An Archeological and
Electromagnetic Survey of

MOORES CREEK NATIONAL BATTLEFIELD

(31PD273)
Pender County, North Carolina

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John E. Cornelison Jr.

with contributions by
Lou Groh and Patricia Dietrich

Technical Reports No. 6
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Series editor: Virginia Horak
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Cover design: During the Revolutionary War, the American foot officer was armed with a spear-like weapon called a spontoon. It became a badge of rank as well as a weapon (from the *Cowpens Official National Park Handbook*, GPO, Washington, 1988).

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No. 6 *An Archeological and Electromagnetic Survey of Moores Creek National Battlefield (31PD273), Pender County, North Carolina* — John E. Cornelison Jr., 1997

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MANAGEMENT SUMMARY

This project was funded by the Regionwide Archeological Inventory Program (RASP), a regional manifestation of the Systemwide Archeological Inventory Program (SAIP). The purpose of the project was to survey the park, inventory the cultural resources present, and evaluate their integrity and research potential. This was primarily done by systematically testing the area with a twelve-inch auger. An EM 38 Ground Conductivity Unit was used at several locations to test the unit's potential to detect subsurface features at Moores Creek National Battlefield (MOCR). Additionally, three hand-dug test trenches were excavated, two in the earthworks and one in Tar Kiln No. 1.

A total of 331 auger/shovel tests were excavated over a sixty-nine-acre area. Of these, sixty-one were "positive," containing either aboriginal, historic, or modern cultural material. Three of the positive tests contained aboriginal material and seven contained historic material (Auger Test 2 contained both historic and prehistoric material). The other positive tests contained modern material. The remaining 270 "negative" tests contained no cultural material.

The EM 38 was used to examine a previously tested tar kiln, the Patriot Earthworks, and Caswell's Campsite. It was also used at Patriots Hall and on Negro Head Point Road. These efforts were largely unproductive as the data recorded failed to indicate the presence of subsurface cultural features. One cause of this may have been the lack of moisture in the soils as the temperature exceeded 100°F on several days during the survey.

In Trench 1, located in and below the reconstructed Patriot Earthworks, two wrought iron nails and one piece of lead shot were recovered. These artifacts and a subsurface fire pit probably relate to the Battle of Moores Creek.

Since most of the park has been systematically surveyed and found to be devoid of archeological resources in most areas, the need for future compliance-generated survey and mitigation has been eliminated except for those areas containing known archeological resources and the few remaining areas that have yet to be surveyed.

All material recovered or generated as a result of this project will be permanently curated at the Southeast Archeological Center under SEAC accession number 1132 and MOCR accession number 34.

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ACKNOWLEDGEMENTS

I would like to thank Superintendent Elkington and the staff of Moores Creek National Battlefield (MOCR). Special thanks go to Hattie Squires who helped with administrative details and to James Jordan for operating the tractor and for knowing where all of the utility lines were located. The generous support of the MOCR staff made this project possible.

No project of this magnitude would be possible without an excellent crew. I would like to extend a special thanks to David Brewer who served as crew chief on this project. His advice was extremely valuable as was his review of this report. I would also like to thank Carroll Hageseth for her determined effort on this project.

I want to express my gratitude to John Ehrenhard, Chief of SEAC, for allowing me to conduct this project. I would also like to thank the following SEAC archeologists who also reviewed drafts: George Smith, Chief of the Investigation and Evaluation Section (I & E) at SEAC; Dr. Bennie Keel, Southeast Regional Archeologist; and Dr. Guy Prentice, RASP Director.

Guy Prentice also provided staff time to prepare this document. This was an important factor in moving the completion date of this document forward.

Thanks are extended to Lou Groh for contributing various sections to this report. She also helped clear up issues relating to the cultural landscape at MOCR.

As always, I would like to thank Regina Meyer for her assistance with the artifact database and for preparing the majority of figures used in this document. Guy Prentice and Lou Groh provided several of the report illustrations.

I would like to thank Virginia Horak for her excellent technical edit of this report. Her time and commitment to this project have shown a professionalism that far exceeds the norm. I would also like to commend Judy Hanson for her superior work on the formatting and layout of this report.

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INTRODUCTION

Moores Creek National Battlefield (MOCR) was established to commemorate its national significance as the site of the first major American victory of the Revolutionary War. The park is located along the west side of state highway NC 210 in Pender County, North Carolina (Figure 1). It lies approximately twenty miles northwest of Wilmington and just outside the town of Currie, North Carolina (National Park Service 1968).

This report presents the results of an archeological survey conducted as part of the Regionwide Archeological Survey Program (RASP), which is the Southeast Archeological Center's (SEAC) implementation of the Systemwide Archeological Inventory Program (SAIP) (formerly the National Archeological Survey Initiative), wherein the cultural resources of the National Park System are to be identified and evaluated in accordance with the National His-

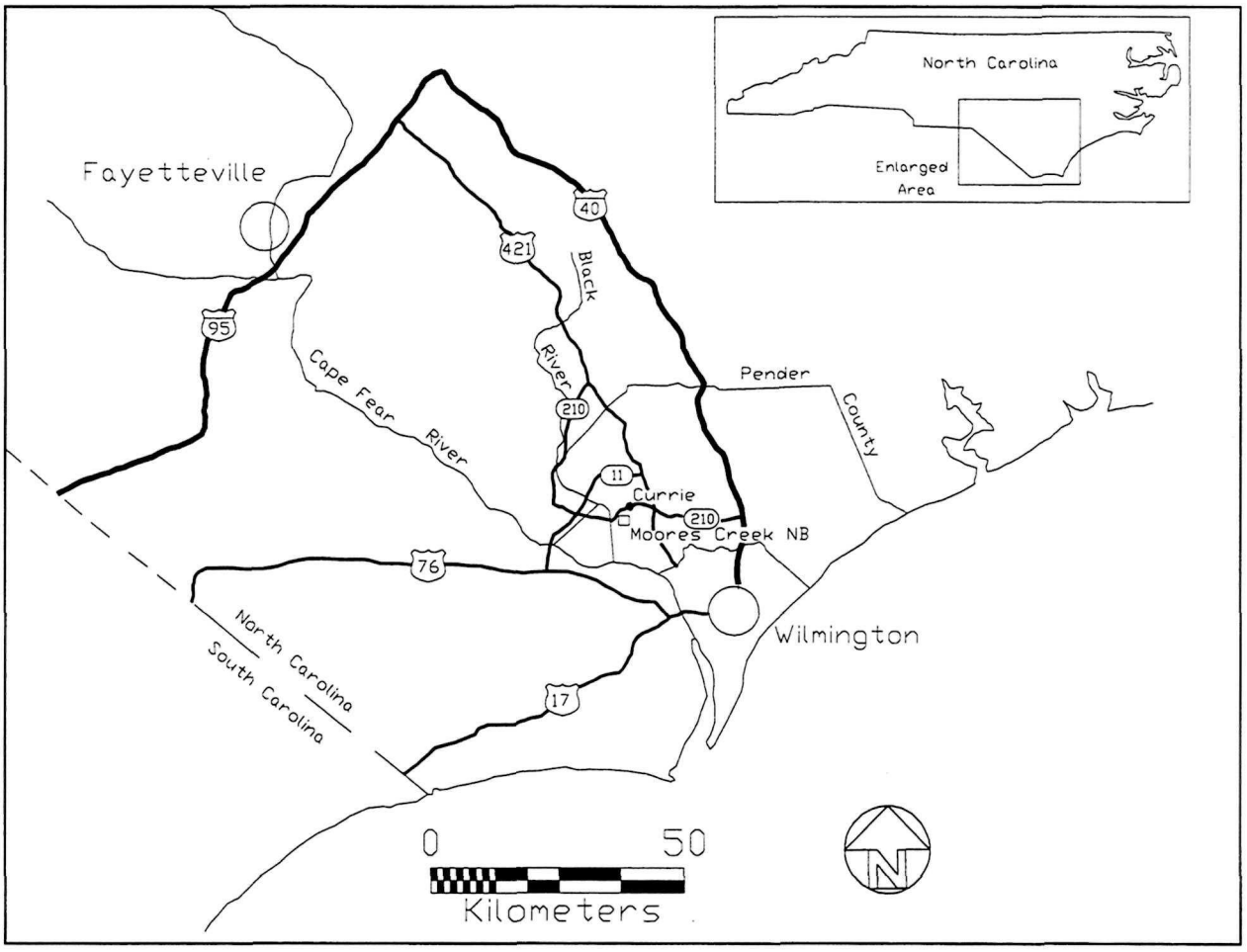

Figure 1 — Location of Moores Creek National Battlefield.

toric Preservation Act of 1966, as amended; the Archaeological Resources Protection Act of 1979; and Executive Order 11593. The primary goal of this survey was to identify and delimit the archeological resources of the Revolutionary War period at MOCR; however, a methodology was used that was sufficient for detecting aboriginal occupations as well.

The work was carried out by John Cornelison (Principal Investigator), David Brewer, and Carroll Hageseth of SEAC, with the assistance of a short-term student appointment filled by Heather Claggett. The work took place between June 13 and July 21, 1994.

MOCR was selected for study during the third year of SEAC's implementation of SAIP because it is small enough (86.52 acres) to completely survey in one field season, yet large enough to test models and methodologies developed in the Regionwide Archeological Survey Plan (Keel et al. 1996). A 100 percent survey of the park was planned and essentially completed. The methods employed in carrying out this survey included limited manual trenching, shovel testing, mechanical auger testing with a twelve-inch bit, and the use of an EM 38 electromagnetic conductivity remote-sensing unit, which was employed at selected locations within the park.

The park's state site number is 31PD273** (North Carolina uses ** to denote a historic site). Prior to this RASP survey only two sites were recorded on the Cultural Sites Inventory-Archeology (CSI-A) database. The first, Moores Creek Battlefield, has five subunits: the Patriot Earthworks, the Forward Earthworks, Colonial Road, Negro Head Point Road, and the historic bridge. The other site is the Tar Kiln Complex, which has two subunits: Tar Kilns No. 1 and No. 2.

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Chapter 2

ENVIRONMENTAL SETTING

LOCAL SETTING

The local area is characterized by second-growth forest interlaced with small farms. Primary agricultural products include tobacco, soybeans, corn, grain, and blueberries. The surrounding woodland is harvested for the pulp industry (National Park Service 1968).

The topography of the coastal region is relatively flat (Figure 2). Within the park, the higher land, which is characteristic of the inland Carolina Coastal Plain, descends abruptly to lowlands reaching Moores Creek, a tributary of the Cape Fear River.

Lowland areas adjacent to the creek and below ten feet in elevation are subject to occasional floods due to prolonged rains. Land lying below five feet in elevation is frequently flooded, often several times a year. Flooding in these areas is usually the result of water backing up from the Black River. Consequently, the water recedes very slowly and soil erosion is minimal. Those portions of the park that become flooded are unusable until the water recedes. Under normal conditions, Moores Creek experiences a two- to two-and-a-half-foot tidal fluctuation within the park (National Park Service 1968).

The North Carolina Coastal Plain is underlain by the Peedee Formation, an Upper Cretaceous formation consisting of hardpan, alluvium, and dunesand. The soils in the sandhill area of the park typically consist of one to three inches of topsoil, followed by two to twelve inches of grey sand, and then a foot to ten feet of yellow sand. Gravel and clay deposits occur frequently throughout the park, both on the surface and at various subsurface levels. In swampland areas, several feet of muck may be present, and water permeability is not rapid in these soils. The depth of the water table in these areas ranges from five to ten feet.

VEGETATION

Although relatively small, the park can be divided into four environmental zones: swamp, bog, grassy savannah, and sandhill. The swamp environment is located adjacent to the creek at an elevation of three to four feet above mean sea level (AMSL). The dominant flora in this area include cypress (Taxodiaceae), willow (Salicaceae), and water ash (*Fraxinus* sp.). The bog area varies from wet to damp and lies at an elevation of four to eight feet AMSL. Venus flytrap (*Dionaea musicpula*), pitcherplant (*Sarracenia* sp.), sweetgum (*Liquidambar styraciflua*), ash trees (*Fraxinus* sp.), and a variety of shrubs cover this area. A grassy savannah area, created out of drained swamp, is kept mowed. The elevation of the sandhill zone generally ranges between five and thirty feet AMSL. Here vegetation includes loblolly pine (*Pinus taeda*), oak (*Quercus* sp.), hickory (*Carya* sp.), and various shrubs. Among the shrubs located within the park are wax myrtle (*Myrica cerifera*), wild azalea (*Rhododendron* sp.), and poison oak (*Rhus toxicodendron*). There are also a large number of vines, such as honeysuckle (Caprifoliaceae), Carolina jasmine (*Gelsemium sempervirens*), and Virginia creeper (*Parthenocissus quinquefolia*) (National Park Service 1968, 1974).

FAUNA

The local fauna includes large mammals, such as deer (Cervidae) and bear (Ursidae). On rare occasions, it has been reported that wildcats

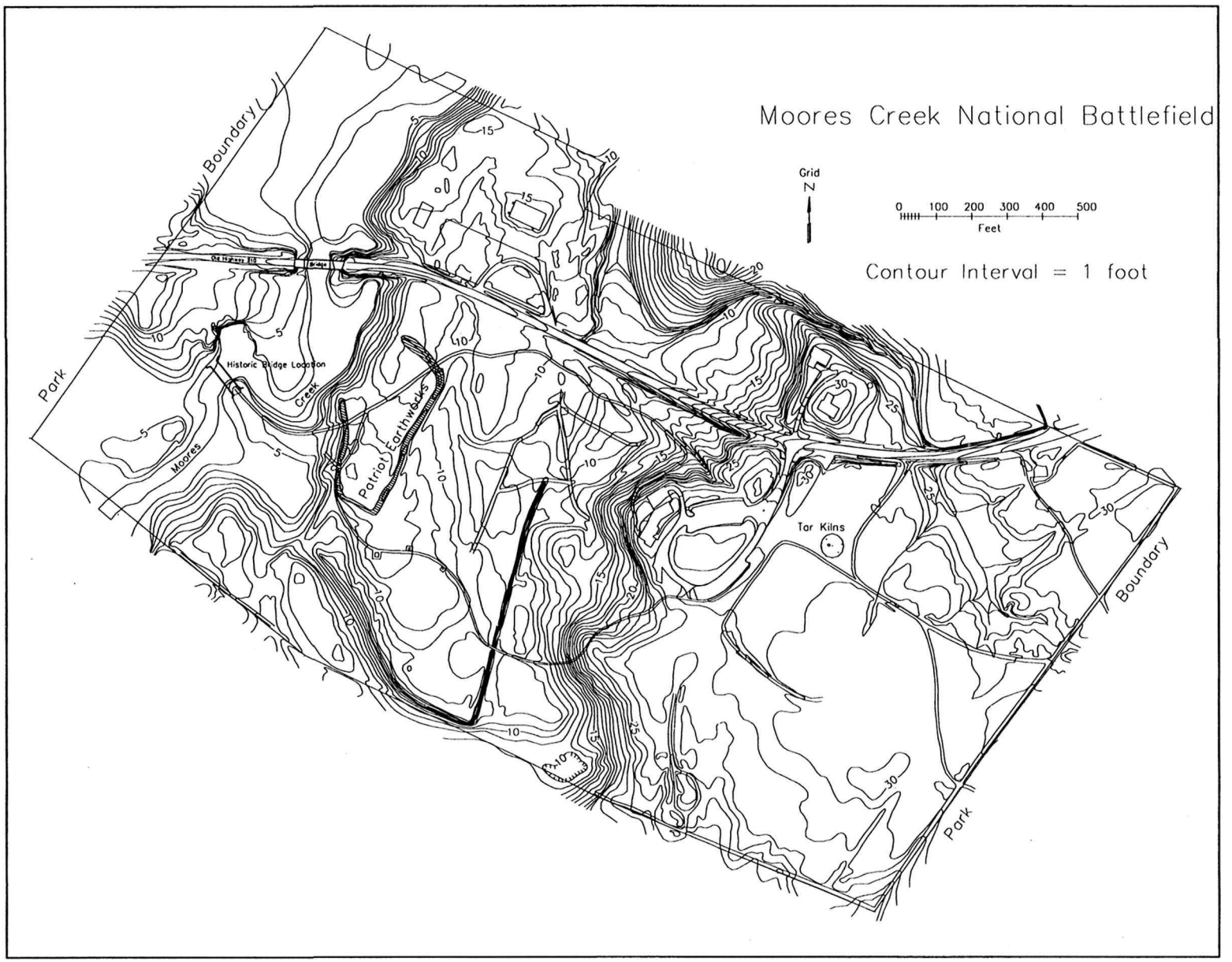

Figure 2 — 1986 contour map (N.C. Highway 210 has since been rerouted to the eastern boundary of the park).

(Felidae) range through the park. The gray squirrel (*Sciurus carolinensis*), raccoon (*Procyon lotor*), and opossum (*Didelphis marsupalis*) are park residents. An active insect population in the bottomlands supports a variety of birds. Wrens (Troglodytidae), warblers (Parulidae), crows (Corvidae), jays (Corvidae), hawks (Accipitridae), vultures (Cathartidae), owls (Strigidae), and as many as five species of woodpeckers (Picidae) inhabit the park. The creek itself contains bass (Percichthyidae), perch (Percidae), catfish (Ictaluridae), and garfish (Lepisosteidae). In addition, there are many species of waterfowl, such as ducks (Anatidae) and herons (Ardeidae). While there are many species of harmless reptiles, eastern diamondback rattlesnakes (*Crotalus adamanteus*), copperheads (*Agkistrodan contortrix*), and cottonmouths (*Agkistrodan piscivous*) do reside within the park. The black widow spider (*Latrodectus mactans*) also occupies its own ecological niche here (National Park Service 1968).

A set of 1985 aerial photographs show disturbances to the natural environment, such as buildings, trails, and monuments. The age of the trees indicates that the area has been repeatedly deforested and replanted. There is a high probability that the area was farmed over the years.

CLIMATE

The climate at Moores Creek can best be described as moderate. The mean maximum temperature in July is 89°F and the mean low for January is 37°F. Frost penetration is slight, averaging from one to three inches with a maximum of five to six inches (National Park Service 1968). Humidity is normally high and precipitation is close to fifty inches per year. The summer months are the wettest; no month averages less than 2.71 inches of precipitation. An average of 1.5 inches of precipitation in the form of snow and sleet falls during the winter months. The prevailing winds come from the northwest, except during the fall months when the winds change direction and come from the northeast. Average wind speed is 9.4 miles per hour (National Park Service 1968).

The fire season usually occurs between December and June, but combustible conditions can develop at any time. Although serious fires have occurred around Moores Creek, none are known to have occurred within the park. An eight-foot firebreak is maintained along the boundary to help keep encroaching fires from the surrounding lands (National Park Service 1968).

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Chapter 3
CULTURAL OVERVIEW

by Lou Groh

NATIVE AMERICAN CULTURES

Unfortunately, little attention has been paid to the history of pre-Columbian Native American cultures in the park and in the immediate surrounding area. As a result, cultural chronologies that have been developed on the basis of archeological work conducted in adjacent areas have been extended to provide a logical framework for those past Native American cultures that can be expected to occur within the local area. The chronological framework employed here has been largely adopted from information obtained from Anderson et al. (1996a), Phelps (1983), and Trinkley et al. (1996).

PALEOINDIAN PERIOD (10,500 – 8000 B.C.)

The earliest known human inhabitants in the New World are referred to as Paleoindians. They are believed to have migrated across the Bering Straits land bridge to North America during the last glacial age. Archeological evidence confirms Paleoindian occupation in the southeastern United States as early as 10,500 B.C. Current interpretations of the archeological record portray Paleoindian peoples as nomadic, egalitarian bands composed of several nuclear or extended families (Anderson 1990; Morse and Morse 1983). The Paleoindian period climate and environment was in transition and considerably different than at present, with sea levels seventy or more meters lower than they are today (Anderson et al. 1996a:3). The available global water was taken up by massive polar ice sheets, which exposed much of what is now the North American continental shelf in the Atlantic Ocean and the Gulf of Mexico. Coastal shorelines were frequented by the Paleoindians, and this is evidenced by submerged sites found on the continental shelf today (Dunbar and Webb 1996:351–354).

Given the generally colder temperatures of the time period, the Southeast was a scene of vastly different floral and faunal communities including now extinct Pleistocene megafauna, such as mastodons and giant ground sloths. Until relatively recently, the amount of contact between megafauna and Paleoindian hunters was hotly debated. However, the discovery of a speared giant tortoise from Little Salt Springs (Clausen et al. 1979) and a skull of a *Bison antiquus* with a projectile point embedded in its forehead from the Wacissa River (Webb et al. 1984) provide direct association of Pleistocene fauna and Paleoindians in the lower Southeast (Anderson et al. 1996a:3).

The Paleoindian period has been subdivided into three sequential temporal groupings: Early, Middle, and Late Paleoindian (Anderson 1990; O'Steen et al. 1986:9). These correspond with changes in lithic technology (new projectile point forms) and, presumably, changes in subsistence patterns and other lifeways. Clovis projectile points are temporally diagnostic artifacts from the Early Paleoindian period. The Middle Paleoindian period is characterized by smaller fluted points, unfluted lanceolate points, and fluted or unfluted points with broad blades and constricted haft elements. Common southeastern forms include Suwannee, Simpson, Clovis Variant, and Cumberland types (Anderson et al. 1996a:11). Beaver Lake and Quad types are assignable to a transitional Middle/Late Paleoindian period (Anderson et al. 1996a:12).

The Paleoindians of the North Carolina Coastal Plain are poorly represented in the archeological record, as fewer than fifty Paleoindian sites in this area have been recorded (Phelps 1983:18). Recently, it has been sug-

gested that few Paleoindian sites should be expected in the lower southeastern Coastal Plain (except in Florida where environmental conditions differed considerably) "since the initial founding populations were apparently not technologically and organizationally adapted to such an environment" (Anderson et al. 1996a:7) until late in the Paleoindian period.

The Southeast experienced rapid environmental change as the last glacial age came to a close. The sea rose to within a few meters of present levels, and the patchy boreal forest covering much of the landscape eventually transformed to mesic oak-hickory forest around 8000 B.C. (Anderson et al. 1996a:4). With these changes came new cultural adaptations.

ARCHAIC PERIOD (8000 – 1000 B.C.)

Archaic cultures in the Southeast are recognized as very successful adaptations to the new forest communities and related animal populations that followed the end of the last Ice Age. Like the preceding Paleoindian period, the Archaic period has been typically divided by Southeastern archeologists into three subdivisions: Early, Middle, and Late Archaic.

Early Archaic (8000 – 6000 B.C.)

The temporally diagnostic artifact assemblage of Early Archaic culture (8000–6000 B.C.) on the North Carolina Coastal Plain includes: Palmer projectile points, a corner-notched point that is considered by some to be transitional from Late Paleoindian to Early Archaic; Kirk Corner Notched, which is generally attributed solely to the Early Archaic period; and Kirk Stemmed, which gradually replaced the Kirk Corner Notched and often exhibits a serrated blade. Toward the end of the Early Archaic, bifurcate stemmed points, such as LeCroy and Kanawha (Justice 1987:85–96), are also sporadically found. The rest of the Early Archaic tool kit includes end and side scrapers, blades, and drills that exhibit manufacturing techniques similar to those used during the Paleoindian period.

Middle Archaic (6000 – 3000 B.C.)

The Middle Archaic period coincides with a period of warmer and drier climate referred to as the Hypsithermal Interval (Delcourt and Delcourt 1981:150). During this period, the oak and hickory forests that had come to dominate the Atlantic Coastal Plain following the last Ice Age were replaced by southern pine forest. Since the close of the Hypsithermal (3000 B.C.), southern pine has remained the dominant forest type of the North Carolina Coastal Plain except for the cypress-gum forests inhabiting the Green Swamp just west of Cape Fear and the Dismal Swamp regions of Albemarle Sound.

Changes in the tool assemblages used by Middle Archaic peoples accompanied changes in climate and forest communities. The new artifact assemblage included Stanly Stemmed (ca. 6000–5000 B.C.) projectile points and polished stone artifacts, including semilunar spear-thrower weights. Other new point types, including Morrow Mountain (ca. 5500–3500 B.C.) and Guilford (ca. 4500–3500 B.C.), are thought to have been introduced into North Carolina from western Piedmont sources (Coe 1964:123).

Late Archaic (3000 – 1000 B.C.)

The Late Archaic (3000–1000 B.C.) was a period of major technological and economic change for North Carolina's native peoples. With increasing population levels and concomitantly shrinking territories, North Carolina's Late Archaic peoples experienced reduced residential mobility, but still continued their seasonal movements in order to exploit natural resources as they became seasonally available. Perhaps as a compensation for reduced territorial size, Late Archaic peoples participated in long-distance exchange networks to obtain nonlocal resources. And, although evidence is currently lacking, it is possible that Late Archaic peoples along the North Carolina Coastal Plain were experimenting with plant husbandry—a change in subsistence practices that other Late Archaic groups in the Southeast are now known to have adopted.

Projectile point styles also continued to change over time, although the exact timing of certain types remains somewhat ambiguous. Large Savannah River Stemmed points that began to appear near the close of the Middle Archaic were probably made throughout the Late Archaic and were predominant in the Middle and South Atlantic Coastal Plains (House and Ballenger 1976:24). Other innovations of the period include the manufacture and use of steatite (soapstone) vessels for cooking and perforated soapstone disks that were apparently used in the stone boiling cooking method. By the end of the period (1000 B.C.), Late Archaic groups over much of the state had adopted, to some extent, the manufacture and use of pottery.

WOODLAND PERIOD (1000 B.C. – CONTACT)

The temporal division drawn between the Archaic period and the succeeding Woodland period on the Coastal Plain is somewhat blurred and a topic of continuing discussion within the archeological community. It is debated because the introduction and use of pottery, a primary trait for assigning Woodland cultural affiliation, developed rapidly in some areas of the Southeast and was slow to advance in others. Determining the temporal division is additionally complicated in the Moores Creek area because Moores Creek lies near the fluctuating boundary between two distinct cultural traditions, the Southeast and the Middle Atlantic subareas, which later witnessed the development of relatively independent ceramic traditions (Herbert and Mathis 1996:141–142; Phelps 1983:27). It is further complicated by the lack of well-documented and well-dated ceramic assemblages (Anderson et al. 1996b).

Toward the end of the Late Archaic period, approximately 2000 B.C. (Phelps 1983:26), the region encompassing the Cape Fear River drainage saw the first introduction of pottery—the Stallings Island Fiber-Tempered series (Sears and Griffin 1950). However, of the thirty-eight sites with Stallings Island pottery that were studied by Phelps (1983) in the North Carolina south coastal region, the only type represented in the collections is Stallings Plain (Sears and Griffin 1950). At some sites, the Stallings Plain pottery was found in association with Late Archaic period items, including Savannah River points (and their round-based variant), steatite vessel sherds and net sinkers of the grooved type, winged atlatl weights, and grooved axes.

Sand-tempered Thom's Creek pottery was also added to the ceramic assemblage near the end of the Late Archaic period. In the currently accepted (Phelps 1968; Trinkley et al. 1996) ceramic cultural sequence for the Cape Fear River area, Stallings Fiber-Tempered ware precedes, is later contemporaneous with, and is eventually replaced by Thom's Creek Sand-Tempered pottery around 1500 B.C. Thom's Creek, in turn, is followed by the coarse, sand-tempered New River series, which dates roughly between 1000 and 300 B.C. (Herbert and Mathis 1996; Trinkley et al. 1996). Toward the latter half of the Early Woodland period, minor numbers of Deptford series ceramics appear and signal the immanent arrival of Middle Woodland cultures in the area. The introduction of coarse sand and grit (rock) tempered pottery types, such as New River and Deep Creek, is a defining hallmark of Early Woodland culture in the North Carolina Coastal Plain. Small, stemmed, triangular bladed projectile points, such as the Gypsy and Roanoke points, are also typical of the Early Woodland culture on the Coastal Plain of North Carolina.

Somewhat different ceramic sequences occur within the Coastal Plain immediately to the south (Anderson et al. 1992; Ledbetter 1995; Steen and Braley 1994). The existence of the ceramic sequence is considered a "ripple effect" in the area of the Pee Dee River drainage in South Carolina. This probably represents the most northerly extent of the complete Stallings ceramic series with Stallings Plain rarely found north of the Neuse River. Thom's Creek ware appears to reach its northernmost extent at the

Neuse River, and Refuge (ca. 1000–500 B.C.) and Deptford (ca. 600 B.C.–A.D. 500) types are only rarely found north of the Cape Fear River (Anderson et al. 1996b; Herbert and Mathis 1996; Lilly and Gunn 1996; South 1976; Wilde-Ramsing 1978).

Early Woodland (1000 – 300 B.C.)

The dominant Early Woodland period pottery type for the south coastal region is a coarse sand-tempered ware that Loftfield (1976:149–154) terms New River. The attributes of New River pottery closely resemble the Deep Creek pottery types identified by Phelps (1983:29–31) for the north coastal area of North Carolina, and have been subsumed in Phelps's (1983:31) Deep Creek typology in his attempt to standardize the Coastal Plain ceramic chronology. This unification of types has apparently not attracted much support, however, with Loftfield's New River series still being used in the archeological literature (e.g., Herbert and Mathis 1996:145; Trinkley et al. 1996:32) when referring to the south coastal region.

Essentially identical to Deep Creek pottery, New River pottery is tempered with coarse sand. New River pottery, according to Loftfield, may be "thong-marked" (i.e., simple-stamped), cord-marked, net-impressed, fabric-impressed, and plain (often smoothed). Although there are few radiocarbon dated assemblages for either Deep Creek or New River, both are assumed to be roughly contemporaneous (ca. 1000–300 B.C.) (Trinkley 1980:19).

Because of insufficient data, it is not possible to speak definitively about the subsistence and settlement patterns exhibited by the Early Woodland peoples in the North Carolina Coastal Plain. Settlement patterns similar to those of the Late Archaic have been suggested (Phelps 1976), with base camp sites being located in riverine settings where major streams are accessible. However, this hypothesis is based primarily on surface collected materials (Phelps 1983:32).

Middle Woodland (300 B.C. – A.D. 800)

The Middle Woodland period in south coastal North Carolina—typically dated from 300 B.C. to A.D. 800—is more clearly understood than the Early Woodland period due to more available information. Trinkley and his associates (Trinkley et al. 1996) suggest that the best data currently available are represented by Phelps's (1983) Mount Pleasant series developed for the north coastal region. However, for the south coastal region, medium-sized sand-tempered Cape Fear and grog-tempered Hanover ceramics are considered hallmarks of the Middle Woodland period (Herbert and Mathis 1996:147).

Middle Woodland south coastal region ceramics were originally defined by South (1976:18) as the Cape Fear and Hanover series. Phelps (1983), however, subsumes the Cape Fear pottery into his north coastal Mount Pleasant series. Similarly, Loftfield (1976) has subsumed South's Hanover series within his Carteret series. Loftfield also offers a type description for a poorly understood Onslow series—a crushed quartz-tempered ware with cord-marked and fabric-impressed surfaces—which he places between Carteret and White Oak (a Late Woodland phase).

Trinkley and his co-writers (1996) admit that very little is known about the people that produced the Cape Fear and Hanover ceramics that South (1976) found in the south coastal region, but they can describe the various attributes of their pottery. Cape Fear pottery is sand-tempered, the sand particles being of medium size (0.25–0.50 mm) using the Wentworth scale (Herbert and Mathis 1996). Surface decorations include cord-marked, fabric-marked, net-impressed, and plain. Hanover pottery is distinguished on the basis of clay- and sherd-tempering with some suggestion that the majority of the temper is composed of crushed sherds. Hanover ware surface decorations include fabric-impressed, cord-marked, and plain.

The presence of small, low, sand burial mounds during the Cape Fear phase is a unique trait of the Middle Woodland period in the south

coastal region. The geographical boundaries of these mounds appear to be confined from the Cape Fear River drainage northward to the Neuse River. The contents of the mounds include secondary cremations and platform pipes, many of which are similar to those recovered from mounds of the Middle Woodland period from other regions of the Southeast. Phelps (1983:35) suggests that the similarity in contents and the placement of mounds away from the habitation areas may have been influenced by other groups participating in the Hopewell Interaction Sphere (Brose and Greber 1979).

Late Woodland (A.D. 800 – Contact)

Archeological and related ethnohistorical research of the Carolina Coastal Plain have shown the area to have been occupied by peoples of several language groups during the Late Woodland period. The Carolina Algonkians occupied the coast from north of the Virginia border to roughly south of the Neuse River. Tuscarora speakers occupied the inland area to the west. Siouan language groups (including the Cape Fear and Waccamaw groups, among others) inhabited the south coastal region south of the Neuse River and east of the Fall Line.

South (1976:5–8) has voiced the opinion that the Oak Island ceramic series is a Siouan cultural indicator for the Late Woodland period on the south coast region based on summarized ethnographic documents and archeological evidence. Oak Island ceramic attributes include shell-tempering (oyster for salt water or mussel for fresh water) with cord-marked and net- or fabric-impressed surface decorations. South's Oak Island series is virtually the same as Loftfield's (1976) shell-tempered White Oak series, a fact that led Phelps (1983:48) to suggest that White Oak be subsumed under Oak Island. Likewise, it led some archeologists to classify the region's Late Woodland shell-tempered ceramics as "Oak Island/White Oak" (Herbert and Mathis 1996:151).

Other artifacts typically associated with the Late Woodland period include varieties of smaller triangular points, shell beads, bone pins, bone fishhooks, small polished stone celts, copper adornments, and pipes. Perhaps the best evidence associating the Oak Island wares with a specific ethnic group is the research conducted at a New Hanover County ossuary where the skeletal population was identified as having Siouan physical traits (Coe et al. 1982).

The synonymity of Oak Island wares with Late Woodland peoples has been muddied somewhat by the recent realization that some of the pottery previously identified as Oak Island are not shell-tempered, but are limestone- and marl-tempered Hamp's Landing wares, which date several centuries earlier (i.e., Middle Woodland). As a result, Herbert and Mathis (1996:154) have voiced the opinion that the term "White Oak" be used to denote the shell-tempered series.

Agricultural Chiefdoms of the South Coastal Region (A.D. 1000 – Contact)

The agricultural chiefdoms that arose during the last few centuries (A.D. 1000–1500) of southeastern North America pre-Columbian history are most commonly known by the term "Mississippian" or "Mississippian-like." The rise of Mississippian chiefdoms is usually characterized as the period when Native American cultures reached their greatest cultural complexity (Bense 1994; Griffin 1967, 1985; Jennings 1974; Muller 1983; Peebles and Kus 1977; Smith 1978, 1986). This complexity is reflected in a hierarchy of site types ranging from single family habitations or "farmsteads" to multimound ceremonial centers, a stratified sociopolitical organization that has been broadly compared to chiefdom level societies, endemic warfare, specialization in the production of various traded commodities (shell, copper, salt, etc.), and a heavy reliance on maize (corn) horticulture for subsistence. Earlier subsistence strategies, such as hunting, fishing, and gathering, were maintained to supplement foods obtained by the new agricultural subsistence strategies.

The rise of Mississippian cultures was also intimately tied to the development of chiefdoms. Organized hereditarily, chiefdoms were highly structured socially and economically, which permitted larger numbers of people to share the greater productive potential (and risks) of maize agriculture. The political and economic nature of chiefdoms, however, resulted in continual intragroup competition as individuals vied for the few highest positions among the ruling elite. The higher the position, the greater the affluence and prestige. Continual attempts to expand the influence of the chiefdom and bring neighboring groups under economic and political control, increases in population, and a preference for the limited floodplain areas for farming led to regular armed conflict.

The Mississippian period (A.D. 1000–1500) is also characterized by the presence of shell-tempered ceramics, although not all areas adapted shell as the preferred pottery tempering agent. This is especially true on the eastern coastal plain where the absence of shell-tempered pottery and the continued use of grit- and sand-tempering has resulted in the description of chiefdom level societies in the region as "Mississippian-like."

While the powerful Mississippian tradition was widespread in the Southeast, measuring the Mississippian influence on North Carolina Native Americans is difficult. Some evidence of influence exists in the form of pottery types and ornaments connected with the religious and political symbolism of the Mississippian cultural traditions. However, the temple mounds so common to the tradition are absent in the Coastal Plain of North Carolina (except at Town Creek). The cultural alliances between the politically and economically powerful groups in North Carolina seem to have been based more on the spoken language rather than the forms of tribute and trade networks associated with the Mississippian tradition, to the extent that the Mississippian influence was overshadowed in this area (North Carolina State Historic Preservation Office 1990).

CONTACT PERIOD (A.D. 1524 – 1650)

The first recorded European contact with Native Americans in what is now North Carolina was during the Atlantic coastal voyage of Verrazzano in 1524. Spain, France and England later sent expeditions to North Carolina to explore the area, but it was not until 1585 that the English established a colony on Roanoke Island under the sponsorship of Sir Walter Raleigh. After this venture failed, English settlers entered the Albemarle region from Virginia, and by the middle of the seventeenth century they were well established in North Carolina.

The native populations of North Carolina were largely displaced from the area as the European colonists arrived. Some native groups from the coastal area and the Piedmont voluntarily relocated as the settlers advanced. Other groups were forced to relocate to a few small reservations following bitter conflicts, such as the Tuscarora (1711 and 1712) and Yamassee (1715) Wars. The Native Americans who avoided direct contact with the colonists were, nevertheless, subject to drastically altered political and economic systems. Their cultural traditions were threatened as they became involved in the fur trade. The introduction of European diseases also contributed to the devastation of their former lifeways (North Carolina State Historic Preservation Office 1990).

The largest known native groups that inhabited the region of the Cape Fear River drainage were the Pee Dee, the Cape Fear, and the Waccamaw. All were Siouian language speakers.

In 1715, the Pee Dee lived on the middle course of the Pee Dee River near the present state boundary with South Carolina. "Black River, a lower tributary of the Pee Dee from the west, was formerly called Wenee River, probably another form of the same word, and Winyah Bay still preserves their memory" (Mooney 1970:76).

The Cape Fear Indians lived along the river of the same name, the next major river north of the Pee Dee. As Mooney explains:

> *The proper name of the Cape Fear Indians is unknown. This local term was applied by the early colonists to the tribe formerly living about the lower part of Cape Fear river in the southeastern corner of North Carolina....The tribe seemed to be populous, with numerous villages along the river. (1970:66)*

After the Yamasee War, the Cape Fear Indians were removed to South Carolina where they apparently settled in the vicinity of Williamsburg County (Swanton 1946:103). South Carolina documents dated 1808 state that only one mixed-blood woman of the tribe remained by that year, although some may have joined the Lumbee or the Catawba (Swanton 1946).

The ancestral Waccamaw were a relatively small tribe of Siouian speakers that lived on the river of that name and on the lower course of the Pee Dee River in close proximity to the Winyah and Pee Dee tribes when the English established themselves in South Carolina in 1670 (Swanton 1946:203). The Waccamaw are among the several modern Native American groups who are recognized today as direct descendants of their prehistoric and early historic ancestors in North Carolina. Another large North Carolinian Indian group of greatly mixed tribal ancestry and racial background are the Lumbee (Paredes 1992:2). Other Native American groups also continue to reside within the boundaries of the state, including the Eastern Cherokee, the Coharie, and the Haliwa-Saponi (Lerch 1992:45).

THE BATTLE OF MOORES CREEK

BACKGROUND

As the economic and political controversy with Great Britain progressed into open rebellion in the mid-1770s, North Carolina became sharply divided. The legislature, which was popularly elected, openly opposed the royal governor Josiah Martin. By the summer of 1775, the split into two vying groups affected the entire population. Approximately half belonged to the Patriots; the balance was composed of Crown officials, wealthy merchants, planters, and other conservatives. Among conservatives were the Highlanders, a sizable number of people who had immigrated directly from Scotland into North Carolina in the preceding decades (Hatch 1969:1–30).

When the news of the April 1775 skirmishes at Lexington and Concord reached North Carolina a month later, royal authority was further undermined. Governor Martin fled the capital of New Bern and arrived at Fort Johnson on the lower Cape Fear River in June 1775. Only six weeks later the North Carolina militia forced Loyalists to abandon the fort and escape to the British warship *Cruizer*, waiting offshore. The furious governor laid plans for raising an army of 10,000 Loyalists to be made up of Regulators—described as "the officers of this county [who are] under a better and honester regulation than any have been for some time" (Hatch 1969:3)—and Highlanders of North Carolina. Martin's plans called for this makeshift army to march to the coast and rendezvous with the powerful expeditionary force under Lord Cornwallis, Sir Henry Clinton, and Sir Peter Parker. Their combined forces would, it was firmly believed, reestablish royal authority in the Carolinas (Hatch 1969:3–12).

As soon as the British Secretary of State for the Colonies, Lord Dartmouth, approved the plans, Governor Martin began recruiting his army, which was to muster under Brigadier General Donald MacDonald and Lieutenant Colonel Donald McLeod near Cross Creek (Fayetteville). From there, they would march to the coast, provision the British troops arriving by sea, and finally reconquer the colony. By February 15, 1776, approximately 1,600 men had been assembled (Hatch 1969:11–12).

The Patriots learned of the mass assembly and began gathering their own forces. The militia was mustered under Colonel Richard Caswell and joined the 1st N.C. Continentals under

the command of Colonel James Moore. When Tory General MacDonald began marching his Highlanders toward the coast, Moore blocked the movement at Rockfish Creek. MacDonald then rerouted eastward, crossed the Cape Fear River, and proceeded toward the Negro Head Point Road, also called Stage Road, where, he believed, he would encounter little opposition (Hatch 1969:21–24).

In a counter move, Caswell withdrew from Corbett's Ferry on the Black River in order to "take possession of the Bridge upon Widow Moore's Creek" (King 1937:3). Moore issued orders for Colonel Alexander Lillington to join Caswell, then fell back toward Wilmington, hoping to attack the rear of MacDonald's column as Caswell blocked his forward movement (Hatch:1969:26–30).

THE BATTLE

On February 25, 1776, Lillington arrived at Moores Creek Bridge with 150 Wilmington District Minutemen. The murky, silty stream was more than fifty feet wide. Approximately five to fifteen feet deep, it was subject to tidal fluctuations of several feet. The dark waters wound through swampy land. The creek bottom mixed heavy accumulations of mud and debris, which made crossing difficult everywhere in the vicinity except over the narrow bridge. Lillington immediately built a low earthwork on a slight rise on the east side of the stream overlooking the bridge and its approach from the west (Figure 3a). The next day, Caswell arrived with 850 men, whom he sent across the bridge to throw up entrenchments on the east side (Figure 3b) (Hatch 1969:34–35).

During the night of February 26, 1776, Lillington and his men were camped on the east side of the bridge, Caswell and his men on the west side. MacDonald and his 1,600 Loyalists were camped six miles away, west of the Patriots. MacDonald, aging and ill, advised his council of officers against attack, but the eager McLeod insisted that the reports of the Patriot camp on the west side of the creek—the side nearest their position—made the campsite a practicable if not an easy target. The younger officers won the decision and McLeod and his Highlanders began their march at one o'clock in the morning, February 27. They quickly became so lost in the swamps that it was close to dawn before they reached the creek near where Caswell had been camped (Hatch 1969:35).

While the Highlanders had been lost in the swamps, Caswell and his men had left their camp on the west side position and joined Lillington on the east side behind the better constructed breastworks (Figure 3c). All that McLeod's men found at daybreak on the west side of the creek were unattended camp fires and empty trenches, which led McLeod to believe that the Patriots had fled from the area. A Loyalist patrol leader, Alexander McLean, located the bridge and saw men on the opposite bank but believed they were Highlanders who had already managed to cross the creek during the night. When he loudly called out that he was a friend to the King, the figures frantically scrambled behind the breastworks. At last realizing that the Patriots had not fled the area, he ordered his men to take cover and open fire at the opposite bank (Hatch 1969:35).

When the first shots rang out McLeod and a company commander, John Campbell, ran southward to McLean's position just west of the bridge. They found that the bridge planking had been removed, and the remaining two sleepers greased with soft soap and tallow. To make matters worse, the Patriots were well protected behind their entrenchments on the east side. McLeod and Campbell, nonetheless, led an ill-planned charge across the bridge, the men stabbing their swords into the wooden sleepers to retain their footing. The first group got within thirty paces of the Patriot Earthworks and "Old Mother Covington and Her Daughter" (Hatch 1969:40), as the trusty artillery pieces of Caswell were called, before both leaders were hit with musket balls and mortally wounded. McLeod continued shouting encouragement to

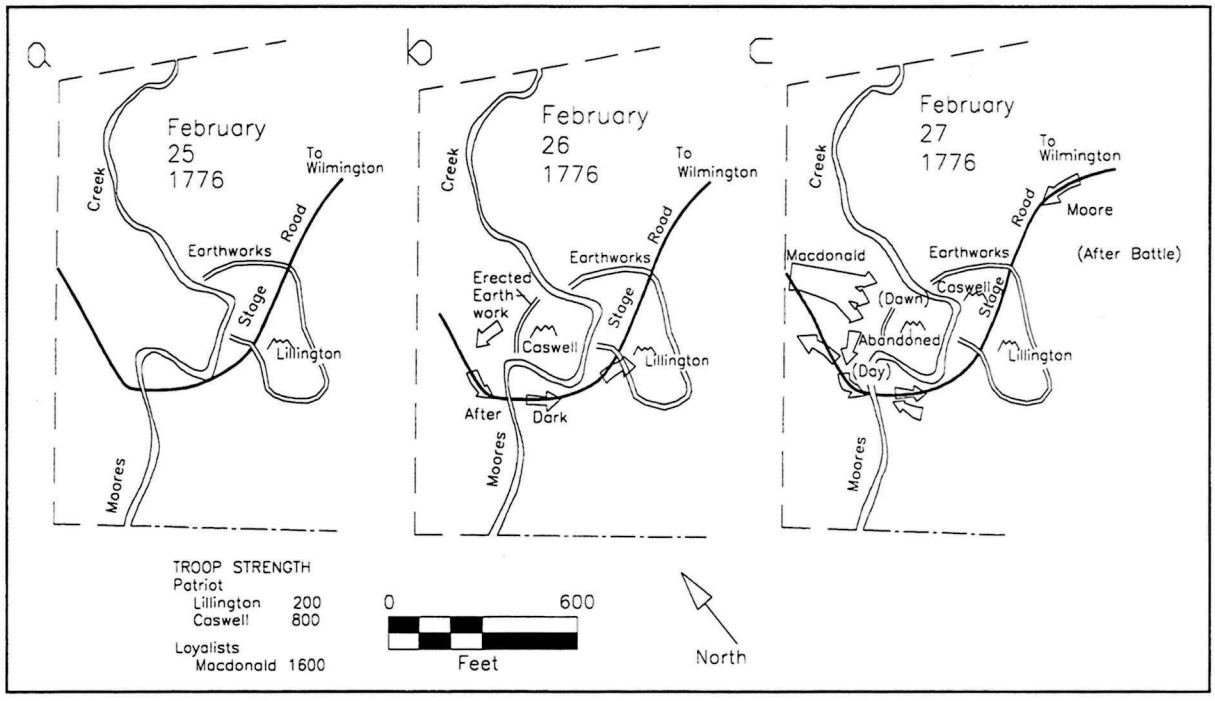

Figure 3 — Battle map showing troop movements (after National Park Service 1968).

his men until the hail of bullets ended his life. This first volley by the Patriots swept the bridge clean. Many of the Highlanders, wounded, tumbled into the creek and drowned. Others, thrown into the water by the shock of the sudden volley, were pulled below the water's surface by the weight of their heavy clothing. Those who managed to cross the bridge were shot down. Only one Patriot, John Grady, was mortally wounded during the battle. He died several days later on March 2 (Hatch 1969:34–41).

The Highlanders who remained on the west side of the creek took cover, but many of the Regulators and other Loyalists fled. The Patriots replaced the bridge planks, pursued and eventually rounded up suspected Loyalists, disarmed all the Highlanders and Regulators, and captured valuable spoils, including 1,500 rifles, 350 guns and shot-bags, 150 swords and dirks, and 15,000 British pounds sterling (Hatch 1969:41–45).

THE OUTCOME

The British seaborne expedition, which finally arrived in May, was forced to move into an area adjacent to Charleston, South Carolina. Afterward, in late June of 1776, local Patriot troops successfully repelled Sir Peter Parker's land and naval attack at Fort Moultrie, Sullivans Island.

These two encounters, the brief but violent battle at Moores Creek, and the repulsion of Parker's attack were decisive in the final outcome of the Southern campaign of the Revolutionary War. Victory at Moores Creek prevented the Highlanders from joining forces with the British who were gathering along the coast, thus averting a full-scale invasion of the South. Perhaps more importantly, the victory at Moores Creek demonstrated the surprising Patriot strength in the countryside, discouraged the growth of Loyalist sentiment in the Carolinas, and, together with the defeat of Sir Peter Parker, secured the region for the American forces until

the British embarked on their second campaign to conquer the South in late 1778.

Creation of Moores Creek National Battlefield

The first public celebration of the anniversary of the battle at Moores Creek was held in 1856. Public sentiments were thus roused, and, in 1857, a monument was erected and dedicated to John Grady, the Patriot who had died from wounds he received in the battle. In February 1876, Richard P. Paddison purchased two acres of land containing the "Battleground of Moores Creek on which stands the monument of said battle and the old entrenchments" (Maze 1976). Seventeen years later, Paddison lost the property due to delinquent tax payments. On September 4, 1893, Bruce Williams bought the Monument Grounds, which included the battleground and entrenchments, from the sheriff of Pender County (Walker and Lee 1988).

The purchase of up to twenty acres to be set aside as a public state park in commemoration of the Battle of Moores Creek was authorized by the General Assembly of North Carolina on March 9, 1897. On June 13, 1898, the state of North Carolina purchased the two-acre earthworks from Bruce and Flora Williams. The adjacent eight-acre tract was purchased June 25, 1898, from Peter and Valie Simpson (Walker and Lee 1988). The Moores Creek Monumental Association was incorporated by an act of the North Carolina General Assembly in 1899. Its purpose was to oversee the battlefield and the commemorative celebrations held there. In 1905, the state granted the Association an appropriation of $200 to use for clearing the grounds and erecting a pavilion to protect visitors from inclement weather.

In 1907, a series of roads, circular drives, and several buildings were constructed within the area. Two of these roads cut through the remains of the Patriot Earthworks. One corner of the entrenchment was also leveled when a pavilion was constructed there. This structure was built just inside the southeastern corner of the earthworks (King 1937). In addition, a formal garden was placed in the same corner next to the pavilion. A latrine was placed several hundred feet to the rear of the pavilion, which caused a small section of the redoubt to be leveled. A path across the parapet at this point was made over time by visitors walking back and forth. Also, "two sales booths, a jail, a keeper's house, and a stable were constructed" (Maze 1976:3). The state of North Carolina also purchased a twenty-acre tract of land from Peter and Valie Simpson, which adjoined the monument grounds on the north and east (Colvin 1907). The Moores Creek Monumental Association administered the park for the next two decades and made numerous other improvements, including land clearing, erecting new buildings, and planting shade trees, flowers, and shrubbery (Maze 1976).

Following a fire that burned the pavilion in 1919, an attempt was made to restore the area in the vicinity of the earthworks to its former appearance (King 1937). The remains of the large pavilion were removed; the circular drive was obliterated and a footpath was constructed following the old original road (Negro Head Point Road). A new pavilion was built just outside the breastworks in the southeast corner (King 1937).

The state of North Carolina offered to donate the thirty-acre park to the federal government in 1925. On June 2, 1926, Congress authorized the establishment of Moores Creek National Military Park (44 Stat. 684) under War Department administration (Hatch 1969). The War Department administered all National Parks until 1933 when administrative authority was transferred to the Department of the Interior. By Executive Orders 6166 and 6228 of August 10, 1933, the park was transferred to the Department of the Interior and made a unit of the National Park System.

On November 5, 1951, North Carolina conveyed an additional 12.23 acres of land to the United States for park use. However, the addi-

tion was not accepted until February 20, 1953.

Moores Creek National Battlefield was nominated to the National Register of Historic Places in 1977. The archeological remains of the battle and a number of monuments that had been erected by the Moores Creek Monumental Association in the early part of the twentieth century were classified as "Historic Structures" (National Register Bulletin 16A 1991:15).

The Patriot Earthworks are designated Historic Structure 1 (HS-1). Historic Structure 2 (HS-2) is assigned to the Forward Earthworks, or Lillington's Earthworks. The Negro Head Point Trace Road (Colonial Road, or Old Stage Road as it was called at that time) is Historic Structure 3 (HS-3), which consists of traces of a roadway that dates from about 1743. Historic Structure 4 (HS-4), Patriot or Grady Monument, was erected to commemorate John Grady, the only Patriot to die of wounds received in the Battle of Moores Creek. The foundation for the monument was laid in 1857 and the entire monument was relocated within the Patriot Earthworks in 1974. The Heroic Women Monument, also known as the Slocumb Monument, was erected in 1907. Designated Historic Structure 5 (HS-5), this white marble statue of a female form honors both the heroic women of Lower Cape Fear and Mary Slocumb. In 1929, Mary (Molly or Polly as she was sometimes called) and her husband Ezekiel were exhumed and reburied near the monument. The Loyalist army was commemorated by Historic Structure 6 (HS-6), a large granite monument erected in 1909 and in 1974 relocated approximately four hundred feet south. The Stage Road Monument, Historic Structure 7 (HS-7), was erected in 1911. This granite structure has an inscription describing the battle and a bas-relief cannon. It was moved from within to outside the earthworks in 1942. Historic Structure 8 (HS-8), the monument to James F. Moore, first president of the Moores Creek Battleground Association, was erected in 1912. It is made of dressed granite in the shape of an obelisk. The damage caused by high winds in 1944 was repaired in January 1945. The Bridge Monument, Historic Structure 9 (HS-9), is a granite structure erected in 1931. It stands beside the Colonial Road near the location of the original bridge over Moores Creek.

Newly acquired lands were added to the park once more in 1986, including lands west of Moores Creek, a strip of land north of Patriots Hall, and another strip of land east of the park. These lands increased the park acreage from 42.23 to 86.52. The added property was nominated and accepted by amendment to the National Register of Historic Places in 1987. The small entrenchments of Caswell's Camp on the west bank of Moores Creek was also accepted to the Register and designated as Historic Structure 10 (HS-10), although no trace of the camp or entrenchments has ever been located archeologically. (In 1997, another 1.23 acres were added to the park, bringing the total acreage to 87.75.)

In 1996, another amendment to the National Register was added for Moores Creek National Battlefield. Two boundary markers erected by Moores Creek Monumental Association between 1897 and 1910 were nominated and accepted. "The markers are two granite slabs (6" x 5" x 6" high and 6" x 5" x 1' high) with rock-faced sides and smooth-faced tops. MCMA is inscribed on the tops. The markers are located along the park's southern boundary off a fire trail" (National Park Service 1996:3).

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Chapter 4

PREVIOUS INVESTIGATIONS

INTRODUCTION

Thirteen previous archeological survey, testing, and monitoring projects (Borresen 1938, 1940; Brewer 1983; Griffin 1958; Horvath 1988; King 1937, 1940; Komara 1985; Paglione 1983; Thompson 1975; Walker, 1973, 1975; Wright 1992) have taken place at Moores Creek National Battlefield. Figure 4 shows the general location of all of the above-mentioned survey and testing projects. Generally, they have focused on the earthworks, roads, and bridge.

ARCHEOLOGICAL STUDIES

The first archeological investigations conducted at MOCR were undertaken by NPS Park Superintendent Clyde B. King (1937) who excavated nine trenches across the apparent remains of the Patriot Earthworks. The earthworks he examined were nine inches high with a four-inch-depression interior. He projected the height of the original earthworks to have been between four and five feet.

In 1938, the NPS's Thor Borresen excavated six trenches, five of which cut through the earthworks (King 1940). Borresen's trenches were placed adjacent to or between King's trenches. Four of the five trenches showed a similar stratigraphic pattern. From the observed stratigraphic outline of the earthworks, Borresen made recommendations for their restoration.

In 1939, King (1940), in conjunction with restoration work, again dug seven cuts where the southeast corner of the earthworks had been

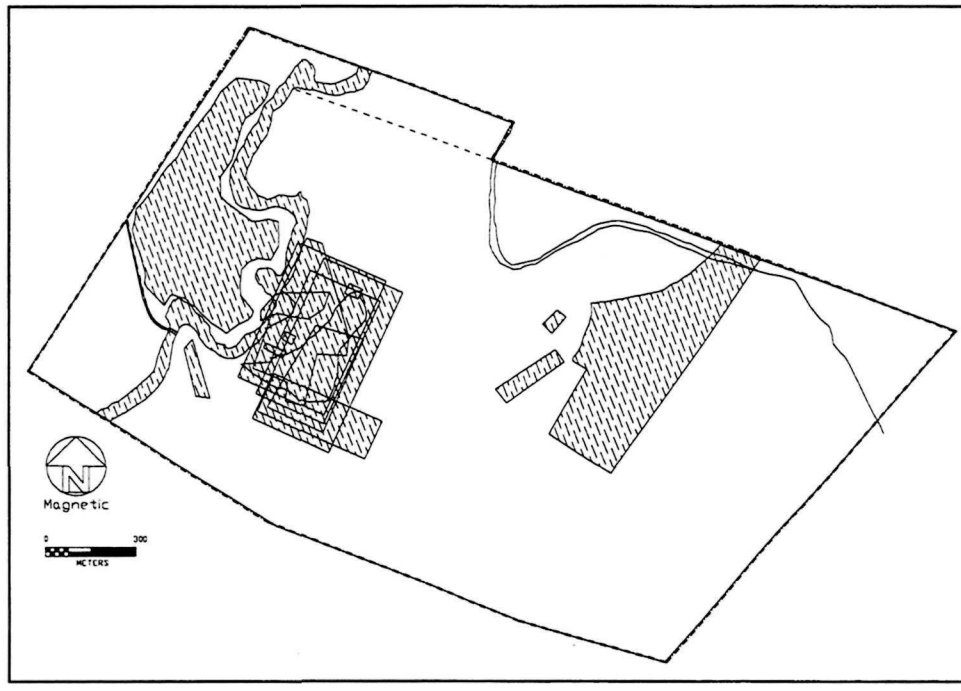

Figure 4 — Locations of previous archeological surveys.

obliterated. Following this test, the earthworks were reconstructed once more.

Borresen went back in 1940 and dug another trench to examine the restoration. He claimed that no damage was done to the original earthworks.

In 1958, NPS archeologist John W. Griffin conducted a metal-detector survey in and around the earthworks (1958). The survey was designed to locate artifacts for an interpretive display. Griffin found (1) heavily patinated lead fragments, (2) a small brass or bronze buckle, (3) two iron fragments, (4) a badly rusted chain, and (5) a large iron fitting. Griffin stated that item 1 could date from the Revolution. He determined that item 5 could be from a cannon carriage, perhaps from the Civil War era as there were once Civil War artillery pieces located at MOCR. He also expressed some doubt about the effectiveness of metal-detectors at greater depths.

In 1973, NPS archeologist John W. Walker conducted a pedestrian survey of the proposed relocation route of NC Highway 210. Walker concluded that there were no significant archeological resources involved, "...with the exception of the presumed historic road [Negro Head Point Road]" (1973:2).

In 1974, Timothy A. Thompson of the Archaeology Section, Division of Archives and History, North Carolina Department of Cultural Resources, supervised the excavation of sixteen trenches. The goals were to recover sufficient information to test the authenticity of the present earthworks and road, and to suggest earthwork modifications if justified by the recovered data. Aerial photography, resistivity, refractive seismographic, and magnetometer surveys were conducted prior to his excavations. These methods proved generally inconclusive. Three trenches revealed possible stratigraphic evidence for the earthworks, but, again, the results were inconclusive since Thompson (1975) suggested these undulating profiles could also result from stream terracing. Six trench profiles show possible evidence for the Negro Head Point Road leading across the bridge and onto the battlefield, but Thompson (1975) believed this to be inconclusive stating that he found nothing that could be positively identified as dating to the correct period.

Also in 1974, a team of archeologists from the North Carolina Division of Archives and History planned a creek-bottom investigation near the bridge site. However, equipment problems forced the abandonment of the project before data could be recovered (Brewer 1983).

Walker (1975) opened the cornerstone of the Grady Monument, which purportedly contained the remains of John Grady, the only Patriot who died from wounds received in the Battle of Moores Creek Bridge. Walker found a small lead box containing two human molar fragments, a few pieces of pig bone, and remains of an unidentified newspaper.

Eight years later, in 1983, Teresa L. Paglione excavated eighty-four shovel tests along the proposed routes of the waterlines from the visitor center to Patriots Hall, and along the route for the waterlines in the area of the Grady, Loyalist, and Moores Monuments. None of the tests produced any evidence of either prehistoric or historic cultural activity. She also surveyed the entire new acquisition area, east of Moores Creek, to clear it for plowing and grading to obliterate evidence of modern use and occupation. The survey consisted of thirty-one random shovel tests and a surface inspection. No cultural resources were encountered (Paglione 1983:1–3).

In 1983, NPS archeologists George Fischer and David M. Brewer (Brewer 1983) conducted a comprehensive magnetometer survey of Moores Creek within the park and a metal-detector survey of the historic bridge area. The project had three goals: (1) to determine artifact data potential for the creek bottom, (2) to locate any historical bridge remains, and (3) to compile a database of material recovered, in order to make contextual associations. Recovered material included an iron cooking pot, an ax head, an iron spike, an iron ring, an iron fastener, and

an iron bolt piece. While the investigators produced some magnetic anomalies and artifacts, they were not able to verify the location of the original bridge nor provide artifacts that could be conclusively dated to the Colonial era. The artifact material from this project was turned over to the State of North Carolina's Division of Underwater Archaeology.

NPS archeologist Gregory L. Komara (1985) conducted archeological testing at two locations in MOCR in 1984. The first of these was a twelve-acre tract of land adjoining the western edge of Moores Creek in the vicinity of the Moores Creek Bridge—the area thought to be the site of Caswell's camp. The result of investigations in this area showed substantial alteration to the original topography due to the addition of dredge material in 1968. Only minimal impact to the Negro Head Point Road, however, occurred as a result of this activity. No definite material associated with the Revolutionary War period was encountered in this study area.

The second of Komara's study areas consisted of the land acquired by the park as a noise and visual buffer zone between the battleground and the proposed relocation of NC Highway 210. Data recovered from testing in this area provided five cross-sectional profiles of Negro Head Point Road. Komara also conducted partial excavation of a suspected tar kiln in this study area. A charcoal sample obtained from Tar Kiln No. 2 (twelve to eighteen inches below surface) produced a radiocarbon date of A.D. 420 ± 50 (Komara 1985). This date is outside the probable true age of the feature and is most likely the result of a contaminated sample.

In 1988, NPS archeologist Elizabeth A. Horvath conducted testing for a footbridge and a trail. She investigated the study area, specifically the earthworks, for evidence of the battle and any other evidence of cultural activity. Following a metal-detector survey along the bank of Moores Creek (inside the reconstructed earthworks), twenty-four shovel tests, a quarter-meter-by-two-meter excavation unit, and three backhoe trenches were excavated. The investigations resulted in the discovery of the purported earthworks and possible evidence for utilization of this locale by prehistoric inhabitants (Horvath 1988:1).

In 1992, monitoring prior to the construction of a bridge at Moores Creek was conducted. During this project, NPS archeologist John R. Wright located the remains of a bridge built in the 1930s at Moores Creek (Wright 1992).

OTHER STUDIES

Other studies concerning the history of the park have also contributed to our understanding of the archeological resources preserved within its boundaries. Terry E. Maze (1976) wrote a brief history of the earthworks. He noted that disturbances to the unreconstructed earthworks included two roads, a leveling for a pavilion, a visitors' path, a formal garden, and a latrine. The earthworks were reconstructed in 1938 and 1953. In 1975 and 1976, they were again disturbed when two cuts were made for trails.

John W. Walker and Jerry W. Lee (1988) compiled a report concerning the historic, topographic, and archeological data pertaining to the earthworks at Moores Creek. The researchers concluded that the present alignment is very near the original and that the preservation of the earthworks as visible remains should continue.

Other documents of cursory interest to this project are Thomas Hargrove's (1987) historic structures report on the Moores Creek Bridge and Gregory Komara's (n.d.) history of Negro Head Point Road. Both of these reports provide detailed historical backgrounds of their subjects.

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Chapter 5

RESULTS OF THE 1994 RASP SURVEY

INTRODUCTION

The RASP survey conducted at Moores Creek had two objectives: (1) to determine what archeological resources are present in the park in order to allow for their effective management, and (2) to greatly reduce the need for future, narrowly focused Section 106 compliance projects.

The original research design (Cornelison 1994) called for a survey of the entire park, which at that time had 86.52 acres. However, several areas of the park were later eliminated from the original proposed survey due to low resource potential and concern for threatened and endangered species in some areas.

ESTABLISHING THE SURVEY GRID

The RASP survey grid and vertical control was established from a permanent datum, U.S.G.S. benchmark 8.6 (BM 8.6), situated within the park. BM 8.6 is located directly across from the visitor center in the traffic island (Figure 5). This benchmark is a vertical elevation control only, so BM 8.6 was arbitrarily assigned the coordinates 10,000N, 10,000E in setting out the RASP survey grid using a Sokkia Set 5 laser theodelite and SDR33 data recorder. All subsequent recording used uncorrected magnetic north for 0°.

Beginning at BM 8.6, a baseline of secondary datum points was established using a twenty-meter interval along an east-west (83°/263°) line. Auger test transect lines were turned perpendicular off the baseline on a 353°/173° heading, or roughly north-south. The starting point of every other transect line was staggered ten meters to produce a checkerboard pattern, thus ensuring adequate coverage of the survey area.

SURVEY METHODOLOGY

For the purpose of adjusting and implementing the basic survey methodology, the park was divided into four zones: open, well-mowed areas; the light woods with dense undergrowth; the savanna area; and the swamp and creek.

The open areas in the park were tested using a farm tractor with a twelve-inch (30.48 cm) power auger bit. The depth of the auger holes averaged approximately twenty-seven inches (70 cm) below surface (bs). The soils from the hole were then shoveled into a portable shaker screen. The screens were constructed with quarter-inch mesh hardware cloth.

In the wooded and other hard-to-reach areas of the park the shovel tests were dug by hand using round-nosed shovels. The average depth of each test was reduced to roughly

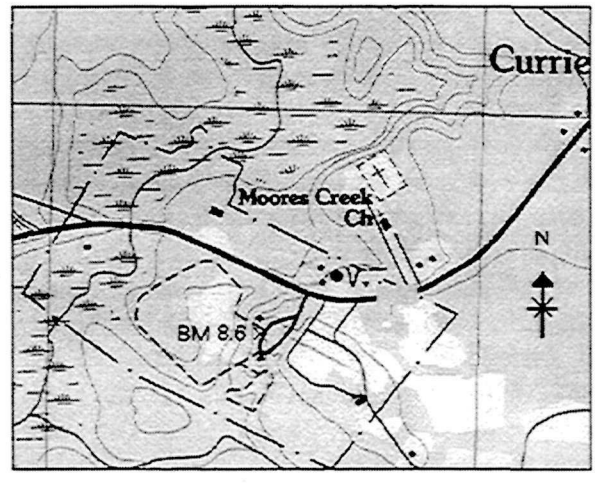

Figure 5 — Location of benchmark 8.6, U.S.G.S. 7.5' quadrangle, Currie, NC.

twenty inches (50 cm) bs. All soils were screened as previously described.

The savanna area with its tall grass was generally open. In some protected areas the presence of several endangered species of plants precluded testing except on the trails.

EM 38 SURVEY

A Geonics EM 38 Ground Conductivity Unit with a Polycorder Digital Data Recorder was also used during the survey. It was thought that this would be a quick and efficient way to detect subsurface features, such as earthworks and roads. All examined areas are twenty by twenty meters unless otherwise noted. Figure 6 shows the areas selected for testing with the EM 38.

The EM 38 induces a small eddy current into the ground and records the return signal. It can measure the conductivity of the ground in millisimens per meter (mS/m) and inphase responses of secondary to primary magnetic fields in parts per thousand (ppt). The EM 38 records to a depth of one and a half meters in the vertical dipole position and three-quarters of a meter in the horizontal dipole position. Different depths can be obtained by varying the height of the instrument above the ground.

TAR KILN NO. 2

Tar Kiln No. 2 was selected for testing because: it was in an open area, it had previously been excavated, and portions of a modern road and Negro Head Point Road could be included in a twenty-meter grid surrounding the tar kiln.

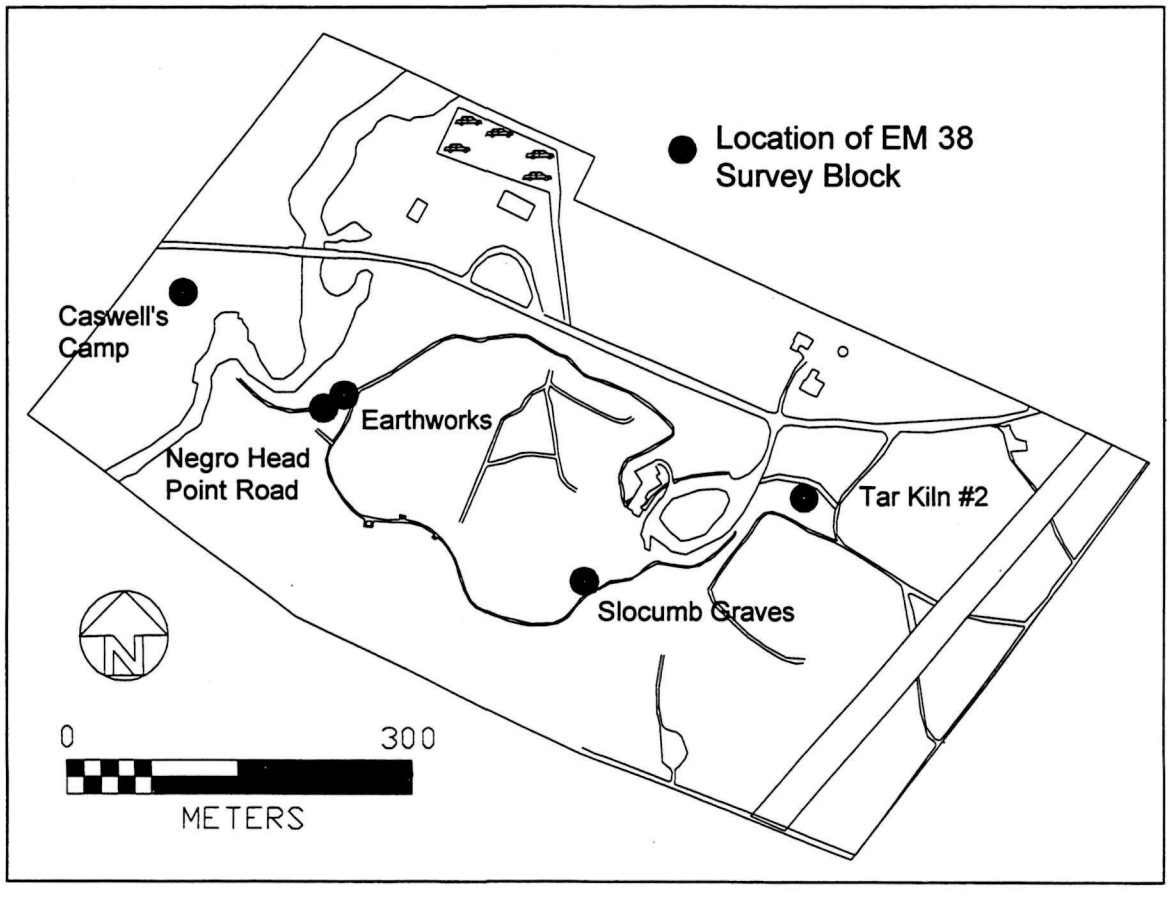

Figure 6 — Locations of EM 38 survey blocks.

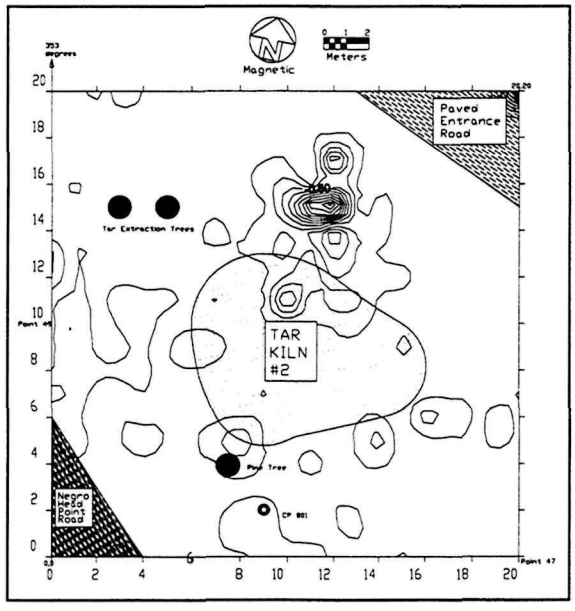

Figure 7 — Composite map of Tar Kiln No. 2 and EM 38 data.

Since this was the first time this unit was field tested by SEAC staff, the instrument was operated in each of the following settings: quadrature, inphase, dual collection, and dual orientation. While this increased the number of times that the area was mapped, it also revealed the range of the machine's capabilities.

After several attempts, it was determined that the EM 38 would be used for the remainder of the project in the inphase mode, in the horizontal position (three-quarters of a meter depth) with a one-meter interval in the X and Y directions. The data from the polycorder was downloaded using proprietary DAT software provided with the unit. The data was then output in an ASCII (X, Y, Z) format. The ASCII data were then loaded into Surfer, from which isoline "contour" maps and surface models were created.

Figure 7 is a composite of the Tar Kiln No. 2 sketch map and the Surfer isoline map produced using EM 38 data. An analysis of the figure shows that the EM 38 did not detect the tar kiln. However, it did detect large concentrations of nearby metal. The metal was from a garage previously on site (Komara 1985). The EM 38 also appeared to detect Negro Head Point Road (lower left corner). Only three readings were collected on the road due to the one-meter interval used. There is also a high reading or "spike" near the center of the paved road (upper right corner). This probably reflects steel reinforcements in the road.

EARTHWORKS AND NEGRO HEAD POINT ROAD

The next area selected for testing was a section of the earthworks. This area was selected because the earthworks, Negro Head Point Road, and a sidewalk could be examined in one twenty-meter block.

Figure 8 is a composite of the sketch map and the Surfer map produced using EM 38 data. An analysis of the figures shows two striking facts. First, the front side of the earthworks is represented by closely spaced lines, while the lines on the backside have greater spacing. Second, the EM 38 did not detect Negro Head Point Road, possibly because the road in the area is very ephemeral and composed of sand.

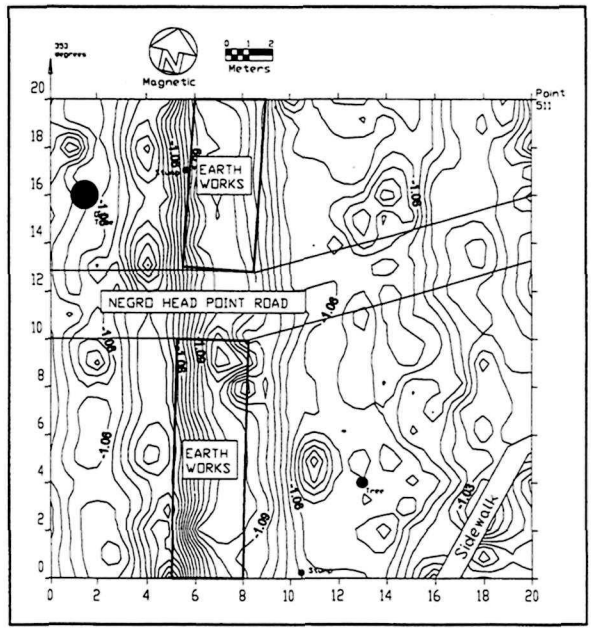

Figure 8 — Composite map of the earthworks and EM 38 data.

A second block was examined in the earthworks area. This ten-meter-wide by forty-meter-long block was selected to cover a portion of Negro Head Point Road and the location of the Pavilion that had once stood inside of the earthworks. Again, as with the first section tested in the earthworks area, the road and pavilion were not detected. It is unlikely that substantial remains of the pavilion still exist, as no evidence was noted during auger testing of the same area.

CASWELL'S CAMP AREA

A twenty-by-twenty-meter grid was placed in the Caswell's Camp area west of Moores Creek and tested with the EM 38. An analysis of the data shows no evidence of Negro Head Point Road or any other subsurface features.

SLOCUMBS' GRAVES AREA

The area in which the EM 38 showed its best potential was in the Slocumbs' Graves area. This seven-by-nine-meter plot at the base of the monument contains two graves. Figure 9 shows an isoline map of the area generated on the basis of the EM 38 readings. The individual graves can be clearly seen as two oval peaks. The same data shown as a three dimensional surface map are more impressive, emphasizing the individual graves (Figure 10). While the location of the graves was already known, these data show the potential usefulness of the EM 38 for locating subsurface features.

Although it detected the Slocumb graves, elsewhere the results produced by the unit were generally poor. Several factors could have contributed to this failure. The most notable of these factors would be the lack of ground moisture during the time that the unit was used. This would have lowered the soil's electromagnetic sensitivity. Another factor may have been the operation of the unit. While a one-meter interval was used on these blocks, it is now common practice to use grids as small as one-quarter meter when surveying with an EM 38.

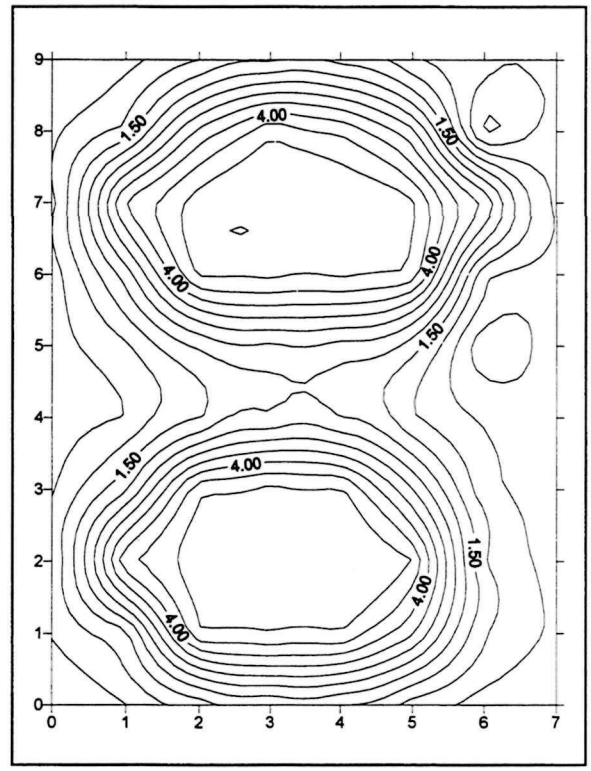

Figure 9 — Isoline map of the Slocumbs' Graves area.

In an attempt to examine and manipulate the raw data further, standard deviation (SD) residual maps were produced using the EM 38 data. The mean and SD for each block data set were calculated, and a new Z value was calculated for each reading. This Z value was derived by determining the SD of each raw Z value from the survey block mean. Therefore each residual map was contoured using only seven values (-3SD, -2SD, -1SD, mean, +1SD, +2SD, +3SD). It was hoped that these SD residual maps would provide a clearer image of what was present below the ground.

Figure 11 is an isoline drawing of the SD values derived using the same data obtained for the Tar Kiln No. 2 area (shown in Figure 7). While the tar kiln is somewhat clearer, these maps also fell short of expectations. Of course, all of these data are archived at SEAC and are available for further manipulation in the future.

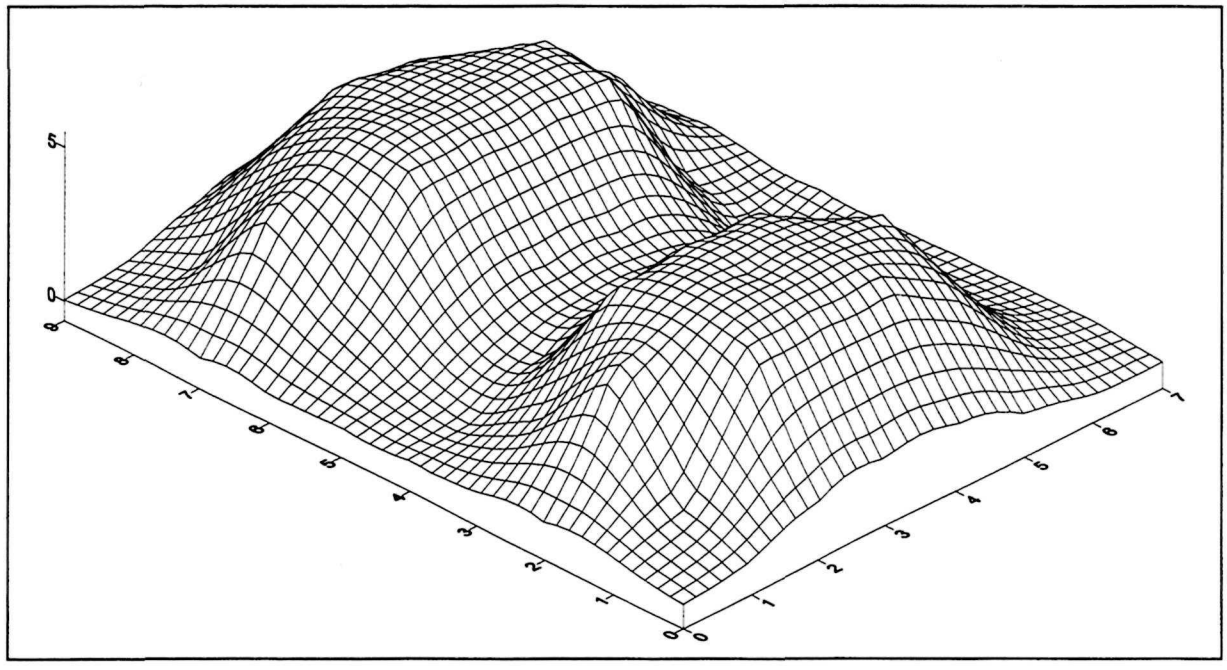

Figure 10 — EM 38 surface map of the Slocumbs' Graves area.

AUGER/SHOVEL TEST SURVEY

A total of 331 auger/shovel tests were dug at MOCR (Figure 12). Of these, only sixty-one were positive, containing some type of cultural material. Of the positive tests, only seven contained historical material and three aboriginal material (Table 1). Test 2 contained both prehistoric and historic material. The remaining tests contained modern material, such as glass or nails. Two of the three tests that contained aboriginal material were located to the north side of the entrance road on the eastern end of the park. Tests 2 and 34 each contained one untyped, sand-tempered aboriginal sherd. The lack of additional aboriginal material indicates that these sherds were brought into this area, possibly from the road-grade fill or a commercial garage known to have once been located in this area. They are not the result of an aboriginal occupation.

Four quartz- and sand-tempered body sherds were recovered from Test 625 in the center of the west bank causeway of Negro Head Point Road. Two of the sherds with fabric impressing are possibly associated with the Deep Creek/Cape Fear ceramic traditions (David Anderson, personal communication

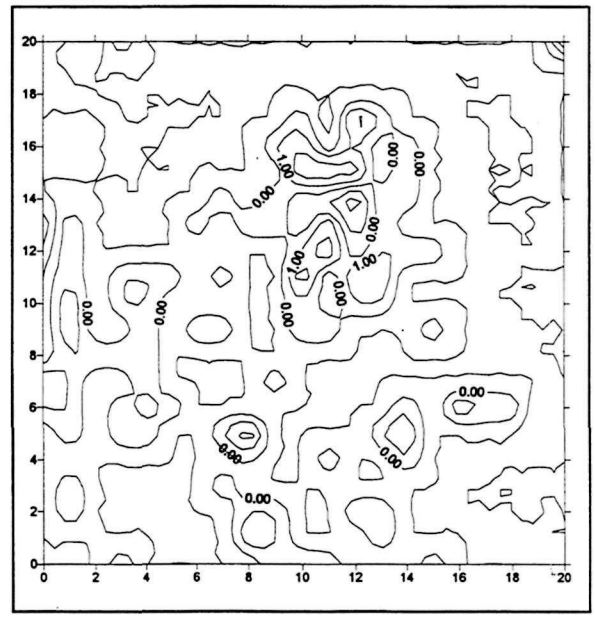

Figure 11 — Standard deviation (SD) map of Tar Kiln No. 2, in phase, horizontal.

Table 1 — Nonmodern artifacts recovered from the auger survey.

Material	Auger/Shovel Test No.									Total Artifacts by Material
	2	27	34	506	522	566	625	229	3020	
Aboriginal sherd	1		1				4			6
Brick fragment				1						1
Cut nail fragment	1								2	3
Porcelain						1				1
Slate fragment									1	1
Solarized glass				1						1
Stoneware								1		1
Whiteware fragment		1			1	1				3

* Modern items such as colorless glass are not presented here; see Appendix I.

1996). These sherds were recovered from a location where it is evident that dredge fill from Moores Creek has been used to level the area.

The most common item found as a result of the auger/shovel testing was modern glass. This material is summarized in Appendix 2. All modern colored and colorless glass was counted and totaled by provenience. These data were used to produce Surfer distribution maps. The results of this mapping is presented in Figure 13. Two concentrations are noted, with the largest being north of the current entrance road and south of old NC Highway 210. This, no doubt, is a result of the commercial activity that has taken place in this location. The second concentration is just north of the park's south park boundary in an area that the park uses for storage. There is little doubt that the southernmost concentration is a result of the park's maintenance operations.

The same mapping process was used for wire nail fragments, another modern artifact type. The result of this mapping is presented in Figure 14. Again, the main area of concentration is north of the current entrance road and south of old Highway 210. No doubt, this is a result of the commercial activity that has taken place in this location.

EXCAVATION UNITS

Three test units were excavated at MOCR. All of these units were dug in ten-centimeter arbitrary levels unless otherwise noted. All soils were screened through quarter-inch mesh hardware cloth.

TRENCH 1

Trench 1 was located on the eastern side of the earthworks, approximately five meters south of Negro Head Point Road (Figure 15). Prior to the first reconstruction of the earthworks, King (1937) stated that approximately four inches of the earthworks were visible. The unit's location was selected because it was farthest from the creek and would presumably have been the least affected by seasonal flooding; thus, this section of the earthworks should have been less disturbed than elsewhere. It was later learned that Trench 1 was placed in nearly the same location as King's Trench B, excavated in 1937.

As laid out, the unit was one by four meters with the center of the unit (the datum) located on the highest point (center) of the earthworks. Since it was known that the earthworks underwent reconstruction, the embankment was excavated to ground level as a single level

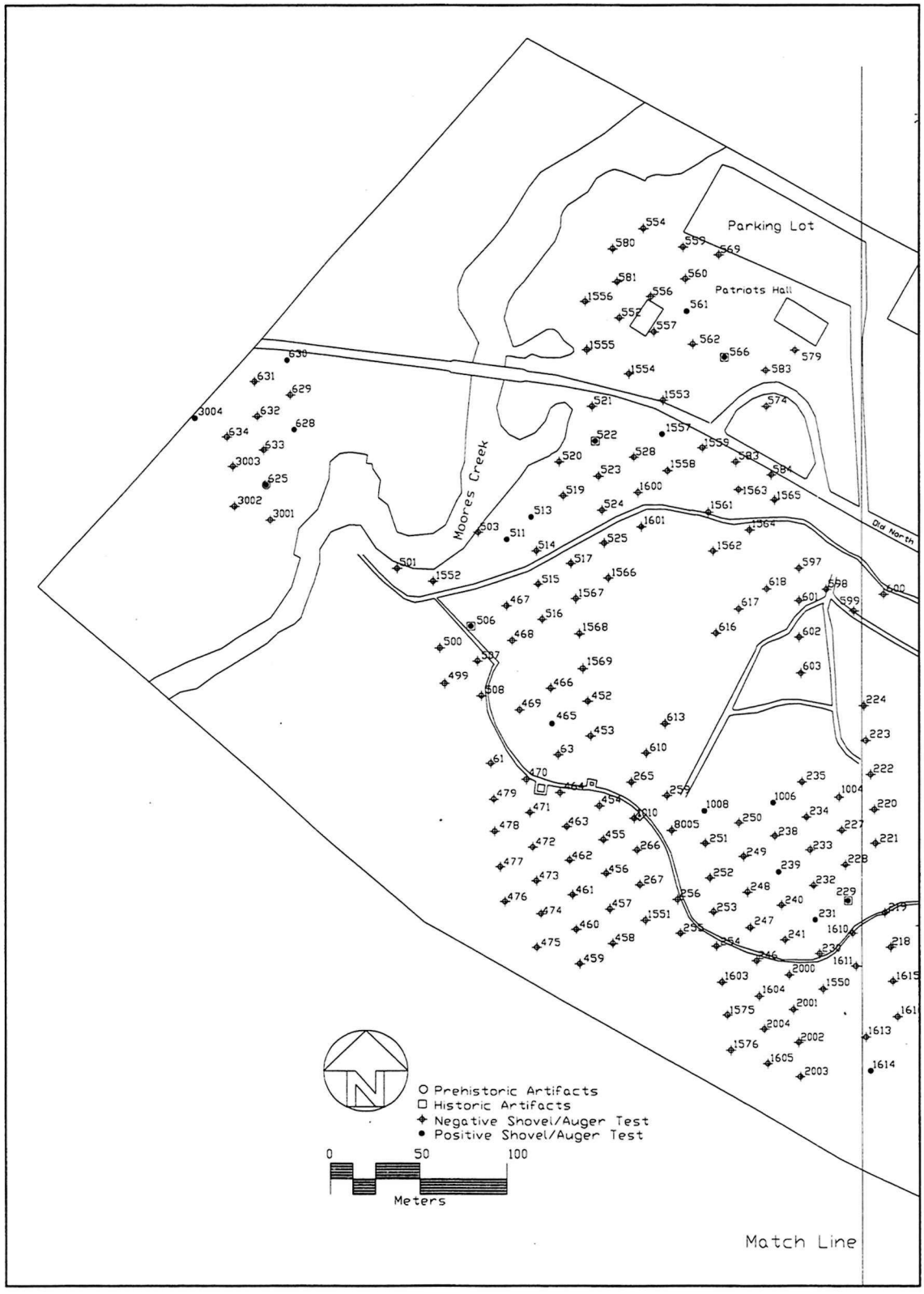

Figure 12a — West half of park showing locations of auger/shovel tests.

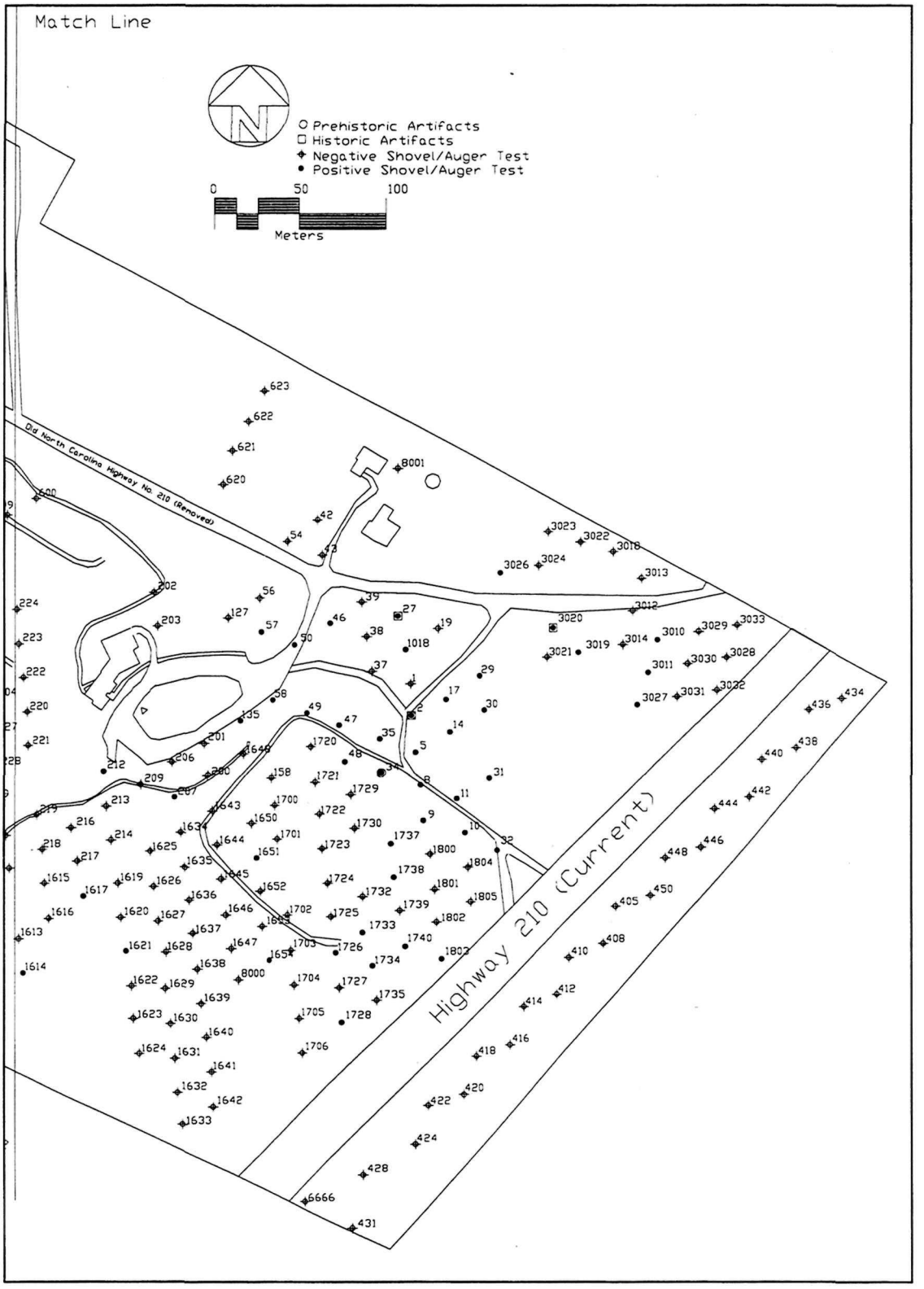

Figure 12b — East half of park showing locations of auger/shovel tests.

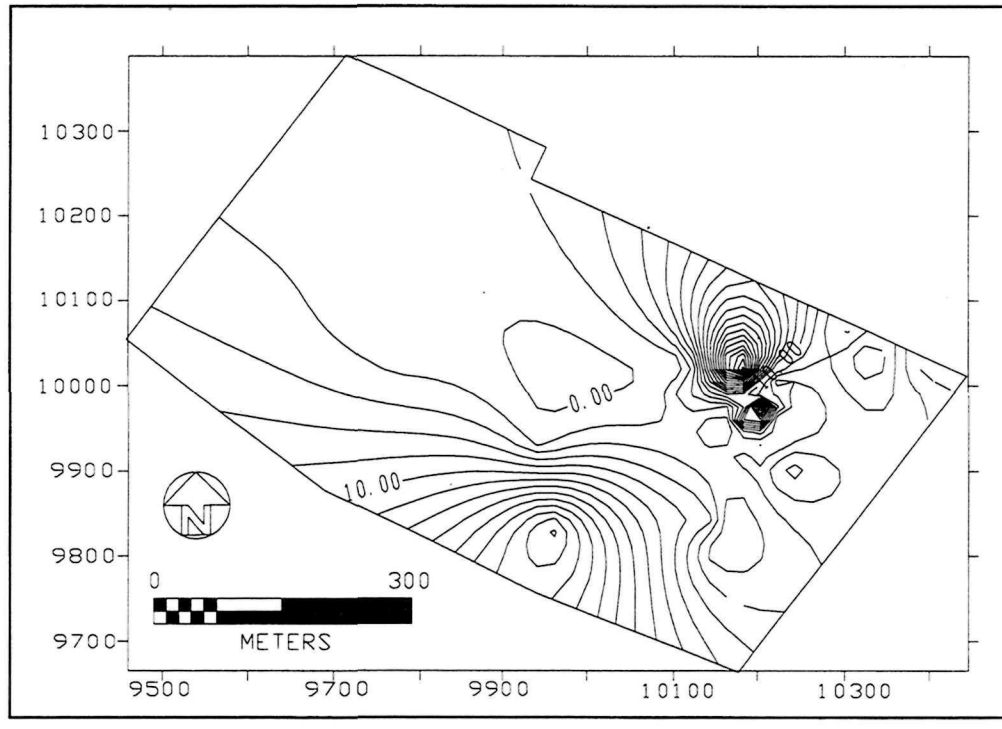

Figure 13 — Glass distribution (all colors).

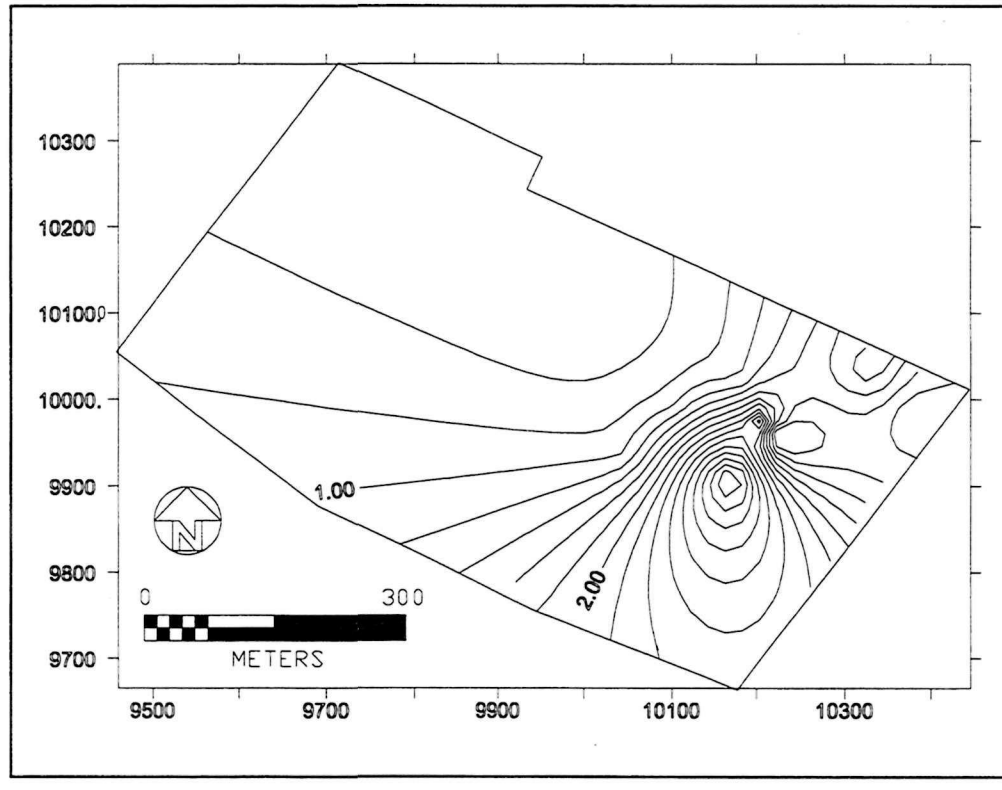

Figure 14 — Distribution of nails.

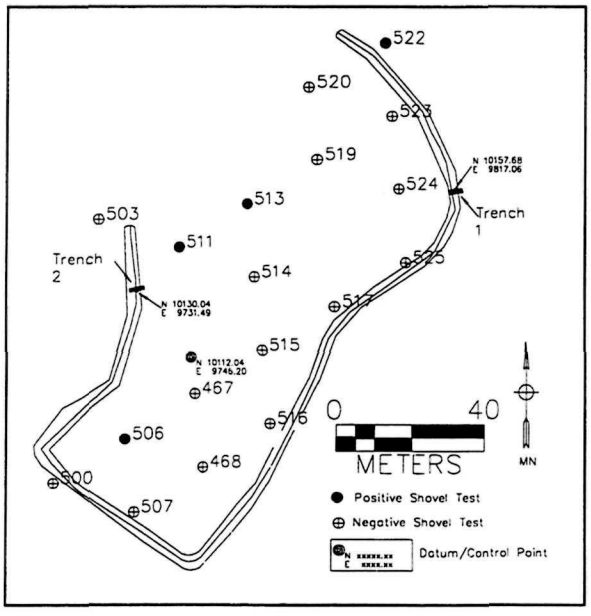

Figure 15 — Locations of Trenches 1 and 2 in the Patriot Earthworks.

(Level 1, 0–50 cmbd). This soil was not screened; however, all artifacts encountered were recovered. Once the unit was leveled, it was decided that only the western two meters would be excavated further.

Stratigraphy

Between 45 and 50 cmbd, a clay cap was encountered. Below this cap was a gray N8 sand layer attributable to King's 1937 test trench. Within this gray sand level, thirteen fragments of a light blue soda bottle glass were recovered. Based on the machine molded seam, the bottle dates from A.D. 1881 to present (Jones and Sullivan 1989). However, the regularity of the seams and the size and nature of the kickup (Figure 16) places the manufacture date closer to between A.D. 1930 and the present. The bottle was embossed with "Wil" and "N.C." (presumably for Wilmington, North Carolina).

Between 50 and 60 cmbd (Level 2), two wrought iron nails (Figure 17) and one .30-caliber lead shot were recovered (along with more light blue bottle glass) (Table 2). At the time these artifacts were recovered, the excavators did not realize that backfill from King's Trench B was being removed. It is not known, therefore, if the artifacts came from the fill side or the intact side of the unit. It is assumed that King (1937) did not screen the fill from his trench, so it is possible that artifacts could have been redeposited in the back dirt.

The wrought iron nails and lead shot fit within the date range and are of types expected for the Colonial era. Therefore, it is believed that they were probably recovered from the intact portion of the unit. The size of the shot, however, is smaller than what would be expected from military weapons of that era, which were generally greater than .50 caliber (Darling 1971; Lagemann and Manucy 1993; Neumann and Kravic 1975). Generally, militia soldiers provided their own weapons, which resulted in a wide variety of shots being used on the battle field. The .30-caliber shot is smaller than the published low end of .36 caliber for Long Rifles (Lagemann and Manucy 1993). It is conceivable that this shot came from a Long Rifle and has

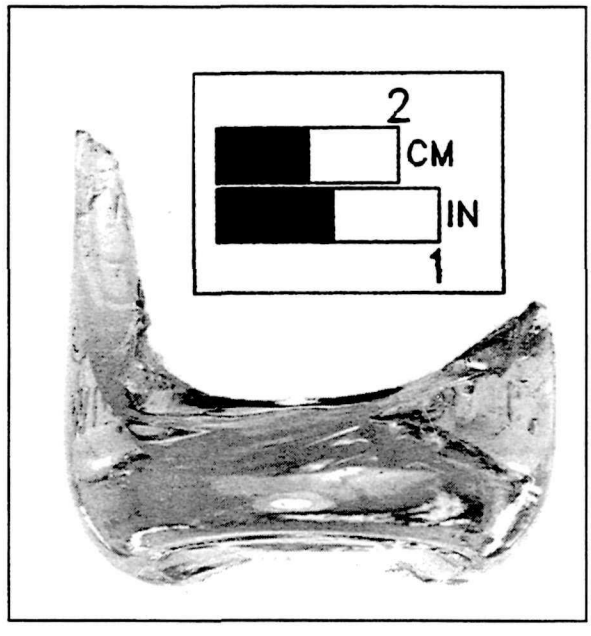

Figure 16 — Bottle base recovered from King's trench fill (Cat. No. MOCR-150).

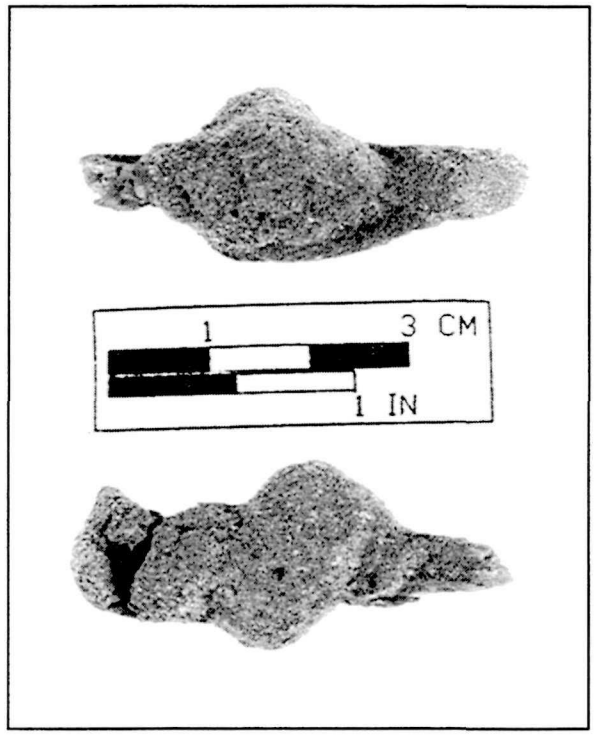

Figure 17 — Wrought nails recovered from Trench 1 (Cat. No. MOCR-155).

deteriorated to its present size, but, it is more likely that this shot was from buckshot or a buck and ball load. It was common practice for Colonial militia to fire these types of loads (Neumann and Kravic 1975).

The wrought nails should date to the eighteenth century since they quickly dropped out of common use with the invention of the cut nail in A.D. 1790 (Nelson 1968). Nelson also cautions that wrought nails may have continued to be commonly used in some areas for several decades following the invention of the cut nail.

At 85 cmbd, it became apparent to the excavators that the south side of the excavation showed the remains of King's Trench B (Figure 18). This soil was screened separately and produced more light blue bottle glass.

Below the gray sand, a band of dark, densely packed sand appeared. This band did not contain any artifacts and appears to be the swamp muck laid down by King (1937) to reconstruct the earthworks and provide the base for a grassy cover.

No artifacts were recovered from the rest of the excavation. However, at 100 cmbd, two stains became apparent, one in the northeast corner (Feature 1), and the other in the southeast corner (Feature 2).

In plan view, Feature 1 appears as a white ashy sandy soil surrounded by a dark densely packed clayey soil. In profile, this dark soil can be seen to cap the white soil (Figure 19). Feature 1 thus appears to be a large fire pit. The cap above the pit indicates that the fire was extinguished when it was covered by soil while still very hot, hot enough to bake the overlying clayey soil into a black "cap." It is possible that this was one of the fires built by the Patriots on the first cold night that they camped in the area and that it was still burning when the Patriots began to construct the earthwork on top of it.

Feature 2 appeared in plan view at the base of the unit as a dark circular stain. However, in profile, the feature could be identified as a

Table 2 — Artifacts recovered from Trench 1.

Material	Trench and Level								
	T1, L1	T1, L2	T1, L3	T1, L4	T1, L5	T1, L6	T1, L7	T1, L8	T1, L9
Glass	15	6			1				
Wrought nail		2							
.30-caliber shot		1							
TOTAL	15	9	0	0	1	0	0	0	0

Figure 18 — Trench 1 showing King's Trench B in the north and east profiles.

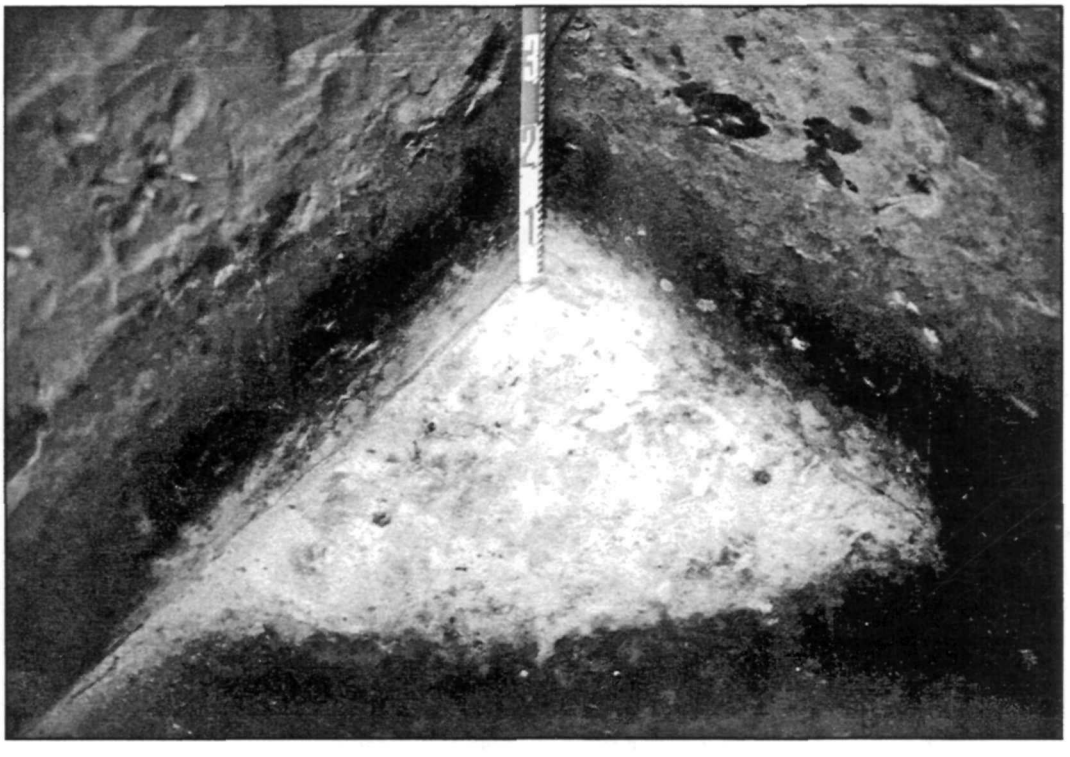

Figure 19 — Feature 1, Trench 1, interpreted as a fire pit.

saddle (rise/depression/rise) (Figure 20). This feature is contemporary with the original earthworks, with the depression being the position in which the soldiers lay facing out.

Earthwork Reconstruction

Figure 21 shows the soil profile of Trench 1. Many of the earthworks' reconstructions can be clearly seen in the profiles. Zone A and B are modern reconstructions. Zone C is the clay-capped reconstruction of the earthworks made by King in 1938 following his 1937 excavations. Zone D is King's second reconstruction. Zone E is the swamp muck reconstruction conducted by King in 1934. Large chunks of swamp muck can also be seen in the profile as well as in the back dirt of King's Trench B (Zone D). Zone F is alluvial deposits on the original earthworks surface. Zone G is the original ground surface following the original construction of the earthworks.

TRENCH 2

Trench 2 was located on the western side of the earthworks, where the earthworks intersect with Negro Head Point Road. This unit was excavated in order to determine if original segments of Negro Head Point Road were being destroyed by the undercutting of the causeway and to determine if original sections of the earthworks existed near Moores Creek.

As laid out, the four-by-one-meter unit was centered on the highest point of the earthworks. Since it was known that the earthworks were reconstructions, the soil was excavated to ground level as Level 1 (0–30 cmbd). This soil was not screened for artifacts. Once the unit was leveled, it was decided to only excavate the eastern two meters.

Stratigraphy

Two things were noted in the stratigraphic pro-

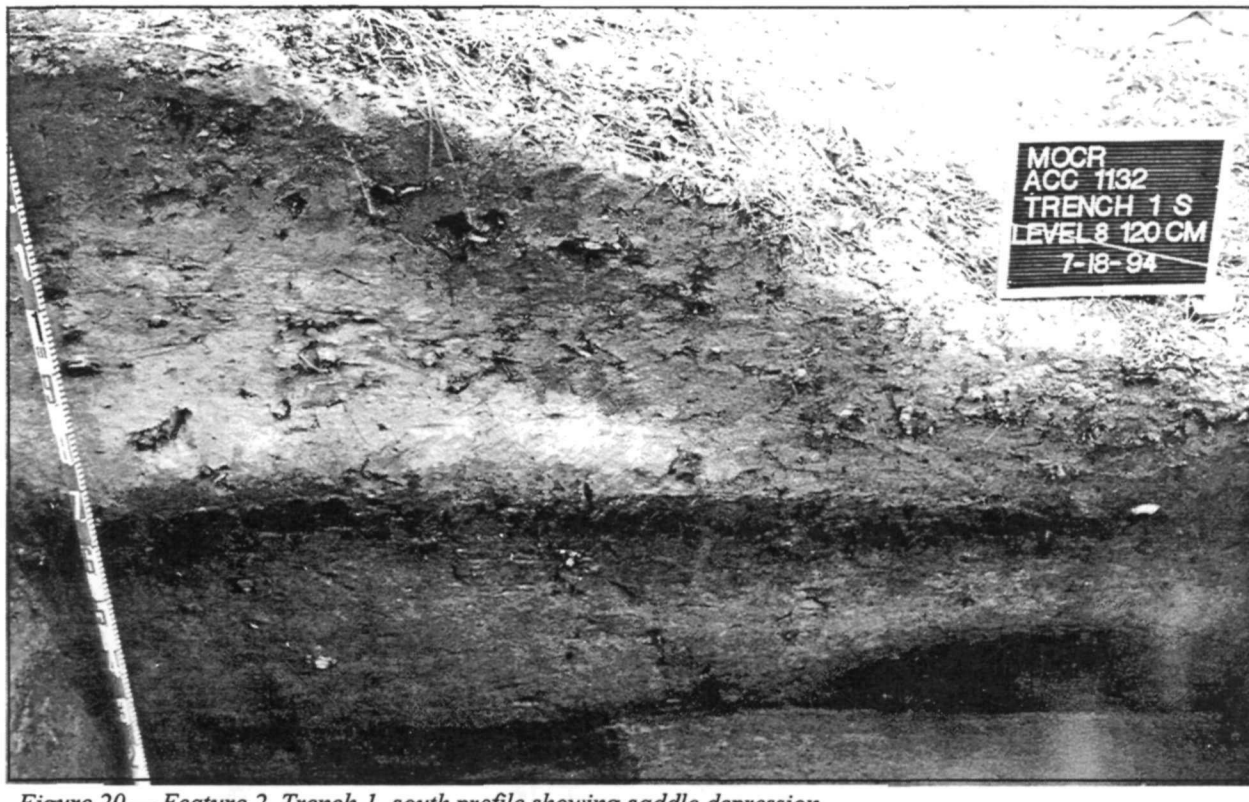

Figure 20 — Feature 2, Trench 1, south profile showing saddle depression.

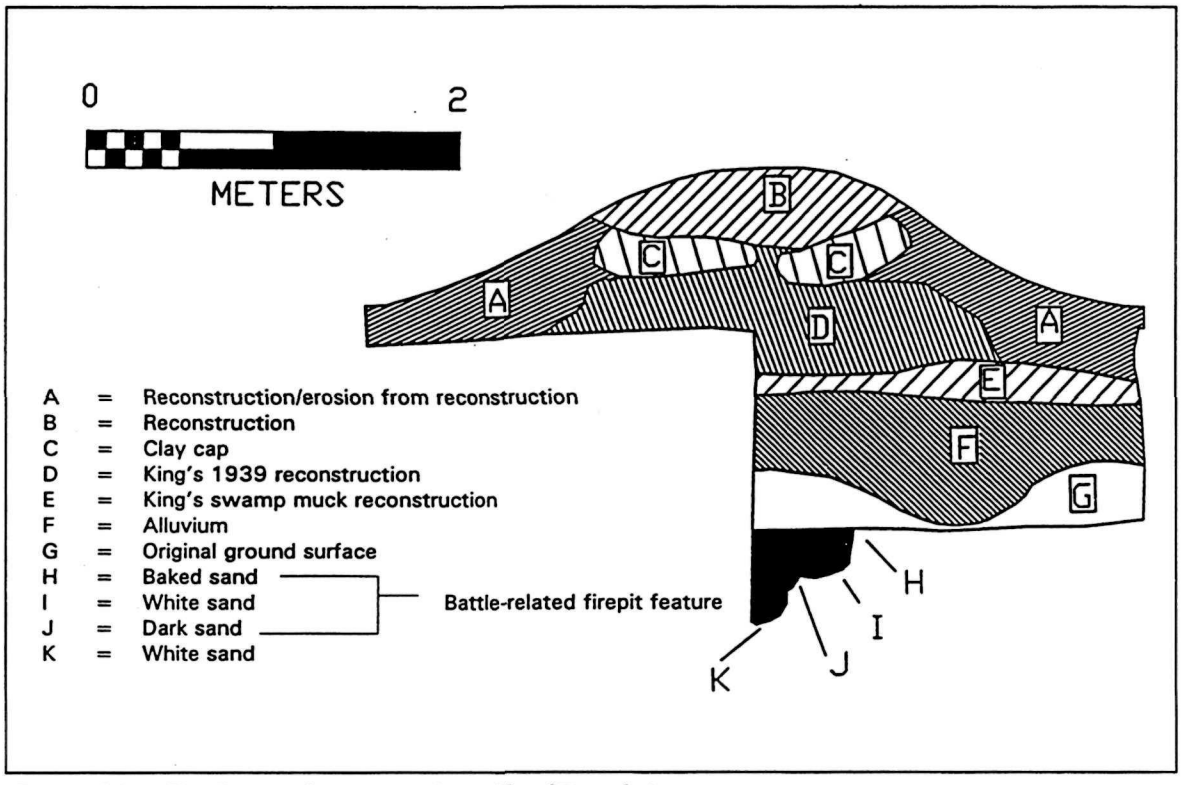

Figure 21 — Sketch map showing south profile of Trench 1.

file of Trench 2. The first is that there is no evidence of the original earthworks in the section tested (Figure 22). The south profile (earthworks side) of the unit was fairly homogenous with some striations. The striations are the result of leaching and not construction episodes. Second, there is evidence of many modern road repairs, but no evidence that intact portions of Negro Head Point Road are present. The modern road repairs are indicated by narrow bands of orange clay with lighter sand in between.

Artifacts Encountered

At 84 cmbd, the edge of a thin metal box was discovered in the southwest corner of the unit. The box was cleaned in situ and photographed (Figure 23). Due to its fragile nature, the box was not removed. Other than metal box fragments, few artifacts were recovered from Trench 2 (Table 3).

It is possible that this metal box was brought in with an early load of road fill, or it could be that the box was buried as a time capsule. Time capsules are sometimes placed beneath monuments, as was the case with the Grady Monument examined by Walker. Although no records were located to indicate there was ever a monument hereabout, it is possible an older monument was once present in this area, which overlooks the bridge near the earthworks. Or, the box could be related to the earthwork construction. Because this is the general area where the Patriot cannons were located, the artifact could have been an ammunition box. But, based on the stratigraphic evidence for the earthworks, it is highly improbable that the box dates to that time.

Trench 3

Gregory Komara conducted excavations in Tar Kiln No. 2 in 1984, obtaining two C14 dates; the

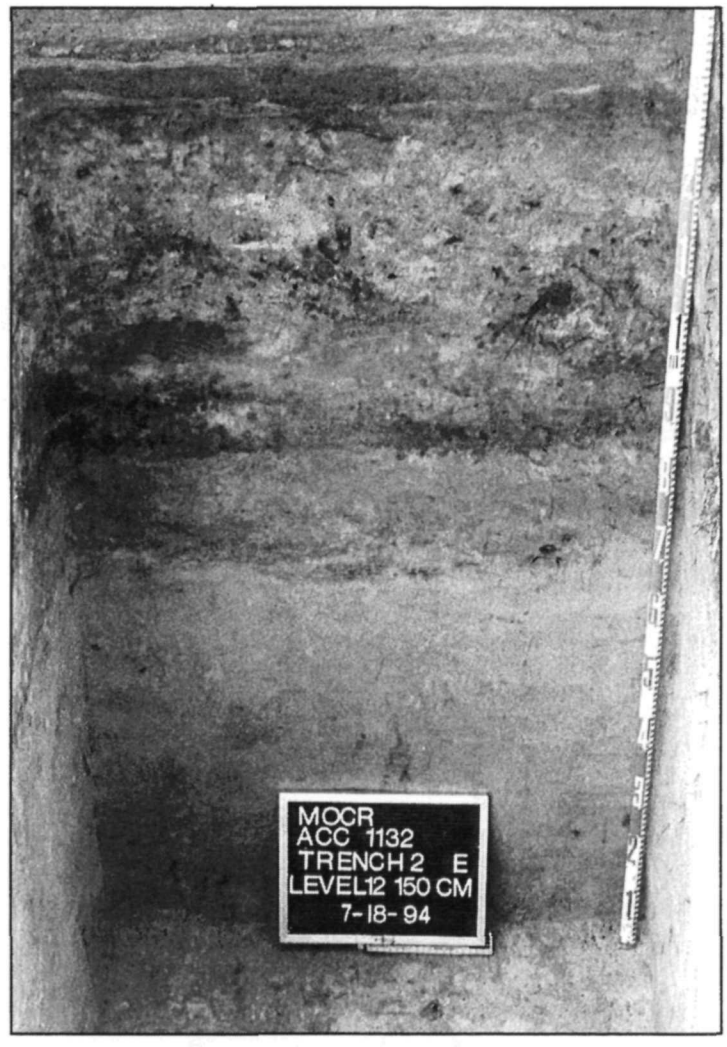

Figure 22 — Trench 2 showing modern road reconstruction.

Figure 23 — Trench 2, Level 9, showing remains of the iron box.

Table 3 — Artifacts recovered from Trench 2.

Material	Trench and Level								
	T1, L1	T1, L2	T1, L3	T1, L4	T1, L5	T1, L6	T1, L7	T1, L8	T1, L9
Aboriginal				1					
Glass					2	1			
Cut nail		2			1				
Wire nail					5	1			
TOTAL	0	2	0	1	8	2	0	0	0

first dated to less than 85 years B.P. and the second to 420 ± 50 B.P. (Komara 1985). These dates translate to A.D. 1865 and A.D. 1480–1580 respectively. Both dates seemed to be outside the expected range; therefore, it was decided to obtain a controlled sample from Tar Kiln No. 1. Toward this end, Trench 3, a one-by-one-half-meter unit, was excavated in Tar Kiln No. 1. This smaller unit was used because the primary goal of the investigation was to obtain a carbon sample while minimizing damage to the resource.

The unit was excavated in arbitrary ten-centimeter levels to a depth of 40 cmbd. All loose material was screened through quarter-inch mesh hardware cloth. There was no discernible stratigraphy in the tar kiln. The excavation fill consisted of charcoal of varying sizes. No other material was present.

A large piece of charcoal collected from the bottom of Level 4 was later packaged and shipped to Beta Analytic, Inc., of Coral Gables, Florida, for radiocarbon assay. The sample, designated Beta-75331, yielded a C14 age of 100 ± 50 B.P. (Beta Analytic 1994). This translates to between A.D. 1800 and 1900, which coincides with the anticipated dates of development of the historic tidewater naval stores industry.

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Chapter 6
SUMMARY AND RECOMMENDATIONS

INTERPRETATION

While several hundred auger and shovel tests were excavated at MOCR, very little evidence for past human activity was encountered that did not date to the most recent times. A total of six aboriginal sherds were recovered. It is known that four of these came from a disturbed context. The other two were located in an area where modern structures were once present. If any near-surface prehistoric occupations were present within the tested areas, more evidence in the form of lithic debitage and pottery should have been found, even if the area was disturbed by logging and agricultural activities.

The auger/shovel testing produced an abundance of evidence of modern human activity in the form of glass and other modern material. The only historic period artifacts recovered from the auger/shovel testing were a cut nail fragment from the area of the modern structure and one solarized glass fragment. No sites warranting additional testing were encountered as a result of the auger/shovel testing.

The auger/shovel testing produced no evidence of the pavilion or any of the structures that had been located within the earthworks. The area was highly disturbed by wiring and other construction. Block-type excavation might produce evidence of the structures in the form of footers, but they would have little historical significance.

Two test trenches were placed in the reconstructed earthworks. Trench 1 produced stratigraphic evidence of previous archeological testing, the Patriot Earthworks, and a large fire pit, as well as artifactual evidence that could date to the era of the battle. Trench 2 produced evidence of a metal box, which was left intact for future researchers.

A small trench was placed in Tar Kiln No. 1 to obtain a carbon sample. This carbon sample returned a corrected date of A.D. 1800 to 1900. This fits well within the range for tar production in this region.

RECOMMENDATIONS

This project identified intact stratigraphy and subsurface archeological features associated with the Patriot Earthworks, but only a few historical artifacts that are probably associated with the Battle of Moores Creek. Recent projects have proven that a systematic metal detector survey, using modern metal detectors, is a cost-effective and practical way to locate battle evidence. Because of advances in machine technology since the mid-1970s, metal detector surveys that predate these technological changes are now substandard in that they may not have detected the majority of metal artifacts that were present.

Doug Scott's work at Little Bighorn Battlefield National Monument (Scott and Fox 1987), as well as the recent work at Stones River National Battlefield (Cornelison 1995a), Chickamauga and Chattanooga National Military Park (Cornelison 1995b), Kennesaw Mountain National Battlefield Park (Cornelison and Leslie 1996), Guilford Courthouse National Military Park (Cornelison 1995c), and Cowpens National Battlefield (Cornelison and Hageseth 1995), has shown that a metal detector in the hands of trained volunteers is an effective and efficient tool for locating battle lines, troop positions, and even retreat routes. The archeological investigations at Cowpens and Guilford demonstrated that the volume of artifacts on a Revolutionary War battlefield is extremely small. The material

culture from the Battle of Moores Creek would probably be dozens of items rather than hundreds. The following recommendations are therefore made:

- A metal detector survey should be conducted at the earthworks and in the general battlefield area as a possible way to identify troop positions at the time of the battle.

- Additional excavations should be conducted in the Trench 1 area to gather more data regarding the nature of Feature 1. Since the stratigraphy of the earthworks are so well understood, heavy equipment could be used to remove the reconstructed earthworks.

- Testing should take place in the presumed Forward (Lillington) Earthworks. If this slight rise is indeed the first earthwork, this information would be of great value to the interpretive program of the park.

- Since Tar Kiln No. 2 was excavated by Komara (1985), it is not believed that additional excavation of this structure is warranted at this time. Additional excavations of the metal box located in Trench 2 is not warranted based on the low data potential.

SUMMARY

This project was funded as part of the Southeast Archeological Center's Regionwide Archeological Inventory Program (RASP), a regional manifestation of the Systemwide Archeological Inventory Program (SAIP). The primary purpose of the project was to survey the park, inventory the cultural resources present, and evaluate their integrity and research potential. This was primarily done by systematically testing the area with a twelve-inch auger.

A total of 331 auger/shovel tests were excavated over a sixty-nine-acre area. Of these, sixty-one were "positive," containing either aboriginal, historic, or modern cultural material. Three of the positive auger tests contained aboriginal material and seven contained historic material (Auger Test 2 contained both historic and prehistoric material). The other positive tests contained modern material. The remaining 270 tests were "negative," containing no cultural material.

An EM 38 Ground Conductivity Unit was used at several locations to test the unit's potential to detect subsurface features at MOCR. These efforts were largely unproductive as the data gathered in all but a few instances failed to indicate the presence of subsurface cultural features. One of the causes of this may have been the lack of moisture in the soils during the survey.

In addition, three hand-dug test trenches were excavated. Two units were placed in the Patriot Earthworks and one in Tar Kiln No. 1.

In Trench 1, located in and below the reconstructed Patriot Earthworks, two wrought iron nails and one piece of lead shot were recovered. These artifacts and a subsurface fire pit probably relate to the Battle of Moores Creek. Trench 2, also located in the area of the Patriot Earthworks, failed to produce evidence of the original earthworks or Negro Head Point Road, but a buried metal box was discovered here. A radiocarbon assay on charcoal obtained from Trench 3, located within Tar Kiln No. 1, produced a date of A.D. 1800–1900, which coincides with the anticipated dates of development of the historic tidewater naval stores industry.

Since the majority of the park has been systematically surveyed and found to be devoid of archeological resources in most areas, the need for future compliance-generated survey and mitigation has been largely eliminated except for those areas containing known archeological resources and the few remaining areas that have yet to be surveyed.

All material recovered or generated as a result of this project will be permanently curated at SEAC under SEAC accession number 1132 and MOCR accession number 34.

Appendix 1

MOCR 1994 ARTIFACT INVENTORY

LOT CTRL	NAME	TYPE	MAT	COLOR	CAT NO	CNT	WGT
Power Auger Test 0002							
11.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000019	6	7.35
11.00002	Vessel fragment	Aboriginal, sand	Clay		MOCR 000121	1	0.86
11.00003	Fragment	Machine wire nail	Iron		DISC 000084	1	2.31
11.00004	Fragment	Machine cut nail	Iron		MOCR 000122	1	3.94
Subtotal						**9**	**14.46**
Percent of total inventory						**2.20**	**0.34**
Power Auger Test 0005							
1.00001	Glass fragment	Container glass	Glass	Green	DISC 000001	2	6.81
1.00002	Glass fragment	Container glass	Glass	Colorless	DISC 000002	3	19.31
1.00003	Glass fragment	Container glass	Glass	Colorless	DISC 000003	14	19.84
1.00004	Bolt		Iron		MOCR 000112	1	20.87
Subtotal						**20**	**66.83**
Percent of total inventory						**4.88**	**1.57**
Power Auger Test 0008							
2.00001	Plastic fragment		Plastic		DISC 000004	2	1.60
2.00002	Glass fragment	Container glass	Glass	Colorless	DISC 000005	1	0.92
2.00003	Glass fragment	Container glass	Glass	Amber	DISC 000006	1	1.34
Subtotal						**4**	**3.86**
Percent of total inventory						**0.98**	**0.09**
Power Auger Test 0009							
3.00001	Metal fragment		Copper		MOCR 000113	1	0.43
3.00002	Glass fragment	Container glass	Glass	Green	DISC 000007	3	3.17
3.00003	Glass fragment	Container glass	Glass	Colorless	DISC 000008	2	4.39
3.00004	Doll		Plastic		MOCR 000114	1	1.32
Subtotal						**7**	**9.31**
Percent of total inventory						**1.71**	**0.22**
Power Auger Test 0010							
4.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000009	3	3.53
4.00002	Metal fragment		Iron		MOCR 000115	6	1.30
Subtotal						**9**	**4.83**
Percent of total inventory						**2.20**	**0.11**
Power Auger Test 0011							
5.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000010	1	0.82
5.00002	Metal fragment		Iron		MOCR 000116	1	0.45
Subtotal						**2**	**1.27**
Percent of total inventory						**0.49**	**0.03**

LOT CTRL	NAME	TYPE	MAT	COLOR	CAT NO	CNT	WGT
Power Auger Test 0014							
6.00001	Glass fragment	Container glass	Glass	Amber	DISC 000011	4	3.98
6.00002	Glass fragment	Container glass	Glass	Colorless	DISC 000012	23	39.69
6.00003	Glass fragment	Container glass	Glass	Green	DISC 000013	1	4.63
6.00004	Glass fragment	Container glass	Glass	White	DISC 000014	1	5.82
6.00005	Fragment	Machine wire nail	Iron		MOCR 000117	3	8.05
6.00006	Glass fragment	Container glass	Glass	Blue	DISC 000015	1	18.10
6.00007	Brick		Clay		MOCR 000118	1	2.93
Subtotal						**34**	**83.20**
Percent of total inventory						**8.29**	**1.96**
Power Auger Test 0017							
7.00001	Glass fragment	Container glass	Glass	Amber	DISC 000016	2	1.75
7.00002	Glass fragment	Container glass	Glass	Colorless	DISC 000017	2	2.60
Subtotal						**4**	**4.35**
Percent of total inventory						**0.98**	**0.10**
Power Auger Test 0027							
13.00001	Vessel fragment	Earthenware, refined	Clay		MOCR 000124	1	8.10
Subtotal						**1**	**8.10**
Percent of total inventory						**0.24**	**0.19**
Power Auger Test 0029							
14.00001	Vessel fragment	Container glass	Glass	Colorless	DISC 000022	25	125.62
14.00002	Glass fragment	Container glass	Glass	Amber	DISC 000023	2	3.68
14.00003	Glass fragment	Container glass	Glass	Blue	DISC 000024	1	0.31
14.00004	Fragment		Carbonates		MOCR 000125	1	33.23
Subtotal						**29**	**162.84**
Percent of total inventory						**7.07**	**3.83**
Power Auger Test 0030							
12.00001	Glass fragment	Container glass	Glass	Amber	DISC 000020	1	0.52
12.00002	Glass fragment	Container glass	Glass	Colorless	DISC 000021	1	1.20
12.00003	Fragment	Machine wire nail	Iron		MOCR 000123	1	3.40
Subtotal						**3**	**5.12**
Percent of total inventory						**0.73**	**0.12**
Power Auger Test 0031							
8.00001	Fragment	Machine wire nail	Iron		MOCR 000119	1	1.26
Subtotal						**1**	**1.26**
Percent of total inventory						**0.24**	**0.03**
Power Auger Test 0032							
9.00001	Glass fragment	Container Glass	Glass	Colorless	DISC 000018	10	61.86
Subtotal						**10**	**61.86**
Percent of total inventory						**2.44**	**1.46**

LOT CTRL	NAME	TYPE	MAT	COLOR	CAT NO	CNT	WGT
Power Auger Test 0034							
15.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000025	1	0.76
15.00002	Vessel fragment	Aboriginal, sand	Clay		MOCR 000126	1	0.75
Subtotal						**2**	**1.51**
Percent of total inventory						**0.49**	**0.04**
Power Auger Test 0035							
16.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000026	1	6.25
Subtotal						**1**	**6.25**
Percent of total inventory						**0.24**	**0.15**
Power Auger Test 0047							
17.00001	Fragment		Iron		MOCR 000127	1	24.80
Subtotal						**1**	**24.80**
Percent of total inventory						**0.24**	**0.58**
Power Auger Test 0048							
18.00001	Padlock		Metal		MOCR 000128	1	158.28
Subtotal						**1**	**158.28**
Percent of total inventory						**0.24**	**3.73**
Power Auger Test 0049							
19.00001	Indicator		Aluminum		MOCR 000129	1	10.41
19.00002	Glass fragment	Container glass	Glass	Colorless	DISC 000027	2	0.70
19.00003	Glass fragment	Container glass	Glass	Amber	DISC 000028	2	1.80
19.00004	Glass fragment	Container glass	Glass	Green	DISC 000029	2	2.48
19.00005	Bolt		Iron		MOCR 000130	1	21.19
19.00006	Metal fragment		Iron		MOCR 000131	4	24.68
Subtotal						**12**	**61.26**
Percent of total inventory						**2.93**	**1.44**
Power Auger Test 0050							
23.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000035	1	0.46
Subtotal						**1**	**0.46**
Percent of total inventory						**0.24**	**0.01**
Power Auger Test 0057							
24.00001	Glass fragment	Container glass	Glass	Green	DISC 000036	1	7.45
Subtotal						**1**	**7.45**
Percent of total inventory						**0.24**	**0.18**
Power Auger Test 0058							
20.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000030	2	2.57
20.00002	Glass fragment	Container glass	Glass	Amber	DISC 000031	2	0.74
20.00003	Fragment	Machine wire nail	Iron		MOCR 000132	1	9.34
Subtotal						**5**	**12.65**
Percent of total inventory						**1.22**	**0.30**

LOT CTRL	NAME	TYPE	MAT	COLOR	CAT NO	CNT	WGT
Power Auger Test 0135							
21.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000032	1	3.48
Subtotal						**1**	**3.48**
Percent of total inventory						**0.24**	**0.08**
Power Auger Test 0207							
10.00001	Fragment	Machine wire nail	Iron	Colorless	MOCR 000120	1	0.60
Subtotal						**1**	**0.60**
Percent of total inventory						**0.24**	**0.01**
Power Auger Test 0212							
25.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000037	2	2.60
Subtotal						**2**	**2.60**
Percent of total inventory						**0.49**	**0.06**
Power Auger Test 0229							
26.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000038	1	0.33
26.00002	Vessel fragment	Stoneware	Clay		MOCR 000134	1	7.83
26.00003	Bone		Faunal remains		MOCR 000135	1	0.87
Subtotal						**3**	**9.03**
Percent of total inventory						**0.73**	**0.21**
Power Auger Test 0231							
27.00001	Concretion		Calcareous sandstone		DISC 000039	1	9.37
Subtotal						**1**	**9.37**
Percent of total inventory						**0.24**	**0.22**
Power Auger Test 0239							
28.00001	Stone, pebble				DISC 000040	2	14.89
Subtotal						**2**	**14.89**
Percent of total inventory						**0.49**	**0.35**
Power Auger Test 0465							
31.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000043	1	0.32
Subtotal						**1**	**0.32**
Percent of total inventory						**0.24**	**0.01**
Power Auger Test 0506							
32.00001	Glass fragment	Indef. Glass	Glass	Solarized	MOCR 000182	1	0.60
32.00002	Fragment		Clay		MOCR 000136	1	1.60
Subtotal						**2**	**2.20**
Percent of total inventory						**0.49**	**0.05**
Power Auger Test 0511							
33.00001	Brick		Clay		DISC 000044	1	1.22
Subtotal						**1**	**1.22**
Percent of total inventory						**0.24**	**0.03**

LOT CTRL	NAME	TYPE	MAT	COLOR	CAT NO	CNT	WGT
Power Auger Test 0513							
34.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000045	2	2.13
Subtotal						**2**	**2.13**
Percent of total inventory						**0.49**	**0.05**
Power Auger Test 0522							
35.00001	Vessel fragment	Earthenware, refined	Clay		MOCR 000137	1	1.96
Subtotal						**1**	**1.96**
Percent of total inventory						**0.24**	**0.05**
Power Auger Test 0561							
37.00001	Vessel fragment	Container glass	Glass	Colorless	DISC 000046	2	3.40
Subtotal						**2**	**3.40**
Percent of total inventory						**0.49**	**0.08**
Power Auger Test 0566							
38.00001	Vessel fragment	Earthenware, refined	Clay		MOCR 000140	1	1.39
38.00002	Vessel fragment	Porcelain	Kaolinite clay		MOCR 000141	1	0.38
Subtotal						**2**	**1.77**
Percent of total inventory						**0.49**	**0.04**
Power Auger Test 1006							
29.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000041	1	0.15
Subtotal						**1**	**0.15**
Percent of total inventory						**0.24**	**0.00**
Power Auger Test 1008							
30.00001	Brick		Clay		DISC 000042	1	3.43
Subtotal						**1**	**3.43**
Percent of total inventory						**0.24**	**0.08**
Power Auger Test 1018							
22.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000033	42	82.73
22.00002	Glass fragment	Container glass	Glass	Amber	DISC 000034	5	14.66
22.00003	Nail	Machine wire nail	Iron		MOCR 000133	1	5.34
Subtotal						**48**	**102.73**
Percent of total inventory						**11.71**	**2.42**
Shovel Test 0625							
40.00001	Vessel fragment	Aboriginal, sand and quartz	Clay		MOCR 000142	4	11.50
Subtotal						**4**	**11.50**
Percent of total inventory						**0.98**	**0.27**
Shovel Test 0628							
41.00001	Spike	Machine wire nail	Iron		MOCR 000143	1	34.46
Subtotal						**1**	**34.46**
Percent of total inventory						**0.24**	**0.81**

LOT CTRL	NAME	TYPE	MAT	COLOR	CAT NO	CNT	WGT
Shovel Test 0630							
42.00001	Glass fragment	Container glass	Glass	Green	DISC 000049	1	15.85
42.00002	Asphalt fragment		Asphalt		DISC 000048	2	41.68
Subtotal						**3**	**57.53**
Percent of total inventory						**0.73**	**1.35**
Shovel Test 1557							
39.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000047	1	2.11
Subtotal						**1**	**2.11**
Percent of total inventory						**0.24**	**0.05**
Shovel Test 1614							
43.00001	Glass fragment	Container glass	Glass	Green	DISC 000050	2	17.93
43.00002	Glass fragment	Container glass	Glass	Blue	DISC 000051	1	0.46
43.00003	Glass fragment	Container glass	Glass	Amber	DISC 000052	5	8.74
43.00004	Glass fragment	Container glass	Glass	Colorless	DISC 000053	19	43.55
Subtotal						**27**	**70.68**
Percent of total inventory						**6.59**	**1.66**
Shovel Test 1617							
44.00001	Letter		Metal		DISC 000085	1	8.57
Subtotal						**1**	**8.57**
Percent of total inventory						**0.24**	**0.20**
Shovel Test 1651							
46.00001	Food, bone		Faunal remains		MOCR 000145	10	18.57
46.00002	Metal fragment		Iron		MOCR 000146	2	2.49
46.00003	Spring, spiral		Iron		MOCR 000147	1	2.44
Subtotal						**13**	**23.50**
Percent of total inventory						**3.17**	**0.55**
Shovel Test 1654							
47.00001	Glass fragment	Indef. Glass	Glass	Colorless	MOCR 000148	1	10.17
Subtotal						**1**	**10.17**
Percent of total inventory						**0.24**	**0.24**
Shovel Test 1726							
48.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000055	6	3.86
48.00002	Glass fragment	Container glass	Glass	Green	DISC 000056	2	1.02
Subtotal						**8**	**4.88**
Percent of total inventory						**1.95**	**0.12**
Shovel Test 1728							
49.00001	Glass fragment	Indef. Glass	Glass	Colorless	MOCR 000149	1	8.19
Subtotal						**1**	**8.19**
Percent of total inventory						**0.24**	**0.19**

LOT CTRL	NAME	TYPE	MAT	COLOR	CAT NO	CNT	WGT
Shovel Test 1733							
52.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000059	2	11.66
Subtotal						**2**	**11.66**
Percent of total inventory						**0.49**	**0.27**
Shovel Test 1734							
53.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000060	1	2.43
Subtotal						**1**	**2.43**
Percent of total inventory						**0.24**	**0.06**
Shovel Test 1737							
54.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000061	4	6.66
54.00002	Glass fragment	Container glass	Glass	Green	DISC 000062	1	2.24
54.00003	Fragment	Machine wire nail	Iron		MOCR 000151	4	10.97
Subtotal						**9**	**19.87**
Percent of total inventory						**2.20**	**0.47**
Shovel Test 1738							
55.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000063	2	15.85
55.00002	Asphalt fragment		Asphalt		DISC 000064	2	10.06
Subtotal						**4**	**25.91**
Percent of total inventory						**0.98**	**0.61**
Shovel Test 1740							
56.00001	Glass fragment	Container glass	Glass	Colorless	MOCR 000152	1	0.79
56.00002	Spring, spiral		Iron		MOCR 000153	1	3.21
Subtotal						**2**	**4.00**
Percent of total inventory						**0.49**	**0.09**
Shovel Test 1803							
58.00001	Plunger		Iron		MOCR 000154	1	356.00
58.00002	Glass fragment	Container glass	Glass	Colorless	DISC 000065	2	28.74
Subtotal						**3**	**384.74**
Percent of total inventory						**0.73**	**9.06**
Shovel Test 3004							
45.00001	Charcoal	Sample	Wood		DISC 000054	0	10.15
Subtotal						**0**	**10.15**
Percent of total inventory						**0.00**	**0.24**
Shovel Test 3010							
74.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000074	1	9.35
74.00002	Hairpin		Metal		MOCR 000173	1	2.03
Subtotal						**2**	**11.38**
Percent of total inventory						**0.49**	**0.27**

LOT CTRL	NAME	TYPE	MAT	COLOR	CAT NO	CNT	WGT
Shovel Test 3011							
75.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000075	3	1.95
75.00002	Metal fragment		Iron		MOCR 000174	2	1.75
75.00003	Spike		Iron		MOCR 000175	1	63.59
Subtotal						**6**	**67.29**
Percent of total inventory						**1.46**	**1.58**
Shovel Test 3019							
76.00001	Metal fragment		Iron		MOCR 000176	6	7.03
76.00002	Plastic fragment		Plastic		DISC 000076	1	1.87
76.00003	Date, charcoal	Sample	Wood		MOCR 000144	0	0.00
Subtotal						**7**	**8.90**
Percent of total inventory						**1.71**	**0.21**
Shovel Test 3020							
77.00001	Nail	Machine cut nail	Iron		MOCR 000177	1	7.41
77.00002	Stone, worked		Slate		MOCR 000178	1	1.01
77.00003	Glass fragment	Flat glass	Glass	Colorless	DISC 000078	2	2.71
77.00004	Glass fragment	Container glass	Glass	Green	DISC 000079	9	10.96
77.00005	Nail	Machine cut nail	Iron		MOCR 000179	1	2.84
Subtotal						**14**	**24.93**
Percent of total inventory						**3.42**	**0.59**
Shovel Test 3026							
78.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000080	2	0.93
78.00002	Glass fragment	Container glass	Glass	Amber	DISC 000081	1	0.65
73.00003	Plastic fragment		Plastic		DISC 000082	1	1.28
Subtotal						**4**	**2.86**
Percent of total inventory						**0.98**	**0.07**
Shovel Test 3027							
79.00001	Fragment	Machine wire nail	Iron		MOCR 000180	1	3.01
79.00002	Metal fragment		Iron		MOCR 000181	1	0.89
79.00003	Glass fragment	Container glass	Glass	Colorless	DISC 000083	5	7.39
Subtotal						**7**	**11.29**
Percent of total inventory						**1.71**	**0.27**
Surface Collection							
36.00001	Vessel fragment	Earthenware, refined	Clay		MOCR 000138	1	2.23
36.00002	Vessel fragment	Earthenware, refined	Clay		MOCR 000139	2	5.58
72.00001	Spike		Iron		MOCR 000172	1	111.18
Subtotal						**4**	**118.99**
Percent of total inventory						**0.98**	**2.80**

LOT CTRL	NAME	TYPE	MAT	COLOR	CAT NO	CNT	WGT
Trench 1							
50.00001	Bottle	Container glass	Glass	Blue-green	MOCR 000150	13	149.31
51.00001	Glass fragment	Container glass	Glass	Colorless	DISC 000057	1	2.74
51.00002	Glass fragment	Container glass	Glass	White	DISC 000058	1	2.08
59.00001	Nail	Hand wrought nail	Iron		MOCR 000155	2	18.80
59.00002	Glass fragment	Container glass	Glass	Green	DISC 000066	5	21.77
59.00003	Glass fragment	Container glass	Glass	Colorless	DISC 000067	1	2.83
59.00004	Shot		Lead		MOCR 000156	1	2.22
60.00001	Glass fragment	Container glass	Glass	Green	DISC 000068	1	0.94
61.00001	Charcoal	Sample	Floral remains		DISC 000069	0	0.78
71.00001	Fragment	Sample	Wood		MOCR 000171	0	0.21
73.00001	Glass fragment	Container glass	Glass	Green	DISC 000073	1	6.39
Subtotal						**26**	**208.07**
Percent of total inventory						**6.34**	**4.90**
Trench 2							
62.00001	Nail	Machine cut nail	Iron		MOCR 000157	3	2.78
63.00001	Brick		Clay		MOCR 000158	1	4.75
64.00001	Nail	Machine wire nail	Iron		MOCR 000159	5	6.13
64.00002	Metal fragment		Iron		MOCR 000160	4	21.81
64.00003	Food, plant		Floral remains		MOCR 000161	1	1.85
64.00004	Glass fragment	Container glass	Glass	Colorless	DISC 000070	2	18.74
64.00005	Nail	Machine cut nail	Iron		MOCR 000162	1	3.63
64.00006	Nail, roofing		Iron		MOCR 000163	1	2.13
64.00007	Brick		Clay		MOCR 000164	6	1,415.50
65.00001	Nail	Machine wire nail	Iron		MOCR 000165	1	1.41
65.00002	Metal fragment		Iron		MOCR 000166	2	1.25
65.00003	Glass fragment	Container glass	Glass	Solarized	MOCR 000167	1	7.41
66.00001	Metal fragment		Iron		MOCR 000168	1	118.12
67.00001	Metal fragment		Iron		MOCR 000169	1	283.52
68.00001	Metal fragment		Iron		MOCR 000170	1	356.00
Subtotal						**31**	**2,245.03**
Percent of total inventory						**7.56**	**52.84**
Trench 3							
69.00001	Charcoal	Sample	Wood		DISC 000071	0	0.20
70.00001	Charcoal	Sample	Wood		DISC 000072	0	0.25
Subtotal						**0**	**0.45**
Percent of total inventory						**0.00**	**0.01**
Grand Total						**410**	**4,248.77**

Appendix 2

GLASS RECOVERED DURING AUGER/SHOVEL TESTING

CATALOG #	TYPE	MANUFACTURE	COLOR	CNT	WGT	PROVENIENCE
DISC 000019	Container, fragment	Mold, machine	Colorless	6	7.35	PAT0002
DISC 000001	Container, fragment	Mold, machine	Green	2	6.81	PAT0005
DISC 000002	Container, fragment	Mold, machine	Colorless	3	19.31	PAT0005
DISC 000003	Container, fragment	Mold, machine	Colorless	14	19.84	PAT0005
DISC 000005	Container, fragment	Mold, machine	Colorless	1	0.92	PAT0008
DISC 000006	Container, fragment	Mold, machine	Amber	1	1.34	PAT0008
DISC 000007	Container, fragment	Mold, machine	Green	3	3.17	PAT0009
DISC 000008	Container, fragment	Mold, machine	Colorless	2	4.39	PAT0009
DISC 000009	Container, fragment	Mold, machine	Colorless	3	3.53	PAT0010
DISC 000010	Container, fragment	Mold, machine	Colorless	1	0.82	PAT0011
DISC 000011	Container, fragment	Mold, machine	Amber	4	3.98	PAT0014
DISC 000012	Container, fragment	Mold, machine	Colorless	23	39.69	PAT0014
DISC 000013	Container, fragment	Mold, machine	Green	1	4.63	PAT0014
DISC 000014	Container, fragment	Mold, machine	White	1	5.82	PAT0014
DISC 000015	Container, fragment	Mold, machine	Blue	1	18.10	PAT0014
DISC 000016	Container, fragment	Mold, machine	Amber	2	1.75	PAT0017
DISC 000017	Container, fragment	Mold, machine	Colorless	2	2.60	PAT0017
DISC 000022	Container, fragment	Mold, machine	Colorless	25	125.62	PAT0029
DISC 000023	Container, fragment	Mold, machine	Amber	2	3.68	PAT0029
DISC 000024	Container, fragment	Mold, machine	Blue	1	0.31	PAT0029
DISC 000020	Container, fragment	Mold, machine	Amber	1	0.52	PAT0030
DISC 000021	Container, fragment	Mold, machine	Colorless	1	1.20	PAT0030
DISC 000018	Container, fragment	Mold, machine	Colorless	10	61.86	PAT0032
DISC 000025	Container, fragment	Mold, machine	Colorless	1	0.76	PAT0034
DISC 000026	Container, fragment	Mold, machine	Colorless	1	6.25	PAT0035
DISC 000027	Container, fragment	Mold, machine	Colorless	2	0.70	PAT0049
DISC 000028	Container, fragment	Mold, machine	Amber	2	1.80	PAT0049
DISC 000029	Container, fragment	Mold, machine	Green	2	2.48	PAT0049
DISC 000035	Container, fragment	Mold, machine	Colorless	1	0.46	PAT0050
DISC 000036	Container, fragment	Mold, machine	Green	1	7.45	PAT0057
DISC 000030	Container, fragment	Mold, machine	Colorless	2	2.57	PAT0058
DISC 000031	Container, fragment	Mold, machine	Amber	2	0.74	PAT0058
DISC 000032	Container, fragment	Mold, machine	Colorless	1	3.48	PAT0135
DISC 000037	Container, fragment	Mold, machine	Colorless	2	2.60	PAT0212

CATALOG #	TYPE	MANUFACTURE	COLOR	CNT	WGT	PROVENIENCE
DISC 000038	Container, fragment	Mold, machine	Colorless	1	0.33	PAT0229
DISC 000043	Container, fragment	Mold, machine	Colorless	1	0.32	PAT0465
MOCR 000182	Indeterminate	Mold, machine	Solarized	1	0.60	PAT0506
DISC 000045	Container, fragment	Mold, machine	Colorless	2	2.13	PAT0513
DISC 000046	Container, fragment	Mold, machine	Colorless	2	3.40	PAT0561
DISC 000041	Container, fragment	Mold, machine	Colorless	1	0.15	PAT1006
DISC 000033	Container, fragment	Mold, machine	Colorless	42	82.73	PAT1018
DISC 000034	Container, fragment	Mold, machine	Amber	5	14.66	PAT1018
DISC 000049	Container, fragment	Mold, machine	Green	1	15.85	ST0630
DISC 000047	Container, fragment	Mold, machine	Colorless	1	2.11	ST1557
DISC 000050	Container, fragment	Mold, machine	Green	2	17.93	ST1614
DISC 000051	Container, fragment	Mold, machine	Blue	1	0.46	ST1614
DISC 000052	Container, fragment	Mold, machine	Amber	5	8.74	ST1614
DISC 000053	Container, fragment	Mold, machine	Colorless	19	43.55	ST1614
MOCR 000148	Indeterminate	Mold blown, machine	Colorless	1	10.17	ST1654
DISC 000055	Container, fragment	Mold, machine	Colorless	6	3.86	ST1726
DISC 000056	Container, fragment	Mold, machine	Green	2	1.02	ST1726
MOCR 000149	Indeterminate	Mold, machine	Colorless	1	8.19	ST1728
DISC 000059	Container, fragment	Mold, machine	Colorless	2	11.66	ST1733
DISC 000060	Container, fragment	Mold, machine	Colorless	1	2.43	ST1734
DISC 000061	Container, fragment	Mold, machine	Colorless	4	6.66	ST1737
DISC 000062	Container, fragment	Mold, machine	Green	1	2.24	ST1737
DISC 000063	Container, fragment	Mold, machine	Colorless	2	15.85	ST1738
MOCR 000152	Container, fragment	Mold, machine	Colorless	1	0.79	ST1740
DISC 000065	Container, fragment	Mold, machine	Colorless	2	28.74	ST1803
DISC 000074	Container, fragment	Mold, machine	Colorless	1	9.35	ST3010
DISC 000075	Container, fragment	Mold, machine	Colorless	3	1.95	ST3011
DISC 000078	Flat	Flat, plate	Colorless	2	2.71	ST3020
DISC 000079	Container, fragment	Mold, machine	Green	9	10.96	ST3020
DISC 000080	Container, fragment	Mold, machine	Colorless	2	0.93	ST3026
DISC 000081	Container, fragment	Mold, machine	Amber	1	0.65	ST3026
DISC 000083	Container, fragment	Mold, machine	Colorless	5	7.39	ST3027

Appendix 3

AUGER AND SHOVEL TEST COORDINATES, TYPES, AND DEPTHS

FS NO	TEST NO	GRID EASTING	GRID NORTHING	TEST TYPE	DEPTH (CMBS)
	1	10194.1	10015.4	Power Auger	90
11	2	10154.3	9997.0	Power Auger	90
1	5	10156.7	9975.6	Power Auger	77
2	8	10159.8	9956.8	Power Auger	80
3	9	10161.4	9936.3	Power Auger	77
4	10	10185.0	9929.2	Power Auger	70
5	11	10180.3	9948.9	Power Auger	77
6	14	10176.3	9987.4	Power Auger	80
7	17	10174.0	10006.3	Power Auger	95
	19	10169.9	10047.6	Power Auger	95
13	27	10147.0	10054.8	Power Auger	80
14	29	10193.4	10020.1	Power Auger	80
12	30	10196.0	10000.2	Power Auger	80
8	31	10199.2	9960.7	Power Auger	70
9	32	10203.8	9919.0	Power Auger	80
15	34	10137.8	9963.8	Power Auger	85
16	35	10137.0	9983.4	Power Auger	74
	37	10132.6	10022.9	Power Auger	91
	38	10130.3	10042.9	Power Auger	80
	39	10127.0	10063.0	Power Auger	75
	42	10101.7	10110.7	Power Auger	65
	43	10107.1	10091.8	Power Auger	88
	46	10109.2	10050.6	Power Auger	82
17	47	10114.2	9991.4	Power Auger	85
18	48	10117.3	9970.1	Power Auger	91
19	49	10095.3	9998.5	Power Auger	85
23	50	10087.8	10038.1	Power Auger	60
	54	10083.5	10098.1	Power Auger	80
	56	10066.7	10065.4	Power Auger	85
24	57	10067.6	10045.7	Power Auger	73
20	58	10074.5	10006.1	Power Auger	83
	61	9709.9	10025.7	Power Auger	80

FS NO	TEST NO	GRID EASTING	GRID NORTHING	TEST TYPE	DEPTH (CMBS)
	63	9749.7	10030.6	Power Auger	70
	127	10048.7	10053.7	Power Auger	60
21	135	10055.2	9994.0	Power Auger	95
	158	10073.7	9961.0	Power Auger	90
	200	10036.9	9962.4	Power Auger	88
	201	10034.7	9980.8	Power Auger	80
	202	10006.2	10068.6	Power Auger	45
	203	10008.2	10049.0	Power Auger	79
	206	10016.3	9969.9	Power Auger	80
10	207	10018.1	9949.7	Power Auger	70
	209	9998.2	9956.1	Power Auger	71
25	212	9977.2	9964.6	Power Auger	65
	213	9978.9	9944.5	Power Auger	42
	214	9981.6	9925.0	Power Auger	80
	216	9959.4	9932.0	Power Auger	85
	217	9963.8	9912.2	Power Auger	65
	218	9942.5	9919.6	Power Auger	86
	219	9939.3	9940.8	Power Auger	48
	220	9933.3	9999.2	Power Auger	77
	221	9933.9	9979.7	Power Auger	77
	222	9931.2	10019.2	Power Auger	70
	223	9928.5	10038.7	Power Auger	72
	224	9927.4	10058.8	Power Auger	82
	227	9914.4	9987.3	Power Auger	80
	228	9916.5	9967.2	Power Auger	66
26	229	9918.1	9946.5	Power Auger	70
	230	9901.2	9915.8	Power Auger	91
27	231	9898.5	9935.5	Power Auger	72
	232	9897.5	9955.3	Power Auger	81
	233	9895.4	9975.9	Power Auger	83
	234	9893.2	9994.9	Power Auger	72
	235	9890.5	10014.9	Power Auger	86
	238	9875.1	9983.3	Power Auger	90
28	239	9876.4	9963.1	Power Auger	88
	240	9879.0	9943.6	Power Auger	90
	241	9980.2	9923.9	Power Auger	69
	246	9863.0	9911.6	Power Auger	58
	247	9859.6	9930.9	Power Auger	82
	248	9858.5	9951.4	Power Auger	80
	249	9855.8	9972.1	Power Auger	73

FS NO	TEST NO	GRID EASTING	GRID NORTHING	TEST TYPE	DEPTH (CMBS)
	250	9854.1	9991.2	Power Auger	77
	251	9833.6	9979.7	Power Auger	55
	252	9836.3	9959.6	Power Auger	80
	253	9838.3	9959.6	Power Auger	70
	254	9840.1	9920.1	Power Auger	71
	255	9819.5	9927.7	Power Auger	75
	256	9817.8	9947.2	Power Auger	72
	259	9811.9	10007.3	Power Auger	82
	265	9791.5	10015.1	Power Auger	90
	266	9795.3	9975.2	Power Auger	85
	267	9797.2	9955.3	Power Auger	40
	405	10273.3	9886.6	Shovel	93
	408	10266.3	9865.0	Shovel	40
	410	10246.8	9857.1	Shovel	83
	412	10239.2	9835.6	Shovel	80
	414	10219.5	9828.4	Shovel	80
	416	10211.3	9806.2	Shovel	80
	418	10191.4	9799.4	Shovel	85
	420	10184.3	9777.3	Shovel	80
	422	10164.0	9771.0	Shovel	85
	424	10156.8	9748.4	Shovel	25
	428	10127.8	9730.6	Shovel	80
	431	10121.5	9699.7	Shovel	85
	434	10406.0	10007.0	Shovel	87
	436	10386.6	9999.9	Shovel	77
	438	10378.5	9978.1	Shovel	85
	440	10357.7	9971.4	Shovel	87
	442	10350.6	9949.9	Shovel	80
	444	10330.2	9942.9	Shovel	82
	446	10322.5	9920.8	Shovel	83
	448	10302.4	9914.6	Shovel	89
	450	10294.4	9893.1	Shovel	85
	452	9766.3	10061.5	Shovel	70
	453	9767.9	10041.4	Power Auger	85
	454	9772.8	10001.4	Power Auger	90
	455	9774.9	9981.5	Power Auger	77
	456	9776.6	9962.4	Power Auger	79
	457	9778.8	9941.8	Power Auger	70
	458	9780.4	9921.7	Power Auger	80
	459	9762.5	9909.6	Power Auger	80

FS NO	TEST NO	GRID EASTING	GRID NORTHING	TEST TYPE	DEPTH (CMBS)
	460	9759.8	9929.9	Power Auger	82
	461	9757.6	9949.9	Power Auger	70
	462	9756.0	9969.9	Power Auger	80
	463	9754.4	9989.4	Power Auger	80
	464	9751.7	10009.1	Power Auger	80
31	465	9745.9	10048.5	Power Auger	70
	466	9745.4	10069.0	Power Auger	85
	467	9719.1	10116.7	Power Auger	90
	468	9722.4	10096.7	Power Auger	80
	469	9726.7	10056.6	Power Auger	80
	470	9730.5	10016.5	Power Auger	70
	471	9733.3	9997.3	Power Auger	90
	472	9734.9	9977.2	Power Auger	70
	473	9736.5	9958.0	Power Auger	87
	474	9739.2	9939.1	Power Auger	90
	475	9738.0	9918.8	Power Auger	80
	476	9718.2	9945.5	Power Auger	70
	477	9715.3	9966.1	Power Auger	70
	478	9712.1	9986.7	Power Auger	85
	479	9711.6	10005.1	Power Auger	90
	499	9683.4	10071.8	Power Auger	70
	500	9680.6	10092.3	Power Auger	82
	501	9656.6	10138.4	Power Auger	67
	503	9702.7	10159.1	Power Auger	75
32	506	9698.5	10104.9	Power Auger	90
	507	9702.3	10084.8	Power Auger	80
	508	9704.5	10064.7	Power Auger	89
33	511	9719.3	10155.2	Power Auger	89
34	513	9733.6	10168.2	Power Auger	90
	514	9736.7	10148.5	Power Auger	80
	515	9737.8	10129.2	Power Auger	80
	516	9740.9	10108.8	Power Auger	82
	517	9757.7	10140.5	Power Auger	80
	519	9752.5	10180.5	Power Auger	98
	520	9750.1	10200.1	Power Auger	70
	521	9768.9	10232.2	Power Auger	80
35	522	9770.7	10212.1	Power Auger	85
	523	9772.5	10191.7	Power Auger	75
	524	9774.5	10172.2	Power Auger	95
	525	9775.7	10153.1	Power Auger	77

FS NO	TEST NO	GRID EASTING	GRID NORTHING	TEST TYPE	DEPTH (CMBS)
	528	9792.7	10202.6	Power Auger	80
	552	9784.6	10283.2	Power Auger	75
	554	9798.4	10335.0	Power Auger	80
	556	9802.7	10295.7	Power Auger	89
	557	9804.9	10275.5	Power Auger	90
	559	9821.2	10324.4	Power Auger	83
	560	9822.8	10305.5	Power Auger	92
37	561	9823.2	10287.1	Power Auger	80
	562	9826.7	10268.2	Power Auger	80
38	566	9844.8	10260.7	Power Auger	25
	569	9841.3	10319.5	Power Auger	80
	574	9869.2	10232.2	Power Auger	98
	579	9886.8	10264.4	Power Auger	77
	580	9781.3	10323.4	Power Auger	85
	581	9782.9	10303.4	Power Auger	70
	583	9868.2	10250.1	Power Auger	83
	584	9872.2	10192.2	Power Auger	83
	597	9889.8	10138.4	Power Auger	80
	598	9905.2	10126.0	Power Auger	80
	599	9921.4	10114.1	Power Auger	90
	600	9938.7	10123.2	Power Auger	85
	601	9888.9	10119.6	Power Auger	82
	602	9888.9	10098.5	Power Auger	70
	603	9890.0	10077.7	Power Auger	80
	610	9799.9	10031.7	Power Auger	58
	613	9810.8	10048.5	Power Auger	50
	616	9840.4	10101.2	Power Auger	48
	617	9853.0	10114.8	Power Auger	70
	618	9869.7	10127.2	Power Auger	70
	620	10045.6	10131.3	Shovel	80
	621	10052.7	10149.8	Shovel	78
	622	10060.1	10167.7	Shovel	80
	623	10069.5	10185.4	Shovel	77
40	625	9581.0	10186.9	Shovel	75
41	628	9597.8	10218.8	Shovel	92
	629	9595.3	10239.0	Shovel	80
42	630	9593.4	10259.0	Shovel	40
	631	9574.7	10246.4	Shovel	80
	632	9575.8	10226.5	Shovel	90
	633	9579.5	10207.1	Shovel	86

FS NO	TEST NO	GRID EASTING	GRID NORTHING	TEST TYPE	DEPTH (CMBS)
	634	9558.4	10214.7	Shovel	100
	1004	9912.7	10006.2	Power Auger	91
29	1006	9873.2	10003.1	Power Auger	80
30	1008	9833.1	9998.4	Power Auger	30
	1010	9793.6	9994.1	Power Auger	73
22	1018	10151.4	10035.4	Power Auger	85
	1550	9903.2	9895.3	Power Auger	55
	1551	9799.4	9935.3	Power Auger	72
	1552	9677.4	10130.8	Power Auger	71
	1553	9809.5	10234.7	Power Auger	48
	1554	9790.1	10250.5	Power Auger	75
	1555	9766	10264.9	Power Auger	70
	1556	9765.4	10292.5	Shovel	94
39	1557	9809.3	10216.1	Shovel	50
	1559	9832.2	10208.2	Shovel	50
	1561	9834.7	10170.3	Shovel	50
	1562	9838.3	10148.3	Shovel	50
	1563	9853	10184.1	Shovel	35
	1564	9859.4	10160.6	Shovel	50
	1565	9874.5	10177.4	Shovel	50
	1566	9778.1	10132.7	Shovel	36
	1567	9760.1	10120.7	Shovel	40
	1568	9761.7	10100.5	Shovel	45
	1569	9763.6	10080.4	Shovel	50
	1575	9846.3	9879.9	Shovel	25
	1576	9848.8	9860.1	Shovel	33
	1600	9795.2	10182.5	Shovel	50
	1601	9797.2	10162.6	Shovel	50
	1603	9843.6	9899.7	Shovel	50
	1604	9864.7	9891.2	Shovel	20
	1605	9870.3	9852.1	Shovel	38
	1610	9921.2	9927.6	Shovel	38
	1611	9923.7	9907.8	Shovel	50
	1613	9928.4	9867.6	Shovel	44
43	1614	9931.0	9848.0	Shovel	35
	1615	9943.8	9899.9	Shovel	45
	1616	9946.9	9879.9	Shovel	45
44	1617	9966.2	9892.3	Shovel	50
	1619	9985.6	9900.0	Shovel	45
	1620	9986.9	9879.9	Shovel	45

FS NO	TEST NO	GRID EASTING	GRID NORTHING	TEST TYPE	DEPTH (CMBS)
	1621	9990.0	9860.4	Shovel	60
	1622	9993.1	9840.4	Shovel	65
	1623	9994.1	9821.4	Shovel	65
	1624	9997.6	9800.9	Shovel	65
	1625	10003.9	9918.4	Shovel	40
	1626	10006.6	9897.9	Shovel	41
	1627	10008.5	9877.9	Shovel	55
	1628	10013.1	9859.9	Shovel	55
	1629	10012.6	9838.9	Shovel	55
	1630	10016.3	9818.5	Shovel	46
	1631	10018.3	9798.0	Shovel	50
	1632	10019.7	9778.3	Shovel	40
	1633	10022.6	9760.0	Shovel	58
	1634	10021.7	9929.3	Shovel	40
	1635	10024.1	9909.7	Shovel	45
	1636	10026.5	9890.2	Shovel	20
	1637	10029.0	9870.0	Shovel	20
	1638	10031.4	9850.1	Shovel	15
	1639	10033.2	9830.2	Shovel	50
	1640	10036.3	9810.4	Shovel	50
	1641	10038.8	9790.6	Shovel	45
	1642	10040.0	9770.1	Shovel	42
	1643	10040.5	9943.6	Shovel	55
	1644	10042.5	9921.8	Shovel	56
	1645	10045.0	9901.9	Shovel	60
	1646	10047.0	9881.5	Shovel	20
	1647	10049.8	9862.2	Shovel	20
	1648	10057.0	9974.8	Shovel	50
	1650	10061.9	9934.8	Shovel	40
46	1651	10064.9	9914.6	Shovel	55
	1652	10065.4	9891.9	Shovel	50
	1653	10069.8	9874.9	Shovel	45
47	1654	10072.4	9855.3	Shovel	40
	1700	10075.9	9944.9	Shovel	40
	1701	10078.3	9925.1	Shovel	50
	1702	10083.7	9881.4	Shovel	50
	1703	10085.6	9860.9	Shovel	48
	1704	10087.6	9840.9	Shovel	30
	1705	10091.0	9821.9	Shovel	45
	1706	10092.6	9801.4	Shovel	60

FS NO	TEST NO	GRID EASTING	GRID NORTHING	TEST TYPE	DEPTH (CMBS)
	1720	10097.5	9978.9	Shovel	50
	1721	10100.5	9958.4	Shovel	40
	1722	10102.6	9939.0	Shovel	40
	1723	10104.6	9919.9	Shovel	40
	1724	10107.5	9899.3	Shovel	45
	1725	10109.7	9880.4	Shovel	50
48	1726	10112.4	9859.6	Shovel	50
	1727	10114.3	9839.4	Shovel	58
49	1728	10115.7	9819.2	Shovel	30
	1729	10121.0	9951.2	Shovel	40
	1730	10123.4	9931.5	Shovel	45
	1732	10128.3	9891.8	Shovel	30
52	1733	10127.5	9871.1	Shovel	45
53	1734	10133.1	9852.1	Shovel	48
	1735	10135.4	9832.2	Shovel	50
54	1737	10143.3	9922.9	Shovel	40
55	1738	10144.9	9903.3	Shovel	50
	1739	10149.1	9884.2	Shovel	45
56	1740	10151.2	9863.2	Shovel	45
	1800	10165.2	9916.9	Shovel	40
	1801	10168.0	9896.5	Shovel	50
	1802	10168.8	9877.4	Shovel	50
58	1803	10171.6	9856.1	Shovel	50
	1804	10186.7	9909.2	Shovel	50
	1805	10188.3	9889.2	Shovel	45
	2000	9883.4	9903.9	Shovel	45
	2001	9885.9	9884.0	Shovel	50
	2002	9888.3	9864.2	Shovel	40
	2003	9889.4	9844.5	Shovel	37
	2004	9867.8	9872.2	Shovel	40
	3001	9583.4	10166.6	Shovel	58
	3002	9562.7	10174.5	Shovel	61
	3003	9562.0	10197.1	Shovel	97
45	3004	9540.2	10225.5	Shovel	82
74	3010	10297.6	10040.9	Shovel	45
75	3011	10292.1	10022.0	Shovel	40
	3012	10283.3	10057.3	Shovel	40
	3013	10289.1	10076.5	Shovel	40
	3014	10277.5	10038.2	Shovel	35
	3018	10272.0	10092	Shovel	30

FS NO	TEST NO	GRID EASTING	GRID NORTHING	TEST TYPE	DEPTH (CMBS)
	3019	10251.9	10033.8	Shovel	45
77	3020	10237.0	10048.0	Shovel	45
	3021	10233.4	10031.0	Shovel	52
	3022	10253.3	10097.6	Shovel	40
	3023	10234.1	10103.7	Shovel	40
	3024	10228.5	10084.1	Shovel	35
78	3026	10205.5	10079.8	Shovel	50
79	3027	10285.8	10003.2	Shovel	40
	3028	10337.0	10030.8	Shovel	45
	3029	10321.5	10045.6	Shovel	40
	3030	10315.0	10027.1	Shovel	38
	3031	10309.8	10007.4	Shovel	30
	3032	10331.9	10011.1	Shovel	40
	3033	10343.0	10049.5	Shovel	35
	6666	10094.9	9714.1	Power Auger	80
	8000	10054.2	9844.0	Shovel	45
	8001	10147.1	10140.6	Shovel	100
	8005	9814.6	9987.3	Power Auger	64

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