

**APPENDIX G**

**RESEARCH DESIGN FOR THE  
AUGUSTINE CREEK NORTH SITE**

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**RESEARCH DESIGN FOR THE  
PHASE III ARCHAEOLOGICAL MITIGATION  
OF SITE 7NC-G-144  
THE AUGUSTINE CREEK NORTH SITE**

**New Castle County, Delaware**

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*Prepared For:*

**THE DELAWARE DEPARTMENT OF TRANSPORTATION**

*Prepared By:*

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Washington, D.C.**

**February 1997**

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## I. INTRODUCTION

The Cultural Resource Group of Louis Berger & Associates, Inc. (LBA), proposes to undertake Phase III mitigation of Site 7NC-G-144 (the Augustine Creek North Site) on behalf of the Delaware Department of Transportation (DelDOT). The site has both historic and prehistoric components, both of which have been determined eligible for listing in the National Register of Historic Places under Criterion D, since the site has demonstrated the ability to yield information important to history and prehistory.

The Augustine Creek North Site was first identified during a Phase I archaeological survey of the proposed State Route 1 (SR 1) corridor from Scott Run to Drawyer Creek. SR 1 is a completely new, limited-access highway that will carry traffic from I-95 in the northern part of the state to U.S. Route 113 south of Dover, alleviating congestion on U.S. Route 13. The site lies entirely within the proposed SR 1 right-of-way, and 100 percent of the site will be destroyed by the proposed construction.

Avoidance was considered as a treatment option, but the site cannot be avoided without a major realignment of SR 1; the current alignment is the result of a long process of weighing alternative routes and their impacts on population centers, wetlands and other environmentally sensitive areas, and cultural resources. In addition, any other crossing point of Augustine Creek would be likely to impact other potentially significant sites. Data recovery excavations are therefore recommended to mitigate the adverse impact of construction on the site.

## II. SITE IDENTIFICATION AND DESCRIPTION

### A. SITE LOCATION

The Augustine Creek North Site is an eighteenth-century domestic site with a prehistoric component located on the northern bank of Augustine Creek, just north of Boyd's Corner, Delaware (Figure 1). Augustine Creek is a small, swampy drainage that flows east toward the Delaware River. Although the stream is not now navigable, it was known in the seventeenth century as "Canoe Branch." Before the waterway silted up as a result of intensive agricultural activity in the area, small craft may have been able to reach Site 7NC-G-144. Near the site, the southern bank is a steep bluff approximately 10 meters (30 feet) high. The northern bank, adjacent to the site, is more gradual. A nearly flat terrace, approximately 10 meters (30 feet) wide, is present adjacent to the creek, and then the site slopes upward to the south at a rate of approximately six percent. The site is situated in an active agricultural field, planted in corn at the time of the extended Phase II testing. The site is approximately 250 meters (800 feet) east of U.S. Route 13, which follows the route of the eighteenth-century Wilmington to Lewes Road, the most important north-south route in Delaware. The location of the site thus seems to depend on two factors: proximity to the stream and proximity to the highway. Another tenant farm site of the same period, Site 7NC-G-145 (the Augustine Creek South Site), is directly across the creek on the southern bank. The closest town in the eighteenth century was Cantwell's Bridge (Odessa), approximately 12 kilometers (7.5 miles) to the south.

### B. PREVIOUS WORK

#### 1. *Phase I Survey*

The Augustine Creek North Site was initially identified during a Phase I survey of the Scott Run to Drawyer Creek Segment of the SR 1 corridor (Bedell et al. 1997). At that time, the field in which the site was located had recently been plowed, and surface visibility was excellent. The survey was therefore carried out by surface inspection. During the surface inspection, the site was identified as a concentration of eighteenth-century artifacts, especially brick, redware, and creamware, measuring approximately 30x60 meters (100x200 feet). A single line of shovel test pits was excavated across the site at 20-meter intervals, resulting in the recovery of more historic artifacts and also a few prehistoric artifacts. Site 7NC-G-144 was considered potentially significant because of the paucity of sites dating before 1750 in the region, and Phase II testing was therefore recommended.

#### 2. *Phase II Evaluation*

The Phase II testing of Site 7NC-G-144 was carried out by the excavation of 22 test units, approximately a one percent sample of the site. A 10-meter (30-foot) interval grid was established for the placement of test units, which covered a 40x50-meter (130x160-foot) area (Figure 2). Because the Phase I survey and a general evaluation of the geological circumstances of the site indicated no likelihood that artifacts would be recovered below the plowzone, all test

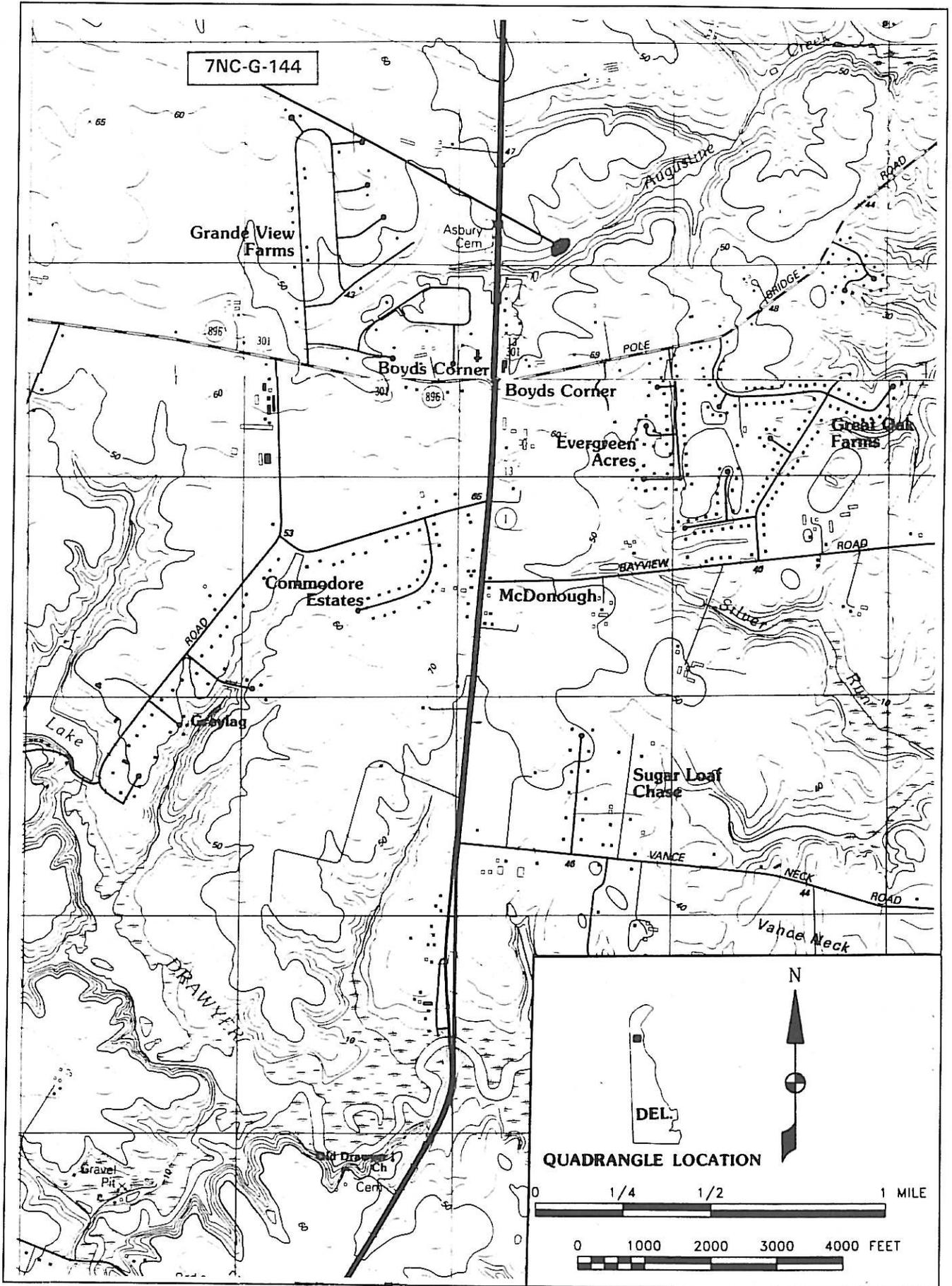
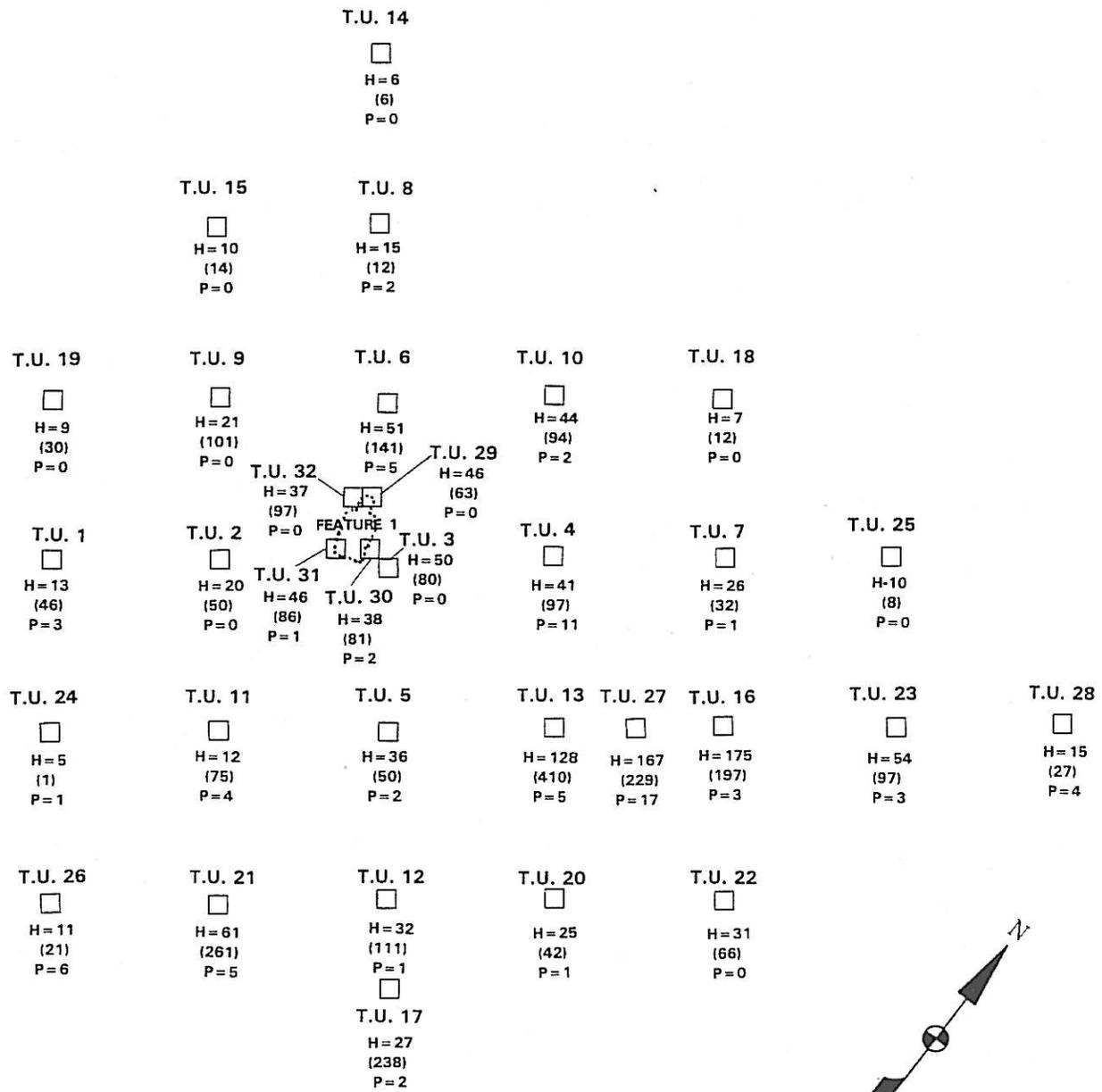


FIGURE 1: Location of 7NC-G-144, the Augustine Creek North Site

SOURCE: USGS Middletown and St. Georges Quads (1993), 1:24,000



**LEGEND**

- ☐ PHASE II OR EXTENDED PHASE II TEST UNIT
- H=5 NUMBER OF HISTORIC ARTIFACTS, EXCLUDING BRICK
- (1) NUMBER OF BRICK FRAGMENTS
- P=1 NUMBER OF PREHISTORIC ARTIFACTS

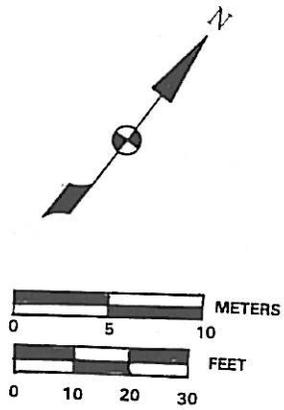


FIGURE 2: Distribution of Artifacts, Phase II and Extended Phase II Test Unit Excavations, Site 7NC-G-144 4

units were terminated at the base of the plowzone. The plowzone was shallow in the northern, upslope portion of the site, but along the creek, a massive deposit of slopewash up to 135 centimeters (4 feet 5 inches) deep had built up. Phase I and II investigations recovered 3,067 historic artifacts from Site 7NC-G-144, about two-thirds of which were small brick fragments.

The artifact sample included a variety of ceramic types, including redware, creamware, white salt-glazed stoneware, Westerwald stoneware, Midlands Mottled ware, pearlware, scratch-blue refined earthenware, and porcelain. Most of the specimens were small, the result of two centuries of agricultural activity. Among other artifact types found at the Augustine Creek North Site were flat glass, green bottle glass, hand-wrought nails, pipe bowl and pipe stem fragments, and miscellaneous metal fragments. No cultural features or structural elements were detected. The artifacts suggest a date range of 1750 to 1800. A Mean Ceramic Date (South 1977) of 1776 was derived from 307 datable sherds. Artifact frequencies were highest in Test Units 13 (N=538) and 16 (N=372), which were 10 meters from the base of the slope. A composite profile along this line of test units, N210 on the site grid, shows a progressive thickening of the plowzone from west to east. The plowzone increases from a thin 25 centimeters on the western edge of the site, to 45 centimeters in Test Unit 13, to a maximum of 70 centimeters in Test Unit 16. The direction of the thicker plowzone suggests that colluvial deposition, in combination with continuous plow smoothing, has filled in an old drainage slough or shallow ravine. The high artifact densities found in Test Units 13 and 16 may be the product of domestic trash disposal into this drainage.

At the base of the slope, artifacts were recovered throughout the deep colluvial deposits. Test Unit 21 yielded artifacts to a depth of approximately 100 centimeters, Test Unit 12 to 75 centimeters, Test Unit 20 to 70 centimeters, and Test Unit 22 to 80 centimeters. The excavation closest to Augustine Creek, Test Unit 17, revealed a thick deposit of colluvium containing artifacts to a depth of 130 centimeters. Standing water was detected at 134 centimeters below ground surface. Light gray mottling within the basal stratum indicates an oscillating water table responding to the fluctuations of stream load in Augustine Creek. Groundwater levels at this location suggest that the domestic structure was located further upslope, and the moderate artifact count, considering the depth of the deposit, suggests that the residents did not dump trash into the swamps along the stream.

No evidence was uncovered during the Phase II excavations to indicate the location of a house or other structure on the site. The site location, at the foot of a slope, adjacent to a swampy creek, is a very unusual one for a colonial house. The large quantity of brick recovered, along with the large number of artifacts, effectively rules out this location as a simple refuse disposal area, so there must have been a house somewhere on the site. The possibility was considered that the house was on the crest of the slope and the artifacts had washed down the slope, but this seems highly unlikely. The pebbles in the plowzone show the reverse pattern from that of the artifacts, since they are more abundant higher on the slope. If erosion has left large numbers of pebbles high on the slope, substantial numbers of artifacts should have been left there as well. Therefore, it still seems likely that the house was located near the center of the artifact scatter.

Some prehistoric material was recovered from the excavations, a total of 52 artifacts. All but one of these were nondiagnostic lithics. The exception was a single ceramic sherd, too small for identification. The highest artifact total, 11, was recovered from Test Unit 4. Two other units yielded five artifacts each. This thin, plowed, lithic scatter appeared at the time to represent a procurement site dating to the later Woodland I or Woodland II period.

Phase II testing of the Augustine Creek North Site confirmed the likelihood that an eighteenth-century residence stood on the site, probably a house with rather flimsy brick foundations, possibly piers. However, no foundations of this house, or any other cultural features, were found during the testing. Substantial numbers of eighteenth- and early nineteenth-century artifacts were recovered, all from plowzone contexts. The site's most striking feature is its topographic setting. Across Virginia, Maryland, and Delaware, European settlers usually built their houses on level, well-drained, upland locations, beyond the reach of flooding. An example of such a preferred setting would be that occupied by Site 7NC-G-145 on the other side of Augustine Creek. The Augustine Creek North Site breaks this pattern in two ways, since it is situated on a slope, and in a low-lying area that was probably subject to flooding and was certainly very close to wetlands that eighteenth-century Europeans regarded as unhealthy. The occupants presumably felt that proximity to the creek outweighed these disadvantages.

### *3. Extended Phase II Testing*

At the conclusion of the Phase II testing, it was agreed by LBA, DelDOT, and the DESHPO that insufficient information had been obtained during the initial Phase II testing to determine whether the site was eligible for listing in the National Register of Historic Places. In particular, although no intact, subplowzone features were found during the testing, only one percent of the site had been examined. Extended Phase II testing was therefore carried out to complete the evaluation by determining if subplowzone features were present. The plan for the extended Phase II testing called for the use of a backhoe to remove larger amounts of plowzone from the site. Because the site was considered a possible candidate for data recovery excavation, it was important that no soils be removed by machine that might be excavated by hand during any subsequent Phase III work. such excavations. Therefore, an agreement was reached in advance with representatives of DelDOT and the DESHPO that a Phase III excavation of the site would likely involve the excavation of a five percent sample of the plowzone across the site. The test units that would be used to excavate this five percent sample were then plotted on the site, and the backhoe strips for the extended Phase II testing were placed so as to avoid these hypothetical future units. The resulting strategy called for the backhoe to remove the plowzone in strips no more than 3 feet (90 centimeters) wide (actually the strips were approximately 2.5 feet wide, the width of the backhoe bucket) running east to west across the site. The strips were placed 5 meters apart, in the intervals between the hypothetical Phase III units. Since the units would be excavated at the 5- and 10-meter points on the grid (N205, N210, N215), the trenches were placed at the 2.5- and 7.5-meter points (N207.5, N212.5, N217.5, and N222.5).

Four backhoe trenches were excavated at 5-meter intervals across the site from west to east (Figure 3). The southernmost trench encountered very deep colluvial soils near the eastern end

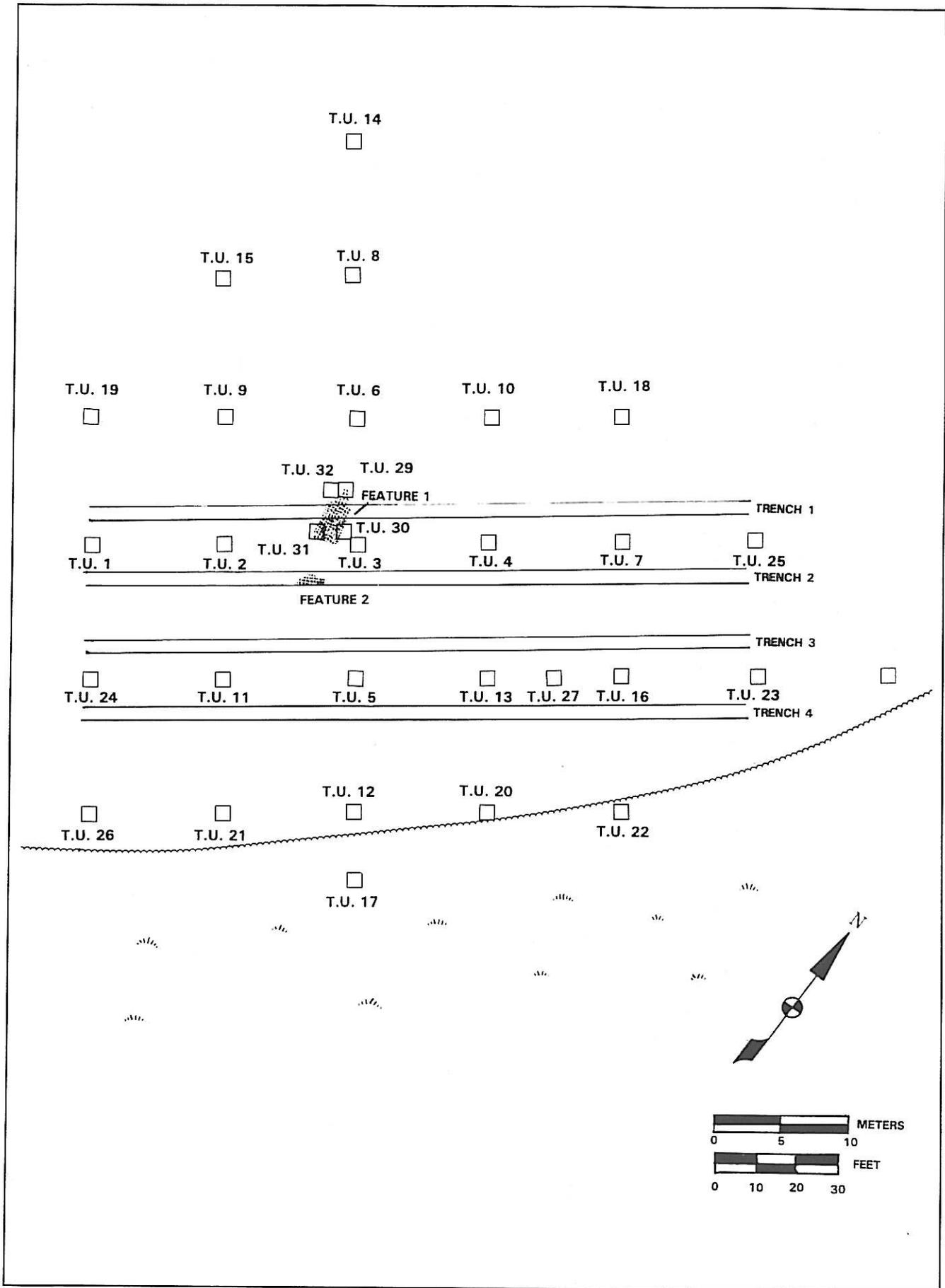


FIGURE 3: Plan of Extended Phase II Backhoe Trenching and Features, Site 7NC-G-144

of the site; brick fragments were noted in silty soils 130 centimeters below the surface. Moving west and north across the site, the plowzone became progressively shallower, and in the northernmost trench the plowed soils were only about 20 centimeters deep. This testing therefore supported the conclusion, based on Phase II testing, that a drainage swale formerly bounded the site on the east.

Two cultural features were discovered during the extended Phase II testing. Feature 1 was a historic cellar, and Feature 2 was a prehistoric pit. These features were further investigated to determine their function, integrity, and cultural affiliation.

*a. Feature 1*

Feature 1 was encountered in the northernmost backhoe trench, near the north-south centerline of the site. It first appeared as a dark, ashy stain, extending beyond the trench to both the north and south. Additional hand excavation was therefore undertaken to fully expose the feature. Test units, situated according to the site grid, were excavated both north and south of the backhoe trench, two on each side, and the soil from these units was screened. Additional soil was removed by hand without screening.

Fully exposed, the feature was revealed as a small cellar with a bulkhead entrance. The cellar measured approximately 3.3x1.9 meters (10x6 feet), and the bulkhead entrance, on the northern side, was 1.15 meters (3.8 feet) long and 1.0 meters (3.3 feet) wide (Figure 4).

To confirm its nature and sample the fill, the cellar was sectioned along its long axis, from north to south, and excavation of the eastern half was begun. The cellar contained essentially two fills (Figure 5). The upper fill, which was excavated as Stratum A, consisted of ashy loam containing artifacts, apparently a domestic trash deposit. The deposit included several lenses of gravel, identical to the gravel found in the natural soils on the site. The stratum was 90 centimeters deep near the northern end of the feature and shallower toward the southern end. The artifacts in this stratum included small pieces of delftware and redware, bones, and approximately equal numbers of cut nails and hand-wrought nails. Approximately 1,200 artifacts and faunal specimens were recovered from Stratum A in the eastern half of the feature. The faunal specimens were well preserved and included a pig jaw, other large pig and cow bones, chicken bones, fish bones, and fish scales. Beneath the dark, ashy Stratum A was a Stratum B of mixed fill closely resembling the surrounding subsoil. Stratum B was not wash, so the feature appeared to have been intentionally backfilled. Because of time constraints, Stratum B was excavated only in the northeastern quadrant of the feature. A total of 20 artifacts and 34 bones were recovered from Stratum B in this area. The steps that provided access to the cellar were still vaguely visible in the profile of the bulkhead.

Because no pearlware was recovered from Feature 1, but cut nails were, the feature was probably backfilled around 1800. The intentional backfilling, and the presence of domestic trash deposits in the top of the feature, suggest that the site was still occupied at that time. This feature was probably a partial cellar under a house. Because no foundations were present around the cellar,

WEST WALL PROFILE

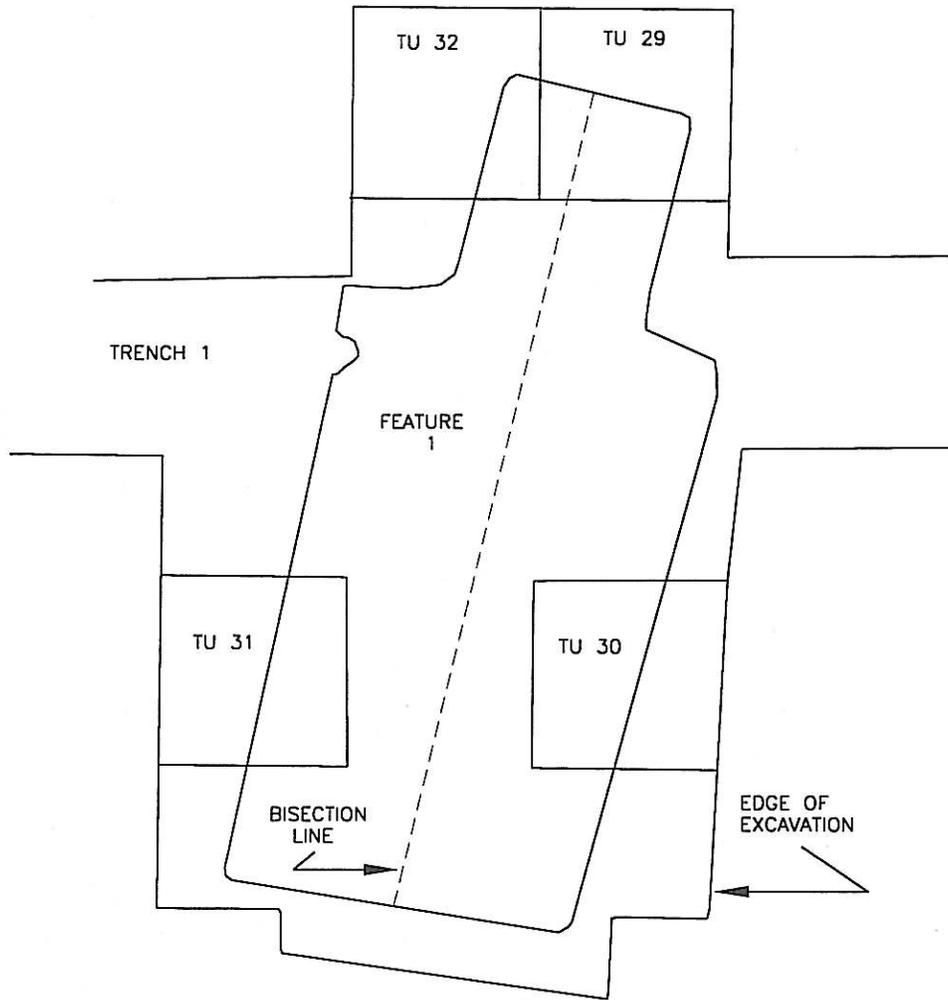
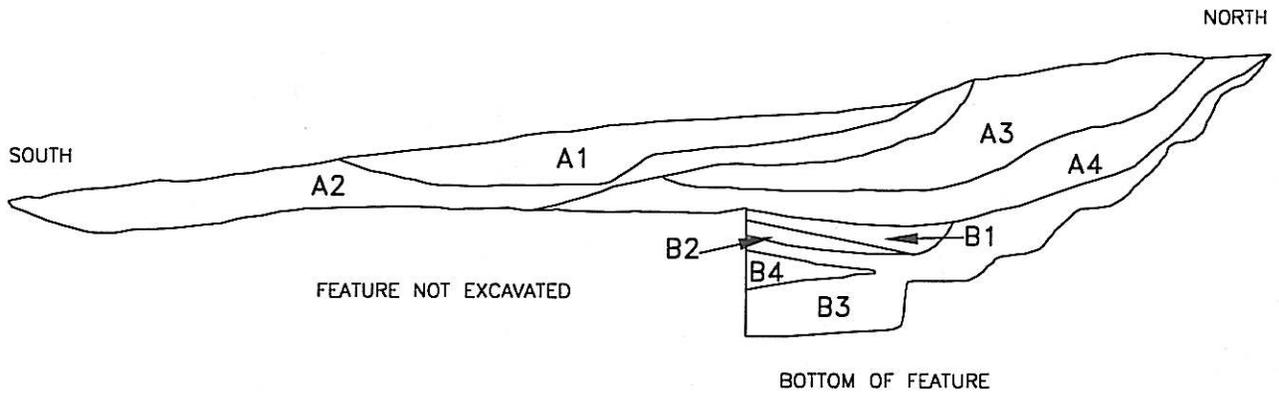


FIGURE 4: Plan of Feature 1, Site 7NC-G-144

# WEST WALL PROFILE



## LEGEND

- A1 DARK YELLOWISH BROWN (10YR 4/4) LOAM MIXED WITH GRAYISH BROWN (10YR 5/2) ASH
- A2 DARK YELLOWISH BROWN (10YR 3/4) SILTY LOAM WITH GRAVEL
- A3 LIGHT BROWNISH GRAY (10YR 6/2) ASH MIXED WITH DARK YELLOWISH BROWN (10YR 4/4) SILTY LOAM
- A4 GRAVEL MIXED WITH DARK YELLOWISH BROWN (10YR 4/6) SILTY LOAM
- B1 DARK YELLOWISH BROWN (10YR 4/4) SILTY LOAM WITH CHARCOAL
- B2 YELLOWISH BROWN (10YR 5/8) SILTY LOAM MIXED WITH GRAVEL AND BROWN (10YR 5/3) SILT
- B3 DARK YELLOWISH BROWN (10YR 4/4) SILTY LOAM
- B4 DARK YELLOWISH BROWN (10YR 4/6) SILTY CLAY



FIGURE 5: Profile of Feature 1, Site 7NC-G-144

the house was probably supported on brick piers or some other kind of shallow brick foundations that have been completely plowed away.

*b. Feature 2*

Feature 2 was located in the second backhoe trench from the north, just west of the site centerline. The feature was first recognized as an area of lighter soil, with a large fire-cracked rock visible on the surface, extending beyond the trench to the south. The visible portion of the feature measured approximately 2.2 meters east to west and 80 centimeters north to south (Figure 6). Because it was not clear from the surface that the soil discoloration was, in fact, a cultural feature, all of the visible portion of the feature was excavated. This excavation resulted in the recovery of 90 prehistoric artifacts, including 22 small fragments of ceramic, 31 pieces of debitage, and 35 fragments of fire-cracked rock. This count exceeds the total number of prehistoric artifacts recovered from the plowzone sample. The feature had a maximum depth of 62 centimeters in the western half. The eastern half of the feature was shallower, about 40 centimeters deep. The profile of the feature resembles those identified by Custer (1994) and others as "pit houses" at several Delaware sites (Liebknecht 1995). A two-liter soil sample for flotation and a charcoal sample were taken from the feature. The charcoal sample returned a date of  $2850 \pm 60$  radiocarbon years before the present (BP) (Beta-098991).

*4. Summary*

Extended Phase II testing at the Augustine Creek North Site has allowed a more accurate assessment of both the historic and prehistoric components. The historic component includes at least one feature, a small cellar, so it definitely represents a domestic occupation in this location. The date of the site is still uncertain. The mean ceramic date for the site is 1776, and several ceramic types dating to the first half of the eighteenth century were recovered. Sprigged Westerwald ware and Midlands Mottled ware, both usually dated to before 1750, were recovered, as well as quantities of white salt-glazed stoneware, British brown stoneware, and creamware, all primarily eighteenth-century types. However, the nails from the site were primarily cut nails, first made in quantity in about 1790, and sherds of pearlware varieties that date to after 1795 were also recovered. The variety of artifacts therefore suggests a rather long occupation—50 years or more. However, the low artifact totals from the site, as well as the invisibility of the site in the historic record, argue for a much shorter period. The occupants were tenants, and may have been quite poor, so it is also possible that their ceramics were heirlooms, since poorer people of that period tended to use out-of-date ceramics (Baker 1980). Further work would be necessary to arrive at a satisfactory date for the occupation.

The discovery of a large prehistoric feature on the site was surprising, given the low density of prehistoric artifacts recovered (52 artifacts in 22 Phase II test units). The presence of the large feature, along with a low artifact density, suggests that most of the artifacts from the site may have been deposited during a single occupation, perhaps a single season of residence. A carbon sample from Feature 2 yielded a corrected date of 2850 BP. The artifact evidence, including the 22 small potsherds and the triangular knife recovered during the Phase I, does not contradict this date, placing the occupation in the Woodland I (Early Woodland) period.

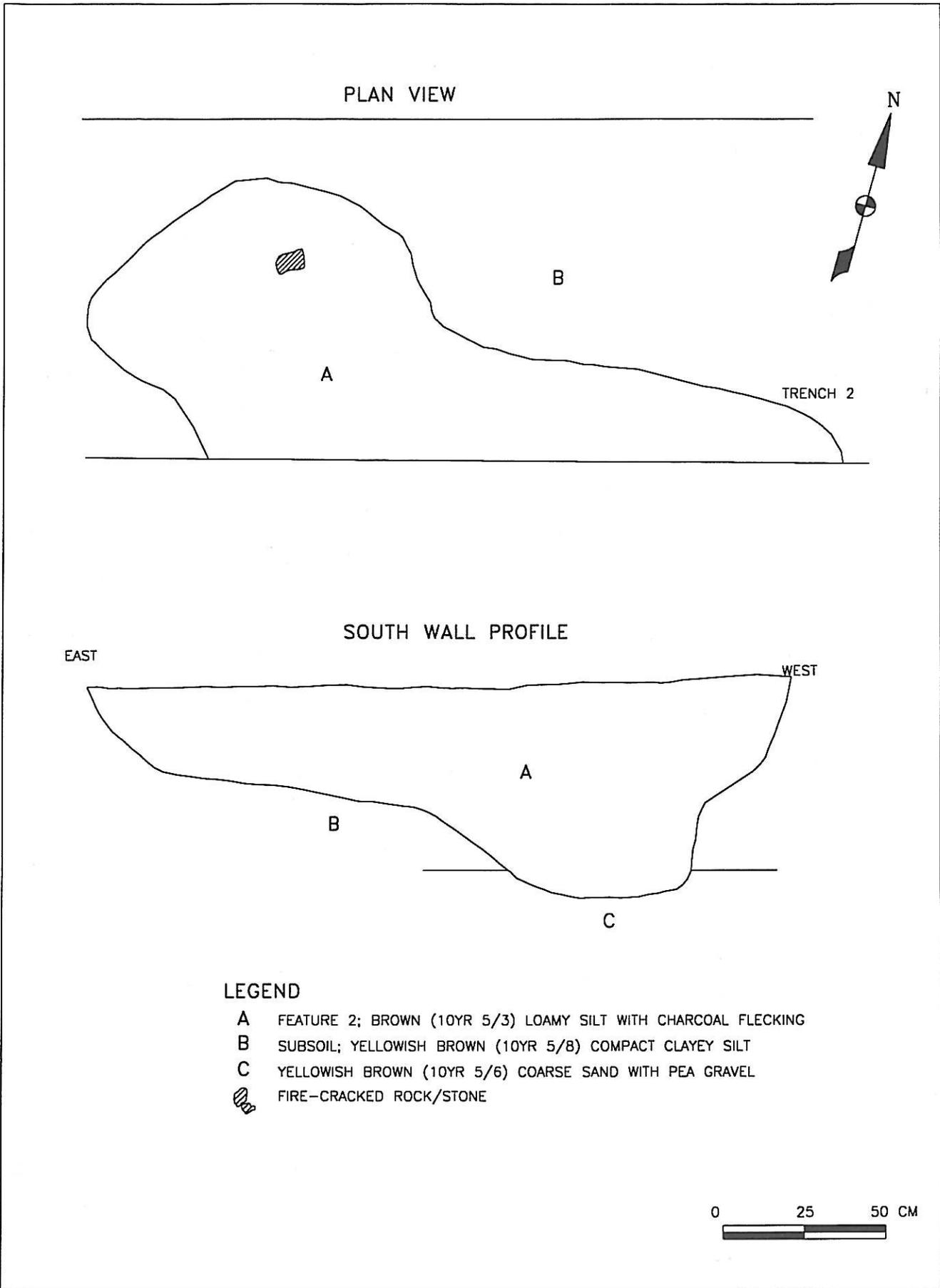


FIGURE 6: Plan and Profile of Feature 1, Site 7NC-G-144

### III. HISTORICAL BACKGROUND

Historical research carried out on the Augustine Creek North Site (Site 7NC-G-144) has traced its ownership to a John Pierce<sup>1</sup> who lived there in the early eighteenth century (Table 1). Pierce had been in Delaware since at least 1680, since he appears in a jury list from that year. He is listed in the 1685 tax assessment, although he is not said to own any land. At that time he seems to have been living in the "southside of Apoquenimy," at least five miles south of the Augustine Creek North Site (Colonial Society of Pennsylvania 1935:101). Pierce is not listed in the 1693 or 1697 New Castle County (NCC) tax assessments.

In 1701, John Pierce, described as a resident of New Castle County, received a warrant from the Penn Proprietors for 150 acres in the "Manor of Rockland" (NCC Warrants and Surveys: Folder P-2:16). The tract was duly surveyed, and a draft survey was recorded in 1703. The tract was nearly square, 160 perches (2,640 feet) by 150. This warrant notes that Pierce was already "seated" on (occupying) this tract at that time. A 1723 quitclaim, which established John Pierce's son, John Pierce II, as the sole owner, states that the parcel fronted on Canoe Branch, an early name for Augustine Creek (NCC Deed Book G-1:356). John Pierce was one of the petitioners who asked in 1736 that Thomas Penn establish Wilmington as a town (Ferris 1987:207). John Pierce II died intestate around 1740, and an inventory of his estate survives. The inventory includes equipment for the manufacture of linen cloth, carpenter's tools, £85 worth of livestock, a net, and a periauger (a boat resembling a canoe) (NCC Probate File: John Pierce 1740).

In 1748, one of John II's sons, Abraham Pierce, had the deed to the property copied and recorded in New Castle (NCC Warrants and Surveys: Folder P-2:16a). In 1760, Abraham Pierce became sole owner of the property, which was then said to include 270 acres, bounded on the south by "Augustine's Creek alias Cannoe Branch," and on the west by the King's Road (U.S. Route 13) (NCC Deed Book U-1:102). Abraham Pierce died in 1769.

After a period of administration by the guardians of Abraham Pierce's minor children, and a lengthy dispute among the heirs, the Pierce estate was divided among the heirs in 1790 (NCC Orphans' Court Records D-1:247, 275; F-1:207, 210, 219). They appointed five freeholders and a surveyor to divide their father's real estate, which was calculated to comprise 147 acres and 119 perches of land. The freeholders returned with a partition containing seven lots, each lot either adjoining Canoe Branch or the King's Road. Site 7NC-G-144 was included in Lot No. 3, which was a parcel of cleared land lying along Canoe Branch, with no frontage on the King's Road. It contained 18 acres and 59 perches of land and included an apple orchard. No house or other structure is mentioned in the deed. Lot No. 3 was assigned to one of Abraham's two daughters, Sarah Daines (NCC Deed Book M-2:330). Since Site 7NC-G-144 was almost certainly occupied during this period of guardianship and disputed ownership, the absence of a structure from the description of the property in 1790 is surprising. (The only house mentioned is on Lot 1, fronting the Wilmington to Lewes Road several hundred yards north of Site 7NC-G-144.) The

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<sup>1</sup> Variations in the spelling of some surnames occur in the records consulted. The spellings have been standardized throughout this text.

omission argues that the site was occupied by a tenant, since the residence of one of the disputants would undoubtedly have rated a mention. Perhaps the tenant house near the apple orchard on Lot No. 3 was not occupied in 1790, or had fallen into ruin.

Sarah Daines retained ownership of Lot No. 3, part of her father's farm, until her death. There is no evidence that she resided on the property, or, indeed, anywhere else in New Castle County. Because she died intestate, the property descended to her three children, Elizabeth Green, Mary McClane, and George Pierce Daines. In 1811, the children sold Lot No. 3, with another lot their mother had inherited, to Jacob Vandegrift for \$350 (NCC Deed Book W-3:21). Jacob Vandegrift was a member of a one of the earliest families to settle in St. Georges Hundred. Leonard Vandegrift, of Dutch descent, is believed to be the progenitor of this branch of the family, settling in St. Georges Hundred by 1708 (Scharf 1888:988).

Jacob Vandegrift was about 47 years old when he was enumerated as the head of a household in St. Georges Hundred in 1820, listed next to his father, Christopher Vandegrift. Other members of the household included a woman, older than 45 years; three males between 10 and 26, who may have been his sons, John, Jacob, and James M.; and two females, between the ages of 10 and 26, who may have been his daughters, or one a daughter and the other a daughter-in-law. One of the sons was probably married, since two small children also lived in the household. Jacob Vandegrift's enumeration also included two female slaves, one over 45 years old and the other under 14 (U.S., Bureau of the Census, New Castle County 1820:159).

When Jacob Vandegrift died in 1845, at the age of 82, his son, James Vandegrift, who was 31 years old, inherited a farm called "Retirement" that included Site 7NC-G-144 (Scharf 1888:988). James had probably been living with his father at Retirement during the census of 1840, when the household included a man in his twenties. The household also included a man in his forties, and two women in their twenties, one of whom must have been Jacob's unmarried daughter, Jane (U.S., Bureau of the Census, New Castle County 1840:299). In 1886, James Vandegrift bought the rest of the old Pierce estate east of the Wilmington to Lewes Road, a 52.62-acre tract belonging to Edward L. Mifflin (NCC Deed Book A-14:422, U-14:125).

James M. Vandegrift married Mary Adeline E. Cochran, the daughter of John Cochran, the year before inheriting Retirement. They had three daughters: Olivia, who married George W. Dennison, a merchant in Little Rock, Arkansas; Lina, who married Colonel B.S. Johnston, of Little Rock, Arkansas; and Margaret, who married William P. Mifflin in 1877 (Scharf 1888:988). The 1850 census enumeration listed the value of James M. Vandegrift's real estate as \$19,000. Aside from his wife and two young children, his household consisted of five African-Americans: four men, ranging in age from 27 to 50, who were farm hands, and a young girl, 14-year-old Elizabeth Morris, who was probably a domestic servant (U.S., Bureau of the Census, Population Schedule, New Castle County 1850:199).

In 1857, James M. Vandegrift moved his family to Odessa. He returned to active farming in 1860, when he bought "Elm Grange," a 200-acre farm just north of McDonough (Beers 1868). Unlike many of his neighbors, who concentrated on fruit production, he turned his efforts to

**TABLE 1 LIST OF PROPERTY OWNERS, SITE 7NC-G-144**

DATE	TRANSACTION
1981	Gentleman Farmer's Restaurant, Inc., from Earle J. and Mary K. Lester (NCC Deed Book O-113:308)
1977	Earle J. and Mary K. Lester, inherited from Claude N. and Edith C. Lester (NCC Deed Book H-97:267)
1955	Claude N. Lester, from Elizabeth D. Sheppard and Lina D. Cherry (NCC Deed Book C-56:464)
1931	Lina D. Cherry, Elizabeth D. Sheppard, and Hetty M. Dennison, inherited from Olivia C. Dennison (NCC Deed Book V-37:323)
1902	Olivia C. Dennison, inherited from James M. Vandegrift (NCC Will Records: Folder 571)
1845	James Vandegrift, inherited from Jacob Vandegrift (Scharf 1888:988)
1811	Jacob Vandegrift, from Elizabeth Green, Mary McClane, and George Pierce Daines, heirs of Sarah Daines (NCC Deed Book W-3:21)
1790	Sarah Daines, inherited from Abraham Pierce (NCC Deed Book M-2:332)
1769	Death of Abraham Pierce (NCC Orphans' Court Record D-1:238)
1760	Abraham Pierce, from William Pierce et al.; the children of John Pierce, intestate, quit claim their rights to their father's plantation (NCC Deed Book U-1:102)
c.1743	Death of John Pierce (NCC Orphans' Court Record C-1:21)
1723	John Pierce, from Thomas Pierson et al.; other children of John Pierce, intestate, quit claim their rights to their father's 150-acre tract fronting on Canoe Branch (NCC Deed Book G-1:356)
1701	John Pierce, from William Penn; warrant for 150 acres in the Manor of Rockland (NCC Warrants and Surveys: Folders P-2:16 and 16a)

cereal crops and raising livestock. Mary Vandegrift died in 1868. Four years later, James M. Vandegrift married Angeline C. Cleaver, the daughter of a prominent merchant in Port Penn (Aldine Publishing and Engraving Company 1882:389-390; Scharf 1888:988).

James M. Vandegrift died in April 1902. His main heirs were his daughters, all of whom had moved to Arkansas (NCC Deed Book V-37:323; NCC Will Folder #571; NCC Will Record C-3:7). They and their daughters held onto their Delaware property until 1955, when it was sold to Claude N. Lester, of St. Georges Hundred, for \$10. After Claude and his wife, Edith, died, their three sons, Claude, Richard, and Earle, divided up the farm among themselves. Site 7NC-G-144 was included in a tract of 235.2127 acres conveyed to Claude E. and Helen M. Lester in 1977. This tract is currently owned by a limited partnership established by the Lesters in 1995 (NCC Deed Books C-56:464; L-74:196; K-75:605; H-97:267; O-113:308; 1911:196).

## IV. RESEARCH CONTEXT

### A. INTRODUCTION

The Augustine Creek North Site provides an opportunity to study both the farm life of a tenant farm family, probably poor, in the Revolutionary and Early Republican periods, and what appears to be a single-season prehistoric camp dating to the Woodland I (Early Woodland) period. Research at the site can address several questions of interest to historians and archaeologists. Archaeology is best carried out with a defined research agenda, with the aim of answering particular questions about the past. Although the excavators cannot anticipate the research interests of future scholars, it is still preferable to answer a few questions than to conduct an unplanned excavation that may answer none.

The overall context for federally-funded or -permitted archaeological research is provided by the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation. The Secretary of the Interior's Standards were designed as a tool for organizing information in such a way as to provide a sound basis for decisions concerning the identification, evaluation, and treatment of cultural resources. The process begins with the creation of historic contexts that define the conceptual framework for a set of resources, or property types, that share a thematic or topical unity as well as relatively well-defined geographic and temporal limits. The importance of individual properties is determined within historic contexts, not in isolation; a significant archaeological site is one that can increase knowledge about a particular historic context. Historic contexts should, therefore, include research questions against which the importance of the site's information potential can be judged.

In Delaware, detailed historic contexts have been developed that are useful in evaluating both the historic and prehistoric components. For the historic component, there are *Historic Context: The Archaeology of Agriculture and Rural Life, New Castle and Kent Counties, Delaware, 1830-1940* (De Cunzo and Garcia 1992), and *"Neither a Desert nor a Paradise": Historic Context for the Archaeology of Agriculture and Rural Life in Sussex County, 1770-1940* (De Cunzo and Garcia 1993). Useful material is also included in the *Management Plan for Delaware's Historical Archaeological Resources* (De Cunzo and Catts 1990). For the prehistoric component, the most important reference is *Stability, Storage and Culture Change in Prehistoric Delaware: The Woodland I Period (3000 B.C. - A.D. 1000)* (Custer 1994). These documents identify research questions of importance in the region and have been used in formulating specific questions for the Augustine Creek North Site.

### B. RESEARCH QUESTIONS FOR THE HISTORIC COMPONENT

#### 1. Discussion

The Augustine Creek North Site belongs to the "farm" property type, and was almost certainly occupied by tenants, probably a poor family. Much remains to be learned about the lives of poor tenants in late eighteenth-century Delaware, and the Augustine Creek North Site can provide

information important to this research. However, several factors limit the kinds of research questions that can be answered at the site. The Delaware historic contexts all emphasize the need to combine historical archaeology with historical research, and give priority to sites for which a variety of written records can be located (De Cunzo and Garcia 1992:299). A number of the research questions they discuss, such as those concerned with ethnicity and group identity, assume that the occupants can be identified. Since the occupants of the Augustine Creek North Site are not known, the site fails in this respect. The occupants could have been Scotch-Irish, German, English, or even, since free black tenant farmers were present in eighteenth-century Delaware, African-American. However, as the authors of the state plan (De Cunzo and Catts 1990:194) discuss, too great an insistence on the presence of written records could exclude whole categories of sites from investigation. Extensive written documentation will hardly ever be available for eighteenth-century tenant sites. The lack of documentation for the Augustine Creek North Site should not preclude research at the site, but it does limit the kinds of research questions that can be addressed.

The physical integrity of the site is also less than perfect. The site has been plowed, and those portions of the site higher on the slope have probably been severely eroded. No foundations have been found, and archaeological evidence suggests that the house, at least, was constructed on shallow brick foundations that are unlikely to have survived. Therefore, the ability of the site to provide architectural information is limited. The dating of the site is still somewhat uncertain. These problems also limit the research potential of the site. The research questions that can be addressed at the site focus on the Landscape and Domestic Economy themes, as well as some limited topics in vernacular architecture.

## 2. *Landscape*

The most striking thing about the Augustine Creek North Site to all historical archaeologists who have visited it is its peculiar location. Although a level, well-drained hilltop, the kind of site preferred by most eighteenth-century builders, was present less than 50 meters to the west, the builder on the Augustine Creek North Site chose a sloping site immediately adjacent to a swampy stream. The site thus makes a fascinating study in the historic landscape of Delaware.

Landscape studies, which are becoming increasingly widespread in historical archaeology (Adams 1990; Beaudry 1986; Leone 1989; Praetzellis and Praetzellis 1989), examine two related questions, where people lived and how they modified their environments. Where people built their houses and how they arranged their farms and towns reflect not only their practical understanding of their environments, but also their conceptions of order and their relationship to the world around them.

Several factors may have influenced how the tenants who lived at the Augustine Creek North Site laid out their house and farm. Their apparent poverty may have been one of the most important factors. In their study of an African-American community in central Delaware, Heite and Blume (1995) argue that the frequent siting of blacks' houses in swampy areas reflects their social marginalization. The residents of Site 7NC-G-144 may have needed all their high-quality land

to feed themselves, which forced them to build their house in the swamp; or perhaps the site was chosen by the property owners, who did not want a tenant's shack to spoil the view of their lands from the highway. Cultural traditions carried over from Europe also influenced the layout and siting of farms. Henry Glassie (1972) has documented how the distribution of farm plans, such as the courtyard plan and the linear or street plan, reflects the cultural background of the immigrants who built them. It is widely known that immigrants from areas of Switzerland and southern Germany preferred to build their "bank barns" on slopes and their dairies over springs, and these inherited predilections greatly influenced the locations they chose for their farms (Long 1972).

Cultural changes underway in the eighteenth century also greatly influenced the American landscape. During the second half of the eighteenth century, when the Augustine Creek North Site was occupied, the elite of Europe and the European colonies were developing new intellectual and social norms emphasizing order, cleanliness, and the separation of public and private spheres. In the Anglo-American context, these ideas are called "Georgian" (Deetz 1977). Under the influence of these ideas, the better-off white people of America remade their houses and farms to provide a more orderly and private existence. Farms were rearranged to separate private life from work and people from animals; for example, one traditional European house form, in which barns were attached directly to houses so that people and animals shared a single roof, was almost completely abandoned (Glassie 1982:398-404). Privies, unknown in rural contexts from the seventeenth century, were dug, and small sheds were built over them to provide privacy. These changes were connected to an ethic of "improvement" and the early stages of what was called "scientific agriculture," and books were published showing the proper, scientific way to build barns and lay out farms (Adams 1990). The impact of all these changes on the wealthy people of the early republic has been well documented, but the response of poorer and more marginalized people has been little studied.

On a plowed site such as Site 7NC-G-144, spatial archaeology has two dimensions: the distribution of artifacts in the plowzone, and the distribution of features beneath it. The distribution of plowzone artifacts reflects both the organization of the activities in which the artifacts were used and the pattern of refuse disposal. The mapping and excavation of features provides several types of spatial data. The locations of buildings, fences, wells, privies, ditches, and other permanent structures can be determined directly. Also, the refuse deposits found in features provide further information about the location of activities and the pattern of trash disposal. Feature excavation can also help unravel the history of building and rebuilding on a site. In the absence of stratigraphy, it is often difficult to determine whether a series of post structures were in use at the same time or sequentially, and such indirect clues as the alignment of the structures and the quantity of artifacts in the posthole fill must be used to obtain an approximate result (Kelso 1984:56-79). The fullest understanding of the landscape of the site is derived from combining these two dimensions of spatial data.

### *3. Material Culture Studies/Consumer Behavior*

The test excavation of Feature 1 has shown that the Augustine Creek North Site contains substantial numbers of historic artifacts and faunal specimens that can be used to study the

material culture of the residents. The material culture of a farm includes both items produced on the farm and items purchased by the residents. The archaeological record is biased toward purchased items, especially ceramics, glass, and metals, and the largest component of material culture studies in archaeology is therefore the study of consumer behavior. The number of studies focusing explicitly on consumer behavior has expanded rapidly in recent years, and consumer behavior is now an issue of primary interest in historical archaeology (Henry et al. 1984; Klein and Garrow 1984; LBA 1986, 1990a, 1990b; Spencer-Wood 1987; Wise 1985). As defined by archaeologists, consumer behavior refers to the patterns of individual, household, or group expenditures, and specifically the acquisition, use, and discard of material items (Wise 1984). This definition is narrower than that employed by other social scientists, who generally include expenses on such non-material goods as charity and education (Henry 1991; Zimmerman 1936), but such items rarely leave traces for archaeologists to uncover.

What people buy, of course, reflects not only their material needs, but their notions of beauty, proper behavior, the usefulness of technology, and their own status (Ferguson 1977; Meltzer 1981). Zimmerman (1936) has pointed out that values such as frugality and self-indulgence are closely related to consumption patterns. Purchasing patterns also reflect the economic world beyond the farm. Changes in the world economy, most importantly for this period the Industrial Revolution and the great increase in world trade, should lead to changes in the objects purchased, and discarded in the ground, even at the houses of poor tenants (Bedell et al. 1994).

A large body of recent scholarship, summarized by Carson (1994), points to the eighteenth century as the key period for the development of modern consumer culture. According to this view, it was between 1650 and 1800 that household objects such as dishes and furniture first became key components of the average person's social status and self-definition. In traditional European society, these scholars argue, people's status was largely determined by their wealth in land and livestock, which their neighbors all knew. By 1800, status was generally judged by a new definition of proper behavior that rested largely on people's skill in using certain household objects. The tea ceremony, and a new way of dining, around oval tables with forks and matching sets of dishes, are the best examples of this new relationship between status and household objects. The great importance attached to these simple things led to today's culture of mass consumerism and sparked a demand for mass-produced goods that helped ignite the Industrial Revolution. This "Consumer Revolution" spread Georgian canons of order and beauty, derived from the classical revival in elite circles that is usually termed the Renaissance, to ordinary people, and their local artistic and craft traditions were swamped by a tide of classically-inspired, mass-produced, and internationally-recognized fashion.

Carson's thesis is controversial, and the notion that the ordinary people of eighteenth-century America eagerly became consumers of mass-produced goods has been particularly controversial. Some historians believe that most farmers were enthusiastic about "modernization" in both morals and economics, while others think many people and communities would have preferred to remain autonomous (Henretta 1978; Kulikoff 1989; Sellers 1991). Because Carson's "Consumer Revolution" and its attendant design principles should have influenced the things people bought, how houses were built, and how farms were arranged, the question can be tested archaeologically

to some extent. Henry Glassie originally advanced the theory that the spread of the "I-house," a sort of vernacular Georgian form, in the 1760 to 1820 period represented the acceptance of Georgian values by ordinary farmers (Glassie 1976). Studies of artifacts have suggested that the spread of tea drinking, reflected in the very large number of American homes that possessed tea-drinking equipment by 1800, also shows that these values spread rapidly among ordinary people (Bedell et al. 1994; Walsh 1992). However, Friedlander (1991) has shown that in early nineteenth-century New Jersey, most farmers continued to use their wealth in a way Carson calls traditional, preferring investment in bigger barns and more livestock over the consumption of consumer goods. Debate on these questions will no doubt continue, and information from poor, marginal sites, such as the Augustine Creek North Site, is crucial to finding an answer.

Archaeologists have used a variety of analytical approaches in the study of consumer behavior (Spencer-Wood 1987), and several will be employed to study the Augustine Creek North Site. Information on dietary patterns and foodways will be obtained by the careful recovery of bones and the use of flotation to obtain botanical remains. Arguments about an eighteenth-century consumer revolution depend heavily on changes in ceramics and glasswares, so minimum vessel counts obtained from cross mending will be used to organize the careful study of collections from all well-preserved deposits. Ceramic vessel forms may exhibit details about food preparation and consumption patterns, and bottles may indicate the use of specific medicines, beverages, and condiments, as well as general changes in dining habits. Expenditures for ceramics may be measured by the Miller (1980, 1991) ceramic economic scale or other derivative methods. Small finds, such as furniture hardware and clothing fasteners, can reveal much about the parts of the residents' material culture that have not survived. Experience shows that the most successful studies of consumer behavior are those that integrate documentary information and various archaeological data sets such as ceramics, glass bottles and tablewares, clothing items, tobacco pipes, dietary refuse, and household furnishings (e.g., LeeDecker et al. 1987; LBA 1990a; Otto 1984), and every effort will be made to include the Augustine Creek North Site in this tradition.

### *3. Rural Vernacular Architecture*

The study of rural housing is dominated by standing buildings, but there are reasons for believing that standing houses are not a representative sample of the housing stock of the eighteenth and early nineteenth centuries (Carson et al. 1981). In order to obtain a balanced picture of past housing, it is necessary to study the buildings that have been destroyed as well as those that survive. Housing was, and is, one of the most important components of human material culture, and knowledge of the houses in which people lived is essential to understanding their lives. The houses and barns people built reflected not only their technology and wealth, but also their ethnic heritage, their conceptions of beauty, their notions of order, and their assumptions about private and public life (Herman 1987; Neiman 1980, 1986; Upton 1986).

At the Augustine Creek North Site, every effort will be made to learn as much as possible about the house and other structures that stood on the site by a detailed study of traces surviving below the plowzone. Surviving structural elements, whether brick foundations, brick pier bases, or postholes, will be carefully mapped and fully excavated. Although preliminary testing has

suggested that the house, at least, was supported on brick piers or some other form of flimsy brick foundations that are not likely to survive, some architectural remains may still be found. The cellar itself contains some architectural information, and comparisons to similar partial cellars at other sites may reveal the likely dimensions of the house at the Augustine Creek North Site. Postholes from any post structures on the site are also likely to survive, and at times, the locations and dimensions of completely destroyed houses can be determined from gaps in fence patterns. If sufficient data can be obtained from archaeology, written records, and comparative studies, hypothetical drawings of the reconstructed house and farm will be prepared by an artist experienced in such reconstructions.

#### 4. Culture History

The information derived from technical studies of the architecture of the house and the farm buildings, the layout of the farm, and the material culture and diet of the residents will be combined with information from documentary research, material culture studies, architectural history, and the excavations of other similar sites in the region (e.g., Catts et al. 1989, 1995; Coleman et al. 1984, 1990; Shaffer et al. 1988; Walker et al. 1992) to develop a picture of the material lives of the inhabitants. The end goal of this effort will be to understand the lives of the residents and increase knowledge about the overall patterns of culture and culture change in America.

### C. RESEARCH QUESTIONS FOR THE PREHISTORIC COMPONENT

#### 1. Discussion

The prehistoric component of Site 7NC-G-144 appears to be what Custer (1984, 1994) calls a "micro-band base camp," a place where prehistoric people camped while hunting or collecting seasonably available resources in the wetlands along Augustine Creek. A charcoal sample from Feature 2 yielded a date of  $2850 \pm 60$  radiocarbon years before the present (BP). The artifact evidence, including the 22 small potsherds and the triangular knife recovered during the Phase I survey, does not contradict this date, placing the occupation in the Woodland I (Early Woodland) period. The site is located in what the state management plan for prehistoric resources (Custer 1986:178) designates as the *Mid-Drainage Management Unit, Delaware Drainage*.

The prehistoric artifact density on the site is low, since only 52 artifacts were recovered from the 22 Phase II test units and none of the extended Phase II units produced significantly higher totals. The low count suggests that most of the artifacts may represent a single occupation of the site, associated with the feature; at most, only a few occupations are represented.

The limited integrity of the Augustine Creek North Site and the small number of artifacts recovered restrict the kinds of research questions that can be addressed at the site. However, because the site appears to have been occupied for such a short time, possibly only a single season, it remains a good candidate for answering certain specific questions. The research

domains identified by Custer (1994) that are most applicable to the Augustine Creek North Site are Household Settlement Patterns, Community Settlement Patterns, and Subsistence Systems.

## *2. Household Settlement Patterns*

The plowzone of the Augustine Creek North Site has yielded approximately 75 artifacts from the 27 excavated test units. However, at least one large prehistoric feature is present, a pit resembling those identified by Custer and others as pit houses. This feature has only been partially excavated, but the feature fill yielded 90 prehistoric artifacts. The artifact density of the feature fill is at least 10 times that of the overlying plowzone. The combination of the low artifact count with the large feature, the construction of which required a substantial effort by the residents, as well as the discrepancy in the artifact densities, suggests that most of the artifacts on the site derive from a single occupation. A good deal might therefore be learned from excavation of the site about the size of the group that occupied it, the duration of their occupation, and the spatial organization of the camp. These questions fall into the Household Settlement Patterns category established by Custer (1994).

The possible presence of pit houses on Delaware sites has attracted a good deal of attention and debate in recent years, with some archaeologists accepting these features as houses and others believing they are tree throws (Liebknecht 1995; Mueller and Cavallo 1995; Schuldenrein 1995). The Augustine Creek North Site provides a good opportunity to study the question, for two reasons. First, there is an excellent example of the feature type present, which can be studied archaeologically and geologically. Second, the site appears to be a single occupation, so the position of the feature can be analyzed with reference to the artifact distribution on the site and the location of any other features encountered. If the location of the feature appears to be related in a meaningful way to the overall structure of the site, that would be strong evidence that it is, in fact, a cultural feature. This hypothesis will be checked by study of the soil chemistry and geomorphology of the feature.

## *3. Community Settlement Patterns*

Because of the presence of the large feature and a substantial quantity of ceramics, the Augustine Creek North Site appears to be what Custer (1989, 1994) calls a "micro-band base camp." In his earlier work, Custer (1984, 1989) assumed a correlation between the size of sites, the size of the occupying group, and the duration of the occupation; that is, he asserted that larger sites with large numbers of artifacts were probably occupied by larger groups for longer periods, while smaller sites with few artifacts were probably occupied by small groups for brief periods. Recently he has begun to question this assumption, noting that what he previously classified as "macro-band" base camps might represent more frequent occupation of the same site by small groups rather than occupation by larger groups (Custer 1994:74). Thus, there is not a simple relationship between the size of the modern archaeological site or the number of artifacts present and the size or permanence of the prehistoric occupation. The Augustine Creek North Site could provide additional interesting data on this question, through the study of a site probably occupied by a small group for a very limited time. Custer has also asserted that the presence of deep

excavated pits on archaeological sites is clearly related to longer occupations, as implied in the title of his 1994 historic context for the Woodland I period, *Stability, Storage and Culture Change* (Custer 1994). On the available evidence, the Augustine Creek North Site would contradict this hypothesis, making further excavation of the site a useful check on speculation in this area.

The Augustine Creek North Site may offer a remarkable opportunity to look at the uses of space within a small site that does not appear to contain a large number of components from many different time periods. Based on ethnographic information from various hunter-gatherer societies and excavation data, Binford (1983) has identified a number of cross-cultural similarities in the way individuals and groups carry out tasks and discard debris in residential and nonresidential sites. Within a campsite, hearth areas are normally the foci around which a broad range of activities are carried out, and Binford (1983:149) suggests that hearths are not only focal points around which activities were organized but that these tasks were performed "according to a spatial pattern that appears to be universal." Site structure may be viewed as a conglomerate of individual modules that represent either distinct activities or social units. The representation of social structure in space is a culturally universal phenomenon, and occupation sites often contain a series of small areas of equivalent size and form that correspond to social units such as households or extended families.

The patterning of refuse deposits around hearths typically exhibits a concentric form. Small items, such as waste products from craft activities, are normally found between the hearth and the seating area, while larger items are discarded in a "toss zone" away from the primary seating and work area. There are a few basic patterns of refuse disposal among hunter-gatherers that account for the major patterns of archaeological site structure, including (1) dropping or discarding objects in their place of use, (2) tossing individual items away from their place of use or consumption, and (3) dumping a group of items en masse. Small dumps often appear to have a "magnetic" effect, as they accumulate material from subsequent refuse disposal episodes (Binford 1983).

Distinct disposal patterns may be observed inside and outside of structures. While the concentric, or doughnut-shaped, pattern is typically left by groups around an outside hearth, greater effort is normally made to maintain the cleanliness of indoor domestic spaces. Refuse dumps are typically located immediately outside the door, left there after cleaning a domestic space. Activities that produce large amounts of waste material are typically located away from the primary living area, so that debris may be left in place, away from the living area. Sites that are intended for reuse, including the peripheral areas adjacent to the primary habitation areas, are typically cleaned of debris (Binford 1983).

#### 4. *Regional Settlement Patterns*

The Augustine Creek North Site is obviously a single site and was only one component of a larger settlement system. The further excavation of the site, however, may offer data on seasonality of occupation and thus clarify the two models for Woodland I regional settlement

patterns proposed by Custer (1994:83-84). The site is not in the sort of location where Custer's models predict base camps—along rivers near the freshwater/saltwater interface—so study of the site may expand the understanding of site selection among the Woodland period inhabitants of the region.

### 5. *Subsistence*

Evidence of subsistence practices from Woodland I sites in Delaware is somewhat sparse, but not totally absent. According to Custer (1994:128), common plant remains assignable to this period include hickory nut (*Carya sp.*), goosefoot (*Chenopodium sp.*), and pigweed (*Amaranthus sp.*). Excavation of the Two Guys Site in southern Delaware (LeeDecker et al. 1996) provided evidence of sumpweed use in this period. An even wider range of floral remains have been found at a few other Woodland I sites within Delaware, but no evidence of the tropical domestic plants that had such an impact on prehistoric life in most of eastern North America—corn, beans and squash—has been recovered from sites in northern Delaware. Some of the plant remains that have been recovered no doubt represented important food sources, and some had medicinal or other uses. Because charcoal has already been recovered from Feature 2, the Augustine Creek North Site is a good candidate for flotation analysis.

The recovery of archaeobotanical remains is, in large measure, dependent on the application of flotation recovery techniques. Flotation recovery has been successful at a few sites in the Middle Atlantic region (e.g., see Custer 1994; Dent and Kauffman 1985; LeeDecker et al. 1991, 1996), thus significantly expanding the understanding of prehistoric subsistence practices. Botanical data, however, present a unique set of interpretive problems, and it does not necessarily follow that all seeds, charred or otherwise, recovered from archaeological contexts represent plants that were consumed or intentionally used by the site inhabitants (Holt 1991; Keepax 1977; Minnis 1981; Moeller 1986; Smith 1985). Custer (1994:130-131) has also specifically discussed this matter in relation to Delaware sites.

Relative to the Middle Atlantic region, botanical remains have been more frequently reported from sites in the Southeast, particularly from rockshelters and deeply buried sites. Yarnell and Black (1985), using data from 60 sites in the Southeast, have compiled an important database pertaining to the prehistoric use of plant foods. First, there is widespread evidence that nuts (hickory, walnut, acorn, etc.), greens (e.g., purslane and pokeweed), fleshy fruits, small grains, and seeds were used throughout the Archaic and Woodland periods. Seed-to-nutshell ratios (computed as the number of seeds per 100 grams of nutshell) showed a steady increase through the Archaic, Early Woodland, and Middle Woodland periods, but dropped during the Late Woodland. Yarnell and Black also observed that the seeds of plants used for greens (purslane and pokeweed) declined after the Middle Archaic, while the numbers of small-grain forb seeds (e.g., chenopod and amaranth) increased significantly during the Late Archaic and Woodland periods. Given these trends, they suggest that forb grain utilization during the Late Archaic may have derived from the initial use of plants as greens (Yarnell and Black 1985). The Augustine Creek North Site should mirror this last pattern of increased utilization of small-grain resources.

The presence or absence of floral remains at the Augustine Creek North Site might additionally suggest the season of site occupation.

Faunal remains are rare from Woodland sites in Delaware. The exception to this rule is the recovery of shellfish remains from sites in appropriate locations of the state. It can nonetheless be projected that the occupants of the Augustine Creek North Sites were exploiting the standard major animal populations typical in the middle latitudes of the continent. Some examples of these species have been recovered at other Woodland sites (see Custer 1994:131), and it is reasonable to expect that such remains might be recovered through further investigations at the Augustine Creek North Site.

#### 6. *Technology*

The relevance of the Augustine Creek North Site to the technology theme depends, again, on the site's short span of occupation. The artifacts recovered may illustrate the material culture of a single group, including their stone tools, lithic raw material selection, ceramics, storage pits, and structures. How a group organizes its technology provides important insights into the economic and social structure of that society (Koldehoff 1987; Nelson 1991). Most prehistoric sites contain mixed assemblages from many different time periods, making it difficult to determine how many different types of tools were used by any single group (Coe 1964:6-8). Custer (1994:172) suggests that continued refinement of the temporal placement of diagnostic assemblages is needed, especially linking projectile point types and ceramic types. More specifically, Custer (1994:172) questions what is commonly referred to as the "Coe Axiom," where one set of projectile and ceramic types is assumed to be associated with one prehistoric culture. Custer instead argues for allowance of variability in projectile point associations, i.e., any one group may have made more than one type. Dent (1995:214) has recently offered an explanation for some of this variability on Delaware sites, but certainly agrees that associations in the past were likely to have been variable. The collection from the Augustine Creek North Site may be useful in elucidating these relationships.

Ceramic technology is another issue that might be addressed with further data from the Augustine Creek North Site. Twenty-two small sherds of ceramic have already been recovered from Feature 2, and it is to be expected that more will be found during the Phase III fieldwork. Many basic questions about prehistoric ceramics in Delaware remain to be answered, including the date ranges of the various ware types; a tightly-dated deposit such as the one from Feature 2 could be particularly helpful in that respect. Additionally, if botanical or other remains provide evidence of the food procurement activities that took place at the site, this information might be used to determine the function of the ceramics recovered from the site.

## V. FIELD METHODOLOGY

The Phase III excavations proposed for the Augustine Creek North Site consist of the excavation of a sample of the plowzone across the site, the mechanical stripping of the remainder of the plowzone on the site, and the excavation or testing of any cultural features uncovered. This plan assumes that representatives of DelDOT and the DESHPO will visit the site after the plowzone stripping to discuss what has been uncovered and agree on a work plan for feature excavation, and that changes in the scope and budget may be required at that time.

### A. PLOWZONE SAMPLING

The first phase of the excavation will be the excavation of a sample of plowzone across the site. LBA proposes to excavate a five percent sample of the plowzone in an area of approximately 1,600 square meters (80 1x1-meter units). Twenty test units have already been excavated in this portion of the site, so approximately 60 additional test units will be excavated. Since the purpose of these units is to sample the plowzone, they will not be excavated into the subsoil, and recording will be kept to a minimum; a single sheet form will be filled out for each unit, indicating its location, depth of the plowzone, and any anomalies encountered, but no profiles will be drawn. All excavated soil will be screened through ¼-inch mesh to recover artifacts, and recovered artifacts will be bagged with exact provenience information.

### B. PLOWZONE STRIPPING

The plowzone will then be removed from the site using a backhoe with a smooth bucket. A dump truck will be used to remove the soil from the site. Because of the site's location on a slope leading down to Augustine Creek, erosion control measures will have to be taken to prevent the piled soil from washing away and protect the stripped area of the site from gulying. A grid of points at 5-meter intervals will then be laid out across the site using a transit. These points will be used to prepare a detailed map of all the features. Figure 7 illustrates the proposed plowzone sampling and stripping. The area proposed for stripping does not exactly match the artifact distribution. The southeastern part of the site, where high artifact densities were recorded, is a filled-in ravine where trash was probably thrown, but where structures or features from either the historic or prehistoric periods are highly unlikely. Therefore, this part of the site will not be stripped.

### C. FEATURE EXCAVATION

After consultation with DelDOT and the DESHPO, feature excavation will begin. Features likely to be encountered on the site include structural postholes, fence postholes, small storage cellars, pits, hearths, and filled ditches. Depending on their nature, cultural features will be excavated completely or partially. Larger features will be excavated by natural strata, and by 10-centimeter levels within strata. Feature forms with detailed descriptive data will be completed for all features excavated, and detailed plans and profiles will be prepared. All features will be photographed. If any large features, such as post structures, are uncovered, a bucket truck will

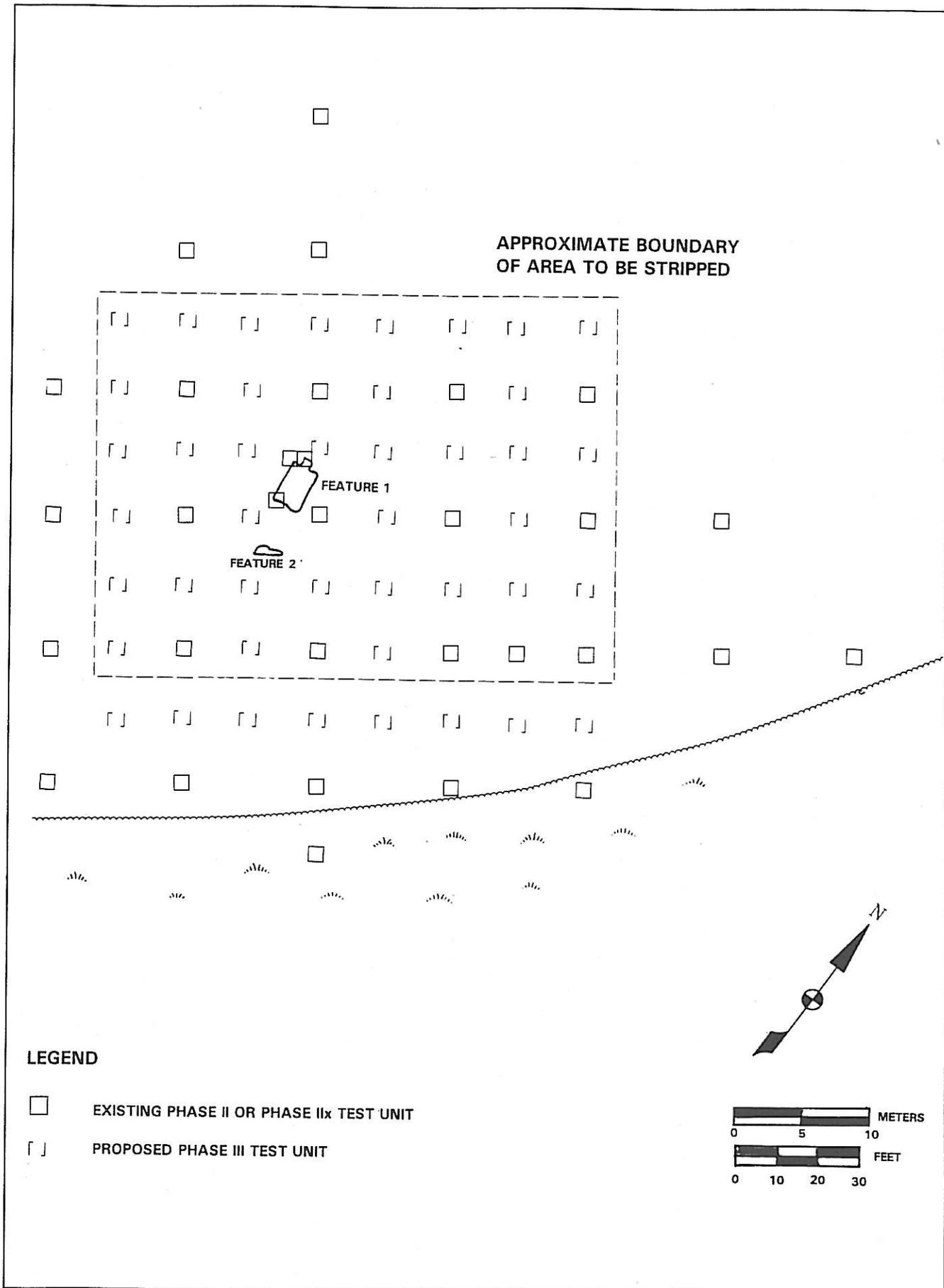


FIGURE 7: Augustine Creek North Site (7NC-G-144), Plan of Previous Testing and Proposed Excavations

be employed to obtain overhead photographs. Two-liter samples for flotation will be taken from all prehistoric features and any historic features that contain domestic refuse. Faunal materials will be carefully handled to preserve them for future analysis. All prehistoric features will be inspected by a geomorphologist.

## VI. ANALYSIS AND DATA MANAGEMENT

### A. LABORATORY ANALYSIS

#### *Basic Artifact Processing*

Artifacts recovered from the field will be transported to the laboratory on a regular basis. Upon their arrival, they will be checked in by matching the field bag inventory against the bags received by the laboratory that day. All provenience information will be matched with the associated catalog number, which will be used as a reference number throughout processing and analysis.

Preliminary processing of the collections will include cleaning, marking, and rough sorting. All materials will be washed or dry-brushed as appropriate, then sorted according to major artifact classes and placed in separate resealable plastic bags along with cards indicating provenience. Information on the cards includes the field provenience information as well as the assigned site number and catalog numbers. Artifacts will be marked using India ink on a base of polyvinyl acetate (PVA) in Roplex. After marking, the ink is covered with a coat of PVA in AYAT to seal and protect the label. Artifacts will be marked with the Delaware State Museum accession number as well as the catalog numbers assigned by LBA to record specific proveniences within the site.

After preliminary processing, the collections will be sorted by major material classes: historic ceramics, curved glass (bottle, table, and furniture glass), pipes, small finds/architectural, bone, floral, shell, and aboriginal (prehistoric). Then the collections will be analyzed by specialists. Artifacts requiring conservation will be segregated from the collection and treated according to material type.

At this time, LBA has only submitted a proposal for fieldwork and basic artifact processing on the site. Artifact cataloging and curation will be covered by a separate proposal. Detailed descriptions of the sorting techniques, cataloging methods, and computer database will be provided with that proposal.

### B. ANCILLARY STUDIES

#### *1. Micro-Floral Data Recovery*

Although the preceding excavations have not produced evidence of archaeobotanical remains that may be associated with the site's prehistoric occupation, the recovery of these remains may be an important element of the data recovery program. During excavation, two-liter soil samples will be removed for flotation processing. These standard samples will be taken from each undisturbed level that contains prehistoric material and from the same location within each unit (e.g., northeastern corner) to provide a continuous column sample. Also, soil samples will be taken from locations away from the site area to provide information regarding the spatial dispersal of plant remains throughout the site area.

## 2. *Lithic Residue Analysis*

Given the reservations of the Delaware Historic Preservation Officer, no analysis of residues on stone tools is planned at this point. Artifacts, however, will be collected in a manner appropriate for possible future testing.

## 3. *Spatial Analysis*

After cataloging is complete, computer spatial analysis of the plowzone collection will be carried out. Maps will be prepared using total artifact counts to show the overall distribution of historic and prehistoric artifacts. Other maps will be prepared of selected temporally diagnostic historic artifacts, such as creamware and pearlware, to search for changes in artifact distribution over time; of architectural materials, to determine whether any structures may have been present that have left no discernible foundations; and of activity-specific artifacts, such as tobacco pipes, refined earthenware dishes, and wine bottles, to search for specialized activity areas. If sufficient numbers of any category of prehistoric artifacts are recovered to merit separate spatial analysis, such an analysis will also be performed.

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## **VII. DISSEMINATION OF FINDINGS AND DISPOSITION OF RECOVERED MATERIALS AND RECORDS**

Several methods will be used to communicate the findings of the project to interested professionals and members of the local community. Prior to the commencement of fieldwork, a public handout on the excavations will be prepared, and will be distributed to interested individuals in the community and posted at the public libraries in Odessa and Middletown. Representatives of the local and statewide press will be contacted about possible stories on the excavations. The faculties of local elementary and middle schools will be contacted to arrange visits to the site by groups of students, to either tour the site or actually participate in the excavations. At the conclusion of the analysis, a detailed technical report laying out the findings will be produced. This report will be written so as to be of interest to both scholars and concerned lay people, and will be distributed through the DelDOT archaeology series. A poster board illustrating the most important finds will be prepared for DelDOT to display around the state. The findings will be presented to other scholars at a regional archaeological conference and to members of local amateur archaeological societies. Inquiries will be made with local libraries, schools, and businesses about the possibility of mounting a small display of the more interesting artifacts recovered during the excavations.

The draft report on the excavations will be submitted to DelDOT and the DESHPO within one year of the completion of fieldwork. A final report will be sent within two months of the receipt of all comments on the draft report. All artifacts and field records from the excavation will be prepared for permanent curation according to the standards of the Delaware State Museum.

**VIII. REFERENCES**

Adams, William H.

- 1990 Landscape Archaeology, Landscape History, and the American Farmstead. *Historical Archaeology* 24:92-101.

Aldine Publishing and Engraving Company

- 1882 *Historical and Biographical Encyclopedia of Delaware*. Aldine Publishing and Engraving Company, Wilmington, Delaware.

Baker, Vernon G.

- 1980 Archaeological Visibility of Afro-American Culture: An Example from Black Lucy's Garden, Andover, Massachusetts. In *Archaeological Perspectives on Ethnicity in America: Afro-American and Asian American Culture History*, edited by Robert L. Schuyler, pp. 29-37. Baywood Publishing, Farmingdale, New York.

Beaudry, Mary C.

- 1986 The Archaeology of Historical Land Use in Massachusetts. *Historical Archaeology* 20(2):38-46.

Bedell, John C., Charles H. LeeDecker, John T. Eddins, Ingrid Wuebber, Robert Jacoby, and Earl Proper

- 1997 *Phase I and II Archaeological Studies in the Proposed SR 1 Corridor, Scott Run to Pine Tree Corners, New Castle County, Delaware*. Submitted to the Delaware Department of Transportation, Dover, by Louis Berger and Associates, Inc., Washington, D.C.

Bedell, John C., Michael D. Petraglia, and Thomas Plummer

- 1994 Status, Technology and Rural Tradition: Excavations at the Shaeffer Farm Site. *Northeast Historical Archaeology* 22:1-30.

Beers, Samuel

- 1868 *Atlas of the State of Delaware*. Pomeroy and Beers, Philadelphia.

Binford, Lewis R.

- 1983 *In Pursuit of the Past: Decoding the Archaeological Record*. Thames and Hudson, New York.

Carson, Cary

- 1994 The Consumer Revolution in British Colonial America: Why Demand? In *Of Consuming Interests: The Style of Life in the Eighteenth Century*, edited by Cary Carson, Ronald Hoffman, and Peter J. Albright, pp. 483-697. University Press of Virginia, Charlottesville.

- Carson, Carey, Norman F. Barka, William M. Kelso, Garry Wheeler Stone, and Dell Upton  
1981        *Impermanent Architecture in the Southern American Colonies. Winterthur Portfolio* 16:135-196.
- Catts, Wade P., Jay F. Custer, JoAnn E. Jamison, Michael D. Scholl, and Karen Iplenski  
1995        *Final Archaeological Investigations at the William Strickland Plantation Site (7K-A-117), A Mid-Eighteenth Century Farmstead, State Route 1 Corridor, Kent County, Delaware.* DelDOT Archaeology Series No. 119. Delaware Department of Transportation, Dover.
- Catts, Wade P., Jay Hodny, and Jay F. Custer  
1989        *The Place at Christeen: Final Archaeological Investigations of the Patterson Lane Complex, Christiana, New Castle County, Delaware.* DelDOT Archaeology Series No. 74. Delaware Department of Transportation, Dover.
- Coleman, Ellis C., Wade P. Catts, Angela Hoseth, and Jay F. Custer  
1990        *Final Archaeological Investigations of the John Ruth Site, 7NC-D-126, Red Mill Road and Routes 4 and 273, New Castle County, Delaware.* DelDOT Archaeology Series No. 77. Delaware Department of Transportation, Dover.
- Coleman, Ellis C., Kevin W. Cunningham, Jim O'Connor, Wade Catts, and Jay Custer  
1984        *Phase III Data Recovery Excavations of the William M. Hawthorn Site, 7NC-E-46.* DelDOT Archaeology Series No. 28. Delaware Department of Transportation, Dover.
- Colonial Society of Pennsylvania  
1935        *Records of the Court of New Castle on Delaware, 1676-1681.* Published by The Colonial Society of Pennsylvania, no location given.
- Custer, Jay F.  
1984        *Delaware Archaeology: An Ecological Approach.* University of Delaware Press, Newark.
- 1986        *A Management Plan for Delaware's Prehistoric Cultural Resources.* Delaware State Historic Preservation Office, Dover.
- 1989        *Prehistoric Cultures of the Delmarva Peninsula.* University of Delaware Press, Newark.
- 1994        *Stability, Storage and Culture Change in Prehistoric Delaware: The Woodland I Period (3000 B.C. – A.D. 1000).* Prepared for the Delaware State Historic Preservation Office, Dover.

De Cunzo, Lu Ann, and Wade P. Catts

- 1990 *Management Plan for Delaware's Historical Archaeological Resources*. Prepared for the Delaware State Historic Preservation Office, Dover, by the Center For Historic Architecture and Engineering, University of Delaware, Newark.

De Cunzo, Lu Ann, and Ann Marie Garcia

- 1992 *Historic Context: The Archaeology of Agriculture and Rural Life, New Castle and Kent Counties, Delaware, 1830 - 1940*. Prepared for the Delaware State Historic Preservation Office, Dover, by the Center For Historic Architecture and Engineering, University of Delaware, Newark.

- 1993 *"Neither a Desert nor a Paradise": Historic Context for the Archaeology of Agriculture and Rural Life, Sussex County, Delaware, 1770 - 1940*. Prepared for the Delaware State Historic Preservation Office, Dover, by the Center For Historic Architecture and Engineering, University of Delaware, Newark.

Deetz, James F.

- 1977 *In Small Things Forgotten*. Anchor Books, New York.

Dent, Richard J.

- 1995 *Chesapeake Prehistory: Old Traditions, New Directions*. Plenum Press, New York.

Dent, Richard J., and Barbara Kauffman

- 1985 Aboriginal Subsistence and Site Ecology as Determined from Microfloral and Microfaunal Remains. In *Shawnee Minisink*, edited by C.W. McNett, pp. 55-79. Academic Press, New York.

Ferguson, Leland (editor)

- 1977 *Historical Archaeology and the Importance of Material Things*. Special Publication No. 2. The Society for Historical Archaeology.

Ferris, Benjamin

- 1987 *A History of the Original Settlements on the Delaware*. Reprint of the 1846 edition. Gateway Press, Inc., Baltimore.

Friedlander, Amy

- 1991 House and Barn; the Wealth of Farmers, 1795-1815. *Historical Archaeology* 25(2):15-29.

Glassie, Henry

- 1972 Eighteenth-Century Cultural Process in Delaware Valley Folk Building. *Winterthur Portfolio* 7:29-57.

- 1976 *Folk Housing in Middle Virginia: A Structural Analysis of Historic Artifacts.* University of Tennessee Press, Knoxville.
- 1982 *Passing the Time in Ballymenone.* University of Tennessee Press, Knoxville.
- Heite, Edward F., and Cara Lee Blume  
1995 *A Community on McKee Road.* DeIDOT Archaeology Series No. 109. Delaware Department of Transportation, Dover.
- Henretta, James  
1978 Families and Farms: Mentalite in Pre-Industrial America. *William and Mary Quarterly* 35:3-32.
- Henry, Susan L.  
1991 Consumers, Commodities, and Choices: A General Model of Consumer Behavior. *Historical Archaeology* 25:3-14.
- Henry, Susan L., Frank Ritz, and Kathleen Hoffman  
1984 Historical Archaeology of an Urban Neighborhood, pt. II. In *City of Phoenix: Archaeology of the Murphy Addition*, edited by John S. Cable, Susan L. Henry, and David E. Doyel, pp. 210-255. Ms. on file, City of Phoenix, Arizona.
- Herman, Bernard  
1987 *Architecture and Rural Life in Central Delaware, 1700-1900.* University of Tennessee Press, Knoxville.
- Holt, Cheryl A.  
1991 Plants, Humans, and Culture: An Edible Model of Consuming Behavior. *Historical Archaeology* 25:46-61.
- Keepax, Carole  
1977 Contamination of Archaeological Deposits by Seeds of Modern Origin with Particular Reference to the Use of Flotation Machines. *Journal of Archaeological Science* 4:221-229.
- Kelso, William M.  
1984 *Kingsmill Plantations, 1619-1800.* Academic Press, New York.
- Klein, Terry, and Patrick H. Garrow  
1984 *Final Archaeological Investigation at the Wilmington Boulevard Monroe Street to King Street, Wilmington, New Castle County, Delaware.* DeIDOT Archaeology Series No. 29. Delaware Department of Transportation, Dover.

## Koldehoff, Brad

- 1987        The Cahokia Flake Tool Industry: Socioeconomic Implications for Late Prehistory in the Central Mississippi Valley. In *The Organization of Core Technology*, edited by J. k. Johnson and C. A. Morrow, pp. 151-185. Westview Press, Boulder, Colorado.

## Kulikoff, Allan

- 1989        The Transition to Capitalism in Rural America. *William and Mary Quarterly* 46:120-144.

## LeeDecker, Charles H., Terry H. Klein, Cheryl A. Holt, and Amy Friedlander

- 1987        Nineteenth-Century Households and Consumer Behavior in Wilmington, Delaware. In *Consumer Choice in Historical Archaeology*, edited by Suzanne M. Spencer-Wood, pp. 233-260. Plenum Press, New York.

## LeeDecker, Charles H., Brad Koldehoff, and Cheryl Holt

- 1996        *Excavation of the Two Guys Site (7S-F-68), Sussex County, Delaware*. DelDOT Archaeology Series No. 138. Delaware Department of Transportation, Dover.

## LeeDecker, Charles H., Brad Koldehoff, Cheryl Holt, Daniel P. Wagner, Grace S. Brush, and Margaret Newman

- 1991        *Excavation of the Indian Creek V Site (18PR94), Prince Georges County, Maryland*. Report submitted to Wallace Roberts & Todd and the Washington Metropolitan Area Transit Authority by Louis Berger & Associates, Inc., Washington, D.C.

## Leone, Mark P.

- 1989        Issues in Historic Landscapes and Gardens. *Historical Archaeology* 23:45-47.

## Liebknecht, William

- 1995        Recent Observations on Woodland I Pithouses in Delaware along the St. Jones River. Paper presented at the Annual Meeting of the Eastern States Archaeological Federation, Wilmington, Delaware.

## Long, Amos

- 1972        *The Pennsylvania German Family Farm*. The Pennsylvania German Society, Breinigsville, Pennsylvania.

## Louis Berger &amp; Associates, Inc. [LBA]

- 1986        *Nineteenth Century Wilmington Households: The Christina Gateway Project*. Prepared for the Department of Commerce, City of Wilmington, Delaware, by Louis Berger & Associates, Inc., East Orange, New Jersey.

- 1990a *The East Side Neighborhood: Archaeological and Historical Investigation of the Seventh and Church Street Project and the Bennett Street Project, Wilmington, Delaware.* Prepared for the City of Wilmington and the Department of Real Estate and Housing, by Louis Berger & Associates, Inc., East Orange, New Jersey.
- 1990b *Archaeological and Historical Investigation of Block 1184, Wilmington, New Castle County, Delaware.* Prepared for the Christina Gateway Corporation by Louis Berger & Associates, Inc., East Orange, New Jersey. DeDOT Archaeology Series No. 78. Delaware Department of Transportation, Dover.
- Meltzer, David J.
- 1981 Ideology and Material Culture. In *Modern Material Culture: The Archaeology of Us*, edited by Richard A. Gould and Michael B. Schiffer, pp. 113-125. Academic Press, New York.
- Miller, George L.
- 1980 Classification and Economic Scaling of 19th Century Ceramics. *Historical Archaeology* 14:1-40.
- 1991 A Revised Set of CC Index Values for Classification and Economic Scaling of English Ceramics from 1787 to 1880. *Historical Archaeology* 25:1-25.
- Minnis, Paul E.
- 1981 Seeds in Archaeological Sites: Sources and Some Interpretive Problems. *American Antiquity* 46:143-151.
- Moeller, Roger W.
- 1986 Theoretical and Practical Considerations in the Application of Flotation for Establishing, Evaluating, and Interpreting Meaningful Archaeological Frameworks. *Journal of Middle Atlantic Archaeology* 2:1-22.
- Mueller, Raymond G., and John A. Cavallo
- 1995 Multiple Working Hypotheses: An Analysis—Pit Houses or Tree Throws. Paper presented at the Annual Meeting of the Eastern States Archaeological Federation, Wilmington, Delaware.
- Neiman, Fraser D.
- 1980 *The Manor House Before Stratford.* Robert E. Lee Memorial Association, Stratford, Virginia.
- 1986 Domestic Architecture at the Clifts Plantation: The Social Context of Early Virginia Building. In *Common Places: Readings in American Vernacular Architecture*, edited by Dell Upton and John Michael Vlach, pp. 96-128. University of Georgia Press, Athens.

Nelson, Margaret C.

- 1991        *The Study of Technological Organization*. In *Archaeological Method and Theory*, edited by M.B. Schiffer, pp. 57-100. University of Arizona Press, Tucson.

New Castle County [NCC]

- various     Deed Books. On file at the New Castle County Recorder of Deeds, Wilmington, Delaware.
- various     Orphans' Court Records. Available on microfilm at the New Castle County Chancery Court Office, Wilmington, Delaware.
- various     Probate Records. Available on microfilm at the New Castle County Register of Wills Office, Wilmington, Delaware.
- various     Warrants and Surveys. Available on microfilm at the Delaware State Archives, Dover.
- various     Will Records. Available on microfilm at the New Castle County Register of Wills Office, Wilmington, Delaware.

Otto, John S.

- 1984        *Cannon's Point Plantation, 1794-1860: Living Conditions and Status Patterns in the Old South*. Academic Press, New York.

Praetzellis, Adrian, and Mary Praetzellis

- 1989        "Utility and Beauty Should be One": The Landscape of Jack London's Ranch of Good Intentions. *Historical Archaeology* 23:33-44.

Scharf, J. Thomas

- 1888        *A History of Delaware, 1609-1888*, vol. II. L.T. Richards & Co., Philadelphia.

Schuldenrein, Joseph

- 1995        Pithouse Features in Delaware: Is it Real or is it Memorex? Paper presented at the Annual Meeting of the Eastern States Archaeological Federation, Wilmington, Delaware.

Sellers, Charles

- 1991        *The Market Revolution: Jacksonian America, 1815-1846*. Oxford University Press, New York.

Shaffer, Mark, Jay F. Custer, David Grettler, Scott C. Watson, and Colleen De Santis

- 1988        *Final Phase III Investigations of the Whitten Road Site 7NC-D-100, Whitten or Walther Road, County Road 346, New Castle County, Delaware*. DelDOT Archaeology Series No. 68. Delaware Department of Transportation, Dover.

Smith, Earle

- 1985 Recovery and Processing of Botanical Remains. In *The Analysis of Prehistoric Diets*, edited by Robert Gilbert and James Mielke, pp. 97-123. Academic Press, New York.

South, Stanley S.

- 1977 *Method and Theory in Historical Archaeology*. Academic Press, New York.

Spencer-Wood, Suzanne M. (editor)

- 1987 *Choice in Historical Archaeology*. Plenum Press, New York.

U.S., Bureau of the Census

- 1800-1900 Population Schedules for St. Georges Hundred, New Castle County, Delaware. Available on microfilm at the Delaware Historical Society, Wilmington, and the University of Delaware Library, Newark.

Upton, Dell

- 1986 Vernacular Domestic Architecture in Eighteenth-Century Virginia. *Winterthur Portfolio* 17(2-3):95-120.

Walker, Mark, Michael Petraglia, Madeleine Pappas, and Christopher Martin

- 1992 *Archaeological Excavations at the Mount Steuart Plantation, Anne Arundel County, Maryland*. On file at the Maryland Historical Trust, Crownsville.

Walsh, Lorena

- 1992 Consumer Behavior, Diet, and the Standard of Living in Late Colonial and Early Antebellum America, 1770-1840. In *American Economic Growth and Standards of Living Before the Civil War*, edited by Robert E. Gallman and John Joseph Wallis, pp. 217-261. University of Chicago Press, Chicago.

Wise, Cara L.

- 1984 Choices: Consumer Behavior as an Approach to Urban Adaptation. Paper presented at the Annual Meeting of the Society for Historical Archaeology, Williamsburg, Virginia.
- 1985 A Tale of Two Privies: Sources of Variability in Working Class Assemblages. Paper presented at the Annual Meeting of the Society for Historical Archaeology, Boston, Massachusetts.

Yarnell, Richard A., and Jean M. Black

- 1985 Temporal Trends Indicated by a Survey of Archaic and Woodland Plant Food Remains from Southeast North America. *Southeastern Archaeology* 4(2):93-106.

Zimmerman, Carle C.

- 1936 *Consumption and Standards of Living*. D. Van Nostrand, New York.

**APPENDIX H**

**RESEARCH DESIGN FOR THE  
COMPLETION OF THE PROJECT**

July 7, 1997

Mr. Kevin Cunningham  
Division of Highways  
Delaware Department of Transportation  
U.S. Route 113  
Dover, Delaware 19903

SUBJECT: Proposal for Phase III Artifact Analysis, Curation, and Report Preparation  
Augustine Creek North and South Sites (7NC-G-144 and 7NC-G-145), SR 1  
Corridor, Scott Run to Drawyer Creek, New Castle County, Delaware.

RE: Parent Agreement No. 729-2  
Statewide Archaeological Resource Projects

Dear Mr. Cunningham:

The Cultural Resource Group of Louis Berger & Associates, Inc. (LBA) is pleased to submit the following technical proposal to the Delaware Department of Transportation (DelDOT) for completion of the Phase III data recovery program for the Augustine Creek North Site (7NC-G-144) and the Augustine Creek South Site (7NC-G-145) in the SR 1 corridor, Scott Run to Drawyer Creek, New Castle County, Delaware. Field work for these mitigations was undertaken in March, April, and May, 1997, and the results were recently reported to DelDOT in two management summary reports. The Augustine Creek sites each had both a Colonial, eighteenth-century component and a prehistoric component. The proposed work will include cataloging, analysis, and curation of the artifact collections and preparation of a technical report that meets current professional standards. LBA proposes to undertake further analysis of the two sites together and to produce a single report on these sites, with the tentative title *The Ordinary and the Poor in Eighteenth-Century Delaware*. The prehistoric components were not extensive, and they could easily be included in the same volume. Coring in Augustine Creek and analysis of the pollen to aid in reconstructing the historic environment is also proposed.

The artifact processing and analysis will incorporate material recovered during the extended Phase II and Phase III investigations. The artifacts from the Phase I and Phase II work have already been catalogued. Since all of the Phase I and Phase II material was recovered from the plowzone, the separation of the two data sets will not create difficulties. Only limited Phase III data recovery was performed at the Augustine Creek North Site, because the majority of the site was avoided by highway construction.

Our proposed work plan follows the technical approach outlined in the Research Designs submitted in February 1997 (*Research Design for the Phase III Archaeological Mitigation of 7NC-G-144, The Augustine Creek North Site, New Castle County, Delaware* and *Research Design for the Phase III Archaeological Mitigation of 7NC-G-145, The Augustine Creek South Site, New Castle County, Delaware*). More specific information is provided below.

### 1. *Research Issues*

The theme of the historic research at the Augustine Creek North and South Sites has been "The Ordinary and the Poor in Eighteenth-Century Delaware." The Mahoes, who lived at the Augustine Creek South Site, were deeply in debt for the 140 acres of land they owned and seem, in terms of wealth and status, to have been quite ordinary Delawareans. Also, Samuel Mahoe was a weaver, an occupation of ordinary tradespeople. The unknown occupants of the Augustine Creek North Site appear to have been poor tenants. The additional research will therefore be directed toward understanding the lives of ordinary and poor people and toward evaluating whether some of the theories used by historians to describe the eighteenth century apply to lives of the middle and lower classes.

Despite our concern for learning about the history of ordinary people, many of the Big Ideas historians have about the eighteenth-century still seem to pertain predominantly to the world of the wealthy. Two important examples are the "Georgian Mindset" and the "consumer revolution." Historians such as James Deetz (1977), Henry Glassie (1975), and Bernard Herman (1987) find it deeply important that European Americans moved out of their old, vernacular houses and into new ones with balanced, Georgian plans, and they relate this change to a complete re-ordering of society. But millions of Americans lived in log cabins and tar-paper shacks until well into this century; what was their mindset? If moving into a Georgian house implies a shift from medieval to modern ways of thinking, did the poor miss out on the Renaissance? Eighteenth-century changes in purchasing behavior have also been singled out, by Cary Carson (1994) and Lorena Walsh (1992) among others, as indicating a profound change in western society and its values. If we are now defined largely by what we buy, they say, this consumer identity can be traced to the century before the Revolution. The tea ceremony and its equipage are perhaps the best-known symbols of this new consumerism; by the time of the Boston Tea Party no one could be considered respectable in Britain or America who did not own a tea service and know how to use it properly. Again we can ask, if modern people are primarily consumers, how many people in the eighteenth-century were modern? If we are to understand the eighteenth-century changes that so many experts believe led to the creation of the modern world, we must search for paradigms that apply to the whole society, not just small parts of it.

To answer these questions we must study many kinds of people from the past, from the wealthiest and most powerful to the most humble and obscure. The wealthy and powerful are well documented, but the humble are harder to reach. To help us recover the lives of ordinary people from past centuries we have two main aides, written records and material objects. For ordinary

people, material objects generally means things recovered through archaeology. Standing houses from the eighteenth-century have been much studied, but archaeology and some records (such as the federal direct tax of 1798) suggest that even the poorest standing houses are nicer than what was normal during the period (Chappell 1994). The average house is accessible to us only through archaeology. Likewise, the ceramics and furniture surviving in museums, even the pieces that are judged "simple" or "folk," also belonged mostly to the better-off. Because the belongings of the poor are unlikely to survive above the ground, archaeology can provide a uniquely democratic perspective on the past.

Modernization has also been identified in the alteration of the landscape, and this identification provides another way to test the spread of allegedly modern ideas. In 1786 Benjamin Rush, a Philadelphia intellectual, divided the farmers of the Delaware Valley into three "species" (Herman 1994). At the bottom of this hierarchy Rush placed the rough frontiersman, his rude cabin and half-cleared fields symbolizing his lawless, ignorant nature. At the top was the model farmer, a civilized man whose belief in education, law, and religion were reflected in his straight fences, completely cleared fields, large barn, and his embrace of new agricultural technology. In between was the norm, a sort of middling civilized state. This ethic equated progress with the imposition of order on the landscape and implied a strong equation between that order and the creation of wealth. By studying the layout and siting of farms and reconstructing the historic landscape we can determine the extent to which farmers of different social classes actually adopted the ideas of Rush and other progressive intellectuals, and test in another way whether "modern" life was a phenomenon of the rich or of the society as a whole.

During the excavation of the Augustine Creek South Site, and the testing of the Augustine Creek North Site, several kinds of data were obtained that relate to these overall themes. The most important are artifacts, particularly those from the cellar deposits on both sites, faunal remains, architectural information, and information on the past landscape, both in terms of where the sites were located and how the Augustine Creek South Site was laid out.

The prehistoric components at the Augustine Creek North and South Sites did not yield large amounts of material, so the prehistoric research agenda for these sites is modest. The most important issues concern the nature of the possible prehistoric pit features on both sites and some questions about settlement patterns. In particular, data from these sites, where overall artifact densities were low, but pit features with high artifact counts were found, calls into question Custer's (1984, 1994) and Gardner's (1987) functional division of sites into "base camps" and "procurement sites." The prehistoric peoples who lived along Augustine Creek seem to have dug substantial pits on sites where they lived in small groups for short periods. Pit features from the two sites will be analyzed with several techniques, including soil chemistry (Schuldenrein 1995), flotation, and micromorphology. The overriding question about these features continues to be distinguishing cultural pits from natural features such as tree throws, and these studies may help determine a method for making this determination. A variety of ceramic sherds were recovered from both sites, including from pit features for which radiocarbon dating may be possible; well-

dated ceramic samples are always useful in defining local cultural sequences. It is expected that coring in the Augustine Creek floodplain will also provide data on the local environment during prehistoric times.

## 2. *Historical Research*

The approach proposed here toward the lives of "the ordinary and the poor" will include documentary as well as archaeological research. Material will be collected for a sociological analysis of wealth and status in New Castle County in the eighteenth century, along the lines of material already published by De Cunzo and Garcia (1992) for the nineteenth century. Research will also be pursued in the circuit court records for cases that include descriptions of ordinary people and their lives, the kind of material used with great effect by Isaac (1982). Records to be consulted include U.S. population and agricultural censuses, deed, probate, orphan's court and tax records, circuit court records, newspapers, and family papers preserved at the Delaware State Library, the New Castle County Historical Society, and the Pennsylvania Historical Society.

A study will also be made of cloth manufacture in Colonial America, both in terms of the technology employed and the sociology of the cloth workers. The intent will be to place Samuel Mahoe and his workshop in context, and to develop a section for the report on cloth manufacture. In eighteenth-century America weaving was done by both men and women, and the cultural and other implications of gender distinctions in weaving will be considered. Traditional weavers, of whom there are many in the Middle Atlantic region, will be contacted, and photographs of their work will be taken. Parallels will be sought for any weaving-related artifacts found on the site.

## 3. *Data Analysis*

The proposed work will cover complete artifact processing of the extended Phase II and Phase III collections for the Augustine Creek North and South Sites, and will include preparation of a detailed descriptive inventory, analysis of the assemblage with respect to the project research design, and curation to Delaware State Museum standards.

### a. *Historic Materials*

The assemblage from extended Phase II and Phase III work on the two sites includes approximately 15,000 artifacts, including faunal specimens. The assemblage consists mostly of historic material, with about 1,000 prehistoric lithics and a few dozen prehistoric potsherds. The proposed laboratory treatment of the site collection will include (1) basic processing -- cleaning and packaging in appropriate containers, (2) cataloging and analysis according to LBA's in-house analytical system, and (3) preparation of the collection for permanent curation.

After being cleaned and sorted according to major material categories, the collections will be analyzed by specialists and the artifact attributes will be coded on computer data entry forms.

Artifact cataloging and tabulation will be accomplished using LBA's computerized database system. The database allows recordation of more than a dozen attributes for each artifact. In addition to standard descriptors, lengthy notes specific to individual artifacts can also be entered into the database.

Priorities will be established to focus analysis on the deposits that may be used in support of the research design. Accordingly, the work plan will utilize a basic level of analysis (Stage 1) for the low priority contexts and an intensive level of analysis (Stage 2) for the high priority contexts. The Stage 1 and Stage 2 analyses of historic artifacts differ primarily in that cross-mending and Minimum Number of Vessel (MNV) estimates are undertaken as part of the Stage 2 cataloging procedures. Specialized analysis such as estimation of Minimum Number of Vessels, crossmend analysis, and vessel form analysis should be limited to contexts with a high degree of archaeological integrity. Therefore, the artifacts obtained from plowed contexts will probably be analyzed at the Stage 1 level, those from features, especially the two cellars, at the Stage 2 level.

Historic artifacts will be cataloged according to standard typologies. First, the entire collection will be sorted according to major classes — ceramics, curved glass, pipes, and small finds. The small finds class is a residual or catch-all category that comprises a broad variety of items, including artifacts assignable to South's Architectural, Furnishings, Arms, Personal, Clothing, and Activities groups. Some of the attributes — date ranges, for example — are automatically entered by the computer for commonly encountered artifact types. Data processing speed and storage are enhanced by the use of alphabetic and numeric codes for the various attributes, but more lengthy "translations" were generated as well, particularly for printing catalog sheets.

The two sites produced a moderate amount faunal remains. More than 2,500 bones and fragments of bone were recovered, some of it very well preserved. Two deposits at the Augustine Creek South Site, one in the bottom of Feature 1, a cellar, the other in Feature 15, a pit, contained quantities of ash, which improves bone preservation, and hundreds of small bones, including tiny fish and bird bones and even fish scales. The flotation of soil samples from these contexts is expected to recover even smaller bones. The analysis of the faunal remains from the site will therefore be an important part of the research program. The recovered faunal material would be expected to include three levels of identifiability. These are highly diagnostic, partially diagnostic and nondiagnostic. Highly diagnostic bone is identified to genus or species and to specific anatomical placement including side (except for phalanx bones). Partially diagnostic bone refers to bones which may be assigned a class type (bird, mammal, or rodent) and specific anatomical placement or to bones identifiable as to general anatomical element (vertebra, skull, longbone). Specimens listed as non-diagnostic are fragments which provide no hint as to which of the skeletal elements they once belonged. Those listed as longbone fragments have reference to the particular structure of limb bones, as differentiated from the structure of the skull, axial skeleton and girdles.

After completion of the artifact cataloging and data entry, a series of preliminary computer-generated reports will be prepared. These include simple artifact lists sorted by various

criteria, as well as more analytically useful computations and data summaries. The latter include: (i) summaries by provenience of artifacts for which a beginning date of manufacture (TPQ) was known; (ii) computation of Mean Ceramic Dates or MCD reports summarized by provenience; and (iii) ceramic and glass vessel summaries listing all proveniences that contributed cross-mending sherds to a particular vessel.

Soil samples collected from each stratum of the major features on the site, both historic and prehistoric, will be processed by a water-separation flotation system to recover floral and small faunal remains. The heavy and light fractions derived from the flotation samples are viewed under a binocular dissecting microscope. Each sample is systematically scanned and floral material is removed, identified, counted and placed in a labeled vial. In instances where seed types are prolific within samples, seeds are counted on a grid under the microscope and only a portion is removed to a sample vial. Each floral specimen is given a count value of one. Microfaunal remains, such as fish scales and small fish and bird bones will also be removed, identified, counted and prepared for examination by a consultant. At this juncture, it is estimated that approximately 28 flotation samples would be selected for processing by a consultant, seven from prehistoric contexts and 21 from historic contexts.

Soil samples for chemical analysis were also taken during excavation, from a base line across the site and from selected features and areas. These samples will be analyzed to determine if the different activities identified on the site had different chemical signatures. Chemical analysis of soil samples from prehistoric features will also be carried out, and the base line samples will also serve as a point of comparison for this material.

b. *Prehistoric Materials*

The proposed work will cover complete artifact processing of the extended Phase II and Phase III collections for the Augustine Creek North and South Sites, and will include preparation of a detailed descriptive inventory, analysis of the assemblage with respect to the project research design, and curation to Delaware State Museum standards. The rather small assemblage recovered from these sites consists of about 1,000 prehistoric lithics and fewer than 100 pieces of prehistoric ceramic. The proposed laboratory treatment of the site collection will include (1) basic processing -- cleaning and packaging in appropriate containers, (2) cataloging and analysis according to LBA's in-house analytical system, and (3) preparation of the collection for permanent curation.

After being cleaned and sorted according to major material categories, the collections will be analyzed by specialists and the artifact attributes will be coded on computer data entry forms. Artifact cataloging and tabulation will be accomplished using LBA's computerized database system.

LBA's cataloging system for prehistoric artifacts has been formalized in a system referred to as LITHICA (Taylor and Koldehoff 1991). The analytical approach applied can be described as

techno-morphological; that is, artifacts are grouped into Classes and then further divided into Types based upon key morphological attributes, which are linked to or indicative of particular stone-tool production or reduction strategies. However, a function(s) can be assigned to each artifact class and type. More detailed functional assessments of artifacts can be made by recording specific observations about use wear and tool morphology. Data derived from experimental and ethnoarchaeological research is relied upon in the identification and interpretation of artifact classes and types. The works of Callahan (1979), Clark (1986), Crabtree (1972), Flenniken (1981), Gould (1980), and Parry (1987) are drawn upon most heavily.

Five basic and interrelated categories of information can be derived from lithic artifacts: depositional, temporal/stylistic, functional, technological, and raw material. Raw-material analysis identifies the lithic materials that were utilized; this information permits inferences to be made about procurement strategies and the related issues of exchange and settlement mobility. Technological analysis examines tool design and methods of production, maintenance, and recycling; this information helps to document the organization of technology and how this is manifest in site function. Functional analysis determines the tasks in which tools were employed; this information also helps to document the spatial organization of technology and its use on the site. Temporal/stylistic analysis provides chronological as well as other cultural information; unfortunately, only the most formalized stone tools are temporally diagnostic (e.g., projectile points), and even these items tend to be less sensitive to temporal change or regional styles than are ceramics. Information about depositional processes help to identify activity areas, toolkits, and larger-scale site formation processes.

Ceramics will be cataloged according to temper, surface treatment, surface decoration and assigned to a formally defined ware type if possible. In all cases we will defer first to local ware type designations as defined for Delaware, and then to wares as defined for the surrounding Middle Atlantic region. The ceramics include Minguannan, Townsend, Marcey Creek, and as yet unidentified Early Woodland wares. Depending on the condition of the sherd sample recovered from the site, there will be analyses of vessel orifice diameter, vessel volume, minimum number of vessels, and the like. Standard references on ceramic types are found in Griffith (1982), Griffith and Custer (1985), Wise (1975), Custer (1984), and Dent (1995).

After tabulation of the assemblage, a series of standard computer reports will be generated and curated with the primary project materials. These standard reports will include general catalog listings as well as more specialized summaries for particular tool types, raw materials, and debitage. The computer database will also be used for specialized data searches, database manipulation, analyses, and reports. To the extent that this is possible, given the small size of the assemblage, analysis will be carried out to examine spatial patterning within the site. This will provide information regarding the internal patterning of various activities within the site. The intra-site spatial analysis will focus on the distribution of various tool types and debitage with respect to the features.

The recovery of archaeobotanical remains associated with the site's prehistoric occupation may be an important element of the site interpretation. During the excavation of the Augustine Creek South Site, two-liter soil samples were collected for flotation processing. Approximately 12 two-liter soil samples have been collected from contexts within the Augustine Creek South Site, including samples from feature and non-feature contexts. Initially, 7 of these samples will be selected, representing all feature contexts, for initial flotation analysis; these samples will be analyzed to assess the presence of micro-floral and micro-faunal preservation. If the initial analysis suggests that analysis of additional samples would be warranted, then additional samples can be analyzed. All recovered soil samples will be subject to flotation processing, however, because the flotation processing is also an effective means to recover microlithic debris. All processed samples will be visually examined for microlithic items, prior to packaging for long-term curation or submission to the floral-faunal analyst.

Other material available for processing include approximately five radiocarbon samples, from various contexts throughout the site. These will be submitted to provide absolute dates for the site. Should charcoal samples be inadequate for standard radiocarbon dating, then diagnostic ceramic sherds will be examined for charred surfaces suitable for AMS dating.

#### 4. *Specialized Studies*

##### a. *Historic Environmental Reconstruction*

The Augustine Creek North and South Sites were adjacent to Augustine Creek, a small stream with a swampy floodplain. The sediments of this floodplain, which are at least 1.5 meters deep, may preserve a record, in the form of both plant macro-fossils and pollen, of the local environment over the past several thousand years. LBA proposes to have a core taken from the floodplain sediments and analyzed by Grace Brush and her associates at the Geography Department of Johns Hopkins University. According to Dr. Brush, the record should allow the reconstruction of both the overall environment of the locality (pollen) and the micro-environment of the creek (macro-fossils). This information would be very valuable in understanding the conditions faced by the inhabitants of the sites, both prehistoric and historic, and may determine whether Augustine Creek was ever navigable by small craft in the site vicinity.

##### b. *Micromorphological Analysis of Possible Prehistoric Features*

One of the most discussed issues in Delaware prehistoric archaeology is the status of certain D-shaped pits found on prehistoric sites, believed by some to be prehistoric cultural pits and by others to be tree throws or other natural disturbances. During the excavation of the Augustine Creek South Site, several of these features were examined by Dr. Paul Goldberg, a specialist in micromorphology. Dr. Goldberg took samples from five of these disputed features. Thin section slides will be prepared from these samples and they will be studied under a microscope for clues about how the features were formed. It is hoped that this technique, which has not yet been tried

on these features, may provide a new way to evaluate them. Other techniques will also be used to study the features, including chemical analysis, radiocarbon analysis, and flotation of soil samples. Preliminary data from the Whitby Branch Site indicates that some prehistoric pit features have distinctive chemical signatures (LeeDecker and Jacoby *forthcoming*).

c. *Floral Analysis of Ash Deposits from the Possible Cloth Manufacturing Area*

At the eastern end of the Augustine Creek South Site was a what appeared to be a separate work area, including a post building and several pits containing ashy fill. This fill was extensively sampled for future flotation in the hopes that the activity carried out in the work area could be identified. Since the time those samples were taken, documentary research has identified Samuel Mahoe as a weaver. The ash deposits may, therefore, be derived from some part of the cloth manufacturing process, either boiling wool or dyeing cloth. If cloth was being dyed on the site, remains of dye plants may be found in these deposits. Remains of dye plants have been recovered from Colonial gardens, including Thomas Jefferson's at Monticello (Kelso and Most 1990). Therefore, a substantial amount of this fill we be floated. If seeds or other remains of plants related to cloth manufacture are found, the floral consultant, Justine McKnight, will produce a small study on the use of plants in Colonial cloth manufacture.

5. *Documentation*

Documentation will include preparation of draft and final reports. The draft and final reports will be prepared according to the standards and guidelines of the Delaware SHPO and the Secretary of the Interior. This report will be written so as to be of interest to both scholars and concerned lay people. As part of the documentation, an artist will be hired to produce reconstructive drawings showing how the farm probably looked during its occupation. It is also proposed to include a section in this report on the methods used by the historical researchers, which will describe the kinds of records available and explain how they may be used. Two copies of the draft report will be submitted. It is assumed that DelDOT will be responsible for publication of the final report, therefore, a camera-ready original version of the final report will be submitted.

6. *Scheduling and Deliverables*

Processing of the artifacts from the Augustine Creek North and South Sites will begin as soon as possible after the receipt of Notice to Proceed. At the conclusion of the data analysis, a detailed technical and research report laying out the findings will be produced. The draft report will be submitted to DelDOT within one year of the completion of fieldwork. A final report will be sent within two months of the receipt of all comments on the draft report. All artifacts and field records from the excavation will be prepared according to the standards of the Delaware State Museum.

7. *Staffing*

The key staff proposed for this study all meet the minimum professional qualifications for their respective disciplines as stipulated by the Secretary of the Interior. Mr. Charles LeeDecker will serve as Project Manager, and Dr. John Bedell will serve as Principal Investigator. They will be supported by LBA's existing laboratory staff, historians, architectural historians, graphic artists, and report production personnel. Justine Woodward McKnight will serve as consulting paleoethnobotanist, with responsibility for analysis and interpretation of the flotation samples. Ms. McKnight has extensive experience in the analysis and interpretation of floral assemblages from both prehistoric and historic sites in North America. Faunal analysis will be performed by Marie-Lorraine Pipes, an experienced faunal consultant. The reconstructive drawings will be prepared by John Poreda, a freelance artist and architectural draftsman based in Richmond, Virginia. Pollen coring and analysis will be carried out by Dr. Grace Brush and her students from the Department of Geography and Environmental Engineering at the Johns Hopkins University.

8. *Fee*

LBA has prepared a detailed budget estimated to complete the proposed work. The attached budget provides a breakdown of person personnel salaries, expenses, overhead, and fee. As a substantial amount of funding is available from the Phase III fieldwork, under Task Orders 5, 11, 12, and 13 of Agreement 729-2, those available funds may be used to complete the program, so that an amount of \$27,109.04 is requested to complete the services described in this proposal. Project expenses will be governed by the parent agreement. In accordance with the parent agreement, invoices will be submitted to DelDOT, based on actual expenditures. Each invoice will be accompanied by a written progress report.

LBA appreciates the opportunity to submit the proposal. If clarification, modification, or additional information is required, please contact me directly.

Sincerely yours,

THE CULTURAL RESOURCE GROUP

Charles H. LeeDecker  
Principal Archaeologist

Attachments: references, budget  
CHL:jcb:ss  
Proposal 97-151

## References

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* 7:1-180.

Carson, Cary

- 1994 The Consumer Revolution in British Colonial America: Why Demand? in *Of Consuming Interests: the Style of Life in the Eighteenth Century*. Edited by Cary Carson, Ronald Hoffman, and Peter J. Albright. University Press of Virginia, Charlottesville.

Clark, John E.

- 1986 Another Look at Small Debitage and Microdebitage. *Lithic Technology* 15:21-23.

Crabtree, Donald E.

- 1972 *An Introduction to Flintworking*. Occasional Papers 28. The Idaho State Museum, Pocatello.

Custer, Jay F.

- 1994 *Stability, Storage and Culture Change in Prehistoric Delaware: The Woodland I Period (3000 B.C. – A.D. 1000)*. Prepared for the Delaware State Historic Preservation Office, Dover.

- 1984 *Delaware Archaeology: an Ecological Approach*. University of Delaware Press, Newark.

De Cunzo, Lu Ann, and Ann Marie Garcia

- 1992 *Historic Context: The Archaeology of Agriculture and Rural Life, New Castle and Kent Counties, Delaware, 1830 - 1940*. Prepared for the Delaware State Historic Preservation Office, Dover by the Center For Historic Architecture and Engineering, University of Delaware, Newark.

Deetz, James

- 1977 *In Small Things Forgotten: the Archaeology of Early American Life*. Anchor Books, New York.

Dent, Richard J.

- 1995 *Chesapeake Prehistory: Old Traditions, New Directions*. Plenum Press, New York.

Flenniken J. Jeffrey

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

Gardner, William M.

- 1987 Comparison of Ridge and Valley, Blue Ridge, Piedmont, and Coastal Plain Archaic Period Site Distribution: An Idealized Transect (Preliminary Model). *Journal of Middle Atlantic Archaeology* 3:49-80.

Glassie, Henry

- 1975 *Folk Housing in Middle Virginia: A Structural Analysis of Historic Artifacts.* University of Tennessee Press, Knoxville.

Gould, Richard A.

- 1980 *Living Archaeology.* Cambridge University Press, Cambridge.

Griffith, Daniel R.

- 1982 Prehistoric Ceramics of Delaware: an Overview. *Archaeology of Eastern North America* 10:46-68.

Griffith, Daniel R., and Jay F. Custer

- 1985 Late Woodland Ceramics of Delaware: Implications for the Late Prehistoric Archaeology of Northeastern North America. *Pennsylvania Archaeologist* 55(3):5-20.

Herman, Bernard

- 1994 The Model Farmer and the Organization of the Countryside. In *Everyday Life in the Early Republic.* Edited by Catherine E. Hutchins. Henry Francis duPont Winterthur Museum, Winterthur, Delaware, pp. 35-60.

- 1987 *Architecture and Rural Life in Central Delaware, 1700-1900.* University of Tennessee Press, Knoxville.

Isaac, Rhys

- 1982 *The Transformation of Virginia, 1740-1790.* University of North Carolina Press, Chapel Hill.

Kelso, William, and Rachel Most, eds.

- 1990 *Earth Patterns: Essays in Landscape Archaeology.* Charlottesville: University Press of Virginia.

LeeDecker, Charles H., and Robert Jacoby

- forth-* Draft Report on the Excavations at the Whitby Branch Site, 7NC-G-151.  
*coming* In preparation by Louis Berger & Associates for the Delaware Department of Transportation.

Parry, William J.

- 1987 *Chipped Stone Tools in Formative Oaxaca, Mexico: Their Procurement, Production, and Use*. Museum of Anthropology Memoir 20. University of Michigan, Ann Arbor.

Schuldenrein, Joseph

- 1995 Pithouse Features in Delaware: is it Real or is it Memorex? Paper presented at the Annual Meeting of the Eastern States Archaeological Federation, Wilmington, Delaware.

South, Stanley S.

- 1977 *Method and Theory in Historical Archaeology*. Academic Press, New York.

Walsh, Lorena S.

- 1992 Consumer Behavior, Diet, and the Standard of Living in Late Colonial and Early Antebellum America, 1770-1840. In Robert E. Gallman and John Joseph Wallis, eds., *American Economic Growth and Standards of Living Before the Civil War*. University of Chicago Press, Chicago, pp. 217-261.

Wise, Cara L.

- 1975 A Proposed Early to Middle Woodland Ceramic Sequence for the Delmarva Peninsula. *Maryland Archaeology* 11:21-29.