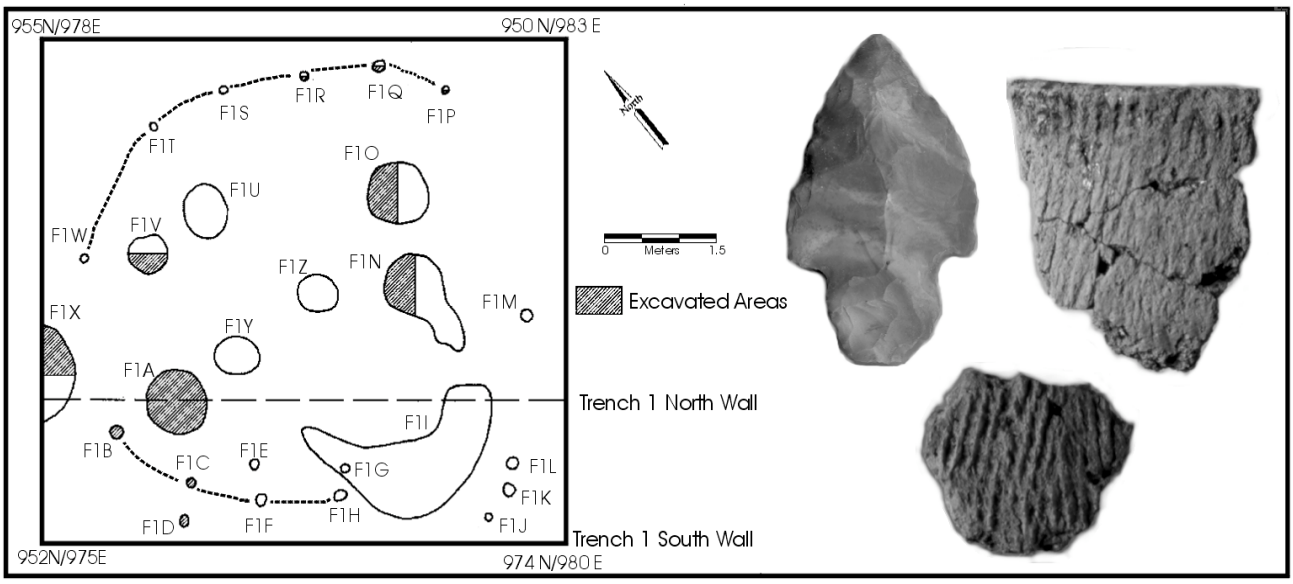
ARCHAEOLOGICAL INVESTIGATIONS AT THE STARDUST SITES 1 (40CY63), 2 (40CY64), AND 3 (40CY65), CLAY COUNTY, TENNESSEE



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TENNESSEE DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL PLANNING AND PERMITS DIVISION
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PHASE II ARCHAEOLOGICAL INVESTIGATIONS AT THE STARDUST SITES 1 (40CY63), 2 (40CY64), AND 3 (40CY65), CLAY COUNTY, TENNESSEE

PREPARED FOR

Tennessee Department of Transportation
Environmental Planning and Permits Division
Suite 900, James K. Polk Building
Nashville, Tennessee 37243

UNDER

TDOT Project Number 14945-1444-04
Tennessee State Archaeological Permit Number 000414

BY

TRC Garrow Associates, Inc.
Nashville, Tennessee

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STATE OF TENNESSEE

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ABSTRACT

From May to August 2001, TRC conducted Phase II archaeological testing for the Tennessee Department of Transportation (TDOT) at three prehistoric sites along the upper Cumberland River near Celina in Clay County, Tennessee. Archaeological investigations were performed in conjunction with a proposed State Industrial Access (SIA) road. The work was done to determine the eligibility status of the sites for listing on the National Register of Historic Places (NRHP).

The *Stardust Sites* (40CY63, 40CY64, 40CY65) are situated on two alluvial terrace remnants (T1 and T2) of the Cumberland River. Geomorphic investigations determined that the bulk of sediment within the higher elevated remnant (T2) is alluvial and appears to be Pleistocene in age; the lower terrace (T1) exhibits a 1–2-m thick drape of sediment consisting of relatively unweathered Holocene alluvium.

40CY63

Testing determined that site 40CY63 exhibits archaeological deposits ranging in thickness from 25 cm to 1 m and containing Middle Archaic through Middle Woodland period components. Diagnostic artifacts include projectile point types of the Large Side Notched, Stanley/Austin Stemmed, White Springs, Ledbetter, Early Woodland Stemmed, Copena, and Lowe Clusters, and limestone tempered pottery. Radiocarbon (C^{14}) analysis of charred wood samples recovered from two refuse pits and a test unit returned uncalibrated C^{14} dates of 6200 ± 40, 5560 ± 40, and 2300 ± 40 B.P.

40CY64

Excavations at site 40CY64 identified deposits ranging from 20 cm to 1 m in thickness containing Middle Archaic through Middle Woodland period components. Artifacts recovered include projectile point types of the Large Side Notched, Ledbetter, Terminal Archaic Barbed, Dickson, Copena, and Lowe Clusters and limestone tempered pottery. Charred wood samples recovered from two refuse pits and one post mold associated with the footprint of a circular structure returned uncalibrated C^{14} dates of 2300 ± 40 B.P., 2420 ± 40 B.P., and 2240 ± 40 B.P.

40CY65

Deposits identified at site 40CY65 range from 15 cm to 35 cm in thickness and contain Middle Archaic, and Early through Middle Woodland period components. Artifacts recovered include projectile point types of the Large Side Notched, Dickson, Copena, and Lowe Clusters. A charred wood sample collected from a pit feature returned an uncalibrated C^{14} date of 2420 ± 40 B.P.

Stardust Project Area

ACKNOWLEDGMENTS

Several individuals are responsible for the successful completion of this project. Mr. Gary Barker, an Archaeologist with Tennessee Department of Transportation (TDOT), served as the project liaison. The author would especially like to thank Mr. Barker for his helpful guidance and patience regarding nearly every aspect of the project. He participated extensively in the fieldwork, allowing the crew to draw upon his wide range of experience and expertise in the archaeology of middle Tennessee. TRC would also like to thank Gerald Kline, TDOT Archaeologist Supervisor, for his efficient contract administration and helpful communication throughout the project.

Dr. Larry McKee, Program Manager of the TRC Nashville office, coordinated the project and served as the Principal Investigator. Field Technicians Sam 'Snowdog' Willis, Jason Butler, and Josh Tuschl, as well as the backhoe operator Tommy Reecer, carried out the bulk of the archaeological fieldwork for the project under the direction of Marc Wampler. Barker and McKee, along with Mary Tucker, Tammy Wampler, Jason Pratt, and Britt Camby, also participated with the fieldwork in varying capacities. Ray Ezell, an Archaeologist at the TRC Nashville office, also provided ample and very helpful advice throughout the project regarding field excavation strategies and report preparation. Dr. David Leigh, Associate Professor in the Department of Geography at the University of Georgia, conducted the geomorphological field and laboratory studies for the project. In the TRC Nashville laboratory, Wampler, Willis, Tuschl, and Tucker conducted the lithic analysis for the project, and Ezell analyzed the ceramic sample. In the TRC Atlanta laboratory, Lab Director Tommy Garrow processed the flotation samples, Program Manager Dr. Larissa Thomas conducted micro-botanical analysis, and Archaeologist Tasha Benyshek carried out the analysis of faunal remains.

The report production for this project was carried out on several fronts in both the TRC Nashville and Atlanta offices. Wampler served as the senior author of the report, and edited and compiled analysis by Leigh (geomorphology), Ezell (ceramics), Thomas (micro-botanical), and Benyshek (faunal). McKee edited a first draft of the report and wrote the previous investigations summary. Jessica Cox edited and produced the initial draft submitted to TDOT. Vince Macek produced the bulk of the original report graphics. Aaron Deter-Wolf provided much needed editorial and graphical assistance for the final publication draft submitted to TDOT.

Caroline Albright-Simpson, publications manager under contract with Parsons Engineering Science, Inc., completed the final editing of this report for TDOT in 2004 for state publication.

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I. INTRODUCTION

PROJECT DESCRIPTION

In April of 2001, TRC was contracted by the TDOT to carry out Phase II archaeological investigations at sites 40CY63, 40CY64, and 40CY65 situated along the upper Cumberland River near Celina in Clay County, Tennessee (Figure 1). The prehistoric sites were first identified during a Phase I archaeological survey performed by TDOT personnel in conjunction with the proposed construction of a State Industrial Access (SIA) from SR 52 to the planned building site of a houseboat-manufacturing corporation (Stardust Cruisers Incorporated) (Barker 2001). These three sites were determined to contain intact archaeological deposits within the area of potential effects (APE) of the SIA, and were consequently recommended for inclusion on the NRHP. The sites would be unavoidably impacted and Phase II testing was recommended. (Barker 2001; Barker and Kline 2001). Areas of investigation totaled approximately 4514 m^2 (1.1 acres) at 40CY63, 2257 m^2 (0.551 acres) at 40CY64, and 9028 m^2 (2.2 acres) at 40CY65.

GEOMORPHOLOGICAL INVESTIGATIONS

Geomorphological investigations revealed that the sites are located on two terrace remnants associated with the Cumberland River. These alluvial terraces were formed during the late Pleistocene when the Cumberland River aggraded 7–8 m of fine-grained overbank alluvial sediment on top of bedload gravels. Alluvial aggradation ceased during the late Pleistocene, and the terraces were subjected to weathering and erosion. Incision of the Cumberland River at that time led to a reduction in sedimentation and the formation of swales or zero order drainages throughout the project area. Sedimentation was likely renewed during the early to middle Holocene. The swales, which dissect the terrace remnants, were the most favorable locations for flood sedimentation. The Cumberland River and Shankey Branch were then incised, during the Holocene, to their present level, leaving the terrace remnants as relatively high and dry localities.

The lower elevated terrace (T1) occurs within the 530–540 feet contours of the project area, while the higher T2 remnant occurs within the 540–550 feet contours. Site 40CY65 lies mostly within the T2 remnant, and sites 40CY63 and 40CY64 lie within the T1 remnant. The bulk of the alluvial fill on both terrace levels appears to be Pleistocene in age; however, the T1 remnant exhibits a 1–2-m thick drape of Holocene alluvium that has buried cultural artifacts. The alluvium appears to be relatively unweathered in some areas, and its thickest occurrences are in the erosional swales, which have functioned as sediment traps during times of overbank flooding during the Holocene.

Archaeological investigations provided evidence that accumulation of sediment within swales is also the result of soil deflation or colluvial processes from higher elevated portions of the terrace remnants. For example, one cord-marked, limestone tempered ceramic sherd (Early Woodland period) was recovered 80 centimeters below the surface (cmbs) below Middle Archaic period deposits at 40CY63.

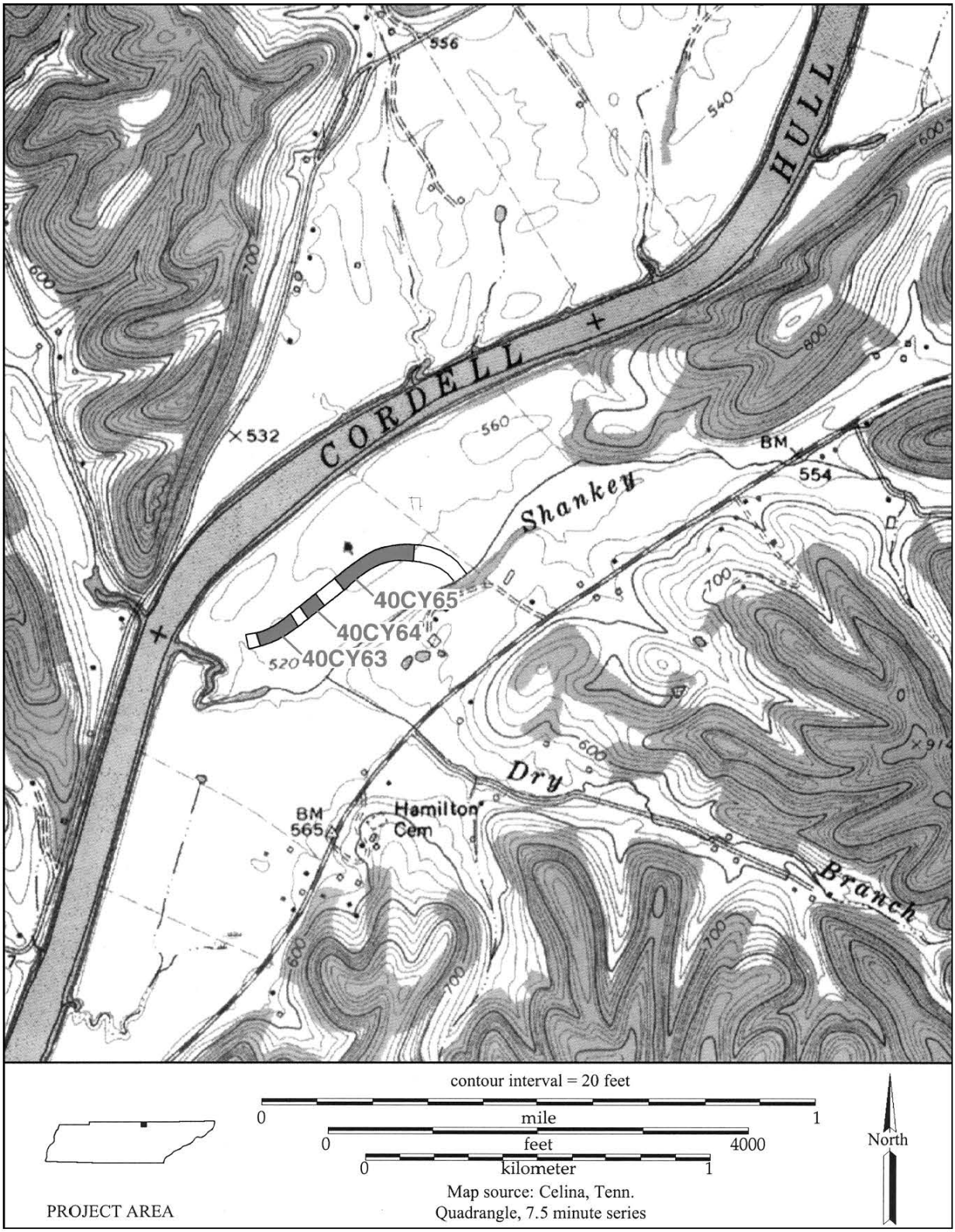


Figure 1. Location of sites 40CY63, 40CY64, and 40CY65 within the SIA APE.

ARCHAEOLOGICAL INVESTIGATIONS

TRC conducted Phase II archaeological investigations in the summer of 2001 to evaluate the integrity and eligibility of archaeological deposits at 40CY63, 40CY64, and 40CY65 for inclusion on the NRHP. The five specific objectives of these investigations were to determine: the vertical and spatial limits of the three sites within the project APE; the cultural affiliations for the components represented; the presence of undisturbed, subsurface features or stratified deposits; the density and distribution of intact archaeological deposits within the APE; and the classes of archaeological remains retrievable. To address these objectives, controlled excavation of 1 x 1-m test units was conducted in conjunction with the excavation of backhoe trenches within the APE at all three sites. Geomorphological investigations resulted in the excavation of nine backhoe pits throughout the project area.

Site 40CY63 (*Stardust Site 1*) is located in the southern portion of the APE, and is situated on the highest portion of the T1 remnant with swales to the north, west, and south. Archaeological investigations discovered deep archaeological deposits at the site that range in thickness from 25-cm to over 1-m below the plowzone. Middle Archaic through Middle Woodland (8000–1650 B.P.) period components are present at the site. The Middle Archaic component is confirmed by C^{14} dating of two charred wood samples. One of these samples, recovered from Test Unit 3 in association with a Stanley stemmed pp/k, returned an uncalibrated C^{14} date of 6200 ± 40 B.P. The other was recovered from a refuse pit containing carbonized fragments of hickory nutshell and returned an uncalibrated C^{14} date of 5560 ± 40 B.P. The Early Woodland component is substantiated by an uncalibrated C^{14} date of 2300 ± 40 B.P. obtained from charred wood recovered in a refuse pit that contained carbonized nutshell, ceramic sherds, and animal bone.

Site 40CY64 (*Stardust Site 2*) is located just north of 40CY63 at a slightly lower elevation and is situated within intermediate portions of the T1 remnant. Testing at this site also revealed deep archaeological deposits. The deposits range in thickness from approximately 20-cm to over 1-m below the plowzone. Middle Archaic through Middle Woodland period components were identified at the site. The Early Woodland component is confirmed by C^{14} dating of three charred wood samples collected from features associated with a circular structure discovered at 40CY64. Samples collected from two refuse pits containing carbonized nutshell, animal bone, and ceramics returned uncalibrated C^{14} dates of 2300 ± 40 and 2420 ± 40 B.P. A sample collected from a post-mold feature returned an uncalibrated date of 2240 ± 40 B.P.

Site 40CY65 (*Stardust Site 3*) is contained mostly within the higher elevated T2 terrace remnant and occupies a large section of the northern portion of the APE. Thin drapes of the T1 terrace remnant have reached extreme southern and northern portions of the site's APE boundaries. Phase II testing at the site revealed a thin layer of intact archaeological deposits 15-cm thick in higher elevated areas and a thicker layer (35-cm) in lower elevated areas. Middle Archaic and Early Woodland period components are present at the site. The Early Woodland component is confirmed by an uncalibrated C^{14} date of 2420 ± 40 B.P obtained from one charred wood sample collected from a shallow refuse pit that contained carbonized fragments of hickory nutshell.

II. ENVIRONMENTAL CONTEXT

PHYSIOGRAPHY AND TOPOGRAPHY

The Stardust sites are situated principally within the Eastern Highland Rim (Figure 2), a section of the Interior Low Plateaus Physiographic Province, which extends from northern Alabama to beyond the Ohio River (Fenneman 1938). The Eastern Highland Rim is about 1000 feet lower than the Cumberland Plateau to the west, and 400 feet higher than the Central Basin to the southeast (Miller 1974). The general topography is undulating to hilly; however, in the project vicinity the terrain consists of rugged karst topography characterized by a series of steep-sided valleys which are separated by narrow, winding ridges that range from about 700–1000 feet AMSL. The Cumberland River has carved through these ridges over time creating relatively elevated alluvial terraces and floodplains at nearly the same elevation as the Central Basin. The Stardust sites are located on alluvial terraces at an elevation of approximately 500 feet AMSL.

GEOLOGY

Originally, the Eastern Highland Rim was a low, rather featureless, plain. Over time it has slowly eroded and been dissected by the many streams that flow westward through it toward the Central or Nashville Basin. The extremely resistant Fort Payne Formation forms the western edge of the province, which dips slightly to the east and southeast (Luther 1977). This slope of the land impedes stream flow towards the Central Basin and causes poor soil drainage. The Fort Payne Formation serves as a barrier for erosion in eastern portions of the Eastern Highland Rim where higher geologic formations (erosional remnants of the Cumberland Plateau) occupy western portions near the project area, creating a more rugged topography.

Lithologic units in the project area are sedimentary in origin and mainly consist of Mississippian age limestones. These include the Pennington Formation; Bangor Limestone; Hartselle Formation of shale, sandstone, and limestone; Monteagle Limestone; St. Louis Limestone; Warsaw Formation and the dense cherty deposits of the Fort Payne Formation.

Soil associations within the project area consist of deep Pleistocene and Holocene flood deposits. Detailed descriptions of nature and development of soils investigated within and adjacent to the project APE are provided in Chapter V and Appendix C.

MODERN CLIMATE

Relatively mild winters and warm summers characterize the climate of Clay County. Published temperature and precipitation data are available for Fentress and Pickett Counties, to the west. Average temperature in the winter is 37 degrees F and 72 degrees F in the summer, and annual precipitation averages 54 inches. Average relative humidity is 55 percent. The prevailing wind is from the south, and the average wind speeds are highest at 10 miles per hour in March (Campbell and Newton 1995).

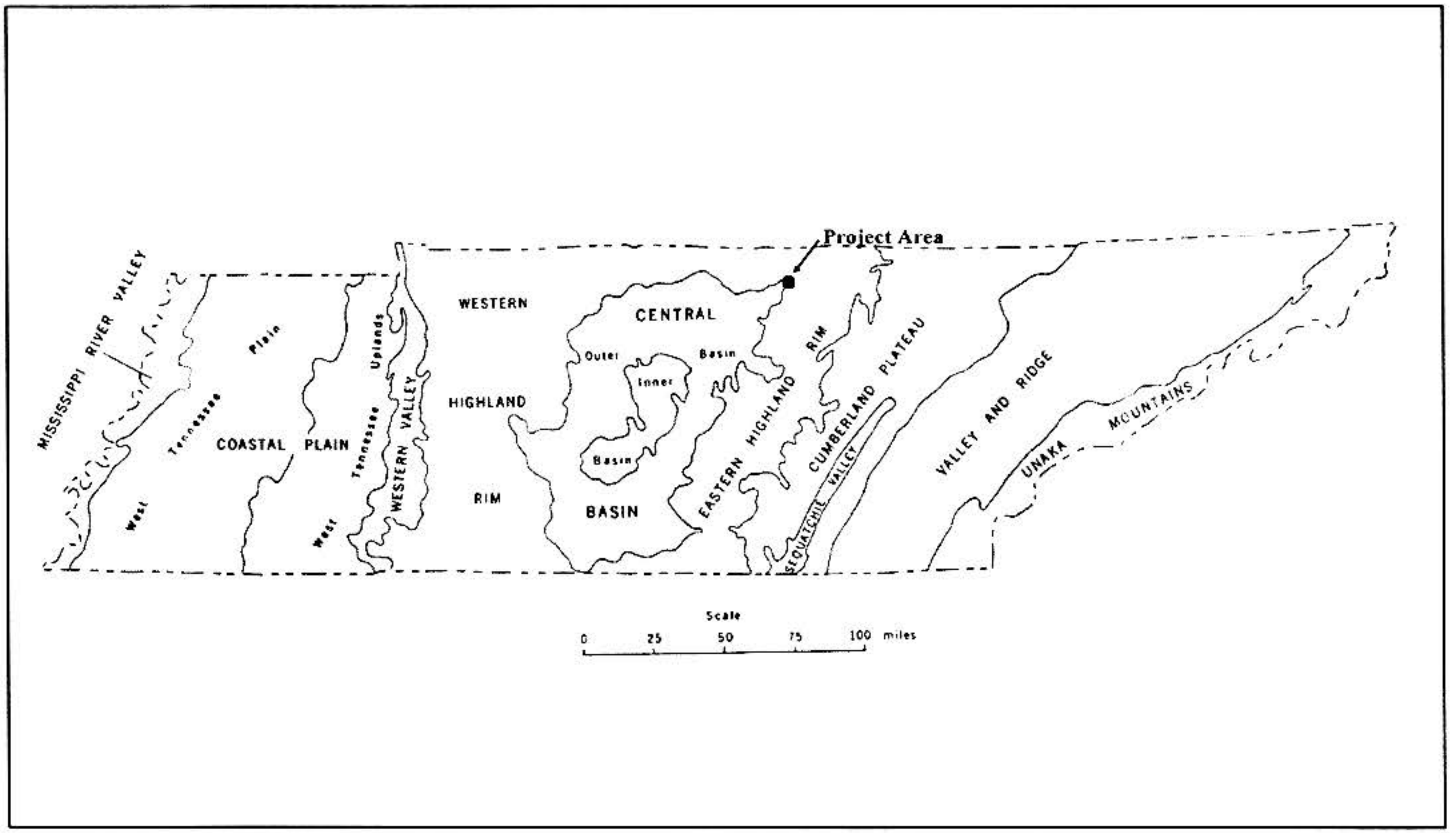


Figure 2. General physiographic map of Tennessee showing project area location.

PALEOENVIRONMENT

Contemporary climatic and environmental regimes do not apply to the earliest human occupation of Middle Tennessee. Throughout the late Pleistocene to middle Holocene epochs, climates were much different than in the modern period. Conditions were exceedingly cooler and sea levels much lower as massive glaciers covered most of northern North America. The last glacial maximum occurred about 20,000–18,000 B.P. (Frison and Walker 1990). The great Laurentide ice sheet penetrated eastern North America, covering portions of northern Iowa, northern and central Illinois, all of Michigan, approximately two-thirds of Indiana, northern Pennsylvania, and nearly all of New England and Long Island. This certainly affected paleo-environmental conditions throughout the Southeast as well.

North of the project area in Ohio, the Laurentide ice sheet terminated at the Ohio River Valley. Fluctuations in global temperatures beginning ca. 16,000 B.P. initiated a gradual but fluctuating ice retreat northward (Dawson 1994). In 14,000 B.P., boreal forests, in which pine and spruce were dominant, were established in the project area (Delcourt and Delcourt 1981, 1983). As temperatures and precipitations continued to increase, and the Laurentide continued its northern retreat, boreal forests were replaced by deciduous forests that included northern hardwoods such as oak, hickory, beech, birch, and elm (Webb et al. 1993). It is generally considered that from 11,000–10,000 B.P., the so-called Younger Dryas, represents a final, short-lived return to cooler and perhaps dryer conditions (Dawson 1994). This favored the re-expansion of spruce in many places including north of the project area in Ohio, and undoubtedly to some extent, throughout Kentucky and northern Tennessee (Shane 1994).

The Holocene can be divided into three periods: early, middle, and late. The early Holocene (ca. 11,000–8000 B.P.) is characterized by a continuing warming trend that had been established towards the end of the Pleistocene. It was wetter and cooler than present conditions, but still warmer than in the late Pleistocene (Webb et al. 1993). This allowed developing deciduous forests to flourish, and provided an abundance of game and plant species for use by the earliest inhabitants of the region. By about 8000 B.P., vegetation in the project area closely resembled that of present conditions (Delcourt 1979). The middle Holocene (ca. 8000–5000 B.P.) is marked by the so-called Hypsithermal Interval, which coincides with dryer and perhaps warmer temperatures. Plant, animal, and human populations adapted to these altered conditions. Prairie environments expanded in northern Middle Tennessee during this period, as well (Delcourt and Delcourt 1981). By the late Holocene (ca. 5000–present), paleo-environmental conditions in northern Middle Tennessee were comparable to today. Since about 3000 B.P., the climate has cooled somewhat, is wetter than the proceeding dryer period, and coniferous species have steadily intermixed with predominating deciduous forests of the region.

RESOURCE UTILIZATION POTENTIAL

Lithic and mineralogical resources are plentiful in areas adjacent to the Stardust sites. These resources are represented by moderate- to fine-grained varieties of Ft. Payne, Warsaw, and St. Louis chert. Other lithic resources include limestone, shales, and

sandstone, as well as chalcedony, quartzite, and quartz (Moore and Wilson 1987; Wilson 1987). Lithic materials expedient for prehistoric stone tool manufacture were likely procured as nodules of varying sizes collected from ridge outcrops and streambeds. Samples of these local lithic raw materials were collected along Shankey Branch during the Stardust field investigations.

The Cumberland River system would have provided a significant network of waterways navigable by canoe for prehistoric inhabitants of the project area. This undoubtedly aided in communication with regional groups, hunting/gathering excursions, and the establishment and maintenance of local and regional trade networks. Other primary resources included abundant game animals and timber resources that would have been easily harvested by the prehistoric and historic occupants of the area. Wood provided fuel for cooking and warmth, raw materials for the construction of shelters, and a reliable medium for tools and weapons (e.g. atlatl, darts, spears, foreshafts, etc.).

FLORA AND FAUNA

The project area is located in the Western Mesophytic region (Braun 1950) and the Carolina Biotic Province (Dice 1943). This type of forest is dominated by oak and hickory stands with lesser stands of ash, mulberry, beech, walnut, maple, cedars, and pines. Various plants were available as food resources for prehistoric and historic inhabitants. These include a variety of nuts, such as acorns, hickory nuts, walnuts, and pecans, as well as wild seeds, legumes, and grasses.

The first inhabitants in the project area hunted various megafauna and smaller animals, some of which are now extinct. Animal such as sloths, horses, deer, moose, musk-ox, elk, bison, mastodon, mammoth, and bear roamed the project area nearly 10,000 years ago and provided an important source of food for these early inhabitants. White-tailed deer, rabbit, squirrel, bobwhite, raccoon, opossum, and gray fox comprise the majority of the modern-day mammals. Species that are no longer present but would have been hunted during initial European colonization and prehistoric inhabitation included black bear, elk, and panther. Waterways are inhabited by several varieties of fish like crappie, bass, catfish, and bluegill. Avian species include buzzard, red-tailed hawk, crow, quail, dove, turkey, and several varieties of duck and geese.

III. CULTURAL OVERVIEW

PREHISTORIC OCCUPATION

Prehistoric occupation of the region is likely to have occurred continuously for at least 12,000 years. Throughout this vast time period, various changes in technology, settlement patterns, subsistence practices, population density, social organization, ideology, and other aspects of human behavior have occurred. This section provides a brief overview of current accepted understanding of these changes. Four prehistoric cultural periods are discussed: Paleoindian, Archaic, Woodland, and Mississippian.

Paleoindian Period (11,500–10,000 B.P.)

The earliest strong evidence of occupation in the Southeast and Tennessee occurs approximately 12,000 to 11,500 B.P. Recent research on Paleoindian diagnostic hafted bifaces suggests that this period can be somewhat arbitrarily subdivided into Early (ca. 11,500–10,900 B.P.), Middle (ca. 10,900–10,500 B.P.), and Late or Transitional Paleoindian (ca. 10,500–10,000 B.P.) subperiods (Anderson 1990, 1995a, 1995b; Anderson et al. 1996). This chronology is based on changes in hafted biface morphology, which includes fluted, unfluted, notched, and unnotched lanceolate forms such as Clovis, Gainey, Cumberland, Quad, Parkhill, Dalton, and Hardaway (Anderson 1995b; Morrow 1996).

Paleoindian adaptation in central Tennessee and the Southeast was likely characterized by a combination of two settlement models. The first, a "diet-centered" model (Kelly and Todd 1988), depicts Paleoindian groups as small, highly mobile foraging bands that moved from place to place as preferred resources were depleted and new supplies of resources were sought. The second, a more "place-oriented" model (Anderson 1996a), suggests that early groups initially settled in staging areas along the Ohio, Cumberland, and Tennessee River valleys and subsequently colonized the entire Southeast. Groups may have chosen to familiarize themselves with their surroundings by staying in certain areas for longer periods of time and thus reducing dietary pressures.

Paleoindian groups were efficient hunters and are traditionally thought to have almost exclusively hunted now-extinct megafauna like mastodon *(Mammut americanum)* and bison *(Bison antiquus)*. The Paleoindian tool kit includes large lanceolate spear points, prismatic blades, and a variety of unifacial tools. In middle Tennessee, the Coats-Hines site (40WM31) in Williamson County, southwest of the project area, provides strong evidence that Paleoindian groups hunted and consumed Mastodon. Mastodon remains were found in direct association with a variety of lithic tools (Breitburg et al. 1996). Butchering marks were identified on a number of the mastodon bones providing evidence of butchering activities at the site. Meltzer (1993) has concluded that there is no widespread evidence for the specialized hunting of big game species. Instead, the Paleoindian diet was likely more generalized, utilizing a number of faunal and floral species. Preservation issues hamper any definitive conclusions regarding a more diversified Paleoindian subsistence.

Archaic Period (10,000–3,000 B.P.)

The Archaic period is traditionally divided into three subperiods: Early (10,000–8,000 B.P.), Middle (8,000–5,500 B.P.), and Late (5,500–3,000 B.P.). These divisions are largely based on temporal changes in projectile point styles. The Archaic period is represented within the archaeological record by three technological changes: 1) the termination of fluted point manufacture; 2) the advent of numerous regional projectile forms and functions; and, 3) the introduction of a variety of specialized artifact types. The Archaic tradition is also associated with two environmental changes occurring during the terminal Pleistocene and early Holocene epochs: 1) large megafauna were replaced by modern faunal and floral species; and, 2) coniferous forests were gradually replaced by mixed deciduous forests.

Adaptation during the Archaic period was characterized by an efficient, wide, and even exploitation of the total natural environment. This intensive exploitation of local resources likely led to increased population growth and decreased group territory size over time throughout the Southeast (Anderson and Hanson 1988). Archaic site types range from base camps and short-term, seasonal locations with low archaeological visibility to more permanently occupied locales containing substantial deposits exhibiting remains of structures and storage facilities.

Early Archaic Period (10,000–8,000 B.P.). Analysis of archaeological remains from the Early Archaic period suggests that adaptation was much like that of earlier Paleoindian mobile hunting and foraging lifestyle. Many sites dating to the period consist of light lithic scatters representing specialized, seasonal camps at which tool manufacture/maintenance, hunting/butchering, and wood/hide working activities were main activities. This is evidenced by the recovery of knives, drills, scrapers, choppers, perforators, gravers, and a variety of flake tools.

Hafted biface types found at Early Archaic sites in the project region include Kirk Corner Notched Cluster points (i.e., Kirk, Palmer, Decatur, and Pine Tree) and Bifurcated Base Cluster forms (i.e., St. Albans, LeCroy, Kanawha) among others (Justice 1987). Barker and Broster (1996) have confirmed that Corner Notched forms predate Bifurcated Base types in central Tennessee. Side notched point forms also have been dated from Early Archaic contexts in northern Alabama and southern Illinois (DeJarnette et al. 1962; Goodyear 1982; J. W. Griffin 1974; DeJarnette and Knight 1976; Fowler 1959).

Middle Archaic Period (8,000–5,500 B.P.). The Middle Archaic period coincides with warmer and drier climate associated with the Hypsithermal Interval (Pielou 1991:269–290). Local inhabitants may have experienced periodic and long droughts. Paleoenvironmental research conducted along the Lower Duck and Middle Cumberland river drainages illustrates that cedar glades and grasslands began to expand into the oak-hickory forests during this period, and floodplain deposition stabilized because of general reductions in flooding episodes in the region (Brakenridge 1984; Klippel and Parmalee 1982). However, some suggest increased fluvial activity, intensified weather conditions, and high runoff from ca. 6,500 to 4,000 B.P. for the project region (Schuldenrein 1996).

Climatic change likely affected population and settlement dynamics during the Middle Archaic period. Several researchers postulate an increase in population density throughout the Southeast (e.g., Amick and Carr 1996; Anderson 1989; McNutt and Weaver 1985). This broad regional pattern is less apparent in the upland sections of the Eastern Highland Rim (Childress and Buchner 1993), but appears to be dramatic in the Central Basin along both the Cumberland and Duck river drainages. Hofman (1986) notes that Middle Archaic groups appear to recycle Early Archaic tools in the Duck River Basin, suggesting reduced mobility. Smith (1986) concludes that intensified exploitation of major floodplain resources is evidenced by the accumulation of substantial Middle Archaic shell and midden zones along major interior river drainages in project region like the Tennessee, Tombigbee, Green, and Cumberland Rivers.

An increase in ground stone tools (i.e., adzes, axes, bannerstones, and pendants) is recognized within the archaeological record of the Middle Archaic period. In addition, the appearance of manos, mortars and pestles, and nutting stones suggest an increase in utilization of plant food resources. Subsistence remains indicate a focus on deer, hickory nuts, and freshwater gastropods and mussels (Styles and Klippel 1996). The appearance of shale, slate, quartz, and quartzite, and non-local cherts within lithic assemblages of the period indicates broader utilization and regional exchange of lithic resources. Middle Archaic projectile point forms include side and basally notched types (i.e., Big Sandy, Eva) and a wide variety of stemmed forms including Morrow Mountain, Sykes/White Springs Cluster, and Benton types.

Late Archaic Period (5,500–3,000 B.P.). Modern climatic conditions prevailed throughout North America during this last stage of the Archaic period. Environmental change brought increased moisture to the region allowing local plant and animal life to flourish. Local inhabitants occupied strategically placed locations along major streams for long periods of time where water, plants, and animals were readily available. Site size and density increased throughout Tennessee (Anderson 1996b), suggesting a substantial population increase by the end of the Archaic period. This is evidenced by the recovery of substantial midden deposits along the Cumberland and Duck river drainages. Some researchers interpret these settlement and population trends as the beginning of a sedentary lifestyle, which laid the foundation for more permanent villages in later periods (Wauchope 1966).

Diagnostic hafted bifaces for the Late Archaic period included stemmed forms such as Ledbetter, Pickwick, Wade, Little Bear Creek, and Motley types. Other artifacts include large bifacial tools, ground stone tools (e.g., pitted manos and bannerstones), and steatite vessels. Exotic artifacts such as marine shell, copper, steatite, and distinctive chert indicate that trade networks become increasingly developed throughout the Late Archaic period. Unfinished raw materials and utilitarian items (e.g., stone bowls, bannerstones, and projectile points) also appear and were apparently widely exchanged. (Amick 1986; Goad 1980). It appears that this exchange was tied to increasing social stratification.

Evidence of initial plant domestication is recognized through the appearance of cultigens in Late Archaic deposits throughout the Southeast. By 3,000 B.P. research in Illinois, Kentucky, and Tennessee demonstrates that squash, gourd, and sunflower were well

established (Adovasio and Johnson 1981). Also, some of the first strong evidence of structural remains for the period has been documented in the Upper Duck River valley in central Tennessee (Faulkner and McCollough 1974). Similar structures were found at the Bailey site (40GL26) in south central Tennessee associated with Late Archaic components (Bentz 1996). The beginnings of plant domestication, permanent structures in conjunction with increased social stratification, and regional trade networks imply that sedentary lifestyles were developed during the Late Archaic period and would continue to flourish into later periods.

Woodland Period (3,000–1,100 B.P.)

The Woodland period in the project region is divided into three sub-periods: Early (3,000–2,200 B.P.), Middle (2,200–1,500 B.P.), and Late (1,500–1,000 B.P.). Adaptation during this period is viewed as a gradual transition in both subsistence and settlement patterns from the preceding period. Tools introduced in the Archaic period such as drills, wedges, hoes, nutting stones, pestles, and awls, also appear in the archaeological record of the Woodland period. Although exploitation patterns are broadly similar in both periods, important ideological and technological changes occurred in Woodland period that clearly distinguish it from the Archaic period.

Early Woodland Period (3,000–2,200 B.P.). Ceramics first appear archaeologically in the Early Woodland period. They occur as very distinct series (or traditions) in the interior Southeast from the coastal margins of Georgia and South Carolina and spread inland between 2,500 and 2,000 B.P. The earliest of these include the Wheeler and Alexander series of the Tombigbee drainage and Pickwick Lake region in eastern Tennessee, the Kellog-Forsyth series of northern Georgia, the Deptford series of the Piedmont and Atlantic Coastal Plain, and a fabric- and cord-marked series that prevailed in much of North Carolina and Tennessee (Smith 1986).

The earliest ceramics appear in the Normandy region of south central Tennessee around 2,600 B.P. These wares have been labeled Watts Bar series ceramics. The Watts Bar phase (ca. 2,700–2,400 B.P.) is characterized by quartz-tempered, fabric-marked wares and rounded-base projectile points. The Long Branch phase (ca. 2,400–2,150 B.P.) is characterized by limestone-tempered, fabric-marked wares and triangular projectile points (Faulkner 1992). Diagnostic projectile points such as stemmed and rounded based Adena forms, and triangular (McFarland) and stemmed (Wade) types, are common for the Early Woodland period in the region (Justice 1987).

Burial customs, which were gaining importance in the Archaic period (Chapman 1985), were expanded in the Early Woodland period by the erection of monumental earthworks. These earthworks varied greatly in form and function. Some were burial mounds built over human bones and cremated remains, while others were enormous piles of earth built in the shapes of animals or configured as enclosures around other mounds (Hudson 1976).). Oval structural remains have also been reported for the Early Woodland period along the upper Cumberland River very near the project area (McNutt and Weaver 1983).

Horticulture also became an important subsistence practice beginning in the Early Woodland period (Watson 1989). Various plants, including goosefoot, maygrass, knotweed, sumpweed, little barley, and sunflower, began to be intensively exploited. Marshelder, goosefoot, cucurbits, and sunflower began to show morphological variations suggesting that the plants had been domesticated (B. Smith 1992). Precisely how the development of affected Early Woodland culture is poorly understood, although its role in laying the foundation for sedentary and permanent villages seems evident.

Middle Woodland (2200-1650 B.P.) The Middle Woodland period is recognized in the project region by the appearance of exotic non-local trade items associated with the Hopewell culture. Although centered on the Ohio River Valley, the Hopewell Interaction Sphere reached into Tennessee (Caldwell 1964; Seeman 1979). Artifacts associated with this phenomenon, such as greenstone celts, sandstone pipes, and insect effigy gorgets, have been found in Middle Woodland burials in south central Tennessee (Faulkner 1988). These items reflect the ritual and symbolic use of non-subsistence goods as part of mortuary ceremonialism. Utilitarian artifacts recovered from Middle Woodland sites in the project region include triangular and expanding stemmed projectiles and plain simple-stamped, check-stamped, and limestone and quartzite tempered pottery (Faulkner 1988; McNutt and Weaver 1983; McNutt and Lumb 1987).

Large earthenwork sites become increasingly important during the Middle Woodland period. This is substantiated by the Pinson Mounds site (2,100-1,700 B.P.) located in western Tennessee. Occupying 400 acres, the site is one of the largest and most complex Middle Woodland sites in eastern North America. It consists of 12 mounds, a large geometric embankment, and several short-term habitation areas. One of the mounds, Mound 9, is the second largest prehistoric mound in the United States (Bense 1994; Mainfort 1986). Along the Eastern Highland Rim–Cumberland Plateau escarpment, rockshelters were likely used for special ritual, seasonal, or kin-group burials during the Middle Woodland period (Dickson 1973; Nash 1947; Willey 1947; Willey et al. 1988).

Maize (corn) remains have been recovered from Middle Woodland components in south central and eastern Tennessee (Crites 1978; Chapman and Crites 1987). Corn is thought to have played only a minor role in prehistoric diets from about 1800–1200 B.P. (B. Smith 1992). Starchy-seed plants (e.g., maygrass and goosefoot), as well as wild game sources that had been exploited during the Early Woodland, continued to be important in the dynamic Middle Woodland horticultural system.

Late Woodland Period (1,650–1,100 B.P.). Late Woodland period occupation in the project region is recognized by the virtual absence of inter-regional trade and earthwork construction that marked the socio-cultural peak of the Middle Woodland period. Hopewellian ceramics and non-local goods also cease to be recovered from burials dated to the period. Some interpret these factors as indicative of a more isolated and less complex Late Woodland culture (Kneberg 1952; Dragoo 1976). In addition, many late Woodland villages appear to have been fortified.

Strong differences in ceramic styles and vessel forms began to emerge throughout the region during the Late Woodland period–perhaps as a result of cultural isolation. The

most significant technological change of the period was the introduction of the bow and arrow, marked archaeologically by the appearance of small, light, and thin triangular points (Madison and Hamilton) in artifact assemblages. Horticulture is also thought to have intensified in the Late Woodland period throughout the Eastern Woodlands (Watson 1989).

The Late Woodland period is not well defined for the project region. Faulkner (1988) has suggested that members of a distinctive "Mason culture" may have inhabited portions of the Eastern Highland Rim during the period. Late Woodland components have also been difficult to isolate and mostly appear mixed with deflated multicomponent assemblages at other sites in the region.

Mississippian Period (1,100-350 B.P.)

The Mississippian period has been the subject of much research throughout the Southeast. Its cultural manifestations began along the middle course of the Mississippi River between present-day St. Louis, Missouri and Vicksburg, Mississippi. Mississippian culture underwent major development at Cahokia in the American Bottom and spread primarily along major river systems to all parts of the Southeast (Hudson 1976).

From 1,000 B.P. until initial European contact about 400 years ago, Mississippian societies controlled local and regional territories along most of the large rivers in the interior Southeast, including the middle section of the Cumberland River and adjacent portions of the Central Basin. Mississippian populations were substantial, and centered in permanent villages that far exceeded those of the Woodland period in size. These villages were primarily supported by floodplain agriculture centered on intensive maize cultivation. In addition to maize, Mississippian populations relied on other domesticates, including beans and squash. Domesticated crops were further supplemented with wild foods that had contributed to aboriginal diets in the southeast for previous millennia, including wild plants and animals such as nuts, berries, greens, deer, turkey, and aquatic animals.

The focus on maize as a primary food crop and the generally increased commitment to agriculture had significant impacts on the organizational complexity of aboriginal societies in central Tennessee. The relatively egalitarian Woodland societies of the region were apparently transformed into more hierarchical constructs with new emphases on hereditary leadership and the emergence of managerial organizations. Isolated Mississippian villages and farmsteads were linked to regional mound ceremonial centers which were the focus of important religious and social activities. Larger Mississippian towns were often planned around a central plaza and included one or more flat-topped, truncated substructural mounds. Mississippian mounds served as foundations for religious structures and locations for residences of high-status individuals.

The Mississippian period saw a resurgence of shared regional religious icons similar to those manifested under Hopewellian influence during the Middle Woodland Period. This ideological assemblage is commonly referred to as the Southeastern Ceremonial Complex and is defined by a shared body of symbolism, artistic motifs, and artifact types (Waring and Holder 1945). Common motifs include the forked or weeping eye, the hand-eye, the

bi-lobed arrow, the cross with a sunburst circle, and representations of anthropomorphic beings. This iconography often appeared on shell gorgets, embossed copper and stone plates, pottery, stone maces, and a variety of other elaborate and specialized artifacts.

Status distinctions were also reflected in variation of Mississippian burials. Burials of higher status individuals usually occurred in conical mound earthworks. Distinctive stone box graves are considered regional markers of Mississippian mortuary activity (K. Smith 1992). These graves, lined with slabs of limestone, often include elaborate non-utilitarian funerary furniture and one or multiple human burials. Stone box graves also appear in earth mounds.

Lithic assemblages during the Mississippian period are much less complex than those of the previous cultural periods. Triangular points such as Madison, Fort-Ancient, Nodena, Cahokia Side-notched, and Hamilton are present. Other artifacts typical of the Mississippian period include ground stone items, engraved shell items, mica, and galena. Ceramics of the period include plain and surface-decorated, shell-tempered pottery. The introduction of shell as temper ushered in a revolution in the manufacture of ceramic vessels (Morse 1983). This process allowed the construction of vessels with stronger, thinner walls that could be fashioned into a variety of innovative shapes (e.g. rim riding and structural effigies, shouldered jars, and compound water bottles).

PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS

Clay County is located in a fairly remote and lightly-populated part of Tennessee. As of this writing, only 67 Clay County archaeological sites have been officially recorded with the Tennessee Division of Archaeology (TDOA). To date, Pickett County, which borders Clay County to the east, has 87 recorded archaeological sites, while only 26 sites have been recorded in Macon County to the west. Jackson County, to the southwest of Clay County, has 176 recorded archaeological sites to date, and 96 sites have been recorded in Overton County to the east. The number of sites recorded in a particular county is dependent both on the level of recent economic development and related archaeological investigations. This does not necessarily represent the actual density and intensity of past human activity in the area.

Despite the lack of professional investigations, a variety of Phase I surveys and small testing projects have been carried out in the general project vicinity over the last two decades. Shea (1985) reported on a survey of the area to be impacted by the replacement of SR 52 (Henry Horton) Bridge over the Cumberland River located approximately two miles upstream from the project area. That report describes two sites on the west side of the river within the APE of the bridge replacement project, 40CY15 and 40CY18, and a third site on the east side of the river, 40CY16, outside of the project APE (Figure 3). All three are prehistoric open habitation sites, with an additional twentieth-century historic

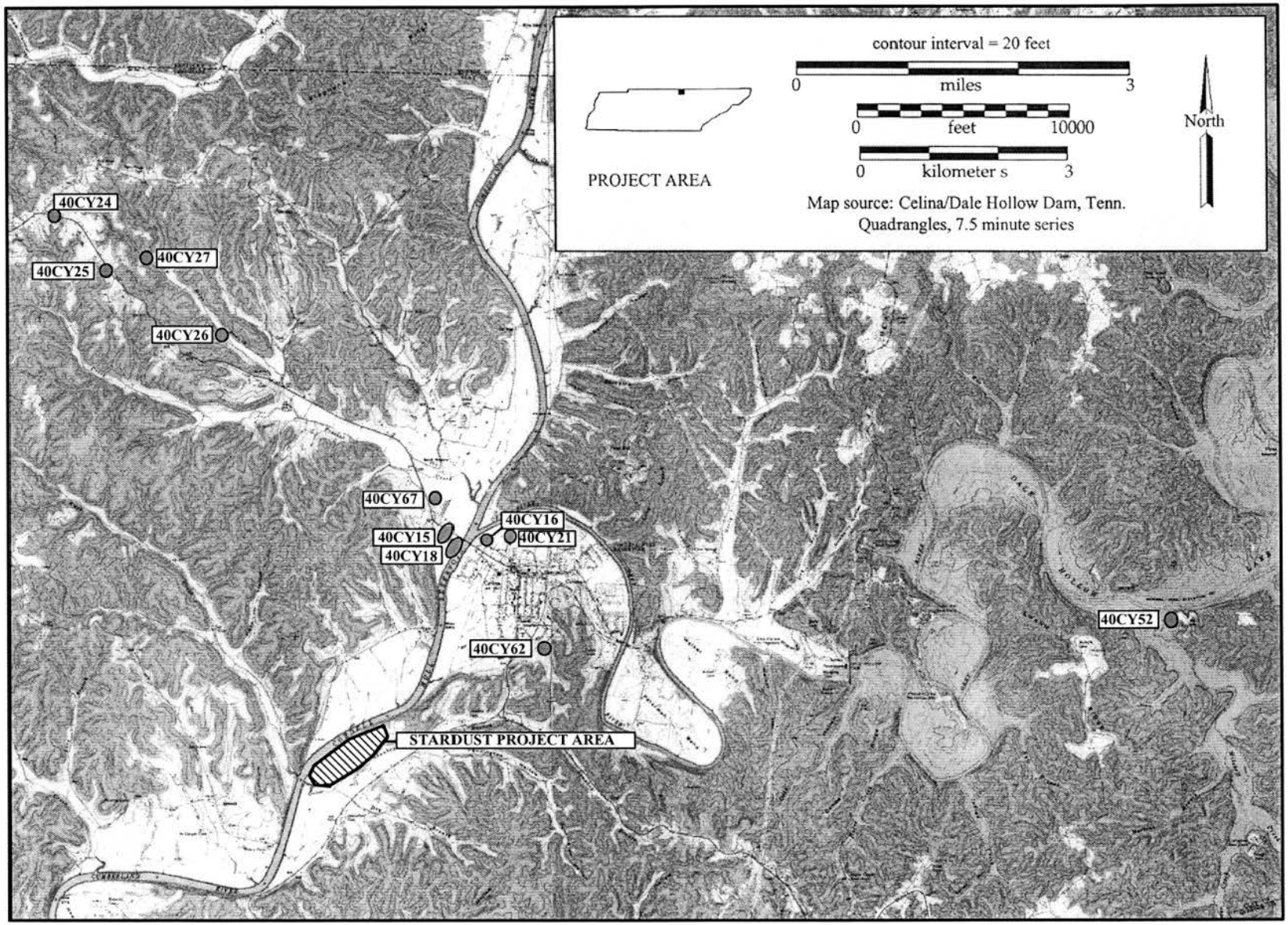


Figure 3: Location of other archaeological sites in the project region.

component at 40CY16. Shea recommended Phase II testing at both 40CY15 and 40CY18 in order to determine the NRHP eligibility of each site.

Spears (1987) conducted the testing of these sites. Site 40CY15 was interpreted as a resource procurement encampment with Early Archaic to Late Woodland period components. Site 40CY18 was determined to be an intensive Late Woodland occupation containing one cultural feature interpreted as a single family dwelling. Spears concluded that the portions of the sites within the bridge project APE were not eligible due to a lack of integrity.

In 1988, investigations of additional portions of sites 40CY15 and 40CY18 were carried out as an element of the development of a public use/recreation area at the locale. The project investigators reported that the area immediately along the Cumberland River shoreline had "… a nearly continuous scatter of artifacts, mostly flakes, … at varying depths all the way down the levee" (Hays and Pace 1988:22). The report on this study included the levee within an expanded definition of the boundary of 40CY18, and noted that the levee "… appears to have been occupied with varying intensity by groups during the Mississippian and Woodland periods and perhaps as early as the Archaic period" (Hays and Pace 1988:22).

The investigation found that 40CY15 was distinct from the shore bank deposit, separated by intermittent drainages bounding the slightly elevated position on the south, west, and east sides. Based on backhoe trenching and intensive surface collection across the property, they concluded that the sites were only sporadically used during prehistory, with more intense occupation discouraged by the frequency of river flooding at the locale. Due to the low number of temporally and functionally diagnostic artifacts and the degree of disturbance of the deposits, the researchers concluded neither site eligible for the NRHP. They did recommend that any construction related to ground disturbance at the site deeper than 50 cm should be monitored by a qualified archaeologist.

Sites 40CY15 and 40CY18 are within 20 miles of the three Stardust sites (40CY63, 40CY64, and 40CY65) and have a similar natural setting on a fairly broad terrace along the banks of the Cumberland River near the confluence with a tributary creek. The main archaeological differences between the two locales appears to be the presence of a Mississippian component at 40CY18 (completely absent from the area described in this report), and the much denser remains present at 40CY63, 40CY64, and 40CY65. The latter observation suggests that this locale was much more intensively used during the prehistoric period.

Hays and Pace's (1988) suggestion of frequent flooding as a discouragement to more intensive occupation of 40CY15 and 40CY18 provides a sensible explanation for the difference between the deposits at the two locales. Their study area had an elevation of approximately 350 feet AMSL, while the area reported here had elevations of 10–25 feet higher. There is no explanation for the absence of a Mississippian presence at the Stardust project area. The Mississippian presence in the region is limited, and an

understanding of the factors influencing the specifics of the site location during this period remains an open topic.

In 2001, site 40CY67 was recorded just north of the Cumberland River Bridge crossing along SR 52 (see Figure 3) (Johnson and McClelland 2001). This is an open habitation site dating to the Early Woodland period on a property scheduled to be developed as a public high school. The site is on a set of low rises that comprise the transitional area between the Cumberland River floodplain and the adjacent uplands. Although over 1,000 artifacts were collected during surface examination and shovel testing, only one diagnostic, the base to an Adena projectile point, was recovered from the site. The investigators recommended that only approximately one quarter of the site contains relatively undisturbed deposits.

In recent years, two portions of SR 52 in Clay County have been subject to archaeological survey in preparation for road enhancement and rerouting projects by the TDOT. Taylor and Josephs (1995) report on four proposed alternates for the rerouting of SR 52 in an area approximately two miles northwest of Celina. Most of the surveyed corridors follow along the relatively flat terrain of Proctor Creek. The project resulted in the discovery of four previously unrecorded archaeological sites: 40CY24, 40CY25, 40CY26, and 40CY27.

The first two sites (40CY24 and 40CY25) are prehistoric occupations represented by light lithic artifact scatters found on the surface and in road cuts. Only one of the sites produced a diagnostic artifact — a fragment of an Adena point from 40CY27. This dates the deposit to the Late Archaic to Early Woodland period. The investigators recommended that 40CY24 was potentially eligible for the NRHP, based more on its setting on a level spot near permanent water than on the four chert debitage flakes making up the total collection from the site. The second prehistoric site, 40CY25, was recommended as ineligible for the NRHP based on its extensive degree of disturbance. The other two sites (40CY26 and 40CY27) recorded during the survey date to the historic period. Researchers recommended that one of these, 40CY27, was potentially eligible for the NRHP, based on potential to produce information "… pertaining to the life styles of lower socioeconomic groups existing in this area of Tennessee during the late portion of the 19th century …" (Taylor and Josephs 1995:24).

The second recently surveyed portion of SR 52 in Clay County covered a corridor running southeast from Celina for 7.5 miles to SR 136 in Overton County (Wampler and Holland 2000). The work resulted in the discovery of a single site, 40CY62, a prehistoric occupation located on the eastern outskirts of Celina. The site produced one diagnostic artifact, a Sykes projectile point dating to the Middle to Late Archaic, and a small amount of other lithic artifact debris. Given the low density of artifacts recovered from this site and the fact that it has been heavily disturbed by plowing, the investigators did not recommend it as eligible for the NRHP.

Another limited survey within the town of Celina at the location of a proposed federally funded housing project recorded a single site, 40CY21. The project report described this as "… a series of ephemeral encampments probably of Late Archaic origin" (DuVall

1991:11). Artifact density at the site was described as being "… from sparse to moderate …" and consisted of prehistoric material mixed with debris from a former twentieth-century residence. Again, low density and intense disturbance lead to a recommendation that this site is ineligible for the NRHP.

In what is to date the most ambitious archaeological survey undertaken in Clay County, Cultural Resource Analysts, Inc. conducted a "limited" study of Dale Hollow Lake, the reservoir formed by damming the Obey River 0.2 miles east of Celina. Rather than being a complete survey of the reservoir shoreline and associated Corps of Engineer property, the work focused on providing a "characterization of the prehistoric and historic cultural environment of the Dale Hollow Lake area and … the results of a preliminary archeological survey of the reservoir" (McKelway et al. 1998). The survey work resulted in the recording of 41 sites, some of which are located in Pickett County to the east.

McKelway et al. (1998) note that Obey River shore and floodplain sites were not studied prior to the creation of Dale Hollow Lake in 1943, and what are now available for study are sites along the edges of the uplands adjacent to the river valley. Most of the sites recorded during the survey were undifferentiated prehistoric occupations along the current shore and rockshelters on higher elevated areas.

Site 40CY52, known as Fox Spring, provides the closest Dale Hollow Lake survey analog to the sites investigated in this study, in terms of setting and density of archaeological remains. Described as "… the most impressive site located during the survey …" (McKelway et al. 1998:100), it is situated on a broad terrace at the point where Mitchell Creek and the Obey River came together prior to the creation of Dale Hollow Lake. The site is located approximately five miles east of Celina.

Shovel testing and excavation of nine 1 x 1-m units provided evidence of a dense scatter of prehistoric artifacts across the entire terrace, along with more limited evidence of historic period occupation in the nineteenth and twentieth centuries. Lithic and ceramic artifacts recovered at 40CY52 reveal long-term human use of the area from the Early Archaic through the Mississippian periods.

In addition to the work described in this report, two other separate but related archaeological investigations have been carried out on the Stardust property.

The first, a Phase I survey of the Tennessee Department of Transportation right-of-way (TDOT ROW) through the property, recorded 40CY63, 40CY64, and 40CY65, as well as an additional site, 40CY66, located outside of the TDOT ROW (Barker 2001).

A second study (Wampler and McKee 2001) undertook a further assessment of the portions of all four of these sites located on the property outside of the TDOT ROW, scheduled for development as an industrial park. This study found that 40CY63, 40CY64, and 40CY65 continue beyond the TDOT ROW, with the extent of the deposits closely correlated with three low rises on the generally level, secondary river terrace occupying the property. The study recommended that the portions of all three of these sites within the proposed industrial park property were potentially eligible for the NRHP. In addition,

it found that 40CY66, on the low eastern area of the terrace, contained archaeological deposits too minimal in nature to be eligible for the NRHP based on the fact that only three pieces of lithic debitage were recovered upon the excavation of 24 shovel tests at the site.

IV. FIELD AND LABORATORY METHODS

ARCHAEOLOGICAL FIELD INVESTIGATIONS

Goals and Objectives

Phase II archaeological testing at 40CY63, 40CY64, and 40CY65 was conducted from May – July 2001. The bulk of the fieldwork was conducted from May 14 – June 8, 2001 with intermittent work continuing in late June and July. Two overall goals were paramount for the investigations: 1) to evaluate the integrity and eligibility of archaeological deposits at 40CY63, 40CY64, and 40CY65 for the NRHP pursuant to 36CFR60.4; and, 2) to make recommendations for further archaeological resource management actions. This was accomplished by adhering to five specific objectives which were to determine: 1) the vertical and spatial limits of the three sites within the project APE; 2) the cultural affiliations for the components represented; 3) the presence of undisturbed subsurface features or stratified deposits; 4) the density and distribution of intact archaeological deposits within the APE; and, 5) the classes of archaeological remains retrievable.

Site areas investigated during Phase II testing included only those portions located within the proposed SIA APE. These areas were delineated during Barker's (2001) Phase I survey of the SIA APE, which resulted in archaeological investigation of approximately 4514 m^2 (approx. 1.1 acres) at 40CY63, 2257 m^2 (approx. 0.551 acres) at 40CY64, and 9028 m^2 (approx. 2.2 acres) at 40CY65. As outlined by Barker and Kline's (2001) request for proposals, an adequate number of test units were to be excavated within these areas and at least 20 percent of each site area within the APE was to be mechanically stripped. TRC determined that approximately one test unit per 900 m^2 would be excavated at each site, including a minimum of five test units at 40CY63, three test units at 40CY64, and ten test units at 40CY65. Likewise, approximately 903m^2 at 40CY63, 451m^2 at 40CY64, and 1806m^2 at 40CY65 would be mechanically stripped.

Summary of Fieldwork

A multistage archaeological fieldwork approach was implemented within these areas in order to accomplish the project goals and objectives outlined above. Before any excavation began, a permanent datum was established and a grid was super-imposed over the entire project area utilizing a Sokkia Set XL electronic total station. Individual site datums were subsequently established and tied to this grid. The total station was used to record vertical and horizontal proveniences, test unit and backhoe trench locations, and topographic surface elevations. This data was downloaded into Surfer 7.0 mapping software to create topographic and plan view site maps.

Initially, two 1 x 1-m test units were excavated at each site to determine the overall nature of archaeological deposits by accurately mapping the distribution and extent of subsurface features and intact deposits. Placement of these initial units was guided by the results of

the Phase I shovel testing conducted by TDOT archaeologists with a primary focus on areas exhibiting high artifact densities and depth of artifacts below the ground surface (Barker 2001; Barker and Kline 2001). The results of test unit excavation served to aid in decisions regarding eventual placement and depth of backhoe trenches within the APE.

All soil excavated from the 1 x 1-m test units was passed through 1/4-inch mesh hardware cloth (Figure 4). The initial test units were dug in standard 10-cm increments. Additional test units excavated at each site involved the removal of the plowzone as a single level (20-cm thick) with subsequent 10-cm thick levels. Excavation of each test unit ceased when sterile subsoil was encountered. All artifacts recovered from within each level were placed in plastic bags labeled with their associated provenience. An excavation unit/level summary form was then used to record critical information such as elevations, soil/artifact descriptions, and names of excavators, as well as to summarize the results of excavation. At least one profile was drawn for each unit to maintain a complete stratigraphic record. Profile drawings included Munsell color designations for each distinct soil type recognized within the natural strata and intact cultural features. Temporally diagnostic artifacts, such as projectile points and ceramics, found in situ within each level, were piece plotted and mapped, assigned a unique specimen number, and placed within their associated level bag. Charcoal samples found in situ were removed from the soil matrix by trowel only and placed in individual, clean plastic canisters.

Following initial test unit excavation, mechanical removal or backhoe stripping to sub-soil commenced while additional controlled sampling (test unit excavation) of archaeological deposits at the site proceeded in tandem. The goal of this stage of fieldwork was to prospect for intact sub-surface cultural features (i.e., refuse pits, hearths, burials, etc.). Stripping was conducted utilizing a backhoe equipped with a 4 ft. wide, straight edged bucket, and was monitored and directed by the field director (Figure 5). Exposed surfaces were then manually shovel skimmed using flat shovels and all exposed features/soil anomalies suspected of being related to human activity were sequentially recorded, mapped, flagged, and covered with black plastic to eliminate excessive sun exposure (Figure 6).

A representative sample of features and other intact cultural deposits were hand-excavated in order to examine feature integrity, stratigraphy, temporal placement, and function. Features that were determined to warrant detailed investigation were bisected by trowel excavation (Figure 7) and then photographed and drawn in planview and profile. Features were described and recorded on separate forms, which contained detailed descriptions of soil, artifact information, and horizontal and vertical limits. When possible, artifacts such as stone tools, ceramics, bone, and charcoal, were piece plotted and mapped. Feature fill, screened through 1/4-inch mesh hardware cloth, and soil/flotation samples, which were taken back to the lab for analysis. All artifact bags, samples, forms, and maps derived from features were labeled according to feature number, provenience, excavator, and date of excavation. Maps of each feature were attached to the relevant feature forms. During the hand excavation process, several soil disturbances initially recognized during backhoe stripping appeared more as soil

Figure 4. Crew members excavating Test Unit 1.

Figure 5. Initial excavations of Trench 4 at site 40CY63.

Figure 6. Trench 2 features.

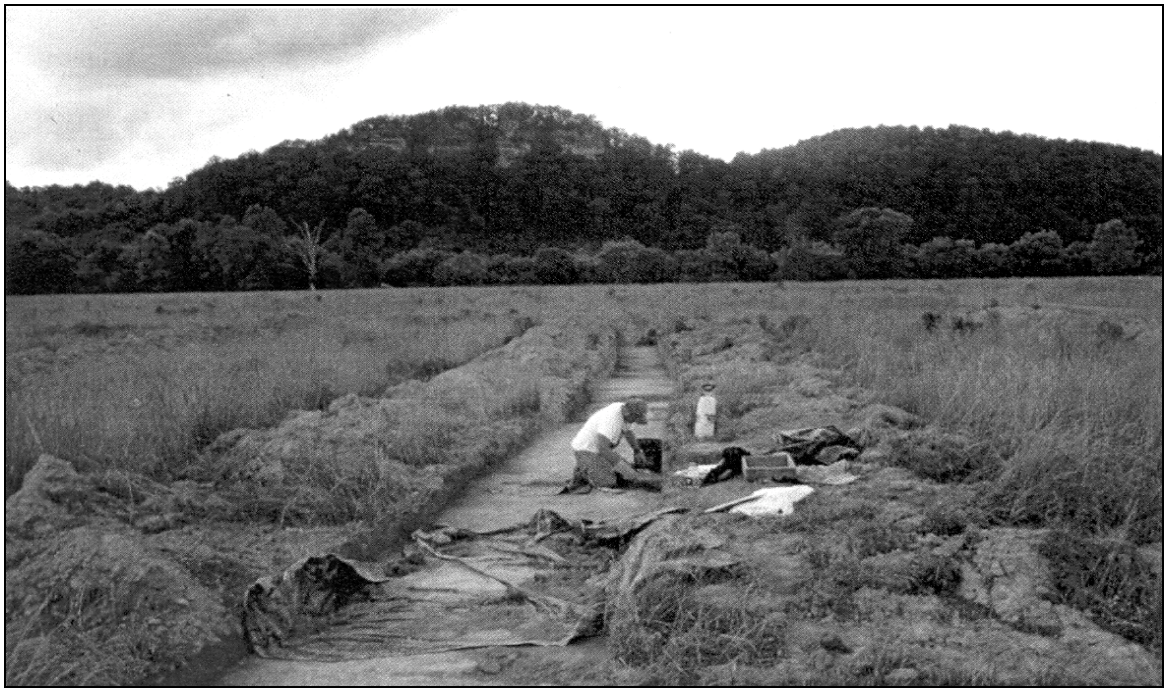


Figure 7. Excavation of a pit feature in Trench 1.

anomalies or plowzone remnants than definite cultural features. These were investigated by trowel excavation to determine their exact nature before proceeding in the detailed procedure described above. Detailed descriptions of specific excavation procedures of each discovered cultural feature and soil disturbance/anomaly will be included in the results chapter of this technical report.

The field director maintained a daily journal detailing the activities of the each day, findings, and other aspects pertaining to archaeological testing at sites 40CY63, 40CY64, and 40CY65. A complete photographic record of all testing procedures was kept for both black-and-white and color-slide media and included documentation of field techniques, test units, natural and cultural strata, exposed subplowzone transects, artifacts, and encountered features and intact cultural deposits.

GEOMORPHOLOGICAL FIELD INVESTIGATIONS

Geomorphological field investigations were conducted on May 29–31, 2001. Backhoe pits were excavated at key localities to understand the soil landscape and how it relates to the archaeological record. Soil profiles were described according to the USDA Soil Survey Manual (Soil Survey Division Staff, 1993) using moist Munsell soil colors. In addition to backhoe pits, archeological test excavation units and linear backhoe trench "strips" were examined to gain a complete understanding of the soil-geomorphology at the sites. Relative age assessments of alluvial deposits, as expressed by soil characteristics, were made in a manner consistent with published soil chronosequences in the southeastern United States (Foss et al. 1981; Foss and Segovia 1984; Leigh 1996). Deep testing with a 3-inch diameter bucket auger was done from the base of selected backhoe pits to determine the character and thickness of the sediments. Locations of backhoe pits and zero-order drainages were marked with a handheld Garmin 12CX global positioning system in the UTM coordinate system using North American Datum 27 (NAD27) as the horizontal reference. The record of annual maximum peak floods on the Cumberland River gage at Celina were downloaded from the United States Geological Survey Web site at *www.usgs.gov*. The Celina, Tennessee-Kentucky USGS 7.5 minute quadrangle was downloaded from *www.gisdatadepot.com*. Photographs and descriptions of backhoe pit soil profiles are provided in Appendix C.

ARCHAEOLOGICAL LABORATORY ANALYSIS

All recovered cultural material, as well as, notes, forms, maps, photographs, soil/flotation samples, and other materials pertaining to the project were returned to the TRC Nashville laboratory for processing and analysis. The artifacts were then cleaned, catalogued, and analyzed, inventoried. The complete inventory is presented in Appendix A. Revised site forms of each site were also compiled and submitted to the TDOA in Nashville.

All cultural material recovered during this Phase II archaeological investigation were of a prehistoric nature. The overall analysis of artifacts focused on identifying cultural affiliations of the components recognized at the sites based on assemblage and/or technological attributes diagnostic of particular temporal and geographical cultural trends. First, the artifacts were categorized according to function and/or tool class.

Second, diagnostic specimens were identified and assigned to established regional types or styles. For projectile points/knives, morphological attributes were used as typological markers. Ceramics were typed according to temper, sherd type (i.e., rim/body), lip form, orifice diameter, vessel type, surface decoration, and thickness.

Lithics

The lithic assemblage collected during this investigation was divided into debitage and tool categories and classified as to artifact type according to the typology presented below (adapted from Ray and Lopinot 1998). Projectile points/hafted bifaces were assigned to a traditional type or type cluster, when possible. Twelve metric attributes were measured for each projectile point using precision calipers and scales: maximum length, maximum width, maximum thickness, shoulder width, blade length, haft length, maximum blade width at the midpoint, distal haft element width, proximal haft element width, maximum thickness at the distal haft, basal concavity depth, and weight. These attributes are incorporated into the lithic analysis discussion in Chapter VI and are listed in Appendix B.

Core Debitage.

Tested Cobble. Cobble with one or more striking platforms exhibiting an minimal number of flakes removed to test raw material quality.

Working Core. Cobble with one or more striking platforms, cortex removal, and evidence of primary flake removal from at least one shaping face that is usually more than 5 cm in size.

Exhausted Cores. Cobble with most or all of the cortex removed, one or more striking platforms, and evidence of primary-flake production from two or more flake faces; usually less than 5 cm in size.

Core Fragments. Broken fragments of cores with one or more striking platforms or some evidence of flake production.

Flake Debitage.

Primary Flake. Flake with more than 50 percent of the dorsal surface covered by cortex; contains all or a portion of striking platform; no presence of flake scars on dorsal surface; represents initial decortification.

Secondary Flake. Flake with less than 50 percent of the dorsal surface covered by cortex; contains all or a portion of striking platform; negative scars are present on dorsal surface; represents secondary decortification.

Tertiary Flake. Flake with no cortex on dorsal surface or platform; contains all or a portion of striking platform; negative flake scars are present on dorsal surface; represents final reduction of decorticated core by either pressure or percussion flaking.

Thinning Flake. By-product of biface manufacture; flake with dorsal surface partially or entirely covered by negative flake scars. Some of these specimens likely retain a portion of the faceted biface edge as the platform, and therefore would technically considered biface flake, however they were not separated during this analysis.

Flake Fragment. A broken flake lacking a striking platform. By amount of cortex present can be subdivided into primary, secondary, and tertiary flake fragment.

Informal Tools.

Utilized Flake. A flake of any class that exhibits evidence of utilization as a tool but has not been intentionally modified (flaked) to perform a specific task; use wear may be on one or more sides or ends.

Formal Tools.

Side Scraper. Uniface exhibiting primary flaking on dorsal surface of flake blank and secondary flaking primarily on the lateral edges.

End Scraper. Uniface exhibiting primary flaking on dorsal surface of flake blank and secondary flaking primarily along the distal end.

Primary Biface (whole or fragment). Shaping consists of only primary flaking; biface edge is sinuous and biface cross-section is thick and irregular; usually retains a portion of cortex; usually represents an unfinished tool.

Secondary Biface (whole or fragment). Shaping consists of primary and secondary flaking; most or all cortex has been removed; flaking is more systematic; biface edges are less sinuous and biface cross-section is relatively thin and lenticular; represents a late-stage production failure or perform.

Tertiary Biface (whole or fragment). Shaping consists of secondary and tertiary flaking; cortex is virtually absent and flaking is systematic; biface edges are straight and cross-section is thin; usually represents an unidentifiable finished-tool fragment (e.g., PP/K mid-section or distal tip.

Projectile Point/Knife. Shaping usually consists of primary, secondary, and tertiary flaking; systematic flaking and removal of cortical surfaces; longitudinal asymmetrical with a haft element at proximal end and pointed at distal end.

Drill. Biface exhibiting a long, narrow, bitted distal end and provision for hafting on the proximal end.

Graver. Unifacial flake exhibiting localized retouch forming a short, acute projection for engraving or incising.

Ground Stone. Artifacts in this category are manufactured by polishing or grinding stone into a desired shape—celts, adzes, axes, manos, nutting stones, and metates, for example.

Other Artifacts.

Fire-Cracked Rock (FCR). Thermally altered stone either naturally or intentional; characterized by crenated fractures, irregular edges, crazing, pot-lid fractures and discoloration.

Shatter. Includes angular, blocky specimens that do not exhibit evidence of striking platforms or bulbs of percussion and cannot be placed into any of the previous categories; overall form is irregular in shape, and heat alteration may be present.

Lithic Raw Materials

Raw materials encountered within the lithic assemblage recovered from the Stardust sites were represented by moderate- to fine-grained varieties of Ft. Payne, Warsaw, and St. Louis chert as well as limestone, shales, sandstone, quartz, chalcedony, and quartzite. Each lithic artifact was assigned through macroscopic and microscopic observation and comparison with published descriptions and type collections accumulated throughout the project region (Amick 1987). Specimen color, texture, structure, and composition (including inclusions) were the primary sorting criteria used during this examination. Evidence of heat treatment exhibited on all lithic artifacts was also noted during the analysis. The signs of heat treatment are many and variable. Surfaces of lithic debitage or tools may appear cracked or exhibit numerous potlids, and a fine luster generally develops across the surface. Abbreviations were initially developed to ensure accurate and efficient recordation of raw material and thermal alteration designations of the Stardust lithic assemblage. These are listed below in Table 1, followed by brief descriptions of the predominant raw material types recognized within the lithic assemblages recovered from the Stardust sites (40CY63, 40CY64, and 40CY65).

Table 1. Lithic Raw Material Abbreviations.

Raw Material	Abbreviation
Ft. Payne chert	Ftp
Warsaw chert	Wsw
St. Louis chert	Stl
Quartz	Qtz
Quartzite	Qtzt
Chalcedony	Chlcd
Limestone	Lmst
Sandstone	Sdst
Thermally Altered	T.A.

Ft. Payne. This chert is derived from the Paleozoic Mississippian formation and comprises the most predominant chert variety on the Highland Rim. It generally occurs in thick tabular deposits, however large cobbles of this chert are commonly found in streambeds as well (Amick 1987). Ft. Payne chert is a cryptocrystalline material with a 3.5 grade on the Callahan's Lithic Grade Scale. It is relatively easy to work by hammer percussion or pressure techniques. It is usually a medium- to fine-grained material, often has crystalline or fossiliferous inclusions, and is usually slightly chalkier than its contemporaneous St. Louis chert counterpart. Color ranges from blue-gray to tan,

although heating can change the color to dark gray, pink, red, or even a soft lavender shade. Exposure to water and weather gradually will patinate Ft. Payne chert. Deposits of this chert are found throughout Middle Tennessee, concentrating in the Tennessee River valley and in a narrow east–west band centrally positioned on the western Highland Rim.

Warsaw. The Mississippian Warsaw Formation overlies the Ft. Payne formation in the Eastern Highland Rim. Chert within the Warsaw formation are of varying quality and are often highly fossiliferous (Amick 1987). Warsaw chert is also frequently stained by iron oxides producing a orange-reddish tinge (Marcher and Stearns 1962). Warsaw was developed by silica replacement of fossils and fossil fragments, which produces a somewhat porous, spongy-like texture. Warsaw chert is abundant in the Tennessee River valley as well as in Middle Tennessee on both the Eastern and Western Highland Rims.

St. Louis. The St. Louis formation is also of Mississippian age and overlies the Warsaw formation. This formation occurs mainly in northern portions of the Highland Rim. Its matrix colors range from olive-brown to a greenish-blue hue; gray, grayish-tan, dark-brown, and grayish-black to black examples also may occur. St. Louis chert is fine grained and usually homogenous, lacking fossiliferous inclusions and as such is easily worked by hammer percussion and pressure flaking techniques. Its occurrence is mainly focused on the Tennessee River valley in western Tennessee, but it is also present throughout the Eastern and Western Highland Rim, where it is typically found on the higher elevated ridge slopes and ridgetops.

Quartz, Quartzite, and Chalcedony. Quartz is a crystalline rock or mineral composed of silicon dioxide ($Si0_2$). It is a very common mineral and occurs within the project region as geodes interbedded in the major limestone formations mentioned above. It is generally white in color, but can exhibit a reddish or pink color (e.g. rose quartz). Quartzite and chalcedony are both forms of quartz and are generally easier to work or knap. Quartzite is composed of an interlocking mass of quartz crystals with irregular boundaries, produced by metamorpic processes. It may contain small crystals of mica or other iron bearing mineral. Chalcedony is cryptocrystalline with microscopically small crystals of quartz that are embedded in opal.

Ceramics

Ceramic artifacts (baked/burned clay, residual sherds, and pottery) were initially washed in tap water; a soft-bristled brush was used to remove sediments. Afterward, these artifacts were air-dried and conjoinable sherds were attached using glue. After all ceramic sherds were allowed an appropriate drying time, the ceramics were sorted based on discernable physical attributes. The first task in this process was size grading. All sherds were passed through 1/2-inch mesh to separate residual sherds (sherdlets) from the remainder of the assemblage. However, <1/2-inch residual sherds that had discernable surface treatment/decoration were grouped with the larger sized ceramics for further study. Residual sherds were weighed (to the 0.5 gram) and were catalogued by minimal provenience.

All ceramic sherds larger than 1/2 inch were subjected to detailed analysis. Sherds were initially sorted based on the tempering agent included—the majority of which was limestone—but grit, fine sand, and apparently untempered specimens were observed. All sherds were examined with the aid of a 5x magnification glass under bright light. All body sherd thickness was measured via hand calipers to the nearest 0.1 mm. at the thickest portion of the sherd. All rim sherds were further sorted based on rim/lip morphology. Lip forms were described according to: thinned, beveled, flattened, thickened, folded, or rounded. Rim profiles (direct, incurvate, excurvate) were also described and quantified when possible.

SPECIALIZED STUDIES

Radiocarbon Dating

Carbon samples were collected from the general soil matrix within test unit excavation levels and from features in the field whenever possible. Also, when possible, these samples were piece plotted and mapped to retain exact location and facilitate discussion regarding context and association with either features or artifacts. Selected samples recovered from the most significant proveniences and features were submitted to Beta Analytic, Inc., of Miami, Florida and are used in this report to ascertain dates of occupations and refine our understanding of stylistic and technological change through time. The samples underwent the Accelerator Mass Spectrometry (AMS) technique and have been C^{13}/C^{12} corrected for fluctuations in the atmospheric C^{14} reservoir. All dates are reported in uncalibrated form or as RCYBP (radiocarbon years before present, "present" = 1950 A.D.). Additional pertinent information regarding the C^{14} dates such as 1 and 2 sigma ranges, intercepts, isotope ratios, and lab numbers can be found in Table 24 of Chapter VI and on individual data sheets for each sample within Appendix D.

Ethnobotanical

Flotation samples collected from cultural features discovered at all three sites were processed using two separate techniques. Flotation samples from two features, Feature 1A from 40CY64 and Feature 32 from 40CY63, were sent to the TRC Atlanta laboratory and were passed through a 0.5 mm nylon "bridal veil" fabric. The remaining four flotation samples, from Feature 40 at 40CY63, Features 1N and 1V at 40CY64, and Feature 41 at 40CY65, were water screened through a 1/16-inch hardware cloth at the TRC Nashville laboratory. All samples were analyzed in Atlanta.

The samples were first separated into fractions > and < 2 mm, using a standard testing sieve. All carbonized plant materials in the > 2 mm fractions were sorted into general categories (wood, nutshell, seeds, maize kernels, maize cupules, etc.) and placed into plastic vials labeled according to provenience. The smaller fraction was scanned for seeds and for other items not present in the larger fraction. Such items were sized (as 1–2 mm or less than 1 mm) and placed in plastic vials labeled according to provenience. All sorting was carried out using a Fisher Stereomaster II microscope, with magnification ranging from 10^X to 30^X. The items in each general category were then enumerated and weighed.

Zooarchaeological

The purpose of the faunal analysis was to determine the types of animals in the assemblage to the highest taxonomic resolution possible and, if possible, to ascertain the minimum number of individuals (MNI) of each taxon identified. Evidence of burning, butchering, use-wear, or other types of human-induced modifications was also sought. All bone fragments recovered during this investigation were analyzed in the TRC Atlanta office.

CURATION OF PROJECT MATERIALS

All cultural material recovered during Phase II archaeological investigations at 40CY63, 40CY64, and 40CY65 was processed, labeled, and prepared for curation according to the TDOA protocol, and will be permanently curated at its facility. Accession numbers assigned to the subject Stardust sites are as follows; 01-5 (40CY63), 01-6 (40CY64), and 01-7 (40CY65).

EVALUATION OF NRHP ELIGIBILITY

Sites 40CY63, 40CY64, and 40CY65 were evaluated under Criterion D to assess their eligibility for listing on the NRHP. The National Register Bulletin 36 (Little et al. 2000) describes five steps in presenting a Criterion D NRHP recommendation.

- Step 1: Identify the data sets from the site in an orderly fashion. Present the site data (types, distribution, and preservation).

- Step 2: Define the historic context for the site components. This is essentially the archaeological and historical setting that can be compared against the regional database. This discussion should include functional and temporal contexts.

- Step 3: Identify important research questions, which can be adequately addressed given the data generated by the site. All potential research questions for this specific site type should be considered at this stage.

- Step 4: The data should be evaluated for its potential to address the research questions posed in the previous step. Integrity, density distribution of artifacts and features, and artifact classes should be evaluated in relation to this step as well.

- Step 5: Summarize the important information available from the data from the site. Can a sufficient amount of data and research questions be addressed with the site data? Lastly, an evaluation of the site's research potential beyond the present stage of research should be considered.

V. GEOMORPHOLOGY

OVERVIEW

This chapter discusses geomorphic investigations at the Stardust sites (40CY63, 40CY64, and 40CY65). The primary objectives include complete descriptions of soil associations, an assessment of the potential for deeply buried artifacts, and determining the site formation processes. This was facilitated by the investigation of nine backhoe pits excavated throughout the project area.

RESULTS

Geomorphic Setting

The Stardust sites are situated on terraces of the Cumberland River above a very narrow flood plain that is not apparent on the USGS 7.5-minute quadrangle (Figure 8). The flood plains of the Cumberland River and Shankey Branch lie at elevations of about 510–520 feet (T0). There appear to be at least two prominent terrace treads in the vicinity of the sites, including one within the 535–540 contours (T1) and another within 540–550 contours (T2). However, the 20-foot contour interval on the topographic maps does not allow resolution of these two surfaces. For example, backhoe pits 1–8 are located on T1, whereas backhoe pit 9 is on T2, but the T2 surface of backhoe pit 9 is not apparent from the topographic contours (see Figure 8). Another terrace surface (T3?) occurs in the vicinity at the 560-foot level, but is well outside the boundaries of the project area.

The flood plain of the Cumberland River is not well expressed in the vicinity of the site. In most places it is either nonexistent or exists as a narrow bench between the river and terrace scarp. This indicates that the flood plain is a relatively young geomorphic surface. The USGS gaging station at Celina, listed in Appendix C, indicates that flood control began in 1951 as a result of dams and reservoirs in the upstream direction. During the period of record from 1923 to 1950, the average of the annual maximum flood discharge was 91,275 cfs, with an average annual flood stage of 43 feet. In contrast, between 1951 and 1990 the average of the annual maximum flood discharge was 44,148 cfs, with an average flood stage of 26 feet. This represents a 5.2-m reduction in the average flood stage due to flood control on the Cumberland River.

The T1 surface stands at about 6–8 m above the flood plains of Shankey Creek and the Cumberland River. Most of the archaeological and geomorphic study was concentrated on this surface. The terrace is dissected by zero-order drainages or swales (see Figure 8). Zero-order drainages are the extreme upper portions of drainage basins that receive water and sediment from slopes, but do not exhibit recognizable channels. The swales and their side slopes contain prehistoric artifacts, indicating that terrace dissection occurred prehistorically. Based on the level of soil development in the terrace dissection probably occurred during the terminal Pleistocene.

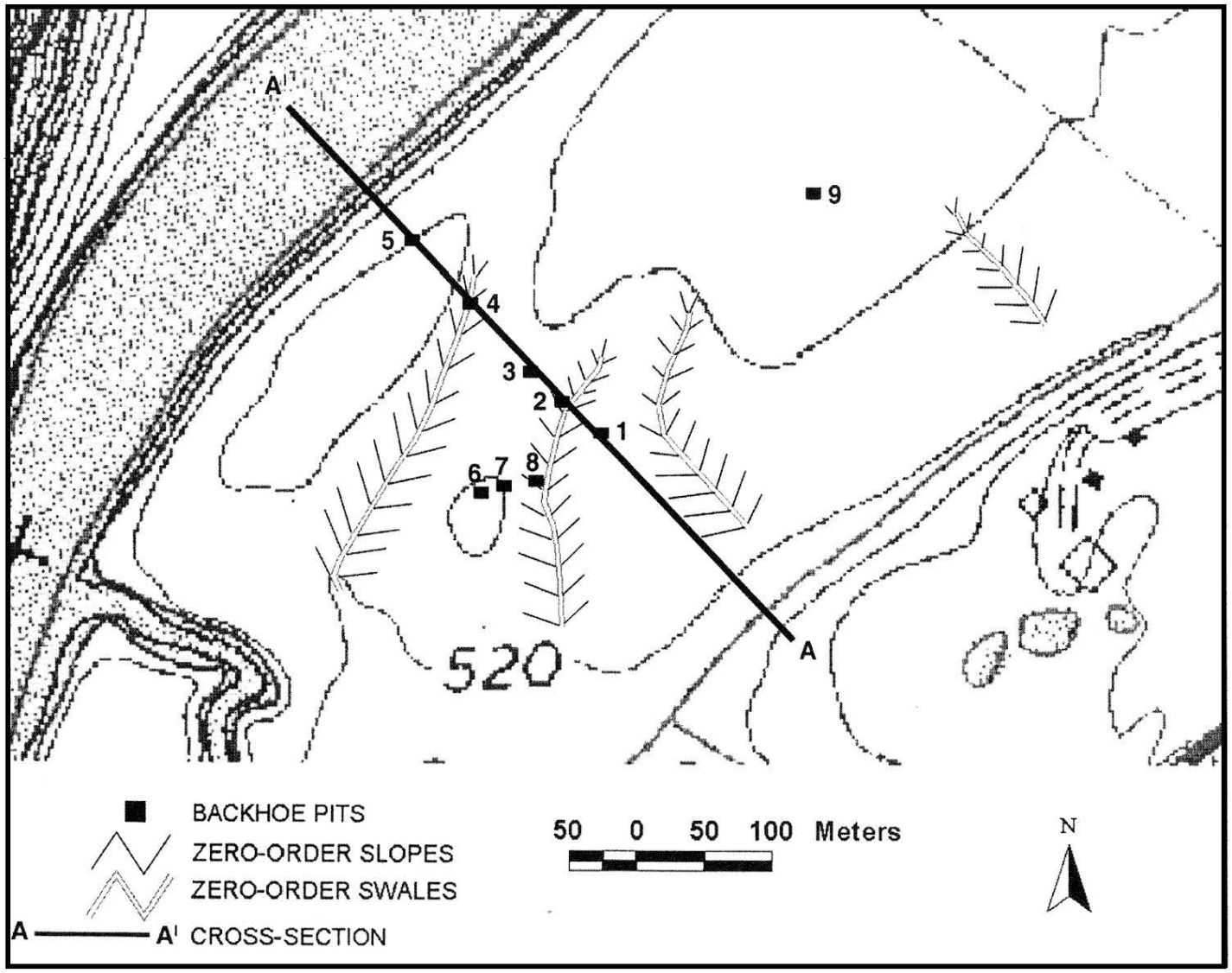


Figure 8. Location of backhoe pits and zero-order drainages in the project area.

Stratigraphy and Soils

The T1 terrace is composed of silty and clayey Pleistocene and Holocene alluvium that overlay river gravel, cobbles, and bedrock occurring at a minimum of 6–7 m below the terrace surface (Figure 9). This silty alluvium is overbank sediment that fell out of suspension during floods, and represents about 6–7 m of vertical accretion during the late Pleistocene and Holocene. The Pleistocene silty alluvium generally consists of dark yellowish brown (10YR 4/4) heavy silt loam and silty clay loam that becomes mottled and gleyed with depth to become a light yellowish brown (2.5Y 6/4) to olive yellow (2.5Y 6/6) silty clay loam. Moderately thick, alluvial clay films were noted on the ped faces of the Bt horizon. A Pleistocene age determination is made for this lower silty unit based on the presence of a well-expressed argillic horizon (Bt horizon) within the terrace (see Appendix C) and the apparent age of artifacts that occur above the argillic horizon and on the surface.

Holocene sediment drapes the lower elevation parts of T1 on surfaces below the 540-foot contour or below the zero (0) datum of the local site grid (Figure 9). This silty alluvium generally consists of brown (10YR 4/3) to dark yellowish brown (10YR 4.5/4) silt loam. Texturally, it is very similar to the Pleistocene sediment (silt loam), but pedogenically it appears much younger than the underlying Pleistocene sediment because it lacks a Bt horizon and contains buried A horizons (Ab). The boundary between the Pleistocene and Holocene sediment is typically expressed by a buried A horizon (Ab) or a buried A horizon that has been transformed into a Bw horizon (Bw2Ab horizons in Appendix C). In addition, artifacts are contained within the drape of Holocene sediment, with the deepest artifact noted in backhoe pits at 195 cm in backhoe pit 2.

The drape of Holocene sediment is considerably thicker in the low spots of the zero-order swales than it is on the slopes and crest of the terrace (Figures 9 and 10). However, it appears to be predominately a riverine deposit, rather than slopewash into the swales, because one, it is found on the flat terrace tread of backhoe pit 1, and two, the overall thickness of the Holocene sediment cannot be explained as slopewash alone given the intact (non-eroded) soil profile on hillslopes and crests. There appears to be elevation control on the drape of Holocene alluvium, such that it is not found above the 540-foot contour (0-datum of site grid). For example, the drape of Holocene alluvium does not occur in backhoe pits 6 and 9, which are on the highest elements of the landscape. Thus, it is probable that the swales functioned as preferential places for sediment to accumulate during overbank floods during the Holocene. At the far western end of the terrace, at backhoe pit 5, it appears that the Holocene sediment comprises most of the sedimentary sequence rather than just a drape, and probably represents the position of the river during a portion of the Holocene sediment deposition.

Although geomorphic investigations determined that soil associations at the Stardust sites appear to be predominately alluvial in origin, archaeological investigations did find evidence of colluvial action or slopewash. This was noted down the northern slope of 40CY63. A detailed explanation is included in Chapter VI.

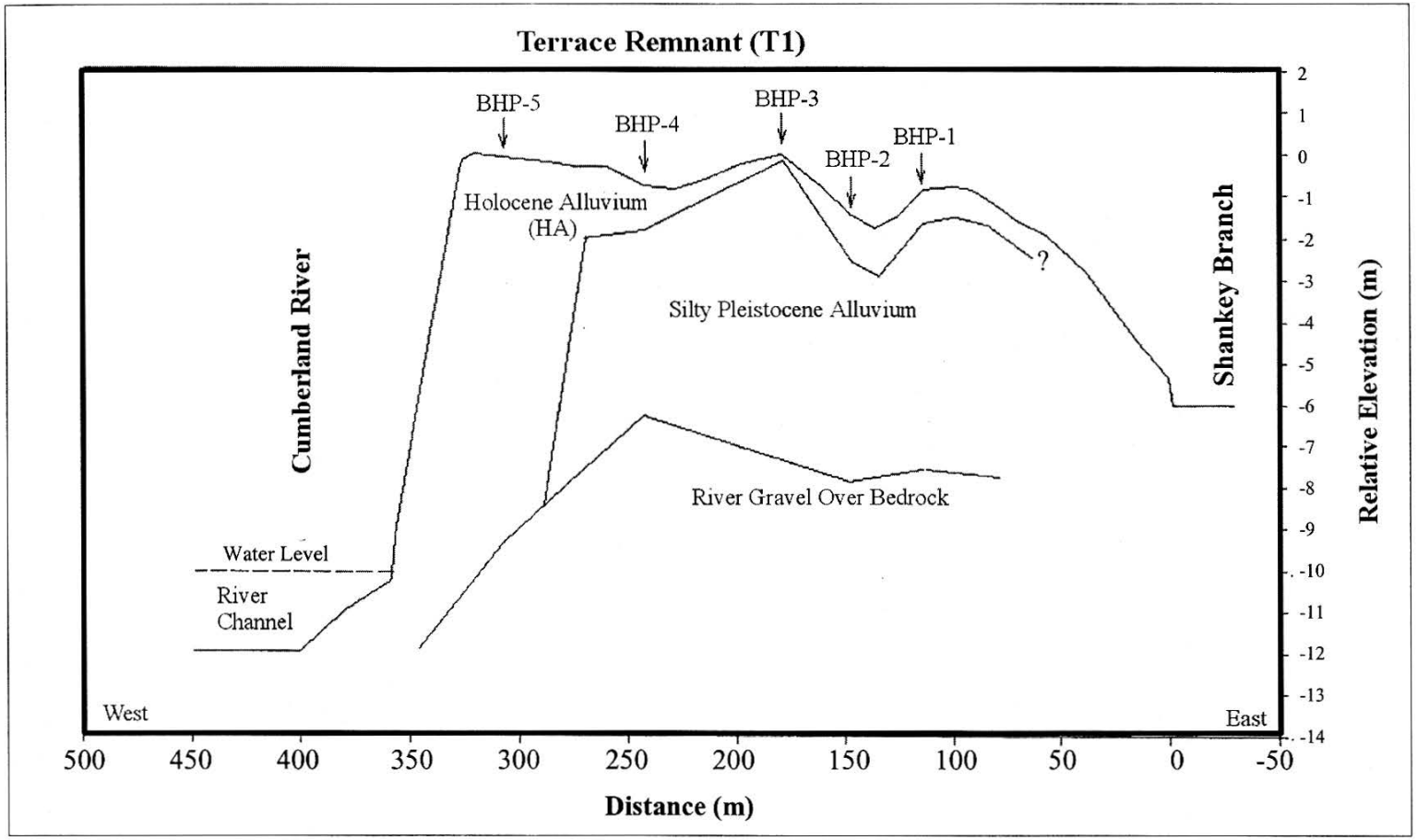


Figure 9: Stratigraphic cross-section through the line of section of backhoe pits 1-5.

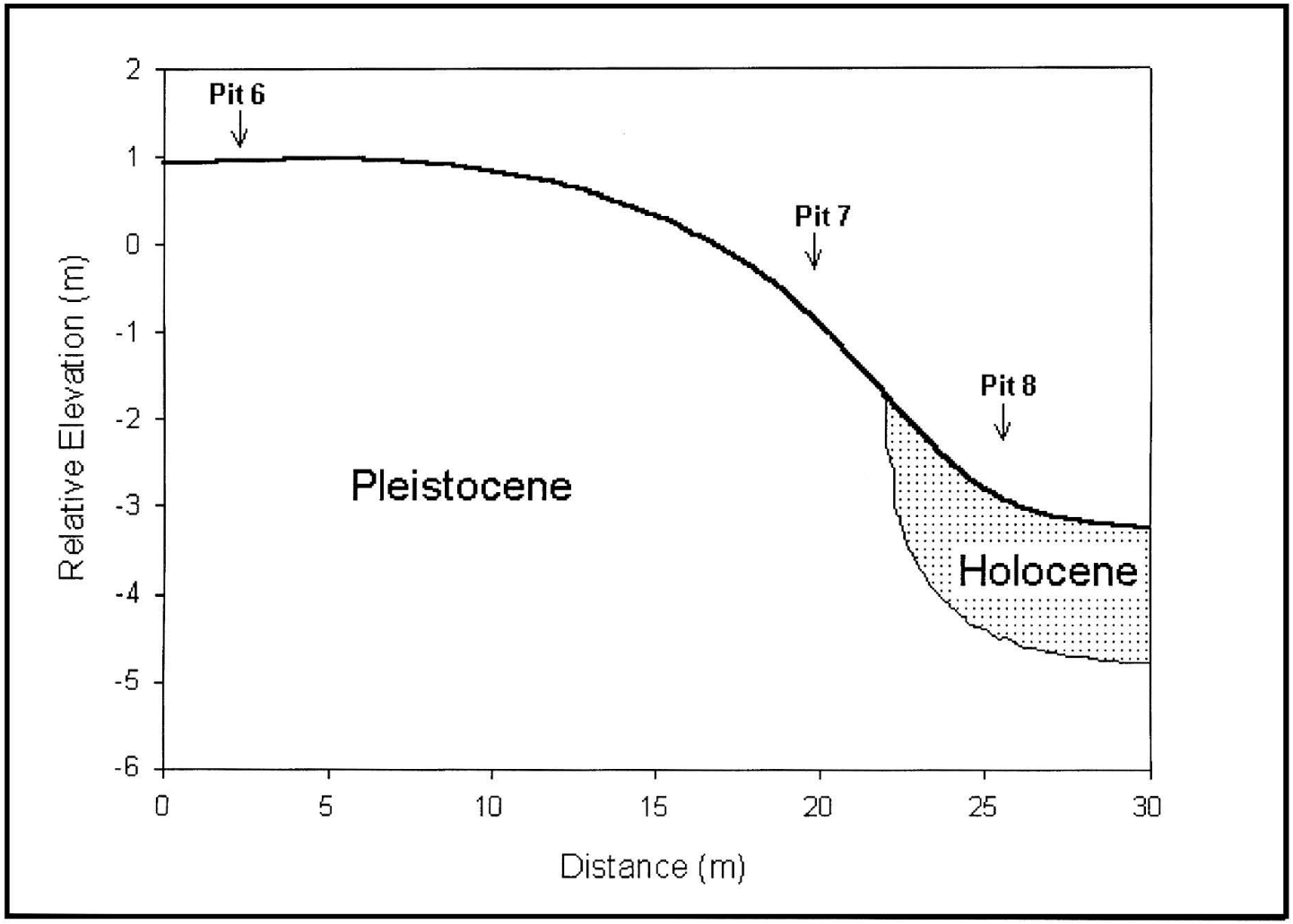


Figure 10. Stratigraphic cross-section through backhoe pits 6, 7, and 8 down the northern slope of site 40CY63.

Chronology and Potential for Buried Artifacts

Geomorphic analysis confirmed the presence of deeply buried archeological materials within the soils on the first terrace (T1). Specifically, there is high potential within the thin drape (1–2-m thick) of Holocene alluvium on parts of the terrace remnants beneath the 540-foot contour (0-datum of site grid). The bulk of the alluvial fill in both terrace levels (T1 and T2) appears to be Pleistocene in age, based on the presence of a very well developed argillic soil horizon (Bt), but the archeologically relevant Holocene sediment may attain a thickness of up to 200 cm. The thickest occurrences of Holocene alluvium are in erosional swales, or zero-order tributaries that dissect the terrace remnants. The spatial distribution of these erosional swales is noted on Figure 1. Careful consideration should be given to the potential for deeply buried artifacts within T1, and particularly within the swales.

Landscape Evolution and Site Formation Processes

Landscape evolution at the site appears to indicate the following sequence of events, based on the available evidence:

1. The Cumberland River aggraded 7–8 m of fine-grained overbank alluvial sediment on top of bedload gravels during the late Pleistocene, forming the bulk of the alluvial deposits within the terraces. Stratigraphic data indicate that the gravel bed of the Cumberland River was at least 4–5 m higher in the landscape immediately prior to, and probably during, the time of this late Pleistocene overbank deposition.

2. At some time during the late Pleistocene to early Holocene the alluvial aggradation ceased and the terrace surfaces were subject to weathering and erosion. The argillic horizons formed at this time and the zero-order swales were eroded into the terrace surfaces during this time. This period of weathering and erosion may have been matched by incision and downcutting of the Cumberland River, which led to reduction of sedimentation on the terrace surfaces. Evidence for incision is provided by a significantly greater depth to bedload gravels beneath the locality of backhoe pit 5.

3. During the Holocene, likely the early to middle Holocene, renewed sedimentation occurred on the terrace remnants up to an elevation of about 540-feet above sea level. Swales that had been eroded into the terrace surface were the most favorable locations for flood sedimentation because they offered relatively low areas on the terrace that were sheltered from areas of high flow velocity. A thick unit of Holocene alluvium accumulated along the western end of the terraces at this time, beneath the locality of backhoe pit 5. This period of Holocene sedimentation may represent a time of larger floods. Alternatively, some aggradation of the Cumberland River may have occurred, but there is no stratigraphic evidence for this scenario.

4. Finally, the Cumberland River and Shankey Creek were incised to their present level. Reduced flooding conditions caused overbank sedimentation to cease on the terrace. This left the terrace remnants as relatively high and dry localities during the late Holocene.

5. It appears that the Cumberland River has remained along the western side of the valley for most of the late Pleistocene and Holocene. A thin area of Holocene alluvium beneath backhoe pit 5 indicates minor lateral migration to the east.

Regional Geomorphic Context

The last 9,000 years of alluvial history that includes the project area is summarized by Schuldenrein (1996) in his discussion of the "Interior Appalachian Plateau." Many of his conclusions are drawn from the previous works of Chapman (1977), Knox (1983), Brakenridge (1984), and others. Probably the most significant regional aspect described by Schuldenrein is the middle Holocene "increased fluvial activity, high runoff, stormy conditions" noted for the region (Schuldenrein, 1996, p. 8) at circa 6,500 to 4,000 years B.P. Such conditions may explain the veneer of Holocene sediment that is particularly thick in erosional swales at the site.

The work of Brakenridge (1984) along the Duck River in central Tennessee also offers broad similarities to that of the Cumberland River valley near Celina. He notes that "severe bedrock and flood-plain erosion occurred near the end of the Pleistocene and a major unconformity was created." Such an erosional period explains the formation of the erosional swales on the T1 surface. Brakenridge goes on to summarize that " by 6,200 ^{14}C yr BP, renewed overbank accretion was under way, and pollen analyses indicate an increasingly humid climate." He indicates that alluvial aggradation related to this humid phase continued until circa 4,200 ^{14}C yr B.P.

A study by Delcourt (1980) along the lower reaches of the Little Tennessee River near Knoxville also bears similarities to the situation near Celina. Delcourt describes a first terrace (T1) of alluvial fill that is about 6 m above the river level that was radiocarbon dated at 15,000 to 3,500 ^{14}C yr B.P. This indicates that terminal Pleistocene through middle Holocene sedimentation was active on geomorphic surfaces well above the modern floodplain, and again may relate to Holocene sedimentation on the T1 surface near Celina.

CONCLUSIONS

The archeological sites on the T1 surface in the project area contain a high potential for buried artifacts that have been covered by Holocene overbank sedimentation. The Holocene sediments are thickest in zero-order swales that dissect the terrace and on relatively flat treads of the terrace that are at or below the 540-foot contour (0-datum on site). The zero-order swales probably resulted from terminal Pleistocene erosion on the terrace, and the Holocene sediment that covers parts of the terrace represents a time of increased flooding and sedimentation, probably during the middle Holocene. Careful consideration should be given to the in situ nature of the buried artifacts in the project area.

VI. RESULTS

Phase II archaeological testing excavations were accomplished by the controlled excavation of 1 x 1-m test units in conjunction with power unit (backhoe) excavation within the SIA APE at sites 40CY63, 40CY64, and 40CY65 (Figure 11). Approximate areas of investigation totaled 4514 m^2 (1 acre) at 40CY63; 2257 m^2 (.6 acre) at 40CY64; and 9028 m^2 (2.2 acres) at 40CY65. Five test units and five backhoe trenches were excavated at 40CY63; three test units, five trenches, and one block were dug at 40CY64; and six test units and eight trenches were excavated at 40CY65. The results of the Phase II investigations are presented below by individual site.

40CY63

Test Unit Excavation

Shovel test artifact densities and depths recorded during the Phase I survey of the SIA APE (Barker 2001:Tables 1 and 2) guided the placement of Test Units 3 and 4. These units were excavated in 10-cm arbitrary levels. Subsequent placement of Test Units 9, 10, and 12 were guided by depth and content of archaeological deposits revealed by power unit excavation of linear trenches and pits. The plowzone was removed as a single level (0–20 cmbs) in these units. Vertical and horizontal measurements associated with level depths and piece plotted artifacts were taken from the northeast corner of each unit.

Test unit excavation revealed intact archaeological deposits characterized by high quantities and dense concentrations of lithic artifacts. A total of 42 formal stone tools and two ceramic sherds were recovered within test units at 40CY63. Counts and proveniences of these artifacts are summarized in Table 2. Eleven diagnostic pp/ks were recovered as a result of test unit excavations. The majority of these pp/ks were Middle Archaic side-notched (n=8) variants. One stemmed, serrated point was recovered in situ from Level 4 of Test Unit 3 at 34.5 cmbs. A charred wood sample collected from this level at 38.5 cmbs returned a date of 6200 ± 40 B.P. (Middle Archaic). Two Middle Woodland side notched pp/ks were also recovered. Over 10,000 pieces of lithic debitage were recovered from 40CY63 test units and are summarized in Table 3.

Soil profiles of stratum recognized within of each test unit excavated at 40CY63 are depicted in Figure 13. Four natural stratum were recognized. Stratum I was characterized by a dark yellowish brown 10YR 4/4 silt loam. It was recognized in all units and represents a disturbed plowzone that averaged 20-cm thick. Stratum 2 is darker in color and was described as a dark yellowish brown 10YR 3/4 – 4/4 silt loam. It was also present in all units below the plowzone and averaged about 25-cm thick, except in Test Unit 9 where it averaged only 10-cm thick. Stratum III is described as a dark yellowish brown 10YR 3/4 to a brown 10YR 4/4 sandy silt loam. It was discovered in all units except Test Unit 9. Stratum IV represented a dark yellowish brown 10YR 4/6 to a yellowish brown 10YR 5/6 silty clay loam. It was recognized as the lowest strata in Test Units 3, 9, and 10.

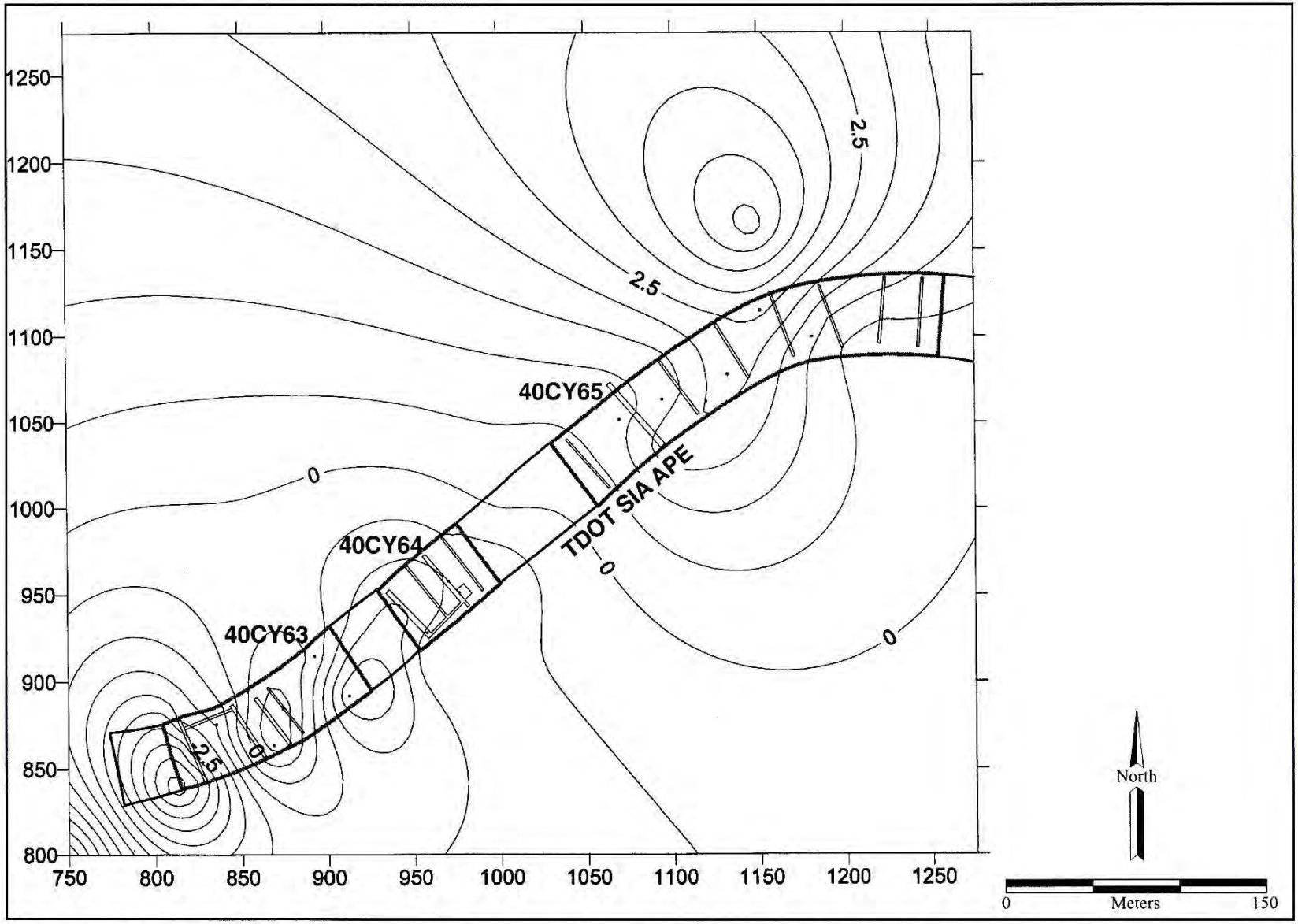


Figure 11. Planview of the Stardust sites showing archaeological investigations within the SIA APE at each site.

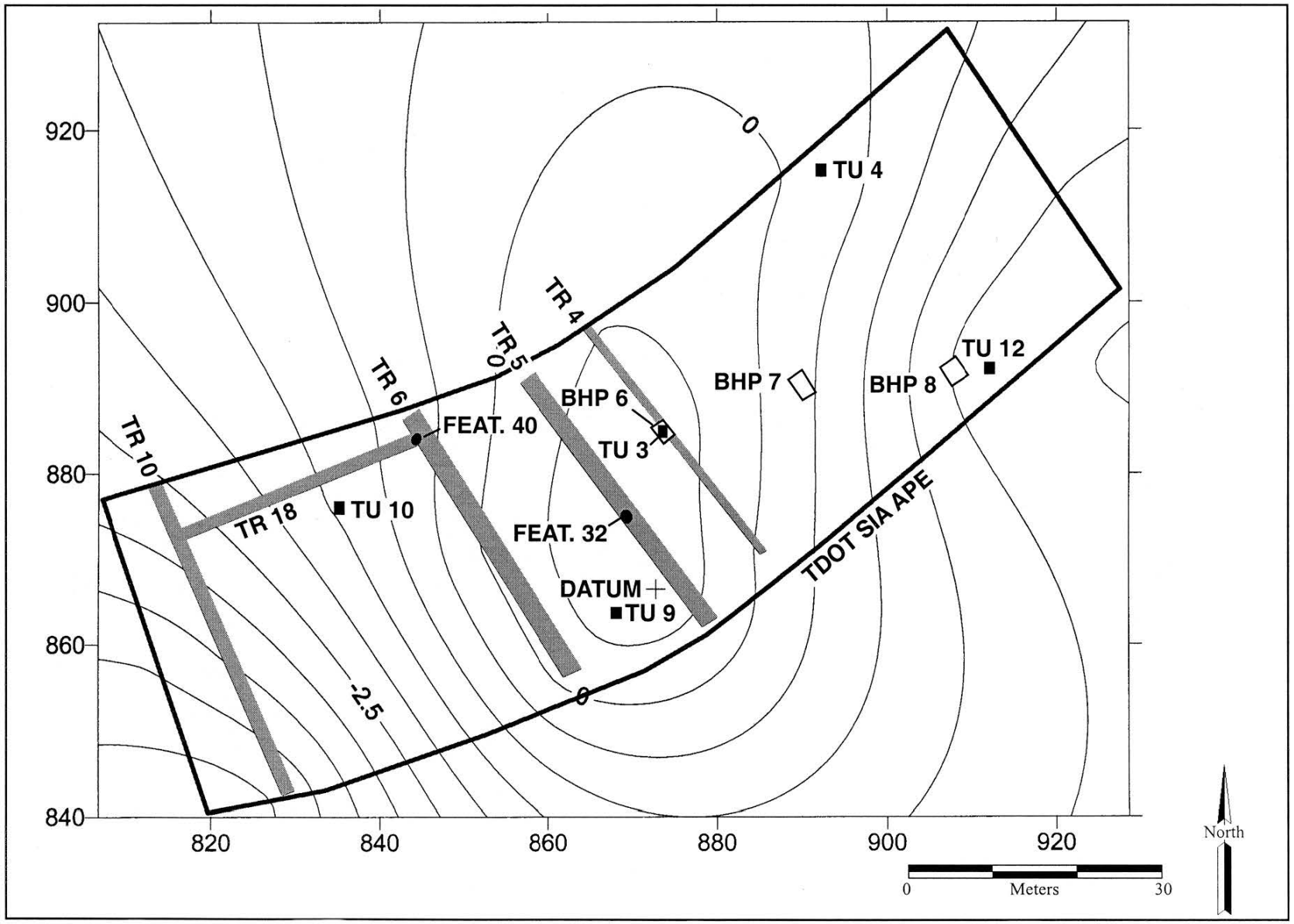


Figure 12. Planview of site 40CY63 showing locations of test units, trenches, pits and excavated features.

Table 2. Summary of Lithic and Ceramic Artifacts Recovered from 40CY63 Test Unit Excavations.

			Projectile Points/Knives			Bifaces					
Provenience	*Depth (cmbs)*	*Stratum*	*Middle Archaic Side Notched*	*Middle Archaic Stemmed*	*Middle Woodland Side Notched*	*Primary*	*Secondary*	*Tertiary*	*Hafted Scraper*	*Ceramic Sherd*	*Other*
Test Unit 3	0-10	I						2	1		
	10-20	II						1		1	
	20-30	II					1	2			
	30-40	II		1							
Test Unit 4	30-40	II	3				2				
	40-50	III	1				2				
Test Unit 9	0-20	I	1				1	1			
	20-30	II						1			1 Spokeshave
	30-40	III	1								
Test Unit 10	0-20	I						1			
	30-40	II			1			1			
	40-50	III						2			
	50-60	III	1				2	1			
	60-70	III	1		1		1				1 Knife fragment
	70-80	IV				1	1				
	80-90	IV						1			
Test Unit 12	0-20	I							1		
	80-90	III								1	
		Totals:	**8**	**1**	**2**	**1**	**10**	**13**	**1**	**2**	**2**

Table 3. Summary of Lithic Debitage Recovered from Site 40CY63.

Provenience	*Depth (cmbs)*	*Primary Flakes*	*Secondary Flakes*	*Tertiary Flakes*	*Utilized Flakes*	*Thinning Flakes*	*Core Fragments*	*Flake Fragments*	*Shatter*	*FCR*	***Level Total***
Test Unit 3	Lev. 1 (0-10)		14	64	3	63	2	224	67	42	**479**
	Lev. 2 (10-20)	1	11	48	2	132	1	276	106	33	**610**
	Lev. 3 (20-30)	6	17	28	5	90	3	121	66	12	**347**
	Lev. 4 (30-40)	15	9	1	68	1	1	66	19	4	**184**
	Lev. 5 (40-50)	4	3	11	1	20		49	12	5	**105**
	Lev. 6 (50-60)			2		6		12	2		**22**
	Lev. 7 (60-70)					2		1	4		**7**
										Unit Total:	**1754**
Test Unit 4	Lev. 1 (0-10)		5	7		23	1	50	37	20	**143**
	Lev. 2 (10-20)	7	25	8	1	10		79	15	20	**165**
	Lev. 3 (20-30)	2	6	8	1	63	1	75	66	45	**267**
	Lev. 4 (30-40)	10	90	26	1	19	2	232	35	40	**455**
	Lev. 5 (40-50)	4	9	17	4	152		215	85	44	**530**
	Lev. 6 (50-60)		8	5		60		78	15	15	**181**
										Unit Total:	**1741**
Test Unit 9	Lev. 1 (0-20)	27	85	15	1	13		610	68	150	**969**
	Lev. 2 (20-30)	3	22	52	3	295	1	548	99	46	**1068**
	Lev. 3 (30-40)	29	80	5	2	8		319	18	45	**506**
	Lev. 4 (40-50)		25	2		4		70	3	2	**106**
										Unit Total:	**2649**
Test Unit 10	Lev. 1 (0-20)	10	35	7		10	1	160	16	45	**284**
	Lev. 2 (20-30)	22	41	1	2	18		136	22	43	**285**
	Lev. 3 (30-40)	14	46	7		20		181	41	58	**367**
	Lev. 4 (40-50)	2	9	19	4	70		82	65	20	**271**
	Lev. 5 (50-60)	4	44	5		23		143	32	24	**275**
	Lev. 6 (60-70)	11	107	8	1	42	1	192	33	41	**436**
	Lev. 7 (70-80)	34	141	10	4	95	2	286	26	79	**677**
	Lev. 8 (80-90)	18	92	5		46		121	15	25	**322**
	Lev. 9 (90-100)		3	2		1		11		1	**18**
										Unit Total:	**2935**

Table 3. Summary of Lithic Debitage Recovered from Site 40CY63 cont.

Provenience	*Depth (cmbs)*	*Primary Flakes*	*Secondary Flakes*	*Tertiary Flakes*	*Utilized Flakes*	*Thinning Flakes*	*Core Fragments*	*Flake Fragments*	*Shatter*	*FCR*	***Level Total***
Test Unit 12	Lev. 1 (0-20)	1	15	1	1	13		72	12	36	**151**
	Lev. 2 (20-30)		16	9		24		24	7	11	**81**
	Lev. 3 (30-40)		2	6	1	20		21	11	4	**65**
	Lev. 4 (40-50)		1	3	2	10		15	5	23	**59**
	Lev. 5 (50-60)	1	3	4	1	12		7	8	20	**56**
	Lev. 6 (60-70)		2	2	1	6		17	8	12	**48**
	Lev. 7 (70-80)	1	7	4		11		15	2	6	**46**
	Lev. 8 (80-90)		12	10		22		21	9	21	**95**
	Lev. 9 (90-100)		12	10		15		14		15	**62**
	Lev. 10 (100-110)	11	32	28	7	49		66	16	25	**234**
	Lev. 11 (110-120)	3	39	39	1	54		84	15	38	**507**
										Unit Total:	**1404**
										Grand Total:	**10483**

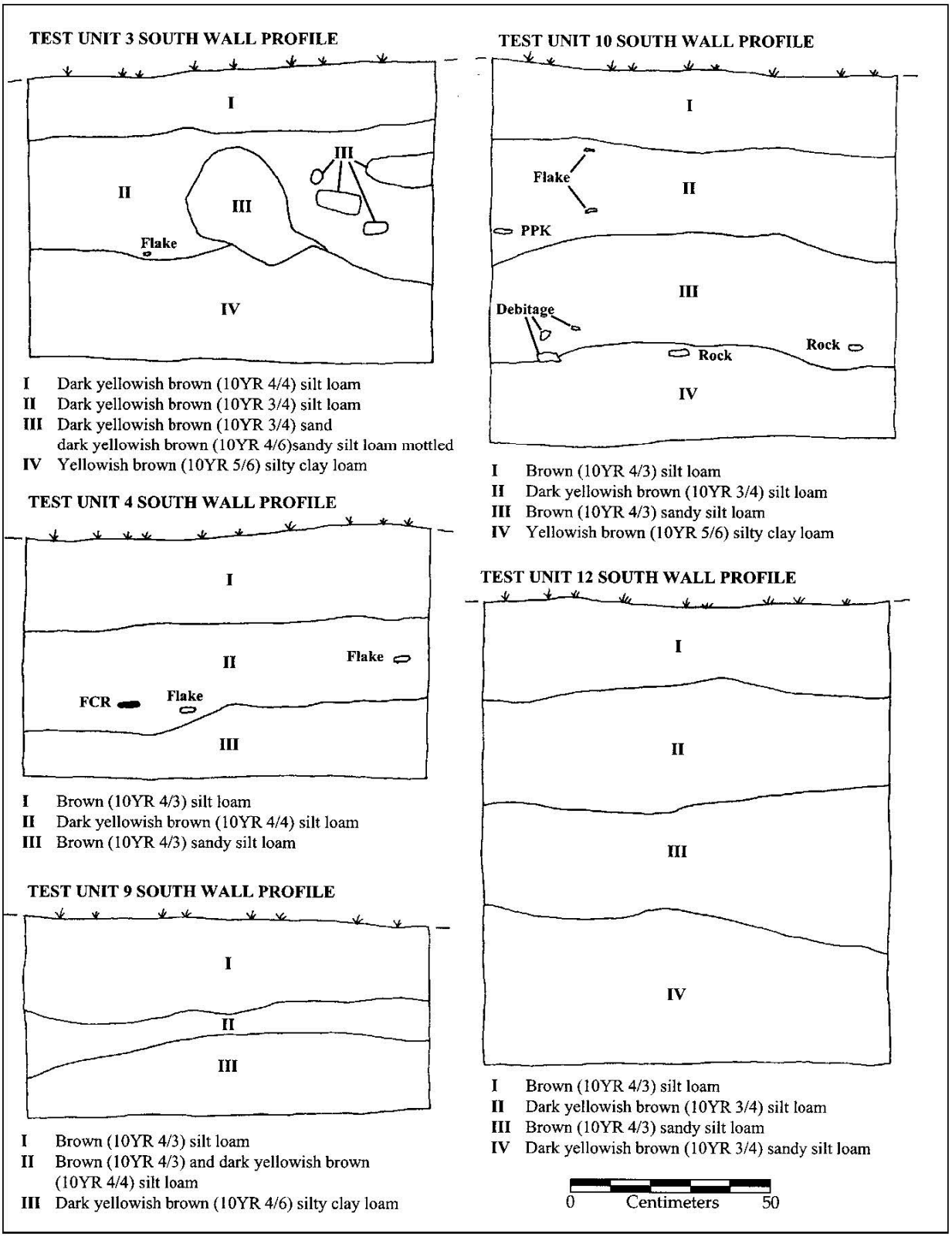


Figure 13. Test unit profiles from site 40CY63.

Test Unit 3

This unit is located in the middle of site 40CY63 SIA APE boundaries. It measured 1 x 1 m with a grid provenience of 885.13N/873.98E and a surface elevation of 15 cm below datum (cmbd). Excavation extended to 70 cmbs, where sterile soil was encountered. No cultural features were encountered during excavation of this unit.

Lithic debitage (n=1754) was very dense and dominated the artifact total recovered from Test Unit 3. Most of this debitage (n=1089) was contained within the plowzone (0-20cmbs) (see Table 3). Eleven formal tools were recovered from the unit and consisted of a five tertiary biface fragments, two secondary biface fragments, one cord-marked and limestone-tempered ceramic sherd, a hafted scraper, a pp/k, and a primary biface fragment (see Table 2). The stemmed and serrated pp/k was found in situ and piece plotted (PP6) in Level 4 at 34.5 cmbs with a horizontal position of 65cmS/95cmW. A charred wood sample (PP7) was also collected and piece plotted within the general matrix of Level 4 at 38.5 cmbs vertically and 75cmS/75.5cmW horizontally very near the pp/k. This charcoal sample was submitted for radiocarbon dating returning a date of 6200 ± 40 B.P., dating the pp/k to the latter portion of the Middle Archaic period. An additional charred wood specimen was piece plotted (PP5) and collected within Test Unit 3. It was encountered in Level 3 at 23.5 cmbs vertically and 78cmS/28cmW horizontally. This second sample was not submitted for C^{14} dating.

Test Unit 4

Test Unit 4 was positioned in the northeast section of site 40CY63 SIA APE boundaries. It measured 1 x 1 m with a grid provenience of 915.2N/892.83E and a surface elevation of 107 cmbd. Excavation extended to 60 cmbs. Sterile soil was encountered at the bottom of Level 6. No cultural features were encountered during excavation of the unit.

Artifacts recovered from the Test Unit 4 consisted of lithic debitage and formal tools. The debitage (n=1741) was very dense and was clustered within undisturbed deposits of Level 4 (n=455) and Level 5 (n=530) (see Table 2). Eight formal tools were recovered during excavation of the unit and included a secondary biface, four secondary bifaces, and four Middle Archaic side notched pp/ks (see Table 3). Four specimens were piece plotted during excavation of the unit. In Level 3, a charred wood sample (PP8) was collected vertically at 22 cmbs and horizontally at 63cmS/69cmW. One side-notched pp/k (PP9) of two recovered from Level 4 was recorded vertically at 35 cmbs and horizontally at 99cmS/88cmW. The other side-notched pp/k was recovered in the same screen fill as an intact charred wood sample. This sample was submitted for radiocarbon dating and unfortunately returned an erroneous date of 30,720 ± 270 B.P. Additionally, a charcoal sample (PP10), that was not submitted for C^{14} dating, was collected at 47.5 cmbs vertically and 27cmS/51.5cmW along with a secondary biface fragment (PP11) at 46.5 cmbs vertically and 93cmS/45.5cmW in Level 5.

Test Unit 9

This unit is located in the middle and southern section of site 40CY63 SIA APE boundaries, and within its highest elevated portions. It measured 1 x 1 m with a grid provenience of 863.85N/868.63E and a surface elevation of 22 cmbd. Excavations in Test Unit 9 extended to 50 cmbs, where sterile soil was encountered on the floor of Level 4. No cultural features were encountered during excavation of this unit.

Artifacts were recovered from Test Unit 9 consisted of lithic debitage and formal tools. Lithic debitage (n=2649) accounted for nearly all of the artifacts recovered from the unit and was mostly contained within the first 30 cm of excavation (n=2037) (see Table 3). This is extremely high compared to all other test units and may indicate the loci of a knapping station. Eight formal tools were recovered from screened fill and included two tertiary biface fragments, a secondary biface fragment, a spokeshave, and two Middle Archaic side notched pp/ks (see Table 2). No artifacts or charcoal samples were piece plotted during excavation of this unit.

Test Unit 10

Test Unit 10 was located in the southeastern of site 40CY63 down its southern slope within SIA APE boundaries. It measured 1 x 1 m with a grid provenience of 876.05N/835.7E and a surface elevation of 229 cmbd. Excavations extended to 100 cmbs, where sterile soil was encountered. No cultural features were encountered during excavation.

Artifacts recovered from this unit consisted of lithic debitage and formal stone tools. Lithic debitage (n=2935) was extensive and constituted most of the artifacts recovered. The debitage was consistent through the first five levels of the unit and increased substantially in Level 6 (n=436) and Level 7 (n=677) (see Table 3). A total of seventeen formal tools were recovered during excavation of Test Unit 10 and included a primary biface, two secondary bifaces, one tertiary biface, three secondary biface fragments, five tertiary biface fragments, a knife fragment, two small side notched Lowe Cluster Variant (Middle Woodland), and two Middle Archaic side notched pp/ks. A summary and brief descriptions of each are provided below in Table 7. Five specimens were piece plotted as a result of excavation of this unit. In Level 3, a Lowe Cluster pp/k (PP16) was collected vertically at 35 cmbs and horizontally at 86cmS/84cmW. In Level 4, a tertiary biface fragment (PP17) was recorded at 43 cmbs vertically and 35cmS/66cmW horizontally, and a tertiary biface (PP18) was plotted at 48 cmbs vertically and 23cmS/15cmW horizontally. A second Lowe Cluster pp/k (PP19) was piece plotted vertically at 67 cmbs and horizontally at 43cmS/3.5cmW in Level 6. A secondary biface (PP20) was also recorded in Level 6 at 68 cmbs vertically and 60cmS/93cmW. Lastly, a tertiary biface fragment (PP21) was found and mapped in Level 8 at 80 cmbs with a horizontal position of 26cmS/27cmW. Unfortunately, no charcoal specimens were encountered in situ during Test Unit 10 excavations.

Test Unit 12

Test Unit 12 was located in the northeastern section of site 40CY63 SIA APE boundaries down its northern slope. It measured 1 x 1 m with a grid provenience of 892.33N/8912.63E and a surface elevation of 332 cmbd. Excavation extended to 120 cmbs. Sterile soil was not reached in this unit. Therefore, the true depth of cultural deposits was not determined. The soil profile of backhoe pit 8 suggests that occupation extends at least 30 more cm (150 cmbs) below the point at which Test Unit 12 excavations ceased. No cultural features were encountered during excavation of this unit.

Artifacts were recovered from the unit consisted of lithic debitage and formal tools, and one cord-marked ceramic sherd. Lithic debitage (n=1404) constituted nearly all of the artifacts recovered from Test Unit 12. The debitage was consistent through the first nine levels of the unit with a marked increase in Level 10 (n=234) and Level 11 (n=507) (see Table 3). One hafted end scraper was recovered as a result of excavations of this unit. It was recovered from the plowzone (0–20 cmbs). This point had undergone an extreme amount of thermal alteration, rendering its source material unidentifiable. The cord-marked ceramic sherd recovered from Test Unit 12 exhibited a limestone temper and was found in situ and piece plotted (PP23) in Level 8 with a vertically position of 82.5 cmbs and a horizontal position of 36cmS/12cmW.

Backhoe Excavation

Trenches 4, 5, and 6 were excavated and positioned in the central section of the site within its highest elevated portions (T1 remnant). Trench 4 measured 33 x 0.6 m, and Trenches 5 and 6 both measured 36 x 1.8 m. Trench 16 was positioned in the extreme western portions of the site and measured 40 x 1.2 m. Trench 18 connected Trenches 6 and 16 and measured 30 x 1.2 m. Backhoe pits 6, 7, and 8 were excavated down the northern slope of the site (see Figure 12).

Depth to sub-soil averaged only 30–40 cmbs in Trenches 4 and 5. The southern section of Trench 6 was also in higher elevated areas of the site; however, surface elevations its northern section dipped down the southern slope of the site. Sub-soil depth in the southern section of Trench 6 extended to 35 cmbs, while in its northern section it was recognized at 100 cmbs. Sub-soil was encountered at approximately 120 cmbs in the eastern section of Trench 18 and rose to only 35 cmbs in the western section. Trench 16 retained an overall depth to sub-soil of 35 cmbs throughout. At least 120 cmbs of sediment was recognized down the northern slope of the site as a result of the excavation of backhoe pits 6, 7, and 8.

Twenty-six distinct soil disturbances were exposed and recorded within 40CY63 trenches. Twenty-four of these were faint stains of varying shape and size littered across the floors of Trenches 4 and 5 (Table 4). Trowel investigation determined that each represents remnants of plowzone and intact archaeological deposits, which accumulated in natural undulations within the sub-soil surface. Two cultural features, Features 32 and 40, were recorded and excavated. Feature 32 was recognized in the central section of Trench 5 and Feature 40 was discovered in extreme northern portions of Trench 6.

Table 4. Summary of Soil Anamolies Recognized in Trenches 4 and 5 at Site 40CY63.

Feature Number	Trench Location	Depth Below Datum (cm)	Shape	Max.Size Long Axis (cm)		Feature Number	Trench Location	Depth Below Datum (cm)	Shape	Max.Size Long Axis (cm)
15	4	55	amorphous	120		27	5	42	semi-circular	94
16	4	44	amorphous	83		28	5	37	semi-circular	64
17	4	39	amorphous	84		29	5	41	oblong	28
18	4	38	amorphous	118		30	5	40	circular	15
19	4	68	circular	39		31	5	46	circular	21
20	4	72	circular	45		33	5	52	circular	65
21	4	74	semi-circular	50		34	5	60	oblong	23
22	5	64	amorphous	42		35	5	62	circular	17
23	5	46	oblong	27		36	5	54	semi-circular	35
24	5	43	circular	16		37	5	65	amorphous	51
25	5	43	semi-circluar	162		38	5	68	amorphous	44
26	5	35	oblong	36		39	5	67	amorphous	62

Features

Feature excavation at site 40CY63 included bisection by trowel and examination of profiles in cross-section to prospect for internal stratigraphy. Charred wood or plant material was collected and piece plotted when encountered. Recovery methods included screening fill through 1/4-inch wire mesh and flotation. Artifacts, and plant and faunal remains recovered are listed in Tables 5-9. Detailed descriptions and representation of excavation procedures are provided below.

Feature 32

Feature 32 was first recognized during power unit excavations of Trench 5 at site 40CY63. It is located in the middle section of Trench 5 (see Figure 12) and continues into its southern wall. Feature 32 is amorphous in shape, was positioned vertically at 35 cmbs, and measured approximately 90 x 100 cm in planview (Figures 14 and 15). Its soil matrix consisted of a dark brown (10YR 3/3) silty clay loam and it was surrounded by a 10YR 5/6 silty clay loam sub-soil.

The east half of Feature 32 was first excavated to 41 cmbs. This fill was screened through 1/4-inch wire mesh. Unfortunately no definite internal structure was apparent upon this initial excavation. Northern portions of the east half of Feature 32 became very diffuse and mottled with sub-soil. However, evidence of deeper deposits was recognized in its southern portion. A section of the southern portion was then excavated to 66 cmbs and collected as a 16.5-liter flotation sample.

The cultural material recovered from Feature 32 consisted of 34 pieces of lithic debitage, fire cracked rock, two ceramic sherds, and baked clay fragments (see Tables 10 and 11). Carbonized plant remains, recovered from the flotation sample, consisted mostly of nutshell and wood, as well as one seed fragment (see Table 12). Bone preservation was poor in the Feature 32 fill; however, one deer bone fragment and a small rodent bone fragment were identified (see Table 13). One charcoal sample was collected and submitted for C^{14} dating from Feature 32. It returned a date of 2300 ± 40 B.P.

The functional interpretation of Feature 32 is somewhat ambiguous given its odd shape and lack of uniformity. However, based on consideration of the broad spectrum of cultural material recovered, it is likely the location of a refuse pit.

Figure 14. Photograph of Feature 32 east-half excavations. Note that site number should be 40CY63.

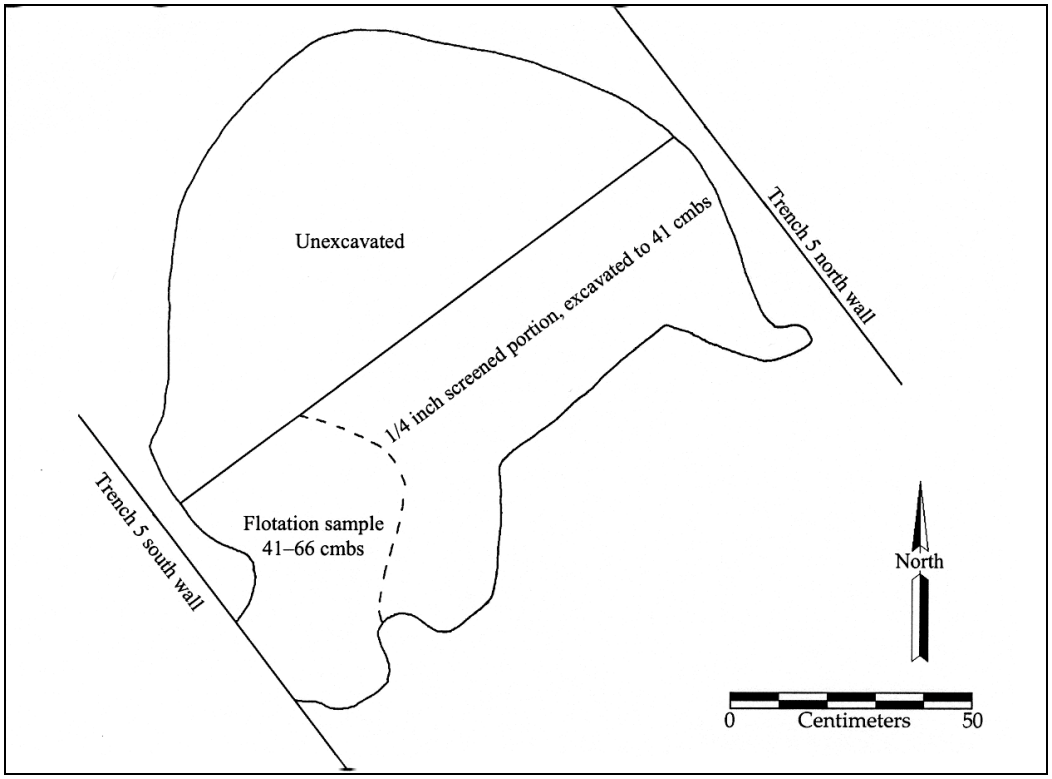


Figure 15. Planview of Feature 32.

Table 5. Lithic Debitage Recovered from Site 40CY63 Screened (1/4 in.) Feature Fill.

Provenience	*Depth (cmbs)*	*Primary Flakes*	*Secondary Flakes*	*Tertiary Flakes*	*Utilized Flakes*	*Thinning Flakes*	*Core Fragments*	*Hammerstone Fragments*	*Flake Fragments*	*Shatter*	*FCR*	***Feature Total***
Feat. 32 E ½	35	1	3	2	1	8		1	11	2	5	**33**
Feat. 40 N. Balk	95		6			1			12	2	2	**23**
Feat. 40 Column	100-115		2	2		9			12	2	22	**49**
Feat. 40 N ½	100-110	4	15	18	1	75	1		79	57	65	**315**
											Total:	**420**

Table 6. Ceramics Recovered from Site 40CY63 Features.

Provenience	**Cord Marked**	**Fabric Impressed**	**Plain**	**Temper**	**Body**	**Rim**	**Total**
Feat. 32 E ½ (1/4 in. screened fill)	**1**	**1**		Limestone	**2**		**2**

Table 7. Additional Artifacts Recovered from Site 40CY63 Features.

Provenience	**Fraction**	**Artifact**	**Count**
Feat. 32 E ½ (flotation sample)	+2mm	Lithic debitage	234
	+2mm	Baked clay	2
	+2mm	FCR	33(216.2 g)
		Total:	**269**
Feat. 40 (1/16 in. water screened fill)	+2mm	Lithic debitage	**138**

Table 8. Archaeobotanical Remains Recovered from Site 40CY63 Features.

Provenience	Fraction	Material	Weight (g)	Count
Feat. 32 E ½ (flotation sample)	+2 mm	Wood	0.22	31
	+2 mm	Bark	<0.01	1
	+2 mm	Hickory nutshell (*Carya* sp.)	0.57	46
	+2 mm	Walnut/hickory nutshell (Juglanaceae)	0.11	9
	+2 mm	Nutshell (indeterminate possibly pecan or hazelnut—*Carya illinoensis*/*Corylus americana*)	<0.01	2
	+2 mm	Unidentified seed fragment	0.01	1
	+2 mm	Indeterminate	0.01	2
		Total:	**0.92**	**92**
Feat. 40 (1/16 in. water screened fill)	+2 mm	Wood	0.01	2
	+2 mm	Hickory nutshell (*Carya* sp.)	0.50	58
		Total:	**0.51**	**60**

Table 9. Faunal Remains Recovered from Site 40CY63 Features.

Provenience	Fraction	Description	Species	Count	Weight (g)	Comment
Feat. 32 E ½ (1/4 in. screened fill)	N/A	Complete naviculo-cuboid, left (*ankle*)	*Odocoileus virginianus*	1	5.4	Carnivore gnawed
Feat. 32 E ½ (flotation sample)	+2mm	Rodent proximal tibia fragment, left		1	0.3	Rat sized
		Unidentified bone fragments		19	0.9	
			Total:	**21**	**6.6**	

Feature 40

Feature 40 was discovered during power unit excavations of Trench 6 at site 40CY63 (see Figure 12). It is located in the extreme northwest section of Trench 6 at approximately 100 cmbs. It was initially recognized as a dark and greasy stain containing high concentrations of burned earth, charcoal, and lithic debitage. After initial scraping of the stain and areas surrounding it within Trench 6, Feature 40 was defined as a semicircular stain resembling a pit; it measured 125 x 100 cm in planview and appeared in the south wall profile of Trench 6 at 90 cmbs (Figure 16). Subsequent power unit excavations of Trench 18, extending southward from Trench 6 towards Trench 16, further defined Feature 40 as a circular pit that measured approximately 125 x 130 cm in planview (Figures 17 and 18). Its soil matrix consisted of a dark brown (10YR 3/3) silty clay loam surrounded by a slightly lighter 10YR 4/6 silty clay loam sub-soil.

The north half of Feature 40 was excavated to 110 cmbs. This fill was screened through 1/4-inch wire mesh. Because of its somewhat faint distinction compared to the surrounding soil the vertical extent was not apparent at this point. A trench was then excavated through middle portions of Feature 40 in an effort to better recognize its vertical extent or internal structure (Figure 18). This trench extended approximately 5 cm to the east and 20 cm to the west of the feature and measured 15 cm in depth. As a result, internal structure indicating a shallow pit measuring about 15 cm in depth, was recognized in profile (Figure 19). A 15 x 15 x 15-cm column sample (approximately 3.5 liters) was then excavated (Figure 18) and water screened though 1/16-inch wire mesh.

Cultural material recovered from Feature 40 consisted of 525 pieces of lithic debitage (see Table 9) and a side notched pp/k. This pp/k is morphologically different than the typical Middle Archaic side notched points recovered from the site. This is likely the result of extensive re-sharpening. It was found whole and in situ at 110 cmbs during initial excavations of the small trench that bisected the feature. It was manufactured out of thermally altered Ft. Payne chert. No bone or ceramics were recovered, however several fragments of hickory nutshell were discovered within the water screened column sample (see Table 12). Three charcoal samples were collected from Feature 40. One of the samples was submitted for radiocarbon dating and returned a date of 5560 ± 40 B.P. Feature 40 is interpreted as the location of a refuse pit created during the Middle Archaic period. The occurrence of the Thebes variant is thus difficult to explain.

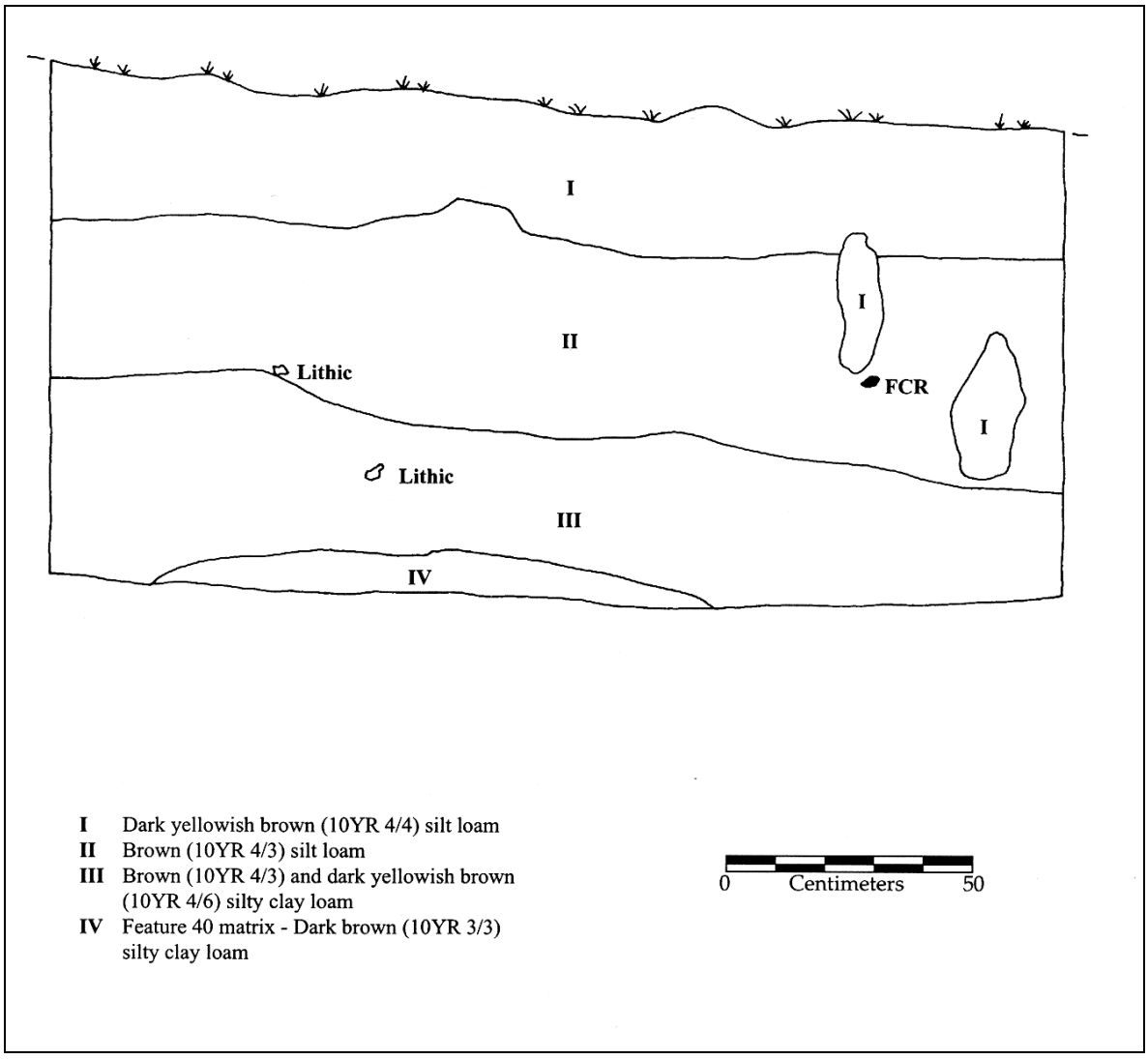


Figure 16. Profile of Feature 40 within the south wall of Trench 6.

Figure 17. Photograph of Feature 40 in planview within Trenches 6 and 18.

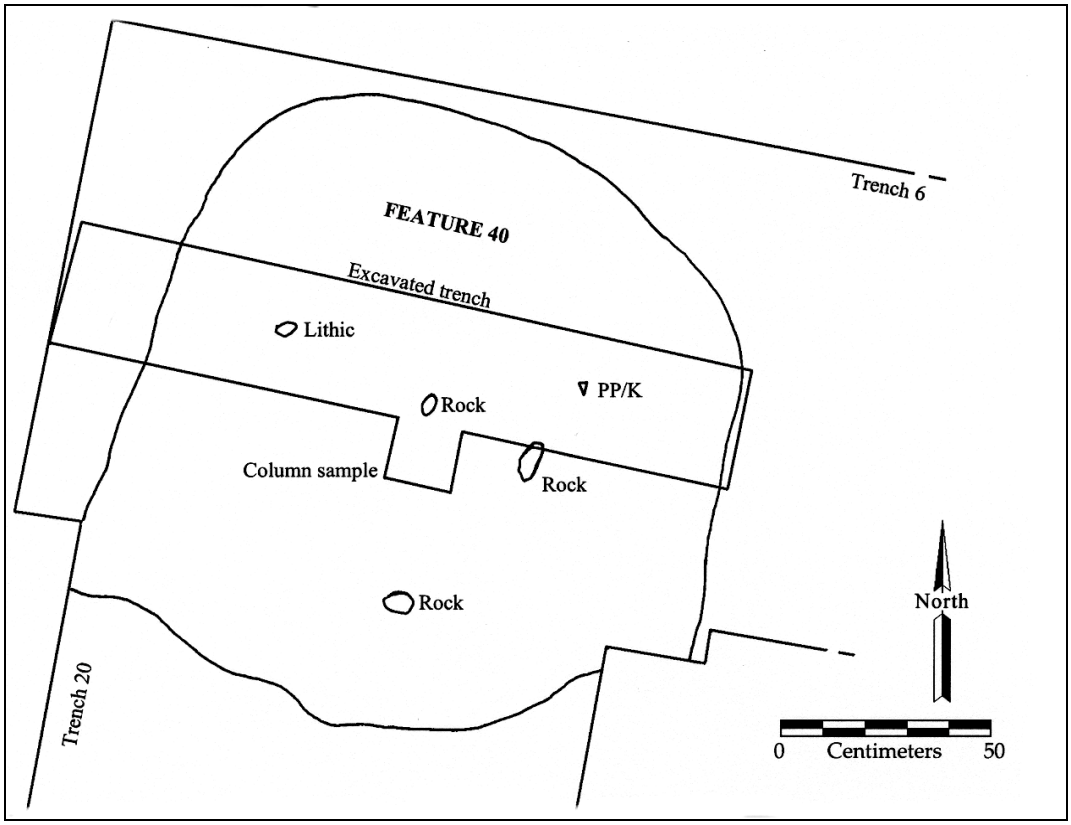


Figure 18. Planview of Feature 40.

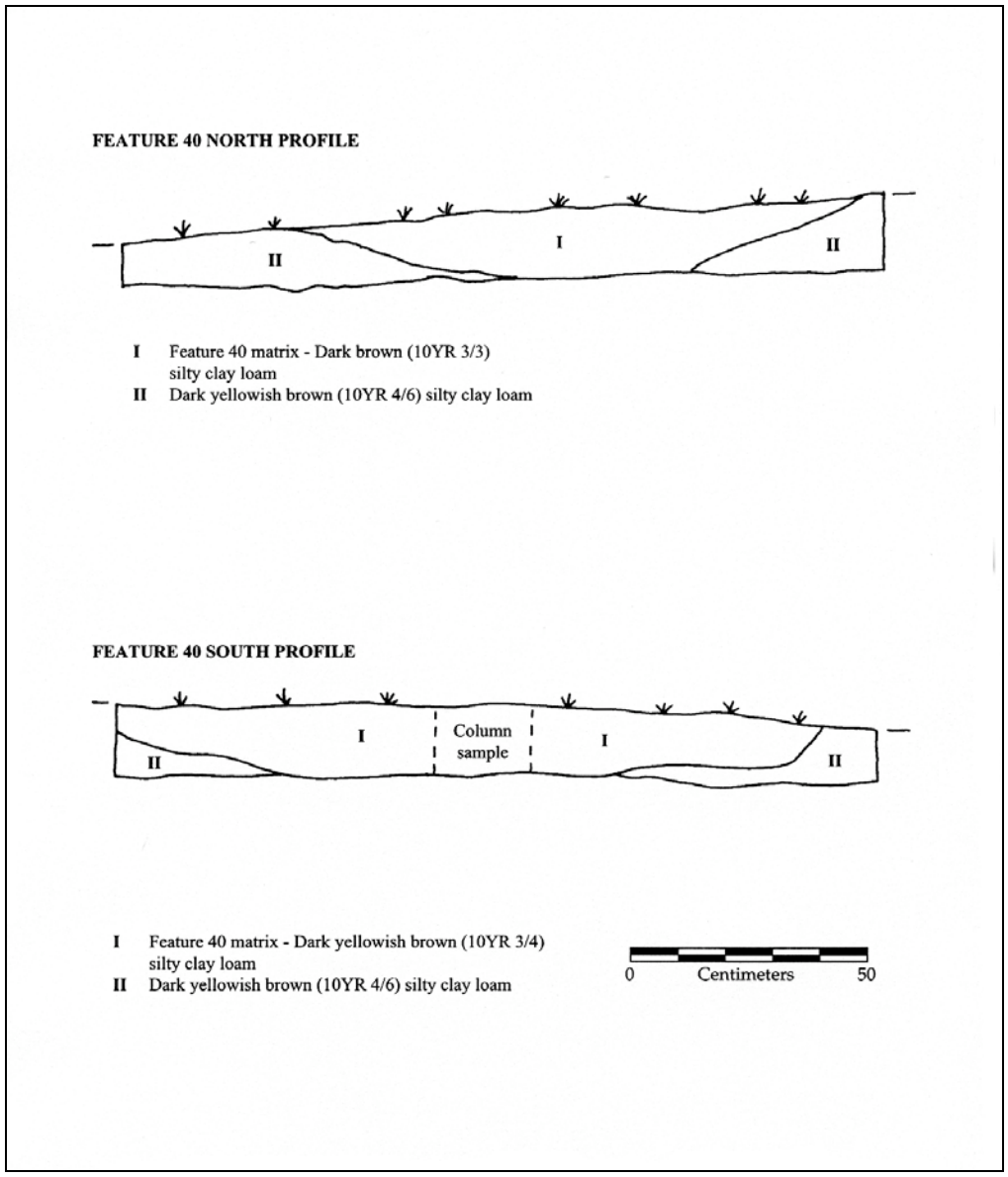


Figure 19. North and south wall profiles of trench bisecting Feature 40.

Backdirt Artifact Collection

Trench and pit backdirt piles were periodically visually inspected. The northwest, northeast, and middle sections of each pile were scanned and these general proveniences were recorded for each find. Seventy-three formal lithic tools were collected as a result. These included: 20 Middle Archaic side notched pp/ks, 2 Late Archaic stemmed variants, 1 Early Woodland Stemmed point, 4 Middle Woodland Stemmed pp/ks, 1 Middle Woodland lanceolate point, 5 hafted scrapers, 33 bifaces (whole or fragments), 1 asymmetrical knife fragment, 1 drill fragment, 1 ceramic sherd, 1 mortar, and 1 pestle. A summary of these artifacts according to provenience is provided below in Table 10.

Table 10. Artifacts Recovered from 40CY63 Trench Backdirt.

		Projectile Points						Bifaces					
Trench	*General Provenience*	*Middle Archaic Side Notched*	*Middle Archaic Stemmed*	*Late Archaic Stemmed*	*Early Woodland Stemmed*	*Middle Woodland Stemmed*	*Middle Woodland Lanceolate*	*Primary*	*Secondary*	*Tertiary*	*Hafted Scraper*	*Ceramic Sherd*	*Other*
4	NW								1		1		
	Mid.					1		1					1 Mortar
	NE							2					
5	NW	1											
	Mid.	4		1				2	4				1 Pestle
	NE					1	1						
6	NW	5	1					1	4	4	3		
	Mid.	1											
	NE												1 Knife
16	NW	1						1				1	
	Mid.								1				
	NE								1	1			1 Drill
18	General	7			1	2	1	2	7	1	1		
BHP #7	General	1											
	Totals:	**20**	**1**	**1**	**1**	**4**	**2**	**9**	**18**	**6**	**5**	**1**	**4**

40CY64

Test Unit Excavation

Two 1 x 1-m test units were excavated within the APE boundaries of site 40CY64 (Figure 20). Shovel test artifact densities and depths recorded during the Phase I survey of the SIA APE (Barker 2001:Tables 1 and 2) guided the placement of Test Units 1 and 2. Test Unit 11, also excavated at site 40CY64, measured 1 x 0.5 m. It was excavated adjacent to Feature 1A recognized in Trench 1. All three units were excavated in 10-cm arbitrary levels. Vertical and horizontal measurements associated with level depths and piece plotted artifacts were taken from the northeast corner of each unit.

Test unit excavation at 40CY64 revealed intact archaeological deposits containing lithic artifacts. Seven formal lithic tools (3 pp/ks) were recovered within test units at 40CY64. They are summarized below in Table 11. One Middle Archaic side notched point, and two Early Woodland Adena Stemmed points exhibiting ovate bases, were found. Over 1,754 pieces of lithic debitage were also recovered during test unit excavations at the site. These are summarized in Table 12.

Soil profiles of stratum recognized within test units excavated at the site are depicted in Figure 21. Overall, four natural stratum were recognized. Stratum I was characterized by a dark yellowish brown (10YR 3/4 to 4/4) silt loam. It was recognized in all units and represents a disturbed plowzone and averaged 20-cm thick. Stratum II was characterized by a dark yellowish brown (10YR 3/4) silt loam. It was present in Test Unit 1 below the plowzone and averaged about 30-cm in thickness. Stratum III can be described as a dark yellowish brown (10YR 4/6) sandy silt loam and was also only present in Test Unit 1. Stratum IV represented a yellowish brown (10YR 5/6) silty clay loam. It was discovered in all units. It was located only approximately 25 cmbs in Test Units 2 and 11, and was represented in Test Unit 1 as an odd shaped disturbance—possibly attributed to bio-turbation—in its east wall within Stratum II.

Table 11. Summary of Lithic Artifacts Recovered from Site 40CY64 Test Unit Excavations.

			Projectile Points/Knives		**Bifaces**			
Provenience	*Depth (cmbs)*	*Stratum*	*Middle Archaic Side Notched*	*Early Woodland Stemmed*	*Primary*	*Secondary*	*Tertiary*	*End Scraper*
Test Unit 1	10-20	I				1		
	20-30	II		1				
	30-40	II			1			
Test Unit 2	10-20	I					1	
	20-30	II	1	1				
Test Unit 11	10-20	I						1
		Totals:	**1**	**2**	**1**	**1**	**1**	**1**

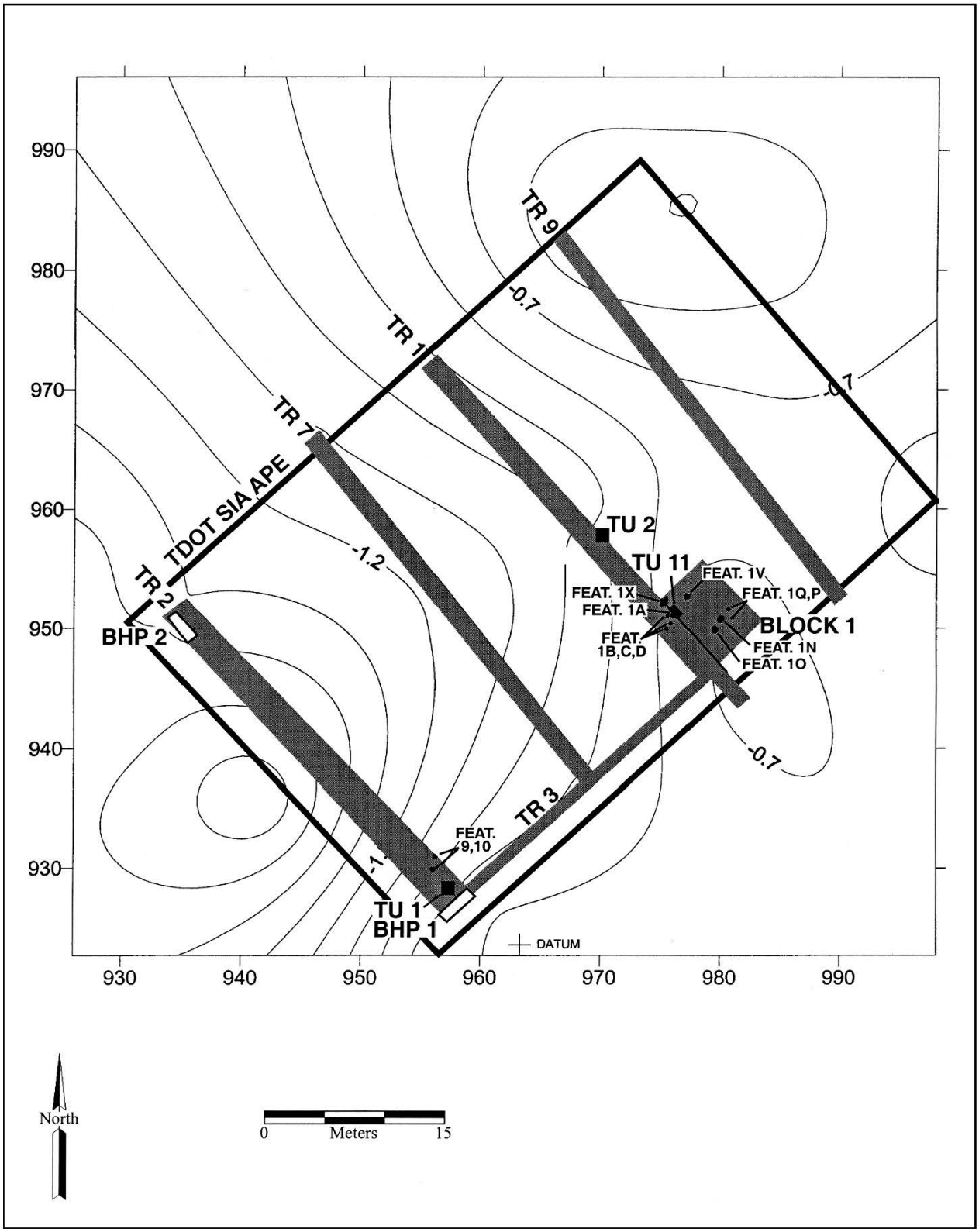


Figure 20. Planview of Phase II excavations at site 40CY64 within the SIA APE.

Table 12. Summary of Lithic Debitage Recovered from Site 40CY64.

Provenience	*Depth (cmbs)*	*Primary Flakes*	*Secondary Flakes*	*Tertiary Flakes*	*Utilized Flakes*	*Thinning Flakes*	*Core Fragments*	*Flake Fragments*	*Shatter*	*FCR*	***Level Total***
Test Unit 1	Lev. 1 (0-10)			3		1		3	6		**13**
	Lev. 2 (10-20)		1	7				41	15	13	**77**
	Lev. 3 (20-30)		1	8			1	40	14	19	**83**
	Lev. 4 (30-40)		5	20		2		71	36	30	**164**
	Lev. 5 (40-50)		3	5	2		1	57	10	10	**88**
	Lev. 6 (50-60)		1	2	1	1		25	7	5	**42**
	Lev. 7 (60-70)	1	1	5				23	6	4	**40**
	Lev. 8 (70-80)	1	5	10	3		1	27	6	8	**61**
	Lev. 9 (80-90)			2	3			13	6		**23**
	Lev. 10 (90-100)			2					1		**3**
										Unit Total:	**594**
Test Unit 2	Lev. 1 (0-20)					1		10	3	2	**16**
	Lev. 2 (20-30)		4	14	3	14	1	67	17	4	**124**
	Lev. 3 (30-40)	1	4	17	1	25		64	14	1	**127**
	Lev. 4 (40-50)	1	2	8	2	17	2	36	7	2	**78**
	Lev. 5 (50-60)		1	1		1		4	2		**9**
										Unit Total:	**354**
Test Unit 11	Lev. 1 (0-10)		3	1		2		13	3	5	**27**
	Lev. 2 (10-20)		10	4		11		46	8	11	**90**
	Lev. 3 (20-30)		14	4		15		35	4	34	**106**
	S. Wall (0-30)					1		2			**3**
										Unit Total:	**226**
										Grand Total:	**1174**

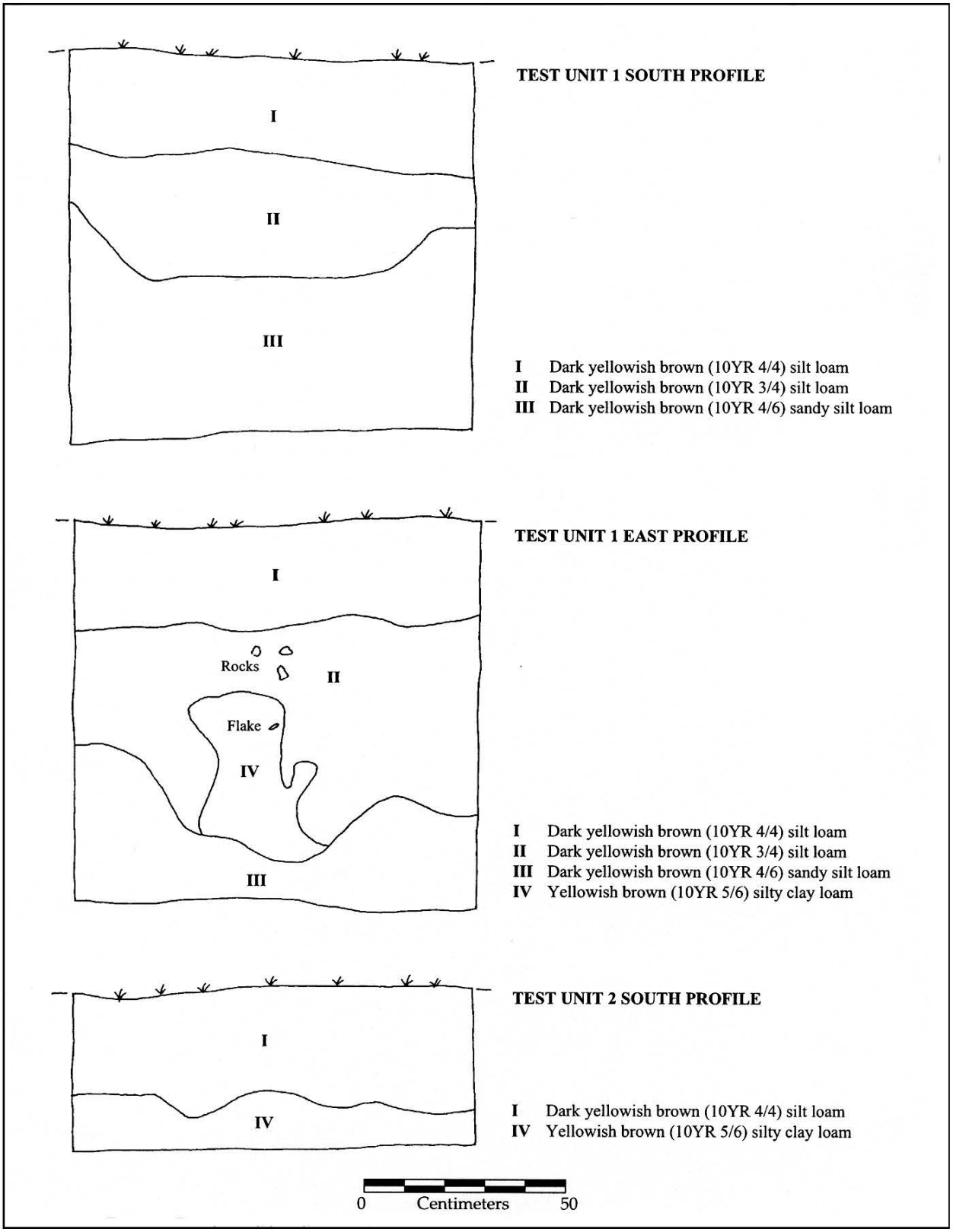


Figure 21. Test unit profiles from site 40CY64.

Test Unit 1

This unit was positioned in the extreme southern corner of site 40CY64 SIA APE boundaries (see Figure 20). It measured 1 x 1 m with a grid provenience of 928.80mN/957.84mE and a surface elevation of 42 cmbd. Test Unit 1 was excavated in 10-cm arbitrary levels. Excavation extended to 100 cmbs where sterile soil was encountered. No definite cultural features were encountered during hand excavation of this unit.

Artifacts were recovered from this unit consisted solely of lithic debitage and formal tools. Lithic debitage (n=594) dominated the artifact total recovered from Test Unit 1. The highest amount of debitage (n=164) occurred in Level 4 (see Table 12). Three formal tools were recovered in Test Unit 1 including a secondary biface fragment, a stemmed, un-notched Adena pp/k that can be temporally assigned to the Early Woodland period, and a primary biface fragment (see Table 11). The secondary biface fragment was found in situ and piece plotted (PP1) in Level 2 at 15 cmbs with a horizontal position of 32cmS/56cmW. A charred wood sample (PP3) was also collected and piece plotted within the general matrix of Level 4 at 35 cmbs vertically and 42cmS/22cmW horizontally; it was not one of the eight samples from the project submitted for C^{14} dating.

Test Unit 2

Test Unit 2 is located in the middle portion of site 40CY64 SIA APE boundaries (see Figure 20). It measured 1 x 1 m with a grid provenience of 958.23N/970.56E. Its surface elevation occurred at 35 cmbd and excavation extended 50 cmbs, where sterile soil was encountered. No cultural features were encountered during excavation of this unit.

Artifacts were recovered from Test Unit 2 and consisted of lithic debitage and formal tools. Lithic debitage (n=354) represented nearly all of the total artifacts recovered from the unit. Debitage amounts clustered in Level 2 (n=124) and Level 3 (n=127) (see Table 12). Three formal tools were recovered in Test Unit 2 and consisted of a tertiary biface fragment, a stemmed, un-notched Adena variant (Early Woodland period), and a Middle Archaic side notched pp/k (see Table 11). The side-notched pp/k fragment was found in situ and piece plotted (PP4) on the floor of Level 3 (30 cmbs) at a horizontal position of 27.5cmS/66cmW. A charred wood specimen (PP2) was collected and piece plotted vertically at 17 cmbs and horizontally 62cmS/41cmW in Level 2; it was not submitted for radiocarbon dating.

Test Unit 11

This unit is located in the central section of site 40CY64 SIA APE boundaries, just southeast of Test Unit 2 (see Figure 20). It measured 0.5 x 1 m with a provenience of 951.19N/976.82E and a surface elevation of 14 cmbd. Test Unit 11 was excavated as a result of initial discovery of Feature 1A. This feature was discovered during backhoe excavations of Trench 1, and at this stage appeared as a dark stain in the shape of a half

circle that extended into the north wall of the trench. The assumption was then made that it likely represented a refuse pit, of which the size and depth of definition would be completely delineated by excavation of Test Unit 11. This would also result in the collection of a controlled artifact sample above the feature. Description of the excavation of Feature 1A is provided later in this chapter. The excavation of Test Unit 11 consisted of the excavation of 10-cm arbitrary levels. Small portions of Feature 1A began to be recognized in Level 2 (10–20 cmbs). The feature became more defined throughout the top half of Level 3 (25 cmbs) and full definition became apparent at 30 cmbs.

Artifacts recovered from Test Unit 11 consisted of lithic debitage and one formal tool. Lithic debitage (n=226) represented nearly all of the artifacts recovered from the unit. Debitage amounts were highest in Level 2 (n=90) and Level 3 (n=106) (see Table 12). One formal tool, an end-scraper manufactured out of non- thermally altered Ft. Payne chert, was recovered in screened fill from Level 2 (10–20 cmbs) (see Table 11).

Backhoe Excavation

Initially, Trenches 1, 2, and 3 were excavated to subsoil. Trenches 1 and 2 were oriented in a northwest to southeast direction. Trench 1 measured 38 x 1.8 m; Trench 2 measured 35 x 2.4 m. Trench 3 was then excavated to connect Trenches 1 and 2. Trench 3 measured 27 x 0.6 m. Trench 7 measured 36 x 1.2 m and was positioned midway between and parallel to Trenches 1 and 2 (see Figure 20). Trench 9 was positioned approximately 12 m northeast of Trench 1 and measured 38 x 1.2 m. One block (Block 1) was excavated at the site. Block 1 was positioned adjacent to the Trench 1 north wall in the southeastern section and measured 7 x 5 m. Two backhoe pits (BHP 1 and BHP 2) were also excavated at the site and were positioned at either end of Trench 2.

Overall depths to subsoil were shallower in the northeastern section of site 40CY64 than in the southeastern section where sediment has accumulated within the T1 remnant. For example, the depth of Trench 9 averaged an even 35 cmbs throughout. Trench 1 was shallow (25–30 cmbs) in the southeastern section and dipped to approximately 80 cmbs in its northwestern section. Trench 7 was deep and averaged 100–120 cmbs. Trench 2 extended to 120 cmbs in the southeastern section, rose to an average of 30 cmbs in central portions, and dipped to over 140 cmbs in its northwestern section. Trench 3 was deep (120 cmbs) at its terminus with Trench 2 and rose to about 30 cmbs at its junction with Trench 1. Depth to subsoil in Block 1 averaged a depth of approximately 33 cmbs throughout its confines.

Thirty-eight features were discovered on trench and block surfaces at site 40CY64. Five of these features were investigated within Trench 2, two of which were determined to be post molds (Table 13, Figure 22). Ten features were excavated within Trench 1 and Block 1 including five post molds and five refuse pits (Table 14). Twenty-six features were recognized on the surfaces of Trench 1 and Block 1, representing the remains of a domestic structure (Figures 23 and 24).

Table 13. Summary of Features Located in Trenches 2 and 3 at Site 40CY64.

Feature Number	Trench Location	Depth Below Datum (cm)	Shape	Feature Type	Max. Size (cm)	Depth (cm)	Comments	Recovery 1/4	Recovery 1/16	Recovery Flot.
5*	2	104	circular	burned soil area	15 X 15	50	Diffuse charcoal throughout	X		
6	2	95	oval	undetermined	45 X 30	-	Faint soil stain			
6b*	2	94	circular	burned soil area	6 X 6	5	Shallow charcoal concentration	X		
7	2	98	semi-circular	refuse pit	34 X 10	-	Dark organic stain			
8*	2	97	circular	burned soil area	15 X 15	6	Shallow charcoal concentration	X		
9*	2	107	semi-circular	post mold	12 X 8	15	Burned charcoal throughout	X		
10*	2	104	circular	post mold	5 X 5	14	Burned charcoal throughout	X		
11	2	120	oblong	undetermined	30 X 5	-	Faint soil stain			
11b	2	122	semi-circular	refuse pit	25 X 10	-	Shallow, dark stain, nut shell present			
12	3	124	circular	natural soil stain	24 X 24	-	Probable root disturbance			
13	3	126	circular	natural soil stain	20 X 20	-	Probable root disturbance			
14	3	43	semi-circular	undetermined	56 X 22	-	Faint soil stain			

Table 14. Summary of Features Located in Block 1 and Trench 1 at Site 40CY64.

Feature Number	Shape	Feature Type	Max. Size (cm)	Depth (cm)	Comments	Recovery		
						1/4	1/16	Flot.
1A*	circular	refuse pit	80 X 80	20	C^{14} Age=2300 ± 40 B.P.	X		X
1B*	circular	post mold	15 X 15	12.5	dense charcoal content at surface	X		
1C*	circular	post mold	15 X 15	16	dense charcoal content at surface	X		
1D*	circular	post mold	15 X 15	15	dense charcoal content at surface	X		
1E	circular	possible post mold	10 X 10	-	dense charcoal concentration			
1F	circular	possible post mold	15 X 15	-	dense charcoal concentration			
1G	circular	possible post mold	10 X 10	-	dense charcoal concentration			
1H	circular	possible post mold	15 X 15	-	dense charcoal concentration			
1I	oblong	undetermined	130 X 100	-	large faint stain, diffuse artifact concentration			
1J	circular	possible post mold	10 X 10	-	diffuse charcoal concentration			
1K	circular	possible post mold	15 X 15	-	diffuse charcoal concentration			
1L	circular	possible post mold	15 X 15	-	diffuse charcoal concentration			
1M	circular	possible post mold	15 X 15	-	diffuse charcoal concentration			
1N*	circular/oblong	refuse pit	100 X 80	24	very dark organic stain	X	X	
1O*	circular	refuse pit	80 X 80	7	faint stain, shallow	X		
1P*	circular	post mold	10 X 10	10	dense charcoal content at surface	X		
1Q*	circular	post mold	15 X 15	13	C^{14} Age=2240 ± 40 B.P.	X		
1R	circular	possible post mold	15 X 15	-	dense charcoal concentration			
1S	circular	possible post mold	10 X 10	-	diffuse charcoal concentration			
1T	circular	possible post mold	10 X 10	-	diffuse charcoal concentration			
1U	circular/oval	possible refuse pit	70 X 60	-	faint stain			
1V*	circular	refuse pit	50 X 50	6	very dark organic stain, dense bone content	X	X	
1W	circular	possible post mold	10 X 10		dense charcoal concentration			
1X*	semi-circular	refuse pit	120 X 40	32	C^{14} Age=2420 ± 40 B.P.	X	X	
1Y	oval	possible refuse pit	60 X 45	-	faint stain			
1Z	circular	possible refuse pit	46 X 49	-	faint stain			

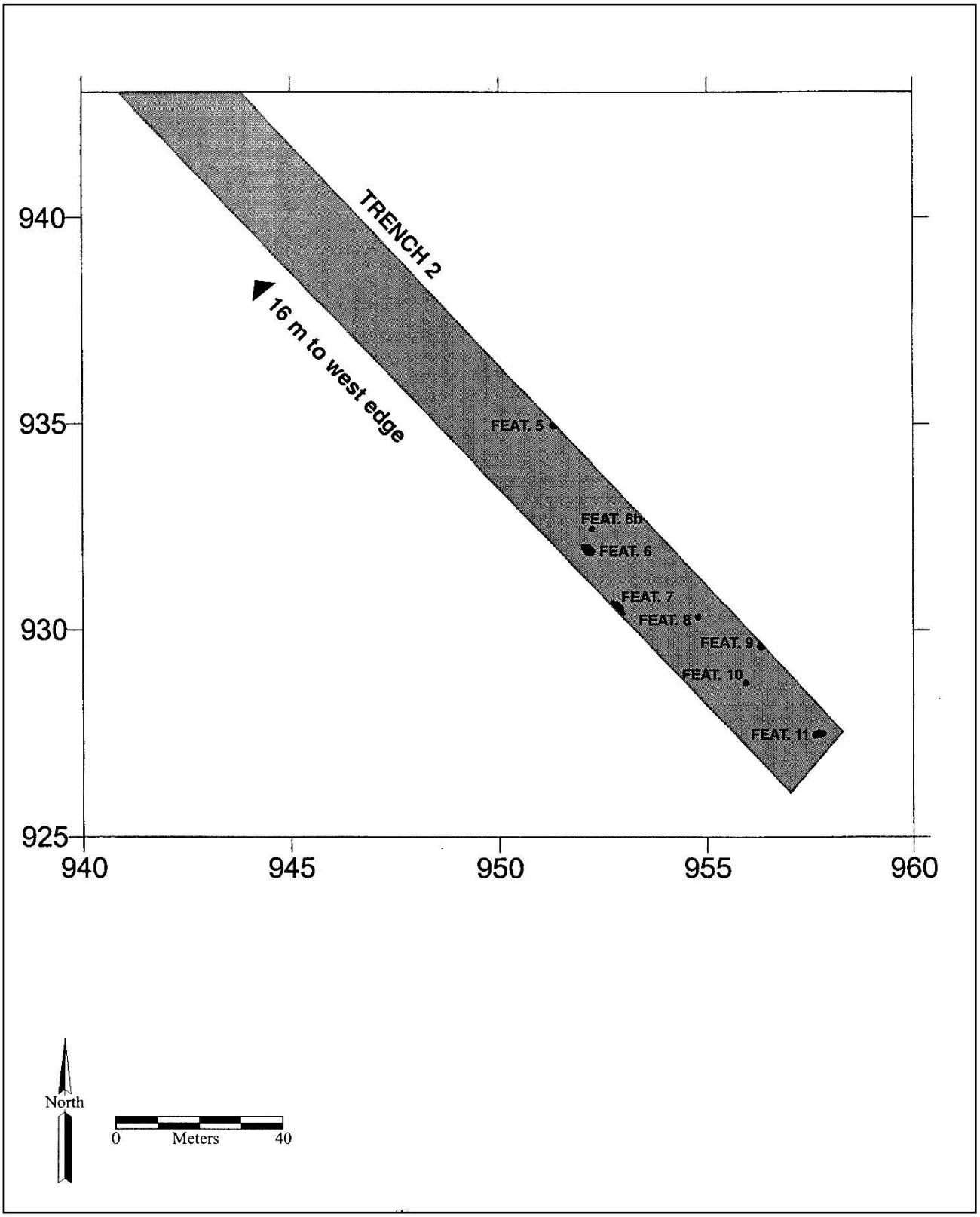


Figure 22. Planview of features located in Trench 2.

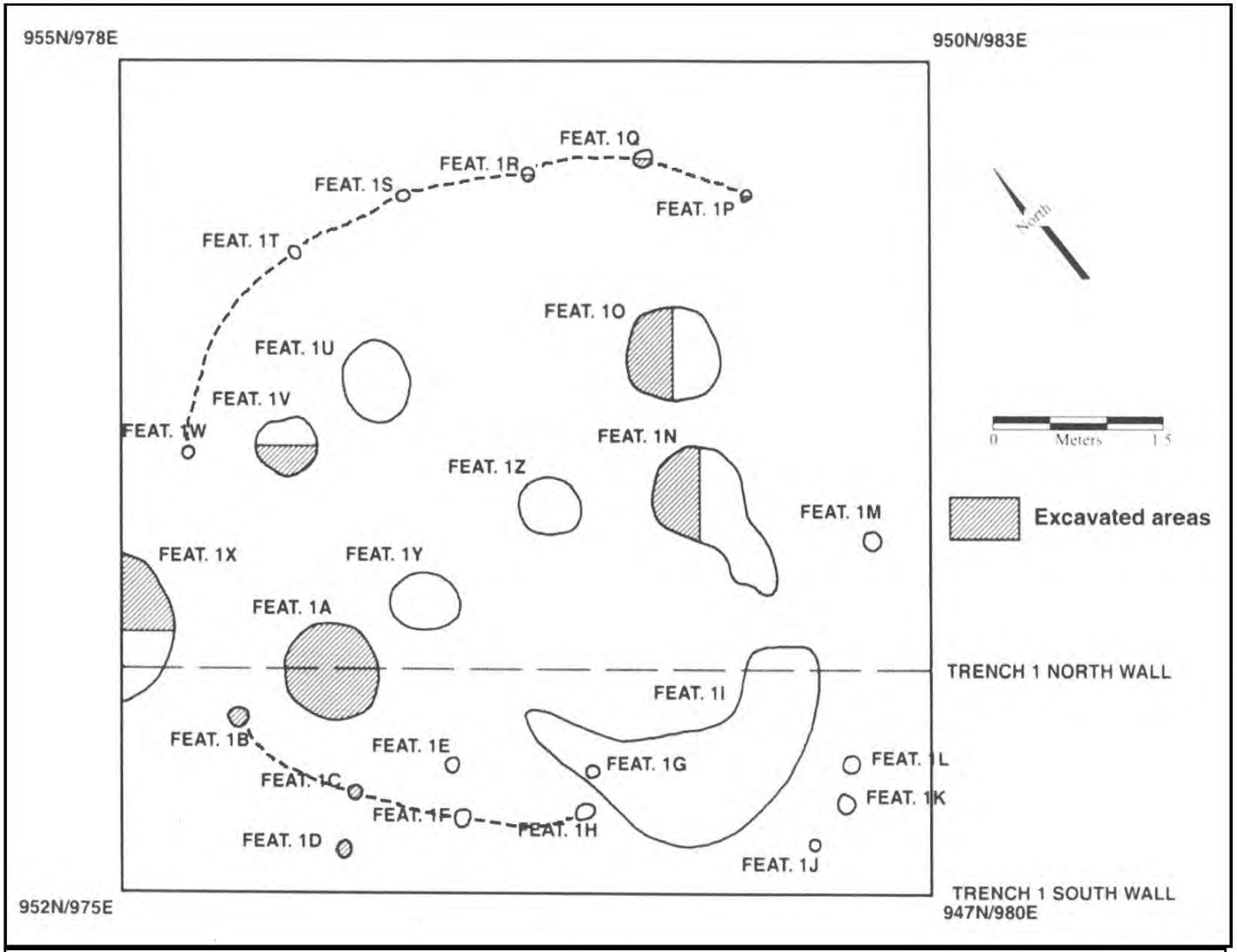


Figure 23. Planview of structure recognized in Block 1 and Trench 1 at site 40CY64.

Figure 24. Photograph of Block 1 domestic structure.

Features

Trench 2

Feature 5

Feature 5 was discovered during excavations of Trench 2 and is located in the central section of this trench (see Figure 22). The feature consisted of a semicircular stain containing concentrations of charcoal that continued into the Trench 2 north wall and appeared to be a possible post mold. Feature 5 measured 15 x 15 cm, was positioned vertically at 30 cmbs, and was characterized by a brown (10YR 4/3) silty clay loam surrounded by a yellowish brown (10 YR 5/6) silty clay loam. Investigation of this feature involved trowel excavation to 34 cm below the surface of Trench 2. Charcoal concentrations were heavy during the first 5 cm of excavation and became very diffuse thereafter. No internal structure or uniformity was recognized in profile and no artifacts were recovered. Feature 5 is best described as an area of burned soil.

Feature 6b

Feature 6b is also located in Trench 2 approximately 2 m east of Feature 5. It also consisted of a semicircular stain (15 x 15 cm) containing concentrations of charcoal and resembled a post mold. It occurred vertically at 32 cmbs and was characterized by a very dark grayish brown (10YR 3/2) silt loam. Trowel excavation extended to 10 cm below the trench surface. Charcoal became diffuse immediately and disappeared within a few centimeters. No uniformity was recognized in profile and no artifacts were recovered. Like Feature 5, Feature 6b was determined to be the location of a burned soil area.

Feature 8

This feature is located in the southeastern section of Trench 2 about 3 m east of Feature 6b. It was also a suspected post mold—characterized by a circular stain (20 x 20 cm) containing a concentration of charcoal. It occurred vertically at 42 cmbs and was characterized by a very dark grayish brown (10YR 3/2) silt loam. Charcoal disappeared immediately upon trowel excavation. Excavation proceeded to 14 cm below the trench surface and no uniformity was recognized in profile and no artifacts were recovered. Thus, Feature 8 was also determined to be the location of some sort of burned soil area.

Feature 9

Feature 9 is located in the southeastern section of Trench 2 approximately 1.5 m north of Feature 8. It was characterized by a semicircular stain (15 x 15 cm) that continued into the Trench 2 north wall and contained concentrations of charcoal. It occurred vertically at approximately 56 cmbs and consisted of a very dark grayish brown (10YR 3/2) silt loam surrounded by a yellowish brown (10 YR 5/6) silty clay loam subsoil. Trowel excavation of this feature extended to 15 cm below the trench surface. There was a consistent presence of charcoal throughout the feature fill. This uniformity was clearly recognized in profile (Figure 25). Feature 9 was determined to be the location of a post mold.

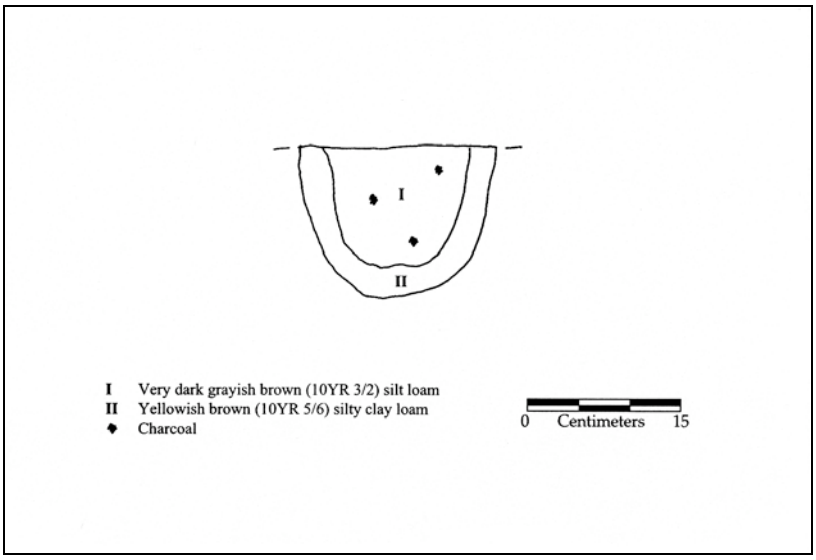


Figure 25. Profile of Feature 9.

Feature 10

Feature 10 is located in the southeastern section of Trench 2 just southeast of Feature 9, a post mold. It was characterized by a circular stain (13 x 13 cm) containing concentrations of charcoal. It occurred vertically at approximately 58 cmbs and consisted of a very dark grayish brown (10YR 3/2) silt loam surrounded by a yellowish brown (10 YR 5/6) silty clay loam subsoil. Trowel excavation of this feature extended to 15 cm below the trench surface. As with Feature 9, there was a consistent presence of charcoal throughout the feature fill. This uniformity was clearly recognized in profile (Figure 26). Feature 10 was determined to be the location of a post mold.

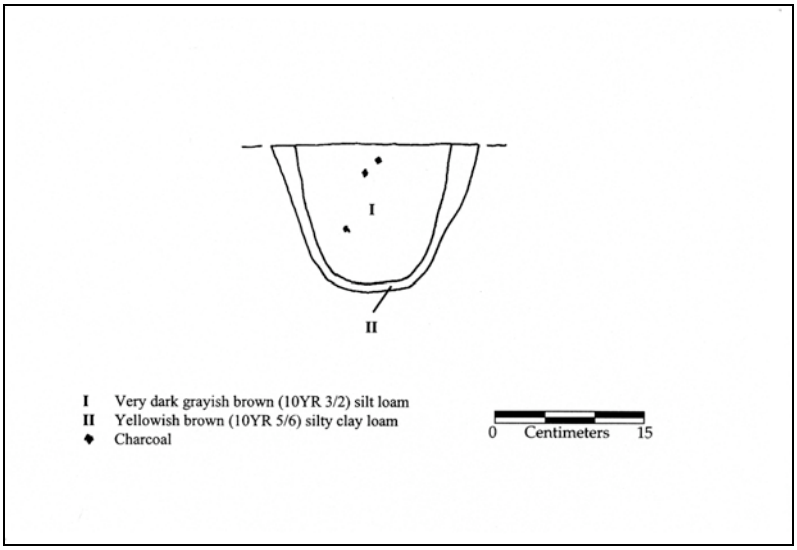


Figure 26. Profile of Feature 10.

Block 1

Excavation of Block 1, measuring 7 x 5 m, resulted in the exposure of a structure that included 26 associated features—17 post molds and 9 pits (see Figure 23, Figure 24, and Table 1). The close proximity of the features suggests a shared and intentional function for the cluster, an interpretation born out by the excavated evidence. Five of the features, Feature 1A, 1N, 1O, 1V, and 1X, are interpreted as refuse pits as a result of excavations. Charred wood collected from Features 1A and 1X and a post mold, Feature 1Q, returned uncalibrated C^{14} dates of 2300 ± 40 B.P., 2240 ± 40 B.P., and 2420 ± 40 B.P. respectively, and dates the structure to the Early Woodland period. Given the presence of five refuse pits and five post molds in association with several other suspected features of this type, the cluster recognized in Block 1 is interpreted as the location of a domestic structure. The unique configuration of Feature 1I, a large shallow stain, in association the suspected post mold Features 1G, 1J, 1K, and 1L suggests this area may have served as the entrance to the structure.

Feature 1A

Feature 1A was initially defined as a dark semicircular stain in the southeastern section of the Trench 1 north wall during power unit excavations (see Figure 20). An additional view of its extent was revealed during excavation of the southwestern section of Block 1 (see Figures 23 and 24). Excavation of Test Unit 11 provided a controlled sample of artifacts above Feature 1A and revealed its full horizontal extent. As a result, Feature 1A was defined as a dark, circular stain measuring approximately 76 x 75 cm (Figures 27 and 28). Its soil matrix consisted of a dark brown (10YR 3/3), greasy, silty clay loam surrounded by a yellowish brown (10YR 5/6) silty clay loam subsoil.

The south half of this feature was trowel excavated to 20 cmbs and its fill was screened through 1/4-inch wire mesh. No internal stratigraphy was recognized in profile (Figures 29 and 30). The north half of Feature 1A was then divided in half and the northwest quarter was excavated in the same manner as the south half. The northeast quarter was then collected as a flotation sample with a volume of approximately 29.5 liters.

Cultural material recovered as a result of excavations of Feature 1A is summarized in Tables 21–23 and included lithic debitage, nondiagnostic pp/k fragments, several ceramic sherds, and sizable amounts of fire cracked rock. Four additional nondiagnostic pp/k fragments were recovered during excavations of the south half. Archaeobotanical remains recovered from the flotation sample of Feature 1A consisted of high amounts of carbonized hickory nutshell and wood with lower amounts of seed fragments, and walnut and acorn shell (see Table 24). Animal bone collected from the feature included a few fragments of white tailed deer bone and several additional small, unidentifiable fragments. Three charcoal samples were collected from Feature 1A—one of which was submitted for C^{14} dating and returned a date of 2300 ± 40 B.P.

The size, shape, and contents of Feature 1A supports the interpretation that it is the location of a refuse pit used to discard broken tools, fire cracked rock fragments, pottery, plant material and animal bone.

Table 15. Lithic Debitage Recovered from Site 40CY64 Screened (1/4 in.) Feature Fill.

Provenience	*Depth (cmbs)*	*Primary Flakes*	*Secondary Flakes*	*Tertiary Flakes*	*Utilized Flakes*	*Thinning Flakes*	*Core Fragments*	*Flake Fragments*	*Shatter*	*FCR*	***Feature Total***
Feat. 1A S ½	(30-50)	3	9	3	1	16		33	6	28	**99**
Feat. 1A NW ¼	(30-50)		7	3		4		13	10	14	**51**
Feat. 1C	(30-46)		1								**1**
Feat. 1N W ½	(30-55)	1	3	10	1	103		74	22	31	**245**
Feat. 1N Column	(30-55)		1			8		3	2	9	**23**
Feat. 1O W ½	(30-37)					11		9	4	2	**26**
Feat. 1Q W ½	(30-57.5)					3					**3**
Feat. 1V S ½	(30-35)					2		1			**3**
Feat. 1X N ½	(25-90)	2	3	1	1	8	1	6	10	21	**53**
										Total:	**504**

Table 16. Ceramics Recovered from Site 40CY64 Features.

Provenience	**Cord Marked**	**Fabric Impressed**	**Plain**	**Eroded**	**Temper**	**Body**	**Rim**	**Total**
Feat. 1A S ½ & NW ¼	47	1	2	2	Limestone	49	3	**52**
Feature 1N W ½	12		1	4	Limestone	13	4	**17**
Feature 1X N ½	37		2*	4	Limestone	39	4	**43**
Total:	**96**	**1**	**5**	**10**		**101**	**11**	**112**

* 1 of 2 untempered

Table 17. Additional Artifacts Recovered from Site 40CY64 Features.

Provenience	**Fraction**	**Artifact**	**Count**
Feat. 1 NE ¼ (flotation sample)	+2mm	Lithic debitage	859
	+2mm	Core fragment	1
	+2mm	Projectile point fragments (distal tips)	2
	+2mm	FCR	40(1789.4 g)
	+2mm	Baked clay	682 (61.17 g)
		Total:	**1584**
Feat. IN W ½ (1/16 in. water screened fill)	+2mm	Flakes	208
Feat. IV S ½ (1/16 in. water screened fill)	+2mm	Flakes	2
	+2mm	Possible ceramic	1
		Total:	**211**

Table 18. Archaeobotanical Remains Recovered from 40CY64 Feature Flotation Samples.

Provenience	Fraction	Material		Weight (g)	Count
Feat. 1A NE ¼ (flotation sample)	+2mm	Wood		2.36	224
	+2 mm	Bark		0.14	16
	+2 mm	Hickory nutshell (*Carya* sp.)		8.03	487
	+2 mm	Walnut shell (*Juglans* sp.)		0.49	8
	+2 mm	Acorn shell (*Quercus* sp.)		<0.01	1
	+2 mm	Nutshell (hazelnut?—*Corylus Americana)*		<0.01	1
	+2 mm	Unidentified seed fragments		0.02	7
	1-2 mm	Unidentified seeds		<0.01	2
	+2 mm	Indeterminate		0.23	40
			Total:	**11.27**	**786**
Feat. IN W ½ (1/16 in water screened fill)	+2 mm	Wood		0.36	19
	+2 mm	Hickory nutshell (*Carya* sp.)		1.06	67
	+2 mm	Acorn shell (*Quercus* sp.)		<0.01	6
	1-2 mm	Unidentified seed		<0.01	1
			Total:	**1.42**	**93**
Feat. IV S ½ (1/16 in water screened fill)	+2 mm	Wood		<0.01	2
	+2 mm	Hickory nutshell (*Carya* sp.)		0.05	6
			Total:	**0.05**	**8**

Table 19. Faunal Remains Recovered from Site 40CY64 Features.

Provenience	Fraction	Description	Species	Count	Weight (g)	Comment
Test unit 11 Lev. 2 (¼ in. screened fill)	N/A	Unidentified bone fragments		**3**	**0.8**	Mammal
Test unit 11 Lev. 3 (¼ in. screened fill)	N/A	Long bone shaft fragment		1	1.1	Likely white tailed deer
		Unidentified bone fragments		2	0.7	Mammal
			Total:	**6**	**2.6**	
Feat. 1A S ½ (¼ in. screened fill)	N/A	Distal metacarpal shaft fragment *(foot-frontlimb)*	*Odocoileus virginianus*	1	1.4	White tailed deer, indeterminate side
	N/A	Proximal 1st phalanx fragment *(foot)*	*Odocoileus virginianus*	1	0.6	White tailed deer, right side, fused
	N/A	Long bone shaft fragment		1	1.0	Mammal, 3 refitted fragments
	N/A	Complete 3rd phalanx *(hindlimb)*	*Odocoileus virginianus*	1	3.2	White tailed deer, right side

Table 19. Faunal Remains Recovered from Site 40CY64 Features cont.

Provenience	Fraction	Description	Species	Count	Weight (g)	Comment
	N/A	Unidentified bone fragments		290	8.5	Mammal and animal
Feat. 1A NW ¼ (¼ in. screened fill)	N/A	Metapodial shaft fragment	*Odocoileus virginianus*	1	2.7	White tailed deer indeterminate side, cut
Feat. 1A NE ¼ (flotation sample)	+2mm	Distal metacarpal *(foot-front-limb)*	*Odocoileus virginianus*	1	11.4	White tailed deer right side, fused
	+2mm	Complete snake vertebra	Family Colubridae	1	0.2	Non-poisonous snake
	+2mm	Distal tibia fragment	*Sylvilagus* spp	1	0.2	Rabbit, left side, burned
	+2mm	Fish bone fragments	Class Osteichthyes	2	0.1	Unidentified elements
	+2mm	Unidentified bone fragments		322	11.99	Mammal and animal
			Total:	**621**	**41.29**	
Feat. 1N W ½ (¼ in. screened fill)	N/A	Distal 1st phalanx fragment *(foot)*	*Odocoileus virginianus*	1	0.6	White tailed deer, left side
	N/A	Unidentified bone fragments		51	1.3	Mammal
Feat. 1N W ½ (1/16 in. water screened fill)	+2mm	Unidentified bone fragments		15	0.8	Mammal and animal
			Total:	**67**	**1.9**	
Feat. 1V S ½ (¼ in. screened fill)	N/A	Long bone shaft fragments		7	1.4	Likely White tailed deer
	N/A	Unidentified bone fragments		38	19.4	Mammal and animal
Feat. 1V S ½ (1/16 in. water screened fill)	+2mm	Unidentified bone fragments		470	5.5	Animal
			Total:	**515**	**26.3**	
Feat. 1X E ½ (¼ in. screened fill)	N/A	Proximal 1st phalanx fragment *(foot)*	*Odocoileus virginianus*	1	0.5	White tailed deer, right side
	N/A	Unidentified bone fragments		52	1.5	Mammal
			Total:	53	2.0	

Figure 27. Photograph of Feature 1A in planview.

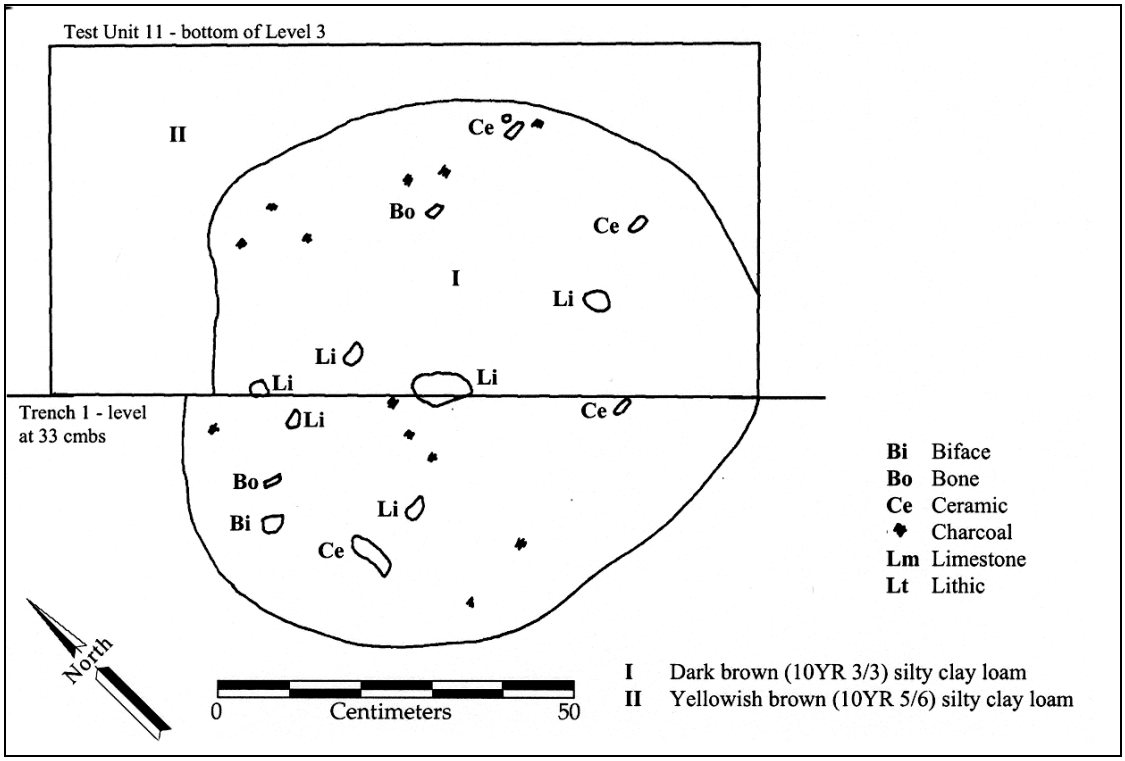


Figure 28. Planview of Feature 1A.

Figure 29. Photograph of Feature 1A south-half profile.

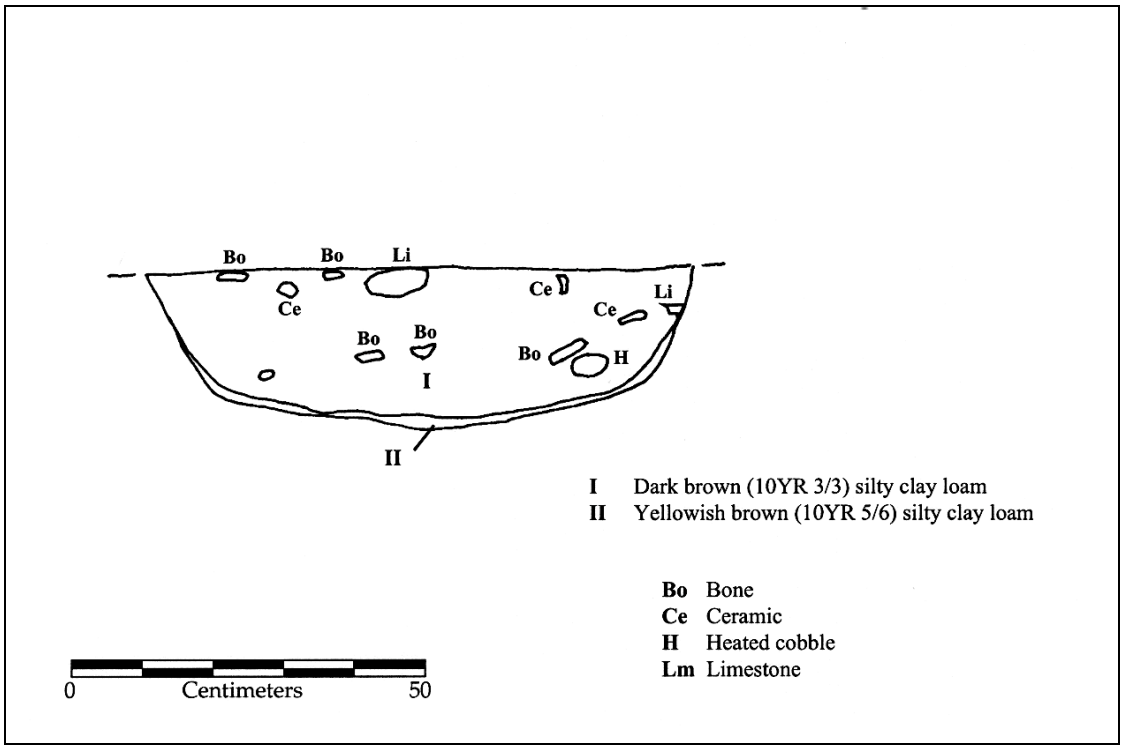


Figure 30. Feature 1A south-half profile.

Features 1B, 1C, and 1D

Features 1B, 1C, and 1D are located in southeastern portions of Trench 1, just south of Feature 1A, and appear to be associated with it and other features exposed within Block 1 (see Figure 23, Figure 24, and Table 20). All three features were initially recognized as circular stains containing high concentrations of charcoal and were thought to be post molds. They measured on average about 13 x 13 cm. Feature 1B was trowel excavated to 12 cmbs and excavation of Features 1C and 1D extended to 15 cm below the trench surface. One secondary flake manufactured out of heat-treated Ft. Payne chert was recovered from Feature 1C. Charcoal concentrations remained uniform throughout the excavation and this uniformity was clearly recognized in profile (Figure 31). Features 1B, 1C, and 1D are post molds associated with a possible structure that may have been located in the area exposed by Block 1 and Trench 1.

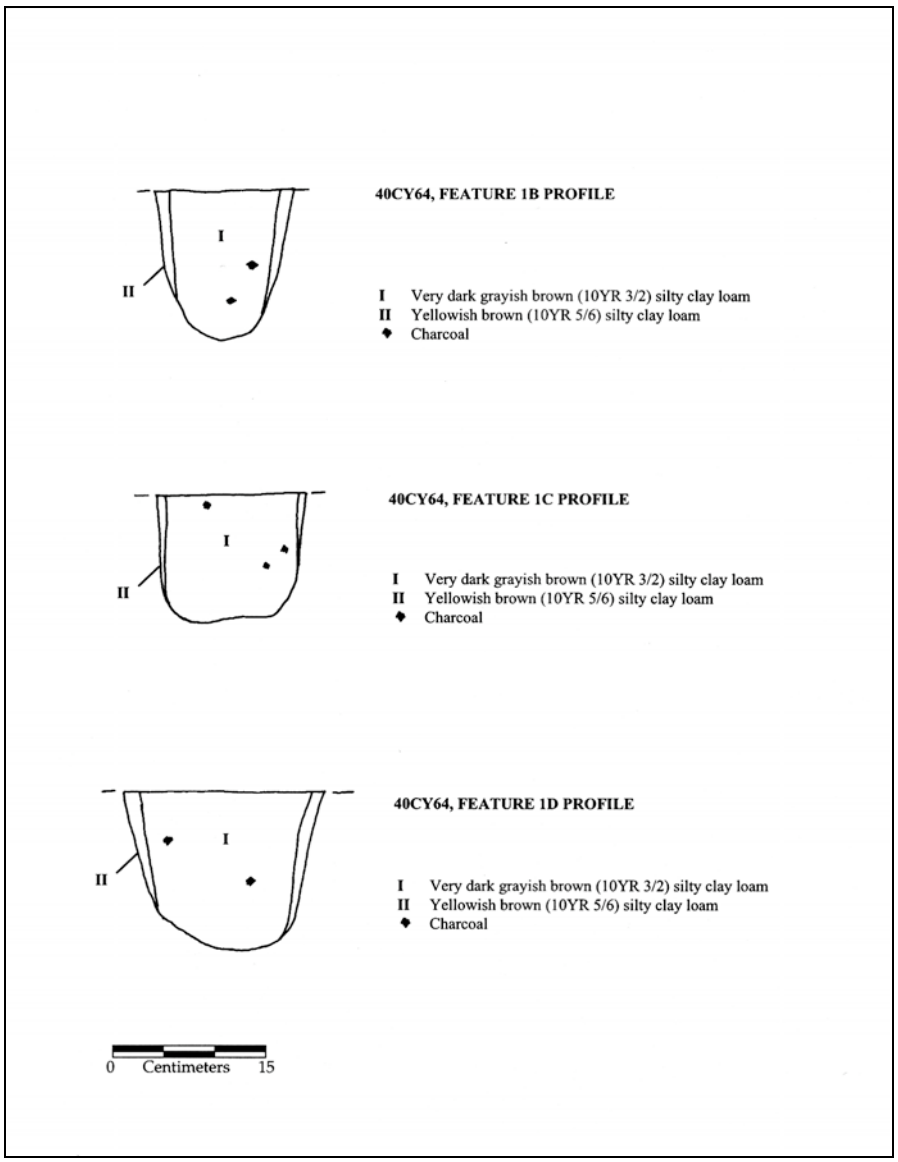


Figure 31. Profiles of Features 1B, 1C, and 1D.

Feature 1N

Feature 1N was initially discovered in the central section of Block 1 during power unit excavations (see Figures 23 and 24). This feature was characterized by a dark circular and oblong stain measuring 121 x 84 cm; it contained concentrations of charcoal, burnt clay, bone, and lithic debitage in planview (Figure 32) and occurred vertically at approximately 30 cmbs. The feature soil matrix consisted of a very dark grayish brown (10YR 3/2), greasy, silty clay loam to a dark brown (10YR 3/3) sandy silt loam surrounded by a yellowish brown (10YR 5/6) silty clay loam subsoil.

The west half, within its most rounded portion, was trowel excavated to 26 cmbs and its fill was screened through 1/4-inch wire mesh. No internal stratigraphy was recognized within its profile as a result (Figures 33 and 34). A 10 x 10 x 25-cm (2.5 liters) column sample located in the central portion of the east half or the heart of the feature was collected and water screened through 1/16 wire mesh.

Cultural material recovered as a result of excavations of Feature 1N is summarized in Tables 21–23; cultural material included lithic debitage and several ceramic sherds. The ceramics seemed to be clustered near the outer walls of the feature. Archaeobotanical remains recovered from the water screened column sample consisted of mostly of carbonized hickory nutshell fragments (see Table 24). The amount of animal bone collected from Feature 1N was much lower than the amount found in Feature 1A. Only one white-tailed deer bone fragment and several small, unidentifiable fragments were recovered (see Table 25). Two charcoal samples were collected from Feature 1N, one near its surface and one at its base—neither of which was submitted for C^{14} dating. Feature 1N is a refuse pit used to discard pottery, plant material, and animal bone.

Figure 32. Photograph of Feature 1N in planview.

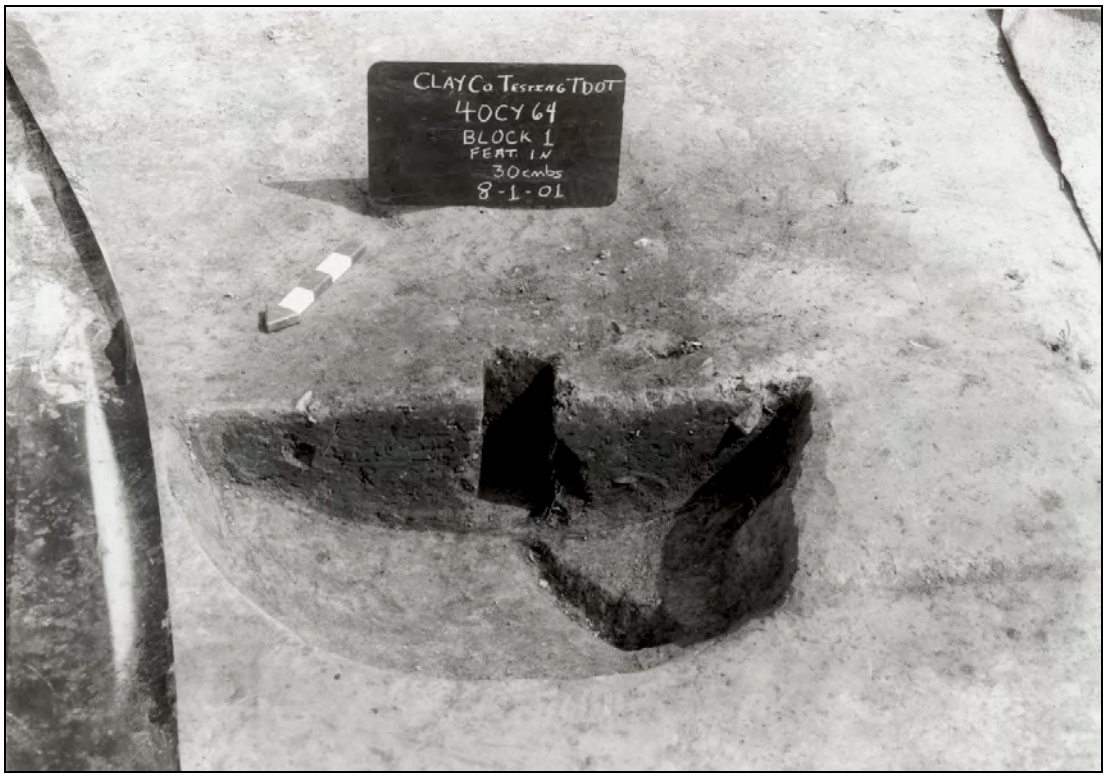


Figure 33. Photograph Feature 1N west-half profile.

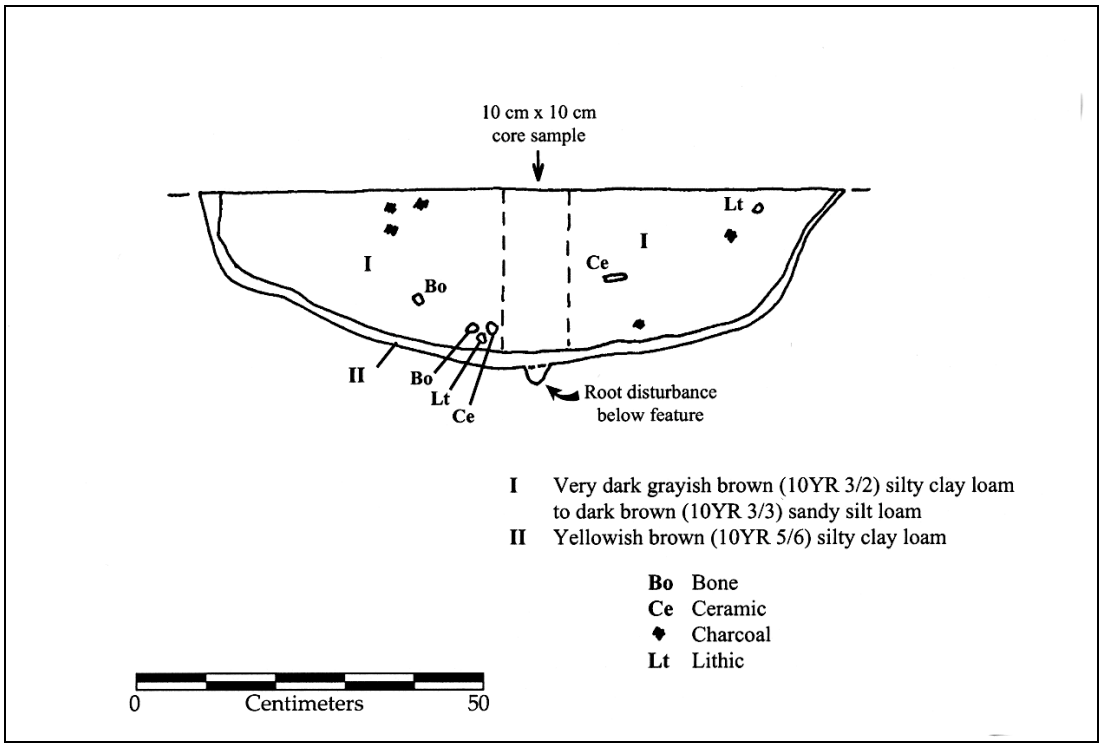


Figure 34. Feature 1N west-half profile.

Feature 1O

This feature is located approximately 40 cm north of Feature 1N in Block 1 (see Figures 23 and 24). It is characterized by a moderately dark, circular stain measuring 81 x 85 cm in planview. Like all other features and soil disturbances within Block 1 it was exposed at approximately 30 cmbs. Its soil matrix is characterized by a brown (10YR 4/3) silt loam surrounded by a yellowish brown (10YR 5/6) silty clay loam.

The west half of Feature 1O was trowel excavated to 7 cm below its surface. No internal stratigraphy was recognized in profile (Figure 35). The fill was screened through 1/4-inch wire mesh. No flotation sample was collected from the feature. Cultural material recovered from screened fill consisted exclusively of lithic debitage (see Table 21). Feature 1O is the location of a shallow pit associated with other features in Block 1.

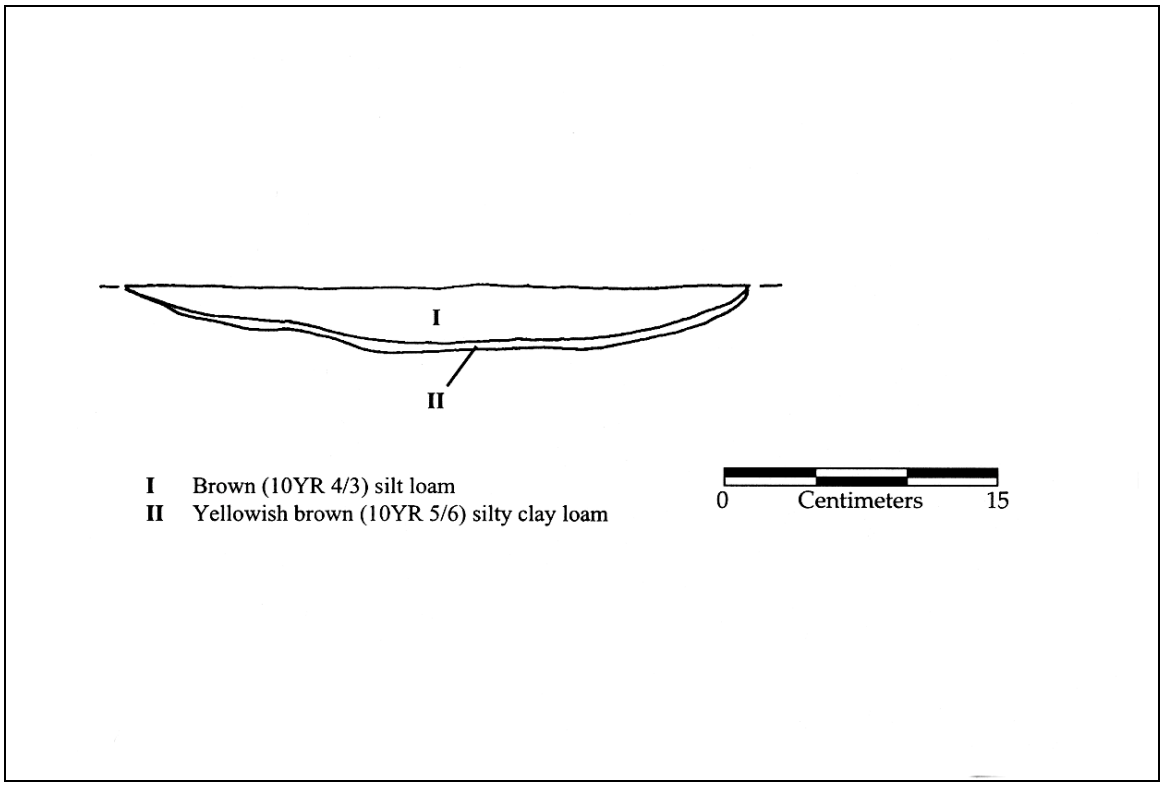


Figure 35. Feature 1O west-half profile.

Features 1P and 1Q

Features 1P and 1Q are located in the northern section of Block 1 about 1 m north of Feature 1O and are thought to be associated with it and other features throughout Block 1 (see Figures 23 and 24). Both features measured approximately 15 cm in diameter, occurred vertically at 33 cmbs, and were initially recognized as dark circular stains containing high concentrations of charcoal, and were thought to be post molds. These two features were bisected, trowel excavated, and examined in profile. Excavation extended approximately 10 cm in Feature 1P and 15 cm in Feature 1Q below the Block 1 surface. Charcoal remained uniform throughout excavations and no cultural artifacts were recovered. The profiles of each feature resembled that of typical post molds (Figure 36). This supports the determination that Features 1P and 1Q are post molds associated with other features recognized across the Block 1 floor.

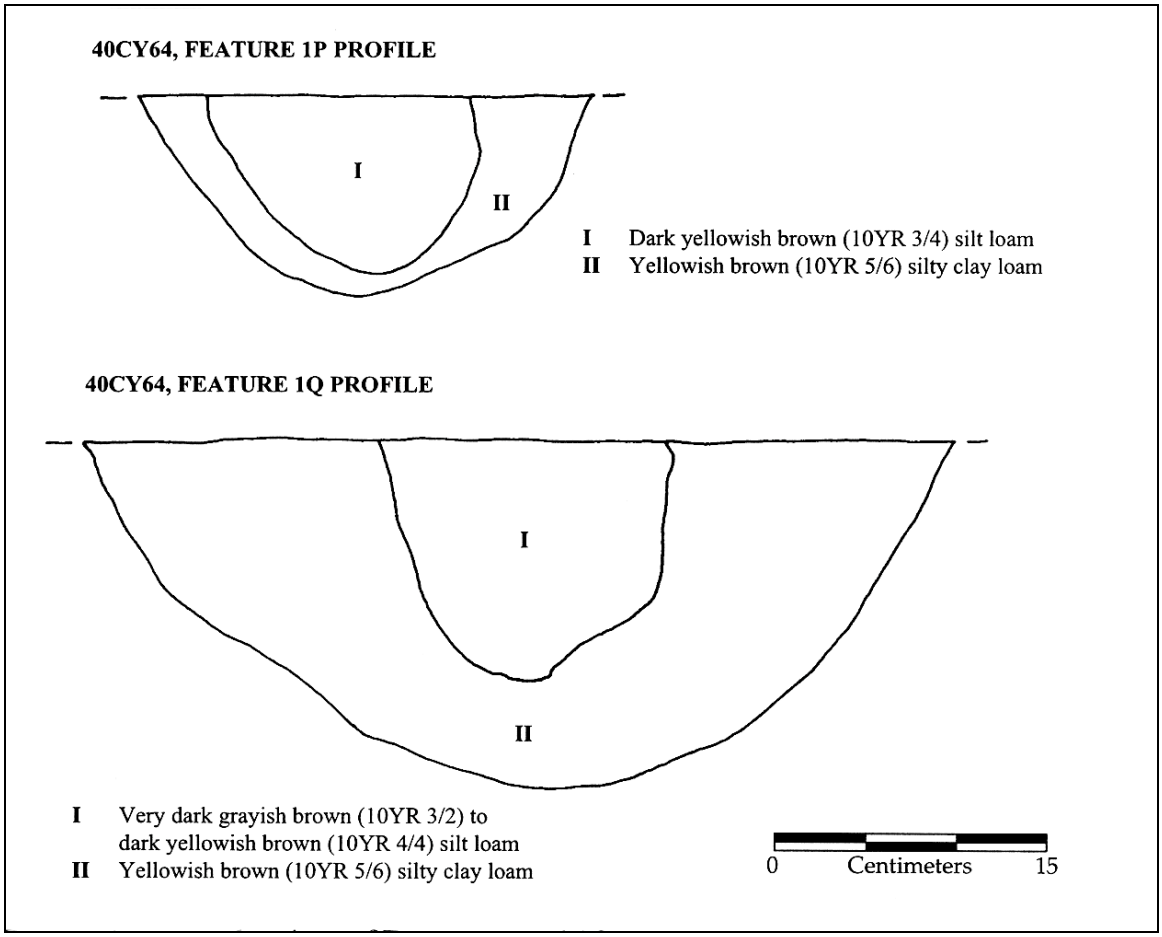


Figure 36. Profiles of Features 1P and 1Q.

Feature 1V

Feature 1V is located in the northeastern section of Block 1 approximately 130 cm north of Feature 1A (see Figures 23 and 24). It is characterized by a very dark, circular stain containing high concentrations of charcoal and bone (Figure 37). Feature 1V measured 30 x 30 cm in diameter and was positioned vertically at 33 cmbs. Its soil matrix can be described as a black (10YR 2/1) greasy, silt loam surrounded by a yellowish brown (10YR 5/6) silty clay loam.

The south half of Feature 1V was trowel excavated to 6 cm below its surface and resembled a shallow pit in profile (Figure 38). The fill was screened through 1/4-inch wire mesh and approximately 2.5 liters of this fill was collected and water screened through 1/16-inch wire mesh. Cultural material recovered from Feature 1V consisted of lithic debitage as well as one possible ceramic fragment (see Tables 21 and 23). Small amounts of carbonized wood and hickory nutshell, as well as several small, unidentifiable bone fragments, were also recovered (see Tables 24 and 25). Feature 1V is the location of a shallow and small pit, part of the associated cluster of Block 1.

Figure 37. Photograph of Feature 1V in planview.

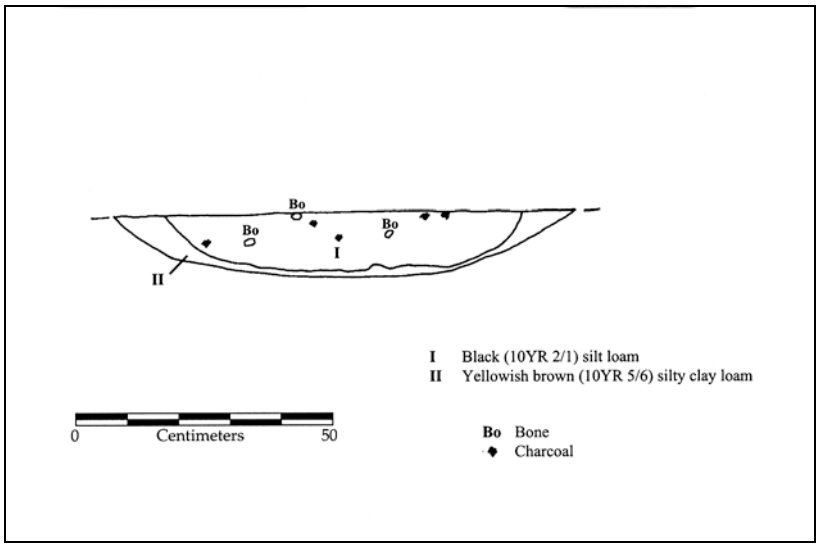


Figure 38. Feature 1V south-half profile.

Feature 1X

Feature 1X is located in the extreme northwestern portion of Block 1 and extends to the south into Trench 1 as well (see Figures 23 and 24). It also extends into the Block 1 north wall and is characterized by a dark semicircular stain that measures approximately 120 x 48 cm. Feature 1X begins in profile in this wall at approximately 30 cmbs. Its soil matrix can be described as a dark brown (10YR 3/3) silty clay loam surrounded by a yellowish brown (10YR 5/6) silty clay loam subsoil.

The north half of Feature 1X was trowel excavated to approximately 63 cm below the surface of Block 1 and its fill was screened through 1/4-inch wire mesh (Figures 39 and 40). Excavation ceased at this point; however, Feature 1X appeared to extend well beyond this depth. No internal stratigraphy was recognized within its profile. Also, no flotation or water screened samples were collected for archaeobotanical analysis.

Cultural material recovered as a result of excavations of Feature 1X is summarized in Tables 21 and 22. Material included lithic debitage, one stemmed un-notched pp/k (Adena variant, Early Woodland), and several ceramic sherds. The pp/k was found in situ at 5 cm below the Block 1 surface (Figures 39, 40, and 41). Animal bone recovered from 1/4-inch screened fill from the feature consisted of one white-tailed deer foot fragment and several small, unidentifiable animal bone fragments. Charcoal collected from the Feature 1X matrix was submitted for C^{14} dating and returned a date of 2420 ± 40 B.P., within the Early Woodland period.

Much like Features 1A and 1N, Feature 1X is the location of a refuse pit used by Early Woodland period inhabitants to discard tools, ceramics, and animal bone. Plant material also likely exists within Feature 1X fill; however, a flotation sample was not collected. This feature is associated with all other features defined across the Block 1 floor.

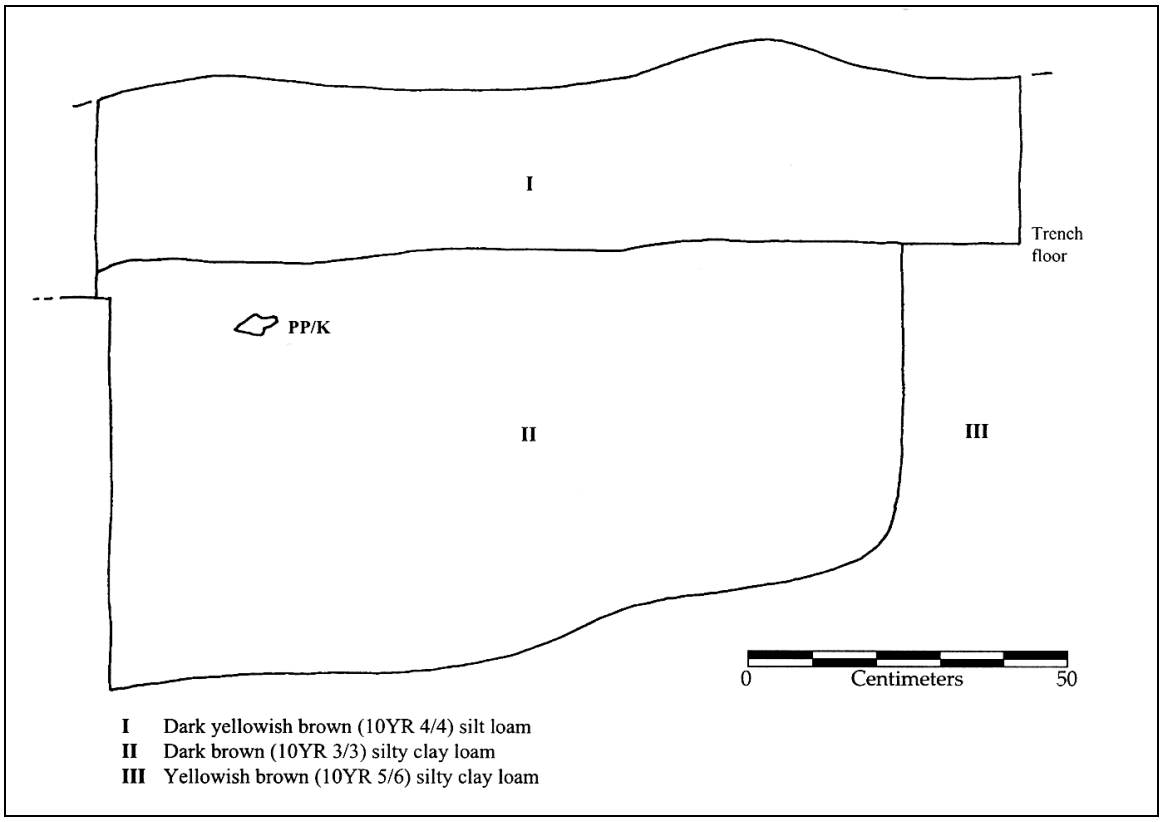


Figure 39. Drawing of Feature 1X profile in north wall of Block 1.

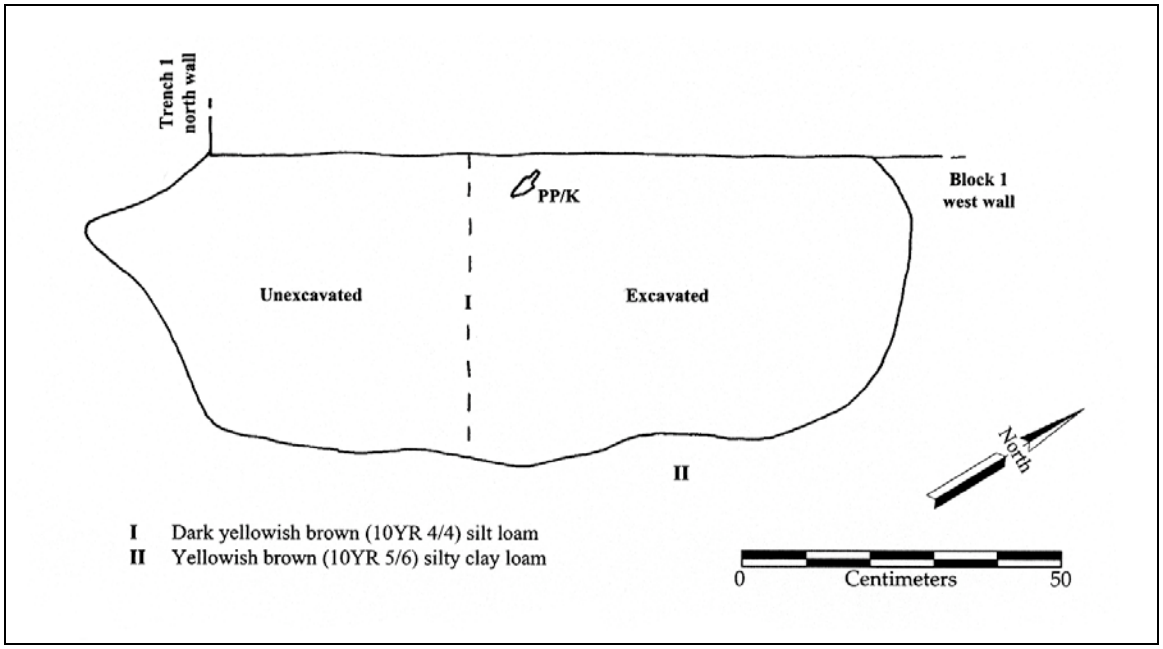


Figure 40. Planview of Feature 1X.

Figure 41. Photograph of Feature 1X north-half, showing pp/k found *in situ.*

Backdirt Artifact Collection

In the interest of maximum artifact recovery at 40CY64, trench, pit, and block backdirt was routinely visually scanned. Artifacts were collected and recorded within the northwest, northeast, and middle sections of Trenches 1, 2, 7, and 9. The south, north, and middle sections were scanned for Trench 3 and were collected in a general manner. Forty formal lithic tools were collected as a result. These included 3 Middle Archaic side notched pp/ks, 4 Late Archaic stemmed variants, 1 Early Woodland stemmed point, 2 Middle Woodland stemmed pp/ks, 1 Middle Woodland lanceolate pp/k, 24 biface (whole or fragments), 1 full grooved axe fragment, and 3 knives, and 2 asymmetrical knives (1 fragment and 1 whole). In addition, one Beaver Lake (Paleoindian) was recovered during intital plowzone excavation of the extreme southern section of Trench 1. No other evidence of Paleoindian occupation was discovered at the Stardust sites. This is considered an anomaly by this investigator. It is suggested that Archaic or Woodland period inhabitants brought the point to the site. A summary of these artifacts, according to provenience, is provided below in Table 20.

Table 20. Artifacts Recovered from 40CY64 Trench and Block Backdirt.

		Projectile Points						Bifaces			
Trench	*General Provenience*	*Paleoindian Lanceolate*	*Middle Archaic Side Notched*	*Late Archaic Stemmed*	*Early Woodland Stemmed*	*Middle Woodland Stemmed*	*Middle Woodland Lanceolate*	*Primary*	*Secondary*	*Tertiary*	*Other*
1	NW								1	1	
	Mid.								1	2	
	NE								1		
2	NW							1	2		
	Mid.					2	1		1	2	
	NE	1							1	1	
3	S										1 Knife
	Mid.										
	N										
7	NW										
	Mid.								2		
	NE		2	2	1				1	1	1 Grooved axe
9	Mid.		1	1						1	
	NE			1						2	1 Knife frag.
Block 1	General								3		1 Knife
	Totals:	**1**	**3**	**4**	**1**	**2**	**1**	**1**	**13**	**10**	

40CY65

Test Unit Excavation

Six 1 x 1-m test units were excavated at site 40CY65 (Figure 42). Shovel test artifact densities and depths recorded during the Phase I survey of the SIA APE (Barker 2001:Tables 1 and 2) guided the placement of Test Units 5 and 6. The remaining four test units, 7, 8, 13, and 14, were strategically placed within the APE boundaries at 40CY65 to further gain an overall understanding of artifact densities at the site. The plowzone was removed as a single level (0–20 cmbs) in all units, and the remaining levels were excavated in 10-cm increments. Vertical and horizontal measurements associated with level depths and piece plotted artifacts were taken from the northeast corner of each unit.

Test unit excavation revealed intact archaeological deposits containing lithic artifacts. Sixteen formal lithic tools were recovered within test units at 40CY65. They are summarized in Table 21. One Middle Archaic side-notched pp/k, two Middle Woodland side notched variants, and thirteen bifaces (whole or fragments) were recovered. Over 10,483 pieces of lithic debitage were also recovered during test unit excavations at the site. These summarized in Table 22.

Soil profiles of stratum recognized within each test unit are depicted in Figure 43. Four natural stratum were recognized. Stratum I was characterized by a dark yellowish brown (10YR 4/4) silt loam. It appeared in all units and represents a disturbed plowzone that averaged 20-cm thick. Stratum II was characterized by a dark yellowish brown (10YR 3/4 – 10YR 4/6) silty loam. It was recognized in Test Units 5, 6, 7, and 8 below the plowzone and averaged about 20-cm thick. Stratum III appeared only in Test Unit 6 as a dark yellowish brown (10YR 4/4) silt loam. Stratum IV represented a dark yellowish brown (10YR 4/6) to a yellowish brown (10YR 5/6) silty clay loam. It was recognized as the lowest stratum in all units.

Table 21. Summary of Lithic Artifacts Recovered from Site 40CY65 Test Unit Excavations.

			Projectile Points/Knives			**Bifaces**	
Provenience	***Depth (cmbs)***	***Stratum***	***Middle Archaic Side Notched***	***Middle Woodland Side Notched***	***Primary***	***Secondary***	***Tertiary***
Test Unit 5	0-20	I				1	
	20-30	II				1	1
	30-40	II		1			
Test Unit 6	0-20	I		1			2
	30-40	III	1				
	40-50	III				1	1
Test Unit 8	0-20	I			1		1
Test Unit 13	0-20	I				3	
	20-30	I				1	
		Totals:	**1**	**2**	**1**	**7**	**5**

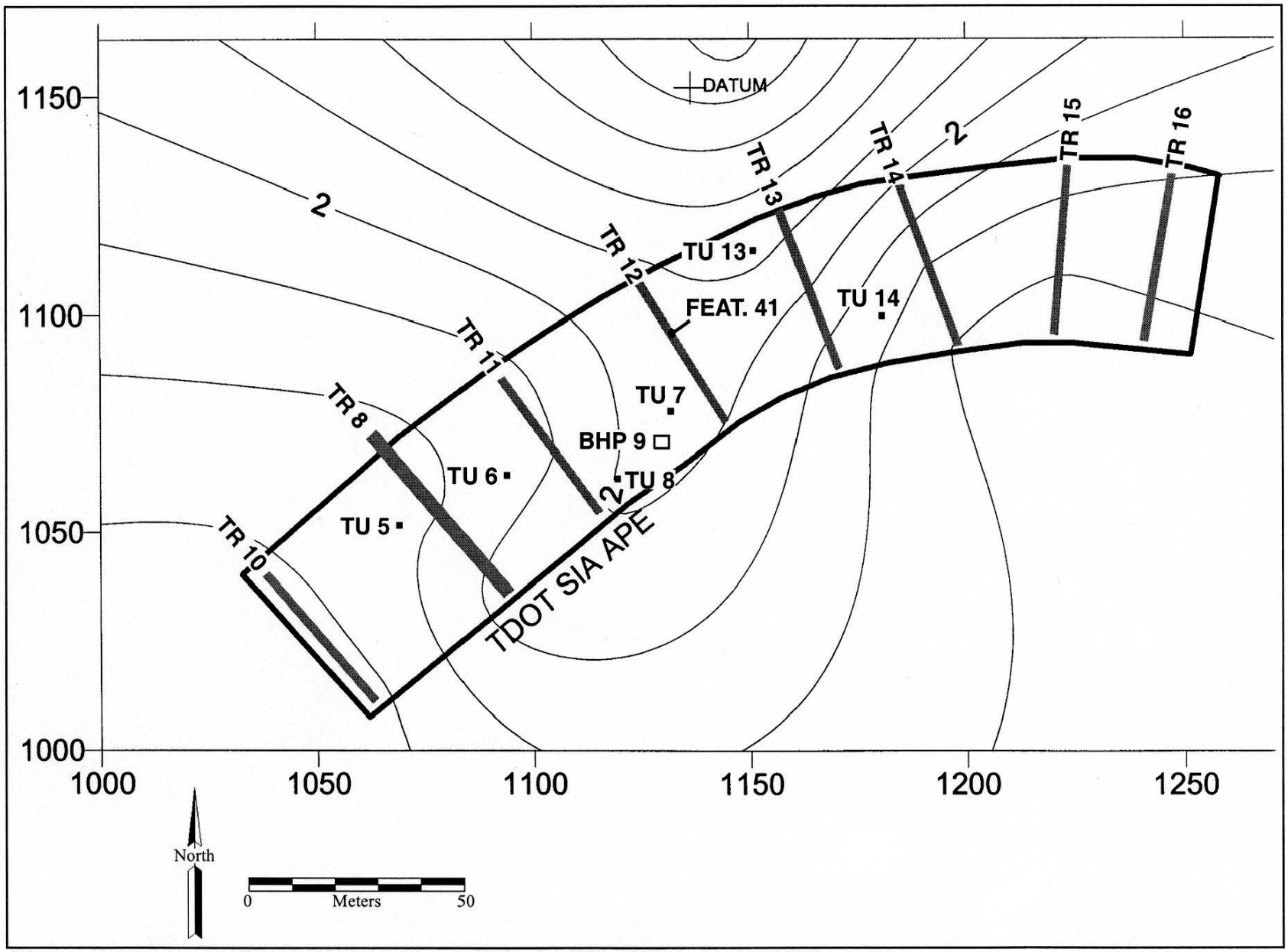


Figure 42. Planview of Phase II excavations within the SIA APE at site 40CY65.

Table 22. Summary of Lithic Debitage Recovered from Site 40CY65.

Provenience	*Depth (cmbs)*	*Primary Flakes*	*Secondary Flakes*	*Tertiary Flakes*	*Utilized Flakes*	*Thinning Flakes*	*Core Fragments*	*Flake Fragments*	*Shatter*	*FCR*	***Level Total***
Test Unit 5	Lev. 1 (0-20)	2	10	8	2	56	1	105	26	17	**227**
	Lev. 2 (20-30)	4	11	15	1	35		199	22	3	**290**
	Lev. 3 (30-40)	1	4	7		22		18	5	9	**64**
	Lev. 4 (40-50)		2	1		5		2			**10**
										Unit Total:	**591**
Test Unit 6	Lev. 1 (0-20)	4	39	7	1	21		169	45	40	**327**
	Lev. 2 (20-30)	3	23	5	1	7		62	8	10	**119**
	Lev. 3 (30-40)	9	28	4				116	28	5	**190**
	Lev. 4 (40-50)	2	51	17		10		178	26	22	**307**
	Lev. 5 (50-60)		14	6	1	8		50	1	30	**110**
	Lev. 6 (60-70)		1	1		1		18	3	1	**25**
										Unit Total:	**1078**
Test Unit 7	Lev. 1 (0-20)	1	41	8		8	1	139	34	81	**313**
	Lev. 2 (20-30)		5	1		3		40	3	14	**66**
										Unit Total:	**379**
Test Unit 8	Lev. 1 (0-20)	1	53	4	4	4		285	26	51	**428**
	Lev. 2 (20-30)	3	16			1		44	10	16	**90**
										Unit Total:	**518**
Test Unit 13	Lev. 1 (0-20)	4	27	25		23		61	21	91	**252**
	Lev. 2 (20-30)		12	8		15		20	17	20	**92**
	Lev. 3 (30-40)		3	2		3		4	1	15	**28**
										Unit Total:	**372**
Test Unit 14	Lev. 1 (0-20)	3	8	10		15		25	22	23	**106**
	Lev. 2 (20-30)		18	12	1	12	1	25	18	11	**98**
	Lev. 3 (30-40)		3	6		3		14	15	6	**47**
	Lev. 4 (40-50)							1		1	**2**
										Unit Total:	**253**
										Grand Total:	**3191**

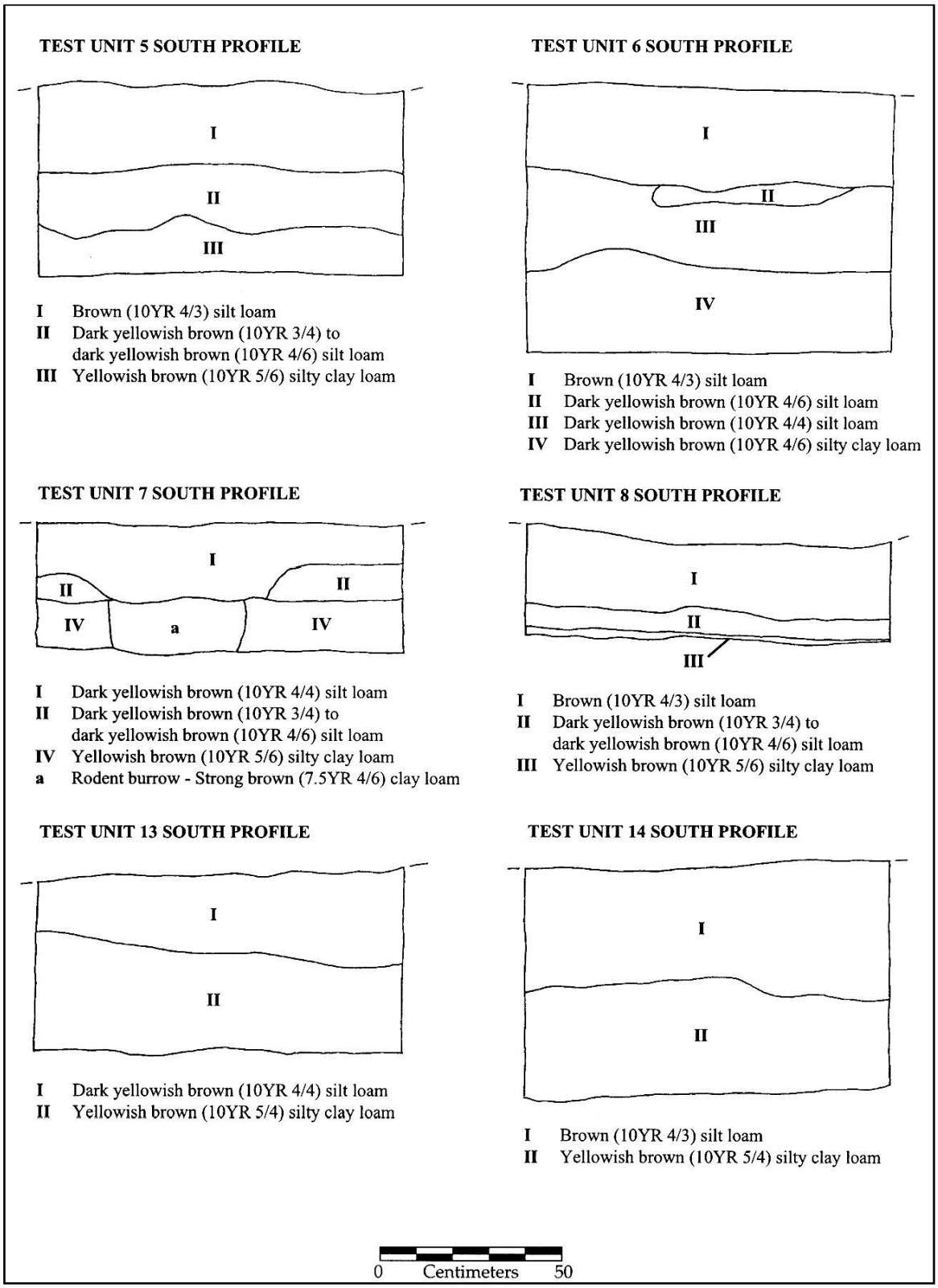


Figure 43. Test unit profiles from site 40CY65.

Test Unit 5

Test Unit 5 was positioned in the eastern section of site 40CY65 SIA APE boundaries, just west of Trench 8. It measured 1 x 1 m with a grid provenience of 1052.03N/1069.66E and a surface elevation of 386 cmbd. Excavation of this unit extended to 50 cmbs where sterile soil was encountered. No cultural features were encountered during excavation.

Artifacts recovered from Test Unit 5 consisted of lithic debitage and formal tools. Lithic debitage (n=591) made up most of the artifacts recovered from this unit. The debitage was clustered within Level 1 (pz) (n=227) and intact cultural deposits in Level 2 (n=290) (see Table 22). Four formal tools were recovered during excavation of this unit and included two secondary biface fragments, one tertiary biface fragment, and a Middle Woodland side notched (Lowe Cluster) pp/k (see Table 21). A charred wood sample was collected and piece plotted (PP13) in Level 3 of Test Unit 5 with a vertical position of 31.5 cmbs and a horizontal position of 56cmS/66.5cmW; it was not submitted for radiocarbon dating.

Test Unit 6

Test Unit 6 was positioned in the eastern section of site 40CY65 SIA APE boundaries, just northeast of Trench 11 with a grid provenience of 1063.65N/1094.36E and a surface elevation of 352 cmbd. Excavation of this unit extended to 70 cmbs where sterile soil was encountered. No cultural features were encountered during excavation.

Lithic debitage (n=1078) represented the bulk of artifacts recovered from Test Unit 6. Debitage amounts were highest in the plowzone (n=327) and in Level 4 (n=307) (see Table 22). Six formal tools were recovered during excavation of this unit and included one secondary biface fragment, three tertiary biface fragments, and two side-notched pp/ks (see Table 21). One of these (Level 3) dates to the Middle Archaic period and the other (Level 1) is a Lowe Cluster variant (Middle Woodland). The secondary biface fragment (PP15) was recorded in Level 4 vertically at 47 cmbs and horizontally at 83cmS/32cmW. One of the tertiary biface fragments (PP14) was also piece plotted in Level 4 with a vertical position of 42.5 cmbs and a horizontal position of 75cmS/40cmW. A charcoal sample was collected and piece plotted (PP12) in Level 2 of Test Unit 6 at 29 cmbs vertically and 86cmS/36cmW; it was not submitted for C^{14} dating.

Test Unit 7

Test Unit 7 was located in the center section of the APE at site 40CY65 just west of Trench 12 with a grid provenience of 1078.32N/1132.33E and a surface elevation of 252 cmbd. Excavation of this unit extended to only 30 cmbs where sterile soil was encountered. No cultural features were encountered during excavation.

Artifacts recovered from Test Unit 7 consisted solely of lithic debitage. Most of this debitage was recovered within the plowzone (n=313) (see Table 22). No other artifacts

were found within Test Unit 7 and no charcoal samples were collected within its soil matrix.

Test Unit 8

Test Unit 8 was positioned approximately 20 m southeast of Test Unit 7 in the center section of site 40CY65 SIA APE boundaries with a grid provenience of 1062.81N/1119.89E and a surface elevation of 273 cmbd. Excavation of this unit extended to only 30 cmbs where sterile soil was encountered. No cultural features were encountered during excavation of this unit.

The unit's artifact assemblage consists of lithic debitage and two formal tools. Most of the debitage (n=518) was contained within the plowzone (n=428) (see Table 22). A primary biface and tertiary biface fragment were recovered from screened fill of the plowzone (see Table 21). Both were manufactured out of non-thermally altered Ft. Payne chert. No charcoal specimens were encountered during excavation of Test Unit 8.

Test Unit 13

Test Unit 13 was positioned just west of the Trench 13 northern section with a grid provenience of 1115.23N/1151.51E and a surface elevation of 213 cmbd. Excavation of this unit extended to only 40 cmbs where sterile soil was encountered at the bottom of Level 3. No cultural features were encountered during excavation.

Lithic debitage (n=372) dominated artifact counts recovered from the unit and was mostly contained within the plowzone (n=252) (see Table 22). Four secondary biface fragments were recovered from Test Unit 13 (see Table 21). No charcoal samples were collected.

Test Unit 14

Test Unit 14 was positioned in the eastern section of site 40CY65 SIA APE boundaries, between Trenches 13 and 14 with a grid provenience of 1100.15N/1181.13E and a surface elevation of 360 cmbd. Excavation of this unit extended to only 50 cmbs where sterile soil was encountered. No cultural features were encountered during excavation of this unit.

The unit's artifact assemblage consists solely of lithic debitage. Most of the debitage was concentrated in the upper two levels of the unit (n=204) (see Table 22). One charcoal sample was piece plotted (PP27) in Level 3 at 40 cmbs with a horizontal position of 48cmS/36cmW; it was not submitted for radiocarbon dating.

Backhoe Excavation

Eight linear trenches and one backhoe pit were excavated within site 40CY65 SIA APE boundaries (see Figure 42). All of these trenches are oriented in a northwest to southeast direction, essentially perpendicular to the long axis of the SIA APE. Trench 8 measured 48 x 2.4 m, and Trenches 10, 11, 12, 13, 14, 15, and 17 all measured approximately 35 x 1.2 m. Backhoe Pit 1 was also excavated at site 40CY65 and was positioned just southeast of the Trench 12 southeastern section.

In general, depth to subsoil was shallow in the power unit excavations at site 40CY65. This is attributed to the fact that most of the portion of the site crossed by the SIA APE is situated within the higher elevated T2 remnant (see Chapter V). However, some Holocene sediment (T1 remnant) has accumulated within zero order drainages located in southwestern and northeastern portions of the site (see Figure 8). This sediment accumulation was encountered in northwestern portions of Trench 8 and southern portions of Trenches 14 and 15. Depth to subsoil in the Trench 8 southeastern section occurred at approximately 30 cmbs and dipped to 55 cmbs in its northwestern section. Subsoil depths in Trenches 14 and 15 were approximately 40 cmbs in their northern sections and dipped to over 80 cmbs in southern sections. Therefore, Holocene sediment accumulations were thicker in northeastern portions of the site. Subsoil depth in Trenches 10, 11, 12, 13, and 17 fluctuated from 25–35 cmbs, an average of 30 cmbs across their surfaces. A detailed description of Backhoe Pit 9 is provided in Appendix C.

Features

Just three distinct soil disturbances were recognized as a result of extensive trenching throughout the SIA APE at site 40CY65. Two of these, Features 42 and 43, were faint stains of amorphous shape in the southern section of Trench 13. Upon limited trowel investigation, it was determined that each feature represents remnants of plowzone and intact archaeological deposits, which had accumulated in natural undulations within the subsoil surface. One of these soil disturbances, Feature 41, turned out to be a definite cultural feature representing a shallow refuse pit; it was recorded and mapped in the central section of Trench 12 at 25 cmbs (see Figure 42).

Feature 41

Feature 41 was first recognized during power unit excavations of Trench 12 at site 40CY65. It is located in the middle section of Trench 12 (see Figure 42) and continues into its northern wall. Feature 41 is circular in shape and measured approximately 50 x 60 cm in planview (Figures 44 and 45). The full definition of the northern half of this feature occurred at 25 cmbs; however, the southern half was essentially bisected to 30 cmbs by the backhoe during trenching (Figure 44). At this point definition of the southern half retained its semicircular shape, but its matrix was diffuse. The soil matrix at full definition in the northern half consisted of a dark brown (10YR 3/3) silty clay loam that was mottled with and surrounded by yellowish brown (10YR 5/6) silty clay loam subsoil.

The northeast quarter of Feature 41 was first excavated to 5 cm below its surface where

Figure 44. Photograph of Feature 41 in planview.

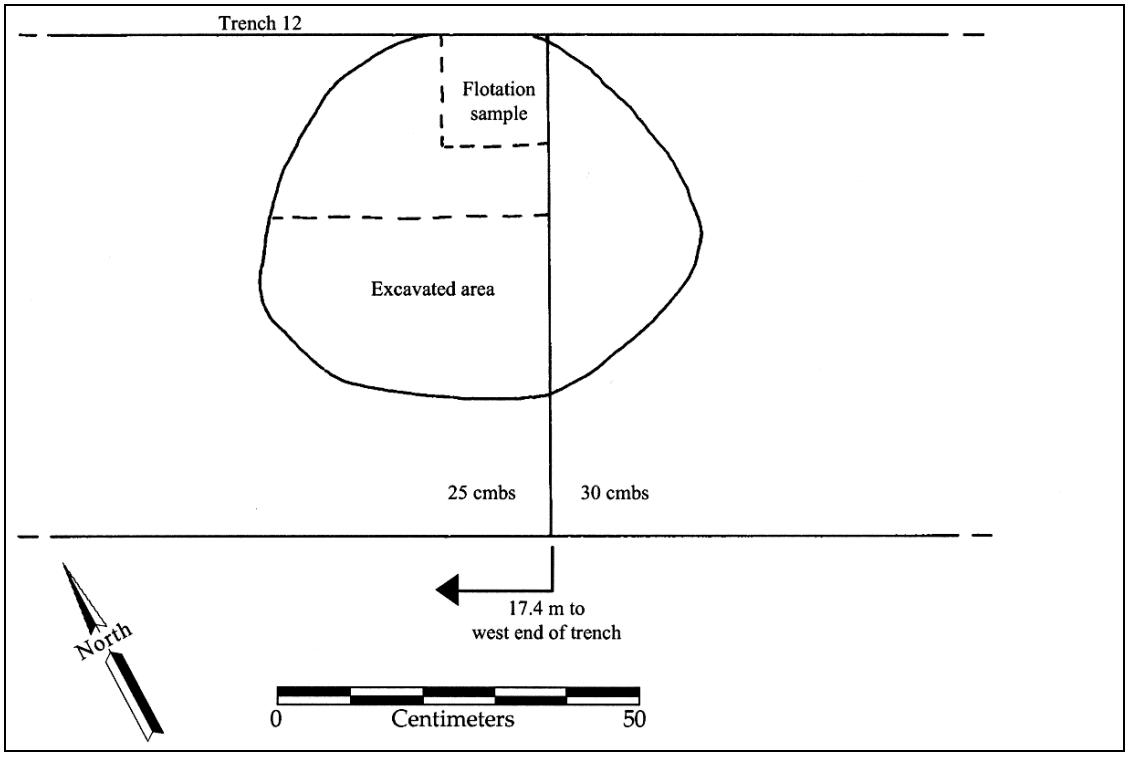


Figure 45. Planview of Feature 41.

subsoil was encountered. This fill was screened through 1/4-inch wire mesh. A 15 x 15 x 5-cm column (2.25 liters) was then excavated and water screened through 1/16-inch wire mesh. No cultural material was recovered in the screened fill. However, small amounts of carbonized nutshell and wood were recovered from the water screened sample. These are summarized in Table 23 below. Twenty-six (0.5 g) small, unidentifiable animal and mammal bone fragments were also recovered in Feature 41. Charcoal recovered from the feature was submitted for radiocarbon dating and returned a date of 2420 ± 40 B.P. Feature 41 is interpreted as a shallow refuse pit created during the Early Woodland period.

Table 23. Summary of Archaeobotanical Remains Recovered from Feature 41.

Provenience	Fraction	Material	Weight (g)	Frequency
Feature 41	+2 mm	Wood	<0.01	1
		Hickory nutshell (*Carya* sp.)	0.12	8
		Walnut shell (*Juglans* sp.)	0.03	1

Backdirt Artifact Collection

Backdirt artifact collection at site 40CY65 was conducted on a partial basis. Only backdirt associated with Trenches 8, 11, and 12 were visually scanned for artifacts. As a result, 13 formal lithic tools were collected. These were recovered from Trench 8 backdirt exclusively and included: 1 secondary biface fragment from its northwest section; 1 Middle Woodland lanceolate pp/k; 1 Middle Woodland stemmed variant; 1 primary biface; 2 secondary bifaces; 2 secondary biface fragments; 1 tertiary biface fragment; 1 crude scraper from its middle section; 1 Early Woodland stemmed pp/k retaining an ovate base; 1 Middle Woodland lanceolate pp/k; and 1 Middle Woodland shallow side-notched pp/k variant.

Radiocarbon Dates

Seven radiocarbon dates were obtained on charred wood collected from seven features at the Stardust sites. Beta Analytic, Inc. out of Miami, Florida processed the samples through the Accelerator Mass Spectrometry (AMS) technique because of their small sample size. The results of this analysis are summarized in Table 24. The date obtained from charred wood recovered from Test Unit 3 in association with a Stanley Stemmed pp/k further confirms the placement of this point type within the Middle Archaic period. The sample dated from Feature 40 in association with a side-notched pp/k variant lends support for the growing amount of evidence in the project region that this point type is a Middle Archaic phenomenon. Perhaps the most significant aspect regarding the radiocarbon dates obtained from the Stardust sites is the extremely close interval Early Woodland dates (Figure 46). The dates essentially isolate Early Woodland occupation across all three sites to within approximately 100 years. Furthermore, they provide strong radiocarbon dated evidence for the chronology of limestone-tempered pottery manufacture and use in the region as well as Early Woodland cultural manifestations within the upper Cumberland River valley.

Geoarchaeological Determinations

Consideration of both geomorphological and archaeological work conducted at the Stardust sites provides some insight into site formation processes. Geomorphological investigations determined that the Stardust sites are located on two terrace remnants of the Cumberland River. These include a lower elevated T1 terrace and a higher elevated T2 terrace. The terrace remnants are suggested to have formed as a result of weathering and erosion during the late Pleistocene or perhaps before prehistoric occupation. The bulk of sediment on these terraces appears to be relatively unweathered alluvium that likely accumulated during the Holocene. The thickest occurrences of the alluvium are in erosional swales, which have functioned as sediment traps during overbank flooding (Figure 47). However, archaeological investigations determined that the sites have also been subject to colluvial processes as well.

The strongest indication of the presence of colluvial deposition at the sites became evident during excavation of Test Unit 12, which is situated at the base of an erosional swale in the northern portion of site 40CY63. A limestone-tempered, cord-marked ceramic sherd, diagnostic of the Early Woodland period, was recovered 80 cmbs in the unit. Unfortunately, no diagnostic artifacts were recovered above this find. However, given consideration of the relatively shallow depth of Early Woodland deposits noted throughout the project area, it seems very unlikely that the sherd was found in situ at this depth. Rather its vertical position is likely the result of colluvial action or soil deflation down the northern slope of site 40CY63. Furthermore, thin deposits recognized at site 40CY65 suggest that colluvial processes have likely been ongoing throughout the Holocene within the higher elevated T2 terrace remnant.

Sediment within the project area is likely the result of both alluvial and colluvial processes. Further intensive archaeological investigation within the erosional swales at the sites may serve to isolate stratigraphic instances of alluvial and colluvial deposition.

Table 24. Radiocarbon Dates Obtained From the Stardust Sites.

RCYBP	*$\delta^{13}C$*	*Intercept (B.P.)*	*1σ*	*2σ*	*Stratum*	*Depth (cmbs)*	*Cultural Component*	*Provenience*	*Material Dated*	*Lab Number*
6200 ± 40	-26.2	7160, 7110, 7100	7190-7010	7240-6990	II	38.5	Middle Archaic	TU 3, Lev. 4	Charred Wood	Beta-158344
5560 ± 40	-26.6	6320	6400-6300	6410-6290	IV	100	Middle Archaic	Feature 40	Charred Wood	Beta-158346
2300 ± 40	-25.6	2340	2350-2320	2360-2310, 2240-2180	III	36	Early Woodland	Feature 32	Charred Wood	Beta-158347
2300 ± 40	-27.0	2340	2350-2320	2360-2310, 2240-2180	III	41.5	Early Woodland	Feature 1A	Charred Wood	Beta-158348
2240 ± 40	-25.2	2320	2330-2300, 2260-2160	2340-2140	III	37.5	Early Woodland	Feature 1Q	Charred Wood	Beta-158349
2420 ± 40	-27.1	2370	2690-2660, 2480-2360	2710-2560, 2540-2350	III	40.5	Early Woodland	Feature 1X	Charred Wood	Beta-158350
2420 ± 40	-26.4	2370	2690-2660, 2480-2360	2710-2560, 2540-2350	III	26	Early Woodland	Feature 41	Charred Wood	Beta-158351

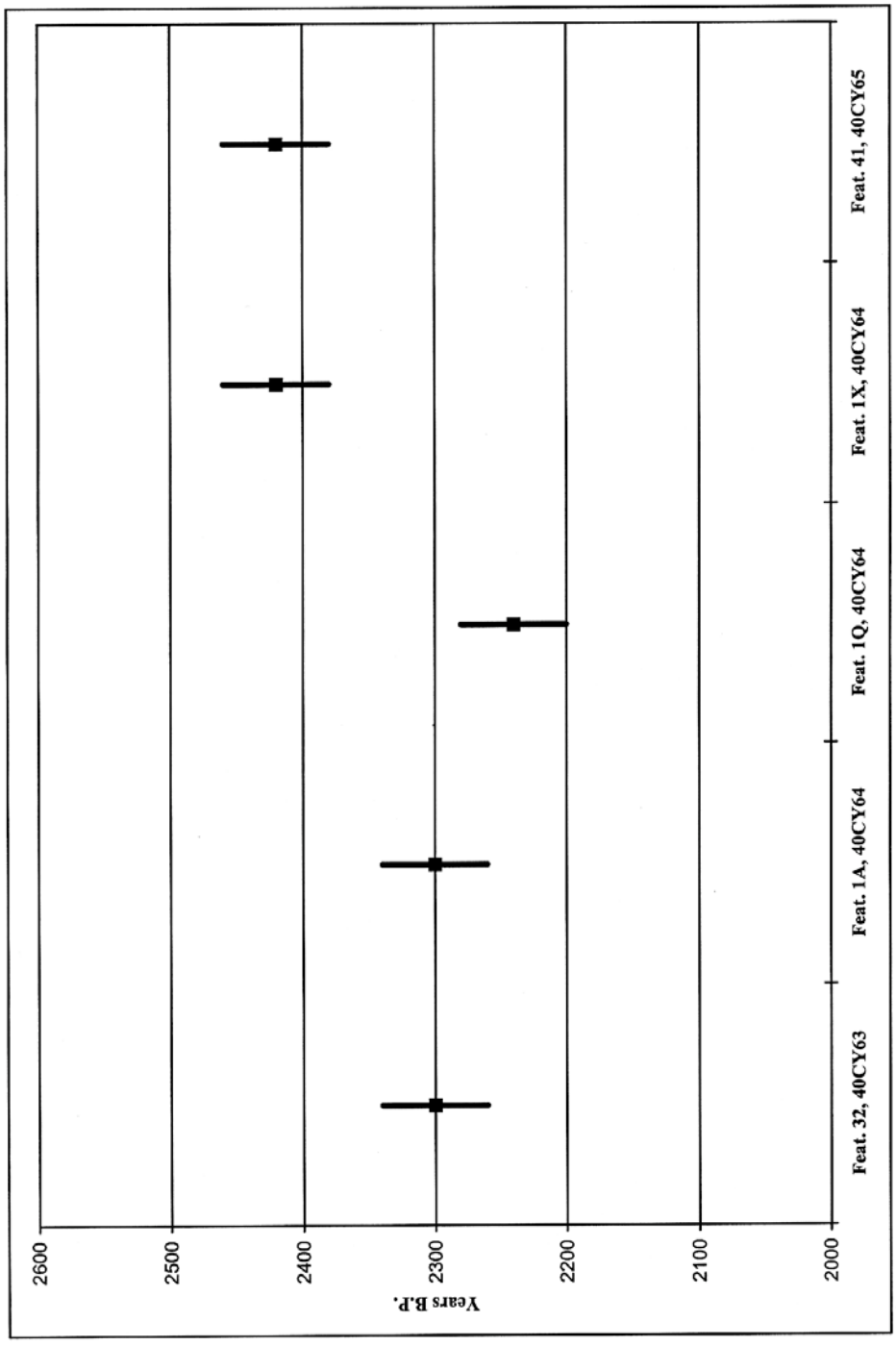


Figure 46. Distribution of Early Woodland radiocarbon dates.

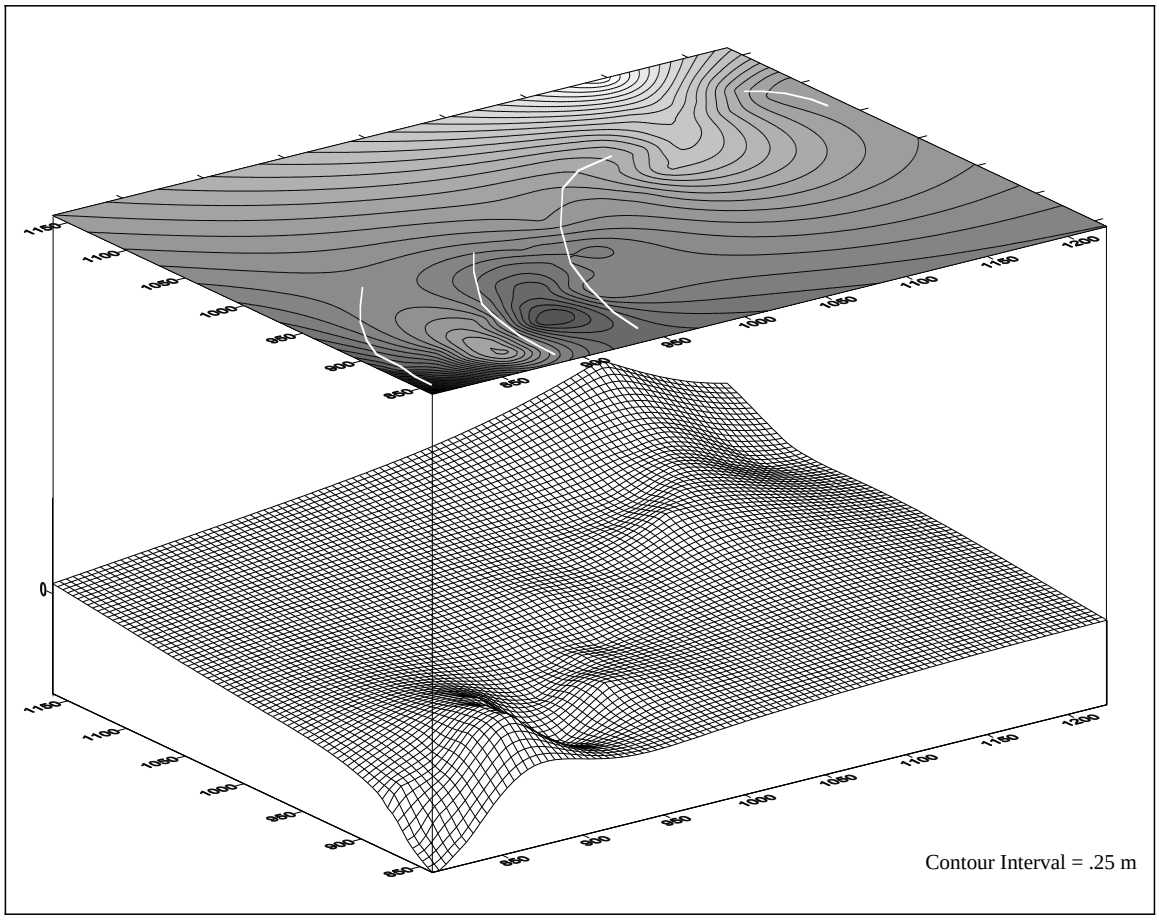


Figure 47. Three dimensional view of erosional swales within the project area.

VII. ARTIFACTS AND CULTURAL COMPONENTS

This chapter summarizes lithic and ceramic artifacts recovered from the Stardust sites. Given that the sites are located adjacent to one another on the same landform it is assumed that the three are subdivisions of one large site. Certainly the Archaic and Woodland period components identified across the sites are associated and interrelated with one another. For these reasons, the following sections describe and present aspects associated with lithic and ceramic artifacts as one combined artifact assemblage. The analysis begins with presentation, analysis, and discussion of stone tools and lithic debitage recovered during the Phase II archaeological investigations. The ceramic assemblage recovered from the sites is summarized in the final section of this chapter.

LITHICS

Projectile Points/Knives

Sixty-five diagnostic pp/ks were recovered as a result of archaeological investigations at sites 40CY63, 40CY64, and 40CY65. The pp/ks are presented below in Table 25 according to provenience and cultural component. Sixty-four of the examples can be temporally assigned to the Middle Archaic through the Middle Woodland periods or from 8,000–1,500 B.P. One example, recovered from the plowzone at 40CY64, is assigned to the Paleoindian period. The pp/ks were manufactured out of a variety of lithic raw materials, which include Ft. Payne, Warsaw, St. Louis, and Knox chert as well as quartz, quartzite, and chalcedony. Eleven metric attributes of each are provided in Appendix B. Each was typed to its respective prehistoric time period utilizing available sources for the project region and are described and presented below according to each cultural component recognized (Justice 1987; Cambron and Hulse 1990; Bentz 1996; McNutt and Weaver 1983; Lewis 1996; Des Jean and Benthall 1994).

Middle Archaic Side-Notched pp/ks (n=33)

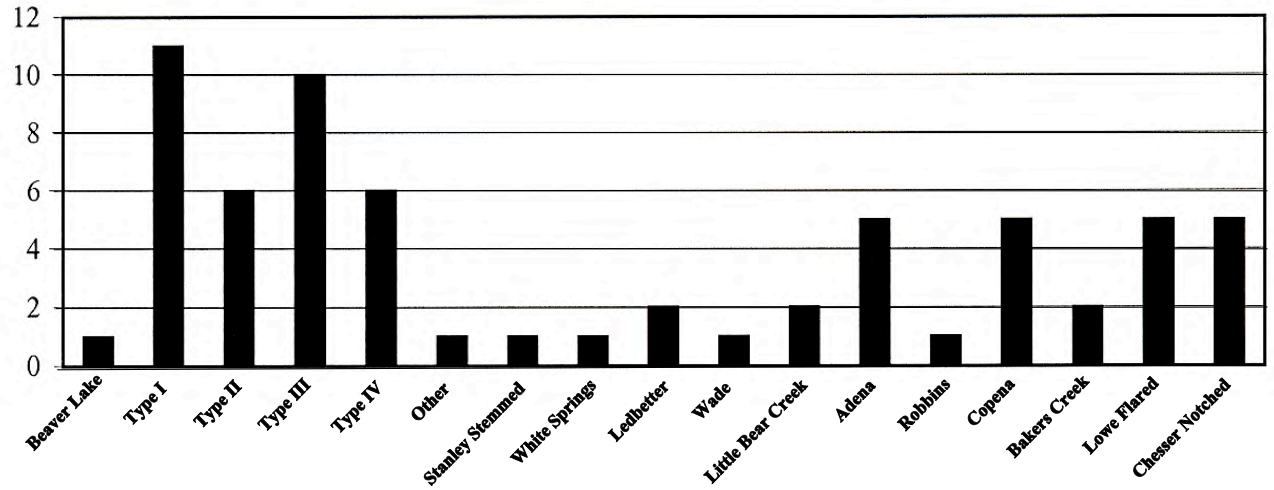
Side notched points represent 42 percent of the total diagnostic pp/k assemblage. Morphologically, they are grouped into four variants, Types I-IV. Types I-III are divided according to basal morphology: incurvate (I) and straight (II) basal edges, and broad notch to base thickness (III). Type IV side notched forms are different through several morphological characteristics. Temporally, the sided notched assemblage recovered from the Stardust sites are assigned to the Middle Archaic period based on C^{14} dating and depth of recovery. Morphological attributes of each side notched type are presented below followed by a brief discussion of temporal placement.

Type I (n=11)

Type I side notched points are presented in Figure 48. They make up one-third of the side notched assemblage. These eleven examples exhibit incurvate basal edges. Specimens *(a–i)* are characterized by slightly incurvate basal edges while examples *(j–k)* exhibit

Table 25. Summary of Projectile Points/Knives from the Stardust Sites.

	Paleo-Indian	Middle Archaic					Late Archaic				L. Archaic/ E. Woodland	Early Woodland			Middle Woodland		
		Side Notched															
Provenience	*Beaver Lake*	*Type I*	*Type II*	*Type III*	*Type IV*	*Other*	*Stanley Stemmed*	*White Springs*	*Ledbetter Stemmed*	*Wade*	*Little Bear Creek*	*Adena*	*Robbins*	*Copena*	*Bakers Creek*	*Lowe Flared*	*Chesser Notched*
40CY63		9	6	8	5	1	1	1	1				1	2	2	2	2
40CY64	1	2		1	1				1	1	2	4		1		2	
40CY65				1								1		2		1	3
Total:	1	11	6	10	6	1	1	1	2	1	2	5	1	5	2	5	5



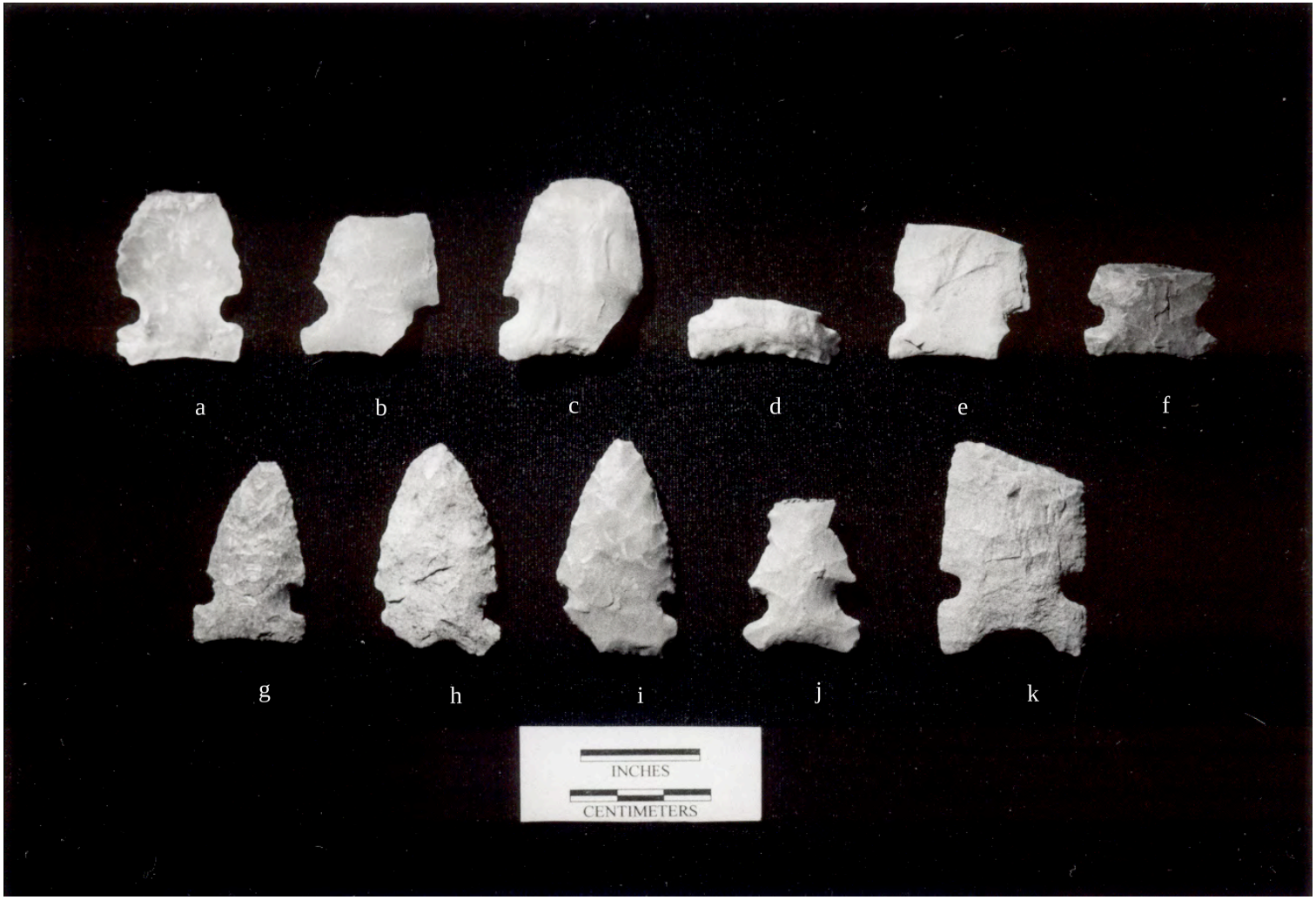


Figure 48. Middle Archaic incurvate-based (Type I) side-notched variants (a-k).

more extreme concavity. Only three of the specimens *(a, c, and j)* exhibit ground basal edges. Flaking patterns are random and cross-sections are biconvex. The blade edges are straight and appear to have been ground on four of the examples. The Type I examples were manufactured out of a combination of local varieties of Ft. Payne (n=6) and Warsaw (n=1) cherts as well as rose quartz (n=2) and chalcedony (n=2). Specimen (c) was used as an end scraper after it was broken. Six of the Type I side notched points have been thermally altered, while the remaining five are not. A summary of eleven metric attributes measured for the points is presented below in Table 26.

Table 26. Type I PP/K Attribute Data (n=11).

Metric Attribute	*(n)*	*Range*	*Mean*	*Standard Deviation*
Maximum Length:	4	37.7-45.6	41.2	3.96
Maximum Width:	5	23.6-30.7	27.2	3.31
Maximum Thickness:	10	5.6-8.8	7.1	.94
Shoulder Width:	10	20.9-30.2	26.3	2.98
Blade Length:	4	25.9-31.6	28.8	2.73
Haft Length:	10	19.1-10.9	13.5	2.25
Maximum Width at Blade Mid-point:	9	15.6-28.2	22.2	4.20
Distal Haft Width:	10	14.2-22.6	19.5	2.79
Proximal Haft Width:	7	20.1-31.6	26.8	4.38
Maximum Thickness at Distal Haft:	10	5.5-8.2	6.5	.85
Weight (g):	11	5.7-11.9	8.0	2.88

Type II (n=6)

Type II side notched points are presented in Figure 49. They total 18 percent of the Stardust side notched assemblage. Contrasting with Type I side notched points, Type II examples exhibit straight basal edges and are also smaller in overall size, which includes both blade and shoulder width. Fifty percent of the sample was characterized by ground blade edges. Flaking patterns are also more varied for the Type II points. Example *a* exhibits an oblique transverse pattern and specimen *b* exhibits a collateral pattern; the remaining four examples are characterized by random flaking patterns. Cross-sections are described as biconvex for all of the examples. Blade edges are straight and have been ground on half of the sample (n=3). Four of the specimens are manufactured out of local Ft. Payne chert, one out of Warsaw chert, and one out of chalcedony. Two of the specimens appear to have been thermally altered. A summary of the eleven metric attributes measured for the Type II side notched points is presented below in Table 27.

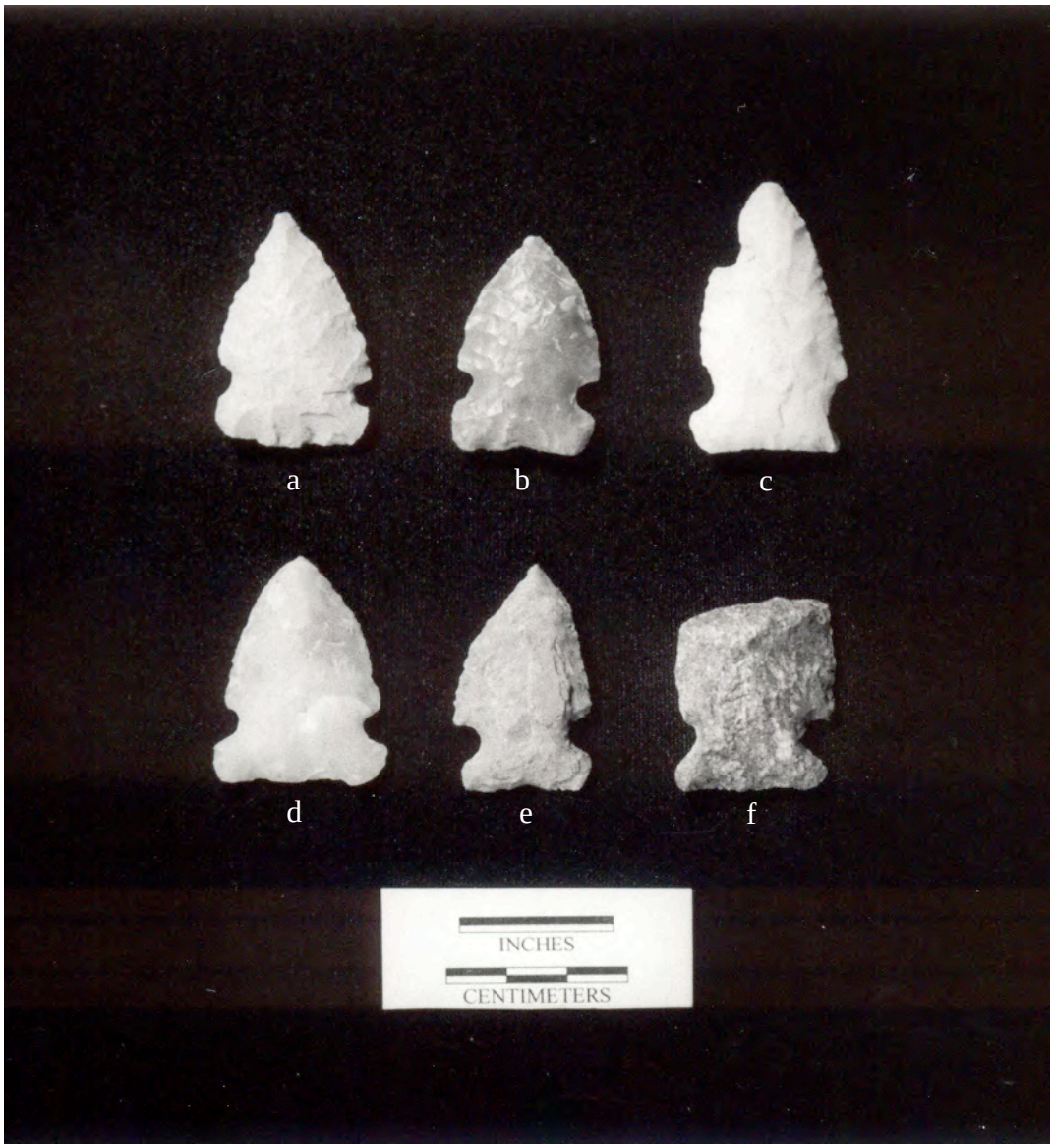


Figure 49. Middle Archaic straight-based (Type II), side-notched variants (a-f).

Table 27. Type II PP/K Attribute Data (n=6).

Metric Attribute	*(n)*	*Range*	*Mean*	*Standard Deviation*
Maximum Length:	6	30.9-46.4	37.8	5.13
Maximum Width:	6	22.5-28.4	24.8	2.12
Maximum Thickness:	6	5.8-7.7	6.6	.77
Shoulder Width:	6	22.5-25.4	24.2	1.16
Blade Length:	6	25.2-32.7	27.2	2.86
Haft Length:	6	5.1-13.7	10.6	2.97
Maximum Width at Blade Mid-point:	6	18.6-25.8	21.6	2.61
Distal Haft Width:	6	14.4-20.3	18.1	2.27
Proximal Haft Width:	6	19.8-26.4	22.9	2.38
Maximum Thickness at Distal Haft:	6	4.9-6.9	6.2	.69
Weight (g):	6	5.8-9.3	7.6	1.26

Type III (n=10)

Type III side notched points are presented in Figure 50. They represent 30 percent of the side notched assemblage. The Type III points were grouped according to a broader notch to basal edge thickness as apposed to all other examples within the entire assemblage. This is illustrated below in Table 28. Basal edges are straight to slightly incurvate and grinding was noted on four specimens. A collateral flaking pattern is described on five of the examples, while the other five specimens exhibit a random flaking pattern. Biconvex (n=5) and flattened (n=4) cross-sections were noted. Blade edges are straight and are ground on five of the specimens. Seven of the specimens are manufactured out of local Ft. Payne chert, one out of Warsaw chert, and two *(c* and *i)* out of rose quartz. Seventy percent of the Type III side-notched points have been thermally altered. A summary of the eleven metric attributes measured for the Type III side notched points is presented below in Table 29.

Table 28. Notch to Basal Edge Thickness of the Stardust Side Notched PP/K Assemblage.

Side Notched PP/K Category	*(n)*	*Range*	*Mean*	*Standard Deviation*
Type I:	11	5.9-11.4	7.68	1.51
Type II:	6	6.9-8.3	7.78	.47
Type III:	10	9.3-12.4	10.66	1.08
Type IV:	7	3.6-6.3	5.27	.90

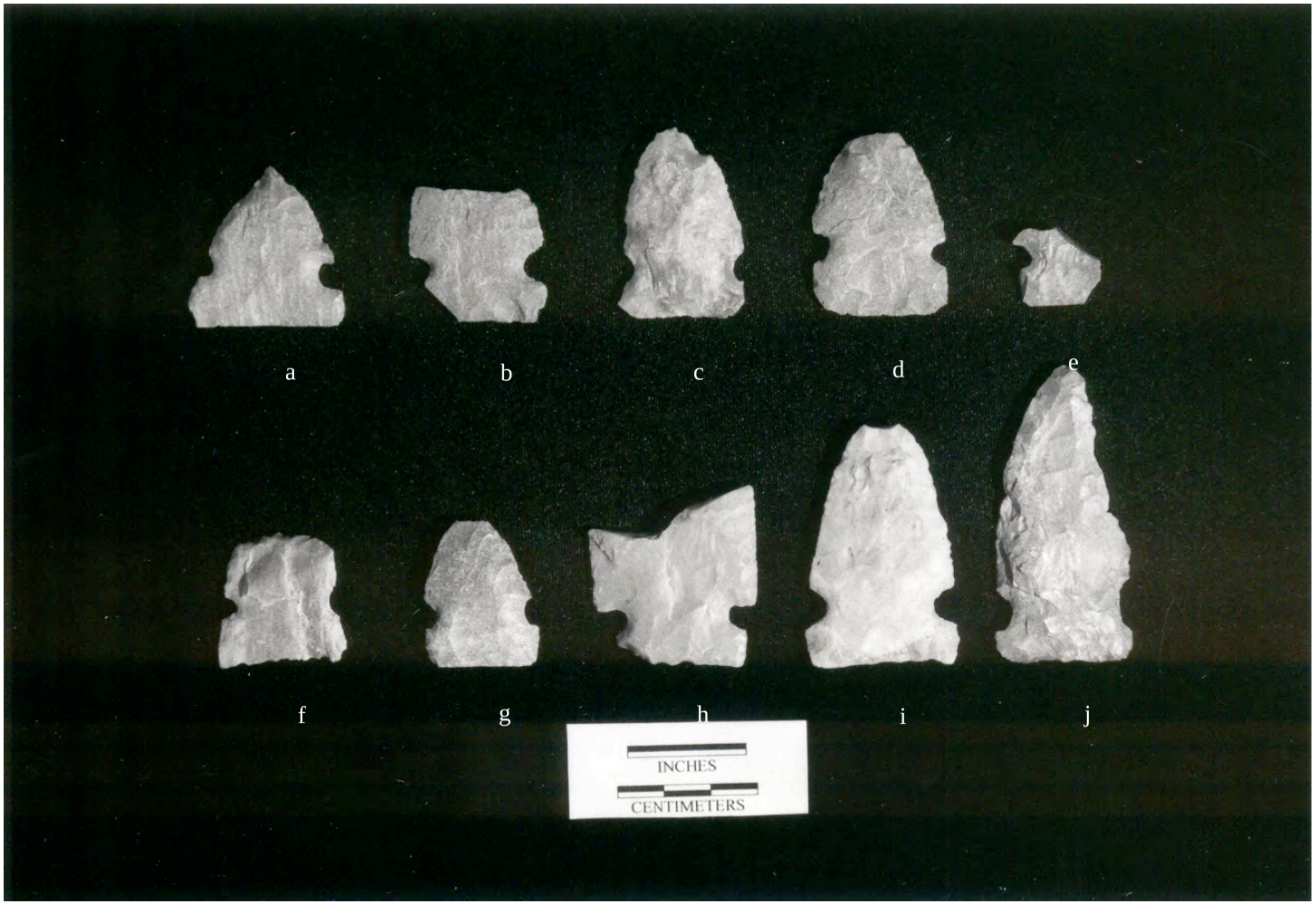


Figure 50. Middle Archaic broad-based (Type III), side-notched variants (a-j).

Table 29. Type III PP/K Attribute Data (n=10).

Metric Attribute	*(n)*	*Range*	*Mean*	*Standard Deviation*
Maximum Length:	6	27.9-63.3	41.2	13.31
Maximum Width:	8	24.0-39.1	30.9	5.07
Maximum Thickness:	9	5.8-9.1	6.8	1.03
Shoulder Width:	9	22.4-34.8	27.8	3.58
Blade Length:	5	18.4-47.5	30.6	11.71
Haft Length:	9	12.3-15.8	13.8	1.37
Maximum Width at Blade Mid-point:	8	18.3-35.6	24.6	5.26
Distal Haft Width:	9	18.4-22.8	21.3	1.48
Proximal Haft Width:	7	24.0-39.1	30.2	5.02
Maximum Thickness at Distal Haft:	9	4.9-7.2	6.2	.71
Weight (g):	9	6.5-16.2	9.9	3.58

Type IV (n=6)

Type IV side notched points (Figure 51) represent 18 percent of the assemblage. These points were grouped according to overall minimal size and morphological differences in comparison to the entire sample. Examples *a–d* are very similar according to blade length, and shoulder and basal edge width. They all exhibit small and rather shallow c-shaped notches with straight basal edges and straight blades. All four have a biconvex cross section. Examples *b* and *c* exhibit a collateral flaking pattern; specimens *a* and *d* were produced through random flaking. Grinding was noted along the basal edges and notches on all four of these points. They were manufactured out of Ft. Payne chert and all but one *(a)* has been thermally altered. Table 30 presents a summary of metric attributes for points *a–d*.

Projectile points *e–g*, depicted in Figure 51, represent additional morphological variation within the Stardust side notched assemblage. Example *e* is characterized by lanceolate to slightly excurvate blade edges, shallow-eared notches, and an incurvate basal edge. Slight grinding was noted along its basal edge. The point is thin with a flattened cross section and is characterized by a random flaking pattern. It was manufactured out of non-thermally altered Ft. Payne chert. Specimen *f* is triangular, has a straight basal edge and straight blades, and a very shallow notch on only one side. Grinding was noted along the basal margin. The point was manufactured out of thermally altered Ft. Payne chert using a random flaking technique. Example *g* exhibits straight to incurvate serrated blades and pronounced notches. The point's blade shape is likely the result of extensive resharpening. It has a biconvex cross section, an oblique transverse

Figure 51. Middle Archaic, Type IV side-notched variants (a-g), Paleoindian, Beaver Lake (h).

flaking pattern, and was manufactured out of non-thermally altered Ft. Payne chert. Grinding was noted along both notches. The final point *(h)* depicted in Figure 51 represents somewhat of an anomaly within the Stardust projectile point assemblage. This point exhibits excurvate blades, a concave base, and basal ears. The blades have been ground. It was manufactured out of Ft. Payne chert using a random flaking technique and has been thermally altered. The point is typed as a Beaver Lake within the Late Paleoindian Dalton Cluster (Justice 1987). It was recovered from the plowzone of site 40CY64. Because of this disturbed and shallow context in conjunction with the fact that no other artifacts dating to this period were recovered from the Stardust sites, it is concluded that it does not represent Paleoindian occupation at the sites. Rather, later occupants likely transported the point to the sites.

Table 30. Type IV PP/K Attribute Data (n=6).

Metric Attribute	*(n)*	*Range*	*Mean*	*Standard Deviation*
Maximum Length:	4	30.2-41.5	36.4	5.88
Maximum Width:	2	20.7-21.7	21.2	.71
Maximum Thickness:	4	6.3-8.4	7.2	1.02
Shoulder Width:	3	17.9-22.1	20.6	2.32
Blade Length:	4	21.6-33.5	27.8	6.15
Haft Length:	4	8.0-9.0	8.6	.41
Maximum Width at Blade Mid-point:	4	16.8-21.1	18.7	1.87
Distal Haft Width:	3	15.1-16.8	16.0	.86
Maximum Thickness at Distal Haft:	4	6.1-7.0	6.6	.44
Weight (g):	4	4.8-8.6	6.5	1.81

Side Notched Temporal Discussion

Depositional evidence and one C^{14} date supports the conclusion that side notched pp/k variants recovered from the Stardust sites represent Middle Archaic period (8,000-5,500 B.P.) occupation at the sites. Excavation of Test Unit 10 located down the southern slope of 40CY63 illustrates this. As previously discussed in Chapter VI, depositional characteristics of the unit are largely the result of colluvial action. Feature 40, an intact refuse pit discovered at the base of the unit approximately 100 cmbs, clearly rested on and protruded into sterile clay subsoil. Level 9 of Test Unit 10 contained only 18 artifacts (debitage) down from 322 in the previous Level 8. In addition to carbonized hickory nutshell, a side notched pp/k (Figure 51, *g*) and a charred wood sample were recovered in association with one another within the feature fill. Although somewhat morphologically different (extensively resharpened), the side notched point fits well within the range of traits recognized for the side notched points described above. The charred wood sample

returned an uncalibrated C^{14} date of 5560 ± 40 B.P. The depth of Feature 40 could represent the oldest occupational surface at 40CY63. Given the Middle Archaic date in association with a side notched pp/k and its stratigraphic position below subsequent colluvial and alluvial deposition, it is concluded that much of the side notched assemblage represents Middle Archaic occupation at the Stardust sites. Side-notched variants have been recovered within the lowest levels or Early Archaic contexts in northern Alabama at Stanfield-Worley Bluff Shelter, the Lagrange site, and Russell Cave (DeJarnette et al. 1962; Goodyear 1982; DeJarnette and Knight 1976; J.W. Griffin 1974). Recent research in the project region suggests that the side-notched form is also a Middle Archaic phenomenon (Barker 1997; Stallings et al. 1998*).*

Stanley Stemmed (n=1)

One straight-stemmed pp/k was recovered at site 40CY63. It has a plano-convex cross section, its blade edges are serrated and straight, and its base retains a concave or incurvate shape (Figure 52, *a*). It was manufactured out of non-thermally altered Ft. Payne chert and was found in situ in Level 4 of Test Unit 3 at 34.5 cmbs. Charcoal recovered just below this point returned an uncalibrated C^{14} date of 6200 B.P. indicating Middle Archaic occupations at site 40CY63. The point closely resembles the Stanley Stemmed point that has been recovered from Middle Archaic deposits a Ice House Bottom in eastern Tennessee (Chapman 1985). At the Austin Cave site Barker (1997) dated these points (termed Austin stemmed pp/ks) to the Middle Archaic period and were recovered above side notched points recovered from the site.

White Springs (n=1)

One White Springs pp/k was recovered from site 40CY63 (Figure 52, *b*). The point is bi-convex in cross section and has excurvate and incurvate blade edges that have been ground. Its shoulders are inversely tapered and the point's hafting element is characterized by an expanded stem and an excurvate basal edge. The flaking pattern is random and the point was manufactured out of non-thermally altered Ft. Payne chert. White Springs points have a suggested date range between 7,000 and 6,000 B.P. (Cambron and Hulse 1990).

Late Archaic

Type IV Side-Notched Variants

Although admittedly undifferentiated at best, two examples (Figure 51, *e-f*) do closely resemble the Brewerton Eared-Notched *(e)* and the Brewerton Eared-Triangle *(f)* types common in northern parts of Kentucky as well as northeastern portions of the US (Justice 1987). They have been recovered from Late Archaic contexts at sites in these areas.

Ledbetter Cluster (n=2)

Three points within the assemblage are assigned to the Ledbetter cluster (Figure 52, *c–d*). They exhibited a plano convex cross section, ground edges, with excurvate blade

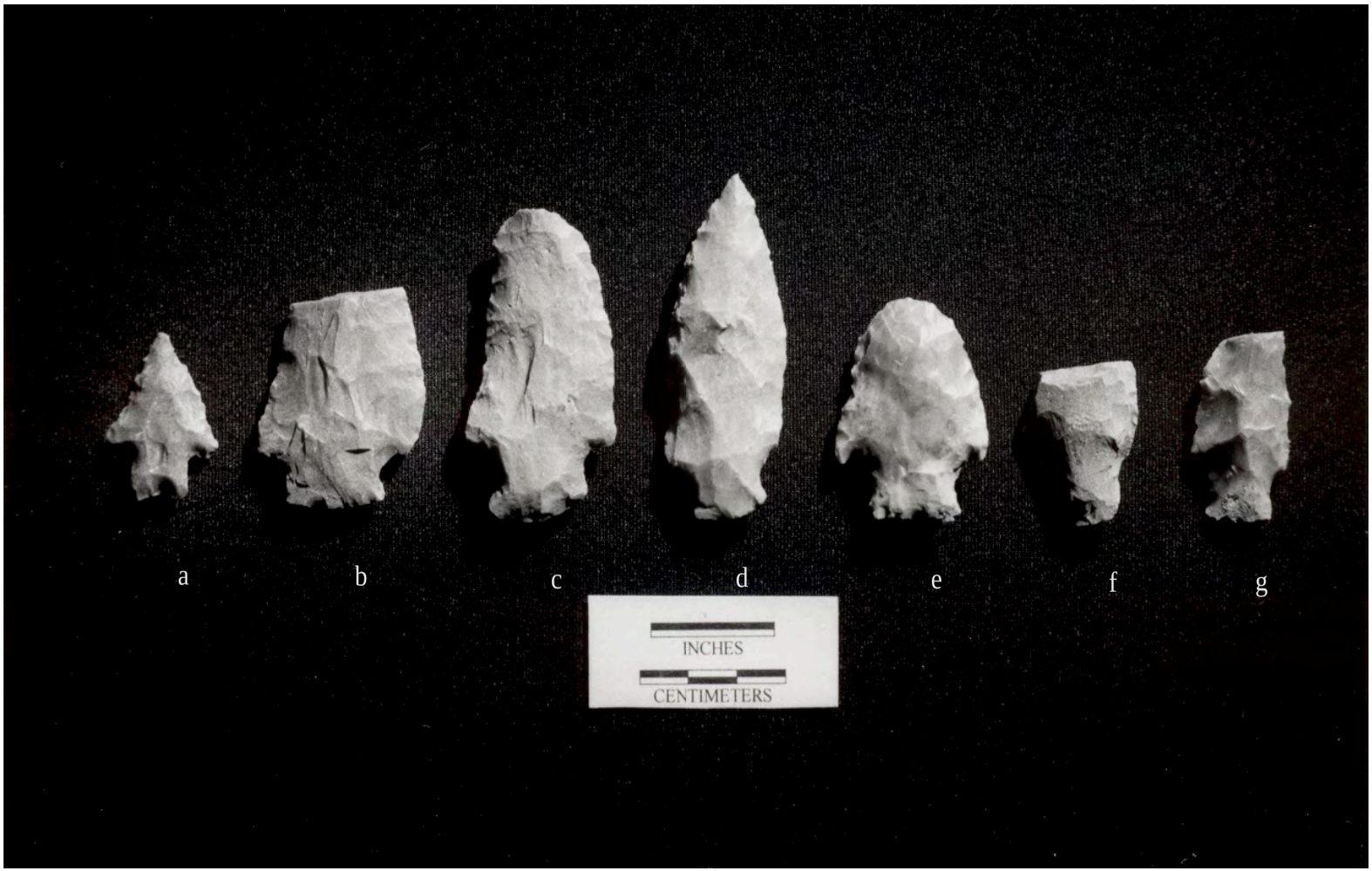


Figure 52. Middle Archaic Stanley/Austin Stemmed (a) and White Springs (b), Late Archaic Ledbetter (c-d), Wade (e), and Little Bear Creek (f-g).

shapes. Their stems are expanding and were characterized by random flaking patterns. These Ledbetter examples were manufactured out of thermally altered Ft. Payne chert. They resemble Pickwick points, which have been dated to the Late Archaic period in the Ledbetter phase recognized in the Upper Duck River Valley of Tennessee (Bowen 1979).

Late Archaic/Early Woodland Transition

Wade (n=1)

One Wade point was recognized within the assemblage (see Figure 52, *e*). It exhibited a biconvex cross section with an excurvate blade shape. Its stem is straight to expanding and its flaking patterns are random. A barb was noted along one of its shoulders. The point was manufactured out of non-thermally altered Ft. Payne chert. Wade points are placed within the Terminal Archaic Barbed Cluster (Justice 1987) and have been found in this context in northern Alabama, Tennessee, Kentucky, and southern Indiana. They have been dated to the Late Archaic period and Early Woodland transitional period in the Normandy Reservoir in Tennessee south of the project area (Faulkner and McCollough 1973).

Little Bear Creek (n=2)

These points are characterized by medium to long straight to contracting stems and are un-notched (see Figure 52, *f–g*). They exhibit a biconvex cross section and their basal edges are straight to convex. One of these points, *f*, was manufactured out of thermally altered Ft. Payne chert. The other point, *g*, was made from a non-thermally altered Ft. Payne secondary flake. Little Bear Creek points have been recovered from the Spring Creek site southwest of the project area along the Tennessee River (Peterson 1973). They were most commonly found within the Kirby zone at the site, which was dated to 3370 ± 160 B.P. or the terminal Archaic period. The Kirby zone's occupation likely terminates at around 2,800 B.P.

Early Woodland

Adena Stemmed (n=5)

Adena Stemmed points represent approximately 7 percent of the diagnostic Stardust pp/k assemblage. They exhibit a flattened cross section and have an excurvate blade shape (Figure 53, *a–e*). Their bases are rounded and flaking patterns are characterized by fine percussion and pressure flaking. Examples *a–d* were manufactured out of local varieties of non-thermally altered Ft. Payne chert, while specimen *e* was made from heat treated Ft. Payne chert. Metric attributes for the Adena sample are presented in Appendix B. Specimen *b* was recovered in situ within Feature 1X at site 40CY64. This feature was defined as a refuse pit which was associated with a cluster of features representing an Early Woodland structure at the site. Limestone tempered cord-marked pottery was also recovered from the feature. Charred wood collected from Feature 1X returned an uncalibrated date of 2450 ± 40 B.P. dating the point to the Early Woodland period. Stratigraphic evidence in Tennessee suggests that Adena Stemmed points may have

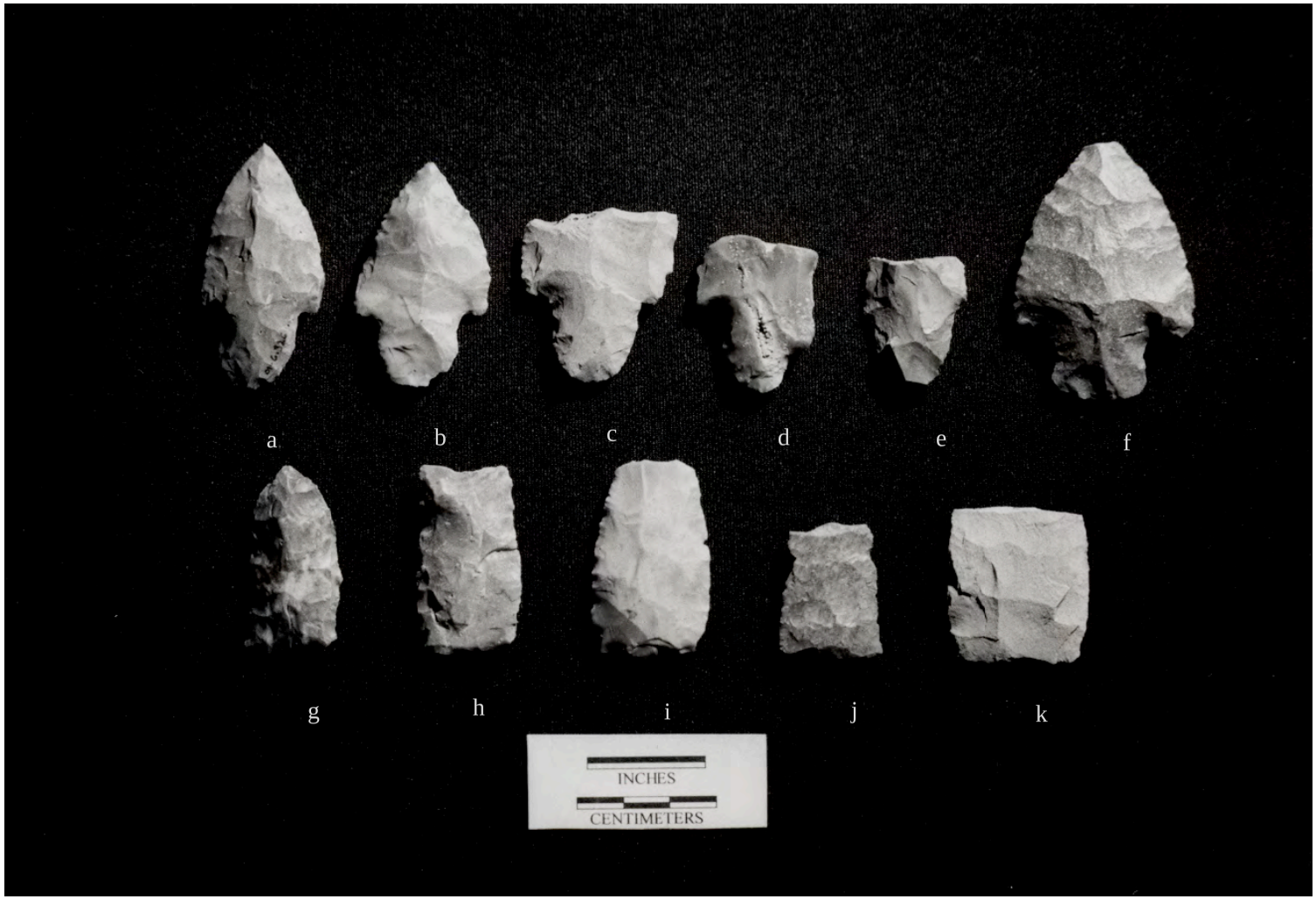


Figure 53. Early Woodland Adena (a-e) and Robbins (f), Middle Woodland Copena/McFarland (g-k).

derived from Little Bear Creek points at the Spring Creek site (Peterson 1973). Adena points are most well known for their association with the Adena culture defined in central and northern Kentucky in the Ohio River valley (Railey 1996). Available evidence from Kentucky suggests that this culture has its beginnings ca. 2,500 B.P. (J. B. Griffin 1974; Seeman 1986).

Robbins (n=1)

One Robbins pp/k was recovered at the Stardust sites (Figure 53, *f*). Its cross section is plano-convex and its blade shape is excurvate. It exhibits a straight stem, its blade edges are ground, and flaking patterns appear to be collateral. The point was manufactured out of non-thermally altered local chert. Robbins points are thought to be associated with Adena culture north of the project area and have been recovered in central Kentucky within Early Woodland archaeological deposits (Railey 1996). Dragoo (1976) places them within the middle to late Adena phases with a date range of 2,500 to 1,800 B.P.

Middle Woodland

Copena Triangular (n=5)

These points represent Middle Woodland occupations at the site. They are biconvex in cross section and are trianguloid in form (see Figure 53, *g–k*). These five specimens have ground blade edges and exhibit a random flaking pattern. Copena points have been recovered throughout the mid-south including south of the project area along the Tennessee River in Alabama and Tennessee as well as to the north in Kentucky (Justice 1987). The Middle Woodland complex has a temporal span of 1,850 to 1,500 B.P. in the southeast (Walthall 1972) and are included within the McFarland cluster identified in the Duck River valley (Faulkner and McCollough 1973).

Lowe Cluster (n=11)

These points represent approximately 14 percent of the diagnostic pp/k assemblage at the Stardust sites. They are small and are biconvex in cross section. Their blade edges are slightly ground and are generally straight to triangular in shape (Figure 54). Two of them, *a–b*, exhibit expanding stems and triangular blades and resemble Bakers Creek points. Examples *c–g* are larger and exhibit expanding stems characteristic of Lowe Flared points. Examples *h-l* are characterized by wide shallow side notches and resemble Chesser Notched points. All were manufactured out of a combination of thermally and non-thermally altered Ft. Payne chert. All of these point types are within Justice's (1987) Lowe Cluster and have been recovered from Middle to terminal Middle Woodland period contexts in Tennessee (Kline et al. 1982).

Figure 54. Middle Woodland Lowe Cluster variants.

Other Lithic Tools

Seven hafted end scrapers were recovered during archaeological investigations at the Stardust sites. They are depicted in Figure 55 *(a–g)* along with one end scraper manufactured out of a shatter fragment. Specimens *a–b* were manufactured out of quartz, while the remaining specimens *(c–g)* were manufactured with local varieties of Ft. Payne and Warsaw chert. Also shown in Figure 55 is an asymmetrical knife *(h)* manufactured out of Ft. Payne chert, and an unifacial knife *(i)* made from a primary St. Louis chert flake. Groundstone tools were not well represented within the lithic assemblages of the Stardust sites; however, two metate fragments, a pestle fragment, and a full grooved axe fragment were recovered. Grooved axes of this type (Figure 56) were used for woodworking and are believed to have been introduced during the Middle Archaic period and continued in use to the Mississippian period.

Bifaces

Over one hundred (n=109) primary, secondary, and tertiary stage bifaces (whole or fragments) are included in the Stardust lithic assemblage, illustrating the fact that tool manufacture was undoubtedly an important activity at all three sites. As expected, the entire array of local raw materials, including Ft. Payne, Warsaw, and St. Louis cherts, as well as quartz varieties, were utilized to manufacture them. Selected examples of each are depicted in Figures 57–59.

Lithic Debitage

A total of 14,595 pieces of lithic debitage were recovered from screened fill during test unit excavations at the Stardust sites. They were manufactured out of local varieties of Ft. Payne, Warsaw, and St. Louis cherts as well as varieties of quartz, including rose quartz, quartzite, and chalcedony. Sandstone and limestone were present as well. Ft. Payne chert represented the most utilized raw material. It accounted for approximately 87 percent (n=12,741) of the total debitage count. Quartzite accounted for 7 percent (n=1,048), followed by small amounts of Warsaw chert (n=70), chalcedony (n=49), St. Louis chert (n=33), and quartz (n=28). Only 619 sandstone fragments were present in the debitage assemblage which was predominately represented by fire-cracked rock, reflecting the poor recovery of groundstone artifacts. Approximately 13 percent of the debris came in the form of fire-cracked rock. No concentrations of this artifact category were noticed during excavations and its distribution appeared highly diffuse throughout the deposits investigated. This is a surprisingly low amount of fire-cracked rock for a site with a substantial Archaic component. Heat treatment was noted on about 60 percent (n=8,819) of the debitage sample—mostly associated with Ft. Payne chert.

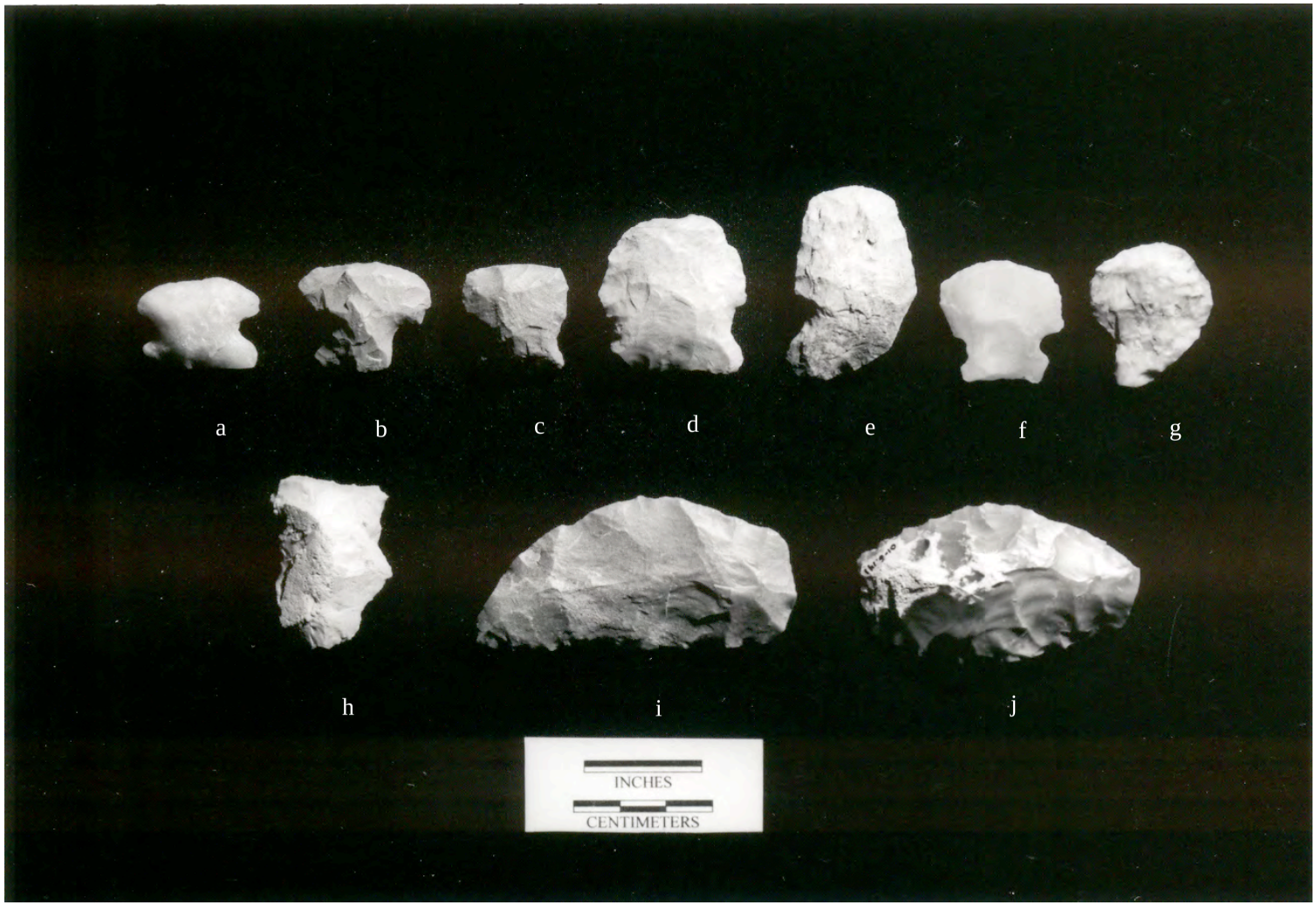


Figure 55. Hafted end-scrapers (a-g); non-hafted end-scraper (h); asymmetrical knife (i); unifacial knife (j).

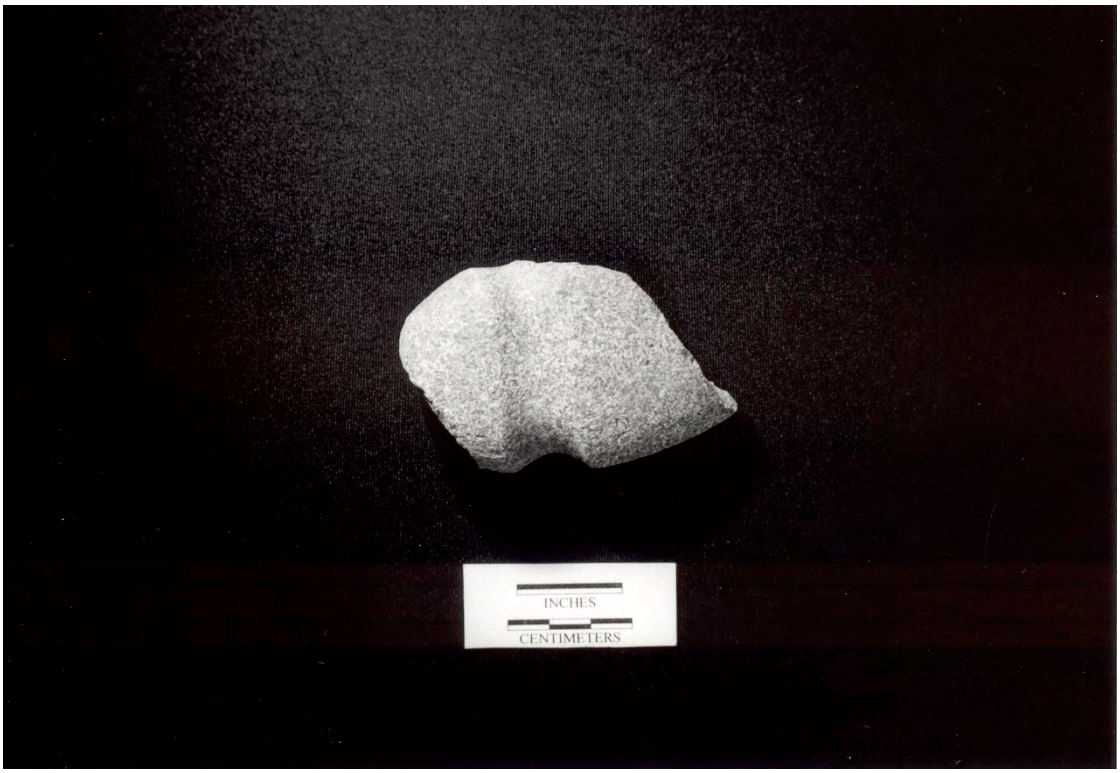


Figure 56. Full-grooved axe fragment.

Figure 57. Selected primary bifaces.

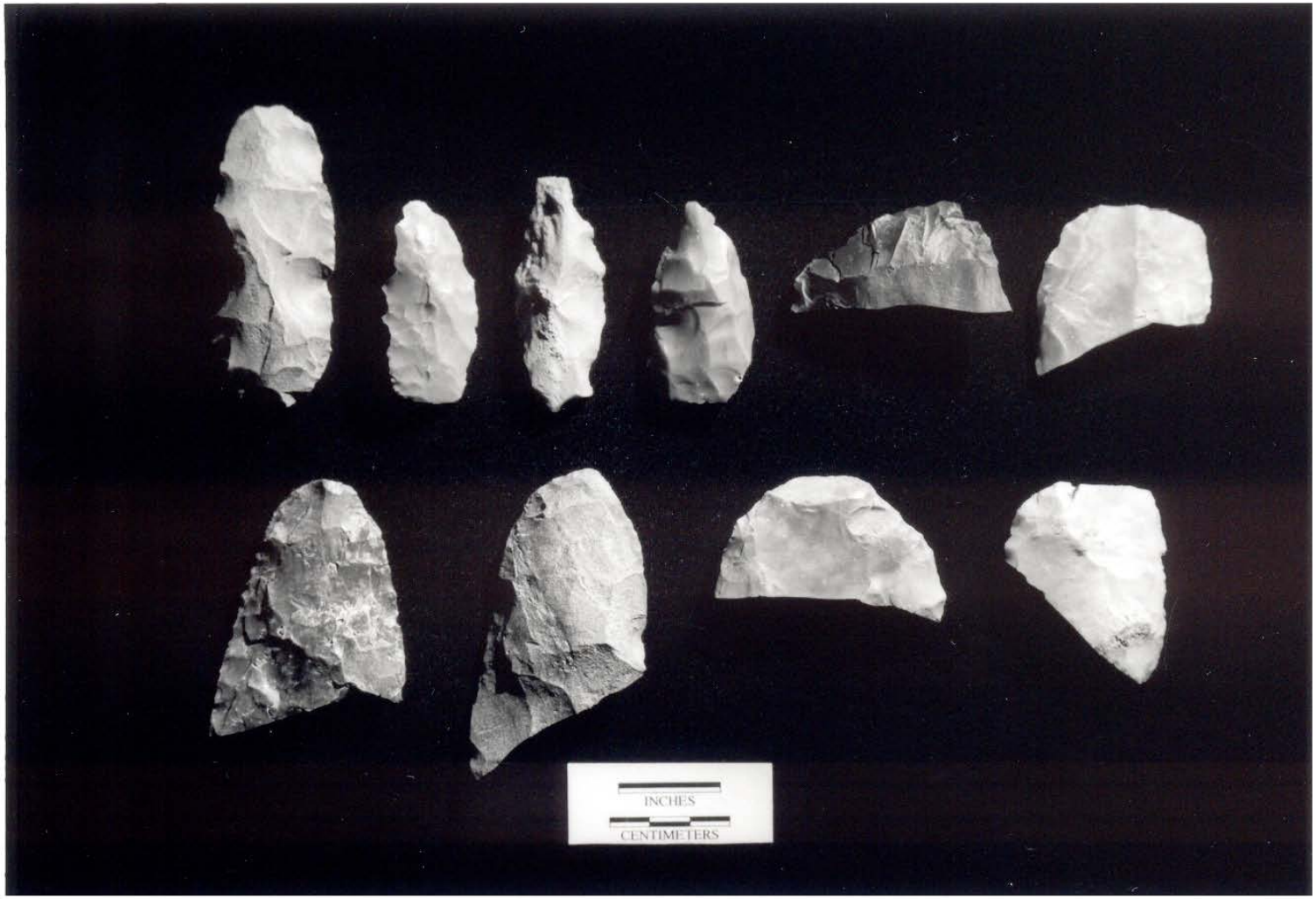


Figure 58. Selected secondary bifaces.

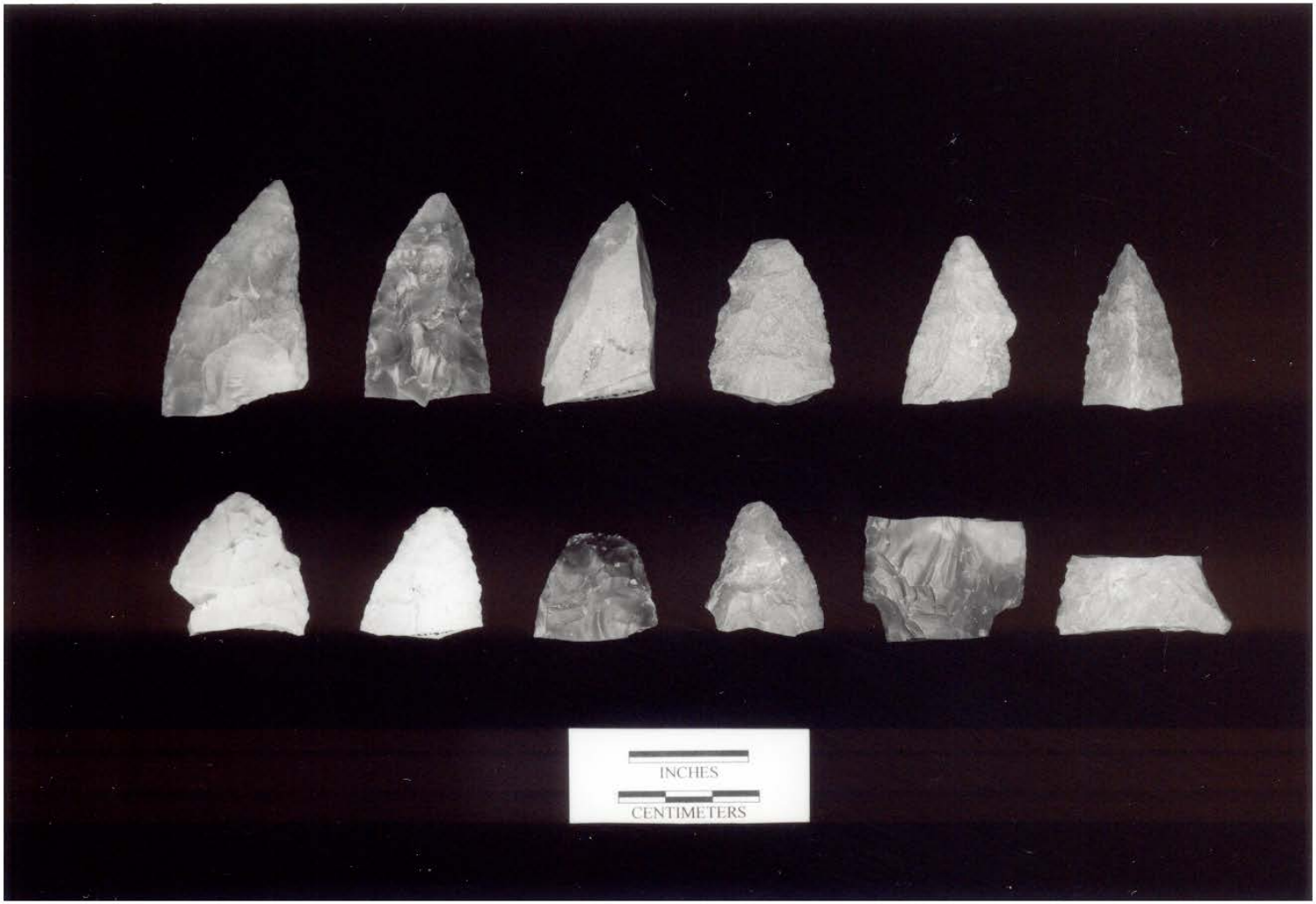


Figure 59. Selected tertiary bifaces.

CERAMICS

Ceramic artifacts recovered from the Stardust sites are limited in number and type and provide a relatively unimpressive reflection of the total array of types manufactured in the southeast over the last 2,500 years. The Stardust ceramic assemblage does fit nicely, however, into previously described functional categories delineated for the Middle-South region. Although no wholly new ceramic data were recognized, the analysis does provide good contextual data for ceramics previously described in the region.

Tempering agents have long been recognized as temporally sensitive in southeastern archaeological studies (Davis 1990; Kimball 1985). Ceramic sherds were sorted based on aplastic inclusions (temper) and on surface treatment/decoration (e.g., incised, punctated, cord marked, red filmed, etc.) if present. Table 31 provides a listing of major paste types and affiliated temporal periods for ceramics in the region.

Table 31. Major Ceramic Paste Types for Upper Middle Tennessee.

Paste/Temper	Associated Ceramic Types	Temporal Affiliation
Quartz	Watts Bar Fabric Marked, Watts Bar Cord Marked, Quartz Tempered Plain	Early Woodland
Limestone	Bluff Creek Simple Stamped, Wright Check Stamped, Pickwick Complicated Stamped, Mulberry Creek Plain, Long Branch Fabric Marked, Flint River Cord Marked	Late Early Woodland–Middle Woodland
Sand/Fine Quartz	Connestee Plain, Connestee Fabric Marked, Connestee Cord Marked, Connestee Check Stamped	Late Middle Woodland
Shell	Bell Plain, Mississippi Plain, McKee Island Cord Marked, Hiwassee Island Red Filmed	Mississippian/ Overhill Cherokee

The ceramic assemblage consists of 117 ceramic sherds >1/2 inch in diameter and a number of unidentifiable residual sherds/baked clay fragments totaling 107.4 grams. The assemblage (Table 32) is dominated by limestone-tempered wares that exhibit cord-wrapped, paddle-impressed surfaces (Figures 60 and 61). A small amount of plain- and fabric-impressed surfaces are also present in the assemblage (Figure 61). Many of the sherds had heavily eroded surfaces making further detailed descriptions impossible. All ceramics are described only to the type level and are considered as variety unspecified (*var. unspec.*).

Table 32. Summary of Ceramic Recovery.

	Total	Percentage of Site Assemblage
40CY63		
Flint River Cord Marked	3	60%
Longbranch Fabric Impressed	1	20%
Mulberry Creek Plain	1	20%
Total	**5**	**100%**
40CY64		
Flint River Cord Marked	96	85.7%
Longbranch Fabric Impressed	1	0.9%
Mulberry Creek Plain	4	3.6%
Undetermined Plain (Untempered)	1	0.9%
Undetermined Eroded	10	8.9%
Total	**112**	**100.0%**

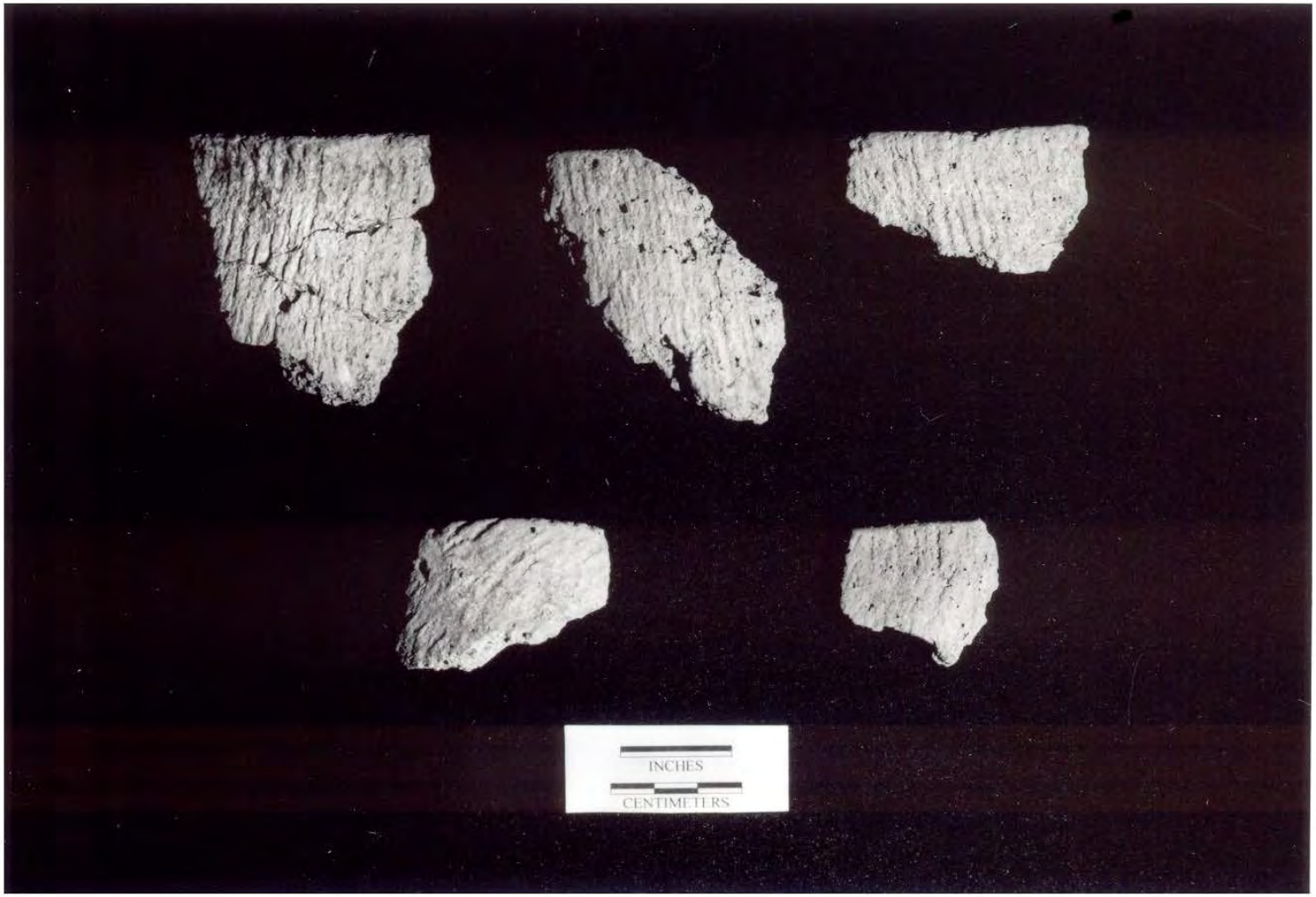


Figure 60. Selected limestone-tempered, cord-marked rim sherds.

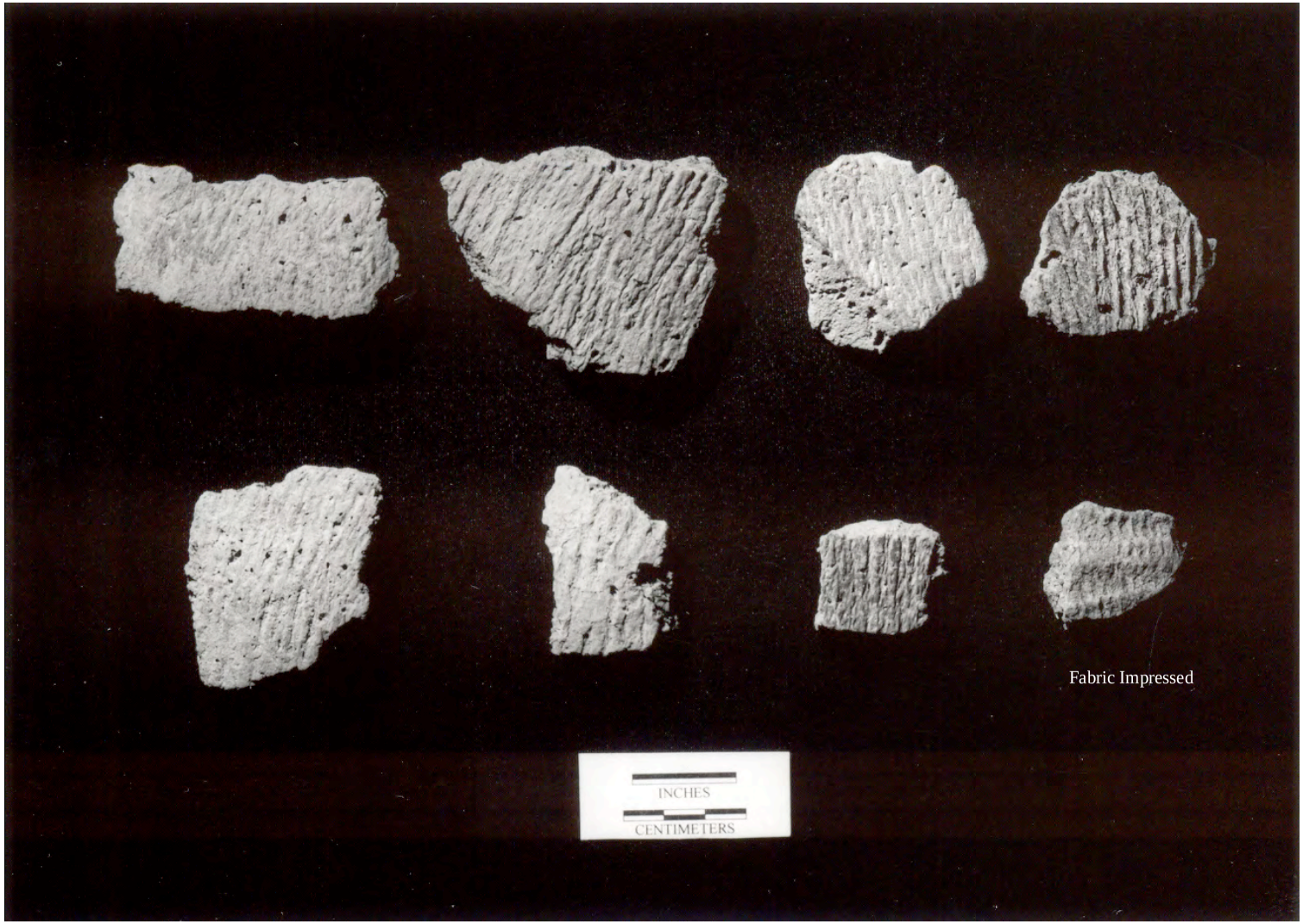


Figure 61. Selected limestone-tempered, cord-marked and fabric impressed body sherds.

Limestone-Tempered Ceramics

Flint River Cord Marked

Sample size: n=99 (11 rims, 88 body sherds)

Paste: This paste is hard to medium hard and is usually compact. Limestone temper was added to the paste as an aplastic additive and is distinguished by voids of 0.5–2.0 mm in diameter. Larger temper particles were observed to usually be blocky and angular.

Surface Finish: The exterior surfaces of these sherds are marked with distinct cord-wrapped paddle impressions in a random orientation. Some sherds have cordage impressions that appear smoothed, but this may be a function of differential preservation in the sub-assemblage. Irregular voids appear as a residual effect of the deterioration of the limestone temper particles. The interior surfaces are smoothed and coil lines are indistinct.

Vessel Form: The rim sherds (and larger body sherds) indicate that the typical vessel form is small to medium straight sided jar style. A number of the specimens were too small to make an accurate appraisal of their vessel form.

Decoration: These sherds are decorated by impressions applied with a cord-wrapped paddle executed on the exterior surfaces. Smoothed over cord-marked (or more appropriately eroded) surfaces are present.

Dimensions: Body sherds range in thickness from 5.5–12.6 mm with a mean of 8.6 mm. Rim sherds usually have direct rim profiles with flattened or rounded lips. These have a mean thickness of 6.1 mm. For larger rims, projected vessel orifice diameters were measured from ca. 7.0–17.0 cm.

Comments: The majority of the ceramics recovered during this project were classified into this type. This ceramic type was initially defined in the Middle Tennessee River Valley associated with Middle Woodland components (Heimlich 1952). Generally, these sherds are heavily deteriorated and crumble easily. Sherd cross-sections have from 2–15 limestone particles (or casts of former particles) visible. The cordage twist patterns are indeterminate. The cord impressions ranged from 0.5–3.0 mm wide and were separated by ridges usually 1.5–3.5 mm wide. Exterior surfaces are usually buff to tan to gray.

Longbranch Fabric Impressed

Sample size: n=2 (body sherds)

Paste: The paste of these sherds contains small fragments of crushed limestone from 1–3 mm thick. A number of voids can be distinguished in the paste (usually on the sherd interiors) and are angular, indicating areas of leached-out limestone temper. The paste is moderately compact and hard. Individual sherds are generally much more resistant to breakage and decomposition, being less likely to crumble than the cord-marked sherds.

Surface Finish: The exterior surfaces are distinguished by rhomboidal impressions from fabric applied to their surfaces before the vessel was dried. Interior surfaces are well smoothed and coil lines cannot be discerned. Surfaces of these sherds are generally less eroded than the cord-marked sherds.

Form: No rim sherds were discovered during the investigations, but the few body sherds indicate larger vessel forms (e.g., bowls or jars).

Decoration: Decoration is in the form of impressions left by fabric applied to the exterior surfaces of vessels. No decoration is present on interior sherd surfaces.

Dimensions: Large shallow pans or deep bowls/jars are suggested by the sherd contours. The average sherd is 10.9-mm thick. No orifice dimension can be determined from the sample.

Comments: This ceramic type was infrequently observed at these sites. The surfaces were treated with a fabric wrapped paddle, resulting in a *wickerwork-like* series of surface impressions. Fabric used during this process was probably a plain plaited type exhibiting a close weft and a wide warp.

Mulberry Creek Plain

Sample size: n=5 (body sherds)

Paste: These ceramics have a medium hard to hard paste that ranges from brittle to compact. Crushed limestone was added as a tempering agent and is distinguished based on a number of small, >1–3 mm, voids in the interior and exterior surfaces of the sherds.

Surface Finish: The interior and exterior surfaces of these sherds have been smoothed, obliterating coil lines, but addition surface treatments are absent. These sherds are probably from wholly plain vessels—not from undecorated portions of vessels treated with other decorative styles/motifs.

Form: No rims were collected. The body sherd profiles indicate bowl or jar vessel forms.

Decoration: Interior and exterior surfaces are plain, lacking decoration.

Dimensions: Body sherds range in thickness from 7.6–14.9 mm. Mean thickness for the assemblage is 10.8 mm. No rims were recovered to allow for vessel diameter estimations.

Comments: These sherds are commonly found on sites situated on the Eastern Highland Rim in Tennessee (Bentz 1996). They make up only a minor portion of the ceramic recovery here, but the presence of limestone-temper indicates a cultural continuity with the Flint River Cord-Marked and Longbranch Fabric-Impressed specimens.

Undetermined Plain and Eroded

Sample size: n=11 (body sherds). [Undetermined plain (n=1); Eroded (n=10)].

Paste: The paste of these sherds is similar in the fact that they are all moderately compact and medium hard. Ten sherds are heavily eroded on the interior/exterior surfaces and have finely crushed limestone added to the paste. One sherd has apparently no tempering material added to its paste.

Surface Finish: The seemingly untempered sherd is smoothed with no decorative styles on its exterior surface. The remaining sherds are badly eroded precluding further analysis at this level of investigation.

Form: Lacking rims, vessel forms could not be accurately ascertained. Based on the larger body sherd profiles, bowls or large jars are likely the predominate vessel types.

Decoration: No decoration can be discerned on the surfaces of these sherds.

Dimensions: Body sherds range from 4.9–14.8 mm. The mean thickness is 9.2 mm. No orifice diameters can be calculated from these specimens.

Comments: This category subsumes the limestone-tempered, eroded-surfaced sherds (n=10) and the one example of an apparently untempered plain sherd. It must be noted, however, that the untempered sherd may be only a small sherd from a vessel that had little in the way of tempering added to the paste. The heavily eroded sherds may belong with the Mulberry Creek Plain or Flint River Cord-Marked types.

Baked Clay/Residual Sherds

Site 40CY63 contained 33.2 grams of residual ceramic sherds and baked clay fragments. Site 40CY64 contained 74.2 grams of baked clay and residual ceramic sherds. These values are surprisingly low considering that over 100 ceramic sherds were recovered from 40CY64.

Discussion

Limestone, added as an aplastic tempering agent to prehistoric ceramic technology, has been documented at archaeological sites as early as about 2,300 B.P. (Walling et al. 2000). In East Tennessee, dates of 2340 ± 150 B.P. were obtained for these ceramics at the Westmoreland-Barber site in the Nickajack Reservoir (Faulkner and Graham 1966). A date of 2100 ± 250 B.P. was obtained for limestone-tempered ceramics at the Camp Creek site (Griffin 1967; Lewis and Kneberg 1957). In Middle Tennessee early dates in association with this ceramic type are summarized by Kline et al. (1982) and Faulkner (1988). McNutt and Weaver (1983) provide the date of 2,200 B.P. as the beginning of the limestone-tempered pottery bearing deposit dating to the early Middle Woodland period at the Duncan Tract site on the banks of the Cumberland River in Trousdale County. Limestone tempered ceramic varieties have been recovered from Mississippian period sites in Middle Tennessee (Moore and Smith 2001) and southern Kentucky (Smith 1993), which may be a response to limited mussel shell access. The specimens from the Stardust sites represent an Early Woodland period association and appear to be local varieties of Flint River Cord Marked pottery with an uncalibrated date range of 2,420 to 2,300 B.P.

VIII. SUMMARY AND RECOMMENDATIONS

TRC Garrow conducted Phase II archaeological investigations at sites 40CY63, 40CY64, and 40CY65 in the spring and summer of 2001. The sites are situated along the upper Cumberland River near Celina in Clay County, Tennessee. TDOT personnel first identified the sites during a Phase I archaeological survey performed in conjunction with the proposed construction of a State Industrial Access (SIA) from SR 52 to the planned building site of a houseboat-manufacturing corporation (Stardust Cruisers Incorporated) (Barker 2001). These three sites were determined to contain intact archaeological deposits within the APE of the SIA, and were consequently recommended for inclusion on the NRHP. The sites would be unavoidably impacted and Phase II testing was recommended (Barker 2001; Barker and Kline 2001). Areas of investigation totaled approximately 4514 m^2 (1.1 acres) at 40CY63; 2257 m^2 (0.551 acres) at 40CY64; and 9028 m^2 (2.2 acres) at 40CY65. The Phase II testing consisted of a multi-staged field approach for these areas and included geomorphological investigations, the excavation of fourteen 1 x 1-m test units, eighteen backhoe trenches, nine backhoe pits, and one 7 x 7-m block within the area of potential effects (APE).

The sites are situated on two alluvial terrace remnants (T1 and T2) of the Cumberland River. Geomorphic investigations determined that the bulk of sediment within the higher elevated remnant (T2) is alluvial and appears to be Pleistocene in age, and that the lower terrace (T1) exhibits a 1–2-m thick drape of sediment consisting of relatively unweathered Holocene alluvium. Archaeological excavations determined sedimentary soils at the sites are the result of colluvial as well as alluvial processes. The thickest occurrences of the sediment are in erosional swales that have dissected the terrace remnants. The plowzone averages 20 cm in thickness throughout the project APE.

40CY63

Site 40CY63 is located in the southern portion of the APE, and is situated on the highest portion of the T1 remnant with swales to the north, west, and south. Archaeological investigations at site 40CY63 revealed deep deposits ranging from 25 cm to over 1 m below the plowzone. The recovery of 41 diagnostic projectile points, 2 diagnostic ceramic sherds, and material collected during the excavation of two refuse pits, Features 32 and 40, date occupation at the site from the Middle Archaic through the Middle Woodland periods. In addition, over 10,000 pieces of lithic debitage were recovered from test units and features excavated at the site. The Middle Archaic component is substantiated by two uncalibrated C^{14} dates, 6200 ± 40 B.P. (Test Unit 3) and 5560 ± 40 B.P. (Feature 40, refuse pit). The Early Woodland component is confirmed by an uncalibrated C^{14} date of 2300 ± 40 B.P. (Feature 32, refuse pit).

40CY64

Site 40CY64 is located just north of 40CY63 at a slightly lower elevation and is situated within intermediate portions of the T1 remnant. Testing at this site also revealed deep

archaeological deposits. Testing at site 40CY64 also revealed deep archaeological deposits. The deposits range from 20 cm to over 1 m below the plowzone. The recovery of 16 diagnostic pp/ks, 112 diagnostic ceramic sherds, and material collected during the excavation of three refuse pits and one post mold date occupation at the site from the Middle Archaic period through the Middle Woodland period. In addition, over 1,700 pieces of lithic debitage was recovered from test units and features excavated at the site. The Early Woodland component is confirmed by C^{14} dating of three charred wood samples collected from features associated with a circular structure discovered at 40CY64. Samples collected from two refuse pits containing carbonized nutshell, animal bone, and limestone-tempered, cord-marked ceramic sherds returned uncalibrated C^{14} dates of 2300 ± 40 and 2420 ± 40 B.P. A sample collected from a post mold feature returned an uncalibrated date of 2240 ± 40 B.P. The circular structure measures 7 x 5-m and is functionally interpreted as domestic.

40CY65

Site 40CY65 is contained mostly within the higher elevated T2 terrace remnant and occupies a large section of the northern portion of the APE. Thin drapes of the T1 terrace remnant have reached extreme southern and northern portions of the site's APE boundaries. Investigations at site 40CY65 revealed a thin layer of archaeological deposits ranging from 15 cm to 35 cm below the plowzone. The recovery of 8 diagnostic pp/ks and a C^{14} of 2420 ± 40 B.P., obtained from charred wood collected from Feature 41, a refuse pit, date occupations at the site to the Middle Archaic and the Early – Middle Woodland periods.

Recommendations

Phase II testing at sites 40CY63, 40CY64, and 40CY65 has resulted in the discovery of deep archaeological deposits that contain diagnostic artifacts and sub-surface cultural features that can yield important information concerning prehistoric occupation during the Middle Archaic through Early Woodland periods along the upper Cumberland River valley in northeastern portions of the Eastern Highland Rim. Therefore, TRC recommends that the portion of sites 40CY63, 40CY64, and 40CY65 within the SIA APE are eligible for inclusion on the NRHP under Criterion D. TRC recommends that construction of the proposed access road will constitute an adverse effect on these resources. It is also our recommendation that further archaeological investigations, via Phase III or data recovery work, are required within the APE at sites 40CY63, 40CY64, and 40CY65.

SYNTHESIS

Clearly, little professional archaeological attention has been paid to the cultural resources of Clay County and surroundings areas. Considering other work conducted in the Clay County area (summarized in Chapter III), a limited and qualified summary statement can be made regarding the Stardust property sites within the overall history of human occupation in the area. In the generally rugged terrain of this portion of the Highland Rim region, there has always been an emphasis on the use of the terraces alongside rivers and

streams as habitation and activity areas. Sites 40CY63, 40CY64, and 40CY65 or the *Stardust sites*, described in this report, occupy such a terrace and represent some of the most extensive and dense archaeological deposits yet identified in Clay County.

Evidence gained from archaeological investigations at the Stardust sites suggest that occupation was most intense during the Middle Archaic and Early Woodland periods. The presence of a refuse pit (Feature 40) at 40CY63 containing carbonized hickory nutshell and dating to 5560 ± 40 B.P. (uncalibrated) suggests reliance on this food during the Middle Archaic period. Furthermore, long term Middle Archaic occupation is evidenced by the recovery of several scrapers, presumably used for hide processing, manufactured out of broken side-notched projectile points. Five refuse pits (Features 1A, 1N, 1V, 1X, and 41), three of which (Features 1A, 1X, and 41) were excavated across all three sites, returned uncalibrated dates of 2300, 2420, and 2420 ± 40 B.P. respectively. They contained carbonized plant and nut material as well as relatively high amounts of white tailed deer with smaller amounts of rabbit, fish and unidentified mammal bone. This provides insight into subsistence regimes in place during Early Woodland occupation at the sites, with hunting and fishing as primary activities. The delineation of a structure at site 40CY64 and the recovery of ceramic sherds suggests long-term occupation during the Early Woodland period. The dense lithic midden delineated at all three sites, totaling over 15,000 pieces of lithic debitage, suggests tool production was also major activity at this locale. Brief summaries of the Stardust project's contribution to Middle Archaic and Early Woodland archaeological research in the region are provided below.

Middle Archaic Occupation

Radiocarbon and stratigraphic evidence gathered from excavations at site 40CY63 show that side-notched variants recovered at the Stardust sites represent Middle Archaic occupation. The Stardust side-notched pp/k assemblage offers support to growing evidence that the form is a Middle Archaic period rather than an exclusive Early Archaic period phenomenon in the project region.

The temporal placement of side-notched projectile points has been debated for decades. There is no question that certain variants date to the Early Archaic period. Justice (1987) provides a decent summary of this and cites numerous examples throughout the mid-south and mid-west regions. For example, side-notched variants have been recovered within the lowest levels or Early Archaic period contexts in northern Alabama at the Stanfield-Worley Bluff Shelter, the Lagrange site, and Russell Cave (DeJarnette et al. 1962; Goodyear 1982; DeJarnette and Knight 1976; J. W. Griffin 1974). In addition they were recovered within the lowest strata at the Modoc Rock Shelter in southern Illinois (Fowler 1959). However, a growing amount of archaeological research conducted throughout the project region strongly suggests that side-notched points are also markers of Middle Archaic period occupation.

Justice (1987) points out that side-notched points were recovered from deep levels (Early Archaic) at the Eva site along the Tennessee River in west-central Tennessee, perhaps the most well known Archaic site in the project region. Two side-notched specimens were

recovered from Stratum IV and associated with the Eva component at the site (Lewis and Lewis 1961). Stratum IV was the second to lowest stratum defined at Eva; however, antler from this stratum was dated to 7200 ± 500 B.P. or to the early part of the Middle Archaic period. The investigators feel that the two specimens are "…possibly intrusive…" or displaced from the lowest Three Mile component or Stratum II. The remaining and majority of side-notched examples (n=17) recovered from the Eva site were recovered from Stratum II, the Three Mile component. This stratum is dated to between 6,000 and 5,000 B.P.—firmly within Middle Archaic period date ranges for the project region. Furthermore, Lewis and Lewis (1961) also point out that the highest amounts of side-notched variants recovered from the Modoc Rock Shelter in southern Illinois occurred in levels dating to the Middle Archaic period or 5325 ± 300 B.P. and approximately 6100 B.P. This observation is further confirmed by archaeological investigations at the Carrier Mills Archaeological District, located just west of the Modoc Rock Shelter, where side-notched forms were recovered from Middle Archaic period contexts (May 1982).

More recent archaeological research in the project vicinity provides strong evidence for the conclusion that side-notched projectile points are a Middle Archaic phenomenon. Sixty-nine side-notched variants, which are morphologically very similar to the Type I–III variants within the Stardust assemblage, were recovered from deposits at the Austin Cave site located in the Western Highland Rim in Robertson County, Tennessee (Barker 1997). Nearly 80 percent of the examples came from Stratum II (n=40) and Stratum III (n=14) of a midden deposit recognized at the site. These strata returned uncalibrated radiocarbon dates of 5990 ± 90 B.P. for Stratum II, and 6200 ± 60 B.P. and 6620 ± 80 B.P. for Stratum III. Barker (2002) also recently conducted an archaeological investigation of site 15CH191 along the Cumberland River in Cheatham County, Tennessee. Side-notched points were recovered from Zone E (shell midden) of Stratum I recognized at the site. Stratum I was determined to be associated with Middle Archaic occupations. Lastly, seven side-notched variants were recovered from two pits, Features 1 and 2, excavated at site 40WI158 in Wilson County, Tennessee (Stallings et al. 1998). Nutshell recovered from Feature 2 returned an uncalibrated radiocarbon date with a two sigma range of 5,485 to 5,240 B.P.—or the latter part of the Middle Archaic period.

The majority of Type I–III side-notched variants within the Stardust assemblage are also similar morphologically to side-notched points recovered from Middle Archaic contexts in Kentucky to the north (Justice 1987; Jefferies 1996). Raddatz or Godar side-notched points have been temporally placed within the Middle Archaic period in central Kentucky along the Green River at the Parish Village (Webb 1951) and Read Shell Midden (Webb 1950) sites. Type IV examples *(a–d)* depicted in Figure 51 most closely represent the Matanzas type, which is most common in areas of northern Kentucky and central and southern Indiana and Illinois (Munson and Harn 1966; Cook 1976). They represent terminal Middle Archaic occupation in these areas.

Early Woodland Occupation

The Early Woodland component at the Stardust site is substantiated by the recovery of five Adena pp/ks and one Robbins pp/k, several limestone-tempered cord-marked

ceramic sherds and five radiocarbon dates ranging from 2420 to 2240 ± 40 B.P. (uncorrected). The cord-marked ceramic assemblage most resembles Flint River Cord Marked pottery in form, which is a predominately early Middle Woodland manifestation in the region. Three of the radiocarbon dates were obtained from Features 1A, 1N, and 1Q, which are directly associated with a circular structure discovered and partially excavated at site 40CY64. Charred wood collected from Feature 1X in association with a complete Adena pp/k and several limestone-tempered cord-marked ceramic sherds returned an uncalibrated radiocarbon date of 2420 ± 40 B.P.

The Early Woodland period is poorly understood in the Eastern Highland Rim of Tennessee. Very few Early Woodland sites or Adena components have been excavated in the project region. Adena and Adena-like pp/ks have been recovered throughout the region, however, including one recovered from site 40CY67 just north of the Stardust sites (Johnson and McClelland 2001), suggesting some Adena influence in the region. Adena and Turkeytail pp/ks have also been recovered from feature contexts at sites 15SI7, 15WA963 (Coca Cola), and 15WA981 (Plum Springs) in south-central Kentucky northwest of the project area (Schock 1979; Schock and Dowell 1981). No structures were identified at these sites, however. McNutt and Weaver (1983) provide an uncorrected date of 2275 ± 175 B.P. for the Adena component recognized at the Duncan Tract site just south of the Stardust sites along the Cumberland River. The component is recognized by rounded-based Adena points and predominantly quartzite-tempered ceramics; however, they suggest that limestone-tempered pottery may also be associated with the component. They also suggest that the component may be associated with two oval structures identified at the site.

At the Nowlin II site south of the project area in the Normandy Reservoir, Keel (1978) assigned rounded-base or Adena-like projectile points as intermediate between the Terminal Archaic Wade Phase and early Middle Woodland McFarland Phase and dating to around 2,400 B.P. No structures were identified at the site and the pp/ks were found in association with quartzite-tempered pottery.

Excavation of the Early Woodland component at the Stardust sites provides strong evidence of a long-term Adena occupation or component dating to approximately 2,400 B.P. It also provides a more clear chronological placement regarding the inception of limestone-tempered pottery in the region as well as insight into the geographic reaches of Adena culture in the mid-south.

REFERENCES CITED

Adovasio, James M., and W.C. Johnson

1981 Appearances of Cultigens in the Upper Ohio Valley: A View from Meadowcroft, Rockshelter. *Pennsylvania Archaeologist* 51(1–2):63–80.

Amick, Daniel S.

1986 Radiocarbon Dates from the Fattybread Branch Site (40MU408) at the Natchez Trace Crossing on the Duck River. *Tennessee Anthropological Association Newsletter* 11(1):2–11.

1987 *Lithic Raw Material Variability in the Central Duck River Basin: Reflections of Middle and Late Archaic Organizational Strategies.* Tennessee Valley Authority Publications No. 50, Norris. University of Tennessee, Department of Anthropology, Report of Investigations No. 46, Knoxville.

Amick, Daniel S., and Phillip J. Carr

1996 Changing Strategies of Lithic Technological Organization. In *Archaeology of the Mid-Holocene Southeast*, edited by Kenneth E. Sassaman and David G. Anderson, pp. 41–56. University Press of Florida, Gainesville.

Anderson, David G.

1989 The Paleoindian Colonization of Eastern North America: A View from the Southeastern United States. Paper presented at the 46th Annual Meeting of the Southeastern Archaeological Conference, Tampa, Florida.

1990 The Paleoindian Colonization of Eastern North America: A View from the Southeastern United States. In *Early Paleo-Indian Economies of Eastern North America*, edited by Barry Issac and Kenneth Tankersley, pp. 163–216. Journal of Economic Anthropology Supplement No. 5.

1995a Paleoindian Interaction Networks in the Eastern Woodlands. In *Native American Interactions: Multiscalar Analyses and Interpretations in the Eastern Woodlands*, edited by Michael S. Nassaney and Kenneth E. Sassaman, pp. 3–26. University of Tennessee Press, Knoxville.

1995b Recent Advances in Paleoindian and Archaic Research in the Southeastern United States. *Archaeology of Eastern North America* 23:145–176.

1996a Models of Paleoindian and Early Archaic Settlement in the Lower Southeast. In *The Paleoindian and Early Archaic Southeast*, edited by David G. Anderson and Kenneth E. Sassaman, pp. 29–57. University of Alabama Press, Tuscaloosa.

1996b Approaches to Modeling Regional Settlement in the Archaic Period Southeast. In *Archaeology of the Mid-Holocene Southeast*, edited by Kenneth E. Sassaman and David G. Anderson, pp. 157–176. University Press of Florida, Gainesville.

Anderson, David G., and Glen T. Hanson
1988 Early Archaic Settlement in the Southeastern United States: A Case Study from the Savannah River Valley. *American Antiquity* 53:262–286.

Anderson, David G., Lisa O'Steen, and Kenneth E. Sassaman
1996 Environment and Chronological Considerations. In *The Paleoindian and the Early Archaic Southeast,* edited by David G. Anderson and Kenneth E. Sassaman, pp. 5–15. University of Alabama Press, Tuscaloosa.

Barker, Gary
1997 Upland Middle Archaic Adaptations in Tennessee's Western Highland Rim, A View from the Austin Cave Site (40RB82). *Tennessee Anthropologist* 22(2):177–224.

2001 Phase I Survey – Short Report, Proposed TDOT Undertaking, State Industrial Access, From State Route 52 to Stardust Cruisers Incorporated, Celina, Clay County. Report on file with the Tennessee Department of Transportation.

2002 *An Archaeological Assessment: Proposed Residential Development Tract Along Cumberland River (River Mile 160.7-161.0) and 30' Wide Ingress/Egress and Utility Easement Form the Property of Gary Wood to Cumberland River, Cheatham County, Tennessee.* Pp:1-34. Submitted to Lee Batson Development and U.S. Army Corps of Engineers, Nashville.

Barker, Gary, and John B. Broster
1996 The Johnson Site (40DV400): a Dated Paleoindian and Early Archaic Occupation in Tennessee's Central Basin. *Journal of Alabama Archaeology* 42(2): 97–153.

Barker, Gary, and Gerald Kline
2001 *Request for Proposals, Phase II Testing of Prehistoric Archaeological Sites 40CY63, 40CY64, and 40CY65.* Tennessee Department of Transportation, Environmental Planning Office, Nashville.

Bense, Judith A.
1994 *Archaeology of the Southeastern United States: Paleoindian to World War I.* Academic Press, San Diego.

Bentz, Charles, Jr. (editor)
1996 *The Bailey Site (40GL26): Late Archaic, Late Woodland, and Historic Settlement and Subsistence in the Lower Elk River Drainage of Tennessee*. Tennessee Department of Environment and Conservation, Division of Archaeology, Miscellaneous Publication No. 2.

Bowen, William R.
1979 The Late Archaic in the Upper Dick River Valley. *Tennessee Anthropologist* 4(2):140-159.

Brakenridge, G.R.
1984 Alluvial stratigraphy and radiocarbon dating along the Duck River, Tennessee: Implications regarding flood-plain origin. *Geological Society of America Bulletin* 95, pp. 9–25.

Braun, Lucy E.
1950 *Deciduous Forests of Eastern North America.* Blakiston Press, Philadelphia.

Breitburg, Emanuel, John B. Broster, Arthur L. Reesmand, and Richard Stearns
1996 The Coats-Hines Site: Tennessee's First Paleoindian-Mastodon Association. *Current Research in the Pleistocene* 13:6-8.

Caldwell, Joseph R.
1964 Interaction Spheres in Prehistory. In *Hopewellian Studies*, edited by Joseph R. Caldwell and R. Hall, pp. 122–143. Illinois State Museum of Science Papers No. 12.

Cambron, James W., and David C. Hulse
1990 *Handbook of Alabama Archaeology, Part I: Point Types.* Alabama Archaeological Society, Huntsville.

Campbell, Jessie F., and Darwin L. Newton
1995 *Soil Survey of Fentress and Pickett Counties, Tennessee.* U.S. Department of Agriculture Soil Conservation Service, University of Tennessee Agricultural Experiment Station, Knoxville.

Chapman, Jefferson
1977 *Archaic Period Research in the Lower Little Tennessee River Valley, 1975: Icehouse Bottom, Harrison Branch, Thirty Acre Island, Calloway Island.* Report of Investigations 18. Knoxville: Department of Anthropology, University of Tennessee.

1985 Archaeology and the Archaic Period in the Southern Ridge and Valley Province. In *Structure and Process in Southeastern Archaeology*, edited by Roy S. Dickens and H. Trawick Ward, pp. 137–153. University of Alabama Press, Tuscaloosa.

Chapman Jefferson, and Gary D. Crites
1987 Evidence for Early Maize (*Zea mays)* from the Icehouse Bottom Site, Tennessee. *American Antiquity* 52:352–354.

Childress, Mitchell R., and C. Andrew Buchner
1993 *Prehistoric Archaeology of the Atkins (40PM85), Bilbrey (40PM89), and Wiley (40PM90) Sites*. Garrow & Associates, Inc., Memphis. Submitted to Tenneco Oil Company, Houston.

Cook, Thomas Genn
1976 Koster: An Artifact Analysis of Two Archaic Phases in West-central Illinois. *Northwestern University Archaeological Program, Prehistoric Records 1*.

Crites, Gary
1978 Plant Food Utilization Patterns During the Middle Woodland Owl Hollow Phase in Tennessee: A Preliminary Report. *Tennessee Anthropologist* 3:79–92.

Davis, R.P. Stephen, Jr.
1990 *Aboriginal Settlement Patterns in the Little Tennessee River Valley*. University of Tennessee, Department of Anthropology, Report of Investigations, No. 50, TVA, Publications in Anthropology, No. 54.

Dawson, Alastair
1994 *Ice Age Earth, Late Quaternary Geology and Climate*. Routledge, New York.

DeJarnette, David L., and Vernon J. Knight, Jr.
1976 LaGrange. *Journal of Alabama Archaeology* 22(17):1-124.

DeJarnette, David L., Edward B. Kurjack, and James W. Cambron
1962 Excavations at the Stanfield-Worley Bluff Shelter. *Journal of Alabama Archaeology* 8(1-2):1-124.

Delcourt, Hazel R.
1979 Late Quaternary Vegetation History of the Eastern Highland Rim and Adjacent Cumberland Plateau of Tennessee. *Ecological Monographs* 49(3):255–280.

Delcourt, Paul A.
1980 Quaternary alluvial terraces of the Little Tennessee River Valley, East Tennessee. In (J. Chapman, ed.) The 1979 Archeological and Geological Investigations in the Tellico Reservoir, pp. 110–212. The University of Tennessee, Department of Anthropology, Report of Investigations, No. 29, Tennessee Valley Authority Publications in Anthropology, No. 24.

Delcourt, Paul A., and Hazel R. Delcourt
1981 Vegetal Maps for Eastern North America: 40,000 YR B.P. to the Present. *Geobotany II*:123–165.

1983 Late Quaternary Vegetational Dynamics and Community Stability Reconsidered. *Quaternary Research* 19:265–271.

Des Jean, Tom, and Joseph L. Benthall
1994 A Lithic Based Cultural Chronology of the Upper Cumberland Plateau. *Tennessee Anthropologist* 19(2):114-147.

Dice, Lee R.
1943 *The Biotic Provinces of North America.* University of Michigan Press, Ann Arbor.

Dickson, D. Bruce
1973 *Final Report on the Archaeological Survey Sponsored by the General Development Corporation during May 1973 on the Cumberland Plateau near Mayland, Tennessee.* Submitted to General Development Corporation, Miami.

Dragoo, Don W.
1976 Some Aspects of Eastern North America Prehistory: A Review 1975. *American Antiquity* 41(1):3-27.

DuVall, Glyn D.
1991 An Archaeological Reconnaissance of the Proposed Celina Village Development, Celina, Clay County, Tennessee. Submitted to Celina Village Associates, L.P., Lawrenceburg, TN. Submitted by DuVall and Associates, Inc., Nashville, TN.

Faulkner, Charles H.
1988 Middle Woodland Community and Settlement Patterns on the Eastern Highland Rim, Tennessee. In *Middle Woodland Settlement and Ceremonialism in the Mid-South and Lower Mississippi Valley,* edited by Robert C. Mainfort, pp. 77–98. Archaeological Report No. 22. Mississippi Department of Archives and History, Jackson.

1992 *Terminal Archaic-Early Woodland Community Patterns in the Eastern Highland Rim of Tennessee*. Paper presented at the 12th Annual Mid-South Archaeological Conference, Mississippi State University.

Faulkner, Charles H., and J. Bennett Graham
1966 *Westmoreland-Barber Site (40MI11), Nickajack Reservoir: Season II*. Department of Anthropology, University of Tennessee, Knoxville.

Faulkner, Charles H., and Major C. R. McCollough
1973 *Introductory Report of the Normandy Reservoir Salvage Project: Environmental Setting, Typology, and Survey.* University of Tennessee, Department of Anthropology, Report of Investigations No. 11.

1974 *Excavations and Testing, Normandy Reservoir Salvage Project: 1972 Season*. University of Tennessee, Department of Anthropology, Report of Investigations No. 12.

Fenneman, Nevin M.
1938 *Physiography of the Eastern United States.* McGraw-Hill, New York.

Foss, John E., Dan P. Wagner, and Frank P. Miller
1981 Soils of the Savannah River Valley. Russell Papers 1985, Archeological Services and the National Park Service, Atlanta, Georgia.

Foss, John E., and Antonio Segovia
1984 Rates of soil formation. In (R. G. LaFleur, ed.) Groundwater as a Geomorphic Agent, pp. 1–17. Allen & Unwin, Boston.

Fowler, Melvin L.
1959 Summary Report of Modoc Rock Shelter 1952, 1953, 1955, 1956. *Illinois State Museum Report of Investigations* No. 8:1-72.

Frison, George C., and Danny N. Walker
1990 New World Paleoecology at the Last Glacial Maximum and the Implications for New World Prehistory. In *The World at 18,000 B.P., Vol. 1: High Latitudes*, edited by Olga Soffer and Clive Gamble, pp. 312–330. Unwin Hyman, London.

Goad, Sharon I.
1980 Patterns of Late Archaic Exchange. *Tennessee Anthropologist* 5(1):1–16.

Goodyear, Albert III
1982 The Chronological Position of the Dalton Horizon in the Southeastern United States. *American Antiquity* 47(2):382–395.

Griffin, James B.
1967 Eastern North American Archaeology: A Summary. *Science* 156:175-191.

1974 Foreword to the New Edition. In *The Adena People,* by William S. Webb and Charles E. Snow, pp v-xix. University of Tennessee Press, Knoxville.

Griffin, John W.
1974 *Investigations in Russell Cave. Russell Cave National Monument, Alabama.* National Park Service Publications in Archaeology No. 13.

Hays, Christopher, and Robert A. Pace
1988 Report on the Cultural Resource Survey and Testing in the Proctor Public Use Area, Cordell Hull Lake, Tennessee. Submitted to ERM Southeast, Inc., Brentwood, TN and the U.S. Army Corps of Engineers, Nashville District, Nashville, TN. Submitted by DuVall and Associates, Nashville, TN.

Heimlich, Marion D.
1952 *Guntersille Basin Pottery.* Geological Survey of Alabama. Museum Paper 32.

Hofman, Jack L.
1986 Eva Projectile Point Breakage at Cave Spring: Pattern Recognition and Interpretive Possibilities. *Midcontinental Journal of Archaeology* 11:79–95.

Hudson, Charles
1976 *The Southeastern Indians.* University of Tennessee Press, Knoxville.

Jefferies, Richard W.
1996 Hunters and Gatherers After The Ice Age. In *Kentucky Archaeology*, edited by R. Barry Lewis, pp. 39–78, University of Kentucky Press, Lexington.

Johnson, Jodi L., and Shelley McClelland
2001 Phase I Archaeological Survey for a Proposed High School Site in Celina, Clay County, Tennessee. Submitted to the Clay County School District, Celina, TN. Submitted by DuVall and Associates, Franklin, TN.

Justice, Noel D.
1987 *Stone Age Spear and Arrow Points of the Midcontinental and Eastern United States.* Indiana University Press, Bloomington.

Keel, Bennie C.
1978 1974 Excavations at the Nowlin II Site(40CF35). In *Sixth Report of the Normandy Archaeological Project*, edited by Major C.R. McCollough and Charles H. Faulkner, pp. 1-290. University of Tennessee, Department of Anthropology, Report of Investigations 21, Wright State University, Laboratory of Anthropology Notes in Anthropology 4, Tennessee Valley Authority, Publications in Anthropology 19.

Kelly, Robert L., and Lawrence C. Todd
1988 Coming into the Country: Early Paleoindian Hunting and Mobility. *American Antiquity* 53:231–244.

Kimball, Larry R. (editor)
1985 *The 1977 Archaeological Survey: An Overall Assessment of the Archaeological Resources of Tellico Reservoir*. Tennessee Valley Authority, Publications in Anthropology No. 39. University of Tennessee, Department of Anthropology, Report of Investigations No. 40. Tellico Archaeological Survey Report No. 1. Manuscript submitted in 1980 to the National Park Service and the Tennessee Valley Authority.

Kline, Gerald W., Gary D. Crites, and Charles H. Faulkner
1982 *The McFarland Project: Early Middle Woodland Settlement and Subsistence in the Upper Duck River Valley in Tennessee.* Tennessee Anthropological Association, Miscellaneous Paper 8. Department of Anthropology, University of Tennessee, Knoxville.

Klippel, Walter E., and Paul W. Parmalee
1982 Diachronic Variation in Insectivores from Cheek Bend Cave and Environmental Change in the Midsouth. *Paleobiology* 8(4):447–458.

Kneberg, Madeline
1952 The Tennessee Area. In *Archaeology of the Eastern United States*, edited by J.B. Griffin, pp. 190-198. University of Chicago Press, Chicago.

Knox, J.C.
1983 Responses of river systems to Holocene climates. In (H.E. Wright, Jr. Ed.) "Late-Quaternary Environments of the United States: Volume 2, The Holocene. University of Minnesota Press, Minneapolis, pp. 26–44.

Leigh, David S.
1996 Alluvial Soil Chronosequence of Brasstown Creek in the Blue Ridge Mountains of North Georgia, U.S.A. Catena 26, 99–114.

Lewis, Barry R. (editor)
1996 *Kentucky Archaeology.* The University of Kentucky Press, Lexington.

Lewis, Thomas M.N. and Madeline Kneberg
1957 The Camp Creek Site. *Tennessee Archaeologist* 13(1):1–48.

Lewis, Thomas M.N., and Madeline D. Kneberg Lewis
1961 *Eva: An Archaic Site.* University of Tennessee Press, Knoxville.

Little, Barbara, Erika Martin Seibert, Jan Townsend, John H. Sprinkle, Jr., and John Knoerl
2000 *National Register Guidelines for Evaluating and Registering Archaeological Properties.* U.S. Department of the Interior, National Park Service, National Register, History and Education.

Luther, Edward T.
1977 *Our Restless Earth: The Geologic Regions of Tennessee*. University of Tennessee Press, Knoxville.

Mainfort, Robert C., Jr.
1986 *Pinson Mounds: A Middle Woodland Ceremonial Center.* Research Series No. 7. Tennessee Division of Archaeology, Nashville.

Marcher, Melvin V., and Richard G. Stearns
1962 *Tuscaloosa Formation in Tennessee*. Report of Investigations No. 17. State of Tennessee, Department of Conservation, Division of Geology, Nashville.

May, Ernest E.
1982 Analysis of Carrier Mills Projectile Points. In *The Carrier Mills Archaeological Project: Human Adaptation in the Saline Valley, Illinois, Volume Two*, edited by Richard W. Jefferies and Brian M. Butler, pp. 671-855. Southern Illinois University, Center for Archaeological Investigations, Research Paper no. 33, Vol. II.

McKelway, Henry S., R. Berle Clay, Jeff Mauck, and Andrew Bradbury
1998 Limited Archeological Investigations at Dale Hollow Lake. Submitted to the U. S. Army Corps of Engineers, Nashville District, Nashville, TN. Submitted by Cultural Resource Analysts, Lexington, KY.

McNutt, Charles H., and Lisa C. Lumb
1987 *Three Sites near Hartsville: Smith and Trousdale Counties, Tennessee; Dixon Creek (40SM113), Oldham (40SM108), Celsor (40TR20)*. Occasional Papers No. 14. Memphis State University, Anthropological Research Center. Tennessee Valley Authority Publications in Anthropology No. 48.

McNutt, Charles H., and Guy G. Weaver
1983 *The Duncan Tract Site (40TR27), Trousdale County, Tennessee*. Tennessee Valley Authority Publications in Anthropology 33.

1985 *An Above-Pool Survey of Cultural Resources within the Little Bear Creek Reservoir Area, Franklin County, Alabama*. Memphis State University, Anthropological Research Center, Occasional Papers No. 13 and Tennessee Valley Authority Publications in Anthropology No. 45.

Meltzer, David J.
1993 Is There a Clovis Adaptation? In *From Kostenki to Clovis: Upper Paleolithic-Paleo-Indian Adaptations,* edited by Olga Soffer and N.D. Praslov, pp. 293–320. Plenum Press, New York.

Miller, Robert A.
1974 *The Geologic History of Tennessee,* Tennessee Division of Geology, Bulletin 74, pp. 1–63. Nashville.

Moore, James L., and Charles W. Wilson
1987 *Mineral Resources Summary of the Celina Quadrangle, Tennessee*. Tennessee Department of Conservation, Division of Geology, Nashville.

Moore, Michael C., and Kevin E. Smith
2001 Archaeological Excavations at the Rutherford-Kizer Site: A Mississippian Mound Center in Sumner County, Tennessee. Tennessee Department of Environment and Conservation, Division of Archaeology Research Series, No. 13.

Morrow, Juliet E.
1996 *The Organization of Early Paleoindian Lithic Technology in the Confluence Region of the Mississippi, Illinois, and Missouri Rivers.* Ph.D. dissertation, Department of Anthropology, Washington University, St. Louis.

Morse, Dan F.
1983 *Archaeology of the Central Mississippi Valley.* Academic Press, San Diego.

Munson, Patrick J., and Alan D. Harn
1966 Surface Collections from three sties in the Central Illinois River Valley. *The Wisconsin Archaeologist* 47(3):150-168.

Nash, Charles H.
1947 An Archaeological Survey in the Dale Hollow and Center Hill Dam Areas. *Tennessee Archaeologist* 3(3):44–45.

Peterson, Drexel A., Jr.
1973 *The Spring Creek Site, Perry County, Tennessee: Report of the 1972-73 Excavations*. Memphis State University Anthropological Research Center, Occasional Papers No. 7.

Pielou, Evelyn C.
1991 *After the Ice Age: The Return of Life to Glaciated North America.* University of Chicago Press.

Railey, Jimmy A.
1996 Woodland Cultivators. In *Kentucky Archaeology*, edited by R. Barry Lewis, pp. 79-126, University of Kentucky Press, Lexington.

Ray, Jack H., and Neal H. Lopinot
1998 Field and Laboratory Methods. In *The 1997 Excavations at the Big Eddy Site (23CE426) in Southwest Missouri*, edited by Neal H. Lopinot, Jack H. Ray, and Michael D. Conner, pp. 62–72. Center for Archaeological Research, Southwest Missouri State University, Springfield.

Schock, Jack M.
1979 *Ten Carbon-14 Dates from Prehistoric Sites in Southern Kentucky*. Ms. on file, Department of Sociology, Anthropology, and Social Work, Western Kentucky University, Bowling Green.

Schock, Jack M., and Michael Dowell
1981 *The Early Woodland Period in South-Central Kentucky*. Ms. on file, Department of Sociology, Anthropology, and Social Work, Western Kentucky University, Bowling Green.

Schuldenrein, Joseph
1996 Geoarchaeology and the mid-Holocene landscape history of the greater Southeast. In (K. E. Sassaman and D. G. Anderson, Eds.) "Archaeology of the Mid-Holocene Southeast." University Press of Florida, Gainesville, pp. 3–27.

Seeman, Mark F.
1979 *The Hopewell Interaction Sphere: Evidence for Interregional Trade and Structural Complexity*. Indiana Historical Society Prehistory Research Series 5(2).

1986 Adena "Houses" and Their Implications for Early Woodland Settlement Models in the Ohio Valley. In *Early Woodland Archaeology,* ed. Kenneth B.

Farnsworth and Thomas E. Emerson, pp. 564-80. Kampsville Seminars in Archaeology No. 2 Center for American Archaeology, Kampsville, Illinois.

Shane, Linda C.K.
1994 Intensity and Rate of Vegetation and Climatic Change in the Ohio Region 14,000 and 9000 ^{14}C YR B.P. In *The First Discovery of America: Archaeological Evidence of the Early Inhabitants of the Ohio Area,* edited by William S. Dancey, pp. 7–21. The Ohio Archaeological Council, Columbus.

Shea, Andrea Brewer
1985 An Archaeological Assessment of the Replacement of the Henry Horton Bride Over the Cumberland River, State Route 52, Log Mile 19.27, Clay County, Tennessee. Prepared by the Environmental Planning Office, Tennessee Department of Transportation, Nashville, TN.

Smith, Bruce D.
1986 The Archaeology of the Southeastern United States: From Dalton to de Soto, 10,500–500 B.P. In *Advances in World Archaeology*, vol. 5, edited by Fred Wendorf and A. E. Close, pp. 1–92. Academic Press, Orlando, FL.

1992 Prehistoric Plant Husbandry in Eastern North America. In *The Origins of Agriculture: An International Perspective,* edited by C. Wesley Cowan and Patty Jo Watson, pp. 101–119. Smithsonian Institution Press, Washington, D.C.

Smith, Kevin E.
1992 The Middle Cumberland Region: Mississippian Archaeology in North Central Tennessee. Ph.D. dissertation, Department of Anthropology, Vanderbilt University, Nashville, TN.

1993 Archaeology at Old Town (40WM2): A Mississippian Mound-Village Center in Williamson County, Tennessee. *Tennessee Anthropologist* 28(1):27–44.

Soil Survey Division Staff
1993 "Soil Survey Manual." United States Department of Agriculture Handbook No. 18, U.S. Government Printing Office, Washington, D.C.

Spears, W. Steven
1987 Report on Phase II Test Excavations, 40CY15 and 40 CY18, State Route 52 Bridge Project, Celina, Tennessee. Tennessee Division of Archaeology Report of Investigations No. 7. Nashville, TN.

Stallings, Richard, Nancy Ross-Stallings, Hugh Mills, and Annette Erickson
1998 *Phase II Archaeological Testing of Sites 40WI157 and 40WI158, Wilson County, Tennessee,* Report submitted by Cultural Horizons, Inc. to TRC International, Ltd. For the Tennessee Department of Transportation Environmental Planning Office, Nashville, TN.

Styles, Bonnie W., and Walter E. Klippel
1996 Mid-Holocene Faunal Exploitation in the Southeastern United States. In *Archaeology of the Mid-Holocene Southeast,* edited by Kenneth E. Sassaman and David G. Anderson, pp. 115–133. University Press of Florida, Gainesville.

Taylor, Richard, Jr., and Richard Josephs
1995 Phase I Archaeological Survey, Proposed State Route 42, From 0.2 +/- Miles East of New Hope Road to 0.1 +/- Miles East of New Hope Branch, Clay County, Tennessee. Submitted to Chester IDE Associates, Inc., Nashville, TN and the Tennessee Department of Transportation, Nashville, TN. Submitted by DuVall and Associates, Franklin, TN.

Walling, Richard, Lawrence Alexander, and Evan Peacock
2000 *The Jefferson Street Bridge Project: Archaeological Investigations at the East Nashville Mounds Site (40DV4) and the French Lick/Sulphur Dell Site (40DV5) in Nashville, Davidson County, Tennessee.* Tennessee Department of Transportation, Office of Environmental Planning and Permits Publications in Archaeology No. 7, Nashville, TN.

Walthall, John A.
1972 The Chronological Position of Copena in Eastern States Archaeology. *Journal of Alabama Archaeology* 18(2):137-151.

Wampler, Marc E., and Jeffrey L. Holland
2000 Phase I Archaeological Survey of the Proposed State Route 52 From State Route 53 at Celina to State Route 136, Clay and Overton Counties, Tennessee. Submitted to the Tennessee Department of Transportation, Nashville, TN. Submitted by TRC Garrow Associates, Nashville, TN.

Wampler, Marc E., and Larry McKee
2001 Phase I Archaeological Survey of a Ca. 53 Acre Proposed Industrial Development Adjacent to Cordell Hull Reservoir, Celina, Clay County, Tennessee. Submitted to the Upper Cumberland Development District, Cookeville, TN. Submitted by TRC Garrow Associates, Nashville, TN.

Waring, Antonio J., Jr. and Preston Holder
1945 A Prehistoric Cultural Complex in the Southeastern United States. *American Anthropologist* 47:1-34.

Watson, Patty Jo
1989 Early Plant Cultivation in the Eastern Woodlands of North America. In *Foraging and Farming: The Evolution of Plant Exploitation,* edited by D. Harris and G. Hillman, pp. 555–570. Allen and Hyman, London.

Wauchope, Robert
1966 *An Archaeological Survey of Northern Georgia*. Society for American Archaeology Memoir II.

Webb, Thompson, III, Patrick J. Bartlein, Sandy P. Harrison, and Katherine H. Anderson
1993 Vegetation, Lake Levels, and Climate in Eastern North America for the Past 18,000 Years. In *Global Climates Since the Last Glacial Maximum,* edited by H.E. Wright, Jr., J.E. Kutzbach, T. Webb, III, W.F. Ruddiman, F.A. Street-Perrot, and P.J. Bartlein, pp. 415–467. University of Minnesota Press, Minneapolis.

Webb, William S.
1950 *The Read Shell Midden, Site 10, Butler County, Kentucky*. Reports in Anthropology No. 7(5). University of Kentucky, Lexington.

1951 *The Parrish Village Site, Site 45, Hopkins County, Kentucky*. Reports in Anthropology No. 7(6):406-61. University of Kentucky, Lexington.

Willey, Gordon R.
1947 *Appraisal of the Archaeological Resources of the Center Hill Reservoir, Tennessee*. The Smithsonian Institution, River Basin Surveys, Missouri Valley Project. On file, Tennessee Division of Archaeology, Nashville.

Willey, P., George M. Crothers, and Charles H. Faulkner
1988 Aboriginal Skeletons and Petroglyphs in Officer Cave, Tennessee. *Tennessee Anthropologist* 13:51–75.

Wilson, Charles W.
1987 *Geologic Map of the Celina Quadrangle, Tennessee.* Tennessee Department of Conservation, Division of Geology, Nashville.

APPENDIX A

ARTIFACT INVENTORY

Lithic Debitage From Site 40CY63.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Test Unit 3	Lev. 1 (0 – 10)	01-5.1	Secondary Flake	14	5 Ftp, 3 Ftp-T.A., 3 Stl, 2 Qtzt, 1 Qtzt-T.A.
		01-5.2	Tertiary Flake	64	39 Ftp, 17 Ftp-T.A., 3 Qtzt, 4 Rose Qtzt, 1 Wsw
		01-5.6	Utilized Flake	3	2 Ftp, 1 Rose Qtzt
		01-5.7	Thinning Flake	63	42 Ftp, 13 Ftp-T.A., 3 Stl, 3 Qtzt, 3 Chlcd
		01-5.8	Core Fragment	2	1 Ftp, 1 Rose Qtzt
		01-5.3	Flake Fragment	224	131 Ftp, 82 Ftp-T.A., 1 Stl, 6 Qtzt, 1 Rose Qtzt, 1 Wsw, 3 Wsw-T.A.
		01-5.4	Shatter	67	25 Ftp, 39 Ftp-T.A., 1 Qtzt-T.A., 3 Wsw-T.A.
		01-5.4	FCR	42	42 sdst/cobble
Test Unit 3	Lev. 2 (10 – 20)	01-5.10	Primary Flake	1	1 Ftp
		01-5.11	Secondary Flake	11	6 Ftp, 2 Ftp-T.A., 1 Stl, 2 Qtzt
		01-5.12	Tertiary Flake	48	24 Ftp, 19 Ftp-T.A., 3 Qtzt, 2 Chlcd
		01-5.16	Utilized Flake	2	2 Ftp
		01-5.17	Thinning Flake	132	105 Ftp, 24 Ftp-T.A., 2 Stl, 2 Qtzt, 2 Chlcd, 1 Wsw-T.A.
		01-5.18	Core Fragment	1	1 Ftp
		01-5.13	Flake Fragment	276	155 Ftp, 115 Ftp-T.A., 4 Qtzt, 1 Wsw, 1 Wsw-T.A.
		01-5.14	Shatter	106	44 Ftp, 58 Ftp-T.A., 1 Qtzt, 1 Wsw, 2 Wsw-T.A.
		01-5.15	FCR	33	33 sdst/cobble
Test Unit 3	Lev. 3 (20 – 30)	01-5.19	Primary Flake	6	2 Ftp, 4 Ftp-T.A.
		01-5.20	Secondary Flake	17	10 Ftp, 7 Ftp-T.A.
		01-5.21	Tertiary Flake	28	17 Ftp, 7 Ftp-T.A., 1 Qtzt
		01-5.25	Utilized Flake	5	4 Ftp, 1 Ftp-T.A.
		01-5.26	Thinning Flake	90	68 Ftp, 21 Ftp-T.A., 1 Qtzt
		01-5.29	Core Fragment	3	1 Ftp, 1 Ftp-T.A., 1 Qtzt
		01-5.22	Flake Fragment	121	71 Ftp, 46 Ftp-T.A., 4 Qtzt
		01-5.23	Shatter	66	26 Ftp, 38 Ftp-T.A., 2 Wsw-T.A.
		01-5.24	FCR	12	2 chert, 2 Qtz, 8 sdst/cobble
Test Unit 3	Lev. 4 (30 – 40)	01-5.31	Secondary Flake	15	10 Ftp, 5 Ftp-T.A.
		01-5.32	Tertiary Flake	9	8 Ftp, 1 Qtzt
		01-5.36	Utilized Flake	1	1 Ftp
		01-5.37	Thinning Flake	68	51 Ftp, 17 Ftp-T.A.
		01-5.38	Core Fragment	1	1 Ftp
		01-5.39	Tested cobble	1	1Cobble w/ Ftp interior
		01-5.33	Flake Fragment	66	46 Ftp, 19 Ftp-T.A., 1 Qtz
		01-5.34	Shatter	19	9 Ftp, 1 Ftp-T.A.
		01-5.35	FCR	4	3 Chert, 1 sdst/cobble
Test Unit 3	Lev. 5 (40 – 50)	01-5.41	Primary Flake	4	3 Ftp, 1 Ftp-T.A.
		01-5.42	Secondary Flake	3	3 Ftp
		01-5.43	Tertiary Flake	11	9 Ftp, 2 Ftp-T.A.
		01-5.46	Utilized Flake	1	1 Ftp
		01-5.48	Thinning Flake	20	15 Ftp, 5 Ftp-T.A.

Lithic Debitage From Site 40CY63 Cont.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Test Unit 3	Lev. 5 (40 – 50)	01-5.44	Flake Fragment	49	34 Ftp, 15 Ftp-T.A.
		01-5.45	Shatter	12	4 Ftp, 8 Ftp-T.A.
		01-5.46	FCR	5	3 Qtz, 2 sdst/cobble
Test Unit 3	Lev. 6 (50 – 60)	01-5.50	Tertiary Flake	2	2 Ftp
		01-5.53	Thinning Flake	6	6 Ftp
		01-5.51	Flake Fragment	12	8 Ftp, 4 Ftp-T.A.
		01-5.52	Shatter	2	2 Ftp
Test Unit 3	Lev. 7 (60 – 70)	01-5.56	Thinning Flake	2	1 Ftp, 1 Ftp-T.A.
		01-5.54	Flake Fragment	1	1 Ftp
		01-5.55	Shatter	4	2 Ftp, 2 Ftp-T.A.
Test Unit 4	Lev. 1 (0 – 10)	01-5.57	Secondary Flake	5	2 Ftp, 3 Ftp-T.A.
		01-5.58	Tertiary Flake	7	2 Ftp, 5 Ftp-T.A.
		01-5.62	Thinning Flake	23	14 Ftp, 9 Ftp-T.A.
		01-5.63	Core Fragment	1	1 Ftp
		01-5.59	Flake Fragment	50	10 Ftp, 39 Ftp-T.A., 1 Chlcd
		01-5.60	Shatter	37	8 Ftp, 28 Ftp-T.A., 1 Chlcd
		01-5.61	FCR	20	20 sdst/cobble
Test Unit 4	Lev. 2 (10 – 20)	01-5.64	Primary Flake	7	7 Ftp-T.A.
		01-5.65	Secondary Flake	25	1 Ftp, 24 Ftp-T.A.
		01-5.66	Tertiary Flake	8	4 Ftp, 4 Ftp
		01-5.70	Utilized Flake	1	1 Ftp
		01-5.71	Thinning Flake	10	6 Ftp, 4 Ftp-T.A.
		01-5.67	Flake Fragment	79	38 Ftp, 41 Ftp-T.A.
		01-5.68	Shatter	15	15 Ftp-T.A.
		01-5.69	FCR	20	9 chert, 11 sdst/cobble
Test Unit 4	Lev. 3 (20 – 30)	01-5.72	Primary Flake	2	1 Ftp, 1 Qtzt
		01-5.73	Secondary Flake	6	5 Ftp, 1 Ftp-T.A.
		01-5.74	Tertiary Flake	8	4 Ftp, 3 Ftp-T.A., 2 Qtzt
		01-5.78	Utilized Flake	1	1 Ftp
		01-5.79	Thinning Flake	63	34 Ftp, 19 Ftp-T.A., 5 Qtzt, 1 Chlcd, 2 Wsw, 2 Wsw-T.A.
		01-5.81	Core Fragment	1	1 Ftp
		01-5.75	Flake Fragment	75	37 Ftp, 33 Ftp-T.A., 2 Qtzt, 1 Chlcd, 2 Wsw
		01-5.76	Shatter	66	9 Ftp, 55 Ftp-T.A., 1 Qtzt, 1 Chlcd
		01-5.77	FCR	45	4 Chert, 41 sdst/cobble
Test Unit 4	Lev. 4 (30 – 40)	01-5.82	Primary Flake	10	10 Ftp-T.A.
		01-5.83	Secondary Flake	90	23 Ftp, 64 Ftp-T.A., 1 Qtzt, 2 Qtzt-T.A.
		01-5.84	Tertiary Flake	26	9 Ftp, 15 Ftp-T.A. 1 Qtzt, 1 Qtzt-T.A.
		01-5.88	Utilized Flake	1	1 Ftp-T.A.
		01-5.89	Thinning Flake	19	10 Ftp, 9 Ftp-T.A.
		01-5.92	Core Fragment	2	2 Ftp-T.A.
		01-5.85	Flake Fragment	232	48 Ftp, 162 Ftp-T.A., 8 Qtzt, 14 Qtzt-T.A.

Lithic Debitage From Site 40CY63 Cont.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Test Unit 4	Lev. 4 (30 – 40)	01-5.86	Shatter	35	10 Ftp, 15 Ftp-T.A.
		01-5.87	FCR	40	27 chert, 1 qtz, 12 sdst/cobble
Test Unit 4	Lev. 5 (40 – 50)	01-5.93	Primary Flake	4	4 Ftp-T.A.
		01-5.94	Secondary Flake	9	5 Ftp, 4 Ftp-T.A.
		01-5.95	Tertiary Flake	17	8 Ftp, 5 Ftp-T.A., 1 Qtzt, 3 Chlcd
		01-5.99	Utilized Flake	4	4 Ftp
		01-5.100	Thinning Flake	152	94 Ftp, 30 Ftp-T.A., 19 Qtzt, 7 Chlcd, 2 Wsw
		01-5.96	Flake Fragment	215	114 Ftp, 90 Ftp-T.A., 9 Qtzt, 2 Wsw-T.A.
		01-5.97	Shatter	85	8 Ftp, 70 Ftp-T.A., 6 Qtzt, 1 Wsw
		01-5.98	FCR	44	14 chert, 1 qtzt, 39 sdst
Test Unit 4	Lev. 6 (50 – 60)	01-5.104	Secondary Flake	8	3 Ftp, 4 Ftp-T.A., 1 Qtzt
		01-5.105	Tertiary Flake	5	4 Ftp, 1 Ftp-T.A.
		01-5.109	Thinning Flake	60	34 Ftp, 19 Ftp-T.A., 7 Chlcd
		01-5.106	Flake Fragment	78	44 Ftp, 29 Ftp-T.A., 3 Chlcd, 2 Wsw
		01-5.107	Shatter	15	4 Ftp, 11 Ftp-T.A.
		01-5.108	FCR	15	2 chert, 13 sdst/cobble
Test Unit 9	Lev. 1 (0 – 20)	01-5.110	Primary Flake	27	27 Ftp-T.A.
		01-5.111	Secondary Flake	85	2 Ftp, 83 Ftp-T.A.
		01-5.112	Tertiary Flake	15	15 Ftp-T.A.
		01-5.116	Utilized Flake	1	1 Ftp-T.A.
		01-5.117	Thinning Flake	13	13 Ftp-T.A.
		01-5.113	Flake Fragment	610	2 Ftp, 596 Ftp-T.A., 2 Knox, 8 Qtzt-T.A., 4 Wsw-T.A.
		01-5.114	Shatter	68	1 Ftp, 67 Ftp-T.A.
		01-5.115	FCR	150	126 Chert-T.A., 3 Qtzt-T.A., 21 Sdst-T.A.
Test Unit 9	Lev. 2 (20 – 30)	01-5.119	Primary Flake	3	3 Ftp-T.A.
		01-5.120	Secondary Flake	22	3 Ftp, 18 Ftp-T.A., 1 Stl
		01-5.121	Tertiary Flake	51	13 Ftp, 33 Ftp-T.A., 1 Stl, 3 Chlcd, 1 Wsw
		01-5.125	Utilized Flake	3	2 Ftp-T.A., 1 Qtzt-T.A.
		01-5.126	Thinning Flake	295	135 Ftp, 137 Ftp-T.A., 1 Stl, 4 Stl-T.A., 13 Qtzt, 2 Qtzt-T.A., 2 Rose Qtzt,2 Wsw, 1 Wsw-T.A.
		01-5.127	Core Fragment	1	1 Ftp-T.A.
		01-5.122	Flake Fragment	548	299 Ftp, 225 Ftp-T.A., 1 Knox-T.A., 2 Stl, 18 Qtzt, 3 Wsw-T.A.
		01-5.123	Shatter	99	20 Ftp, 75 Ftp-T.A., 2 Qtzt, 2 Wsw-T.A.
		01-5.124	FCR	46	7 Chert, 39 Sdst
Test Unit 9	Lev. 3 (30 – 40)	01-5.128	Primary Flake	29	3 Ftp, 26 Ftp-T.A.
		01-5.129	Secondary Flake	80	7 Ftp, 69 Ftp-T.A., 2 Qtzt, 2 Qtzt-T.A.
		01-5.130	Tertiary Flake	5	Ftp-T.A.
		01-5.134	Utilized Flake	2	1 Ftp, 1 Ftp-T.A.
		01-5.135	Thinning Flake	8	1 Ftp, 7 Ftp-T.A.
		01-5.131	Flake Fragment	319	28 Ftp, 272 Ftp-T.A., 2 Qtzt, 17 Qtzt-T.A.
		01-5.132	Shatter	18	3 Ftp, 15 Ftp-T.A.

Lithic Debitage From Site 40CY63 Cont.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Test Unit 9	Lev. 3 (30 – 40)	01-5.133	FCR	45	40 Chert, 1 Qtzt, 1 Sdst
Test Unit 9	Lev. 4 (40 – 50)	01-5.136	Secondary Flake	25	6 Ftp, 19 Ftp-T.A.
		01-5.137	Tertiary Flake	2	1 Ftp, 1 Ftp-T.A.
		01-5.141	Thinning Flake	4	3 Ftp, 1 Ftp-T.A.
		01-5.138	Flake Fragment	70	11 Ftp, 56 Ftp-T.A., 1 Qtzt, 2 Qtzt-T.A.
		01-5.139	Shatter	3	3 Ftp-T.A.
		01-5.140	FCR	2	2 Chert
Test Unit 10	Lev. 1 (0 – 20)	01-5.261	Primary Flake	10	2 Ftp, 8 Ftp-T.A.
		01-5.262	Secondary Flake	35	11 Ftp, 1 Qtzt, 23 Qtzt-T.A.
		01-5.263	Tertiary Flake	7	2 Ftp, 5 Ftp-T.A.
		01-5.267	Thinning Flake	10	6 Ftp, 4 Ftp-T.A.
		01-5.269	Core Fragment	1	1 Ftp
		01-5.264	Flake Fragment	160	36 Ftp, 106 Ftp-T.A., 12 Qtzt, 6 Qtzt-T.A.
		01-5.265	Shatter	16	6 Ftp, 12 Ftp-T.A.
		01-5.266	FCR	45	44 Ftp, 166 Ftp-T.A., 12 Qtzt, 6 Qtzt-T.A.
Test Unit 10	Lev. 2 (20 – 30)	01-5.270	Primary Flake	22	6 Ftp, 6 Ftp-T. A.
		01-5.271	Secondary Flake	41	7 Ftp, 34 Ftp-T.A.
		01-5.272	Tertiary Flake	1	1 Ftp
		01-5.276	Utilized Flake	2	2 Ftp
		01-5.277	Thinning Flake	18	12 Ftp, 6 Ftp-T.A.
		01-5.273	Flake Fragment	136	39 Ftp, 97 Ftp-T.A.
		01-5.274	Shatter	22	6 Ftp, 16 Ftp-T.A.
		01-5.275	FCR	43	41 Chert, 7 Sdst
Test Unit 10	Lev. 3 (30 – 40)	01-5.278	Primary Flake	14	5 Ftp, 8 Ftp-T.A., 1 Qtzt-T.A.
		01-5.279	Secondary Flake	46	19 Ftp, 26 Ftp-T.A., 1 Qtzt-T.A.
		01-5.280	Tertiary Flake	7	4 Ftp, 3 Ftp-T.A.
		01-5.284	Thinning Flake	20	9 Ftp, 9 Ftp-T.A., 2 Qtzt-T.A.
		01-5.281	Flake Fragment	181	54 Ftp, 110 Ftp-T.A., 6 Qtzt, 11 Qtzt-T.A.
		01-5.282	Shatter	41	13 Ftp, 28 Ftp-T.A.
		01-5.283	FCR	58	56 Ftp-T.A., 2 Qtzt-T.A.
Test Unit 10	Lev. 4 (40 – 50)	01-5.286	Primary Flake	2	2 Ftp
		01-5.287	Secondary Flake	9	4 Ftp, 3 Ftp-T.A., 2 Qtzt
		01-5.288	Tertiary Flake	19	3 Ftp, 12 Ft Payne-T.A., 2 Rosy Qtzt, 2 Wsw-T.A.
		01-5.292	Utilized Flake	4	3 Ftp, 1 Qtzt
		01-5.293	Thinning Flake	70	17 Ftp, 51 Ftp-T.A., 2 Qtzt
		01-5.289	Flake Fragment	82	23 Ftp, 54 Ftp-T.A., 4 Qtzt, 1 Wsw-T.A.
		01-5.290	Shatter	65	5 Ftp, 57 Ftp-T.A., 3 Wsw-T.A.
		01-5.291	FCR	20	3 Chert, 12 Sdst
Test Unit 10	Lev. 5 (50 – 60)	01-5.295	Primary Flake	4	2 Ftp, 2 Ftp-T.A.
		01-5.296	Secondary Flake	44	15 Ftp, 23 Ftp-T.A., 1 qtzt, 5 Qtzt-T.A.
		01-5.297	Tertiary Flake	5	5 Ftp-T.A.

Lithic Debitage From Site 40CY63 Cont.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Test Unit 10	Lev. 5 (50 – 60)	01-5.301	Thinning Flake	23	18 Ftp, 5 Ftp-T.A.
		01-5.298	Flake Fragment	143	73 Ftp, 60 Ftp-T.A., 5 Qtzt, 5 Qtzt-T.A.
		01-5.299	Shatter	32	11 Ftp, 20 Ftp-T.A., 1Qtzt-T.A.
		01-5.300	FCR	24	24 Chert
Test Unit 10	Lev. 6 (60 – 70)	01-5.302	Primary Flake	11	1 Ftp, 10 Ftp-T.A.
		01-5.303	Secondary Flake	107	22 Ftp, 77 Ftp-T.A., 3 Qtzt, 5 Qtzt-T.A.
		01-5.304	Tertiary Flake	8	1 Ftp, 7 Ftp-T.A.
		01-5.308	Utilized Flake	1	Ftp-T.A.
		01-5.309	Thinning Flake	42	20 Ftp, 15 Ftp-T.A., 2 Qtzt, 5 Qtzt-T.A.
		01-5.311	Core Fragment	1	1 Qtzt
		01-5.305	Flake Fragment	192	66 Ftp, 106 Ftp-T.A., 8 Qtzt, 10 Qtzt-T.A., 2 Wsw
		01-5.306	Shatter	33	10 Ftp, 21 Ftp-T.A., 2 Qtzt-T.A.
		01-5.307	FCR	41	39 Chert, 2 Qtzt
Test Unit 10	Lev. 7 (70 – 80)	01-5.312	Primary Flake	34	5 Ftp, 9 Ftp-T.A., 3 Qtzt, 17 Qtzt-T.A.
		01-5.313	Secondary Flake	141	21 Ftp, 31 Ftp-T.A., 30 Qtzt, 59 Qtzt-T.A.
		01-5.314	Tertiary Flake	10	3 Ftp, 4 Qtzt, 3 Qtzt-T.A.
		01-5.318	Utilized Flake	4	1 Ftp, 1 Qtzt, 2 Qtzt-T.A.,
		01-5.319	Thinning Flake	95	36 Ftp, 29 Ftp-T.A., 13 Qtzt, 17 Qtzt-T.A.
		01-5.320	Core Fragment	2	2 Ftp
		01-5.315	Flake Fragment	286	60 Ftp, 68 Ftp-T.A., 1 Knox, 1 Chlcd, 1 Qtz, 1 Qtz-T.A., 83 Qtzt, 72 Qtzt-T.A.
		01-5.316	Shatter	26	3 Ftp, 21 Ftp-T.A., 2 Qtzt
		01-5.317	FCR	79	76 Chert, 3 Sdst
Test Unit 10	Lev. 8 (80 – 90)	01-5.321	Primary Flake	18	1 Ftp, 13 Ftp-T.A., 4 Qtzt-T.A.
		01-5.322	Secondary Flake	92	4 Ftp, 9 Ftp-T.A., 44 Qtzt, 35 Qtzt-T.A.
		01-5.323	Tertiary Flake	5	3 Qtzt, 2 Qtzt-T.A.
		01-5.327	Thinning Flake	46	1 Ftp, 4 Ftp-T.A., 24 Qtzt, 17 Qtzt-T.A.
		01-5.324	Flake Fragment	121	4 Ftp, 12 Ftp-T.A., 66 Qtzt, 39 Qtzt-T.A.
		01-5.325	Shatter	15	3 Ftp, 4 Ftp-T.A., 7 Qtzt, 1 Qtzt-T.A.
		01-5.326	FCR	25	20 Chert, 1 Qtzt, 4 Sdst
Test Unit 10	Lev. 9 (90 – 100)	01-5.328	Secondary Flake	3	1 Ftp-T.A., 1 Qtzt, 1 Qtzt-T.A.
		01-5.329	Tertiary Flake	2	1 Qtzt, 1 Qtzt-T.A.
		01-5.332	Thinning Flake	1	1 Ftp-T.A.
		01-5.330	Flake Fragment	11	3 Ftp-T.A., 6 Qtzt, 2 Qtzt-T.A.
		01-5.331	FCR	1	Qtzt
Test Unit 12	Lev. 1 (0 – 20)	01-5.233	Primary Flake	1	2 Ftp-T.A.
		01-5.234	Secondary Flake	15	1 Ftp, 14 Ftp-T.A.
		01-5.235	Tertiary Flake	1	1 Ftp-T.A.
		01-5.239	Utilized Flake	1	1 Ftp-T.A.
		01-5.240	Thinning Flake	13	7 Ftp, 6 Ftp-T.A.
		01-5.236	Flake Fragment	72	17 Ftp, 53 Ftp-T.A., 1 Qtz, 1 Qtzt-T.A.

Lithic Debitage From Site 40CY63 Cont.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Test Unit 12	Lev. 1 (0 – 20)	01-5.237	Shatter	12	7 Ftp, 4 Ftp-T.A., 1 Qtz
		01-5.238	FCR	36	19 Chert, 17 Sdst
Test Unit 12	Lev. 2 (20 – 30)	01-5.241	Secondary Flake	16	5 Ftp, 11 Ftp-T.A.
		01-5.242	Tertiary Flake	9	2 Ftp, 4 Ftp-T.A., 1 Qtzt, 2 Qtzt-T.A.
		01-5.246	Thinning Flake	24	17 Ftp, 7 Ftp-T.A.
		01-5.243	Flake Fragment	24	8 Ftp, 15 Ftp-T.A., 1 Qtzt-T.A.
		01-5.244	Shatter	7	2 Ftp, 5 Ftp-T.A.
		01-5.245	FCR	11	10 Chert, 1 Sdst
Test Unit 12	Lev. 3 (30 – 40)	01-5.247	Secondary Flake	2	2 Ftp
		01-5.248	Tertiary Flake	6	3 Ftp, 3 Ftp-T.A.
		01-5.252	Utilized Flake	1	1 Qtzt
		01-5.253	Thinning Flake	20	8 Ftp, 10 Ftp-T.A., 2 Qtzt
		01-5.249	Flake Fragment	21	4 Ftp, 16 Ftp-T.A., 1 Qtzt
		01-5.250	Shatter	11	3 Ftp, 7 Ftp-T.A., 1 Qtzt
		01-5.251	FCR	4	1 Chert, 3 Sdst
Test Unit 12	Lev. 4 (40 – 50)	01-5.254	Secondary Flake	1	1 Ftp
		01-5.255	Tertiary Flake	3	2 Ftp-T.A., 1 Qtzt-T.A.
		01-5.259	Utilized Flake	2	2 Ftp-T.A.
		01-5.260	Thinning Flake	10	3 Ftp, 7 Ftp-T.A.
		01-5.256	Flake Fragment	15	3 Ftp, 11 Ftp-T.A., 1 Qtzt
		01-5.257	Shatter	5	1 Ftp, 4 Ftp-T.A.
		01-5.258	FCR	23	9 Chert, 14 Sdst
Test Unit 12	Lev. 5 (50 – 60)	01-5.261	Primary Flake	1	1 Qtzt-T.A.
		01-5.262	Secondary Flake	3	1 Ftp-T.A., 1 Qtzt-T.A.
		01-5.263	Tertiary Flake	4	4 Ftp-T.A.
		01-5.267	Utilized Flake	1	1 Ftp-T.A.
		01-5.268	Thinning Flake	12	6 Ftp, 6 Ftp-T.A.
		01-5.264	Flake Fragment	7	7 Ftp-T.A.
		01-5.265	Shatter	8	2 Ftp, 5 Ftp-T.A., 1 Wsw-T.A.
		01-5.266	FCR	20	14 Chert, 6 Sdst
Test Unit 12	Lev. 6 (60 – 70)	01-5.269	Secondary Flake	2	2 Ftp-T.A.
		01-5.270	Tertiary Flake	2	1 Ftp, 1 Ftp-T.A.
		01-5.274	Utilized Flake	1	Ftp-T.A.
		01-5.275	Thinning Flake	6	Ftp-T.A.
		01-5.271	Flake Fragment	17	3 Ftp, 14 Ftp-T.A.
		01-5.272	Shatter	8	3 Ftp, 5 Ftp-T.A.
		01-5.273	FCR	12	4 Chert, 8 Sdst
Test Unit 12	Lev. 7 (70 – 80)	01-5.276	Primary Flake	1	1 Ftp-T.A.
		01-5.277	Secondary Flake	7	3 Ftp, 3 Ftp-T.A., 1 Qtzt
		01-5.278	Tertiary Flake	4	2 Ftp, 2 Ftp-T.A.
		01-5.282	Thinning Flake	11	7 Ftp, 4 Ftp-T.A.

Lithic Debitage From Site 40CY63 Cont.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Test Unit 12	Lev. 7 (70 – 80)	01-5.279	Flake Fragment	15	4 Ftp, 11 Ftp-T.A.
		01-5.280	Shatter	2	2 Ftp
		01-5.281	FCR	6	4 Chert, 2 Sdst
Test Unit 12	Lev. 8 (80 – 90)	01-5.283	Secondary Flake	12	6 Ftp, 5 Ftp-T.A., 1 Qtzt-T.A.
		01-5.284	Tertiary Flake	10	4 Ftp, 3 Ftp-T.A., 3 Qtzt
		01-5.288	Thinning Flake	22	10 Ftp, 10 Ftp-T.A., 1 Qtzt-T.A.
		01-5.285	Flake Fragment	21	11 Ftp, 10 Ftp-T.A.
		01-5.286	Shatter	9	4 Ftp, 5 Ftp-T.A.
		01-5.287	FCR	21	10 Chert, 11 Sdst
Test Unit 12	Lev. 9 (90 – 100)	01-5.290	Secondary Flake	12	6 Ftp, 6 Ftp-T.A.
		01-5.291	Tertiary Flake	6	4 Ftp, 2 Ftp-T.A.
		01-5.294	Thinning Flake	15	7 Ftp, 4 Ftp-T.A., 2 Qtzt, 2 Qtzt-T.A.
		01-5.292	Flake Fragment	14	9 Ftp, 5 Ftp-T.A.
		01-5.293	FCR	15	8 Chert, 7 Sdst
Test Unit 12	Lev. 10 (100 – 110)	01-5.295	Primary Flake	11	6 Ftp, 5 Ftp-T.A.
		01-5.296	Secondary Flake	32	10 Ftp, 21 Ftp-T.A., 1 Qtzt
		01-5.297	Tertiary Flake	28	15 Ftp, 8 Ftp-T.A., 4 Qtzt, 1 Qtzt-T.A.
		01-5.301	Utilized Flake	7	4 Ftp, 3 Ftp-T.A.
		01-5.302	Thinning Flake	49	24 Ftp, 13 Ftp-T.A., 9 Qtzt, 3 Qtzt-T.A.
		01-5.298	Flake Fragment	66	25 Ftp, 29 Ftp-T.A.8 Qtzt, 4 Qtzt-T.A.
		01-5.299	Shatter	16	6 Ftp, 9 Ftp-T.A., 1 Qtzt
		01-5.300	FCR	25	19 Chert, 1 Qtzt, 5 Sdst
Test Unit 12	Lev. 11 (110 – 120)	01-5.304	Primary Flake	3	2 Ftp, 1 Ftp-T.A.
		01-5.305	Secondary Flake	39	21 Ftp, 16 Ftp-T.A., 2 Qtzt-T.A.
		01-5.306	Tertiary Flake	39	18 Ftp, 15 Ftp-T.A.3 Qtzt, 3 Qtzt-T.A.
		01-5.310	Utilized Flake	1	1 Ftp
		01-5.311	Thinning Flake	54	40 Ftp, 13 Ftp-T.A., 1 Qtzt
		01-5.307	Flake Fragment	84	36 Ftp, 43 Ftp-T.A., 3 Qtzt, 2 Qtzt-T.A.
		01-5.308	Shatter	15	2 Ftp, 13 Ftp-T.A.
		01-5.309	FCR	38	29 Chert, 1 Qtzt, 8 Sdst
Feature 32 E 1/2	(35 – 41)	01-5.315	Primary Flake	1	1 Ftp-T.A.
		01-5.323	Secondary Flake	3	3 Ftp-T.A.
		01-5.316	Tertiary Flake	2	2 Ftp
		01-5.320	Utilized Flake	1	1 Ftp-T.A.
		01-5.321 & 325	Thinning Flake	8	3 Ftp, 5 Ftp-T.A.
		01-5.322	Hammerstone Fragment	1	1 Qtz
		01-5.317 & 324	Flake Fragment	11	4 Ftp, 7 Ftp-T.A.
		01-5.318	Shatter	2	2 Ftp-T.A.
		01-5.319	FCR	5	5 Sdst
Feature 40 N. Balk	N/A	01-5.332	Secondary Flake	6	4 Ftp, 2 Ftp-T.A.
		01-5.336	Utilized Flake	1	1 Ftp

Lithic debitage from site 40CY63 cont.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Feature 40 N. Balk		01-5.333	Flake Fragment	1	1 Ftp
		01-5.334	Shatter	2	1 Ftp, 1 Ftp-T.A.
		01-5.335	FCR	8	3 Chert, 5 Ftp
Feature 40 S. Wall	N/A	01-5.326	Secondary Flake	10	6 Ftp, 4 Ftp-T.A.
		01-5.327	Tertiary Flake	7	5 Ftp, 2 Ftp-T.A.
		01-5.331	Thinning Flake	6	6 Ftp
		01-5.328	Flake Fragment	12	8 Ftp, 4 Ftp-T.A.
		01-5.329	Shatter	2	2 Ftp-T.A.
		01-5.330	FCR	2	2 Ftp-T.A.
Feature 40 Column	(100 – 115)	01-5.352	Secondary Flake	3	1 Ftp, 2 Ftp-T.A.
		01-5.353	Tertiary Flake	2	1 Ftp, 1 Ftp-T.A.
		01-5.357	Thinning Flake	9	7 Ftp-T.A., 2 Qtzt
		01-5.354	Flake Fragment	12	5 Ftp, 6 Ftp-T.A., 1 Qtz
		01-5.355	Shatter	3	3 Ftp-T.A.
		01-5.356	FCR	22	3 Chert, 19 Cobble
Feature 40 N 1/2	(100 – 110)	01-5.359	Primary Flake	4	3 Ftp, 1 Ftp-T.A.
		01-5.360	Secondary Flake	15	6 Ftp, 8 Ftp-T.A., 1 Qtz
		01-5.361	Tertiary Flake	18	6 Ftp, 10 Ftp-T.A., 2 Chlcd
		01-5.365	Utilized Flake	1	1 Ftp
		01-5.366	Thinning Flake	75	43 Ftp, 26 Ftp-T.A., 5 Qtz, 1 Wsw
		01-5.368	Core Fragment	1	1 Ftp-T.A.
		01-5.362	Flake Fragment	79	16 Ftp, 61 Ftp-T.A., 1 Qtz, 1 Stl
		01-5.363	Shatter	57	24 Ftp, 33 Ftp-T.A.
		01-5.364	FCR	65	8 Chert, 57 Cobble

Lithic debitage from site 40CY64.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Test Unit 1	Lev. 1 (0 – 10)	01-6.1	Tertiary Flake	3	1 Ftp, 2 Ftp-T.A.
		01-6.4	Thinning Flake	1	1 Ftp
		01-6.2	Flake Fragment	3	2 Ftp, 1 Ftp-T.A.
		01-6.3	Shatter	6	4 Ftp, 2 Ftp-T.A.
Test Unit 1	Lev. 2 (10 – 20)	01-6.9	Secondary Flake	1	1 Ftp-T.A.
		01-6.8	Tertiary Flake	7	3 Ftp, 3 Ftp-T.A., 1 Wsw-T.A.
		01-6.10	Flake Fragment	41	15 Ftp, 18 Ftp-T.A., 3 Qtzt, 2 Rose Qtzt, 1 Wsw-T.A.
		01-6.11	Shatter	15	5 Ftp, 10 Ftp-T.A.
		01-6.7	FCR	13	5 chert, 8 sdst/cobble
Test Unit 1	Lev. 3 (20 – 30)	01-6.17	Secondary Flake	1	1 Ftp-T.A.
		01-6.18	Tertiary Flake	8	5 Ftp, 3 Ftp-T.A.
		01-6.16	Core Fragment	1	1 Ftp
		01-6.19	Flake Fragment	40	20 Ftp, 18 Ftp-T.A., 1 Qtzt, 1 Wsw-T.A.

Lithic Debitage From Site 40CY64 Cont.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Test Unit 1	Lev. 3 (20 – 30)	01-6.14	Shatter	14	3 Ftp, 11 Ftp-T.A.
		01-6.13	FCR	19	5 chert, 14 sdst/cobble
Test Unit 1	Lev. 4 (30 – 40)	01-6.20	Secondary Flake	5	2 Ftp, 2 Ftp-T.A., 1 Stl-T.A.
		01-6.21	Tertiary Flake	20	11 Ftp, 5 Ftp-T.A., 1 Qtzt, 2 Rose Qtzt, 1 Wsw-T.A.
		01-6.25	Thinning Flake	2	2 Ftp
		01-6.22	Flake Fragment	71	22 Ftp, 46 Ftp-T.A., 1 Stl, 1 Qtzt, 1Wsw-T.A.
		01-6.23	Shatter	36	5 Ftp, 31 Ftp-T.A.
		01-6.24	FCR	30	3 chert, 1 qtzt, 26 sdst/cobble
Test Unit 1	Lev. 5 (40 – 50)	01-6.30	Secondary Flake	3	2 Ftp, 1 Qtzt
		01-6.31	Tertiary Flake	5	4 Ftp, 1 Qtzt
		01-6.35	Utilized Flake	2	1 Qtzt, 1 Rose Qtzt
		01-6.36	Core Fragment	1	1 Ftp
		01-6.32	Flake Fragment	57	13 Ftp, 39 Ftp-T.A., 4 Qtzt, 1 Wsw-T.A.
		01-6.33	Shatter	10	1 Ftp, 9 Ftp-T.A.
		01-6.34	FCR	10	4 chert, 6 sdst/cobble
Test Unit 1	Lev. 6 (50 – 60)	01-6.37	Secondary Flake	1	1 Ftp-T.A.
		01-6.38	Tertiary Flake	2	1 Ftp, 1 Rose Qtzt
		01-6.42	Utilized Flake	1	1 Ftp-T.A.
		01-6.43	Thinning Flake	1	1 Qtzt
		01-6.39	Flake Fragment	25	5 Ftp, 18 Ftp-T.A., 2 Qtzt
		01-6.40	Shatter	7	2 Ftp, 5 Ftp-T.A.
		01-6.41	FCR	5	1 chert, 4 sdst/cobble
Test Unit 1	Lev. 7 (60 – 70)	01-6.44	Primary Flake	1	1 Ftp-T.A.
		01-6.45	Secondary Flake	1	1 Ftp
		01-6.46	Tertiary Flake	5	2 Ftp-T.A., 2 Qtzt, 1 Qtzt-T.A.
		01-6.47	Flake Fragment	23	5 Ftp, 11 Ftp-T.A., 5 Qtzt, 2 Chlcd
		01-6.48	Shatter	6	2 Ftp, 4 Ftp-T.A.
		01-6.49	FCR	4	3 chert, 1 sdst/cobble
Test Unit 1	Lev. 8 (70 – 80)	01-6.50	Primary Flake	1	1 Qtzt-T.A.
		01-6.51	Secondary Flake	5	2 Ftp, 2 Ftp-T.A.,1 Chlcd
		01-6.52	Tertiary Flake	10	8 Ftp, 1 Ftp-T.A., 1 Rose Qtzt
		01-6.56	Utilized Flake	3	2 Qtzt, 1 Rose Chlcd
		01-6.58	Core Fragment	1	1 Ftp
		01-6.53	Flake Fragment	27	19 Ftp, 14 Ftp-T.A., 2 Qtzt, 2 Chlcd
		01-6.54	Shatter	6	2 Ftp, 4 Ftp-T.A.
		01-6.55	FCR	8	4 chert, 4 sdst/cobble
Test Unit 1	Lev. 9 (80 – 90)	01-6.59	Tertiary Flake	2	1 Ftp-T.A., 1 Stl
		01-6.62	Utilized Flake	3	1 Ftp, 2 Ftp-T.A.
		01-6.60	Flake Fragment	13	6 Ftp, 4 Ftp-T.A., 2 Qtzt, 1 Rose Qtzt
		01-6.61	Shatter	6	6 Ftp-T.A.
Test Unit 1	Lev. 10 (90 – 100)	01-6.64	Tertiary Flake	2	2 Ftp

Lithic Debitage From Site 40CY64 Cont.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Test Unit 1	Lev. 10 (90 – 100)	01-6.65	Shatter	1	1 Ftp-T.A.
Test Unit 2	Lev. 1 (0 – 10)	01-6.69	Thinning Flake	1	1 Ftp
		01-6.66	Flake Fragment	10	4 Ftp, 5 Ftp-T.A., 1 Qtzt
		01-6.67	Shatter	3	1 Ftp, 2 Ftp-T.A.
		01-6.68	FCR	2	2 chert
Test Unit 2	Lev. 2 (10 – 20)	01-6.70	Secondary Flake	4	2 Ftp, 2 Ftp-T.A.
		01-6.71	Tertiary Flake	14	7 Ftp, 5 Ftp-T.A., 1 Qtzt, 1 Wsw
		01-6.75	Utilized Flake	3	2 Ftp, 1 Ftp-T.A.
		01-6.76	Thinning Flake	14	4 Ftp, 6 Ftp-T.A., 4 Wsw-T.A.
		01-6.78	Core Fragment	1	1 Ftp
		01-6.72	Flake Fragment	67	37 Ftp, 27 Ftp-T.A., 2 Stl, 1 Qtzt
		01-6.73	Shatter	17	6 Ftp, 11 Ftp-T.A.
		01-6.74	FCR	4	1 qtz, 3 sdst/cobble
Test Unit 2	Lev. 3 (20 – 30)	01-6.79	Primary Flake	1	1 Ftp-T.A.
		01-6.80	Secondary Flake	4	1 Ftp, 3 Ftp-T.A.
		01-6.81	Tertiary Flake	17	7 Ftp, 7 Ftp-T.A., 2 Stl, 1 Chlcd
		01-6.85	Utilized Flake	1	1 Ftp
		01-6.86	Thinning Flake	25	12 Ftp, 11 Ftp-T.A., 1 Stl, 1 Wsw-T.A.
		01-6.82	Flake Fragment	64	38 Ftp, 23 Ftp-T.A., 1 Qtzt, 2 Wsw-T.A.
		01-6.83	Shatter	14	5 Ftp, 9 Ftp-T.A.
		01-6.84	FCR	1	1 sdst/cobble
Test Unit 2	Lev. 4 (30 – 40)	01-6.87	Primary Flake	1	1 Ftp
		01-6.88	Secondary Flake	2	1 Ftp, 1 Ftp-T.A.
		01-6.89	Tertiary Flake	8	5 Ftp, 3 Ftp-T.A.
		01-6.93	Utilized Flake	2	2 Ftp
		01-6.94	Thinning Flake	17	12 Ftp, 3 Ftp-T.A., 2 Stl
		01-6.95	Core	1	1 Stl
		01-6.96	Core Fragment	2	2 Ftp
		01-6.90	Flake Fragment	36	12 Ftp, 23 Ftp-T.A., 1 Qtzt, 2 Wsw-T.A.
		01-6.91	Shatter	7	4 Ftp, 3 Ftp-T.A.
		01-6.92	FCR	2	1 chert, 1 sdst/cobble
Test Unit 2	Lev. 5 (40 – 50)	01-6.97	Secondary Flake	1	1 Ftp
		01-6.98	Tertiary Flake	1	1 Ftp
		01-6.101	Thinning Flake	1	1 Ftp-T.A.
		01-6.99	Flake Fragment	4	3 Ftp, 1 Ftp-T.A.
		01-6.100	Shatter	2	2 Ftp-T.A.
Test Unit 11	Lev. 1 (0 – 10)	01-6.183	Secondary Flake	3	3 Ftp-T.A.
		01-6.184	Tertiary Flake	1	1 Ftp-T.A.
		01-6.188	Thinning Flake	2	1 Ftp-T.A., 1 Qtzt
		01-6.185	Flake Fragment	13	4 Ftp, 9 Ftp-T.A.
		01-6.186	Shatter	3	3 Ftp-T.A.

Lithic Debitage From Site 40CY64 Cont.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Test Unit 11	Lev. 1 (0 – 10)	01-6.187	FCR	5	5 Sdst
Test Unit 11	Lev. 2 (10 – 20)	01-6.189	Secondary Flake	10	4 Ftp, 6 Ftp-T.A.
		01-6.190	Tertiary Flake	4	1 Ftp, 3 Ftp-T.A.
		01-6.194	Thinning Flake	11	7 Ftp, 4 Ftp-T.A.
		01-6.191	Flake Fragment	46	13 Ftp, 33 Ftp-T.A.
		01-6.192	Shatter	8	3 Ftp, 5 Ftp-T.A.
		01-6.193	FCR	11	11 Chert
Test Unit 11	Lev. 3 (20 – 30)	01-6.196	Secondary Flake	14	3 Ftp, 11 Ftp-T.A.
		01-6.197	Tertiary Flake	4	4 Ftp-T.A.
		01-6.201	Thinning Flake	15	9 Ftp, 6 Ftp-T.A.
		01-6198	Flake Fragment	35	9 Ftp, 24 Ftp-T.A., 2 Qtzt-T.A.
		01-6.199	Shatter	4	4 Ftp-T.A.
		01-6.200	FCR	34	15 Chert, 18 Sdst
Test Unit 11	S. Wall (0 – 30)	01-6.202	Flake Fragment	2	2 Ftp-T.A.
		01-6.203	Thinning Flake	1	1 Ftp
Feature 1A S 1/2	(30 – 50)	01-6.205	Primary Flake	3	3 Ftp-T.A.
		01-6.206 & 212	Secondary Flake	9	2 Ftp, 7 Ftp-T.A.
		01-6.207	Tertiary Flake	3	1 Ftp, 2 Ftp-T.A.
		01-6.215	Utilized Flake	1	1 Ftp
		01-6.211 & 216	Thinning Flake	16	5 Ftp, 11 Ftp-T.A.
		01-6.208 & 213	Flake Fragment	33	9 Ftp, 24 Ftp-T.A.
		01-6.209	Shatter	6	6 Ftp-T.A.
		01-6.210 & 214	FCR	28	17 Chert, 11 Sdst
Feature 1A NW 1/4	(30 – 50)	01-6.217	Secondary Flake	7	7 Ftp-T.A.
		01-6.218	Tertiary Flake	3	1 Ftp, 2 Ftp-T.A.
		01-6.222	Thinning Flake	4	2 Ftp, 2 Ftp-T.A.
		01-6.219	Flake Fragment	13	4 Ftp, 9 Ftp-T.A.
		01-6.220	Shatter	10	2 Ftp, 8 Ftp-T.A.
		01-6.221	FCR	14	11 Chert, 3 Sdst
Feature 1C	(30- 46)	01-6.343	Secondary Flake	1	1 Ftp-T.A.
Feature 1N W 1/2	(30 – 55)	01-6.329	Primary Flake	1	1 Ftp-T.A.
		01-6.330	Secondary Flake	3	2 Ftp, 1 Ftp-T.A.
		01-6.331	Tertiary Flake	10	1 Ftp, 9 Ftp-T.A.
		01-6.335	Utilized Flake	1	1 Ftp-T.A.
		01-6.336	Thinning Flake	103	50 Ftp, 47 Ftp-T.A., 1 Qtz, 5 Chlcd
		01-6.332	Flake Fragment	74	21 Ftp, 52 Ftp-T.A., 1 Qtz
		01-6.333	Shatter	22	2 Qtzt-T.A., 20 Ftp-T.A.
		01-6.334	FCR	31	3 Chert, 28 Cobble
Feature 1N Column Sample	(30 – 55)	01-6.338	Secondary Flake	1	1 Ftp-T.A.
		01-6.342	Thinning Flake	8	5 Ftp, 3 Ftp-T.A.
		01-6.339	Flake Fragment	3	1 Ftp, 2 Ftp-T.A.

Lithic Debitage From Site 40CY64 Cont.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Feature 1N Column Sample	(30 – 55)	01-6.340	Shatter	2	1 Ftp-T.A., 1 Qtz
		01-6.341	FCR	9	1 Chert, 9 Cobble
Feature 1O W 1/2	(30 – 36)	01-6.347	Thinning Flake	11	2 Ftp, 8 Ftp-T.A., 1 Qtz
		01-6.344	Flake Fragment	9	3 Ftp, 5 Ftp-T.A., 1 Qtz
		01-6.345	Shatter	4	1 Ftp, 3 Ftp-T.A.
		01-6.346	FCR	2	2 Cobble
Feature 1Q W 1/2	(30 – 57.5)	01-6.348	Thinning Flake	3	2 Ftp, 1 Ftp-T.A.
Feature 1V S 1/2	(30 – 35)	01-6.351	Thinning Flake	2	2 Ftp-T.A.
		01-6.350	Flake Fragment	1	1 Ftp
Feature 1X N 1/2	(25 – 90)	01-6.317	Primary Flake	2	2 Ftp-T.A.
		01-6.318	Secondary Flake	3	1 Ftp, 2 Ftp-T.A.
		01-6.319	Tertiary Flake	1	1 Chlcd
		01-6.323	Utilized Flake	1	1 Ftp
		01-6.324	Thinning Flake	8	7 Ftp, 1 Qtz
		01-6.327	Core Fragment	1	1 Ftp-T.A.
		01-6.320	Flake Fragment	6	2 Ftp, 4 Ftp-T.A.
		01-6.321	Shatter	10	2 Ftp, 8 Ftp-T.A.
		01-6.322	FCR	21	1 Chert, 20 Cobble

Lithic Debitage From Site 40CY65.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Test Unit 5	Lev. 1 (0 – 20)	01-7.1	Primary Flake	2	2 Ftp
		01-7.2	Secondary Flake	10	4 Ftp, 6 Ftp-T.A.
		01-7.3	Tertiary Flake	8	6 Ftp, 2 Ftp-T.A.
		01-7.7	Utilized Flake	2	2 Ftp
		01-7.8	Thinning Flake	56	49 Ftp, 7 Ftp-T.A.
		01-7.10	Core Fragment	1	1 Ftp
		01-7.4	Flake Fragment	105	77 Ftp, 24 ftp-T.A., 1 Stl-T.A., 2 Qtzt, 1 Wsw
		01-7.5	Shatter	26	6 Ftp, 19 Ftp-T.A., 1 Qtz
		01-7.6	FCR	17	1 chert, 2 qtz, 13 sdst/cobble
Test Unit 5	Lev. 2 (20 – 30)	01-7.11	Primary Flake	4	2 Ftp, 2 Ftp-T.A.
		01-7.12	Secondary Flake	11	8 Ftp, 3 Ftp-T.A.
		01-7.13	Tertiary Flake	15	14 Ftp, 1 Ftp-T.A.
		01-7.18	Utilized Flake	1	1 Ftp
		01-7.15	Thinning Flake	35	33 Ftp, 2 Ftp-T.A.
		01-7.14	Flake Fragment	199	161 Ftp, 37 Ftp-T.A. 1 Qtz
		01-7.16	Shatter	22	20 Ftp, 2 Ftp
		01-7.17	FCR	3	3 sdst
Test Unit 5	Lev. 3 (30 – 40)	01-7.20	Primary Flake	1	1 Ftp-T.A.
		01-7.21	Secondary Flake	4	3 Ftp, 1 Ftp-T.A.

Lithic Debitage From Site 40CY65 Cont.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Test Unit 5	Lev. 3 (30 – 40)	01-7.22	Tertiary Flake	7	5 Ftp, 1 Ftp-T.A., 1 Wsw
		01-7.26	Thinning Flake	22	12 Ftp, 4 Ftp-T.A., 1 Wsw
		01-7.23	Flake Fragment	18	11 Ftp, 7 Ftp-T.A.
		01-7.24	Shatter	3	3 Ftp-T.A.
		01-7.25	FCR	9	2 chert, 4 qtz, 3 sdst/cobble
Test Unit 5	Lev. 4 (40 – 50)	01-7.28	Secondary Flake	2	2 Ftp
		01-7.29	Tertiary Flake	1	1 Ftp
		01-7.31	Thinning Flake	5	5 Ftp
		01-7.30	Flake Fragment	2	2 Ftp
Test Unit 6	Lev. 1 (0 – 20)	01-7.32	Primary Flake	4	4 Ftp-T.A.
		01-7.33	Secondary Flake	39	4 Ftp, 34 Ftp-T.A., 1 Qtzt
		01-7.34	Tertiary Flake	7	1 Ftp, 6 Ftp-T.A.
		01-7.38	Utilized Flake	1	1 Ftp
		01-7.39	Thinning Flake	21	2 Ftp, 19 Ftp-T.A.
		01-7.41	Tested cobble	1	1 cobble w/ Ftp interior
		01-7.35	Flake Fragment	169	60 Ftp, 106 Ftp-T.A., 1 Stl-T.A., 1 Qtzt, 1 Qtzt-T.A.
		01-7.36	Shatter	45	3 Ftp, 42 Ftp-T.A.
		01-7.37	FCR	40	35 chert, 2 lmst, 3 sdst/cobble
Test Unit 6	Lev. 2 (20 – 30)	01-7.42	Primary Flake	3	3 Ftp-T.A.
		01-7.43	Secondary Flake	23	23 Ftp-T.A.
		01-7.44	Tertiary Flake	5	5 Ftp-T.A.
		01-7.48	Utilized Flake	1	1 Ftp-T.A.
		01-7.49	Thinning Flake	7	3 Ftp, 4 Ftp-T.A.
		01-7.45	Flake Fragment	62	4 Ftp, 58 Ftp-T.A.
		01-7.46	Shatter	8	3 Ftp, 5 Ftp-T.A.
		01-7.47	FCR	10	8 chert, 1 qtzt, 1 sdst/cobble
Test Unit 6	Lev. 3 (30 – 40)	01-7.52	Primary Flake	9	9 Ftp-T.A.
		01-7.53	Secondary Flake	28	1 Ftp, 27 Ftp-T.A.
		01-7.54	Tertiary Flake	4	4 Ftp-T.A.
		01-7.55	Flake Fragment	116	4 Ftp, 110 Ftp-T.A., 2 Qtzt
		01-7.56	Shatter	28	28 Ftp-T.A.
		01-7.57	FCR	5	5 chert
Test Unit 6	Lev. 4 (40 – 50)	01-7.60	Primary Flake	2	2 Ftp-T.A.
		01-7.61	Secondary Flake	51	1 Ftp, 50 Ftp-T.A.
		01-7.62	Tertiary Flake	17	17 Ftp-T.A.
		01-7.66	Thinning Flake	10	10 Ftp-T.A.
		01-7.68	Unidentified lithic	1	1 Ftp-T.A.
		01-7.63	Flake Fragment	178	1 Ftp, 175 Ftp-T.A., 2 Qtzt
		01-7.64	Shatter	26	26 Ftp-T.A.
		01-7.65	FCR	22	22 chert
Test Unit 6	Lev. 5 (50 – 60)	01-7.69	Secondary Flake	14	14 Ftp-T.A.

Lithic Debitage From Site 40CY65 Cont.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Test Unit 6	Lev. 5 (50 – 60)	01-7.76	Tertiary Flake	6	6 Ftp-T.A.
		01-7.73	Utilized Flake	1	1 Ftp-T.A.
		01-7.74	Thinning Flake	8	2 Ftp, 6 Ftp-T.A.
		01-7.70	Flake Fragment	50	47 Ftp-T.A., 3 Qtzt-T.A.
		01-7.71	Shatter	1	1 Ftp-T.A.
		01-7.72	FCR	30	29 chert, 1 sdst/cobble
Test Unit 6	Lev. 6 (60 – 70)	01-7.79	Secondary Flake	1	1 Ftp-T.A.
		01-7.80	Tertiary Flake	1	1 Ftp-T.A.
		01-7.84	Thinning Flake	1	1 Ftp-T.A.
		01-7.81	Flake Fragment	18	18 Ftp-T.A.
		01-7.82	Shatter	3	3 Ftp-T.A.
		01-7.83	FCR	1	1 chert
Test Unit 7	Lev. 1 (0 – 20)	01-7.85	Primary Flake	1	1 Ftp-T.A.
		01-7.86	Secondary Flake	41	39 Ftp-T.A., 1 Qtzt-T.A., 1 Wsw-T.A.
		01-7.87	Tertiary Flake	8	8 Ftp-T.A.
		01-7.91	Thinning Flake	8	8 Ftp-T.A.
		01-7.92	Core Fragment	1	1 Ftp-T.A.
		01-7.88	Flake Fragment	139	136 Ftp-T.A., 2 Qtzt-T.A., 1 Wsw-T.A.
		01-7.89	Shatter	34	34 Ftp-T.A.
		01-7.90	FCR	81	69 chert, 1 qtzt, 1 lmst, 10 sdst/cobble
Test Unit 7	Lev. 2 (20 – 30)	01-7.94	Secondary Flake	5	5 Ftp-T.A.
		01-7.95	Tertiary Flake	1	1 Ftp-T.A.
		01-7.98	Thinning Flake	3	2 Ftp, 1 Ftp-T.A.
		01-7.99	Flake Fragment	40	40 Ftp-T.A.
Test Unit 7	Lev. 2 (20 – 30)	01-7.96	Shatter	3	3 Ftp-T.A.
		01-7.97	FCR	14	13 Ftp, 1 Qtz
Test Unit 8	Lev. 1 (0 – 20)	01-7.100	Primary Flake	1	1 Ftp
		01-7.101	Secondary Flake	53	3 Ftp, 50 Ftp-T.A.
		01-7.102	Tertiary Flake	4	1 Ftp, 3 Ftp-T.A.
		01-7.108	Utilized Flake	4	4 Ftp-T.A.
		01-7.106	Thinning Flake	4	1 Ftp, 3 Ftp-T.A.
		01-7.103	Flake Fragment	285	6 Ftp, 271 Ftp-T.A., 8 Qtzt-T.A.
		01-7.104	Shatter	26	2 Ftp, 24 Ftp-T.A.
		01-7.105	FCR	51	51 chert
Test Unit 8	Lev. 2 (20 – 30)	01-7.109	Primary Flake	3	3 Ftp-T.A.
		01-7.110	Secondary Flake	16	3 Ftp, 13 Ftp-T.A.
		01-7.115	Thinning Flake	1	1 Ftp-T.A.
		01-7.112	Flake Fragment	44	1 Ftp, 41 Ftp-T.A., 2 Qtzt-T.A.
		01-7.113	Shatter	10	1 Ftp, 9 Ftp-T.A.
		01-7.114	FCR	16	16 Ftp-T.A.
Test Unit 13	Lev. 1 (0 – 20)	01-7.144	Primary Flake	4	1 Ftp, 3 Ftp-T.A.

Lithic Debitage From Site 40CY65 Cont.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Test Unit 13	Lev. 1 (0 – 20)	01-7.145	Secondary Flake	27	11 Ftp, 16 Ftp-T.A.
		01-7.146	Tertiary Flake	25	13 Ftp, 12 Ftp-T.A.
		01-7.150	Thinning Flake	23	12 Ftp, 11 Ftp-T.A.
		01-7.147	Flake Fragment	61	22 Ftp, 39 Ftp-T.A.
		01-7.148	Shatter	21	9 Ftp, 12 Ftp-T.A.
		01-7.149	FCR	91	18 Chert, 73 Sdst
Test Unit 13	Lev. 2 (20 – 30)	01-7.151	Secondary Flake	12	7 Ftp, 5 Ftp-T.A.
		01-7.152	Tertiary Flake	8	6 Ftp, 2 Ftp-T.A.
		01-7.153	Flake Fragment	20	11 Ftp, 9 Ftp-T.A.
		01-7.156	Thinning Flake	15	15 Ftp
		01-7.154	Shatter	17	10 Ftp, 7 Ftp-T.A.
		01-7.155	FCR	20	14 Chert, 6 Sdst
Test Unit 13	Lev. 3 (30 – 40)	01-7.157	Secondary Flake	3	2 Ftp, 1 Qtzt
		01-7.158	Tertiary Flake	2	1 Ftp, 1Ftp-T.A.
		01-7.162	Thinning Flake	3	3 Ftp
		01-7.159	Flake Fragment	4	2 Ftp-T.A., 2 Qtzt-T.A.
		01-7.160	Shatter	1	1 Ftp-T.A.
		01-7.161	FCR	15	4 Chert, 11 Sdst
Test Unit 14	Lev. 1 (0 – 20)	01-7.163	Primary Flake	3	1 Ftp, 2 Ftp-T.A.
		01-7.164	Secondary Flake	8	5 Ftp, 3 Ftp-T.A.
		01-7.165	Tertiary Flake	10	6 Ftp, 4 Ftp-T.A.
		01-7.169	Thinning Flake	15	13 Ftp, 2 Ftp-T.A.
		01-7.166	Flake Fragment	25	15 Ftp, 9 Ftp, 1 Qtzt
		01-7.167	Shatter	22	5 Ftp, 16 Ftp-T.A., 1 Wsw
		01-7.168	FCR	23	20 Chert, 1 Qtz, 2 Sdst
Test Unit 14	Lev. 2 (20 – 30)	01-7.171	Secondary Flake	18	7 Ftp, 10 Ftp-T.A., 1 Qtzt-T.A.
		01-7.172	Tertiary Flake	12	8 Ftp, 4 Ftp-T.A.
		01-7.176	Utilized Flake	1	1 Ftp
		01-7.177	Thinning Flake	12	7 Ftp, 5 Ftp-T.A.
		01-7.178	Core Fragment	1	1 Ftp
		01-7.173	Flake Fragment	25	13 Ftp, 11 Ftp-T.A., 1 Qtzt
		01-7.174	Shatter	18	4 Ftp, 14 Ftp-T.A.
		01-7.175	FCR	11	9 Chert, 2 Sdst
Test Unit 14	Lev. 3 (30 – 40)	01-7.179	Secondary Flake	3	1 Ftp, 1 Ftp-T.A., 1 Qtzt
		01-7.180	Tertiary Flake	6	3 Ftp, 3 Ftp-T.A.
		01-7.184	Thinning Flake	3	2 Ftp, 1 Ftp-T.A.
		01-7.181	Flake Fragment	14	5 Ftp, 9 Ftp-T.A.
		01-7.182	Shatter	15	10 Ftp, 5 Ftp-T.A.
		01-7.183	FCR	6	5 Chert, 1 Sdst
Test Unit 14	Lev. 4 (40 – 50)	01-7.185	Flake Fragment	1	1 Ftp-T.A.
		01-7.186	FCR	1	1 Chert

Lithic Tools Recovered from Site 40CY63.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Test Unit 3	Lev. 1 (0 – 10)	01-5.151	Hafted scraper	1	Side notched, Qtzt
		01-5.150	Tertiary biface frag.	1	Distal tip, Ftp
		01-5.152	Tertiary biface frag.	1	Mid-section and tip, Ftp
Test Unit 3	Lev. 2 (10 – 20)	01-5.154	Tertiary biface frag.	1	Mid-section, Ftp-T.A.
Test Unit 3	Lev. 3 (20 – 30)	01-5.158	Tertiary biface frag.	1	Mid-section and tip, Ftp
		01-5.28	Tertiary biface frag.	1	Distal tip, Ftp-T.A.
		01-5.27	Secondary biface frag.	2	2 Ftp
Test Unit 3	Lev. 4 (30 – 40)	01-5.148	PP/K-PP6	1	Straight stemmed, serrated, Austin/Stanly Stemmed, Ftp.
Test Unit 4	Lev. 4 (30 – 40)	01-5.162	PP/K-PP9	1	Side notched, Type II, Ftp
		01-5.161	PP/K	1	Side notched, Type I, Ftp
		01-5.163	PP/K	1	Side notched, Type I, WSW
		01-5.159	Secondary biface	1	Ftp
		01-5.160	Secondary biface frag.	2	1 Distal tip, Ftp-T.A., 1 Mid-section, Ftp
Test Unit 4	Lev. 5 (40 – 50)	01-5.166	PP/K	1	Side notched, Type II, Chlcd
		01-5.164	Secondary biface frag.	1	Qtzt
		01-5.167	Secondary biface frag.-PP11	1	Ftp
Test Unit 9	Lev. 1 (0 – 20)	01-5.170	PP/K	1	Side notched, used as an end scraper, Type III, Ftp
		01-5.169	Secondary biface frag.	1	Ftp
		01-5.168	Tertiary biface frag.	1	Distal tip, serrated, Ftp-T.A.
Test Unit 9	Lev. 2 (20 – 30)	01-5.172	Tertiary biface frag.	1	Mid-section, Ftp
		01-5.171	Spokeshave	1	Ftp
Test Unit 9	Lev. 3 (30 – 40)	01-5.173	PP/K	1	Side notched, Type IV, Ftp
Test Unit 10	Lev. 1 (0 – 20)	01-5.174	Tertiary biface frag.	1	Base, Qtzt
Test Unit 10	Lev. 3 (30 – 40)	01-5.175	PP/K-PP16	1	Side notched, small, Chesser Notched/Lowe Cluster, Ftp
		01-5.176	Tertiary biface frag.	1	Base, side notched on one side, Ftp
Test Unit 10	Lev. 4 (40 – 50)	01-5.178	Tertiary biface-PP18	1	Ftp
		01-5.177	Tertiary biface frag.-PP17	1	Mid-section, Ftp
Test Unit 10	Lev. 5 (50 – 60)	01-5.180	PP/K	1	Side notched, Type IV, Ftp-T.A.
		01-5.181	Secondary biface	1	Ftp
		01-5.182	Secondary biface frag.	1	Ftp
		01-5.183	Tertiary biface frag.	1	Distal tip, Ftp-T.A.
Test Unit 10	Lev. 6 (60 – 70)	01-5.185	PP/K-PP19	1	Side notched, Chesser Notched/Lowe Cluster, Ftp-T.A.
		01-5.184	PP/K	1	Side notched, Type IV, Ftp-T.A.
		01-5.187	Knife fragment	1	Notched, Ftp
		01-5.186	Secondary biface-PP20	1	Ftp
Test Unit 10	Lev. 7 (70 – 80)	01-5.189	Primary biface	1	Qtz
		01-5.188	Secondary biface frag.	1	Qtz
Test Unit 10	Lev. 8 (80 – 90)	01-5.190	Tertiary biface frag.-PP21	1	Distal tip, Ftp-T.A.
Test Unit 10	South Wall	01-5.191	Secondary biface frag.	1	Wsw
Test Unit 12	Lev. 1 (0 – 20)	01-5.192	Hafted end scraper	1	Side notched, unidentifiable raw material
Feature 40 N 1/2	(100 – 110)	01-5.358	PP/K	1	Side-notched, Thebes, Ftp

Lithic Tools Recovered from Site 40CY63 Cont.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Trench 4 NW		01-5.197	Hafted end scraper	1	Chlcd
		01-5.198	Secondary biface	1	Ftp
Trench 4 Middle		01-5.196	PP/K	1	Stemmed, small, Bakers Creek/Lowe Cluster, Ftp-T.A.
		01-5.195	Primary biface	1	Wsw
		01.5-376	Mortar	2	Limestone slab/boulder
Trench 4 NE		01-5.194	Primary biface	1	Ftp-T.A.
		01-5.194	Primary biface frag.	1	Ftp-T.A.
Trench 5 NW		01-5.212	PP/K	1	Side notched, Type III, Ftp-T.A.
Trench 5 Middle		01-5.206	PP/K	1	Side notched, Type III, Ftp-T.A.
		01-5.209	PP/K	1	Side notched, concave base, Type I, Chlcd
		01-5.210	PP/K	1	Side notched, concave base, Type I, Chlcd
		01-5.211	PP/K	1	Side-notched, concave base, Type II, Ftp
		01-5.370	PP/K	1	Stemmed, Ledbetter, Ftp-T.A.
		01-5.208	Primary biface	1	Ftp
		01.5-377	Pestle fragment	1	Cotton rock
		01-5.202	Primary biface frag.	1	Ftp
		01-5.207	Secondary biface frag.	1	Distal tip, Ftp
		01-5.204	Secondary biface frag.	1	Ftp
		01-5.203	Secondary biface frag.	1	Ftp-T.A.
		01-5.205	Secondary biface frag.	1	Ftp
Trench 5 NE		01-5.199	PP/K	1	Expanding Stem, Lowe Flared/Lowe Cluster, Ftp
		01-5.200	PP/K	1	Lanceolate, base, Copena/McFarland, Ftp
		01-5.201	Secondary biface	1	Stl
Trench 6 NW		01-5.219	PP/K	1	Side notched, Type I, Wsw-T.A.
		01-5.220	PP/K	1	Side notched, base and mid-section, used as a scraper, Type II, Wsw
		01-5.218	PP/K	1	Side notched, heavily re-sharpened, Type III, Wsw-T.A.
		01-5.222	PP/K	1	Stemmed, base and mid-section, White Springs, Ftp
		01-5.373	PP/K	1	Side notched, Type III, Qtz
		01-5.230	PP/K	1	Side notched, Type III, Ftp
		01-5.225	Hafted scraper	1	Side notched, Ftp
		01-5.372	Hafted scraper	1	Side notched, Ftp-T.A.
Trench 6 NW		01-5.229	Hafted scraper	1	Side notched, Ftp
		01-5.227	Primary biface	1	Qtz
		01-5.215	Secondary biface	1	Ftp
		01-5.226	Secondary biface frag.	1	Ftp-T.A.
		01-5.216	Secondary biface frag.	1	Distal tip, Ftp
		01-5.221	Secondary biface frag.	1	Distal tip, Ftp-T.A.
		01-5.217	Tertiary biface frag.	1	Distal tip, Ftp-T.A.
		01-5.223	Tertiary biface frag.	1	Mid-section, Ftp-T.A.
		01-5.224	Tertiary biface frag.	1	Distal tip, Ftp
		01-5.228	Tertiary biface frag.	1	Ftp-T.A.
Trench 6 Middle		01-5.214	PP/K	1	Side notched, base, Type I, Qtz

Lithic Tools Recovered from Site 40CY63 Cont.

Trench 6 NE		01-5.213	Asymmetrical knife frag.	1	Distal tip and mid-section, Ftp
Trench 16 NW		01-5.238	PP/K	1	Side notched, Type II, Stl
		01-5.239	Primary biface	1	Ftp
Trench 16 Middle		01-5.237	Secondary biface frag.	1	Mid-section, Ftp
Trench 16 NE		01-5.236	Drill/perforator frag.	1	Distal tip, Ftp-T.A.
		01-5.235	Secondary biface frag.	1	Ftp-T.A.
		01-5.234	Tertiary biface frag.	1	Distal tip, Ftp-T.A.
Trench 18 General		01-5.248	PP/K	1	Side notched, Type II, Ftp-T.A.
		01-5.249	PP/K	1	Expanded stem, Lowe Flared/Lowe Cluster, Ftp-T.A.
		01-5.241	PP/K	1	Straight stemmed, Robbins, Ftp
		01-5.243	PP/K	1	Side notched, used as a scraper, Type I, Qtz
		01-5.244	PP/K	1	Side notched, Type I, Ftp
		01-5.246	PP/K	1	Side notched, Type II, Ftp
		01-5.247	PP/K	1	Side notched, Type IV, Ftp
		01-5.245	PP/K	1	Side notched, Type III, Ftp-T.A.
		01-5.242	PP/K	1	Lanceolate, Copena/McFarland, Ftp
		01-5.240	PP/K	1	Side notched, Type IV, Ftp-T.A.
		01-5.371	PP/K	1	Side notched, small, Bakers Creek/Lowe Cluster, Ftp
		01-5.375	Hafted end scraper	1	Ftp
		01-5.259	Primary biface	1	Ftp
		01-5.260	Primary biface	1	Ftp
		01-5.256	Secondary biface frag.	1	Distal tip, Ftp
		01-5.254	Secondary biface frag.	1	Distal tip, Ftp
		01-5.255	Secondary biface frag.	1	Distal tip, Ftp
		01-5.257	Secondary biface frag.	1	Ftp
		01-5.252	Secondary biface	1	Ftp
		01-5.258	Secondary biface frag.	1	Distal tip, Wsw
		01-5.253	Secondary biface frag.	1	Base, Ftp
		01-5.250	Tertiary biface frag.	1	Drill tip, Ftp
Backhoe Pit 7		01-5.232	PP/K	1	Side notched, Type I, Ftp

Lithic Tools Recovered from Site 40CY64.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Test Unit 1	Lev. 2 (10 – 20)	01-6.5	Secondary biface frag.-PP1	1	Ftp
Test Unit 1	Lev. 3 (20 – 30)	01-6.15	PP/K	1	Stemmed, un-notched, ovate base, Adena, Ftp
Test Unit 1	Lev. 4 (30 – 40)	01-6.26	Primary biface frag.	1	Ftp
Test Unit 2	Lev. 2 (10 – 20)	01-6.137	Tertiary biface frag.	1	Distal tip, Ftp
Test Unit 2	Lev. 3 (20 – 30)	01-6.136	PP/K	1	Stemmed, un-notched, ovate base, Adena, Ftp
		01-6.135	PP/K-PP4	1	Side notched, Type I, Ftp-T.A.
Test Unit 11	Lev. 2 (10 – 20)	01-6.195	End scraper	1	Ftp
Feature 1X N 1/2	@ 30	01-6.326	PP/K	1	Stemmed, unnotched, ovate base, Adena, Ftp
Trench 1 NW		01-6.146	Secondary biface frag.	1	Distal tip, Ftp-T.A.

Lithic Tools Recovered from Site 40CY64 Cont.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Trench 1 NW		01-6.145	Tertiary biface frag.	1	Distal tip, Ftp
Trench 1 Middle		01-6.147	Secondary biface frag.	1	Mid-section, Ftp
		01-6.144	Tertiary biface frag.	1	Mid-section, Ftp
		01-6.148	Tertiary biface frag.	1	Mid-section, Ftp
Trench 1 NE		01-6.143	Secondary biface frag.	1	Base, Ftp
Trench 2 NW		01-6.160	Primary biface	1	Possible digging implement, Ftp-T.A. or limst
		01-6.157	Secondary biface frag.	1	Distal tip, Wsw-T.A.
		01-6.159	Secondary biface frag.	1	Distal tip, Qtz
Trench 2 Middle		01-6.152	PP/K	1	Expanded stem, base, Lowe Flared/Lowe Cluster, Ftp
		01-6.154	PP/K	1	Lanceolate, base, Copena/McFarland, Ftp
		01-6.151	PP/K	1	Stemmed, serrated, Lowe Flared/Lowe Cluster, Knox
		01-6.156	Secondary biface frag.	1	Mid-section, Ftp
		01-6.155	Tertiary biface frag.	1	Mid-section, Ftp
		01-6.153	Tertiary biface frag.	1	Distal tip, Ftp
Trench 2 NE		01-6.149	Tertiary biface frag.	1	Mid-section, partial base, Ftp
		01-6.158	PP/K-Beaver Lake	1	Excurvate blade shape, concave base, Beaver Lake, Ftp-T.A.
		01-6.150	Secondary biface frag.	1	Base and mid-section, Ftp
Trench 3 S		01-6.161	Asymmetrical knife	1	Ftp
Trench 7 Middle		01-6.172	Secondary biface frag.	1	Mid-section, Ftp
		01-6.173	Secondary biface frag.	1	Mid-section, Ftp
Trench 7 NE		01-6.163	PP/K	1	Side notched, concave base, Type I, Wsw
		01-6.164	PP/K	1	Stemmed, un-notched, made from a flake, Little Bear Creek, Ftp
		01-6.168	PP/K	1	Stemmed, Ledbetter, Ftp-T.A.
		01-6.167	PP/K	1	Side notched, Type III, Qtz
		01-6.165	PP/K	1	Stemmed, un-notched, ovate base, Adena, Ftp
		01-6.162	Full grooved axe frag.	1	Unidentified raw material
		01-6.171	Secondary biface frag.	1	Distal tip, Ftp
		01-6.170	Tertiary biface frag.	1	Distal tip, Ftp
Block 1 General		01-6.141	Uniface/knife	1	Ftp
		01-6.139	Secondary biface	1	Ftp-T.A.
		01-6.138	Secondary biface frag.	1	Base, Wsw-T.A.
		01-6.140	Secondary biface frag.	1	Distal tip, Ftp
Trench 9 Middle		01-6.180	PP/K	1	Side notched, small, Type IV, Ftp T.A.
		01-6.181	PP/K	1	Stemmed, Little Bear Creek, Ftp-T.A.
		01-6.182	Tertiary biface frag.	1	Mid-section and tip, Ftp T.A.
Trench 9 NE		01-6.175	PP/K	1	Stemmed, used as a scraper, Wade, Ftp
		01-6.177	Asymmetrical knife frag.	1	Distal tip, Ftp
		01-6.176	Tertiary biface frag.	1	Distal tip, serrated, Ftp T.A.
		01-6.179	Tertiary biface frag.	1	Distal tip, Ftp

Lithic Tools Recovered from Site 40CY65.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Raw Material
Test Unit 5	Lev. 1 (0 – 20)	01-7.9	Secondary biface frag.	1	Distal tip, Ftp-T.A.
Test Unit 5	Lev. 2 (20 – 30)	01-7.116	Secondary biface frag.	1	Distal tip, Ftp-T.A.
		01-7.19	Tertiary biface frag.	1	Non-thermally altered Warsaw
Test Unit 5	Lev. 3 (30 – 40)	01-7.117	PP/K	1	Side notched, base, Chesser Notched/Lowe Cluster, Ftp-T.A.
Test Unit 6	Lev. 1 (0 – 20)	01-7.118	PP/K	1	Side-notched, base, Chesser Notched/Lowe Cluster, Ftp-T.A.
		01-7.119	Tertiary biface frag.	1	Distal tip. Ftp-T.A.
		01-7.40	Tertiary biface frag.	1	Ftp-T.A.
Test Unit 6	Lev. 3 (30 – 40)	01-7.121	PP/K	1	Side-notched, _ of base, Type III, Ftp-T.A.
Test Unit 6	Lev. 4 (40 – 50)	01-7.123	Secondary biface frag.-PP15	1	Distal tip, Wsw
		01-7.122	Tertiary biface frag.-PP14	1	Distal tip, Ftp-T.A.
Test Unit 8	Lev. 1 (0 – 20)	01-7.124	Primary biface	1	Ftp
		01-7.125	Tertiary biface frag.	1	Ftp
Test Unit 13	Lev. 1 (0 – 20)	01-7.126	Secondary biface frag.	1	Ftp
		01-7.127	Secondary biface frag.	1	Ftp
		01-7.128	Secondary biface frag.	1	Ftp-T.A.
Test Unit 13	Lev. 2 (20 – 30)	01-7.129	Secondary biface frag.	1	Notched, Ftp
Trench 8 NW		01-7.143	Secondary biface frag.	1	Ftp
Trench 8 Middle		01-7.137	PP/K	1	Lanceolate, Copena/McFarland, Ftp-T.A.
		01-7.140	PP/K	1	Expanded stem, Lowe Flared/Lowe Cluster, Ftp-T.A.
		01-7.133	Primary biface	1	Ftp
Trench 8 Middle		01-7.134	Secondary biface	1	Ftp
		01-7.141	Secondary biface	1	Ftp-T.A.
		01-7.135	Secondary biface frag.	1	Ftp-T.A.
		01-7.142	Secondary biface frag.	1	Ftp
		01-7.139	Tertiary biface frag.	1	Distal tip, Ftp-T.A.
		01-7.136	Crude scraper	1	Qtz
Trench 8 NE		01-7.131	PP/K	1	Side notched, small, Chesser Notched/Lowe Cluster, Ftp-T.A.
		01-7.132	PP/K	1	Stemmed, un-notched, ovate base, Adena, Ftp-T.A.
		01-7.356	PP/K	1	Lanceolate, Copena/McFarland, Ftp

Ceramics Recovered from Site 40CY63.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Description
Test Unit 3	Lev. 2 (10 – 20)	01-5.157	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
Test Unit 12	Lev. 8 (80 – 90)	01-5.193	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
Trench 6 NW Wall	@ 34 cmbs	01-5.145	Ceramic sherd	1	Plain body sherd, lmst tempered
Trench 6 NW Wall	unknown	01-5.146	Burnt clay fragment	1	Lmst and clay conglomerate
Feature 32 E 1/2	@ 34 cmbs	01-5.354	Ceramic sherd	1	Fabric impressed, lmst tempered
Feature 32 E 1/2	@ 35 cmbs	01-5.143	Ceramics	3	1 cord-marked body sherd, lmst tempered/ 2 baked clay fragments
		01-5.142	Baked clay fragments	5	Baked clay fragments

Ceramics Recovered from Site 40CY64.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Description
Test Unit 11 (F-1A)	Lev. 2 (10 – 20)	01-6.103	Ceramics	2	1 cord-marked body sherd, lmst tempered/ 1 baked clay fragment
Test Unit 11 (F-1A)	Lev. 3 (20 – 30)	01-6.104	Ceramics	4	Baked clay fragments
		01-6.107	Ceramic sherds	3	3 cord-marked body sherds, lmst tempered
		01-6.108	Ceramics	11	4 cord-marked body sherds & 1 cord-marked, flat rim sherd, lmst tempered/ 6 ba clay fragments
Feature 1A S 1/2	(30 – 50)	01-6.111	Ceramics	12	3 cord-marked, 2 plain, 1 eroded, body sherds, lmst tempered/ 5 baked clay frag.
		01-6.114	Ceramic sherd	1	Cord-marked rim sherd, lmst tempered
		01-6.120	Ceramic sherds	2	Cord-marked body sherds, lmst tempered
		01-6.124	Ceramic sherd	1	Cord-marked, lmst tempered
Feature 1A S 1/2	(30 – 50)	01-6.130	Ceramics	3	1 cord-marked body sherd, 2 baked clay fragments
		01-6.132	Ceramic sherds	5	Cord- marked body sherds, lmst tempered
Feature 1A NW 1/4	(30 – 50)	01-6.134	Ceramics	22	14 cord-marked body sherds, 1 cord-marked rim sherd, lmst tempered/ 7 baked c fragments
Feature 1A NE 1/4 Screened Fill	(30 – 50)	01-6.297	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.298	Ceramics	2	Baked clay fragments
Feature 1A NE 1/4 Screened Fill	(30 – 50)	01-6.300	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.302	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.303	Ceramic sherd	1	Fabric impressed body sherd, lmst tempered
		01-6.306	Ceramics	42	Baked clay fragments
		01-6.308	Ceramic sherd	1	Eroded body sherd, lmst tempered
		01-6.309	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
Feature 1A NE 1/4 Flotation Sample		01-6.352	Ceramic sherds	5	Cord-marked body sherds, lmst tempered
		01-6.253	Ceramics	682	Small baked clay fragments
Feature 1N W 1/2	(30 – 55)	01-6.276	Ceramics	36	Baked clay fragments
		01-6.277	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.278	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.279	Ceramic sherd	1	Cord-marked rim sherd, lmst tempered
		01-6.280	Ceramic sherd	1	Cord-marked rim sherd, lmst tempered
		01-6.281	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.282	Ceramic sherd	1	Cord-marked rim sherd, lmst tempered
		01-6.283	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.284	Ceramic sherd	1	Cord-marked rim sherd, lmst tempered
		01-6.285	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.286	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.287	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.289	Ceramic sherd	1	Plain body sherd, lmst tempered
		01-6.290	Ceramic sherd	1	Eroded body sherd, lmst tempered
		01-6.291	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.292	Ceramics	4	Baked clay fragments
		01-6.293	Ceramic sherd	1	Eroded body sherd, lmst tempered
		01-6.294	Ceramic sherd	1	Eroded body sherd, lmst tempered
		01-6.295	Ceramic sherd	1	Cord-marked body sherd, lmst tempered

Ceramics Recovered from Site 40CY64 Cont.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Description
Feature 1X N 1/2	(25 – 90)	01-6.227	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.228	Ceramic sherd	1	Cord-marked rim sherd, lmst tempered
		01-6.229	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.230	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.231	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.232	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.233	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.234	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.235	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.236	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.237	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.238	Ceramic sherd	1	Cord-marked rim sherd, lmst tempered
		01-6.239	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.240	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.241	Ceramic sherd	1	Plain body sherd, untempered
		01-6.242	Ceramic sherd	1	Eroded body sherd, lmst tempered
		01-6.243	Ceramic sherd	1	Baked clay
		01-6.244	Ceramic	1	Baked clay
		01-6.245	Ceramic sherd	1	Plain body sherd, lmst tempered
		01-6.246	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.247	Ceramic	1	Baked clay
		01-6.248	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.249	Ceramic sherd	1	Cord-marked rim sherd, lmst tempered
		01-6.250	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.251	Ceramic sherd	1	Eroded body sherd, lmst tempered
		01-6.252	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.253	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.254	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.255	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.256	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.257	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.258	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.259	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
Feature 1X N 1/2	(25 – 90)	01-6.260	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.261	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.262	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.263	Ceramic sherd	1	Cord-marked rim sherd, lmst tempered
		01-6.264	Ceramic sherd	1	Eroded body sherd, lmst tempered
		01-6.265	Ceramic	1	Baked clay
		01-6.266	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.267	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.268	Ceramic sherd	1	Cord-marked body sherd, lmst tempered

Ceramics Recovered from Site 40CY64 Cont.

Unit Provenience	Depth (cmbs)	Accession Number	Artifact Description	Count	Description
Feature 1X N 1/2	(25 – 90)	01-6.269	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.270	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.271	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.272	Ceramic sherd	1	Baked clay
		01-6.273	Ceramic sherd	1	Baked clay
		01-6.274	Ceramic sherd	1	Cord-marked body sherd, lmst tempered
		01-6.275	Ceramic sherd	1	Eroded body sherd, lmst tempered

Charcoal Samples Recovered from Site 40CY63.

Unit Provenience	Depth (cmbs)	Accession Number	Comment
Test Unit 3	Lev. 3 @ 23.5	01-5.30	PP-5, not submitted for C^{14} dating
Test Unit 3	Lev. 4 @ 38.5	01-5.40	PP-7, submitted for C^{14} dating, 6200 ± 40 B.P.
Test Unit 4	Lev. 4 @ 35	01-5.314	Submitted for C^{14} dating, 30,720 ± 720 B.P.
Test Unit 4	Lev. 5 @ 47.5	01-5.103	PP-10, not submitted for C^{14} dating
Trench 18 NE Wall	@ 82	01-5.313	Not submitted for C^{14} dating
Feature 32 E 1/2	@ 37	01-5.353	Submitted for C^{14} dating, 2300 ± 40 B.P.
Feature 40 N 1/2	@ 100	01-5.349	Not submitted for C^{14} dating
Feature 40 N 1/2	@ 105	01-5.350	Not submitted for C^{14} dating
Feature 40 N 1/2	@ 110	01-5.351	Submitted for C^{14} dating, 5560 ± 40 B.P.

Charcoal Samples Recovered from Site 40CY64.

Unit Provenience	Depth (cmbs)	Accession Number	Comment
Test Unit 1	Lev. 4 @ 35	01-6.29	PP-3, not submitted for C^{14} dating
Feature 1A S 1/2	@ 32	01-6.110	Not submitted for C^{14} dating
Feature 1A S 1/2	@ 37.5	01-6.119	Not submitted for C^{14} dating
Feature 1A S 1/2	@ 41.5	01-6.123	Submitted for C^{14} dating, 2300 ± 40 B.P.
Feature 1N W 1/2	@ 30	01-6.223	Not submitted for C^{14} dating
Feature 1N W 1/2	@ 55	01-6.224	Not submitted for C^{14} dating
Feature 1O W 1/2	@ 33	01-6.225	Not submitted for C^{14} dating
Feature 1Q	@ 35	01-6.204	Submitted for C^{14} dating, 2240 ± 40 B.P.
Feature 1X N 1/2	@ 45	01-6.226	Submitted for C^{14} dating, 2420 ± 40 B.P.

Charcoal Samples Recovered from Site 40CY65.

Unit Provenience	Depth (cmbs)	Accession Number	Comment
Test Unit 5	Lev. 3 @ 31.5	01-7.27	PP-13, not submitted for C^{14} dating
Test Unit 6	Lev. 2 @ 29	01-7.51	PP-12, not submitted for C^{14} dating
Feature 41 NE 1/4	@ 28	01-7.187	Submitted for C^{14} dating, 2420 ± 40 B.P.

Animal and Mammal Bone Recovered from Site 40CY63.

Unit Provenience	Fraction	Accession Number	Description	Count	Species
Feature 32 E 1/2 Screened fill	N/A	01-5.144.	Complete naviculo-cuboid, left (*ankle*), *Odocoileus virginianus*	1	Carnivore gnawed
Feature 32 E 1/2 Flotation sample	+2mm	01-5.374	Rodent proximal tibia fragment, left	1	Rat sized
		01-5.374	Unidentified bone fragments	19	

Animal and Mammal Bone Recovered from Site 40CY64.

Unit Provenience	Fraction	Accession Number	Description	Count	Comment
Test unit 11 Lev. 2 (1/4 in. screened fill)	N/A	01-6.102	Unidentified bone fragments	3	Mammal
Test unit 11 Lev. 3	N/A	01-6.106	Long bone shaft fragment	1	Likely white tailed deer
(1/4 in. screened fill)	N/A	01-6.105	Unidentified bone fragments	2	Mammal
Feat. 1A S 1/2 (1/4 in. screened fill)	N/A	01-6.115	Distal metacarpal shaft fragment *(foot-frontlimb)*	1	*Odocoileus virginianus* indeterminate side
Feat. 1A S 1/2 (1/4 in. screened fill)	N/A	01-6.131	Proximal 1st phalanx fragment *(foot)*	1	*Odocoileus virginianus* right side, fused
	N/A	01-6.118	Long bone shaft fragment	1	Mammal, 3 refitted fragments
	N/A	01-6.112	Complete 3rd phalanx *(hindlimb)*	1	*Odocoileus virginianus* right side
	N/A	01-6.113,01-6.122, 01-6.133	Unidentified bone fragments	290	Mammal and animal
Feat. 1A NW 1/4 (1/4 in. screened fill)	N/A	01-6.128	Metapodial shaft fragment	1	*Odocoileus virginianus* indeterminate side, cut
Feat. 1A NE 1/4 (flotation sample)	+2mm	01-6.314	Distal metacarpal *(foot-front-limb)*	1	*Odocoileus virginianus* right side, fused
	+2mm	01-6.354	Complete snake vertebra	1	Family Colubridae Non-poisonous snake
	+2mm	01-6.354	Distal tibia fragment	1	*Sylvilagus* spp, left side, burned
	+2mm	01-6.354	Fish bone fragments	2	Class Osteichthyes Unidentified elements
	+2mm	01-6.354	Unidentified bone fragments	322	Mammal and animal
Feat. 1N W 1/2 (1/4 in. screened fill)	N/A	01-6.328	Distal 1st phalanx fragment *(foot)*	1	*Odocoileus virginianus* left side

Animal and Mammal Bone Recovered from Site 40CY64 Cont.

Unit Provenience	Fraction	Accession Number	Description	Count	Comment
Feat. 1N W 1/2 (1/4 in. screened fill)	N/A	01-6.296	Unidentified bone fragments	51	Mammal
Feat. 1N W 1/2 (1/16 in. water screened fill)	+2mm	01-6.355	Unidentified bone fragments	15	Mammal and animal
Feat. 1V S 1/2	N/A	01-6.315	Long bone shaft fragments	7	Likely White tailed deer
(1/4 in. screened fill)	N/A	01-6.315	Unidentified bone fragments	38	Mammal and animal
Feat. 1V S 1/2 (1/16 in. water screened fill)	+2mm	01-6.355	Unidentified bone fragments	470	Animal
Feat. 1X E 1/2	N/A	01-6.316	Proximal 1st phalanx fragment *(foot)*	1	*Odocoileus virginianus* right side
(1/4 in. screened fill)	N/A	01-6.316	Unidentified bone fragments	52	Mammal

Animal and Mammal Bone Recovered from Site 40CY65.

Unit Provenience	Fraction	Accession Number	Description	Count	Comment
Feature 41 NE 1/4	N/A	01-6.188	Unidentifiable bone fragments	23	Animal and Mammal

APPENDIX B

METRIC ATTRIBUTES OF PROJECTILE POINTS/KNIVES

PP/K Attribute Measurements (mm).

Provenience	*Accession #*	*Point Type*	*Max. Length*	*Max. Width*	*Max. Thickness*	*Shoulder Width*	*Blade Width*	*Haft Length*	*Max. Width at Mid.*	*Distal Haft Width*	*Proximal Haft Width*	*Max. Thickness at Distal Haft Loc.*	*Weight (g)*
TR 2 NE	01-6.158	Beaver Lake	45.2	23.8	6.8	23.5	31.2	14	23.8	19.9	16.8	3.6	7.1
TU 4 LEV 4	01-5.161	Type I			5.8	28.9		11.7	26.6	21.7		5.6	6.8
TU 4 LEV 4	01-5.163	Type I	45.6		7.4	24.9	31.6	14	20.4	19.5		6.4	10.1
TR 5 MID	01-5.209	Type I			6.8	27		13.4	23.2	18.6		6.8	7.1
TR 5 MID	01-5.210	Type I		27.2	7.9	25.9		13.4	23.5	17.3	23.9	6.8	10.1
TR 6 MID	01-5.214	Type I									31.6		3.4
TR 6 NW	01-5.219	Type I	43.5		7.3	26.3	30.6	12.9	21.1	20.8		5.8	10.1
TR 18 GEN	01-5.244	Type I	38	23.6	5.6	20.9	27.1	10.9	16.8	16.3	23.6	5.6	5.7
TR 18 GEN	01-5.243	Type I	37.7	30.7	8.8	29.2	25.9	11.8	24.6	22.6	30.7	8.2	11.9
BHP 7 GEN	01-5.232	Type I			6.9	27.2		13.5		21.7	27.3	6.8	5
TU 2 LEV 3	01-6.135	Type I		24.3	7.3	22.2		14.4	15.6	14.2	20.1	7	6
TR 7 NE	01-6.163	Type I		30.4	7.6	30.2		19.1	28.2	21.8	30.4	5.5	11.6
TU 4 LEV 4	01-5.162	Type II	46.4	23.8	7	23.8	32.7	13.7	22.6	19.3	22.8	6.4	9.3
TU 4 LEV 5	01-5.166	Type II	37.7	28.4	6.1	25.4	25.4	12.3	21.9	20.3	26.4	4.9	7.9
TR 6 NW	01-5.220	Type II	30.9	25.8	7.7	25.3	25.8	5.1	25.8	17.8	24.9	6.6	8.6
TR 16 NW	01-5.238	Type II	35.3	23.3	5.8	23.3	25.2	10.1	21.4	16.8	21.5	6.1	6.8
TR 18 GEN	01-5.246	Type II	36.8	22.5	6	22.5	26.2	10.6	19.1	14.4	19.8	6	5.8
TR 18 GEN	01-5.248	Type II	39.5	24.7	7.2	24.7	27.8	11.7	18.6	20.1	22.2	6.9	7.3
TU 9 LEV 1	01-5.170	Type III	27.9	28.2	6.1	24.8		12.9		20.4	28.2	6.1	6.9
TR 5 MID	01-5.206	Type III			5.8	28.4		15.2	26.8	20		4.9	6.5
TR 5 MID	01-5.211	Type III		35.6	5.8	34.8		14.7	35.6	21.7		5.8	10.4
TR 5 NW	01-5.212	Type II	63.3	39.1	6.8	28.2	47.5	15.8	23	22.6	39.1	6.8	15.4
TR 6 NW	01-5.218	Type III	34.5	34.5	7.4	27.7	22.2	12.3	20.8	22.8	34.2	7.1	8.9
TR 6 NW	01-5.373	Type III	40.2	26.9	6.9	25.3	28.1	12.1	22.8	20.9	26.9	6.1	9.2
TR 6 NW	01-5.230	Type III	31.4	24	7	22.4	18.4	13	18.3	18.4	24	6.2	6.7
TR 18 GEN	01-5.245	Type III		28.3	6.2	28.3		15	22.7	21.7	28.6	6	9.5
TR 7 NE	01-6.167	Type III	50.1	30.7	9.1	30.7	36.7	13.4	26.6	22.8	30.7	7.2	16.2
TU 6 LEV 3	01-7.121	Type III											2.6
TU 9 LEV 3	01-5.173	Type IV	41.5		8.4	22.1	33.5	8	21.1	16.8		7	8.6
TU 10 LEV 5	01-5.180	Type IV	30.2		7.7		21.6	8.6	17.7			6.9	4.8
TU 10 LEV 6	01-5.184	Type IV	32.5	20.7	6.3	17.9	23.5	9	16.8	15.1	20.7	6.3	5.2
TR 18 GEN	01-5.240	Type IV	41.3	21.7	6.4	21.7	32.7	8.6	19.1	16.2		6.1	7.4
TR 18 GEN	01-5.247	Type IV	45.9	20	5.8	20	40.3	5.6	19.4	14.6	15.6	4.9	7.7
TR 9 MID	01-6.180	Type IV	29.2	20	6.8	17.3	21.6	7.6	13.5	17.4	20	6.3	9.2
TU 3 LEV 4	01-5.148	Stanly/Austin Stemmed	29.5	24	5.6	24	20.1	9.4	14.8	11.2	10.3	5.6	3.7
FEAT 40	01-5.358	Thebes	41.2	20.3	6.8	20.3	28.4	12.8	12.9	11.5	9.4	6.8	4.4
TR 5 MID	01-5.370	Ledbetter	62.3	25.1	8.9	23	49.4	12.9	25.1	14.2	14.5	7.9	16.1
TR 7 NE	01-6.168	Ledbetter	56.3	30.1	8	30.1	41.9	14.4	25.7	18.3	19.8	8.4	17.3
TR 6 NW	01-5.222	White Springs			6.9	31.7		10.4	29.4	19.4	20.5	6.5	9.1
TR 9 NE	01-6.175	Wade	39.7	31	8.9	31	28.4	11.3	25.9	18.1	17.7	8.7	13.3
TR 7 NE	01-6.164	Little Bear Creek		19.9	9.1	19.9		13.8	16.3	13.5	12.6	7.1	7.6
TR 9 MID	01-6.181	Little Bear Creek		23.8	9.5	23.8		13.2	20.1	14.2	11.3	9.5	7.9
TU 1 LEV 3	01-6.15	Adena				29.5		21.4		19.2	10	6.7	9.5
TU 2 LEV 3	01-6.136	Adena								19		17.9	18.4
TR 7 NE	01-6.165	Adena	48.8	28.8	6.4	28.8	34.2	14.6	24.3	16.9	8.3	6.4	9.4
FEAT 1X	01-6.326	Adena	54	26.1	8.2	25.1	36	18	23.5	17.3	6.4	7.5	11.4
TR 8 NE	01-7.132	Adena			7.2	22.3		17.5		16.8	8.1	7.2	6
TR 18 GEN	01-5.241	Robbins	55.9	38.2	10.3	38.2	42.2	13.7	31.9	19.1	19.9	10.3	20.7
TR 5 NE	01-5.200	Copena/McFarland		19.2	7.2			8.1	18.8	18.2	19.2	6.2	8.1
TR 18 GEN	01-5.242	Copena/McFarland	40	20.8	8.3		31.2	8.8	19.6	19.4	20.8	6.9	7.8

Provenience	*Accession #*	*Point Type*	*Max. Length*	*Max. Width*	*Max. Thickness*	*Shoulder Width*	*Blade Width*	*Haft Length*	*Max. Width at Mid.*	*Distal Haft Width*	*Proximal Haft Width*	*Max. Thickness at Distal Haft Loc.*	*Weight (g)*
TR 2 MID	01-6.154	Copena/McFarland		30	8.2			8.5	27.9	30	26.6	8.2	10.5
TR 8 NE	01-7.356	Copena/McFarland	17.8	25.3	8.4	22.3	15.2		16.3	16.4	7.2	6.1	8.2
TR 8 MID	01-7.137	Copena/McFarland		21.2	5.2	19.6			21.2	16.6		5.2	5.1
TR 4 MID	01-5.196	Bakers Creek	29.6		6.9		18.3	11.3				7	3.9
TR 18 GEN	01-5.371	Bakers Creek	28.3	20.4	7.1	20.4	28.1	10.2	18.6	15.6	16.1	5.9	5.3
TR 5 NE	01-5.199	Lowe Flared		30	7.1	30		108	23.2	14.1	18.6	6	8.2
TR 18 GEN	01-5.249	Lowe Flared						12.3	20.1			3.9	4
TR 2 MID	01-6.151	Lowe Flared		27.4	6.3	27.4		13.4	20.8	14.2	16.7	5.8	7.5
TR 2 MID	01-6.152	Lowe Flared		21.9		21.9		14.2		13.5	19.7	5.9	3.9
TR 8 MID	01-7.140	Lowe Flared		23.3	6	23.2		18.9	20.8	16.9	14.7	6	7.3
TU 10 LEV 3	01-5.175	Chesser Notched	30.3	21.1	6.3	21.1	20.6	9.7	17.5	15.6	17.6	6.3	5
TU 10 LEV 6	01-5.185	Chesser Notched	36.1	19.9	7.2	19.9	26.2	9.9	18.3	15		6.4	6.3
TU 5 LEV 3	01-7.117	Chesser Notched		22.3	5.3	21.4		14.4	19.6	15.1	22.3	5.3	3.9
TU 6 LEV 1	01-7.118	Chesser Notched			5.8	17		10.1		12.6	16	5.8	2.8
TR 8 NE	01-7.131	Chesser Notched	35	19.8	6.2	17.6	24.9	10.1	16.4	15.6	19.8	6	5.4

APPENDIX C

GEOMORPHOLOGICAL DATA

Soil Profile Descriptions of Backhoe Pits 1–9.

Site, Profile #, Etc.:	Depth (cm)	Horizon	Moist Munsell Matrix Color	Texture	Structure Code	Lower Boundary	Additional Remarks (mottles, clay films, cultural features, etc.)
Backhoe Pit 1	0-28	Ap	10YR 4.5/4	silt loam	1csbk	very abrupt	none
Backhoe Pit 1	28-55	Bw	10YR 4/3	silt loam	2msbk	clear	none
Backhoe Pit 1	55-85	AbBw	10YR 3.5/4	silt loam	2msbk	gradual	none
Backhoe Pit 1	85-130	Bt1	10YR 4/5	heavy silt loam	3msbk	gradual	moderately thick discontinous clay films on ped faces, flint flake at 110 cm
Backhoe Pit 1	130-160	Bt2	10YR 4/5	silty clay loam	3msbk	gradual	thin discontinuous clay films on ped faces
Backhoe Pit 1	160-250	Cg	2.5Y 6/6	silty clay loam	3msbk	na	mottled with common fine 10YR 5/8 and few fine black Mn mottles
Backhoe Pit 1	250-670	na	na	na	na	na	This section was augured down to 670 cm, which looked much like the Cg horizon, but becoming laminated, and penetrated gravel at 670 cm
Backhoe Pit 2	0-32	Ap	10YR 4.5/4	fine sandy loam	1csbk	clear	none
Backhoe Pit 2	32-65	Bw1	10YR 4/4	loam	1csbk	gradual	none
Backhoe Pit 2	65-135	Bw2Ab	10YR 4/3	heavy loam	2msbk	gradual	none
Backhoe Pit 2	135-167	Bt1b	10YR 4/4	silt loam	2msbk	gradual	thin discontinuous clay films on ped faces
Backhoe Pit 2	167-240	Bt2b	10YR 4/5	silt loam	2msbk	na	definite cultural flake at 195 cm
Backhoe Pit 2	240-645	na	na	na	na	na	This section was augured to 645 cm where gravel/cobble was encountered
Backhoe Pit 3	0-30	Ap	10YR 5/4	fine sandy loam	1csbk	clear	none
Backhoe Pit 3	30-66	Bt	10YR 4/6	heavy silt loam	2msbk	gradual	mottled with common medium 2.5Y 5/4
Backhoe Pit 3	66-125	Btg	2.5Y 5/4	silt loam	2msbk	gradual	mottled with common medium 2.5Y 5/8 and common fine black Mn specks.
Backhoe Pit 3	125-210+	Cg	2.5Y 6/4	silty clay loam	2msbk	na	mottled with common medium 2.5Y 5/8 and common fine black Mn specks.

Soil Profile Descriptions of Backhoe Pits 1–9, continued.

Backhoe Pit 4	0-26	Ap	10YR 4.5/4	fine sandy loam	1csbk	clear	none
Backhoe Pit 4	26-70	Bw1	10YR 4/4	loam	1msbk	clear	none
Backhoe Pit 4	70-106	Bw2Ab	10YR 3/3	loam	2msbk	diffuse	none
Backhoe Pit 4	106-155	Bt1	10YR 3.5/4	heavy silt loam	2msbk	diffuse	thin discontinuous clay films on ped faces
Backhoe Pit 4	155-220	Bt2	2.5Y 6/4	heavy silt loam	3msbk	na	moderately thick discontinuous 10YR 4/5 clay films on ped faces
Backhoe Pit 4	220-550	na	na	na	na	na	This section was augured to 550 cm where gravel/cobble was encountered. The section became lighter colored and more mottled with depth.
Backhoe Pit 5	0-33	Ap	10YR 4.5/4	fine sandy loam	1csbk	clear	none
Backhoe Pit 5	33-48	Bw1	10YR 5/4	fine sandy loam	1csbk	clear	none
Backhoe Pit 5	48-100	Bw2	10YR 4/4	loam	2msbk	diffuse	mottled with common medium 2.5Y 6/2
Backhoe Pit 5	100-210	Bt	10YR 3.5/4	heavy loam	2msbk	diffuse	mottled with common medium 2.5Y 6/2, few thin discontinuous clay films
Backhoe Pit 5	210-230	C	10YR 5/4	fine sandy loam	2msbk	na	
Backhoe Pit 5	230-900	na	na	na	na	na	This section was augured to 900 cm. Fine gravel was noted at 890 cm. The entire section is a 10YR 4.5/4 sandy silt loam graded to fine sandy loam with depth.
Backhoe Pit 6	0-25	Ap	10YR 4.5/4	loam	1csbk	very abrupt	none
Backhoe Pit 6	25-31	A2	10YR 3/3	silt loam	2fsbk	clear	none
Backhoe Pit 6	31-47	Bt1	10YR 4/4	heavy silt loam	2msbk	gradual	none
Backhoe Pit 6	47-80	Bt2	10YR 5/6	silty clay loam	3msbk	diffuse	abundant discontinous moderately thick 10YR 4/4 clay films on ped faces
Backhoe Pit 6	80-180+	Bt3	10YR 5/8	silty clay loam	3msbk	na	abundant discontinous moderately thick 10YR 4/4 clay films on ped faces, and common fine black Mn specs
Backhoe Pit 7	0-15	Ap	10YR 3.5/4	silt loam	1csbk	clear	none
Backhoe Pit 7	15-28	A2	10YR 3.5/3	silt loam	2msbk	clear	none

Soil Profile Descriptions of Backhoe Pits 1–9, continued.

Backhoe Pit 7	28-40	Bt1	10YR 4/4	heavy silt loam	3msbk	gradual	moderately thick clay films on ped faces
Backhoe Pit 7	40-95	Bt2	10YR 5/6	heavy silt loam	3msbk	diffuse	discontinuous moderately thick clay films on ped faces, mottled with common medium 2.5Y 6/2
Backhoe Pit 7	95-140+	Bt3	2.5Y 6/4	silty clay loam	3msbk	na	discontinuous moderately thick clay films on ped faces, mottled with common medium 2.5Y 6/2
Backhoe Pit 8	0-40	Ap	10YR 4.5/4	loam	1csbk	very abrupt	none
Backhoe Pit 8	40-80	Bw1	10YR 3.5/4	silt loam	1msbk	diffuse	none
Backhoe Pit 8	80-147	Bw2Ab	10YR 3.5/3	silt loam	2msbk	gradual	none
Backhoe Pit 8	147-190+	Bt	10YR 5/6	silty clay loam	3msbk	na	discontinuous moderately thick clay films on ped faces, common medium black Mn mottles
Backhoe Pit 9	0-21	Ap	10YR 4.5/4	silt loam	2msbk	gradual	none
Backhoe Pit 9	21-75	Bt1	10YR 4/5	silty clay loam	3msbk	diffuse	moderately thick clay films on ped faces
Backhoe Pit 9	75-110+	Bt2	7.5YR 4/6	silty clay	3msbk	na	moderately thick clay films on ped faces

Annual Maximum Flood Record from the USGS Gaging Station at Celina, Tennessee.

Pre-Dams Date	Discharge (cfs)	Stage (ft)	Post-Dams Date	Discharge (cfs)	Stage (ft)
2/6/23	93300	44.5	4/3/51	36600	22.4
1/6/24	100000	46.5	3/22/52	70900	36.3
12/11/24	76400	37.9	2/21/53	26200	17.0
1/23/26	74300	37.1	4/16/54	29200	18.6
12/29/26	145000	57.3	3/22/55	63600	34.1
7/2/28	92200	43.9	2/18/56	52400	28.8
3/27/29	125000	52.7	1/29/57	66500	34.1
11/20/29	54100	28.8	4/28/58	44600	25.8
3/30/31	56600	28.7	4/15/59	26500	17.5
2/4/32	107000	47.3	6/28/60	43400	24.3
2/21/33	86600	40.0	3/8/61	41800	24.5
3/6/34	86800	42.1	2/27/62	67900	34.6
3/15/35	91700	43.8	3/17/63	49300	27.3
4/9/36	88800	42.4	3/21/64	31500	19.0
1/23/37	128000	53.8	3/29/65	52100	28.0
3/6/38	55000	30.4	4/13/66	25100	16.6
2/7/39	112000	50.1	7/11/67	37900	23.0
4/1/40	69000	35.3	5/27/68	51900	29.6
7/6/41	66100	34.2	6/23/69	34600	21.4
3/19/42	50500	28.0	12/30/69	39500	23.8
1/2/43	120000	52.0	5/13/71	45200	27.3

APPENDIX D

RADIOCARBON (C^{14}) SAMPLE DATA

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REPORT OF RADIOCARBON DATING ANALYSES

Mr. Marc Wampler — Report Date: 9/20/01

TRC Garrow Associates, Incorporated — Material Received: 8/13/01

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 158344	6220 +/- 40 BP	-26.2 o/oo	6200 +/- 40 BP
SAMPLE : 01-5.40 **TU 3, Level 4 40CY63**			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal BC 5290 to 5040 (Cal BP 7240 to 6990)			
Beta - 158345	30760 +/- 270 BP	-27.6 o/oo	30720 +/- 270 BP
SAMPLE : 01-5.314 **TU 4, Level 4 40CY63**			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid			
Beta - 158346	5590 +/- 40 BP	-26.6 o/oo	5560 +/- 40 BP
SAMPLE : 01-5.351 **Feature 40 40CY63**			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal BC 4460 to 4340 (Cal BP 6410 to 6290)			
Beta - 158347	2310 +/- 40 BP	-25.6 o/oo	2300 +/- 40 BP
SAMPLE : 01-5.353 **Feature 32 40CY63**			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal BC 410 to 360 (Cal BP 2360 to 2310) AND Cal BC 290 to 230 (Cal BP 2240 to 2180)			
Beta - 158348	2330 +/- 40 BP	-27.0 o/oo	2300 +/- 40 BP
SAMPLE : 01-6.123 **Feature 1A 40CY64**			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal BC 410 to 360 (Cal BP 2360 to 2310) AND Cal BC 290 to 230 (Cal BP 2240 to 2180)			

Dates are reported as RCYBP (radiocarbon years before present, "present" = 1950A.D.). By International convention, the modern reference standard was 95% of the C14 content of the National Bureau of Standards' Oxalic Acid & calculated using the Libby C14 half life (5568 years). Quoted errors represent 1 standard deviation statistics (68% probability) & are based on combined measurements of the sample, background, and modern reference standards.

Measured C13/C12 ratios were calculated relative to the PDB-1 international standard and the RCYBP ages were normalized to -25 per mil. If the ratio and age are accompanied by an (*), then the C13/C12 value was estimated, based on values typical of the material type. The quoted results are NOT calibrated to calendar years. Calibration to calendar years should be calculated using the Conventional C14 age.

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REPORT OF RADIOCARBON DATING ANALYSES

Mr. Marc Wampler

Report Date: 9/20/01

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 158349	2240 +/- 40 BP	-25.2 o/oo	2240 +/- 40 BP
SAMPLE : 01-6.204 **Feature 1Q 40CY64**			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal BC 390 to 190 (Cal BP 2340 to 2140)			
Beta - 158350	2450 +/- 40 BP	-27.1 o/oo	2420 +/- 40 BP
SAMPLE : 01-6.226 **Feature 1X 40CY64**			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal BC 760 to 620 (Cal BP 2710 to 2560) AND Cal BC 590 to 400 (Cal BP 2540 to 2350)			
Beta - 158351	2440 +/- 40 BP	-26.4 o/oo	2420 +/- 40 BP
SAMPLE : 01-7.187 **Feature 41 40CY65**			
ANALYSIS : AMS-Standard delivery			
MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid			
2 SIGMA CALIBRATION : Cal BC 760 to 620 (Cal BP 2710 to 2560) AND Cal BC 590 to 400 (Cal BP 2540 to 2350)			

Dates are reported as RCYBP (radiocarbon years before present, "present" = 1950A.D.). By International convention, the modern reference standard was 95% of the C14 content of the National Bureau of Standards' Oxalic Acid & calculated using the Libby C14 half life (5568 years). Quoted errors represent 1 standard deviation statistics (68% probability) & are based on combined measurements of the sample, background, and modern reference standards.

Measured C13/C12 ratios were calculated relative to the PDB-1 international standard and the RCYBP ages were normalized to -25 per mil. If the ratio and age are accompanied by an (*), then the C13/C12 value was estimated, based on values typical of the material type. The quoted results are NOT calibrated to calendar years. Calibration to calendar years should be calculated using the Conventional C14 age.

TU 3, Level 4, 40CY63

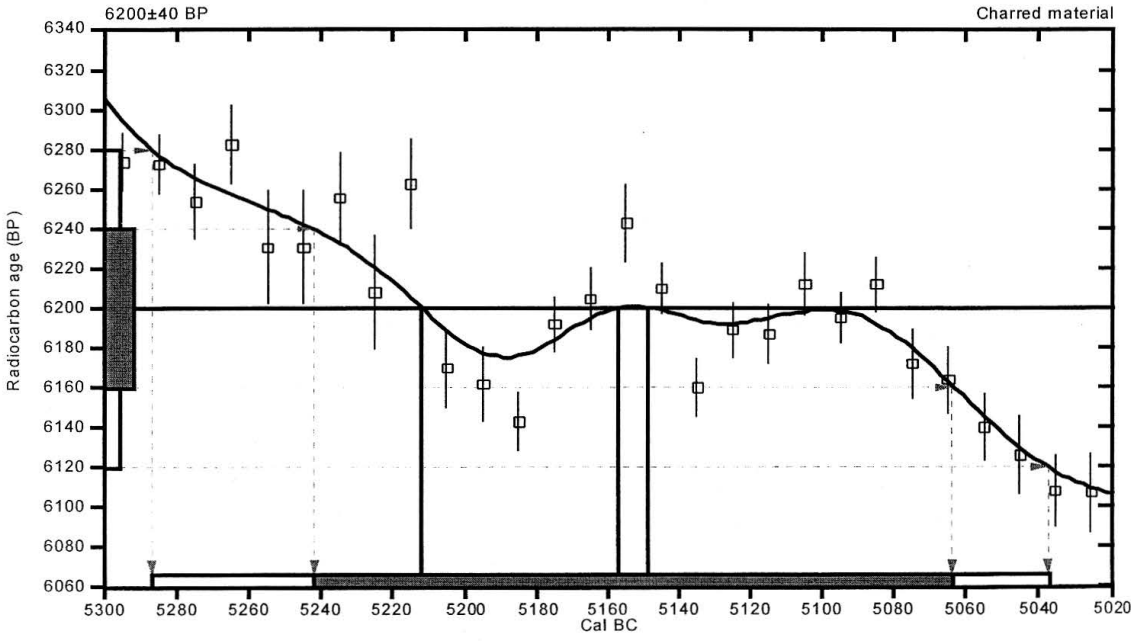
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.2:lab. mult=1)

Laboratory number:	**Beta-158344**
Conventional radiocarbon age:	**6200±40 BP**
2 Sigma calibrated result: (95% probability)	**Cal BC 5290 to 5040 (Cal BP 7240 to 6990)**

Intercept data

Intercepts of radiocarbon age with calibration curve:	Cal BC 5210 (Cal BP 7160) and Cal BC 5160 (Cal BP 7110) and Cal BC 5150 (Cal BP 7100)
1 Sigma calibrated result: (68% probability)	Cal BC 5240 to 5060 (Cal BP 7190 to 7010)



References:

Database used

Calibration Database
Editorial Comment
Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii
INTCAL98 Radiocarbon Age Calibration
Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083
Mathematics
A Simplified Approach to Calibrating C14 Dates
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Feature 40, 40CY63

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.6:lab. mult=1)

Laboratory number: **Beta-158346**

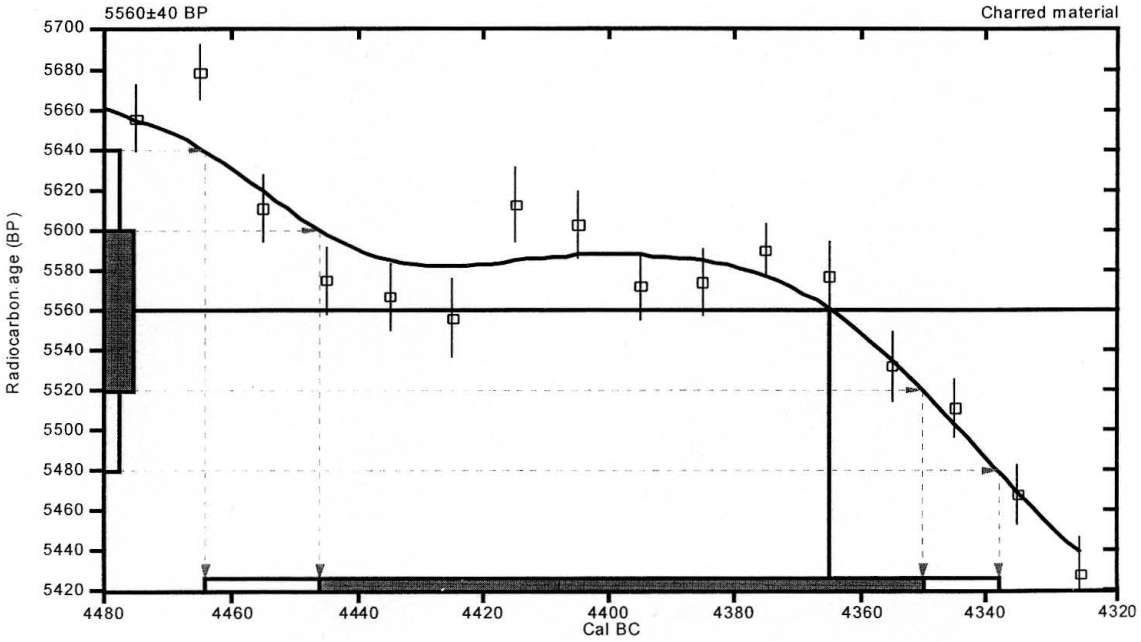
Conventional radiocarbon age: **5560±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 4460 to 4340 (Cal BP 6410 to 6290)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 4360 (Cal BP 6320)

1 Sigma calibrated result: (68% probability) Cal BC 4450 to 4350 (Cal BP 6400 to 6300)



References:

Database used

Calibration Database

Editorial Comment

Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii

INTCAL98 Radiocarbon Age Calibration

Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083

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Feature 32, 40CY63

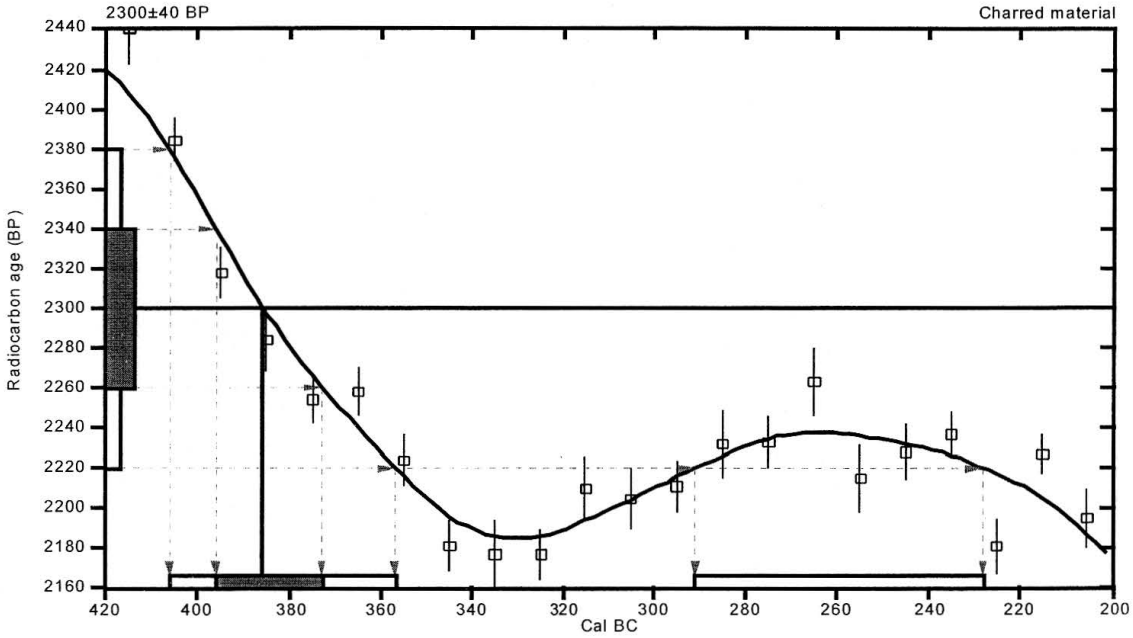
CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.6:lab. mult=1)

Laboratory number:	**Beta-158347**
Conventional radiocarbon age:	**2300±40 BP**
2 Sigma calibrated results: (95% probability)	**Cal BC 410 to 360 (Cal BP 2360 to 2310) and Cal BC 290 to 230 (Cal BP 2240 to 2180)**

Intercept data

Intercept of radiocarbon age with calibration curve:	Cal BC 390 (Cal BP 2340)
1 Sigma calibrated result: (68% probability)	Cal BC 400 to 370 (Cal BP 2350 to 2320)



References:

Database used

Calibration Database
Editorial Comment
Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii
INTCAL98 Radiocarbon Age Calibration
Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083
Mathematics
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Feature 1A, 40CY64

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-27:lab. mult=1)

Laboratory number: **Beta-158348**

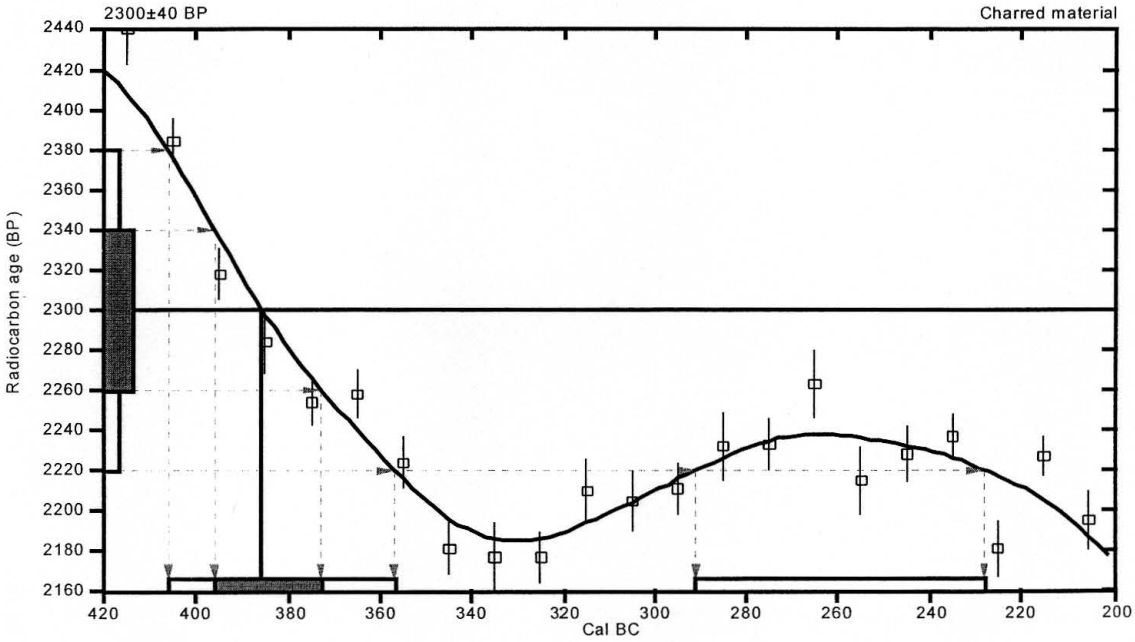
Conventional radiocarbon age: **2300±40 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 410 to 360 (Cal BP 2360 to 2310) and Cal BC 290 to 230 (Cal BP 2240 to 2180)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 390 (Cal BP 2340)

1 Sigma calibrated result: (68% probability) Cal BC 400 to 370 (Cal BP 2350 to 2320)



References:

Database used

Calibration Database
Editorial Comment
Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii
INTCAL98 Radiocarbon Age Calibration
Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083
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Feature 1Q, 40CY64

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-25.2:lab. mult=1)

Laboratory number: **Beta-158349**

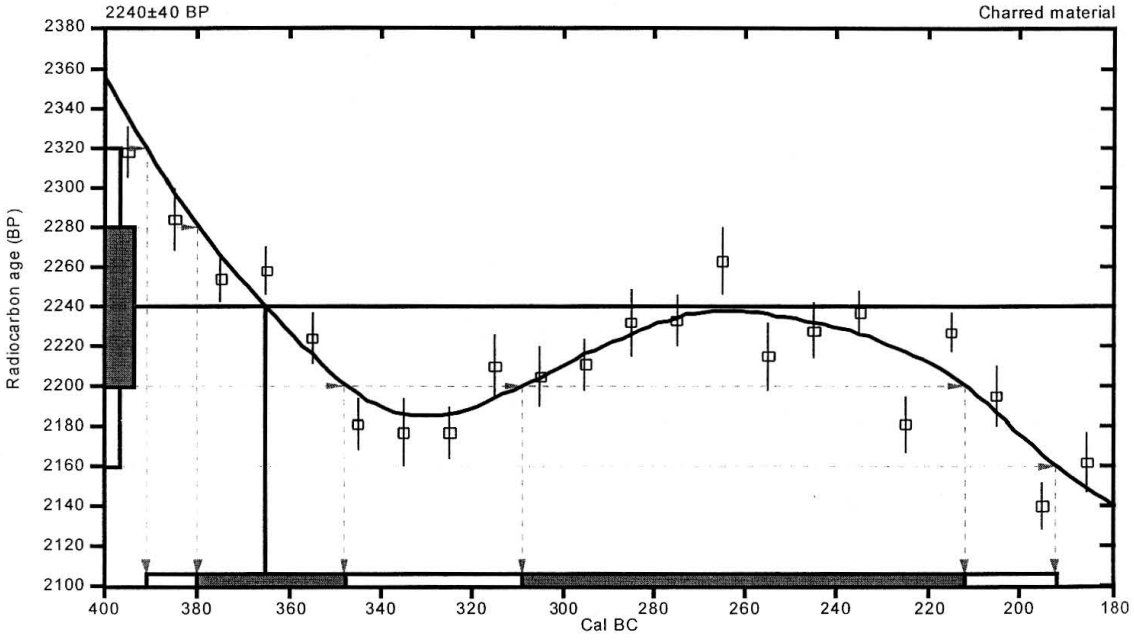
Conventional radiocarbon age: **2240±40 BP**

2 Sigma calibrated result: (95% probability) **Cal BC 390 to 190 (Cal BP 2340 to 2140)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 360 (Cal BP 2320)

1 Sigma calibrated results: (68% probability) Cal BC 380 to 350 (Cal BP 2330 to 2300) and Cal BC 310 to 210 (Cal BP 2260 to 2160)



References:

Database used

Calibration Database
Editorial Comment
Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii
INTCAL98 Radiocarbon Age Calibration
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Feature 1X, 40CY64

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-27.1:lab. mult=1)

Laboratory number: **Beta-158350**

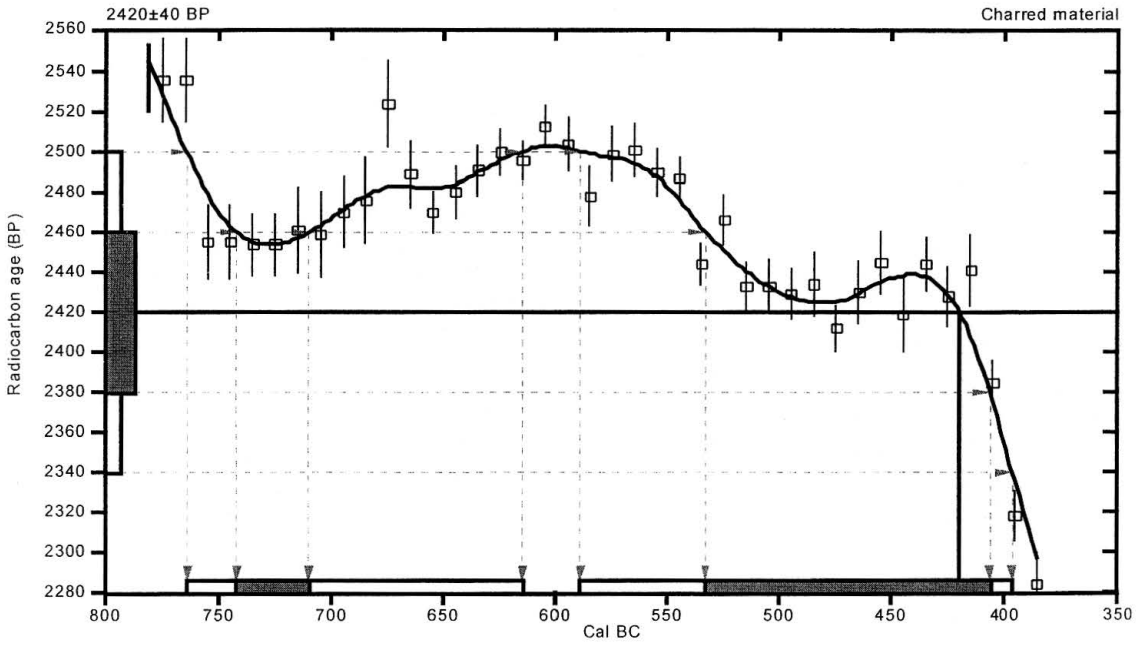
Conventional radiocarbon age: **2420±40 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 760 to 620 (Cal BP 2710 to 2560) and Cal BC 590 to 400 (Cal BP 2540 to 2350)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 420 (Cal BP 2370)

1 Sigma calibrated results: (68% probability) Cal BC 740 to 710 (Cal BP 2690 to 2660) and Cal BC 530 to 410 (Cal BP 2480 to 2360)



References:

Database used

Calibration Database
Editorial Comment
Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii
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Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083
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Feature 41, 40CY65

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-26.4:lab. mult=1)

Laboratory number: **Beta-158351**

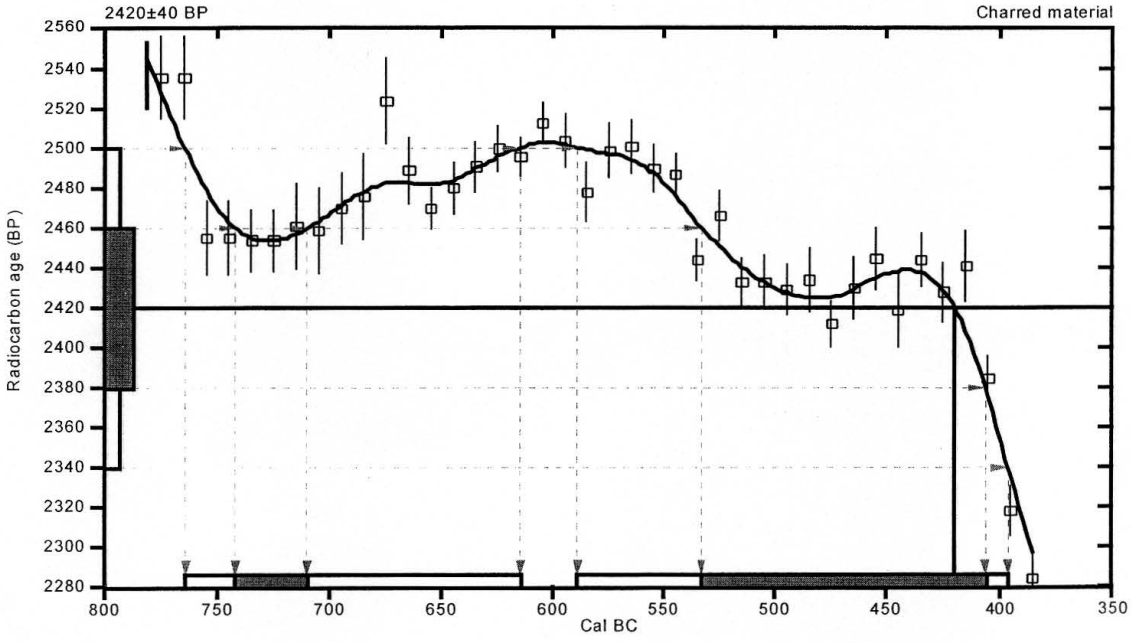
Conventional radiocarbon age: **2420±40 BP**

2 Sigma calibrated results: (95% probability) **Cal BC 760 to 620 (Cal BP 2710 to 2560) and Cal BC 590 to 400 (Cal BP 2540 to 2350)**

Intercept data

Intercept of radiocarbon age with calibration curve: Cal BC 420 (Cal BP 2370)

1 Sigma calibrated results: (68% probability) Cal BC 740 to 710 (Cal BP 2690 to 2660) and Cal BC 530 to 410 (Cal BP 2480 to 2360)



References:

Database used

Calibration Database
Editorial Comment
Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii
INTCAL98 Radiocarbon Age Calibration
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PHASE II ARCHAEOLOGICAL INVESTIGATIONS IN CLAY COUNTY, TENNESSEE: STARDUST SITES - 40CY63, 40CY64, 40CY65

TDOT No. 12
2004