# TEST EXCAVATIONS AT THE CELINA SHELTER

## 12-Pe-1023

## Perry County, Indiana

Prepared for:
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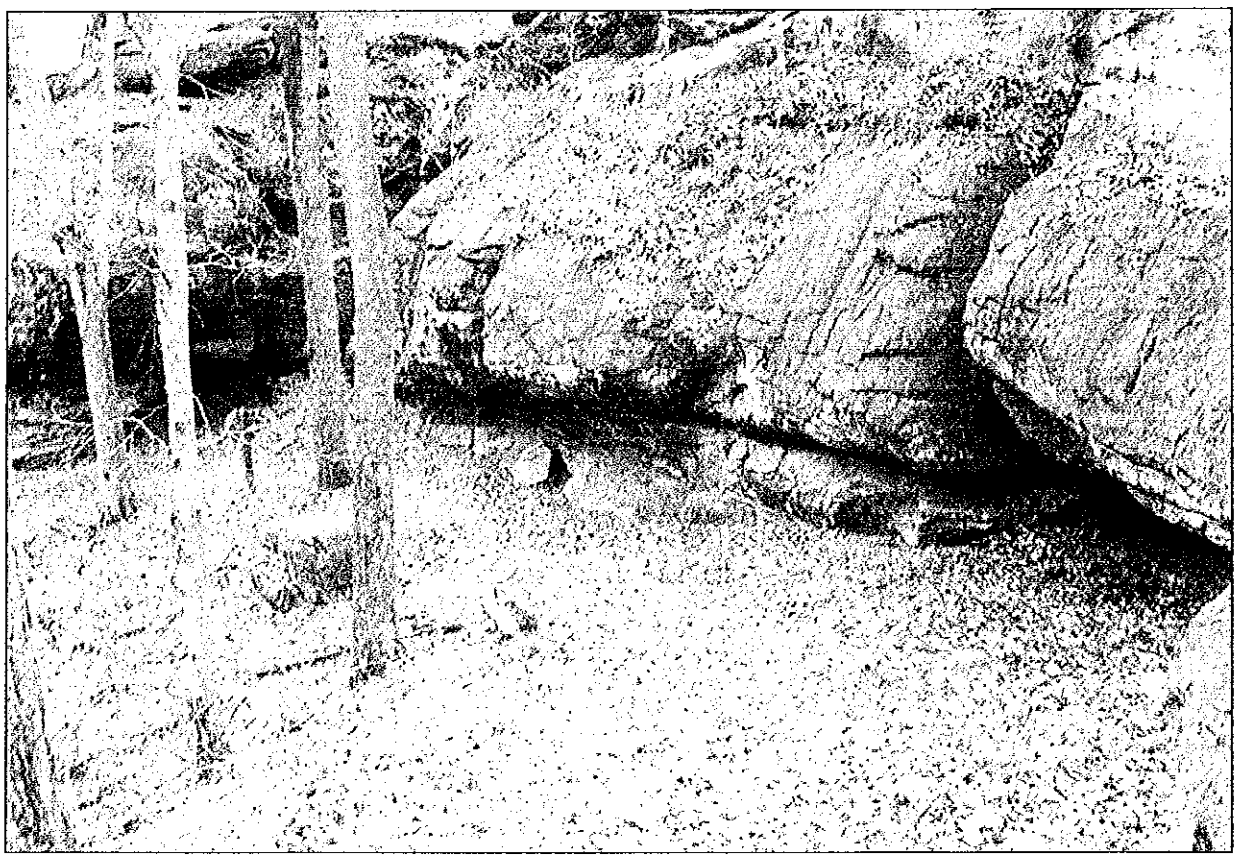
2001

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Reports of Investigation 60



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Thanks to everyone.

## ABSTRACT

Testing of the Celina Shelter (12-Pe-1023) revealed that the site has been partially buried by a colluvial fan. Approximately 10% of the site area was tested through the excavation of four test units that included both 1 x 1 m squares and 1 x 2 m squares. The maximum depth reached was 1.75 m and excavations were stopped by a massive layer of breakdown. An attempt to break through the breakdown was stopped by the size of the sandstone blocks that were present. The majority of the artifacts were the by products of chipped stone tool manufacture and most of the chipped stone debris was made from Wyandotte chert. Other cherts available in a 20 km radius of the site were present, although it was suggested that the different raw materials were indicative of the subsistence and settlement systems that were in operation in the region. Diagnostic chipped stone artifacts appear to range in age from the Early Archaic through the Late Archaic. Woodland period ceramics were also present in the site. The only feature recorded was a large surface piece of breakdown with two bedrock mortars. No radiocarbon dates were obtained and little organic material was recovered. Given the range in age and depth of the deposits, and the fact that the site has not been disturbed by pothunting or other historic activities, the site was considered significant and potentially eligible for listing on the National Register of Historic Places.

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# INTRODUCTION

Rockshelters and caves contain unique and important archaeological deposits. In these protected environments, organic materials are often preserved that expand the material culture inventories of past human societies beyond the more enduring stone and ceramic artifacts that make up the bulk of the archaeological record (Schiffer 1987:246). In addition, these sites can contain deeply stratified deposits that allow for the construction of culture histories in ways not normally possible with surface sites (Smith 1983). Thus, it is clear that in those areas where rockselters and caves occur, intensive archaeological investigations of these features have tremendous potential for elucidating the history of the region.

In Indiana, rockshelters and caves are oftentimes common features of the landscape south of the Wisconsin glacial advance. In the extensive limestone and sandstone deposits of the Crawford Upland physiographic zone of southern Indiana, many rockshelters and caves have been reported as archaeological sites. However, the archaeological records clearly show that there has been no consistency in recording these natural features as archaeological sites. Some investigators have only recorded rockshelters and caves with associated material cultural as sites. Other investigators have recorded rockshelters and caves without associated material culture, but without reporting the criteria for inclusion of some and not others. Thus, while over 800 rockshelters and caves have been reported in the Indiana Sites and Structures Inventory as sites, this number does not represent a systematic approach to recording and is highly biased (Waters & Cochran 1999, Martin and Waters 2000, Martin 2000).

Recording only the caves and rockshelters with associated material culture as sites is a source of serious bias in the archaeological record. First, these natural features have individual formation histories and are constantly changing, primarily through deposition and erosion (Waters 1992). The current configuration of an individual rockshelter or cave is not clearly or obviously linked with its former configuration. Sedimentation and ceiling collapse buries evidence of human occupation while erosion is constantly reshaping the exposed front of the shelter (Waters 1992). Breakdown and sedimentation are impediments to detecting the presence of human occupation except for more recent deposits near the surface. In the Hoosier National Forest, evidence for these biases are supported by the fact that the majority of identified components correlate with the most recent prehistory of the region. Previous interpretations of these data were used to support a regional model of recent and short term use of rockshelters and caves (Sieber et al. 1989 ).

In this model, prehistoric settlements were focused in the major river valleys of the region. Rockshelters were viewed as short-term habitations reflecting selective resource extraction in the uplands. Predominant utilization of the rockshelters occurred after the Early Woodland (Seiber et al. 1989:21-22, Smith 1983:3). Waters & Cochran (1999:11) and Martin and Waters (2000:21-23) have noted several problems with this model. Primarily, the prevailing model is based on inadequate excavation data, treats all rockshelters as equal regardless of size, generalizes all past subsistence-settlement systems into a homogenous land use pattern and fails

to account for the dynamic and evolving nature of rockshelters (Waters & Cochran 1999:12). The prevalence of more recent prehistoric use is reflective of sampling bias toward the upper and more accessible deposits in rockshelters.

Since 1997, the Archaeological Resources Management Service at Ball State University and the Hoosier National Forest have engaged in a joint project to investigate rockshelter sites on Hoosier National Forest property. This project has included resurvey of previously recorded sites, field survey to discover new sites and testing of sites to define their eligibiligy for listing on the National Register. The research has resulted in better definition of rockshelter sites in the survey areas, establishment of a program for systematically recording rockshelters as sites, and provided the impetus for challenging the prevailing model of rockshelter use in the Hoosier National Forest (Waters & Cochran 1999, Waters and Martin 2000, Martin 2000).

During the summer of 2000 we continued this investigation at the Celina Shelter. This site was chosen by Angie Krieger, the Hoosier National Forest archaeologist. The site was chosen for several reasons. First, it was situated on a popular trail near the Rickenbaugh House, a National Register property that was being developed as an interpretative center. Local lore indicated that the shelter was home to a Native American family concurrent with the Rickenbaugh occupation (Krieger 1997). Investigation of the site would result in better documentation and testing of the local lore. Second, information from the investigation would also be of value for interpretation of the area around the Rickenbaugh House, while at the same time providing an opportunity to continue to pursue issues surrounding rockshelter recording, investigation and use.

Upon preliminary investigation, we found the Celina Shelter (12-Pe-1023) was a filled in Type C rockshelter as defined by Martin and Waters (2000:37 ). The site was at the head of a small box canyon in an exposure of Tick Ridge Sandstone. Three roofed areas were evident, but none were especially attractive for occupation under current conditions. Two areas had very low ceilings and the other area had an active drainage channel. A large colluvial fan was covering much of the front of the bedrock exposure, including the largest roofed area. With these conditions, the site appeared to offer an excellent opportunity to continue testing ideas developed during previous work. These included:

1. Evaluation of shovel testing as the primary means of detecting the presence of archaeological deposits within rockshelters.
2. Investigation of the relationship between the current configuration of the shelter and former configurations of the shelter.
3. Acquiring data to test the prevailing model of rockshelter use in the Hoosier National Forest
4. Acquiring data relevant to the prehistory of the region.

We were also attempting to define the nature, extent and significance of the site. This report contains the background, methods and results of the investigations of the Celina Shelter.

## BACKGROUND

### Description

The Celina Shelter (12-Pe-1023) is located [redacted] The project area is within a minor tributary of the Winding Branch River which is within the Ohio River drainage basin.

The Celina Shelter was known to the Forest Service for some time because of its association with the Rickenbaugh House. The interpretative trail from the Rickenbaugh House runs through the shelter and local lore associates the shelter with a Native American family that Was befriended by the Rickenbaughs (Krieger 1997). In addition, the cliff face to the east of the shelter has been designated as the quarry for the sandstone used to construct the Rickenbaugh house. Interpretative signs on the trail identify the rockshelter and the quarry.

The Celina Shelter site (12-Pe-1023) was recorded by Angie Krieger of the US Forest Service in 1997 (Krieger 1997). When the site was recorded, two bedrock mortars were documented in a large sandstone boulder in front of the shelter. A shovel test was excavated in the vicinity of the mortars. This test yielded three flakes and a broken biface fragment. Based on the presence of artifacts in the shovel test, it was determined that the site had potential to yield significant information about Indiana prehistory and further testing was recommended.

The Celina shelter is a filled in Type C rockshelter, as defined by Martin & Waters (2000:37). Type C rockshelters are common in the Tick Ridge Sandstone and generally occur at the heads of box canyons. The shelters are usually associated with active waterfalls flowing over the front. Type C shelters seldom have associated cultural materials due to the active scouring of the waterfall (Martin & Waters 2000).

The Celina Shelter is situated at the head of a box canyon in a curved exposure of Tick Ridge Sandstone (Figure 2). The site is approximately 150 m east of the Rickenbaugh House and approximately 90 m north of Lake Celina. The curved face of the Tick Ridge Sandstone faces to the southwest with a general aspect of 210 degrees. With this orientation, sunlight would only penetrate the canyon during mid December to mid January. Otherwise, the shelter was shaded by both the forest canopy and the west wall of the canyon. The shelter is 25 meters in length and ranges between one and five meters in width. The interpretative trail predominantly follows the upper edge of the talus slope and marks the margins of the shelter floor. Overall, the floor area encompasses approximately 60 square meters. All of this area was not under a rock overhang, but was essentially that area between the trail and the bedrock

Site Location Confidential
Not for Public Disclosure

Figure 1: Location of Celina Shelter [redacted] Perry County, Indiana.

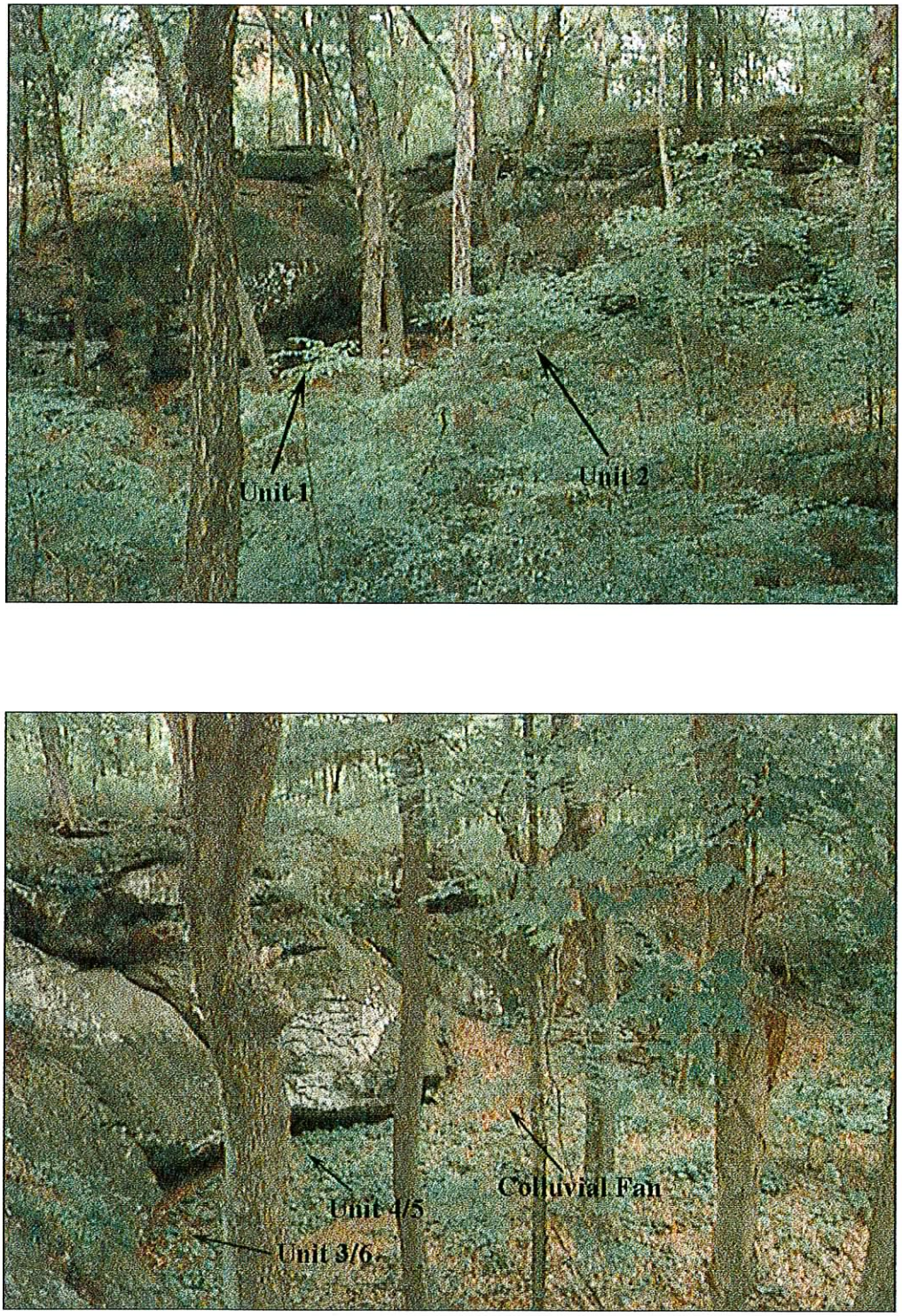


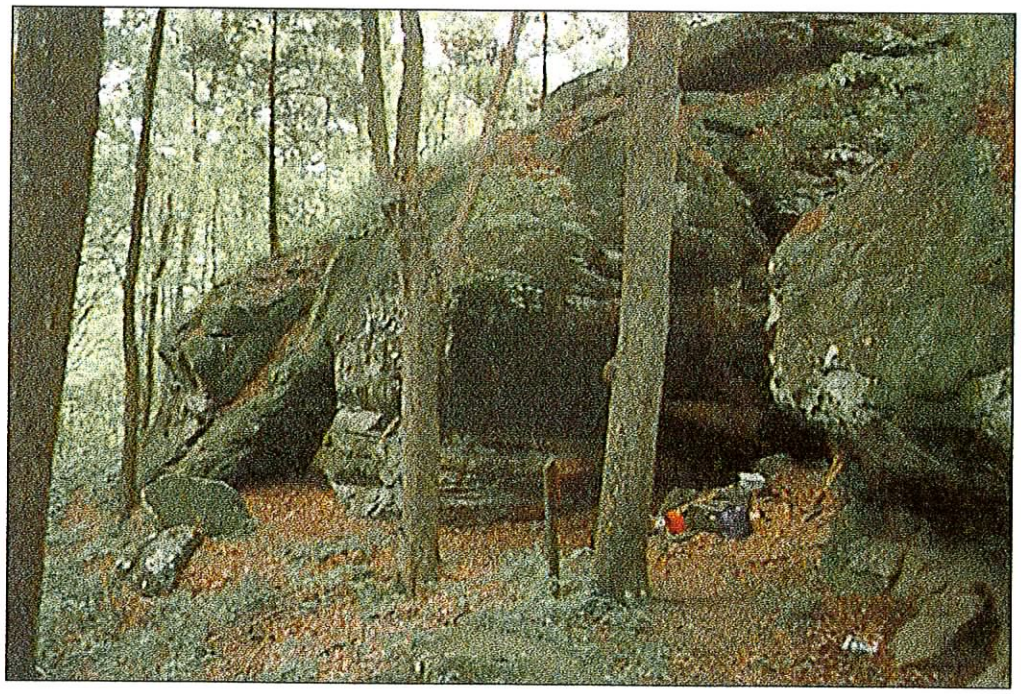

Figure 2: Cliff face at Celina Shelter (12-Pe-1023).

outcrop. This whole area would have provided a protective environment on the east, north and west sides.

The cliff face above the top of the shelter is generally about 10 m high. Three areas of overhang are present although they are generally shallow. The largest sheltered area is in a large crack on the west side of the shelter (Figure 3). The crack is the result of a massive block of sandstone that has broken away from the cliff. This crack channels runoff from the top of the cliff. A shallow overhang is also associated with the bedrock mortars (Figure 3). The deepest overhang is on the east end of the shelter; although the floor at this location is only about one meter below the roof (Figure 4). Several large cracks in the cliff face above the shelter channel water from the top of the cliff into the shelter and down the talus slope. The current surface of the shelter is dominated by a colluvial fan which has created an elevation difference of 3 m between the lowest part of the shelter on the west side and the highest part of the shelter on the east side (Figure 5).

The shelter is located in a heavily wooded, bowl-shaped area. Due to its location and shape, the temperature was generally much cooler at the shelter than it was outside. Throughout our poject, sediments in the shelter were fairly damp due to the thickness of the leaf mat, the lack of sunlight penetrating the canopy, and several thunderstorms that dropped considerable rain on the area.

The current configuration of the shelter suggests a poor location for aboriginal use. The largest protected area has an active runoff channel across the floor and little flat floor space. The shelter adjacent to the bedrock mortars is shallow and contains barely enough room to keep one person out of the rain. The upper shelter is about two meters deep but only has about one meter of clearance between the floor and the ceiling. Taken together, these features suggest that the shelter would not contain many people and that there would be little comfort found there except for temporary shelter from weather. A walkover survey of the stream valley for a considerable distance around the site failed to reveal other shelters although another bedrock mortar was shown to the field crew by a Forest Service employee. This mortar was in a large, isolated sandstone boulder unassociated with a protective cliff face. It was located to the northeast of the Rickenbaugh house. Local lore speculated that the boulder had been moved there during the construction of I 64, but it appeared to the project director to be in its original context.



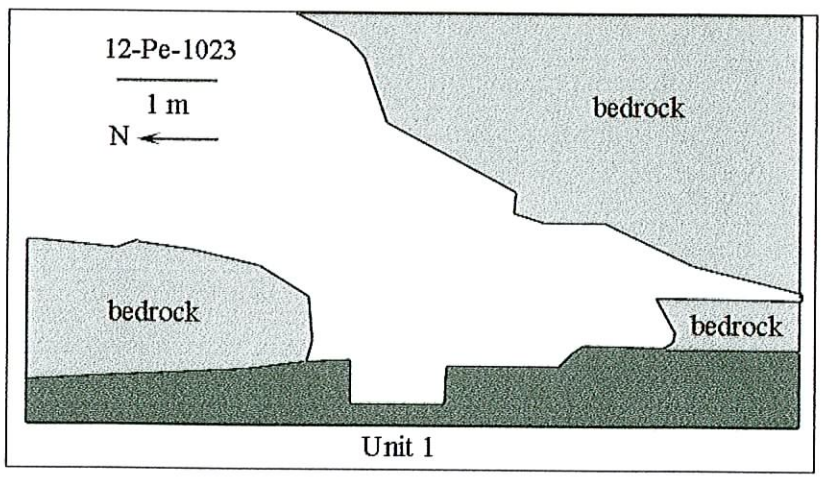



Figure 3: Photo and cross section of Unit 1.

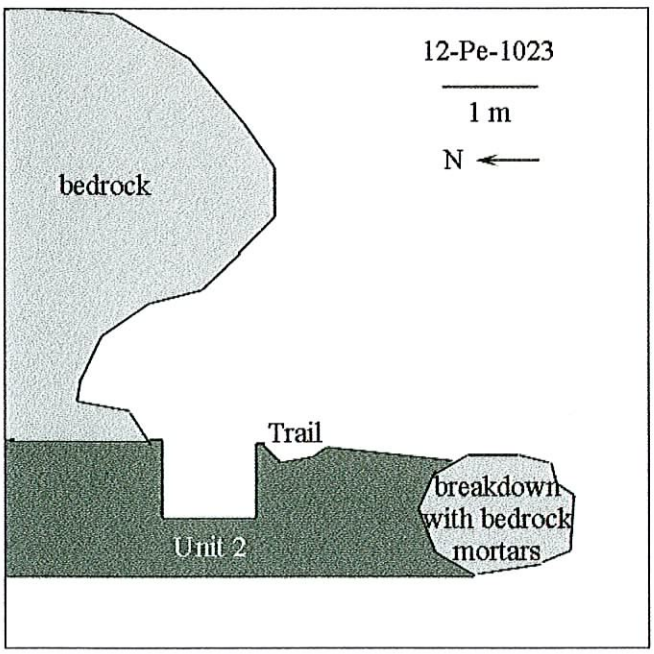
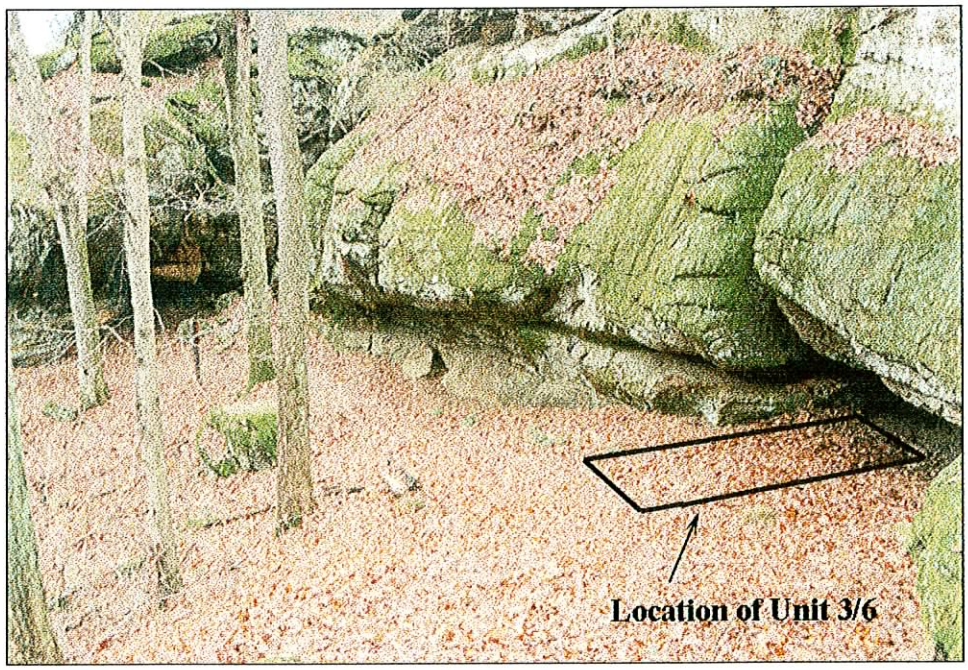



Figure 4: Photo and cross section of Unit 2.



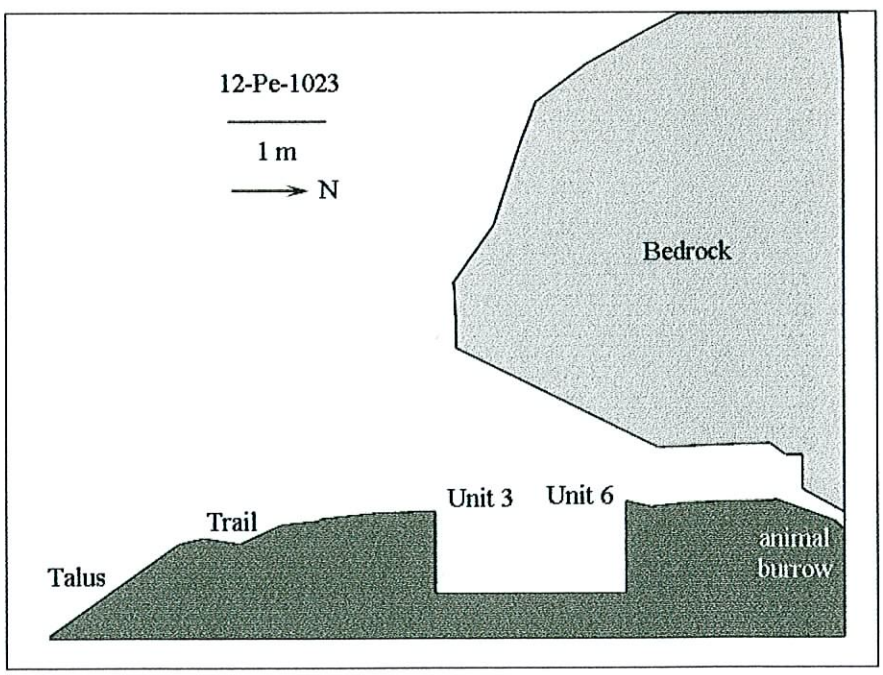




Figure 5: Photo and cross section of Unit 3/6.

## Natural Setting

### Geological Overview

The project area is located in the physiographic unit known as the Crawford Upland (Schneider 1966: 54), an area underlain by Mississippian and Pennsylvanian rocks (Gutschick 1966: 3, 5). The Mississippian bedrock outcrops to the east and Pennsylvanian bedrock outcrops to the west in Perry County (Gutschick 1966: 5). Surface deposits in the area are Paleozoic rocks, including small areas of the Martinsville, Atherton, and Prospect formations (Wayne 1966: 26). During the Pleistocene Epoch Perry County was not glaciated, so the topographic variety in the area is due to normal degradation processes like weathering, stream erosion, and mass movement (Schneider 1966: 42).

Bedrock formations and members specific to Perry County are the Buffalo Wallow, Stephensport, and West Baden groups of the Chesterian Series (Mississippian) and within the Raccoon Creek group of the Pottsvillian Series (Pennsylvanian) (Shaver et al. 1970: Table 3). The project area in northern Perry County falls completely within the bedrock region of the Tar Springs Formation of the Buffalo Wallow Group (Gray 1978: 1-3). This formation is made up of shale, sandstone and limestone and is located between the Vienna Limestone Member of the Branchville Formation and the Glen Dean Limestone (Gray 1978: 3, 5). Its cross-stratified, cliff-forming sandstone characterizes the Tick Ridge Sandstone Member prominent in the Tar Springs Formation (Gray 1978: 5). The sandstone of the Chester Series can attain a thickness between 6 and 60 m (Malott 1925: 219). We found this to be true at the Celina Shelter (12-Pe-1023).

### Chert Sources

A variety of chert sources were present within a 20 kilometer radius of the Celina Shelter (Cantin 1994) (Figure 6). In addition to these specific primary sources, secondary sources of chert were available in gravel bars along rivers and streams, especially along the Ohio. In the latter, upstream chert sources like Allens Creek and Muldraugh could be redeposited. These source areas were important to the prehistoric inhabitants of the region since no chert was available at or in the immediate vicinity of the site. Thus, any chert in the site, whether modified into artifacts or not, was directly transported there by humans. Careful consideration of the chipped stone material sources present in the site, then, represents important data for understanding the prehistoric settlement and subsistence systems that are represented there.

### Soils

Perry County is in a region classified as the sandstone and shale area, which contains narrow ridge tops, steep hillsides, and narrow valleys (Ulrich 1966: 77, Dawson 1992: 163). The soils within the project area include plansols, red-yellow podzolic soils, acid brown forest soils, and lithosols. These four soils types are all acidic, poorly drained, and low in fertility (Ulrich

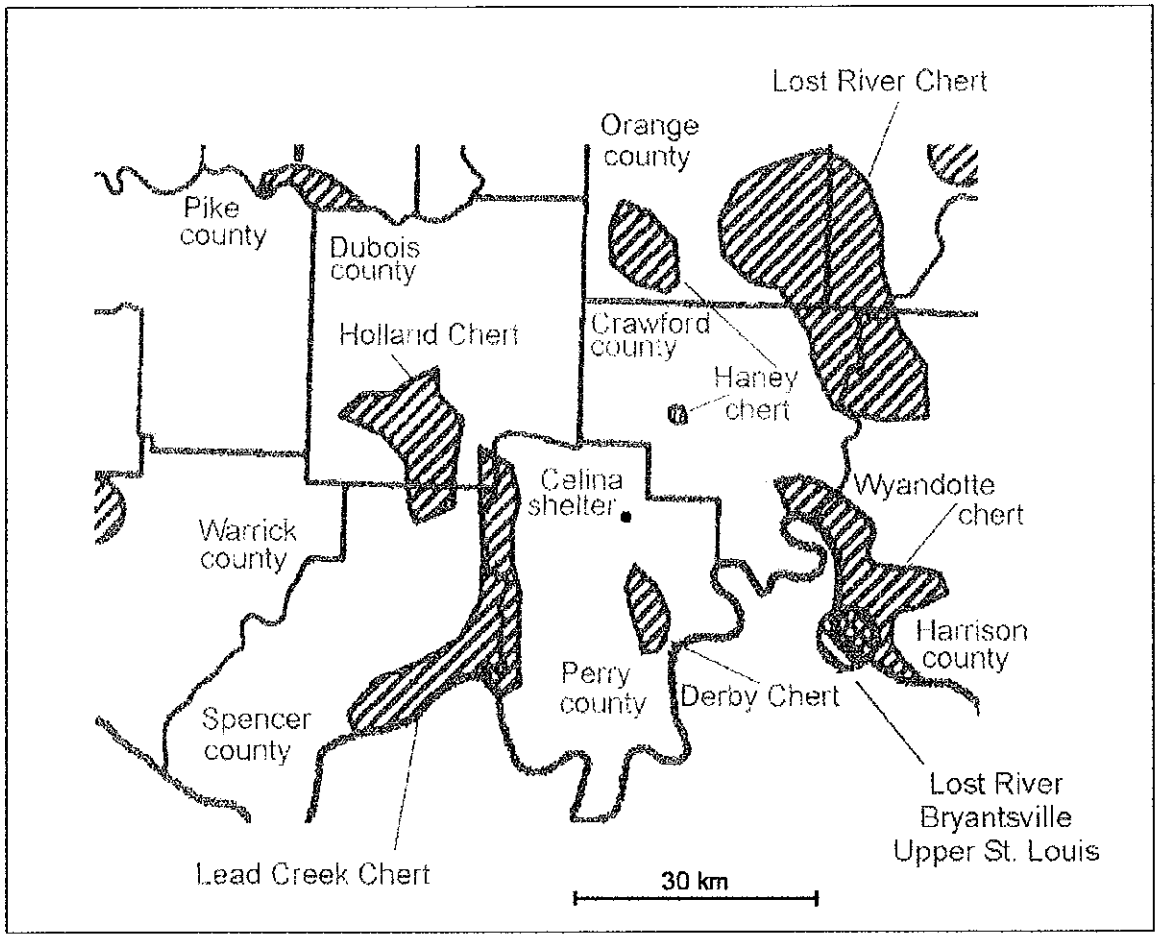



Figure 6: Chert sources near Celina Shelter, 12-Pe-1023 (Cantin 1994).

1966: 64-66). The project area is with in the Gilpin-Muskingum-Wellston soil association and the Haymond-Pope-Elkinsville soil association. The Gilpin-Muskingum-Wellston soil association contains moderately deep and deep, well drained, medium textured, gently sloping to very steep soils in the upland (Robbins 1969: General Soil Map). The Haymond-Pope-Elkinsville soil association contains deep, well drained, medium textured, nearly level to sloping soils on the flood plains and old stream terraces (Robbins 1969: General Soil Map). Specific soils in the project area are listed and described in Table 1.

**Table 1**
**Soil at Celina Shelter***

| Soil Type | Slope | Description |
|---|---|---|
| Pope loam, channery subsoil variant (Po) | 0-2% | Occurs in narrow areas on bottom lands along streams, well drained and somewhat poorly drained soils. |
| Wellston-Gilpin-Muskingum association (WmE) | 18-25% | Occurs on long slopes in the uplands. Wellston silt loam is a deep and moderately deep soil with a slope of 18-21%. Gilpin silt loam is a moderately deep soil that is developed in weathered materials of sandstone, shale, and siltstone. Muskingum channery silt loam is moderately deep over bedrock and has a slope of 21-25%. |

* Information from (Robbins 1969: Map Sheet 11, pp. 21, 27)

**Water**

The varying topography of the Crawford Upland is due to the complex relationship between river terrace evolution and changes in the environment (Dawson 1992: 159). This area was subject to a warmer, drier climate during interglacial periods and a colder, wetter climate during glacial periods. This would result in a combination of massive deposition and erosion over time. The growth of forest and associated vegetation that results from the melting of permafrost in the area would have caused a decrease in river discharge and sediment load (Dawson 1992: 142-146). Deeply buried prehistoric sites could be the result of this massive sediment deposition.

Within the region mineral, freshwater, and saline springs were used and exploited by prehistoric and historic individuals and game (Sieber et al. 1989: 14). These springs are predominately located along the interface of the Crawford Upland and the Mitchell Plain.

### Climate

Not much is known about Indiana's prehistoric climate other than it had an effect on habitation patterns and had an influence on Indiana's geography. We currently do not know what effects climate had on prehistoric use of the area. One attempt to reconstruct the prehistoric environment was undertaken during the Patoka Lake Survey in the Hoosier National Forest (Freudenrich 1980: 44-71). Although a considerable effort to alleviate bias was put into the reconstruction, the results were still unverified; the forest was thought to be most similar to that present just before historic settlement (Freudenrich 1980: 47). Fitting (1979: 40, 46) found this conclusion problematic because of the complex micro-environment of the Hoosier National Forest which necessitates that the present and presettlement vegetation should be viewed only as a datum from which to assess the paleoethnobotanical background of the Hoosier National Forest.

Only broad generalizations can be made in regards to prehistoric climate because changes in the vegetation lag behind changes in the climate (Dawson 1992: 129). Therefore the unverified results of Freudenrich's reconstruction will continue to remain unknown because specifics about prehistoric climate cannot be gathered from vegetational changes. Climatic generalizations serve only as rudimentary baselines from which to assess the background of this region (Martin and Waters 2000:7).

### Flora and Fauna

The Hoosier National Forest, prior to European settlement, was composed of climax forest, oak-hickory forest in particular, covering most of the Crawford Upland (Petty and Jackson 1966: 278-280).

Surveys conducted in the early 1800's in the Patoka Lake region provide a useful representation of the vegetation in the region (Martin and Waters 2000: 8). Ridge tops and slopes facing south and west were dominated by oak and hickory trees, while slopes facing north and east were closer in composition to the western mesophytic forests. This close intermixing of different species would have meant that animals and humans using nuts as a food source would not have had far to travel to find them (Sieber et al. 1989: 19). In addition, hunters would have found the lure of abundant food helpful for attracting animals.

Climax forests were excellent sources of food. Located on hillsides and talus slopes, these forests contained 36 woody and 14 herbaceous plants that were documented in the ethnographic literature as food sources (Zawacki 1969: 31). In terms of game animals of the

climax forest, prehistoric people hunted bear, deer, elk, raccoon, opossum, squirrel, turkey, wolves, and other animals (Mumford 1966: 475). Additional mammals that were adapted to an aquatic environment joined fish, waterfowl, and mussels as a food resource in the Hoosier National Forest (Sieber 1989: 19). All of these species were abundant in the prehistoric eastern woodlands and their remains have been documented at archaeological sites throughout the region (Reidhead 1981: 117-166). Martin and Waters (2000:10) have hypothesized that these food resources would support year round occupation in the region although more data is needed to support this idea.

**Archaeological Setting**

In the Indiana archaeological literature, Perry County is famous for the density of rockshelters that occur there ( Kellar 1958, Smith 1982). Numerous surveys have recorded over 380 rockshelters in the county and, due to this density, Smith (1983) prepared a draft of a National Register nomination for the Branchville Archaeological District. As currently recorded, components spanning the Paleoindian through Historic occupations demonstrate the long occupational history for these sites. However, while many rockshelter sites are recorded, few have been excavated in even a limited way. And where excavations have occurred, few detailed reports are available (Waters & Cochran 1999, Martin 2000). Thus, while the potential of rockshelter sites for elucidating the archaeological record are well known, this potential has not been realized in the Perry County shelters and in Indiana in general. For a more detailed account of rockshelter research in Perry County see Martin and Waters (2000).

# METHODS

## Field

The field methods used to record and test the Celina Shelter were consistent with the previous rockshelter projects carried out by ARMS (Waters& Cochran 1999, Martin & Waters 2000). All excavations were conducted by hand using shovels and trowels. Unit excavations removed 10 cm arbitrary levels except where profile walls were exposed during expanding units. In those instances, natural levels were followed. Shovel tests were excavated first and subsequently widened to 1 x 1 m units. Excavated sediment from shovel tests and excavation units were screened through 0.635 cm mesh. Field activities were documented through notes, forms, black and white, color and digital photographs. Burned and oxidized fire-broken sandstone was counted in the field and recorded by level in each unit. Elevations were taken from unit datums which were recorded with a theodolite when the site map was made. Permanent datum markers were concrete nails driven into the cliff face at the locations shown on the site map (Figure 7). At the conclusion of excavations, soil samples were collected from the stratigraphic profiles. The samples were taken from each stratigraphic zone in the north wall of each unit. Enough sediment was taken from each defined natural stratigraphic zone to fill a 15 x 15 cm plastic ziploc bag unless the zones were too thin to provide a full sample bag. If the zone was thick, more than one sample was collected. Due to the unique stratigraphy of Unit 1 in comparison with the other units, samples were taken from both the north and south walls. All units were backfilled at the conclusion of excavations.

### Sampling Considerations

The floor area of the Celina Shelter encompassed approximately 60 square meters. All of this area was not under a rock overhang, but was essentially that area between the trail and the bedrock outcrop. We excavated two units that were 1 x 1 m in size and two units that were 1 x 2 m in size. Thus, our sample totalled 6 square meters or a 10% sample of the floor area. The locations of the units were not randomized, however, but were chosen to sample particular parts of the shelter. Our sample was biased to investigating the edge of the drip line, the overhang adjacent to the bedrock mortars, and the edge of the drainage beneath the part of the shelter with the greatest current ceiling height.

### Shovel Tests

Since the site was known to contain prehistoric artifacts as a result of the 1997 survey, our goals in testing the site were to determine the nature, extent and significance of the archaeological deposits present there. We began by excavating 4 shovel tests (STP). STP #1 was placed in the vicinity of the 1997 shovel test, STP #2 was placed under the shallow overhang at the bedrock mortars and the remaining two (STP #3 & STP #4) were placed on the highest part of the colluvial fan at the drip line of the upper overhang (Figure 7). The shovel tests were

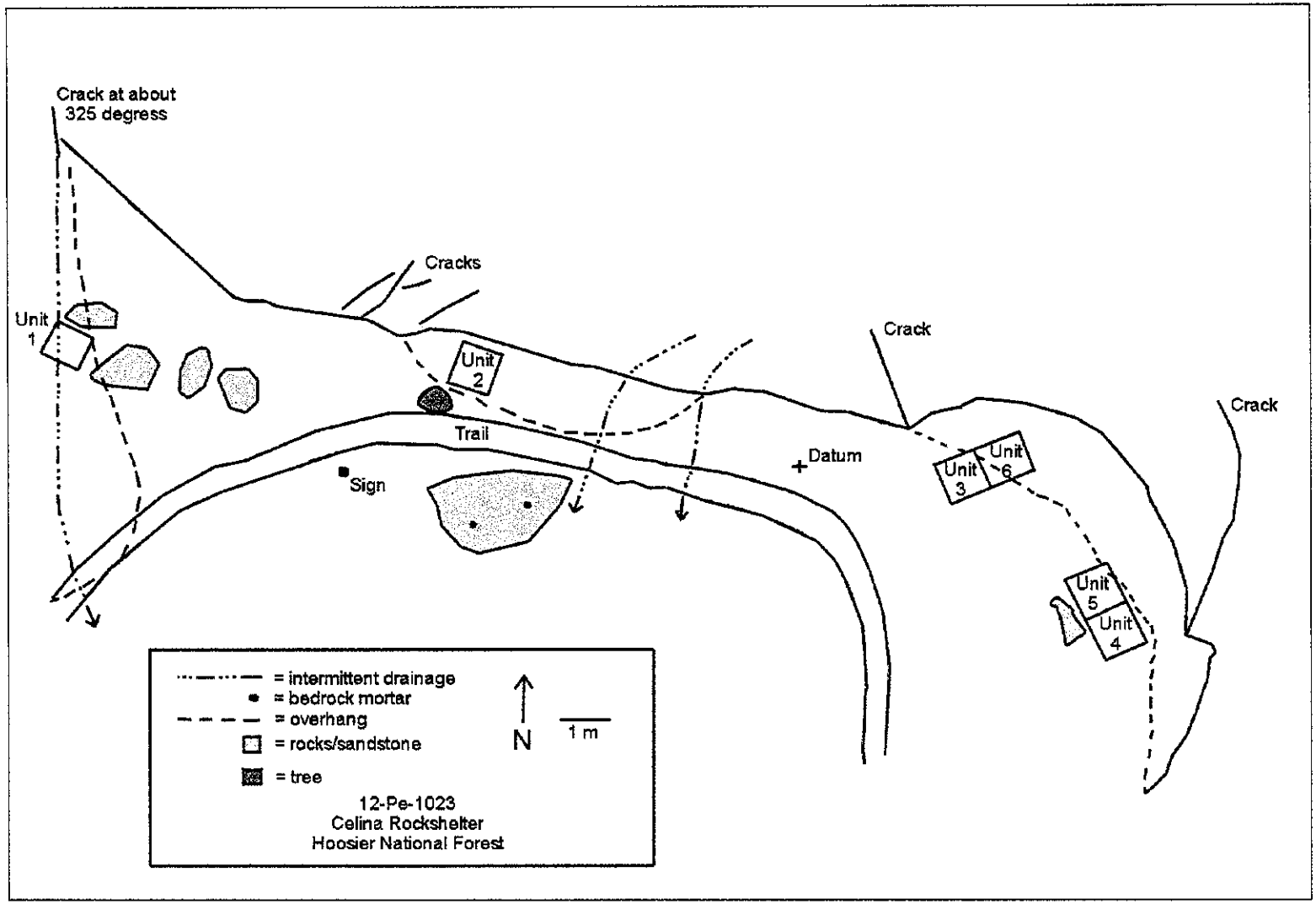



Figure 7: Site Map.

excavated for two purposes. First, we wanted to determine the presence of artifacts within the shelter, and, second, we wanted to test the utility of shovel testing for determining the presence of artifacts in rockshelters. All sediment removed during excavating the shovel tests was screened through 0.635 cm mesh.

Once the shovel tests reached a depth that made it difficult to proceed, approximately 30 to 40 cm, they were expanded into 1 m x 1 m units. These units were primarily excavated in arbitrary 10 cm levels, although there were attempts to excavate in natural levels as noted in the unit descriptions that follow.

**Units**

*Unit 1* encompassed STP #1 and is situated within a large drainage on the west side of the shelter and down slope from the other three units (Figure 7). The unit was placed into the margin of the active drainage channel. The surface at this location sloped 30cm from north to south. From the initial shovel test, this unit produced numerous flakes and other cultural material. In level 7, a high concentration of flakes was found. In order to better control the recovery of these artifacts, the unit was divided into quarters and each quarter excavated separately. At the bottom of the level a large biface was found in association with the flake concentration. Once all four quarters were excavated and the flake concentration diminished, the unit was returned to the original 1x1 excavation. By level 10 the numbers of artifacts had significantly diminished and level 12 was essentially sterile. Levels 13-15 were excavated as a 50cm x 50cm square in the north half of the unit. These three levels were sterile. The sediment was wet and compact and balled up on the screen. In addition, gray mottling suggested ponding of water in this sediment. Once level 15 was completed, a shovel probe was excavated in the floor to determine if there was any cultural material beneath the sterile levels. The shovel probe was terminated at 30cm below the bottom of level 15 in completely sterile sediments.

*Unit 2* encompassed STP #2 and was located due north of the two mortar holes and down slope from Units 3 and 4 (Figure 7). The overhang at this location was shallow and the 1 m x 1 m unit covered all of the floor space under the overhang. It was bounded on the north side by the cliff wall, and by the interpretative trail on the south side. This tight fit created interesting working conditions. This unit was opened in an attempt to encounter deposits associated with the bedrock mortars. The upper levels of this unit contained many roots from the nearby tree. Due to the tangle of roots in the unit and the lack of cultural material in level 1 and 2, the sampling strategy was modified with the beginning of level 3 so that the south half of the unit was screened while the north half was not. By the bottom of level 3 the majority of the roots were gone, but were replaced by breakdown as an impediment to excavation. The recovery of a flake and pottery sherd in level 4 required a return to the original sampling method and all subsequent excavated sediment from this unit was screened.

At the bottom of level 7, the unit was expanded 40 cm to the west to allow more room. This expansion was designated Unit 2 extension. Since natural levels were identifiable in the

west wall of the unit, the extension was taken down in natural levels. Once Unit 2 and the extension were at the same level, they were excavated as one unit designated as Unit 2. This unit was terminated at level 14 when the field work terminated. At that level, the unit was too deep to continue working in safely, but sterile deposits had not yet been reached. Besides flakes and the pottery sherd, the unit yielded burnt sandstone, charcoal, fire-cracked rock, and some burnt nutshell.

*Unit 3* was located at the dripline of the shelter and encompassed STP #3 (Figure 7). The shovel probe terminated at 35 cm and no artifacts were found. The shovel test was expanded into a 1m x1m unit. Poison ivy was abundant on the surface and there was a thick root mat to work through. A crack in the cliff face above the unit was a channel for rainwater. Breakdown was present throughout the unit but was not a serious problem until the lower levels. The first 35 cm were historic colluvium. At the bottom of level 2, it was decided to screen the west half and not screen the east half due to the sterility of the deposits up to this point. Once level 3 was started, burnt sandstone, charcoal, and two flakes were found and screening of the entire unit resumed.

When the unit reached a depth of 50 cm, another 1 x 1 m unit was opened to the north and under the overhang of the shelter. This was designated Unit 6. As with the Unit 2 extension, Unit 6 was excavated in natural levels until the floor was even with Unit 3. In Unit 6 a great deal of charcoal and flakes were found. When the two units were excavated together they were designated Unit 3/6. As Unit 3/6 was excavated, the frequency of flakes increased starting at 70 cm below datum. Breakdown was a more serious problem beginning in level 7.

At the bottom of level 9 it was decided to reduce the excavation to a 1 x 1 m in Unit 6 due to time constraints and the desire to reach the deepest levels possible. In level 12 a biface fragment and the distal end of a point were found. Breakdown began taking over the unit at this point. Level 13, a little over a meter below the surface, produced a Late Archaic Matanzas point while Level 14 yielded a point with Early Archaic manufacturing technology. Large breakdown finally covered the bottom at level 16 although the sediments at that level still contained artifacts.

*Unit 4* was also located along the main dripline of the shelter on the west edge of the colluvial fan (Figure 7). STP #4 was contained within the 1 x 1 m square. A crack above this unit on the east side of the cliff face also channeled rain into the unit. As with Unit 3, a great deal of poison ivy was on the surface of the unit and breakdown was a constant problem. A thick root mat combined with the breakdown created difficult excavation conditions in the upper levels. Since no cultural material was found by the bottom of level 7 and the unit was deep enough to make excavation difficult, the unit was expanded to a 1 x 2 m square. The expanded unit was to the northwest of the first 1 x 1 m square. It was also underneath the dripline. The expansion was designated as Unit 5. When combined, the two units were labelled Unit 4/5. Unit 5 was excavated in natural levels until level with the floor of Unit 4. Charcoal and burnt sandstone were found in Unit 5, but no other cultural materials were encountered.

When Unit 5 was to the same level as Unit 4, the whole 1 x 2 m unit was excavated in 10 cm levels. Charcoal and flakes were present. Breakdown was a continuous problem **in the unit.** As we began to run out of time, the unit was reduced to the 1 x 1 m square of Unit 5. Burnt sandstone, charcoal, flakes, and burnt nutshell were found as the unit was deepened. When a solid deposit of breakdown was encountered in level 13, an attempt was made to break through it and reach deposits below the breakdown. While considerable breakdown was broken up and removed from the unit, an impenetrable deposit of breakdown was encountered at level 16 and the unit terminated.

**Laboratory**

Following completion of the field work, all materials associated with the project were taken to the ARMS lab at Ball State University. In the lab, the materials were inventoried and organized. Artifacts were cleaned with soft bristle brushes and plain water where appropriate. Fragile materials were not cleaned and artifacts with visible residues were not cleaned as well. Following cleaning, the artifacts were sorted by Nagle into the classes in use by ARMS (Appendix A). Chipped stone raw materials were identified through comparison with reference samples curated at ARMS and as described by Cantin (1994). Artifact class and raw material identifications were verified by Beth McCord and Cochran. Once the artifact classes and raw materials were identified, they were tabulated and written descriptions prepared for the report. Sediment classifications from soil samples were defined by McCord. Soil samples were water screened in the lab through 1 mm mesh after texture and Munsell color classifications were defined. The screened samples were hand picked by Nagle. Photographs were processed, stratigraphic profiles were redrawn and figures prepared for the report. Once the final report has been approved, the artifacts, notes, forms and other materials associated with this project will be curation at the Glenn A. Black Laboratory of Archaeology at Indiana University.

## RESULTS

The investigation of the Celina Shelter provided a variety of cultural materials and data relevant to the goals of the project. No discrete concentrations of charcoal were found in feature or artifact association, so no radiocarbon dates were obtained. This section contains an evaluation of the shovel tests excavated at the site, a description of the artifacts and raw materials found at the site and a description and comparison of the stratigraphic zones and cultural material found in each unit.

### Shovel Test Results

One of the goals of the project was to test the utility of shovel testing for detecting buried deposits in rockshelters. While not an adequate test, this project produced some interesting and suggestive results. Four shovel tests were excavated during this project and one shovel test was excavated previously by Krieger (1997). During this project, shovel test #1 placed in the vicinity of Krieger's shovel test revealed a considerable amount of cultural material. The subsequent unit at this location produced the majority of the cultural material recovered during this project. This location was adjacent to an active channel that carried runoff and was not covered by the colluvial fan deposits. Thus, we could say that where cultural material is near the surface and of some density, shovel testing represents an adequate method for sampling near surface deposits in rockshelters.

The remaining three shovel tests excavated during this project did not produce any cultural material. All three of these shovel tests were at locations that were covered by the colluvial fan deposits. However, once the units were opened at the locations of the shovel tests, artifacts were found. These artifacts began to appear at the interface of the colluvial fan deposits and the underlying former land surface. So, while it is only suggestive, and based on an inadequate sample, in this instance shovel testing was inadequate for determining the presence of buried deposits even though the shovel tests penetrated the sterile colluvial deposits. This information needs to be considered when designing survey methods for detecting archaeological deposits in rockshelters in the Hoosier National Forest. It seems highly likely that previous assessments of the chronology and intensity of use of rockshelter sites in the Hoosier National Forest are based on highly biased samples of near surface artifacts ( Martin & Waters 2000:20).

### Features

Only two features were recorded at the site. Feature 1 was recorded in Unit 1, but investigation revealed that it was a rodent run and not a cultural feature. No further description of Feature 1 is given. Feature 2 was assigned to the bedrock mortars present on the surface of the site (Figure 7).

Figure 8: Location of bedrock mortars.

Two bedrock mortars were contained in a large sandstone boulder that appeared to be detached breakdown (Figure 8). The boulder was located to the right of the interpretative trail and at the upper edge of the talus slope (Figure 7). The mortars were 1.2 m apart and 12-13 cm wide at the surface. Both mortars narrowed to a width of 9 to 11 cm at the bottom. They ranged in depth from 21 to 34 cm. Both were moss-covered and almost filled with leaf litter and water.

Bedrock mortars are interesting features that are often associated with rockshelters. Classified by several names (eg. Hominey holes, etc.), they are generally interpreted as resulting from processing seeds and/or nuts. In the soft Tick Ridge sandstone, pounding for any period of time would produce depressions. It is hypothesized here that the mortars were made with a rather pointed wooden pestle and that they represent an extension of the aboriginal wooden mortar technology recorded in the ethnographic literature (eg. Swanton 1979:558-560). A George Winter (Cooke & Ramadhyani 1993:Plate 33) painting shows an interesting illustration of a Miami woman using a narrow wooden pestle in a stone mortar in central Indiana. The picture suggests that the archaeological feature that remained from this activity would be distinctly similar to the bedrock mortars recorded at the Celina Shelter and other sites in southern Indiana.

While both seeds and nuts have been suggested as the material being processed in bedrock mortars, nuts would seem to be the most logical choice for the mortars in the Tick Ridge sandstone. Given the softness of the Tick Ridge sandstone, seeds processed in one of these mortars would be reduced to a gritty paste of dubious value. However, the widespread nut-processing technology wherein nuts were pounded and thrown into boiling water so that the shells sank to the bottom and the nut oil floated to the top (Swanton 1979:366) would seem a fitting interpretative model to apply to the bedrock mortars associated with rockshelters in the Hoosier National Forest. It is interesting to note that both multipitted nutting stones and bedrock mortars are associated with rockshelter sites in the region. The nutting stones suggest hand picking of nut meats (eg. Munson 1984) while the bedrock mortars suggest a larger scale pounding of nuts, based on the hypothesized use for bedrock mortars suggested above. Whether these two technologies indicate contemporary differences in nut processing or changes in processing technology through time are not currently known (cf. Stafford, Richards, Anslinger 2000).

**Artifacts**

The classification scheme in use by ARMS for chipped stone artifacts is presented in Appendix A. A catalog of the artifacts found at the Celina Shelter is presented in Appendix B. The artifacts are organized by unit and level. A description of the chipped stone tools and pottery sherds is provided below.

A total of 1072 artifacts were recovered during the excavations at the Celina Shelter. Table 2 shows the total numbers of each artifact category recovered at the site.

**Table 2**
**Summary of Artifact Categories**

| | |
|---|---|
| Manuport | 1 |
| Chipped Stone | 1033 |
| Ceramics | 16 |
| Nutshell | 18 |
| Seed, modern | 2 |
| Bone | 1 |
| Snail Shell | 1 |
| Total | 1072 |

Over 96% of the artifacts were of chipped stone manufacture. Other artifact categories were in far smaller percentages. The artifact categories, raw materials and distributions within the site are discussed in the following sections.

### Manuport

One artifact was classified as a manuport, an item out of its natural context but without modification. The manuport was a small piece of water rolled Derby or Holland chert. It was unmodified and measured about 25 mm long by 15 mm wide. Since it could not occur naturally within the shelter, it was classified as an artifact.

### Chipped Stone

Almost all the artifacts (1035 of 1072 or 96%) recovered during the excavation of the Celina Shelter were chipped stone although only a very small number of them were chipped stone tools (Table 3). In the following section, raw materials associated with the chipped stone artifacts are presented first followed by an assessment of the chipped stone artifacts themselves.

**Table 3**
**Summary of Chipped Stone Artifacts**

| Class | Number |
|---|---|
| Manuport | 1 |
| Core | 2 |
| Block Flakes | 6 |
| Unmodified Flakes | 958 |
| Edge Modified Flakes | 52 |
| Bipolar Artifact | 1 |
| Graver | 1 |
| Biface Fragment | 1 |
| Stage 3 Biface | 1 |
| Stage 4 Biface | 1 |
| Point Fragments | 10 |
| Points | 3 |
| TOTALS | 1037 |

**Raw Materials**

Several sources of chipped stone raw material were identified during analysis of the stone artifacts (Tables 4 & 5). By far the majority of these sources were within a relatively easy walk from the site and many of the cherts were probably available in gravel bars along the Ohio River. Given the nature of the exposed bedrock at the site, no cherts were immediately available to local inhabitants. This was verified by a fairly thorough survey of creek gravels in the site vicinity during the search for nearby rockshelters. Creek beds were dominated by sandstone with shale next in frequency. Some limestone was present. Not one single piece of chert was found. Thus, inhabitants of the Celina Shelter would of necesity have brought all chert raw materials with them from elsewhere.

**Table 4**
**Raw Materials Associated with Chipped Stone Artifacts**

| | |
|---|---|
| Allens Creek | 9 |
| Derby | 115 |
| Haney | 104 |
| Holland-Derby | 57 |
| Lead Creek | 34 |
| Quartzite | 6 |
| Sandstone | 4 |
| Unidentified | 8 |
| Wyandotte | 697 |
| TOTAL | 1034 |

Raw Materials associated with the artifacts recovered from the Celina Shelter were dominated by Wyandotte chert. Wyandotte and heat damaged Wyandotte made up 67.31% of all chipped stone artifacts from the site. Derby and Haney cherts were next in importance, but in far fewer numbers than the Wyandotte. Holland and Lead Creek cherts were half as frequent as the Derby and Haney cherts although Lead Creek is the closest source to the shelter (Figure 6). It would seem that if these numbers are representative of past use of the site through time, they indicate that the inhabitants were traveling over a fairly large area that stretched from the Wyandotte source in the east to the Holland source in the west. Of course, this generalization is too great and there are undoubtedly differences between components in the site.

Reviewing the distribution of cherts by unit shows that Unit 1 contained far more chipped stone artifacts than any of the other units (Table 5).

**Table 5**
**Distribution of Raw Materials by Unit**

| Raw Material | Unit 1 | Unit 2 | Unit 3/6 | Unit 4/5 |
|---|---|---|---|---|
| Allens Creek | 8 | 0 | 0 | 1 |
| Derby | 75 | 0 | 28 | 12 |
| Haney | 98 | 0 | 5 | 1 |
| Holland-Derby | 48 | 1 | 7 | 1 |
| Lead Creek | 31 | 0 | 1 | 2 |
| Quartzite | 2 | 0 | 1 | 3 |
| Sandstone | 2 | 0 | 2 | 0 |
| Unidentified | 6 | 0 | 1 | 1 |
| Wyandotte | 512 | 8 | 121 | 65 |
| TOTALS | 782 | 9 | 166 | 86 |

The table also shows that Unit 2 contained the smallest number of chipped stone artifacts. Wyandotte chert was the most numerous in all units. This is an interesting phenomenon since Wyandotte chert is not the closest source of raw material to the site. Lead creek, Derby and Haney cherts are all closer to the Celina Shelter than the Wyandotte source. The Wyandotte and Holland chert sources are of about equal distance from the shelter. The difference between these cherts lies primarily in their quality, with Wyandotte being one of the premier cherts of the Midwest. But, does the frequency of Wyandotte chert in the Celina Shelter indicate that the inhabitants were moving primarily from east to west, that greater numbers of Wyandotte chert artifacts were being processed there or what? Of course, we should be cautious in translating the frequencies of raw materials into patterns of movement, since we have such a small sample and the reduction of a couple of bifaces at the location of Unit 1 could completely skew the view of raw material usage at the site. On the other hand, the kinds of raw materials present and the locations of the source areas can say something about previous occupants of the site and their movements across the landscape.

**Artifacts**

In the following section, selected chipped stone artifacts are described and illustrated.

*Class:* Graver
*Figure:* 9A
*Number:* 1
*Raw Material:* Haney
*Chronological Position:* unknown
*Discussion:* The graver was found in level 7 of Unit 3/6. The metrics for the graver and its spur are as follows:

| Graver | | Spur | |
|---|---|---|---|
| Maximum Width | 31.03 mm | Maximum Width | 7.43 mm |
| Maximum length | 34.88 mm | Maximum length | 6.89 mm |
| Maximum thickness | 5.66 mm | Maximum thickness | 4.56 mm |

*Class:* Biface fragment
*Figure:* 9B
*Number:* 1
*Raw Material:* Wyandotte
*Chronological Position:* unknown
*Discussion:* This biface fragment was found in level 12 of Unit 6. The thickness of this biface fragment is 13.27mm.

*Class:* Biface fragment
*Figure:* 9C
*Number:* 1
*Raw Material:* Wyandotte
*Chronological Position:* unknown
*Discussion:* This biface fragment was found in level 2 of Unit 1. It measured 54.30mm in length, 55.77mm in width, and 15.48mm in thickness. The technology and metrics suggest that it is at a Stage 3 level of manufacture.

*Class:* Biface
*Figure:* 10A
*Number:* 1
*Raw Material:* HD Wyandotte
*Chronological Position:* unknown
*Discussion:* This biface was found in level 9 of Unit 3/6. A black residue was evident on the face of the biface. Under the microscope, the residue is shiny and resembles pine pitch.

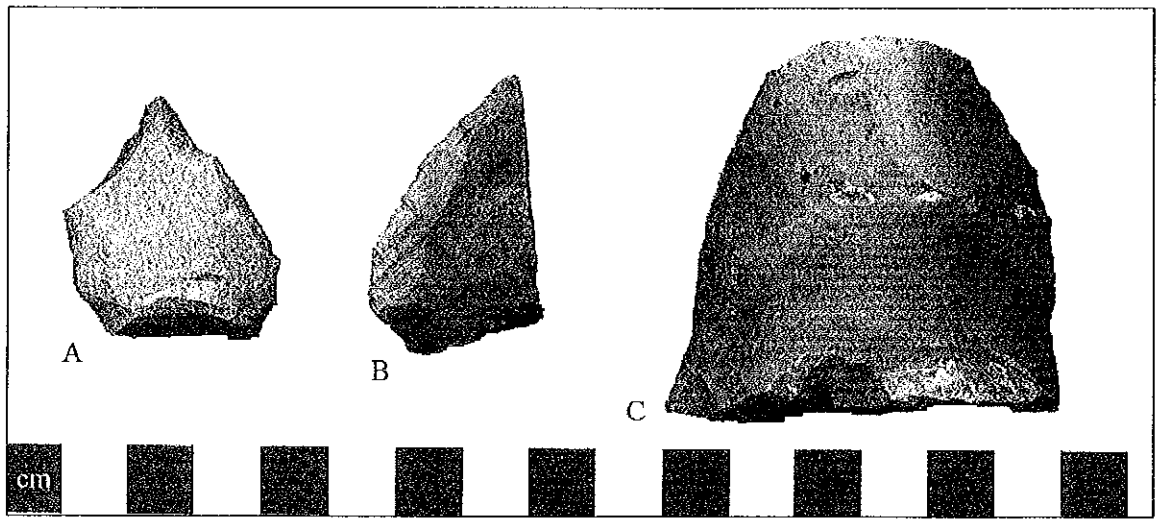



Figure 9: Graver (A) and biface fragments (B, C).

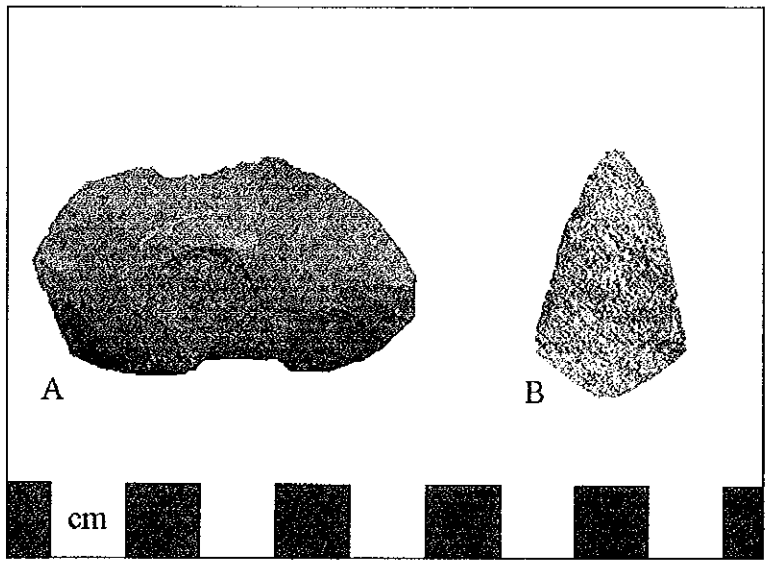



Figure 10: Stage 4 Biface with residue (A) and point fragment (B).

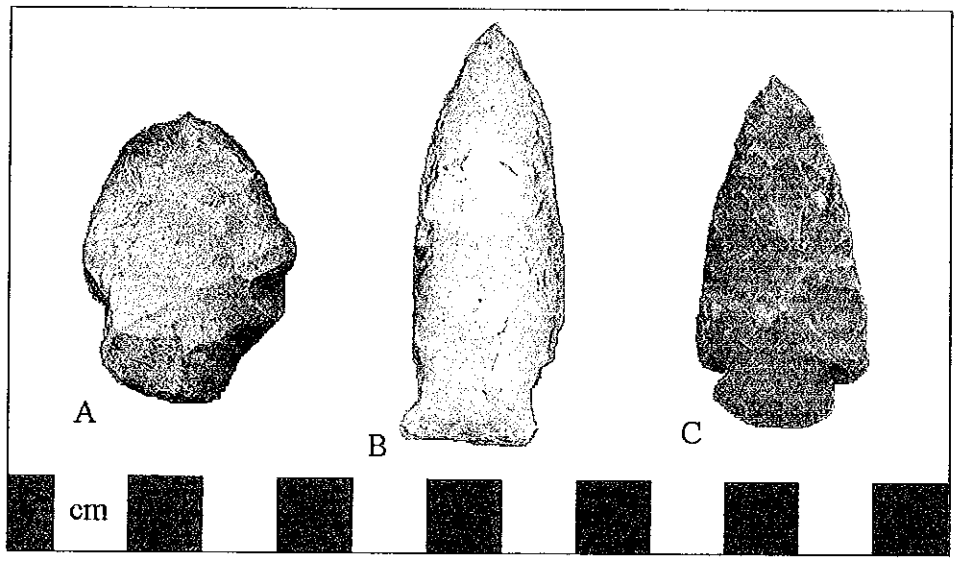



Figure 11: Points: Karnak Stemmed (A), Matanzas (B), Early Archaic (C).

*Type:* Unclassified Early Archaic
*Figure:* 11C
*Number:* 1
*Raw Material:* Wyandotte
*Chronological Position:* Early Archaic
*Discussion:* This point was found in level 14 of Unit 6. The manufacturing technology of the point was most similar to Early Archaic techniques. The rounded base was heavily ground and basally thinned from one face. Resharpening of the blade was concentrated on one edge producing an asymmetrical outline. Retouch flake scars were oriented oblique to the blade edge and parallel to each other. This technology is most consistent with varieties of Kirk Corner Notched points (Moore 1992). However, the morphology of the point does not fit the Kirk Corner Notched type from comparison with specimens illustrated in Chapman (1978:50-53), Broyles (1971:62-65) or Justice (1987:71-82). We have, therefore, not attached a type name to the point although its chronological position is assigned to the Early Archaic. The metrics for this point are as follows:

| | | | |
|---|---|---|---|
| Maximum Length | 45.96 mm | Tang Length | 6.73 mm |
| Maximum Width | 23.69 mm | Tang Width | 15.16 mm |
| Maximum Thickness | 6.11 mm | Notch Width | 3.48 mm |
| Max. Thickness at Base | 4.96 mm | Notch Depth | 3.83 mm |
| Base Width | 16.98 mm | | |

Few diagnostic stone artifacts and few tool classes were recovered during the limited testing of the Celina Shelter. The diagnostic artifacts that were recovered occurred in Level 6 of Unit 1 and Levels 13 and 16 of Unit 6. Unit 1 was stratigraphically different from the other units, but the Karnak Stemmed point found in Level 6 was in relative stratigraphic position below the ceramic sherds that were found in the same unit. The Matanzas point recovered from Level 13 of Unit 6 and the Early Archaic point recovered from Level 16 of the same unit were also in relative stratigraphic position. The diagnostic chipped stone artifacts, then, support an occupation history that includes Late Archaic and an Early Archaic component. The relative stratigraphic position of the artifacts suggests that the site is stratified and that the massive breakdown found in the final levels of Units 6 and 5 was deposited during the Early Archaic.

**Chipped Sandstone**

Four artifacts were manufactured from sandstone. All four were flakes with striking platforms. Other pieces of chipped sandstone may have been present, but without defining flake attributes, were unrecognized. Three of the flakes were small, ranging between 20 and 30 mm in length. One flake was larger, measuring 50 mm long by 35 mm wide. This artifact had a weathered dorsal surface with a negative flake scar from an earlier flake removal. The striking

platform was also a weathered surface. The ventral surface of the flake exhibited a broad bulb of percussion and a prominent ripple. No use of the flake edges were apparent. In addition to these artifacts, a core of chipped sandstone was noted on the surface adjacent to Unit 1, but was inadvertently not recovered. The outside of the block was weathered and at least two large flakes were removed from one end.

We were surprised to discover artifacts manufactured from sandstone. The Tick Ridge is a fairly soft sandstone and it seems counterintuitive to expect that useful chipped stone artifacts could be manufactured from it. The weathered surface on the larger flake indicated that it was manufactured from a core that was most likely collected from the streambed below the site. The current stream bed is covered with similarly weathered sandstone pieces. We were unable to find similar artifacts in the archaeological literature and suspect that these kinds of artifacts could be easily overlooked and placed in the large volume of fractured sandstone that occurs in rockshelter sites. It was fortuitous that we recovered these artifacts as they were unexpected. We do expect that they were expedient tools manufactured on the spot and discarded although no cores or shaped chipped stone tools were recovered. It is also possible that the flakes represent a roughing out stage for ground stone artifacts (Cook 1980:336). This phenomenon warrants further investigation.

### Burnt Sandstone

An abundance of oxidized and fractured sandstone was encountered at the site. We counted and recorded the presence of this oxidized and fractured sandstone as "burnt". Since the Tick Ridge sandstone can naturally oxidize red, there was the distinct possibility that some of the fractured sandstone identified as burnt actually occurred naturally. The sandstone was present in almost every level of every unit, as is shown by the following table.

## Table 6
Distribution of Burnt Sandstone

| Unit | Level | Burnt sandstone | Unit | Level | Burnt sandstone |
|---|---|---|---|---|---|
| 1 | Surface | - | 2 | Surface | - |
| 1 | 1 | 6 pieces | 2 | 1 | - |
| 1 | 2 | 25 pieces | 2 | 2 | - |
| 1 | 3 | 110+ pieces | 2 | 3 | Present |
| 1 | 4 | - | 2 | 4 | - |
| 1 | 5 | - | 2 | 5 | 44 pieces |
| 1 | 6 | - | 2 | 6 | 42 pieces |
| 1 | 7 | Present | 2 | 7 | 62 pieces |
| 1 | 8 | 35 pieces | 2 | 8 | 51 pieces |
| 1 | 9 | 65 pieces | 2 | 9 | 29 pieces |
| 1 | 10 | 50 pieces | 2 | 10 | 5 pieces |
| 1 | 11 | Present | 2 | 11 | 9 pieces |
| 1 | 12 | - | 2 | 12 | 1 pieces |
| 1 | 13 | Present | 2 | 13 | 4 pieces |
| 1 | 14 | - | 2 | 14 | - |
| 1 | 15 | - | 2 extension | Surface | - |
| 1 | Shovel probe 2 | - | 2 extension | 1-2 | 9 pieces |
| | | | 2 extension | 3 | 5 pieces |
| | | | 2 extension | 4 | 11 pieces |
| | | | 2 extension | 5 | 9 pieces |
| | | | 2 extension | 6 | 17 pieces |
| | | | 2 extension | 7 | 7 pieces |
| Unit | Level | Burnt sandstone | Unit | Level | Burnt sandstone |
| 3 | Surface | - | 4 | 1 | - |
| 3 | 1 | - | | 2 | - |
| 3 | 2 | - | | 3 | - |
| 3 | 3 | - | | 4 | - |
| 3 | 4 | 27 pieces | | 5 | present |
| 3 | 5 | 40 pieces | | 6 | Present |
| 3 | 6 | 53 pieces | | 7 | 4 pieces |
| 3/6 | 7 | 55 pieces | 4/5 | 8 | 5 pieces |
| 3/6 | 8 | 39 pieces | | 9 | 12 pieces |
| 3/6 | 9 | 22 pieces | | 10 | 13 pieces |
| 6 | Surface | - | 5 | Surface | - |
| 6 | 1 | - | | 1 | - |
| 6 | 2 | 1 pieces | | 2 | 5 pieces |
| 6 | 3 | Present | | 3 | 4 pieces |
| 6 | 4 | 5 pieces | | 11 | 26 pieces |
| 6 | 5 | 15 pieces | | 12 | 33 pieces |
| 6 | 10 | 31 pieces | | 13 | 31 pieces |
| 6 | 11 | 16 pieces | | 14 | 7 pieces |
| 6 | 12 | 16 pieces | | 15 | 82 pieces |
| 6 | 13 | 17 pieces | | 16 | 9 pieces |
| 6 | 14 | 21 pieces | | 17 | - |
| 6 | 15 | 16 pieces | | | |
| 6 | 16 | 2 pieces | | | |

**Pottery**

The prehistoric pottery found at the Celina Shelter was predominantly recovered from Level 4 in Unit 1 although one sherd was recovered from Unit 2. No rims were found and all sherds were from the bodies of vessels.

Several of the sherds were illustration for inclusion in this report. Seven sherds were not illustrated due to their small size. All sherds were measured as was the size of the tempering particles. All pottery found at the site had some form of surface treatment with the exception of five sherds that were highly eroded.

*Type*: body sherds
*Figure*: 12
*Number*: 2
*Discussion*: These sherds were found in level 4 of Unit 1. The surface is impressed with a twined fabric and the temper is grit. The thickness of the sherds ranges from 6.61-6.43 mm and the temper sizes ranges from 2.43-1.02 mm.

*Type*: body sherds
*Figure*: Not illustrated
*Number*: 5
*Discussion*: These sherds were found in level 4 of Unit 1. The surface was eroded and the temper was grit. The sherds ranged in thickness from 6.52-4.50 mm and the temper sizes ranged from 1.77-0.69 mm.

*Type:* body sherds
*Figure:* 13
*Number:* 5
*Discussion:* These body sherds were found in level 4 of Unit 1. They were cordmarked and grit tempered. The thickness of these sherds ranged from 5.58-4.78 mm and the temper sizes ranged from 1.57-0.46 mm.

*Type:* body sherds
*Figure*: Not illustrated
*Number:* 2
*Discussion:* These body sherds were found in level 5 in Unit 1 and came out of the South Wall. They were fabric impressed and grit tempered. The thickness of these sherds was 3.66 mm and the temper sizes ranged from 1.71-0.76 mm.

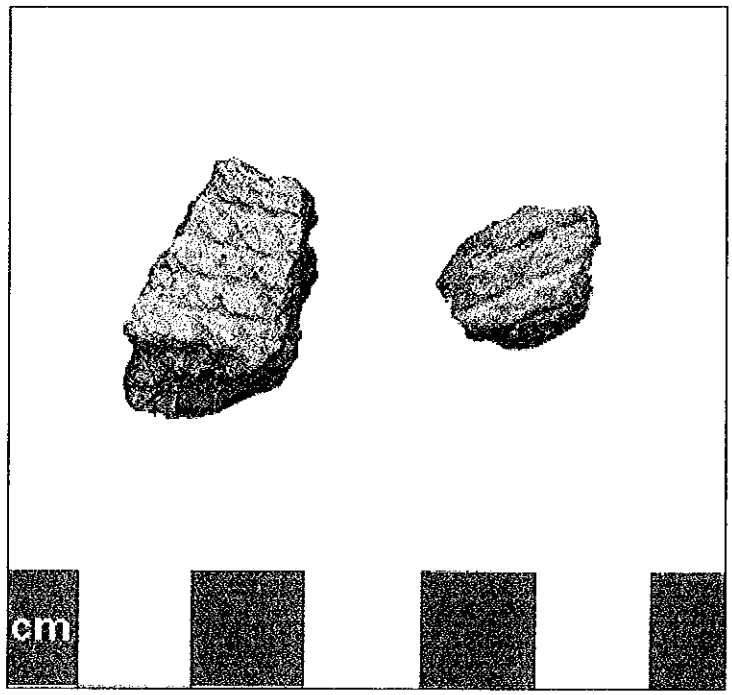



Figure 12: Fabric impressed, twining, sherds.

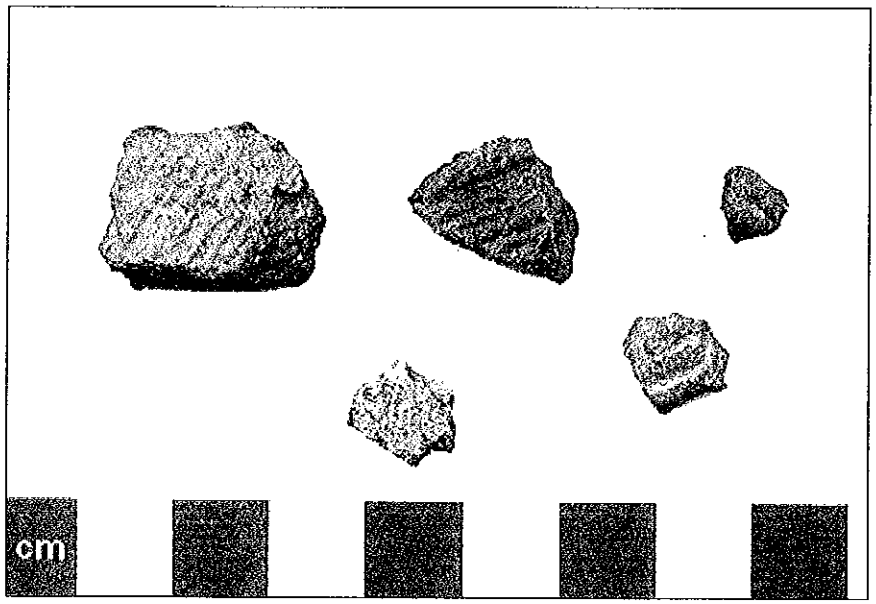



Figure 13: Cordmarked sherds.

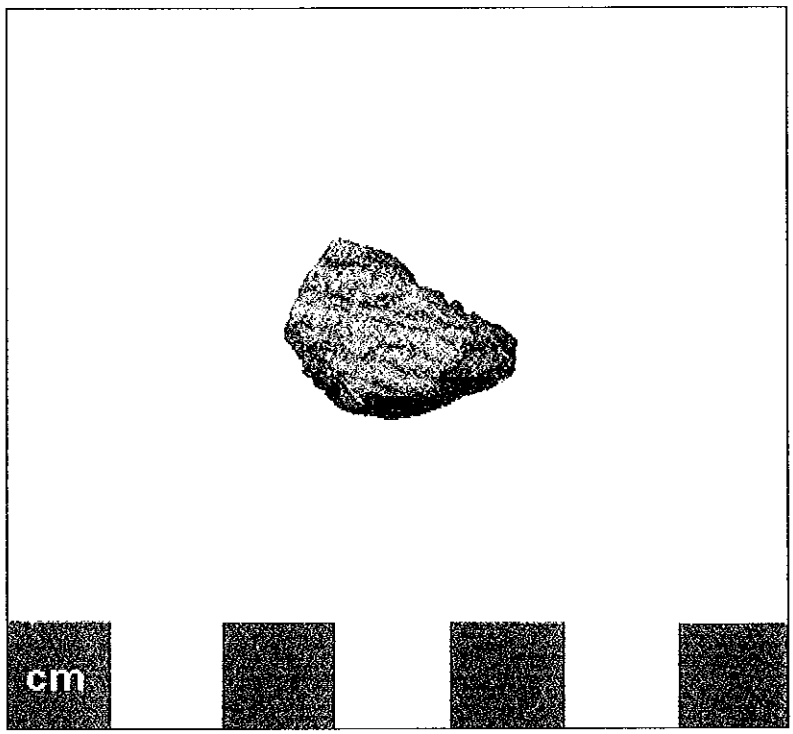



Figure 14: Fabric impressed, plain weave, sherd.

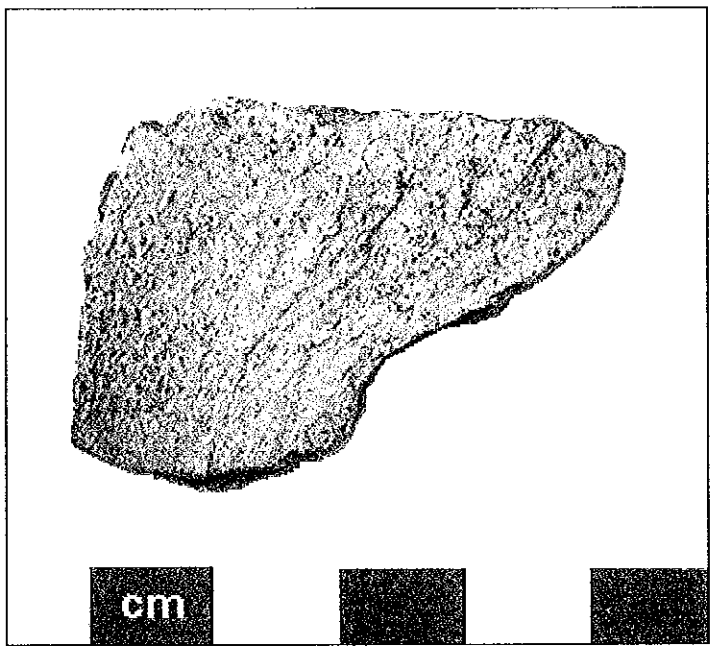



Figure 15: Cordmarked, sherd from Unit 2.

*Type:* body sherd
*Figure:* 14
*Number:* 1
*Discussion:* This body sherd was found in Unit 1 while straightening the South wall. It was fabric impressed with a plain weave and grit tempered. The thickness of this sherd was 5.54 mm and the temper sizes ranged from 1.17-0.22 mm.

*Type:* body sherd
*Figure:* 15
*Number:* 1
*Discussion:* This body sherd was found in Unit 2. The outer surface is cordmarked. Temper is prepared grit of sandstone and the paste is sandy. The paste is well consolidated but firing of the core is uneven. The outside of the sherd is smoked and the inside contains cooking residue. The thickness of this sherd is 4.71 mm. The grit temper ranged between-0.74- 1.19 mm. The characteristics of the sherd were consistent with Late Woodland wares from the region.

**Discussion**

The prehistoric ceramics recovered from the site were concentrated in Unit 1 and were dominated by grit tempered sherds with cordmarked and fabric impressed surfaces. These attributes are common in a wide variety of ceramic types and were not diagnostic of particular types. In general, the sherds were in stratigraphic position above older artifacts in Unit 1 suggesting that the site is indeed vertically stratified.

**Bone**

One small unburned bone fragment was found in Level 4 of Unit 1. No evidence of modification or residue was present.

**Nutshell/charcoal**

Although no concentrations were found, nutshell, both burned and unburned, were recovered from all units. The amount recovered was small and was from above Level 5 and below Level 10. We expected an association of artifacts processed in the bedrock mortars and the materials recovered from Unit 2. We had reasoned that if nuts were being processed in the mortars, then nutshell should be at least somewhat concentrated nearby. The amount of nutshell recovered from Unit 2 was very small and either high up in the unit or very deep in the unit. Overall, few artifacts were recovered from the unit and nutshell was of relatively high comparative concentration. The highest frequencies were in the lowest two levels. Although suggestive of supporting our hypothesis for Unit 2, a strong correlation between the nutshell and the mortars could not be made.

**Soil Sample Artifacts**

As noted previously, soil samples were taken from each unique stratigraphic zone for additional analysis in the lab. Soil samples were analyzed in two ways. First, texture and Munsell colors of the samples were reviewed in the lab and compared with the field descriptions to more accurately define the site strata. Those results were reported in the stratigraphy section. Following that analysis, the samples were water screened through 1 mm mesh to recover microartifacts. These artifacts were then tabulated (Table 7) for comparison with the results of the macroartifact distribution.

**Table 7**
**Distribution of Artifacts in Soil Samples**

| **Unit 1, North Wall** | **A** | **B** | **C** | **D** | **E1** | **E2** | **F** | **G** | **H** | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| charcoal | X | X | | X | X | X | X | X | X | | |
| burnt sandstone | | | | X | X | X | X | | | | |
| micro flakes | | | | X | X | X | X | X | X | | |
| nutshell | | | | | | | | | | | |
| seeds | X | X | | | | | | | | | |
| insect parts | | | | | | | | | | | |
| shale | | | | | | | | | | | |
| **Unit 1, South Wall** | **A** | **B1** | **B2** | **B3** | **C** | **D** | **E** | **F** | **G1** | **G2** | **H** |
| charcoal | X | X | X | X | X | X | X | X | X | X | |
| burnt sandstone | X | X | X | X | X | X | X | X | X | | X |
| micro flakes | X | X | X | X | X | X | X | X | | | |
| nutshell | | | | | | | | | | | |
| seeds | X | | | | | | | | | | |
| insect parts | X | | | | X | | | | | | |
| shale | | | | | | | | | | | |
| **Unit 2** | **A** | **B** | **C** | **D** | **E** | **F1** | **F2** | **G** | **H** | | |
| charcoal | X | X | X | X | X | X | X | X | X | | |
| burnt sandstone | | X | X | X | | X | X | X | | | |
| micro flakes | | | | | X | | X | | | | |
| nutshell | X | | | | | | X | | | | |
| seeds | | | | | | | | | | | |
| insect parts | | | | | | | X | | | | |
| shale | | | | X | | | | | | | |
| **Unit 3/6** | **A** | **B** | **C** | **C1** | **D** | **E1** | **E2** | **E3** | **E4** | **F** | **G** |
| charcoal | X | X | X | X | X | X | X | X | X | X | X |
| burnt sandstone | | X | X | | X | X | X | | X | X | X |
| micro flakes | | | | X | X | X | X | X | | X | X |
| nutshell | | | | X | | | | | | | |
| seeds | | | | | | | | | | | |
| insect parts | | | | | | | | | | | |
| shale | | | | | | | | | | | |
| **Unit 4/5** | **A** | **B** | **C** | **D** | **E** | **F1** | **F2** | **G** | **H** | | |
| charcoal | X | X | X | X | X | X | X | X | X | | |
| burnt sandstone | X | | X | X | X | X | X | X | X | | |
| micro flakes | | | | | X | X | X | X | | | |
| nutshell | | | | | | | | | | | |
| seeds | | | | X | | | | | | | |
| insect parts | | | | | | | | | | | |
| shale | | | | | | | | | | | |

## Stratigraphy

One of the goals of this project was to determine the nature and extent of the deposits in the site. One way of reaching this goal was to define the stratigraphy of the deposits at the site. Stratigraphy is important for developing an understanding of how the deposits formed, the source of the sediment in different zones and the relationships between the development of the shelter and human occupation. The distribution of artifacts were an important element to relate to the stratigraphy in order to understand the distribution of human occupation in the site structure.

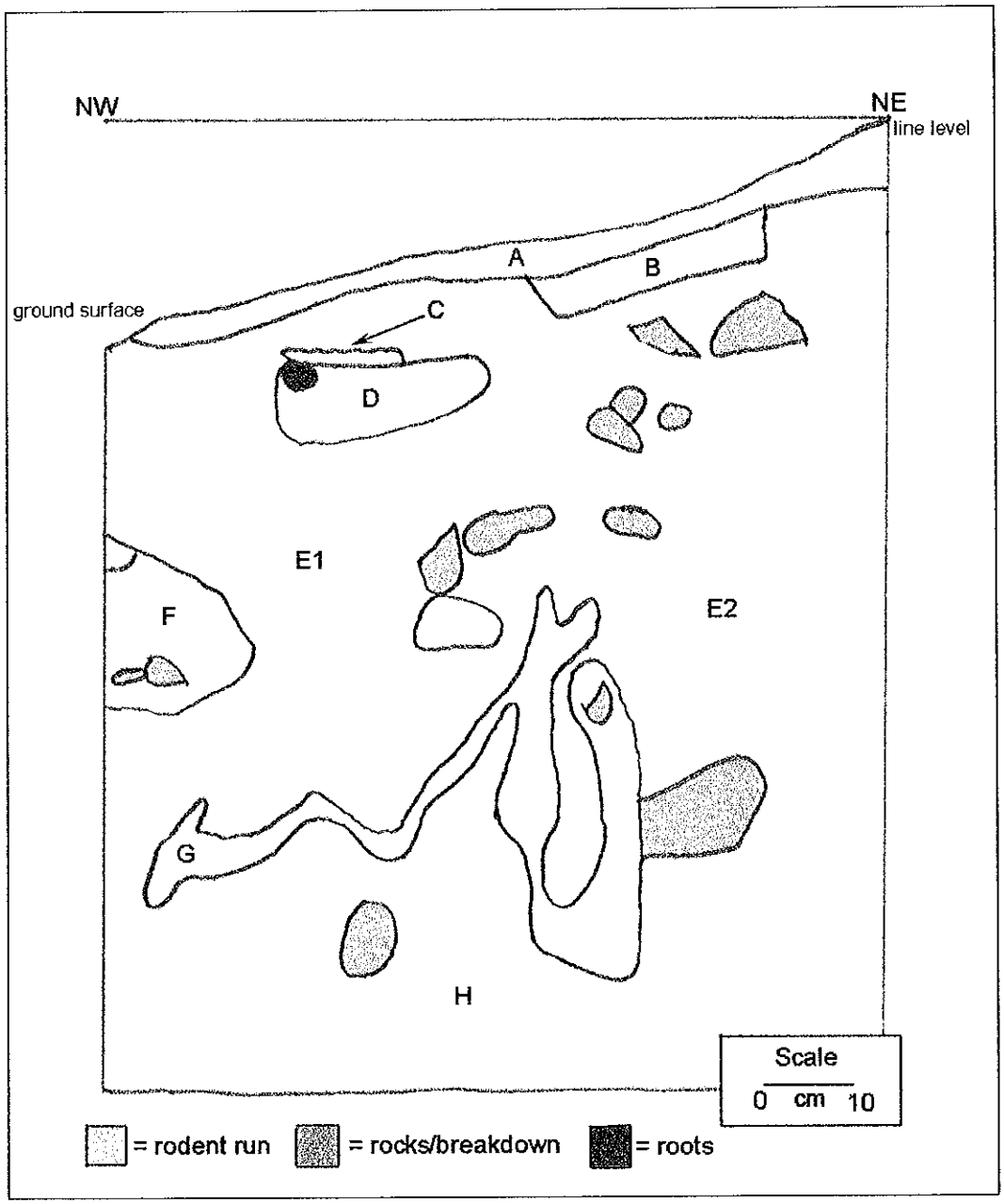
Unit 1 had a unique stratigraphy in relation to the other three units. In contrast, the other three units (2, 3/6, and 4/5) were more similar. All three units had stratigraphic zones that were similar to one another and zones that were unique. Unit 3/6 had clearly defined stratigraphic zones and was used as the reference for Units 2 and 4/5. For this reason, Unit 3/6 is described after Unit 1 in the following section. The stratigraphic zones for the individual units are described below.

### Unit 1

The stratigraphy of Unit 1 was unique in comparison to the other three units (Figures 16-19). There was no sterile colluvium overlying cultural deposits. Unit 1 had a thin zone of a dark grayish brown soil on the surface that was 5-10 cm thick. This zone contained cultural material like flakes, charcoal and burnt sandstone, unlike the sterile sediment that overlay the other units.

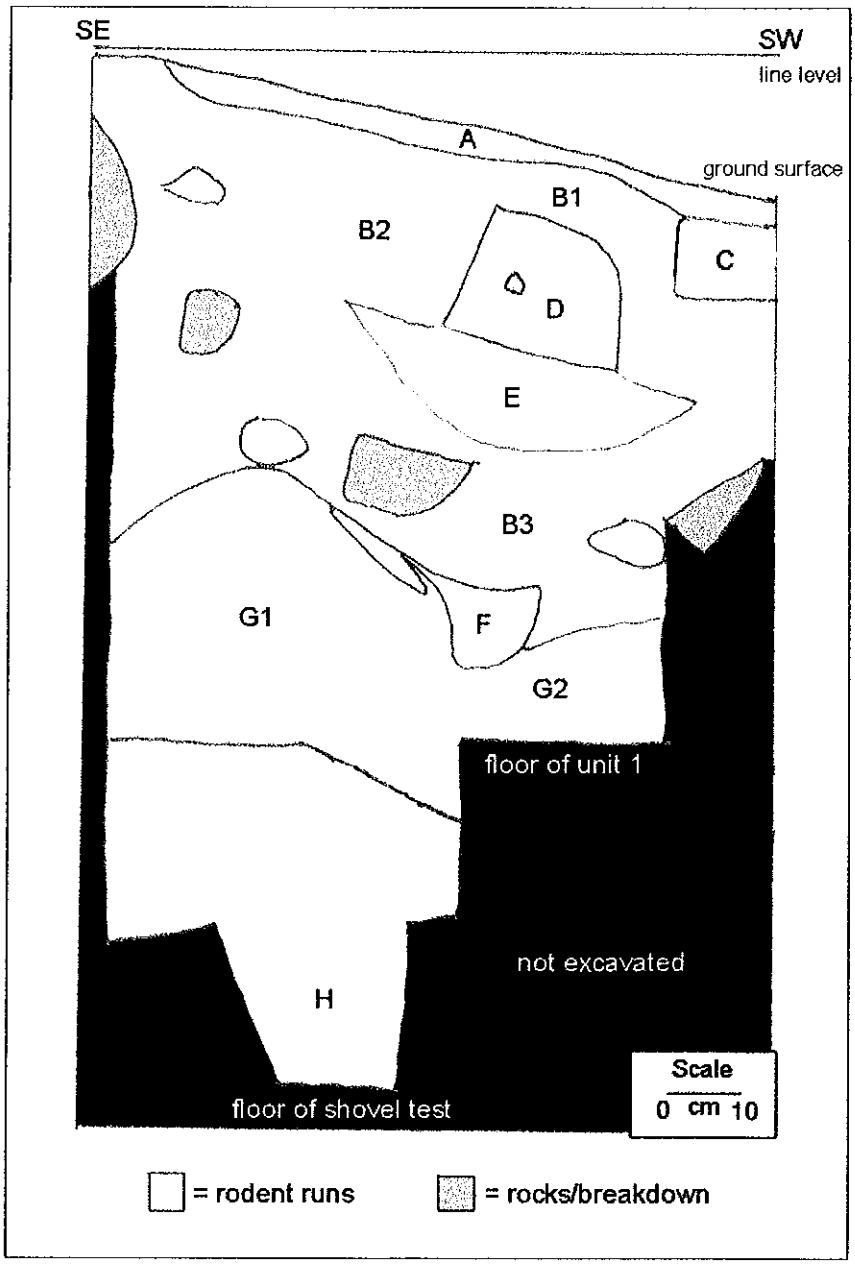
The majority of the stratigraphic profile was predominately one thick deposit that continued to level 9. Within this deposit were numerous, non-uniform areas of different colored sediment. These discolored areas contained charcoal, seeds, burnt sandstone, micro flakes, and insect parts like the matrix of the deposit around it. It was probable that many of these zones were rodent runs and the materials within them was transplanted by bioturbation. The primary deposit produced hundreds of flakes, point fragments, bifaces, biface fragments, pottery sherds, charcoal, burnt nutshell, and burnt sandstone. There were quite a few rocks present throughout the unit, but no breakdown that prevented excavation.

Immediately below the primary deposit was an area of sediment that was lighter in color and sandy loam to sandy clay loam in texture. It was roughly 40 cm thick and spanned the unit starting just beneath the primary deposit. This zone was rich in cultural material as well, including charcoal, flakes, and burnt sandstone through these four levels. Beneath this lighter zone was an area that was mottled with brown and gray soil. This zone was completely sterile; the texture remained sandy loam. This sterile zone continued for over 60 cm and was the final deposit recorded in the unit.



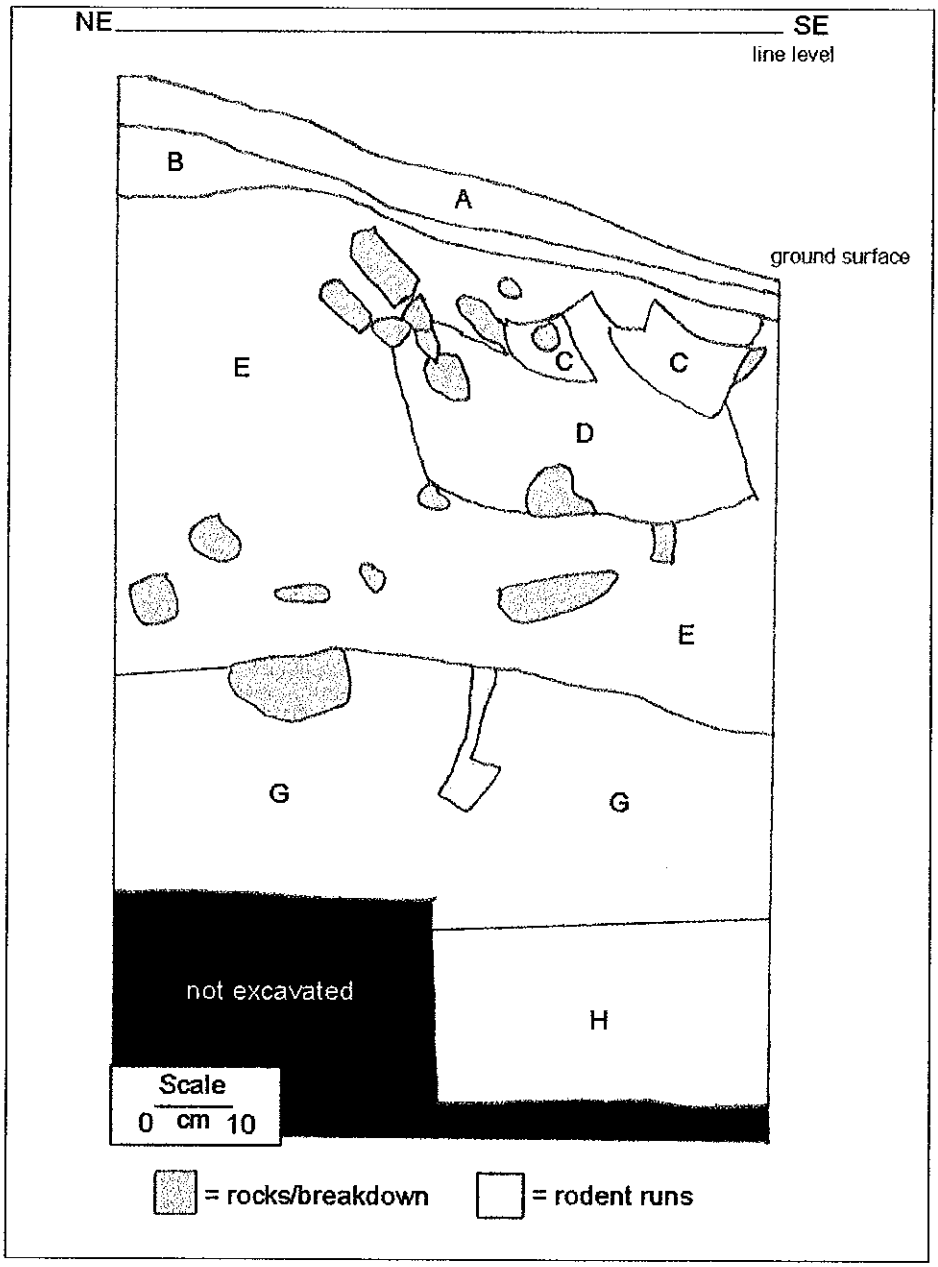

| CVS# | Munsell | Texture |
|---|---|---|
| A | 10YR4/1 | fine sand |
| B | 10YR6/4 | fine loamy sand |
| C | 10YR7/4 | fine sand |
| D | 10YR4/3 | loamy sand with sandstone |
| E1 | 10YR4/6 | sandy loam |
| E2 | 10YR5/6 | sandy loam |
| F | 10YR4/4 | sandy clay loam |
| G | 10YR5/4 with 10YR5/8 and 10YR5/1 mottles | sandy clay loam |
| H | 10YR5/8 with 10YR5/4 mottles | sandy loam |

Figure 16: Profile drawing of Unit 1 North Wall.



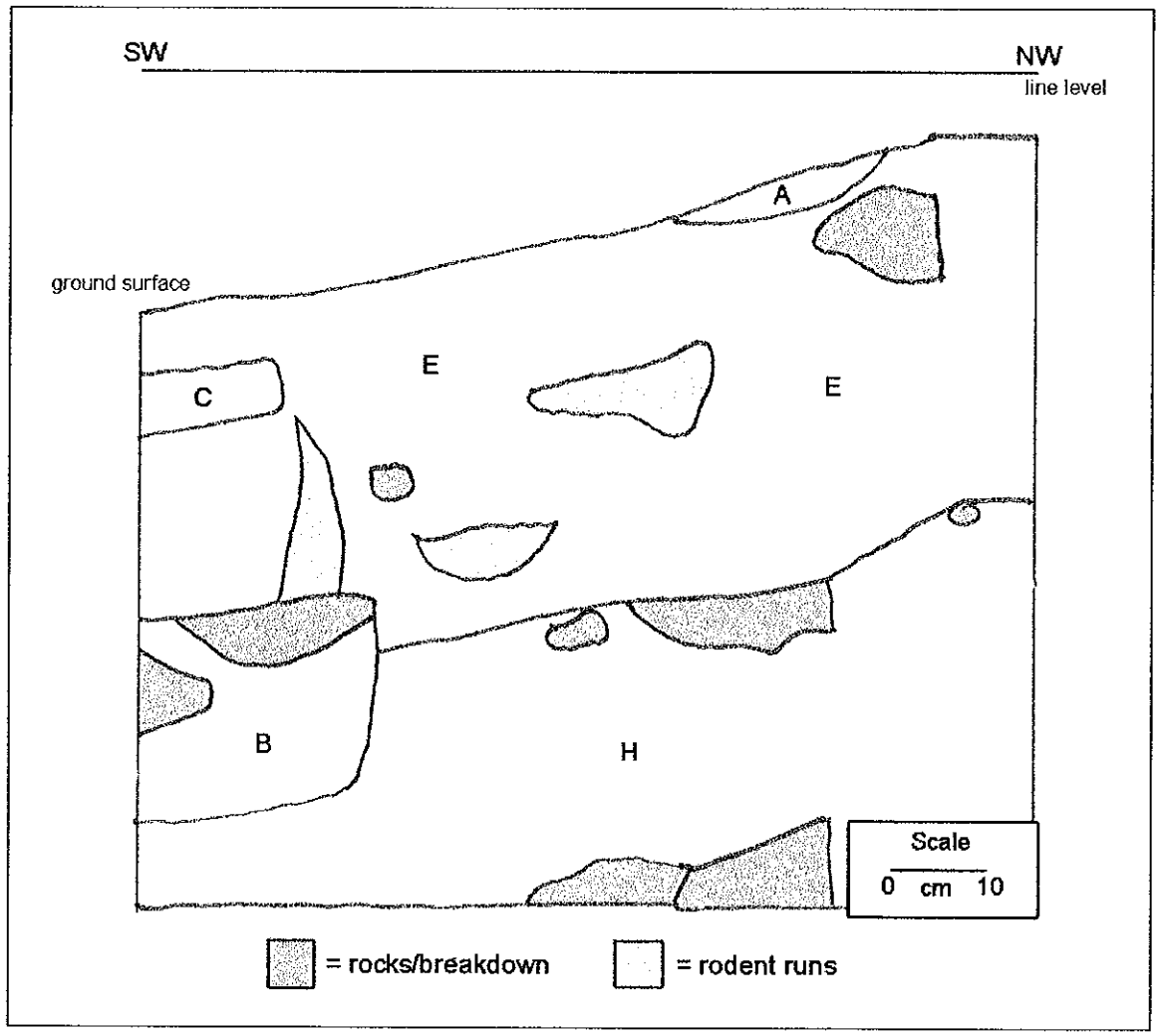

| CVS# | Munsell | Texture |
|---|---|---|
| A | 10YR4/1 | fine sand |
| B1 | 10YR3/3 | sandy loam |
| B2 | 10YR4/3 | sandy loam |
| B3 | 10YR4/3 | sandy clay loam |
| C | 10YR3/3 | sandy loam with charcoal and sandstone |
| D | 10YR4/3 | sandy loam |
| E | 10YR4/4 | sandy loam |
| F | 10YR5/6 | sandy clay loam |
| G1 | 10YR5/6 | sandy loam |
| G2 | 10YR5/6 with 10YR5/8 mottles | sandy clay loam |
| H | 10YR5/8 | sandy loam |

Figure 17: Profile drawing of Unit 1 South Wall.




| CVS#/Source Wall | Munsell | Texture |
|---|---|---|
| A/North and South | 10YR4/1 | fine sand |
| B/North | 10YR6/4 | fine loamy sand |
| C/South | 10YR3/3 | sandy loam with charcoal and sandstone |
| D/North and South | 10YR4/3 | loamy sand with sandstone |
| E/North | 10YR5/6 | sandy loam |
| G/South | 10YR5/6 | sandy loam |
| H/North | 10YR5/8 with 10YR5/4 mottles | sandy loam |

Figure 18: Profile drawing of Unit 1 East Wall.




| CVS#/Source Wall | Munsell | Texture |
|---|---|---|
| A/North | 10YR4/1 | fine sand |
| B/South | 10YR3/3 | sandy loam |
| C/South | 10YR3/3 | sandy loam with charcoal and sandstone |
| E/North | 10YR4/6 | sandy loam |
| H/North | 10YR5/8 with 10YR5/4 mottles | sandy loam |

Figure 19: Profile drawing of Unit 1 West Wall.

**Unit 3/6**

Zone A is a sterile deposit consisting of historic colluvium and leaf liter (Figures 20-24). It is rich in roots and the texture is predominately silt loam. In this unit the colluvial deposit is roughly 35 cm thick.

Zone B resembles Zone A in texture and color, but contains artifacts. Roots were a minor problem but no breakdown was encountered in this zone. The upper boundary of the zone is very gradual, but it is very distinct on the bottom. The zone contains cultural material like charcoal, burnt sandstone, burnt nutshell, and a few flakes. This zone is present in the north, east, and west walls but is not present in the south wall

Zone C is a darker, more humus zone that could possibly be an older buried surface. Artifacts present include charcoal, burnt sandstone, and flakes. Zone C1 was a lighter inclusion in Zone C. It is likely this inclusion was a rodent run.

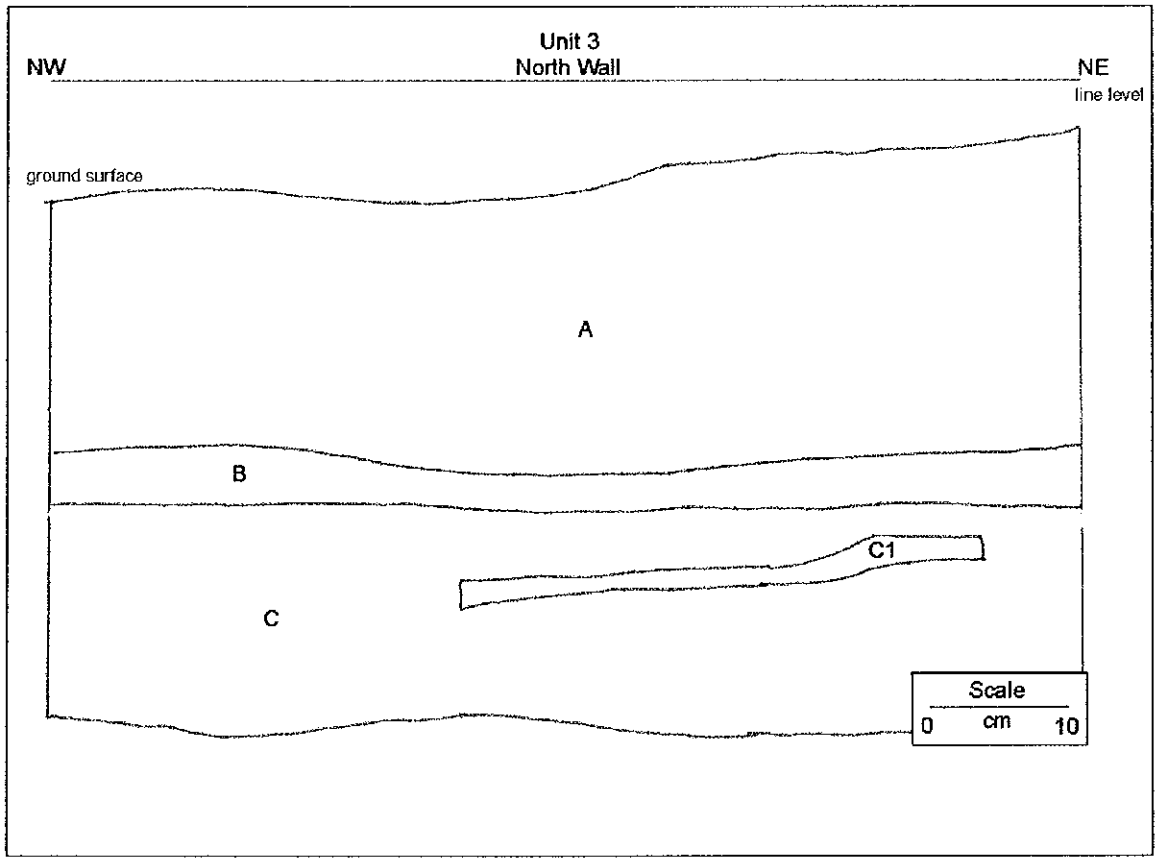
Zone D is a slightly leached zone whose texture is sandy loam. There is no mottled soil or distinct transition between zones C and D. Cultural material in this zone consisted of flakes, burnt sandstone, burnt nutshell, and charcoal.

Zone E was the largest deposit in the stratigraphy with a sandy clay loam texture. This zone contained most of the cultural material. There was considerable charcoal, burnt sandstone, and rodent burrows throughout the 90 cm thick zone. Also in this zone two points, a point fragment, and many flakes were found. One of the points was a Matanzas, which dated the lower part of the zone to the Late Archaic. The other point was stratigraphically below the Late Archaic point and of Early Archaic age.

Zone F was a large inclusion into Zone E. Its boundaries were not distinct and contained some breakdown. Artifacts included charcoal, burnt sandstone, and flakes.

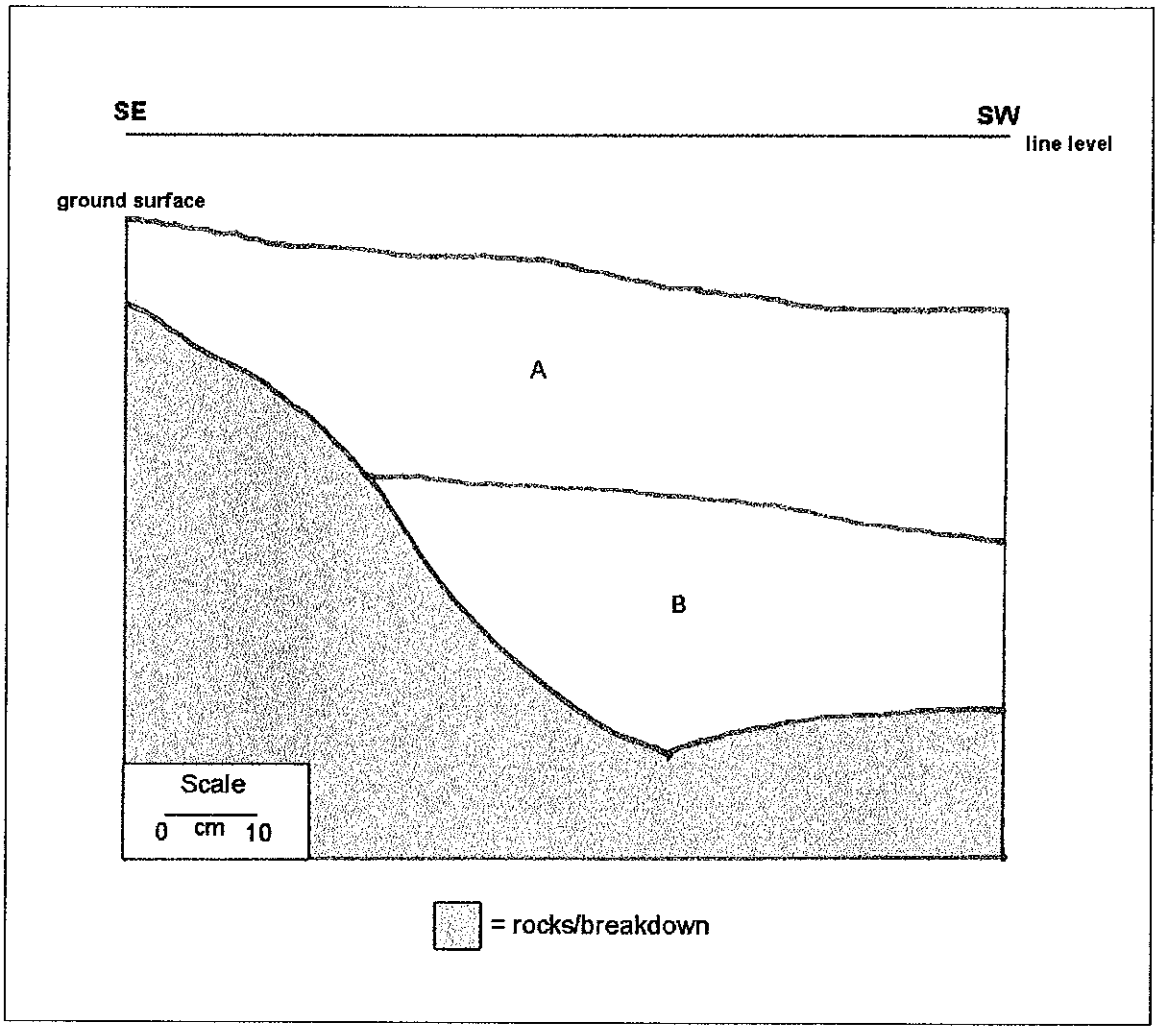
Zone G was barely encountered in the bottom of the unit. It was surrounded by bedrock/breakdown and a rodent run. A few flakes, charcoal, and some burnt sandstone were found.

Two very large, immovable breakdown boulders were encountered in this unit. The one in the south part of the unit took up almost half the unit and was thought to have been part of a roof collapse that occurred some time ago. The second piece in the north half of the unit may not be breakdown at all. It was at the right slope and position to be part of the shelter wall that had been buried.



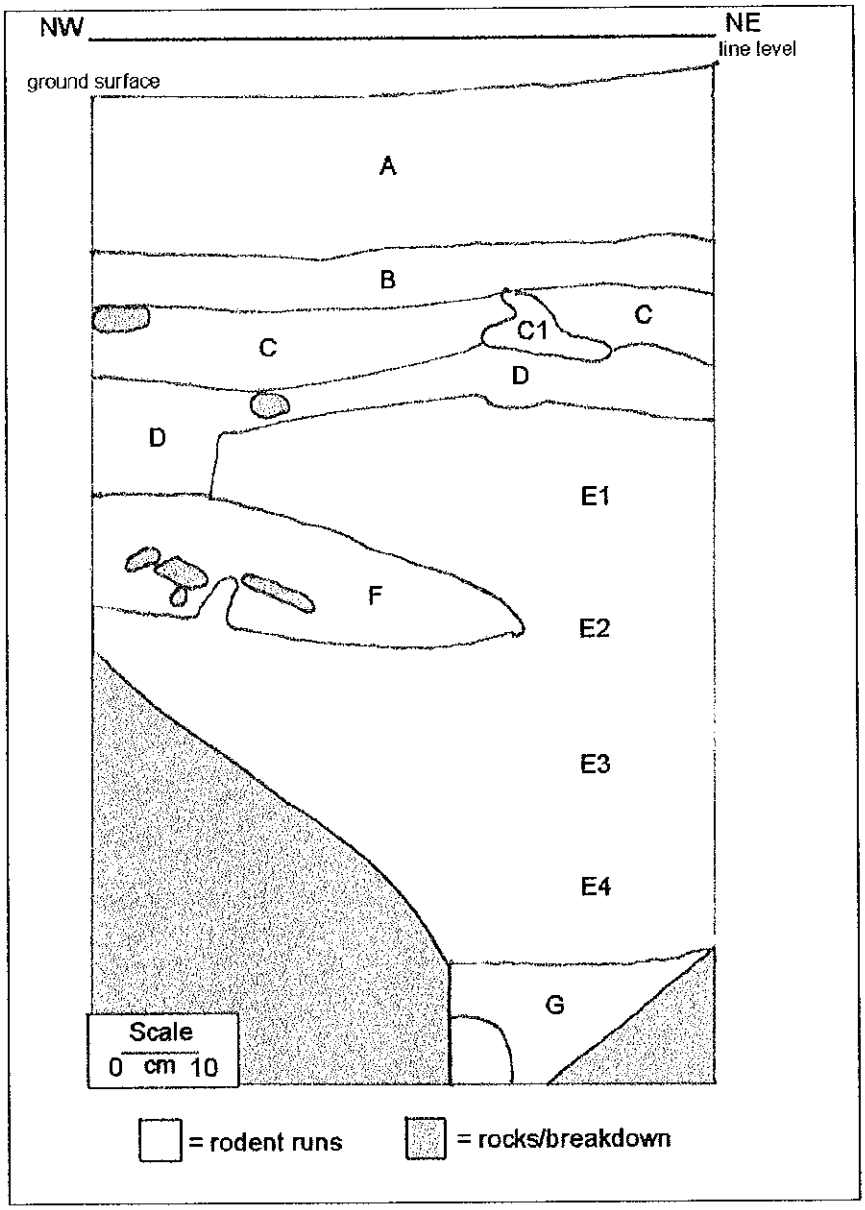

| CVS# | Munsell | Texture |
|---|---|---|
| A | 10YR5/4 | silt loam |
| B | 10YR5/4 | silt loam |
| C | 10YR4/4 | sandy loam |
| C1 | 10YR4/4 | sandy loam |

Figure 20: Profile drawing Unit 3 North Wall.



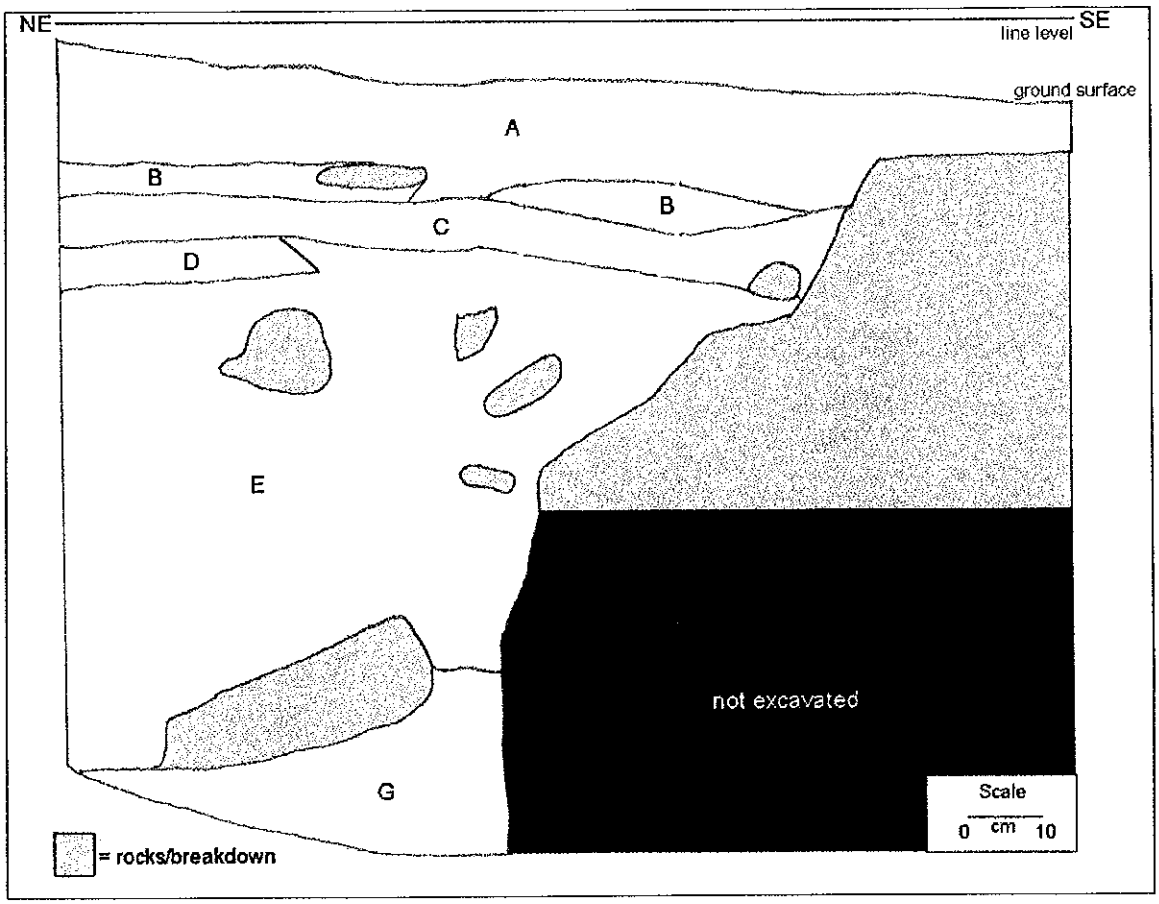

| CVS# | Munsell | Texture |
|---|---|---|
| A | 10YR5/4 | silt loam |
| B | 10YR5/4 | silt loam |

Figure 21: Profile drawing of Unit 3 South Wall.



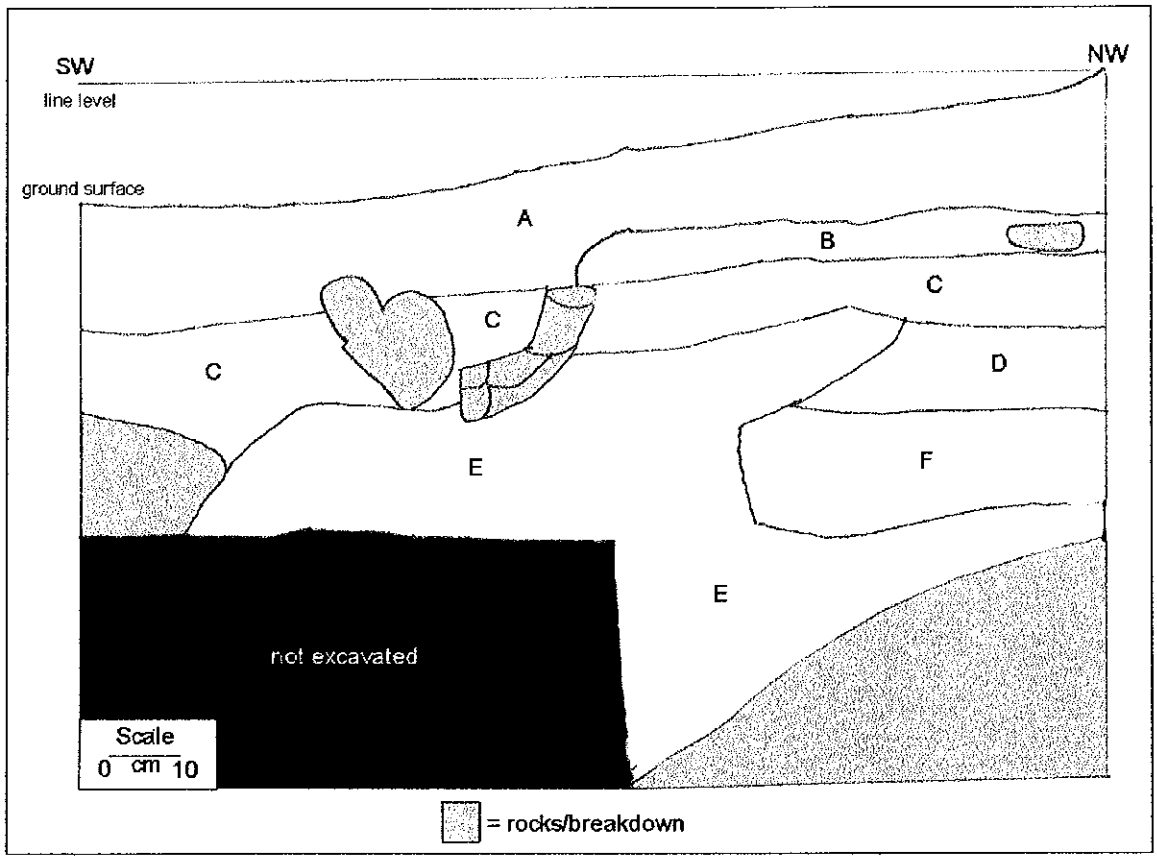

| CVS# | Munsell | Texture |
|---|---|---|
| A | 10YR5/4 | silt loam |
| B | 10YR5/4 | silt loam |
| C | 10YR4/4 | sandy loam |
| C1 | 10YR4/4 | sandy loam |
| D | 10YR4/6 | sandy loam |
| E1 | 10YR4/4 | sandy clay loam |
| E2 | 10YR4/3 | sandy clay loam |
| E3 | 10YR4/4 | sandy clay loam |
| E4 | 10YR4/4 | silt loam |
| F | 10YR4/6 | silt loam |
| G | 10YR4/4 | silt clay loam |

Figure 22: Profile drawing of Unit 3/6 North Wall.




| CVS# | Munsell | Texture |
|---|---|---|
| A | 10YR5/4 | silt loam |
| B | 10YR5/4 | silt loam |
| C | 10YR4/4 | sandy loam |
| D | 10YR4/6 | sandy loam |
| E | 10YR4/4 | sandy clay loam |
| G | 10YR4/4 | silt clay loam |

Figure 23: Profile drawing of Unit 3/6 East Wall.




| CVS# | Munsell | Texture |
|---|---|---|
| A | 10YR5/4 | silt loam |
| B | 10YR5/4 | silt loam |
| C | 10YR4/4 | sandy loam |
| D | 10YR4/6 | sandy loam |
| E | 10YR4/4 | sandy clay loam |
| F | 10YR4/6 | silt loam |

Figure 24: Profile drawing of Unit 3/6 West Wall.

### Unit 2

In Unit 2, the stratigraphy of the top 70-75 cm resembles that of Units 3/6 and 4/5 to some degree (Figures 25-29). The bottom 90 cm has its own unique stratigraphy. The top 30 cm are the sterile colluvial deposit, or Zone A, that is also present in units 3/6 and 4/5. In Unit 2, however, Zone A is not entirely sterile as it contains a few pieces of charcoal, burnt sandstone, and burnt nutshell. As it appears that Zone A is a historic deposit, it is expected that the materials in this zone in Unit 2 are historic in nature.

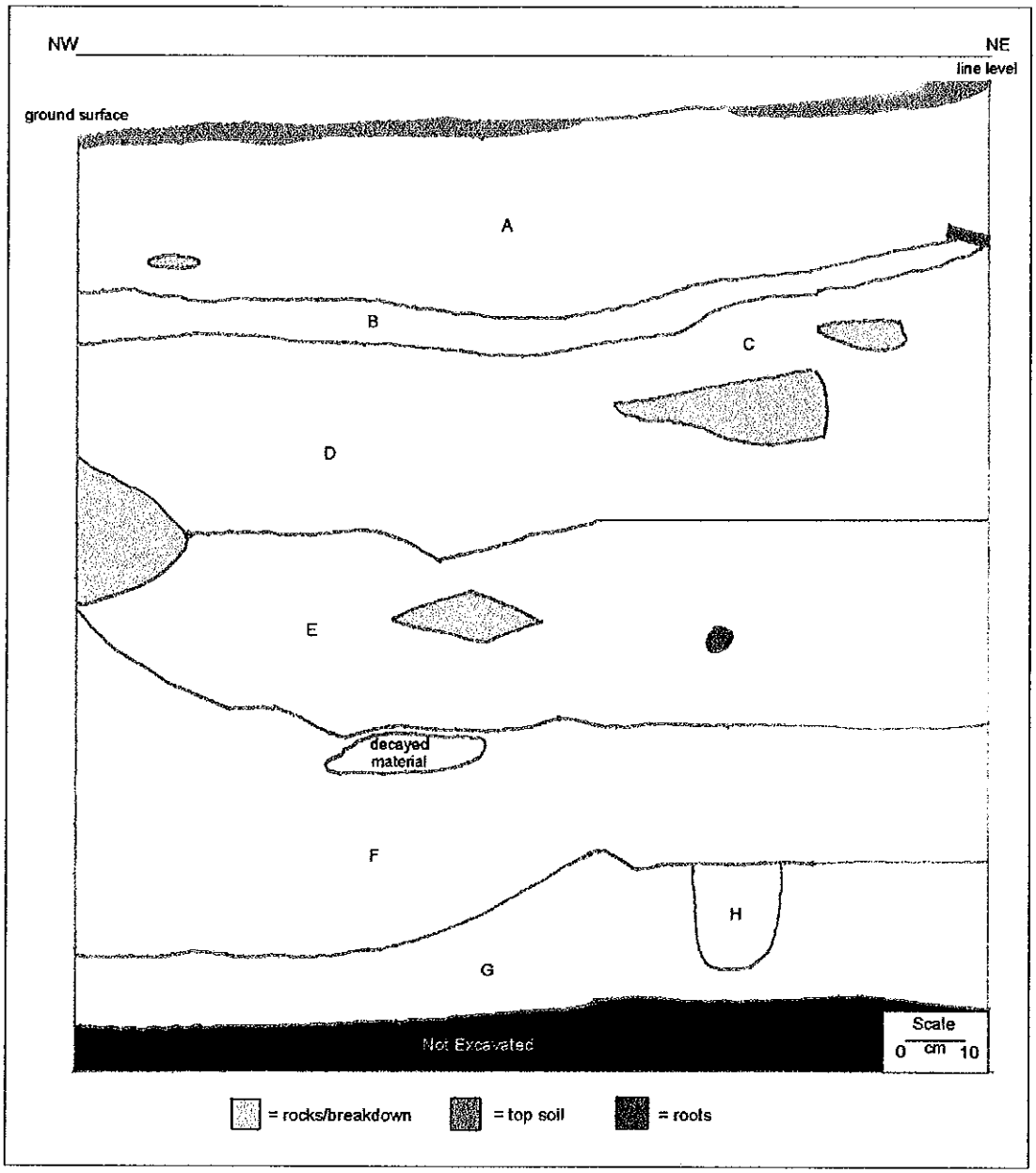
The next 10 cm resemble that of Zone B. Again, this zone was not sterile in this unit. The cultural material was again minimal, but a flake was encountered along with burnt sandstone, charcoal, and burnt nutshell. The zone had a distinct boundary on top and a gradual boundary on bottom. The next zone had the same appearance as Zone C. This zone spanned the next 35 cm. Many large, unmovable breakdown blocks were present. Cultural material increased in this zone; charcoal, burnt sandstone, flakes, and a pottery sherd were found.

The following 20 cm also contained pieces of breakdown. It was in this zone that the stratigraphy of Unit 2 became unique. The cultural material declined to small bits of charcoal and burnt sandstone. In addition to the breakdown, large roots from the nearby tree were prominent in this zone. The next zone contained a great deal of decayed material and decayed sandstone and was the only zone with a sandy loam texture. Cultural material consisted of burnt sandstone, charcoal, and a small fragment of burnt nutshell. The last 10-20 cm of the unit contained rocks, breakdown, and a possible rodent burrow. Cultural material was predominately charcoal with some burnt sandstone.

### Unit 4/5

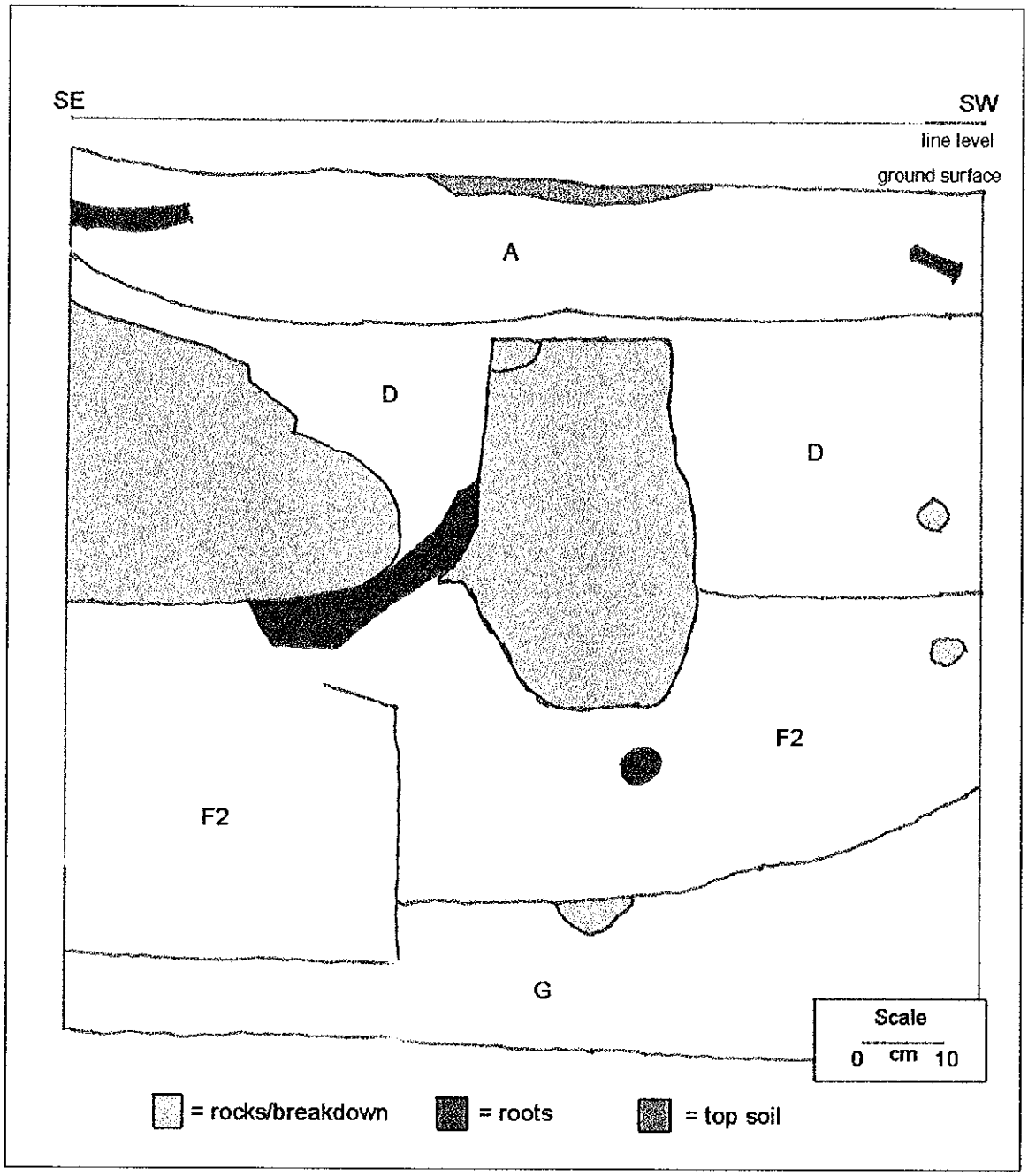
Zone A was a sterile deposit consisting of historic colluvium as in Unit 3/6 (Figures 30-35). Roots were numerous and a hindrance to excavation. The colluvial fill was about 40 cm thick and way underlaid by a smaller, thinner zone of sediment. This zone, unique to Unit 4/5, had a gradual top boundary and was essentially sterile with the exception of some charcoal and burnt sandstone. The bottom boundary was a distinct change into the next zone.

Zone B, also unique to this unit, was much darker, but was also quite thin. Only charcoal and burnt sandstone were found in this zone as in the one previous. The top boundary was quite distinct, but the bottom boundary gradually dissolved into the next zone, which resembled Zone B from Unit 3/6. These top three zones were all silt or silt loam, a feature that characterized the top zone in Units 2 and 3/6. In this unit, Zone B did not continue all the way to the east wall; it abuts a barrier of breakdown. Artifacts found in this zone included charcoal, burnt sandstone, and numerous flakes.



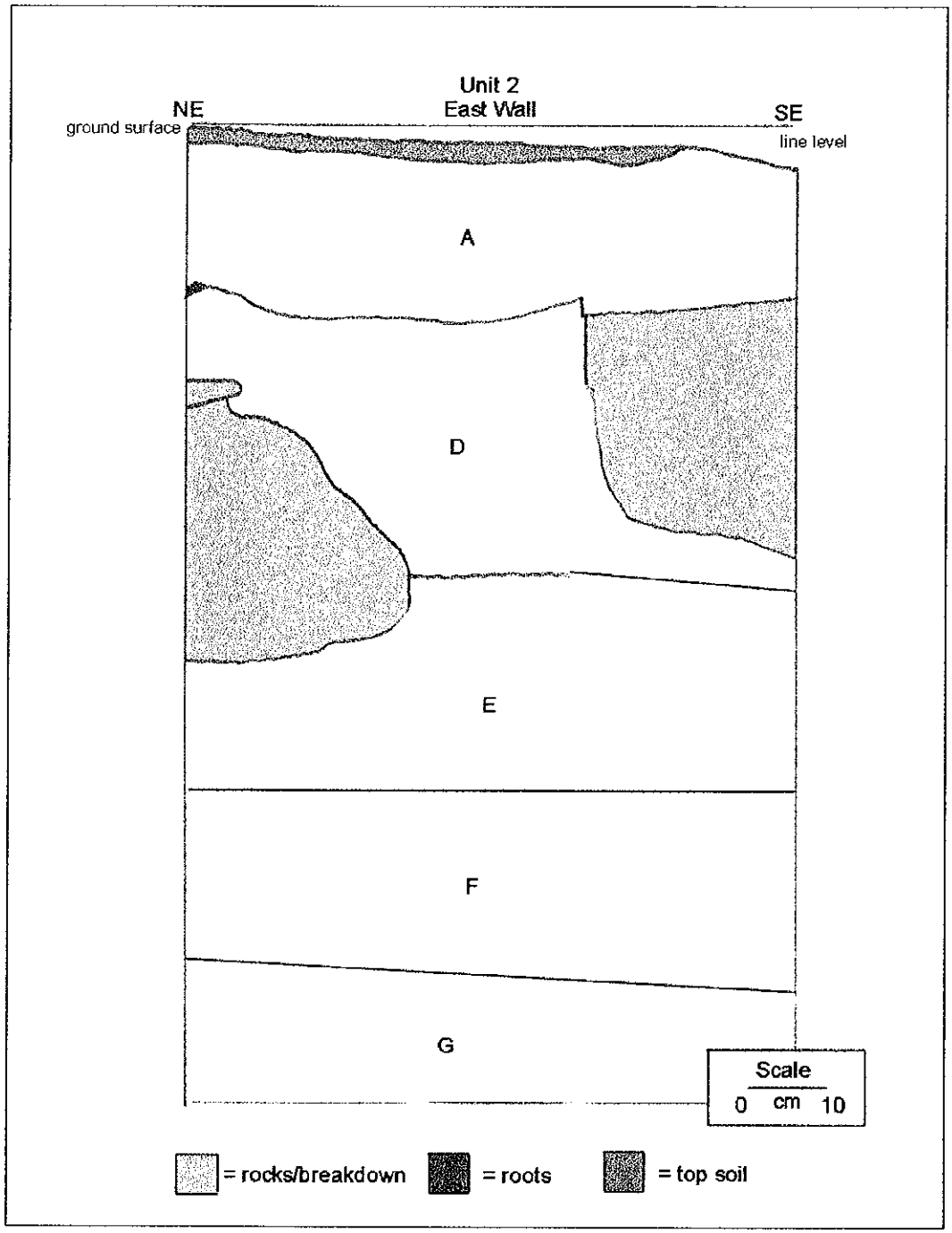

| CVS # | Munsell | Texture |
|---|---|---|
| A | 10YR5/4 | silt loam |
| B | 10YR5/3 | loamy sand |
| C | 7.5YR5/6 | loamy sand |
| D | 10YR5/6 | loamy sand |
| E | 7.5YR5/6 | sandy loam |
| F1 | 7.5YR5/6 | sandy clay loam |
| F2 | 10YR4/6 | sandy clay loam |
| G | 10YR5/8 | sandy clay loam |
| H | 10YR5/6 | sandy clay loam |

Figure 25: Profile drawing of Unit 2 North Wall.



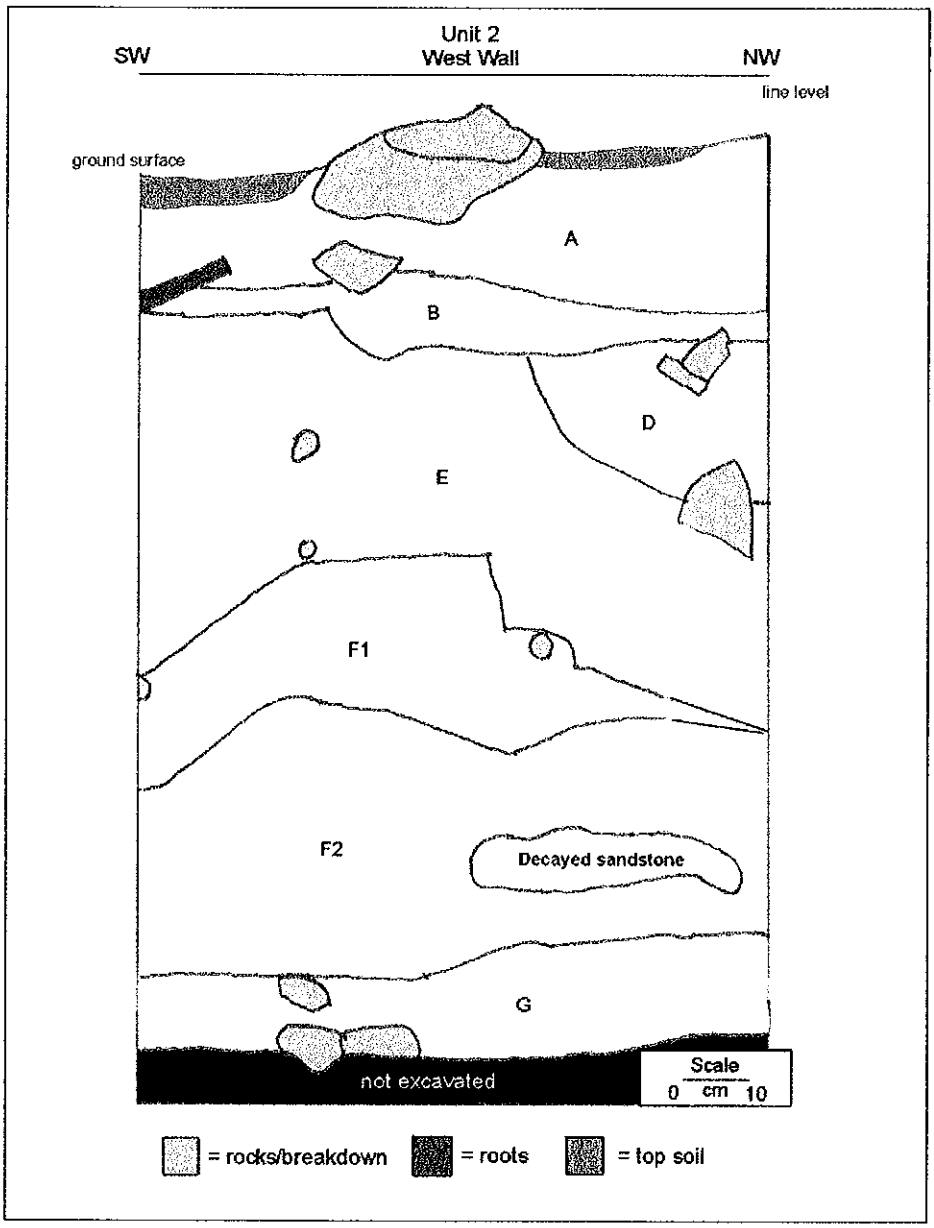

| CVS# | Munsell | Texture |
|---|---|---|
| A | 10YR5/4 | silt loam |
| D | 10YR5/6 | loamy sand |
| F2 | 10YR4/6 | sandy clay loam |
| G | 10YR5/8 | sandy clay loam |

Figure 26: Profile drawing of Unit 2 South Wall.



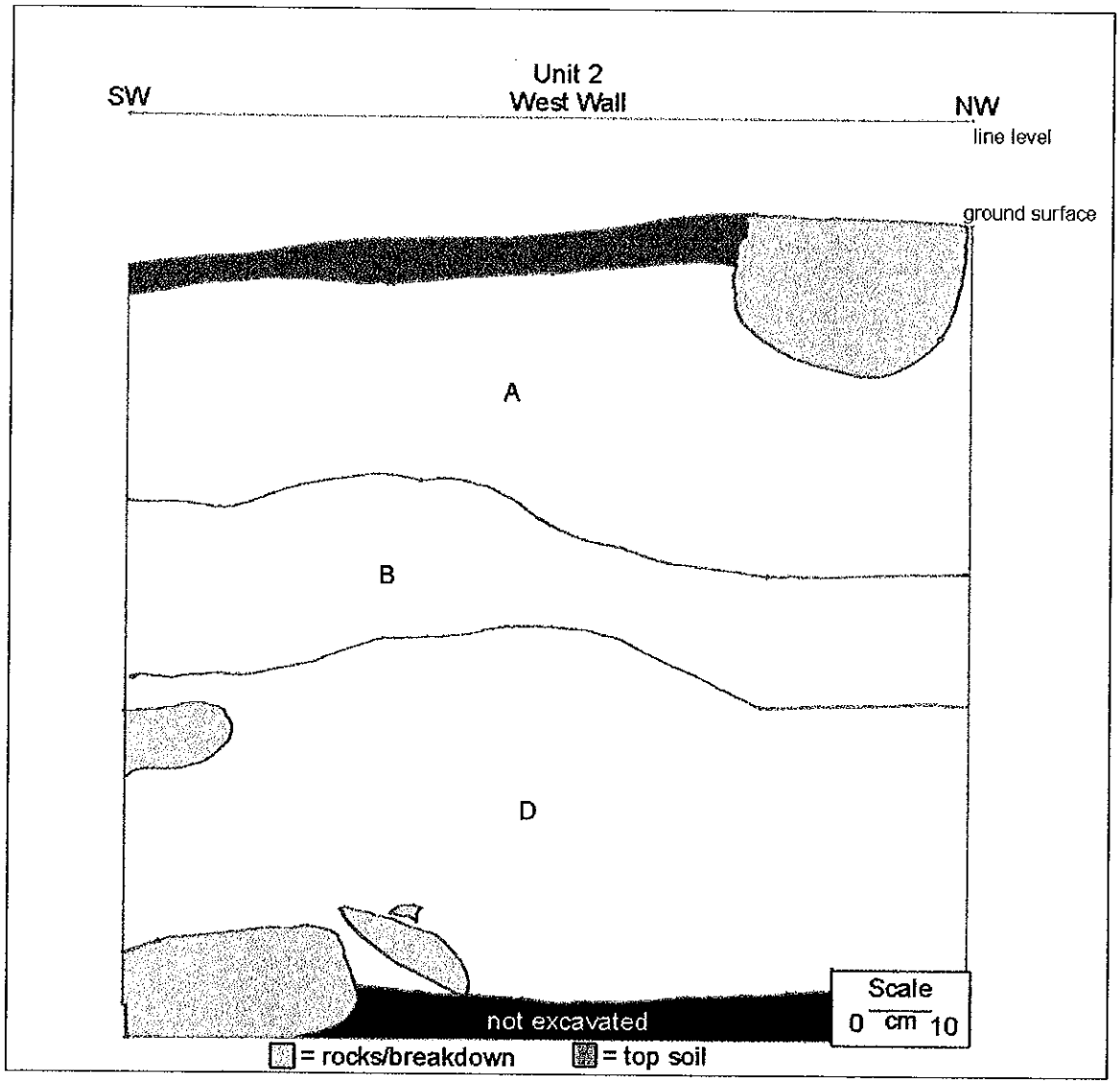

| CVS# | Munsell | Texture |
|---|---|---|
| A | 10YR5/4 | silt loam |
| D | 10YR5/6 | loamy sand |
| E | 7.5YR5/6 | sandy loam |
| F1 | 7.5YR5/6 | sandy clay loam |
| G | 10YR5/8 | sandy clay loam |

Figure 27: Profile drawing of Unit 2 East Wall.



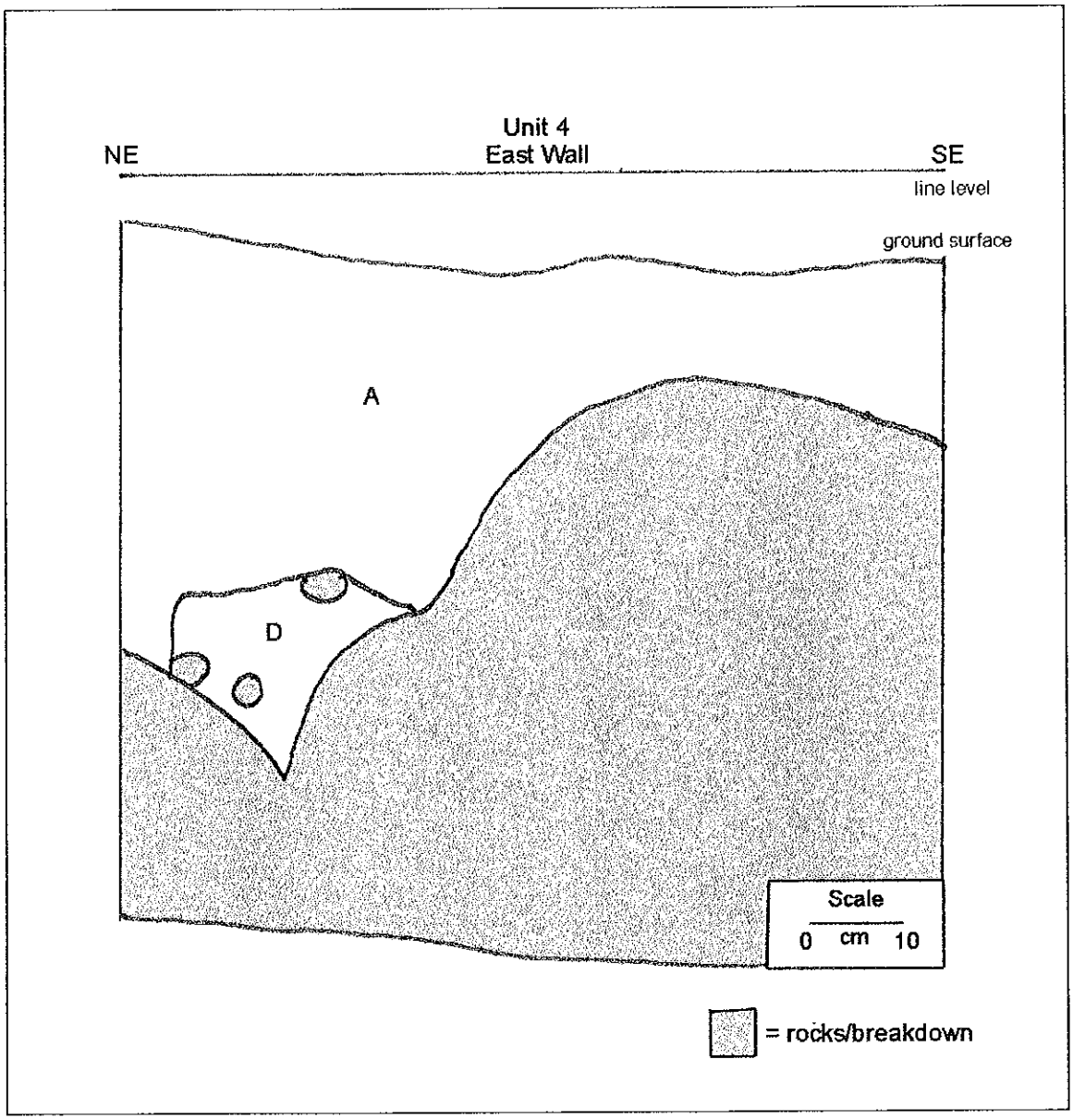

| CVS# | Munsell | Texture |
|---|---|---|
| A | 10YR5/4 | silt loam |
| B | 10YR5/3 | loamy sand |
| D | 10YR5/6 | loamy sand |
| E | 7.5YR5/6 | sandy loam |
| F1 | 7.5YR5/6 | sandy clay loam |
| F2 | 10YR4/6 | sandy clay loam |
| G | 10YR5/8 | sandy clay loam |

Figure 28: Profile drawing Unit 2 West Wall, excavation complete.



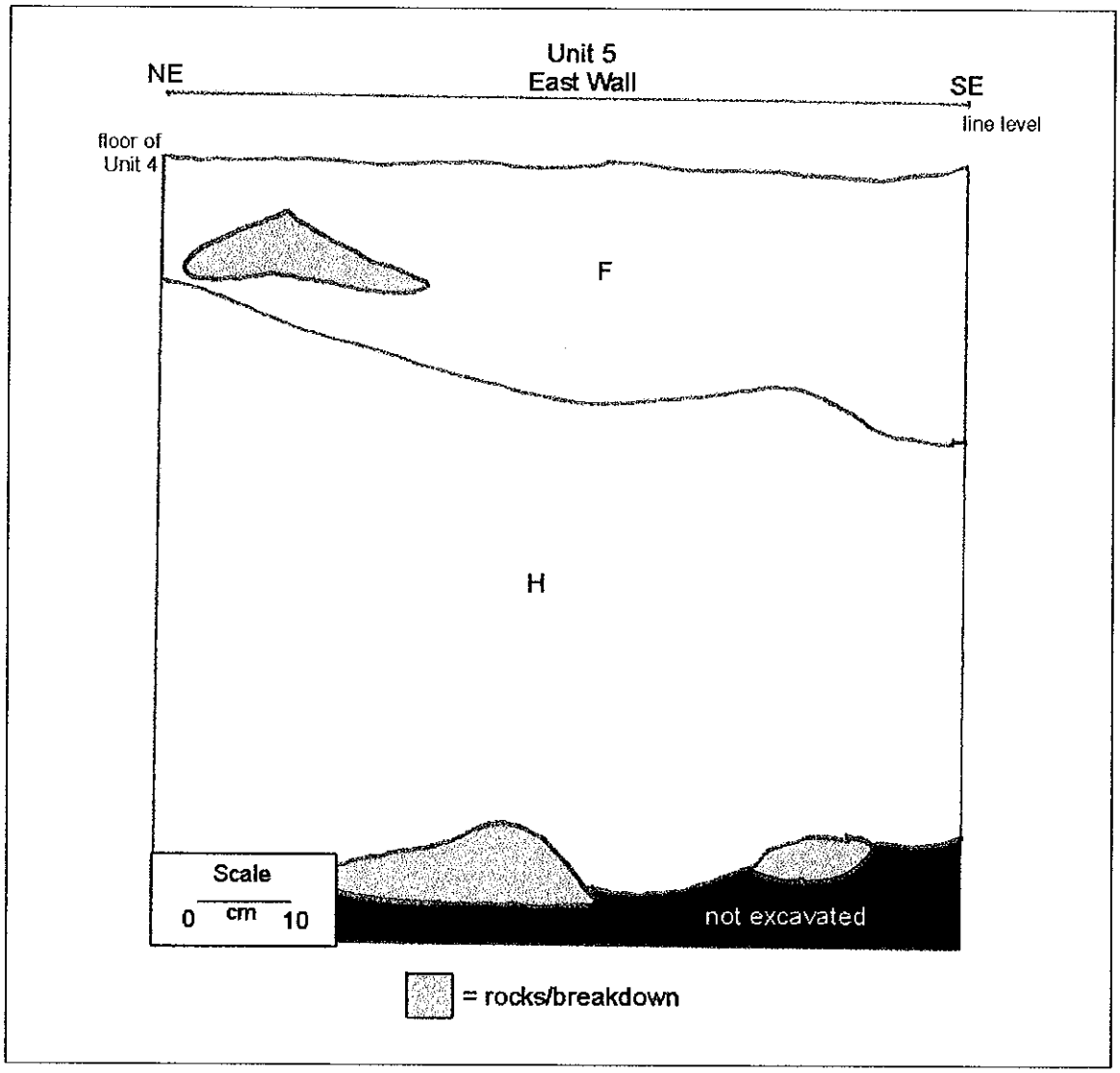

| CVS# | Munsell | Texture |
|---|---|---|
| A | 10YR5/4 | silt loam |
| B | 10YR5/3 | loamy sand |
| D | 10YR5/6 | loamy sand |

Figure 29: Profile of Unit 2 West Wall, before unit expansion.



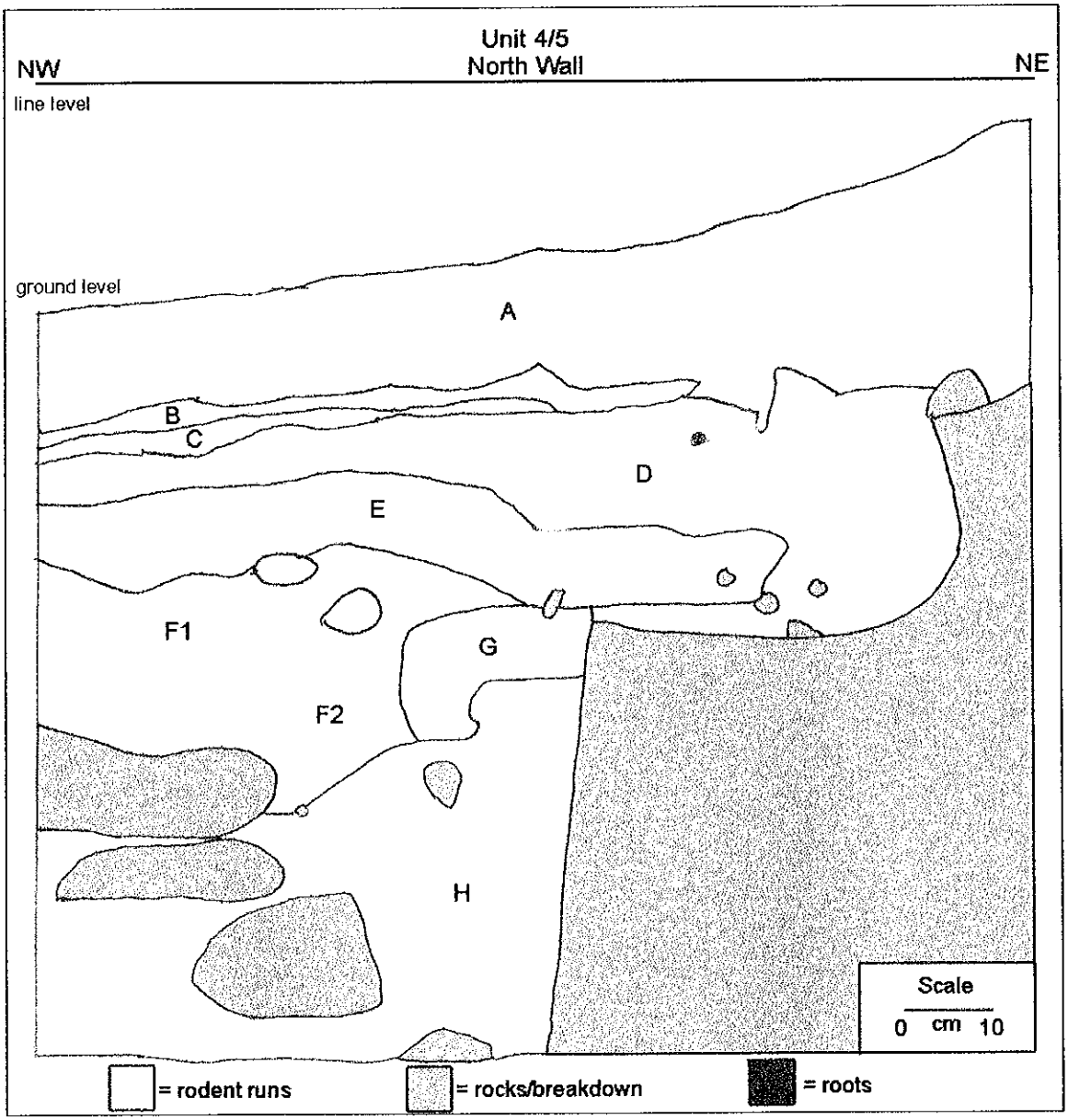

| CVS# | Munsell | Texture |
|---|---|---|
| A | 10YR5/4 | Silt |
| D | 10TR4/3 | Sandy Loam |

Figure 30: Profile drawing of Unit 4 East Wall.



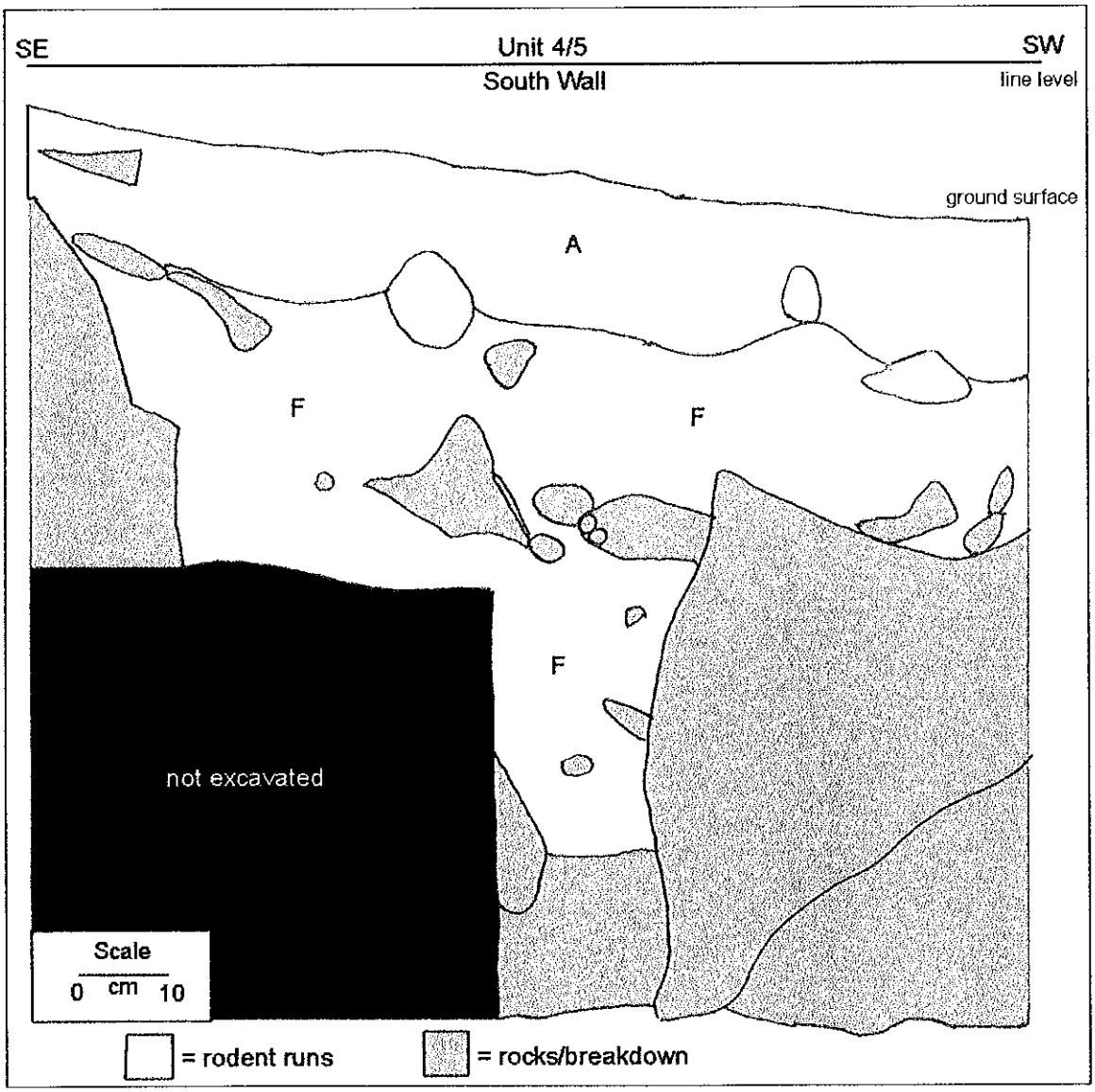

| CVS# | Munsell | Texture |
|---|---|---|
| F | 10YR4/4 | sandy clay loam |
| H | 7.5YR4/6 | silty clay loam with charcoal |

Figure 31: Profile drawing of Unit 5 East Wall.



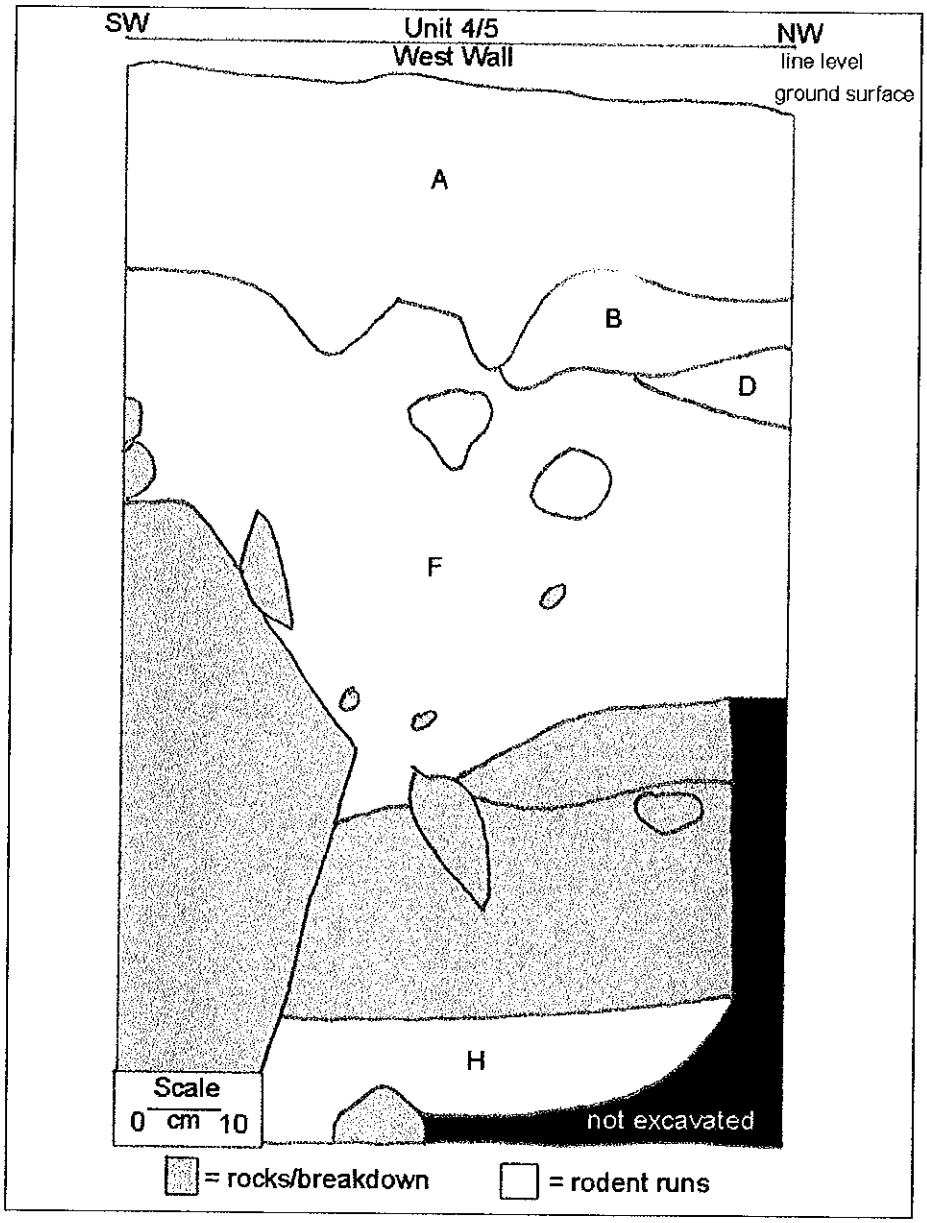

| CVS# | Munsell | Texture |
|---|---|---|
| A | 10YR5/4 | silt |
| B | 10YR5/4 | silt |
| C | 10YR5/3 | silt loam |
| D | 10YR4/3 | sandy loam |
| E | 10YR4/4 | sandy loam |
| F1 | 10YR4/4 | sandy clay loam |
| F2 | 10YR4/4 | sandy clay loam |
| G | 10YR4/4 | sandy clay loam |
| H | 7.5YR4/6 | silt clay loam with charcoal |

Figure 32: Profile drawing of Unit 4/5 North Wall.



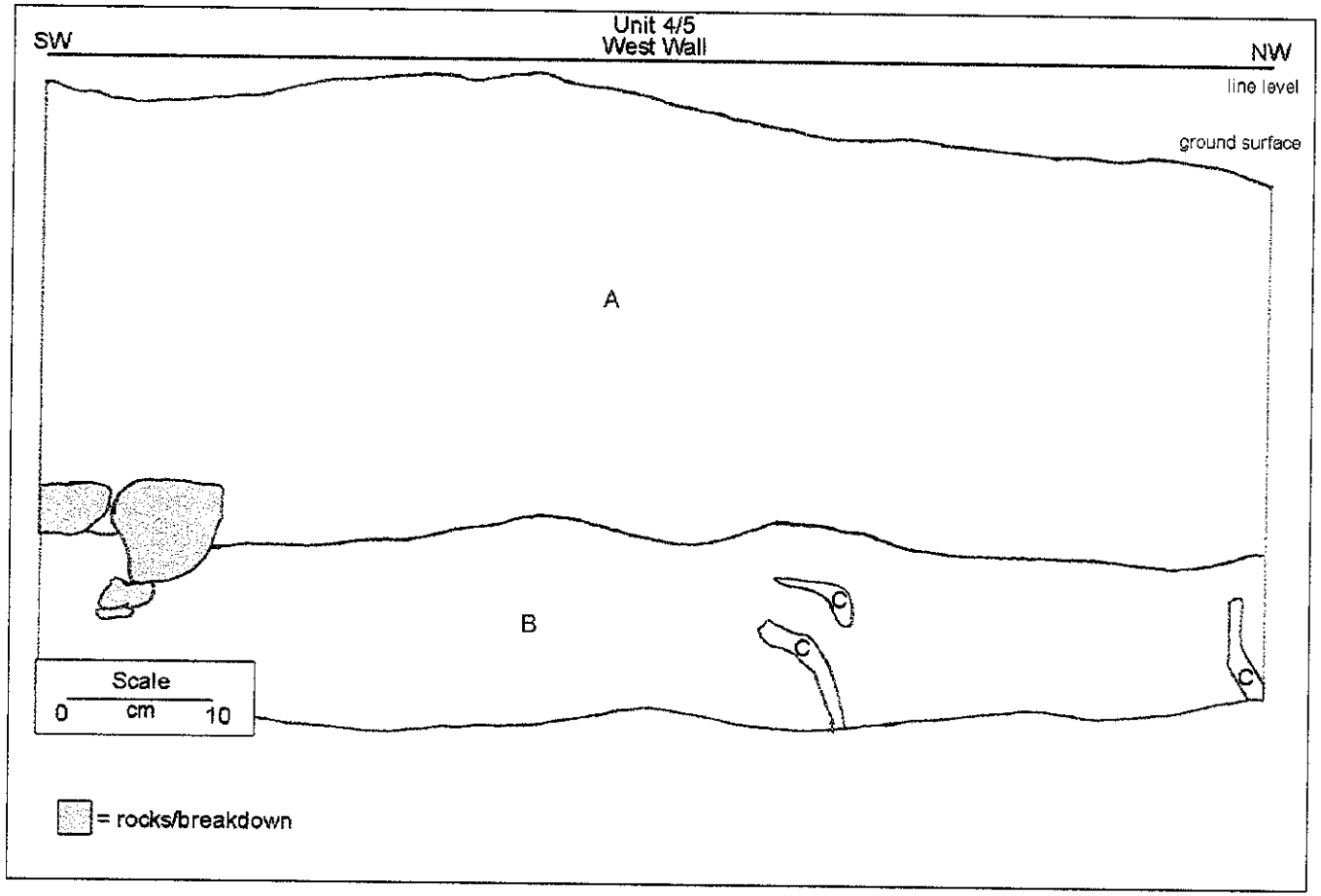

| CVS# | Munsell | Texture |
|---|---|---|
| A | 10YR5/4 | silt |
| F | 10YR5/4 | sandy clay loam |

Figure 33: Profile drawing of Unit 4/5 South Wall.




| CVS# | Munsell | Texture |
|---|---|---|
| A | 10YR5/4 | silt |
| B | 10YR5/4 | silt |
| D | 10YR4/3 | sandy loam |
| F | 10YR4/4 | sandy clay loam |
| H | 7.5YR4/6 | silty clay loam with charcoal |

Figure 34: Profile drawing of Unit 4/5 West Wall.




| CVS# | Munsell | Texture |
|---|---|---|
| A | 10YR5/4 | silt |
| B | 10YR5/4 | silt |
| C | 10YR5/3 | silt loam |

Figure 35: Profile drawing of Unit 4 West Wall.

The next zone appeared to be part of the zone with habitation material as in Zone E of Unit 3/6. An abundance of flakes, burnt nutshell, burnt sandstone, and charcoal was found. The boundary of the next zone was not very distinct. It was possible that this zone was also part of the main matrix. The material was the same in this zone as it was in the previous zone. Two rodent runs were noted on the north wall profile. The bottom of this zone was covered by breakdown. We broke up the breakdown to see if more deposits were below it. Although some intermittent areas of soil were encountered, identified as the next zone in the stratigraphic profile, we were unable to get through the breakdown deposit. The final zone above the impenetrable breakdown did produced some cultural material.

On the east half of the north wall was a zone that was associated with the breakdown in the unit. It was predominately covered in breakdown that was removed throughout excavation. There was very little in the way of cultural material in this zone, mainly charcoal. Just under this zone another zone associated with breakdown was encountered. It was darker in color and charcoal and some flakes were found there.

**Discussion**

Overall the stratigraphy of the site, although somewhat unique to each unit, was generally similar with the exception of Unit 1. The upper silty layers in Units 2, 3/6, and 4/5 were representative of the historic colluvial deposits which did not occur in Unit 1. The surface of Unit 1 was 3 m lower than the surface of Unit 4/5 and was also underneath an overhang rather that at the drip line. Thus, we should expect differences in the deposition between these units. However, even though Unit 1 was so much lower than the other units under the colluvial fan, it contained the same sequence of diagnostic artifacts suggesting that it was intact. Given the dates of diagnostic artifacts from Unit 3/6, the top of the massive breakdown in that unit should be equivalent to the lower cultural levels of Unit 1. The depth of the colluvial fan was not sufficient to account for the differences in depths between Unit 1 and Unit 3/6. Thus, it appears that there was additional deposition associated with the drip line in the higher parts of the site.

It appears that the stratigraphy of Unit 2 was highly influenced by its location adjacent to the large breakdown containing the bedrock mortars. The sediments in Unit 2 were the result of infilling between the shelter wall and the large breakdown in front of it.

The stratigraphy of Units 3/6 and 4/5 appear to represent ongoing sedimentation that occurred at the drip line of the current front of the upper shelter overhang. All cultural materials in these units were buried below the colluvial deposits, suggesting that the colluvium was of historic age. It seems probable that the colluvium was the result of historic land clearing and subsequent erosion of the upland above the shelter. Interestingly, no historic artifacts were recovered from the colluvium with the exception of the burnt sandstone, charcoal and nutshell from the upper deposit in Unit 2. It seems safe to characterize the archaeological deposits in the Celina shelter as sealed under a sterile cap of colluvium excpt at the location of Unit 1.

## CONCLUSIONS

Test excavations at the Celina shelter (12-Pe-1023) produced a wide range of archaeological data. Data relevant to these goals were acquired during the project. A summary of these data are presented below.

Excavation of the units produced over 1,000 artifacts, most of chipped stone manufacture, but some prehistoric ceramics were also present. Although no definable living floors were found during the excavations of the units, the artifacts appeared to be in relative stratigraphic position with the older artifacts underlying the more recent artifacts. Diagnostic artifacts showed that site occupations above the massive breakdown found in the lowest levels of units 4/5 and 3/6 dated from the Early Archaic through at least the late Middle Woodland period. No historic artifacts were found, an unexpected situation given the intensity of historic activity associated with the Rickenbaugh House and Tannery. There were no historic artifacts to suggest that a historic Native American family lived in the Celina Shelter as indicated in the local folklore.

The artifacts that were recovered from the site were primarily unmodified flakes resulting from the reduction of chipped stone artifacts to tools and resharpening of existing tools. Few tool types were found suggesting that a limited range of activities were taking place at the site. Of course, this characterization is dependent upon the materials recovered from the four units being representative of the activities that occurred there. This may not be the case.

The identification of the raw material sources for chipped stone artifacts found in the site suggested that the prehistoric inhabitants were ranging across an area within a 20-30 km radius of the Celina Shelter. In order to define movement patterns from the chipped stone raw materials, more specific associations with particular time periods and components was needed. The lack of living floors and features was a detriment to documenting specific components and artifacts in the site. However, this avenue of research could be very fruitful with other assemblages from more fully excavated rockshelters.

Unit 1, excavated adjacent to the active drainage channel under the largest overhang, contained the greatest abundance of artifacts although the unit was not as deep as the other units. A Late Archaic point was recovered from Level 6 and more recent prehistoric ceramics were recovered above the point. Although differences were apparent between Unit 1 and the other units, these were difficult to rectify with the small excavation sample. However, given that artifacts are at the surface at Unit 1, this location would be at the highest risk for pothunting and other disturbances to the archaeological resources that are there..

The attempt to discover materials related to the processing activities associated with the two bedrock mortars was not successful. The unit placed under the small overhang adjacent to the bedrock mortars was the least productive of the four units. This unit did, however, demonstrate that sediment had filled the space between the large piece of breakdown containing the bedrock mortars and the cliff face behind it. Chipped stone and ceramic artifacts were found

in this unit into Level 7 and burned nutshell was recovered down to Level 12. Neither bedrock nor sterile deposits were reached.

The two units placed on the highest part of the colluvial fan showed that cultural materials were buried there into Level 17. These artifacts were found at the bottom of the units at the interface with massive breakdown. We were unable to break through the large sandstone blocks at the bottom of the units. However, it was apparent that the breakdown had been exposed on the surface for sufficient time to produce rounded surfaces. The Early Archaic point recovered from Level 14 suggested that the breakdown predated the Early Archaic occupation. These units also showed the amount of sedimentation that has occurred in this part of the site. Although the ceiling height is very low today, more than 3,000 years ago, there would have been almost two meters of space between the floor and ceiling.

The data recovered from the site was also used to elucidate the goals that were developed for the project. The relationship between the data and the goals is presented below.

Goal 1. *Investigate the utility of shovel testing for discovering archaeological deposits in rockshelters.*

During this project, four shovel tests were excavated in the Celina Shelter. The sediment taken from the shovel tests was screened, but only one shovel test contained artifacts. The shovel tests were then enlarged to 1 m x 1 m units and excavated in arbitrary 10 cm levels. Two of the units contained artifacts in the levels that were at the bottom of the shovel tests. One of the units did not contain artifacts until a depth of 70 cm was reached. What can be concluded from this limited test of these methods? First, it is obvious that shovel tests will only recover artifacts that are near the surface in rockshelters. Given the complexity of the formation processes that occur within rockshelters, it is also evident that placement of shovel tests is critical to the likelihood that artifacts will be encountered. In the Celina Shelter, at the location where the colluvial fan was absent, artifacts were found in the shovel test placed there. This location was below an overhang. Other shovel tests in the site were placed where roofed areas were present, but the shovel tests were placed at the drip line because the interior was too low for access. Thus we can conclude that placement of units is critical to encountering artifacts and that complex depositional histories may make selection of locations for shovel tests very difficult. Based on the results of this project, it would appear that test units would be preferable to shovel testing for defining the presence of cultural material in rockshelters. Of course, this recommendation is obvious since it is well known that the size of the sample unit is directly proportional to what is recovered

Goal 2. *Investigate the relationships between the current configuration of the shelter and its previous configurations.*

Data acquired during the project showed that the configuration of the Celina Shelter has changed considerably during the past several thousand years. Changes detected during the

project were primarily related to sedimentation of the floor and reduction in roof height. Sediments up to 1.7 m deep were documented above a massive breakdown episode. Attempts to break through the breakdown to sample the deposits below it were not successful. Essentially, we can confidently state that the shelter was more habitable up to the Late Archaic period because of greater ceiling height.

Goal 3. *Acquire data to test the prevailing model of rockshelter use in the Hoosier National Forest.*

Data relevant to testing the prevailing model of short-term and predominantly recent use of rockshelters in the Hoosier National Forest was acquired. Sampling the more deeply buried deposits in the site revealed an Early Archaic through Late Woodland habitation of the shelter. This chronology of occupations challenges the predominant use of rockshelters by the more recent prehistoric inhabitants of the region. The lack of features and a wide range of tool types in the excavated sample appears to support the modeled short-term use of the site. Adopting this conclusion, however, must be tempered by the small size of the sample recovered from the site.

Goal 4. *Acquire data relevant to the prehistory of the region.*

A variety of data relevant to the prehistory of the region was recovered. These data included information on culture history and past lifeways. The shelter contained data on occupation of the site from the Early Archaic through at least the Late Woodland periods. Raw materials associated with chipped stone artifacts showed that the inhabitants of the site ranged across a wide territory and suggested information about past settlement patterns that included the site as a component. One unique feature of the chipped stone artifacts in the site was the use of sandstone for raw material. This use has not been widely documented in the region.

In summation, testing of the Celina Shelter produced important information on the use of rockshelters and the regional culture history. The site served as a laboratory for testing ideas about the nature of buried deposits in rockshelter sites in the Hoosier National Forest and showed that shovel testing was an inadequate technique for determining whether deeply buried deposits were present in these types of sites. Although no features were found during the test excavations at the Celina Shelter, buried deposits dating over a period of approximately 8,000 years were found. The site contained archaeological deposits that were buried up to 1.7 m deep that were not disturbed by historic activities. It is our opinion that the investigations documented in this report demonstrated that the site contains data important to the regional culture history and that the site is significant. It is our opinion that the site is eligible for nomination to the Indiana and National Registers of Historic Places.

## REFERENCES CITED


Broyles, Betty J.
1971 Second Preliminary Report: The St. Albans Site, Kanawha County, West Virginia. West Virginia Geological and Economic Survey.

Cantin, Mark
1994 Provenance, Description, and Archaeological Use of Selected Chert Types of Indiana. Draft report on file, Archaeological Resources Management Service, Ball State University.

Chapman, Jefferson
1978 The Bacon Farm Site and a Buried Site Reconnaissance. Reports of Investigation 23, Department of Anthropology, University of Tennessee.

Cook, Thomas
1980 Analytical Procedures and Artifact Typologies. In, Archaeological Salvage Excavations at Patoka Lake, Indiana, edited by Cheryl Ann Munson. Glenn A. Black Laboratory of Archaeology, Indiana University.

Cooke, Sarah E. and Rachel B. Ramadhyani
1993 Indians and a Changing Frontier: The Art of George Winter. Indiana Historical Society, Indianapolis.

Dawson, Alastair G.
1992 Ice Age Earth: Late Quaternary Geology and Climate. Routledge. London and New York.

Fitting, James, editor
1979 A Cultural Resource Overview of the Hoosier National Forest, Volume 1. Report No. R-1920. Prepared for the USDA Forest Service, Eastern Region. Commonwealth Associates Inc. Jackson, Michigan.

Freudenrich, Kathleen L.
1980 A Reconstruction of the Presettlement Forest Composition for the Upper Patoka Drainage Basin. In, Archaeological Salvage Excavations at Patoka Lake, Indiana: Prehistoric Occupations of the Upper Patoka River Valley, edited by Cheryl Ann Munson, pp. 47-71. Glenn Black Laboratory of Archaeology, Indiana University.

Gray, Henry H.
1978 Buffalo Wallow Group, Upper Chesterian (Mississippian) of Southern Indiana. Geological Survey Occasional Paper 25, Department of Natural Resources.

Gutschick, Raymond C.
1966 Bedrock geology. *In:* Lindsey 1966, pp. 1-20.

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

Kellar, James H.
1958 An Archaeological Survey of Perry County. Indiana Historical Bureau, Indianapolis.

1983 An Introduction to the Prehistory of Indiana. Indiana Historical Society, Indianapolis.

Krieger, Angie R.
1997 Indiana Historic Sites and Structures Inventory - Archaeological Sites: Site 12-Pe-1023. Photocopy on file, ARMS, BSU.

Lindsey, Alton A., ed.
1966 Natural Features of Indiana. Indiana Academy of Science, Indianapolis.

Malott, Clyde A.
1924 The Upper Chester of Indiana. *In*: Davis, J.J. (ed.) Proceeding of the Fortieth Annual Meeting, Indiana Academy of Science. Vol. 34. Pp. 103-132

Martin, Andrew V.
2000 Investigating the Archaeological Potential of Rockshelters: An Example from Crawford and Perry Counties, Indiana. MA Thesis, Department of Anthropology, Ball State University.

Martin, Andrew V. and Nikki Waters
2000 Rockshelter Survey and Testing in the Proposed Branchville Archaeological District, Hoosier National Forest, Perry County, Indiana. Reports of Investigation 56, Archaeological Resources Management Service, Ball State University.

Moore, Mark W.
1992 A Summary of East Central Indiana Prehistoric Knapping Techniques. In, Native American Cultures in Indiana: Proceedings of the First Minnetrista Council for Great Lakes Native American Studies, Edited by Ronald Hicks. Minnetrista Cultural Center and Ball State University.

Mumford, R.E.
1966 Mammals. In, Lindsey 1966.

Munson, Cheryl Ann (ed.)
1980 Archaeological Salvage Excavations at Patoka Lake, Indiana: Prehistoric Occupations of the Upper Patoka River Valley. Research Report 6. Glenn Black Laboratory of Archaeology. Indiana University.

Munson, Patrick, ed.
1984 Experiments and Observations on Aboriginal Wild Plant food Utilization in Eastern North America. Prehistoric Research Series 6(2), Indiana Historical Society.

Petty, R.O. and M.T. Jackson
1966 Plant Communities. In, Lindsey 1966.

Reidhead, A.
1981 A Linear Programming Model of Prehistoric Subsistence Optimization: A Southeastern Indiana Example. Indianapolis : Indiana Historical Society.

Robbins, John M. Jr.
1969 Soil Survey of Perry County, Indiana. U. S. Department of Agriculture Soil Conservation Service and Forest Service, Washington, D.C.

Schiffer, Michael B.
1987 Formative Processes of the Archaeological Record. University of New Mexico Press, Albuquerque.

Schneider, A. F.
1969 Physiography. In Lindsey 1966.

Seiber, Ellen, Edward E. Smith and Cheryl Ann Munson
1989 Archaeological Resource Management Overview for the Hoosier National Forest, Indiana. Reports of Investigations 89-9. Glenn A. Black Laboratory of Archaeology, Indiana University, Bloomington, Indiana.

Shaver, R.H. et al.
1970 Compendium of Rock-Unit Stratigraphy in Indiana. Geologic Department of Natural Resources

Smith, Edward
1982 An Archaeological Reconnaissance of Rockshelter Sites in Perry and Crawford Counties, Indiana: Preliminary Report. MS Photocopy on file, Archaeological Resources Management Service, Ball State University.

1983 National Register of Historic Places-Nomination Form: Branchville Rockshelter Archaeological District. Photocopy MS on file, Archaeological Resources Management Service, Ball State University.

Stafford, C. Russell, Ronald L. Richards and C. Michael Anslinger
2000 The Bluegrass Fauna and Changes in Middle Holocene Hunter-Gatherer Foraging in the Southern Midwest. American Antiquity 65(2): 317-336.

Swanton, John R.
1979 The Indians of the Southeastern United States. Smithsonian Institution Press, Washington, D.C.

Ulrich, H.P.
1966 Soils. In, Lindsey 1966.

Waters, Michael R.
1992 Principles of Geoarchaeology: A North American Perspective. University of Arizona Press: Tuscon.

Waters, Nikki & Donald Cochran
1999 Rockshelter Survey and Testing in the Hemlock Cliff and Mesmore Cliffs Areas of the Hoosier National Forest, Crawford County, Indiana. Volume 1 & 2. Prepared for the Hoosier National Forest. Archaeological Resources Management Service, Ball State University. Report of Investigation 53. Muncie, Indiana.

Wayne, William J.
1966 Ice and land. In Lindsey 1966, pp. 21-39.

Zawacki, April Allison & Glenn Hausfater
1969 Early Vegetation of the Lower Illinois Valley: A Study of the Distribution of Floral Resources with Reference to Prehistoric Cultural-Ecological Adaptation. Research Papers, Vol 1. Reports of Investigations, No. 17. Illinois Valley Archaeological Program. Springfield, Illinois.

# APPENDIX A

## Chipped Stone Artifact Classifications

**Chipped Stone Artifact Class Definitions**
(after Cochran 1985, Cochran 1991)

**Core.** A core is a nucleus of stone exhibiting one or more negative flake scars (Crabtree 1972:54). Objects categorized as cores may range from a simple nucleus with only one negative flake scar to specialized forms with multiple flake removals. Striking platforms may be prepared or unprepared. Cores can be subdivided into more specific types (cf. Montet-White 1963:6-7; Callahan 1979,41, 53; Wepler and Cochran 1982:38-40).

**Biface.** An artifact with negative flake scars covering both surfaces either partially or wholly is herein termed a biface (Crabtree 1972:38; Tixier 1974: 4). As used here, a biface has no modification for hafting and bifaces are viewed as stages in the manufacture of points. In order to avoid confusion, the terms "blank," "blade," and "preform" are not normally applied to bifaces. Blank and preform are general terms that can be applied to a number of manufacturing sequences (e.g., gorget blank or preform, celt blank or preform, etc.). Use of the term blade is restricted to a specific type of flake with parallel sides and a length that is two times greater than width, or a particular portion of a point: the blade element. In the latter case, the term is only used when discussing points. Callahan (1979) separates bifaces into stages or levels of reduction beginning with the selection of the raw material (Stage 1) and continuing through successive levels of refinement (Stages 2, 3, 4, etc.).

**Stage 2 Bifaces.** A stage 2 biface is defined as "that stage during which the core blank or spall is given an edge . . . or, where the edge is too sharp and low-angled,. . it is thickened so that roughly centered, circumferential edge-angles of between 55 degrees to 75 degrees result. Flake scars may cover less than half of the width of the biface, producing a hexagonal, irregular to thick lenticular cross-section" (Callahan 1979:36).

**Stage 3 Bifaces.** Stage 3 bifaces represent "that stage (primary thinning) during which a lenticular cross-section is obtained by means of striking so as to drive flakes from the edge to or slightly beyond the center of the biface, contacting or slightly undercutting similar flake scars taken from the opposite margin . . . . Aligned, centered edge-angles of between 40 degrees and 60 degrees should result so that secondary thinning may be effected subsequently" (Callahan 1979:37).

**Stage 4 Bifaces.** Stage 4 bifaces represent "that stage (secondary thinning) in which a flattened cross-section is obtained by means of striking flakes so that they considerably undercut prior flake scars from the opposite margin and so that the width/thickness ratio is made to fall between roughly 4.00 and 5.00 or more. Aligned, centered edge-angles of between 25 degrees and 45 degrees and surfaces without significant humps, hinges, step-fractures, or median convexity (Callahan 1979:37).

**Biface Fragments.** Biface fragments consist of various portions of bifaces broken either

during manufacture of through use.

**Flake.** A flake is "any piece of stone removed from a larger mass by the application of force - either intentional, accidentally, or by nature" (Crabtree 1972:64).

**Unmodified Flake.** Flakes in this class show no modification or wear on the edges. These flakes show no detectable utilization.

**Modified Flakes.** Modified flakes are unspecialized flake tools distinguished by regular edge wear that is most often recognized as a continuous row of small flakes removed along one flake edge. Flake margins can be modified during cultivation of a site, by lake shore erosion, spontaneous retouch during lithic reduction and a variety of other natural and mechanical processes. It is not normally possible to distinguish between prehistoric utilization and edge damage resulting from other causes without microscopic examination of all flake margins. For this classification, all flakes with regular edge modification were sorted into this class. Objects in this class are usually not morphologically distinct, and the class encompasses a wide range of diversity in size, shape, and construction of the modified edge or edges, including forms commonly referred to as sidescrapers.

**Block Flakes.** Block flakes are sharp-edged, irregularly shaped pieces of isotrophic stone that lack a striking platform, a positive or negative bulb of percussion, compression rings, or any other attribute associated with conchoidal fracture. Block flakes may occur naturally through frost cracking or uncontrolled heating (Watson 1956:19-21; Oakley 1956:9-11) of isotrophic stone. They can also be produced during chipped stone reduction where the raw material has been exposed to either of the above processes or when the material breaks along internal planes of weakness. In an archaeological assemblage, block flakes would occur in greater percentages where early stages of reduction occurred.

**Blades.** A blade is a specialized flake that has more-or-less parallel sides and is at least twice as long as it is wide. Thickness varies little along the length of the blade. Blades also have straight, parallel, or converging ridges on the dorsal surface (Movius et al. 1968:4; Crabtree 1972:42).

**Burin.** A flake, blade or other stone artifact that exhibits a right angled, chisel shaped edge on one or more margins is classified as a burin (Crabtree 1972:48). Since burin-like breaks can occur from unintentional breakage, all objects classified as burins are examined under 10X to 140X magnification. They are further required to exhibit at least one resharpening scar to be placed in this class.

**Gravers.** A flake, blade or other artifact that exhibits one or more small sharp points

(graver spurs) intentionally retouched from one or more margins of the artifact is classified as a graver (Crabtree 1972:68; Nero 1957:300). The retouching that isolates the graver spur may be unifacial or bifacial.

**Endscrapers.** Endscrapers are a morphologically distinct unifacial tool form resulting from the concentration of retouch on one end of a flake or blade (Crabtree 1972:60; Movius et al. 1968:9).

**Point.** A point is "any bifacially flaked, bilaterally symmetrical, chipped stone artifact exhibiting a point of juncture on one (distal) end and some facility (notching, constriction, lateral grinding) for hafting on the opposite (proximal) end. Thus, a point is a morphologically defined class of chipped stone tools, and the term. . does not convey any particular functional interpretation" (Ahler and McMillan 1976:165).

**Point Fragments.** Broken portions of points are sorted into this category. Hafting elements from broken points are, however, when distinctive, classified as points.

**Perforator.** "Bifacially chipped stone artifacts or artifact fragments with extremely narrow, parallel-sided blades and steep-angled lateral edges are classified as perforators (Ahler and McMillan 1976:179). Perforators are equivalent to artifacts frequently referred to as drills. Perforator is herewith preferred due to the more generalized suggestion of function as a piercing tool. Some artifacts in this class may represent exhausted cutting tools.

**Bipolar Artifacts.** This category includes those artifacts that are the result of bipolar flaking. Bipolar flaking involves resting a stone nucleus on an anvil and striking the nucleus with a hammerstone or billet (Flenniken 1982:32). The artifacts that result from bipolar flaking include bipolar cores (Hayden 1980:3-4), bipolar flakes (Kobuyashi 1975), and pieces esquillees (Hayden 1980:2-3). Bipolar cores exhibit opposing striking platforms of several types (Binford and Quimby 1964) and prominent negative flake scars. Bipolar flakes consist of the pieces of material detached from bipolar cores during bipolar flaking. Pieces esquillees are similar to bipolar cores except that they exhibit opposing ridge striking platforms and lack prominent negative flake scars; pieces esquillees tend to be rectangular while bipolar cores may exhibit any number of forms. There is considerable confusion in the archaeological literature in the use of the terms bipolar core and pieces esquillees. Some investigators use them interchangeably while others designate all bipolar nucleii as pieces esquillees (Hayden 1980). For the level of identification aimed for in this analysis, all bipolar artifacts are lumped together. Once the relevant technological, morphological, and functional attributes of bipolar artifacts are delineated, it will be possible to treat these artifacts in more detail.

**Other Chipped Stone.** Objects in this category includes flakes and pieces of stone that have been chipped, pecked or ground although the reduction processes are incomplete

and the final form of the artifacts involved are unknown.

**Hammerstones.** Items in this class are characterized by battering and/or flattening on at least one surface as a result of being used as a pounding or hammering tool.

**Anvils.** Any stone with evidence of pitting on one or more faces (usually flat) is classified as an anvil (Tixier 1974:3).

**Fire-Cracked Rock.** This class includes all nonchert lithics with irregular fractured surfaces that were not produced by percussion. Specimens may be discolored from direct contact with fire and pot-lid fractures may also be present (House and Smith 1975:76). Items in this class could have been produced through use in stone boiling, indirect cooking, use as hearth stones, or from steam generation in sweat lodges. Historically, some fire cracked rock could have been incidentally produced when piles of brush and wood were burned during field clearing.

## References Cited


Ahler, Stanley, and R. Bruce McMillan

1976 Material Culture at Rodgers Shelter: A Reflection of Past Human Activities. In Prehistoric Man and His Environments, edited by W. Raymond Wood and R. Bruce McMillan, pp. 163-200. Academic Press, New York

Austin, Robert J.

1986 The Experimental Reproduction and Archaeological Occurrence of Biface Notching Flakes. Lithic Technology 15(3):96-100.

Binford, Lewis, and George 1. Quimby

1972 Indian Sites and Chipped Stone Materials in the Northern Lake Michigan Area (Reprint of the 1963 report) in An Archaeological Perspective, edited by Lewis R. Binford. Academic Press, New York.

Callahan, Errett

1979 The Basics of Biface Knapping in the Eastern Fluted Point Tradition: A Manual for Flintknappers and Lithic Analysts. Archaeology of Eastern North America 7(l):I-180.

Cochran, Donald R.

1985 Artifact Class Definitions, Appendix 1, in An Archaeological Survey on the Wabash Moraine: A Study of Prehistoric Site and Artifact Density in the Upper Wabash Drainage, by Donald R. Cochran and Jeanette Buehrig. Reports of Investigation 15, Archaeological Resources Management Service, Ball State University, Muncie.

1991 Chipped Stone Classification, Appendix D. Indenpendence: A Multicomponent Site in the Middle Wabash Drainage, by Beth Cree and Donald R. Cochran. Reports of Investigation 29, Archaeological Resources Management Service, Ball State University, Muncie.

Crabtree, Don E.

1972 An Introduction to Flint-working. Occasional Papers 28. Idaho State Museum, Pocatello

Fitting, James E.

1967 The Camp of the Careful Indian. Papers of the Michigan Academy of Science, Arts and Letters 52:237242.

Flenniken, Jeffrey J.

1981 Replicative Systems Analysis: A Model Applied to the Vein Quartz Artifacts from the Hoko River Site. Reports of Investigation 59. Laboratory of Anthropology, Washington State University.

Hayden, Brian

1980 Confusion in the Bipolar World: Bashed pebbles and Splintered Pieces. Lithic Technology 9(l):2-7.

Kobayashi, H.

1975 The Experimental Study of Bipolar Flakes. In Lithic Technology, edited by E. Swanson, pp. 115-128. Mouton, The Hague.

Movius, Hallan L., Jr., Nicholas c. David, Harvey M. Bricker, and Berle Clay

1968 The Analysis of Certain Major Classes of Upper Paleolithic Tools. Bulletin No. 26. American School of Prehistoric Research,

Peabody Museum, Harvard University, Cambridge, Massachusetts.

Nero, Robert W.
1957 A "Graver" Site in Wisconsin. American Antiquity 22(3):300-304.

Oakley, Kenneth
1957 Man the Toolmaker. University of Chicago Press, Chicago.

Titmus, Gene L.
1985 Some Aspects if Stone Tool Notching. In Stone Tool Analysis, Mark G. Plew, James C. Woods and Max G. Pavesic, eds. University of New Mexico Press, Albuquerque.

Tixier, J.
1974 Glossary for the Description of Stone Tools, with Special Reference to the Epipalaeolithic of the Maghreb. Translated by M. H. Newcomer. Special Publication 1. Newsletter of Lithic Technology, Pullman, Washington.

Waldorf, D. C.
1984 The Art of Flintknapping, Third Edition, Mound Builder Books, Branson, MO.

Watson, William
1956 Flint Implements. The Trustees of the British Museum, London.

Wepler, William, and Donald R. Cochran
1983 An Archaeological Assessment of Huntington Reservoir: Identification, Prediction, Impact. Reports of Investigation 10. Archaeological Resources Management Service, Ball State University, Muncie.

White, A. M., L. Binford, and M. Papworth
1963 Miscellaneous Studies in Typology and Classification. Anthropological Papers 19. Museum of Anthropology, University of Michigan, Ann Arbor.

# APPENDIX B

## Artifact Catalog

| Unit | Level | Identification | Material | Provenience | Number |
|---|---|---|---|---|---|
| 1 | 1 | um flake | Wyandotte | | 1 |
| 1 | 1 | um flake | Holland-Derby | | 1 |
| 1 | 2 | um flakes | HD Wyandotte | SE 1/4 | 25 |
| 1 | 2 | um flakes | HT Haney | SE 1/4 | 25 |
| 1 | 2 | em flake | Wyandotte | SE 1/4 | 1 |
| 1 | 2 | um flakes | Lead Creek | SE 1/4 | 2 |
| 1 | 2 | um flakes | Holland-Derby | SE 1/4 | 6 |
| 1 | 2 | stage 3 biface fragment | Wyandotte | SE 1/4 | 1 |
| 1 | 2 | em flake | HD Wyandotte | SE 1/4 | 1 |
| 1 | 2 | um flakes | HT Holland-Derby | SE 1/4 | 3 |
| 1 | 2 | um flakes | Derby | SE 1/4 | 2 |
| 1 | 2 | um flake | Allens Creek | SE 1/4 | 1 |
| 1 | 2 | um flakes | Haney | SE 1/4 | 7 |
| 1 | 2 | em flake | Unidentified chert | | 1 |
| 1 | 2 | um flakes | Holland-Derby | | 5 |
| 1 | 2 | um flakes | Wyandotte | SE 1/4 | 109 |
| 1 | 3 | um flake | HT Derby | | 1 |
| 1 | 3 | point fragment | HD Wyandotte | | 1 |
| 1 | 3 | um flake | HD Holland-Derby | | 1 |
| 1 | 3 | block flake | Quartzite | | 1 |
| 1 | 3 | um flakes | HD Wyandotte | | 4 |
| 1 | 3 | um flakes | Derby | | 11 |
| 1 | 3 | modern seed | | | 1 |
| 1 | 3 | block flake | HD Wyandotte | | 1 |
| 1 | 3 | um flakes | Holland-Derby | | 5 |
| 1 | 3 | um flakes | Wyandotte | | 9 |

UM – Unmodified, EM – Edge-modified, HT – Heat-treated, HD – Heat-damaged

| Unit | Level | Identification | Material | Provenience | Number |
|---|---|---|---|---|---|
| 1 | 4 | burnt nutshell | | | 2 |
| 1 | 4 | bone | | | 1 |
| 1 | 4 | em flake | Derby | | 1 |
| 1 | 4 | em flake | Wyandotte | | 1 |
| 1 | 4 | um flakes | Holland-Derby | | 4 |
| 1 | 4 | um flakes | Derby | | 3 |
| 1 | 4 | um flake | Lead Creek | | 1 |
| 1 | 4 | pottery body | Fabric impressed twining, grit tempered | 57cmW, 42cm DBD | 2 |
| 1 | 4 | pottery body | eroded grit tempered | 57cmW, 42cm DBD | 6 |
| 1 | 4 | pottery body | cordmarked, grit tempered | 57cmW, 42cm DBD | 4 |
| 1 | 4 | block flake | Holland-Derby | | 1 |
| 1 | 4 | modern seed | | | 1 |
| 1 | 4 | um flakes | HD Wyandotte | | 2 |
| 1 | 4 | um flakes | Wyandotte | | 4 |
| 1 | 5 | um flakes | Wyandotte | | 19 |
| 1 | 5 | um flakes | HD Wyandotte | | 7 |
| 1 | 5 | um flakes | Holland-Derby | | 2 |
| 1 | 5 | pottery body | Fabric impressed Grit tempered | South Wall | 2 |
| 1 | 5 | um flake | HT Derby | | 1 |
| 1 | 5 | em flakes | Wyandotte | | 5 |
| 1 | 5 | um flake | HT Haney | | 1 |
| 1 | 5 | um flake | Allens Creek | | 1 |
| 1 | 5 | um flakes | Haney | | 3 |
| 1 | 5 | um flake | HT Holland-Derby | | 1 |
| 1 | 5 | um flake | Lead Creek | | 1 |
| 1 | 5 | em flake | HD Wyandotte | | 1 |

| Unit | Level | Identification | Material | Provenience | Number |
|---|---|---|---|---|---|
| 1 | 5 | em flake | Derby | | 2 |
| 1 | 6 | um flakes | Wyandotte | | 65 |
| 1 | 6 | um flakes | HT Haney | | 11 |
| 1 | 6 | um flakes | HD Wyandotte | | 16 |
| 1 | 6 | um flakes | Derby | | 6 |
| 1 | 6 | um flakes | Lead Creek | | 4 |
| 1 | 6 | um flakes | Holland-Derby | | 5 |
| 1 | 6 | point fragment | Derby | | 1 |
| 1 | 6 | um flake | Allens Creek | | 1 |
| 1 | 6 | um flakes | Haney | | 4 |
| 1 | 6 | em flake | Derby | | 1 |
| 1 | 6 | Karnak Stemmed point fragment | Wyandotte | 40cmW, 22cmN, 55cm DBD | 1 |
| 1 | 6 | um flake | Holland-Derby | rodent run | 1 |
| 1 | 6 | em flake | Wyandotte | rodent run | 1 |
| 1 | 6 | um flake | Lead Creek | rodent run | 1 |
| 1 | 6 | um flakes | Wyandotte | rodent run | 8 |
| 1 | 6 | um flakes | HD Wyandotte | rodent run | 6 |
| 1 | 6 | um flake | Haney | rodent run | 1 |
| 1 | 6 | em flake | Wyandotte | | 1 |
| 1 | 7 | em flake | Wyandotte | SW 1/4 | 1 |
| 1 | 7 | um flake | HD Wyandotte | SW 1/4 | 1 |
| 1 | 7 | um flake | HT Haney | SW 1/4 | 1 |
| 1 | 7 | um flakes | Wyandotte | SW 1/4 | 11 |
| 1 | 7 | um flake | HD Wyandotte | NW 1/4 | 1 |
| 1 | 7 | um flake | Holland-Derby | NW 1/4 | 1 |
| 1 | 7 | um flakes | Derby | SE 1/4 | 2 |

| Unit | Level | Identification | Material | Provenience | Number |
|---|---|---|---|---|---|
| 1 | 7 | um flake | Haney | NW 1/4 | 1 |
| 1 | 7 | um flakes | Wyandotte | NW 1/4 | 10 |
| 1 | 7 | um flakes | Derby | NW 1/4 | 3 |
| 1 | 7 | um flakes | HD Wyandotte | NE 1/4 | 2 |
| 1 | 7 | um flakes | Wyandotte | NE 1/4 | 4 |
| 1 | 7 | em flake | Wyandotte | NE 1/4 | 1 |
| 1 | 7 | um flake | Lead Creek | NE 1/4 | 1 |
| 1 | 8 | um flakes | Wyandotte | | 53 |
| 1 | 8 | um flake | Unidentified chert | | 1 |
| 1 | 8 | em flake | Wyandotte | | 3 |
| 1 | 8 | um flakes | HD Wyandotte | | 14 |
| 1 | 8 | um flakes | HT Haney | | 15 |
| 1 | 8 | um flake | Derby | | 2 |
| 1 | 8 | block flake | Unidentified chert | | 1 |
| 1 | 8 | um flakes | Haney | | 3 |
| 1 | 8 | um flake | Lead Creek | | 5 |
| 1 | 8 | point fragment | Wyandotte | | 1 |
| 1 | 8 | um flakes | Allens Creek | | 2 |
| 1 | 9 | manuport | Unidentified chert | | 1 |
| 1 | 9 | um flake | Haney | | 5 |
| 1 | 9 | um flakes | HT Haney | | 9 |
| 1 | 9 | um flake | Derby | | 11 |
| 1 | 9 | um flake | Holland-Derby | | 3 |
| 1 | 9 | em flakes | Wyandotte | | 3 |
| 1 | 9 | um flakes | HD Wyandotte | | 3 |
| 1 | 9 | um flake | Allens Creek | | 2 |

| Unit | Level | Identification | Material | Provenience | Number |
|---|---|---|---|---|---|
| 1 | 9 | um flake | HD Derby | | 8 |
| 1 | 9 | um flake | HT Holland-Derby | | 1 |
| 1 | 9 | um flake | HT Derby | | 1 |
| 1 | 9 | um flake | Unidentified chert | | 1 |
| 1 | 9 | um flakes | Lead Creek | | 12 |
| 1 | 9 | um flakes | Wyandotte | | 65 |
| 1 | 10 | um flake | Allens Creek | | 1 |
| 1 | 10 | um flakes | Derby | | 4 |
| 1 | 10 | em flake | Wyandotte | | 2 |
| 1 | 10 | um flake | Quartzite | | 1 |
| 1 | 10 | em flake | Derby | | 1 |
| 1 | 10 | um flakes | Wyandotte | | 26 |
| 1 | 10 | um flake | Lead Creek | | 4 |
| 1 | 10 | um flakes | HT Haney | | 4 |
| 1 | 10 | um flakes | HT Derby | | 2 |
| 1 | 10 | um flakes | Haney | | 5 |
| 1 | 10 | um flakes | HD Wyandotte | | 5 |
| 1 | 10 | em flake | Holland-Derby | | 1 |
| 1 | 11 | um flakes | Haney | | 2 |
| 1 | 11 | um flakes | Derby | | 4 |
| 1 | 11 | um flakes | HD Wyandotte | | 2 |
| 1 | 11 | um flakes | Wyandotte | | 3 |
| 1 | 11 | um flake | Lead Creek | | 1 |
| 1 | 11 | core | Derby | 26cmE, 30cmN, 106cm DBD | 1 |
| 1 | 12 | um flake | sandstone | | 1 |
| 1 | 12 | um flake | Derby | | 1 |

| Unit | Level | Identification | Material | Provenience | Number |
|---|---|---|---|---|---|
| 1 | East Wall | um flake | Derby | | 1 |
| 1 | East Wall | um flakes | Wyandotte | | 4 |
| 1 | North Wall | um flake | Haney | | 1 |
| 1 | Rodent Run | um flake | Holland-Derby | | 1 |
| 1 | Rodent Run | um flakes | Wyandotte | | 2 |
| 1 | shovel test | um flake | Lead Creek | | 1 |
| 1 | shovel test | um flakes | Wyandotte | | 2 |
| 1 | shovel test | um flakes | Holland-Derby | | 6 |
| 1 | South Wall | pottery body | Fabric impressed, Plain Weave Grit Tempered | | 1 |
| 1 | South Wall | um flake | HT Sandstone | | 1 |
| 1 | South Wall | um flake | Unid. HT Fossiliferous | | 1 |
| 1 | South Wall | point fragment | HD Wyandotte | | 1 |
| 1 | Wall | um flake | Wyandotte | | 1 |
| **Unit** | **Level** | **Identification** | **Weight (grams)** | **Provenience** | |
| 1 | 1 | Charcoal | 2.09 | | |
| 1 | 2 | Charcoal | 7.98 | | |
| 1 | 3 | Charcoal | 5.71 | | |
| 1 | 3 | Charcoal, with aluminum foil | 312 | 27cm DBD, 37cmS | |
| 1 | 3 | Charcoal, with aluminum foil | 15.18 | | |
| 1 | 4 | Charcoal | 8.77 | | |
| 1 | 5 | Charcoal | 12.44 | | |
| 1 | 6 | Charcoal | 13.1 | | |
| 1 | 7 | Charcoal | 4.39 | NE1/4 | |
| 1 | 7 | Charcoal | 2.36 | SE 1/4 | |
| 1 | 7 | Charcoal | 9.53 | SW 1/4 | |
| 1 | 7 | Charcoal | 7.34 | NW 1/4 | |

| Unit | Level | Identification | Weight (grams) | Provenience | |
|---|---|---|---|---|---|
| 1 | 8 | Charcoal | 23.17 | | |
| 1 | 9 | Charcoal | 49.39 | | |
| 1 | 9 | Charcoal, with aluminum foil | 62.96 | 91cm DBD | |
| 1 | 10 | Charcoal | 19.42 | | |
| 1 | 11 | Charcoal | 6.69 | | |
| 1 | 12 | Charcoal | 0.4 | | |
| 1 | East Wall | Charcoal | 0.8 | | |
| 1 | rodent run | Charcoal | 2.67 | | |
| 1 | shovel test | Charcoal | 1.8 | | |
| **Unit** | **Level** | **Burnt sandstone/FCR** | | | |
| 1 | surface | - | | | |
| 1 | 1 | 6 pieces | | | |
| 1 | 2 | 25 pieces | | | |
| 1 | 3 | 110+ pieces | | | |
| 1 | 4 | - | | | |
| 1 | 5 | - | | | |
| 1 | 6 | - | | | |
| 1 | 7 | present | | | |
| 1 | 8 | 35 pieces | | | |
| 1 | 9 | 65 pieces | | | |
| 1 | 10 | 50 pieces | | | |
| 1 | 11 | present | | | |
| 1 | 12 | - | | | |
| 1 | 13 | present | | | |
| 1 | 14 | - | | | |
| 1 | 15 | - | | | |
| 1 | SP2 | | | | |

| Unit | Level | Identification | Material | Provenience | Number |
|---|---|---|---|---|---|
| 2 | 2 | burnt nutshell | | | 3 |
| 2 | 4 | pottery body | cordmarked, grit/grog tempered | south 1/2 mear large rock | 1 |
| 2 | 4 | um flake | HT Holland-Derby | | 1 |
| 2 | 5 | em flakes | Wyandotte | | 2 |
| 2 | 7 | um flake | Wyandotte | | 2 |
| 2 | 11 | burnt nutshell | | | 1 |
| 2 | 12 | burnt nutshell | | | 4 |
| 2 ext. | 2 | em flake | Wyandotte | | 1 |
| 2 ext. | 3 | um flake | HD Derby | | 1 |
| 2 ext. | 4 | um flakes | Wyandotte | | 3 |
| **Unit** | **Level** | **Identification** | **Weight (grams)** | **Provenience** | |
| 2 | 1 | Charcoal | 12.31 | | |
| 2 | 4 | Charcoal | 3.02 | | |
| 2 | 5 | Charcoal | 0.88 | | |
| 2 | 6 | Charcoal | 9.44 | | |
| 2 | 7 | Charcoal | 0.28 | | |
| 2 | 8 | Charcoal | 0.94 | | |
| 2 | 10 | Charcoal | 0.48 | | |
| 2 | 11 | Charcoal | 1.38 | East Side | |
| 2 | 11 | Charcoal | 3.57 | | |
| 2 | 12 | Charcoal | 3.24 | | |
| 2 | 13 | Charcoal | 1.88 | | |
| 2 | 14 | Charcoal | 6.78 | | |
| 2 ext. | 2 | Charcoal | 0.27 | | |
| 2 ext. | 3 | Charcoal | 0.39 | | |
| **Unit** | **Level** | **Identification** | **Material** | **Provenience** | **Number** |

| | | | | | |
|---|---|---|---|---|---|
| 3 | 4 | um flake | Wyandotte | | 1 |
| 3 | 4 | em flake | Wyandotte | | 1 |
| 3 | 5 | um flake | HT Haney | | 1 |
| 3 | 5 | burnt nutshell | | | 1 |
| 3 | 6 | um flake | Derby | | 1 |
| 3 | 6 | um flake | HT Holland-Derby | | 1 |
| 6 | 2 | em flake | Wyandotte | | 2 |
| 6 | 2 | um flake | Wyandotte | | 1 |
| 6 | 2 | um flake | Derby | Zone 2 | 1 |
| 6 | 4 | um flakes | Wyandotte | | 10 |
| 6 | 4 | um flakes | HD Wyandotte | | 6 |
| 6 | 4 | em flake | Wyandotte | | 1 |
| 6 | 4 | um flakes | Derby | | 3 |
| 6 | 4 | um flake | Holland-Derby | | 1 |
| 6 | 10 | um flake | HD Derby | | 1 |
| 6 | 10 | um flakes | Derby | | 2 |
| 6 | 10 | um flake | Wyandotte | | 7 |
| 6 | 10 | bipolar artifact | Wyandotte | | 1 |
| 6 | 10 | point fragment | HD Wyandotte | | 1 |
| 6 | 10 | nutshell | | | 1 |
| 6 | 11 | um flakes | Wyandotte | | 3 |
| 6 | 11 | um flake | HD Wyandotte | | 1 |
| 6 | 11 | em flake | Derby | | 1 |
| 6 | 11 | um flakes | Derby | | 3 |
| 6 | 11 | um flake | Quartzite | | 1 |
| 6 | 11 | em flake | Holland-Derby | | 1 |
| 6 | 12 | em flake | Wyandotte | | 2 |

| | | | | | |
|---|---|---|---|---|---|
| 6 | 12 | biface fragment | Wyandotte | | 1 |
| 6 | 12 | um flake | Derby | | 5 |
| 6 | 12 | um flakes | Wyandotte | | 4 |
| 6 | 12 | block flake | HD Wyandotte | | 1 |
| 6 | 12 | um flake | HD Derby | | 1 |
| 6 | 12 | point fragment | Haney | | 1 |
| 6 | 12 | um flake | HD Wyandotte | | 1 |
| 6 | 13 | um flakes | HD Wyandotte | | 4 |
| 6 | 13 | um flakes | Derby | | 4 |
| 6 | 13 | em flake | Wyandotte | | 1 |
| 6 | 13 | um flake | Wyandotte | | 1 |
| 6 | 13 | Matanzas point | Holland-Derby | 91cmN, 56cmW, 123cmDBD | 1 |
| 6 | 14 | um flakes | HD Wyandotte | | 3 |
| 6 | 14 | em flake | HD Wyandotte | | 1 |
| 6 | 14 | um flakes | Wyandotte | | 3 |
| 6 | 14 | em flakes | Haney | | 2 |
| 6 | 14 | um flake | Derby | | 1 |
| 6 | 14 | Early Archaic point | Wyandotte | | 1 |
| 6 | 14 | um flake | HD Derby | | 1 |
| 6 | 15 | um flakes | Wyandotte | | 2 |
| 6 | 15 | um flakes | Derby | | 2 |
| 6 | 15 | um flake | sandstone | | 1 |
| 6 | 16 | um flake | Derby | | 1 |
| 6 | East Wall | core | Derby | 32cmS, 80cmDBD, in E wall | 1 |
| 6 | East Wall | um flakes | Wyandotte | | 6 |
| 6 | North Wall | um flake | Wyandotte | | 1 |
| 6 | West Wall | point fragment | Wyandotte | | 1 |

| | | | | | |
|---|---|---|---|---|---|
| 6 | West Wall | um flake | HD Wyandotte | | 2 |
| 3/6 | 7 | graver | Haney | | 1 |
| 3/6 | 7 | um flake | sandstone | | 1 |
| 3/6 | 7 | um flakes | Wyandotte | | 22 |
| 3/6 | 7 | em flake | Derby | | 1 |
| 3/6 | 7 | um flake | HD Wyandotte | | 1 |
| 3/6 | 7 | um flake | Unidentified chert | | 1 |
| 3/6 | 7 | um flakes | Holland-Derby | | 2 |
| 3/6 | 7 | um flake | Lead Creek | | 1 |
| 3/6 | 7 | um flake | Derby | | 1 |
| 3/6 | 8 | em flake | Wyandotte | | 1 |
| 3/6 | 8 | um flakes | Wyandotte | | 5 |
| 3/6 | 8 | um flakes | HD Wyandotte | | 2 |
| 3/6 | 9 | point fragment | Wyandotte | | 1 |
| 3/6 | 9 | um flakes | Wyandotte | | 7 |
| 3/6 | 9 | stage 4 biface | HD Wyandotte | | 1 |
| 3/6 | 9 | um flake | HD Wyandotte | | 1 |
| 3/6 | 9 | um flake | Holland-Derby | | 1 |
| 3/6 | 10 | point fragment | HD Wyandotte | | 1 |
| **Unit** | **Level** | **Identification** | **Weight (grams)** | **Provenience** | |
| 3 | 4 | Charcoal | 0.95 | | |
| 3 | 5 | Charcoal | 5.29 | | |
| 3 | 6 | Charcoal | 9.35 | | |
| 6 | 1 | Charcoal | 0.51 | | |
| 6 | 2 | Charcoal | 3.63 | | |
| 6 | 3 | Charcoal | 0.72 | | |
| 6 | 4 | Charcoal | 27.76 | | |

| | | | | | |
|---|---|---|---|---|---|
| 6 | 10 | Charcoal | 22.81 | | |
| 6 | 11 | Charcoal | 17.91 | | |
| 6 | 12 | Charcoal | 33.47 | | |
| 6 | 13 | Charcoal | 19.42 | | |
| 6 | 14 | Charcoal | 22.82 | | |
| 6 | 15 | Charcoal | 5.62 | | |
| 6 | 16 | Charcoal | 2.8 | | |
| 6 | East Wall | Charcoal | 5.66 | | |
| 6 | North Wall | Charcoal | 2.34 | | |
| 6 | West Wall | Charcoal | 3.58 | | |
| 3/6 | 7 | Charcoal | 8.91 | | |
| 3/6 | 8 | Charcoal | 42.27 | | |
| 3/6 | 9 | Charcoal | 17.76 | | |
| **Unit** | **Level** | **Identification** | **Material** | **Provenience** | **Number** |
| 5 | 2 | nutshell | | | 5 |
| 5 | 2 | snail shell | | | 1 |
| 5 | 3 | um flakes | Wyandotte | | 5 |
| 5 | 11 | um flakes | Wyandotte | | 7 |
| 5 | 11 | um flakes | Derby | | 2 |
| 5 | 12 | um flakes | Wyandotte | | 12 |
| 5 | 12 | um flakes | HD Wyandotte | | 3 |
| 5 | 12 | um flakes | Derby | | 2 |
| 5 | 12 | um flakes | Quartzite | | 2 |
| 5 | 13 | em flake | Wyandotte | | 1 |
| 5 | 13 | um flakes | Wyandotte | | 3 |
| 5 | 13 | um flake | Derby | | 1 |
| 5 | 14 | um flake | Wyandotte | | 3 |

| | | | | | |
|---|---|---|---|---|---|
| 5 | 14 | um flake | Haney | | 1 |
| 5 | 14 | um flake | Derby | | 1 |
| 5 | 14 | block flake | Wyandotte | | 1 |
| 5 | 15 | um flake | Wyandotte | | 10 |
| 5 | 15 | um flake | HD Wyandotte | | 1 |
| 5 | 15 | um flake | Derby | | 1 |
| 5 | 15 | um flake | HD Derby | | 1 |
| 5 | 16 | um flake | HD Wyandotte | | 1 |
| 5 | 16 | um flake | unidentified fossiliferous | | 1 |
| 5 | 17 | um flake | Derby | | 1 |
| 5 | 17 | point fragment | Derby | | 1 |
| 4/5 | 8 | um flakes | Wyandotte | | 7 |
| 4/5 | 8 | um flakes | Derby | | 3 |
| 4/5 | 9 | um flake | Lead Creek | | 1 |
| 4/5 | 9 | um flake | HD Wyandotte | | 1 |
| 4/5 | 9 | um flake | Allens Creek | | 1 |
| 4/5 | 9 | em flake | Wyandotte | | 1 |
| 4/5 | 9 | um flakes | Wyandotte | | 6 |
| 4/5 | 9 | um flake | Holland-Derby | | 1 |
| 4/5 | 10 | burnt nutshell | | | 1 |
| 4/5 | 10 | em flake | Wyandotte | | 1 |
| 4/5 | 10 | um flake | HD Wyandotte | | 1 |
| 4/5 | 10 | um flakes | Wyandotte | | 2 |
| 4/5 | 10 | um flake | Lead Creek | | 1 |
| 4/5 | 10 | um flake | Quartzite | | 1 |
| **Unit** | **Level** | **Identification** | **Weight (grams)** | **Provenience** | |
| 4 | 4 | Charcoal | 0.8 | | |

| | | | | | |
|---|---|---|---|---|---|
| 4 | 5 | Charcoal | 0.93 | | |
| 5 | 2 | Charcoal | 0.31 | | |
| 5 | 3 | Charcoal | 4.33 | | |
| 5 | 11 | Charcoal | 34.64 | | |
| 5 | 12 | Charcoal | 16.14 | | |
| 5 | 13 | Charcoal | 8.1 | | |
| 5 | 14 | Charcoal | 19.11 | | |
| 5 | 15 | Charcoal | 46.83 | | |
| 5 | 16 | Charcoal | 4.3 | | |
| 5 | 17 | Charcoal | 7.48 | | |
| 4/5 | 8 | Charcoal | 6.03 | | |
| 4/5 | 9 | Charcoal | 14.85 | | |
| 4/5 | 10 | Charcoal | 16.08 | | |