Reconnaissance Survey of the Proposed Berkeley County Wastewater System Plant Site, Robert E. Lee Tract, Berkeley County, South Carolina

William B. Lees

James L. Michie

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Reconnaissance Survey of the Proposed Berkeley County Wastewater System Plant Site, Robert E. Lee Tract, Berkeley County, South Carolina

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RECONNAISSANCE SURVEY OF THE PROPOSED BERKELEY
COUNTY WASTEWATER SYSTEM PLANT SITE, ROBERT E. LEE
TRACT, BERKELEY COUNTY, SOUTH CAROLINA

by

William B. Lees and James L. Michie
Research Manuscript Series, No. 132

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Prepared by the
INSTITUTE OF ARCHEOLOGY AND ANTHROPOLOGY
UNIVERSITY OF SOUTH CAROLINA
June, 1978
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We would like to acknowledge the help of Michael Harmon and J. Walter Joseph III of the staff of the Institute of Archeology and Anthropology. We would also like to thank Suzanna B. Smith for her volunteered assistance during the mapping and testing of 38BK118. The cooperation of Mr. Arthur Bryngleson, of the Berkeley County Water and Sewer Authority, and of Lewis J. Cauthen, Jr., of E. M. Seabrook, Jr. Inc., is also greatly appreciated. We would also like to thank Paul E. Brockington, Jr. and Susan H. Jackson of the Institute for their constructive criticism of the manuscript. Institute illustrator Darby Erd, and Gordon H. Brown, scientific photographer for the Institute, prepared the graphics appearing in this report. Myra L. Smith typed the final manuscript. Robert L. Stephenson, Director of the Institute of Archeology and Anthropology, was in overall supervision of this project.
In July 1977 a reconnaissance survey of an area being considered for the Berkeley County Regional Wastewater System Plant (hereinafter referred to as the Lee Tract) was conducted by William B. Lees of the Institute of Archeology and Anthropology of the University of South Carolina. The purpose of this survey was to provide a preliminary assessment of the archeological resources on this land in order that any adverse impact of the proposed project on these resources could be mitigated as much as possible in the planning stages. This manuscript will serve as a final report of that reconnaissance survey and will include a discussion of the archeological resources present at the Lee Tract, as well as recommendations for mitigation of possible adverse impacts on these resources.

Two sites of archeological interest were discovered. The first, 38BK118, contains both historic and prehistoric components, while the second site, 38BK119, contains a fairly extensive prehistoric component. It is possible that the prehistoric components of both sites are related. Figure 1 shows the location of these sites within the Lee Tract. The good states of preservation of both of these sites and the data potentials both sites possess indicate that the sites have significant potential for anthropological research, and that they represent resources important for the interpretation of the heritage of South Carolina. Therefore, it is the conclusion of this report that every effort should be made to minimize the adverse impact of the proposed project on these valuable resources.
FIGURE 1: Robert E. Lee tract, Berkeley County, South Carolina.
EFFECTIVE ENVIRONMENT

The Robert E. Lee Tract (named for current land owner) is located in the lower Coastal Plain of South Carolina in southern Berkeley County near the port city of Charleston. Situated on a narrow peninsula of land between the Back River and the Cooper River, and in the area of Bushy Park, the Lee Tract is bounded on the north by land belonging to the Verona Chemical Corporation, on the west by the Back River, and on the east by a South Carolina Electric and Gas transmission line (Fig. 1). Internally, the Lee Tract measures approximately 2,700 feet in a north/south direction, and 800 feet in an east/west direction.

Internally, the Lee Tract can be considered as three units divided naturally by two fresh water marshes (Fig. 1). The northernmost of these three units, Unit A, was not surveyed for archeological sites; it was indicated by Mr. Arthur Bryngleson of the Berkeley County Water and Sewer Authority that this area was not to be used in the near future. It is probable, however, that this northwest-southeast ridge of land, which forms a point on the Back River and which is located between two sizeable marshes, contains historic and/or prehistoric archeological sites due to the geographic characteristics of this section. Because of this probability, it will be essential that an archeological survey of this unit be conducted should any construction in this area be planned in the future.

The middle unit (B) exists as a north-south ridge forming a point at the juncture of a sizeable marsh with the Back River. According to the preliminary plans of the treatment plant, this parcel of land will include three oxidation ditches; three clarifiers; a sludge pump; a chlorinator; influent and effluent pump stations; and a complex including office, lab, garage, and shop space. 38BK119 is located on this unit of land.

The southernmost unit (C) is divided from unit "B" by a smaller marsh or slough, and it is near the juncture of this slough and the Back River that 38BK118 is located. According to the plans, this unit of land is to be used for the placement of drying beds.

The geologically recent deposits on the property are composed mainly of sand and are dissected by two small marshes that drain into the adjacent Back River. These were salt water marshes before the damming of the Back River and its isolation from tidal influence. The sandy ridge, at its greatest elevation, lies only twenty feet above mean sea level, and approximately fifteen feet above the adjacent Back River. The ridge, which extends from the Back River to the Cooper River, is the highest portion of land between these two rivers, representing the remnant of an ancient dune line created by an inundating sea (Colquhoun 1969). The areas adjacent to the ridge are composed of either marsh or low-lying topographies, supporting a diverse environment of flora and fauna.

The contiguous marshes are relatively flat and provide support to large communities of Spartina patens and S. alterniflora. As the land begins to rise from the marshes, the fringes support a mixed community
of hardwoods and cabbage palmetto, while the higher elevations provide support for conifers. This present-day forest is the result of secondary growth, and it may not be representative of the climax forest that developed prior to European occupation. According to Widmer (1976: 9), "the long-leaf pine forest, the southern mixed hardwood forest, the gum-cypress forest, and the pine savanna ... probably represent the primeval forest cover before western colonial exploitation and expansion into this area." Widmer's environmental reconstruction deals with the nearby East Cooper River in the vicinity of Grove and Flagg Plantations.

Faunal considerations are also presented by Widmer (1976), suggesting that a wide variety of species would have lived in the biotic zones. The species would include turkey, deer, woodcock, wood duck, squirrel, bobcat, raccoon, opposum, and other species. The adjacent salt marshes would have provided resources such as fish, shellfish, turtles, alligators, wading birds, and migratory waterfowl.

These floral and faunal generalizations are based on data for the last several centuries and are probably not representative of the time period prior to 3,500 years ago because the sea level then was much lower than at present. Michie (1973) has suggested a difference of about ten to twelve feet for that specific period of time, but at the height of glaciation, about sixteen thousand years ago, the ocean was at least three hundred feet lower than present sea level (Flint 1971). During full glaciation, the Cooper and Back Rivers would have flowed with fresh water and the environment would have been significantly different. Whitehead (1973) and Watts (1971) have proposed that spruce, fir, and jack pine were dominant in mesic forests, and that deciduous forests were growing in wetlands and bottomlands. By at least ten thousand years ago the environment was undergoing changes and moving toward what has been described as northern hardwoods. The mesic forests included species of ash, alder, hornbeam, and other related genera and species, while the hydric forests would have included deciduous trees. Following the disappearance of the northern hardwoods, the environment began changing towards present-day flora. During the past five thousand years pine and certain deciduous trees have increased in number, and they have become the dominant species in the mesic forests, while cypress has increased its numbers in the wet bottomlands. Sea level continued to rise during this time and eventually affected the waters of the Cooper and Back Rivers. With the introduction of salinity, the area adopted its present environmental condition.

From a forest dominated by spruce, fir, and jack pine, with an adjoining fresh water river, until the development of mixed hardwoods and pine, associated with salt water marshes, the indigenous people had an opportunity to exploit the immediate and adjacent environments for a variety of available floral and faunal resources.
From the time of man's arrival into South Carolina, the area of the Cooper River has been the focal point of human activities which span approximately twelve thousand years. These varied human occupations included the exploitation of now extinct megafauna, a later subsistence pattern of generalized hunting and gathering, and finally the development of agriculture before colonization and control of the area by European Americans. These expressions of culture are not unique to the area of the Cooper River, but they seem to be representative of the Southeast and the East. These cultural periods have been presented and summarized in detail by Coe (1964), Willey (1966), Wauchope (1966), and Caldwell (1958). Presently, the prehistory of South Carolina is believed to represent at least four definitive periods, followed by a historic period, discussed below and outlined (Table 1).

**Paleo-Indian Period**

Prior to ten thousand years B.C., nomadic hunters entered the Southeast with an economy oriented towards the exploitation of extinct megafauna, and in all probabilities, fauna that survived the Pleistocene and are presently existing in contemporary environments. In South Carolina these hunters utilized the resources of the Coastal Plain, the Fall Line, and the lower fringes of the Piedmont. Settlement patterns suggest that they were living along the major river valleys and certain large creeks and avoiding areas of high relief and rugged terrain (Michie 1977). Michie has recorded several Clovis fluted points from the lower portion of Lake Moultrie and the vicinity of Charleston. These points were found on sand hills contiguous with river valleys.

Although South Carolina has failed to yield undisputed evidence of subsistence patterns substantiating megafauna exploitation, a coastal site has yielded the remains of a juvenile mastodon and the tenuous association with stone tools (Michie 1976; Wright 1976). The site, located near Myrtle Beach, is buried under eight feet of sediments, suggesting the presence of an ancient pond. A similar area in central Florida has also yielded the remains of proboscidea, two juvenile mammoths, in direct association with a Suwannee point and chert debitage (Hoffman n.d.).

The exploitation of proboscidea is recorded in the Southwest at several localities, and the general pattern suggests that the animals were dispatched in moist environments such as ponds and creek beds. Based on this evidence of subsistence and the occurrence of animal remains, and the distributional pattern of early projectile points within South Carolina, Michie (1977) has suggested that research be directed towards the investigation of ponds and river valleys in the Southeast in which sediments accumulate.

The Paleo-Indian period occurred during the final phases of the Pleistocene (10,000-8,500 B.C.), when much of the State was cooler and
<table>
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<th>Cultural Sequence</th>
<th>Subsistence</th>
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<tr>
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<td>Historic</td>
<td>Industrial</td>
<td></td>
</tr>
<tr>
<td>1670</td>
<td></td>
<td>Agriculture</td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td>Mississippian</td>
<td>Agriculture with hunting &amp; gathering</td>
<td></td>
</tr>
<tr>
<td>500</td>
<td>Late Woodland</td>
<td></td>
<td></td>
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<tr>
<td>A.D. 0</td>
<td>Woodland</td>
<td>Hunting &amp; gathering with horticulture</td>
<td></td>
</tr>
<tr>
<td>B.C. 500</td>
<td>Early Woodland</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>Late Archaic</td>
<td>Generalized hunting and gathering</td>
<td></td>
</tr>
<tr>
<td>4000</td>
<td>Archaic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6000</td>
<td>Early Archaic</td>
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<tr>
<td>8000</td>
<td>Paleo-Indian</td>
<td>Specialized hunting and gathering</td>
<td></td>
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<tr>
<td>10,000</td>
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supported open forests of spruce, fir, and jack pine (Whitehead 1973). With a climatic/environmental change during the waning of the Pleistocene, the forests began to change and the megafauna diminished. The behavioral patterns and the lithic industries of the Paleo-Indian period changed with the environment, and as the Holocene began a new cultural tradition emerged.

**Archaic Period**

By the beginning of the Holocene, the Pleistocene glaciers had retreated back into Canada and environmental conditions had changed significantly. The semi-boreal forests of spruce, fir, and jack pine had disappeared and were replaced by northern hardwoods consisting of beech, hemlock, alder, and similar species (Whitehead 1973). The forests of hardwoods lasted for a few millennia and they too were replaced. By at least 5,000 years ago the forests of South Carolina had become dominated by oak, hickory, and pine, and this association has remained basically the same until the mass cutting of timber by European settlers and later historic peoples. The secondary growth of forests seen throughout South Carolina is generally reflected in stands of pine.

The Archaic period is represented by at least three cultural/technological stages: the Early, Middle, and Late. The Early Archaic is basically a technological expression of the earlier Paleo-Indian period. Characterized by Dalton, Palmer, and Kirk points, and specialized tool assemblages of end-scrapers, burins, pieces esquillees, gravers, and blades, the Early Archaic lasted from about 8,500–6,000 B.C., with subsistence oriented toward specialized hunting of white-tailed deer (Coe 1964; DeJarnette et al. 1962). By the end of the Early Archaic, technologies were changing, and new projectile points and tools began to be made. The Stanly and Morrow Mountain points, along with Guilford (Coe 1964) serve as temporal indicators for the Middle Archaic, which lasted from about 6,000–3,000 B.C. During this time people were utilizing more resources while they were maintaining a primary dependence on deer. Instead of relying primarily on the major river valleys, as did Early Archaic and Paleo-Indian groups, people began to exploit resources of the inter-riverine forests, including the riverine areas. By at least 3,000 B.C., technological changes had occurred and once again this signaled the beginning of the Late Archaic. During this transition there is evidence that people were becoming more sedentary, and by 2,000 B.C. people were devoting a great deal of time to localized shellfish collecting, especially in the Savannah River valley and the coastal areas of South Carolina and Georgia (Clafin 1931; Stoltman 1964; Williams 1968). There are large and impressive shell middens and rings in these areas demonstrating a Late Archaic dependence on shellfish and suggesting a marked degree of sedentism. Technological changes at this time include the manufacture of the Savannah River Archaic projectile point or knife (Coe 1964), the utilization of steatite, and the development of specialized tools manufactured from bone and antler.

Although the basic technology of bone and antler alteration is probably well rooted in the Paleo-Indian and Early Archaic periods, it is not demonstrated in the archeological record until its appearance in the Late Archaic shell midden sites. The calcium content of the shell sites acts...
as a preservative, thus maintaining an otherwise perishable item for a long period of time. Unfortunately, acidic soils fail to provide preservation at other sites, creating a serious inherent bias in the archaeological record.

Another cultural innovation during the Late Archaic period was the development of fiber tempered pottery, which occurs frequently within the early shell middens, and there is some evidence to suspect that people were also manufacturing sand-tempered pottery during the same period of time.

Even though subsistence seems to have been directed towards shellfish collecting in certain areas, people continued to exploit white tailed deer and other forest resources, as evidenced by the many Late Archaic sites with no indication of shellfish utilization. People were using many products of the riverine and inter-riverine zones, which certainly included a diverse utilization of plants and animals.

During the entire span of the Archaic period, which lasted for about six thousand years, the people exploited many resources within many different environments. The Early Archaic people were living mostly along the major river drainages, adjacent to the floodplains, but with changing environments and the availability of new food resources people began to exploit the inter-riverine zones of watershed divides. With the appearance of Late Archaic traditions, people were making a profitable use of nearly every available environmental niche.

The traditions of the Archaic began to wane at about 1,500 B.C., when a rising production and development of ceramics and the cultivation of specific plant foods encouraged the emergence of the Woodland tradition.

**Woodland Period**

The Woodland period, which lasted from about 1,500 B.C. A.D. 300, probably had its roots in the traditions and exploitative patterns of the Late Archaic. Along with the development of new technologies such as ceramic manufacture, came small triangular projectile points that may have been associated with the bow and arrow. Hunting and gathering continued as a subsistence base, but during this time the economy probably utilized certain cultivated plants (Willey 1966).

Over time the size, shape, temper, and surface decoration of ceramic vessels changed, and the relatively small triangular points became smaller and more delicate in appearance (Coe 1964). Burial mounds began to appear during the Woodland period, and architectural features seem to suggest increasing sedentism. Woodland sites are often larger than the earlier Archaic sites, although many small sites are also noted, suggesting a diversity of cultural activities within differing microenvironments.

The settlement patterns of these people suggest that they exploited the riverine environments in addition to upland zones of creeks and streams. In certain coastal and riverine areas the people were also procuring shellfish, however, the shell middens are much smaller than Late Archaic middens, suggesting a mild and infrequent interest in the procurement of gastropods and bivalves.
**Mississippian Period**

The Mississippian period, which is known as the South Appalachian Mississippian as a regional complex in this area, began approximately A.D. 800 and terminated with the European migration to the New World during the seventeenth and eighteenth centuries (Willey 1966). Prior to its collapse, the period was characterized by large truncated temple mounds and smaller burial mounds, with subsistence oriented toward hunting, gathering, and the cultivation of specific plants, especially corn. Settlement was directed towards the floodplains of large river valleys, and political systems were becoming more complex.

Ceramic vessels, diversified in size, form, and function, tended to become larger, and decorations were applied with a wooden paddle on which were carved complicated designs. These vessels were intended for a variety of purposes, including the storage of grain, cooking, and the interment of human remains. Population densities seem to have increased along with sedentism during the final phases of the period. With the beginning of European settlement, the indigenous sociocultural system collapsed and within a century Indian groups were nearly exterminated.

**Historic Period**

The Historic period in South Carolina has an antiquity that begins with the abortive attempt at settlement of San Miguel de Gualdape in 1526, near the present city of Georgetown (Stephenson 1975). In the seventeenth century, the French and Spanish tried to settle portions of Beaufort County near Port Royal Sound, but these attempts failed (Stephenson 1975), and during the same century, DeSoto made his historic crossing through a portion of South Carolina.

In 1670, the settlement of Charles Towne led to the first permanent occupation in South Carolina. Within decades, other settlers arrived and people began to spread across the lower Coastal Plain, and eventually to the interior. With the steady influx of people, agriculture developed quickly and low country plantations were established along major waterways for the purpose of growing rice and indigo. Frontier areas also saw the establishment of trading factories, which not only served Indians but also supplied the frontier settlers with necessary goods.
METHODOLOGY

The reconnaissance of the Lee Tract was conducted by means of a walking survey of the area, with shovel tests being excavated to the sandy subsoil at approximately fifty-foot intervals along ten transects running east to west from the South Carolina Electric and Gas Company transmission line right-of-way to the edge of the Back River. These parallel transects were spaced approximately 200 feet apart. All artifacts found in the shovel tests were bagged according to their location. Due to the time limits imposed by this type of survey, neither the transects or the shovel tests could be surveyed in an engineering sense; however, this type of survey does allow for a fairly accurate delineation of the subsurface archeological characteristics of an area, as well as providing data for a discussion of these archeological characteristics by general geographic area. A more time and labor intensive survey would be required to provide definitive data on the exact spatial limits of the archeological resources at the Lee Tract.

In addition to the walking survey, a 2.5 foot square test unit was excavated at 38BK118 to provide density and frequency information that could not be properly obtained from small shovel tests. Also a map of the structure present at this site was prepared (Fig. 2). All materials recovered in the course of this research have been washed and catalogued, and will be curated by the Institute of Archeology and Anthropology, for use in any future research on the sites.
Figure 2

Brick Structure
At
38 BK 118
SITE DESCRIPTIONS

38BK118. This site is a prehistoric ceramic site overlain by a historic site of the late eighteenth and early nineteenth centuries. The historic site is characterized by the ruins of a brick structure, located on high ground (Fig. 3) southeast of an earthen dike and the small marsh separating Area B from Area C (see Fig. 1).

According to preliminary plans of the project, 38BK118 is located northwest of the proposed drying beds. The impact of the project on 38BK118 would probably be minimal provided that no construction is undertaken closer than 150 feet to the Back River, and that precautions are taken to prevent secondary impacts on the area. It would, however, be desirable to increase the distance of the drying beds from the river as much as possible in order to effect even better protection for the site.

The small sample of artifacts recovered from 38BK118 indicated a historic occupation between about 1750 and 1850. These artifacts indicating this range include two sherds of Delft ceramics (1600-1800); one sherd of Whieldon ware (1750-1775); one type 31 white brass button (cast in one piece with a spun back and drilled eye, ca. 1837-1865); two cut nails of a type manufactured after about 1820; and sixteen pieces of window glass measuring 4/64" or less in thickness, indicating manufacture prior to about 1845. Other artifacts recovered from the test unit include 6 kaolin pipe stem fragments; one kaolin pipe bowl fragment; one red, white and blue tubular glass trade bead; and 1,048 grams of brick rubble (Noël Hume 1970: 88-92; Fontana and Greenleaf 1962: 44-49; Walker 1971: 71).

The brick structure (Fig. 2) is characterized by two opposing external hearths, located on the north and south ends (Fig. 4). These hearths, and presumably the rest of the structure, were constructed using Flemish bond, with pointed mortar. An area of brick rubble projects from the edifice facing the river, and is probably the remains of a staircase or other feature associated with an entrance. An ornamental end section of a brick wall, presumably associated with this entrance, is located at the river end of the rubble. Since numerous intact sections of the brick foundation could be observed under the brick rubble, it is probable that the entire foundation of this structure is relatively intact.

Material recovered from a 2.5 foot square test unit provides some preliminary insight into the type of site represented by the historic component at 38BK118. This test unit was located approximately ten feet from the east wall of the brick structure, and was excavated to a depth of one foot, at which point sterile subsoil was encountered (Fig. 4). No stratigraphy within this soil zone was observed. A tabulation of the artifacts from this test unit, according to the categories used by Stanley South (1977: 83-139) to define the Carolina and Frontier artifact patterns, reveals the following percentages:
The Carolina and Frontier artifact patterns refer to two distinct frequency distributions among nine groups of artifacts into which virtually all artifacts from a site can be categorized. These artifact patterns were developed by South (1977) in an attempt to devise archeological tools enabling archeologists to differentiate types of historic sites on the basis of artifacts, rather than on the basis of documentary sources. The Carolina and Frontier patterns were originally defined by using artifacts from documented eighteenth century British colonial sites located in the southeastern United States. The results were tested and initially confirmed, against a separate set of sites from this same area (South 1977: 83-164).

Although the sample from the test unit at 38BK118 is too small to provide definitive results, a comparison of this data to South's artifact patterns may provide some insight into the occupational nature of the site. A comparison with the Carolina artifact pattern indicates several differences between the two data sets. Indeed, only the frequency of the clothing group from 38BK118 fits within the range for that group within the Carolina artifact pattern. However, when this same data is compared to the Frontier artifact pattern, a much better fit results, with both the kitchen and architecture groups falling within the range for the Frontier pattern.

While the frequencies of all the artifact groups are important in defining the different artifact patterns, the relationship between the kitchen and architecture frequencies is especially helpful in distinguishing between the Carolina and Frontier patterns, with the frequency of kitchen artifacts being higher than architecture for the Carolina pattern, and with the inverse being true of the Frontier pattern. When the data from 38BK118 is examined in this respect, it can be seen that the architecture group greatly outweighs the kitchen group, once again indicating a Frontier pattern interpretation for the site. Unfortunately, neither the architecture nor the artifacts allow a definitive statement of the function of the site in historic times; although the basic diversity of material recovered may be indicative of a residential pattern.
FIGURE 3: View of site of brick structure.

FIGURE 4: East face of north hearth of structure at 38BK118 showing Flemish bond and pointing.
The aboriginal material recovered from the test unit consisted of 128 pieces of ceramics that indicate an occupation covering a span of at least 3,400 years, from around 1600 B.C. to around A.D. 1800. Pottery identification was made following South (1973).

Sand tempered cordmarked ware characteristic of the "Developmental" period of about 1000 B.C. to A.D. 1 made up the highest frequency of aboriginal ceramics in the test unit, 52 (40.6%) of the 128 sherds recovered. Sand tempered burnished ware, of either the "Climatic" or "Decline" periods (A.D. 1 to A.D. 1800) was also fairly well represented in this unit, comprising 24.2% of the ceramics. Also recovered from this test unit were one (.78%) possible Colono-Indian sherd (A.D. 1500 to A.D. 1800), two (1.5%) undecorated fiber tempered sherds that could be representative of either the Decline period (A.D. 800 to A.D. 1800) or of the Stallings group (1600 B.C. to 220 B.C.), and nine (7.0%) sherds of Thom's Creek type pottery (1600 B.C. to 1000 B.C.). In addition, 26 sherds of plain sand tempered pottery were recovered and date from either 400 to 600 B.C. or from A.D. 1 to A.D. 1000. Six sherds were not identifiable as to type.

38BKl19. This site is a prehistoric ceramic site with the highest density of material being found along the Back River and at the junctures of the Back River and the two marshes separating Area B from Areas A and C (see Fig. 1). It is, therefore, important that the structures proposed for this area be placed as far from the river and marshes as possible in order to avoid adverse impact to this site. A corridor of 150 to 200 feet from the river and marshes is suggested as a buffer area with no construction.

No type of construction in any part of this area can be considered as totally "no-impact" as a light scatter (density of about one sherd per one-foot square shovel test) of prehistoric and/or protohistoric ceramics was discovered over the entire area, with the edges of the river and marshes having a higher density (up to 13 sherds per shovel test). These low density areas may be as important in interpreting the function of a site or a type of site as the central or high density areas.

In the shovel tests at 38BKl19, thirty-six sherds were recovered. While this number is too small to provide definitive temporal information on the site, a range of from 1600 B.C. to A.D. 1800 is possible. A much larger sample would be necessary to define better the dates of occupation of this site and to provide any data on intrasite variability. Ceramics recovered from the site can be broken down as to type as follows:

<table>
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<th>Ceramic Type</th>
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<th>Date Range</th>
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<tr>
<td>Deptford</td>
<td>4</td>
<td>600-1000 B.C.</td>
</tr>
<tr>
<td>Cape Fear</td>
<td>3</td>
<td>400-600 B.C.</td>
</tr>
<tr>
<td>Undecorated sand tempered</td>
<td>27</td>
<td>A.D. 1-A.D. 1800 or 600-1600 B.C.</td>
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SYNTHESIS OF ARCHEOLOGICAL DATA

From a cultural-historical viewpoint, Southeastern prehistory can be divided into two general categories: ceramic and pre-ceramic. The ceramic period begins at about 2200 B.C., and continues up to and into the period of contact with Europeans (Willey 1966; South 1973).

On the South Carolina coast, aboriginal ceramics have been classified by South (1973) into four evolutionary groups. The first of these groups is the "Formative" (Thom's Creek and Stallings pottery), dating between about 2200 B.C. and about 1000 B.C. Decoration on Formative ceramics includes plain, punctated and incised exteriors. The next stage, lasting from 1000 B.C. to around 50 B.C., has been termed the "Developmental" (Wilmington, Cape Fear, and Deptford pottery), and is characterized by surface finishes involving carved paddle stamping for Deptford or cord and fabric impressing for Wilmington-Cape Fear. Following the Developmental, from 50 B.C. to about A.D. 800 is the "Climatic" stage (Chicora pottery). This period is characterized by an increase and elaboration of applied decorative motifs, carved paddle complicated stamping, burnishing, rosettes, reed punctations and punctated rim strips. The final stage, lasting from A.D. 800 to about A.D. 1800, is generally referred to as the "Decline" (Colono-Indian and York pottery). Characteristics of Decline pottery include the imitation of European ceramic forms, burnishing, painted decorative motifs, carved paddle complicated stamping, large motifs, finger punctated rim strips and folded rims, sloppy incising and corncob impressed types (South 1973).

While both sites have produced evidence of human occupation, the sites have failed to yield evidence of earlier occupations in the form of lithic material culture. The test pits have not disclosed thinning flakes, projectile points, tools, nor other forms of debitage. There may be several reasons for absence of such material, but the limited research at the sites is not sufficient to offer viable answers.

During earlier times when the sea was much lower, the gradient of the Back River was considerably deeper than at present. Additionally, the water table would have been reduced, lowering the available ground water and restricting fresh water supplies to areas of higher elevation, such as the high ridge on which the sites are located. The present-day marsh, bordering the sites, would have been dominated by variations of a mesic forest cover extending several hundred yards to the Back River, prior to the recent inundation of brackish water and precipitated peats. During the period of a lowered water table and deeper river gradients, the elevated ridge may have been located too far from the rich environment adjoining the ancient floodplain that provided water and faunal resources. In economic terms the occupation of the sandy ridges and a greatly extended kinetic field may not have been profitable during the Archaic and Paleo-Indian periods when resources could have been obtained much easier by living closer to the water sources.

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An alternative explanation is the possibility of brief occupations of hunting camps. This theoretical model implies that people radiated out from base camps on hunting trips, made kills, butchered the carcass, and returned to the main camp. In this situation the brief encampment would only allow the maintenance of specific tools and weapons, and the resharpening of lithic tools. Such occupations seldom leave a great deal of debitage, and the waste lithic material that results from weapons maintenance and tool resharpening would be small flakes and fractured bifaces. Within the forested zones with heavy ground cover, these pieces of stone are difficult to discover. Even when the area is tested with small pits and soil was screened, small resharpening flakes could easily escape notice. If bifaces are present, however, they can be monitored by test pits and soil screening.

If the site witnessed infrequent and sporadic occupations by hunting groups, then such evidence may be difficult to find without intensive testing. Additionally, if the soil structure has qualities that allow the migration of lithic materials or burial of those materials, then such evidence is even harder to find. It is within the realm of possibility that a sampling bias accounts for the absence of lithics. Given sporadic occupations, a low density of lithic materials, and the inherent bias of sampling strategies, it is possible that the survey failed to monitor the presence of earlier lithic industries belonging to either the Archaic or Paleo-Indian periods.
RECOMMENDATIONS

38BK118 and 38BK119 represent important resources for the archaeological community and for the general public. Due to their apparently excellent states of preservation, they contain the type and quality of data potential that lend themselves to valid scientific investigation leading to anthropological and public interpretation of the heritage of South Carolina. As such, it is essential that these sites, or the data these sites possess, be preserved for the benefit of both the archaeological community and of the general public.

It is therefore the recommendation of the Institute of Archeology and Anthropology that these sites be avoided by the proposed project, and that continuing efforts be made to avoid secondary impacts on these sites. In order to preserve the archeological resources at the Lee Tract, a corridor of 150 to 200 feet adjacent to the Back River and the edges of the marshes would probably be required for Area B, and for the area around 38BK118 in Area C. As Area A has not been surveyed, it should be totally avoided until such a time as an assessment of it is also conducted. Also, in Area B, the area not covered by the protective corridor would probably need to be archeologically sampled in order to preserve the data contained there. If such a system of preservation cannot be practically implemented, mitigation by excavation would probably be necessary in the impacted areas of the two sites. Protection from secondary impact of areas not destroyed by construction would probably require that the sites be adequately fenced, posted, and inspected at regular intervals by a trained archeologist.

There exists the possibility of acquiring another parcel of land for the Bushy Park Waste Treatment Plant and it is probable that any area selected along the Back River would have a similar site density, necessitating similar protective measures. If the Lee Tract is selected for the proposed plant, it will be essential that the planners work closely with the Institute, or another qualified agency, to ensure the most effective preservation of these significant sites.
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