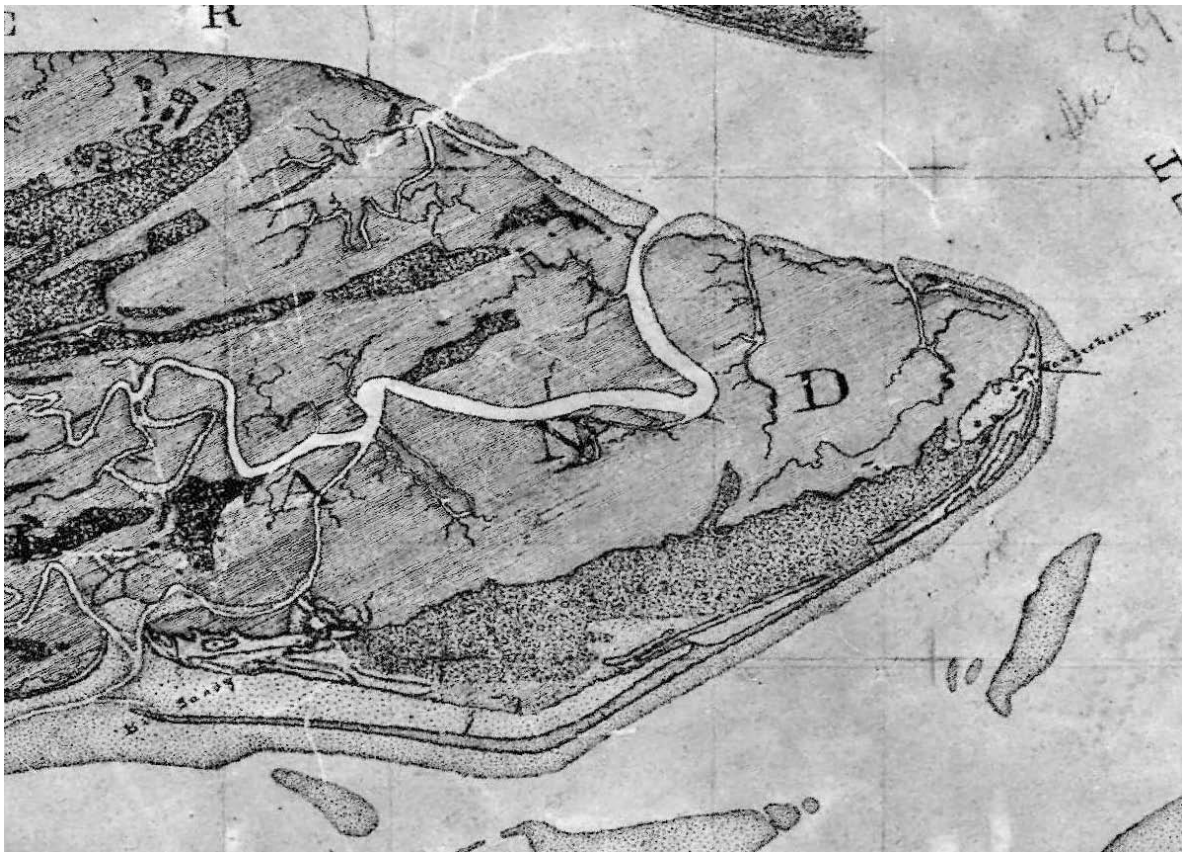
DATA RECOVERY AT 38CH1220: EXAMINATION OF A UNION CAMP ON KIAWAH ISLAND, CHARLESTON COUNTY, SOUTH CAROLINA



CHICORA FOUNDATION RESEARCH SERIES 75

The cover illustration is a portion of the 1854 Ocean Survey Chart T-491, "Kiawah River and Island and Portions of Folly, Cole's, John's, and Seabrook's Isl." This chart shows the northern end of Kiawah Island and the vicinity of 38CH1220 during the Civil War. Also shown is the Vanderhorst Summer House, as well as several additional buildings – all of which have been lost to shore erosion.

DATA RECOVERY AT 38CH1220:
EXAMINATION OF A UNION CAMP ON KIAWAH ISLAND, CHARLESTON COUNTY, SOUTH CAROLINA

Research Series 75

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South Carolina is too small to be a republic, and too big to be a lunatic asylum.

-- James Louis Pettigru, 1860

ABSTRACT

This document provides information on data recovery excavations conducted by Chicora Foundation for Kiawah Partners of Charleston, SC at archaeological site 38CH1220, a Union Civil War encampment, under an existing Army Corps Memorandum of Agreement (MOA) and supplemented by an Office of Coastal Resource Management (OCRM) MOA approved on April 5, 2012.

The work was based on a data recovery plan submitted by Chicora archaeologists and approved by the State Historic Preservation Office in 2011. The field work was conducted by Chicora archaeologists from March 25 through April 12, 2012 with GPR and magnetometer research provided by GEL Geophysics. A total of 444 person hours were spent in the field. An additional 8 person hours were spent in the field laboratory during rain periods.

Previous archaeological investigations included a survey of a portion of the site in 1991, followed by additional testing in 2011. The data recovery plan was based on this 2011 work that revealed an area of denser remains, although almost no evidence of Civil War activity was identified. While historic research documented the presence of both Confederate and Union activities on Kiawah, no maps showing specific encampments appears to have been prepared. One map shows the Union picket line running down the Stono River, with only the eastern tip of Kiawah considered to be under Union control in 1863-1864.

Previous Civil War research suggests that camps tend to produce few materials recoverable using traditional archaeological survey or data recovery methods, for example close interval shovel or auger testing, followed by block excavations. It has been argued that camps were "policed," removing the normal surface middens, concentrating artifacts in features such as privies and wells. Consequently, the preferred data recovery methods for Civil War camps have relied on wide-scale stripping in order to identify these specific features.

Such an approach is impossible at 38CH1220 since it is situated in a nearly pristine maritime forest on beach dune and trough topography. The area is dominated by mature live oaks and stripping would irreparably harm the vegetation and devalue the property. As a result, the SHPO approved the suggestion that the site be investigated by the use of ground penetrating radar (GPR), magnetometer, near surface metal detecting, and pedestrian survey. It was hoped that these techniques would identify features such as wells and privies, found to be distinctly shaped and often 3 feet or more in depth at other sites.

A series of three north-south and three east-west transects were established for the use of different explorative techniques. These areas were defined based on the assumption that the encampment was laid out using U.S. Army regulations.

Coupled with this approach was additional historical research with the goal to determine if any detailed information could be identified concerning Union encampments on Kiawah. The historic research was conducted at the National Archives from February 14 through 19, 2012.

The historic research provided a broad range of general information to supplement that already identified for Kiawah, although no detailed accounts of Kiawah activities were identified.

The field investigations using near surface metal detecting identified over 200 targets, mostly ferrous items. The pedestrian survey identified a broad range of brick scatters across the site, as well as over a dozen areas of metal detecting looting. The magnetometer survey identified

about 20 substantial metal objects, although all proved to represent individual items at or near the surface. No features were identified. The GPR work failed to identify any features – only broad geological deposits could be identified.

Since there were no features to investigate, two small test units were excavated in order to explore two of the brick piles. These excavations provided clues concerning the function of these brick piles and also a small quantity of artifacts associated with the piles.

The failure to identify features, specifically wells and privies, suggests that the posited regimental layout defined by Army regulations was not used at 38CH1220. Of course, it is possible that had broad areas been stripped, features would have been identified. It is also possible that wells and privies were located in areas of 38CH1220 that we could not investigate because of standing water and wetland delineation. During a period of reduced rainfall and posited lower sea levels, these trough areas may have been less wet than today. Nevertheless, these areas are not contiguous and do not fit the pattern proposed in Army regulations.

The presence of artifacts scattered across the site also suggests that military regulations regarding the policing of camps were not adhered to – a conclusion that seems to some degree supported by historic research.

Finally, it is clear that 38CH1220 has been heavily impacted by metal detector looters. The site was known to be heavily collected in the 1980s and our discoveries indicate that collecting continued at least into the period from about 2005 through 2011.

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Introduction

This project involved the exploration of a Union Civil War camp (38CH1220) situated on the east end of Kiawah Island in Charleston County, South Carolina (Figure 1). The field investigations were conducted by Chicora archaeologists between March 25 and April 12, 2012.

Figure 1. Location of Charleston County in South Carolina.

The study was conducted for Kiawah Partners (KP), the successor to Kiawah Resort Associates (KRA), which intends to construct a nature trail and eventually subdivide the property for home sales. The investigation was triggered by the 1990 Memorandum of Agreement between KRA, the Army Corps of Engineers, the South Carolina State Historic Preservation Office (SC SHPO), and the Advisory Council on Historic Preservation (ACHP). An additional MOA was developed between the SC Department of Health and Environmental Control (DHEC), the SC SHPO, and KP in 2012.

Prior to the completion of this study, in June 2013, KP sold its properties, including its obligations to comply with historic preservation requirements, to South Street Partners of Charlotte, North Carolina ("Kiawah Partners' New Owner Talks About Blockbuster Real Estate Deal," *Charleston Post and Courier*, June 4, 2013).

The site is situated at the northeast end of Kiawah Island, north of the famed Ocean Course, owned by Kiawah Island Golf Resort, an entity separate from KP and South Street Partners. The area is identified on topographic maps as Sandy Point, although it is more commonly called Cougar Island, a term that goes back to perhaps mid-twentieth century. This is an area of remnant dunes and maritime forests dominated by large live oaks.

Natural Setting

Physiography

Charleston County is located in the lower Atlantic Coastal Plain of South Carolina and is bounded to the east by the Atlantic Ocean and a series of marsh, barrier, and sea islands (Mathews et al. 1980:133). Elevations in the County range from sea level to about 70 feet above mean sea level (MSL).

Coastal islands, based on geomorphology, area, sediment composition, and deposition, are considered to be sea islands, barrier islands, or marsh islands. The classic sea islands, such as James and John islands, are erosional remnants of coastal sand bodies deposited during the Pleistocene. Marsh islands, such as Raccoon Key and Morris Island, are composed of isolated or widely spaced Holocene sand ridges surrounded by recent salt marsh. They are typically situated in the filled lagoons behind the barrier islands, although they are also found fronting the Atlantic Ocean where erosion has removed the protective barrier islands.

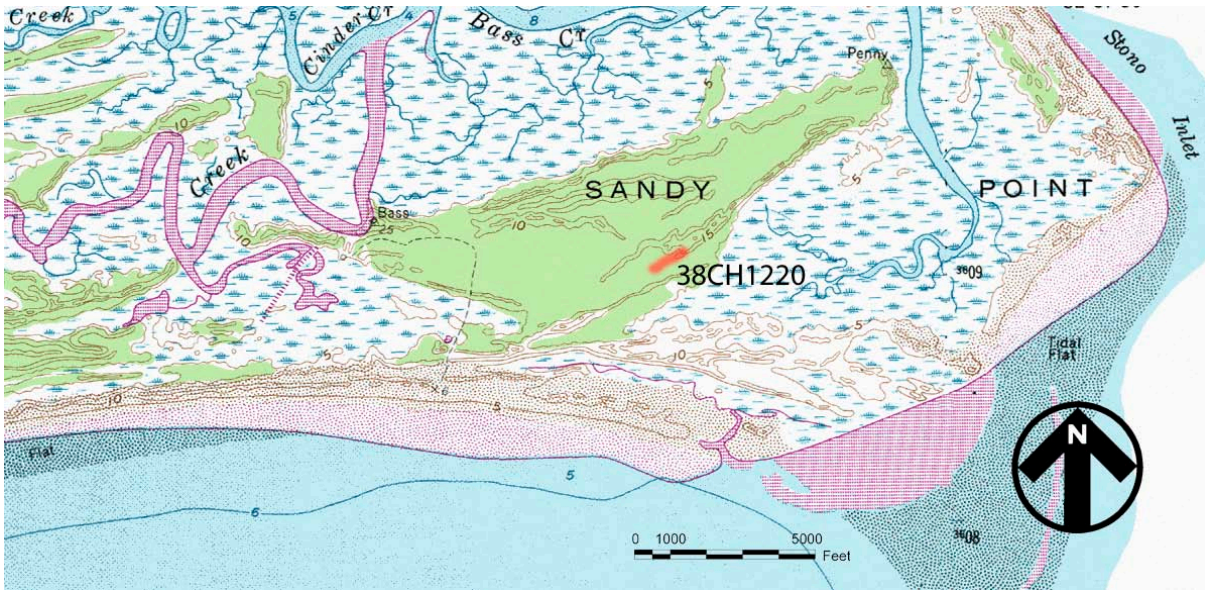

Figure 2. Location of 38CH1220 on Cougar Island based on the initial survey (basemap is Kiawah Island 1959 PR71).

Barrier islands, such as Kiawah, are composed of alternating beach ridges and low troughs or lagoons oriented roughly parallel to the present shoreline, deposited during Holocene high sea level stands. Kiawah is separated from Folly Island to the northeast by the Stono River and from Seabrook Island to the southwest by the Kiawah River. To the north an expanse of marsh and the Kiawah River separates the island from neighboring John's Island.

Elevations on the island range from sea level to about 25 feet AMSL. The island is composed of a series of prograding beach ridges that have been highly modified on either end by the migration of the Stono and Kiawah inlets. Hayes et al. (1975) identify four major physiographic regions on Kiawah: the actively changing beach zone; the three tidal inlets of the Stono, Kiawah, and Edisto rivers; the interior of the island, largely consisting of beach-ridge complexes; and the salt marsh area that surrounds the backside of the island.

The beach-ridge complex is perhaps the most significant for the archaeological and historical understanding of Kiawah Island. The western half of the island is composed of a series of tightly spaced beach ridges with low relief (typically under 10 feet). In contrast, the eastern end of the island evidences a radically different physiography, being composed of very complex, bifurcating beach ridges. Expanses of salt marsh occur between these various ridges. Hayes et al. note:

> the reason for this difference [between the eastern and western ends of Kiawah] is the beach ridges at the east end were located near a major tidal channel (Stono River) that migrated as much as 1½ to 2 miles since the island was first formed. These migrations have brought about the formation of long, cat-eye shaped ponds . . . that form when a new beach ridge develops along the margin of a tidal inlet. Close inspection of the geomorphic map reveals the presence of many old tidal inlets and recurved beach ridges in the vicinity of Ibis and Willet Ponds. . . . The complex morphology of the east end of the island is simply a

Figure 3. Examples of the dune and trough topography on Cougar Island within 38CH1220. Note also the dominance of live oaks.

reflection of the large-scale changes that commonly take place near a major tidal inlet (Hayes et al. 1975:G-84).

The beach ridges found on the eastern end of Kiawah, including Cougar Island, incorporate steeply sloping topography, narrow ridges, vast areas of poorly drained soils (discussed below), and marsh areas. Elevations range from about 10 to 25 feet MSL. The channels found in this area of the island include Bass Creek, Cinder Creek, and a variety of smaller, unnamed drainages.

The mean tidal range for Kiawah is approximately 5.2 feet, with a Spring tidal range of approximately 6.1 feet. These tides generate strong currents in the tidal inlets and major tidal channels.

Geology and Soils

Coastal Plain geological formations are unconsolidated sedimentary deposits of very recent age (Pleistocene and Holocene) lying unconformably on ancient crystalline rocks (Cooke 1936; Miller 1971:74). The Pleistocene sediments are organized into topographically distinct, but lithologically similar, geomorphic units, or terraces, parallel to the coast. Kiawah Island is classified by Cooke (1936) as part of the recent Holocene terrace, with elevations under 25 feet MSL (see also Colquhoun 1969).

The oldest portion of Kiawah appears to be Shoolbred Point (today called Rhett's Bluff, situated to the northwest of Cougar Island, adjacent to the Kiawah River in the central portion of the island), which is an old Pleistocene beach ridge (Hayes et al. 1975).

Hayes et al. (1975) have reconstructed Kiawah's historic changes, from the late seventeenth century through the late twentieth century. By 1854, 200 to 400 feet of progradation had occurred along the northeastern portion of Kiawah, forming a long, thin, elbow-shaped spit paralleling this portion of the coastline. At the time of the Civil War, Cougar Island was on the

shoreline. At this location the shore has prograded over 2500 feet during the past century, although periods of rapid erosion were also present.

In the late 1870s construction was begun on the Charleston Harbor jetties, which were designed to reroute the main harbor entrance to the southeast and prevent natural shoals from obstructing navigation. This project, completed in 1896, caused accelerated erosion of Morris and Folly islands with the sediment moving southward, causing an accumulation at the headland area of Kiawah. Over 3500 feet of progradation is seen on the northeastern end of Kiawah. Bass Creek inlet migrated almost 2 miles toward the middle portion of the island, forming a long, recurved spit trending parallel to the beach. The eastern end of the island, facing the Atlantic Ocean prograded nearly 1500 feet, while the western end, in the vicinity of the Kiawah River inlet prograded approximately 100 feet.

On an island such as Kiawah, water appears to be plentiful, yet sources of fresh water are scarce. The principal deep water aquifers are the limestone of Eocene age known as the Santee Formation and the sands of Cretaceous age, known as the Pee Dee and Black Creek formations, although these are at depths of 400 to 500 feet and 1600 to 2000 feet respectively. The Santee Formation has been pumped so heavily that there is now a "cone of depression" with the result that chloride levels exceed 400 mg/l in some areas (S.C. Water Resources Commission 1973:100).

Lynch et al. note that colonial wells rarely exceeded 20 feet into the sands which were "everywhere saturated with the water which it received from a rainfall averaging 43.78 inches each year" (Lynch et al. 1882:258). Consequently, wells 12 to 15 feet deep provided "an unfailing supply of water of the very best quality" (Lynch et al. 1882:259). Water quality gradually declined as the population increased and antebellum wells became deeper, although they rarely exceeded 60 feet in downtown Charleston. One antebellum brick-lined well on Daniels Island, about 5.5 miles northeast of Charleston, was only 10.7 feet in depth (Zierden et al. 1986:4-44). Cisterns, in common use throughout Charleston, could provide very safe, potable water, although Lynch et al. (1882:292-293) also found many of the cisterns in Charleston "foul," evidencing high levels of ammonia.

There is extensive documentation of wells being dug on the islands by Union troops during the Civil War. Copp noted:

> in our camp at Hilton Head, every company had its well, by digging through the sand to a depth of from four to six feet, empty barrels would be inserted, and the well as complete, with plenty of water: although brackish to the taste it was not as bad as we were frequently obliged to use in our later campaigns (Copp 1911:94).

On nearby Folly Island Barlow remarked:

> all the water used on the island was obtained by digging below tide-mark and curbing with barrels. The finest and best protected well in camp was made by cutting into a sand dune and making a winding passage to the water, thus placing the water continually in the shade and protecting it from dust and dirt blowing around the camp (Barlow 1899:158).

It is therefore clear that during the historic period wells were in common use, although shallow wells probably tended to be less healthy and more saline. The depth to the water table in the Cougar Island area ranges from about 12 inches in troughs to as much as 80 inches on the dunes.

Another significant aspect of coastal geology to be considered in these discussions is the fluctuation of sea level. Data from the nineteenth and twentieth centuries suggest that

the level is continuing to rise. Kurtz and Wagner (1957:8) report a 0.8 foot rise in Charleston, South Carolina sea levels from 1833 to 1903. Between 1940 and 1950 a sea level rise of 0.34 foot was again recorded at Charleston. These data, however, do not distinguish between sea level rise and land surface submergence.

The mainland soils are Pleistocene in age and tend to have more distinct horizon development and diversity than the younger soils of the sea and barrier islands. Sandy to loamy soils predominate in the level to gently sloping mainland areas. The island soils are less diverse and less well developed, frequently lacking a well-defined B horizon. Organic matter is low and the soils tend to be acidic. The Holocene deposits typical of barrier islands and found as a fringe on some sea islands, consist almost entirely of quartz sand which exhibits little organic matter. Tidal marsh soils are Holocene in age and consist of fine sands, clay, and organic matter deposited over older Pleistocene sands. The soils are frequently covered by up to 2 feet of saltwater during high tides. Historically, marsh soils have been used as compost or fertilizer for a variety of crops.

Only six soil series occur on Kiawah Island: Crevassee and Dawhoo association, Dawhoo and Rutlege association, Kiawah, Rutlege-Pamlico association, Seabrook, and Wando. Of those soils, only two (Seabrook and Wando) are considered well drained (well drained soils account for only 23% of Kiawah's soils). The others are poorly drained, except for the Crevassee-Dawhoo association, found in the ridge and trough area of eastern Kiawah Island, which has mixed drainage (Miller 1971).

Site 38CH1220 consists entirely of the Crevassee-Dawhoo complex, rolling phase (Miller 1971:12). These soils are found on ridge and trough landscapes close to the Atlantic Ocean. The Crevasse soils are excessively drained, being found on the ridges, while the Dawhoo soils are very poorly drained, being found in the troughs. Although some of the Crewassee-Dawhoo soils are well drained, they occur on narrow ridges and are not generally suitable for nineteenth century agriculture. The Crevasse soils have an A1 horizon of grayish-brown (10YR5/2) fine sands about 0.5 foot in depth overlying a C1 horizon of brownish-yellow (10YR6/6) fine sand.

Climate

John Lawson described South Carolina, in 1700, as having "a sweet Air, moderate Climate, and fertile Soil" (Lefler 1967:86). Of course, Lawson tended to romanticize Carolina. In December 1740 Robert Pringle remarked that Charleston was having "hard frosts & Snow" characterized as "a great Detriment to the Negroes" (Edgar 1972:282), while in May 1744 Pringle states, "the weather having already Come in very hott" (Edgar 1972:685).

The major climatic controls of the area are latitude, elevation, distance from the ocean, and location with respect to the average tracks of migratory cyclones. Kiawah's latitude of 32°37'N places it on the edge of the balmy subtropical climate typical of Florida, further south. As a result, there are relatively short, mild winters and long, warm, humid summers. The large amount of nearby warm ocean water surface produces a marine climate, which tends to moderate both the cold and hot weather. The Appalachian Mountains, about 220 miles to the northwest, block the shallow cold air masses from the northwest, moderating them before they reach the sea islands (Mathews et al. 1980:46).

The average high temperature on Kiawah in July is 81°F, although temperatures are frequently in the 90s during much of July (Kjerfve 1975:C-4). Mills noted:

> in the months of June, July, and August, 1752, the weather in Charleston was warmer than any of the inhabitants before had ever experienced. The mercury in the shade often rose above 90°, and for nearly twenty successive days varied between that an 101° (Mills 1972:444).

Kiawah normally experiences a high relative humidity, adding greatly to the discomfort. Kjerfve (1975:C-5) found an annual mean value of 73.5% RH, with the highest levels occurring during the summer. Pringle remarked in 1742 that guns "sufferr'd with the Rust by Lying so Long here, & which affects any Kind of Iron Ware, much more in this Climate than in Europe" (Edgar 1972:465).

The annual rainfall on Kiawah is 49 inches, fairly evenly spaced over the year. While adequate for most crops, there may be periods of both excessive rain and drought. Kjerfve (1974:C-8) notes that Kiawah has recorded up to 20 inches of rain in a single month and the rainfall over a three month period has exceeded 30 inches no less than 9 times in the past 37 years. Likewise, periods of drought can occur and cause considerable damage to crops and livestock. Mills remarks that the "Summer of 1728 was uncommonly hot; the face of the earth was completely parched; the pools of standing water dried up, and the field reduced to the greatest distress" (Mills 1972:447-448). Another significant historical drought occurred in 1845, affecting both the Low and Up Country.

The annual growing season is 295 days, one of the longest in South Carolina. This mild climate, adequate rainfall, and long growing season, as Hilliard (1984:13) notes, is largely responsible for the presence of many southern crops, such as cotton and sugar cane.

Hilliard also points out that "any description of climate in the South, however brief, would be incomplete without reference" to a meteorological event frequently identified with the region -- the tropical hurricane. Hurricanes occur in the late summer and early fall, the period critical to antebellum cane, cotton, and rice growers. These storms, however, are capricious in occurrence:

> in such a case between the dread of pestilence in the city, of common fever in the country, and of an unexpected hurricane on the island, the inhabitants . . . are at the close of every warm season in a painful state of anxiety, not knowing what course to pursue, not what is best to be done (Ramsay, quoted in Calhoun 1983:2).

The coastal area is a moderately high risk zone for tropical storms, with 169 hurricanes being documented from 1686 to 1972 (about one every two years) (Mathews et al. 1980:56). In spite of this there were no hurricanes affecting Kiawah between 1855 and 1881, leaving Civil War activities unaffected.

The climate of the Charleston area, regardless of storms, temperature, humidity, or rainfall, was often viewed as harsh and unhealthy, especially for the white population. Union soldiers often commented on the heat, insects, poor water, and dismal food supplies (see, for example, Legg and Smith:22-23).

Floristics

Kiawah Island exhibits three major ecosystems: the maritime forest ecosystem which consists of the upland forest areas of the island, the estuarine ecosystem of deep water tidal habitats, and the palustrine ecosystems which consist of essentially fresh water, non-tidal wetlands (Sandifer et al. 1980:7-9).

The maritime forest ecosystem has been found to consist of five principal forest types, including the Oak-Pine forests, the Mixed Oak Hardwood forests, the Palmetto forests, the Oak thickets, and other miscellaneous wooded areas (such as salt marsh thickets and wax myrtle thickets).

Of these the Oak-Pine forests are most common, constituting over half of the forest community on the island. In some areas palmetto becomes an important sub-dominant. Typically these forests are dominated by the laurel oak with pine (primarily loblolly with minor amounts of longleaf pine) as the major canopy co-dominant. Hickory is present, although uncommon. Other

trees found are the sweet gum and magnolia, with sassafras, red bay, American holly, and wax myrtle found in the understory.

In the Mixed Oak Hardwood forests pine is reduced in importance and the laurel oak is replaced by the live oak. Yaupon holly and red bay or magnolia are found in the understory. Live oak is concentrated on Cougar Island and Sharitz (1975:F-12) suggests this is due to the soils being very dry and "sterile."

The Palmetto forests are characterized by open palmetto stands with an understory of wax myrtle, red cedar, yaupon holly, and magnolia. The Low Oak woods or thickets are found as a band behind the high dunes. This association is continuous with the Oak-Pine-Palmetto forests. The miscellaneous wooded areas include wax myrtle thickets found in low areas behind the dune fields.

The estuarine ecosystem in the vicinity includes those areas of deep-water tidal habitats and adjacent tidal wetlands. Salinity may range from 0.5 ppt at the head of an estuary to 30 ppt where it comes in contact with the ocean. Estuarine systems are influenced by ocean tides, precipitation, fresh water runoff from the upland areas, evaporation, and wind.

The last environment to be briefly discussed is the freshwater palustrine ecosystem, which includes all wetland ecosystems, such as the swamps, bays, savannas, pocisins, and creeks, where the salinities measure less than 0.5 ppt. These palustrine ecosystems tend to be diverse, although not well studied (Sandifer et al. 1980:295).

Most of Kiawah's freshwater environments appear to have been created within the twentieth century, primarily unintentionally by the creation of dikes to support logging roads (Hosier 1975:D-40). It is likely, however, that small freshwater ponds were found in various troughs scattered across the island. A number of forest types may be found in the palustrine areas which would attract a variety of terrestrial mammals. The typical vegetation might consist of red maple, swamp tupelo, sweet gum, red bay, cypress, and various hollies. Also found would be reptiles and wading birds.

Research Orientation

Previous Civil War Research in South Carolina

There has been little Civil War archaeological research in South Carolina. Best known are the excavations at Folly Island (Legg and Smith 1989) and Camp Baird (Legg et al. 1991). Less well known is mapping at Fort Howell (Trinkley et al. 1996), the excavation of a semi-subterranean Confederate structure at Secessionville on James Island (Trinkley and Hacker 1997), and the exploration of a small sentry or picket post on Seabrook Island (Trinkley 1999). More recently studies have been conducted at the Union prisoner of war camp in Florence (Avery and Garrow 2008) and Columbia (work on-going by Dr. Chester DePratter at SCIAA). The topic of prisoner of war camps is further discussed by Jamison (2013). Nor is this research focused entirely on Confederate camps; the Center for Historic and Military Archaeology at Heidelberg University in Tifton, Ohio has been examining the Union prisoner of war camp on Johnson's Island since 1988.

Research on Folly Island confronted extensive site looting. The authors commented that the site had been "disturbed prior to the arrival of the archaeologist" and was "riddled with the holes dug by relic collectors and bottle hunters" (Legg and Smith 1989:133). Elsewhere they evaluate the site as "heavily disturbed" (Legg and Smith 1989:130). It seems likely that this level of damage may extend to most Civil War sites; no means have been devised to clearly determine whether the damage has affected the integrity of the sites. The authors admit that they had hoped the Folly Island work would allow comparisons to be made, perhaps between black and white units or between infantry and artillery units. This was not possible since what was found was not clearly linked to specific units. There had been much

reuse of the campsite – the authors even note that privies and wells were in close proximity and this clearly revealed repeated encampment (Legg and Smith 1989:130). Another issue was revealed by the research – the site spread out over the project's entire 42 acres, with historic research suggesting it might be even larger. Investigating such large sites, especially in a compliance setting, is likely impossible.

The researchers did reveal that what was able to be identified suggested that the "camp settlement pattern on Folly Island very much followed U.S. Army regulations" (Legg and Smith 1989:130). They provide two pieces of historic documentation to document what these regulations were (Figure 4; see also U.S. War Department 1861:76-79) and to assist future researchers. They even note that "this strict patterning offers an opportunity for quick and efficient camp site excavation in the future," but then admit that this assumes it is possible to find that first credible bit of evidence to allow you to understand where you are in the camp. They explain that researchers "might attempt to locate camp features based on an expected military pattern" but that the "challenge" would be discovering "a feature whose function was clearly evident" (Legg and Smith 1980:130-131). In other words, is that well associated with a kitchen or hospital, is that privy associated with officers or enlisted? And certainly this effort could not have been easy at Folly Island considering the dense vegetation. It may have been this vegetation that resulted in backhoe cuts, although the authors note that the cuts were in each case keyed to surface evidence or metal detecting.

The authors provide brief comments regarding "soldier life on Folly Island," commenting on a lack of civilian-related or personal items and artifacts that suggested efforts to relieve boredom (Legg and Smith 1989:131-132). Otherwise, the artifacts were "related directly to work or to being soldiers." These conclusions perhaps give rise to the authors' observation that "archaeologists must also learn how to apply the evidence from Civil War sites to anthropological questions." Yet, they acknowledged that they "avoided establishing anthropological models" (Legg and Smith 1989:133).

Developed on the heels of the Folly work was the excavation of the autumn 1864 camp of the 32nd U.S. Colored Infantry on Hilton Head Island (Legg et al. 1991). That work was also compliance related and the authors indicate that the camp covered 10 acres. While the report states that the camp was "stripped in its entirety" that was not exactly the case since "tree islands" were left and the resulting site map shows that at most 50% of the area was stripped and that the officer's street was also excluded. This is not intended to represent a criticism, but rather a warning that these sites are extremely large – and investigations are as a result very costly. Moreover, when even 5 acres of top soil is being removed and stockpiled there is considerable damage to the site vegetation – often an issue for developers seeking to sell the property once the data recovery is concluded.

The investigations at Camp Baird found privies at one side, wells at the other. Sheet midden was thin, evidencing policing as required by regulations. Relatively small quantities of trash were deposited in wells and privies, although research found much disposal in rectangular pits dug specifically for this purpose.

Artifacts were "consistent with a late-war Federal infantry regiment "(Legg et al. 1991:221). Most of the artifacts were subsistence related and the general lack of arms was attributed to the regiment's fatigue duty.

The authors focus on methodological issues, emphasizing the need for extensive historical research, preferably at the National Archives and using regimental histories for those known to be associated with a specific location, and broad scale stripping (Legg et al. 1991:222-225). There is, regrettably, no discussion of how the research at Civil War sites improves our understanding of questions or issues that have broad applicability or importance. There is no suggestion of research topics or issues

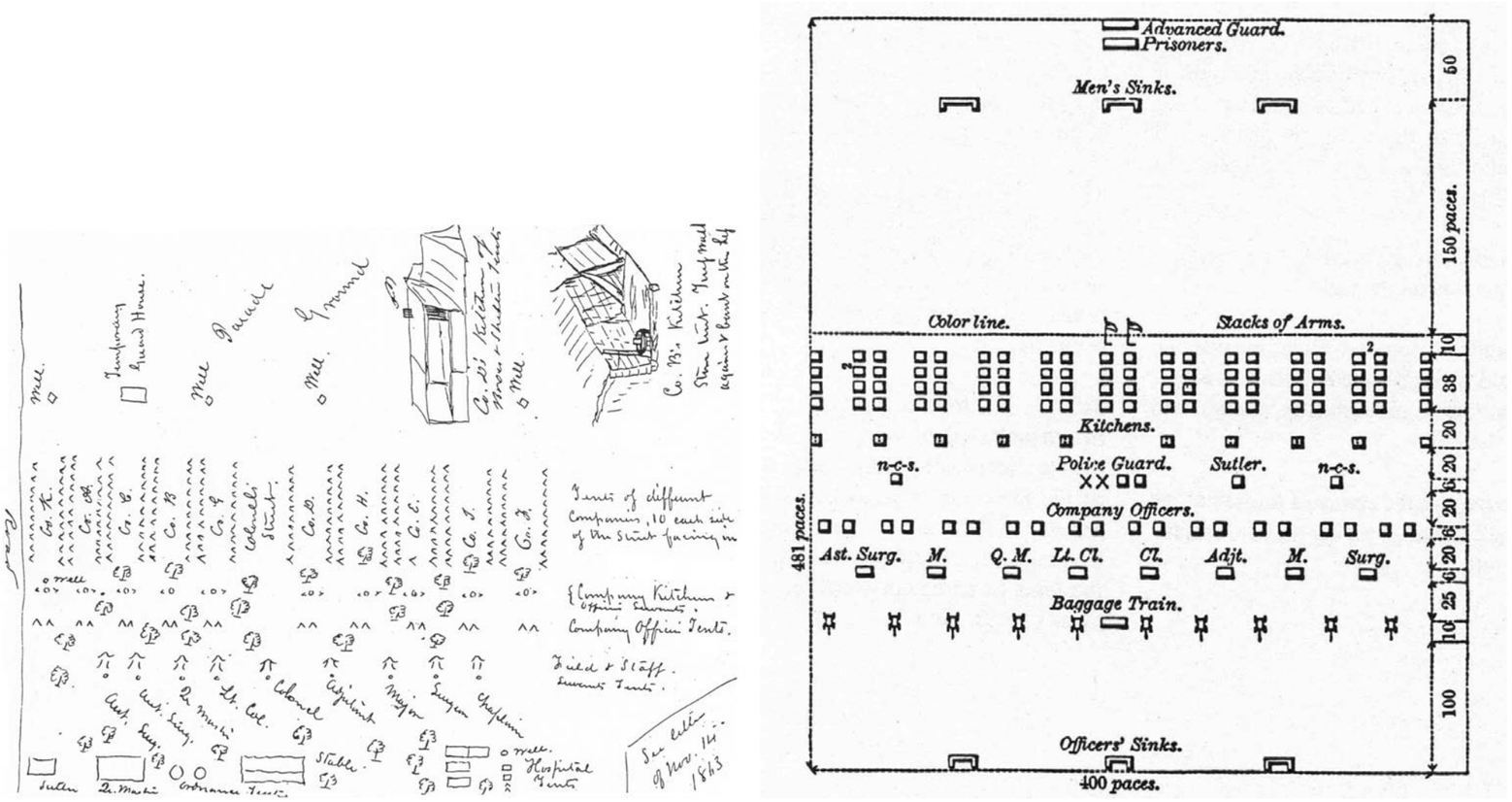

Figure 4. Regimental infantry camps. The drawing on the left is by Major Charles Fox showing a camp of the 55th Massachusetts established in November 1863. The middle drawing is from the *Revised Regulations for the Army of the United States*, dating to 1861. The drawing on the right is from Eldredge (1893) (adapted from Legg and Smith 1989: 27,D1-2 and Legg et al. 1991:44).

for future camp site archaeology. In general, the artifacts recovered are consistent with other mid-nineteenth century archaeological research.

Smith (1994) mounts a spirited defense of archaeological relevance to Civil War studies. Under the subheading of "Why Archaeology," he suggests that while all data may not be relevant, all data should be considered relevant until proven otherwise. This is certainly a judicious approach, but it seems difficult to achieve, especially in a compliance context where sites – and their research potential – must be proven significant in order to warrant data recovery costs. Arguing that data recovery costs should be spent to prove the site has little to offer seems antithetical to the entire 106 process. Beyond this Smith (1994:8) argues what archaeologists generally – and correctly – argue, that archaeology can provide insights that history is simply unable to provide, that by combining the talents and benefits of a variety of disciplines, archaeology has a broader perspective than simple documentary research.

Nevertheless, Smith also warns (as Legg has in other studies), that archaeologists must use the historical documents (Smith 1994:9) and failing to do so will result in trivial investigations (Smith 1994:11). This seems to be somewhat circular: archaeology offers insights more refined than history alone, but archaeology must use history in order to offer meaningful insights. Perhaps there is a logic there, but it becomes clouded when Smith acknowledges that often the documents to achieve these goals "are not always available and are often fragmentary when available" (Smith 1994:11).

Smith suggests that archaeologists exploring Civil War sites have the opportunity "to refine many of their studies of status and ethnicity and to enhance their recognition of human behavioral patterns" (Smith 1994:15). It seems that the regulations and uniformity of military regimen might actually hide status and ethnicity, but it seems that the difficulty would be finding the sites suitable for testing such a lofty goal – sites that were single encampments, carefully documented to a particular regiment, and completely investigated. Such a goal may not be achievable in compliance studies where samples are routinely used to control costs.

Ultimately it seems that Smith falls back on the collection of data: "the most important way archaeology can contribute information germane to the study of the Civil War is by excavating sites in order to establish basic, but very necessary, archaeological facts" (Smith 1994:16). Cognizant that such efforts will be viewed as particularistic, he defends the action by noting efforts to create anthropological models are "premature" (Smith 1994:17). He also deflects criticism that documentary research might be a better use of research effort by noting archaeologists should "distrust documents as much as they should mistrust the archaeological data" (Smith 1994:18).

Thus, it seems that while Civil War archaeological research in South Carolina has made methodological gains, there is little clarity in exactly what research questions are appropriate or even meaningful. Moreover, while previous researchers assert that mechanical stripping is the only appropriate method of investigating these sites, there has been no meaningful discussion of what can be done when stripping is simply not possible.

Synthetic statements date back to at least Geier's (1996) effort to explore how archaeology's recovery of material remains can illuminate aspects of the Civil War that have previously been explored only by historians. More recently, all of these issues have been explored by a variety of Civil War researchers in Geier and his colleagues' (2014) *From These Honored Dead: Historical Archaeology of the American Civil War*. This publication includes an especially useful overview of South Carolina Civil War archaeology by Smith (2014).

Previous Investigations

1991 Investigations

Site 38CH1220 was identified during investigations on Kiawah Island during February

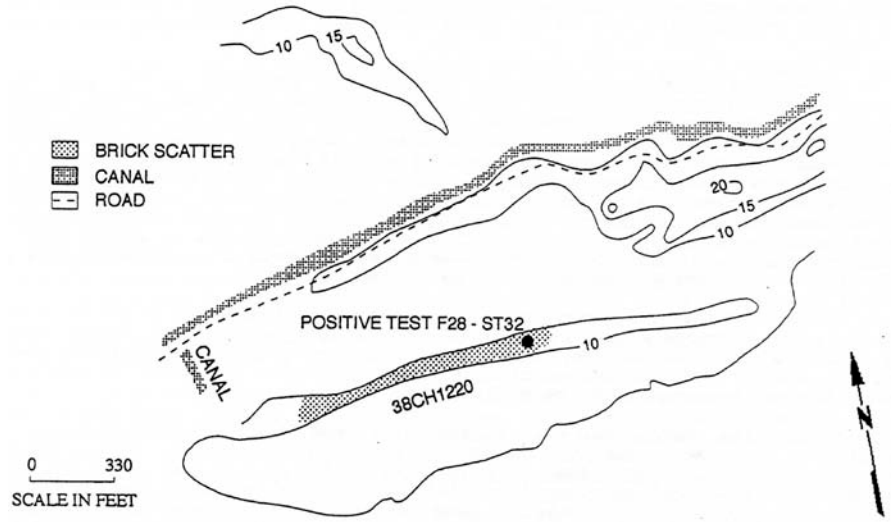

Figure 5. Map of the site from 1991.

and March 1991. The SHPO Archaeologist, Dr. Linda Stine, had previously determined high and low probability areas on the island. High probability areas were to be examined using shovel testing at 100 foot intervals on transects every 100 feet. Low probability areas were examined using pedestrian transects, also at 100 feet, with shovel tests placed judgmentally. The survey had use only of the published USGS topographic maps and an aerial photo. At that time GPS was not being used and site locations were based on transect information and placement on the topographic map.

The site was found during transect shovel testing on "the crest of the ridge" with dimensions of about 300 feet north-south by about 1000 feet east-west. It was best delineated by "approximately eight brick scatters" (Trinkley 1993:137). Shovel tests were unproductive, producing only one nail fragment. Surface collections, however, produced one iron axe head, 17 black bottle glass fragments, one blue bottle glass fragment, one UID nail fragment, two UID spike fragments, one strap hinge, and 21 animal bones. During the survey, damage consistent with relic hunting using metal detectors was identified. Although seemingly minimal at any one location, the evidence was widespread, covering the entire identified area.

The SHPO requested that additional work, consisting of a metal detector survey, take place to the north of the site boundaries. That work revealed no additional site evidence, finding the area to be low. Figure 5 reproduces the map of the site as it was thought to exist in 1991 and is based on the USGS topographic map. An aerial of the area is shown as Figure 6.

As a result of the investigations in 1991, the site was interpreted to "represent a Civil War encampment." We interpreted the brick scatters to be "kitchens," with the tent camp located nearby. We also suggested that the site might represent an encampment of the 54th New York, although Jim Legg indicated that it was "unknown" to his informants and might also represent a camp of the 142nd New York. The site was recommended eligible for its data potential and this was concurred with by the SHPO.

In spite of the eligibility recommendation, we noted that previous research on Civil War sites had failed to identify anthropological research questions of substance – a concern admitted by even the researchers who had undertaken that research. We cautioned that research at 38CH1220 must "concentrate not only on the very real methodological issues (such as the use of metal detecting and other ground penetrating non-destructive survey techniques), [but also] anthropological questions" (Trinkley 1993:139).

2011 Investigations

No further investigations were conducted at 38CH1220 until KP identified Cougar Island as the next phase of their development on Kiawah Island in 2011.

After 20 years it seemed appropriate to

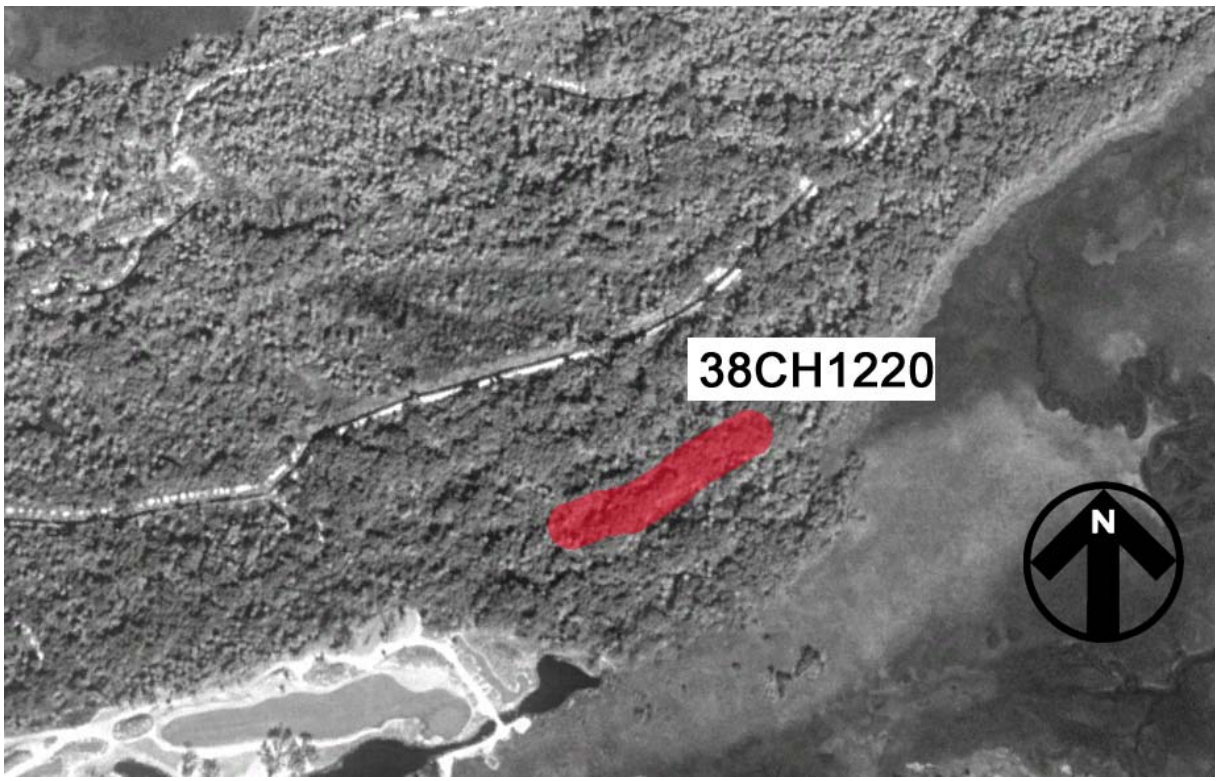

Figure 6. Aerial photograph of the project area in 1994 showing conditions during the initial survey.

spend some minimal effort at 38CH1220 prior to developing a data recovery plan and beginning research. The first, critical, goal was to relocate the site after 20 years of topographic change. Without the use of GPS when the site was first encountered and no effort to accurately record the location through conventional survey techniques, this proved to be a challenge. The site was relocated, but it required considerable effort and was aided by the area having been traversed by survey crews in the preparation of development maps.

After the initial pedestrian survey to relocate the ridge on which the brick rubble was initially found, an updated SCIAA site form with new GPS points was filed in order that the site could be correctly identified. Boundaries of the site similar to those originally proposed (and based on surface finds, including brick rubble) were marked in the field to allow the dense woods to be opened up for a second phase of research. The results of the relocation effort are shown in Figure 2. The site measures about 700 feet in length and about 100 feet in width. For the purposes of clearing, a 50-foot buffer was applied to the site so that an area measuring about 800 by 200 feet (about 3.5 acres) would be available for additional study. While a buffer was included, we found that it was not generally a full 50 feet. We estimate that about 2.5 acres were available for this study.

This additional study involved three tasks. The first was to conduct a metal detector survey of the site. This consisted of pedestrian transects lengthwise across the site, spaced about every 25', for a total of seven transects. Each transect was about 3'. This provided a small sample of the site, but we hoped would help determine the nature of metal artifacts in the study area. Initially the survey was conducted in a mode that detects only non-ferrous remains. So few artifacts were identified that we switched to all-metal mode. A total of 50 discreet finds were recorded producing a total of 67 specimens. A few

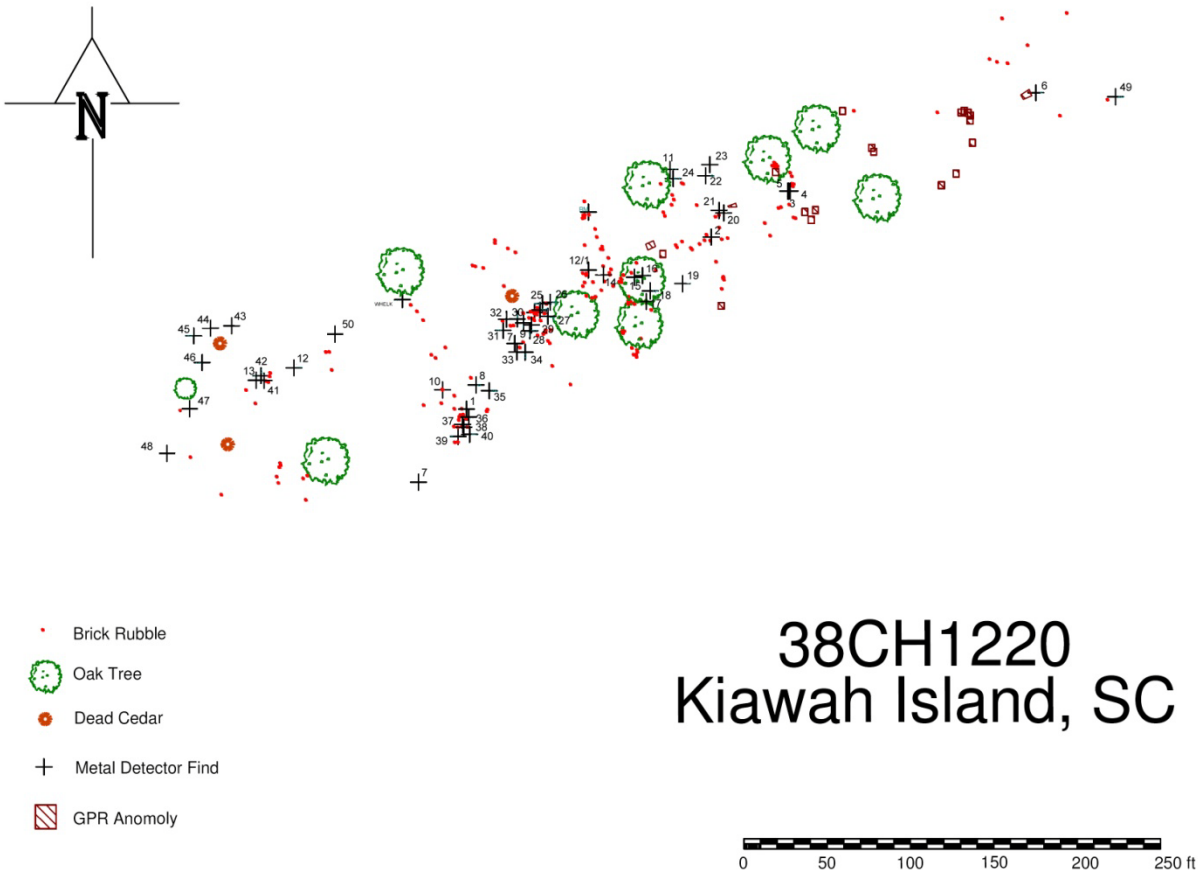

Figure 7. Results of additional survey at 38CH1220 in 2011.

of these were clearly modern, such as a brass 50 caliber machine gun bullet. The bulk of the items, however, are likely associated with the site's occupation during the Civil War although military items (such as armament or insignia) are entirely absent (see Table 1).

The second task was the preparation of a map that identified the metal detector discoveries, as well as the individual brick fragments. The goal was to determine if the brick were tightly clustered or if discrete concentrations could be identified. This map is shown in Figure 7. Five brick clusters can be easily discerned, with additional brick spreading out to the northeast and southwest (which might represent two additional dispersed concentrations). Artifacts from metal detecting are found primarily in the center and southwest, declining in frequency to the northeast.

The final task was the use of ground penetrating radar (GPR) to see if clearly defined features might be recognized at the site. The GPR work was conducted by GEL Geophysics of Charleston and they were briefed on the type of features that might be present prior to arrival on site. We were especially interested in wells and privies since both were aerially significant and deep. It was thought that such features might have a reasonably good chance of being found during a GPR survey. Of course, GPR can only identify anomalies – it cannot distinguish exactly what is being found and no ground truthing was incorporated in this phase of the work.

Figure 7 includes the GPR anomalies. They are rather loosely scattered across the

Table 1.
Artifacts Recovered from Metal Detecting in 2011

Number	Item	Description
1	Melted lead	
2	3 Iron axe heads	
3	Iron square head post	30 1/2" x 1 3/4" (square head) x 1" (body)
4	UID iron	17 1/2" x 1" diameter throughout
5	UID iron	36" x 1 1/4" x 1/2"
6	2 Black glass bottle frags	one base
7	Black glass bottle base	
8	Black glass bottle base	
9	UID iron	3" x 1 1/2"
10	UID iron	42 1/2" x 1 1/2" x 1/2"
11	UID iron	4" x 1"
12	Iron stake	19" x 1" (diameter at head)
12/1	Iron stake?	21" x 1" x 1"
13	UID iron	~ 1"
14	UID iron	partial bottom to can
15	3 Iron frags (bucket handle)	
16	Iron stake/nail	6"
17	Iron post?	15" x 3/4"
18	UID brass	flat frag
19	Iron nail	~7d (very corroded)
20	2 Iron strap frags	
21	Iron nail	~16d
22	UID iron (eye bolt?)	18" x 5" x 1"
23	UID iron	14 3/4" x 1" diameter throughout
24	Hand wrough nail	3d
25	2 UID iron	partial bottom to can
26	2 Hand wrought nail frags	
27	Strap frag	
28	Iron strap frag	
29	Iron strap frag	~11 1/2" x 1 1/2"
30	Iron strap frag	
31	Iron nail/stake	6"
32	UID iron	
33	1 UID nail frag, 2 bones	
34	2 Iron strap frags	
35	UID iron	
36	UID iron	
37	Iron button and UID brass	
38	UID iron	
39	UID iron (maybe broken stake)	10" x 1 1/2" (tapered)
40	Hand wrought nail	~20d
41	Iron large nail or small stake	7"
42	Hand wrought nail	~5d
43	Brass shell	.50 caliber
44	UID iron	11 1/2" x 1 1/2"
45	UID iron	3" x 1" x 1"
46	UID iron	4" x 1 1/2" (may be iron spall)
47	4 Iron strap frags	
48	Black glass bottle base	
49	4 Black glass bottle frags	(1 base, 1 neck, 2 body)
50	Iron strap?	29" x 1 1/2" x 1/4"

northeastern half of the site. While most are relatively small, three were encountered that were more rectangular and hold promise as perhaps being of archaeological significance.

While this work clearly revealed the density of artifacts, it failed to identify site limits. Artifacts, including brick, were scattered across the roughly 2.5 acres with only vague concentrations. This additional work also failed to reveal any definitive military items. Most of the remains found might be associated with virtually any time period and any site type.

Research Questions

A fundamental question is whether camps such as 38CH1220 can address truly significant archaeological research questions. They presumably can produce numerous artifacts valued (both monetarily and aesthetically) by relic collectors. They may also be able to address issues of camp life, although there seems to be considerable historical documentation that deals with this specific topic (for example, books such as Wiley 1978, various regimental histories, and the multitude of letters and other archival materials). Their true ability to make significant archaeological or anthropological contributions is not so clearly understood. Moreover, it is difficult to determine how much push to excavate such sites comes from the celebratory nature of the Sesquicentennial as opposed to legitimate scientific concern.

Given the apparent number of camps on Kiawah and the fact that 38CH1220 is likely the only one that will be studied, in the final analysis it was determined reasonable to anticipate some level of study at the site. At least three appropriate research questions can be identified at this juncture.

It appears that the camp location, identified as 38CH1220, is not ideal since it is

neither of regulation size nor level. This suggests that some modifications in the camp layout may have been required. Thus, one question may be what the military believed was acceptable to modify and what provisions required rigid adherence?

This research question, however, can be addressed only if the boundaries of the entire camp can be identified. This will require considerable effort and it is uncertain how feasible the effort will be, given issues of vegetation and the ability to recognize all camp components. It will also require that the camp not have been repeatedly reoccupied since repeated occupations might make it impossible to tease apart the different episodes.

The second research goal involves the necessities of life that were brought to Kiawah in the context of camp life. Previous research in South Carolina has examined Hilton Head and Folly Island campsites. Both were used by the military over relatively long periods. This does not appear to be the case for the camps on Kiawah – although certainly a number of camps were established over a relatively short period of time. If the site was used multiple times, it may prove impossible to determine with certainty what regiment (much less what company) contributed trash to a specific feature. This may therefore require observations regarding camp life to be rather generic.

The third research question, albeit rather minor, involves how much of the Union military diet consisted of provisions that accompanied them to Kiawah (and might reasonably be expected to be salt beef or pork) and what was acquired locally, such as fresh fish, deer, small mammals, oysters, and local provisions of the forests and marshes.

Data Recovery Limitations

While there may be little agreement concerning the significant questions that such sites can address, there is little disagreement that the only way to get at whatever data such sites may possess is through massive stripping. When such stripping is done in pastures or open floodplain fields, the efforts are fairly straight forward. The topography is level and there is no highly valued vegetation.

The situation at 38CH1220 is very different. Topography varies from at least 11 to 4 feet AMSL. Examination of the topographic map reveals the complexity of the dune trough system in this area, made further complex by previous efforts to ditch and drain areas. In addition, within the immediate site area there are 94 live oaks 10" dbh or larger. The largest is a 51" live oak. There are also protected wetlands.

Stripping a site such as 38CH1220 would, without question, have an impact on the health and well-being of these trees, especially since tree roots occur within the top 18 inches of soil – exactly the soil that would be removed in order to identify features. Every tree has a critical root zone (CRZ). While this varies by species and site conditions, the International Society of Arboriculture (ISA) defines CRZ as an area equal to 1-foot radius from the base of the tree's trunk for each 1 inch of the tree's diameter at 4.5 feet above grade (referred to as diameter at breast height). Thus, the 51" dbh live oak has a CRZ of at least 51' (radius; 102' in diameter). The most common diameter live oak, 20", would have a CRZ diameter of 40 feet. These CRZ areas cannot be disturbed and also cannot have soil stockpiled on them.

Samnik (2000) provides mitigation values for lost or damaged trees, providing some specific examples using live oaks. For example, the mitigation cost of an 18" live oak is approximately $2,900. The mitigation cost for a 37" live oak is nearly $37,000. This document is incorporated in the Florida Administrative Code and commonly used to evaluate tree losses in highway projects. It reveals that the loss of even a few of the trees on 38CH1220 would be a significant financial burden to the property owners. It also emphasizes the steps that must be taken to ensure that archaeological investigations do not damage the vegetation on the tract.

Figure 8 shows one portion of the known site area with the CRZ highlighted in red. This

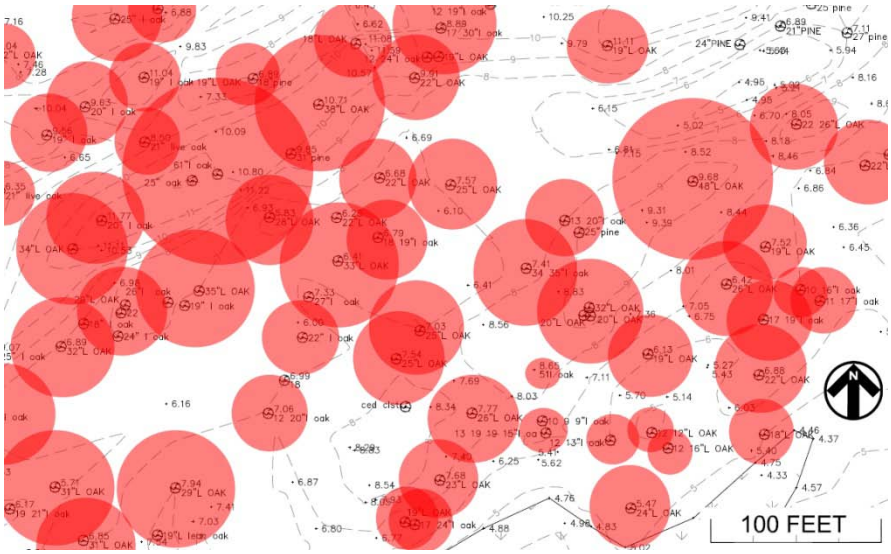

Figure 8. Critical Root Zones (in red) for a small portion of 38CH1220.

reveals that once the trees are protected in the site area there is very little area left for examination.

Simply put, 38CH1220 is not amenable to mechanical stripping. Consequently we have focused on identifying alternatives to mechanical stripping. The most reasonable we have identified is to use ground penetrating radar, perhaps supplemented with a magnetometer in an effort to identify below grade features, such as privies and wells. We admit that our initial effort in this regard was less than perfect; nevertheless, we have identified no better approach.

We recognized that a 40 acre site is entirely too large to clear for geophysical exploration. A better approach is to identify those areas, such as the privies for enlisted and officers, where features may be reasonably anticipated.

In an effort to accomplish this we have used the model camp layout and overlaid it on the tree and topo map for the 38CH1220 site area to show the area of the kitchens previously investigated, additions to that area, the area of the privies or sinks to the north, and the only area where privies might be located to the south (prior to the marsh) (Figure 9).

This plan is speculative and assumes that the regimental camp layout was so well established that it can be used as a guide. It cannot address the problem that the site simply does not contain adequate ground to permit a normal layout to the south. Nor does it address features whose locations are not well defined, such as wells or specifically excavated trash pits.

It also fails to address the possibility that sea level changes over the past 150 years may have inundated areas that were originally drier and more useful for camp layout.

Data Recovery Plan

Phase 1 – Additional Research

As an initial step, we propose conducting historic research at the National Archives in an effort to identify any additional records associated with Kiawah and its camps. Legg has already conducted much research and graciously shared this with us during the initial survey; it is unknown how much additional information can be identified. Nevertheless, previous researchers have wisely recommended such an effort after the difficulties encountered on Folly Island resulting from inadequate historic documentation.

Some effort will also be directed toward examining regimental histories and other historic documents that may help shed light on activities taking place on Kiawah during the Civil War. Jim Legg has kindly provided extensive notes detailing what regiments are likely to have such histories,

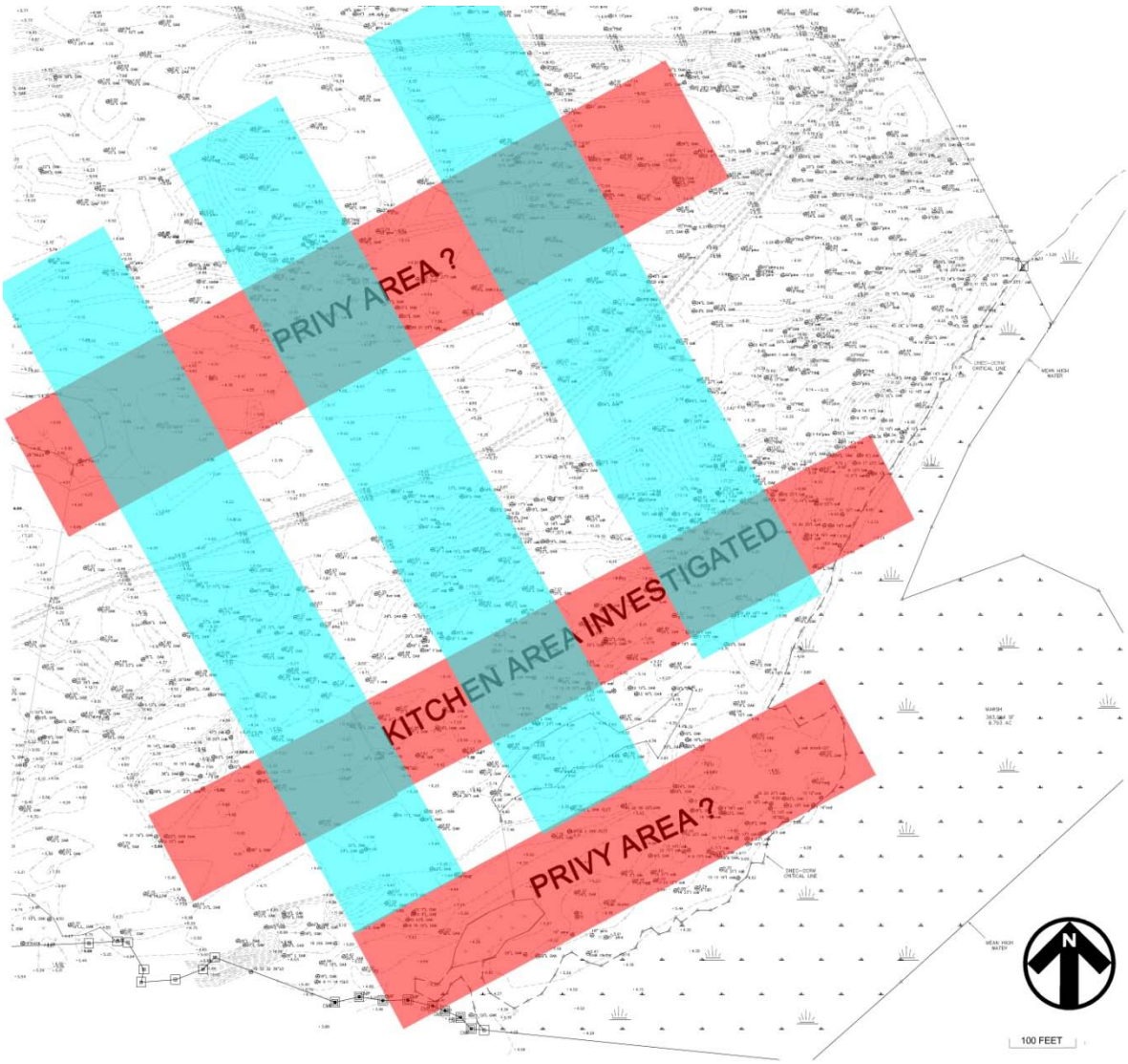

Figure 9. Posited site areas based on overlying the regimental camp map on 38CH1220. Red areas were to be investigated by pedestrian survey and GPR; blue areas were to be investigated by pedestrian survey and metal detecting.

greatly aiding this effort.

Phase 2 – Field Investigations

The second phase of research was to be focused on the field investigation of the areas highlighted in Figure 9.

The first work to be required was the clearing of undergrowth and fallen timber to allow pedestrian survey, metal detecting, GPR, and magnetometer survey. Based on the SHPO recommendations, near surface metal detecting and pedestrian survey was to be undertaken in the blue areas running north-south. Magnetometer survey and GPR work was to be conducted in the red areas running east-west and thought to be most likely to produce features such as wells and privies. These areas were to also receive pedestrian survey. Examination of the

map reveals that six areas were to receive GPR, magnetometer, and near surface metal detecting. The data recovery plan proposed that the near surface metal detecting would focus on only non-ferrous items.

We hoped that the metal detecting investigation would reveal large artifact clusters that might suggest the presence of features. The pedestrian survey was designed to identify brick concentrations that might help identify different site areas. The magnetometer survey would be focusing on larger ferrous objects that might reveal features into which large quantities of metal items had been deposited. Finally, we hoped the GPR work would identify square, rectangular, or circular features that might be consistent with privies or wells.

Any possible features were to be marked in the field and mapped. Features that could be excavated without damage to trees were to be identified and excavated. Entire features might be excavated or they might be cross sectioned only, based on artifact density, redundancy, and safe excavation requirements.

At the conclusion of stripping and archaeological excavations, the site was to be released to KP for restoration and subsequent development.

Phase 3 – Analysis

Once the field investigations were complete the artifacts would be returned to Columbia for laboratory processing. This would include washing, sorting, and cataloging. We proposed to use the SC Institute of Archaeology and Anthropology (SCIAA) for the curation of these remains and their cataloging system is therefore being used. The client has provided the curatorial facility with fee-simple ownership of the resulting collections.

Analysis of the collections would follow professionally accepted standards with a level of intensity suitable to the quantity and quality of the remains.

Curation

An updated site form reflecting this work has been filed with SCIAA. The field notes and artifacts from Chicora's data recovery at 38CH1220 will be curated at SCIAA. The artifacts have been cleaned and are currently in the process of being cataloged following that institution's provenience system. All original records and duplicate records will be provided to the curatorial facility on pH neutral, alkaline buffered paper. Photographic documentation is entirely digital. Copies of all photographs will be provided as tiff images to SCIAA.

The Civil War on Kiawah Island

Kiawah in Context

As one of the multitude of sea and barrier islands off Charleston, Kiawah played a small part in the much larger siege of Charleston by Union forces during the Civil War. This aspect of the events in and around Charleston have been reviewed by authors such as Fonvielle and Legg (1989) during the Folly Island research. It is also the subject of several authors, including Rosen (1994), Woodhead (1997), Ripley (1986), Kennedy (1998), Burton (1970), and Brennan (1996).

Charleston was protected by a series of primarily coastal defenses, including Fort Sumter, a two-tiered brick casement constructed on an artificial island in the middle of the harbor; Castle Pinckney, a brick fort constructed on Shutes Island, about a mile east of Charleston; and Fort Moultrie, another brick fort, situated on Sullivans Island. To these defenses General P.G.T. Beauregard added earthworks in a circle around Charleston, including Battery Beauregard on Sullivans Island, Fort Johnson on James Island, and Batteries Wagner and Gregg on Morris Island. James Island, considered by both Union and Confederate leaders as the key to Charleston, was heavily fortified, and Cole's Island, guarding the entrance to the Stono River (and hence to James Island), received an enclosed battery (Figures 10 and 11). By the spring of 1863 Charleston was a very heavily fortified city that combined earthen and masonry fortifications armed with 77 heavy guns ringing the inner harbor, mined obstructions in the shipping channels, and three ironclad and several torpedo boats, defending the city.

Concerned that Charleston had insufficient men and artillery to protect itself, Confederate General John C. Pemberton ordered troops to abandon the Cole's and Folly Island defenses in March 1862. The abandonment of these defensive lines allowed Union troops to move into the area without opposition in the spring of 1862. It was at this time that the siege of Charleston began and the Civil War came to Kiawah Island.

The first major offensive on Charleston was the ill-fated June 1862 land attack of James Island and the Battle of Secessionville. Of the 4,500 Union soldiers engaged, there were 683 casualties. The Confederates suffered 204 casualties of about 3,100 men engaged.

The second Union assault, equally disastrous, was the combined naval and land attack in April 1863, during which DuPont's squadron failed to make any headway on Fort Sumter and his fleet was severely damaged. Only one Union brigade actually landed on Folly Island and quickly disengaged. As a result there were only 22 Union casualties and 14 Confederate losses.

In June 1863 the command of the islands around Charleston was given to General Quincy A. Gillmore and the previously defensive efforts were transformed into preparations to again launch an attack on Charleston. In July 1863 Union troops on Folly Island attacked adjacent Morris Island, easily establishing control over the southern end of the island and capturing 300 Confederates that formed an outer defense. On July 11 the 1,700-man Confederate force repelled a dawn attack by the 7th Connecticut on Fort Wagner. Estimated casualties included 339 Union troops and 12 Confederate troops.

Only a few days later, on July 16, Union troops attacked James Island in an effort to divert Confederate reinforcements from Fort Wagner on

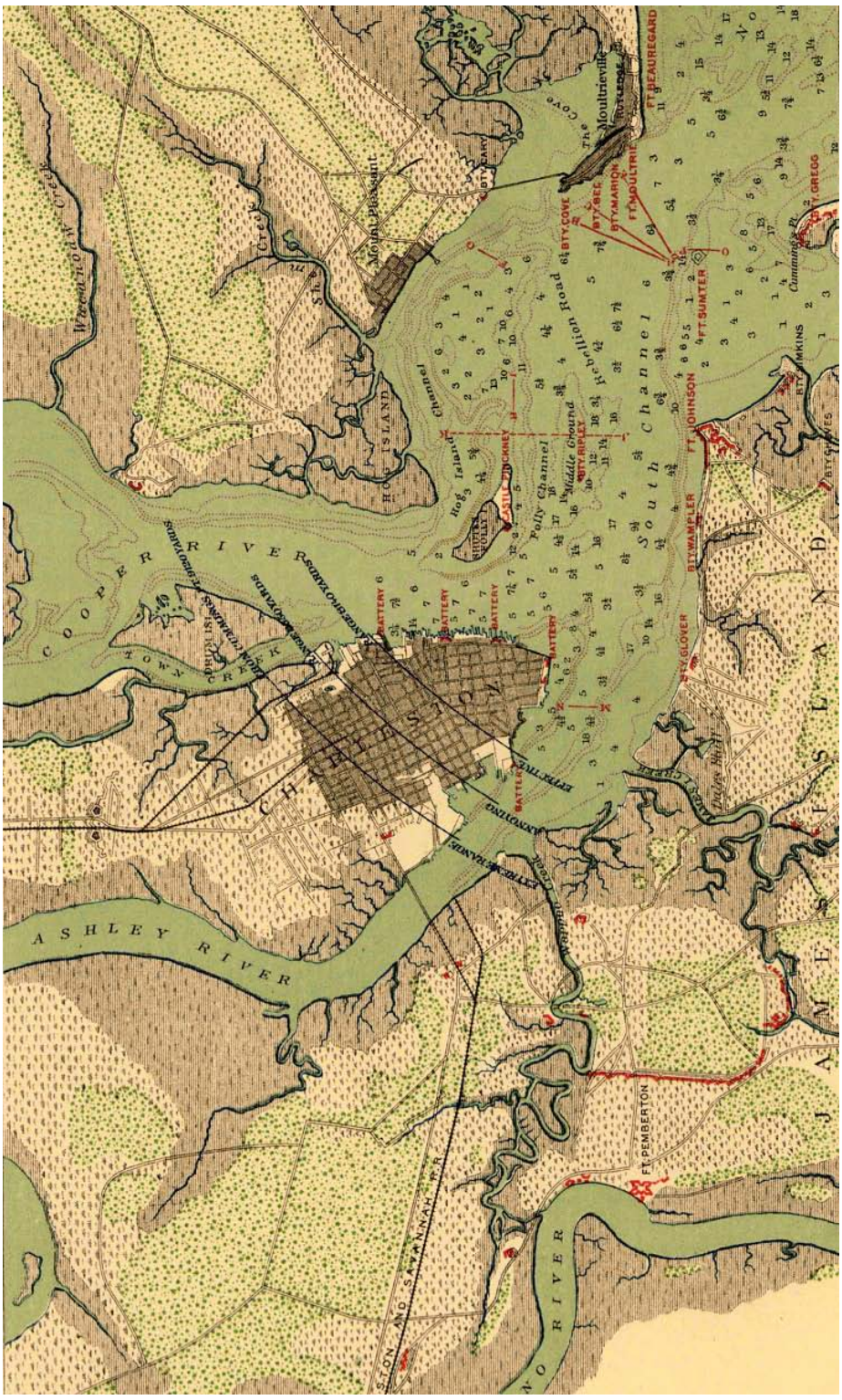

Figure 10. Map of Charleston Harbor showing defenses. 186-. Section from Atlas accompanying war records U.S.A. by courtesy of Julius Bien & Co. Peter Adams Company

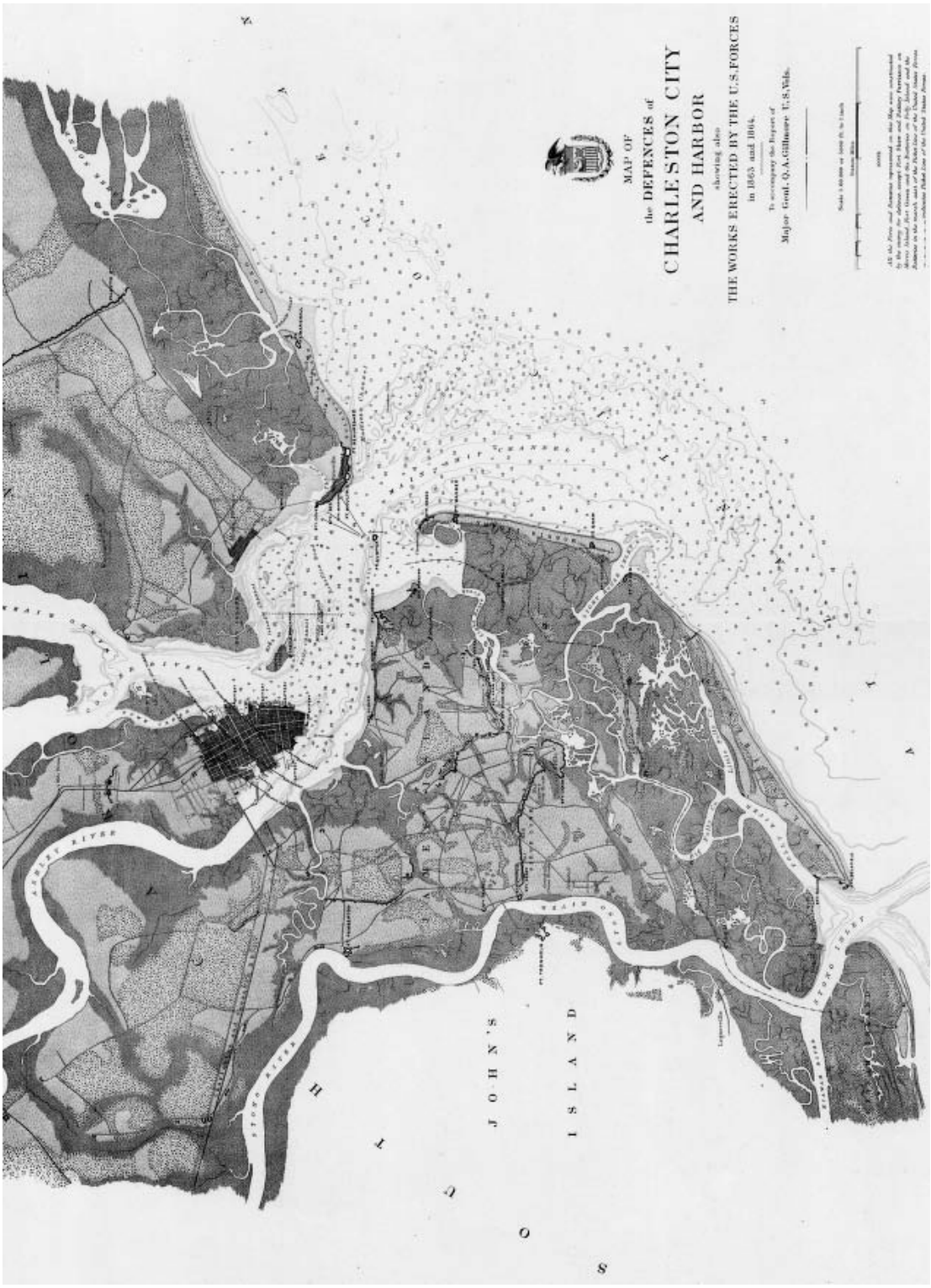

Figure 11. Map of the defenses of Charleston city and harbor, showing also the works erected by the U.S. forces in 1863 and 1864 to accompany the report of Major Genl. Q.A. Gillmore, U.S. Vols. United States. Army. Corps of Engineers.

Morris Island. Known as Grimball's Landing, the encounter resulted in 46 U.S. casualties and 18 Confederate casualties.

The second assault on Fort Wagner occurred on July 18, 1863. It began with an 8-hour artillery barrage. While Confederate forces were forced into their bombproofs, the garrison survived with few casualties. The charge began at dusk by the 650 men of the 54th Massachusetts. While some made it to the parapets, they were repulsed after brutal hand-to-hand combat. Although the African American troops demonstrated both their abilities and courage, Union forces finally withdrew, suffering over 1,500 casualties to only 222 Confederate wounded or dead.

The third assault on Fort Wagner occurred in early September 1863. U.S. General Quincy A. Gillmore laid siege to the fort, gradually advancing his troops using trenches, while the Union fleet continued artillery attacks, culminating on September 5 with a 36-hour bombardment that killed 100 of the fort's 1,200 man garrison. In conjunction, Union forces advanced to the moat. On September 6 Confederate General Beauregard ordered Morris Island evacuated. During the siege harbor fortifications had been strengthened and Fort Wagner was thought to be no longer needed.

This provided the Union forces a somewhat hollow victory and began the next phase in the long siege of Charleston. Union troops held a somewhat tenuous line along portions of Seabrook, Kiawah, Folly, and Morris islands, but failed to hold any significant portions of John's or James Island. Kiawah and Seabrook islands were usually considered hostile territory by the Union forces.

In January 1864 a series of signal towers were constructed from Hilton Head to Folly Island in an effort to allow uninterrupted communications along the coast. At least one signal tower was constructed on the east end of Kiawah "as so much smoke arises from the camps there and on Folly Island as to render it impossible to see a station on Folly Island from there [Botany Bay on Edisto Island]" (*OR*, 46, p. 54). Military operations were largely confined, as they had been earlier, to harassing Confederate posts on James and John's islands.

A second frontal attack was planned on Fort Sumter by a combined Naval and Marine force. While the naval bombardment reduced Fort Sumter to rubble, Union troops were caught in a crossfire between the Confederate ironclad *Chicora* and the guns of Fort Moultrie, forcing Union forces to once again retreat.

This attack ended the Union efforts to take Charleston. While the various sieges closed the harbor to blockade runners through March 1864, the runners quickly resumed their operations. It wasn't until Confederate forces evacuated Fort Sumter and Charleston on February 17, 1865, in response to U.S. Major General William T. Sherman's march northward, that Charleston fell.

The Civil War on Kiawah

With the fall of Hilton Head and Beaufort to Union forces in November 1861, the entire coast was left vulnerable and the call went out for planters to remove themselves – and their property – from the coastal islands. We know that Kiawah's Elias Vanderhorst made these arrangements in early 1862 and it seems reasonable that the island's other planter, Isaac Wilson, did as well.

When Arnoldus Vanderhorst IV (the son of Elias and Ann Vanderhorst) visited Kiawah in March 1862 he told Adele (his wife):

> fortunately found everything just as I had left it when I removed the negroes. The next plantation belonging to Mr. Wilson [the Shoolbred plantation, 38CH129, passed on to Mary Drayton and sold to Wilson in 1860] was not so fortunate. Our own troops had broken into the fine dwelling

> house and maliciously destroyed the furniture, and left the house in such a condition that it scarcely ever will be habitable for a decent family. The Vandals were not satisfied with this shameful destruction of private property, but were low enough to rob the poor old negro who was left to take care of the place of all his chickens, and they even went in his house, and stole a new pair of shoes that his master had given him. Is it not melancholy to think that we have such Barbarians amongst us, and that these are the men that the country looks to fight its battles. The more I see of our people the more I am convinced of their total unfitness to Govern themselves, and I think the sooner we have a strong government the better for all classes (South Carolina Historical Society 12/200/12).

During this early period of the war, only one reference to the Kiawah area has been found. In April 1862 the Third New Hampshire Infantry made a brief reconnaissance to Seabrook Island. Evidently little activity was found on either Seabrook or Kiawah, although Confederate troops were clearly established on John's Island (*OR* 14, p. 3-4). As late as October 1862, no fortifications appear to have been erected by the Union forces on Kiawah (*OR* 14, p. 627-628).

The abandonment of the defensive positions at Cole's and Folly islands in March 1862 allowed Union troops to move into the area without opposition in the Spring of 1862. It was at this time that the siege of Charleston began and the Civil War came to Kiawah Island.

With the eventual fall of Morris Island, Union troops held a somewhat tenuous line along portions of Seabrook, Kiawah, Folly, and Morris islands, but failed to hold any significant portions of John's or James Island. In early September 1863, Union troops were ordered:

> to reconnoiter Kiawah Island thoroughly. By frequent patrols of the island affording opportunities for the erection of batteries by the rebels, we shall do all we can without an increased force (*OR* 47, p. 87).

Later that same month, the commander of Union forces on Kiawah was ordered to "strengthen the position of Kiawah, this side of the first creek that divides the island, by abatis and excavating rifle-pits in rear." Further, the quartermaster was to "furnish any facility for constructing a landing for Kiawah" (*OR* 47, p. 99). The landing was probably constructed at the bluffs of Bass Creek.

Company G of the 157th New York Volunteers spent time on Kiawah, with soldiers noting the work on the island was "pleasant, owing to freedom from the strict discipline of camp" (Barlow 1899:157). McKee also notes that the 144th New York Regiment also did seven days of fatigue duty on Kiawah "where fortifications were being constructed" (McKee 1903:145). In early November a portion of the 107th Ohio Volunteer Infantry was "detailed for picket duty on an adjoining island called Kiawa" (Smith 2000:156). Their view of the island wasn't as pleasant, noting that the weather was "quite rough and cold: the temperature is not frosty but the winds from the ocean seem to pierce through and chill the entire frame" (Smith 2000:156).

The fortification of Kiawah continued into October and November 1863, with a November 15 account describing the recent construction of a small fortification near the beach of Kiawah. Also mentioned, but not described, was a second fort (*OR* 47, p. 103). One of the few Confederate accounts from this period describes a brief encounter with Union forces that had established artillery on the west end of Kiawah, near the bridge joining Kiawah and Seabrook, and had been shelling the Haulover Cut area. (*OR* 46, p.

737-738).

Confederate accounts reveal that they were well aware of these Union activities. On September 12, 1863 Confederate observers reported that a gunboat "landed some men at Wilson's [Shoolbred Plantation], on Kiawah Island (*OR* 47, p. 127). Later that same month, the Confederates were reporting "a large number of Yankees are on Kiawah Island" (*OR* 46, p. 132). Just a few days later, on September 22, 1863, the "large number" was refined to a "regiment" (*OR* 46, p. 133). In general a regiment consisted of 10 companies or about 1,000 men. Additional troops continued to be moved, according to Confederate observers, from Folly to Kiawah Island (*OR* 46, p. 136).

By October 1863 Confederate pickets on the Stono reported "a diminution of tents on Kiawah Island." The report suggested that "the tents have probably been removed more to the interior of the island" (*OR* 46, p. 140). This suggests movement from perhaps the beach to more interior locations – such as 38CH1220. It also corresponds with a Union report that the north end of the island was being fortified "to prevent the enemy occupying it and destroying my shipping in the Stono" (*OR* 47, p. 103).

By the end of October the Confederates were reporting that steamers were leaving Kiawah for Folly Island, "loaded with troops" (*OR* 46, p.153), although just a few days later they reported, "about 500 troops were seen to-day on a steamer, which transferred them from Folly to Kiawah Island" (*OR* 46, p. 158). This suggests that troops were being cycled on and off Kiawah. By mid-November the Union forces were also occupying portions of Seabrook Island (the Confederates reported "certainly two regiments and two companies" or perhaps 1,200 troops) and were rebuilding the bridge that historically joined Kiawah and Seabrook islands (*OR* 46, p. 738). As late as December 1863 Confederate sources reported, "no visible diminution of troops has yet taken place on Morris, Folly, or Kiawah Island, where the enemy has probably about 10,000 men in all" (*OR* 47, p. 569).

On December 5, 1863 Confederate scouts on Kiawah captured two prisoners "from the Third Rhode Island Artillery. These prisoners state that the enemy's force on the island is six regiments of infantry and one light battery" (*OR* 46, p. 175). This event is also described by Denison, who noted that three men were captured as they ventured "too far towards the rebel lines . . . indifference to danger proved to be their great fault." They were apparently held at the "Richland Jail, Columbia, SC" (Denison 1879:205). Elsewhere he notes that two men captured "while on a foraging tour upon Kiawa [sic] Island" were held in Andersonville Prison. These accounts demonstrate that Kiawah remained a divided island throughout the war.

In early 1864 there are a number of Union reports concerning attempts to establish good communications between Hilton Head and the northern reaches of the Union forces on Folly Island and eventually Morris Island. Initially a series of signal towers were built "at Botany Bay, Otter, and Saint Helena Islands" in late October 1863 (*OR* 46, p.51). Eventually the Botany Bay and Otter Island towers were increased in height, both reaching 140 feet. They then discovered that camp fire smoke was precluding communication from Botany Bay to Folly Island, so a temporary tower was ordered to be built on Kiawah on November 16, 1864 (*OR* 46, p. 53). This tower was not, however, actually constructed until early December (*OR* 46, p. 54). Another temporary tower was erected on Hilton Head and eventually telegraph wire was strung. An intermediate tower between Otter Island and Botany Bay was also created on Bay Point. The Kiawah tower, only 30 feet high, had to be rebuilt at a new location. Eventually the system worked, but it was noted that, "it will be necessary to keep a station on Kiawah, as so-much smoke arises from camps there and on Folly Island as to render it impossible to see a station on Folly Island from there [presumably meaning from Botany Bay]" (*OR* 46, p. 55). There is, unfortunately, no information on where the "intermediate small station" was erected on Kiawah (*OR* 46, p. 256).

By January 1864 the initial station on Kiawah was moved, being relocated at the "extreme picket line for new and better location," although again no better information on its location was provided (National Archives, RG 111, Report of Operations of the Signal Corps, U.S.A., 1864, pg. 13). The station is again briefly mentioned on February 29 as being in operation (National Archives, RG 111, Report of Operations of the Signal Corps, U.S.A., 1864, pg. 65).

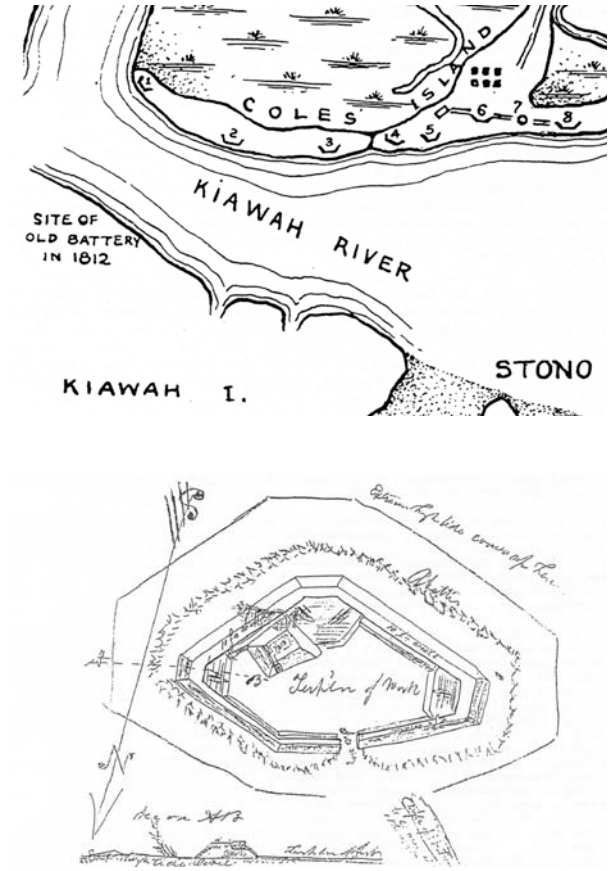

Figure 12. Forts on Kiawah Island. Upper drawing from Hagood (1910) shows the "upper redoubt" on the Kiawah River. Lower drawing (National Archives, RG 77) shows the "lower redoubt" on the beach.

In early February 1864 "the First and Second Brigades and Foster's brigade of Vogdes' division, and six pieces of artillery, all under command of Brigadier General Alexander Schimmelfennig, crossed to Kiawah and Seabrook Islands to make a demonstration to distract the enemy's attention from the expedition to Jacksonville" (*OR* 65, pg. 31). A more detailed account reveals that among the troops were the 157th New York Volunteers, accounting for "173 armed men, 10 cooks, 4 stretcher-bearers, 10 pioneers, 3 hospital attendants, 3 detailed as orderlies; total 203 men, commanded by 1 field, 2 staff, 3 line, and 4 acting officers; total force 213" (*OR* 65, pg. 106). We know that they bivouacked at the Vanderhorst plantation and the next morning proceeded to the Seabrook Plantation where a skirmish occurred with Confederate forces on the island. Also present were the 75th Ohio Volunteers, 107th Ohio, 41st New York, 54th New York, 142nd New York, 144th New York, and 74th Pennsylvania regiments. During this engagement a "ditch and parapet of considerable strength" was created by the Union forces (*OR* 65, p. 31, 107, 144, 468-470; Barlow 1899:154-155).

It may have been this demonstration that also resulted in Special Orders No. 11, dated February 4, 1864 in which each 100 men were to be assigned three axes and three spades, as well as signal lights and flags. In addition, troops were warned that, "no fires will be kindled nor signals sounded after landing on Kiawah" (National Archives, RG 94, 17th Connecticut Regimental Order Book, Part 2, volume 6).

A note in the Morning Reports for the Third Rhode Island Heavy Artillery noted that Sergeant John Ogden and Private John Chadwick from Company A were on detached service on "Kiawa Island" beginning February 19, 1864. The nature of this work was not further described (National Archives, RG 94).

By February 26, "the Fifty-fourth New York Volunteers moved from Kiawah to Folly Island" (*OR* 65, p. 31). In mid-April 1864 Confederate accounts report that forces were increasing on Kiawah and that "new encampments visible" (*OR* 65, p. 115). Union forces were apparently using Kiawah's resources since on April 6 it was reported that, "the stockades are cut at Kiawah Island and await transportation" (*OR* 66, p. 42).

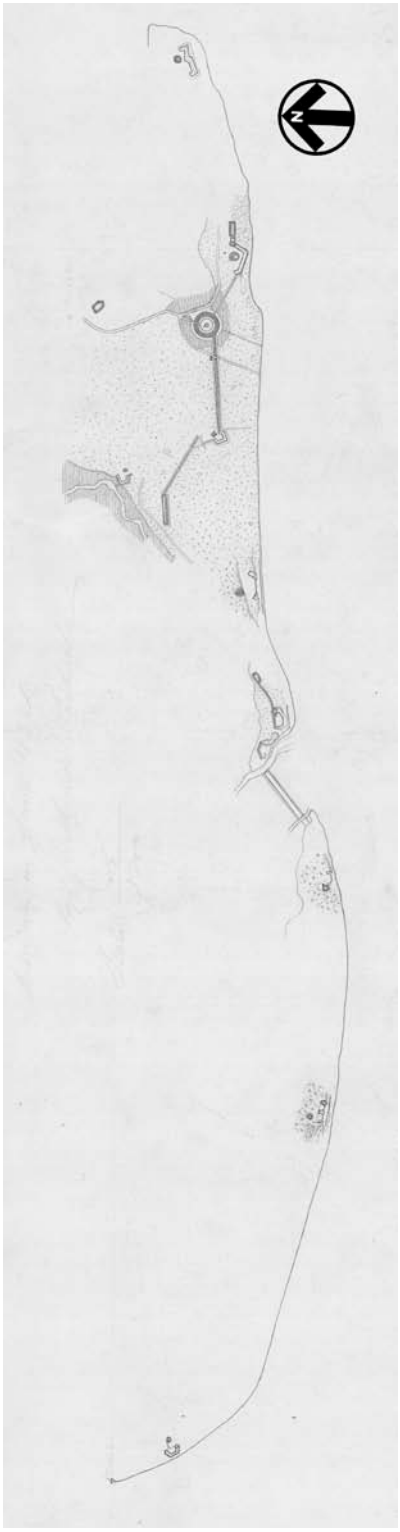

Figure 13. Confederate fortifications on Cole's Island were elaborate (Coast Survey T-899, prepared in 1862).

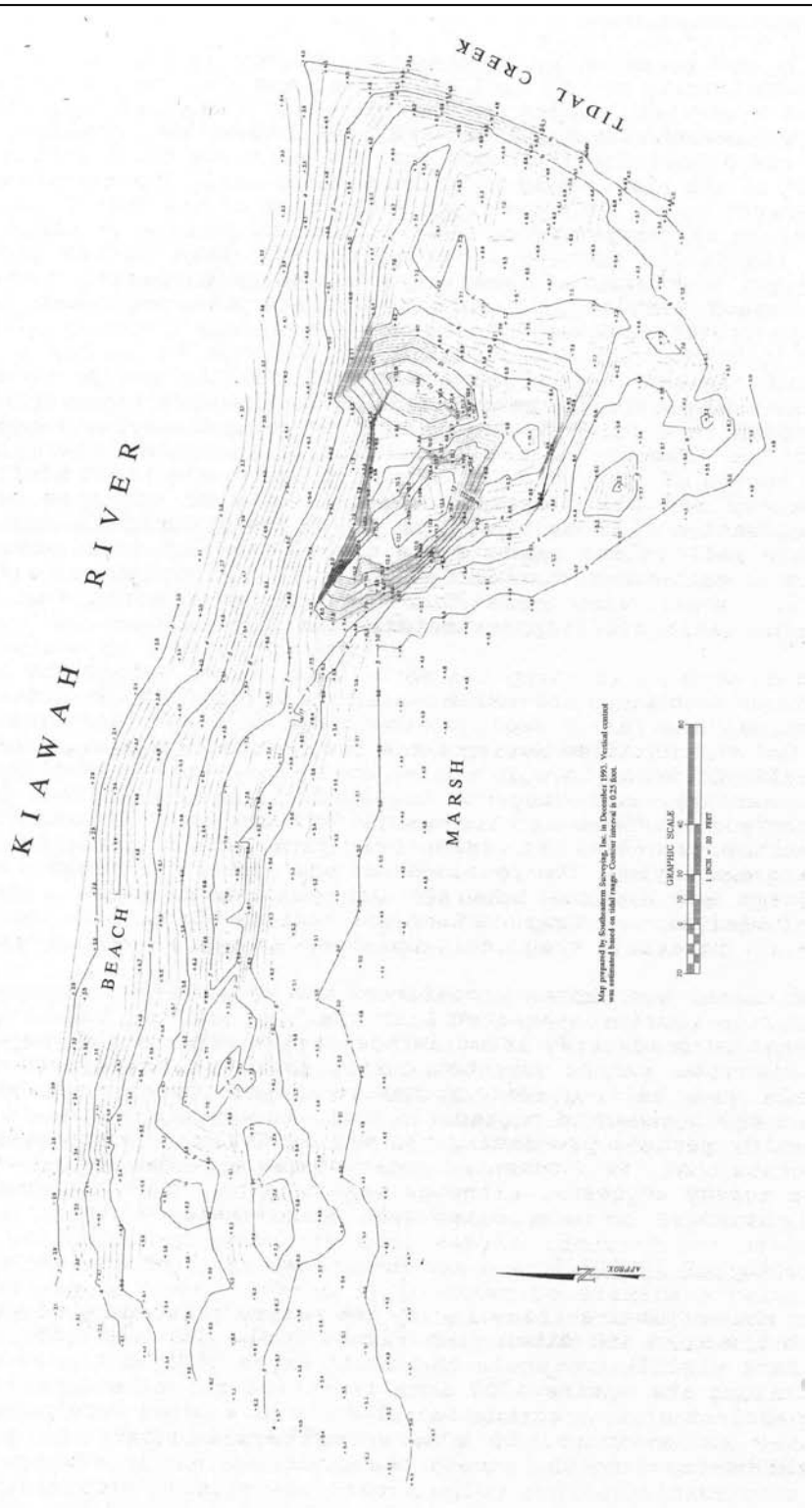

Figure 14. Remnants of the Kiawah "upper redoubt" (38CH227) fronting the Kiawah River, surveyed in December 1993 (adapted from Trinkley 1993:Figure 101).

Nevertheless, by late April 1864, Brigadier General Alexander Schimmelfennig ordered that "the forts on Kiawah and Long Islands . . . be disarmed" (*OR* 66, p. 70). The "large fort" was armed with rockets and the garrison was reduced to "an outpost of 40 men" (*OR* 65, p. 52). These two forts included the "lower redoubt" that commanded the beach (constructed in 1863; Figure 12) and the "upper redoubt" that "commands all the end of the island" (Hagood 1910 identifies this as an 1812 fort; Figure 2) (*OR* 66, p. 118).

About the same time, on April 30, 1864 the Kiawah Signal Station had been discontinued "for want of Officers and men," although "it would be of but little service . . . as our troops, with the exception of a picket – have been withdrawn from Kiawah Island" (National Archives, RG 111, Report of Operations of the Signal Corps, U.S.A., 1864, pg. 185).

A May 2, 1864 order was issued to "put the oyster shell fort on Cole's Island in a state of defense, with a view to arming it with two heavy rifled pieces and two mortars or field howitzers" (*OR* 66, p. 83, see also *OR* 65, p. 55). The other fort on Kiawah, probably at the location of the old fort from the War of 1812, is mentioned on May 5:

> On Kiawah Island I have taken the guns from the forts, armed the large fort with rockets, and reduced the garrison to an outpost of 40 men. . . . Besides this, I very much need facilities for mounting a small force of infantry for the purpose of patrolling the whole of Folly Island and also Kiawah (*OR* 65, p. 53).

The "rockets" referred to would have been either the Congreve or Hale, both of which were used extensively during the siege on Charleston, although with relatively little effect (Dickey and George 1980:469-471). McGrath notes that:

> On the 9th of April [1864] a party was detailed on a reconnaissance to James Island, and afterwards a detachment to Kiowah Island to practice handling the Congreve Rockets. They were found very unreliable; some of the rockets after leaving the tube would trip and return to the sender; they made a good deal of noise when they exploded and might be useful in scaring horses, but were not thought much of (McGrath 1898:97).

McGrath also provides a detailed account of the Cole's Island fort:

> our new camp was made in a grove of live oak trees near the landing and in the vicinity of the old shellfort supposed to have been erected by the Spanish. The so-called "Fort" was a circular wall, made some ten or twelve feet high and five to six feet thick, made of a concrete of oyster shells as solid as masonry. It was useless for our purposes, however, except as a breastwork, which the situation here did not require (McGrath 1898:74).

In June 1864 the defenses on Kiawah were listed as:

> Works on Kiawah Island cover the Stono Inlet from an attack in this direction: First. Lower redoubt, commands the beach. Second. Upper redoubt, commands all the end of the island. The armament of these works has been removed. They are held by infantry (*OR* 66, p. 118).

Notes accompanying the lower redoubt drawing reveal that it was the "smaller work" on

the island, but in spite of its size was viewed as "a real little beauty of a fort - no mistake!" (National Archives, RG 77). The plan reveals a rampart and parapet with mountings for four guns controlling the water (south), east and west. The drawing shows four guns mounted. There was an interior magazine and a surrounding abatis. This consisted of branches of trees laid in a row, with the sharpened tops directed outwards towards the enemy. They were intended to be obstacles to infantry, keeping the approaching enemy under fire for as long as possible. The drawing also shows rifle pits extending off to the northwest.

The removal of armament may suggest that troops had been largely removed from the island. In addition, in late May 1864 a party of 100 men were ordered to Kiawah "to be out two nights and two days, and thoroughly to scour the island," implying that the Union presence on the island by this time was minimal. This party was to proceed to the Vanderhorst Plantation "on the Kiawah river bank" and the next day go to the "broken down bridge (rebuilt only seven months earlier in October 1863) leading to Seabrook Island, and to the point of Kiawah at the Seabrook ford on the beach." There they were to again "carefully observe any signs of the enemy on Seabrook or John's Island." Afterwards they were to return to Folly Island (*OR* 65, p. 54-55; *OR* 66, p. 109-110).

This concern about Confederate activities continued well into the summer. A report from June 1864 indicated that Confederate cavalry patrols, typically on Seabrook Island, had extended as far as the Vanderhorst Plantation (*OR* 65, p. 62). In July 100 men were ordered to the "Rocket battery" on Kiawah, rather than the usual 40. They were ordered to "proceed with great caution to their post to avoid being ambushed or surprised by the enemy." Once at the battery and the area examined, the excess men were to return (*OR* 66, p. 172). Just a few days later there were additional fears that Confederates might be on Kiawah and troops were ordered to investigate if there were "any traces of the enemy near our front, without going too far from the picket line" (*OR* 66, p. 187). These concerns are illustrated by Figure 15, which shows that much of Kiawah was not held by Union forces. A Confederate report as late as August 1864 reported that while "a large number of tents are visible on Coles & Folly Island" at least two were present on Kiawah, as well as a Brig at the island's wharf (Ripley 1986:220).

Kiawah clearly saw much activity. This included relatively large numbers of Union troops being camped on the island during 1863 and early 1864. Before and after this there were apparently patrols by both Confederate and Union forces. During this activity there is good evidence that the plantation structures suffered extensive damage and depravations by both sides. A March 31, 1864 letter from Colonel A.M. Barney (142nd New York Volunteers) on Kiawah written to his friend, Phiny, describes the island and its plantations:

> There are three plantations on it and was two very fair houses. One of them was accidently burned in July last by the tall dry grass getting afire from some bivouac fires, the other has been almost entirely demolished by this and other Regts.

Barney continues, remarking:

> there are two small forts about one and a half miles from the northern end of the Island [Stono Inlet] which are garrisoned by one of our companies, "D" Capt Jones of Malone. We have just moved our camp nearly up to the Forts and will have a splendid one too. I have two tents with good frames in them. A good board floor in the front tent and a marble floor in the other. There was a large lot of marble blocks 9 inches square piled up at the house that was burned which I appropriated. I also found a slab about five feet long by two wide which I made into a table, and I got some sand stone for steps to

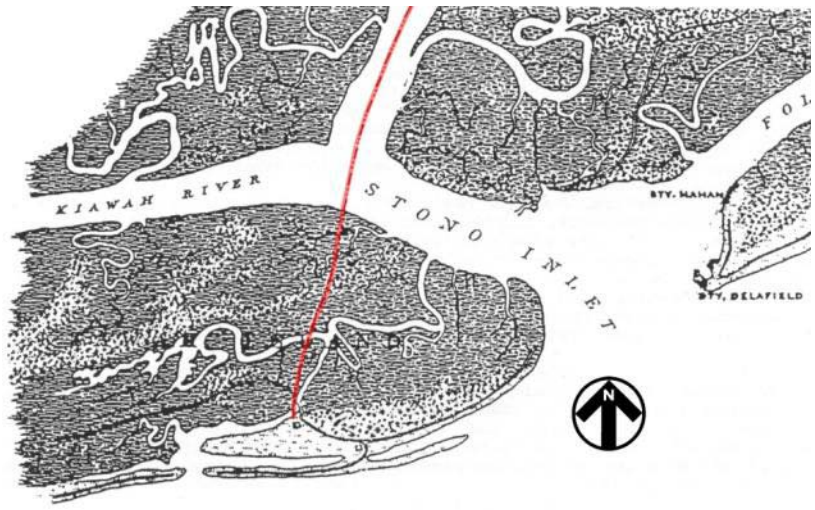

Figure 15. Portion of the "Map of the Defenses of Charleston City and Harbor, also showing the Works Erected by the U.S. forces in 1863 and 1864." The line in red is the "Picket Line of the United States Forces" showing that much of the island by this time was considered a no-man's land.

my tent. The whole frame is raised on posts about a foot from the ground so that it will be cool during the hot weather.

It is clear when this fragment of history is compared to the archaeological and historical evidence that the three plantations were the Vanderhorst, Shoolbred (now Wilson), and Drayton (the "Old Settlement"). It was the Shoolbred house, 38CH129, which Vanderhorst described as vandalized in March 1862, that Barney reported as burned during July 1863. The house being "demolished" was almost certainly the Vanderhorst mansion, 38CH127. There was a relatively large quantity of marble stacked at the Shoolbred house, probably from porches. Eventually this marble was spread around the island, being used for tent flooring. Barney's letter also makes it clear that the Union forces tended to appropriate whatever was at hand to make camp life more pleasant.

The Vanderhorst house provides some additional clues to military action on the island. During the 1970s when the Victorian wallpaper was being stripped off the walls as part of an abortive restoration effort, pencil graffiti was found in the east room of the second floor. Although some fading and vandalism has occurred, much of the graffiti is still legible:

"How are you Genl Beuarguarde" (Beauregard being the Confederate general responsible for the defense of Charleston),

"Veriatas Vincet" (not quite

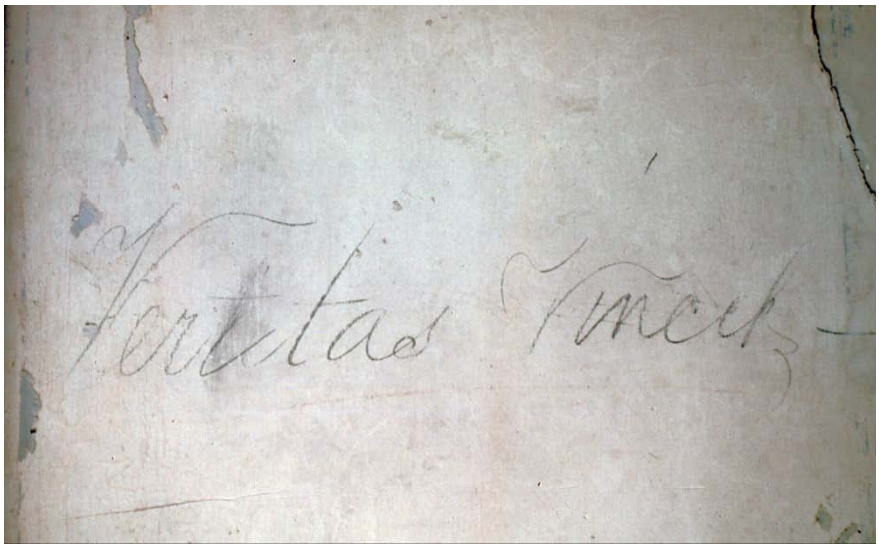

Figure 16. Union graffiti on the Vanderhorst house walls.

> literate Latin for veritas vincit, or "truth conquers,"; Figure 16)
>
> "55th Regt Mass Vol. Inf. J[une, July, or possibly Jan.] 1st, 1864"
>
> "How are you Johnny Rebel You can kiss a Yankee's ass in you were is that ___ ___ ___ a five Dutch ___, 74th Regt."

The 55th Regiment Massachusetts Volunteers is less well known than its sister regiment, the 54th (made famous by the movie *Glory*), but served bravely, making important contributions throughout the Civil War. The 55th was the second black regiment raised in the North during the war, being composed primarily of those left over from the recruitment and enlistment of the 54th regiment. They were in the Kiawah area during the months of January, June, and July, being camped on Long and Folly islands, as well as "at the Stono Inlet," which may actually have been Kiawah Island (Fox 1868:20, 28-233).

Regardless, they were in the immediate vicinity and it is likely that some companies served on Kiawah. The Massachusetts Historical Society describes the white officers as "an interesting amalgam of recent Harvard graduates and adventurous schoolboys," perhaps explaining the careful "copper plate engraving" handwriting and the nearly correct Latin. Standing in contrast is the reference to "Johnny Rebel" made by a less erudite soldier of the 74th Pennsylvania Infantry, which was in the Folly Island area in early 1864.

Dyer's Compendium identifies three brigades comprising the U.S. Forces, South End of Folly Island. The 1st Brigade was composed of the 41st New York Infantry, 54th New York Infantry, 127th New York Infantry, 142nd New York Infantry, 74th Pennsylvania Infantry, and 107th Ohio Infantry. The 2nd Brigade was composed of the 17th Connecticut Infantry, 40th Massachusetts Infantry, 144th New York Infantry, 157th New York Infantry, 25th Ohio Infantry, and 75th Ohio Infantry. Based on the previous discussions, it seems likely the 55th Massachusetts should be added. In the 3rd Brigade was the 3rd Rhode Island Heavy Artillery, also known to have been on Kiawah. Battery B of the 1st U.S. Artillery may also have been stationed at the forts on Kiawah.

On March 3, 1864 Vanderhorst's factors wrote indicating he had a $31,754 credit on their books and inquiring what he wished them to do with the funds. Six days later Vanderhorst purchased $34,500 of Confederate War Bonds (South Carolina Historical Society 12/209/18). This tragic, patriotic show sealed Vanderhorst's postbellum fate a year later. In May 1864 Elias wrote his son, remarking, "provisions are so hard to be obtained . . . money is very tight and no change to be had" (South Carolina Historical Society 12/200/18).

As late as June 1864 the Confederate forces were occasionally visiting Kiawah. A note from a Captain Parker to Elias Vanderhorst stated:

> A few weeks ago being at the time in Command of this S[ection?] I ordered a Scouting party over to Kiawah with a view of ascertaining the location of the Yankees and of bringing off some Stock said to be there - I succeeded in bringing off 4 Cows and 3 Calves (yearling) - the Cattle I had slaughtered for the troops and issued. Except one Cow which had milk. This Cow I have kept until the present time. . . . Two mules and one black Mare were also brought off and these also intended to turn over to Major Perkins . . . . Please write me what disposition you wish made with this property (if it is yours) (South Carolina Historical Society 12/200/18).

The first reference to Elias Vanderhorst visiting Kiawah is a September 22, 1865 note from the Military District of Charleston, providing him safe passage to "visit Kiawah Island, Stono Inlet," although there is no indication of what he found

on his visit.

Both Elias and Arnoldus IV took their oaths of allegiance in October 1865 and in November Elias petitioned to have "my plantation in the Eastern end of Kiawah Island restored to me. This tract of land has been in my possession since the year 1815, by inheritance." For his own part, Elias was attempting, with relatively little success, to begin planting on Kiawah. An April 22, 1866 letter from Lieutenant A.R. McNair, U.S. Navy to Elias, stated:

> When I visited Kiawah Island with you last November there certainly were not more than 10 to 12 Freedmen on the island, and only a portion of them belonged to the island, i.e. were residents of the island before the war. I recollect perfectly the arrival of a flat-load of them right before our Hunting party left for Charleston. I am truly sorry to learn that you have been kept so long from possession of that property - do all the Negroes now on the island claim to belong there? In November, I questioned several, and those who were strangers on the island did not hesitate to acknowledge it. I also

Figure 17. Civil War sites on Kiawah Island.

> recollect that where one of these people expressed fear that you would not allow him to live on your land, you quieted his doubts and, I thought, evidenced a liberal and just spirit (South Carolina Historical Society 12/201/1).

Current Status of Civil War Sites on Kiawah

Four archaeological sites thought to date from the Civil War have been identified on Kiawah. In addition, the location of the Lower or beach Redoubt is known, although the fortification itself is reportedly destroyed (the fort was never surveyed by Chicora since the owner is not KP, but rather is The Ocean Course Golf Club Limited). These known sites are shown on an aerial of the island's northern end (Figure 17).

Site 38CH227 was identified as piled shell thought to be a shell ring. Our investigations failed to identify any intact cultural remains, clearly indicating that the "ring" was not Native American. An additional phase of investigation failed to provide much further information. Most of the site had been eroded (upwards of 500 feet of erosion had occurred in this area) and the water table was within a foot of the surface, making the preservation of features unlikely. We recommended, however, that the remnants be mapped at close interval in order to preserve what information was left. This was conducted and was published in the final report (Trinkley 1993:Figure 101; Figure 14 herein).

Site 38CH1221 was difficult to assess since much of the bluff appeared to have eroded away and what remained had been covered with rip-rap. Shovel testing produced few remains. The site, however, appears to be shown on the "Map of the Defenses of Charleston City and Harbor, also showing the Works Erected by the U.S. forces in 1863 and 1864." It may have represented one of the signal towers on the island. Alternatively, since it is shown on the map using the same symbol as the redoubt, this may have been a fortification of some sort – although it does not seem to be identified in any of the *Official Records*. Nevertheless, it was recommended not eligible.

Site 38CH1222 (Figure 18) was originally thought to be an encampment and the SHPO requested that we conduct additional testing of the site since it was reported that the site had been identified by relic collectors as the camp of the 142nd New York and that it yielded "New York buttons, infantry ammunition, and hat numbers '1' and '4'" (Jim Legg, personal communication 1991). The requested work included metal detecting as well as limited stripping. The metal detecting produced rather limited materials and the stripping, which consisted of five transects across the site, failed to identify any significant features (Figure 18). The site boundary was, however, significantly increased from the original survey results. We speculated that the site might have been a signal tower (Trinkley 1993:438-445), but the failure to identify features such as wells or privies resulted in the site being found not eligible. In retrospect, the stripping may have been too limited to identify the features associated with a military camp.

Site 38CH1220 has been previously described and has been interpreted as a Union camp. The background research previously described indicates that a substantial number of troops, from a variety of regiments, were cycled on and off Kiawah, especially between 1863 and 1864. It is likely impossible, at this juncture, to accurately speculate on what regiments may have used the area.

It remains possible that additional Union encampments are present on Kiawah. The current historical documentation does not provide any convincing commentary regarding the reuse of campsites; although it seems likely that open areas would be reused, even if new wells and privies were dug. The nature of the survey using shovel tests at 100 foot intervals, combined with the dense vegetation, make it unlikely that military camps that produce little traditional archaeological remains were consistently located.

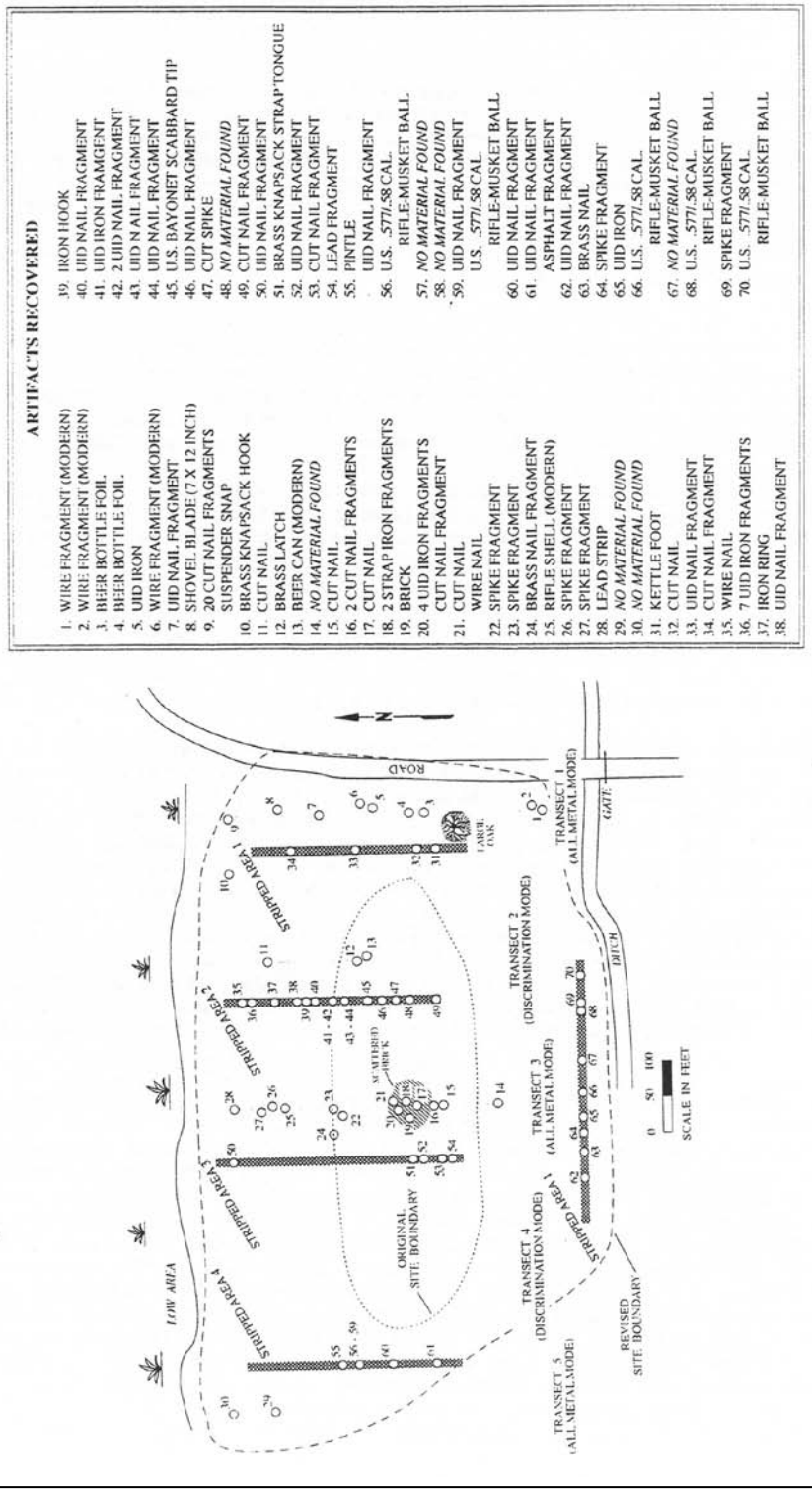

Figure 18. Investigation at 38CH122 in 1993 (adapted from Trinkley 1993:Figure 105).

Methodology

Clearing

The first operation was to have a survey crew mark out the area to be investigated as agreed upon in the MOA with OCRM and the SHPO. This established an outer boundary for cleaning an area encompassing about 25 acres. A series of numbered stakes combined with white flagging was used to identify the limits of the area to be cleared.

The boundary stakes were subsequently used to identify blocks, with each block defined by

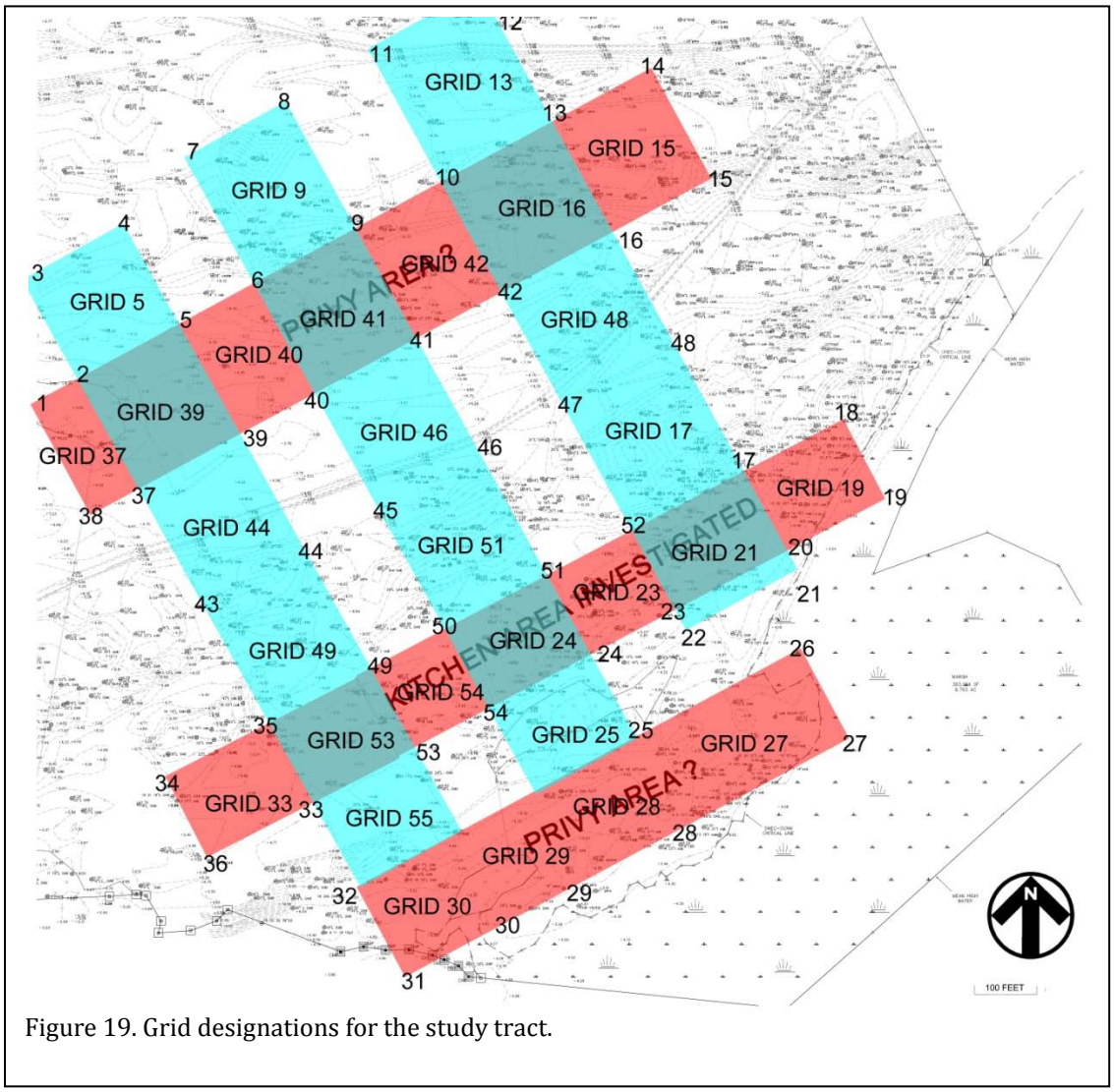

Figure 19. Grid designations for the study tract.

the stake in the southeast corner. Thus, the block delimited by stakes 2, 3, 4, and 5, was designated Block 5. These blocks varied in size from about 350 to 425 feet by 150 to 400 feet (Figure 19).

Clearing was conducted using a crew to remove vegetation by hand, stacking the debris and then mulching the vegetation (Figure 20). Logs and debris too large for mulching were piled at the edges of the project limits. This process continued for several weeks and the work was inspected to determine if it was suitable for the proposed work. While the hand clearing was adequate for the pedestrian survey and for metal detecting in most areas, it was not sufficient to permit ground penetrating radar and magnetometer work. As a result, second firm was brought in with a skid loader fitted with a bush hog in an effort to further open areas allowing for the geophysical work. In all, the crew conducting hand clearing spent about six weeks working in the 25 acres, while the crew operating the bush hog spent an additional three weeks. This clearly reveals the labor intensity of attempting to clear such a large area for this type of investigation.

Figure 20. Cleared and uncleared areas showing the dense vegetation that covered most of the site. The flagged stake is point 33 looking to the south.

We discovered it was impossible to fully operationalize the clearing plan since some portions of the proposed grid extended into delineated wetlands where clearing was not permitted. In the three weeks prior to this work, Kiawah received over 4 inches of rainfall. An additional 4 inches of rain occurred during these investigations. As a result, many areas that might normally have been relatively dry exhibited standing water that precluded clearing and subsequent investigations (Figure 21).

While chipping vegetation seemed to be a reasonable approach and it would have been extremely labor intensive to remove the very significant quantities as an alternative, we found that chipping or mulching, even when spread, often blanketed the forest floor with 4 to 6 inches of mulch (Figure 22). This made pedestrian survey impossible and made metal detecting more difficult.

Investigations at the site were also made more difficult by its inaccessibility. Vehicle access was not possible because of the dune and trough topography, coupled with the numerous drainage ditches. The construction of roads and bridges was not possible since OCRM had not issued a permit for such work. As a result, it was necessary to use 4x4 utility vehicles to move equipment and staff throughout the 25 acres. Mulching was accomplished using a PTO-powered chipper/ shredder attached to a tractor.


Figure 21. Example of a large wet area that precluded investigation.

Geophysical Investigations

The geophysical investigations were conducted by Mr. John Reynolds, a Geophysical Specialist with GEL Geophysics in Charleston, South Carolina. GEL investigated the three areas using time domain electromagnetic method (TDEM) and ground penetrating radar (GPR).

Time-Domain Electromagnetic Methodology

The time-domain electromagnetic method measures the electrical conductivity of subsurface materials. The conductivity is determined by inducing (from a transmitter) a time or frequency-varying magnetic field and measuring (with a receiver) the amplitude and phase shift of an induced secondary magnetic field. The secondary magnetic field is created by subsurface conductive materials behaving as an inductor as the primary magnetic field is passed through them.

The Geonics EM-61 system used in this investigation operates within these principles. However, the EM-61 TDEM system can discriminate between moderately conductive earth materials and very conductive metallic targets.

The EM-61 consists of a portable coincident loop time-domain transmitter and receiver with a 1.0-meter x 0.5-meter coil system. The EM-61 generates 150 pulses per second and measures the response from the ground after transmission or between pulses. The secondary EM responses from metallic targets are of longer duration than those created by conductive earth materials. By recording the later time EM arrivals, only the response from metallic targets is measured, rather than the field


Figure 22. Photo of dense chipped vegetation that prevented pedestrian survey in some areas.

Figure 23. Photos of geophysical work. At the top is the Geonics EM-61. Below is the MALA Geosciences GPR system in use.

generated by the earth material.

The EM-61 data was collected with overlapping spacing between profiles, unless undergrowth or other physical features prevented access. Magnetic signatures were identified in the field and marked using paint and surveyor pin flags.

The goal of this work was to identify large masses of ferrous metal that might be associated with buried trash deposits, such as filled wells or privies.

Ground Penetrating Radar Methodology

Ground penetrating radar (GPR) is an electromagnetic method that detects interfaces between subsurface materials with differing dielectric constants. The GPR system consists of an antenna, which houses a transmitter and receiver; a profiling recorder, which processes the received signal and produces a graphic display of the data; a video display unit, which processes and transmits the GPR signal to a color video display; and a recording device.

The transmitter radiates repetitive short-duration EM signals into the earth from an antenna moving across the ground surface. Electromagnetic waves are reflected back to the receiver by interfaces between materials with differing dielectric constants. The intensity of the reflected signal is a function of the contrast in the dielectric constant at the interface, the conductivity of the material, which the wave is traveling through, and the frequency of the signal. Subsurface features that may cause such reflections include:

- natural geologic conditions such as changes in sediment composition,

bedding and cementation horizons, voids, and water content, or

- man-introduced materials or changes to the subsurface such as soil backfill, buried debris, tanks, pipelines, and utilities.

For this work, the goal was to identify man-introduced changes – the existence of buried features such as rectangular or square privy pits, or circular wells.

The digital control unit processes the signal received from the antenna and produces a continuous cross section of the subsurface interface reflections, referred to as "reflectors" or "reflection events."

Depth of investigation of the GPR signal is highly site specific, and is limited by signal attenuation (absorption) of the subsurface materials. Signal attenuation is dependent upon the electrical conductivity of the subsurface materials. Signal attenuation is greatest in materials with relatively high electrical conductivities such as clays and brackish groundwater, and lowest in relatively low conductivity materials such as unsaturated sand or rock. In addition, the presence of reinforcement bar in concrete structures may severely attenuate the GPR signal such that objects below the slab may be undetectable. Depth of investigation is also dependent on antenna frequency and generally increases with decreasing frequency; however, the ability to identify smaller subsurface features is diminished with decreasing frequency.

GEL Geophysics uses GPR antennas that are internally shielded from aboveground interference sources. Accordingly, the GPR signal is not affected by nearby above ground conductive objects such as metal fences, overhead power lines, and vehicles. Therefore, no spurious reflection events are generated on the GPR data by above ground features, which could lead to false interpretation of subsurface anomalies.

The geophysical investigation was performed using a MALA Geosciences GPR system configured with a 250 MHz antenna array. The GPR data was collected with overlapping spacing between profiles, unless undergrowth or other physical features prevented access. The geophysical data was processed and interpreted in the field, and anomalies having the signature consistent with potential features were marked in the field using paint.

Results

GEL Geophysics identified 29 subsurface anomalies using TDEM that were consistent with near surface metallic objects. These were subsequently identified by Chicora and determined to be finds similar to near surface items being recovered using a metal detector. None represented features.

GEL Geophysics was unable to identify any subsurface anomalies using GPR technology that were consistent with trenching or shoring which may be indicative of former privies and/or wells targeted during this investigation.

Archaeological Investigations

Pedestrian Survey

The pedestrian survey involved walking the north-south and east-west transects at 25 foot intervals, using pin flags to identify brick fragments or any other surface remains. Specifically, other remains included evidence of looting, including masses of discarded artifacts and areas where still open metal detecting holes littered the landscape. In a few areas surface artifacts were also observed and they, too, were marked with pin flags.

Metal Detecting

Metal detecting used a Fisher F4 detector, initially set to discriminate against ferrous metals as stipulated in the proposal. The manufacturer claims the ability to detect quarter sized objects at a depth of 10-inches. The detector was swept along transects, avoiding areas of dense growth

Figure 24. Metal detecting by Chicora. Upper photo shows detecting in the Grid 5 area. Lower photo shows excavating metal detector finds and screening through ¼-inch mesh.

and wetlands. Each "hit" was flagged and at the conclusion of searching a block, work stopped and individual finds were excavated. Finds were sequentially numbered with the prefix "MD" (Metal Detecting) and bagged. Occasionally other materials, such as glass, were recovered and they, too, were collected with the identified metal artifacts.

Prior to each day and again after lunch, the unit was ground balanced using the manufacturer's recommendations.

Work began in the north-south transects north of the ditch separating the site and our investigations found virtually nothing except .50 caliber machine gun bullets associated with the WWII troops stationed on Kiawah. These littered the study area and we quickly began to recognize their distinctive response. Only a small percentage were marked and subsequently recovered.

As we moved south of the ditch, we again noticed that the site was dominated by these WWII remains. As a result, we modified our research design to incorporate all metals. Opening up detecting to ferrous remains proved to be time consuming, but important. With the exception of several small lead puddles, all of the identified remains were

Figure 25. Test excavations. At the top is TU 1, looking north. Below is TU 2, looking north.

ferrous. Metal detecting identified no brass or lead items typically associated with Civil War camps.

Archaeological Testing

Since the GPR and magnetometer failed to identify features for excavation, we chose two brick concentrations in different areas of the site for investigation. This work was not required by the data recovery plan.

In Block 17 a 5 by 10 foot unit (TU 1) was excavated on the south edge of a brick scatter. Level 1 consisted of a humic leaf zone about 0.1 foot in depth overlying a fine gray sand (7.5YR6/1) that varied between 0.35 and 0.7 foot in depth. This level was found to contain abundant brick and graded into a light yellowish brown (10YR6/4) fine sand.

While no features were found in TU 1, there were two shallow (0.3 to 0.4 foot in depth) post holes adjacent to one another. One was about 0.3 foot square; the other was slightly smaller and trapezoidal.

Artifacts from the unit included ginger beer bottle fragments, whiteware sherds, nails, and glass fragments. As mentioned, the unit also produced a large quantity of half and three-quarter brick fragments (no whole bricks were recovered). The total

weight of recovered bricks was 317 pounds. Many of these bricks evidenced mortar, and mortar was found scattered throughout the unit. None of the bricks, however, were in situ.

TU 2, a 5 by 5 foot unit, was excavated at the edge of a brick scatter in Block 23. Level 1 exhibited a very thin (0.05 foot) humic zone overlying a very dark gray (7.5YR3/1) fine sand that was very damp. At the base was a gray (7.5YR5/1) sand. Level 1 varied from 0.45 to 0.7 foot in depth.

Brick were far less common in this unit, comprising only 68 pounds. Nevertheless, four partial bricks were found laid as a sailor course, perhaps to retain other, no longer surviving, bricks. Unfortunately, no other in situ bricks were recovered and the brick at this unit were identical to those from TU 1 – fragmentary and often exhibiting adhering mortar.

Artifacts included a small intact bottle, fragmentary wine bottles, and a variety of metal fragments, including one large stake.

Results

The pedestrian survey identified a variety of brick concentrations consisting of over 700 identifiable bricks. Virtually all of these were either half or three-quarter bricks, although a few whole bricks were found on the surface. Generally the surface bricks lacked evidence of mortar, probably the result of weathering and erosion.

While it seems likely that the bricks came from Kiawah, their size is not distinctive and we have no historical accounts of building demolition. It does seem possible, however, that either the Shoolbred or Vanderhorst plantation had piles of bricks for repairs or perhaps future construction. The prevalence of fragmentary bricks may also suggest residuals left from the construction of one or more of the brick structures on the island.

The pedestrian survey also recovered 31 metal artifacts. Several of these were found stacked in piles. Other materials were scattered across the surface of the site. All are likely materials discarded by looters as of no interest.

Near surface metal detecting identified 216 hits, recovering materials from each. The GEL magnetometer finds increase the total number of hits to 245.

The bulk of the objects identified by GEL were similar to those found during the near surface metal detecting. The one exception was an unexploded shell found in Block 41, north of the ditch bisecting the site. This item was identified by Chicora as we were excavating the GEL hits. The shell was found within 0.1 foot of the surface and is the only Civil War item identified north of the ditch.

The shell was intact, measuring about 6.4 inches in diameter and about 15.5 inches in length, including a brass sabot. This is the short version of this style shell (Ripley 1984:291). The sabot served as the driving band for the projectile. It was attached directly to the iron shell and when fired, the expanding gases forced the sabot into the rifling grooves. This created the rotation of the shell, extending its range and improving its stability. The recovered specimen has a Type III sabot (Dickey and George 1980:160-161)

At the nose of the shell was evidence of zinc percussion fuze. This fuze, screwed into the nose of the shell, was designed to explode on contact.

This size shell, weighing about 80 pounds, would have been used in a 100-pound (6.4 inch) Parrott Rifled Cannon. While used by the Navy, they were more commonly found in the Army (Ripley 1984:118). They differed primarily in the shape of the breech-end and the gun carriage on which it was mounted.

With a length of 138 inches, these guns weighed between 9,700 and 10,200 pounds (breechload Parrotts weighed more) and required a crew of 17 to fire. Using a charge of 10 pounds, the 80 pound shells had a range of about 7,800 yards (4.4 miles) at 30° and 6,900 yards (3.9 miles) at 25°. The flight time for these distances

Figure 26. Parrott shell recovered from Block 41. Upper photo shows shell as recovered. Middle photo shows remnants of the zinc percussion fuze. Lower photo shows the shell being x-rayed.

would have been about 32 seconds.

After being recorded, the Charleston County Sheriff's Department Bomb Squad was notified. They x-rayed the shell and subsequently notified the Air Force Unexploded Ordnance Squad, which collected the shell for disposal.

The archaeological testing revealed that while most of the brick scatters likely lack any in situ remains, at least some possess limited intact deposits. In the one location where intact deposits were identified, the brick appear to have been laid as a floor – probably for a tent. The archaeological work also suggests the presence of a variety of domestic artifacts, including various bottles, stoneware, and ceramics. Military items, however, appear to have been largely looted from the site.

Artifacts

Artifacts from 38CH1220 are characterized as recovered through metal detecting (MD), through geophysical work by GEL (T), or found on the surface (S). These finds are identified on Figure 27 and individual items are identified in Appendix 1.

Previous Finds

The 1991 investigations at the site produced one nail fragment from shovel testing. Surface collections, however, produced one iron axe head, 17 black bottle glass fragments, one blue bottle glass fragment, one UID nail fragment, two UID spike fragments, one strap hinge, and 21 animal bones. These were all scattered on the surface, at times in association with bricks and often representing spoil from metal detecting.

In anticipation of the current study additional testing of the site was conducted. This work involved the use of a metal detector (Trinkley 2011) and produced an assemblage almost identical to what was found during this investigation. It included one lead puddle, three axe heads, five stakes (now recognized as tent stakes), 13 fragments of unidentifiable iron, nine black bottle fragments, three bucket fragments, 11 nail or spike fragments (including a number that were identifiable as hand wrought), two fragments of unidentifiable brass, 13 strap fragments, one eye bolt, one iron button fragment, and one .50 caliber ball round.

Consequently, neither of the previous studies produced any identifiable Civil War artifacts from 38CH1220.

Surface Finds

During this investigation the pedestrian survey identified and collected 186 artifacts from 50 distinct locations. These artifacts include 146 glass fragments, the most common of which are black glass (n=119) representing both wine and ale bottles. The remaining glass represents both round and case bottles. Many of these remains were collected from areas of extensive looting where glass artifacts were dumped aside.

The remaining 40 artifacts were all ferrous metal items. Most common were iron rods, often broken, but when seemingly intact, measuring up to 29-inches in length and frequently exhibiting a mushroomed head from being hammered repeatedly. One specimen also exhibited a pointed tip. Most are round, with diameters ranging from⅝ - to ¾-inch. As will be discussed in greater detail these are thought to be tent stakes.

The other metal items include strap metal from barrels or boxes (n=9), one serving fork fragment, an axe head, several hardware items, and some unidentifiable metal fragments.

Metal Detecting

Metal detecting identified 278 artifacts in 215 discrete locations (one additional location failed to produce a metal artifact). The most commonly recovered items were .50 caliber cartridges and bullets which together account for 62 specimens. The bullets include both ball and tracer rounds. Associated with these is one cartridge link.

Headstamps reveal only two manufacturers. Most are from the Remington Arms plant in Bridgeport, Connecticut, although at least one was produced at the Milwaukee Ordinance Plant operated by the U.S. Rubber Company from 1942 through 1943. All of the

Figure 27. Location of recovered artifacts at 38CH1220.

Figure 28. Probable Civil War Artifacts (scale is in centimeters). A-B, clear glass neck and lip, hand applied lip, Fike Type 2.7 (71-1 and 71-2); C, light green blown bottle base, 2½-inch diameter (71-3); D, brown glass neck and lip, hand applied lip, Fike Type 2.18 (71-4); E, brown glass base, blown in mold, 3-inch diameter (60-1); F, green blown in mold bottle base, 3½-inch diameter (60-2); G, dark aqua glass, blown in mold base, 3-inch diameter (60-3). All likely contained alcoholic beverages.

Figure 29. Probable Civil War Artifacts (scale is in centimeters). A, light green pharmaceutical bottle, blown in mold, Fike base 3.14, hand applied lip, Fike Type 2.3 (58-3); B, black glass, hand applied lip, Fike Type 2.20 (60-4); C, black glass, hand applied lip, Fike Type 2.2 (60-4); D, black glass, hand applied lip, Fike Type 2.11 (60-4). F, brass pocket knife part (9-1); F, artillery shell fragment (34-1); G, round file (49-1). These black glass specimens were likely ale bottles.

Figure 30. Probable Civil War and Later Artifacts (scale is in centimeters). A-B, Horseshoes with built-up heel and toes for traction (30-1, 35-1); C, eye bolt (37-1); D, axe head (2-1); E, three styles of tent stakes (52-1, 72-1, 38-1); F, .50 caliber machine gun cartridge case showing headstamp (40-1); G, .50 caliber tracer round; H, .50 caliber ball round.

headstamps indicate the ammunition was produced in 1943. Although ammunition may be stored for long periods, this date is consistent with military activities known to have occurred on Kiawah.

One of the first reported threats to the South Carolina coast occurred in April 1942, when locals reported that a submarine surfaced off Kiawah (*The State*, April 16, 1942, pg. 6). By October men were being sought for mounted patrols on coastal islands (*The State*, October 30, 1942, pg. 9) and a subsequent article reported that stations were to be constructed using torn down CCC camps (*The State*, December 6, 1942, pg. 3). On Kiawah it appears that the Vanderhorst mansion was taken over the by Coast Guard. While there is little documentation regarding beach patrol activities on Kiawah, these machine gun shells and bullets provide some evidence of these events.

The .50 caliber machine gun, developed during World War I, is still in use today and is officially known as the Browning Machine Gun, Cal. .50, M2, HB, Flexible. It was extensively used during the Second World War, including on Kiawah Island by Coast Guard which began patrols along American beaches during the summer of 1942. Patrols were apparently terminated by about 1944. Although many were by foot, in more inaccessible areas horses and jeeps were used (Noble 1992:11, 16).

The next most common artifacts are iron rods similar to those also recovered during surface collections. Thought to represent tent stakes, these hand wrought stakes are generally round, although both square and rectangular versions are present. Lengths up to 25-inches are present, although at least one intact specimen has an overall length of only 8½-inches. Diameters range from ½-inch to 1-inch. As with the surface finds, while some exhibit pointed ends, others reveal heavily damaged hammered ends. Many were recovered fragmented and virtually all were hand wrought, often with clearly visible hammer marks.

Thirty-three glass artifacts were recovered, typically in association with metal items. These include primarily black glass representing wine and ale bottles (n=22), although clear, light green, aqua, and brown glass was also recovered. Most of these items represent small bottles.

Nails and spikes account for 66 specimens, including 36 spikes, one brass nail, two hand wrought nails, two machine cut nails, and 22 unidentifiable nail or spike fragments. The prevalence of spikes suggests that relatively large framing was being used, while the low incidence of nails suggests that relatively little fine work was performed.

Two fragments of artillery shells were recovered, indicating that the vicinity had been subjected to artillery bombardment at some point. The low incidence, however, suggests the bombardment was not intense.

The only clothing item is a single iron button (South's Type 21).

Twelve fragments of strap metal were recovered, likely from barrels or banded boxes. Two stove parts were recovered, as well as a handle fragment, a fragmentary pocket knife, at least one bucket fragment, two horseshoes, and a variety of unidentifiable metal fragments (n=22), and hardware items (n=5).

Representing more recent activities on Kiawah are four shotgun shell bases (all paper cartridges). Paper cartridges were generally produced from 1877 through 1972, with plastic cartridges introduced in 1964 (Ball 1997:132). Thus, all of the shotgun shells pre-date the sale of Kiawah by the Royal family to the Kuwait Investment Corporation in 1974 (Trinkley 1993:64).

Only three headstamps are present: Peters No. 12 Ideal, Remington 12 Ga. Express, and Western Made in U.S.A. Super-X. These likely represent three distinct periods of use with the Peters being in use from 1902 through 1911, the

Table 2.
Artifacts Recovered from Test Units 1 and 2

	TU 1, Lv 1	TU 1, Trow	TU 1, PH 1	Totals	TU 2, Lv 1	TU 2, Trow	Totals	
Whiteware, undec.	3			3			-	
Stoneware, Bristol glaze	1			1			-	
Glass, black	10	3		13	7		7	
Glass, brown	3			3			-	
Glass, dark aqua	10			10			-	
Glass, light green	13	3		16	1*		1	
Glass, aqua	23	1		24			-	
Glass, manganese	12			12			-	
Glass, clear	9	3		12			-	
Glass, melted	1			1			-	
Machine cut nails, 7d	1			1			-	
Machine cut nail fragments	9			9			-	
UID nail fragment	1			1	9	2	11	
Strap fragments	5	1		6	1		1	
Strap hinge				-		2	2	
UID metal fragments	3			3	2		2	
Lead fragments	1		1	2			-	
Totals	105	11	1	117	20	4	24	141

* - intact pharmaceutical bottle

Western after 1921, and the Remington from 1944 through 1960 (see, for example,http://www.headstamps .x10.mx/express.html).

GEL Finds

In most respects these 55 artifacts, recovered from 28 discrete locations, are nearly identical to other metal detected items. Since they were identified primarily through the Geonics EM-61 system, they tend to be substantial iron objects. For example, 31 of the items (56.3%) are iron bars that are thought to be tent stakes. While one was 49-inches in length, most were around 24- to 18-inches if intact. Diameters ranged from ½-inch to 1-inch and specimens exhibited hammered heads and pointed ends.

Eighteen of the items were spikes, most hand wrought. Only one nail was recovered, but it was in association with an iron rod and so would not likely have been otherwise recovered.

Five unidentifiable iron fragments were also recovered.

Excavated Artifacts

Artifacts recovered from the excavation of Test Units 1 and 2 are itemized in Table 2, with 141 artifacts recovered from the two units. Ceramics are exceedingly rare and found only in Test Unit 1. Two of these whitewares matched, representing a straight sided lid to a jar 3¾-inches in diameter. The stoneware represents a body of a ginger beer bottle. These bottles typically held ale, although secondary use cannot be ruled out (Switzer 1974, Wilson 1981).

In contrast, glass artifacts are more common, with black glass being found in both areas and likely being used for beer or wine. Only one base was recovered and it measures 3-inches in diameter. The intact bottle from Test Unit 2 is a blown in mold pharmaceutical bottle with a hand applied lip. Its height is 3¼-inches and the shoulder height is 2¼-inches.

The strap metal ranged from widths as narrow as⅝ -inches to as wide as 1½-inches, which is the most common width among the other collections.

Distribution

Although artifacts are found across the site, most of those found north of the ditch are associated with a ridge running northwest-southeast. Moreover, most of the artifacts recovered from along this ridge are .50 caliber machine gun cartridges or bullets.

Very few artifacts are found in Grids 37 and 39 since this area is not only north of the ditch, but most of the area was wetlands and thus not available for study. The one notable artifact exception was the identification of the unexploded Parrott shell in Grid 48 north of the ditch.

The concentration in Grid 17 is largely the result of intensive looting in this area (Figure 31). As a result of the dense find, this is also the

Figure 31. Looting in Area 17.

location of Test Unit 1. Four additional clearly defined concentrations are found in Grids 19, 21, 23 extending into 24 (the location of Test Unit 2), and 53.

Grids 27, 28, 29, and 30, at the southern edge of the site, produced almost no materials, likely because the area was very low and wet. This situation actually begins about midway through Grids 25 and 50, accounting for the low incidence of remains in this area as well.

Thus, while there are remains presumably associated with the Civil War throughout the study area, they tend to be concentrated in a tear-drop shaped area running from Grid 53 east and north to encompass Grids 17 and 21. The ditch forms the northern boundary, wetlands form the western boundary, and the southern boundary is defined by the drop in elevation and increase in marsh-like soils. It is possible that the site extended eastward along the ridge, but no investigations were conducted in that area. Of the approximately 25 acres that were initially cleared, it appears that an area measuring about 2000 by 800 feet (within the middle third of the cleared area) actually produced dense remains.

Although distinct concentrations of remains were identified during the study, no features were found and the distribution of remains fails to resemble any previously identified Civil War camp pattern. Settlement appears to have spanned the ridge closest to the marsh, perhaps to maximize the ocean breezes in the dense maritime forest. The distance remains extended eastward is not known.

Summary and Conclusions

Historic Research

Additional historic research was conducted at the National Archives. This work focused on documents relating to the Engineering Department, Signal Corps, and Quartermaster. The research failed to identify any significant new information and only occasional mentions of Kiawah were encountered in any of the records.

It appears from the sparse discussions of Kiawah that duty on the island was of little note and attracted no significant attention. A few comments do suggest that troops enjoyed Kiawah since it was more relaxed with less military formality. This may be of importance since it suggests less attention was paid to activities such as camp layout and camp policing.

Nevertheless, we don't believe too much should be made of this issue. A letter from Morris Island dated September 8, 1863 from Captain R.W. Dawson to Brigadier General George H. Gorden commented that "the Police of camp and quarters is imperfect. Generally proper attention has never been paid, and indeed never been required to the strict observance of Regulations for troops in the field" (National Archives, RG 94, Third New Hampshire, v. 1, Order Book). In another account from Folly Island, it was observed that, "in the underbrush in rear of the Camps nuisances have been committed by the men" (National Archives RG 94, Special Orders No. 169, 17th Connecticut Regimental Order Book, Par2, vol. 6, dated October 21, 1863).

The U.S. Army Military History Institute was also contacted in the hope that they might have information or scrapbook photographs of activities on Kiawah. Unfortunately, no information was identified.

Examination of histories for regiments known to have spent time on Kiawah is consistent with the National Archives research. There are few mentions of Kiawah, suggesting that troops spent so little time on the island that it left no significant impressions. The occasional mentions echo the view that the island was viewed as a place of limited stress.

The historic research also offers few answers to specific questions regarding discovers on the island – such as the unexploded Parrott shell and fragments of several other shells. These remains suggest that at some point Union vessels shelled the island, although no specific mention could be identified. We presume this was either in response to the sighting of Confederate pickets or in anticipation of landing Union troops.

Clearing

Extensive clearing was conducted in order to make the study tract more amenable to the proposed research. There were, however, some unanticipated problems. Most significant was that dense rainfall, coupled with delineated wetlands, precluded all site areas from being cleared and made available for additional research.

Had Kiawah not experienced a very wet spring, it is probable that additional areas could have been cleared and made available for study. Nevertheless, this is an issue over which we had no control. Moreover, it is not entirely clear that Union troops might not have faced similar conditions.

In addition, the on-site chipping of vegetation made both pedestrian and geophysical investigations difficult in several areas. There was,

however, no reasonable alternative to this approach given the isolated nature of the site and the inability to truck out or burn debris.

It should be noted that in order to obtain conditions suitable for intensive pedestrian and geophysical exploration, great effort was spent in clearing approximately well over 25 acres. The effort required more time – and expense – than originally anticipated.

Nevertheless, without this effort the ridge and trough topography, combined with the maritime live oak forest, precluded other means of investigation.

This is an issue that should be carefully explored before undertaking a similar research design in the future.

Pedestrian Survey

The pedestrian survey covered the entire cleared area. This work produced a very broad scatter of bricks and identified considerable evidence of site looting. All bricks, surface finds, and looting evidence was flagged, with the data being incorporated and added to the overall site map.

Needless to say, without the extensive clearing effort many of these finds would have gone unrecorded.

Geophysical Prospecting

The geophysical prospecting exceeded what had been originally proposed. Instead of limiting near surface metal detecting to only non-ferrous items, an all-metal mode was used that significantly increased recovery.

In addition, coverage was expanded to include seven entire blocks also examined by GEL, as well as partial coverage on several others.

All of the geophysical tools performed as anticipated. Near surface metal detecting readily identified ferrous and non-ferrous remains, including both lead and brass. Unfortunately, the most common non-ferrous artifacts identified included .50 caliber machine gun bullets and cartridges. These, of course, have no relevance to the proposed research and only a small sample were collected. The most common ferrous artifacts were iron rods ranging in diameter from about ½ to 1 inch and from a foot to several feet in length. While some of these are similar to picket pins used to secure horses, we believe that they were most likely used as tent stakes.

The magnetometer survey produced larger iron artifacts – primarily metal tent stakes – but failed to produce any evidence of camp features such as privies or wells.

While both feature types are documented at camps such as those on Folly and Hilton Head Islands (Legg and Smith 1989, Legg et al 1991), there is historical evidence that sinks or privies were not always used. Certainly wells would have been required on Kiawah and their failure to be found is difficult to interpret. Perhaps the features were too vague to be recognized by GPR and perhaps there was so little metal discarded in them that the magnetometer failed to identify them. Perhaps they were not located within the area being examined. Or perhaps both were located in the very low areas where no geophysical investigation was possible.

These investigations also failed to document the anticipated camp layout; although without features to orient the anticipated layout it is difficult to interpret the results. Certainly large quantities of bricks were recovered from the surface and these are thought to be associated, at least in part, with tent floors. Likewise a large number of metal rods were found and they, too, are thought to be associated with tents.

Looting

We know from Legg (personal communication 1991) that at least as early as 1990 this site was being looted by those using metal detectors. These current investigations reveal – based on the recovery of cans in looters' holes – that looting continued to at least 2005.

Figure 32. Evidence of looting. The top photo shows distinct metal detecting holes and intact sod, likely from more recent looting. The lower photo shows metal detecting hole and spoil.

Figure 33. Evidence of looting. The lower photo shows a leaf filled hole, the sod, and scatter spoil.

Many of the identified holes suggest that looting may have continued to at least 2010. Whether this destruction was by island residents, their guests, or individuals boating into the site is not known. The extent of looting at this site is significant. It is clear that the site has been extensively looted and this may account for the absence of military paraphernalia.

During this investigation we found several areas where unwanted artifacts were found strewn around on the surface. One such location exhibited over 30 fragmentary wine bottles. In another location we identified a smaller assemblage of materials that had been dug out of some type of feature. In numerous additional areas we found metal detector holes, often with the turf still thrown aside and recognizable – suggesting that the holes date from the past few years. In one case we found a deep hole where the looter had attempted to remove an object, but was thwarted by tree roots. The hole was abandoned and left open.

Archaeological Excavations

The Data Recovery Plan called for excavation only of features identified through the geophysical prospecting. As no such features were identified, no further excavations were required. However, we did open two test units to explore several brick piles. The suggestion had been made that these bricks were associated with kitchen fireplaces and we hoped excavation would assist in examining this idea.

When this site was used as a camp, it was wooded with a maritime forest, not dissimilar to what is present in the dune ridge and trough topography today (based on an 1854 map of the area; Figure 34 also shows dense pine and palmetto forests typical of the area). There is no evidence that the area was farmed or otherwise significantly altered in the postbellum or modern history of the island. Thus, these brick piles appear largely unaltered, except for whatever damage was caused by the military activities or

Figure 34. Topography and vegetation on nearby Folly Island during the Civil War (LC-cwpb-04720).

subsequent looting.

Our investigations produced no evidence of ash or abundant wood charcoal. There was no evidence of burned sand. We found virtually no bone or quantity of can metal in proximity to the brick piles. Based on the absence of these materials, the use of the brick for hearths or cooking fires seems unlikely.

We suggest that the brick represented tent flooring. Historic photographs reveal the use of wood (both lumber and logs). Historic accounts comment on the wide variety of materials used for flooring: cedar "boughs," straw, cornstalks, and wood. Historic research specific to Kiawah mentions the use of marble flooring found stacked at the Shoolbred house. While we cannot identify the specific source of the brick, it appears to be consistent with that found at other historic sites on Kiawah and was likely scavenged.

Another important discovery is the quantity of ceramics, bottle glass, and stoneware present on the site. That these comforts were present isn't unusual; what is unexpected is that so much trash failed to make its way into trash pits during camp policing. The 1861 *Regulations*, Article 36, Number 577 charges the officer of the day with the "order and cleanliness of the camp" (U.S. War Department 1861:83). This suggests that the level of discipline on Kiawah may have been less stringent that at larger or more permanent camps.

Artifacts

We failed to identify a single artifact representing military insignia or accoutrements. No uniform buttons or even lead bullets were recovered. Based on this assemblage and lacking historic records, it would be difficult to make a strong case for a military presence.

In the same way that fields which once produced numerous projectile points can be so intensively collected that only flakes can be found today, it seems likely that after years of metal

detecting very little remained at the site. Collectors had stripped the site of its most "valuable" military artifacts, leaving behind those items – such as black glass and metal stakes – that were deemed not worth collecting.

In spite of this, we believe that 38CH1220 can address some interesting issues. The most prevalent artifacts at the site, represented by 109 specimens, are the iron rods which we interpret to represent a tent stake or peg. Most are clearly identifiable as hand wrought, suggesting they may have been made by military blacksmiths (found in the Ordinance Department, as well as in cavalry units, and sometimes called Artificers). Thirty of the specimens (27.5%) have hammered or mushroomed heads, indicating that they had been pounded. Two have stop rings, either at the head or slightly below. Most (n=98, 89.9%) are round. Square and rectangular specimens may have been recycled from some other material.

While tents were frequently mentioned in various regimental histories, often in the context of how they were made more comfortable with the addition of wood flooring or wood siding (e.g., Denison 1879:128; McGrath 1898:18, 27, 118; McKee 1903:73-74), we have found only two mentions of tent pegs, or pins, and both comment on their poor holding ability (McGrath 1898:22, 73). For example, "the yielding sand afforded but a poor anchorage for our tent pins, and the heavy storms, with the high winds after, made sad work of our frail shelter tents" (McGrath 1898:73).

There are numerous photographs showing the variety of tent pegs used by Union forces, including metal stakes, preformed wood pegs, and even improvised wood stakes cut from nearby forests (Figures 35 and 36).

The abundance of these metal stakes at 38CH1220 is also suggestive of relaxed military discipline. It seems that otherwise these would have been collected and removed as the troops left the island. Instead it was apparently easier to simply discard them on-site.

Although we found no historic documents dealing with this specific issue, the Third New Hampshire Order Book, Special Orders) included General Order 45 dated September 28, 1863 in which Col. W. H. Noble complained of requests from subordinates for bayonets, observing that either the request for additional bayonets was in error or that the troops were discarding them: "You will find trouble in either case by want of proper attention" (National Archives, RG 94). It seems that if bayonets were too troublesome to keep track of, then tent stakes would have been of little consequence.

These photographs also show the additions made to the tents assigned by the military, including the wood and log flooring and wood siding. These additions readily explain the prevalence of nails at 38CH1220.

Hand wrought nails began being replaced by machine cut nails during the early 1800s and by the time of the Civil War most nails would have been machine cut (Wells 1998). Yet hand wrought nails are far more common than machine cut nails at 38CH1220, suggesting that the troops may have salvaged nails along with wood from local plantations. This is consistent with both historical accounts on Kiawah, as well as regimental histories such as Denison who remarks that a plantation house near the regiments camp, "shortly vanished away, the stock being appropriated for tent-floors, bunks, and the like loyal uses" (Denison 1879:312).

Artifacts such as the remains of several camp stoves are consistent with historical accounts. Denison comments that some "secured sheet iron camp stoves, which made them independent of the cooks and permitted the cooking of extra dishes as well as nicely warming the tents" (McGrath 1898:78).

Although McGrath implies that army regulations forbade the "sale of spirituous or malt liquor to enlisted men," there was no general prohibition against alcohol in the 101 Articles of War that governed military conduct during this period (2 Stat. 359, Anonymous 1812). In fact, these rules addressed only those found "drunk on

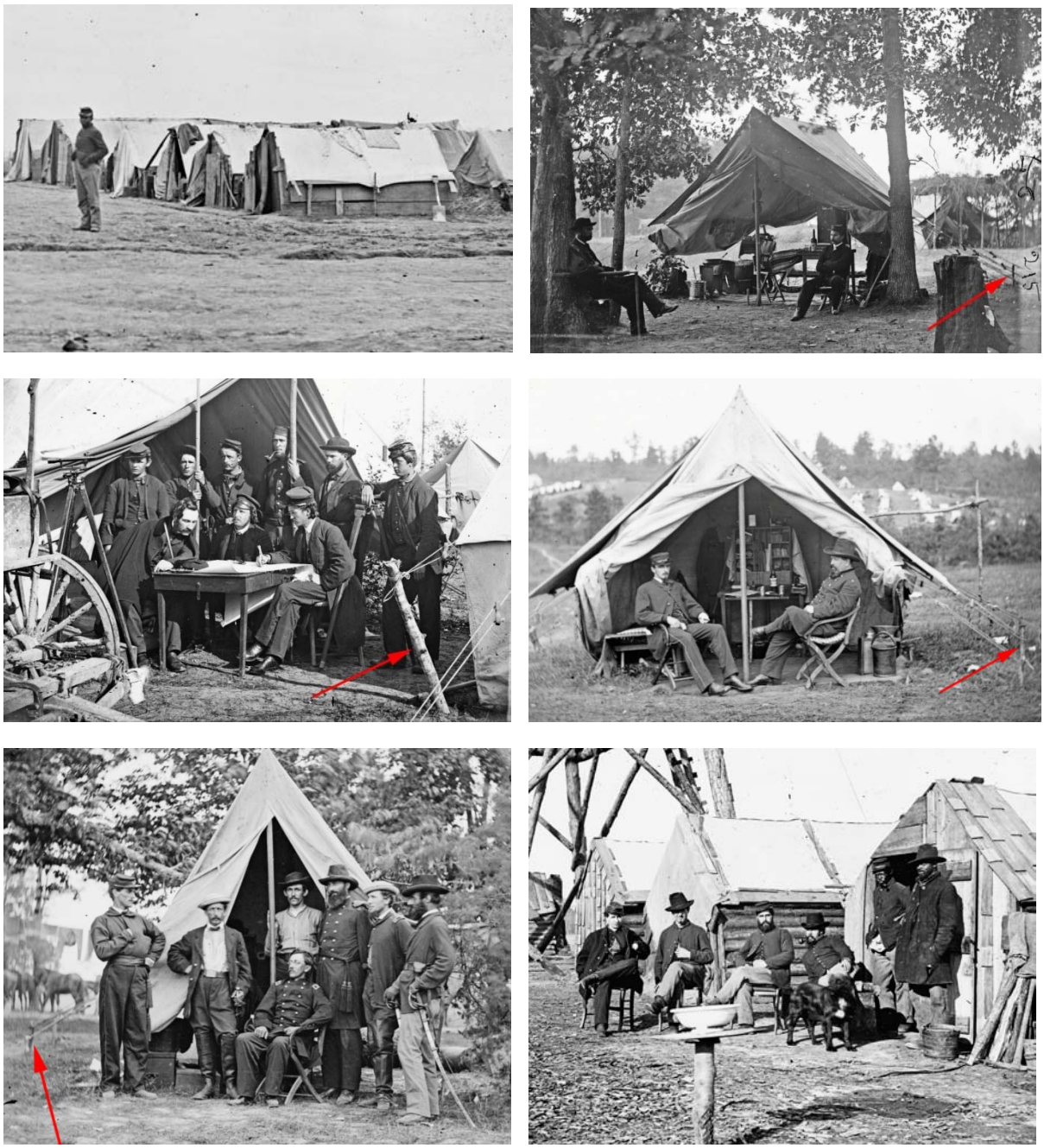

Figure 35. Tents and tent stakes. The upper left photo shows shelter halves with the addition of wood sides to increase height (LC-02166). The upper right photo shows a wall tent with at least one iron tent stake (LC-cwpb-00063). Middle left shows a wall tent with an improvised wood stake (LC -cwpb-00155). Middle right shows an iron tent stake with retaining ring at head. Note also the wine bottle on the table. Lower left photo shows a metal tent stake (LC- cwpb-01718). Lower right photo shows log and board tent sides and roofs (LC- cwpb-02006).

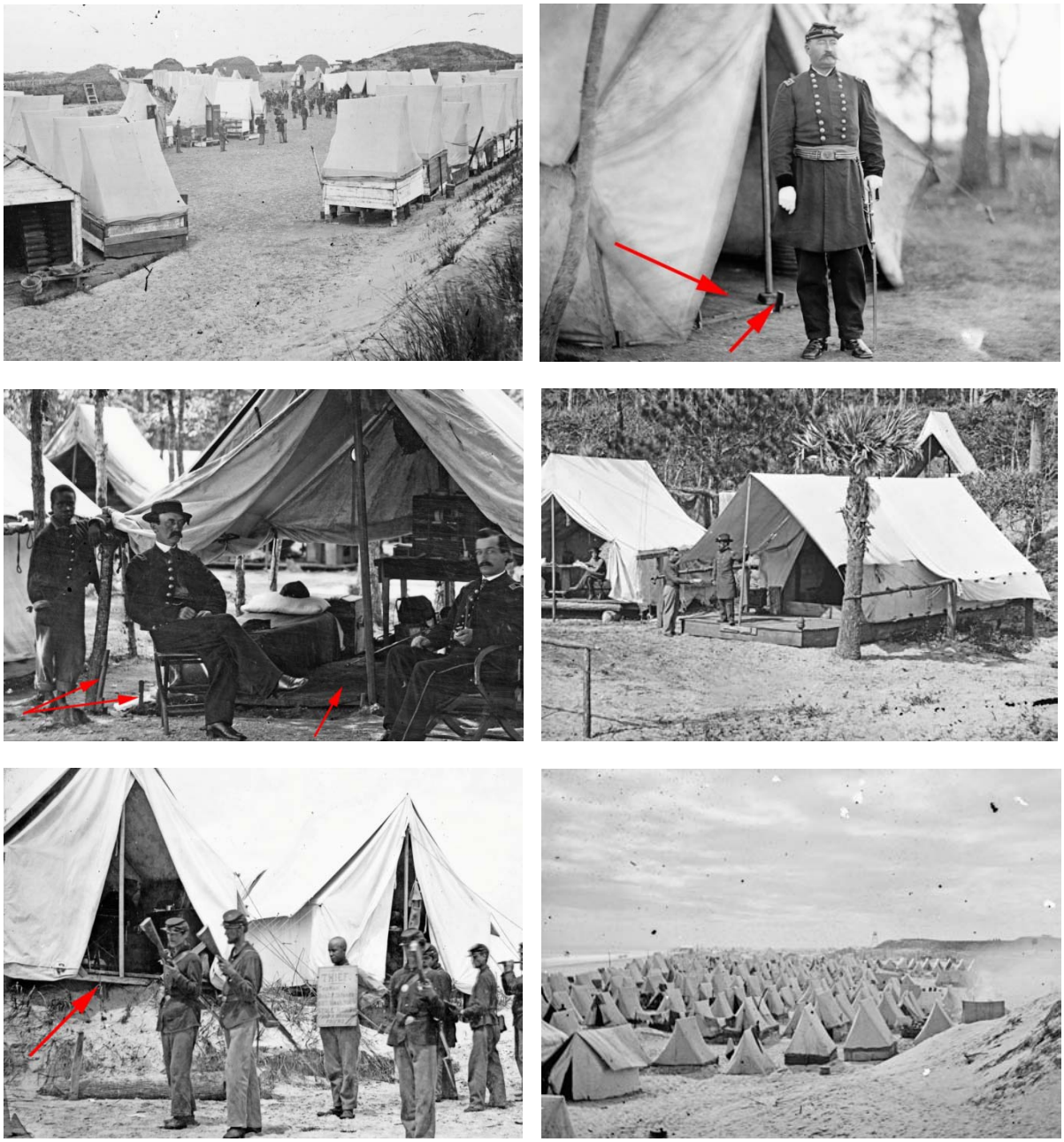

Figure 36. Tents and tent stakes. The upper left photo shows wedge tents raised on wood piers and board sidings (LC-cwpb-03348). Upper right photo shows a wall tent with a wood floor and preformed wood pegs (LC-cwpb-03760). Middle left photos shows a wall tent with side flaps raised. Note the wood floor and preformed wood pegs (LC-cwpb-03962). Middle right photo shows wood and log floors (LC-cwpb-04759). Lower left photo shows a wall tent with a wood floor set on an eroding dune (LC-cwpb-04762). Lower right photo shows a large camp situated on the beach with the ocean breaking off to the left (LC-cwpb-03363).

his guard, party, or other duty" (Article 45). The Articles also prohibited sutlers from selling "any kind of liquors . . . after nine at night," on Sundays, or during religious services (Article 29). In fact, in 1804 Congress authorized both sea and land forces to provide malt liquor, low wine, rum, whisky, or brandy as part of the ration when considered necessary for the "preservation of health" (Anonymous 1812:61).

The 1861 Army *Regulations* (U.S. War Department 1861) also fail to regulate alcohol except for in the Indian Territories.

Thus, while individual commanders may have taken a stricter view, alcohol was not uncommon at Civil War camps and is even seen in several period photographs. Thus, it is not surprising that a very large assemblage of wine and ale bottles were recovered from 38CH1220.

As previously mentioned, although no military buttons were found, these investigations did reveal a single South Type 21 4-hole metal button. Although unlikely worn by a soldier, it may have been lost by an African American camp follower and may provide some evidence that non-military personnel were also on Kiawah during the Union encampments.

Another item that was certainly commonplace in camp life was the ax – and two were identified during these investigations. While a common tool for the pioneer corps (Eldredge 1894:980), regulations assigned "4 axes and 4 spades" to each company (Anonymous 1812:41). McKee explains the value of the ax,

> another one of the squad finds an old rusty ax. It is soon provided with a helve. A grindstone is found and the rusty ax becomes a good cutting instrument, almost invaluable in camp life, so valuable that it has to be watched with care lest covetous eyes lead to covetous act (McKee 1903:74).

Even the remains of a pocketknife found at 38CH1220 was likely lost by a soldier. McKee (1903:74) reveals that as simple a tool as a "jackknife" could add to the comfort of the camp. Taylor (1884:94) remarks that all a soldier needed was "an ax, a knife, and a will" to create a "mansion."

Conclusions

These investigations failed to achieve the goal of identifying a camp layout and permitting excavation of features. This may be the result of the geophysical methods not being sufficiently rigorous. It is, however, also possible that short-term camps are fundamentally different from long-term fortifications and encampments. There may, however, have been some premonition of this given the sparse remains found at a Union picket post on Seabrook Island (Trinkley 1999).

Pending additional investigations, we are inclined to believe that the nature of the Kiawah camp plays at least some role. This is based on the inability to identify any significant information concerning Kiawah in the various National Archives records or in reviewed regimental histories. What historical documents we have found suggest that soldiers relished the opportunity to get away from the strict camp discipline of nearby Folly Island and this may indicate less than standard military behavior on Kiawah.

Even this seemingly negative information should have some impact on future research. We certainly have a much clearer idea of how difficult Civil War research is when large areas of the site cannot be mechanically stripped. We also have at least some indication that there may be more diversity in military camps than previous South Carolina research would lead us to believe.

Sources Cited

Anonymous
1812 *An Act Establishing Rules and Articles for the Government of the Armies of the United States*. Websters and Skinners, Albany, New York.

Avery, Paul G. and Patrick H. Garrow
2008 *Phase III Archaeological Investigations at 38FL2, The Florence Stockade, Florence, South Carolina*. MACTEC Engineering and Consulting, Knoxville, Tennessee.

Ball, Donald B.
1997 Types, Headstamps, and Chronology of Winchester Shotgun Shells, 1877-1973. *Ohio Valley Historical Archaeology* 12:130-140.

Barlow, A.R.
1899 *Company G: A Record of Services of One Company of the 157th N.Y. Volunteers in the War of the Rebellion*. A.W. Hall, Syracuse.

Brennan, Patrick
1996 *Seccessionville: Assault on Charleston*. Savas Publishing, Campbell, California.

Burton, E. Milby
1970 *The Seige of Charleston, 1861-1865*. University of South Carolina Press, Columbia.

Calhoun, Jeanne A.
1983 *The Scouring Wrath of God: Early Hurricanes in Charleston, 1700-1804*. Leaflet 29. The Charleston Museum, Charleston, South Carolina.

Colquhoun, Donald J.
1969 *Geomorphology of the Lower Coastal Plain of South Carolina.* Division of Geology, S.C. State Development Board, Columbia.

Cooke, C. Wythe
1936 *Geology of the Coastal Plain of South Carolina*. Bulletin 867. U.S. Geological Survey, Washington, D.C.

Copp, Elbridge J.
1911 *Reminiscences of the War of the Rebellion 1861-1865*. Telegraph Publishing, Nashua, New Hampshire.

Denison, Frederic
1879 *Shot and Shell: The Third Rhode Island Heavy Artillery Regiment in the Rebellion, 1861-1865*. J.A. and R.A. Reid, Providence.

Dickey, Thomas S. and Peter C. George
1980 *Field Artillery Projectiles of the American Civil War*. Arsenal Press, Atlanta.

Edgar, Walter B. (editor)
1972 *The Letterbook of Robert Pringle*. 2 vols. University of South Carolina Press, Columbia.

Eldredge, Daniel
1893 *The Third New Hampshire and All About It.* E.B. Stillings, Boston.

Fike, Richard E.
1987 *The Bottle Book: A Comprehensive Guide to Historic Embossed Medicine Bottles*. Peregrine Smith Books, Salt Lake City.

Fonvielle, Chris E., Jr. and James B. Legg
1989 Historic Background. In *"The Best Ever Occupied…" - Archaeological Investigations of a Civil War Encampment on Folly Island, South Carolina*, edited by James B. Legg and Steven D. Smith, pp. 13-34. Research Manuscript Series 209. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Fox, Charles B.
1868 *Records of the Service of the Fifty-Fifth Regiment of Massachusetts Volunteer Infantry*. John Wilson and Sons, Cambridge.

Geier, Clarence R. (editor)
1994 *Look to the Earth: Historical Archaeology and the American Civil War*. University of Tennessee Press, Knoxville.

Geier, Clarence R., Douglas D. Scott, and Lawrence E. Babits (editors)
2014 *From These Honored Dead: Historical Archaeology of the American Civil War*. University Press of Florida, Gainesville.

Hagood, Johnson
1910 *Memoirs of the War of Secession*. The State Company, Columbia.

Hayes, Miles O., Stephen J. Wilson, Duncan M. FitzGerald, Leita J. Hulmes, and Dennis K. Hubbard
1975 Coastal Processes and Geomorphology. In *Environmental Inventory of Kiawah Island*, edited by William M. Campbell and John Mark Dean, pp. G-1 - G-65. Environmental Research Center, Inc., Columbia.

Hilliard, Sam B.
1972 *Hog Meat and Hoecake: Food Supply in the Old South, 1840-1860*. Southern Illinois University Press, Carbondale.

Hosier, Paul E.
1975 Dunes and Marsh Vegetation. In *Environmental Inventory of Kiawah Island*, edited by William M. Campbell and John Mark Dean, pp. D-1 - D-96. Environmental Research Center, Inc., Columbia.

Jameson, John H.
2013 Artifacts of Interment: Archaeology and Interpretation at Two American Civil War Prisoner-of-War sites. In *Prisoners of War: Archaeology, Memory, and Heritage of 19th- and 20th-Century Mass Interment*, edited by H. Mytum and G. Carr, pp. 23-40. Springer Science+Business Media, New York.

Kennedy, Frances H. (editor)
1998 *The Civil War Battlefield Guide*. Second Edition. Houghton Mifflin, Boston.

Kjerfve, Bjorn
1975 Climatology of Kiawah Island. In *Environmental Inventory of Kiawah Island*, edited by William M. Campbell and John Mark Dean, pp. C-1 - C-34. Environmental Research Center, Inc., Columbia.

Kutz, Herman and Kenneth Wagner
1957 *Tidal Marshes of the Gulf and Atlantic Coasts of Northern Florida and Charleston, South Carolina*. Studies 24. Florida State University, Tallahassee.

Lefler, Hugh T. (editor)
1967 *Lawson's A New Voyage to Carolina*. University of North Carolina Press, Chapel Hill.

Legg, James B. and Steven D. Smith (editors)
1989 *"The Best Ever Occupied . . ." - Archaeological Investigations of a Civil War Encampment on Folly Island, South Carolina*. Research Manuscript Series 209. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Legg, James B., Christopher T. Espenshade, and Lynn M. Snyder
1991 *Camp Baird: Archaeological and Historical Investigations of the Autumn 1864 Camp of the 32nd US Colored Infantry, Hilton Head Island, South Carolina*. Brockington and Associates, Inc., Atlanta.

Lynch, P.N., J.F.M. Geddings, and C.U. Shepard
1882 Artesian Wells - 1823-1879. *Yearbook - City of Charleston*. Charleston, South Carolina.

Mathews, Thomas D., Frank W. Stapor, Jr., Charles R. Richter, John V. Miglarese, Michael D. McKenzie, and Lee R. Barclay
1980 *Ecological Characterization of the Sea Island Coastal Region of South Carolina and Georgia*, vol. 1. Office of Biological Services, Fish and Wildlife Service, Washington, D.C.

McGrath, Franklin
1898 *The History of the 127th New York Volunteers, "Monitors," In the War for the Preservation of the Union*. n.p., n.p.

McKee, James H.
1903 *"Back in War Times:" History of the 144th Regiment, New York Volunteer Infantry*. Times Office, Unadilla, New York.

Miller, E.N., Jr.
1971 *Soil Survey of Charleston County, South Carolina*. U.S.D.A., Soil Conservation Service, Washington, D.C.

Mills, Robert
1972 *Statistics of South Carolina*. Reprinted. The Reprint Press, Spartanburg, South Carolina. Originally published 1826, Hurlbut and Lloyd, Charleston, South Carolina.

Noble, Dennis L.
1992 *The Beach Patrol and Corsair Fleet.* Coast Guard Historian's Office, Washington, DC.

Ripley, Warren
1984 *Artillery and Ammunition of the Civil War*. Fourth Edition. The Battery Press, Charleston, South Carolina.

Ripley, Warren (editor)
1986 *Siege Train: The Journal of a Confederate Artilleryman in the Defense of Charleston*. University of South Carolina Press, Columbia.

Rosen, Robert N.
1994 *Confederate Charleston: An Illustrated History of the City and the People During the Civil War*. University of South Carolina Press, Columbia.

Samnik, Joseph R.
2000 *Determining the Mitigation Value of Roadside Vegetation*. Florida Chapter of the International Society of Arboriculture.

Sandifer, Paul A., John V. Miglarese, Dale R. Calder, John J. Manzi, and Lee A. Barclay
1980 *Ecological Characterization of the Sea Island Coastal Region of South Carolina and Georgia*, vol. 3. Office of Biological Services, Fish and Wildlife Service, Washington, D.C.

Sharitz, Rebecca R.
1975 Forest Communities of Kiawah Island. In *Environmental Inventory of Kiawah Island*, edited by William M. Campbell and John Mark Dean, pp. F-1 - F-42. Environmental Research Center, Inc., Columbia.

South Carolina Water Resources Commission
1973 *Wando River Environmental Quality Studies, An Interim Report*. Columbia.

Smith, Jacob
2000 *Camps and Campaigns of the 107th Regiment Ohio Volunteer Infantry*. Indian River Graphics, Navarre, Ohio.

Smith, Steven D.
1994 Archaeological Perspectives on the Civil War: The Challenge to Achieve Relevance. In *Look to the Earth; Historical Archaeology and the American Civil War*, edited by Clarence R. Geier, Jr. and Susan E. Winter, pp. 3-20. University of Tennessee Press, Knoxville.

2014 South Carolina in the Civil War: A Historical-Archaeological Perspective. In *From These Honored Dead: Historical Archaeology of the American Civil War*, edited by Clarence R. Geier, Douglas D. Scott, and Lawrence E. Babits, pp. 104-122. University Press of Florida, Gainesville.

Switzer, Ronald R.
1974 *The Bertrand Bottles: A Study of 19th-Century Glass and Ceramic Containers.* National Park Service, Washington, D.C.

Taylor, Benjamin F.
1884 *Pictures of Life in Camp and Field.* S.C. Griggs and Company, Chicago.

Trinkley, Michael (editor)
1993 *The History and Archaeology of Kiawah Island, Charleston County, South Carolina*. Research Series 30. Chicora Foundation, Inc., Columbia.

Trinkley, Michael
1999 *Archaeology at the Western Portion of 38CH1257 and at 38CH1259: A Glimpse of Woodland and Civil War Archaeology on Seabrook Island, Charleston County, South Carolina*. Research Series 56. Chicora Foundation, Inc., Columbia.

2011 Data Recovery Plan, 38CH1220. Ms. on file, Chicora Foundation, Inc., Columbia.

Trinkley, Michael and Debi Hacker
1997 *Excavation at a Portion of the Secessionville Archaeological Site (38CH1456), James Island, Charleston County, South Carolina*. Research Series 52. Chicora Foundation, Inc., Columbia.

Trinkley, Michael, Debi Hacker and William B. Barr
1996 *A Conservation Assessment and Preliminary Preservation Plan for Fort Howell, Hilton Head Island, Beaufort County, South Carolina*. Research Series 50. Chicora

Foundation, Inc., Columbia.

U.S. War Department
1861 *Revised Regulations for the Army of the United States, 1861.* J.G.L. Brown, Philadelphia.

Wells, Tom
1998 Nail Chronology: The Use of Technologically Derived Features. *Historical Archaeology* 32(2):78-99.

Wiley, Bell Irvin
1978 *The Life of Billy Yank: The Common Soldier of the Union.* Louisiana State University Press, Baton Rouge.

Wilson, Rex
1981 *Bottles on the Western Frontier*. University of Arizona Press, Tucson.

Woodhead, Henry (editor)
1997 *Voices of the Civil War: Charleston.* Time-life Books, Richmond, Virginia.

Zierden, Martha A., Lesley M. Drucker, and Jeanne Calhoun, editors
1986 *Home Upriver: Rural Life on Daniel's Island, Berkeley County, South Carolina*. Carolina Archaeo-ogical Services, Columbia and The Charleston Museum, Charleston. Submitted to the South Carolina Department of Highways and Public Trans-ortation, Columbia.

Appendix 1. Artifact Lists

MD #	Object	Details
1	1 melted lead	
2	1 .50 cal shell, brass	
3	1 .50 cal shell, brass	
4	1 .50 cal shell, brass	
5	1 .50 cal shell, brass	
6	2 black glass	
7	1 .50 cal shell, brass	
8	1 brown glass	
9	1 .50 cal shell, brass	
10	1 .50 cal shell, brass	
11	1 .50 cal case	on base: M/4/3
12	1 shotgun shell base	WESTERN/ MADE IN U.S.A./ NO/ 12/ SUPER-X
13	1 .50 cal shell, brass	
14	1 .50 cal shell, brass	
15	1 .50 cal shell, brass	
16	1 .50 cal shell, brass	
17	1 .50 cal shell, brass	
18	1 flat brass fragment	
18	1 .50 cal shell, brass	
19	WOOD - DISCARDED	
20	1 .50 cal case	on base: R/A/43
21	1 .50 cal shell, brass	
22	1 .50 cal case	on base: R/A/43
23	1 .50 cal shell, brass	
24	1 .50 cal shell, brass	
25	1 .50 cal shell, brass	
26	1 .50 cal case	
27	1 .50 cal shell, brass	
28	1 .50 cal shell, brass	
29	1 link, belted ammo connector	
30	1 .50 cal shell, brass	
31	1 artillery shell frag	2½x3", Th=2"
32	1 .50 cal shell, brass	
33	1 .50 cal shell, brass	
34	1 .50 cal shell, brass	
35	1 .50 cal shell, brass	
36	1 .50 cal shell, brass	
37	1 .50 cal shell, brass	
38	1 iron button	
38	1 lead fragment	
38	1 .50 cal shell, brass	
39	1 .50 cal shell, brass	
40	1 pocket knife frag	
41	1 .50 cal shell, brass	
42	1 .50 cal shell, brass	
43	1 .50 cal shell, brass	
44	1 .50 cal shell, brass	
45	1 .50 cal shell, brass	

MD #	Object	Details
46	1 .50 cal shell, brass	
47	1 .50 cal shell, brass	
48	2 frag white metal	
49	1 black glass	1 bottle
49	1 UID iron fragment	
50	4 black glass	1 bottle
50	1 frag white metal	
51	4 frags white metal	
52	1 black glass	1 bottle
52	1 shotgun shell base	PETERS/NO/12/IDEAL (modern)
53	1 .50 cal shell, brass	
54	1 .50 cal shell, brass	
55	1 .50 cal shell, brass	
56	1 .50 cal shell, brass	
57	1 flat iron frag	
58	1 .50 cal case	on base: S/L/4
59	1 iron rod	L=1¾"
60	1 shotgun shell base	PETERS/NO/12/IDEAL (modern)
61	1 .50 cal shell, brass	
62	1 UID nail frag	
63	1 frag melted glass	
64	1 strap iron frag	L=5", W=1⅝"
65	1 machine cut nail	8d
66	1 shotgun shell base	REMINGTON/12/GA/EXPRESS (modern)
67	2 strap iron frags	L=4", 7", W=1¼"
68	1 HW spike	L=4¼"
69	1 HW spike	L=5¼"
70	1 UID nail frag	
71	1 HW spike frag	L=>4"
72	1 UID flat iron fragment	
73	1 HW spike frag	
74	3 UID lead frags, flat	
75	1 machine cut nail	7d
76	1 brass nail	3d
76	1 HW nail	5d
77	1 iron rod	HW, pointed tip, L=20", D=1"
78	1 HW spike	L=10"
79	1 iron rod	HW, L=4"
79	1 iron rod	HW, L=5½, D=⅝"
80	1 iron rod	HW, L=5½, D=⅞"
81	1 iron rod	HW, L=7½", D=1"
82	1 UID spike fragment	
83	1 .50 cal shell, brass	
84	1 UID spike fragment	
85	1 iron rod	HW, L=7", D=⅞"
86	1 iron rod	HW, L=3¾"
87	1 UID spike fragment	
88	1 .50 cal shell, brass	
89	1 UID rod	L=4"
90	1 HW handle frag	L=9"
91	1 HW spike frag	
92	1 UID spike fragment	
93	1 .50 cal case	on base: M/4/3
94	1 iron rod	L=6", D=1"
94	1 iron rod	L=8", D=1"
94	1 iron rod	L=8", D=1"
94	1 iron rod	L=9", D=1"
94	1 iron rod	L=14", D=1"

MD #	Object	Details
95	1 HW spike frag	L=5"
96	faunal material	
97	1 iron rod	L=15", D=1"
98	1 .50 cal shell, brass	
99	1 UID nail frag	
100	1 strap iron frag	L=4½" W=1⅛"
101	1 lead puddle	
102	1 iron rod	hammered head, L=25", D=1"
103	1 HW spike	L=5"
104	1 HW spike frag	
105	1 HW spike	L=6"
106	1 lead puddle	
106	1 UID nail frag	
107	1 machine cut spike	L=5"
108	1 HW spike	L=5½"
109	1 HW spike	L=6"
110	2 UID spike fragments	
111	1 UID spike fragment	
112	1 iron rod	HW, L=8" D=½"
113	No material	
114	1 iron rod	HW, square, L=6½", D=¾x¾"
115	1 bucket body with rivet	
116	1 HW spike	L=5"
117	1 machine cut spike	L=5"
118	1 iron rod	HW, L=16", D=½"
119	1 iron rod	L=17", D=⅞"
120	1 iron rod	HW, hammered head, L=17", D=⅞"
121	1 iron rod	HW, square, L=11", D=⅝x⅝"
122	1 iron rod	HW, L=12", D=⅝"
123	1 iron rod	HW, L=7", D=⅝"
124	1 UID spike fragment	L=4"
125	1 strap iron frag	L=9", W=1"
126	1 .50 cal shell, brass	on base: R/A/43
127	1 iron rod	L=5", D=¾"
128	1 HW spike	fragmentary
129	1 .50 cal shell, brass	
130	1 HW spike	fragmentary
131	1 .50 cal shell, brass	
132	1 .50 cal shell, brass	
133	1 iron rod	HW, L=17", D=¾"
134	1 iron rod	HW, L=13", D=⅞"
135	1 iron rod	L=6", D=¾"
136	1 iron ring fragment	
137	1 HW spike	fragmentary
138	1 horseshoe	L=6", W=5½"
139	1 .50 cal shell, brass	
140	1 iron rod	HW, L=7", D=¾"
141	1 HW spike	fragmentary
142	1 strap iron frag	L=10", W=1"
143	2 UID flat metal frags	
144	1 UID flat metal frag	
145	1 strap iron frag	L=3", W=1"
146	1 strap iron frag	L=4", W=1"
147	1 HW spike	fragmentary
148	1 UID nail frag	
149	1 stove part	

MD #	Object	Details
150	1 .50 cal shell, brass	
151	1 iron rod	HW, L=12", D=⅞"
152	1 machine cut spike fragment	L=3½"
152	1 iron ring	D=2¼", Th=½"
153	1 UID spike fragment	
154	1 iron rod	HW, hammered head, pointed tip, L=8½", D=¾"
155	1 strap iron frag	L=21", W=1⅜"
156	1 artillery shell frag	3x3½", Th=2"
157	1 iron rod	HW, hammered head, L=4"
158	1 iron rod	HW, L=4"
159	1 iron rod	HW, hammered head, L=4"
160	1 iron rod	HW, hammered head, pointed tip, L=15", D=¾"
161	1 .50 cal shell, brass	
162	1 horseshoe	L=5⅜", W=4⅞"
163	1 iron rod	L=5½"
164	1 iron rod	HW, hammered head, L=12", D=⅞"
165	1 iron rod	L=4½", D=1⅛"
166	1 strap hinge	L=16"
167	1 eye bolt	HW, L=8"
168	1 iron rod	hammered head, L=26", D=⅞"
169	1 iron rod	HW, L=7", D=¾"
170	1 iron rod	HW, rect, L=4", D=½x½"
171	1 iron rod	HW, hammered, rect, L=5", D=½x½"
172	1 iron rod	HW, L=9", D=1⅝"
173	1 iron rod	HW, hammered head, L=16", D=1"
174	1 strap iron frag	L=4½", W=1"
175	1 iron rod	HW, pointed tip, L=11", D=⅞"
176	1 iron rod	HW, L=30", D=⅞"
177	1 iron rod	HW, square, L=16", D=⅝x⅝"
178	1 iron rod	HW, hammered head, L=10", D=⅞"
179	1 .50 cal shell, brass	on base: R/A/43
180	2 UID spike fragments	
181	1 machine cut spike	L=6"
182	2 UID nail frags	
183	1 UID spike fragment	
184	1 .50 cal shell, brass	
185	1 machine cut spike	L=6¾"
186	1 HW spike	fragmentary
187	1 iron rod	frag, L=12", D=1"
188	1 bolt, nut, washers	L=15½"
189	1 iron rod	HW, pointed tip, L=24", D=⅞"
189	1 iron rod	HW, L=24", D=⅞"
189	1 iron rod	HW, pointed tip, L=16", D=¾"
189	1 iron rod	L=7", D=¾"
189	1 iron rod	HW, rect, hammered head, L=13", D= ½x⅜"
189	1 HW spike	L=8¾"
189	1 HW spike	L=6"
190	2 HW spikes	L=9"
191	1 HW spike	L=5"
192	1 mending plate with HW nail	
193	1 UID iron fragment	(same as 205)
194	1 HW spike	fragmentary
195	1 HW spike	L=9"
196	1 iron rod	HW, L=24", D=⅞"
197	1 iron rod	L=15", D=⅞"
198	1 strap iron frag	L=11", W=1⅞"
198	1 strap iron frag	L=19½", W=1⅞"
199	1 iron rod	L=10", D=¾"

MD #	Object	Details
200	1 UID cast iron	
201	1 cast iron frag	stove part
202	1 UID iron tool	L=23"
203	1 UID flat iron fragment	
204	2 black glass	with residual lead foil wrap (modern)
204	lead foil	(modern)
205	2 black glass	wine bottle fragment
205	1 UID iron fragment	(same as 193)
205	1 animal bone	
206	1 light green glass	bottle frag
206	3 aqua glass	bottle frags
206	9 black glass	bottle frags
206	1 UID iron with 2 rivets	possible bucket body
207	2 .50 cal shells, brass	
207	1 .50 cal case	
208	1 round file	L=9⅝", D=¾"
209	1 HW spike	fragmentary
210	1 clear glass	
210	1 light green glass	
210	3 aqua glass	bottle frag, D=4"
210	1 black glass	
210	2 HW spike frags	
210	1 HW spike	L=4½", W=1"
211	2 UID nail frags	
211	1 HW spike	L=3⅜"
212	1 HW spike	L=6"
213	No material	
214	1 .50 cal shell, brass	
215	1 iron rod	hammered head, L=25", D=1"
216	1 UID iron fragment	

T #	Object	Details
1	1 UID iron	
2	1 iron rod	L=18", D=¾"
3	1 iron rod	hammered head, L=17½", D=¾"
3	1 iron rod	HW, hammered head, L=4½", D=¾"
4	1 iron rod	L=9", D=⅞"
5	1 iron rod	hammered head, L=19", D=1"
6	1 HW spike frag	L=4"
7	1 iron rod	HW, L=24", D=¾"
7	1 iron rod	L=19", D=⅞"
7	1 iron rod	L=18½, D=⅞"
7	1 iron rod	HW, pointed end, L=12½", D=¾"
7	1 HW spike frag	L=4"
8	1 iron rod	L=49", D=⅞"
8	1 iron rod	HW, hammered head, L=19½", D=¾"
8	1 iron rod	L=19", D=⅞"
9	1 HW spike	L=8½"
9	6 spike frags	
10	1 iron rod	HW, square, hammered head, L=6", D=½x½"
10	8 spike frags	
11	1 iron rod	HW, L=24", D=¾"
11	1 UID flat iron fragment	
11	1 UID iron	L=19"
12	1 iron rod	ring 1" below head, L=16", D=1"
13	1 iron rod	HW, square, L=19½", D=½x½"
14	1 iron rod	L=11½", D=1"
14	1 iron rod	HW, hammered head, L=12", D=½"
14	1 machine cut spike	L=5½"
15	1 iron rod	square, L=18", D=⅝x⅝"
16	1 iron rod	ring ½" below head; L=18", D=1"
17	1 iron rod	L=24", D=1"
18	1 iron rod	HW, hammered head, L=22", D=¾"
19	1 iron rod	HW, L=6", D=⅝"
20	1 iron rod	HW, L=20", D=⅞"
21	1 iron rod	HW, L=21½, D=1⅛"
21-B	1 iron rod	hammered head, L=24", D=1⅛"
21-B	1 UID nail fragment	
22	1 iron rod	HW, L=12", D=⅝"
23-A	1 iron rod	HW, L=19", D=¾"
23-B	1 iron rod	HW, L=24", D=¾"
24	1 UID flat iron	
25	1 iron rod	HW, L=19", D=¾"
26	1 iron rod	L=1"
26	1 UID flat iron fragment	

S #	Object	Details
1	2 brown glass	1 case bottle, 1 round bottle
1	1 green glass	1 round bottle
1	1 dark aqua glass	1 round bottle
1	100 black glass	14 wine bottles, 2 ale bottles, 8 bottles
2	10 black glass	7 bottles
3	1 iron rod	HW, hammered head, L=22", D=⅝"
4	2 black glass	
4	1 iron rod	HW, hammered end, pointed tip, L=18", D=⅞"
5	1 iron rod	HW, L=16", D=1"
5	1 iron rod	HW, L=10", D=¾"
6	1 iron rod	HW, hammered head, L=10", D=1"
7	1 UID iron	
8	1 iron rod	HW, hammered head, L=12", D=⅞"
9	1 iron rod	HW, L=9", D=⅝"
10	1 iron rod	HW, L=10", D=¾"
11	1 iron serving fork	L=11"
11	1 UID iron	
12	1 iron rod	HW, L=13", D=1"
13	1 iron rod	HW, L=14", D=⅝"
14	1 iron rod	HW, L=11", D=⅞"
14	1 UID iron brace	L=11"
15	1 axe head	L=6¾"
16	1 strap iron frag	L=3½", W=1½"
17	1 UID iron	
18	1 strap iron frag	L=14½", W=1½"
19	4 strap iron frags	
20	1 strap iron frag	L=7", W=1½"
21	1 strap iron frag	L=10½", W=1½"
22	1 iron rod	HW, hammered head, L=27", D=¾"
22	1 iron rod	HW, hammered head, L=29", D=⅞"
22	1 iron rod	HW, hammered head, L=18", D=⅝"
22	1 UID iron	
23	1 eye bolt and ring	L=10"
24	1 iron brace	HW, L=11"
25	1 strap iron frag	L=19½", W=1¼"
26	1 iron rod	HW, rectangular, L=22", D= ⅝x¾"
26	1 iron rod	HW, L=22", D=⅞"
26	1 iron rod	HW, hammered head, L=11", D=½"
26	1 iron rod	HW, hammered head, L=17", D=⅝"
26	1 eye bolt	L=8½"
27	1 iron rod	HW,square, L=18", D=¾x¾"
28	1 iron rod	L=16", D=1"
29	1 black glass	wine bottle, D=3⅛"
30	7 clear glass	1 round bottle
30	2 manganege glass	1 round bottle
30	4 light green glass	1 round bottle
30	6 brown glass	1 round bottle
30	4 dark aqua glass	1 round bottle
30	6 black glass	2 round bottles
31	1 iron rod	HW, hammered head, L=21", 1"

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