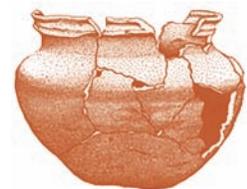


Phase I Cultural Resources Survey of the
Proposed US Hwy 701 Bridge Improvements
Georgetown and Horry Counties, South Carolina

PIN: 30688



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Report submitted to:

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ABSTRACT

New South Associates and Dolan Research performed a cultural resources survey of the proposed US Hwy 701 bridge improvements in Georgetown and Horry Counties, South Carolina. The project study corridor was a total of 300 feet in width. At the time of the survey, the area of impact within the 300 feet had not been determined. As a result of this work, one previously identified site (38GE18) was encountered and two bridges (structure number 262070100100; survey number 51-1214 and structure number 222070100400; survey number 43-0195) over 50 years of age were documented. Although the site extends across US Hwy 701 on the Georgetown County side, the portion northwest of the highway has been nearly destroyed through grading. The portion of the site on the southeast side is very disturbed in the area closest to the existing road, but contains intact deposits further away and may be adversely impacted by the replacement project and should be avoided. The site was previously determined eligible for inclusion in the National Register of Historic Places. As the area of impact is currently defined, a portion of the site may be adversely impacted by the proposed improvements. It is recommended that the area of impact be restricted to the disturbed portion of the site. No significant historic structures were recorded and no significant underwater resources were identified.

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I. INTRODUCTION

This document presents the results of a cultural resources survey of the proposed US Hwy 701 bridge improvement project and includes the results of an archaeological, architectural, and underwater archaeological survey. The project area is located along the Georgetown/Horry County border where US Hwy 701 crosses the Great Pee Dee River (Figure 1). Historically, this area was known to contain Yauhannah Ferry as early as the 1750s and is also believed to be near a 1716 Indian trading post. Previous work by Bill Weeks, Jim Michie, and Natalie Adams revealed a relatively large archaeological site (38GE18) containing a prehistoric occupation and a historic plantation. This site was known to occur within the project study corridor, but the effects of the proposed bridge improvements on the site were unknown. Other sites in the vicinity include 38GE19, 38GE20, 38GE58, 38GE59, 38GE211, and 38GE560. All of these, however, are outside of the area of impact. No previously recorded historic structures were found during background research.

ARM Environmental Services provided us with a description of the project area. The project study corridor is 300 feet in total width, with an approach on either side of 1,000 feet of high ground. At the time of the survey, the area of impact within the 300 feet had not been determined. As a result of this survey, 38GE18 was revisited and no new archaeological sites were identified. Two bridges (structure number 262070100100; survey number 51-1214 and structure number 222070100400; survey number 43-0195) over 50 years of age were documented during this survey.

A portion of the project study corridor is located on US Fish and Wildlife property. This area consists of a 23-acre tract located on the southeast quadrant of the study area. Prior to shovel testing this area, New South was required to obtain a Federal Archaeological Permit under the Archaeological Resources Protection Act of 1979. As a condition of this permit, a Special Use Permit from the manager of the Waccamaw Wildlife Refuge was also required. The Federal Archaeological Permit was received on March 2nd and the Special Use Permit was obtained on March 3rd. The terrestrial archaeology was performed on March 3rd of 2005. The architectural and underwater surveys were performed on January 26th and February 4th, respectively.

This report is organized into six chapters: Chapter 1 is this introduction; Chapter 2 provides an environmental context; Chapter 3 provides a cultural context; Chapter 4 discusses the methodologies used; Chapter 5 discusses the results; and Chapter 6 provides recommendations. Appendix A consists of an artifact catalog.

Figure 1
Project Area Location



Source: USGS 7.5' Quadrangle, Yauhanna SC 1973

II. ENVIRONMENTAL CONTEXT

Georgetown and Horry Counties are located in the Outer Coastal Plain region of South Carolina. Elevation in the area range from sea level to 75 feet above mean sea level. Topography consists of subtle undulations that are characteristic of the beach ridge plains (Mathews et al. 1980). In the coastal area there is a series of marsh and barrier islands, including South, Cedar, Pawleys, and North Island. Topography in the immediate vicinity ranges from about 15 to 31 feet above mean sea level.

The US Hwy 701 bridge is situated in northern Georgetown County/southern Horry County near the confluence of the Great Pee Dee River and backwater creek referred to as Yauhannah Lake. The large rivers of the Coastal Plain, such as the Pee Dee, have vast floodplains with dark swamps along their edges. They meander, forming oxbow lakes over time as they make their way through vast quantities of sediments eroded from Piedmont rocks and deposited in the Coastal Plain. Commonly found along these rivers are sand bars and spits, as the currents shift the sediment loads (Murphy 1995).

The area's climate is generally mild and is influenced primarily by its southern latitude, proximity to the ocean, and low elevation. This results in a subtropical influence. The summers tend to be long, hot, and humid while the mountains to the west serve as a barrier to cold air masses from the north and west, resulting in rather mild winters (Hilliard 1984: 13; Mathews et al. 1980: 46).

A series of climatic changes are responsible for the current climate of the project locality, which thus should not be taken to represent past climates and associated flora and fauna. Three paleoenvironments, the Full Glacial, Late Glacial, and Post-Glacial, are recognized in the Southeast. The Full Glacial period extended from 25,000 to 15,000 B.P, and was characterized by a dry, cold environment. Glacial ice did not reach as far south as South Carolina; however, the state was covered by a boreal forest. This boreal forest primarily consisted of pines and spruce, with a minor presence of deciduous hardwoods. The climate during this period was drier than today, with winter temperatures averaging 15 degrees colder than the modern norm.

The Late Glacial Period, extending from 15,000 to 10,000 B. P., witnessed gradual warming and wetter conditions, and the appearance of deciduous species. The boreal forest was gradually replaced by a northern hardwood type that was dominated by hemlocks, oaks, hickories, beeches, birches, and elms. Other conifers (pine and spruce) were also well represented in this forest type. Prairies were interspersed throughout the hardwood forest. These conditions peaked in occurrence between 12,810 and 9,500 B.P. according to pollen cores taken from White's Pond (Watts 1980). The forest vegetation changed from a patchy occurrence, which had characterized the previous period to a more homogeneous appearance.

The Post-Glacial Period extends from 10,000 B.P. to the present. This period witnessed yet further warming and the advent of the modern climates. Oak-hickory forests dominated the region during the early Post-Glacial Period. Open prairie like land decreased in area during this period, and hardwood forests with oak and hickory dominant reached its maximum extent. Between 6,000 and 5,000 B.P. increased moisture brought about by increased precipitation and an increase in sea level (60 m mean sea level to 1 m mean sea level) led to the development of coastal salt marshes, interior wetlands, and river floodplains.

From 5,000 B.P. onward the pollen record does not register environmental change, suggesting the appearance of a "modern" environment by this time (Sassaman et al. 1990). The environment from ca. 4,000 B.P. to the present has been characterized by a slight cooling trend with decreased precipitation. The extensive oak-hickory forests of the earlier period were beginning to decrease in extent by the time of historic contact, and the percentage of pine in the southern forests increased. Stands of pure yellow pine, which may have been at least partially maintained as subclimax vegetation through aboriginal burning, were noted in areas of the Coastal Plain by early settlers (Wharton 1978).

The project area is located along a riverine ecosystem based on waters with less than 0.5% ocean-derived salts and may be characterized as freshwater. The mud riverbed is not conducive to the survival of shellfish, although some freshwater mussels may be found in sandier areas. There are approximately 24 species of fish and six species of anadromous fish. The more important common species include catfish, largemouth bass, black shiner, and longnose gar. Anadromous species include shad, herring, striped bass, and sturgeon (Sandifer et al. 1980: 411). Reptiles include the river cooter, sliders, snapping turtle, and Florida cooters. Alligators are not uncommon today and may have been more common prior to extensive human pressure (Sandifer et al. 1980:419). The rivers and marsh areas are dominated by brackish and freshwater plants such as giant cutgrass, wild rice, cattails, and saw grass.

III. THE CULTURAL CONTEXT

PREHISTORIC OVERVIEW

PALEOINDIAN

The Paleoindian Period is commonly dated between 12,000 and 10,000 B.P. It has been subdivided into three divisions known as “Early”, “Middle”, and “Late”. The Early Paleoindian is consistently represented by the fluted Clovis Lanceolate type, while the Middle and Late Paleoindian reflect the beginnings of accelerated region variation. The Middle period is marked by the appearance of Cumberland, Simpson, Suwannee, and Quad points, while the Late Paleoindian is represented by the nonfluted Hardaway-Dalton and Dalton types.

From what little is known about the Paleoindian Period, archaeologists tend to agree that they were a band level society, were nomadic, and were hunters and foragers. Although the population density was low, it is believed that toward the end of the Paleoindian Period that the population density increased significantly (see Walthall 1980: 30). Many southeastern researchers argue that eastern Paleoindian groups may have based their subsistence economies on the exploitation of extinct big game, given that many sites are located in prime megafaunal habitats (i.e. major river systems) (Gardner 1974; Goodyear et al. 1979; Michie 1977; Williams and Stoltman 1965).

There is the possibility for the existence of a pre-Clovis horizon in the New World. Recent work at Monte Verde (Meltzer et al. 1997), past work at Meadowcroft Rockshelter (Adovasio et al. 1977; 1985), and new evidence from Cactus Hill in Virginia is providing ammunition for its existence. The evidence from Cactus Hill indicates the presence of a prismatic blade industry that dates between 15,000 and 16,500 B.P. (McAvoy and McAvoy 1997). Also, work at the Topper site on the Savannah River in Allendale County, South Carolina is providing some growing evidence for a pre-Clovis occupation.

ARCHAIC PERIOD

The Archaic Period has been traditionally divided into three divisions — the Early Archaic (10,000 to 8,000 B.P.), the Middle Archaic (8,000 to 5,000 B.P.), and the Late Archaic (5,000 to 3,000 B.P.). Generally, the Archaic is viewed as a lengthy time of adjustment to changing environments brought about by the Holocene warming trend and rising sea level.

Early Archaic projectile point forms include the Hardaway Side-Notched, Palmer Corner-Notched, and Kirk Corner-Notched. Representatives of the terminal Early Archaic bifurcate tradition (Chapman 1975) are also found in some quantities. The Middle Archaic sequence begins with Kirk Serrated and Kirk Stemmed points, which are followed by the closely aligned Stanly Stemmed. These are followed by the Morrow Mountain I and II types and then the Guilford and Brier Creek lanceolate types. Late Archaic points include the early Savannah River Stemmed and the smaller Otarre Stemmed points. Pottery makes its appearance in the terminal Late

Archaic with the fiber-tempered Stallings's series and the sand-tempered Thom's Creek series (see Blanton et al. 1986).

During the Early Archaic period, the region became warmer and moister because of the melting continental glaciers, which increased sea levels and precipitation. Oaks were the dominant forest vegetation (Delcourt and Delcourt 1987) and there appear to have been episodes of heavy rainfall (Segovia 1985). This environment led to changes in human adaptations that are visible in the archaeological record. Based on research conducted at two sites in North Carolina's Haw River Valley, Claggett and Cable (1982) proposed that changes in technology from the Paleoindian to the Early Archaic Periods reflect changes in settlement organization in response to post-Pleistocene warming.

Sassaman (1983) suggests that Middle Archaic people were very mobile, perhaps moving residences every few weeks, which fits Binford's (1980) definition of a foraging society. Binford proposed that foragers had high levels of residential mobility, moving camps often to take advantage of dispersed, but similar resource patches. He believed that differences in environmental structure could be traced to large-scale climatic factors and further noted that a collector system could arise under any condition that limited the ability of hunter-gatherers to relocate residences. During his work in the Haw River area of North Carolina, Cable (1982) argued that postglacial warming at the end of the Pleistocene led to increased vegetational homogeneity, which encouraged foraging. Sassaman's (1983) "Adaptive Flexibility" model suggests that this homogeneity allowed for a high degree of social flexibility, which allowed them to pick up and move when needed. This mobility did not allow them to transport much material, which alleviated the need for elaborate or specialized tools to procure and process resources at locations distant from camp.

The Late Archaic Period has been described as a time of increased settlement permanence, population growth, subsistence intensification, and technological innovation (Smith 1986). The Savannah River Stemmed, small Savannah River Stemmed, and Otarre projectile points characterize the period as well as the technological development of fiber-tempered pottery known as St. Simons and Stallings (Griffin 1943; Stoltman 1974). The first use of freshwater shellfish in the region corresponds with the development of fiber-tempered pottery in the Coastal Plain (about 4,500 B.P.). However, shellfish procurement and pottery use did not occur above the Fall Line until after 3,700 B.P. (and fresh-water shell midden sites are only found in the Savannah River Valley). Piedmont and Fall Line inhabitants used soapstone cooking tools (heating stones, and later, bowls), which explain the late adoption of pottery (Sassaman et al. 1990; Sassaman 1993).

WOODLAND PERIOD

Although there has been dispute over when exactly the Woodland Period began, some researchers believe that started with the beginning of the production of fiber tempered pottery known as Stallings around 5,000 B.P. (Trinkley 1990). This culture produced a rich material assemblage of worked bone and antler, polished stone items, net sinkers, steatite heating slabs, stone tools (projectile points, scrapers, knives, and drills), as well as the fiber tempered pottery. Hanson (1982: 21) and Smith (1974: 306-311) have argued that the stimulus for the elaborate material culture may be related to a combination of population increase and environmental disequilibrium. Binford (1978) has argued a similar hypothesis regarding population stress as a factor for new forms of food procurement. Hanson (1982: 13) notes that mussel availability by 2,500 B.C. had increased because of sea level changes, river gradient, and channel location. However, more recent research by Brooks et al. (1986) has found that mussel availability actually may have begun to decrease in the Savannah River drainage by this time.

The pottery is recognized by its large quantity of Spanish moss fiber (Simpkins and Scoville 1981), which was included in the paste before it was fired. Vessel forms include shallow bowls, large wide-mouth bowls, and jar forms. The pottery was built through molding, although coil fractures are sometimes present, particularly later in the period. Firing was not well controlled and was incompletely oxidized. Decorations include punctations (with periwinkle shells, reeds, and sticks), finger pinching, and incising. Some of these motifs are believed to be temporally sensitive (Trinkley 1986; 1990; Sassaman 1993).

With respect to cultural developments, Stallings appears to represent an elaboration of regional Late Archaic cultures. Settlement/subsistence strategies of this period appear to reflect seasonal rounds with a focus on riverine and estuarine resources during the fall and winter, while inland resources were exploited in the late winter and spring (Trinkley 1990: 7-8). The Fish Haul Site (38BU805) is an example of a possible Stallings Phase winter-spring camp. Excavations here indicated the use of diverse animal species, deer and fish being the most prevalent, and intensive collection, processing, and consumption of hickory nuts (Trinkley 1986).

Although Stallings is considered to be older and the progenitor of the Thom's Creek pottery, some radiocarbon dates suggest that the two types are largely contemporaneous (Trinkley 1980b). Thom's Creek dates as early as 2,220 ±350 B.C. from the Spanish Mount site in Charleston County (Sutherland 1974) and continues as late as 935±175 B.C. from Lighthouse Point Shell Ring, also in Charleston County. The artifact assemblage characteristic of the Thom's Creek phase is almost identical to that found in Stallings. The pottery, however, is tempered with sand rather than Spanish moss fibers. Some of the potteries are untempered. The motifs are almost all identical to those found in the Stallings series (Griffin 1943) including punctations (reed and shell), finger pinching, simple stamping, incising, and finger smoothing (Trinkley 1980b).

Projectile points from this time period are typically Savannah River Stemmed (Coe 1964). They reduced in size later on during the Thom's Creek phase and are classified as Small Savannah River Stemmed (Oliver 1985). Anderson and Joseph (1988:197) note that there appears to be a "long co-occurrence of both large and small forms", suggesting that one type did not replace the other.

Most of the work on Thom's Creek phase sites has been conducted at shell rings (see Trinkley 1980a; 1985). These sites range in size, but are generally about 100 to 300 feet in diameter, 2 to 6 feet high, with a 40 feet wide base and a clear interior. In essence, they are doughnut shaped. Although their functions have not been fully understood, it is believed that they were occupation sites for fairly large groups who lived on top of the ring and used the clear central area for communal activities. These sites suggest that village life was relatively stable and permanent as early as 1600 B.C. Subsistence focused on mammals, fish, shellfish, and hickory nut resources (Trinkley 1985).

Refuge (3000-2600 B.P.) and Deptford (2800-1500 B.P.) potteries follow the Stallings and Thom's Creek wares. The Refuge series is characterized by a compact, sandy or gritty paste and a sloppy simple stamped, dentate stamped, or random punctated decoration (Williams 1968). They are very similar to the preceding Thom's Creek wares and Anderson et al. (1982:265) note that the typologies are "marred by a lack of reference to the Thom's Creek series" and that the Punctate and Incised types are indistinguishable from Thom's Creek (Trinkley 1990a: 11).

Deptford potteries, which begin to occur in the latter part of the Early Woodland, are characterized by a fine to coarse sandy paste with surface treatments including Plain, Check Stamped, Simple Stamped, Cord Marked, Geometric Stamped, and Complicated Stamped (Williams 1968). Shell tools are uncommon and bone tools are very rare. This has led some researchers (Milanich and Fairbanks 1980: 75) to conclude that "wood must

have been worked into a variety of tool types". A small stemmed point tentatively described as "Deptford Stemmed" (Trinkley 1980c: 20-23) has been found associated with these sites. It appears to be a culmination of the Savannah River Stemmed reduction seen earlier on. Points similar to Yadkin Triangular points have also been found at Deptford sites (Coe 1964; Milanich and Fairbanks 1980). Sassaman et al. (1990) report that, in the Savannah River Valley, triangular types appear to be more strongly associated with Deptford than stemmed types.

It has also been noted that there is a co-occurrence of the larger triangular Yadkin and Badin type points with smaller triangular forms such as Caraway which has traditionally been attributed to the Late Woodland and Mississippian Periods (Blanton et al. 1986:107); Sassaman et al. 1990; Trinkley 1990a). Blanton et al. (1986) believe that these point types may have been used at the same time for different purposes.

North of Charleston, a somewhat different cultural manifestation is found that is related to what Caldwell (1958) refers to as the "Northern Tradition. This assemblage is referred to as Deep Creek and was first identified in North Carolina (Phelps 1983). The pottery is characterized by medium to coarse sand inclusions with surface treatments of cord marking, fabric impressing, simple stamping, and net impressing (see Trinkley 1990). This pottery had previously been designated as the Middle Woodland "Cape Fear" pottery type originally typed by South (1960). The pottery dates from about 1000 B.C. to A.D. 1 in North Carolina, but may date later in South Carolina based on two radiocarbon dates of 120 ± 130 B.C. and A.D. 210 ± 110 . The Deep Creek settlement and subsistence systems are poorly known, but appear to be very similar to those identified with the Deptford Phase.

The Deptford Period continues on into the Middle Woodland Period. However, the Deptford phase is still part of an early carved paddle stamped tradition which is believed to have been replaced by a northern intrusion of wrapped paddle stamping (Trinkley 1990).

In South Carolina, the Middle Woodland is characterized by a pattern of settlement mobility and short-term occupation. It is characterized by the Wilmington phase on the southern coast and the Hanover, McClellanville/Santee, and Mount Pleasant assemblages on the northern coast.

McClellanville (Trinkley 1981) and Santee (Anderson et al. 1982:302-308) wares are characterized by a fine to medium sandy paste with a surface treatment primarily of V shaped simple stamping. Although the two potteries are very similar, the Santee series may have later features, such as excruciate rims and interior rim stamping which the McClellanville Series pottery does not exhibit. Both of these types concentrate on the north central coast of the state (Trinkley 1990a: 18).

Wilmington and Hanover are actually believed to be regional varieties of the same ceramic tradition. It is characterized by crushed sherd or grog tempering which makes up 30 to 40% of the paste and ranges from 3 to 10 mm in size. Caldwell and Waring (Williams 1968:113-116) first described the Wilmington wares from sites examined in coastal Georgia. Hanover was described by South (1960) from his survey of the southeastern coast of North Carolina and portions of the northeastern coast of South Carolina. Waring (Williams 1968:221) sees the Wilmington wares as intrusive from the Carolina coast, but the pottery has some Deptford traits. Caldwell and McCann (1941) observed that, "the Wilmington complex proper contains all the main kinds of decoration which occurs in the Deptford complex with the probably exception of Deptford Linear Checkstamped" (see also, Anderson et al. 1982:275). Therefore, cord marking, check stamping, simple stamping, and fabric impressing are found with sherd tempered potteries. Radiocarbon dates for Wilmington and Hanover phase sites range from 135 ± 85 B.C. from site 38BK134 to A.D. 1120 ± 100 from a Wilmington

house at the Charles Town landing site (38CH1). Dates seems to cluster, however, from about A.D. 400 to 900 (Trinkley 1990:18).

Another cultural trait of the Wilmington phase was the introduction of sand burial mounds. These have been found in coastal North Carolina and in areas along the southern South Carolina coast, leaving somewhat of a "gap" in the central area between the two states. Some of the mounds, which have been associated with the Middle Woodland, have been questioned, particularly in the Savannah River Valley where the assemblages are often dominated by later Irene and Savannah wares. A mound on nearby Callawassie Island is one such mound, which was apparently constructed with refuse from an adjacent St. Catherines village (Brooks et al. 1982). Therefore, it is still not clear if the mounds developed during the Wilmington phase or if they developed afterwards (Kennedy and Espenshade 1992).

Most Wilmington sites are characterized by marine shell middens, which extend along the tidal marshes. On Wilmington Island there are several sites, which merged to form a ridge of shell extending nearly three miles along the shore (Caldwell and McCann 1940).

Essentially, the Late Woodland is a continuation of previous Middle Woodland assemblages. In Georgetown County the Late Woodland is characterized by a continuation of the Santee pottery series. The Hanover and Mount Pleasant pottery series are also found as late as A.D. 1000 (Trinkley 1989). Cable (2001: 15) indicates that Wilmington and Cape Fear Fabric Impress dominate during this period as well. Unfortunately, this period is difficult to delineate from the preceding Middle Woodland period or subsequent Mississippian period (Sassaman et al. 1990:14). Sites with Late Woodland or Mississippian occupations tend to contain small, triangular points such as the Caraway or Pee Dee (Coe 1964).

Stoltman (1974) observed in the Middle Coastal Plain that Late Woodland sites have a settlement pattern characterized by dispersed upland settlement, which he believes, may indicate the beginnings of slash and burn agriculture or intensification of upland resource procurement. In the coastal area, sites are also numerous, small and dispersed which suggests a decrease in settlement integration over the Middle Woodland period. Contrasting this pattern, Piedmont sites are few and are dispersed along tributaries with little if any interriverine occupation (Goodyear et al. 1979; Taylor and Smith 1978).

MISSISSIPPIAN PERIOD

The Mississippian Period (A.D. 1100 to 1640) is characterized by a sedentary village life, agricultural food production, and regionally integrated and heirarchically organized social, political, and ceremonial systems (Anderson 1994). Not much is known about the Mississippian Period in this area of the state. Most of the work has been done in the middle Savannah River valley or along the Wateree River Valley in the central part of the state. It is possible that Mississippian occupations are aligned with the Scott's Lake Mound Center on the Upper Santee River as well as the Wateree Mound Complex near Camden. Anderson's (1982) ceramic sequence is based on data supplied by local collectors, Coe's (1995) work at Town Creek in North Carolina, and excavations conducted by Stanley South (1971) at Charlestowne Landing. Anderson's phases include Santee II, which is dominated by Santee Simple Stamped, Jeremy, and Pee Dee.

HISTORIC OVERVIEW

Much of this historic overview was extracted from Adams (1993) and Adams and Botwick (2003), although more recent historical references are also included. Trinkley (1987: 29-33) has written a general discussion of the early history of the Yauhannah area, which is summarized here. The first Indians making contact with the English settlers and explorers were the Cuccoes, Wandos, Wineaus (Winyahs), Etiwans, and Sewees. Using a variety of sources Hodge (1910: 887) places the Waccamaws along the river of the same name, while others quoting a 1715 government census, places them 100 miles northeast of Charleston. At that time, the Waccamaws had four villages containing 210 males and 400 females. The Winyah Indians are depicted in the same census as being located 80 miles northeast of Charleston and are shown by Hodge (1910: 963) on the west side of the Pee Dee River near its confluence with Winyah Bay. The Winyah were a smaller tribe that lived in only one village having 36 males and 70 females in 1715.

Work by Michael Trinkley (1983) at Wachesaw Landing in Georgetown County found potteries he believed were associated with the historic Indian population. Sherds he termed Wachesaw are thick and tempered with large quantities of rounded quartz sand. It has bold simple stamping, bold and sloppy complicated stamping, and roughly finished plain surface treatments. One sherd of cob marked pottery was also found. Another type associated with historic Indians is the Kimbel series. It is tempered with fine sand and may glisten from small quartz grains or mica inclusions. It has a hard, compact paste. Surface treatments are plain, simple stamped, and complicated stamped. Plain surfaces are sometimes smoothed, imperfectly polished or burnished.

Several writers suggest that a Siouan stock tribe called the Woccon left North Carolina around 1711-1712 and became the Waccamaw of South Carolina. The only evidence of this is that it is around that time that the Waccamaw appear in South Carolina historical accounts and the Woccon disappear from North Carolina historical accounts (Rights 1957: 39).

The Waccamaws and Winyahs are best known for their connection with the establishment of a trading post in the northern coastal area by the Commissioners of Indian trade. North Carolina records indicate that in 1715 they were being supplied with ammunition and encouraged in hostilities toward the English by the North Carolina Sara (Mooney 1984: 77), although by the end of July of the following year the "Waweas, Wackamaws, Peedeas and others" concluded a peace accord with South Carolina (McDowell 1955: 96).

The trading post was to be established at Saukey to allow trade with the Pedeeas and Waccamaws. In September of 1716 William Waties, the factor of this proposed post, argued for its location at "Uauenee (or the Great Bluff)" (Yauhannah) because it was closer to English settlements, greater distance from the Sara, and close to the Waccamaws who were of greater consequence than the Pedeeas. The Commissioners of Indian trade agreed and order goods to be delivered to the trading post.

In 1717 the new factor, Meredith Hughes, notified the Commissioners that the Indians in the area were growing restless and were beginning to move around. In that year, the Sara, Santee, Pedea, and Waccamaw had apparently forced Hughes to leave the factory at Yauhannah (McDowell 1955: 202) and in September a group of Pedea, Winyah, and Waccamaw Indians appeared before the Commission. The Winyah and Waccamaw Indians wanted to have Hughes stay in the area of the English settlements (on the Black River) while the Pedea wanted him to stay at Yauhannah (McDowell 1955: 208). Knowing that the trade potential with the Waccamaw was greater than that of the Pedea, the Commission decided that Hughes should stay in the Black River area (McDowell 1955: 210). The Black River factory was located on Andrew Collins' Plantation

(McDowell 1955: 232). Hughes indicated in May 1717/18 that he was preparing to return to Yauhannah, although this transfer appears to have never taken place

The Waccamaws were all wiped out in a 1720 “war” with South Carolina. Rogers (1970: 14) notes that since the Winyahs sided with the English, they survived somewhat longer. There appear to have been a few Waccamaws still in the area in the 1730s (Milling 1969: 227) and in April 1733, Rangers on the Northern Frontier were ordered to “Observe the behavior of the Pedee and Waccamaw Indians” (Journal of the Council, April, 18, 1733). Mooney (1894: 77) believes that the Waccamaw were finally incorporated with the Catawba.

Early white settlers in the area were initially drawn to the Waccamaw Neck area of Winyah Bay to trade with the Indians. While land grants were being issued as early as 1705, the majority of lands were granted in the 1730s (Rogers 1970: 12, 20, 26). These early grants were along the area rivers. Among the first grantees was Percival Pawley who eventually obtained 24,000 acres on the Pee Dee, Sampit, and Waccamaw rivers in 1711 (Rogers 1970: 16-21).

Indigo was one the earliest major crops of the area, but this pursuit lasted less than 50 years. Production peaked from 1754-1760 and the crop grew well along the Pee Dee, Black, and lower Waccamaw rivers. In 1753 the Winyah Indigo Society was officially organized and Thomas Lynch, Sr. served as their first president. The early economy also depended on naval stores. In 1733 exports from Georgetown included 7,361 barrels of pitch, 1,092 barrels of tar, and 1,026 barrels of turpentine (Bridwell 1982: 12; Rogers 1970: 46-47). Shipbuilding was also an important industry that began to flourish by the 1740s. However, by the mid 1750s the industry began to decline and was replaced by other enterprises (Bridwell 1982: 14-16). Perhaps the earliest detailed map showing the area is the 1780s edition of DeBrahm’s 1757 map of South Carolina (Figure 2). Hull Ferry is shown in the vicinity of Yauhannah Bluff. On the opposite bank is Waties Land. Along the road south of Hull Ferry are the names Youre Hene, Jaw Hene, and Hetop Saw. These names all appear on the original 1757 map. Landowners on the 1780s map are depicted as a last name next to a small square. These names do not follow this pattern and appear represent Indian place names.

A 1758 plat (Figure 3) depicts the property on the west side of the Great Pee Dee River. This plat is part of a transaction between Martha Bonny and William Hull. This plat shows five structures making up a plantation complex. Two of the structures are in the general vicinity of US Hwy 701, while the other three are further south. This complex is associated with archaeological site 38GE18, which has previously been determined eligible for the National Register of Historic Places (Adams and Botwick 2003).

The 1773 Cook Map (Figure 4) indicates that Hull still owns the property in the area and Alston now owns the land on the opposite side of the ferry. The Indian place names are no longer shown. Two years later the Mouzon map shows no name in the vicinity of the project area and no Indian place names. According to Roger’s (1970:134) history of Georgetown County, John Alston was running the ferry at Yauhannah in 1781. Hull died in 1777 and at some point John Alston acquired the land associated with the ferry crossing.

Tidal rice culture began in the Winyah area in the 1730s and became the major cash crop until the Civil War. Georgetown District was the nation’s major rice growing area. However, according to Carpenter (1983) the project area is located just north of the area heavily involved in tidal rice cultivation. In the 1820s Robert Mills observed that in the Georgetown District “*everything is fed on rice, horses and cattle eat the straw and hogs, fowls, etc. are sustained by the refuse, and man subsists upon the marrow of the grain*” (Mills 1826: 558). By

Figure 2
Faden's 1780 edition of the 1757 DeBrahm's Map

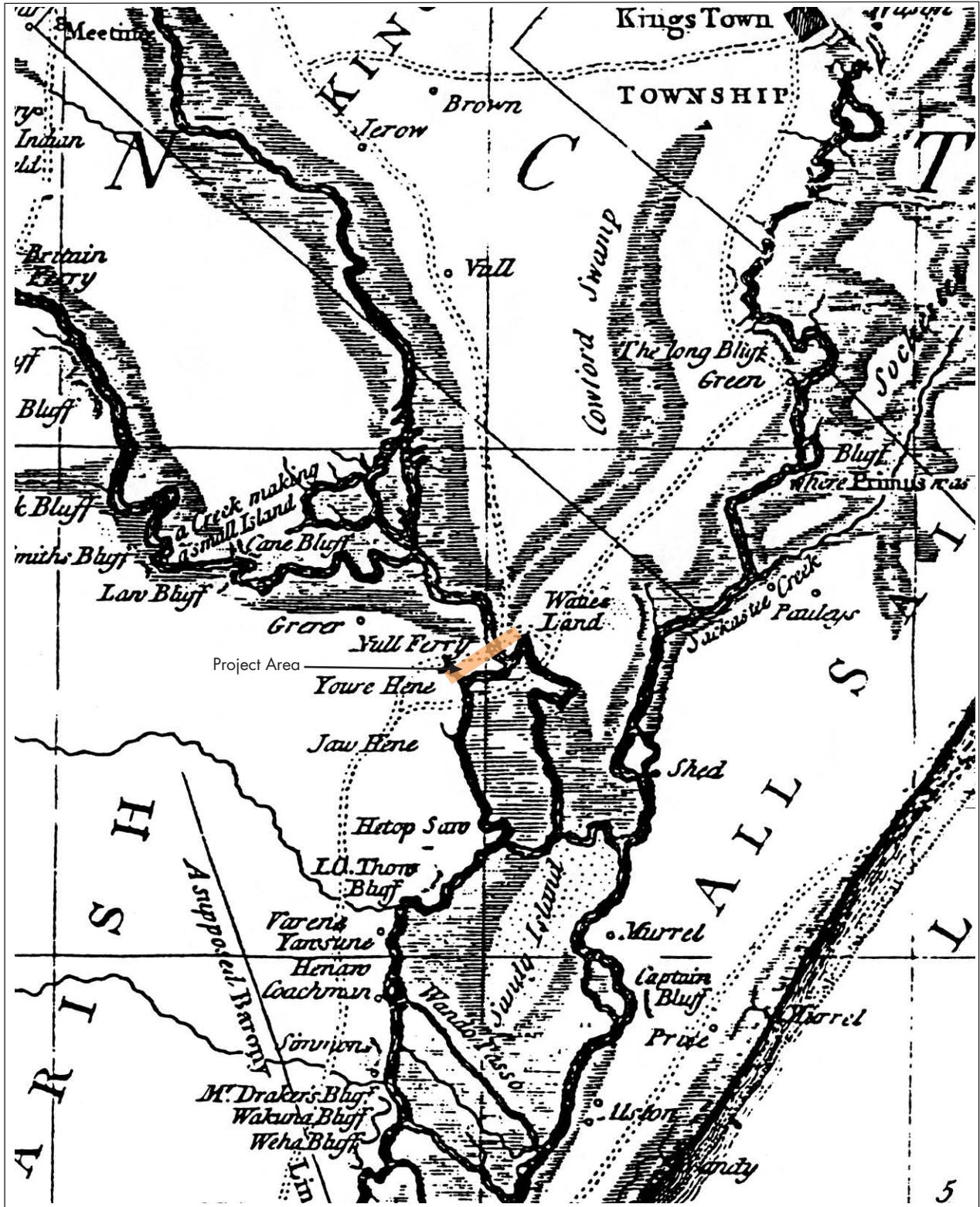


Figure 3
1758 Plat of Land conveyed to William Hull from Martha Bonny

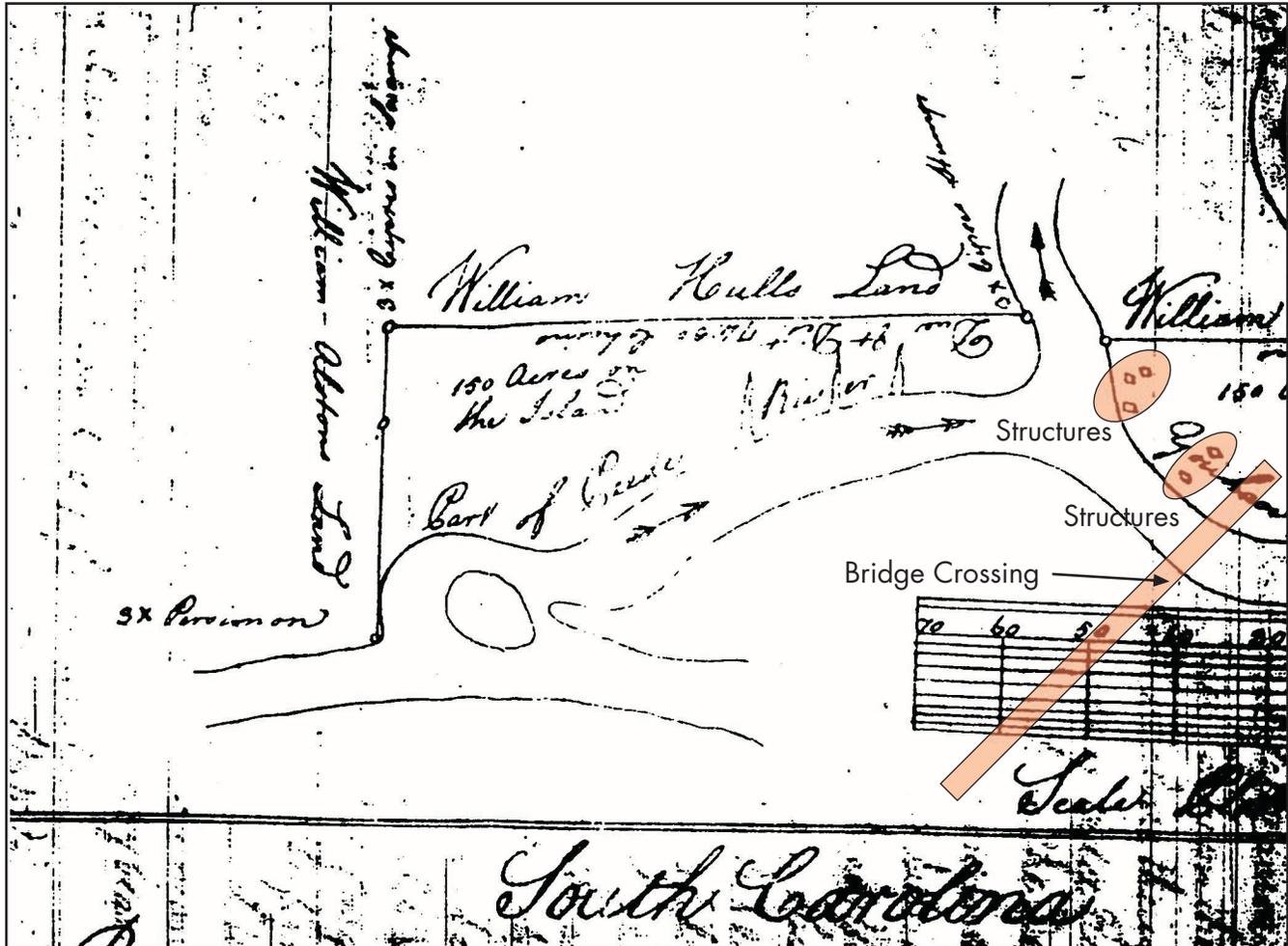


Figure 4
The Cook Map of 1773



1820 what once was referred to as Hull Ferry is referred to as Yahany Ferry and the owner of the property is a Singleton (Figure 5). However, local historian Deryl Young states that the Singleton was an overseer and the property was still under the ownership of John Alston (Deryl Young, personal communication 2005). Mills Atlas depicting Horry District shows no property owners on that side of the bridge crossing, although it is likely the John Alston also owned that land.

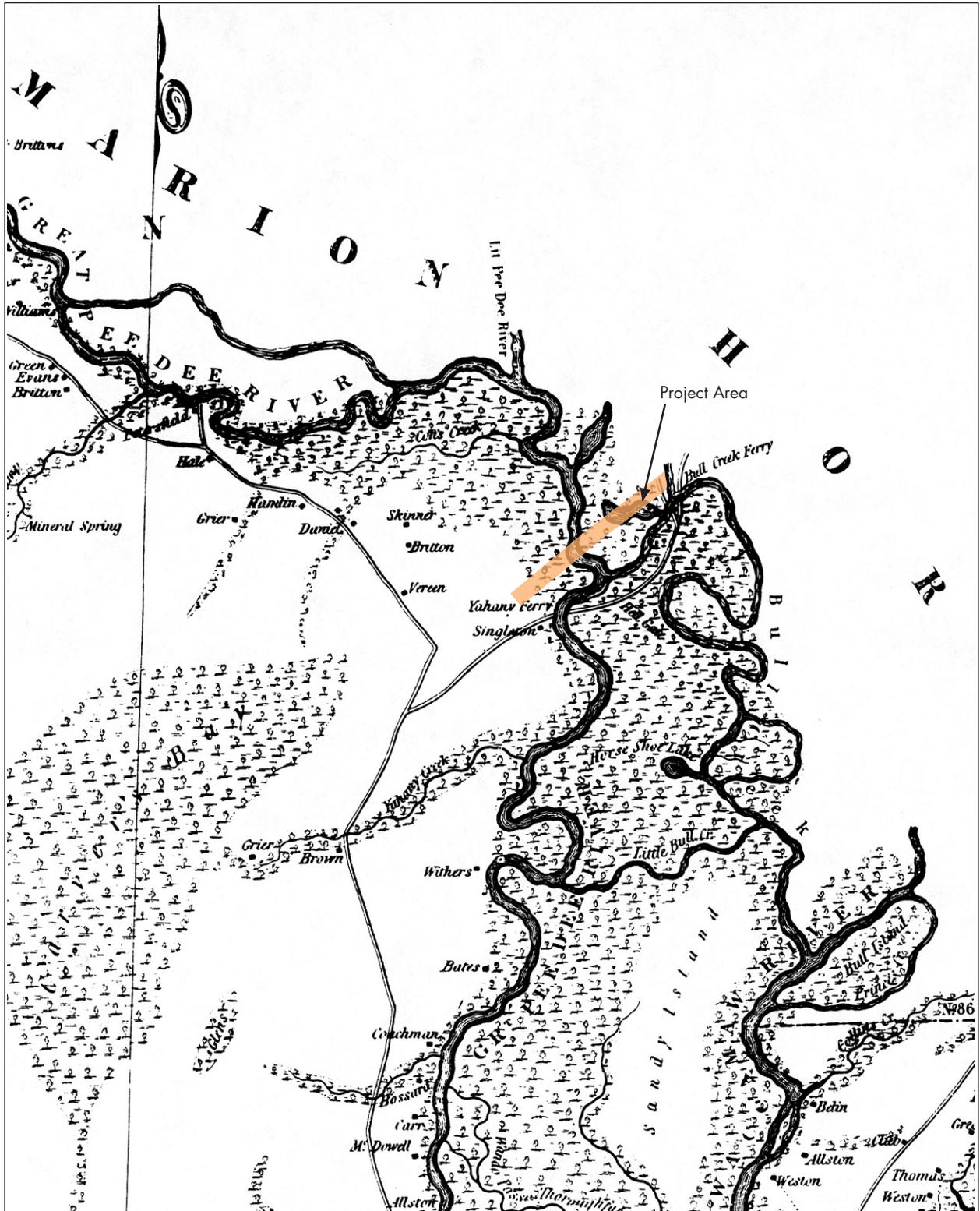
In 1840 Georgetown District produced 45 percent of the nation's rice and between 1850 and 1860 rice production peaked. By 1860, South Carolina produced almost 64 percent of the nation's crop and half of that was grown in Georgetown District (Easterby 1945: 36). Large plantations became typical in the nineteenth century. The demand for the limited prime coastal lands forced up land values and pushed out marginal planters. By the early 1800s a hierarchy had developed based upon distance from the sea (Hetrick 1979: 12). By 1850, 99 large planters produced 98 percent of the District's total rice crop (Rogers 1970: 253; Lawson 1972: 8). Because of the heavy reliance on slave labor, Georgetown District had the highest percentage of slaves in South Carolina. Between 1810 and 1850, slaves made up 88 percent of the District's total population. They accounted for 85 percent of the population in 1860 (Rogers 1970: 328, 343).

Given the location of the bridge crossing above the primary area of tidal rice agriculture, the plantation economy was likely to have been based mainly on cotton, which Mills (1826: 558) states was the second most important crop raised in the district. In 1843 Edmund Ruffin traveled through the area. Although not reaching Yauhannah Bluff, he traveled as far upriver as Little Bull Creek on the north side of Sandy Island. He noted that the river edges of the Pee Dee were tidal swamp in a natural state, containing thick forests of tupelo, gum, cypress, and maple. He stated that the "liability of these lands to be inundated, prevent their being safe enough for rice culture; & no one seems to think that land is worth embanking for any other crop. Thus the immense extents of swamp lands above regular & full tides, or where exposed to freshes, on the Peedee as of all other rivers of S.C. will probably remain a nuisance for a century to come, & held at scarcely any value except for timber" (Matthew 1992: 198). Further down river at Sandy Island the land was surrounded by tidal rice fields (Matthew 1992: 192).

In the South, the Civil War devastated the local economy. For the South Carolina coast, it was particularly devastating. A popular journal indicated that "*no other part of the United States knows so well as the Rice Coast what defeat in war can mean, for nowhere else in this country has a full-blown and highly developed civilization perished so completely*" (Saas 1941: 108). During the war, the blockade and occupation of Georgetown in 1862 threatened the plantation system. Union troops seized rice as contraband and set fire to rice fields as they went up the Waccamaw. Although some planters attempted to continue growing rice, three quarters of the plantation families moved to the interior of the state. Between 1860 and 1870 South Carolina's rice production fell nearly 73 percent. In Georgetown County, the 1879 crop was approximately 10 percent of the 1860 crop (Kovacik 1979: 55).

During this period, bankruptcies were common. Also the Freedmen's Bureau confiscated some lands to resettle former slaves. Other lands were sold at auction for nonpayment of loans or taxes. Lachicotte and Sons and the Guendalos Company tried to combine planting and rice milling to reduce operational costs, but these efforts to keep the rice industry alive were only successful until the turn of the century. By late in the century, many area plantations were being bought up by Northern investors as game preserves for sport hunting. The loss of the slave work force who was stable and experienced, competition from western rice growing areas, and several hurricanes that wrecked the rice dike system, ended the long history of rice production on the Georgetown area rivers (Devereaux 1976: 254-255; Lawson 1972: 22-23, 409; Smith 1913: 80). In 1906, Elizabeth Allston Pringle of Chicora Wood (located approximately 12 miles south of the river crossing) wrote:

Figure 5
Mills' Atlas showing the Georgetown District area in the 1820s



I fear the storm drops a dramatic, I may say tragic, curtain on my career as a rice planter. The rice plantation, which for many years gave me the exhilaration of making a good income myself, is a thing of the past now – the banks and trunks have been washed away, and there is no money to replace them (Rogers 1970: 488-489).

Today most of the Waccamaw River plantations are being developed into residential or commercial districts. The Pee Dee River area near the US Hwy 701 bridge continues to remain fairly undeveloped. Several mobile homes exist in the area as well as a convenience store. Several large tracts of land in the interior of Georgetown County are being used as hunting preserves. Waccamaw Wildlife Refuge currently encompasses 6,000 acres although it has been approved for almost 50,000 acres.

PREVIOUS RESEARCH IN THE AREA

The coast of South Carolina has received a great deal of archaeological scrutiny. However, the area north of the Santee River has received relatively little of this attention. Waldemar H. Ritter of the Charleston Museum was collecting from Georgetown area sites as early as 1933. These sites were located on Pawley's Island and on the Baruch property, but the descriptions were not sufficient enough to allow for relocation.

The earliest published work is Carl Miller's (1950) study of nearly 900 sherds from nine sites near Myrtle Beach in Horry County. A brief re-examination of the collection from one of these sites (38HO1) resulted in the identification of probably Deep Creek and Hanover potteries.

Stanley South was also involved in some of the earliest work in this area. Reporting on a survey of the southeastern coast of North Carolina and northeastern coast of South Carolina, he offered type descriptions for the Thom's Creek, Cape Fear, Hanover, and Oak Island series (South 1960). His sites were found adjacent to the estuary in contexts similar to those sites visited by Miller (1950).

In the early 1960s several largely unreported projects were being conducted in Georgetown and Horry counties by the South Carolina Institute of Archaeology and Anthropology by Dr. William Edwards and his students. Erika Fogg-Amed (1980) compiled information on this work and developed a sequence from the Paleoindian to the late Pee Dee.

Crawford (1966) and Lofffield (1976) continued to build on South's (1960) assessment of coastal pottery and emphasized the North Carolina coast. Although they tended to develop more or less local typologies, work by David Phelps in the late 1970s began to synthesize this work (Phelps 1978, 1980, 1981, 1982, 1984). Perhaps the most important contributions of Phelps' work was the recognition that South's Cape Fear series actually represented at least two Early and Middle Woodland series lumped together. Trinkley (1983a) has discussed the applicability of this sequence to the South Carolina coast.

In the late 1980s work at Minim Island (Espenshade and Brockington 1989) explored an Early Woodland site evidenced by Thom's Creek, Refuge, Deptford, and Deep Creek pottery. The subsistence data from this site indicated that it was seasonally used, with an emphasis on fishing and oyster gathering.

Historic sites were largely ignored until the 1980s. South and Hartley's (1980) study of early historic settlement patterning suggested that major historic site complexes would be located on high ground adjacent to deep

water access. Plantation houses would be located on the highest and best drained soils with slave settlements on moderately or poorly drained soils.

Most of the work on plantation sites in Georgetown County has occurred on Waccamaw Neck where most of the resort development has taken place. Testing and data recovery excavations include work at Richmond Hill Plantation (Michie 1987, 1988, 1990; Michie and Mills 1988), The Oaks and Laurel Hill Plantation (Drucker 1980), Campfield Plantation (Zierden and Calhoun 1983), Willbrook, Oatland, and Turkey Hill Plantations (Trinkley 1987, 1993), and Midway Plantation (Smith 1986; Adams 1993). There has also been recent work at True Blue Plantation that has not yet been published (Eric Poplin, personal communication 2002). Trinkley (1993) has synthesized much of this previous research and should be consulted for more information. One of the more interesting conclusions from his synthesis is that during the eighteenth century, artifact patterns at slave settlements from rice plantations were indistinguishable from slave settlements at other types of plantations. However, there is clearly a difference in patterns left by plantation owners of rice plantations and those of other plantation types. By the nineteenth century, this difference disappears as other plantation types become more like that of the rice plantations. Trinkley (1993: 74) believes that it may be a reflection of an increasing emphasis on architectural elaboration and refinement perhaps due to the increasing wealth of cotton planters in the nineteenth century.

In February 2005, New South Associates completed a data recovery on a portion of 38GE18, located on the southwest side of the US Hwy 701 river crossing. Artifact analysis is currently underway. The bulk of artifacts were associated with an early/mid eighteenth century to early nineteenth century plantation complex (Adams 2005).

PREVIOUSLY IDENTIFIED ARCHAEOLOGICAL AND ARCHITECTURAL RESOURCES

The archaeological site files were examined at the South Carolina Institute of Archaeology and Anthropology. Seven previously identified sites are located within a two-mile radius of the bridge (see Figure 1). Two of the five sites consist of shipwrecks in the Great Pee Dee River. Information on these sites is presented in Table 1. Of those sites, only one (38GE18) is situated in the project area. This site was revisited and will be discussed in the Results Chapter of this report. Examination of standing structure and National Register records on file at the South Carolina Department of Archives and History indicated that no previously recorded resources occur within the two-mile radius.

Table 1. Previously identified archaeological sites.

Site Number	Northing	Easting	Site Type	Size (m)	Depth (cm)	NR eligibility
38GE18	3725017	670444	M. Archaic to Miss.; 18th/19th c. plantation	260 x 140	70	Eligible
38GE19	3724849	670471	Archaic; Woodland; 18th c.	Unknown	Unknown	Unknown
38GE20	3724707	670461	Woodland, Mississippian; 18th c.	Unknown	Unknown	Unknown
38GE58	3724740	670660	Sunken Wooden Vessel	Unknown	Unknown	Unknown
38GE59	3724600	670700	Sunken Wooden Vessel	Unknown	Unknown	Unknown
38GE211	3725007	669892	Archaic to Woodland	Unknown	Unknown	Unknown
38GE560	3724923	670347	Unknown Prehistoric; 18th to 20th c.	119 x 60	30	Potentially Eligible

IV. METHODS

ARCHIVAL METHODS

Prior to the beginning of fieldwork, background historical research and a literature review were conducted for the project area. This work, performed by Summer Ciomek of New South Associates' Georgia office, consisted of an examination of the South Carolina Archaeological Site Files at the South Carolina Institute of Archaeology and Anthropology. It also included a review of the Georgetown and Horry Counties Architectural Survey Files at the South Carolina Department of Archives and History. Examination was also made of the National Register of Historic Places site files, also located at Archives and History. An area two miles in radius was examined for archaeological resources and one half mile for structural resources during background research.

NATIONAL REGISTER OF HISTORIC PLACES ELIGIBILITY CRITERIA

According to the National Park Service, properties that are considered eligible for the National Register of Historic Places are those that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that:

- A) are associated with events that have made a significant contribution to the broad patterns of our history, or
- B) are associated with the lives of persons significant in our past, or
- C) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or
- D) have yielded or may likely to yield information important in history or prehistory.

Archaeological sites identified during this survey would be evaluated primarily through Criterion D, since it typically deals with archaeological deposits and since the significance of these cultural resources is more obscure. Other sites, such as those containing standing structures or with a known history (the birthplace of a famous person or the location of an event significant in American history) are often significant under the remaining criteria, although they may also have archaeological deposits significant under Criterion D.

It is generally accepted that the basis for archaeological site significance is the potential a given site possesses to add to our understanding of the past. Michael Glassow (1977) uses physical characteristics to determine the resources potential to contribute to research. These physical attributes consist of variety, quantity, integrity, clarity, and environmental context. Of these characteristics, integrity is given the greatest importance since without it; interpretation is, at best, tenuous. Quantity is considered the least important since it is dependant on site type. For instance, sites continuously occupied or reoccupied will produce more artifacts than short-term

occupations. All of these sites comprise the totality of the human record and must be examined to obtain a complete understanding of past lifeways.

FIELD METHODS

The architectural field survey documented all buildings and structures greater than 50 years of age along the project corridor or within distinguishable view of the study area (350 feet). For each of these buildings or structures, a South Carolina architectural form was completed or updated. As part of this work, a front and oblique view of each resource was photographed when possible.

Since the project study corridor is 300 feet in width, the archaeological survey was conducted by means of shovel tests placed at 100-foot intervals on either side of the road within 150 feet of the center line. In those places where surface visibility was 75 percent or greater, surface inspection was used in lieu of shovel tests. Once a site was identified, it was further examined with shovel tests at intervals no greater than 50 feet on a grid. Sufficient information required for completion of South Carolina Institute of Archaeology and Anthropology site forms was collected and photographs were taken, if warranted in the opinion of the field director. An archaeological site was defined as three or more surface artifacts or two or more positive shovel tests (regardless of artifact count).

All soils from shovel tests were screened through 1/4 inch mesh hardware cloth, with each test numbered sequentially. Each test measured about 1 foot in diameter and was taken to sterile subsoil. All cultural remains were collected except for shell, mortar, and brick, which was quantified in the field and discarded. Notes were maintained for profiles at any sites encountered.

Underwater field methods are described in detail in the Results section of this report.

LABORATORY METHODS

All artifacts recovered were examined in the laboratory at the conclusion of field research. The artifacts were cleaned and analyzed at New South's Columbia office. The analysis of the collection followed professionally accepted standards with a level of intensity suitable to the quantity and quality of the remains. Typically for SCDOT projects, artifacts and associated notes are curated with the South Carolina Institute of Archaeology and Anthropology. However, one of the conditions of the Federal Permit was that collections from 38GE18 be curated with their official facility at the Office of Archaeological Research at the University of Alabama located at Moundville. Therefore, the artifacts, field notes, and photographs will be curated with Moundville using their curation standards.

V. RESULTS

ARCHAEOLOGICAL SURVEY

As a result of the archaeological survey conducted for the proposed improvements of the US Hwy 701 bridge over the Great Pee Dee River, one site (38GE18) was revisited. No new sites were encountered.

The survey area was divided into quadrants. The southeast quadrant was located on US Fish and Wildlife property, the southwest quadrant was across the highway, the northwest quadrant was located on the side containing the Pee Dee Grocery, and the northeast quadrant was on the opposite side of the highway.

DESCRIPTION OF QUADRANTS

Southwest

This quadrant contains a large shed and several mobile homes. A total of 10 shovel tests were excavated along a single transect at 100 foot intervals parallel to the highway about 80 feet from the centerline. The transect began about 10 feet from the drop off to Yauhannah Lake and ended approximately 100 feet beyond Wildlife Lane. All of these shovel tests were negative and much of this area had been disturbed by grading for house or building construction. The original site form for 38GE18 indicated that a portion of the site is located on this side of US Hwy 701. Therefore, a judgmental shovel test was placed 25 feet northwest of Shovel Test 1 to check to see if remnants of the site still existed. The shovel test was positive. Two more shovel tests were excavated at 50 and 75 feet to the northwest. Both were negative and very disturbed. A shovel test was also excavated 25 feet to the southwest. It was also disturbed and negative. Details about the site will be discussed later.

Southeast

The southeast quadrant contains property owned by US Fish and Wildlife and is undeveloped. Shovel tests began at the end closest to Yauhannah Lake and a single transect was excavated about 140 feet from the centerline. Here, shovel tests were excavated at 50-foot intervals since the property contains 38GE18, a site that had previously been determined to be eligible for the National Register. Shovel tests 1 through 3 were positive, as was shovel test 7. All of these are related to 38GE18. Details about the site will be discussed later. Shovel testing continued to a distance of 400 feet from ST 1. At that point, no additional shovel testing was performed since flags from negative shovel tests from Adams and Botwick's (2003) 65-foot interval survey were encountered within the project study corridor.

Northeast

The northeast quadrant contains mobile and modular homes. Shovel testing began about 100 feet from the swamp edge. The transect was placed approximately 100 feet parallel to the US Hwy 701 centerline. The first two shovel tests in this transect were negative. The next six shovel test locations were in residential yards where surface visibility was excellent. A surface survey was performed in this area. The final two shovel tests, which were excavated, were located in a mixed open/wooded area. The final shovel test was located across the street from the Pee Dee Grocery. None of the shovel tests or surface areas yielded artifacts.

Figures 6 and 7
Photographs of Project Area



6 View of Yauhannah Lake from the Southwest Quadrant (photographer standing on positive shovel test for 38GE18)



7. View of the Bridge and portion of 38GE18 in Southeast Quadrant.

Figures 8 and 9
Photographs of Project Area



8. View of surface visibility in Northeast Quadrant looking back towards the river.



9. View of surface visibility in the Northwest Quadrant looking back towards the river.

Northwest

The northwest quadrant contains mobile homes, vacant land and the Pee Dee Grocery. The transect was placed approximately 80 feet parallel to US Hwy 701 centerline. The first shovel test location was in the paved Pee Dee Grocery parking lot. Most of the remainder of the transect contained a dirt road bed that provided excellent surface visibility. The surrounding land contained sparse vegetation, also providing good visibility. Near the swamp edge were mobile homes. Surface visibility was also very good in this area. As a result, this transect consisted of surface survey. No artifacts were found.

ARCHAEOLOGICAL SITES

As a result of the archaeological survey of the proposed US Hwy 701 bridge improvements, one archaeological site (38GE18) was revisited (Figure 10). No new sites were found. Site 38GE18 was originally recorded by Richard Polhemus in 1972 who collected a number of artifacts from an area immediately adjacent to the Pee Dee River on either side of US Hwy 701, although the bulk of the site was found to be southeast of the highway. Other previous work at the site was performed by Mr. Bill Weeks, as well as Mr. Jim Michie of Coastal Carolina University. More recently, New South Associates (Adams and Botwick 2003) surveyed the entire site and summarized the notes from previous work. New South Associates also just completed the excavation of a portion of the site nearest the Pee Dee River channel for a proposed US Fish and Wildlife building. A report of this work is in progress (Adams 2005).

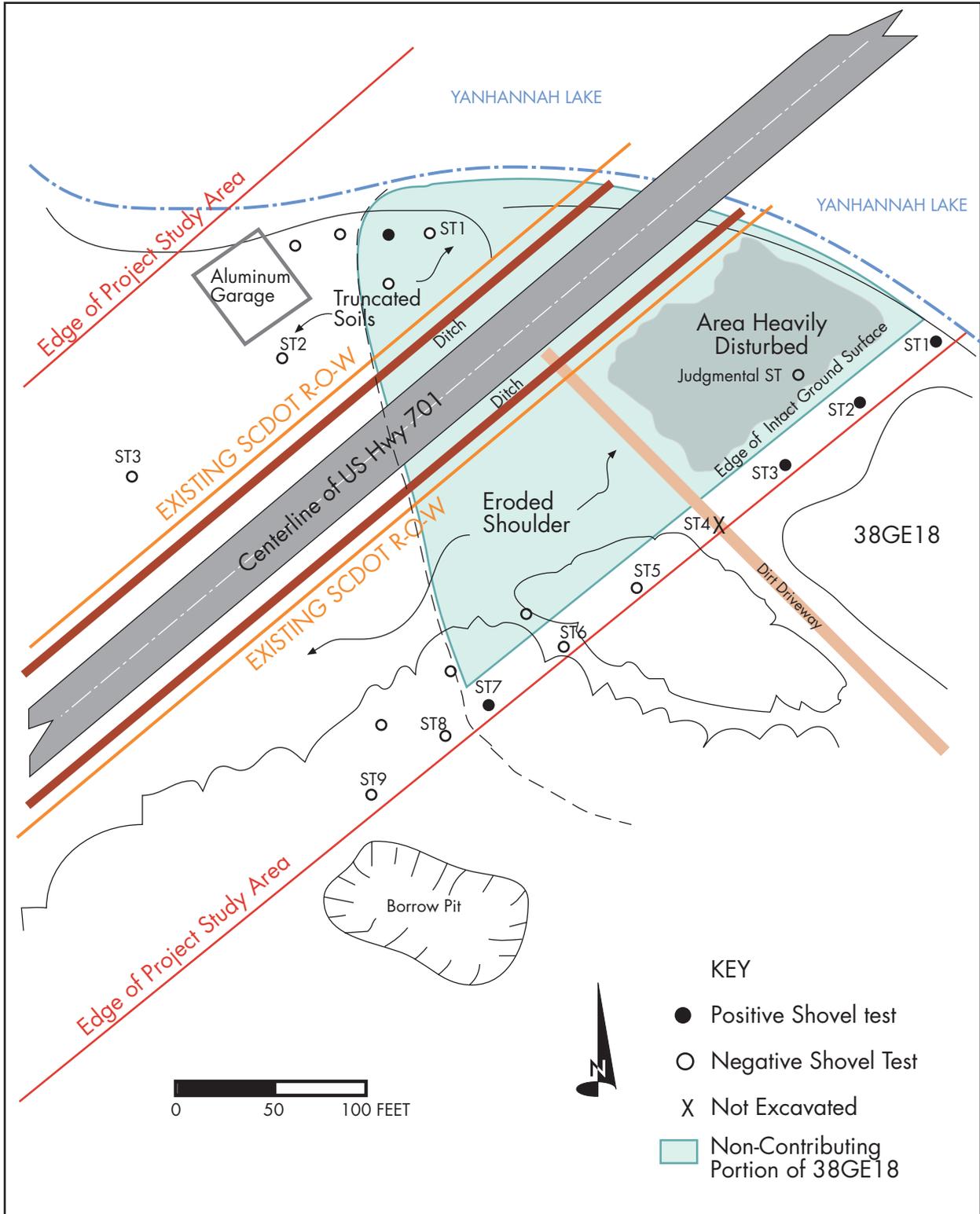
This work has recovered artifacts from the Middle Archaic Period to the Mississippian Period. It is possible that evidence of Historic Indians also exists at the site. The historic component consists of a middle eighteenth to early nineteenth century plantation main house complex. It is also believed that the site could contain a 1716 trading post.

In 1991, Mr. Bill Weeks conducted a reconnaissance survey of the site core on the southeast side of US Hwy 701. This involved systematic testing within an area measuring roughly 500 x 140 feet. A total of 91 post hole tests were placed within this area at 25-foot intervals. The survey yielded both prehistoric and historic artifacts that were plotted by count or weight to determine horizontal distributions across the reconnaissance survey area.

A total of 99 test units were excavated in this area of the site by Coastal Carolina University under the direction of Mr. Jim Michie in 1992 and 1993. Most of these test units focused on the eastern portion of the site at the early historic concentration since his primary goal was to locate the early eighteenth century trading post known as Waties' trading post. Michie's 1994 field season focused on an area located grid southeast of the previous excavations. Nine test units were excavated in that location. Mr. Michie passed away before any report could be written. His students' field notes are on file at the South Carolina Institute of Archaeology and Anthropology. Unfortunately, his personal notes are missing.

After US Fish and Wildlife purchased the 23-acre Yauhannah Bluff tract, New South Associates performed an archaeological survey of the property and defined the boundaries of 38GE18 and identified another site – 38GE560 (Adams and Botwick 2003). In addition, they summarized the results of previous work by Bill Weeks and Jim Michie. New South excavated a total of 68 shovel tests in the site area and found it to be in excellent

Figure 10
Map of 38GE18 Showing the Location of Shovel Test, The Current Right-of-Way and the Area of Maximum Impact



condition. Based on the results of the shovel testing and a synthesis of previous work, the site was recommended as eligible for inclusion in the National Register of Historic Places.

New South recently completed data recovery at a portion of 38GE18 at the confluence of Yauhannah Lake and the Great Pee Dee River. Uncovered were several structures related to the historic occupation of the property. A number of prehistoric features were also uncovered (Adams 2005). Analysis of the artifacts is currently underway.

During this current survey, New South's goal at this site was to determine if proposed bridge improvements would have an adverse impact on the archaeological resource. Much of the project study corridor has been damaged in the site area. In the southwest quadrant of the study area, a large garage has been constructed and the area has been graded. Shovel testing in this location yielded only one shovel test with artifacts in it. The surrounding shovel tests indicated that the area is severely damaged. The soils are truncated, with mottled clayey substrata appearing within the top 0.3 feet. In more intact portions of 38GE18 (outside of the project study corridor) in areas of the site where natural clay occurs, a red clay layer is encountered about 1.2 feet below surface, while gray clays occur around 2.2 feet below surface. In the southeast quadrant of the study area, the landform has been severely damaged by road construction and erosion. Northwest of the dirt driveway leading in to US Fish and Wildlife property, from the centerline of US Hwy 701 to 130 feet beyond, the land either has huge gullies or has been cut down to about 2.5 feet below normal ground surface. A judgmental shovel test was excavated in this area, which yielded gray natural clay. Based on what is known about soil conditions on the rest of the site, this portion of 38GE18 has been destroyed. The remaining 20 feet of the project study corridor in the site area is in excellent shape. Southeast of the dirt driveway the damage is not as pronounced, but is still heavily disturbed. The exposed shoulder more gently slopes to the road and appears to have been graded and eroded. Shovel tests just inside the tree line contained no artifacts. Further inside the tree line, ST 7 contained artifacts only in the top 0.6 feet.

Of the 19 shovel tests excavated on either side of the road at 38GE18, five yielded artifacts. As previously discussed, the positive shovel test located northwest of US Hwy 701 is in isolation on the edge of the site and the surrounding negative shovel tests indicate that this area of the site is severely disturbed. The positive shovel tests located on the southeast side of US Hwy 701 indicated that the site is intact. Generally, artifacts were found in the top 0.9 to 1.2 feet of soil. However, in Shovel Test 1, artifacts were found in two soil zones to a depth of 2.0 feet below the ground surface. It is believed that the second soil zone represents a prehistoric pit feature. The soil profile for this shovel test was 1.2 feet of dark grayish brown (10YR3/2) fine sand, overlying 0.8 feet of brown (10YR4/3) fine sand, over 0.5 feet of very pale brown (10YR7/3) sterile sand.

Artifacts recovered from the site are presented in Table 2. A total of 28 prehistoric artifacts were recovered. Diagnostic sherds consist of Early to Middle Woodland potteries. Shovel Test 1 in the southeast quadrant contained Thoms Creek sherds in what is believed to be a prehistoric pit feature. Sherds from non-feature areas consisted of Deptford and Hanover.

Although a large portion of 38GE18 as it exists within the project study corridor has been severely damaged or destroyed, the 20 foot wide strip on US Fish and Wildlife property is intact and contributes to the eligibility of the site as a whole to the National Register of Historic Places. Therefore, bridge improvement activities in this area may adversely affect the site. As previously mentioned, at the time of the survey it was unknown what the area of impact would be within the 300-foot wide project study corridor. It is recommended that the roadway

improvements be constricted in this location to a width of no greater than 130 feet from the centerline in order to avoid damaging the site. This can be accomplished by shifting impacts further to the northwest. All heavy machinery should be restricted to the 130-foot area as well. If the project study corridor can be restricted, then the proposed improvements will only be affecting a non-contributing portion of 38GE18.

Table 2. Artifacts from 38GE18.

Shovel Test	Count	Description	Depth (Feet)	Type	Notes
SW ST1 25ft West	2	metavolcanic tertiary flakes	0-0.7		
SW ST1 25ft West	1	cordmarked grog tempered	0-0.7	Hanover	
SE ST1	7	residual sherds	0-1.2		
SE ST1	1	medium/coarse sand tempered cordmarked	0-1.2	Deptford	
SE ST1	2	fine sand tempered punctate	1.2-2.0	Thoms Creek	
SE ST2	5	residual sherds	0-1.0		
SE ST2	1	medium sand tempered check stamped	0-1.0	Deptford	
SE ST2	1	medium sand tempered eroded cord marked	0-1.0	Deptford	
SE ST3	1	residual sherd	0-0.9		
SE ST3	1	metavolcanic primary flake	0-0.9		highly weathered, cortex only
SE ST7	2	metavolcanic tertiary flakes	0-1.2		
SE ST7	4	residual sherds	0.1.2		
Total	28				

ARCHITECTURAL SURVEY

US Hwy 701 runs north from Georgetown, SC to its terminus outside of Four Oaks, North Carolina. The portion of the road through South Carolina was originally State Route 40 until it was incorporated into the National Highway System in the mid to late 1930s. US Hwy 701 was one of four major thoroughfares, which South Carolina immediately improved upon in the 1930s (Moore 1987: 139). The road was indicated as a paved road as early as the 1939 Georgetown County Highway maps. Although the road surface was maintained at modern standards, the bridges carrying US Hwy 701 over the Great Pee Dee River were not kept to such standards. By 1952, three new concrete and structural steel bridges were designed to replace the original old timber bridge that traversed the Great Pee Dee River at the time, which was in very bad condition.

By 1953, two of the three bridges were constructed: Overflow Bridges 1 (structure number 262070100100; survey number 51-1214) and 3 (structure number 222070100400; survey number 43-0195) over the Great Pee Dee River Overflow and Lake Yauhannah, respectively. The third bridge, Main Bridge 2 over the Great Pee Dee River (structure number 2220701225000), was constructed under a separate contract in 1954. Only Bridges 1 and 3 were surveyed. Bridge 2 was not surveyed due to the fact it was reconstructed in 1996 and, therefore, no longer retains its historic integrity.

BRIDGE 1

Bridge 1 (structure number 262070100100) is a two-lane, T-Beam bridge constructed of concrete and reinforcing steel. The deck is made of cast-in place concrete and is overlain with asphalt. Bridge 1 has 44 spans and is approximately 1,320 feet long and 33.8 feet wide with a 2.5 foot wide sidewalk running down each side of the bridge deck. A concrete post-and-rail guardrail runs the length of the bridge down both sides.

BRIDGE 3

Bridge 3 (structure number 222070100400) is also a two-lane, T-Beam bridge constructed of concrete and reinforcing steel. The deck is made of cast-in place concrete and is overlain with asphalt. Bridge 3 has 48 spans and is approximately 1,440 feet long and 33.5 feet wide with a 3-foot wide curb area running down each side of the bridge deck. A concrete post-and-rail guardrail also runs the length of Bridge 3 down both sides. However, a steel guard rail was attached to the interior side of the concrete guard rails on the bridge, obstructing the 3-foot curb area.

RECOMMENDATIONS

Both Bridge 1 and Bridge 3 are good representative examples of reinforced concrete T-Beam bridges. Bridge 3 has been altered with the addition of a steel guardrail. The bridges have been determined not eligible for listing in the National Register of Historic Places due to the considerable number of existing resources of this kind in the state. No further documentation is recommended.

UNDERWATER SURVEY

INTRODUCTION

In conjunction with the planned replacement of the US Hwy 701 bridge across the Great Pee Dee River, Overflow, and Yauhannah Lake, Horry and Georgetown Counties, South Carolina, a Phase 1 underwater archaeological survey was conducted by personnel from Dolan Research, Inc (DR). DR operated as a sub-consultant to New South Associates, supplying underwater archaeological survey services. This work was performed for the ARM Environmental Services.

The Phase I underwater archaeological survey included a magnetic and acoustic remote sensing survey to determine the presence, or absence, of submerged historic archaeological resources potentially eligible for the National Register for Historic Places that might be affected by the planned bridge improvement project. Since the proposed bridge project crosses two navigable waterways, field investigations were conducted in both the Pee Dee River and Yauhannah Lake, on the west side of the Pee Dee Swamp. Tasks performed included: limited background documentary research; magnetic and acoustic remote sensing with follow-up target analysis; analysis of assembled research and field data; and the preparation of this report. The purpose of these investigations has been twofold. The first goal was to determine the presence or absence of submerged cultural resources that are potentially eligible for inclusion in the National Register of Historic Places in areas that might be affected by proposed construction activities. The second goal was to assess likely project impacts and make recommendations as to the need for further cultural resources studies, if potentially significant resources are identified which may be adversely affected by the proposed project actions.

All work was conducted in accordance with the instructions and intents of various applicable Federal and State legislation and guidelines governing the evaluation of project impacts on archaeological resources, notably: Section 101 (b)(4) of the National Environmental Policy Act of 1969; Section 1(3) and 2(b) of Executive Order 11593; Section 106 of the National Historic Preservation Act; 23 CFR 771, as amended October 30, 1980; the guidelines developed by the Advisory Council on Historic Preservation published November 26, 1980; and to the amended Procedures for the Protection of Historic and Cultural Properties as set forth in 36 CFR Part 800 (October 1, 1986).

Field investigations were completed at the Great Pee Dee River and Yauhannah Lake sites on February 4, 2005. The underwater portion of the project area was a 120m (400ft) wide corridor across the river and lake; 60m (200ft) on either side of the existing Route 701 bridge.

ENVIRONMENTAL CONTEXT

Overall, the Great Pee Dee River stretches over 233 miles, 169 of which are in South Carolina before it empties into Winyah Bay at Georgetown, South Carolina. The source of the Pee Dee is the confluence of the Yadkin and Uwharrie rivers near Albemarle in south-central North Carolina. The fall line is six miles above Cheraw, South Carolina, where the river passes from the Piedmont onto the Coastal Plain. Tidewater conditions extend 38 miles above the mouth. The Pee Dee drainage basin is the second largest of four drainage basins in South Carolina, draining 6,880 square miles in South Carolina. Additionally, the river drains more than 9,200 square miles in North Carolina and 180 square miles in Virginia. The river has four major tributaries; Little Pee Dee River, Lumber River, Black River, and Lynches River, which joins the Great Pee Dee River in Florence County, South Carolina (Bartlett 1984).

The large rivers of the South Carolina Coastal Plain, such as the Great Pee Dee, have vast floodplains and are flanked by extensive swamps. Rivers originating in the Coastal Plain transport little sediment and have a dark color due to high tannic acid content (Kovacik and Winberry 1989:27). They meander, forming oxbow lakes as they make their way through vast quantities of sediments eroded from Piedmont rocks and deposited in the Coastal Plain. Commonly found along these rivers are sand bars and spits, as the currents shift the sediment loads (Murphy 1995).

Historically, the river was an important transportation artery in the 18th and 19th centuries. As early as 1784, South Carolina appropriated funds for removing obstructions from the rivers' mouth to the North Carolina state line. In 1785, 1791, 1805, and 1805 the state passed bills that provided funding, levied special taxes, or required male residents of the counties adjoining the river to labor six days each year in removing hazards to navigation. During the Civil War, the Confederate government sponsored a survey of the Pee Dee River that reported the average depth of the channel from Cheraw to Georgetown was eight feet. Federal funding was provided in the late 19th century for clearing hazards along the lower portions of the river (Bartlett 1984).

Economically, the river has been used to move farm and forest products downriver and manufactured goods upriver from the port of Georgetown. During the 18th and 19th centuries there were numerous plantations along the banks of the river and planters used the Pee Dee River to ship their products (primarily timber, cotton and rice) to market. Initially, sailing vessels and later small steamboats were used ship the products on the river. A high point for commerce on the river occurred in the period 1895-1907 when traffic averaged 156,000 tons per year. Commodities shipped on the river included timber, shingles, rosin, turpentine, cotton, rice and other wood products (Bartlett 1984). River commerce declined rapidly in the twentieth as alternative

modes of transportation were developed in the basin. Today, the river is only considered commercially navigable only as far as Georgetown.

At the US Hwy 701 bridge crossing, the Pee Dee River is approximately 140m (460ft) wide. Although the water depth in the river at the Pee Dee River project area varies according to flow conditions, during the present field investigation (February 4, 2005) the maximum depths were recorded at 6.8m (22ft) on the north side of the bridge and 9.2m (30ft) on the south side of the bridge. Numerous obstructions (primarily tree limbs and loose timber) were pinned against the north side of each of the eight bridge trestles in the water. In addition to the existing bridge trestles, four trestles remain from a previous bridge (on the downstream side of the present bridge); two in the river and two on either river bank. Several high power lines cross the river on the upstream (north) side of the present bridge. A recreational boat ramp is located on the east river bank, adjacent to the upstream side of the span bridge.

On the west side of the Pee Dee Swamp at the Route 701 Bridge crossing, Yauhannah Lake is approximately 69m (220ft) wide. Maximum water depth at the Yauhannah Lake survey site was 4.2m (14ft).

PREVIOUS RESEARCH

Review of archaeological site files at the South Carolina Institute of Archaeology and Anthropology and the GIS database at the South Carolina Division of Archives and History indicated two underwater archaeological resources have been identified in the general vicinity of the project area. No prior underwater archaeological surveys of the project area or in its immediate vicinity have been conducted.

The previously recorded sites near the project area are 38GE58 and 38GE59. The sites, which are located approximately 48m (160ft) apart are located under the Pee Dee River just downstream from the Yauhannah Lake US Hwy 701 bridge crossing. Both are described as wooden vessels. Site 38GE58 was listed as resting upside-down near the center of the river channel in 6.1m (20ft) of water and buried in the sandy bottom up to its bilges. Site 38GE59 was described as a barge-like vessel that is lying perpendicularly to the channel in 4.5m (15ft) of water with its bow buried in the bank of the river. Both sites were found in 1974 and recorded by Alan Albright in 1975. No further descriptions on the identity or age of the vessels were provided in the site forms. While neither one of these sites will be impacted by the existing project, they represent a potential vessel type that might be expected within the present project area.

UNDERWATER ARCHAEOLOGICAL METHODS

All underwater fieldwork was carried out from an 8m (25ft) long *Parker* survey vessel suitable for river operations. A *Geometrics*, G-881, cesium magnetometer, capable of +/- one gamma resolution, was employed to collect magnetic remote sensing data. A one-second sampling rate by the magnetometer's towed sensor, coupled with a four-knot vessel speed, assured a magnetic sample every 1.5m. A *Marine Sonics* two-channel digital acoustic recorder with a 600 kHz side scan sensor was used to collect acoustic data. Digital acoustic data were recorded to a mini-tower PC computer.

Survey vessel trackline control and position fixing were obtained by using a laptop PC-based software package (*Hypack*) in conjunction with a Navstar Differential Global Positioning System (DGPS) on board the survey vessel. The onboard laptop computer was interfaced with the DGPS satellite positioning system. The onboard computer converted positioning data from the DGPS to South Carolina (NAD 83) x/y coordinates in real time. These x/y coordinates were used to guide the survey vessel precisely along predetermined tracklines along the

winding course of the river. While surveying, vessel positions were continually updated on the computer monitor to assist the vessel operator, and the processed X, Y data were continually logged on computer disk for post-survey processing and plotting.

Due to the potential of submerged snags in the river fouling the sensors, magnetic and acoustic data were collected separately. Three onboard computers were used to collect the positioning, magnetic, and acoustic data. Positioning data from the DGPS system were interfaced with both the magnetic data and sonar data, providing exact coordinates for each system and ensuring that all data were properly interfaced. To allow for the detection of subtle magnetic anomalies typically associated with smaller wooden vessels, survey lane spacing in the Pee Dee River and Yauhannah Lake was established at 10m (33ft) offsets. Since the side scanning sonar transducer was operated on a 20m (66ft) scale, 10m (33ft) lane offsets provided comprehensive acoustic over-coverage for the survey area. DGPS position fixes were recorded every second (approximately every 1.5m) along each survey lane.

Magnetic data were then contoured at five (5) gamma intervals (Figure 11). Magnetometer data were analyzed in terms of the following parameters: magnetic intensity (total distortion of the magnetic background measured in gammas); pulse duration (detectable signature duration); signature characteristics (negative monopolar, positive monopolar, dipolar, or multi-component); and spatial extent (total area of disturbance). Acoustic (side scan sonar) targets were analyzed according to their spatial extent, configuration, location and environmental context. Several sonar waterfall images of the bottom adjacent to the project site were generated for this report (Figures 12-15). Magnetic records were correlated with the acoustic targets to provide comprehensive remote sensing information on the identity of the material generating the remote sensing signatures. The integrated data for each target site were finally assessed with reference to typical submerged cultural resource signatures generated during three decades of magnetic and acoustic remote sensing surveys, enabling the isolation of target signatures that were suggestive of significant submerged cultural materials.

These procedures for analyzing remote sensing targets have been developed in the course of compiling a database of target signatures over the last three decades. Starting in the 1960s, archaeologists primarily relied on magnetic remote sensing data, collected with proton precession, and more recently cesium, magnetometers, to locate submerged cultural resources. However, magnetic data collected alone often provides inconclusive or partial evidence about submerged cultural resource sites. Underwater archaeological research conducted over the last two decades indicates that shipwreck sites may produce a variety of magnetic signatures. Furthermore, modern debris often generates magnetic signatures that share similar characteristics with certain types of shipwreck sites.

The ambiguous nature of magnetic signatures has led researchers to use acoustic remote sensing equipment in conjunction with magnetometers on most underwater archaeological surveys. Acoustic data, in the form of sonar records, are produced by processing sound waves emitted into the water column on both sides of the submerged sensor and bounced back off the bottom surface and exposed objects. State-of-the-art digital sonar units produce high-resolution acoustic records that are almost photographic in quality. However, a certain degree of structural integrity must remain above the bottom for a site to produce a reliable shipwreck signature on side scan sonar. Where no structure survives above the bottom surface researchers must rely on magnetic data to help locate shipwreck remains. Additional data provided by acoustic instruments frequently permit target identification to be made solely from remote sensing information. A combination of magnetic and acoustic remote sensing data has proven to be the most effective method of accurately identifying and assessing submerged archaeological sites. Typically, the most attractive targets produce both well-defined magnetic and acoustic signatures.

FINDINGS

Magnetic data collected under and adjacent to the existing bridges were influenced by the “magnetic noise” associated with the ferrous material in those structures. In addition, magnetic disturbance was also generated by the wire power lines that crossed the project areas on the upstream side of the two bridges. There were no limitations in the collection of sonar data.

Pee Dee River Site

Analysis of the acoustic remote sensing data confirmed the existence of numerous objects in the vicinity of the bridge trestles. While the vast majority of those objects are tree limbs and other linear “snags” that have become lodged around the bridge trestles, at least one of the objects is suggestive of an automobile (Target A, Figures 11 & 12). The 3.95m (13ft) long object is located directly under the bridge and just downstream of the boat ramp on the upstream side of the bridge. A second automobile may also be located within a large pile of “snag-like” obstructions on the downside side of the easternmost bridge trestle in the river. None of these objects appear to be suggestive of historic resources.

A second target (Target B) was located just offshore of the eastern river bank, approximately 75m (250ft) downstream of the bridge (Figures 11 & 15). The target generated a magnetic signature with a maximum distortion of 225 gammas and sonar records indicate the presence of a 3m (10ft) long rectangular object resting on a hard packed sandy/mud bottom. Plotting the location of the target confirms that the target site is beyond the limits of the project corridor and will not be impacted by the present construction project.

No remote sensing targets suggestive of submerged cultural resources were identified during the remote sensing survey. However, the presence of a submerged cultural resource could be masked by two potential sources. Sonar targets may be hidden under the large number of snags that have accumulated around the bridge trestle, and small scale magnetic anomalies suggestive of submerged cultural resources may be indistinguishable within the magnetic distortion associated with bridge.

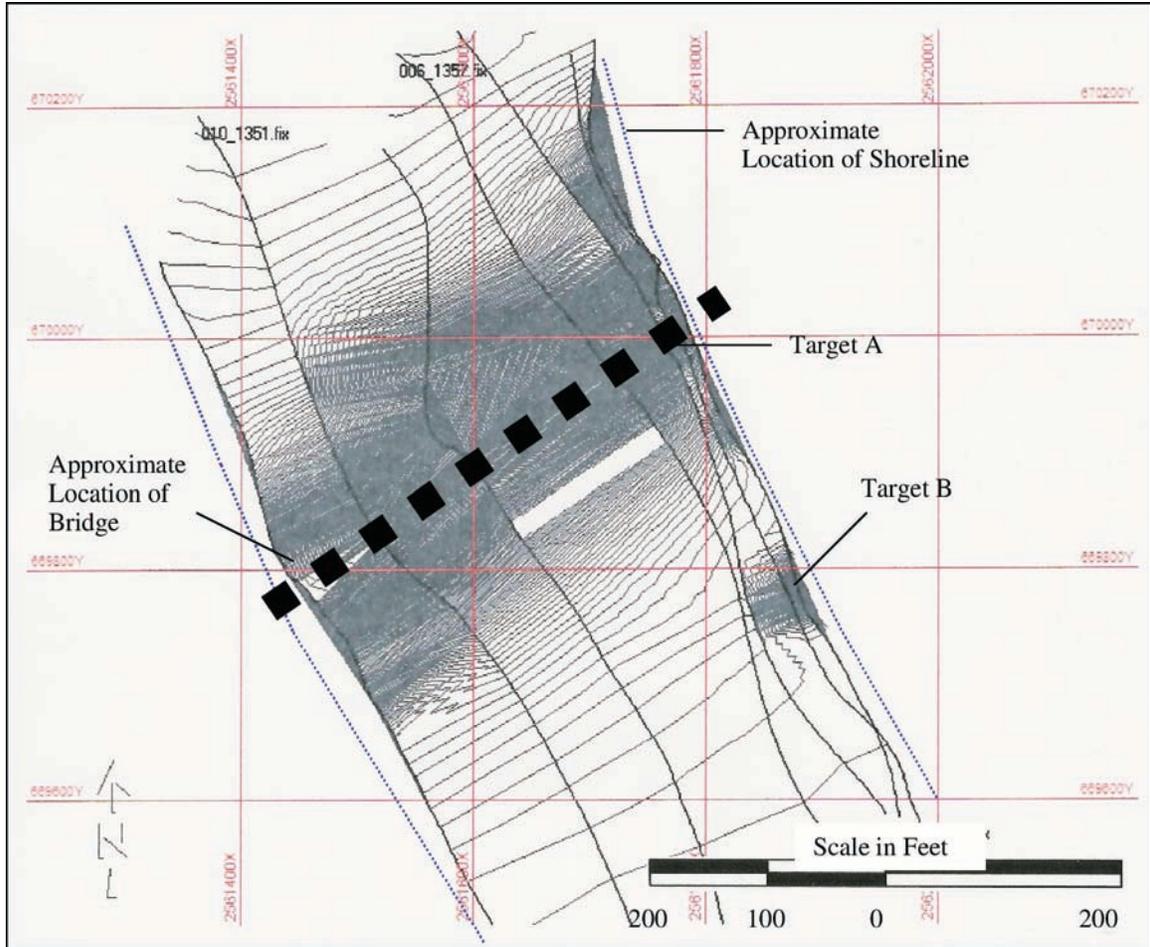
Yauhannah Lake

No acoustic or magnetic remote sensing targets suggestive of submerged cultural resources were identified during the remote sensing survey in Yauhannah Lake. No additional underwater archaeological investigations are recommended.

CONCLUSIONS AND RECOMMENDATIONS

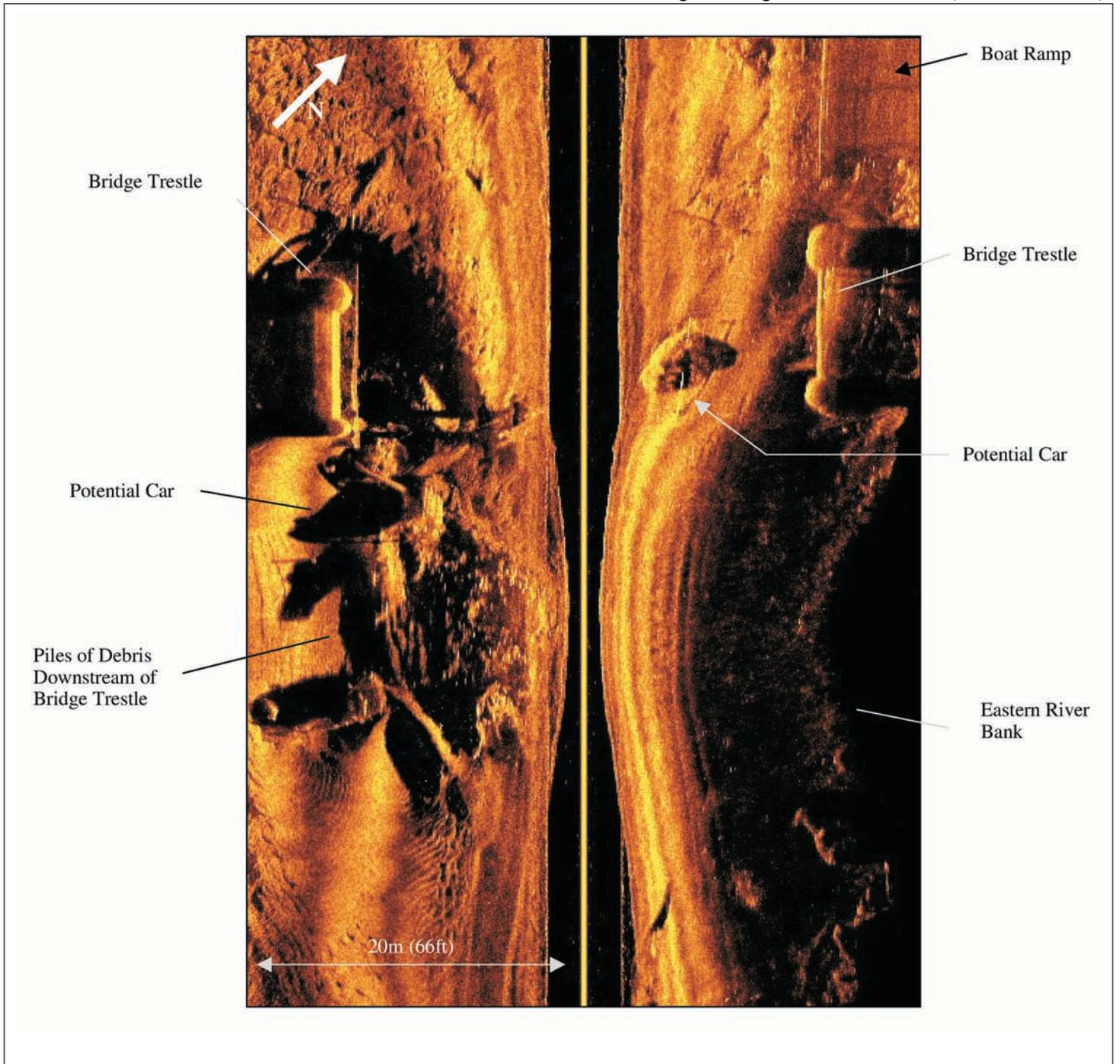
The Pee Dee River is an historic river that was used as a transportation artery in Horry and Georgetown Counties in the 18th and 19th centuries. Economically, the river has been used to move farm and forest products downriver and manufactured goods upriver from the port of Georgetown. A high point for commerce on the river occurred in the period 1895-1907 when traffic averaged 156,000 tons per year. Commodities shipped on the river included timber, shingles, rosin, turpentine, cotton, rice and other wood products. The underwater portion of the project area is considered to have a medium potential for historic archaeological resources. Two existing underwater archaeological sites (38GE58 and 38GE59), located just downstream from the Yauhannah Lake project location were recorded in 1974. Both of the sites are simply described as wooden vessels. Analysis of the remote sensing records did not identify any targets that were considered to be suggestive of potentially significant submerged cultural resources. No additional underwater archaeological is recommended.

Figure 11
Magnetic Contour Map - Pee Dee River Crossing



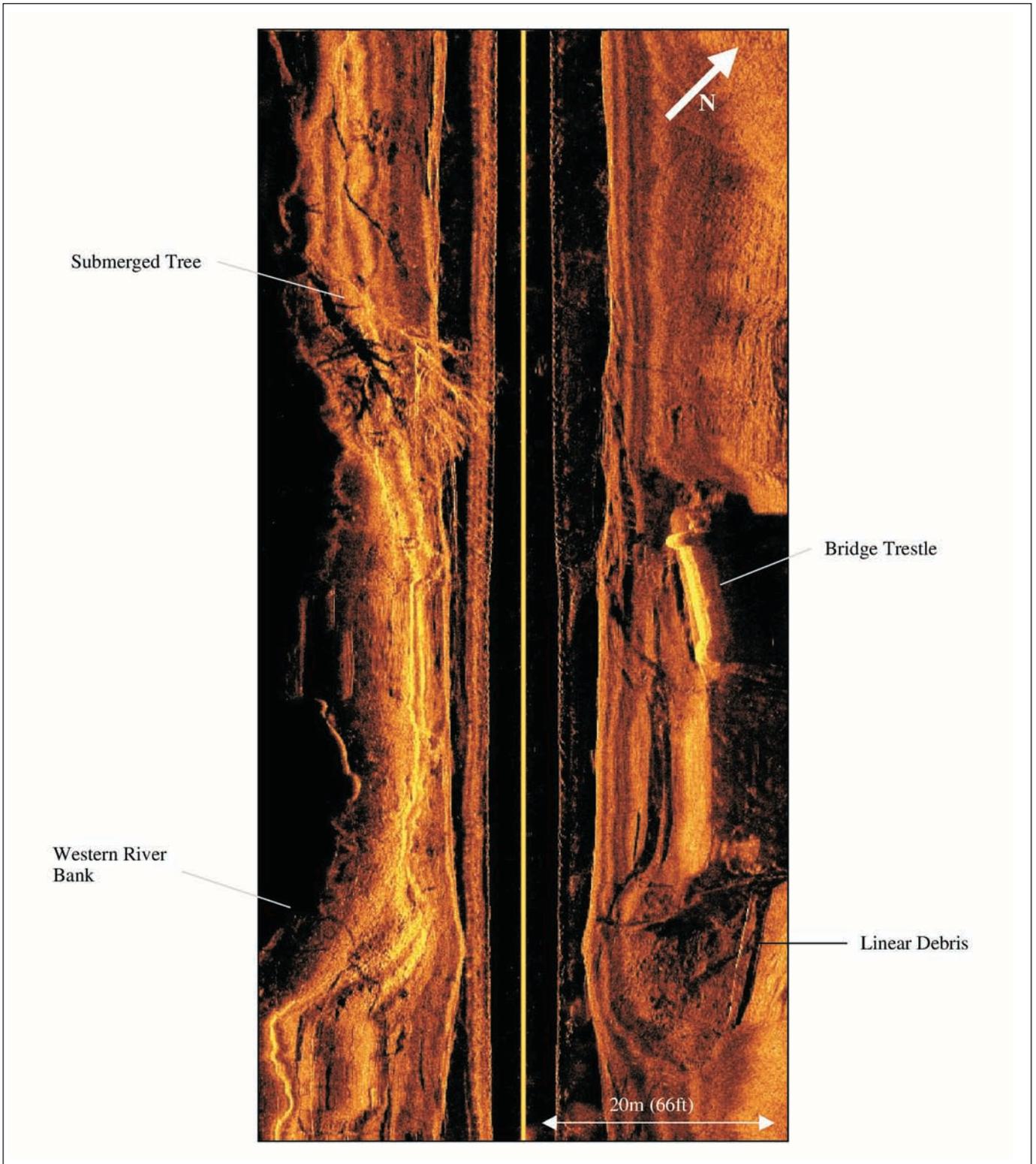
Notes: Contour Intervals - 5 gammas; Background Grid = South Carolina State Plane Grid, NAD83 (ft)

Figure 12
Sonar Waterfall Image Along East River Bank (File 047Feb4)



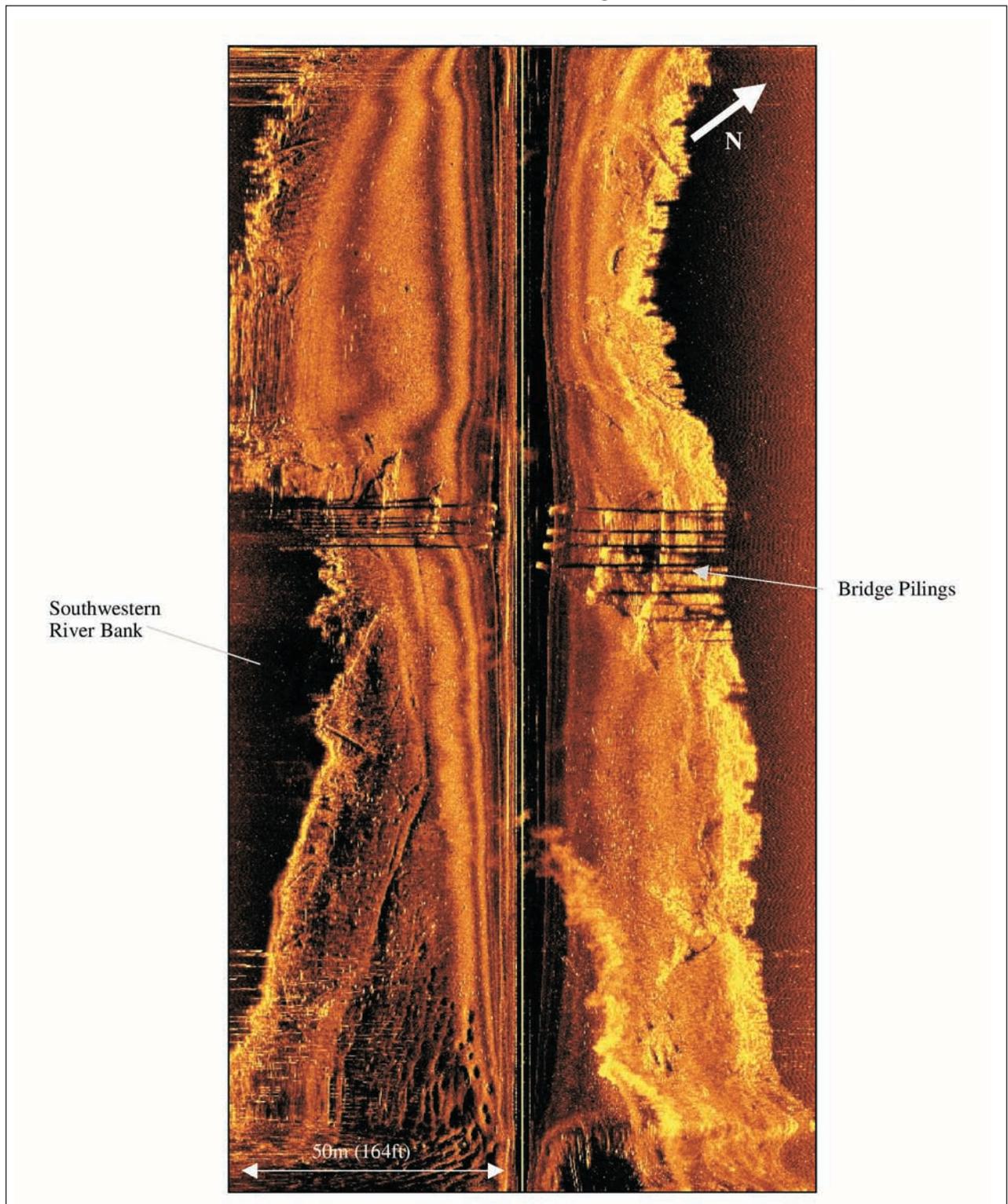
Comments: Numerous debris objects under and south of eastern bridge trestles. At least two of the objects are suggestive of automobiles.
Orientation: Upriver Scale: 20m (66ft) per channel; Sensor Frequency: 600kHz

Figure 13
Sonar Waterfall Image Along West River Bank (File 027Feb4)



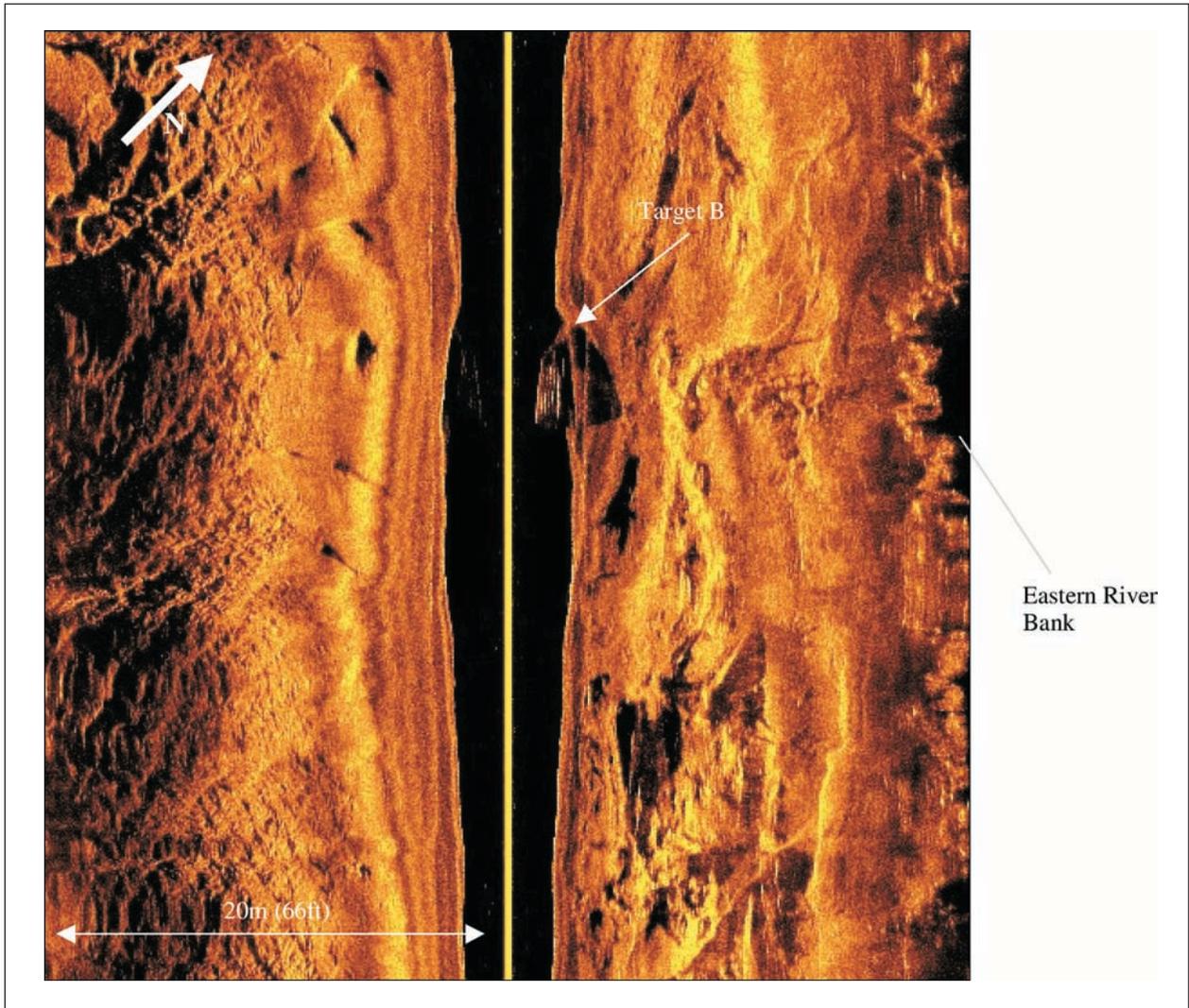
Comments: Limited linear debris south of the western bridge trestles.
Orientation: Upriver. Scale: 20m (66ft) per channel; Sensor Frequency: 600kHz

Figure 14
Sonar Waterfall Image in Yauhannah Lake (File 066Feb4)



Comments: Entire bridge crossing is visible in this 50m scale sonar image. Limited debris is visible. There appears to be some erosion along the western river bank.
Orientation: Upriver. Scale: 50m (164ft) per channel; Sensor Frequency: 600kHz

Figure 15
Sonar Waterfall Image Along East River Bank, Downstream of Bridge (File 057Feb4)



Comments: Target B is visible as the rectangular object resting on the bottom surface with several feet of relief off the hard-packed bottom. Target is located approximately 75m (250ft) downstream of the US Hwy 701 Bridge.
Orientation: Upriver Scale: 20m (66ft) per channel; Sensor Frequency: 600kHz

VI. SUMMARY AND RECOMMENDATIONS

As a result of the cultural resources survey of the proposed improvements of US Hwy 701 over the Great Pee Dee River, two bridges (structure number 262070100100; survey number 51-1214 and structure number 222070100400; survey number 43-0195) and one previously identified site (38GE18) was assessed. No significant underwater resources were identified. The bridges are good representative examples of reinforced concrete T-Beam bridges. One has been altered with the addition of a steel guardrail. The bridges are recommended as not eligible for listing in the National Register of Historic Places due to the considerable number of existing resources of this kind in the state. No further documentation is recommended.

The archaeological survey revisited site 38GE18. No new sites were recorded. Although a large portion of 38GE18, as it exists within the project study corridor, has been severely damaged or destroyed, a 20-foot wide strip on US Fish and Wildlife property is intact and contributes to the National Register eligibility of the site as a whole. Therefore, bridge improvement activities in this area may adversely affect the site.

At the time of the survey, it was unknown which side of the existing road the improvements would occur. It is recommended that the intact portion of 38GE18 be avoided and the roadway improvements be constricted in this location to a width of no greater than 130 feet from the center-line in order to avoid damaging the site. All heavy machinery should be restricted to the 130-foot area as well. If the improvements can avoid the intact portion of 38GE18, then the proposed improvements will only affect a non-contributing portion of 38GE18.

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APPENDIX A. ARTIFACT CATALOG

Shovel Test	Count	Description	Depth (Feet)	Type	Notes
SW ST1 25ft West	2	metavolcanic tertiary flakes	0-0.7		
SW ST1 25ft West	1	cordmarked grog tempered	0-0.7	Hanover	
SE ST1	7	residual sherds	0-1.2		
SE ST1	1	medium/coarse sand tempered cordmarked	0-1.2	Deptford	
SE ST1	2	fine sand tempered punctate	1.2-2.0	Thoms Creek	
SE ST2	5	residual sherds	0-1.0		
SE ST2	1	medium sand tempered check stamped	0-1.0	Deptford	
SE ST2	1	medium sand tempered eroded cord marked	0-1.0	Deptford	
SE ST3	1	residual sherd	0-0.9		
SE ST3	1	metavolcanic primary flake	0-0.9		highly weathered, cortex only
SE ST7	2	metavolcanic tertiary flakes	0-1.2		
SE ST7	4	residual sherds	0-1.2		