

ARCHAEOLOGICAL TESTING
of
SITE 40DK36
DEKALB COUNTY, TENNESSEE

Prepared by
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with
Physiographic Descriptions and Geomorphological Interpretations
by
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Project Conducted and Reported
for the
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MANAGEMENT SUMMARY

As one of the several bridges over Clear Fork Creek is scheduled to be replaced and improvements in the approach roads planned, the Division of Archaeology conducted test excavations at site 40DK36, located along the upper terrace on the east side of Clear Fork Creek near Liberty in DeKalb County, Tennessee. Field work under the supervision of the author was conducted within the periods June 18-26 and July 11-12, 1985. This project was authorized by Federal Highway Administration Purchase Order BRZ-2100 (9) and State Work Order 21-945-0453-94.

The results of this project, which involved excavation of approximately 97 square meters, indicate that the site was occupied prehistorically during the Early and Late Archaic Periods. Although relatively large quantities of lithic debris and other artifacts were recovered from the surface and test excavations, no subsurface features occurred within the proposed road right-of-way.

These results, therefore, preclude consideration of the impact area of the site for nomination to the National Register of Historic Places.

ACKNOWLEDGEMENTS

This report on the test excavation, subsequent analysis and interpretation of site 40DK36 is the result of a ten-day mitigation project conducted by the Division of Archaeology during the latter part of June and portions of the first week of July, 1985.

Any archaeological research project invariably involves the efforts and assistance of various individuals and agencies, and the 40DK36 site project was no exception.

Funds for the project were provided for reimbursement to the Division of Archaeology by the Federal Highway Administration through the Tennessee Department of Transportation. Although these funds were sufficient for hiring of new or additional personnel, the use of existing experienced staff members eliminated the time-consuming hiring process, which resulted in a more timely completion of the project.

The author wishes to express his appreciation to Carl Kuttruff for the operation of the backhoe, and for assistance in the artifact analysis. The author also wishes to thank Mr. John Froeschauer, who served as field assistant and provided expert assistance in the excavating, mapping, and surface survey at the site. Special thanks is also extended to Mr. Parris Stripling for his assistance in the excavating of the test units, and to Charlotte Watrin and Anna Ponder for cleaning of the artifacts. Special appreciation is also extended to Thomas H. Bianchi for his interpretation of the sediments at the site, and to Mrs. Virginia Atkins, Secretary at Fort Loudoun State Historic Area, for typing of the manuscript.

Finally, the Division of Archaeology wishes to extend its appreciation to the Tennessee Department of Transportation for its support and cooperation and to the Federal Highway Administration for financial support that made possible the successful completion of the project.

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INTRODUCTION

During the periods June 18-26 and July 11-12, 1985, the Division of Archaeology conducted test excavations at site 40DK36 to determine the nature and integrity of archaeological deposits known to exist at that locality. This work was performed for the Federal Highway Administration as part of the more extensive state-wide bridge replacement program authorized by Federal Highway Administration Purchase Order BRZ-2100(9) and State Work Order 21-945-0453-94.

The archaeological investigation was necessitated by the proposed replacement of one of the existing bridges over the Clear Fork Creek, construction of a new approach road to the bridge on the west side of the creek, and re-routing of a section of the presently existing Clear Fork Road, the latter of which will impact the western periphery of site 40DK36.

Previous archaeological surveys of the Center Hill and Dale Hollow Reservoirs by Charles Nash (Nash 1947) and the upper headwaters of the Caney Fork by the Division of Archaeology in 1977 (Jolley 1977) produced substantial numbers of sites dating from Paleo-Indian to Mississippian in time. However, these noted surveys did not extend up the various stream tributaries, such as Smith Fork, Dry Fork, and Clear Fork Creeks, nor has any extensive excavation at any of the recorded sites been conducted; subsequently, present knowledge concerning the prehistory of the general areas is limited.

Since the proposed road realignment would have impacted a portion of the site thought to contain subsurface features, it was felt that testing and subsequent full-scale excavation would provide an opportunity to gain additional insight into the prehistory of the Outer Basin Area.

Environmental Setting

Physiography and Geology

Geologically, DeKalb County is located partly within the Central Basin and partly within the Highland Rim sections of the Interior Low Plateaus physiographic province (Fenneman 1938). The southern and southeastern parts of the county lie within the Highland Rim and range in elevation from 900 to 1150 feet above sea level (Moffitt et al. 1972).

The western and northwestern parts of the county lie mostly in the Central Basin at elevations ranging from 500 to 900 feet above sea level. This area, generally called the Outer Basin, is dominantly hilly to steep and comprised of numerous hills which are capped by siliceous rocks (Moffitt et al. 1972). The Outer Basin consists of remnants of the Highland Rim and was developed on shales and limestones (Quarterman and Powell 1978: 47).

Site 40DK36 is located within the Valley of Clear Fork Creek, a tributary of the Smith Fork Creek and Caney Fork River drainage system, which ultimately

empties into the Cumberland River near Carthage. The valley is situated along the edge of the Eastern Highland Rim Physiographic Province (Miller 1974). The physiography of the landscape within the study area is transitional between that of the Eastern Highland Rim and the Central Basin and may be characterized as maturely dissected, ridge and ravine topography.

Locally, a series of roughly northwardly trending ridges (interfluvies) are the dominant features of the landscape. These ridges are separated by deeply entrenched, flat bottomed valleys such as Clear Fork Creek. Numerous drainages or hollows extend from these larger valleys and upward across the ridge summits on each side. These hollows branch repeatedly to give the summits a rough, dissected topography and an irregular, dendritic configuration.

The elevation of the ridges is structurally controlled by the presence of the erosion resistant Fort Payne Formation. Along the summits of the ridges where the Fort Payne Formation composes the surficial bedrock unit, elevations range generally between 1000-1300 feet (305-396 meters) above mean sea level. Between the ridge summits, the Fort Payne Formation has undergone extensive erosion and the hollows and larger valleys have become deeply entrenched into the more resistant underlying bedrock.

In the area of the site, the elevation of the bottom of Clear Fork Creek Valley varies between 585 to 630 (178.4-192 meters) above mean sea level. The channel of the creek flows across the Carters Limestone, which locally is the lowest bedrock unit exposed in the landscape and has a surface elevation which varies from 630 to 700 feet (192-213 meters) above mean sea level. The bedrock units between the Fort Payne Formation and the Carters Limestone include: the Leipers and Cathays Formations; the Bigby-Canon Limestone; and the Hermitage Formation.

The valley of Clear Fork Creek bifurcates into two smaller hollows approximately six miles upstream from site 40DK36. These hollows are roughly parallel in orientation and extend along the edge of an area of higher and less dissected topography more typical of the Eastern Highland Rim. Approximately ten miles (16.1 kilometers) south of the site, the elevation at the heads of these hollows varies between 1000-1300 feet (305-396 meters) above mean sea level.

Clear Fork Creek is fed by streams in these two hollows as well as by numerous smaller spring-fed hollows which branch off the valley. During the period of the field survey in September 1985, the flow of the creek was observed to be ephemeral beyond a series of springs situated less than one mile (1.61 kilometers) upstream from the site. Although flowing at the site locality at the time of the 1985 survey, a local informant indicated that visible stream flow does disappear occasionally during dry seasons.

The primary geologic deposits available for prehistoric utilization occur as water-worn chert cobbles occurring in the local stream beds of Clear Fork Creek and other creeks. These cobbles are bedded and are associated with the Warsaw, St. Louis, and Fort Payne formation remnants, which have been bisected and exposed by the downward erosional cutting action of the creeks.

Climate

The Interior Low Plateaus Province, which includes the Central Basin and Eastern Highland Rim, lies in the humid Mesothermal climatic region of Koppen (Trewartha 1968). This is a warm, temperate rainy climate that covers the entire southeastern section of the United States. In the Interior Low Plateaus, however, the continental air masses produce greater winter and summer temperature extremes than occur along the Atlantic and Gulf coasts where temperatures are modified by the maritime influence (Quarterman and Powell 1978: 24). In a humid mesothermal climate, precipitation is considered to be well distributed through the year, yet Middle Tennessee, Northern Alabama, and the southern portions of Kentucky and Illinois lie in an area that has a greater amount of rainfall in the cold season than in the warm season (Trewartha 1968).

Annual mean temperatures decrease along a south to north gradient from 60-65°F. in Northern Alabama and Southern Tennessee to 55°F. in Southern Indiana and Illinois. Temperature differences along this gradient are more marked in winter than in summer, which has a bearing on the northward limits of ranges, especially of biennial and perennial species that are exposed to winter temperatures (Quarterman and Powell 1978: 74).

DeKalb County is generally favored with relatively mild winters and warm summers. The mean annual temperature within the region is 14° c.i. and mean annual precipitation is 132 centimeters (Springer and Elder 1980: 6-7).

Floral Resources

In consideration of the floral resources Quarterman and Powell (1978) have concluded that the original vegetation on the good soils of the Central Basin must have been magnificent mixed deciduous forests. Killebrew and Safford (1874) speak of yellow poplar trees six and seven feet in diameter, and of black walnut, maple, hickory, elm, and oak in great abundance and of enormous size. The main timber trees of the region were ash, poplar, black walnut, beech, hickory, maple, and cedar. Trees that were abundant in the original forest consistently include, in addition, linden, buckeye, sassafras, hackberry, coffee tree, and sweet gum (Sargent 1884; Safford 1884; Killebrew and Safford 1874; Killebrew 1898).

The outer part of the Nashville Basin (Central Basin) resembles the bluegrass section of Kentucky. Here, higher hills, which are the reduced remnants of the surrounding Highland Rim, support mixed mesophytic forest on their sheltered slopes. In these communities, beech is an abundant tree; thus, the vegetation of the Highland Rim remnants within the Outer Nashville Basin resembles the Rim vegetation rather than that of the Basin (Braun 1950: 132).

The tops of the Highland Rim outliers within the Nashville Basin are dominated by oak-hickory forests, with chestnut-oak, and pignut hickory assuming almost complete dominance on the highest narrow ridges. These are occasionally accompanied by post oak and blackjack oak, with mountain laurel, sparkleberry, and sourwood in the lowest forest layers. North-facing slopes of such hills support a mixed mesophytic forest dominated by a mixture of species that include sweet buckeye, sugar maple, white oak, red oak, chinquapin oak, basswood, shagbark hickory, pignut hickory, beech, white ash, and blue ash. South-facing slopes have a greater number of oak and hickory species and all but Aesculus and tilia from the above list. Bur oak, black walnut, and tulip poplar are found in the low slopes

and benches. Yellowwood occurs sparingly in all rich woods, and spring flowers are especially abundant in all forests (Quarterman and Powell 1978).

Stream margins and floodplains are dominated by willow, box elder, silver maple, cottonwood, and sycamore (Quarterman and Powell 1978).

There were also many smaller varieties of plants, shrubs, and low-growing floral species to be found in the area which had been utilized by the inhabitants of site 40DK36.

It should be noted that, from the time of the first European settlement, destruction has been inflicted upon the forests and other vegetation of the area to such a degree as to have changed their composition and structure. A traveler passing through the area today will, therefore, find the landscape to reflect disturbed rather than original forest and other environmental conditions (Quarterman and Powell 1978: 7).

Fauna

Faunal populations within the area would have included most of the species indigenous to the mixed mesophytic and deciduous forests of the Southeastern United States. The most commonly known mammalian species included whitetailed deer, black bear, wild boar, bobcat, cougar, beaver, otter, muskrat, weasel, mink, skunk, raccoon, opossum, cottontail rabbit, squirrel, groundhog, wolf, and gray fox. Occasional elk would also have been found in the region. Additionally, there were many varieties of small rodents such as mice, rats, and chipmunks, but it is unlikely that these were considered as a food source by the prehistoric inhabitants.

There were also many varieties of birds, of which the most commonly known species considered by the Indians as a food source include wild turkey, Canada goose, passenger pigeon, bobwhite, and several varieties of duck. Grouse would also have been relatively abundant as a game bird. Other common species not necessarily considered as potential food sources include owl, crow, and woodpecker, as well as many smaller species.

Amphibians and reptiles were also found in great numbers but it is unlikely that reptiles were utilized as a food source. The occurrence of the shells and other bony parts of turtles at other sites in the Basin and Highland Rim lends support to the fact that turtles served as a supplement to the aboriginal diet.

Large quantities and varieties of fish and mollusks were also available to the Indians. These would have been available in the Caney Fork River, Clear Fork, Dry Fork, and Smith Fork Creeks.

Field Investigation

Project Objectives

Faced with the scheduled destruction of a portion of 40DK36 and in view of the paucity of information from the area, the Division of Archaeology, therefore, conducted test excavations within the impact area of the site.

Since the horizontal distribution of cultural material at the site was generally defined and only a marginal portion of it will be impacted, the primary goals of the project were: (1) evaluation of the site in terms of the National Register of Historic Places criteria of significance; and (2) recommendations for the avoidance or mitigation of possible negative impact on cultural resources.

As no previous archaeological excavation had been conducted at the site, it was decided that test excavation would be conducted to:

1. Determine the nature of cultural component(s) at the site.
2. Locate, if present, buried undisturbed archaeological features and middens in the road right-of-way and identify their cultural affiliations, functions, and densities.
3. Evaluate the scientific, historical, and social value of the archaeological site in the context of local and regional prehistory, and subsequently comment on the need or lack of need for further archaeological mitigation.
4. Determine, based upon the test results, if site 40DK36 is worthy of inclusion in the National Register of Historic Places due to the significance of its historical, scientific, archaeological, or social attributes.

Site Description

Site 40DK36 is located on the east side of Clear Fork Creek approximately seven miles southeast of Alexandria in DeKalb County, Tennessee. The legal description of the site location is 35 degrees, 59 minutes, 13 seconds North Latitude and 86 degrees, 58 minutes, 10 seconds West Longitude (U.S. Department of the Interior Geological Survey Map, Gassaway, Tennessee Quadrangle) (Figure 1).

The site is situated along the first terrace approximately 20 meters east of the creek and immediately east of Clear Fork Road. Distribution of the surface artifacts suggests that the more densely occupied area of the site had been confined primarily along the crest of a rise (or knoll), beginning at the edge of the terrace and extending eastward beyond the proposed road right-of-way. The limits of the site encompassed an area approximately 60 meters in length and 40 meters in width.

Clear Fork Creek is the largest body of water nearest the site and served as a habitat for several varieties of fish, aquatic snails, and mollusks important to aboriginal subsistence.

Additionally the abundant deposits of water-worn chert cobbles and nodules found in the creek bed also served as the principal source of lithic raw material for the site inhabitants.

As no springs have been found near the site, it is probable that Clear Fork Creek would also have served as the principal source of water.

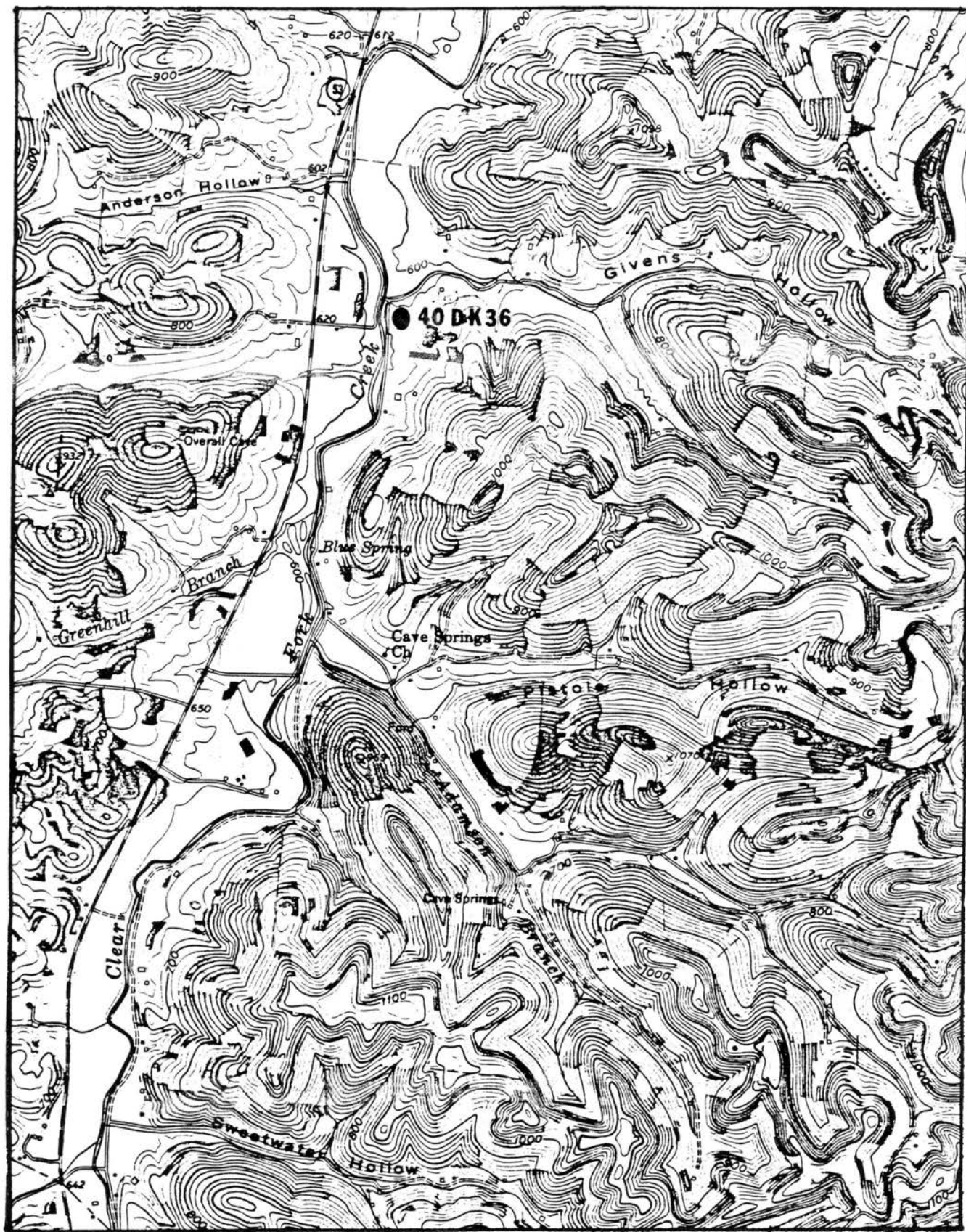


FIGURE 1. Site 40DK36 Location and Vicinity.

Methodology

With the onset of the project, a Chicago type grid system (Cole and Deuel 1937: 25) tied in with Tennessee Department of Transportation bench marks on the west end of the existing bridge was employed within the proposed road right-of-way to establish 3 x 3 meter units for excavation and controlled surface artifact recovery. The centerline of the grid was arbitrarily placed on the long axis of the road right-of-way which extends in a north-south direction along the edge of the terrace east of Clear Fork Creek. The grid did not extend beyond the boundaries of the right-of-way and thus included only the western periphery of the site.

Prior to the excavation of test units, a controlled surface collection was made within the perimeters of the road right-of-way. Artifacts were collected from each of the grid squares and placed in bags labeled with the appropriate grid station number and other pertinent data.

Following the completion of the controlled surface collection of the site, Test Units 1-5 were hand-excavated on the localities of the site where artifact densities were greatest and the existence of sub-surface features more probable. Hand excavated tests included 1 x 1 meter units placed in the northeast corner of grid squares N303, N312, N318, and N357. An additional 1.5 x 3 meter unit was excavated in grid square N309. Each unit was trowelled in 10 centimeter levels and the soil screened and trowel-sorted, using hardware cloth with .25 inch mesh. All material recovered was bagged with appropriate test unit and level information and transported to the laboratory for cleaning, cataloging, and analysis.

Since the hand-excavated test units indicated that most artifacts were confined to the plowzone, it was decided that a backhoe with a 1-meter wide toothless bucket be used to expose larger areas for potential subsurface features and ensure a less costly and more timely completion of the project.

Units excavated by means of the backhoe include a 3 x 33 meter trench, designated as Unit 6, which extended south to north along the grid from square N309 to that of N342 (Figures 2-5). The 20-25 centimeter thick plowzone was stripped, exposing the surface of the yellowish-brown subsoil. An additional 1 x 3 meter cut, excavated to a depth of 160 centimeters (B.S.) was made in the floor of Unit 6 between grid stakes N321 and N324, to explore for deeply buried cultural deposits and interpretation of natural soil profiles. A second Slot Trench, 1 meter wide and 5.20 meters long was excavated perpendicular to the north-south trench and extended to a depth of 170 centimeters. This trench, designated as Unit 7, extended westward from grid stake N330W3 and also served the purpose of exploring for deeply buried cultural deposits and interpretation of soil profiles (Figures 2-6).

A fourth unit, excavated with the backhoe to a depth of 40 centimeters, consisted of a 3 x 12 meter trench located on lower ground northeast of and perpendicular to the main north-south trench. This unit extended from grid stake N363E12 to N363E24, and is designated as Unit 8.

Additional testing with use of the backhoe was also conducted within the proposed approach road right-of-way on the west side of Clear Fork Creek. The tests consisted of two 1-meter-wide trenches, the first of which extended west from T.D.O.T. survey stake 16+50 along the center line of the right-of-way for a

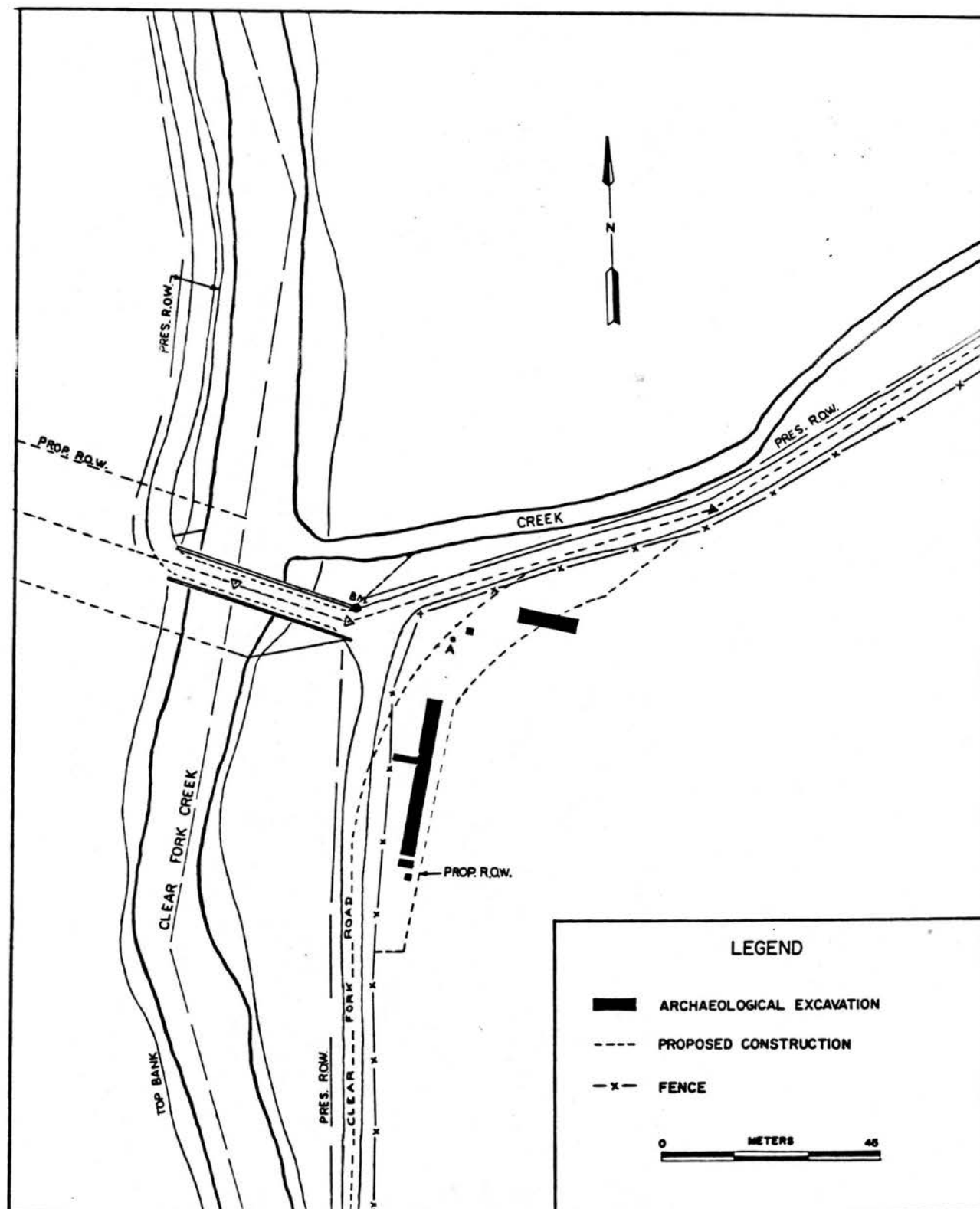


FIGURE 2. Topographic View of the Site Showing Proposed Construction and Archaeological Test Excavations.

distance of 9.5 meters. The second trench began one meter west of T.D.O.T. survey stake 14+50 and extended westward for a distance of 7.5 meters. Both trenches were excavated to depths of 40-60 centimeters.

Controlled Surface Collection

The controlled recovery of artifacts from the site surface was initiated for the general purpose of identifying and interpreting site activity localities relative to understanding of overall site function(s). However, several obstacles to this study persisted which have placed limits on the potential data base.

First, in order for such a study to be meaningful and more productive, the entire site would have needed to be collected in order to identify all the potential activities and localities. Additionally, the number and nature of cultural activities would tend to be limited, or at best minimal, within the peripheral areas of the site.

Secondly, since site 40DK36 has perhaps been farmed for at least 75 to 100 years, it is conceivable that continual and extensive plowing as well as erosional forces have resulted in at least some horizontal and vertical re-distribution of artifacts.

Finally, the possibility also exists that the numerous collectors visiting the site over the past several years could have contributed to the redistribution of surface artifacts. This is especially true in such instances when collectors might collect flakes, cores and un-recognized tools such as utilized flakes and blades, and later discard these on a different area of the site from where found. Extensive removal of the more obvious and "perfect" specimens such as projectile points, knives, grooved axes, and bifaces, etc. might have also created voids in the overall site artifact class inventory.

The controlled surface survey was begun with the establishment of a grid oriented north-south and composed of 62 3 x 3 meter grid squares. Since project authorization and funding provided only for archaeological investigation within the proposed road right-of-way and the remainder of the site was planted in a dense corn crop, the study did not extend beyond the designated right-of-way boundaries.

All artifacts on the surface within each grid square were collected and bagged separately. Since the amount of time for the completion of the project was brief, artifacts were not plotted (mapped) with the transit. It was also felt that the mapping of the artifacts would not necessarily provide any additional data for overall site interpretation.

Although the results of the controlled surface collection are limited, the distributional patterns clearly indicate that the greater artifact density on the portion of the site investigated occurs on the higher elevated areas of the terrace as well as the upper slope. The lesser densities are seen in the lower ground at the base of the slope on the north end of the site. Although not included within the grid, a small concentration of burned limestone fragments was noted on the elevated rise and upper slope immediately east of the proposed road right-of-way. Such burned limestone fragments have been found in association with earth ovens and other pit features at other sites in the Nashville Basin and adjoining areas.

Notably absent within the area of the site investigated were fire-cracked quartzite rocks generally associated with hearths and other feature classes.

In regard to the individual artifact tool and projectile point categories, distribution appears to exhibit no particular pattern except for slightly greater densities on the upper slope and on the more elevated area of the terrace.

Although isolation of individual activities was difficult at best, the moderately dense quantities of artifacts such as cores, flakes, hammerstones, and slightly used chert cobbles does suggest that lithic reduction had occurred on this area of the site. Several incompletes and broken bifaces and other implements would also suggest tool fabrication. The fact that this portion of the site lies along the western edge of the terrace in close proximity to the creek and subsequent lithic source may possibly explain the moderately strong evidence for lithic reduction and tool manufacture within the site's western periphery.

It is of interest to note that the density of lithic debitage appears to be lower along the eastern periphery of the site.

Distribution of controlled surface collection artifacts are presented graphically in Figures 3 and 4 as well as quantitatively in Tables 1 and 2. Suggested site activities are shown in Table 6.

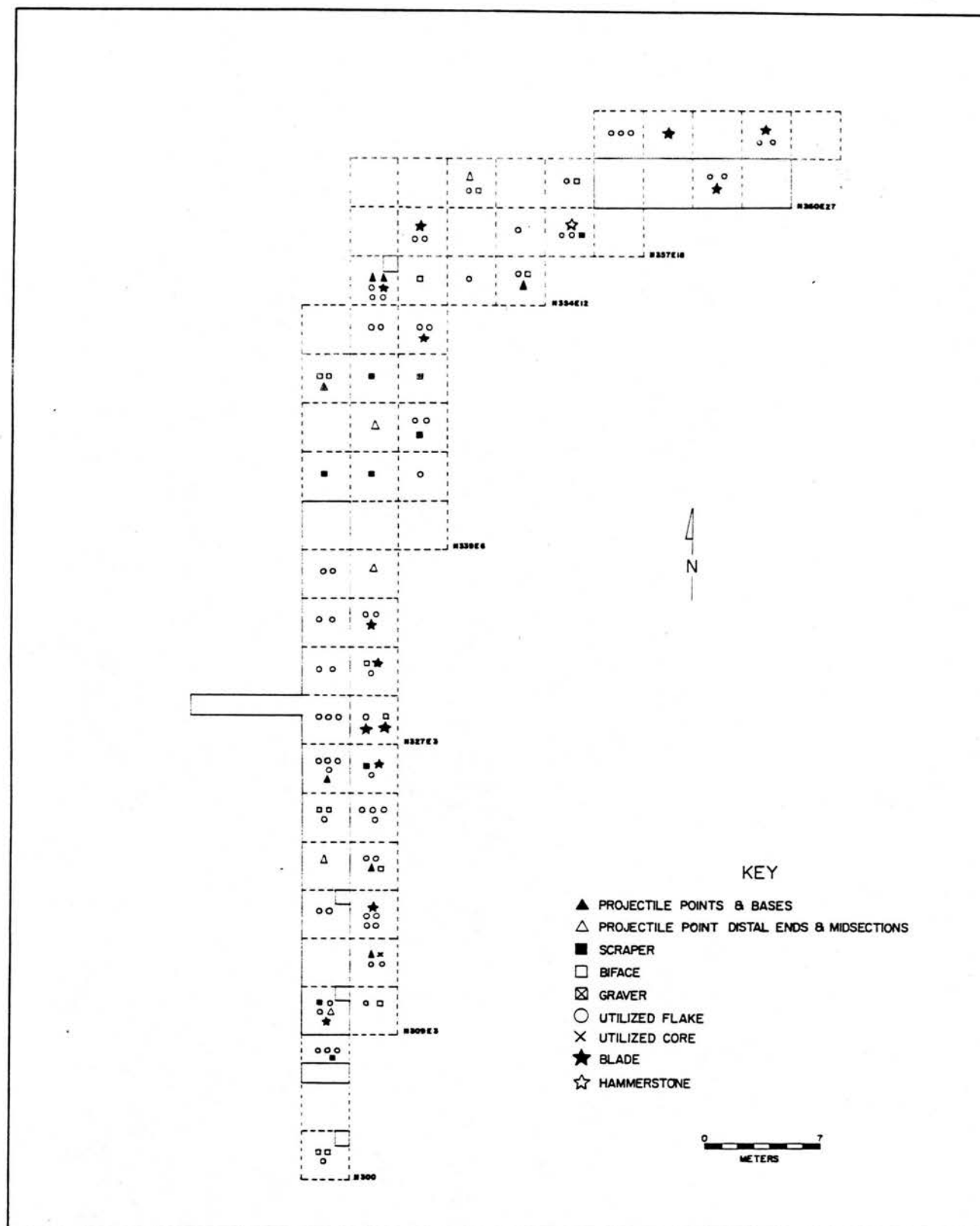


FIGURE 3. Controlled Surface Collection Tool and Projectile Point Distribution.

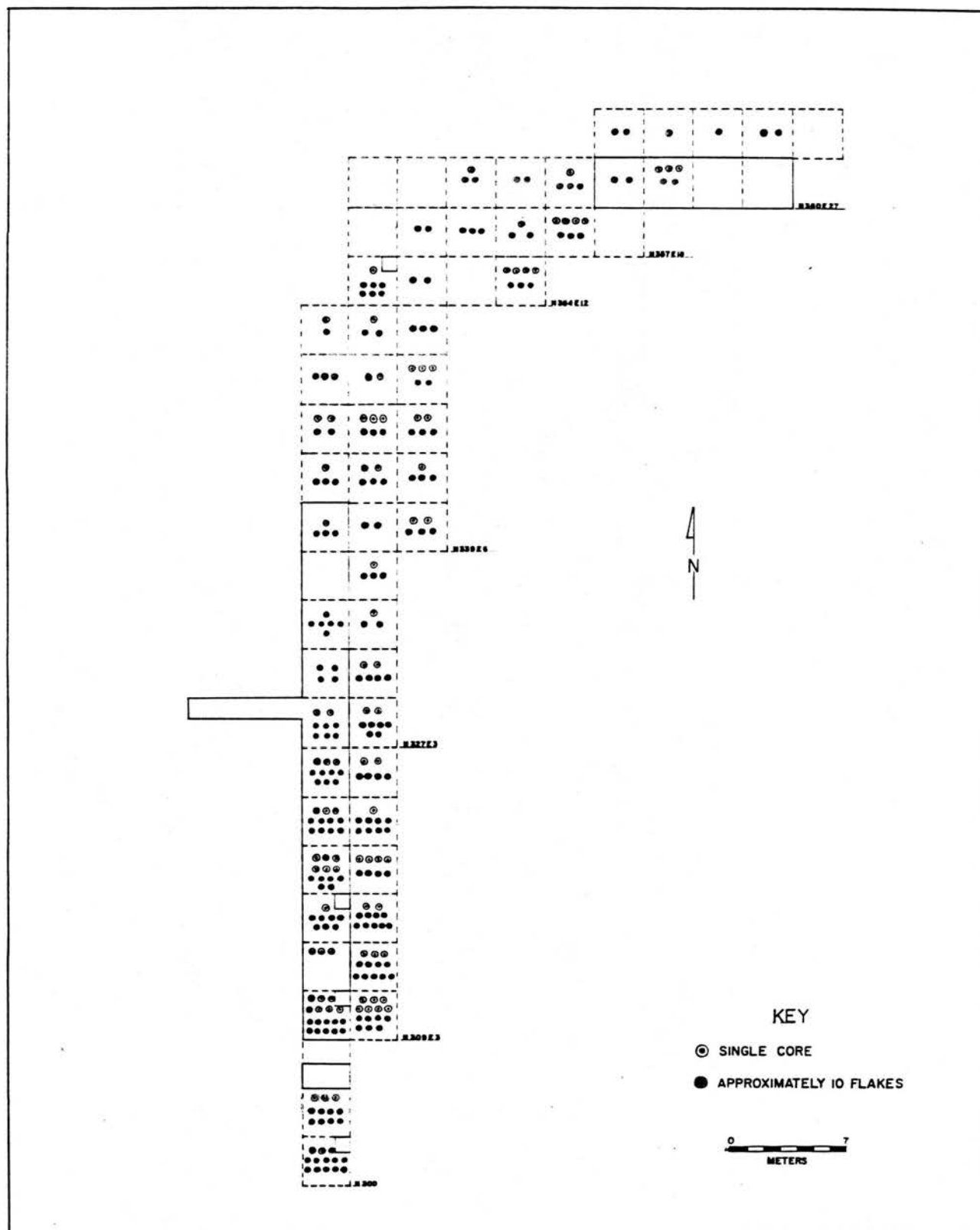


FIGURE 4. Controlled Surface Collection Debitage Distribution.

Table 1. Controlled Surface Collection Lithic Tool Distribution

Provenience	Notched Flakes	Blades	Retouched Blades	Bifaces	Utilized Flakes	Utilized Cores	Preforms	Projectile Pts./Knives	Flake Knives	Preform Knives	Biface Knives	Stemmed Scrapers	Flake Scrapers	Core Scrapers	Scraper-on-Biface	Notched Cores	Gravers	Hammerstones	Knife-Scraper-Graver	Totals
N303				2	1															3
N306	2				1									1						4
N309	1																			1
N312			1		1										1					3
N315																				0
N318					2															2
N321																				0
N324				2	1															3
N327					4															4
N330					3															3
N333					2															2
N336					2															2
N339					2															2
N342																				0
N345														1						1
N348																				0
N351				2																2
N354																				0
N312E3				1	3															4
N315E3					2	1														3
N318E3		1			4															5
N321E3					2													1		3
N324E3					4															4
N327E3		1			1										1					3
N330E3																				0
N333E3		1		1	1															3
N336E3		1			2															3
Totals	3	4	1	8	38	1	0	0	0	0	0	0	0	2	2	0	0	1	0	60

Table 1. Controlled Surface Collection Lithic Tool Distribution (Continued)

Provenience	Notched Flakes	Blades	Retouched Blades	Bifaces	Utilized Flakes	Utilized Cores	Preforms	Projectile Pts./Knives	Flake Knives	Preform Knives	Biface Knives	Stemmed Scrapers	Flake Scrapers	Core Scrapers	Scraper-on-Biface	Notched Cores	Gravers	Hammerstones	Knife-Scraper-Graver	Totals
N339E3																				0
N342E3																				0
N345E3													1							1
N348E3																				0
N351E3													1							1
N354E3					2															2
N357E3		1		2																3
N357E9					1															1
N360E9																				0
N363E9				1	1															2
N357E12																				0
N360E12					1															1
N363E12																				0
N360E15					1				1									1	1	4
N363E15				1	1															2
N360E18																				0
N366E18					3															3
N363E21																				0
N366E21			1																	1
N363E24		1			2															3
N366E24																				0
N363E27																				0
N366E27		1			2															3
N366E30																				0
Totals	0	3	1	4	14	0	0	0	1	0	0	0	2	0	0	0	0	1	1	27

Table 2. Controlled Surface Collection Debitage Distribution

Provenience	Decort. Flake	Bifacial Th. Fl.	Flat Fl.	Retouch Fl.	Core	Pot Lid	Shatter	Total
N303	12	74	0	16	3	2	15	122
N306	11	37	10	24	3	0	13	98
N309	8	46	15	27	0	0	9	105
N312	8	93	16	58	8	8	14	205
N315	0	0	0	0	0	0	0	0
N318	8	33	9	17	1	3	6	77
N321	17	41	5	0	6	1	8	78
N324	7	39	5	16	3	0	6	76
N327	16	40	9	0	3	0	15	83
N330	11	25	8	13	2	0	7	66
N333	7	16	6	11	0	0	15	55
N336	9	10	4	21	1	0	0	45
N339	2	19	0	0	1	0	5	27
N342	5	7	2	10	1	2	4	31
N345	2	20	0	8	1	0	0	31
N348	1	14	0	0	2	0	2	19
N351	6	12	4	0	0	2	0	24
N354	2	10	0	0	1	0	1	14
N312E3	8	48	7	0	7	6	6	82
N315E3	4	36	7	9	3	5	7	71
N318E3	6	36	2	17	5	0	9	75
N321E3	11	26	5	0	4	3	4	53
N324E3	12	29	8	27	1	0	7	84
N327E3	7	24	0	14	2	0	4	51
N330E3	7	49	0	6	2	0	10	74
N333E3	10	22	4	8	2	0	9	55
N336E3	1	18	0	0	1	0	1	21
N339E3	4	20	1	0	1	2	9	37
N342E3	1	0	3	0	0	1	0	5
N345E3	6	20	1	0	2	0	1	30
N348E3	6	25	0	0	3	0	1	35
Totals	215	889	131	302	69	35	188	1829

Table 2. Controlled Surface Collection Debitage Distribution (Continued)

Provenience	Decort. Flake	Bifacial Th. Fl.	Flat Fl.	Retouch Fl.	Core	Pot Lid	Shatter	Total
N351E3	6	12	4	0	0	2	0	24
N354E3	1	9	4	6	1	0	0	21
N357E3	0	25	11	13	1	2	3	55
N360E3	0	0	0	0	0	0	0	0
N363E3	0	0	0	0	0	0	0	0
N342E6	6	14	0	8	2	0	3	33
N345E6	2	24	1	0	1	1	2	31
N348E6	5	17	2	3	2	1	7	37
N351E6	4	13	2	0	3	2	5	29
N354E6	4	14	5	8	0	0	0	31
N357E6	5	10	2	5	0	0	0	22
N360E6	2	15	0	0	0	0	0	17
N357E9	4	20	2	4	1	0	3	34
N360E9	5	20	0	0	0	0	0	25
N363E9	1	12	4	0	1	0	2	20
N357E12	5	13	3	7	4	0	1	33
N360E12	3	21	0	0	1	0	1	26
N363E12	1	13	0	0	0	0	0	14
N360E15	4	21	4	0	4	0	2	35
N363E15	5	12	0	0	1	0	0	18
N360E18	0	0	0	0	0	0	0	0
N363E18	2	10	0	0	0	3	2	17
N366E18	2	9	5	3	0	0	3	22
N363E21	2	13	0	0	3	2	0	20
N366E21	0	9	0	0	0	0	5	14
N363E24	4	11	2	0	0	0	0	17
N366E24	0	9	1	0	0	0	2	12
N363E27	0	0	0	0	0	0	0	0
N366E27	3	7	0	0	1	0	0	11
N366E30	0	0	0	0	0	0	0	0
East of Grid	18	16	11	0	29	1	6	81
Totals	94	369	63	57	55	14	47	699

TEST RESULTS

During the initial period of the project eight (8) test units were excavated within the proposed road right-of-way and designated as Test Units 1-8. Although the density and depth varied in the test units excavated by hand, the majority of all the artifacts from the site occurred on the surface and within the plow zone, which varied from 20 to 30 centimeters in thickness. Test Units 1-5 were excavated by hand in 10 centimeter levels and provide a more detailed insight to the vertical distribution of artifacts. Distribution of artifacts from Test Units 1-5 are presented in Tables 3-4. Test Units 6-8 were composed of trenches of various lengths and widths excavated with use of a backhoe, as a means of stripping the plowzone from larger areas in search of sub-surface features. A brief description of the findings in each of the 8 test units is as follows:

Test Unit 1 was composed of a 1 x 1 meter square excavated at the NE corner of Grid Square N303. This unit, excavated in 10 centimeter levels, was extended to a total depth of 35 centimeters. The plowzone, 25 centimeters in thickness, was composed of a yellowish-brown silty loam containing 926 flakes, 140 shatter fragments, 3 cores, 3 biface fragments, and 4 utilized flakes. No features were found, neither did any artifacts occur below the 25 centimeter depth.

Test Unit 2 was a 1.50 x 3 meter cut made in the south half of Grid Square N309. The 1.50 x 1.50 meter SW corner of this cut was excavated in 10 centimeter levels to a total depth of 50 centimeters. The plowzone, 25 centimeters in thickness, was composed of yellowish-brown silty loam containing 358 flakes, 54 shatter fragments, 12 core fragments, 9 utilized flakes, 4 biface fragments, and 2 utilized cores. The lower 25 centimeters (levels 4-5) together contained 1037 flakes, 110 shatter fragments, 9 core fragments, 35 utilized flakes, 2 biface fragments, and 1 stemmed knife. The nature and color of the soil of the lower levels and plow zone were unchanged. Although each level was carefully trowelled, no features occurred in any of the levels. The vertical distribution of artifacts to greater depth in Test Unit 2 as compared to the other test units might possibly be explained by the presence of a natural depression or disturbance into which the artifacts accumulated. No artifacts occurred below the 45 centimeter level.

Test Unit 3 was a 1 x 1 meter square excavated at the NE corner of Grid Square N312. This unit, excavated in 10 centimeter levels, was extended to a total depth of 35 centimeters. The plow zone, 25 centimeters thick, was composed of yellowish-brown silty loam containing 31 flakes, 1 core, 2 shatter fragments, and 1 utilized flake. Artifacts recovered below the plow zone in level 4 include 15 flakes, 1 core, 4 shatter fragments, and 2 utilized flakes. No artifacts occurred below the 35 centimeter level, as indicated by later backhoe testing in the central floor of the north-south trench (Unit 6).

Upon reaching the 35 centimeter depth a dark, slightly irregular circular stain was identified. Excavation (cross sectioning) of the disturbance disclosed that it was a probable tree disturbance. No artifacts were associated.

Test Unit 4 was a 1 x 1 meter square excavated at the corner of Grid Square N318. This unit, also excavated in 10 centimeter levels, was extended to

a total depth of 35 centimeters. The plow zone, 28 centimeters in thickness, was composed of yellowish-brown silt loam, and contained 95 flakes, 2 core fragments, 4 shatter fragments, 1 notched flake, 4 flakes, and 1 graver. No artifacts occurred below the 30 centimeter level. No features were found in this unit.

Test Unit 5 was a 1 x 1 meter square excavated at the corner of Grid Square N357E3 and was excavated to a total depth of 35 centimeters. Collected from the 30 centimeter thick plow zone were 302 flakes, 1 core, 50 shatter fragments, 7 utilized flakes, and a single graver. Later backhoe excavation of Test Unit 8, located immediately northeast of Square N357E3, indicated that no artifacts at this area of the site occurred below the plowzone. The soil at this locality consists of yellowish-brown silt loam containing cherty gravel.

Test Unit 6 (Figures 3-5). This unit consisted of a trench 3 meters wide, 33 meters long and 35 centimeters deep excavated with the use of a backhoe with a toothless (straight edge) bucket. The trench began on the elevated area of the site at Grid Stake N312 and extended northward to Grid Stake N327. Although the trench excavation was carefully monitored and scraped clean, no features occurred within the unit.

Test Unit 7 (Figures 2 and 6). This unit, also excavated with a backhoe, consisted of a short trench 1 meter wide, 5.20 meters long, and 170 centimeters deep, joining and perpendicular to Test Unit 6. This unit, extending westward from Grid Stake N330W3, was excavated to explore deeper levels for potential deeply buried cultural deposits. No artifacts or features occurred in this unit.

Test Unit 8. This unit consisted of a trench 3 meters wide, 12 meters long, and 40 centimeters deep, excavated with use of a backhoe. The trench, perpendicular to Test Unit 6, began at Grid Stake N363E12 and extended to Grid Stake N363E21. Although the trench excavation was carefully monitored and scraped clean, no features or artifacts occurred within the unit.

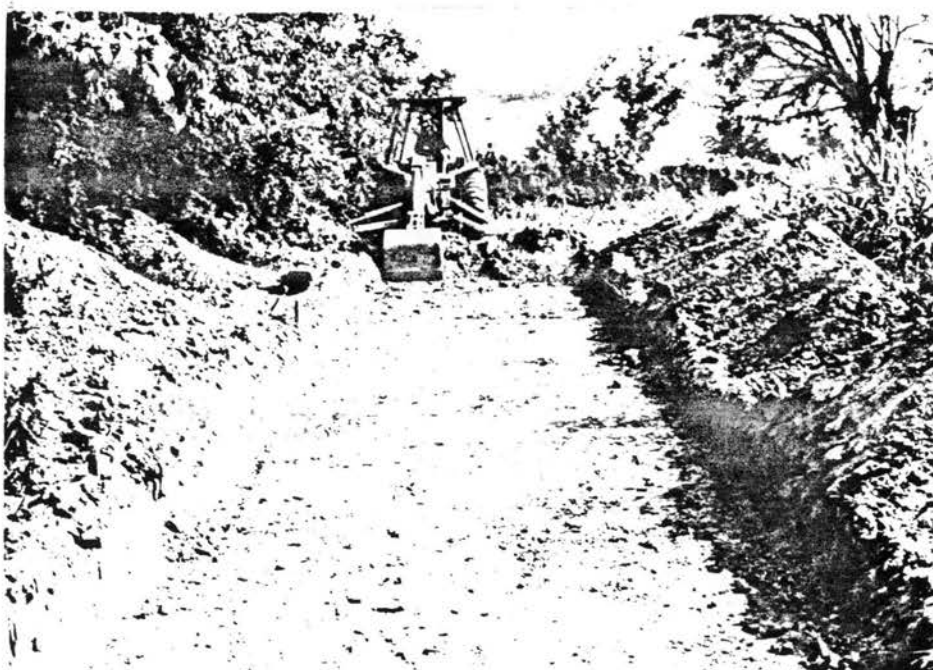


FIGURE 5: Mechanical excavation of Test Unit 6 with use of a backhoe.



FIGURE 6. Soil profile of Test Unit No. 7 showing extensive gravel inclusion.

Table 3. Lithic Tool Distribution from Test Units 1 - 5

Provenience	Notched Flakes	Blades	Retouched Blades	Bifaces	Utilized Flakes	Utilized Cores	Preforms	Projectile Pts./Knives	Flake Knives	Preform Knives	Biface Knives	Stemmed Scrapers	Flake Scrapers	Core Scrapers	Scraper-on-Biface	Notched Cores	Gravers	Choppers	Totals
N303																			
Plowzone				3	4														7
N309																			
Plowzone				4	4	2													10
Level 3					5														5
Level 4				2	20								1						23
Level 5					15			1											16
N312																			
Plowzone					1														1
Level 4					2														2
N318																			
Plowzone		1			2														3
Level 3					2												1		3
N333																			
Level 1					1														1
N357E3																			
Level 1					7														7
Level 2																		1	1
Surface	5	1		18	22	1					1	1	1					1	51
Totals	5	2	0	27	85	3	0	1	0	0	1	1	2	0	0	0	1	2	130

Table 4. Distribution of Debitage from Excavated Test Units

Provenience	Decort. Flake	Bifacial Th. Fl.	Flat Fl.	Retouch Fl.	Core	Pot Lid	Shatter	Total
N303								
Level 1	50	98		390	1	16	44	599
Level 2	17	48		88		5	38	196
Level 3	25	38	5	135	2	11	58	274
N309								
Level 1								
Level 2	40	71		32	10	4	25	182
Level 3	38	162		8	2	3	29	242
Level 4	77	159	93	171	6	20	66	592
Level 5	94	206	91	109	3	17	44	564
N312								
Level 1								
Level 2	10	17		4	1		2	34
Level 3								
Level 4	1	14			1		4	20
N318								
Plowzone	11	33	4		1			49
Level 3	13	28	6		1		4	52
Level 4	1	13	3				2	19
N357E3								
Level 1	41	110	30	64	1	6	39	291
Level 2		24	16	7		4	11	62
Totals								
	418	1021	248	1008	29	86	366	3176

ARTIFACT ASSEMBLAGE

Introduction

The prehistoric assemblage consists of 5916 lithic artifacts recovered from both the surface and test excavations. Of the total number of artifacts, 2659 were recovered from the surface and the remaining 3257 from the test excavation units. Since the majority of all artifacts from the site occurred within the plow zone and on the surface, little meaningful data has been derived from this study. However, the controlled surface artifact study of the site does provide limited insight to horizontal distribution along the extreme western edge of the site (Figures 3-4). Although a controlled surface collection from the entire site would have been more productive in terms of distributional patterns, the presence of crops and the confinement of the project to the proposed road right-of-way did not allow for such a survey.

Lithic Artifacts

Stone tools and by-products (lithic debris) from their manufacture and maintenance compose the total artifact assemblage recovered at Site 40DK36. Although limited lithic resource surveys have been conducted within the Nashville Basin and adjacent Highland Rim Physiographic Provinces, little is known concerning the geological derivation, characterization or distribution of such resources. However, examination of all the lithic artifacts from Site 40DK36 indicates that these had been manufactured from tan, brown, gray, white, and blue mottled and banded cherts which occur locally as water-worn cobbles in the bed and flood plain of Clear Fork Creek which runs immediately west of the site. Flakes resulting from core reduction, as well as cores, exhibiting varying portions of water-worn cortex compose the total percentage of lithic debris from the site.

Projectile Points/Knives

A total of 3 complete and 22 fragmentary projectile points were recovered from the surface and test excavation units. Projectile points have long been recognized as the most sensitive single object subject to stylistic change during the Archaic Period. Although the sample recovered from the site is somewhat moderate, the types nonetheless conform to those found on Archaic sites within the Cumberland Valley (Benthall 1980, Cridlebaugh 1983, Morse 1963) and the Caney Fork-Collins-Calfkiller watersheds (Jolley 1977), as well as other areas in middle and western Tennessee. Similar forms and sequences are also to be found in adjoining areas of Kentucky.

Although well directed archaeological research and excavations have increased in Middle Tennessee over the past ten years, the full, comprehensive understanding of the total cultural sequence is far from complete. Excavation at various sites in the areas noted have permitted progress toward classification and refinement of lithic tool categories, but these too are still incomplete.

The projectile points/knives recovered from the site are classified by established type name (where applicable) or by category comparable to other sites. Each type or category is described along with comparative data, which are presented with comments. Distribution of the projectile points is presented in Table 5 and Figure 3.

Category 1 (Adena) (Cambron and Hulse 1964, Bell 1958) (Figure 7). Sample Size: 1 fragmentary. Form: Triangular blade with excurvate edge. The stem is medium in length with rounded base. Cross section: Biconvex. Material: blue and gray mottled Fort Payne chert.

Size: Length: Undetermined; Width: 29 mm; Thickness: 10 mm.

Stem Length: 20 mm; Stem Width: 19 mm.

Comments: The single specimen was recovered from the surface outside the projected road right-of-way and grid. The Adena point is generally considered a diagnostic artifact of the Adena culture which existed during the Early Woodland Phase in the Ohio Valley. Adena points have also occurred with increasing frequency on Late Archaic sites in the Cumberland Valley and have been dated at the Robinson Site at approximately 1000 B.C. (Morse and Polhemus 1963: 26).

Category 2 (Tapered Shoulders; Short Narrow Expanded Stem) (Figure 7). Sample Size: 3 fragmentary. Form: Broad triangular blades with straight to excurvate edges. Stems are moderately expanded with straight bases and are formed by deep rounded to angular corner removals. Shoulders are well pronounced with downward protruding barbs. Cross Section: flattened to biconvex. Material: gray and tan, pink and gray, and red and yellow mottled chert.

Size: Length: undetermined; Width: 25-27 mm; Mean: 26 mm; Thickness: 6-9 mm; Mean: 7.5 mm.

Stem Length: 7-12 mm; Mean: 9.5 mm; Stem Width: 15-18 mm; Mean: 16.5 mm.

Comments: Of the three fragmentary specimens recovered, one came from Test Square N312, Level 3, one from the surface of Unit N321E3, and one from the surface of Unit N327. The three specimens are comparable to those identified as Category 16 recovered from Late Archaic contexts at the Penitentiary Branch Site (40JK25) (Cridlebaugh 1983: 151-152). This type is also referable to the Wade type (Cambron and Hulse 1975: 122) recovered from Late Archaic contexts in Northern Alabama (Webb and DeJarnette 1948) and Southeastern Tennessee (Faulkner and Graham 1966: 72).

Category 3 (Corner Removed: Round Base, Expanded Stem) (Figure 7). Sample Size: 1 fragmentary. Form: Moderately broad blade with excurvate edges. The stem is moderately expanded with a round base and formed by corner removals. Shoulders are well-pronounced and straight. Cross section: flattened. Material: blue and light gray mottled chert.

Size: Length: undetermined; Width: 28 mm; Thickness: 6 mm.

Stem Length: 11 mm; Stem Width: 12 mm.

Comments: The single specimen was recovered from the surface outside and east of the grid and proposed road right-of-way. This specimen resembles the types identified as Category 20 recovered from Late Archaic contexts at the Penitentiary Branch Site (40JK25) on the Cumberland River (Cridlebaugh 1983: 156-157). The hafting element closely resembles those of the Flint Creek type described by Cambron and Hulse (1975: 51).

Category 4 (Short, Straight Stem: Asymmetrical Blade) (Figure 7). Sample Size: 1 complete. Form: broad triangular blade with slightly excurvate edges. The shoulders are broad with well-pronounced barbs. The stem is short and straight with a straight base and formed by corner removals. Cross Section: flattened. Material: white chert.

Size: Length: 52 mm; Width: 41 mm; Thickness: 8 mm.

Stem Length: 10 mm; Stem Width: 18 mm.

Comments: The single specimen was recovered from the surface of the main portion of the site east of the grid and proposed road right-of-way. This specimen closely resembles Category 106, medium-large straight-expanded stemmed, strong shouldered, wide blade described from the Duck River Valley (Faulkner and McCollough 1973: 123-124). Another similar type from the Penitentiary Branch Site (40JK25) and typed as Category 13, short, straight to weakly expanded stem, asymmetrical blade is also noted (Cridlebaugh 1983: 148). Attributes of the 40DK36, 40JK25, and Duck River specimens place this type within the Pickwick-Ledbetter projectile point cluster.

Category 5 (Medium, expanded stemmed, straight base, elongated blade) (Figure 7). Sample Size: 2 complete. Form: Elongated triangular blades with straight to slightly excurvate edges. The stems, having straight bases, are short and formed by shallow corner removals. Shoulders are narrow to medium and slightly tapered. Cross Section: flattened to biconvex. Material: grayish-brown and tan, blue, and gray mottled chert.

Size: Length: 52-53 mm; Mean: 52.5 mm; Width: 23-24 mm; Mean 23.5 mm; Thickness: 5-8 mm; Mean: 6.5 mm.

Stem Length: 9-10 mm; Mean: 9.5 mm; Stem Width: 15-16 mm; Mean: 15.5 mm.

Comments: One of the two specimens was recovered from the surface of Unit Square N357E12 and the other from the surface of Unit Square N315E3. Both specimens show resemblances to the Category 14 type from the Penitentiary Branch Site (40JK25) (Cridlebaugh 1983: 148-149) and Type 82 described in the introductory report of the Normandy Reservoir Salvage Report (Faulkner and McCollough 1973: 110). These types are described as closely resembling those of the McIntire-Ledbetter cluster and are assigned to the Late Archaic Phase.

Category 6 (Kirk Corner-Notched) (Coe 1964: 69-70) (Figure 7). Sample Size: 1 fragmentary; Form: small triangular blade with serrated edges. The expanded stem having an incurvate base was formed by medium corner notches and

exhibits slightly rounded auricles having a slight "fish-tail" appearance. The base is slightly ground. Cross Section: flattened. Material: gray and blue mottled chert.

Size: Length: undetermined; Width: 28 mm; Thickness: 5 mm.

Stem Length: 9 mm; Stem Width: 18 mm.

Comments: The single specimen was recovered from the site surface, outside of and east of the grid and boundary of the proposed road right-of-way. The Kirk Corner-Notched type is generally found in Early Archaic context at sites widely distributed in Eastern United States.

Category 7 (Corner Removed, Expanded Stem) (Figure 7). Sample Size: 1 fragmentary. Form: blade cannot be described due to fragmentary condition. However, the shoulders are weakly barbed and tapered, and the stem, having a straight base, is slightly expanded and formed by deep, rounded corner removals. The base is slightly ground. Cross Section: biconvex. Material: light and dark gray mottled chert.

Size: Length: undetermined; Width: 32 mm; Thickness: 8 mm.

Comments: The single fragmentary specimen was recovered from the surface outside of and east of the grid and proposed road right-of-way. The specimen from the site appears to be referable to the McIntire type (Cambron and Hulse 1975: 86), a Late Archaic type in Northern Alabama (Cridlebaugh 1983: 158).

Projectile Point Fragments (not illustrated). In addition to the complete and basal fragments, a total of 10 distal ends and 4 midsections were recovered from the site. A single fragmentary base exhibiting the remnant of a stem was also noted. Of the total distal ends, 1 specimen was recovered from each of the surfaces of Squares N339E3, N321, N312, and N363E9 as well as from Level 2 of Test Square N309. Five specimens were also recovered from the surface of the site outside and east of the grid and proposed road right-of-way.

Midsections recovered include 1 specimen from Level 2 of the 1-meter test at the NE corner of Square N318; 1 from the surface of Square N348E3, and 2 from the surface east of the grid and road right-of-way. The variety of multi-colored cherts used in manufacture include the following: pink; white, brown and tan mottled; orange and gray banded; tan, white and gray mottled; blue and gray mottled; and blue and brown banded. Distribution of the distal ends and midsections are presented in Tables 1-4 and Figures 3-4.

Other Stone Artifacts

The several chipped stone artifact categories other than projectile points recovered from the site include bifaces, a preform, graters, various scraper forms, notched flakes, utilized flakes, blades, utilized cores, and biface and stemmed knives. Each of the above categories is briefly described along with comparative data.

Biface Fragments (Figure 8). The sixteen specimens recovered from the site include 9 from the surface east of the grid and right-of-way; 3 from Test Square N309 Level 1; 1 from Test Square N309 Level 4; 1 from Test Square N303 Level 1; and 1 specimen each from the surfaces of Squares N351 and N312E3. Although all

Table 5. Projectile Point Distribution

Provenience	C-1	C-2	C-3	C-4	C-5	C-6	C-7	Fragments	Totals
N312 (Level 2)		1							1
N312								1	1
N318 (Plowzone)								1	1
N321								1	1
N327		1							1
N351								1	1
N315E3					1				1
N321E3		1							1
N339E3								1	1
N348E3								1	1
N357E3								1	1
N363E9								1	1
N357E12					1				1
General Surface	2		1	1		1	1	6	12
Totals	2	3	1	1	2	1	1	14	25

specimens are fragmentary, three were triangular, three ovoid, and the remainder too fragmentary to determine their overall forms. Materials used in manufacture include tan, blue, and gray mottled; gray, light and dark gray banded; brown; and blue, gray and tan mottled chert.

Preforms (Figure 8). A single complete specimen was recovered from the surface of Grid Square N330E3 and a single fragmentary specimen from the surface east of the grid and road right-of-way. The complete specimen is triangular in form and measures 35 mm. in length, 25 mm. in width, and 4 mm. in thickness. The other trianguloid base is 30 mm. wide and 5 mm. thick. Materials used in manufacture include blue, tan and gray mottled as well as brown chert.

Stemmed Knives (Figure 9). The single specimen from level 5 of Unit N309 appears to be an Archaic projectile point with knife retouch along one lateral edge. The short, contracting stem has been formed by the removal of flakes forming a shallow notch. The specimen, manufactured from light brown chert is 75 mm. long, 23 mm. wide, and 10 mm. thick.

Flake Knives (Figure 9). A single specimen recovered from the surface of Grid Square N357E12 consists of a large thick flat flake exhibiting bifacial flaking and retouch along one lateral edge. A short line of retouch also occurs along one face of the proximal end. The specimen is manufactured from light and dark gray mottled chert and is 49 mm. long, 32 mm. wide and 8 mm. thick.

Preform Knives (not illustrated). Two fragmentary specimens were collected from the surface east of the grid and proposed road right-of-way. The first specimen consists of the base of a trianguloid form showing knife retouch and wear along one lateral edge. The specimen is manufactured from gray, white and brown mottled chert and is 38 mm. wide and 9 mm. thick.

The second specimen consists of the distal end of a preform showing knife retouch and wear along one lateral edge. It is manufactured from brown chert and is 25 mm. wide and 7 mm. thick.

Biface (Tang) Knives (Figure 9). The single specimen recovered from the surface of the site consists of a trianguloid biface with a short, slightly rounded base tang which protrudes off center from one corner of the proximal end. Knife retouch occurs along both lateral edges. The specimen is manufactured from blue and tan chert and is 86 mm. long, 35 mm. wide, and 10 mm. thick.

Stemmed Scrapers (Figure 9). The single fragmentary specimen from the surface east of the grid and road right-of-way is a stemmed projectile point (Ledbetter Stemmed) having a single straight working edge formed by a line of steep retouch along the broken edge at the distal end. The specimen broken laterally along the midsection exhibits a "pot lid" flake scar near the distal end as well as a line of knife retouch and wear along the remaining lateral edge. It is manufactured from light and gray mottled chert and is 45 mm. long and 8 mm. thick.

Flake Scrapers (Figure 9). Four specimens were collected from the site, of which one was recovered from Level 1 of Test Unit N309, 1 from the surface of Grid Unit N312E3, and 2 from the surface east of the grid and proposed road right-of-way. Three of the specimens are decortication flakes with steep retouch along one lateral edge, and the fourth, a large thick flake with steep retouch along one

lateral edge. Materials used in manufacture include blue and gray mottled, tan, as well as dark and light gray banded chert.

Core Scrapers (Figure 9). Three specimens were recovered from the site, one of which was recovered from the surface of Unit N315E3, 1 from the surface of Unit N312, and 1 from the surface of Unit N327E3. The three specimens are representative of cores on which continuous heavy marginal retouch along one edge of the striking platform has been applied. Materials used in manufacture include blue and gray, tan, and light and dark gray banded chert.

Notched Flakes (Figure 8). Of the three specimens from the site, one was recovered from the surface of Unit N306, one from the surface east of the grid and proposed road right-of-way. The specimens consist of decortication flakes with a single-blow notch at the approximate center of one lateral edge. The notches show slight to heavy marginal retouch on one surface only. Material used in manufacture is light and dark mottled chert.

Notched Cores (Figure 8). The single specimen recovered from Level 1 of Test Unit N309 consists of a core fragment having a single shallow notch on one striking platform surface. The notch shows slight marginal retouch on one surface only. Material used in manufacture is light bluish-gray chert.

Gravers (Figure 10). The three specimens recovered from the surface of Unit N306, Level 1 of Unit N309, and the surface east of the grid consist of one decortication and two bifacial thinning flakes which have been retouched along a single edge, isolating a triangular projection. The specimens are 35-42 mm. long, 25-35 mm. wide, and 5-13 mm. thick, and are manufactured from gray as well as gray and blue mottled chert.

Utilized Flakes (Figure 10). A total of 138 specimens were collected from the site. Of this total, 86 were recovered from the surface and the remaining 51 from various levels of the test excavations. The largest concentration from the excavations came from Test Unit N309 where 4 specimens from the site consist of decortication, flat, and bifacial thinning flakes showing utilization in the form of irregular or regular localized retouch along one or more edges. Material used in manufacture is blue and brown mottled; tan and blue mottled; light and dark gray banded; brown and gray banded; dark bluish-gray, and tan and gray banded chert.

Blades (Figure 10). A total of eight complete and three fragmentary specimens were recovered from the site. Of the number collected, ten were recovered from the surface and the remaining one from Level 1 of Test Unit N318. These unmodified blades are flakes whose lengths are twice their widths and exhibit previous longitudinal dorsal blade scars indicating that flake removals have occurred from the same striking platform. The eight specimens are 33-50 mm. long, 15-29 mm. wide, and 4-7 mm. thick. Materials used in manufacture consist of blue and tan mottled; blue, gray, and brown mottled; dark brown; and gray, pink, and white mottled chert.

Retouched Blades (Figure 10). The single specimen recovered from the surface of Grid Unit N330E3 is a large flake whose length is greater than its width. Previous flake scars exhibited indicate that flake removals have occurred from the same striking platform. Pronounced retouch is exhibited along a segment of one lateral edge as well as along one of the bipolar ends. The specimen manufactured

from blue, light and dark brown mottled chert is 52 mm. long, 27 mm. wide, and 7 mm. thick.

Scraper-on-Biface (not illustrated). The single specimen recovered from the surface of Grid Unit N354E3 consists of a rough biface with steep flaking and retouch at one end. The specimen, manufactured from brown chert, is 73 mm. long, 44 mm. wide, and 24 mm. thick.

Knife-Scraper-Graver (Figure 11). The single specimen recovered from the surface of Grid Unit N360E15 consists of a large flat flake showing knife retouch along one lateral edge, steep retouch along the opposite lateral edge, and a triangular projection which functioned as a graver at the dorsal end near the bulb of percussion. The specimen is manufactured from light gray, dark gray, and white mottled chert and is 55 mm. long, 33 mm. wide, and 4-6 mm. thick.

Hammerstone (Figure 11). The single specimen recovered from the surface of Grid Unit N360E15 consists of a fragmentary chert nodule that exhibits crushing at one end. The specimen, manufactured from light brown chert is 64 mm. long, 35 mm. wide, and 20 mm. thick.

Debitage. The relatively large quantity of debitage from site 40DK36 has been separated into several categories which include cores, flakes, and shatter fragments. Of the total quantity of debitage recovered, 98 cores and fragments, 2288 unmodified flakes, and 241 shatter fragments were recovered from the surface, and 29 cores, 2781 flakes and 366 shatter fragments from the various test units. Flakes were separated as to whether or not they possessed cortex. The collection was subdivided into broad morphological categories which include decortication, retouch, flat, and bifacial thinning flakes, and cores. Also noted are flakes and cores which show evidence of spalling ("pot lidding") as a result of having been heated, probably during the process of lithic reduction and tool and projectile point fabrication. Distribution of the debitage is presented in Table 2 and Figure 4.

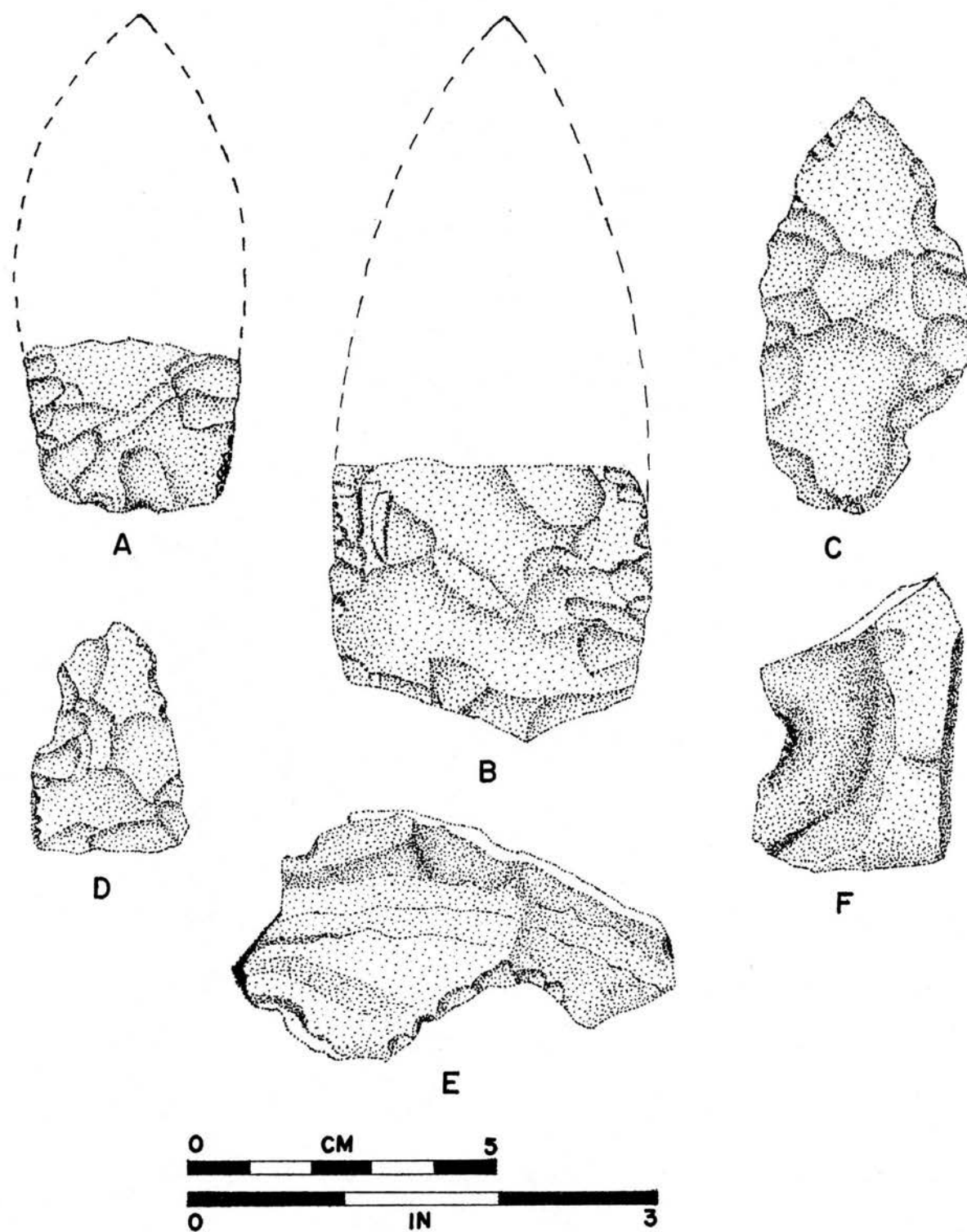


Figure 8: Other Chipped Stone Artifacts.
A-C. Bifaces. D. Preform.
E. Notched Flake. F. Notched
Core.

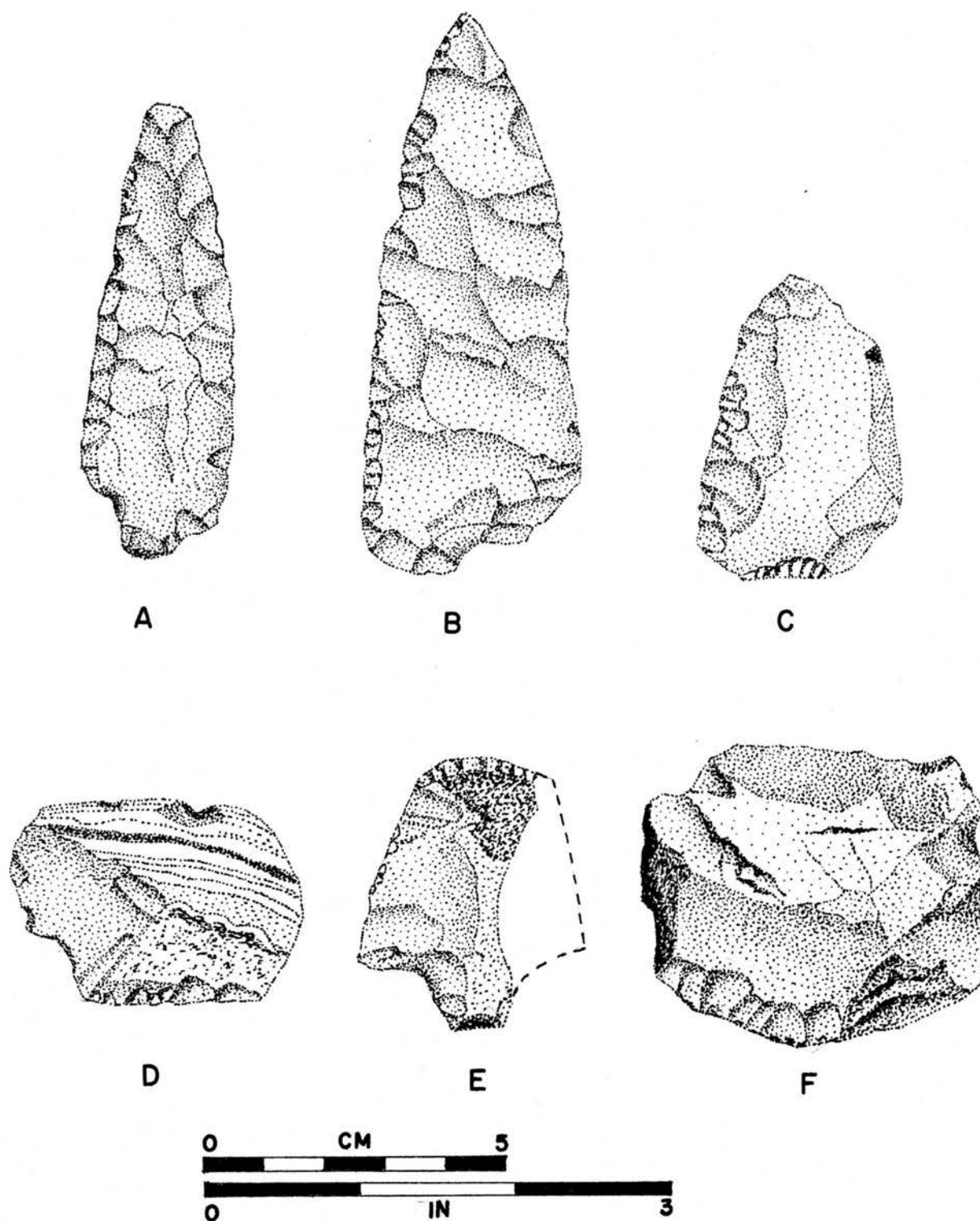


Figure 9: Knife and Scraper Forms.
 A. Stemmed Knife. B. Biface
 (Tang) Knife. C. Flake Knife.
 D. Flake Scraper. E. Stemmed
 Scraper. F. Core Scraper.

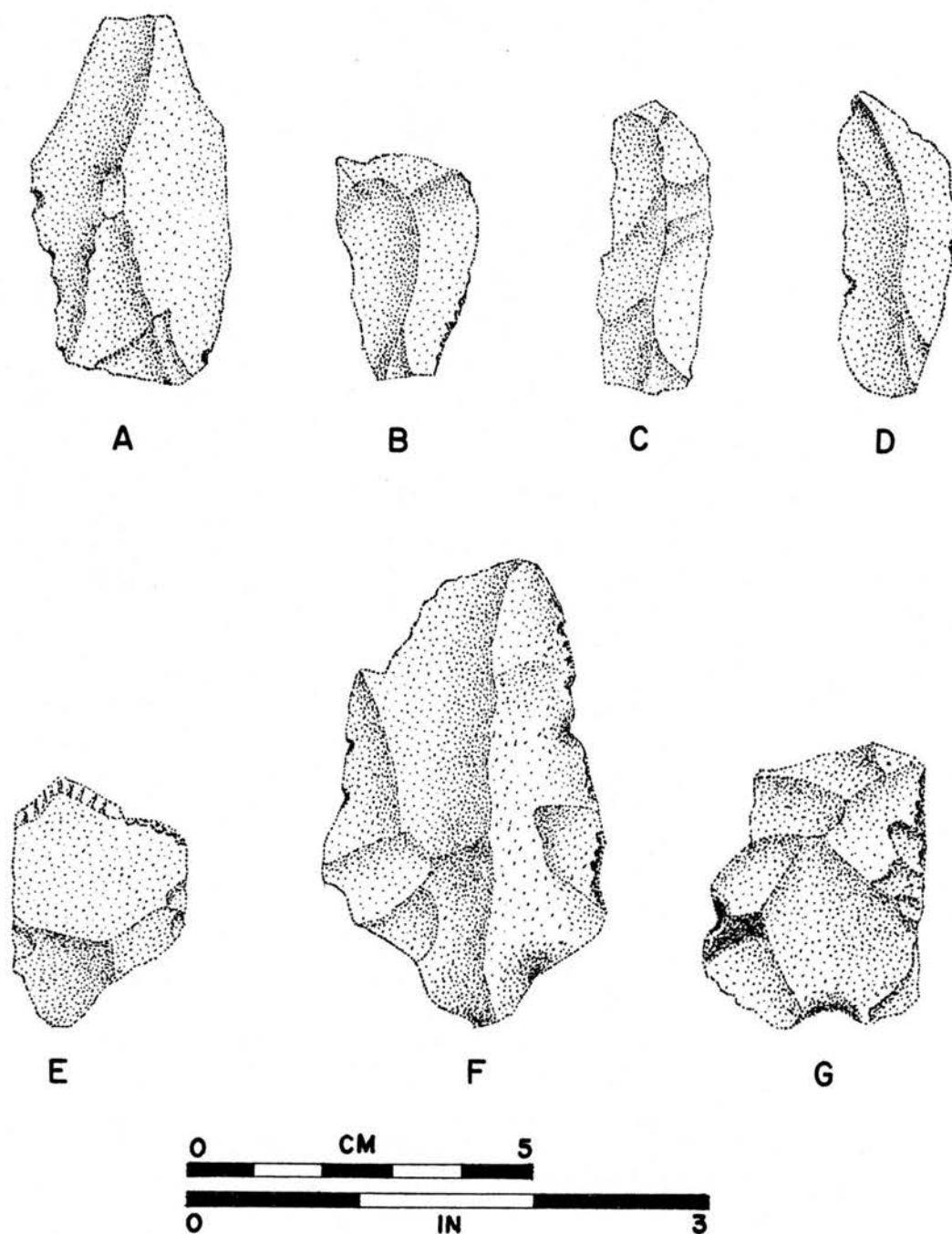


Figure 10: Flake and Blade Tools.
 A-B. Retouched Blades.
 C-D. Unmodified Blades.
 E. Graver. F-G. Utilized
 Flakes.

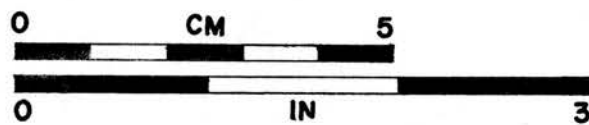
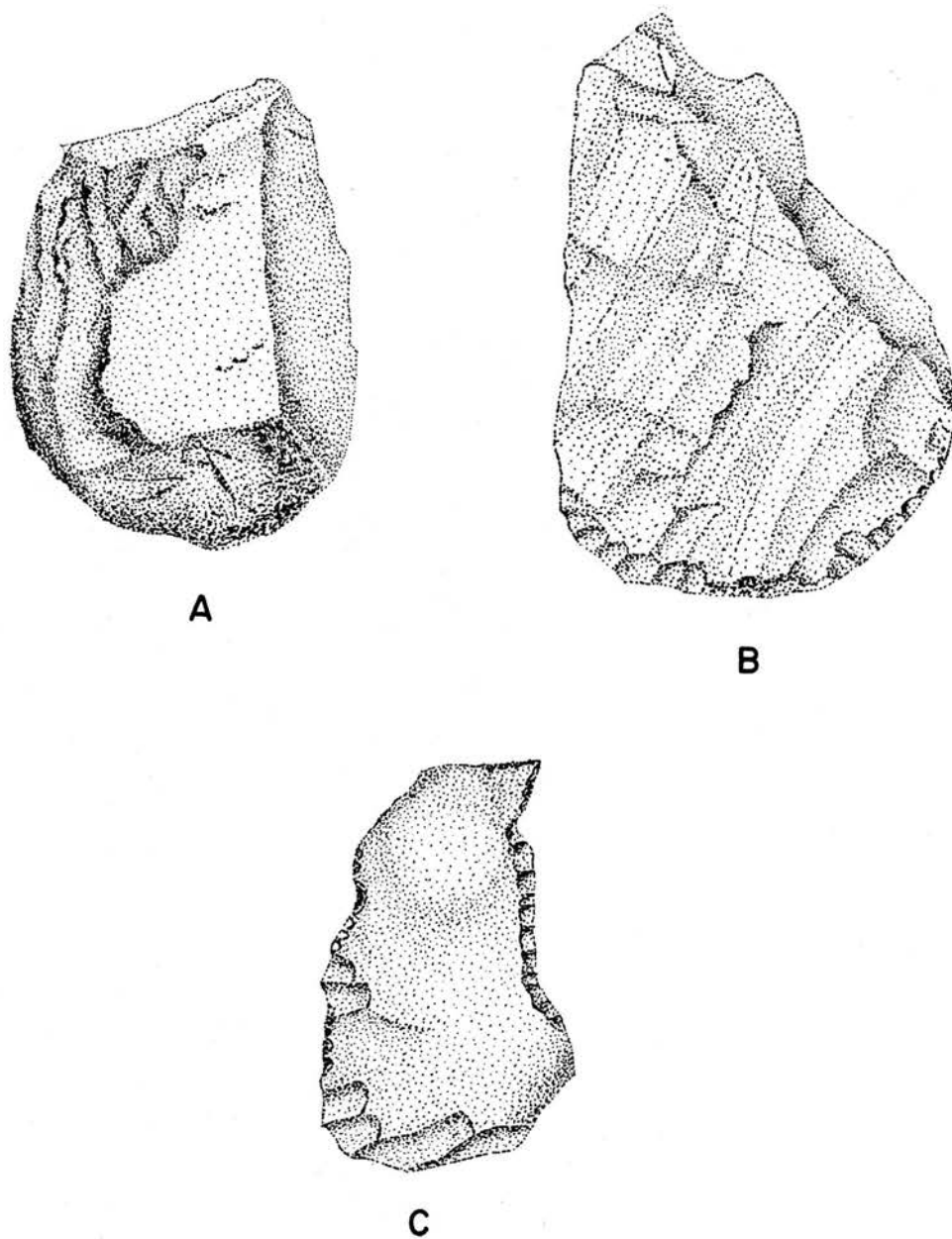


Figure 11: Other Stone Artifacts
A. Chert Hammerstone
B. Chopper
C. Knife-Scraper-Graver.

CONCLUSIONS

Although a relatively large collection of artifacts was recovered from the excavated test units and surface of site 40DK36, no features occurred within the proposed road right-of-way. The confinement of the majority of artifacts on the surface and within the plow zone, and the absence of features have produced minimal results in terms of overall site interpretation.

The recovery of a fragmentary Kirk Corner-Notched projectile point indicates the existence of an Early Archaic component at the site. However, the more intensive habitation occurred during the Late Archaic phase as evidenced by the recovery of projectile points resembling the Flint Creek, Wade, Adena, Ledbetter, and McIntire types.

The assortment of artifact classes suggests several site activities which include food procurement (hunting and plant gathering), butchering, hide processing, lithic reduction, and implement manufacture as shown in Table 6. However, it is possible that other activities had also occurred at the site, but cannot be identified due to an absence of related artifact classes in the recently acquired collection. An absence of such artifacts might be explained by extensive removal of artifacts by current and previous collectors and the confinement of the present investigation to the extreme western periphery of the overall site.

Since the controlled surface collection was not made of the entire site, artifact distribution within the small area investigated is less meaningful except to indicate that the greater densities occur on the more elevated areas of the site. Additionally, the heavy density of lithic debris and evidence for lithic reduction activities at the western periphery of the site might possibly be explained by the close proximity of Clear Fork Creek with its readily available lithic sources.

Although subsistence-related hunting and plant gathering activities are suggested by the occurrence of related artifact classes, little can be said regarding the diet of the site inhabitants due to the total absence of faunal and botanical remains within the area of the site investigated.

Based on the confinement of the majority of artifacts to the surface and plow zone and the failure of extensive testing to produce subsurface features, it is the investigator's opinion that no further archaeological work within the impact area at 40DK36 is warranted. Pursuant to 36 CFR 60.6 the impact area of the site is, therefore, not considered eligible for inclusion in the National Register of Historic Places. However, if in the future, the principal area of the site becomes threatened, the question of eligibility must again be considered.

Table 6. Suggested Activity Index, 40DK36

Activity Category	Implement Category
<u>Implement Manufacture</u>	
Wood Working	Notched Flakes
	Utilized Flakes
Bone Working	Notched Flakes
	Utilized Flakes
	Gravers
	Hammerstones
Stone Working (Lithic Reduction)	Hammerstones
	Cores
	Unmodified Flakes
	Shatter Fragments
<u>Food Procurement</u>	
Hunting	Projectile Points
Plant Gathering	Knives
	Blades
	Utilized Flakes
<u>Animal Processing/Fabrication</u>	
Butchering	Knives
	Blades
	Utilized Flakes
Hide Processing	Scrapers
	Knives
	Blades
	Gravers

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**THE GEOMORPHOLOGY OF
SITE 40DK36
DEKALB COUNTY, TENNESSEE**

by
Thomas H. Bianchi

Introduction

As part of the mitigation project, an investigation of the geomorphological context of the site was conducted. The investigation was designed with the goal of defining the geomorphological context from two perspectives: first, to define the geomorphological context of the artifacts and any cultural features at the site itself, a locality in the alluvial bottoms of the Clear Fork Creek Valley; and second, to define the geomorphological context of the site within the overall alluvial environment, i.e., the valley of Clear Fork Creek. This report contains a description of the investigation, the data considered, and the geomorphological context of the site.

The data, as interpreted in this report, indicate that the valley of Clear Fork Creek is comparable in morphology and alluvial stratigraphy to valleys of similar size within and along the edges of the Central Basin region of Middle Tennessee. The location of the site upon the proposed "Nashville Alluvium" (Bianchi 1986) overlooking the active floodplain and channel system is typical of most of the surficial sites which occur in the valley bottoms in this region. Data from some of these sites have been interpreted as indicating that this surface has been geomorphologically stable and vegetated for the past 8000 to 13,000 years. These data also have been interpreted as indicating that some portions of the surrounding alluvial environment have undergone significant morphological and presumable vegetational change within the same period.

Research Strategy

The investigation was conducted in two separate phases. The initial phase took place in September of 1985 and consisted of one day of preparation followed by three days of field investigation. The second phase was conducted in December of 1985 and consisted of two days of interpretive analyses followed by four days of report preparation.

Geomorphology is the scientific discipline which studies the processes and agencies active at the earth's surface responsible for the form and configuration of the landscape. Within the alluvial environment of the valley of Clear Fork Creek the principal agent affecting landform is under the influence of gravity. The principal geomorphological process at work within the valley is the solution of the bedrock surface underlying the stream channel. This has resulted in the entrenchment of the stream channel and the repeated redeposition of alluvial sediment across a relatively flat bedrock bottom. The deep entrenchment of the stream has resulted in the development of steeply sloping bedrock walls generally covered with a thin layer of colluvial sediment. The principal geomorphological process taking place along the valley walls is the weathering and erosion of the bedrock. Under the influence of rain water and gravity the eroded bedrock is redeposited downslope and along the sides of the bottom of the valley.

When interpreting landscape features within this complex alluvial environment it is necessary to have both surficial morphological data and sub-surficial lithological and pedological data. The research strategy employed in the investigation focused upon the collection and correlation of these data. Surficial morphological data were collected during a field reconnaissance of the study area by means of direct observation of landscape features. These observations were compared with topographic data from the 7.5 minute U.S.G.S. topographic map of the Grassaway

Quadrangle (1960) and pedogenic data from the U.S.D.A. Soil Survey of DeKalb County (1972).

Data concerning the lithological and pedological characteristics of selected morphological features were collected from stratigraphic exposures. Already existing exposures are present along both banks of the stream channel. Additionally, bridge and road construction activities across the channel from the site provided excellent exposures, both within the floodplain and along the valley wall. Finally, a backhoe was utilized to create stratigraphic exposures at the site and upon the wall of the valley across the creek from the site. The backhoe was operated by Dr. L. Carl Kuttruff, Tennessee Division of Archaeology.

The terminology used in the categorization and description of the stratigraphic units recognized in this report is derived from the North American Commission on Stratigraphic Nomenclature (1983) and from Willman and Frye (1970). The terminology used in the discussion of pedogenic attributes is taken from the Soil Conservation Service (U.S.D.A. 1975). Color determination and description are derived from the Munsell Soil Color Charts (Munsell 1975).

Alluvial Stratigraphy of the Valley

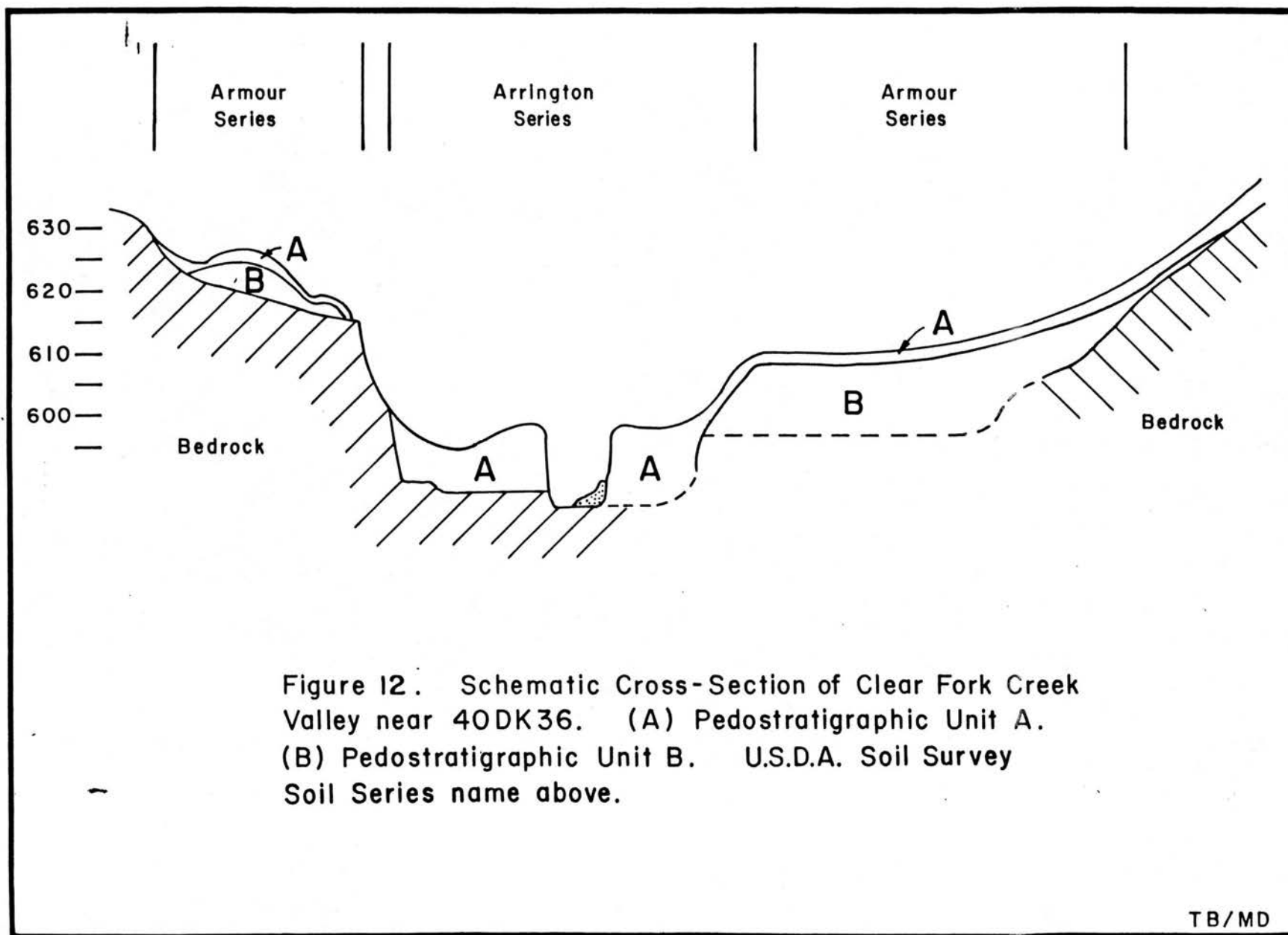
One goal of the investigation was to define the geomorphological context of the site within the environment of the Clear Fork Creek Valley. Entrenched deeply below the summits of the ridges to either side, most of the landscape within the valley consists of the steeply sloping valley walls. Characteristically, these walls and the narrow ridge summits above them are covered with thin soils formed from colluvial sheet wash or mud flow and held in place by vegetation. Often, fresh or highly oxidized bedrock surfaces are exposed where the slope gradient is especially high or where the vegetational cover has been disturbed.

At the locality of the site, the bottom of the valley approximates one half mile (.81 km) in width. The present channel approximates thirty-two feet (ten meters) in width and flows across the exposed limestone bedrock. The position of the channel in the valley bottom shifts from one side of the valley to the other in small, arcuate meanders. Gravel bars occur discontinuously upon the base of the channel at every bend in the creek. Often, the bars are more than 3 feet (1 meter) in height and more than 30 feet (10 meters) long.

Upon either side of the stream channel the valley bottom is covered with thick alluvial sediments. A combination of topographic data and sub-surficial stratigraphic data has been interpreted as indicating that two distinct sets of topographical or morphological features are present: Morphostratigraphic Units A and B. A morphostratigraphic unit is a stratigraphic unit defined upon the basis of its physical expression in the landscape (Willman and Frye 1970). A morphostratigraphic unit has to be actually visible in the landscape.

Morphostratigraphic Unit A occurs adjacent to the stream channel and is the functional floodplain of the stream. Morphostratigraphic Unit B occurs along the valley wall and has been entrenched by both Morphostratigraphic Unit A and the present stream (Figure 13).

In addition to these morphostratigraphic units, two pedostratigraphic units have been recognized: Pedostratigraphic Units A and B (Figure 12). A pedostratigraphic unit is a stratigraphic unit defined upon the basis of its pedogenic



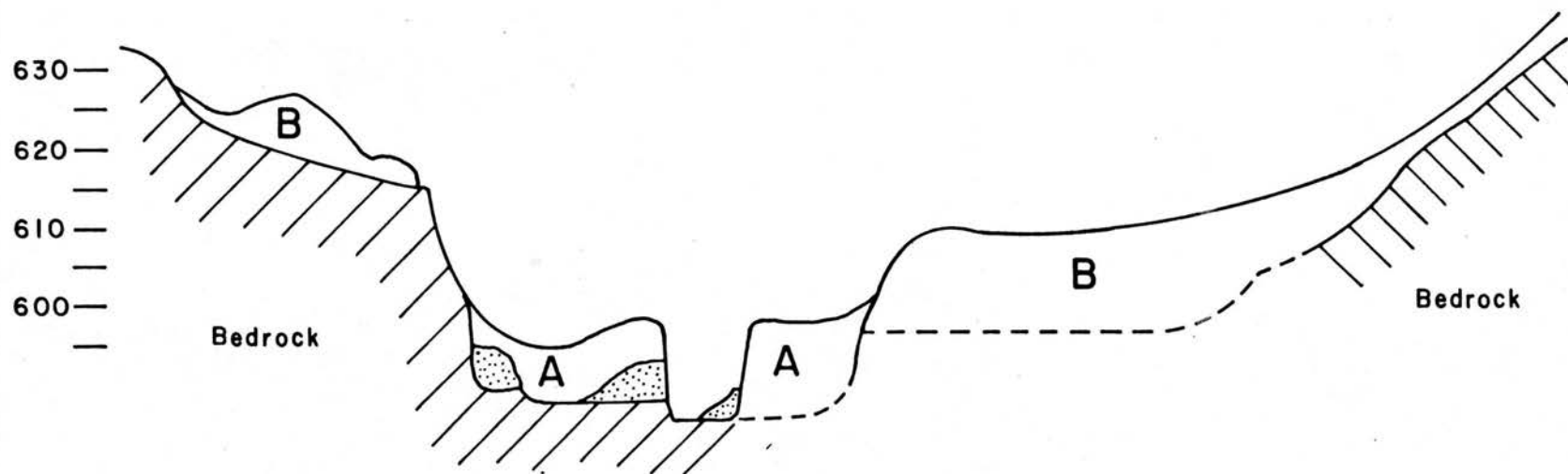


Figure 13 Schematic Cross-Section of Clear Fork Creek Valley near 40DK36. (A) Morphostratigraphic Unit A. (B) Morphostratigraphic Unit B.

characteristics (N.A.C.S.N. 1983). These two pedostratigraphic units are the components from which all the soils of the alluvial environment, as defined by the U.S.D.A., are composed. No formal lithostratigraphic units have been proposed, although several informal units have been identified. A lithostratigraphic unit is a stratigraphic unit defined upon the basis of lithological or sedimentary characteristics.

The interpretation of the alluvial stratigraphy which is contained in the descriptions of the stratigraphic units utilizes data from a series of geomorphological investigations at various alluvial valleys within and along the edges of the Central Basin.

Most of these investigations were conducted during the mitigation of archaeological sites by the Tennessee Division of Archaeology. The investigations and this report are part of a Division project with the goal of constructing a model of the alluvial environment within and surrounding the Central Basin for use in archaeological research.

Morphostratigraphic Unit A

Proposed Name Woodbury Terrace (Spears et al. 1986).

Stratotype Locality Stratotype localities for this unit are proposed at archaeological sites 40CN78 and 40CN79 in Cannon County, Tennessee (Spears et al. 1986).

Distinguishing Characteristics This morphostratigraphic unit is situated immediately adjacent to the present channel of the creek and is the functional floodplain of the creek. The unit may occur upon one or both sides of the channel and is generally wider and better developed at or near the mouth of a tributary stream. At the site locality the unit is present upon both sides of the creek (Figure 13).

Characteristically, a low levee is developed at the edge of the floodplain adjacent to and paralleling the stream channel. Behind the levee, the floodplain surface dips slightly to form a narrow strip of backswamp generally less than 50 feet (15 meters) wide. Elevations upon the surface of the floodplain generally range between 595 feet (181 meters) and 600 feet (183 meters) above mean sea level. Slope gradients upon the surface of this unit generally range between 0 and 2 percent.

Lithostratigraphic Units Stratigraphic exposures of Morphostratigraphic Unit A were inadequate for the sub-division of the unit into formal lithostratigraphic units. Gravel bars overlain by fine-grained overbank sediments are exposed in the side of the unit along the channel. In addition, gravel bars were exposed by construction at the back of the floodplain on the opposite side of the creek from the site (Figure 1). These gravel bars were overlain by overbank sediments extending over them from the floodplain in front of them. Situated somewhat higher than the present channel and at the very back of the floodplain against a bluff, these gravel bars are probably equivalent to the proposed Rush Creek formation (Spears et al. 1986) at archaeological sites 40CN78 and 40CN79. Similarly situated gravel

bars represent a basal lithostratigraphic unit in Morphostratigraphic Unit A and are dated by cultural materials to circa 8,000 to 10,000 years before present.

Pedostratigraphic Units Pedostratigraphic Unit A is developed within the surface of this morphostratigraphic unit.

Geologic Age Data from the Stone's River Valley (Bianchi 1985, Spears et al. 1986) are interpreted as indicating that this morphostratigraphic unit began forming approximately 8,000 to 13,000 years before present. Data from the Nashville area (Bianchi 1986) are interpreted as demonstrating that the surface of the unit ceased to actively aggrade about 1,000 years before present.

Morphostratigraphic Unit B

Proposed Name Nashville Alluvium (Bianchi 1986).

Stratotype Locality Stratotype localities for this unit are proposed at Nashville (Bianchi 1986).

Distinguishing Characteristics This morphostratigraphic unit is present along the valley bottom where Morphostratigraphic Unit A and the stream channel are not. Unlike Morphostratigraphic Unit A, this unit is not a terrace. Instead, the surface is developed upon the remains of one or more alluvial terraces, which are in turn overlain by a thick sequence of colluvial sediments.

The unit may occur upon one or both sides of the stream channel, however, it is generally separated from the channel by Morphostratigraphic Unit A (Figure 13). A sharp scarp or escarpment is characteristically present along the contact of the morphostratigraphic units. Along the edge of Morphostratigraphic Unit B, above the scarp, the elevation of the surface approximates 610 feet (186 meters) above mean sea level. The surface then slopes gently uphill until it reaches an elevation of 620 to 630 feet (189 to 192 meters) above mean sea level. The surface of the unit is dissected by numerous small gullies or drainages which extend off of Clear Fork Creek to give the landscape a gently rolling topography. Slope gradients across the surface range between 2 and 12 percent.

Lithostratigraphic Units Stratigraphic exposures of Morphostratigraphic Unit B were inadequate for the sub-division of the unit into formal lithostratigraphic units. A stratigraphic exposure was created with a backhoe at the locality of the site. There, the upper five feet (1.5 meters) of the morphostratigraphic unit consists of stacked colluvial surface wash and mud flow sediments. At Nashville, Bianchi (1986) has proposed the name Briley Formation for colluvial sediments which occupy the same situation in the Cumberland River Valley. A thermoluminescence age determination (Alpha-Analytic - 1915) obtained upon the proposed formation at Nashville indicate that the lithostratigraphic unit began accumulating 60,000 to 80,000 years before present.

Pedostratigraphic Units Pedostratigraphic Units A and B are developed within this unit. Pedostratigraphic Unit A is at the surface and extends generally less than 2 feet (.61 meters) down into the unit. Pedostratigraphic Unit B is present below Pedostratigraphic Unit A and generally extends entirely through the morphostratigraphic unit to bedrock.

Geologic Age Data from investigations in the Nashville area (Bianchi 1986) indicate that much of this unit dates to the pre-Wisconsin period; i.e. greater than 75,000 years before present. The proposed Briley Formation at the surface of the morphostratigraphic feature is interpreted as accumulating episodically after 80,000 years before present and before 13,000 to 8,000 years before present.

Pedostratigraphic Unit A

Proposed Name

Stratotype Locality Stratotype localities for this unit are proposed at archaeological site 40CN79 (Spears et al. 1986).

Distinguishing Characteristics The unit occurs continuously across the alluvial landscape (Figure 12). Because of the different ages of the sediment in which it is developed, the characteristics of the unit are somewhat variable. In all localities, the unit is a soil sequum consisting of an A1, B1, B2, and underlying C of II B2t master soil horizon. The A1 and B1 master soil horizons are generally replaced by an Ap master soil horizon where cultivation of the soil has taken place. When developed on Morphostratigraphic Unit A, the unit generally consists of an Ap horizon overlying a truncated B2 horizon which may extend to bedrock or overlie a thin C master horizon. The B2 horizon is argillitic and characterized by a distinctive dark brown color (10YR4/4 to 10YR3/6). The sequum is developed within colluvial, floodplain and channel deposits that were freshly deposited and lacked any prior pedogenic modification.

The unit is also developed within the surface of Morphostratigraphic Unit B. In this situation, the sequum is developed within old alluvial sediments which already have undergone extensive pedogenic modification. Typically, the sequum here consists of an A1 or Ap master soil horizon overlying a thin B2 master soil horizon. This B2 horizon is argillitic and has a brown (10YR) color, however, it is developed within a truncated B2 master soil horizon. This lower B2 horizon is Pedostratigraphic Unit B and represents an earlier, separate episode of pedogenic activity.

Geologic Age At archaeological site 40CN79 (Spears et al. 1986) and elsewhere in the Stones River Valley (Bianchi 1985), this unit is interpreted as beginning to develop after 13,000 to 8,000 years before present. At Nashville (Bianchi 1986) the unit is developed within sediment deposited as late as 3,000 years before present.

Pedostratigraphic Unit B

Proposed Name Cumberland Geosol.

Stratotype Locality Stratotype localities for this unit are proposed at Nashville (Bianchi 1986).

Distinguishing Characteristics This unit is distributed continuously across Morphostratigraphic Unit B and partially up the lower portion of the valley wall (Figure 12). The unit also occurs occasionally at the back of Morphostratigraphic Unit A, just below the scarp with Morphostratigraphic Unit B. When this is the

case, the unit is generally overlain by younger sediments in which Morphostratigraphic Unit A is developed.

Morphostratigraphic Unit B is a truncated soil sequum consisting of multiple B2 master soil horizons. The B2 horizons are argillitic in origin, however, there is no evidence of clay mineral deposition any time in the last 8,000 to 13,000 years. The most distinctive characteristic of this unit is the strong brown (7.5YR5/6 to 7.5YR4/6) color of all of the B2 horizons. This color appears to be associated with an episode(s) of intensive oxidation sometime prior to 8,000 to 13,000 years before present.

Geologic Age At Nashville (Bianchi 1986), this unit is interpreted as time-transgressive in nature with different characteristics of the sequum developing at different times and under different climatic conditions. The original untruncated sequum of which the present unit was a part is believed to have developed initially during or at the end of the last interglacial, i.e., greater than 75,000 to 100,000 years before present. The oxidation which characterizes the unit is believed to have occurred episodically after 75,000 to 100,000 years before present and 13,000 to 8,000 years before present.

The Geomorphological Context of the Site

The site consists of cultural artifacts and features distributed within the surface of a low, almost indistinguishable, rise. This rise is situated near the streamward edge of Morphostratigraphic Unit B and is the result of the erosion of the morphostratigraphic unit by very small drainages or gullies extending off Morphostratigraphic Unit A.

The surface of Morphostratigraphic Unit B is an erosional landscape developed upon an ancient, highly dissected, alluvial fill. This surface and the lower portions of the valley wall behind it have been covered with vegetation for the last 8,000 to 13,000 years and have undergone very little or no sedimentation or erosion. Sedimentation has occurred within the larger drainages which transect the surface.

The site overlooks the functional floodplain of the present stream. The surface of the floodplain is stabilized and has probably not aggraded sediment for approximately the last 1,000 years. Prior to that time the stream channel repeatedly shifted, and aggraded the floodplain deposits underlying Morphostratigraphic Unit A.

The initial channel within the sediments that make up Morphostratigraphic Unit A was situated against the valley wall opposing the site and further from the site than the present channel (Figure 13). This channel was probably active between 13,000 and 8,000 years before present.

Between 8,000 years ago and sometime prior to 3,000 years ago, the channel shifted, probably in several episodes, away from the valley wall and to its present position. There is a general coincidence of the initial channel with a major change in continental climate at 13,000 to 8,000 years before present, i.e., the Early-Holocene Interval (Delcourt and Delcourt 1985).

Description of the Soil Profile at the Site

Name Armour silt loam.

Distinguishing Characteristics This horizon is the product of plowing with mechanized equipment. The horizon may be distinguished from the horizon below by the presence of a significant amount of organic detritus and a somewhat lower clay content. Lithic artifacts, fire-cracked rock, and other cultural debris are distributed evenly throughout the horizon. This horizon was produced by the mixing of the A1 master soil horizon, which was originally at the top of the profile, with the top of the B1 master soil horizon.

Soil Texture Gravelly to pebbly silt loam.

Sediment Texture Very poorly sorted, gravelly, pebbly, clayey, fine sands and silts.

Color The color pattern is a homogenous dark brown (10YR3/3).

Thickness The thickness of the horizon varies gradually between 8 and 12 inches (20 - 30 cm.).

Soil Structure Weak, granular structure.

Soil Consistency Moist consistency may be described as very friable.

Horizon Boundary The lower horizon boundary may be characterized as clear with a smooth to slightly wavy boundary topography.

Name B'2t, II B'2t

Distinguishing Characteristics These horizons are the truncated lower portion of a single soil sequum. The horizons are argillitic in origin and are characterized by a high clay mineral content and a distinctive brown color ranging between 7.5YR4/4 and 7.5YR5/4 in hue and chroma value. The name Cumberland Geosol has been proposed (Bianchi 1986) for the truncated soil sequum. Evidence from archaeological sites 40CN78 and 40CN79 (Spears et al. 1986) and the Stones River Valley (Bianchi 1985) demonstrate that the sequum was truncated prior to 8,000 to 13,000 years before present. No artifacts were observed within these units with the exception of a small number of tiny artifacts mixed in along the top of the upper horizon as the result of plowing and bioturbation.

Soil Texture The B'2t horizon is developed in a pebbly, silty, clay loam. The II B'2t horizon is developed in gravelly to pebbly, fine sandy, silty, clay loam.

Sediment Texture Gravelly, pebbly, clayey, fine sands and silts.

Color The color pattern of all the horizons may be characterized as brown (7.5YR4/4 to 7.5YR5/4 with common mottles or slightly lighter color and a few fine manganese concretions.

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