	0	0
1008	02	01			1PZN	0	0	5	5	0.0	0.0	2.9	2.9	0	0	0
1009	03	01			1PZN	0	0	24	24	0.0	0.0	14.6	14.6	0	0	0
1010	03	01			1PZN	0	1	18	19	0.0	2.7	4.9	7.6	0	0	0
1011	04	01			1PZN	0	1	13	14	0.0	2.2	7.6	9.8	0	0	0
1012	01	01			1PZN	0	1	19	20	0.0	11.9	8.1	20.0	0	0	0
1013	02	01			1PZN	0	0	3	3	0.0	0.0	0.5	0.5	0	0	0
1014	04	01			1PZN	0	0	17	17	0.0	0.0	7.9	7.9	0	0	0
1015	01	02			1PZN	0	3	49	52	0.0	5.4	15.7	21.1	0	0	0
1016	01	02			1PZN	0	0	0	0	0.0	0.0	0.0	0.0	0	2	0
1017	02	02			1PZN	0	0	4	4	0.0	0.0	1.5	1.5	0	0	0
1018	02	02			1PZN	0	0	1	1	0.0	0.0	0.2	0.2	0	0	0
1019	03	02			1PZN	0	0	4	4	0.0	0.0	2.5	2.5	0	0	0
1020	03	02			1PZN	0	0	1	1	0.0	0.0	0.4	0.4	0	0	0
1021	04	01			1PZN	0	0	10	10	0.0	0.0	4.1	4.1	0	0	0
1022	02	02			1PZN	0	1	8	9	0.0	1.7	2.3	4.0	1	0	0
1023	01	02			1PZN	0	2	43	45	0.0	6.6	17.6	24.2	1	0	0
1024	03	02			1PZN	0	0	5	5	0.0	0.0	2.2	2.2	0	0	0
1026	02	02			1PZN	0	0	5	5	0.0	0.0	1.2	1.2	0	0	0
1027	01	02			1PZN	0	1	9	10	0.0	1.6	2.5	4.1	0	0	0
1028	03	02			1PZN	0	0	6	6	0.0	0.0	2.4	2.4	0	0	0
1029	04	01			1PZN	0	0	9	9	0.0	0.0	3.5	3.5	0	0	0
1030	02	02			1PZN	0	1	21	22	0.0	3.7	8.2	11.9	0	0	0
1031	03	03	01	F101	2FTR	0	0	3	3	0.0	0.0	0.5	0.5	1	5	0
1032	01	02			1PZN	0	0	6	6	0.0	0.0	2.1	2.1	0	0	0

Table B.6. Bone Inventory Data According to Catalog Number, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408 — **Bone Inventory Data (x catn)** — **UND ACN: 2003-0004**

CATN	XUN	SLN	FLN	FTN-1	ACU	G1BNN	G2BNN	G3BNN	TLBNN	G1BNW	G2BNW	G3BNW	TLBNW	G13IDB	G45IDB	TLMDB
1033	03	03	01	F101	2FTR	0	0	13	13	0.0	0.0	3.9	3.9	1	31	0
1034	04	02			1PZN	0	0	5	5	0.0	0.0	3.0	3.0	0	0	0
1035	04	02			1PZN	0	0	1	1	0.0	0.0	0.2	0.2	0	0	0
1036	02	03	01	F103	2FTR	0	1	18	19	0.0	1.3	6.3	7.6	0	2	0
1037	02	03	01	F103	2FTR	6	35	402	443	386.1	106.7	175.3	668.1	3	148	1
1039	01	03	01	F102	2FTR	41	660	4318	5019	893.2	1981.4	1310.4	4185.0	11	11	7
1041	01	03	01	F102	2FTR	0	8	66	74	0.0	16.2	18.0	34.2	0	0	0
1042	03	03			3SPZ	0	0	2	2	0.0	0.0	0.5	0.5	0	0	0
1048	03	05			3SPZ	0	0	0	0	0.0	0.0	0.0	0.0	0	1	0
1051	04	02			1PZN	0	0	9	9	0.0	0.0	1.7	1.7	0	0	0
1054	04	02			1PZN	0	0	10	10	0.0	0.0	6.8	6.8	0	0	0
1055	04	03			3SPZ	0	0	1	1	0.0	0.0	1.9	1.9	0	0	0
1057	04	02			1PZN	0	2	6	8	0.0	8.3	1.6	9.9	0	0	0
1070	04	08			3SPZ	0	0	1	1	0.0	0.0	0.6	0.6	0	0	0
1071	04	08			3SPZ	0	0	0	0	0.0	0.0	0.0	0.0	0	1	0
Totals						**47**	**721**	**5297**	**6065**	**1279.3**	**2166.3**	**1709.1**	**5154.7**	**74**	**201**	**8**

Table B.7. Historic Artifacts Inventory Coding Format, Elbee Site (32ME408), 2003 UND Fieldwork.

Field/Variable	Variable Name/Description
CATN	Catalog number
XUN	Excavation unit number
SLN	Square level number
FLN	Feature level number
FTN-1	First feature number (primary feature)
ACU	Archeological context unit
TLNAGB	Total grade 3-5 Native American glass trade beads number
TLNAOG	Total grade 1-5 Native American other trade glass number
TLNATM	Total grade 1-5 Native American trade metal number
TLNAOH	Total grade 1-5 Native American other historic material number
TLEAGL	Total grade 1-4 Euro-American glass number
TLEACR	Total grade 1-4 Euro-American ceramics number
TLEAMT	Total grade 1-4 Euro-American metal number
TLEAOT	Total grade 1-4 Euro-American other material number
TLMTGEN	Total grade 1-5 metal, general (unknown Native American or Euro-American) number

Table B.8. Historic Artifacts Inventory Data According to Catalog Number, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408 — **Historic Artifacts Inventory Data (x catn)** — **UND ACN: 2003-0004**

CATN	XUN	SLN	FLN	FTN-1	ACU	TLNAGB	TLNAOG	TLNATM	TLNAOH	TLEAGL	TLEACR	TLEAMT	TLEAOT	TLMTGEN
1001	01	01			1PZN	0	0	0	0	0	0	0	1	0
1002	02	01			1PZN	0	0	0	0	2	2	2	1	0
1003	03	01			1PZN	0	0	0	0	2	0	0	0	0
1005	02	01			1PZN	0	0	0	0	0	0	2	0	0
1006	03	01			1PZN	0	0	0	0	0	0	0	1	0
1008	02	01			1PZN	0	0	0	0	1	0	1	0	0
1010	03	01			1PZN	0	0	0	0	0	0	1	0	0
1011	04	01			1PZN	0	0	0	0	1	0	1	0	0
1012	01	01			1PZN	0	0	0	0	1	1	0	0	0
1013	02	01			1PZN	0	0	0	0	1	0	2	1	0
1014	04	01			1PZN	0	0	0	0	1	1	1	0	0
1021	04	01			1PZN	0	0	0	0	0	0	11	0	0
1029	04	01			1PZN	0	0	0	0	1	0	1	3	0
1031	03	03	01	F101	2FTR	0	0	0	0	0	0	1	0	0
1033	03	03	01	F101	2FTR	0	0	1	0	0	0	0	0	0
1034	04	02			1PZN	0	0	0	0	0	0	1	0	0
1035	04	02			1PZN	0	0	0	0	0	0	2	0	0
1054	04	02			1PZN	0	0	0	0	1	0	0	0	0
1057	04	02			1PZN	0	0	0	0	0	0	1	0	0
Totals						**0**	**0**	**1**	**0**	**11**	**4**	**27**	**7**	**0**

Table B.9. Miscellaneous Artifacts and Other Materials Inventory Coding Format, Elbee Site (32ME408), 2003 UND Fieldwork.

Field/Variable	Variable Name/Description
CATN	Catalog number
XUN	Excavation unit number
SLN	Square level number
FLN	Feature level number
FTN-1	First feature number (primary feature)
ACU	Archeological context unit
TLSLN	Total grade 1-3 total shell number
TLSLW	Total grade 1-3 total shell weight (to 0.1 g)
TLIDS	Grade 1-3 identifiable shell total number
TLMDS	Total grade 1-5 modified shell number
TLNCK	Total grade 1-3 natural clinker number
TLBER	Total grade 1-3 burned earth weight (to 0.1 g)
TLFCL	Total grade 1-3 fired clay weight (to 0.1 g)
TLASH	Total grade 1-3 ash weight (to 0.1 g)
TLO/P	Total grade 1-3 ochre/pigment weight (to 0.1 g)
TLW/C	Total grade 1-3 wood/charcoal weight (to 0.1 g)
TLBSD	Total grade 1-4 burned seeds (and other ID plant parts) number
TLLFA	Total weight light fraction aggregate
TLOTR	Total grade 1-3 other material number (not fitting other categories)
TLNRCK	Total grade 1-3 natural rock weight (to 0.1 g)
TLUSRS	Total grade 4-5 unsorted residue weight (to 0.1 g)

Table B.10. Miscellaneous Artifacts and Other Materials Inventory Data According to Catalog Number, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408

Miscellaneous Materials Inventory Data (x catn)

UND ACN: 2003-0004

CATN	XUN	SLN	FLN	FTN-1	ACU	TLSLN	TLSLW	TLIDS	TLMDS	TLNCK	TLBER	TLFCL	TLASH	TLO/P	TLW/C	TLBSD	TLLFA	TLOTR	TLNRCK	TLUSRS
1001	01	01			1PZN	0	0.0	0	0	7	0.0	0.3	0.0	0.0	0.0	0	0.0	0	50.8	0.0
1002	02	01			1PZN	2	0.7	0	0	4	0.0	0.1	0.0	0.0	0.1	0	0.0	0	57.1	0.0
1003	03	01			1PZN	1	0.3	0	0	3	0.0	0.7	0.0	0.0	0.5	0	0.0	0	33.2	0.0
1004	01	01			1PZN	1	0.1	0	0	2	0.0	0.2	0.0	0.0	0.0	0	0.0	0	91.1	0.0
1005	02	01			1PZN	1	0.2	0	0	13	0.2	0.0	0.0	0.0	0.2	0	0.0	0	34.3	0.0
1006	03	01			1PZN	0	0.0	0	0	2	1.1	4.1	0.8	0.0	0.3	0	0.0	0	51.7	0.0
1007	01	01			1PZN	1	0.8	0	1	1	0.0	0.6	0.0	0.0	0.0	0	0.0	0	75.2	0.0
1008	02	01			1PZN	0	0.0	0	0	3	0.0	0.0	0.0	0.0	0.2	0	0.0	0	14.2	0.0
1009	03	01			1PZN	2	0.4	0	0	6	0.2	0.7	0.7	0.0	0.0	0	0.0	0	48.6	0.0
1010	03	01			1PZN	7	2.6	0	0	5	4.8	8.3	16.9	0.0	0.0	0	0.0	0	38.5	0.0
1011	04	01			1PZN	0	0.0	0	0	1	0.0	0.0	0.0	0.0	0.0	0	0.0	0	25.1	0.0
1012	01	01			1PZN	1	0.9	0	1	0	0.0	0.8	2.2	0.0	0.0	0	0.0	0	48.8	0.0
1013	02	01			1PZN	0	0.0	0	0	1	0.2	0.0	0.1	0.0	0.2	0	0.0	0	132.6	0.0
1014	04	01			1PZN	0	0.0	0	0	2	0.0	0.0	0.0	0.0	0.0	0	0.0	0	53.8	0.0
1015	01	02			1PZN	8	1.9	0	1	1	0.0	0.9	1.1	0.0	0.1	0	0.0	0	12.1	0.0
1016	01	02			1PZN	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.1	0	0.0	0	0.0	5.0
1017	02	02			1PZN	0	0.0	0	0	1	0.8	0.0	0.0	0.0	1.2	0	0.0	0	3.2	0.0
1018	02	02			1PZN	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	2.1
1019	03	02			1PZN	0	0.0	0	0	2	0.4	2.6	7.7	0.0	0.1	2	0.0	0	3.2	0.0
1020	03	02			1PZN	0	0.0	0	0	0	0.0	0.7	0.2	0.0	0.0	1	0.0	0	2.9	17.0
1021	04	01			1PZN	0	0.0	0	0	2	0.0	0.0	0.0	0.0	0.0	0	0.0	0	32.1	0.0
1022	02	02			1PZN	0	0.0	0	0	0	0.2	0.0	0.0	0.0	0.1	0	0.0	0	6.3	0.0
1023	01	02			1PZN	0	0.0	0	0	0	0.0	2.4	1.1	0.0	0.1	0	0.0	0	2.5	0.0
1024	03	02			1PZN	2	0.1	0	0	4	0.8	6.1	8.9	0.0	0.2	2	0.0	0	11.9	0.0
1025	03	02			1PZN	0	0.0	0	0	0	0.2	1.6	7.4	0.0	0.1	0	0.0	0	13.3	0.0
1026	02	02			1PZN	1	0.4	0	0	0	0.3	0.0	0.0	0.0	1.8	0	0.0	0	3.0	0.0
1027	01	02			1PZN	2	0.8	0	1	1	0.0	0.2	0.1	0.0	0.0	0	0.0	0	1.4	0.0
1028	03	02			1PZN	1	0.6	0	0	0	1.0	4.4	16.6	0.0	0.0	2	0.0	0	1.7	0.0
1029	04	01			1PZN	0	0.0	0	0	5	0.0	0.0	0.0	0.0	0.0	0	0.0	0	53.4	0.0
1030	02	02			1PZN	0	0.0	0	0	2	18.4	1.3	1.3	0.0	1.8	0	0.0	0	26.8	0.0
1031	03	03	01	F101	2FTR	0	0.0	0	0	0	11.3	7.8	77.6	0.0	0.0	0	0.0	0	4.4	231.5
1032	01	02			1PZN	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	10.5	0.0
1033	03	03	01	F101	2FTR	2	1.4	0	1	1	13.3	36.8	403.8	0.0	0.2	38	0.0	0	3.3	553.5
1034	04	02			1PZN	0	0.0	0	0	2	0.0	0.0	0.0	0.0	0.0	0	0.0	0	24.1	0.0
1035	04	02			1PZN	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	7.1	8.3

Table B.10. Miscellaneous Artifacts and Other Materials Inventory Data According to Catalog Number, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408

Miscellaneous Materials Inventory Data (x catn)

UND ACN: 2003-0004

CATN	XUN	SLN	FLN	FTN-1	ACU	TLSLN	TLSLW	TLIDS	TLMDS	TLNCK	TLBER	TLFCL	TLASH	TLO/P	TLW/C	TLBSD	TLLFA	TLOTR	TLNRCK	TLUSRS
1036	02	03	01	F103	2FTR	0	0.0	0	0	0	22.3	0.0	1.3	0.0	0.0	0	0.0	0	0.2	102.2
1037	02	03	01	F103	2FTR	4	13.5	1	0	4	454.6	14.8	21.6	0.0	176.8	308	0.0	0	8.6	1482.4
1038	02	03	01	F103	2FTR	0	0.0	0	0	0	0.0	0.0	0.0	0.0	82.9	0	0.0	0	0.0	0.0
1039	01	03	01	F102	2FTR	10	16.0	1	5	6	18.8	35.1	53.4	0.0	13.2	79	0.0	0	32.1	1106.8
1041	01	03	01	F102	2FTR	1	0.5	0	0	0	0.6	2.2	0.6	0.0	0.0	1	0.0	0	0.0	48.6
1042	03	03			3SPZ	0	0.0	0	0	0	0.0	0.4	0.8	0.0	0.0	0	0.0	0	1.0	0.0
1043	03	03			3SPZ	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	0.2	1.5
1045	03	04			3SPZ	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0.4
1046	01	03	01	F102	2FTR	0	0.0	0	0	0	0.0	0.0	0.0	0.0	2.6	0	0.0	0	0.0	0.0
1048	03	05			3SPZ	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0.7
1050	03	06			3SPZ	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0.7
1051	04	02			1PZN	0	0.0	0	0	0	0.1	0.0	0.0	0.0	0.0	0	0.0	0	62.2	0.0
1053	03	07			3SPZ	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.3	0	0.0	0	0.0	0.5
1054	04	02			1PZN	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	12.8	0.0
1056	04	03			3SPZ	0	0.0	0	0	1	0.0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0.3
1057	04	02			1PZN	3	0.8	0	0	0	0.0	0.1	0.0	0.0	0.0	0	0.0	0	21.1	0.0
1059	03	08			3SPZ	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0.2
1060	04	04			3SPZ	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	0.2	0.0
1061	04	04			3SPZ	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	0.5	0.1
1062	04	05			3SPZ	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	1.0	0.0
1063	04	05			3SPZ	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0.3
1064	03	09			3SPZ	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	0.3	0.0
1065	03	09			3SPZ	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0.3
1067	04	06			3SPZ	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0.4
1069	04	07			3SPZ	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0.5
1071	04	08			3SPZ	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0.3
1073	04	09			3SPZ	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0.2
1075	04	10			3SPZ	0	0.0	0	0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0	0.0	0.2
Totals						50	42.0	2	10	82	549.6	133.2	624.2	0.0	283.1	433	0.0	0	1118.4	3564.0

APPENDIX C

Native Ceramics Analysis Code and Data, Elbee Site (32ME408), 2003 UND Fieldwork.

Table C.1. Native Ceramic Body Sherd Coding Format, Elbee Site (32ME408), 2003 UND Fieldwork.

Field	Code	Meaning
CATN		CATALOG NUMBER
XUN		EXCAVATION UNIT NUMBER
FTN-1		FIRST FEATURE NUMBER (primary feature)
ACU		ARCHEOLOGICAL CONTEXT UNIT
SG		SIZE GRADE (usually size grades 1 and 2 only)
MTHICK		MAXIMUM THICKNESS (mm)
PRIMSURFT		PRIMARY SURFACE TREATMENT, EXTERIOR
	smoo	smoothed (plain)
	burni	burnished (polished, black)
	simpl	simple stamped
	check	check stamped
	cordr	cord roughened
	brush	brushed
	fabri	fabric impressed
	neti	net impressed
	comb	combed
	inde	*indeterminate*
	cordmf	cord marked fine (narrow and regular)
	simpsf	simple stamped fine (narrow and regular)
SECOSURFT		SECONDARY SURFACE TREATMENT, EXTERIOR
	smoo	smoothed
	burni	burnished
	inde	indeterminate
	(blank)	none; not applicable
	---------	or as indicated under PRIMSURFT
TERTSURFT		TERTIARY SURFACE TREATMENT, EXTERIOR
	smoo	smoothed
	burni	burnished
	inde	indeterminate
	(blank)	none; not applicable
	---------	or as indicated under PRIMSURFT
DECORATION		DECORATION
	as indicated	as indicated
TEMPER		TEMPER
	grit	grit (crushed granitic rock)
	sand	sand
	shell	shell
	grsa	grit and sand
	grsh	grit and shell
	shsa	shell and sand

Table C.1 (cont.).

Field	Code	Meaning
XCOLOR		EXTERIOR COLOR
	as indicated	as indicated
WEIGHT		WEIGHT (to 0.1g)
REMARKS		NOTES/COMMENTS

Table C.2. Native Ceramic Body Sherd Data According to Surface Treatment, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408

Native Ceramic Body Sherd Data (x primsurft, catn)

UND ACN: 2003-0004

CATN	XUN	FTN-1	ACU	SG	MTHICK	PRIMSURFT	SECOSURFT	TERTSURFT	DECORATION	TEMPER	XCOLOR	WEIGHT	REMARKS
1003	03		1PZN	2	5.65	brush				grit	gray	2.1	neck sherd
1003	03		1PZN	2	6.52	brush	smoo			grit	gray	2.1	neck sherd
1004	01		1PZN	2	7.75	brush				grit	gray	2.2	neck sherd
1012	01		1PZN	2	6.58	brush	smoo			grit	brown	2.5	
1037	02	F103	2FTR	2	7.67	brush				grit	gray	4.8	neck sherd
			Subtotal			*brush*	*n=*	*5*	*MTHICK mean=*	*6.83*	*MTHICK stndev=*	*0.88*	
1023	01		1PZN	2	7.83	burni				grit	gray	3.5	neck sherd
1037	02	F103	2FTR	2	7.87	burni				grit	black	2.8	
1037	02	F103	2FTR	2	9.53	burni				grit	black	5.1	neck sherd
1037	02	F103	2FTR	2	8.76	burni				grit	black	5.2	
1039	01	F102	2FTR	2	4.18	burni	smoo			grit	black	1.6	
			Subtotal			*burni*	*n=*	*5*	*MTHICK mean=*	*7.63*	*MTHICK stndev=*	*2.05*	
1001	01		1PZN	2	5.26	check	smoo			grit	gray	3.1	
			Subtotal			*check*	*n=*	*1*	*MTHICK mean=*	*5.26*	*MTHICK stndev=*		
1001	01		1PZN	2	5.89	cordr?	smoo			grit	gray	2.3	possible smoothed-over cord-impressed decoration
			Subtotal			*cordr?*	*n=*	*1*	*MTHICK mean=*	*5.89*	*MTHICK stndev=*		
1015	01		1PZN	2		inde				grit	brown	1.8	split, match to cn 1001
			Subtotal			*inde*	*n=*	*1*	*MTHICK mean=*		*MTHICK stndev=*		
1001	01		1PZN	2	4.54	simpl	smoo			grit	brown	2.2	
1004	01		1PZN	2	4.05	simpl	smoo			grit	gray	2.6	
1006	03		1PZN	2	5.15	simpl	smoo			grit	brown	2.7	
1006	03		1PZN	2	5.27	simpl				grit	brown	3.6	
1007	01		1PZN	2	4.24	simpl	smoo			grit	gray	1.8	
1009	03		1PZN	2	4.10	simpl	burni			grit	brown	1.6	
1010	03		1PZN	2	4.60	simpl				grit	gray	2.1	

Table C.2. Native Ceramic Body Sherd Data According to Surface Treatment, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408

Native Ceramic Body Sherd Data (x primsurft, catn)

UND ACN: 2003-0004

CATN	XUN	FTN-1	ACU	SG	MTHICK	PRIMSURFT	SECOSURFT	TERTSURFT	DECORATION	TEMPER	XCOLOR	WEIGHT	REMARKS
1013	02		1PZN	2	6.11	simpl	smoo			grit	gray	8.2	
1023	01		1PZN	2	4.96	simpl	smoo			grit	gray	1.8	
1023	01		1PZN	2	4.98	simpl				grit	gray	2.3	
1024	03		1PZN	2	5.72	simpl				grit	gray	3.6	
1024	03		1PZN	1	7.12	simpl	smoo			grit	gray	19.7	carbonate on exterior surface--cleaned
1033	03	F101	2FTR	1	5.05	simpl				grit	gray	16.7	carbonate on exterior surface--cleaned
1037	02	F103	2FTR	2	4.68	simpl	smoo			grit	gray	4.3	
1037	02	F103	2FTR	2	6.80	simpl	smoo			grit	gray	6.7	
1037	02	F103	2FTR	2	3.93	simpl	smoo			grit	gray	3.5	
1039	01	F102	2FTR	2	3.50	simpl	smoo			grit	brown	1.5	
1039	01	F102	2FTR	2	4.30	simpl	smoo			grit	gray	1.9	
1039	01	F102	2FTR	2	9.57	simpl	smoo		trailed & tooli & fingi	grit	brown	10.8	shoulder/body juncture, mini vessel
1039	01	F102	2FTR	2	3.13	simpl	smoo			grit	brown	1.7	
1039	01	F102	2FTR	2	4.70	simpl	smoo			grit	gray	3.2	
1039	01	F102	2FTR	2	4.36	simpl	smoo			grit	gray	6.5	
1039	01	F102	2FTR	2	3.82	simpl	smoo			grit	gray	2.6	
1039	01	F102	2FTR	2	5.01	simpl	smoo			grit	gray	2.0	
1039	01	F102	2FTR	2	2.72	simpl	smoo			grit	gray	2.1	
1039	01	F102	2FTR	2	5.50	simpl	smoo			grit	gray	2.0	
1039	01	F102	2FTR	2	3.08	simpl	smoo			grit	gray	1.6	
1039	01	F102	2FTR	2	2.77	simpl	smoo			grit	gray	1.7	
1039	01	F102	2FTR	2	5.68	simpl	smoo			grit	gray	4.0	
1039	01	F102	2FTR	2	4.27	simpl	smoo			grit	gray	3.2	
1039	01	F102	2FTR	2	4.10	simpl	smoo			grit	black	1.5	
1039	01	F102	2FTR	2	6.26	simpl	smoo			grit	gray	7.3	
1041	01	F102	2FTR	2	6.38	simpl	smoo			grit	gray	2.5	
		Subtotal				*simpl*	*n=*	*33*	*MTHICK mean=*	*4.86*	*MTHICK stndev=*	*1.38*	
1001	01		1PZN	2	3.96	smoo				grit	brown	1.7	
1004	01		1PZN	2	4.78	smoo				grit	gray	2.7	

Table C.2. Native Ceramic Body Sherd Data According to Surface Treatment, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408

Native Ceramic Body Sherd Data (x primsurft, catn)

UND ACN: 2003-0004

CATN	XUN	FTN-1	ACU	SG	MTHICK	PRIMSURFT	SECOSURFT	TERTSURFT	DECORATION	TEMPER	XCOLOR	WEIGHT	REMARKS
1012	01		1PZN	2	5.17	smoo	simpl?			grit	gray	2.6	
1012	01		1PZN	2	4.70	smoo	inde			grit	gray	2.6	
1015	01		1PZN	2	6.42	smoo				grit	gray	3.9	
1015	01		1PZN	2	3.70	smoo			trailed	grit	black	2.4	
1015	01		1PZN	2	4.27	smoo	inde			grit	gray	1.7	
1015	01		1PZN	2	6.03	smoo				grit	gray	2.1	
1015	01		1PZN	2	4.06	smoo			trailed	grit	black	2.6	
1015	01		1PZN	2	3.02	smoo				grit	gray	1.6	
1015	01		1PZN	2	4.89	smoo	inde			grit	gray	6.0	
1015	01		1PZN	2	6.88	smoo				grit	gray	5.6	
1022	02		1PZN	2	3.66	smoo	inde			grit	brown	1.7	
1023	01		1PZN	2	5.13	smoo				grit	brown	2.0	
1023	01		1PZN	2	4.37	smoo				grit	gray	2.1	
1023	01		1PZN	2	4.69	smoo			trailed	grit	gray	3.2	
1024	03		1PZN	2	7.93	smoo				grit	brown	3.2	
1024	03		1PZN	2	4.26	smoo	simpl?			grit	buff	1.6	
1025	03		1PZN	2	6.64	smoo				grit	brown	2.8	
1025	03		1PZN	2	5.24	smoo				grit	brown	2.5	mainly split
1031	03	F101	2FTR	2		smoo				grit	buff	3.1	split
1031	03	F101	2FTR	2	5.32	smoo			tooli	grit	buff	1.9	
1032	01		1PZN	2	4.62	smoo	simpl?			grit	black	1.9	
1033	03	F101	2FTR	2	7.04	smoo				grit	buff	2.1	
1033	03	F101	2FTR	2	4.79	smoo				grit	gray	1.8	
1033	03	F101	2FTR	2	6.81	smoo				grit	buff	2.9	
1033	03	F101	2FTR	2	4.62	smoo				grit	gray	1.8	
1037	02	F103	2FTR	2	6.01	smoo			trailed	grit	black	5.6	
1037	02	F103	2FTR	2	6.58	smoo				grit	gray	1.9	
1037	02	F103	2FTR	1	7.63	smoo				grit	brown	17.1	likely base sherd
1037	02	F103	2FTR	2	5.36	smoo			trailed	grit	brown	6.2	two frags glued = 1 (match)
1037	02	F103	2FTR	2	5.16	smoo			trailed	grit	brown	2.9	
1037	02	F103	2FTR	2	4.21	smoo	simpl?			grit	gray	3.2	

Table C.2. Native Ceramic Body Sherd Data According to Surface Treatment, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408

Native Ceramic Body Sherd Data (x primsurft, catn)

UND ACN: 2003-0004

CATN	XUN	FTN-1	ACU	SG	MTHICK	PRIMSURFT	SECOSURFT	TERTSURFT	DECORATION	TEMPER	XCOLOR	WEIGHT	REMARKS
1037	02	F103	2FTR	2	3.75	smoo	simpl?			grit	gray	5.6	
1037	02	F103	2FTR	2	5.54	smoo				grit	brown	2.5	
1037	02	F103	2FTR	2	4.34	smoo	inde			grit	gray	2.9	
1037	02	F103	2FTR	2	5.38	smoo	inde			grit	gray	7.9	
1037	02	F103	2FTR	2	6.63	smoo				grit	gray	2.5	
1037	02	F103	2FTR	2	6.29	smoo				grit	gray	2.8	
1037	02	F103	2FTR	2	5.12	smoo			trailed	grit	gray	3.7	
1039	01	F102	2FTR	2	4.30	smoo				grit	gray	1.4	
1039	01	F102	2FTR	2	7.67	smoo				grit	black	4.2	
1039	01	F102	2FTR	2	4.35	smoo			trailed & tooli	grit	gray	2.4	
1039	01	F102	2FTR	2	3.90	smoo			trailed & tooli	grit	gray	2.0	
1039	01	F102	2FTR	2	4.21	smoo			trailed	grit	black	2.2	
1039	01	F102	2FTR	2	4.03	smoo			trailed	grit	black	2.1	
1039	01	F102	2FTR	2	7.01	smoo			trailed	grit	black	5.4	
1039	01	F102	2FTR	2	5.59	smoo				grit	brown	2.4	
1039	01	F102	2FTR	2	6.89	smoo				grit	black	3.4	neck sherd
1039	01	F102	2FTR	2	3.79	smoo				grit	black	3.9	
1039	01	F102	2FTR	2	4.73	smoo				grit	gray	2.6	
1039	01	F102	2FTR	2	4.90	smoo				grit	gray	1.8	
1039	01	F102	2FTR	2	5.49	smoo				grit	gray	2.3	
1039	01	F102	2FTR	2	3.19	smoo				grit	gray	1.5	
1051	04		1PZN	2	6.01	smoo				grit	brown	3.0	
1057	04		1PZN	2	5.65	smoo				grit	gray	5.8	
		Subtotal				*smoo*	*n=*	*56*	*MTHICK mean=*	*5.21*	*MTHICK stndev=*	*1.20*	
		Total					**n=**	**102**	**MTHICK mean=**	**5.31**	**MTHICK stndev=**	**1.44**	

Table C.3. Native Ceramic Rim Sherd and Vessel Coding Format, Elbee Site (32ME408), 2003 UND Fieldwork (compiled from variables described in Ahler and Swenson 1985; Anfinson 1979; A. Johnson et al. 1991; C. Johnson 1980, 1996; Michlovic and Swenson 1998).

Field	Code	Meaning or Value
CATN		CATALOG NUMBER--PRIMARY
XUN		EXCAVATION UNIT NUMBER
FTN-1		FIRST FEATURE NUMBER (primary feature)
ACU		ARCHEOLOGICAL CONTEXT UNIT
CATN-S		CATALOG NUMBER(S)--SECONDARY
VESN		VESSEL NUMBER
CTU		CULTURAL-TEMPORAL UNIT (assigned)
		as indicated
WARE		CERAMIC WARE OR GROUP
		as indicated
TYPE		WARE TYPE
		as indicated
RIMFORM		RIM FORM
	verti	vertical (straight)
	evert	everted (out-curved)
	inver	inverted (incurved) (bowl)
	s-sh	S-shaped (S-rim)
	recur-s	recurved S-shaped (recurved S-rim)
	roll	rolled (rolled-rim)
	inde	indeterminate
RIMAPPEN		RIM APPENDAGE OR OUTLINE MODIFICATION
	brace	brace
	fillet	fillet
	tab	tab
	node	node
	handle	handle (loop or strap)
	spout	spout
	castel	castellation
	wavy	wavy outline from pinching
	(blank)	none
PRIMSURFT		PRIMARY SURFACE TREATMENT, EXTERIOR
	smoo	smoothed (plain)
	burni	burnished (polished, black)
	simpl	simple stamped
	check	check stamped
	cordr	cord roughened
	brush	brushed

Table C.3 (cont.).

Field	Code	Meaning or Value
PRIMSURFT	fabri	fabric impressed
(cont.)	neti	net impressed
	comb	combed
	inde	indeterminate
SECOSURFT		SECONDARY SURFACE TREATMENT, EXTERIOR
	smoo	smoothed
	burni	burnished
	inde	indeterminate
	(blank)	none; not applicable
	--------	or as indicated under PRIMSURFT
XRIMDECOR1		EXTERIOR RIM DECORATION ONE (below the lip)
	cordi	cord impressed (impressed with single cords)
	cordm	cord marked (impressed with multiple cords in linear pattern)
	cordmf	cord marked fine (impressed with multiple fine cords in linear pattern)
	tooli	tool impressed
	fingi	finger impressed
	cwti	cord-wrapped tool impressed
	stab	stab-and-drag
	trail	trailed
	incis	incised
	chan	channeled
	punct	punctuated
	embos	embossed
	dents	dentate stamped
	combs	comb stamped
	plain	plain, undecorated
	simpls	simple stamped (as decoration)
	simpsf	simple stamped fine (as decoration)
XRDMOTIF1		EXTERIOR RIM DECORATION MOTIF ONE
	01	horizontally repetitive (tool or finger impressions, punctates or bosses, no orientation)
	02	horizontally repetitive diagonals
	03	horizontally repetitive perpendiculars
	04	multiple horizontal lines
	05	single continuous line
	06	horizontally repetitive parallels
	10	multiple line triangles
XRIMDECOR2		EXTERIOR RIM DECORATION TWO (below the lip)
	cordi	cord impressed (impressed with single cords)
	cordm	cord marked (impressed with multiple cords in linear pattern)
	cordmf	cord marked fine (impressed with multiple fine cords in linear pattern)
	tooli	tool impressed
	fingi	finger impressed
	cwti	cord-wrapped tool impressed
	stab	stab-and-drag

Table C.3 (cont.).

Field	Code	Meaning or Value
XRIMDECOR2	trail	trailed
(cont.)	incis	incised
	chan	channeled
	punct	punctuated
	embos	embossed
	dents	dentate stamped
	combs	comb stamped
	(blank)	none, plain
	simpls	simple stamped (as decoration)
	simpsf	simple stamped fine (as decoration)
XRDMOTIF2		EXTERIOR RIM DECORATION MOTIF TWO
	01	horizontally repetitive (tool or finger impressions, punctates or bosses, no orientation)
	02	horizontally repetitive diagonals
	03	horizontally repetitive perpendiculars
	04	multiple horizontal lines
	05	single continuous line
	06	horizontally repetitive parallels
	10	*multiple line triangles*
LIPDECOR1		LIP AND LIP/RIM JUNCTURE DECORATION ONE
	cordi	cord impressed (impressed with single cords)
	cordm	cord marked (impressed with multiple cords in linear pattern)
	cordmf	cord marked fine (impressed with multiple fine cords in linear pattern)
	tooli	tool impressed
	fingi	finger impressed
	cwti	cord-wrapped tool impressed
	stab	stab-and-drag
	trail	trailed
	incis	incised
	chan	channeled
	punct	punctuated
	embos	embossed
	dents	dentate stamped
	combs	comb stamped
	plain	plain, undecorated
	simpls	simple stamped (as decoration)
	simpsf	simple stamped fine (as decoration)
LDMOTIF1		LIP DECORATION MOTIF ONE
	01	horizontally repetitive (tool or finger impressions, punctates or bosses, no orientation)
	02	horizontally repetitive diagonals
	03	horizontally repetitive perpendiculars
	04	multiple horizontal lines
	05	single continuous line
	06	horizontally repetitive parallels
	10	multiple line triangles
	(blank)	none, not applicable

Table C.3 (cont.).

Field	Code	Meaning or Value
LIPDECOR2		LIP AND LIP/RIM JUNCTURE DECORATION TWO
	cordi	cord impressed (impressed with single cords)
	cordm	cord marked (impressed with multiple cords in linear pattern)
	cordmf	cord marked fine (impressed with multiple fine cords in linear pattern)
	tooli	tool impressed
	fingi	finger impressed
	cwti	cord-wrapped tool impressed
	stab	stab-and-drag
	trail	trailed
	incis	incised
	chan	channeled
	punct	punctuated
	embos	embossed
	dents	dentate stamped
	combs	comb stamped
	simpls	simple stamped (as decoration)
	simpsf	simple stamped fine (as decoration)
	(blank)	none, plain
LDMOTIF2		LIP DECORATION MOTIF TWO
	01	horizontally repetitive (tool or finger impressions, punctates or bosses, no orientation)
	02	horizontally repetitive diagonals
	03	horizontally repetitive perpendiculars
	04	multiple horizontal lines
	05	single continuous line
	06	horizontally repetitive parallels
	10	multiple line triangles
	(blank)	none, not applicable
LIPFORM		LIP FORM
	round	rounded
	flat	flat
	bevi	beveled in
	bevo	beveled out
	l-sh	L-shaped
	t-sh	T-shaped
	peak	peaked (pointed)
	beadi	beaded in
	beado	beaded out
	rolled	rolled (out)
SHODECOR1		SHOULDER DECORATION ONE
	cordi	cord impressed (impressed with single cords)
	cordm	cord marked (impressed with multiple cords in linear pattern)
	cordmf	cord marked fine (impressed with multiple fine cords in linear pattern)
	tooli	tool impressed

Table C.3 (cont.).

Field	Code	Meaning or Value
SHODECOR1	fingi	finger impressed
(cont.)	cwti	cord-wrapped tool impressed
	stab	stab-and-drag
	trail	trailed
	incis	incised
	chan	channeled
	punct	punctuated
	embos	embossed
	dents	dentate stamped
	combs	comb stamped
	plain	plain, undecorated
	simpls	simple stamped (as decoration)
	simpsf	simple stamped fine (as decoration)
	n/a	not applicable, not present
SDMOTIF1		SHOULDER DECORATION MOTIF ONE
	01	horizontally repetitive (tool or finger impressions, punctates or bosses, no orientation)
	02	horizontally repetitive diagonals
	03	horizontally repetitive perpendiculars
	04	multiple horizontal lines
	05	single continuous line
	06	horizontally repetitive parallels
	10	multiple line triangles
	(blank)	none, not applicable
SHODECOR2		SHOULDER DECORATION TWO
	cordi	cord impressed (impressed with single cords)
	cordm	cord marked (impressed with multiple cords in linear pattern)
	cordmf	cord marked fine (impressed with multiple fine cords in linear pattern)
	tooli	tool impressed
	fingi	finger impressed
	cwti	cord-wrapped tool impressed
	stab	stab-and-drag
	trail	trailed
	incis	incised
	chan	channeled
	punct	punctuated
	embos	embossed
	dents	dentate stamped
	combs	comb stamped
	simpls	simple stamped (as decoration)
	simpsf	simple stamped (as decoration)
	(blank)	none, not applicable
SDMOTIF2		SHOULDER DECORATION MOTIF TWO
	01	horizontally repetitive (tool or finger impressions, punctates or bosses, no orientation)
	02	horizontally repetitive diagonals
	03	horizontally repetitive perpendiculars

Table C.3 (cont.).

Field	Code	Meaning or Value
SDMOTIF2	04	multiple horizontal lines
(cont.)	05	single continuous line
	06	horizontally repetitive parallels
	10	multiple line triangles
	(blank)	none, not applicable
PASTE		PASTE (clay body with temper)
	poro	porous (voids considerable)
	mcomp	medium compact (voids common)
	comp	compact (voids few and small)
	platy	platy (platy structure in clay body considerable)
TEMPER		TEMPER
	grit	grit (crushed granitic rock)
	sand	sand
	shell	shell
	grsa	grit and sand (grit predominant)
	grsh	grit and shell (grit predominant)
	shsa	shell and sand (shell predominant)
	shgr	shell and grit (shell predominant)
XCOLOR		EXTERIOR COLOR
	black	black
	gray	gray
	brown	brown
	tan	tan (light yellowish brown)
	buff	buff (moderate orange yellow, light to moderate yellow)
ODIAM		ORIFICE DIAMETER (cm)
	0	indeterminate, too small for measurement
MAXTH		MAXIMUM WALL THICKNESS (mm)
	0	indeterminate; split
MINTH		MINIMUM WALL THICKNESS (mm)
	0	indeterminate; split
REMARKS		NOTES/COMMENTS

Table C.4. Native Ceramic Rim Sherd and Vessel Data According to Vessel Number, Elbee Site (ME408), 2003 UND Fieldwork.

Site: 32ME408	Rim Sherd and Vessel Data (x vesn)	UND ACN: 2003-0004

CATN:	1040
XUN:	01
FTN-1:	F102
ACU:	2FTR
CATN-S:	
VESN:	201
CTU:	
WARE:	Buchanan
TYPE:	Cord-Impressed Lip
RIMFORM:	evert
RIMAPPEN:	
PRIMSURFT:	burni
SECOSURFT:	
XRIMDECOR1:	plain
XRDMOTIF1:	
XRIMDECOR2:	
XRDMOTIF2:	
LIPDECOR1:	cordi
LDMOTIF1:	01
LIPDECOR2:	
LDMOTIF2:	
LIPFORM:	round
SHODECOR1:	incised
SDMOTIF1:	10
SHODECOR2:	
SDMOTIF2:	
PASTE:	mcomp
TEMPER:	grit
XCOLOR:	black-gray-brown
ODIAM:	20
MAXTH:	9.07
MINTH:	6.24
REMARKS:	Lip decorated with multiple fine cord impressions perpendicular to the lip--rather unique.

Table C.4. Native Ceramic Rim Sherd and Vessel Data According to Vessel Number, Elbee Site (ME408), 2003 UND Fieldwork.

Site: 32ME408	Rim Sherd and Vessel Data (x vesn)	UND ACN: 2003-0004

CATN:	1020
XUN:	03
FTN-1:	
ACU:	1PZN
CATN-S:	
VESN:	202
CTU:	
WARE:	Buchanan
TYPE:	Horizontal Incised/Trailed
RIMFORM:	evert
RIMAPPEN:	
PRIMSURFT:	smoo
SECOSURFT:	
XRIMDECOR1:	trail
XRDMOTIF1:	04
XRIMDECOR2:	
XRDMOTIF2:	
LIPDECOR1:	tooli
LDMOTIF1:	02
LIPDECOR2:	
LDMOTIF2:	
LIPFORM:	peak
SHODECOR1:	
SDMOTIF1:	
SHODECOR2:	
SDMOTIF2:	
PASTE:	mcomp
TEMPER:	grit
XCOLOR:	black-gray
ODIAM:	0
MAXTH:	7.6
MINTH:	6.41
REMARKS:	Weight is matched two sherds combined.

Table C.4. Native Ceramic Rim Sherd and Vessel Data According to Vessel Number, Elbee Site (ME408), 2003 UND Fieldwork.

Site: 32ME408	Rim Sherd and Vessel Data (x vesn)	UND ACN: 2003-0004

CATN:	1037
XUN:	02
FTN-1:	F103
ACU:	2FTR
CATN-S:	
VESN:	203
CTU:	
WARE:	Buchanan
TYPE:	Horizontal Incised/Trailed
RIMFORM:	evert
RIMAPPEN:	
PRIMSURFT:	smoo
SECOSURFT:	
XRIMDECOR1:	incis
XRDMOTIF1:	04
XRIMDECOR2:	
XRDMOTIF2:	
LIPDECOR1:	tooli
LDMOTIF1:	02
LIPDECOR2:	
LDMOTIF2:	
LIPFORM:	t-sh
SHODECOR1:	
SDMOTIF1:	
SHODECOR2:	
SDMOTIF2:	
PASTE:	mcomp
TEMPER:	grit
XCOLOR:	gray
ODIAM:	0
MAXTH:	6.37
MINTH:	5.04
REMARKS:	

Table C.4. Native Ceramic Rim Sherd and Vessel Data According to Vessel Number, Elbee Site (ME408), 2003 UND Fieldwork.

Site: 32ME408	Rim Sherd and Vessel Data (x vesn)	UND ACN: 2003-0004

CATN:	1012
XUN:	01
FTN-1:	
ACU:	1PZN
CATN-S:	
VESN:	204
CTU:	
WARE:	Riggs
TYPE:	Decorated Lip
RIMFORM:	evert
RIMAPPEN:	
PRIMSURFT:	brush
SECOSURFT:	smoo
XRIMDECOR1:	plain
XRDMOTIF1:	
XRIMDECOR2:	
XRDMOTIF2:	
LIPDECOR1:	tooli
LDMOTIF1:	01
LIPDECOR2:	
LDMOTIF2:	
LIPFORM:	flat
SHODECOR1:	
SDMOTIF1:	
SHODECOR2:	
SDMOTIF2:	
PASTE:	mcomp
TEMPER:	grit
XCOLOR:	gray
ODIAM:	0
MAXTH:	6.86
MINTH:	6.09
REMARKS:	cf. Buchanan Tool Impressed

Table C.4. Native Ceramic Rim Sherd and Vessel Data According to Vessel Number, Elbee Site (ME408), 2003 UND Fieldwork.

Site: 32ME408	Rim Sherd and Vessel Data (x vesn)	UND ACN: 2003-0004

CATN:	1030
XUN:	02
FTN-1:	
ACU:	1PZN
CATN-S:	
VESN:	205
CTU:	
WARE:	Riggs
TYPE:	Decorated Lip
RIMFORM:	strait
RIMAPPEN:	
PRIMSURFT:	brush
SECOSURFT:	smoo
XRIMDECOR1:	plain
XRDMOTIF1:	
XRIMDECOR2:	
XRDMOTIF2:	
LIPDECOR1:	tooli
LDMOTIF1:	01
LIPDECOR2:	
LDMOTIF2:	
LIPFORM:	beadi
SHODECOR1:	
SDMOTIF1:	
SHODECOR2:	
SDMOTIF2:	
PASTE:	mcomp
TEMPER:	grit
XCOLOR:	gray
ODIAM:	0
MAXTH:	4.97
MINTH:	3.76
REMARKS:	cf. Buchanan Tool Impressed

Table C.4. Native Ceramic Rim Sherd and Vessel Data According to Vessel Number, Elbee Site (ME408), 2003 UND Fieldwork.

Site: 32ME408	Rim Sherd and Vessel Data (x vesn)	UND ACN: 2003-0004

CATN:	1039
XUN:	01
FTN-1:	F102
ACU:	2FTR
CATN-S:	
VESN:	206
CTU:	
WARE:	Riggs
TYPE:	Plain (Undecorated)
RIMFORM:	strait
RIMAPPEN:	
PRIMSURFT:	smoo
SECOSURFT:	brush?
XRIMDECOR1:	plain
XRDMOTIF1:	
XRIMDECOR2:	
XRDMOTIF2:	
LIPDECOR1:	plain
LDMOTIF1:	
LIPDECOR2:	
LDMOTIF2:	
LIPFORM:	round
SHODECOR1:	
SDMOTIF1:	
SHODECOR2:	
SDMOTIF2:	
PASTE:	mcomp
TEMPER:	grit
XCOLOR:	brown
ODIAM:	0
MAXTH:	7.95
MINTH:	6.84
REMARKS:	cf. Buchanan Undecorated (Plain)

Table C.4. Native Ceramic Rim Sherd and Vessel Data According to Vessel Number, Elbee Site (ME408), 2003 UND Fieldwork.

Site: 32ME408	Rim Sherd and Vessel Data (x vesn)	UND ACN: 2003-0004

CATN:	1030
XUN:	02
FTN-1:	
ACU:	1PZN
CATN-S:	
VESN:	207
CTU:	
WARE:	Riggs
TYPE:	Pinched?
RIMFORM:	evert
RIMAPPEN:	wavy?
PRIMSURFT:	brush
SECOSURFT:	smoo
XRIMDECOR1:	plain
XRDMOTIF1:	
XRIMDECOR2:	
XRDMOTIF2:	
LIPDECOR1:	pinch?
LDMOTIF1:	01
LIPDECOR2:	
LDMOTIF2:	
LIPFORM:	inde
SHODECOR1:	
SDMOTIF1:	
SHODECOR2:	
SDMOTIF2:	
PASTE:	mcomp
TEMPER:	grit
XCOLOR:	gray
ODIAM:	0
MAXTH:	7.52
MINTH:	6.52
REMARKS:	Lip form indeterminate; possible pinched lip.

Table C.4. Native Ceramic Rim Sherd and Vessel Data According to Vessel Number, Elbee Site (ME408), 2003 UND Fieldwork.

Site: 32ME408	Rim Sherd and Vessel Data (x vesn)	UND ACN: 2003-0004

CATN:	1037
XUN:	02
FTN-1:	F103
ACU:	2FTR
CATN-S:	
VESN:	208
CTU:	
WARE:	Riggs
TYPE:	Plain
RIMFORM:	evert
RIMAPPEN:	
PRIMSURFT:	brush
SECOSURFT:	smoo
XRIMDECOR1:	plain
XRDMOTIF1:	
XRIMDECOR2:	
XRDMOTIF2:	
LIPDECOR1:	plain
LDMOTIF1:	
LIPDECOR2:	
LDMOTIF2:	
LIPFORM:	flat
SHODECOR1:	
SDMOTIF1:	
SHODECOR2:	
SDMOTIF2:	
PASTE:	mcomp
TEMPER:	grit
XCOLOR:	gray
ODIAM:	0
MAXTH:	7.56
MINTH:	6.41
REMARKS:	cf. Buchanan Undecorated (Plain)

Table C.4. Native Ceramic Rim Sherd and Vessel Data According to Vessel Number, Elbee Site (ME408), 2003 UND Fieldwork.

Site: 32ME408	Rim Sherd and Vessel Data (x vesn)	UND ACN: 2003-0004

CATN:	1002
XUN:	02
FTN-1:	
ACU:	1PZN
CATN-S:	
VESN:	209
CTU:	
WARE:	Knife River
TYPE:	Tool Impressed
RIMFORM:	strait
RIMAPPEN:	brace
PRIMSURFT:	smoo
SECOSURFT:	
XRIMDECOR1:	plain
XRDMOTIF1:	
XRIMDECOR2:	
XRDMOTIF2:	
LIPDECOR1:	tooli
LDMOTIF1:	02
LIPDECOR2:	
LDMOTIF2:	
LIPFORM:	round
SHODECOR1:	
SDMOTIF1:	
SHODECOR2:	
SDMOTIF2:	
PASTE:	mcomp
TEMPER:	grit
XCOLOR:	gray
ODIAM:	0
MAXTH:	6.4
MINTH:	5.65
REMARKS:	Thinly braced rim

Table C.5. Native Ceramic Rim Sherd and Vessel Summary Data According to Vessel Number, Elbee Site (ME408), 2003 UND Fieldwork.

Site: 32ME408 — **Rim Sherd and Vessel Summary Data (x vesn)** — **UND ACN: 2003-0004**

CATN	XUN	FTN-1	ACU	VESN	WARE	TYPE	RIMFORM	PRIMSURFT	SECOSURFT	XRIMDECOR1	LIPDECOR1
1040	01	F102	2FTR	201	Buchanan	Cord-Impressed Lip	evert	burni		plain	cordi
1020	03		1PZN	202	Buchanan	Horizontal Incised/Trailed	evert	smoo		trail	tooli
1037	02	F103	2FTR	203	Buchanan	Horizontal Incised/Trailed	evert	smoo		incis	tooli
1012	01		1PZN	204	Riggs	Decorated Lip	evert	brush	smoo	plain	tooli
1030	02		1PZN	205	Riggs	Decorated Lip	strait	brush	smoo	plain	tooli
1039	01	F102	2FTR	206	Riggs	Plain (Undecorated)	strait	smoo	brush?	plain	plain
1030	02		1PZN	207	Riggs	Pinched?	evert	brush	smoo	plain	pinch?
1037	02	F103	2FTR	208	Riggs	Plain	evert	brush	smoo	plain	plain
1002	02		1PZN	209	Knife River	Tool Impressed	strait	smoo		plain	tooli

APPENDIX D

Stone Tool Analysis Code and Data, Elbee Site (32ME408), 2003 UND Fieldwork.

Table D.1. Stone Tool Coding Format, Elbee Site (32ME408), 2003 UND Fieldwork (abstracted and adapted from Ahler and Swenson 1985; Root et al. 1999).

Variable	Code	Variable/Code Description
CATN		FIELD CATALOG NUMBER (Provenience Key)
XUN		EXCAVATION UNIT NUMBER
FTN-1		FIRST FEATURE NUMBER (primary feature)
ACU		ARCHEOLOGICAL CONTEXT UNIT
DC		DESCRIPTIVE CATEGORY
	01	patterned triangular bifaces
	03	patterned notched bifaces
	08	pointed and ovoid bifaces
	09	patterned biface fragments
	14	unpatterned bifaces, nonbipolar cores, and core-tools
	15	end scrapers
	19	marginally retouched tablular pieces (retouched plate)
	24	acutely pointed flake tools
	29	other retouched and modified flakes
	30	bipolar cores/tools
	34	unpatterned pecked/ground tools
	37	linearly grooved tools, complete and incomplete
	38	grooved mauls
	39	patterned complex ground stone
	98	FCR tool
	99	indeterminate burned and fragmented—not coded
CPNO		COMPUTER NUMBER (sequential from 0001 in each descriptive category)
TC		TECHNOLOGICAL CLASS
	01	patterned small thin bifaces
	02	patterned large thin bifaces
	03	unpatterned irregular bifaces
	04	patterned flake tools
	05	unpatterned flake tools
	06	unpatterned thick bifacial core tools
	07	unpatterned nonbipolar cores/tools
	08	unpatterned bipolar cores/tools
	09	unpatterned pecked/ground/cobble tools
	10	patterned pecked/ground tools
	98	FCR tool
MC		MORPHOLOGICAL CLASS
	00	anomalous point form/type indeterminate
	01	small unnotched triangular arrow point (type unnamed or unspecified)
	02	small side-notched arrow point (type indeterminate)
	03	Plains Side-Notched type (arrow point)
	04	Prairie Side-Notched type (arrow point)
	05	Avonlea type (side/corner-notched arrow point)

Table D.1 (cont.).

Variable	Code	Variable/Code Description
MC	10	Besant type (side-notched dart point)
(cont.)	11	Pelican Lake type (corner-notched dart point)
	13	Besant/Pelican Lake base fragment
	31	ovoid unpointed/roughly ovoid
	32	ovoid pointed
	34	general triangular
	36	pointed fragment
	37	irregular
	38	edge fragment or segment (patterned biface)
	39	ovoid fragment
	41	bilaterally symmetrical (end scrapers here)
	44	flake with one edge
	45	flake with two edges
	46	flake with three edges
	50	patterned (complexly shaped) ground stone
FC		FUNCTIONAL CLASS
	01	projectile points
	02	perforators
	03	bilateral cutting tools used on soft materials, short duration
	04	transverse edged cutting tool
	06	light duty transverse scrapers used on soft materials
	07	bilateral cutting tools used on soft materials, long duration
	08	expedient cutting tools
	09	heavy duty sawing and tearing tools
	10	unilateral cutting tools, soft materials
	12	cutting tools used on hard materials
	14	choppers or pounding tools
	15	bifacial cutting tools, not further specified
	16	transverse scrapers used on abrasive materials
	17	transverse scrapers used on hard materials
	19	slotting or grooving tools (burins)
	20	transverse scraping tools, not further specified
	21	cores
	22	utilized flakes used on hard materials
	23	retouched or utilized flakes, various worked materials
	25	indeterminate bipolar cores or wedges (core/punch/wedge/chisel)
	26	punch/wedge/chisel
	28	anvils or bipolar hammers
	29	hammerstones
	31	tested raw materials
	33	simple hand-held abrading tool
	35	handstones (manos)
	36	grinding slabs or milling stones
	37	burnishing tools
	40	manuports
	44	patterned bifacial tools, unknown function
	58	notched flakes
	99	indeterminate, unknown

Table D.1 (cont.).

Variable	Code	Variable/Code Description
UP		USE-PHASE CLASS
	1	unfinished, unbroken, usable
	2	unfinished, broken or rejected
	3	finished, unbroken, usable
	4	finished, broken or rejected
RM		RAW MATERIAL TYPE
	01	smooth gray Tongue River (Rhame bed) silcrete (silicified sediment)
	02	coarse gray Tongue River (Rhame bed) silcrete (silicified sediment)
	03	coarse red Tongue River (Rhame bed) silcrete (silicified sediment)
	04	orthoquartzite, fine to medium grained (solid quartzite)
	05	Swan River chert (porous quartzite)
	06	chert/jasper
	08	clear/gray chalcedony
	09	yellow/light brown chalcedony
	10	dark brown chalcedony
	13	basaltic materials
	14	other, unclassified, indeterminate
	15	Ogallala orthoquartzite (Bijou Hills silicified sediment)
	16	quartz
	17	porcellanite
	18	obsidian
	19	granitic materials
	21	sandstone, fine to medium grained
	23	clinker (natural)
	24	red pipestone (catlinite)
	28	Knife River flint (unburned and burned)
	35	metaquartzite (other quartzite)
	37	siltstone, mudstone, or limestone
	40	non-volcanic natural glass (NVNG)
BR		BURNING
	0	absent
	1	present
	9	indeterminate
HT		HEAT TREATMENT (non-volcanic stones)
	0	unheated
	1	possibly heated
	2	heat treatment certain
	9	indeterminate or not applicable (volcanic stones)
PI		PATINATION INTENSITY (chalcedonies and flints)
	0	absent
	1	light
	2	moderate
	3	pronounced
	9	indeterminate or not applicable (non-patinable stones)

Table D.1 (cont.).

Variable	Code	Variable/Code Description
RC		RECYCLED (not coded as multipurpose, too)
	0	absent
	1	second function present, recycled from contemporary item/use
	2	second function present, not recycled from contemporary item/use
MP		MULTIPURPOSE (not coded as recycled, too)
	0	single function tool
	1	double function tool
	2	triple function tool
	3	quadruple function tool
	9	indeterminate
CX		CORTEX
	0	absent
	1	present
	9	indeterminate
CM		COMPLETENESS
	1	complete, whole weight recorded
	2	incomplete, partial weight recorded
WT		WEIGHT (recorded to 0.1 g)
NOTES		REMARKS

Table D.2. Stone Tool Data According to Descriptive Category and Computer Number, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408 | **Stone Tool Data (x dc, cpno, rc, mp)** | **UND ACN: 2003-0004**

CATN	XUN	FTN-1	ACU	DC	CPNO	TC	MC	FC	UP	RM	BR	HT	PI	RC	MP	CX	CM	WT	NOTES
1005	02		1PZN	01	0201	01	34	01	2	28	0	2	0	0	0	0	2	1.8	arrow point preform broken in manufacture
1006	03		1PZN	03	0201	01	03	01	4	28	0	2	0	0	0	0	2	0.3	arrow point base
1037	02	F103	2FTR	03	0202	01	03	01	4	28	0	2	0	0	0	0	2	1.0	arrow point impact fractured
1037	02	F103	2FTR	03	0203	01	00	04	4	17	0	0	9	1	0	0	2	1.7	notched/stemmed point recycled into small transverse cutting tool?
1037	02	F103	2FTR	03	0203	01	00	01	4	17	0	0	9	1	0	0	2	1.7	notched/stemmed point recycled into small transverse cutting tool?
1037	02	F103	2FTR	03	0204	01	03	01	4	28	0	2	0	0	0	0	2	0.4	arrow point base
1039	01	F102	2FTR	03	0205	01	03	01	4	28	0	2	0	0	0	0	2	0.8	arrow point with broken base
1039	01	F102	2FTR	03	0206	01	03	01	4	28	0	2	0	0	0	0	2	0.8	arrow point with broken blade
1039	01	F102	2FTR	08	0201	02	31	10	3	01	0	2	9	0	0	0	1	29.5	unilateral cutting tool
1014	04		1PZN	09	0201	01	38	44	2	28	0	2	0	0	0	0	2	0.3	unfinished arrow point frag?
1015	01		1PZN	09	0202	02	38	15	2	28	0	2	0	0	0	1	2	3.0	
1002	02		1PZN	09	0203	01	38	44	2	28	0	2	0	0	0	0	2	0.9	unfinished arrow point frag?
1007	01		1PZN	09	0204	02	38	03	4	28	0	2	0	0	0	0	2	2.1	
1007	01		1PZN	09	0205	01	38	44	2	28	0	2	0	0	0	1	2	0.6	unfinished arrow point frag?
1007	01		1PZN	09	0206	01	36	01	4	17	0	0	9	0	0	0	2	0.3	broken arrow point tip, impact fractured
1010	03		1PZN	09	0207	01	36	01	4	28	0	2	0	0	0	0	2	0.2	broken arrow point tip
1009	03		1PZN	09	0208	02	38	15	4	28	0	2	0	0	0	1	2	0.4	cutting tool frag?
1009	03		1PZN	09	0209	02	36	03	4	28	0	2	0	0	0	0	2	0.8	knife tip
1033	03	F101	2FTR	09	0210	02	38	15	4	28	1	1	0	0	0	0	2	2.8	
1033	03	F101	2FTR	09	0211	02	38	15	4	28	1	9	9	0	0	0	2	0.2	
1037	02	F103	2FTR	09	0212	01	36	01	2	08	0	2	0	0	0	0	2	0.3	unfinished arrow point tip
1039	01	F102	2FTR	09	0213	02	38	15	2	28	1	1	9	0	0	0	2	18.9	
1039	01	F102	2FTR	09	0214	02	38	07	4	28	0	2	0	0	0	0	2	10.5	
1039	01	F102	2FTR	09	0215	02	38	03	4	28	0	2	0	0	0	1	2	4.6	
1039	01	F102	2FTR	09	0216	02	38	15	2	28	0	2	0	1	0	1	2	9.9	recycled antique blank, unpatinated flake scars
1039	01	F102	2FTR	09	0216	02	38	44	2	28	0	2	2	1	0	1	2	9.9	tool from pit (F102); patination=antique tool/blank form
1039	01	F102	2FTR	09	0217	02	38	15	4	28	1	1	9	0	0	0	2	0.3	
1039	01	F102	2FTR	09	0218	02	38	15	4	28	1	1	9	0	0	0	2	0.8	
1039	01	F102	2FTR	09	0219	01	38	44	2	28	0	0	0	0	0	0	2	0.3	unfinished arrow point frag?
1039	01	F102	2FTR	09	0220	01	36	01	4	28	0	2	0	0	0	0	2	0.5	arrow point tip
1039	01	F102	2FTR	09	0221	01	36	01	2	08	0	2	0	0	0	0	2	0.4	arrow point tip
1039	01	F102	2FTR	09	0222	01	38	44	4	28	0	2	0	0	0	0	2	0.2	arrow point frag?

Table D.2. Stone Tool Data According to Descriptive Category and Computer Number, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408 — **Stone Tool Data (x dc, cpno, rc, mp)** — **UND ACN: 2003-0004**

CATN	XUN	FTN-1	ACU	DC	CPNO	TC	MC	FC	UP	RM	BR	HT	PI	RC	MP	CX	CM	WT	NOTES
1039	01	F102	2FTR	09	0223	01	38	44	2	28	0	1	0	0	0	0	2	0.2	unfinished arrow point frag?
1051	04		1PZN	09	0224	01	36	01	2	28	0	2	0	0	0	0	2	0.3	unfinished arrow point tip
1003	03		1PZN	15	0201	04	41	06	3	28	0	1	0	0	0	0	1	4.3	
1007	01		1PZN	15	0202	04	41	06	4	28	1	2	0	0	0	1	2	1.4	
1006	03		1PZN	15	0203	04	41	17	4	28	0	2	0	0	0	0	2	0.4	
1004	01		1PZN	15	0204	04	41	20	4	28	1	1	9	0	0	0	2	0.4	small end scraper frag?
1010	03		1PZN	15	0205	04	41	20	4	28	1	1	9	0	0	0	2	2.5	
1009	03		1PZN	15	0206	04	41	06	4	28	0	2	0	0	0	1	1	4.1	
1009	03		1PZN	15	0207	04	41	17	4	28	1	1	0	0	0	1	2	2.5	
1033	03	F101	2FTR	15	0208	04	41	20	4	28	0	2	0	0	0	1	2	2.5	
1037	02	F103	2FTR	15	0209	04	41	20	4	28	1	9	0	0	0	0	2	2.5	
1039	01	F102	2FTR	15	0210	04	41	06	3	28	0	2	0	0	0	0	1	16.3	
1039	01	F102	2FTR	15	0211	04	41	20	2	28	0	0	0	0	0	1	2	6.7	
1039	01	F102	2FTR	15	0212	04	41	06	3	28	0	1	0	0	0	1	1	5.4	
1039	01	F102	2FTR	15	0213	04	41	20	4	28	0	1	0	0	0	1	2	3.6	
1039	01	F102	2FTR	15	0214	04	41	06	3	28	0	0	0	0	0	0	1	8.6	
1039	01	F102	2FTR	15	0215	04	41	20	4	28	0	0	0	0	0	0	2	2.1	
1039	01	F102	2FTR	15	0216	04	41	06	3	28	0	0	0	0	0	1	1	3.2	
1039	01	F102	2FTR	19	0201	03	37	15	4	28	0	0	0	0	0	1	2	23.5	retouched KRF plate
1039	01	F102	2FTR	19	0202	03	37	10	4	08	0	0	0	0	0	1	2	1.4	retouched chal. plate
1015	01		1PZN	19	0203	03	37	15	4	28	0	0	0	0	0	1	2	0.5	retouched KRF plate, small frag
1009	03		1PZN	24	0201	05	32	02	4	28	0	2	0	0	0	0	2	1.2	probable perforator with tip missing
1021	04		1PZN	29	0201	05	44	22	4	28	0	1	0	0	0	1	2	1.1	
1015	01		1PZN	29	0202	05	45	23	4	28	1	2	0	0	0	1	2	2.8	weight total for three frags
1015	01		1PZN	29	0203	05	45	22	4	28	0	0	0	0	0	0	2	2.8	
1025	03		1PZN	29	0204	05	45	22	4	28	1	9	9	0	0	1	2	3.2	
1031	03	F101	2FTR	29	0205	05	44	22	4	28	1	9	9	0	0	0	2	0.4	
1012	01		1PZN	29	0206	05	44	22	4	28	0	2	1	0	0	1	2	3.2	very light patination = antique?
1042	03		3SPZ	29	0207	05	44	23	4	28	1	9	9	0	0	1	2	2.2	possible end scraper proximal frag
1006	03		1PZN	29	0208	05	44	22	4	28	0	0	0	0	0	0	2	0.8	
1006	03		1PZN	29	0209	05	45	22	4	28	0	0	0	0	0	0	2	1.3	

Table D.2. Stone Tool Data According to Descriptive Category and Computer Number, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408 — **Stone Tool Data (x dc, cpno, rc, mp)** — **UND ACN: 2003-0004**

CATN	XUN	FTN-1	ACU	DC	CPNO	TC	MC	FC	UP	RM	BR	HT	PI	RC	MP	CX	CM	WT	NOTES
1008	02		1PZN	29	0210	05	44	22	4	28	0	1	0	0	0	0	2	0.2	
1008	02		1PZN	29	0211	05	44	22	4	28	0	1	0	0	0	1	1	1.2	
1004	01		1PZN	29	0212	05	44	22	4	28	0	0	0	0	0	0	2	1.0	
1005	02		1PZN	29	0213	05	44	45	4	01	0	1	9	0	0	0	2	10.9	
1005	02		1PZN	29	0214	05	44	22	4	28	0	2	0	0	0	0	2	2.7	
1010	03		1PZN	29	0215	05	45	22	4	08	0	1	0	0	0	0	2	3.2	possible end scraper frag
1010	03		1PZN	29	0216	05	44	23	4	28	0	0	0	0	0	1	2	0.5	
1010	03		1PZN	29	0217	05	44	23	4	28	0	1	0	0	0	0	2	0.6	
1010	03		1PZN	29	0218	05	45	22	4	28	0	2	0	0	0	0	1	1.1	possible graver tip but no use-wear observed
1009	03		1PZN	29	0219	05	44	23	4	28	0	1	0	0	0	0	2	0.6	
1041	01	F102	2FTR	29	0220	05	44	22	4	28	0	1	0	0	0	0	2	6.7	
1019	03		1PZN	29	0221	05	44	23	4	28	0	0	0	0	0	0	2	1.5	
1019	03		1PZN	29	0222	05	44	23	4	28	0	0	0	0	0	1	2	3.5	
1023	01		1PZN	29	0223	05	44	22	4	28	0	0	0	0	0	0	2	2.0	
1023	01		1PZN	29	0224	05	44	22	3	28	0	2	0	0	0	1	1	11.6	light ventral patination = near cortical
1029	04		1PZN	29	0225	05	44	22	4	28	0	1	1	0	0	1	2	0.7	very light ventral patination?
1029	04		1PZN	29	0226	05	44	23	4	28	0	0	0	0	0	0	2	0.3	
1033	03	F101	2FTR	29	0227	05	44	23	4	28	0	1	0	0	0	1	2	9.6	three frags from same tool
1033	03	F101	2FTR	29	0228	05	44	22	4	28	0	0	0	0	0	0	2	1.3	
1033	03	F101	2FTR	29	0229	05	44	22	4	28	1	9	9	0	0	0	2	0.3	
1033	03	F101	2FTR	29	0230	05	44	23	4	28	0	2	0	0	0	0	2	0.1	very small edge frag, <0.1g
1033	03	F101	2FTR	29	0231	05	44	23	4	28	1	9	9	0	0	0	2	0.1	very small edge frag, <0.1g
1037	02	F103	2FTR	29	0232	05	44	23	4	28	0	1	0	0	0	1	2	4.7	
1037	02	F103	2FTR	29	0233	05	44	22	4	28	0	0	0	0	0	0	2	1.6	
1037	02	F103	2FTR	29	0234	05	44	22	4	08	0	0	0	0	0	0	2	0.5	
1037	02	F103	2FTR	29	0235	05	44	45	4	28	0	1	0	0	0	1	2	2.4	
1039	01	F102	2FTR	29	0236	05	45	22	4	28	0	2	2	0	0	1	2	13.7	tool from pit (F102); patination=antique tool/blank form
1039	01	F102	2FTR	29	0237	05	45	22	4	28	0	0	0	0	0	0	1	1.3	
1039	01	F102	2FTR	29	0238	05	44	22	4	28	0	2	0	0	0	0	2	0.2	
1039	01	F102	2FTR	29	0239	05	44	22	4	28	0	0	0	0	0	0	2	3.5	
1039	01	F102	2FTR	29	0240	05	44	23	4	28	1	2	9	0	0	0	2	0.8	
1039	01	F102	2FTR	29	0241	05	44	22	4	28	0	0	0	0	0	1	2	0.2	
1051	04		1PZN	29	0242	05	44	10	4	19	0	9	9	0	0	1	2	66.2	large unilateral cutting tool on granitic flake
1051	04		1PZN	29	0243	05	44	23	4	06	0	0	9	0	0	0	2	13.5	

Table D.2. Stone Tool Data According to Descriptive Category and Computer Number, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408 — **Stone Tool Data (x dc, cpno, rc, mp)** — **UND ACN: 2003-0004**

CATN	XUN	FTN-1	ACU	DC	CPNO	TC	MC	FC	UP	RM	BR	HT	PI	RC	MP	CX	CM	WT	NOTES
1006	03		1PZN	30	0201	08	37	26	4	28	0	0	0	0	0	1	2	5.4	
1039	01	F102	2FTR	30	0202	08	37	21	4	28	0	2	0	0	0	1	1	20.2	
1039	01	F102	2FTR	30	0203	08	37	25	4	28	0	0	0	0	0	1	2	4.6	
1021	04		1PZN	34	0201	09	37	33	4	21	0	9	9	0	0	0	2	3.1	
1006	03		1PZN	34	0202	09	37	33	4	21	0	9	9	0	0	0	2	10.4	
1006	03		1PZN	34	0203	09	37	99	4	19	0	9	9	0	0	1	2	9.9	possible ground stone tool frag, function unknown
1012	01		1PZN	34	0204	09	37	33	4	21	0	9	9	0	0	0	2	3.5	weight = total of two matched frags
1012	01		1PZN	34	0205	09	31	33	3	19	0	9	9	0	0	1	1	6.8	possible small abrading stone; tool status questionable
1015	01		1PZN	34	0206	09	37	99	4	19	0	9	9	0	0	1	2	67.1	possible ground stone tool frag, function unknown
1041	01	F102	2FTR	34	0207	09	37	33	3	23	0	9	9	0	0	1	1	14.8	clinker abrader
1057	04		1PZN	34	0208	09	37	33	3	35	0	9	9	0	0	1	1	13.3	possible abrading tool
1029	04		1PZN	34	0209	09	37	33	3	35	0	9	9	0	0	1	1	211.3	possible abrading tool; note attrition on single transverse edge
1039	01	F102	2FTR	34	0210	09	37	36	4	19	0	9	9	0	0	1	2	101.4	possible grinding anvil frag
1039	01	F102	2FTR	34	0211	09	37	37	3	10	0	9	9	0	0	1	1	81.1	possible burnishing tool; ochre stained?
1039	01	F102	2FTR	34	0212	09	37	33	3	23	0	9	9	0	0	1	1	58.2	clinker abrader
1023	01		1PZN	34	0213	09	37	33	4	23	0	9	9	0	0	0	2	10.4	weight total for 3 frags
1001	01		1PZN	39	0201	10	50	99	4	37	0	9	9	0	0	0	2	0.3	small ground siltstone object; function unknown; artifact?
1004	01		1PZN	39	0202	10	50	50	4	37	0	9	9	0	0	0	2	0.7	small siltstone pipe frag
1013	02		1PZN	39	0203	10	50	50	4	24	0	9	9	0	0	0	2	2.9	red pipestone pipe frag, possibly catlinite
1012	01		1PZN	39	0204	10	50	50	4	24	0	9	9	0	0	0	2	0.2	red pipestone pipe frag, possibly catlinite
1039	01	F102	2FTR	98	0201	98	37	14	4	19	0	9	9	0	0	1	2	193.8	FCR tool
1001	01		1PZN	99	0201													0.6	badly burned and fragmented--not coded
1007	01		1PZN	99	0202													2.1	badly burned and fragmented--not coded
1010	03		1PZN	99	0203													1.2	badly burned and fragmented--not coded
1037	02	F103	2FTR	99	0204													10.4	badly burned and fragmented--not coded
1037	02	F103	2FTR	99	0205													2.2	badly burned and fragmented--not coded
1039	01	F102	2FTR	99	0206													3.0	badly burned and fragmented--not coded
1039	01	F102	2FTR	99	0207													0.2	badly burned and fragmented--not coded

APPENDIX E

Animal Bone Identification Data, Elbee Site (32ME408), 2003 UND Fieldwork.

Table E.1.	Animal Bone Identification Data.

Table E.1. Animal Bone Identification Data According to Taxon and Element, Elbee Site (32ME408), 2003 UND Fieldwork.

Site: 32ME408 — **Identifiable Bone Data (x taxon, element, side, catn)** — **UND ACN: 2003-0004**

CATN	XUN	FTN-1	ACU	SG	TAXON	ELEMENT	SIDE	PORTION	ASPECT	REMARKS
1039	01	F102	2FTR	3	Aves (small)	Carpometacarpus	R	Proximal		
1039	01	F102	2FTR	1	Bison bison	Carpal, Intermediate	L	Complete		
1039	01	F102	2FTR	1	Bison bison	Carpal, Radial	L	Complete		Several small burn marks
1039	01	F102	2FTR	1	Bison bison	Carpal, Ulnar	L	Nearly Complete		Shovel dings
1039	01	F102	2FTR	1	Bison bison	Phalange, 2nd	Ind	Complete		
1037	02	F103	2FTR	1	Bison bison	Radius	R	Distal		Heavily weathered; slightly burned
1037	02	F103	2FTR	1	Bison bison	Scapula	L	Distal		Modified
1037	02	F103	2FTR	1	Bison bison	Scapula	L	Distal	Posterior	Teeth marks
1039	01	F102	2FTR	1	Bison bison	Scapula	L	Medial		Modified; Missing proximal & distal ends
1039	01	F102	2FTR	1	Bison bison	Skull/Horn Core	Ind	Partial		3 pieces refit each other
1039	01	F102	2FTR	3	Bison/Cervus	Premolar	Ind	Partial		Heavily worn
1039	01	F102	2FTR	2	Bison/Cervus	Rib	Ind	Nearly Complete		Cut marks near distal end; Missing proximal & distal ends
1001	01		1PZN	2	Bison/Cervus	Rib	Ind	Proximal		
1023	01		1PZN	3	Bison/Cervus	Sesamoid, Distal	Ind	Complete		
1039	01	F102	2FTR	2	Bison/Cervus	Sesamoid, Proximal	Ind	Complete		
1039	01	F102	2FTR	1	Bison/Cervus	Vertebra	N/A	Posterior		Unfused; Only articular (posterior) facet is present
1037	02	F103	2FTR	3	Large Sized Animal	Vertebra, Caudal	N/A	Complete		One end is burned
1039	01	F102	2FTR	2	Medium Sized Animal	Humerus	L	Distal		Unfused; Heavily weathered
1033	03	F101	2FTR	3	Rodentia	Mandible	L	Nearly Complete		1 molar present
1031	03	F101	2FTR	3	Rodentia	Mandible	R	Nearly Complete		1 incisor, 3 molars present
1022	02		1PZN	3	Rodentia	Tibia/Fibula	L	Proximal		Proximal fibula is missing
1003	03		1PZN	3	Serpentes	Vertebrae	N/A	n=55		55 elements; Same species; Nearly all are complete

APPENDIX F

Human Remains Report for the Elbee Site (32ME408), 2003 UND Fieldwork.

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Osteological Examination

HIL Case #: 7A04
Archaeology Research #:1004 32ME408 G3

Date and method of receipt of remains: The skeletal material, consisting of two fragmentary teeth, were hand delivered to this laboratory by Dennis Toom on 20 July, 2004.

Analysis: Two human teeth are present. The first is a permanent left upper central incisor with extensive apical wear. Interproximal grooves are present at the cervix on the mesial and distal surfaces.
The second tooth consists of the crown of a very worn deciduous molar, as indicated by a clear bulge of enamel over the cervix. The length of the crown suggests it is a second deciduous molar, but insufficient material remains to more accurately determine its place in the dentition.

Summary: Two human teeth are present, consisting of an adult incisor and a deciduous molar.

Signature

July 20, 2004
Date

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