

# Cultural Resources Survey of the Westinghouse Electric Company's Columbia Fuel Fabrication Facility

Richland County, South Carolina

Final Report

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## Abstract

Brockington conducted a cultural resources survey of Westinghouse Electric Company, LLC's (WEC) Columbia Fuel Fabrication Facility (CFFF) near Hopkins in Richland County, South Carolina, July-November 2021. WEC sponsored the survey to determine if there are any historic properties (sites, buildings, structures, objects, districts, etc. that are listed on or eligible for the National Register of Historic Places [NRHP]) within the CFFF that could be affected by the operation of the facility.

The cultural resources survey of the CFFF included background research; archaeological, architectural, and geophysical field investigations; and the assessment of the NRHP eligibility of identified resources. Background research involved reviewing the nearby listings of the NRHP-eligible properties and creating a historic context for the CFFF using historic map and land records to determine if any identifiable settlements or facilities lie within or near the CFFF. Archaeological investigations were guided by a research design (Poplin 2021) that presented a model categorizing areas of site potential within accessible portions of the 1,151-acre property. An architectural survey included a review of the project area and the plant itself to identify all aboveground resources 45 years of age or older. Lastly, Brockington conducted a geophysical survey of the Denley Cemetery (SHPO Site No. 8119/38RD1518) that included Ground Penetrating Radar (GPR), detailed mapping, and collection of inscriptions and information concerning all markers.

During the survey, five archaeological sites (38RD1512-38RD1516), three farm-related sites (a cattle facility- SHPO Site No. 8120, a Butler building - SHPO Site No. 8690, and a former tractor shed - SHPO Site No. 8691), the Denley Cemetery (SHPO Site No. 8119/38RD1518), and the CFFF facility (SHPO Site No. 8689) were recorded. Additionally, an unnamed canal and dike (SHPO Site No. 3577) was re-assessed. Brockington recommends 38RD1512-38RD1516, SHPO Site No. 8119 /38RD1518 (Denley Cemetery), and SHPO Site Nos. 3577, 8120, and 8689-8691 not eligible for the NRHP. With the exception of the Denley Cemetery (SHPO Site No. 8119 /38RD1518), these resources warrant no further management consideration. South Carolina statutes protect cemeteries from

desecration and offer descendants opportunities to visit burying grounds with appropriate coordination with the property owner.

## Acknowledgments

The authors would like to thank Ray Bates and Nancy Parr at Westinghouse for their assistance during this project. Christopher Judge (USC Lancaster) provided valuable background information concerning cultural resources near the CFFF. Charles Philips conducted the background research for the project. The archaeological field crew included Scott Kitchens, Jimmy Lefebvre, Kieya Kelly, and Rebecca Stewart under the direction of Larry James. Tess Kaiser assisted Dave Baluha during the geophysical survey of the Denley Cemetery. Jeff Sherard and Grant Sherwood conducted the artifact processing and analysis. Leigh Koszarsky prepared the graphics for this document. Eric Poplin provided editorial and management assistance. Meagan Brady and Whitney Gray produced the report.

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# Table of Contents

Abstract.....	iii
List of Figures.....	vi
List of Tables.....	viii
1.0 Introduction .....	1
2.0 Methods of Investigation .....	5
2.1 Introduction .....	5
2.2 Background Research .....	5
2.3 A Model of Site Potential .....	5
2.4 Field Investigations.....	5
2.4.1 Archaeological Survey.....	5
2.4.2 Architectural Survey.....	7
2.4.3 Geophysical Survey of the Denley Cemetery .....	9
2.5 Laboratory Processing and Analysis of Recovered Artifacts. ....	9
2.6 Assessing NRHP Eligibility .....	9
3.0 Natural and Cultural Setting.....	13
3.1 Physical Environment.....	13
3.2 Regional Cultural Setting.....	16
3.2.1 Pre-Contact Overview .....	16
3.2.2 Contact Era and the Colonial Period .....	26
3.3 Previous Investigations .....	37
4.0 Results of the Field Investigations.....	43
4.1 Archaeological Survey .....	43
4.1.1 Site 38RD1512 .....	43
4.1.2 Site 38RD1513 .....	45
4.1.3 Site 38RD1514.....	47
4.1.4 Site 38RD1515 .....	49
4.1.5 Site 38RD1516 .....	51
4.1.6 Isolated Finds.....	53
4.2 Architectural/Above-Ground Resources Survey.....	53
4.2.1 Unnamed Canal (SHPO Site No. 3577).....	53
4.2.2 Denley Cemetery (SHPO Site No. 8119/38RD1518).....	55
4.2.3 Cattle Feeding Facility (SHPO Site No. 8120).....	56
4.2.4 CFFF (SHPO Site No. 8689) .....	59
4.2.5 Butler Building (SHPO Site No. 8690) .....	63
4.2.6 Tractor Shed (SHPO Site No. 8691).....	63
5.0 Project Summary and Management Recommendations .....	67
5.1 Summary of Investigations .....	67
5.2 Management Recommendations.....	68
References Cited .....	71
Appendix A- Artifact Catalog	
Appendix B- SC Statewide Survey Cards	
Appendix C- SHPO Correspondence	
Appendix D- Ground Penetrating Radar Survey of Denley Cemetery	

# List of Figures

Figure 1.1 The location of the CFFF and nearby cultural resources on the USGS 1972 <i>Fort Jackson South, SC</i> and <i>Saylor's Lake, SC</i> quadrangles. ....	2
Figure 1.2 A view of the CFFF property and all the newly and revisited historic resources on a modern aerial. ....	3
Figure 2.1 View of the LiDAR imagery of the CFFF property showing areas of site potential. ....	6
Figure 2.2 Survey transects and shovel test locations across the CFFF. ....	8
Figure 3.1 Views of upland undeveloped areas on the CFFF. ....	14
Figure 3.2 Views of the Congaree River flood plain on the CFFF. ....	15
Figure 3.3 Soils within the CFFF (after Lawrence 1978). ....	17
Figure 3.4 Typical soil profiles in the undeveloped woods (top) and hay fields (bottom) along the upland terrace of the CFFF. ....	18
Figure 3.5 Typical soil profile along the upland bluff line (top) and within the Mill Creek floodplain (bottom). ....	19
Figure 3.6 The location of the Green Hill Mound (38RD0004) in relation to the CFFF. ....	25
Figure 3.7 Mouzon's (1775) map showing the project area. ....	29
Figure 3.8 An 1825 Map of Richland District with the approximate location of the CFFF property (Mills 1979: Richland District). ....	31
Figure 3.9 A undated painting of the Greenfield Farm house (Courtesy of WEC Archives). ....	34
Figure 3.10 A portion of the 1939 Highway Department Map of Richland County showing the Sunset Fishing Club, the Zion Chapel, Bluff Road, the roadway into the CFFF, and the site of the Greenfield Farm house (SC State Highway Department, 1939). ....	36
Figure 3.11 An early 1960s aerial photograph of Greenfield Farm with key components marked (Courtesy of WEC Archives). ....	38
Figure 3.12 A portion of the USGS topographical maps of the area in 1953 with the canal across the Mill Creek oxbow on the CFFF present (USGS 1953 <i>Saylor's Lake, SC</i> and <i>Fort Jackson, SC</i> quadrangles). ....	39
Figure 3.13 Various stages of grading, construction, and finished buildings of the CFFF on the former Greenfield Farm tract (Courtesy of WEC Archives). ....	40
Figure 3.14 Various stages of grading, construction, and finished buildings of the CFFF on the former Greenfield Farm tract (Courtesy of WEC Archives). ....	40

## List of Figures (continued)

Figure 3.15 Various stages of grading, construction, and finished buildings of the CFFF on the former Greenfield Farm tract (Courtesy of WEC Archives). .....	41
Figure 3.16 Various stages of grading, construction, and finished buildings of the CFFF on the former Greenfield Farm tract (Courtesy of WEC Archives). .....	41
Figure 3.17 The Greenfield Farm house on the CFFF at the time of the construction of the facility in 1969 (Courtesy of WEC Archives). .....	42
Figure 3.18 The Denley Cemetery on the CFFF today, southwest of the primary industrial facility. ....	42
Figure 4.1 A view and site plan of 38RD1512. ....	44
Figure 4.2 A view and site plan of 38RD1513. ....	46
Figure 4.3 A view and site plan of 38RD1514. ....	48
Figure 4.4 A view and site plan of 38RD1515. ....	50
Figure 4.5 A view and site plan of 38RD1516. ....	52
Figure 4.6 view of unnamed canal (SHPO Site No. 3577), facing southeast (top), and view of canal bank at the transmission line corridor, facing south (bottom). ....	54
Figure 4.7 Denley Cemetery (SHPO Site No. 8119/38RD1518), facing northeast. Note modern markers, placed by WEC. ....	56
Figure 4.8 Detailed plan of the Denley Cemetery. ....	57
Figure 4.9 View of the central section of the two cattle feed troughs, facing east (top), and the southern end of trough 1, facing east (bottom). ....	58
Figure 4.10 View of the CFFF during construction ca. 1969, facing southwest (top), and in 2016 (bottom). ....	60
Figure 4.11 View of the CFFF from a 1971 aerial photograph (right), and from a 1994 aerial photograph (left). ....	61
Figure 4.12 View of the CFFF during expansion, looking southwest (top), and looking northwest (bottom), circa 1983 (photographs courtesy of WEC archives). ....	62
Figure 4.13 SHPO Site No. 8690, facing northwest (top), and SHPO Site No. 8691, facing southwest (bottom). ....	64
Figure 5.1 Locations within the CFFF that require review prior to deep ground disturbances. ....	70

## List of Tables

Table 1.1 A summary of identified resources on the CFFF.....	4
Table 3.1 Soils in the undeveloped portions of the CFFF.....	20
Table 4.1 Pre-contact artifacts from Site 38RD1514. ....	49
Table 4.2 Pre-contact artifacts from Site 38RD1515. ....	51

# 1.0 Introduction

In July-November 2021, Brockington and Associates (Brockington) conducted a cultural resources survey of the Columbia Fuel Fabrication Facility (CFFF) near Hopkins in Richland County, South Carolina. The CFFF is owned and operated by Westinghouse Electric Company, LLC (WEC). Currently, the US Nuclear Regulatory Commission (NRC) is completing an environmental impact statement (EIS) for the relicensing of the facility. This federal undertaking requires compliance with Section 106 of the National Historic Preservation Act of 1966 (as amended) and its implementation under 36 CFR 800 to determine if there are historic properties (cultural resources that are or may be eligible for the National Register of Historic Places [NRHP]) within the CFFF that may be affected by the continued operation of the CFFF under its NRC-issued license. Figure 1.1 displays the location of the CFFF and nearby cultural resources on the US Geological Survey (USGS) 1972 *Fort Jackson South, SC* and *Sailors Lake, SC* quadrangles.

The CFFF occupies approximately 1,151 acres in three separate TMS parcels in lower Richland County (R18600-01-01, R18600-01-02, and R15600-01-01). The majority of the CFFF (TMS Parcels R18600-01-01 and R18600-01-02) fronts on Bluff Road with the northeastern portion on uplands above the Congaree River flood plain adjacent to Mill Creek, a major tributary of the river. The southwestern portion lies in the flood plain with Mill Creek meandering through the facility lands. A small parcel (TMS R15600-01-01) lies on the bank of the Congaree River to the southwest. Private undeveloped lands bound the property to the east and west. Figure 1.2 presents a view of the CFFF on a modern aerial.

The cultural resources survey of the CFFF included background research; archaeological, architectural, and geophysical field investigations; and the assessment of the NRHP eligibility of identified resources. Background research involved reviewing the listings of nearby NRHP-eligible properties and other cultural resources and creating a historic context for the CFFF using historic map and land records to determine if any identifiable former settlements or facilities lie within or near the CFFF. Archaeological investigations were guided by a research

design (Poplin 2021) that presented a model categorizing areas of site potential within the accessible portions of the 1,151-acre property. Architectural survey examined the CFFF and associated buildings and structures. Lastly, documentation of the Denley Cemetery (SHPO Site No. 8119/38RD1518) was accomplished using Ground Penetrating Radar (GPR), detailed mapping, and collection of inscriptions and information concerning all markers. The survey examined only property owned by WEC.

During the survey, five archaeological sites (38RD1512-38RD1516), three farm-related sites (a cattle facility- SHPO Site No. 8120, a Butler building - SHPO Site No. 8690, and a former tractor shed - SHPO Site No. 8691), the Denley Cemetery (SHPO Site No. 8119/38RD1518), and the CFFF facility (SHPO Site No. 8689) were recorded. Additionally, an unnamed canal and dike (SHPO Site No. 3577) was re-assessed. Table 1.1 presents a summary of the identified cultural resources on the CFFF.

This technical report contains five chapters (Chapters 1-5) and four appendices (Appendices A-D). Chapter 2 presents the methods of investigation. Chapter 3 describes the environmental and cultural setting. Chapter 4 provides the results of the field investigations. Chapter 5 contains the management recommendations and summary. The three appendices are A (Artifact Catalog), B (SC Statewide Survey cards), and C (SHPO Correspondence). Results of the geophysical investigation and documentation of the Denley Cemetery appear in Appendix D.

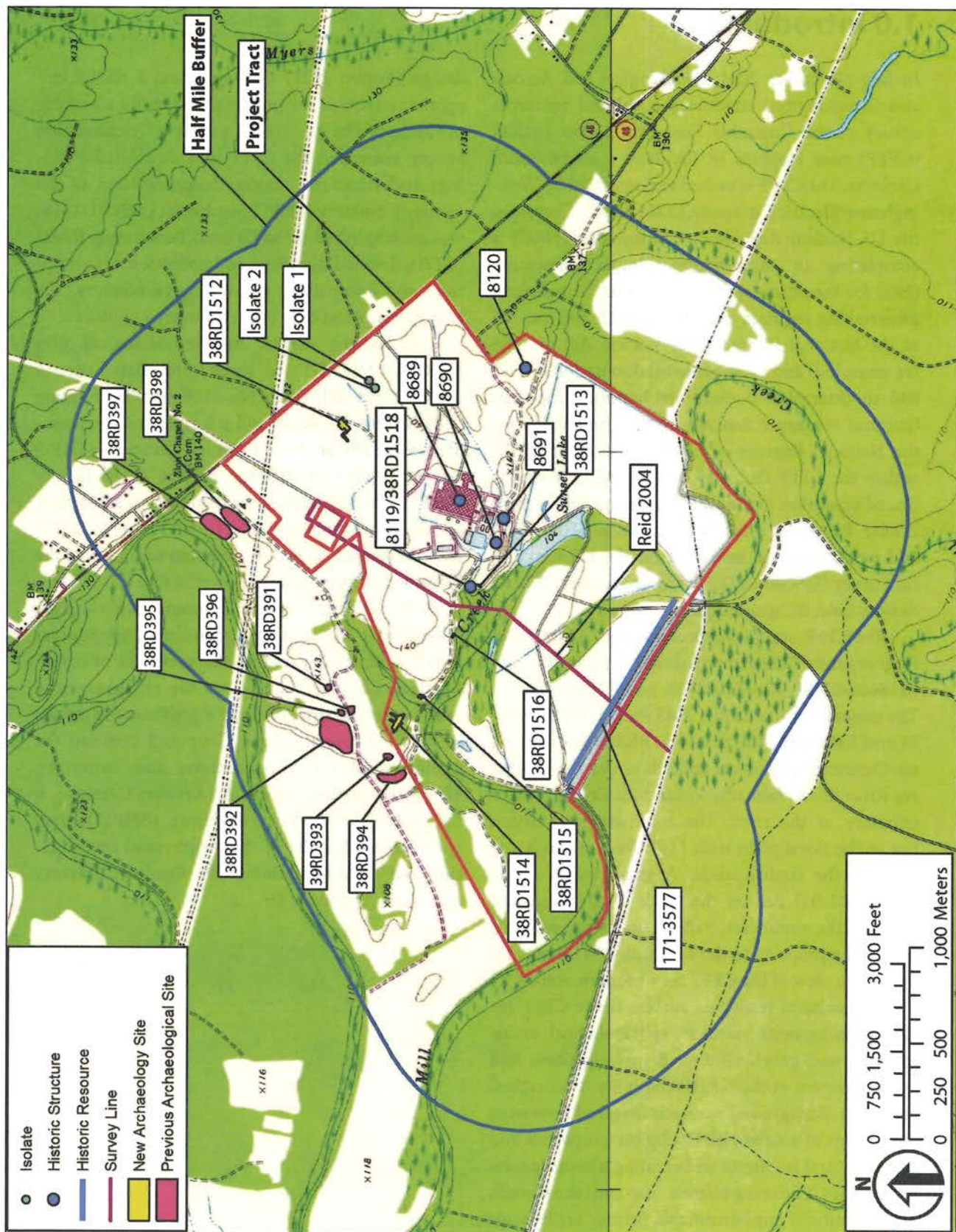


Figure 1.1 The location of the CFF and nearby cultural resources on the USGS 1972 Fort Jackson South, SC and Saylor's Lake, SC quadrangles.

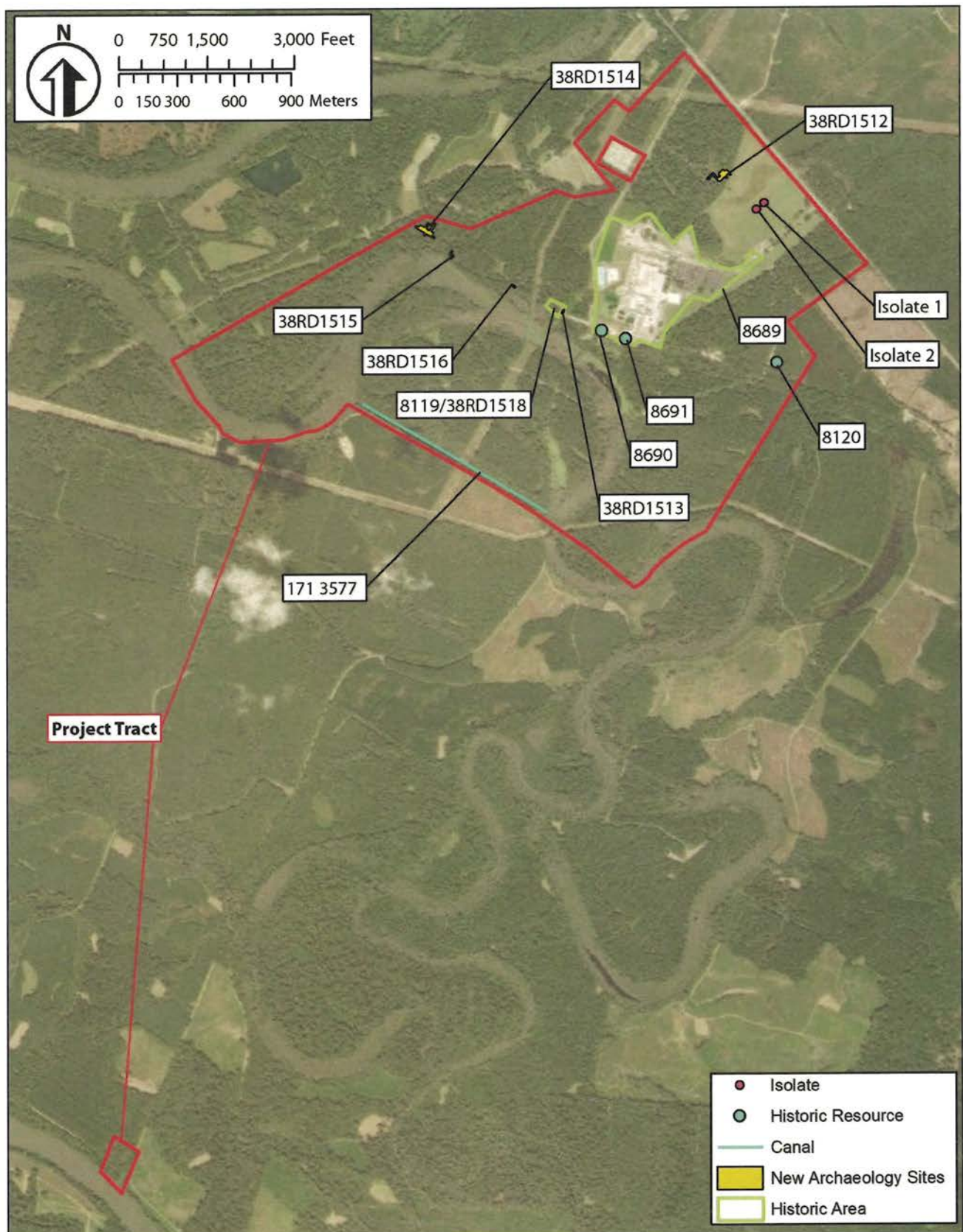


Figure 1.2 A view of the CFFF property and all the newly and revisited historic resources on a modern aerial.

**Table 1.1 A summary of identified resources on the CFFF.**

<b>Resource</b>	<b>Description</b>	<b>Cultural Affiliation</b>	<b>NRHP Recommendation</b>	<b>Proposed Mgmt Action</b>
38RD1512	Artifact Scatter	Unknown Pre-Contact; 20th Century	Not Eligible	None
38RD1513	Artifact Scatter	Unknown Pre-Contact	Not Eligible	None
38RD1514	Artifact Scatter	Unknown Pre-Contact; 20th Century	Not Eligible	None
38RD1515	Artifact Scatter	Unknown Pre-Contact	Not Eligible	None
38RD1516	Artifact Scatter	20th Century	Not Eligible	None
171 3577	Canal and dike	mid 20th Century	Not Eligible	None
8119/38RD1518	Denley Cemetery	early 20th Century	Not Eligible	Preserve-in-Place
8120	cattle facility	20th Century	Not Eligible	None
8689	CFFF facility	mid 20th Century	Not Eligible	None
8690	Butler building	mid 20th Century	Not Eligible	None
8691	tractor shed	mid 20th Century	Not Eligible	None

## 2.0 Methods of Investigation

### 2.1 Introduction

The objective of this cultural resources survey is to determine if historic properties lie within the CFFF. Tasks performed to accomplish this objective include background research, archaeological and architectural investigations, geophysical survey of the Denley Cemetery, and the assessment of the NRHP eligibility of all identified resources. Survey of the project tract followed *South Carolina Standards and Guidelines for Archaeological Investigations* (Council of South Carolina Professional Archaeologists [COSCAPA] 2013) and the *Survey Manual: Statewide Survey of Historic Properties* (SC State Historic Preservation Office [SHPO] 2020). The field investigations were focused on locating, identifying, and documenting all archaeological and architectural sites and isolated occurrences within the examined portions of the CFFF. Tasks of the archaeological survey were outlined in a research design prior to conducting any fieldwork (Poplin 2021). Methods employed for each of these tasks are described below.

### 2.2 Background Research

Brockington historians and archaeologists examined the listings of known archaeological sites and reports of previous cultural resources investigations included on ArchSite, the state's online cultural resources database. Various historic maps of the region also were reviewed to determine if any identifiable settlements or facilities are within this portion of Richland County. Brockington historians gathered information concerning the history of landownership of the CFFF with an emphasis on historic land records, plats, and maps that may indicate where former buildings, structures, or other facilities/features once existed. Brockington historians reviewed online records of the Lykesland area of Richland County to find connections to the CFFF and the surrounding regions. Lastly, Brockington archaeologists reviewed reports of previous investigations near the CFFF and other historic sources that may provide information about past land use within the CFFF. Specific secondary sources consulted include Coclanis (1989), Moore (1993), and Jaeger (1993). The WEC staff also provided numerous photo-

graphs and other information concerning the CFFF from their archives.

### 2.3 A Model of Site Potential

The archaeological survey of the CFFF utilized a stratification of the lands owned by WEC based on resource potential. The model categorized areas of land within the 1,151-acre property into zones of high, low, very low, and no potential to contain archaeological deposits based upon topographic setting; distance to the Congaree River flood plain and historic roads; locales where buildings stood drawn from historic maps, aerial photographs, and historical information; and local conditions and accessibility. Figure 2.1 displays a more detailed view of the LiDAR imagery of the CFFF. Here, one can see the bluff that forms the edge of the Congaree River flood plain, uplands north of the bluff, Mill Creek, and other features on the flood plain. The brown areas reflect the uplands between Bluff Road and the flood plain; the blue areas lie in the Congaree River flood plain. The land within the CFFF then was classified by its potential to contain archaeological resources based on this topographic and historical information. The categories of resource potential are:

- No Potential (Developed Lands – 68 acres)
- Very Low Potential (Wetlands and Water – 507 acres)
- Low Potential (broad relatively flat areas away from the Congaree River flood plain – 379 acres)
- High Potential (relatively flat areas adjacent to the Congaree River flood plain and higher areas within the flood plain, primarily former stream levees and point bars – 197 acres)

### 2.4 Field Investigations

#### 2.4.1 Archaeological Survey

Brockington archaeologists examined the areas of High Potential and Low Potential as outlined above through systematic surface inspection and subsurface sampling (Figure 2.1). Systematic examination

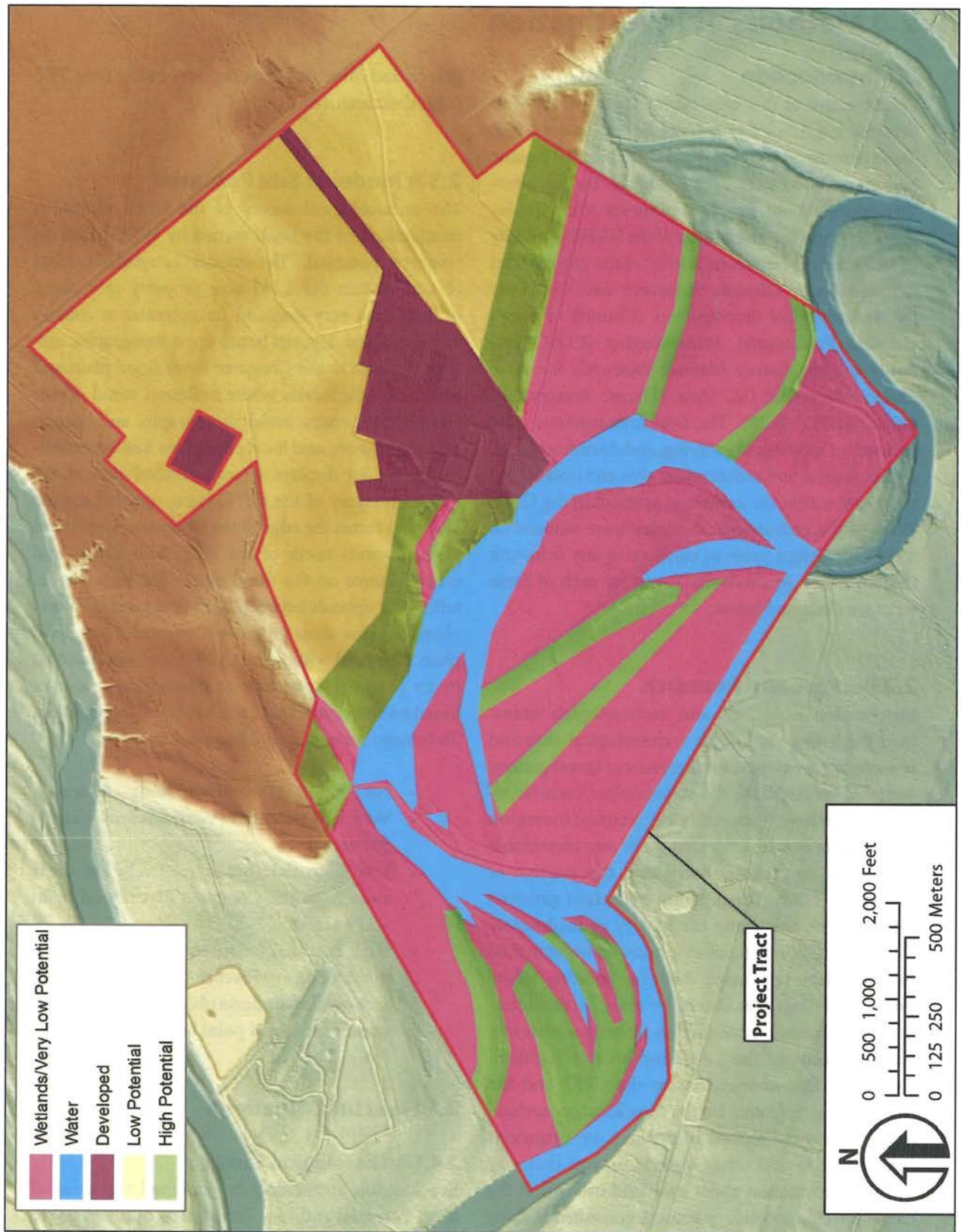


Figure 2.1 View of the LIDAR imagery of the CFFF property showing areas of site potential.

of approximately 197 acres of the CFFF that possessed a high potential to contain archaeological deposits was completed through 30-meter-interval transects and shovel tests. These areas were primarily along the bluff of the Congaree River and on elevated landforms in the Congaree River flood plain. Systematic examination of approximately 379 acres of the CFFF defined as possessing a low potential to contain archaeological deposits was completed through 60-meter-interval transects and shovel tests. These areas were predominately on the broad upland terrace between the Congaree River bluff and Bluff Road. In total, 894 shovel tests were completed across the examined portions of the CFFF. The research design estimated 1,600 shovel tests would be excavated, but local conditions (e.g., wet areas, steep slopes), excluded areas (Denley Cemetery, utility corridors adjacent to Bluff Road, and the Controlled Access Area [CAA]), and lack of topsoil in some of the low potential areas account for the difference. The remaining portions of the CFFF (areas of very low potential – wetlands and standing water occupying 507 acres – and areas of no potential – developed or inaccessible areas occupying 68 acres) were not examined. No shovel tests were completed within the fenced enclosure that currently defines the Denley Cemetery. Figure 2.2 presents a view of the survey transects and shovel test locations across the examined portions of the CFFF.

Each shovel test measured approximately 30 centimeters (cm) in diameter and was excavated into sterile subsoil. The fill from these tests was sifted through 0.25-inch wire mesh hardware cloth. All identifiable or suspected cultural materials were collected and bagged by provenience. Excavators recorded provenience information, including transect, shovel test, and surface collection numbers, on resealable archivally-stable artifact collection bags. Information including the content (e.g., presence or absence of artifacts) and context (e.g., soil color, texture, stratification) of each shovel test also was recorded in field notebooks. Excavators flagged and labeled positive shovel tests (those where artifacts were present) for relocation and site delineation. In areas where very saturated, wetland soils were present, the subsurface soil was inspected but not screened.

An archaeological site is a locale that produces three artifacts from the same occupation within a

30-meter radius. Locales that produce fewer than three artifacts are defined as isolated finds (COSCAPA et al. 2013). Locales that produced artifacts from shovel testing or surface inspection were subjected to reduced-interval shovel testing. Investigators defined the boundaries of sites and isolated finds by excavating additional shovel tests at 15-meter intervals according to the true north around the positive shovel tests until two consecutive shovel tests failed to produce artifacts or until reaching natural or cultural features. A map showing the extent of surface scatters, the location of each shovel test, test units, cultural features (e.g., wells, rubble piles, foundations, roads), and natural features (e.g., landforms, drainages), and the approximate site boundary was prepared in the field for each site.

The location of each cultural resource was recorded using Global Positioning System (GPS) receivers. For this project, archaeologists used a Emlid Reach RS2 Real-Time Kinematic (RTK) system for centimeter-grade accuracy to record the locations of identified cultural resources. The data was recorded using Universal Transverse Mercator (UTM) coordinates calibrated to the 1983 North American Datum (NAD-83). However, the South Carolina Institute of Archaeology and Anthropology (SCIAA) requires all archaeological site coordinates in NAD-27 format, which correlates with the older USGS 7.5-minute quadrangles employed by SCIAA to record the location of identified archaeological sites. NAD-27 coordinates were obtained through ArcGIS rectification of the collected GPS data.

#### **2.4.2 Architectural Survey**

Survey of historic architectural/aboveground resources includes the CFFF and review of previously recorded architectural resources that are eligible for or listed on the NRHP within a 0.5-mile radius of the CFFF. There are three standing structures within the CFFF built before 1975: the primary facilities themselves (constructed in 1968 to 1969), a tractor shed, and the Butler building both associated with the mid-twentieth-century farm complex that occupied the land prior to the CFFF. As per the SHPO (2020), the architectural historian documented all of the structures that are at least 45 years old and retain a minimal level of structural integrity. The architectural historian completed state site forms for

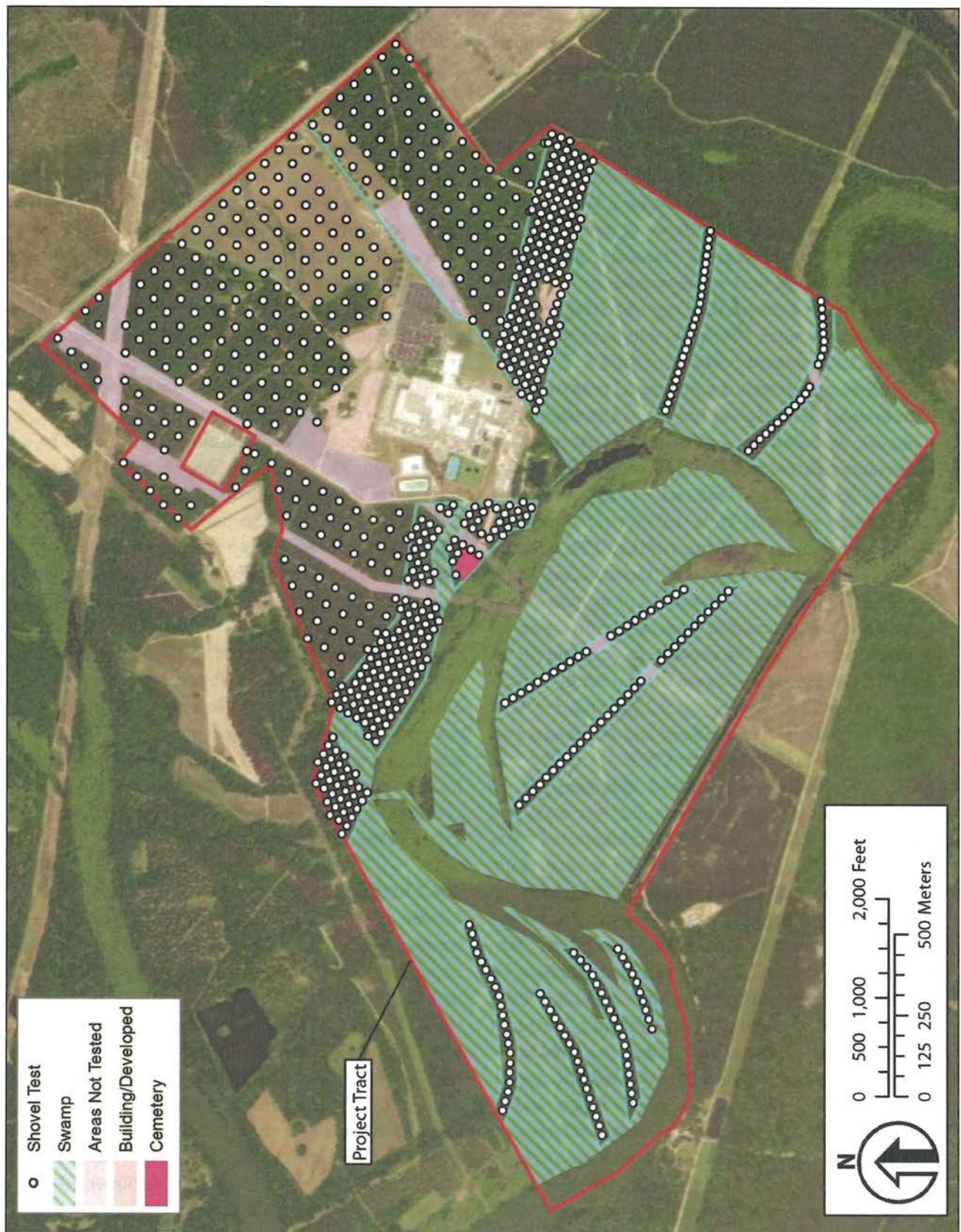


Figure 2.2 Survey transects and shovel test locations across the CFFF.

each surveyed resource. Copies of these forms are included in this report as Appendix B.

#### **2.4.3 Geophysical Survey of the Denley Cemetery**

Documentation of the Denley Cemetery (SHPO Site No. 8119/38RD1518) included GPR survey, detailed mapping, and collection of inscriptions and information concerning all markers. A MALA Ground Explorer cart system with a 450-megahertz antenna was used to collect the GPR data (<https://www.guidelinegeo.com/product/mala-ground-explorer-gx/>). The cart system was integrated with the RTK unit. GPR survey transects were traversed every 1.64 ft within the enclosing fence perpendicular to the northern boundary fence. Four transects were oriented parallel to the eastern fence, with one transect inside and the three other transects outside the fence. The RTK system was used to map cemetery features and the fenced enclosure. Brockington archaeologists mapped 191 stone monuments across the cemetery, including several historic head and foot stones, small granite markers, and modern stone monuments. A detailed plan was drawn, accompanied by detailed notes on each stone marker.

#### **2.5 Laboratory Processing and Analysis of Recovered Artifacts.**

All recovered artifacts were transported to Brockington's Mt. Pleasant (SC) laboratory where they were cleaned, sorted, and identified. Most materials were washed in soapy water and air dried. More fragile materials were brushed or subjected to other processes to remove any excess dirt or heavy corrosion. Artifacts within each site or isolated find were cataloged within proveniences; each collection locale (shovel test, surface collection, etc.) was assigned a unique provenience number. Individual artifact types within each provenience were assigned a sequential catalog number. Information concerning the artifacts were entered into a Microsoft Access database for manipulations and to produce an artifact catalog. Once cataloged, the materials were prepared for permanent curation according to the standards of the SCIAA. The artifacts and field notes will be forwarded to an approved facility upon acceptance of the final report of the survey.

#### **2.6 Assessing NRHP Eligibility**

Cultural resources identified in the CFFF were evaluated for eligibility to the NRHP. As per 36 CFR 60.4, there are four broad evaluative criteria for determining the significance of a particular resource and its eligibility for the NRHP. Any resource (building, structure, site, object, or district) that:

- A. is associated with events that have made a significant contribution to the broad pattern of history;
- B. is associated with the lives of persons significant in the past;
- C. embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, possesses high artistic value, or represents a significant and distinguishable entity whose components may lack individual distinction; or
- D. has yielded, or is likely to yield, information important to history or prehistory may be eligible for the NRHP.

A resource may be eligible under one or more of these criteria. Criteria A, B, and C are most frequently applied to historic buildings, structures, objects, non-archaeological sites (such as battlefields, natural features, designed landscapes, or cemeteries), or districts. The eligibility of archaeological sites is most frequently considered with respect to Criterion D. Also, a general guide of 50 years of age is employed to define "historic" in the NRHP evaluation process. That is, all resources greater than 50 years of age may be considered. However, more recent resources may be considered if they display "exceptional" significance (Sherfy and Luce 1998).

Following *National Register Bulletin: How to Apply the National Register Criteria for Evaluation* (Savage and Pope 1998), evaluation of any resource requires a twofold process. First, the resource must be associated with an important historic context. If this association is demonstrated, the integrity of the resource must be evaluated to ensure that it conveys the significance of its context. The applications of both steps are discussed in more detail below.

Determining the association of a resource with a historic context involves five steps (Savage and

Pope 1998). First, the resource must be associated with a particular facet of local, regional (state), or national history. Secondly, one must determine the significance of the identified historical facet/context with respect to the resource under evaluation. As an example, if the project contained no buildings that were constructed during the early nineteenth century, then an antebellum agricultural context would not be significant for the development of the project area or any of its internal resources. Similarly, a lack of Native American archaeological sites within the project would preclude the use of contexts associated with the prehistoric use of a region.

The third step is to demonstrate the ability of a particular resource to illustrate the context. A resource should be a component of the locales and features created or used during the historical period in question. For example, early nineteenth century farmhouses, the ruins of African American slave settlements from the 1820s, and/or field systems associated with particular antebellum plantations in the region would illustrate various aspects of the agricultural development of the region prior to the Civil War. Conversely, contemporary churches or road networks may have been used during this time period but do not reflect the agricultural practices suggested by the other kinds of resources.

The fourth step involves determining the specific association of a resource with aspects of the significant historic context. Savage and Pope (1998) define how one should consider a resource under each of the four criteria of significance. Under Criterion A, a resource must have existed at the time that a particular event or pattern of events occurred, and activities associated with the event(s) must have occurred at the site. In addition, this association must be of a significant nature, not just a casual occurrence (Savage and Pope 1998). Under Criterion B, the resource must be associated with historically important individuals. Again, this association must relate to the period or events that convey historical significance to the individual, not just that this person was present at this locale (Savage and Pope 1998). Under Criterion C, a resource must possess physical features or traits that reflect a style, type, period, or method of construction; display high artistic value; or represent the work of a master (an individual whose work can be distinguished from

others and possesses recognizable greatness) (Savage and Pope 1998). Under Criterion D, a resource must possess sources of information that can address specific important research questions (Savage and Pope 1998). These questions must generate information that is important in reconstructing or interpreting the past (Butler 1987). For archaeological sites, recoverable data must be able to address specific research questions.

After a resource is specifically associated with a significant historic context, one must determine which physical features of the resource reflect its significance. One should consider the types of resources that may be associated with the context, how these resources represent the theme, and which aspects of integrity apply to the resource in question (Savage and Pope 1998). As in the antebellum agriculture example given above, a variety of resources may reflect this context (farmhouses, ruins of slave settlements, field systems, etc.). One must demonstrate how these resources reflect the context. The farmhouses represent the residences of the principal landowners who were responsible for implementing the agricultural practices that drove the economy of the South Carolina area during the Antebellum period. The slave settlements housed the workers who conducted the vast majority of the daily activities necessary to plant, harvest, process, and market crops.

Once the above steps are completed and the association with a historically significant context is demonstrated, one must consider the aspects of integrity applicable to a resource. Integrity is defined in seven aspects of a resource; one or more may be applicable depending on the nature of the resource under evaluation. These aspects are location, design, setting, materials, workmanship, feeling, and association (36 CFR 60.4; Savage and Pope 1998). If a resource does not possess integrity with respect to these aspects, it cannot adequately reflect or represent its associated historically significant context. Therefore, it cannot be eligible for the NRHP. To be considered eligible under Criteria A and B, a resource must retain its essential physical characteristics that were present during the event(s) with which it is associated. Under Criterion C, a resource must retain enough of its physical characteristics to reflect the style, type, etc., or work of the artisan that it represents. Under Criterion D, a resource must be able

to generate data that can address specific research questions that are important in reconstructing or interpreting the past.

Graves and cemeteries may also qualify for the NRHP under Criteria A, B, or C if they meet certain conditions known as Criteria Considerations A-G (Potter and Boland 1992:14-18). Under Criteria Consideration A, a grave or cemetery is eligible for the NRHP if it derives its significance from architectural or artistic distinction or historic importance. This Criteria Consideration applies primarily to cemeteries associated with a church or synagogue, or a crypt of significant artistic style or person of outstanding importance. Criteria Consideration B applies to graves or cemeteries that are relocated. Criteria Consideration C applies to a grave of a historical figure. Under Criteria Consideration D, a cemetery may be eligible for the NRHP if it derives its significance from age, distinctive design, association with historic events, or from graves of persons of transcendent importance. Criteria Consideration E refers to cemeteries or graves that are constructed in a manner that is appropriate and dignified and as part of a master plan. Criteria Consideration F refers to commemorative properties. Cemeteries are commemorative in intent; however, the significance of a cemetery under this Criteria Consideration includes a direct association with a specific site or with a person buried there. Cemeteries that meet Criteria Consideration F are usually National Cemeteries such as Gettysburg National Cemetery or Arlington National Cemetery. Criteria Consideration G refers to cemeteries that have gained their significance in the last 50 years because of exceptional importance. With the exception of graves of historical figures, burial places nominated under Criterion D are exempt from the Criteria Considerations.

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### 3.0 Natural and Cultural Setting

Chapter 3 presents a brief overview of the natural and cultural setting of the CFFF project area. The CFFF occupies approximately 1,151 acres in Lower Richland County approximately ten miles southeast of downtown Columbia. This portion of Lower Richland County primarily contains two environmental zones: a broad upland marine terrace that overlooks the vast flood plain of the Congaree River and its tributaries.

The upland portion of the CFFF lies on a broad terrace between Bluff Road and the sloping bluff that overlooks the Congaree River flood plain and Mill Creek. This upland terrace was used historically as farmland and for cattle grazing. The property was a plantation and farm from the eighteenth century until 1968, when the property was acquired by WEC and the CFFF was constructed. The undeveloped portions of the upland terrace have been maintained for timber production and harvesting hay in wide open fields along Bluff Road. The undeveloped lands include open fields, small oak and pecan groves, and stands of planted pine trees. The pine tree forest is thick with primary and secondary growth of shrubs and understory as a result of being graded and cleared in the 1970s when much of the area was under construction. A number of small wetlands are scattered across the northern portion along Bluff Road and along the southeastern boundaries at the slope towards the Congaree River flood plain and Mill Creek.

The CFFF itself includes a large industrial fenced-in facility that includes several buildings, holding ponds, and auxiliary tanks. The plant is flanked on all sides by graded and paved areas and a picnic pavilion. These areas are buffered by large stands of planted pines with gravel and dirt roads/paths providing access throughout the CFFF property. Several electrical and natural gas transmission line corridors pass through the property. Several portions also were graded and disturbed for installation of underground pipelines and utilities that service the plant. These portions were all excluded from the archaeological survey area (see Figure 2.2) due to these disturbances.

More natural surroundings lie in the Congaree River flood plain along Mill Creek. Here, hardwood bottomland forests and swamps cover most of the

low flood plain with a few narrow levee ridges and scroll bars rising above the swamps. Sunset Lake, an impoundment in the former channel of Mill Creek, lies against the bluff approximately 0.25 miles south of the primary CFFF facility. A more recent man-made pond, called "Gator Pond," lies between Sunset Lake and the CFFF and is fed by a natural spring at the base of the sloping bluff. Most of the flood plain portion of the CFFF is undeveloped, with the exception of the main access road and narrow trails, electricity and gas transmission corridors, and the Sunset Lake dam and spillway. The bottomlands provide a buffer between the facility and its neighbors. Most of the regional lands follow the same pattern and are covered in mature forest, mixed planted pines and hardwoods on the uplands and bottomland hardwood forest on the flood plain. Figures 3.1-3.2 present views of the two environmental settings present on the CFFF.

#### 3.1 Physical Environment

The CFFF lies just below the Fall Line that separates the Piedmont and Coastal Plain of South Carolina on the uppermost portion of the Coastal Plain. Here, the Sandhills province extends along the lower edge of the Fall Line. Local topography, like much of the Sandhills, is characterized by a series of gently rolling ridges interspersed with deep ravine valleys. The Congaree River, which forms at the confluence of the Broad and Saluda rivers to the northwest, slices through the Sandhills. The restricted valleys of the Piedmont give way here to broad flood plains that may be quite swampy. The Congaree flows in a broad meandering path to the southeast, becoming the Santee when it joins the Wateree River 16-20 miles downstream. The Santee flows to the coast and empties into the Atlantic Ocean.

Elevations across the CFFF vary by approximately 10 meters (32 feet), with the highest areas along Bluff Road ranging between 41 to 40 meters (134 to 131 feet) above sea level. The lower lying areas on the Congaree River flood plain range between 34 to 32 meters (111 to 108 ft). Generally, the terrain gradually slopes away from Bluff Road towards the lowest point on the Congaree River flood plain (see Figure 2.2).



Figure 3.1 Views of upland undeveloped areas on the CFFF.



Figure 3.2 Views of the Congaree River flood plain on the CFFF.

Soils in the undeveloped portions of the CFFF include sandy loams and loamy sands on the uplands, with loams or silty clay loams in the flood plain and along small drainageways that meander across the uplands. The upland soils are derived from ancient marine deposits. The flood plain soils are derived from alluvial deposits from the Congaree River. Figure 3.3 displays the locations of the USDA-defined soils distributions (see Lawrence 1978). Table 3.1 summarizes these soil types.

Soil profiles exposed during shovel testing varied by location on the CFFF and by depth depending on the various levels of ground disturbance. In the western half of the upland terrace, investigators noted shovel test profiles primarily consisting of semi-compact 10YR 5/2 grayish-brown silty sands (0-10 centimeters below surface [cmbs]) underlain by a very compact 10YR 6/6 brownish-yellow silty sand (10-30 cmbs- see Figure 3.4). Other portions of the undeveloped upland terrace, within the planted pine stands, featured less A horizon and revealed a densely compact 10YR 7/6 reddish-yellow clay 10 cmbs. In the hay fields at the entrance of the CFFF, soil profiles revealed more uniform and deeper 10YR 5/3 brown sand (0-50+ cmbs) Ap horizon over 5YR 6/6 reddish-yellow compact clayey sand (50-80 cmbs). A deep 10YR 8/1 white sand (60-80+ cmbs) was also observed in the hay fields closer to Bluff Road (Figure 3.4). Soil profiles in the high potential areas along the bluff appeared more intact and revealed a 10YR 5/2 grayish-brown sand (0-10 cmbs) underlain by a 10YR 5/6 yellow brown sand (45-50 cmbs) and very pale brown 10YR 8/4 clayey sand (50-80 cmbs - see Figure 3.5). In contrast, the low-lying flood plain soils generally consisted of inter-mixed 10YR 5/1 gray, 10YR 4/4 dark grayish-brown and 10YR 3/3 dark brown compact silty sands that reflect varying levels of disturbance from flooding episodes and past agricultural activities (Figure 3.5).

The Upper Coastal Plain is characterized by a temperate climate with mild winters and very warm summers. In Richland County, mean daily minimum-maximum temperatures for January are 36° F and 58° F respectively, while July means are 71° F and 92° F (Lawrence 1978 – note that climatic conditions have been changing but the US Department of Agriculture has not updated the published information cited herein). Temperatures of 32° F or

less occur on about 60 percent of winter days, and temperatures below 15° F are extremely rare. Mean annual rainfall in Richland County ranges from 1.15 to 1.20 meters (3.83 to 4.0 feet). The wettest months are July and August while the driest period generally occurs in October and November. Precipitation primarily is the product of west-to-east frontal and cyclonic air movements with the exception of hurricanes in the late summer; these move from east to west from the Atlantic Ocean. Snow is uncommon and brief, and significant amounts fall only once every four years.

## **3.2 Regional Cultural Setting**

The cultural history of North America generally is divided into three eras: Pre-Contact, Contact, and Post-Contact. The Pre-Contact era refers primarily to the Native American groups and cultures that were present for 13,000+ years prior to the arrival of Europeans. The Contact era refers to the time of exploration and initial European settlement on the continent. The Post-Contact era refers to the time after the establishment of European settlements, when Native American populations usually were in rapid decline. Within these eras, finer temporal and cultural subdivisions have been defined to permit discussions of particular events and the lifeways of the peoples who inhabited North America at that time.

### **3.2.1 Pre-Contact Overview**

The following overview serves as a basic map of cultural trends during the Pre-Contact era in the Midlands region of South Carolina. The Midlands includes the Broad River watershed (the Congaree River Basin is part of this watershed), which extends through the Piedmont and Upper and Lower Coastal Plain of South Carolina.

Several archaeological investigations have occurred in the Midlands or in similar environmental conditions, including those in southern North Carolina. The Sandhills and inner Coastal Plain of South Carolina and eastern Georgia regions include notable works by Anderson and Joseph (1988), Cable and Cantley (1979, 1998), and Sassaman et al. (1990). Other regional studies include investigations by Cable et al. (2005) and Griffin et al. (2001) at Fort Bragg in North Carolina. Closer to the CFFF,

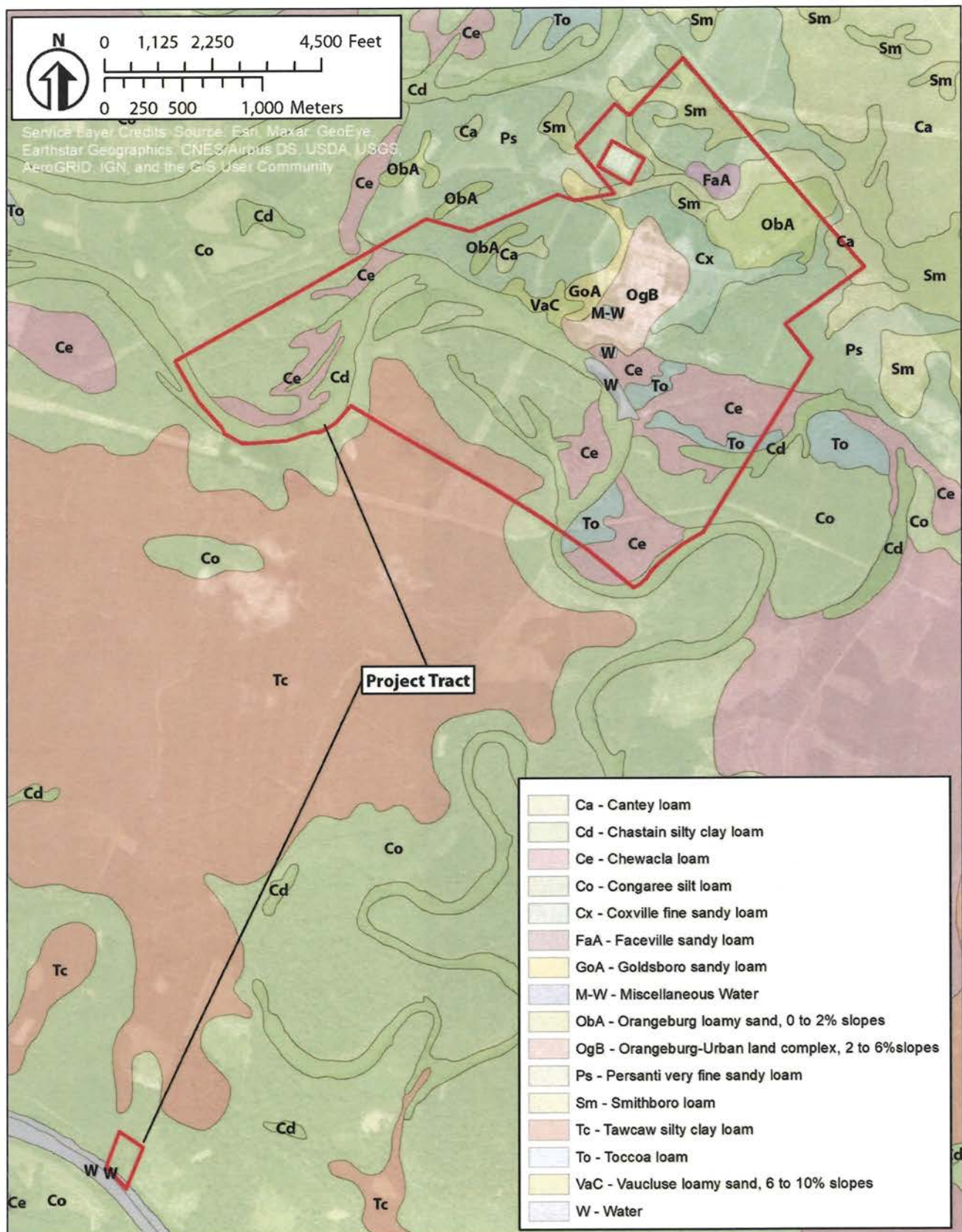


Figure 3.3 Soils within the CFFF (after Lawrence 1978).



Figure 3.4 Typical soil profiles in the undeveloped woods (top) and hay fields (bottom) along the upland terrace of the CFFF.



Figure 3.5 Typical soil profile along the upland bluff line (top) and within the Mill Creek floodplain (bottom).

**Table 3.1 Soils in the undeveloped portions of the CFFF.**

Soil Type	Symbol	Characteristics	Derivation
<i>Uplands</i>			
Cantey loam	Ca	poorly drained, in depressions on terraces	marine sediments
Coxville fine sandy loam	Cx	poorly drained; in elliptical depressions/bays	marine sediments
Faceville sandy loam	Fa	well drained; on ridgetops, terraces, side slopes	marine sediments
Goldsboro sandy loam	GoA	moderately well drained; on interstream divides	marine sediments
Miscellaneous Water	M-W	areas of permanent standing water	n/a
Orangeburg loamy sand	ObA	well drained; on ridgetops, interstream divides	marine sediments
Orangeburg-Urban Land	OgB	developed areas	n/a
Persanti very fine sandy loam	Ps	moderately well drained; on terraces	marine sediments
Smithboro loam	Sm	somewhat poorly drained; on terraces	marine sediments
Vaclude loamy sand	VaC	well drained; on abrupt side slopes	marine sediments
<i>Flood Plain</i>			
Chastain silty clay loam	Cd	poorly drained; in depressions on flood plain	alluvial sediments
Chewacla loam	Ce	somewhat poorly drained; on flats on flood plain	alluvial sediments
Congaree loam	Co	moderately/well drained; on flats on flood plain	alluvial sediments
Tawcaw silty clay loam	Tc		alluvial sediments
Toccoa loam	To		alluvial sediments
Water	W		n/a

Cantley and Cable (2002), Cliff et al. (1999), and Kreisa et al. (1996) have conducted work at Shaw Air Force Base. Nearby Fort Jackson underwent a thorough investigation by Steen (2018). Related research at the Savannah River Site includes works by Sassaman (1993); Sassaman, Daniel, and Moore (2002); and Sassaman et al. (1990). South Carolina Department of Transportation (SCDOT) has also conducted regional projects by Anderson (1974, 1978, 1979) and Goodyear (1976) that includes major data recovery investigations at the Manning Site (38LX50) by O'Steen (2003) and Southerlin et al. (1997).

In South Carolina, the Pre-Contact era is divided into four stages (after Willey and Phillips 1958). These include the Lithic, Archaic, Woodland, and Mississippian. Specific technologies and strategies for procuring resources define each of

these periods, with approximate temporal limits also in place. Major cultural trends and their effect on the archaeological record are also discussed. Within each period, there are temporal periods that are defined on technological bases as well. A brief description of each stage follows, including discussions of the temporal periods within each stage. Readers are directed to Goodyear and Hanson (1989) and Sassaman et al. (1990) for more detailed discussions of particular aspects of these stages and periods in South Carolina.

**The Lithic Stage.** Archaeologists call the beginning of the human occupation of North America the Lithic Stage. Initial human occupation of the Southeast is currently unknown but is assumed to be before 11500 BC during the Early Paleoindian period

(Anderson 2005:1). The first widespread evidence of human occupation is associated with Clovis and related fluted point assemblages, which are inferred to occur between roughly 11500 and 10000 BC during the Middle Paleoindian period. Terminal Paleoindian occupations are associated with the onset of the Holocene, dating from roughly 10000 to 8000 BC. Anderson and Sassaman (1996) and Anderson (2005) authored studies that provide valuable insight into the Paleoindian period in the Southeast. The following discussion briefly summarizes the current understanding of the Paleoindian period.

For most of the twentieth century, archaeologists believed that humans arrived on the continent near the end of the last Pleistocene glaciation, termed the Wisconsinan in North America, some time prior to 10000 BC. The distinctive fluted projectile points and blade tool technology of the Middle Paleoindian period (described below) occurs throughout North America by this time. During the last few decades of the twentieth century, researchers began to encounter artifacts and deposits that predate the Middle Paleoindian period at sites in North and South America. To date, these Early Paleoindian sites are few in number. The most notable are Meadowcroft Rock Shelter in Pennsylvania (Adovasio et al. 1990; Carlisle and Adovasio 1982), Monte Verde in Chile (Dillehay 1989, 1997; Meltzer et al. 1997), Cactus Hill in Virginia (McAvoy and McAvoy 1997), and most recently, the Topper/Big Pine Tree Site in Allendale County, South Carolina (Goodyear 1999). All of these sites contain artifacts in stratigraphic locales below Middle Paleoindian period deposits. Radiocarbon dates indicate occupations at the Meadowcroft and Topper/Big Pine Tree sites that are 10,000 to 20,000 years earlier than the earliest Clovis occupations. Cactus Hill produced evidence of a blade technology that predates Middle Paleoindian sites by 2,000 to 3,000 years. Monte Verde produced radiocarbon dates comparable to those at North and South American Paleoindian sites but reflects a very different lithic technology than that evidenced at Middle and Late Paleoindian sites. Similarly, the lithic artifacts associated with the other Early Paleoindian deposits discovered to date do not display the blade technology so evident during the succeeding period.

Unfortunately, the numbers of artifacts recovered from Early Paleoindian sites are too small at

present to determine if they reflect a single technology or multiple approaches to lithic tool manufacture. Additional research at Early Paleoindian sites is necessary to determine how they relate to the better-known sites of the succeeding Paleoindian period and how these early sites reflect the peopling of the Americas.

The Middle and Late Paleoindian periods correspond with the terminal Pleistocene, approximately 11500 to 8000 BC, when the climate was generally much colder than today and when sea level was over 61 meters (200 feet) below present levels. Another notable feature of the terminal Pleistocene was the declining populations of megafauna. The patterns of human adaptation for these periods are reconstructed from data from other areas of the country and from distributional data on the diagnostic fluted projectile points (e.g., Clovis, Hardaway, Dalton) within the Southeast. Very few Paleoindian sites have been excavated in the Southeast, and only recently have South Carolina sites received attention (Goodyear et al. 1989). However, the data from surface finds of Paleoindian points seem to indicate that cultures of this period were focused along major river drainages, especially in terrace locations (Anderson and Logan 1981:10; Goodyear 1979). Similarly, Anderson et al. (1990:39-40) suggest an emphasis on flood plain locales in the Oconee River Valley of Georgia with a shift to an increased use of upland areas through time. Work in the Oconee Valley by O'Steen et al. (1986) also demonstrated the presence of specific Paleoindian site types associated with particular settings within the valley.

If the pattern from other areas of the country holds true in South Carolina, then the adaptation was one of broad-range, high-mobility hunting and gathering with a possible focus on megafauna exploitation (Gardner 1974). Evidence to suggest a more generalized approach, with small game and plant foods providing the bulk of Paleoindian subsistence, also has been collected from the eastern United States (Meltzer 1988; Meltzer and Smith 1986). The limited association of megafauna remains with cultural artifacts in the Southeast supports this interpretation.

Although few sites dating to the Middle and Terminal Paleoindian periods are recorded in the Upper Coastal Plain and Sandhills of South Carolina, this may be partially attributed to the low densities

of artifacts that Paleoindian habitations produce. Paleoindian populations used the best available materials for tool manufacture. The mobile nature of most Paleoindian groups indicates that these groups preferred highly curated tools. As such, tools were sharpened and resharpened numerous times, and available raw material was used to the fullest extent possible. In many instances, Paleoindian lithic reduction locales contain no diagnostic artifacts, often making it impossible to discern Paleoindian occupations from those of a later stage. Most of the temporally diagnostic Paleoindian artifacts that have been found in South Carolina were recovered from the ground surface.

***Archaic Stage - Early Archaic Period (8000 to 6000 BC).*** The Early Archaic period corresponds to the adaptation of native groups to Holocene conditions. The environment in central South Carolina during this period was still colder and moister than at present, and an oak-hickory forest was establishing itself on the Coastal Plain (Watts 1970, 1980; Whitehead 1965, 1973). The megafauna of the Pleistocene had disappeared, and a more typical woodland flora and fauna were established. The Early Archaic adaptation on the Fall Line of South Carolina is not clear; however, several sites in the region have produced Early Archaic remains (Goodyear et al. 1989; Michie 1978; Wetmore et al. 1986:17-19). Early Archaic finds in the region are most typically side- or corner-notched projectile points (e.g., Dalton, Palmer, Kirk), which have been determined to be Early Archaic through excavation of sites in other areas of the Southeast (Claggett and Cable 1982; Coe 1964). Several large Early Archaic sites have been partially excavated along the Broad-Saluda-Congaree drainages, including the Taylor Site (38LX1-Michie 1971) and the Nipper Creek Site (38RD18-Wetmore et al. 1986).

Early Archaic sites generally are small, suggesting a high degree of mobility. Diagnostic projectile points have been recovered from all portions of the lower Piedmont and Upper Coastal Plain, suggesting a shift from the riverine emphasis of the earlier Paleoindian period (Goodyear et al. 1989:38; Wetmore et al. 1986:18). This is particularly true for the earliest Dalton and Palmer points. Interestingly, these types display a technological continuation of the earlier Paleoindian lithic tradition not found in

the later corner-notched or bifurcated types (Goodyear et al. 1989:39; Oliver 1985:200). In fact, Dalton and Hardaway-Dalton types are often defined as Late Paleoindian or Transitional Paleoindian types.

Anderson and Hanson (1988) propose a model for Early Archaic subsistence/settlement on the South Atlantic Slope. This model suggests the implementation of high residential mobility throughout most seasons, with aggregation in winter when resources are less widely distributed within the region. Furthermore, population aggregates are associated with specific drainages. Annual population movements include use of the Piedmont and Upper Coastal Plain within each drainage. Sandhills areas presumably were visited in the fall, probably due to the presence of dense oak masts and concentrations of mast-consuming ungulates (e.g., deer) (Sassaman et al. 1990:50-52). Further, Anderson and Hanson (1988:271) suggest the presence of "macrobands" associated with the larger drainages that cross the region. Interaction between these larger aggregates permitted the flow of extra-local raw materials, information, and mates between the groups occupying each drainage. Presumably, the aggregation of populations within drainages near the Fall Line in the late fall and early winter and movements of populations between drainages at the same time would contribute to the diversity of lithic raw materials recovered from Early Archaic sites in the Sandhills/Fall Line region.

In contrast, O'Steen's (1983) model of Early Archaic settlement suggests fairly restricted occupation during this period in the Oconee Valley of the Georgia Piedmont. Recurring occupation of base camps within the valley, at locales that provided access to the greatest density and diversity of resources, was suggested, with lithic exchange networks that extended across territorial boundaries of particular groups.

***Archaic Stage- Middle Archaic Period (6000 to 2000 BC).*** The trends initiated in the Early Archaic (i.e., increased population and adaptation to local environments) continued through the Middle Archaic period. Climatically, the study area was still warming, and an oak-hickory forest dominated the region until ca. 2000 BC, when pines became more prevalent (Watts 1970, 1980). Stemmed projectile points (e.g., Stanly, Morrow Mountain, Guilford Lanceolate) and ground stone artifacts characterize

this period. On the Piedmont to the north and west, site densities apparently increased through the period, suggesting a more intensive implementation of foraging strategies; no specific locales appear to be favored for occupation (Blanton and Sassaman 1989:59-60). On the Coastal Plain, Middle Archaic sites occur with less frequency but show evidence of more intensive habitation and large-scale tool production. This suggests an increased “patchiness” in resources on the Coastal Plain, compared to earlier periods or the contemporary Piedmont (Sassaman et al. 1990:10). Thus, a different pattern of settlement is suggested for this period in the lower portions of South Carolina.

Sandhills Middle Archaic sites appear to relate more to the Coastal Plain settlement pattern than the pattern evidenced on the Piedmont. Anderson’s (1979:236) excavation of Middle Archaic components at 38LX5 and 38LX64 on the western side of the Congaree River suggest use of river flood plain locales (e.g., 38LX64) as long-term residential sites, similar to logistical base camps, and use of nearby upland settings (e.g., 38LX5) as more specialized resource extraction loci. However, extensive examinations of interriverine settings in the region have not been undertaken in the immediate area. The distribution and nature of Middle Archaic sites at the Department of Energy’s Savannah River Site on the Savannah River immediately below Augusta, Georgia suggest a pattern similar to that described for the Piedmont (Sassaman et al. 1990:310).

***Archaic Stage- Late Archaic Period (2000 to 500 BC).*** The Late Archaic period apparently relates to a time of population expansion and increased local adaptations (Caldwell 1958). It was also during this time that the first pottery appeared on the South Carolina coast and in the Fall Line region. This pottery is the sand tempered or untempered Thom’s Creek series, name after the site of its first description at 38LX0002 (Griffin 1945) west of the Congaree River and the CFFF, and the fiber tempered Stallings series; both were decorated by punctation, incising, finger pinching, and, for Thom’s Creek, possibly simple stamping and dentate stamping. Large, stemmed bifaces (e.g., Savannah River) are the most common lithic artifacts in the earlier preceramic Late Archaic assemblages. Smaller, stemmed points appear in association with the ceramic wares, appar-

ently representing a transition between the ceramic Late Archaic and subsequent Early Woodland cultural manifestations of the region.

Distribution of Late Archaic sites throughout the southeastern Atlantic seaboard suggests that intensive exploitation of specific aquatic resources was common throughout the period. Large sites, presumably representing long periods of occupation by a large population aggregate, occur along the major drainages and the coastal estuaries. Emphasis on anadromous fishes at the Fall Line and in the Piedmont and shellfish along the coast has been suggested by several researchers (Claggett and Cable 1982:40; Steen 2018; Taylor and Smith 1978) to explain the presence of these large sites. However, the distinctive large, stemmed projectile points generally associated with Late Archaic occupations have been recovered from sites in almost all environmental settings from the mountains to the coast throughout South Carolina (Wetmore et al. 1986:21). Thus, Late Archaic sites can be expected throughout the interriverine uplands of the Sandhills, the Lower Piedmont, and the Upper Coastal Plain.

Sassaman et al. (1990:312-314) propose a model for Late Archaic settlement on the Savannah River Site that includes large population aggregations in the river valley during the spring and summer with a dispersal of smaller family groups into tributary drainages during the fall and winter of each year. This would result in the development of large, dense sites with very diverse artifact assemblages occurring in the river flood plain and smaller and less diverse sites occurring along smaller drainages and in the interriverine areas. Anderson’s (1979:236-237) excavations at four sites in the Congaree Valley tend to support such a model with two sites located in upland settings adjacent to the flood plain containing remains suggestive of limited activity animal processing and two sites on the flood plain containing evidence of intensive occupation suggestive of long-term residence and a wide range of activities.

***Woodland Stage- Early Woodland Period (500 BC to AD 200).*** Some researchers choose to consider Thom’s Creek an Early Woodland manifestation. Because of the close association in some areas between Thom’s Creek and fiber-tempered ceramics, Thom’s Creek is considered Ceramic Late Archaic. The first

Woodland manifestations in the region are characterized by a significant increase in stamp decorated pottery. Following Espenshade and Brockington (1989), definitive markers of the Early Woodland are considered here to be Deptford Check Stamped (linear and bold), Deptford Simple Stamped (including possible Refuge Simple Stamped), and coarse tempered, fabric impressed pottery. In the Early Woodland, the region apparently represented an area of interaction between widespread ceramic traditions, with the paddle stamped tradition dominant to the south and the fabric impressed and cord marked tradition dominant to the north and west (Blanton et al. 1986; Caldwell 1958; Espenshade 1986; Espenshade and Brockington 1989).

The subsistence and settlement pattern of the Early Woodland period suggests population expansion and the movement of groups into areas used less intensively in earlier periods. Hanson (1982) suggests that this dispersal reflects a collapse of a previously stable resource base (e.g., drowned estuaries on the coast [cf. Trinkley 1989:78]) and the attempt of Early Woodland populations to replace a focused subsistence strategy with a more diffuse one (after Cleland 1976). Anderson and Joseph (1988:218) note a similar diffusion of population and reduced regional interaction during the Early Woodland period of the Middle Savannah River Valley of South Carolina. Similar dispersals are noted for the Savannah River Site with a shift from the flood plains to an occupation of the uplands along the many tributaries of the Savannah River (Sassaman et al. 1990:315). Anderson (1979:237) suggests a general shift away from the Congaree flood plain as well. Presumably, single family residences were established in the upland locales that were inhabited throughout the year. Additional resources were procured through exchange with neighbors or collected from specialized sites scattered throughout the immediate area surrounding a household. Steen (2018:19) suggests that these dispersed groups in the Midlands likely focused on the major tributaries of the large rivers with tighter social interactions among the people living along a tributary creek than between groups living along adjacent tributary drainages.

Thus, Early Woodland sites most common in the region generally consist of small ceramic and lithic scatters in a variety of environmental zones.

Some will represent residential locations of single-family units while other sites will represent resource extraction loci. Lower artifact frequencies and diversity as well as reduced site size could be expected at the resource extraction sites.

**Woodland Stage- Middle and Late Woodland Periods (AD 200 to 1000).** The typological manifestations of the Middle and Late Woodland periods in the region are somewhat unclear. The check stamped tradition of the Early Woodland Deptford series continues through most of the Middle Woodland, and check stamping reappears late in the Late Woodland period. Cord marked and fabric impressed ceramics continue to be produced through the Middle and Late Woodland periods, as do simple stamped wares. There is no single decorative mode which can be associated with this period, and recent research has only begun to sort out the confusion (Anderson et al. 1982; Blanton et al. 1986; Trinkley 1983).

Middle and Late Woodland settlement patterns appear to continue the diffuse distributions noted for the Early Woodland (Trinkley 1989:83-84). Interior Coastal Plain sites of the periods tend to occur adjacent to the large swampy flood plains of the many rivers crossing the Coastal Plain with numerous small scatters of Middle/Late Woodland artifacts occurring on the interriverine uplands. An excellent example of an intensively occupied Woodland site (likely from the Early Woodland well into the Middle Woodland) is 38RD0004 (Green Hill Mound), located 2.5 miles southwest of the CFFF (Figure 3.6). This alluvial landform rises well above the surrounding backswamp and provided a dry location from which numerous riparian and flood plain resources could be accessed. Deptford Check Stamped pottery is the most frequently occurring type recovered from the site (Judge 2021). Interestingly, Dodge (2018) notes that Deptford ceramics occur in high frequencies on sand bars in the Congaree River, including one near 38RD0004. Though likely redeposited at these locales, their frequency suggests an intensive use of the Congaree River flood plain at this time.

**Mississippian Stage (AD 1000 to 1543).** The diagnostic complicated stamped ceramics and small triangular projectile points of the Mississippian

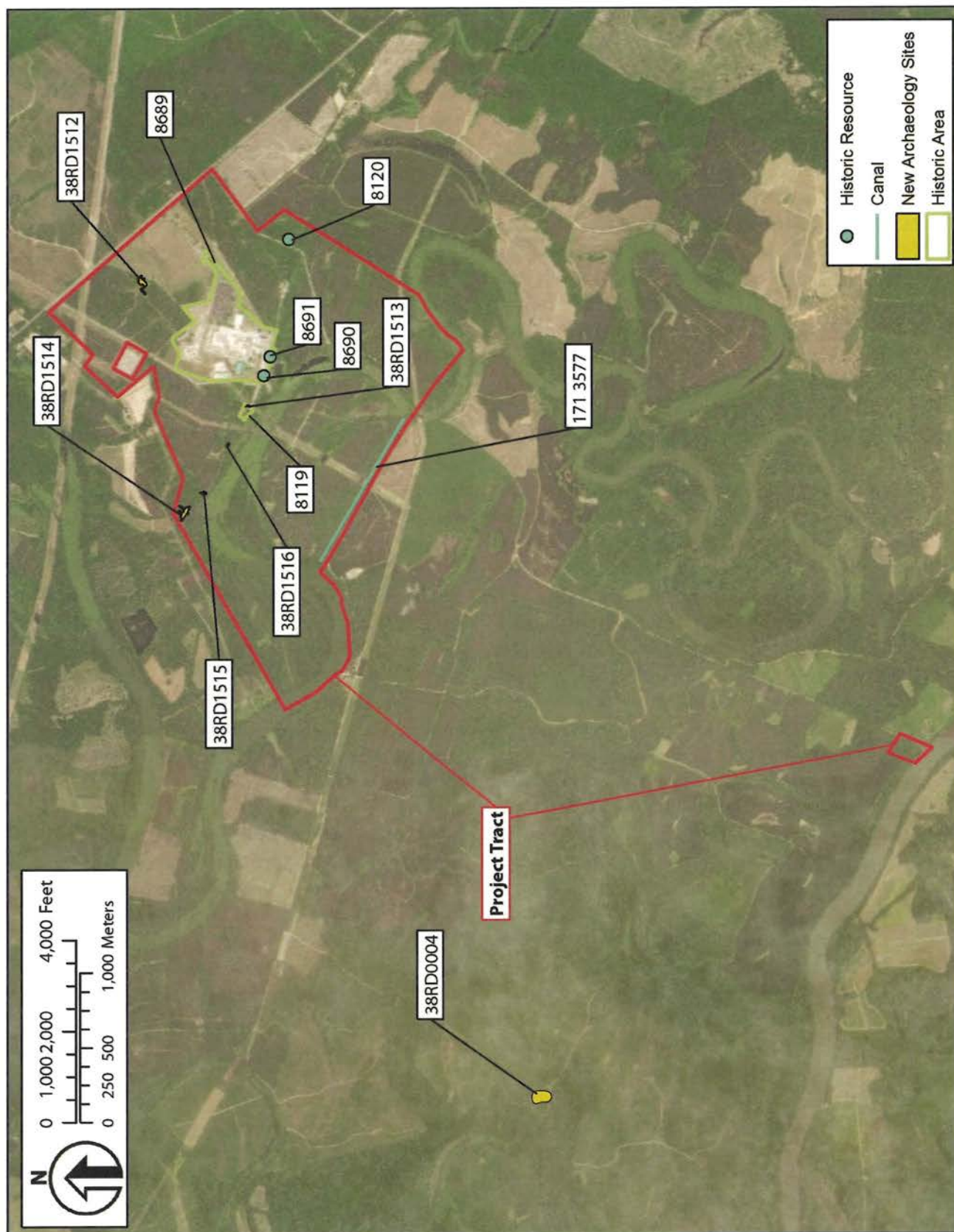


Figure 3.6 The location of the Green Hill Mound (38RD0004) in relation to the CFFF.

stage mark the transition of groups in the region into a complex system of social organization which lasted until first European contact. In most areas of the Southeast, the Mississippian stage is characterized by an emphasis on agriculture and by the development of complex public works and ceremonial centers occupied by a highly stratified society. Mounds are known on the Wateree River to the east (Ferguson 1971, 1975) and on the Savannah River to the west (Taylor and Smith 1978) with at least one mound, the Green Hill Mound (38RD0004), on the Congaree River flood plain to the west of the CFFF.

Mississippian groups were apparently aligned along major drainages (i.e., those with extensive floodplains, Anderson 1989:114). A wide range of site types has been identified for Piedmont Mississippian occupations throughout South Carolina, North Carolina, and Georgia. Larger villages tend to be associated with specific mound sites. Smaller habitation sites are scattered along the surrounding drainages, to the extent that single family compounds may be present on secondary drainages with adequate flood plains to support the agricultural production of foodstuffs (Ferguson and Green 1984; Poplin 1990). Ferguson and Green (1984) also note that Mississippian centers generally display a symmetric distribution above and below the Fall Line with few large sites in the immediate location of the distinctive rapids of the local rivers. Thus, major Mississippian sites tend to be located along the major drainages of South Carolina that possess extensive flood plains; however, they occur either on the Lower Piedmont (above the Fall Line) or on the Upper Coastal Plain (below the Fall Line) rather than at the transition between these two major physiographic regions of the state.

One of the principal Mississippian centers of South Carolina is located to the east of Columbia on the Wateree River. Mulberry Mound group, presumably representing the Contact period town of Cofitachequi, is considered to represent the regional "center" of Mississippian settlement throughout central South Carolina. Anderson (1989:119) suggests that an extensive buffer existed between the province associated with Cofitachequi, and the neighboring province of Ocute, presumably centered on the Oconee River in Georgia. Much of the Savannah River Valley appears to have been abandoned during

the later Pre-Contact and Contact periods. Extensive research has not been conducted in the drainages between the Savannah and Wateree, but large Mississippian settlements have not been positively identified in these drainages to date. Thus, the Wateree River east of Columbia may represent the edge of Mississippian settlement associated with Cofitachequi.

The Green Hill Mound (38RD0004), though not a man-made feature, has produced burial urns, shell gorgets, a shell cup, and numerous other artifacts for over 100 years (Judge 2021; Steen 2018:59). Researchers suggest the mound could yield further information regarding late Mississippian burial practice and ritual in the Congaree River valley (Michie 1980:59).

In addition to the large central mound villages, many small scatters of Mississippian artifacts are found in diverse environmental settings throughout the surrounding region. These sites probably represent resource extraction loci since an amalgam of agricultural produce and hunted and gathered remains provided subsistence for Mississippian groups throughout the Southeast (Smith 1975). As an example, Goodyear (1976:11-12) notes extensive Mississippian sites along the Congaree River below Columbia. These sites are interpreted as base camps located near prime agricultural lands from which interriverine locales were visited to collect resources not available on the flood plain.

### **3.2.2 Contact Era and the Colonial Period**

**Exploration and Contact.** Initial European exploration of coastal South Carolina occurred during the early sixteenth century. Indian groups encountered by the European explorers and settlers probably were living in a way that was very similar to the late pre-contact Mississippian groups identified in archaeological sites throughout the Southeast. Indeed, the Mississippian chieftain of Cofitachequi, the capital of a highly structured society, was located in central South Carolina and visited by De Soto in 1540. Cofitachequi is an excellent example of Mississippian social organization present throughout southeastern North America during the late Pre-Contact era (Anderson 1985). During DeSoto's expedition through South Carolina, he sent guides down the Congaree River who reported that a native town, called Hymahi or Aymay, is likely located near

the present town of Wateree, situated over 10 miles east of the CFFF and above the confluence of the Wateree and Congaree rivers (Jaeger 1993). Initial European forays into the Southeast led to the disintegration and collapse of aboriginal Mississippian social structures. Disease, warfare, and slave raids contributed to the rapid decline of regional Native American populations during the sixteenth and seventeenth centuries (Dobyns 1983; Ramenofsky 1982; Smith 1984). By the late seventeenth century, native groups in coastal South Carolina apparently lived in small, politically and socially autonomous semi-sedentary groups (Waddell 1980). The Congaree and Wateree Nations merged with the Catawba Nation in the early 1700s and occupied the area of what became Richland County (Jaeger 1993). By the middle to late eighteenth century, very few Native Americans remained in the region; all were displaced or annihilated by the rapidly expanding English colonial settlement of the Carolinas (cf. Bull 1770, cited in Anderson and Logan 1981:24-25).

**Colonization.** European colonization into South Carolina began with temporary Spanish and French settlements in the Beaufort area during the sixteenth century. The English, however, were the first Europeans to establish permanent colonies. In 1663, King Charles II made a proprietary grant to a group of powerful English courtiers who had supported his return to the throne in 1660 and who sought to profit from the sale of the new lands. These Lords Proprietors, including Sir John Colleton, Sir William Berkeley, and Sir Anthony Ashley Cooper, provided the basic rules of governance for the new colony. They also sought to encourage settlers, many of whom came from the overcrowded island of Barbados in the early years. These Englishmen from Barbados first settled at Albemarle Point on the west bank of the Ashley River in 1670. By 1680, they moved their town down the river to Oyster Point, the present location of Charleston, and called it Charles Towne. These initial settlers, and more who followed them, quickly spread along the central South Carolina coast. By the second decade of the eighteenth century, they had established settlements from the Port Royal Harbor in Beaufort County northward to the Santee River in Georgetown County.

The colony's early settlements grew slowly, and despite its geographic spread, the South Carolina Lowcountry contained only around 5,000 European and African American inhabitants in 1700. The earliest South Carolina economy centered around naval stores production, beef and pork production, and trade with the Native American population. However, by the end of the seventeenth century, the colonists had begun to experiment with rice cultivation. The regular flood conditions of the immediate tidal area proved valuable, and production for export increased rapidly. By 1715, Charles Towne exported more than 8,000 barrels of rice annually; this number increased to 40,000 by the 1730s. In the 1740s, Lowcountry residents began to experiment with growing and processing indigo, a blue dye that was very popular in Europe that became one of South Carolina's principal exports during the eighteenth century. Both indigo and rice were labor-intensive and laid the basis for South Carolina's dependence on African slave labor, much as tobacco had done in the Virginia colony (Coclanis 1989; Wood 1974).

Angered by mistreatment from traders and encroachments on their land, Native Americans throughout the colony attacked in the Yamasee War of 1715 but did not succeed in dislodging the English (Covington 1978:12). While the Yamasee staged a number of successful raids through the 1720s, by 1728, the English had routed them and made the area more accessible for renewed settlement. With the rapidly increasing wealth in the South Carolina Lowcountry, and with the Yamasee War largely behind them, the population began to swell. By 1730, the colony had 30,000 residents, at least half of whom were enslaved. A 1755 magazine, cited by Peter Wood, estimates that South Carolina residents had enslaved over 32,000 Africans by 1723 (Wood 1974:151). The growing population increased pressure for territorial expansion, which was compounded by the growing black majority in the Lowcountry. Fears of a slave rebellion, along with continuing fears of attack from Native Americans, led Charles Towne residents to encourage settlement in the backcountry.

**Backcountry Settlement.** Late in the seventeenth century, the first Europeans to settle in the backcountry were Indian traders. These people followed established trade routes into the backcountry to barter and exchange with various Native American groups. By 1700, the trading post at the Congarees (Congaree Creek and Congaree River), south of Columbia, was well established. That post was on the trading path that went from Charleston on the coast to Keowee, the capital of the Cherokee Nation (Milling 1969). It was also the highest point on the Congaree River where boat traffic was possible; above what is now Columbia, shoals and rapids made travel and trade by boat nearly impossible (Bryan 1992:20). Other trading paths went from the Congarees to the Creek and Catawba Nations. These were used principally by roving traders who established no real settlements. By the 1730s, speculators gradually began to acquire titles to lands along the Congaree River in what is now Lexington and Richland counties. Settlers who planned to farm the rich lands along the Congaree established plantations beginning in the early 1740s. Many of these early settlers migrated to the area from other parts of the Carolinas. Among these early settlers were Philip Jackson, Philip Raiford, John Pearson, and John Fairchild (Moore 1993:10).

This remained an unsafe area for the new white settlers, and they began to establish private forts along the west side of the Congaree River. Fort Congaree was established in 1718 on the west side of the River, approximately five miles south of the junction of the Broad and Saluda rivers. The fort was planned to protect the settlers in the area and to further trade with the Cherokee and Catawba Indians (Moore 1993:8). After four years, the Indian trade commissioners turned the fort over to local residents, and it continued to be used until about 1722 (Michie 1989:1).

**The End of Proprietary Rule.** The capacity of the Lords Proprietors to govern the colony effectively declined in the early years of the eighteenth century. Governance under the Lords Proprietors became increasingly arbitrary while wars with the Native population arose and the colonial currency went into steep depreciation. According to a historian of colonial South Carolina, “proprietary attitudes and behavior . . . convinced many of the dissenters – who

at one time had composed the most loyal faction – that the crown was a more reliable source of protection against arbitrary rule” (Weir 1983:94). South Carolina’s legislature sent a petition to Parliament in 1719 requesting that royal rule supplant that of the Lords Proprietors. After several years in limbo, South Carolinians received a degree of certainty in 1729 when the crown purchased the Proprietors’ interests and in 1730 when the new royal governor, Robert Johnson, arrived in the colony.

**Royal Colony and Townships.** Johnson arrived with a plan to create townships throughout the colony to ensure the orderly settlement of the backcountry. His scheme originally included nine townships, primarily along the major rivers. Of these, the main settlements were Purrysburg and New Windsor along the Savannah, Kingston along the Waccamaw, Williamsburg and Amelia on the Santee, Fredericksburg along the Wateree, and Queensborough on the Pee Dee. Johnson later revised his scheme to include additional townships, including the Saxe-Gotha township on the Congaree River. Johnson permitted the settlement of these areas on the headright system, which apportioned 50 acres of land to every individual who settled there. Many of these settlers established plantations that were directed toward the production of cash crops. Main plantation residences and facilities were established on the low bluffs of the rivers, near readily accessible river landings. However, settlement proceeded slowly until the 1750s when the South Carolina backcountry population was approximately 20,000, about one-third of the total Lowcountry population (Wallace 1961).

The Saxe-Gotha township essentially took over what had been a small community along the western bank of the Congaree River near what is now Cayce. Lower portions of Richland County lie between Saxe-Gotha and Fredericksburg. Figure 3.7 is a 1775 map that shows the Saxe-Gotha Township and the CFFF project area (Mouzon 1775). With the creation of these townships, a large party of German-Swiss immigrants was allotted lands in 1737. In 1742, after petitioning for the allotted lands to be surveyed, these immigrants began settling the area. The settlement grew to include mills, stores, and ferries providing goods and services for the settlers (Moore 1993:14-16).

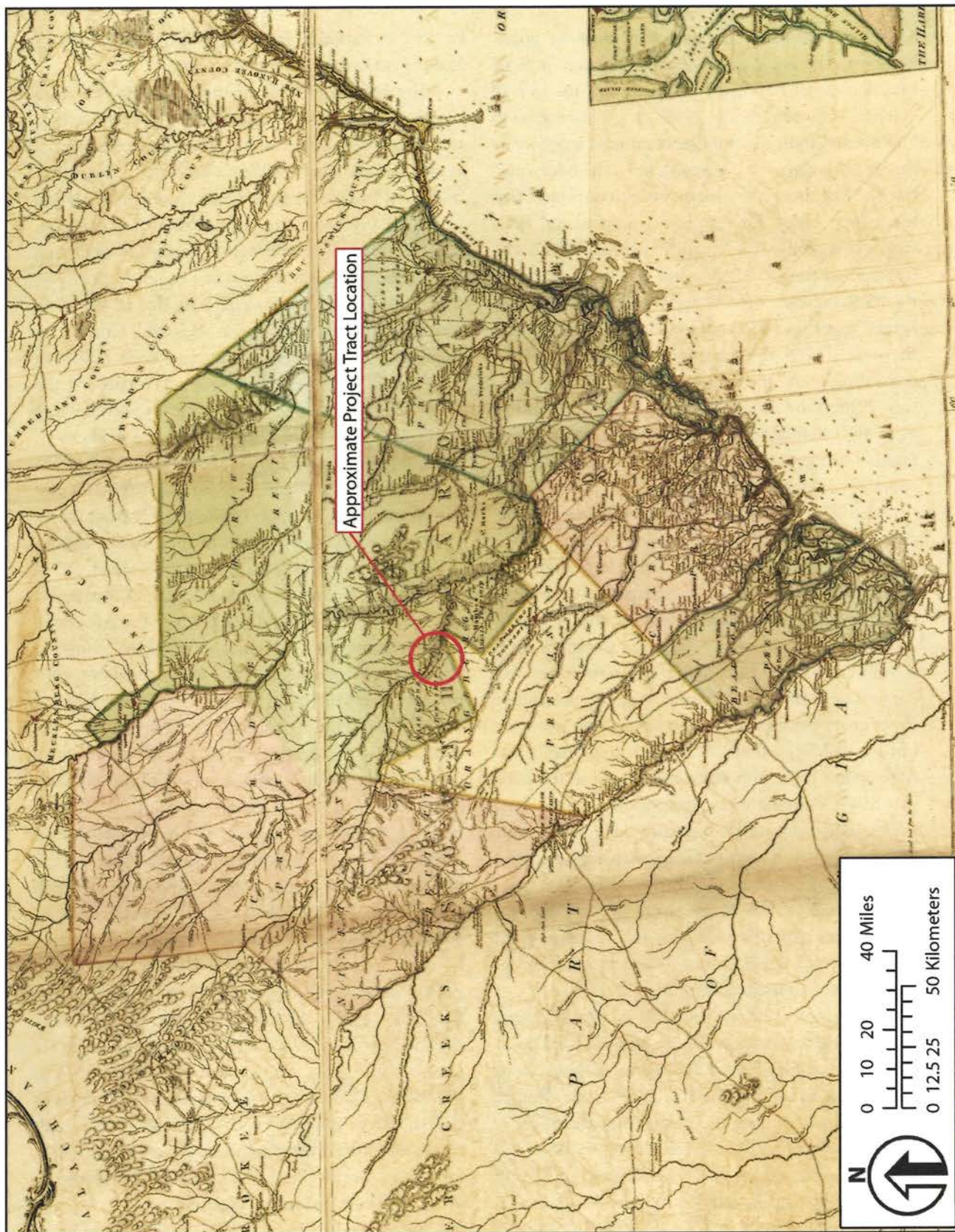


Figure 3.7 Mouzon's (1775) map showing the project area.

***Seeds of Revolution.*** Despite this swelling population in the backcountry, all important judicial functions were handled in Charleston, the seat of colonial authority. By the 1760s, population growth and limited judicial facilities combined to generate severe lawlessness and discontent in the backcountry. The Regulator Movement arose in response. This movement called for more local courts and for a vigilante response to the banditry (King 1981:8-10). In response to the violence and counter-violence in the backcountry, colonial authorities in Charleston agreed to set up a series of judicial districts through the area. In 1769, the governor authorized seven districts throughout the colony. What is now Columbia was within the Camden District, based in Camden. With the establishment of these judicial districts in South Carolina, settlement, political stability, and overall prosperity began to grow.

The early settlers focused on subsistence agriculture, though they soon began to produce quantities for export. The CFFF falls within lands that were initially settled by Europeans and enslaved Africans in the early 1740s when Lewis Lorimier and John Fairchild obtained land grants along the Congaree River at Mill Creek. Residents along Mill Creek and near the Congaree River made wheat and flour production the primary pursuit. They soon set up their own grist mills and shipped flour to Charleston for redistribution; by the 1760s, this trade had grown to the point that South Carolina was exporting flour to the West Indies. Indigo cultivation also followed the settlers into the backcountry; it was produced extensively along the Congaree and Wateree rivers by the 1750s and shipped to Charleston by way of the rivers. Some backcountry residents experimented with tobacco during the colonial period as well, though competition from the Chesapeake area limited its profitability.

Prominent settlers in the Lower Richland County region include Philip and Richard Jackson, who acquired over 600 acres of land along Mill Creek and along the Congaree River. Philip's plantation was known as "Green Hill Path". Richard owned lands along Mill Creek (formerly known as Raiford Creek) which was consolidated into lands owned by a Virginia planter named William Hay who operated a grist mill on the creek. The CFFF project area falls between these plantations and was part of the 1,300-acre plantation once owned

by Philip Raiford (Jaeger 1993:9). By the 1820s, Robert Adams ran the mill.

The village of Granby emerged late in the colonial period. Located in what is now Cayce in Lexington County, it served as the principal commercial center for the area, as the influential backcountry merchant Joseph Kershaw had a store where Martin Friday had established a ferry across the Congaree. Kershaw sold his interests in the community during the 1770s, and Wade Hampton I began to purchase them and establish his small "empire" in the area. Much of the area in lower Richland County or Richland District was dedicated to corn and grist production. The first wheat mill was located at the Hay Plantation in 1748, while other properties along the bluff were planting corn and wheat and had a local mill to produce flour. Figure 3.8 shows a portion of the 1825 Mills' map of the Richland District and the approximate location of the project tract (Mills 1979). Mills' map depicts no historic roads, canals, or other features in the vicinity of the project.

The major overseas markets for locally produced goods disappeared with the advent of the American Revolutionary War. Loyalties were mixed along the Congaree. While most of the area's residents supported the rebels and condemned excessive taxes, a few still preferred British rule to what they considered anarchy. In the late 1770s, the British military command sought to capitalize on this fund of loyalty in South Carolina. After capturing Charleston in 1780, British forces under Cornwallis advanced north seeking to consolidate a loyalist hold on the backcountry and to use South Carolina as a British stronghold. The British occupied Granby early in 1780 after the fall of Charleston. Thomas Sumter, however, retook the village of Granby later in the year. This was one of several battles fought in the Sandhills region, including the devastating defeat of American forces at Camden in August of 1780. Despite this defeat, there was a general advance of the American forces south from North Carolina, as British forces retreated to Charleston. The British finally evacuated Charleston in December of 1782, long after Cornwallis had formally surrendered to Washington at Yorktown, Virginia.

By the end of the Revolutionary War, most of the area's cattle and sheep had either been appropriated by the British or taken by rebel factions. In the

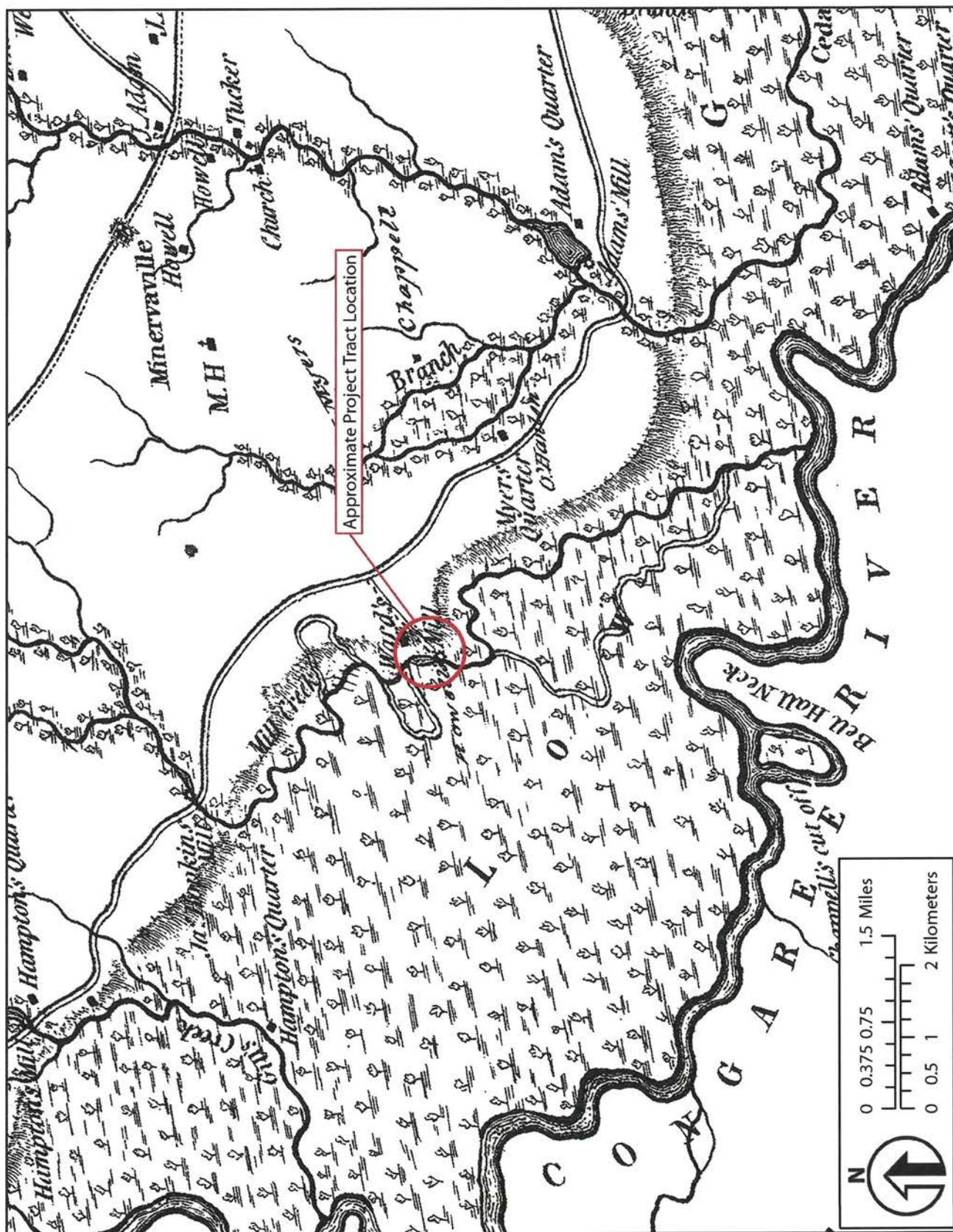


Figure 3.8 An 1825 Map of Richland District with the approximate location of the CFFF property (Mills 1979: Richland District).

wake of advancing and retreating armies during the preceding several years, much of the backcountry farmland had been damaged. After the war, the cattle industry quickly recovered as there was a high demand for beef in Georgetown and Charleston. Tobacco rose in importance, in addition to a newly flourishing cotton trade.

***Early Statehood and the Antebellum Period.*** The political unrest that generated the Regulator movement was revived in the wake of the Revolutionary War. Settlers in the area began to increase their demands that the new state capital be placed closer to the center of the state. During 1786, there were many petitions to the General Assembly, seeking to fix the location of the new state capital; nearly all who lived outside of Charleston agreed that Charleston was no longer satisfactory. After a great deal of contention, the plain above the Congaree River, across the Congaree from the community of Granby in Richland County, was chosen. Columbia would be laid out on a grid pattern with wide streets and square blocks (see Figure 3.7). The new city contained 400 blocks, eight of them reserved for public buildings. Private house lots went on sale in 1786, and in late 1787, construction on the first State House began. The state's records were moved to Columbia in 1789, and the General Assembly began meeting in the new capital in 1790 (Moore 1993:46-48). Richland County, and later District, was established in 1785. With the state government underway in its new home, attention in the new town quickly turned to commerce. The invention of the cotton gin in 1793 led to an increase in the production of cotton in the region. Enslaved workers were in demand to grow the labor intensive crop. This created a new wealthier farmer class in the upcountry, whose children began to intermarry with the wealthier citizens of the coastal counties (Rogers 1969). Robert Mills (1979:697), describing the decreased amount of small grain and vegetable crops being grown and the increased culture of cotton in Richland County, stated that "... everything is neglected for the culture of cotton." The best cotton lands averaged a production of 500 pounds per acre. Other crops grown in the region included corn, rice, indigo, wheat, rye, barley, oats, tobacco, hops, castor oil, and madder for dye (Mills 1979).

Improving the area's transportation was an important part of stimulating commerce. Bridging the rivers was an early focus. Wade Hampton, who owned vast lands on both sides of the Congaree by the late eighteenth century, tried repeatedly to build bridges across the river, apparently at Granby below Columbia; all were washed away in the regular floods. Finally, in the 1820s, the new Congaree River bridge, at the approximate location of the current Gervais Street Bridge, was constructed high above the flood waters and supported by granite slabs. This was the first reliable connection between Richland and Lexington districts.

More important than bridges, however, were the attempts to improve the rivers themselves. In the early nineteenth century, the State of South Carolina began a program of internal improvements designed to make travel and commerce easier. The state made an initial commitment of \$1,000,000 for new projects and allocated \$900,000 to complete programs already underway. Two of these projects, the Columbia and Saluda canals, were near Lexington. The Columbia Canal was started in 1819 and completed in 1824. Further work was done on the canal, and by 1828, the state had spent \$2,000,000 on that project alone. The canal was 3.1 miles long, with a fall of 34 feet. It was 12 feet wide and 2.5 feet deep at the north end, 18 feet wide and four feet deep at the south end, with an eight-foot-wide towpath, four lifting locks, and one guard lock. A diversion dam that stretched 1,500 feet was built across the Broad River to channel water into the Columbia Canal. This dam also allowed access to the Saluda Canal Dam. The Saluda Canal was built in the early 1820s in today's Lexington County. Boats were brought from the Saluda Rapids, past Beard's and Senn's falls, to the Broad River opposite the Columbia Canal. The canal carried boats just over two miles, through five locks, and dropped them 32 feet from the Saluda to the Broad River (Ryan 1974:14). The Saluda Canal is shown on the 1825 Mills' map of Richland District (see Figure 3.8).

As they were conceived in the early nineteenth century, the canals were principally a source of transportation. The railroads, however, quickly took over that function. The first railroad line entered Columbia in 1842, and by the 1850s, two more lines served the capital city (Moore 1993:137). The Columbia Canal remained useful for a short while, but its days as a

vital link in the backcountry's transportation were numbered. The Saluda Canal was little used by the time of the Civil War and remains today only as faint depressions in the woods along the river's north bank.

Columbia and the surrounding area prospered in the early antebellum years, cotton's flush times. As steamboats plied the rivers between Columbia and Charleston, cotton flowed to the port as consumer goods flowed to the backcountry. Sugar, salt, alcohol, household goods, and fabric were regularly sent to Columbia and offered for sale in the city's stores. The local economy rose and fell with the price of cotton, though, and Columbia along with the rest of the state suffered repeated waves of low prices from the 1820s through the 1850s. Many South Carolina planters were no longer able to make a living on worn out and eroded soils and sought fresh farmlands for cotton in the "west," the new states of Alabama, Mississippi, Louisiana, and Texas. A decline in the area's population in the 1850s reflects this trend (Moore 1993).

Many of the commercial and agricultural leaders sought new outlets for their money and new ways to stimulate the southern economy. Many of them followed the northern lead and turned to manufacturing. One of South Carolina's most important efforts to create an antebellum manufacturing base was the Saluda Factory. The remains of Columbia's earliest experiment in manufacturing lie along the southern bank of the Saluda River, approximately two miles from the confluence of the Saluda and Broad rivers in Lexington County. The Saluda Factory originated in 1834 when 30 entrepreneurs bought the mill site at Beard's Falls; most of these entrepreneurs were Columbia businessmen or planters in the area. Several capitalists in South Carolina and throughout the South, including a number of wealthy planters, came to see immense value in following the lead of Great Britain and the New England states in establishing mills to process the country's cotton and wool. While William Gregg's venture at Graniteville in Edgefield District is the best-known example in South Carolina, the Saluda Factory was the largest cotton mill in the state at the time it was built (Lander 1969).

In the middle decades of the century, Wright Denley, son of a prominent planter from Richland County, acquired the Malachi Howell Mill Tract from Howell. The CFFF is part of this tract

(Richland County, SC Probate Court Records, Estate Papers, Box 87, Package 2143 Wright Denley [Denley Estate]). It is not clear as to when or how he purchased it, but by 1860, he was planting 1,700 acres of high land and flood plain on a cotton and corn plantation and running the grist mill (US Census Bureau [USCB], US Census of 1850, Richland County, SC). Sunset Lake appears in maps as early as the Mills' map in 1825 and was dammed for a mill. (Figure 3.7). Denley called the land Greenfield Plantation (Denley Estate). An undated painting of the Greenfield Farm house is shown in Figure 3.9. The house stood on the tract when WEC purchased the Greenfield Farm in the 1960s. It is unknown but assumed that this house served the antebellum owners of Greenfield Plantation and the later Greenfield Farm. After the completion of CFFF, the house was relocated to the south, closer to Congaree National Park.

**The Civil War.** Because the Columbia area was at the center of a network of road and river transportation routes, troops moved constantly through the area during the Civil War. A hospital located there treated wounded soldiers who eventually were furloughed home. Columbia had several organized "home guard" militia companies: the Governor's Guards, Richland Rifles, Carolina Blues, Columbia Artillery, Congaree Cavalry, and several unnamed companies (Lucas 1976).

The Columbia area also served as a haven for refugees fleeing war-torn areas. In 1860, Columbia's population was only 8,052, but within two years, it had increased to more than 20,000, primarily due to the refugees (Jones 1971:177). In February 1865, General William T. Sherman marched toward Columbia rather than toward Charleston as was expected. When the Union troop movements were detected in Lexington County, Confederate forces destroyed the Congaree River Bridge to slow Sherman's progress. As General Sherman noted in his correspondence, "I directed General Howard not to cross directly in front of Columbia, but to cross the Saluda at the factory, three miles above, and afterward Broad River, so as to approach Columbia from the north" (*Official Records [OR] Series I*, vol. 47:20-21). Orlando M. Poe, a member of the Army Corps of Engineers who was with Sherman, noted the following:

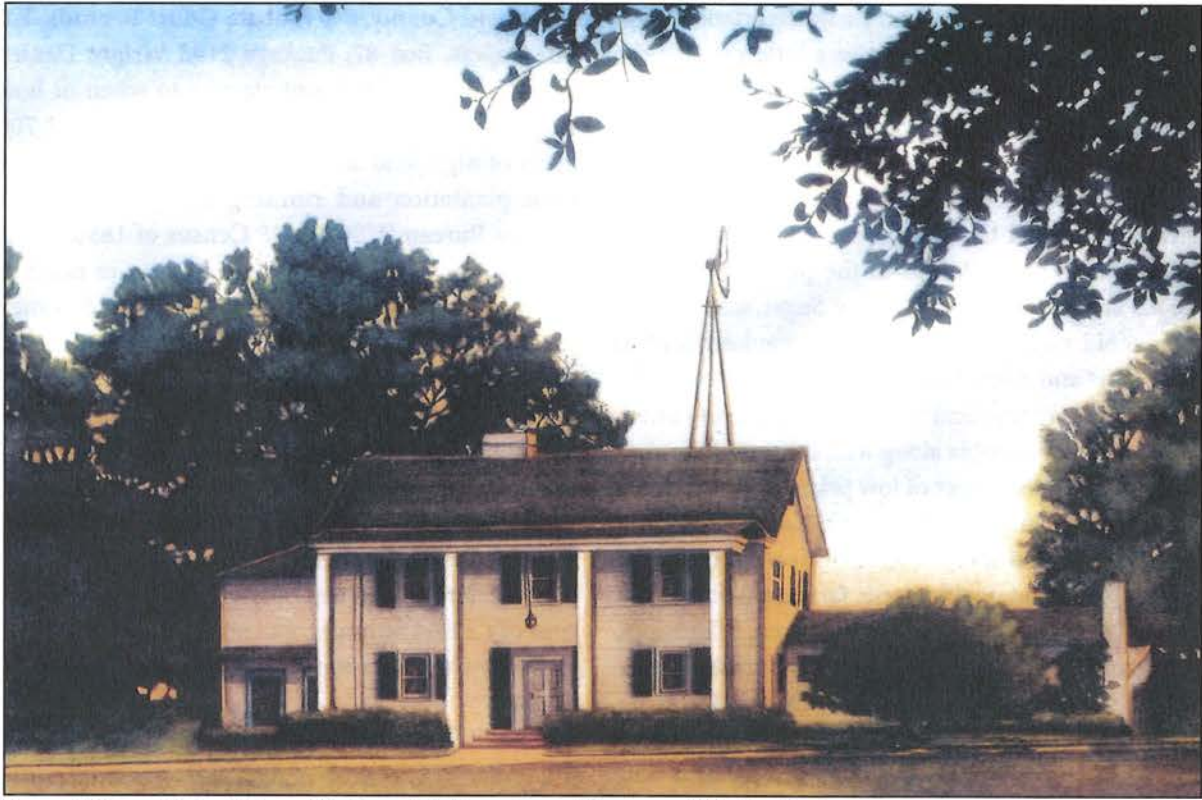


Figure 3.9 A undated painting of the Greenfield Farm house (Courtesy of WEC Archives).

... the bridges over the Saluda, Broad, and Congaree were all found to have been burned. A pontoon bridge was built at the Saluda River bridge, near the factory, and a portion of the Fifteenth Corps crossed during the night. The Left Wing pontoon bridge was built over the Saluda at Zion Church, nine and one-half miles above Columbia, and some force crossed. On the 17th a pontoon bridge was built just above the ruins of the former bridge over Broad River, three miles above Columbia, and the Right Wing crossed to the north bank and occupied the city, the greater part of which was burned during the night (OR, Series I., vol. 47:170).

With the combination of Union soldiers intent on destroying the Confederacy, locals who wanted as little material as possible to fall into Union hands, high winds, and freely flowing alcohol, a series of fires over a 48-hour period burned about one-third of the town of Columbia. The town's citizens blamed the fires on General Sherman's Union troops, but Sherman always maintained the fires were set by

Confederates under the command of General Wade Hampton (Lucas 1976).

**The Postbellum and Tenant Period.** The destruction of significant parts of the Columbia area during the Civil War, combined with the loss of life and property and the deterioration of the land due to cotton agriculture, caused hard times. Near famine conditions existed in some areas (Moore 1989:2). Columbia rebounded, however, and signs of renewed life were evident within a few years of the war. Railroads were rebuilt, new businesses emerged, and the city's boundaries expanded, all within the late nineteenth century. However, the project area remained relatively undeveloped and mainly agricultural in function.

Several developments allowed Columbia to maintain its bustling appearance. Railroad tracks in the Columbia area were destroyed during the Civil War. The years immediately after the Civil War saw a flurry of activity to restore the city's railroad connections. Trains from Charleston began to arrive in early 1866, while the Columbia and Greenville Railroad was completed to Charlotte by April of 1866. By

1868, Columbia had direct rail connections to the rich cotton lands in the western part of the state with the Columbia and Augusta Railroad Company. The Southern Railway ran less than one mile south of the project area, connecting the agricultural lands of the project area with consumers in more developed areas.

Prior to the Civil War, lower Richland County consisted of a few large plantation holdings with vast slave forces. Enslaved African populations accounted for 75 percent of the county's inhabitants in 1860 (Jaeger 1993:24). The high degree of wealth and political control was in the hands of a few families such as the Adams, Hopkins, and Westons, who owned and operated cotton, corn, cattle and rice plantations along the Wateree and Congaree rivers. After 1870, landowners struggled with a free labor force and the costs associated with operating such large enterprises. Planters implemented a tenancy system that was based upon crop sharing and food allotments that provided for mostly black families who were recently emancipated. This system would later formulate the division of larger plantations into smaller farms and the emergence of more communities and infrastructure throughout the county. Hopkins was one of these communities that was developed as a social, religious, and political center for many planters and farmers around the Mill Creek region (Jaeger 1993). The train stop at Hopkins was named after the Hopkins family who owned a plantation in the area.

Wright Denley, who owned the lands that would become the CFFF, died in 1861. His estate took more than 20 years to settle. He never married nor had children. He owned several tracts including Greenfield Plantation near the community of Hopkins. Greenfield included the CFFF (Denley Estate). Among the probate papers are lists of rents received and income from a bond. Mary Margaret Wright Caughman, his niece, was his sole heir. However, the estate had many debts and was managed until the 1880s by trustees [Denley Estate]. It is not clear whether she ever took formal ownership or not.

The 1865 Freedman's bureau records are quite revealing. The bureau in January 1866 negotiated with H. I. Caughman, as an agent for Denley's Estate, for the lease of the "Greenfield Plantation" and the use of farm instruments located thereon. Also, it lists the individuals working under the agreement

as: "Jim, Tom, Peter and family, Wiley and Emeline, Caroline, Anthony, Brister, Moses, Louis and wife Binkey, John and his wife, Gabriel and his wife, Jordan, and Abram." (Freedmans Bureau Records, 1865-1878, Records of the Field Offices, Richland County, SC Wright Denley estate). The agreement has the marks of all the men along with Louisa, Emily, and Caroline, but no last names are provided. The crops they are growing are cotton and corn, but the agreement also says the freedmen can use the lands for pasturage for livestock.

After the Civil War, a group of former enslaved people tenanted lands in the area and formed the Zion Mill Creek Baptist Church in 1883. Likely, they rented lands from Denley's estate. Their connection with the land found expression in the establishment of the Denley Cemetery located on the CFFF (SHPO Site No. 8119). As of this study, it is not clear if it was an early church cemetery or a private family cemetery. The church history of New Light Beulah Baptist Church gives the nineteenth-century history of the Zion Mill Creek Baptist Church. One of its early Superintendents was D. Denley, and an early spiritual leader was A. Denley (Middleton, 2002: Historical Sketch of Zion Mill Baptist Church [Hopkins, SC]). These individuals provide a close connection between the Church and the Denley Cemetery on the CFFF. A marker at the cemetery lists three individuals with the last name of Denley buried there. However, they are not mentioned specifically in the history of the church. By 1948, the church cemetery was located adjacent to their building along Bluff Road.. Figure 3.10 presents the 1939 road map with the Zion Chapel and Church Cemetery along the roadway northwest of the CFFF.

**Twentieth Century ownership.** By the early 1900s, census records indicate that the Greenfield Plantation was operated by white owners but tenanted by African Americans producing cotton, corn, and livestock along with gardens for food supplies. The 1920 US Census tells us that the area along Bluff Road was populated by a few white farm owners employing large numbers of African American farmers as tenants or sharecroppers. The area had become known as Lykesland in School District #5 for Richland County (USCB, US Census of 1920, Richland County, SC). Among the residents were

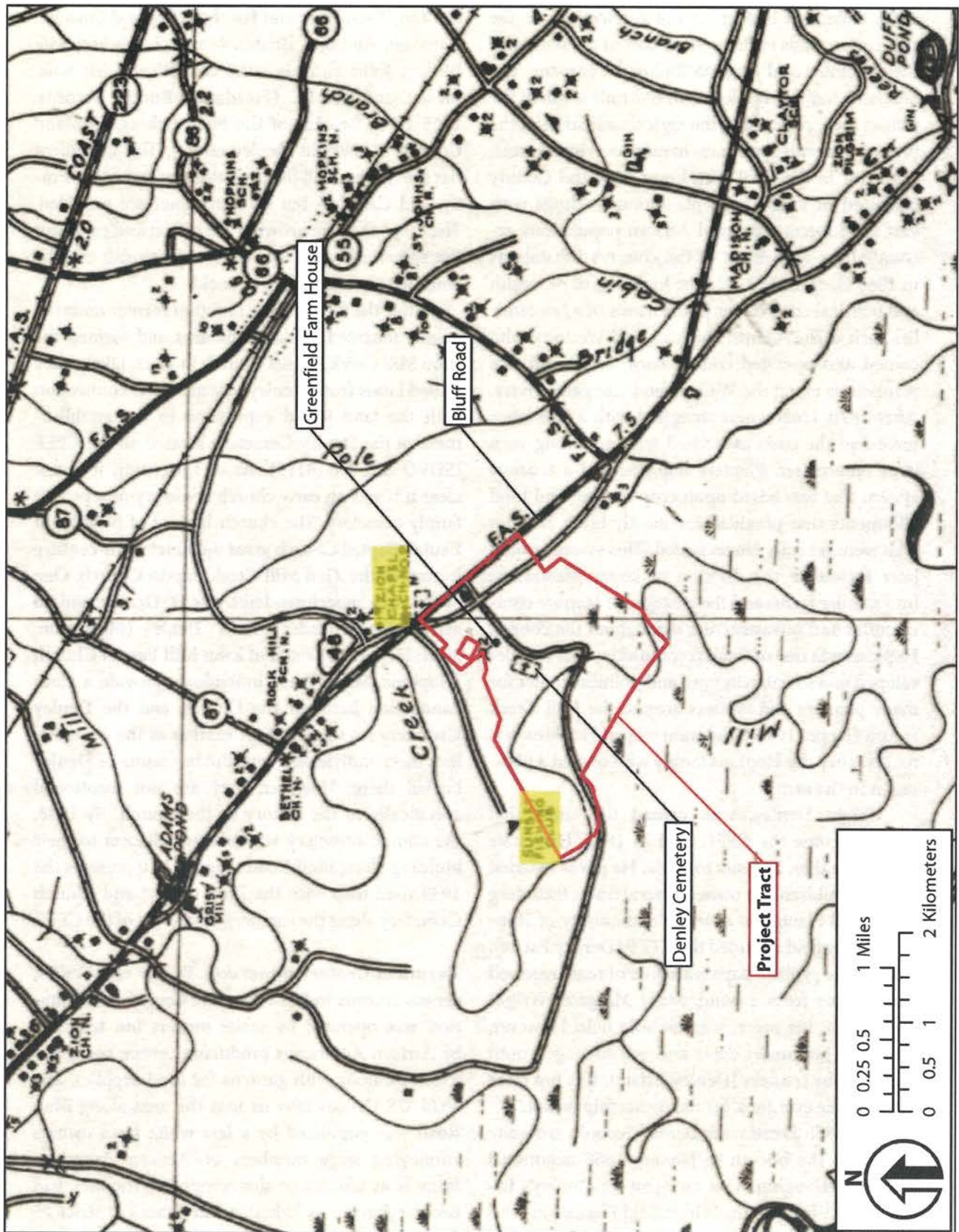


Figure 3.10 A portion of the 1939 Highway Department Map of Richland County showing the Sunset Fishing Club, the Zion Chapel, Bluff Road, the roadway into the CFF, and the site of the Greenfield Farm house (SC State Highway Department, 1939).

Chester Denley and his wife, an African American couple living in Lykesland along Bluff Road. Chester worked in a nearby mill. Their names provide a connection with that of the former Greenfield Plantation and the Denley Cemetery.

By the 1930s, the Sunset Fishing Club established their clubhouse on the Sunset Farms portion of Greenfield Farm, 1,300 feet north of the CFFF's southwest boundary. The Sunset Fishing Club is shown on the roadmap in Figure 3.10 along with the main road leading into Greenfield Farm. The farm house is shown to the west of the road into the tract, and the Denley Cemetery is clearly marked. By this time, Bluff Road was improved for automobile traffic.

Later in the twentieth century, an owner of Greenfield Plantation and the adjoining Sunset Plantation combined the two into a single, 1,100-acre farm, called Greenfield Farm. In 1962, Marion Burnside purchased the Greenfield Farm and continued to plant there. An early 1960s aerial photograph shown in Figure 3.11 reveals his farm complex including barns, sheds, wells, septic tanks, farm offices, and other buildings. The main house appears west of the farm complex.

The canal (SHPO Site No. 3577) across the base of an oxbow of Mill Creek, forming part of the southern boundary of the CFFF, was present as early as 1953. Figure 3.12 shows a 1953 topo map with the canal in place. In testimony given by owner Marion Burnside in 1962, an earlier owner cut the canal to stop Mill Creek from overflowing onto his neighbor's land (Richland County Deed Book D145:241). In 1969, after purchasing the tract from Burnside in 1968, WEC enlarged the canal. Since the canal crossed their eastern neighbor's land, they negotiated an easement over the land (Richland County Deed Book D127, page 14 and D145, page 241).

WEC purchased Greenfield Farm from Burnside in 1968 and began construction of their CFFF. They removed most of the farm buildings. Figures 3.13-3.16 show the stages of construction of the initial facility and its completed look. Figure 3.17 shows the former Greenfield Farm house still standing to the west of the main facility which is under construction. Figure 3.18 shows the current Denley Cemetery with the headstones.

### 3.3 Previous Investigations

According to the ArchSite database, only two previous cultural resources investigations have occurred within/adjacent to the CFFF. The first is the Jaeger Company's (Jaeger 1993) survey of aboveground historical resources in lower Richland County. This survey recorded a canal (SHPO Site No. 3577) that connects Mill Creek across the base of a large meandering loop near the southwest boundary of the CFFF (see Figure 1.1). The second is an examination of a proposed electricity substation (now an outparcel of the CFFF) and a transmission line corridor that extended south from the substation in the northwest portion of the CFFF to an east-west transmission line corridor just to the south of the CFFF (see Figure 1.1). This survey identified no resources within the CFFF (Reid 2004). Regionally, more cultural resources work has been performed within federal installations at Fort Jackson (Steen 2018) and the Congaree National Park (Michie 1980).

In 1990, Mark Groover, a University of South Carolina graduate student, conducted an archaeological pedestrian survey of Mill Creek. Groover recorded eight sites (38RD391-38RD398) on a neighboring property that lies immediately west of the CFFF (Groover 1990). Groover's Master's degree included the identification of surface artifact scatters situated along the bluff overlooking Mill Creek. Sites 38RD0391-0396 and 38RD0398 include small scatters of nineteenth-twentieth-century domestic and architectural debris representing the scattered remnants of former farm and tenant houses. Sites 38RD0392 and 38RD0393 also contained small scatters of Native American lithic and ceramic artifacts. Site 38RD0397 appeared more significant and is the remnants of a plantation settlement. Historical research showed the plantation was owned by Thomas Howell and dates to the mid-eighteenth century (1740s). Grover excavated one 2-by-2-meter unit within the center of 38RD0397 and unearthed a large amount of artifacts from a buried midden feature associated with the plantation residence. In addition, Grover unearthed multiple lithic and ceramic pre-contact artifacts. Sites 38RD0391-0398 were recommended for additional work to determine their NRHP eligibility.

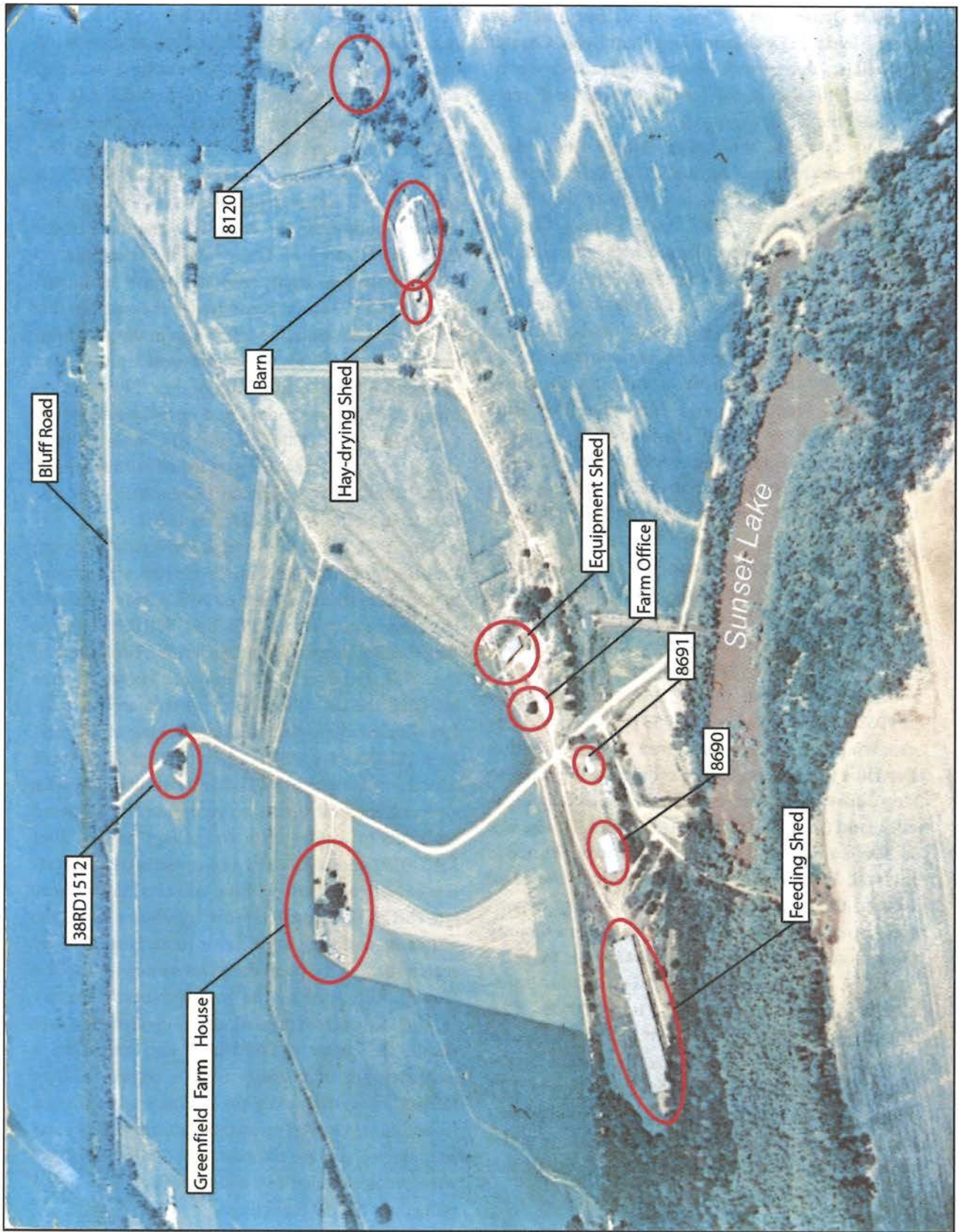


Figure 3.1.1 An early 1960s aerial photograph of Greenfield Farm with key components marked (Courtesy of WEC Archives).

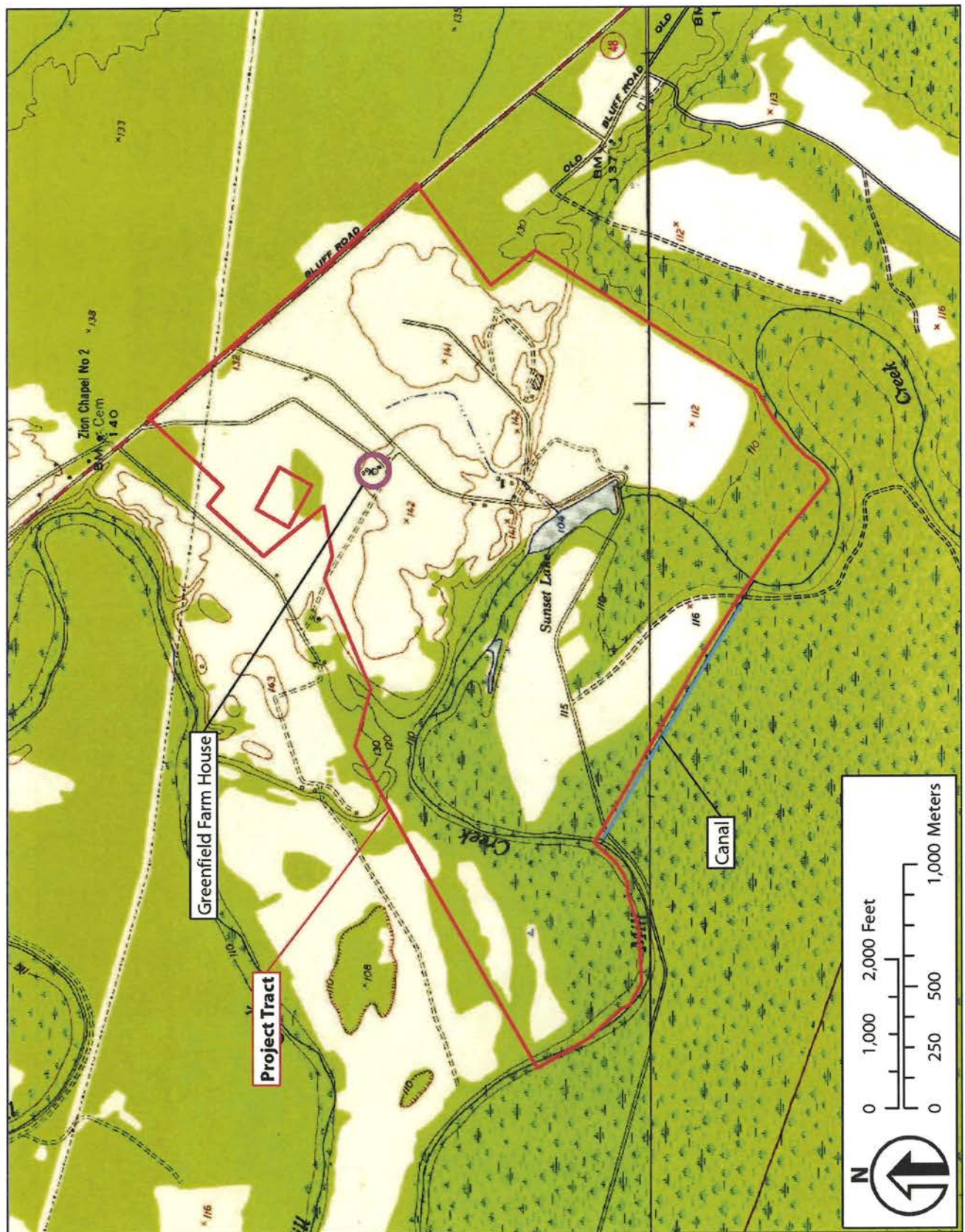


Figure 3.12 A portion of the USGS topographical maps of the area in 1953 with the canal across the Mill Creek oxbow on the CFFP present (USGS 1953 Saylor's Lake, SC and Fort Jackson, SC quadrangles).



Figure 3.13 Various stages of grading, construction, and finished buildings of the CFFF on the former Greenfield Farm tract (Courtesy of WEC Archives).

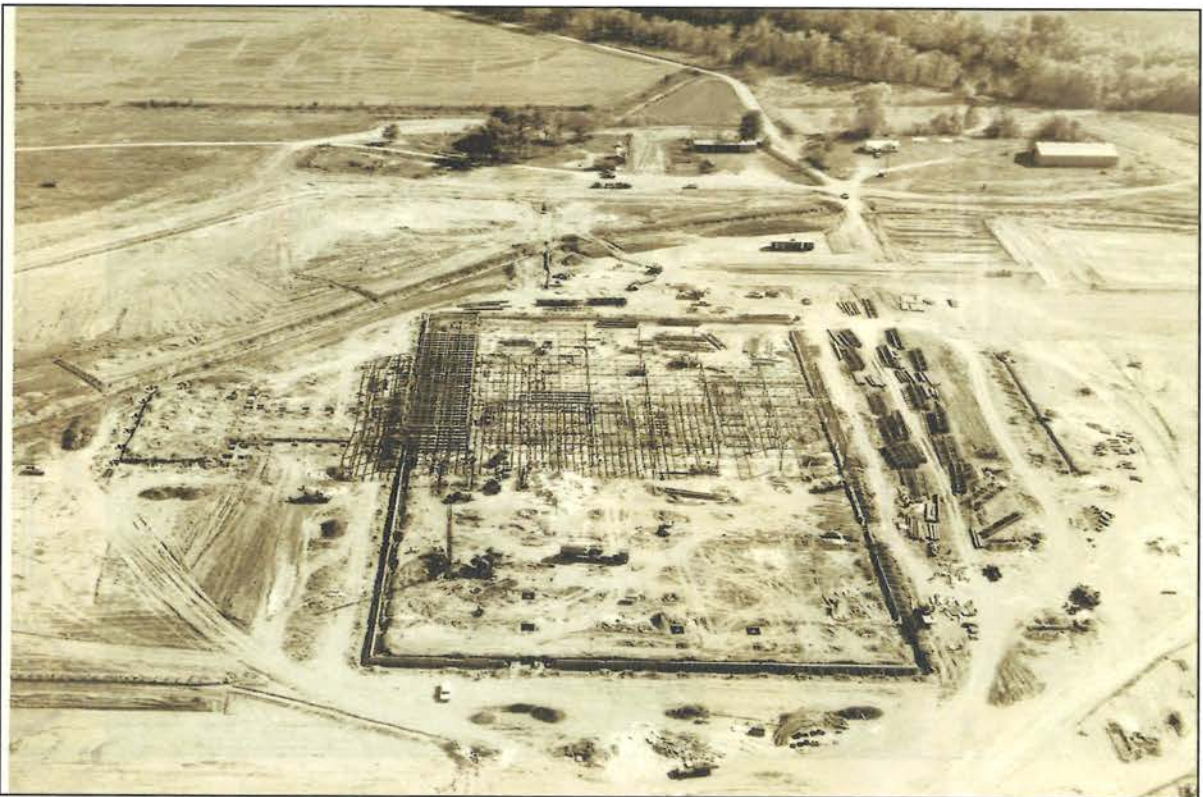


Figure 3.14 Various stages of grading, construction, and finished buildings of the CFFF on the former Greenfield Farm tract (Courtesy of WEC Archives).



Figure 3.15 Various stages of grading, construction, and finished buildings of the CFFF on the former Greenfield Farm tract (Courtesy of WEC Archives).



Figure 3.16 Various stages of grading, construction, and finished buildings of the CFFF on the former Greenfield Farm tract (Courtesy of WEC Archives).



Figure 3.17 The Greenfield Farm house on the CFFF at the time of the construction of the facility in 1969 (Courtesy of WEC Archives).



Figure 3.18 The Denley Cemetery on the CFFF today, southwest of the primary industrial facility.

## 4.0 Results of the Field Investigations

In July-November of 2021, Brockington conducted an intensive cultural resources survey of the CFFF. The survey was designed to identify all historic properties within the CFFF. Tasks performed to accomplish this objective include archaeological, architectural, and geophysical field investigations and the assessment of the NRHP eligibility of identified resources. Results of the archaeological and architectural fieldwork investigations are detailed below. Results of the geophysical field investigation of the Denley Cemetery appear in Appendix D.

### 4.1 Archaeological Survey

Archaeological field investigations were conducted between 13-27 September 2021. The investigation documented five archaeological sites (38RD1512, 38RD1513, 38RD1514, 38RD1515, and 38RD1516) and three isolated finds. A detailed description of each site follows.

#### 4.1.1 Site 38RD1512

**Cultural Affiliation:** *Unknown Pre-Contact; Nineteenth-Twentieth Century*

**Site Type:** *Artifact Scatter; Tenant/Farmhouse Site*

**Elevation:** *41 meters (134.5 ft) amsl*

**Nearest Water Source:** *Mill Creek, tributary of Congaree River*

**Site Dimensions:** *120 meters n/s by 75 meters e/w*

**Present Vegetation:** *Thicket or shrubs, Planted Pines, and Pecan Grove*

**NRHP/Management Recommendation:** *Not eligible/no further management*

Site 38RD1512 is a scatter of pre-contact and post-contact artifacts located 500 ft west of the Bluff Road entrance to the CFFF (see Figure 1.1). The site is situated within a pecan grove and stand of planted pines. Site 38RD1512 measures 120-by-75 meters and is bounded by negative shovel tests in all cardinal directions. Site 38RD1512 primarily consists of artifacts associated with the Greenfield Farm tenant housing complex (see Figure 3.12). Figure 4.1 presents a view and site plan of 38RD1512.

Investigators excavated 75 shovel tests at 15- and 30-meter intervals in and around the site; 21 of these

tests produced artifacts. Shovel tests revealed a 10YR 5/2 grayish-brown silty sand (0-45 cmbs) underlain by a 10YR 6/6 brownish yellow silty sand (45-60 cmbs). In the far eastern portions of the site, investigators noted 10YR 8/1 white fine sand 60+ cmbs. Artifacts occurred within the upper 30 cm of the shovel tests. Investigators noted a high degree of disturbance outside the pecan grove in the form of push piles, planted pine furrows, and a general depletion of topsoil likely from past agricultural activities.

Investigators recovered 146 artifacts from 38RD1512. Pre-contact artifacts include four non-diagnostic residual/eroded ceramic sherds and one quartz flake fragment. These items were recovered from four shovel tests spread across the site. Pre-contact artifacts were mostly found intermixed with later post-contact materials, indicating this component of the site was severely disrupted by later land use.

Post-contact artifacts include a small array of items from five functional groups that include Architecture (n=91), Kitchen (n=55), Miscellaneous (n=23), Activities (n=9), and Arms (n=1). Architectural artifacts include 39 unidentifiable nail fragments, one wire nail (1850+), and 11 brick fragments weighing (466.3 grams [g]). Kitchen-related items include six historic ceramic and 49 bottle/container glass sherds. Historic ceramic types include one coarse earthenware sherd; one undecorated brown glazed buffware (1800+) sherd; one undecorated Pearlware (1779 to 1840) sherd; one undecorated porcelain sherd; one undecorated alkaline glazed, gray-bodied Stoneware (1800+) sherd; one undecorated, brown-glazed, gray-bodied Stoneware sherd; and one undecorated Whiteware (1820+) sherd. Historic bottle/container glass fragments include 23 colorless sherds, 16 aqua sherds (one embossed: "[C]OLA"), 10 solarized-amethyst (1880 to 1915) sherds, one milk glass (1743+) sherd, one green sherd, and one dark olive-green sherd. Miscellaneous items include 23 unidentifiable iron fragments. Activities items include three aqua flat glass shards, two iron hardware objects, two iron staples, one iron tool, and one iron spike. The Arms item is one .22-caliber brass shell casing.

Brockington assessed the NRHP eligibility of 38RD1512 with respect to Criterion D. Site 38RD1512 represents a small scatter of artifacts

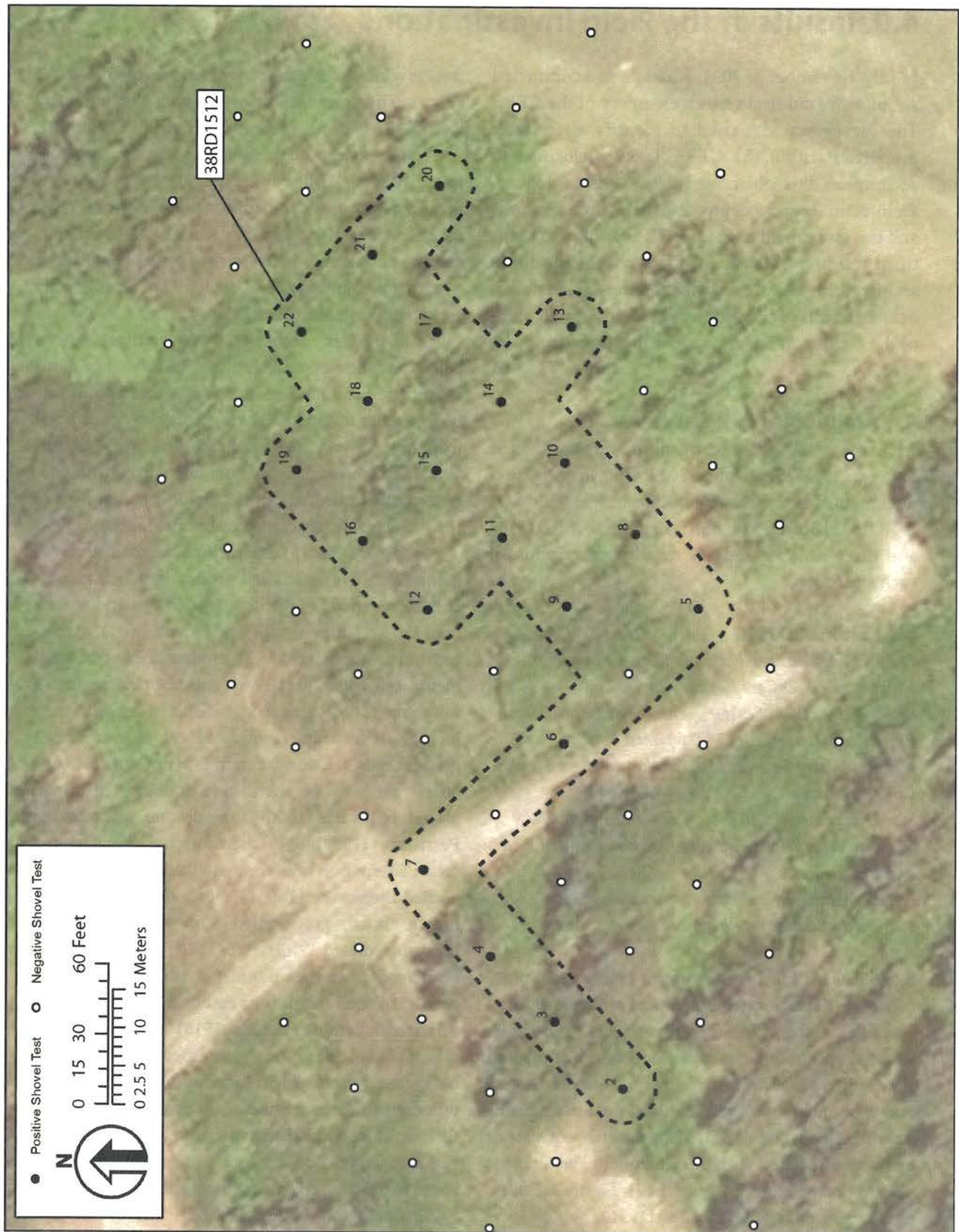


Figure 4.1 A view and site plan of 38RD1512.

primarily associated with a late nineteenth through twentieth-century tenant complex illustrated on the 1953 *Hopkins, SC* quadrangle and shown on a 1962 aerial of the Greenfield Farm (see Figures 3.10 and 3.11). Diagnostic artifacts in the assemblage confirm the tenant housing complex period of occupation began during the Greenfield Plantation era and extended through the middle of the twentieth century. Investigators found no evidence of the former structures at 38RD1512. Aerial photographs in the WEC Archives indicate that these houses were likely demolished after 1971 and before 1994. Shovel testing confirmed the high degree of ground disturbance in portions of the site likely related to Greenfield Farm agricultural activities, the plant's construction, and the subsequent planting and harvesting of pine trees. Portions of the site under the pecan trees have retained more intact soils due to the preservation of the grove, but this area contains little integrity of the deposits. Further investigation of 38RD1512 will not generate more information beyond the period of significance (nineteenth-twentieth century) and the presumed function as a tenant house. Therefore, Brockington recommends 38RD1512 not eligible for the NRHP. Site 38RD1512 warrants no further management consideration.

#### **4.1.2 Site 38RD1513**

**Cultural Affiliation:** *Early-Middle Woodland Period*

**Site Type:** *Ceramic and Lithic Scatter*

**Elevation:** *36 meters (118 ft) amsl*

**Nearest Water Source:** *Mill Creek*

**Site Dimensions:** *15 meters n/s by 5 meters e/w*

**Present Vegetation:** *Open Field*

**NRHP/Management Recommendation:** *Not eligible/no further management*

Site 38RD1513 is a small scatter of pre-contact artifacts located in the southwestern portion of the CFFF (Figure 1.1). The site lies in an open field and transmission line corridor adjacent to the entrance of the Denley Cemetery. Site 38RD1513 measures 15-by-5 meters and is bounded by negative shovel tests in all cardinal directions. The site consists of Early-Middle Woodland period ceramic and lithic artifacts. Figure 4.2 presents a view and site plan of 38RD1513.

Investigators excavated 10 shovel tests at 7.5-, 15-, and 30-meter intervals in and around the site;

three of these tests produced artifacts. Shovel tests revealed a 10YR 5/2 grayish-brown sand (0-20 cmbs) underlain by a 10YR 6/3 pale brown sand (20-60 cmbs). Artifacts occurred within the upper 30 cm of the positive shovel tests. Investigators noted a high degree of land grading and clearing near the site associated with the transmission corridor and an equipment parking area.

Investigators recovered six pre-contact artifacts from 38RD1513. Artifacts include three nondiagnostic residual/eroded ceramic sherds, one Deptford Cord Marked sherd, one Deptford Cord Wrapped Stick impressed rim sherd, and one quartzite flake fragment. The decorated pottery is associated with an Early-Middle Woodland period occupation and may have been contemporary with similar occupations at 38RD0004.

Archaeologists assessed the NRHP eligibility of 38RD1513 with respect to Criterion D. Brockington interprets 38RD1513 as the remnants of a brief seasonal resource extraction camp that occurred during the Early-Middle Woodland period. The site's elevated location on the bluff would have provided an optimal location for resource extraction from the nearby Congaree River flood plain. It is likely the recovered artifacts represent the last few remnants of cultural activity that was dislodged and displaced by the more recent construction of the transmission line corridor, equipment parking area, and possibly by interments within the Denley Cemetery. Based upon this high level of disturbance and low artifact recovery, further exploration of this site is unlikely to generate information beyond that recovered to date. Therefore, Brockington recommends 38RD1513 not eligible for the NRHP. Site 38RD1513 warrants no further management consideration.



Figure 4.2 A view and site plan of 38RD1513.

#### **4.1.3 Site 38RD1514**

**Cultural Affiliation:** *Unknown Pre-Contact; Nineteenth-Twentieth Century*

**Site Type:** *Artifact Scatter*

**Elevation:** *39 meters (128 ft) amsl*

**Nearest Water Source:** *Mill Creek*

**Site Dimensions:** *75 meters n/s by 105 meters e/w*

**Present Vegetation:** *Planted Pine Trees*

**NRHP/Management Recommendation:** *Not eligible/no further management*

Site 38RD1514 is a broad scatter of pre-contact and post-contact artifacts near the west-central boundary of the CFFF (Figure 1.1). The site lies in a wooded section of the CFFF on the bluff overlooking the Congaree River flood plain and Mill Creek. Site 38RD1514 measures 75-by-105 meters and is bounded by negative shovel tests in all cardinal directions. The site consists of a few post-contact artifacts intermixed with pre-contact nondiagnostic/eroded ceramics and lithic debitage. Figure 4.3 presents a view and site plan of 38RD1514.

Investigators excavated 64 shovel tests at 15- and 30-meter intervals in and around the site; 16 of these tests produced artifacts. Shovel tests revealed a 10YR 5/2 grayish-brown sand (0-10 cmbs) underlain by a 10YR 5/6 yellow brown sand (45-50 cmbs) and very pale brown 10YR 8/4 clayey sand (50-80 cmbs). Artifacts occurred within the upper 50 cm of the positive shovel tests.

Investigators recovered 32 pre-contact and 5 post-contact artifacts from 38RD1514. Pre-contact artifacts include four nondiagnostic residual/eroded ceramic sherds and 28 lithic fragments from five different raw materials. These items include 16 translucent quartz flakes and flake fragments, four metavolcanic flakes and flake fragments, four Coastal Plain chert flakes and flake fragments, three quartzite flakes and flake fragments, and one ridge and valley chert flake fragment. Analysis of the lithic debitage identified thinning flakes, pressure-flaking, and bifacial reduction suggesting late-stage tool manufacture or maintenance. Table 4.1 presents a list of the pre-contact artifacts recovered from 38RD1514.

Post-contact artifacts include a small array of items from four functional groups, including Architecture (n=2), Kitchen (n=1), Miscellaneous (n=1), and Activities (n=1). Architectural artifacts include

two unidentifiable nail fragments. Kitchen-related items include one undecorated Pearlware sherd (1779 to 1840). Miscellaneous items include one unidentifiable iron fragment. The Activities item is one iron hardware fragment.

Archaeologists assessed the NRHP eligibility of 38RD1514 with respect to Criterion D. Brockington interprets 38RD1514 as the location of a nineteenth-twentieth-century house site and/or refuse disposal area and a brief unknown pre-contact seasonal resource extraction camp. The historic house site interpretation is based upon the recovery of architectural and domestic artifacts. However, the house does not appear on aerial photographs or the early maps of the property and is not mentioned within the WEC archives as a part of the twentieth-century Greenfield Farm complex.

Examination of the pre-contact artifact distributions reveals a low density of small and fragmented lithic materials (71 percent) and no diagnostic artifacts. In addition, the recovery of flaked stone debitage was found intermixed with post-contact artifacts, indicating portions of the pre-contact component was disturbed by later cultural activities. The absence of features or discrete artifact concentrations indicates that the pre-contact component is likely associated with subsistence activities that were short-lived and temporary. These brief pre- and post-contact occupations and minimal archaeological data limit the ability of 38RD1514 to address research topics such as regional settlement patterns and subsistence strategies. Therefore, Brockington recommends 38RD1514 not eligible for the NRHP. Site 38RD1514 warrants no further management consideration.

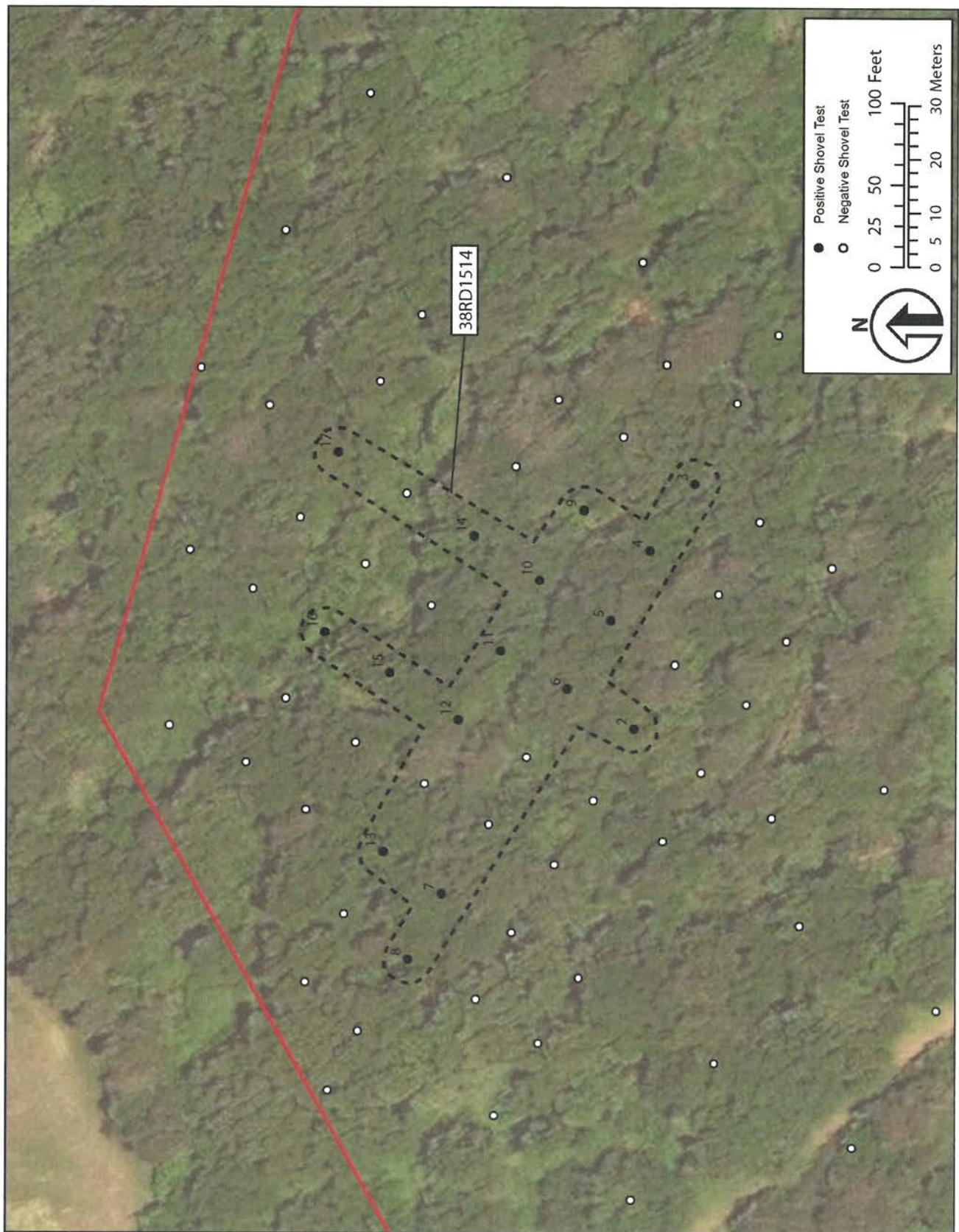


Figure 4.3 A view and site plan of 38RD1514.

**Table 4.1 Pre-contact artifacts from Site 38RD1514.**

Site #	Class	Material	Artifact Description	Sum	Weight (g)
38RD1514	Prehistoric Ceramics		Residual Sherd	4	8.00
	Prehistoric Flaked Stone	Coastal Plain Chert	Bifacial Reduction 1/4 inch Flake	1	0.30
			Flake Fragment	3	1.30
		Metavolcanic		1	0.40
			Bifacial Reduction 1/2 inch Flake	1	2.00
			Thinning Flake 1/4 inch	1	0.50
			Shatter	1	10.10
			Quartzite	Core Reduction Flake 1/2 inch	1
		Pressure Flake 1/4 inch		1	0.50
				1	2.10
		Ridge and Valley Chert	Flake Fragment	1	0.50
		Translucent Quartz	Bipolar Reduction Core Flake 1 inch	1	48.20
			Bifacial Reduction 3/4 inch Flake	1	7.90
			Core Reduction 1/2 inch Flake	2	4.60
			Pressure Flake 1/4 inch	1	0.10
			Flake Fragment	8	18.20
			Shatter	3	10.60
Total				32	121.40

**4.1.4 Site 38RD1515***Cultural Affiliation: Unknown Pre-Contact**Site Type: Ceramic and Lithic Artifact Scatter**Elevation: 38 meters (127 ft) amsl**Nearest Water Source: Mill Creek**Site Dimensions: 30 meters n/s by 15 meters e/w**Present Vegetation: Planted Pine Trees**NRHP/Management Recommendation: Not eligible/no further management*

Site 38RD1515 is a small scatter of pre-contact artifacts in a wooded section of the CFFF 800 meters west of the Denley Cemetery and 100 meters east of 38DR1514 (Figure 1.1). Site 38RD1515 measures 30-by-15 meters and is bounded by negative shovel tests in all cardinal directions. The site consists of a few nondiagnostic ceramics and a small quantity of lithic debitage. Figure 4.4 presents a view and site plan of 38RD1515.

Investigators excavated 25 shovel tests at 15- and 30-meter intervals in and around the site; four of these tests produced artifacts. Shovel tests revealed a 10YR 5/2 grayish brown sand (0-15 cm bs) underlain by a 10YR 6/3 pale brown sand (45-50 cm bs) and very pale brown 10YR 8/4 clayey sand (50-80 cmbs). Artifacts occurred between 0-50 cmbs in the positive shovel tests.

Investigators recovered 15 pre-contact artifacts from 38RD1515. Undiagnostic ceramic artifacts include three residual/eroded ceramic sherds and three sand-tempered simple stamped sherds. Lithic debitage includes three translucent quartz flake fragments, two metavolcanic flakes and flake fragments, one Coastal Plain chert flake fragment, and one chalcedony flake fragment. Remaining items include one quartzite fire cracked rock (FCR) fragment and one worked steatite fragment. Table 4.2 presents a list of the pre-contact artifacts recovered from 38RD1515.

Archaeologists assessed the NRHP eligibility of 38RD1515 with respect to Criterion D. Brockington interprets 38RD1515 as the location of a brief unknown pre-contact seasonal resource extraction camp. Like 38RD1513-1514, 38RD1515 shares the same ideal locale for brief resource extraction excursions into the Congaree River flood plain. Other similarities include a low vertical and horizontal recovery of mostly small and fragmented lithic materials suggesting short-term occupations. Site 38RD1515 did yield small fragments of FCR and steatite, suggesting hearth-related activities. Steatite or soapstone was utilized as a resource that could be chiseled-out to create vessels, primarily for cooking. Carbon dating from sooting on soapstone vessels has shown steatite utilization occurred prior to,

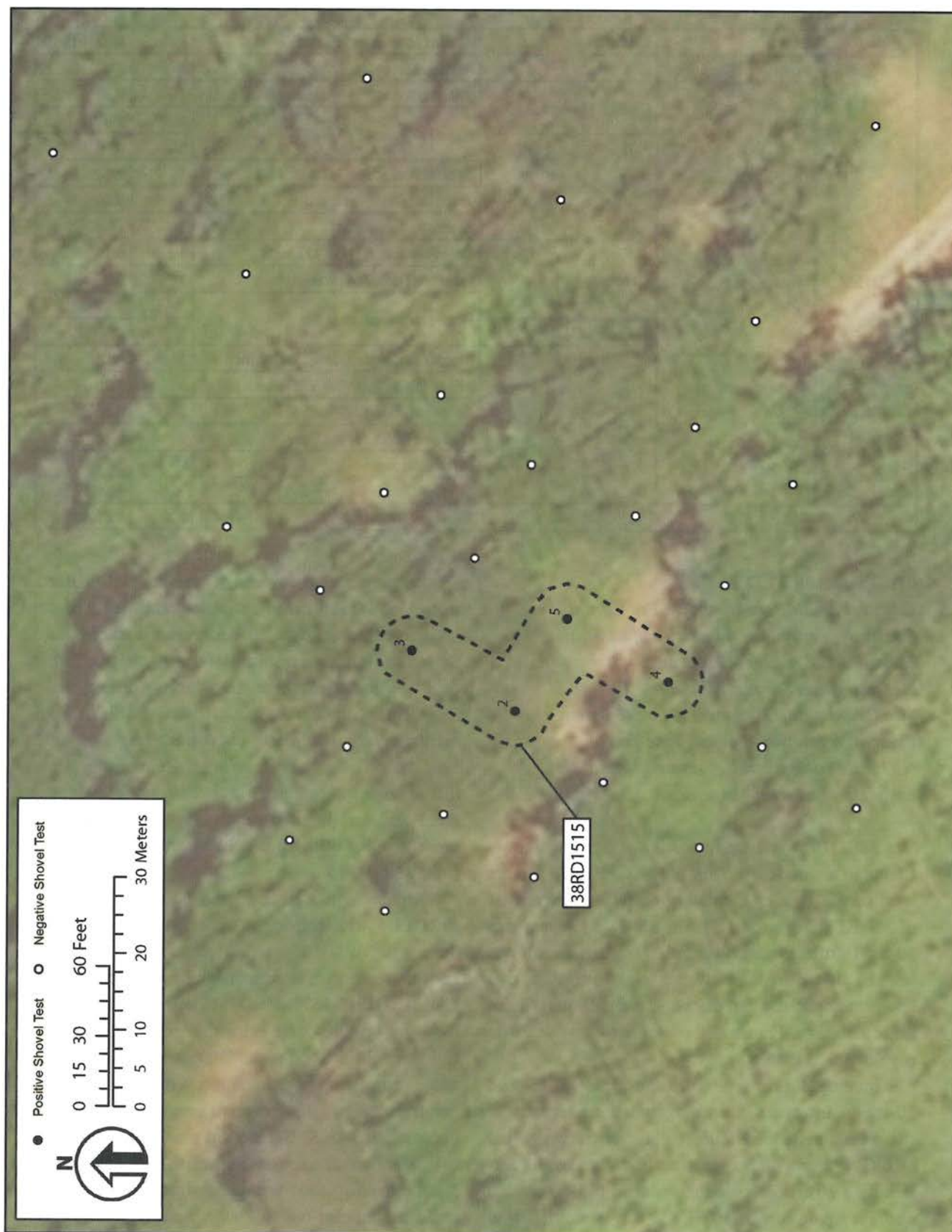


Figure 4.4 A view and site plan of 38RD1515.

**Table 4.2 Pre-contact artifacts from Site 38RD1515.**

Site #	Class	Temper/Material	Artifact Description	Sum	Weight (g)
38RD1515	Ceramics		Residual Sherd	3	10.60
		Sand Tempered	Simple Stamped Body Sherd	3	40.20
	Flaked Stone	Chalcedony	Flake Fragment	1	16.60
		Coastal Plain Chert		1	0.30
		Metavolcanic	Core Reduction 1/2 inch Flake	1	1.70
			Flake Fragment	1	0.60
		Quartz	Translucent Quartz Flake Fragment	3	1.10
		Quartzite	Quartzite Fire Cracked Rock	1	33.50
	Ground Stone	Steatite	Heavily Ground Fragment	1	12.80
	<b>Total</b>			<b>15</b>	<b>117.40</b>

and in tandem with, the first ceramic production of the Late Archaic period (Sassaman 1993b) although steatite smoking pipes were in use by Native Americans well into the Post-Contact era. The low frequency of artifacts and the absence of features or discrete artifact concentrations prevent further interpretation of the role of the site. Further investigation of 38RD1515 is unlikely to produce additional material that would expand the current knowledge of the site or the people who once lived there. Therefore, Brockington recommends 38RD1515 not eligible for the NRHP. Site 38RD1515 warrants no further management consideration.

#### **4.1.5 Site 38RD1516**

**Cultural Affiliation:** *Twentieth Century*

**Site Type:** *Artifact Scatter*

**Elevation:** *38 meters (127 ft) amsl*

**Nearest Water Source:** *Mill Creek*

**Site Dimensions:** *5 meters n/s by 15 meters e/w*

**Present Vegetation:** *Planted Pine Trees*

**NRHP/Management Recommendation:** *Not eligible/no further management*

Site 38RD1516 is a small scatter of post-contact artifacts located in a wooded area in the central portion of the CFFF (see Figure 1.1). Site 38RD1516 measures 5-by-15 meters and is bounded by negative shovel tests in all cardinal directions. Figure 4.5 presents a view and site plan of 38RD1516.

Investigators excavated 10 shovel tests at 15- and 30-meter intervals in and around the site; two of these tests produced artifacts. Shovel tests revealed a 10YR 5/2 grayish-brown sand (0-15 cmbs) underlain by a 10YR 6/3 pale brown sand (45-50 cmbs) and very pale brown 10YR 8/4 clayey sand (50-80 cmbs). Artifacts occurred within the upper 30 cmbs in the positive shovel tests.

Post-contact artifacts include a small array of items from three functional groups that include Architecture (n=4), Kitchen (n=4), and Personal (n=1). Architectural artifacts include four unidentifiable nail fragments. Kitchen-related items include three container glass sherds and one undecorated Whiteware (1820+) sherd. The Personal item is one copper penny minted in 1929.

Archaeologists assessed the NRHP eligibility of 38RD1516 with respect to Criterion D. Brockington interprets 38RD1516 as the scene of an episode of

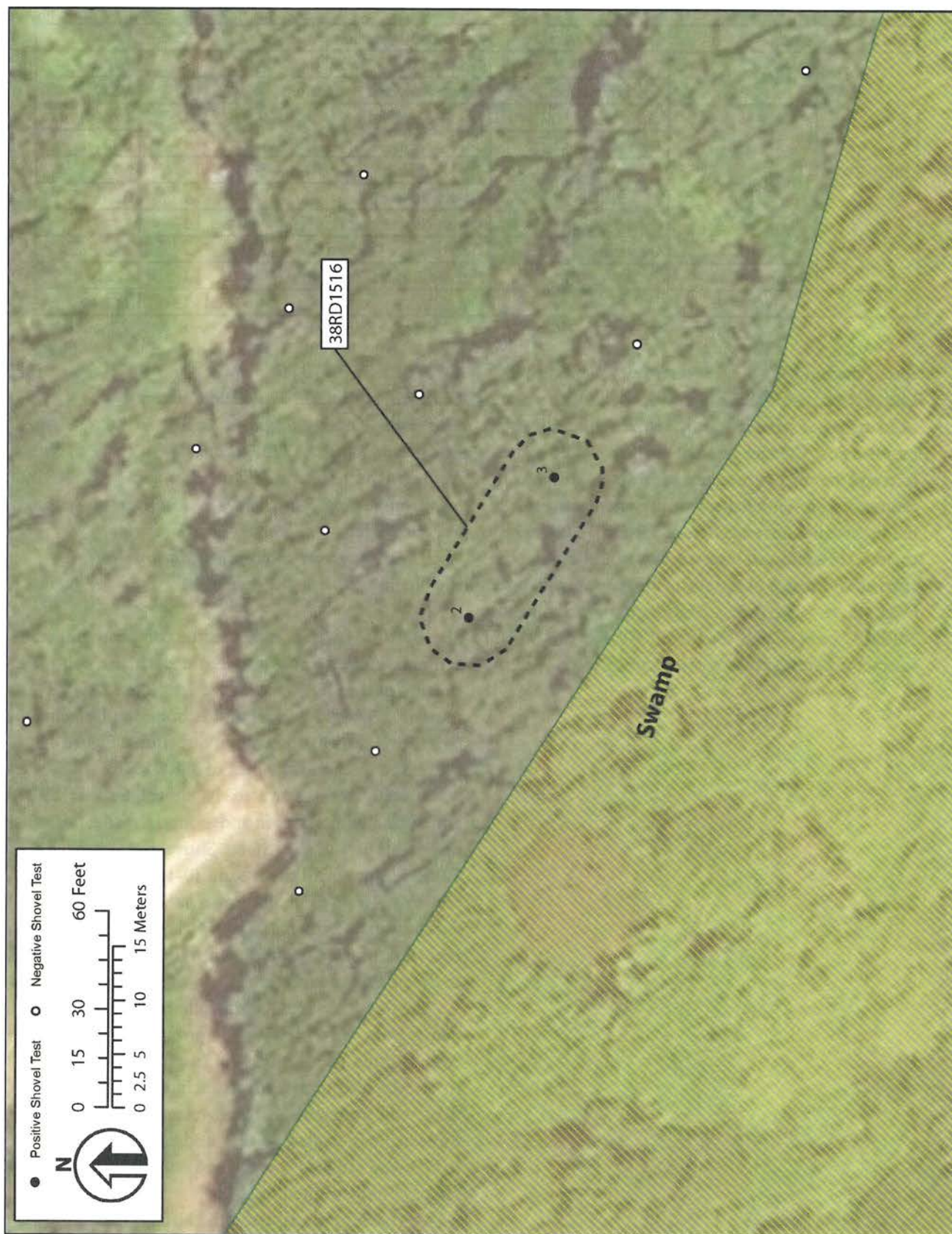


Figure 4.5 A view and site plan of 38RD1516.

refuse disposal during the early twentieth-century occupation of the CFFF. Research into the historic records of this period show no houses or structures in this area, indicating that the material was likely displaced to this location or deposited here as refuse. Based upon the lack of contextual information and low frequency of artifacts, Brockington recommends 38RD1516 not eligible for the NRHP. Site 38RD1516 warrants no further management consideration.

#### 4.1.6 Isolated Finds

One isolated pre-contact artifact was found on the ground surface inside Denley Cemetery during the mapping and GPR survey (See Figure 4.8). No shovel tests were performed in the cemetery. See 4.2.2 below for a discussion of this isolated find.

Additionally, investigators found two isolated finds (1-2) across the CFFF (see Figure 1.2). Isolated Finds 1 and 2 consist of one wrought nail and one translucent quartz flake fragment, respectively. Each of these isolated finds were recovered from a single shovel test. Excavation of additional shovel tests at 7.5- and 15-m intervals around the positive test recovered no additional artifacts. Isolated Finds 1 and 2 lack the potential to contribute meaningful information concerning the past occupation of the CFFF or the region. Brockington recommends Isolated Finds 1-2 not eligible for the NRHP.

## 4.2 Architectural/Above-Ground Resources Survey

The architectural survey of CFFF recorded above ground resources 45 years of age or older. There is one previously recorded architectural resource (SHPO Site No. 3577) within the CFFF (see Figure 1.1; Table 1.1). Brockington revisited SHPO Site No. 3577 and recorded five newly identified historic resources (SHPO Site Nos. 8119, 8120, 8689, 8690, and 8691) on the CFFF. The newly recorded resources include an early twentieth-century cemetery, resources associated with the former agricultural use of the property, and the 1968-69 CFFF complex. Brockington recommends the previously recorded and newly recorded architectural resources within the CFFF not eligible for the NRHP. These resources require no additional management consideration. A detailed descrip-

tion of each resource follows. SC Statewide Survey of Historic Properties Survey forms for the identified resources appear in Appendix B.

### 4.2.1 Unnamed Canal (SHPO Site No. 3577)

SHPO Site No. 3577 is a canal and associated dike constructed in the early 1950s approximately 0.8 miles west of Sunset Lake (Figure 4.6). The concrete canal extends 0.76 miles across the base of a large meandering loop of Mill Creek, shortening its channel. The canal first appears on the USGS 1953 *Fort Jackson South, SC* and *Saylor's Lake, SC* quadrangles; it does not appear on the USGS 1948 *Hopkins, SC* quadrangle or a 1951 aerial photograph of the area. Historical documents state the canal was constructed for the purpose of diverting and conducting waters of Mill and Raiford Creek, as well as for the purposes of receiving and discharging flood, ground, and surface waters (Richland County Deed Book D145, Page 241). The unnamed canal was recommended "worthy of further investigation" during the historic resources survey of lower Richland County (Kissane et al. 1993).

Brockington investigators revisited the resource during this survey. The canal retains integrity of location, design, materials, and workmanship but lacks integrity of setting due to the transition from agricultural land use to the current industrial land use. Although the canal and associated dike retain a good degree of integrity, Brockington recommends that this resource is not eligible for the NRHP under Criterion C (*architecture*) because it is not a representative example of a type, period, or method of construction. Limited archival research did not identify the canal and/or its original owner(s) with an important historical event or series of events; therefore, Brockington recommends it not eligible for listing under Criteria A (*events*) or B (*people*). The resource does not have the potential to yield information under Criterion D (*information potential*). Brockington recommends SHPO Site No. 3577 not eligible for listing in the NRHP.



Figure 4.6 view of unnamed canal (SHPO Site No. 3577), facing southeast (top), and view of canal bank at the transmission line corridor, facing south (bottom).

#### **4.2.2 Denley Cemetery (SHPO Site No. 8119/38RD1518)**

The Denley Cemetery (SHPO Site No. 8119) is located on two parcels (Richland County R18600-01-01 and R18600-01-02) on the south side of Bluff Road in lower Richland County. The early twentieth-century cemetery is a one-acre, African American community cemetery with burials dating from 1918 onward, surrounded by a chain link fence. Ancestors of members of the Pine Hill Community Development Organization, a state-recognized Native American special interest organization, are very likely buried in Denley Cemetery also (Chief Michelle Mitchum, personal communication, February 2022). The Chicora Foundation documented the cemetery in 2014, assigning it Cemetery #: FS-26, but the site was not recorded in the Statewide Survey of Historic Sites (copy of Chicora Foundation cemetery form provided by WEC). The cemetery is maintained by WEC but is no longer in active use. Brockington personnel documented 191 graves; 12 have inscribed standing headstones. There are granite monuments and numerous granite markers across the cemetery, including several historic head and footstones. Modern granite markers were placed by Westinghouse on each unmarked grave after the cemetery was re-discovered in 2003. A detailed plan was drawn, accompanied by detailed notes on each inscribed stone marker. Figure 4.7 displays a view of the cemetery; Figure 4.8 displays the plan created following the geophysical survey and detailed mapping of the cemetery. A more detailed discussion of the Denley Cemetery appears in Appendix D.

Although the Denley Cemetery retains integrity of location, setting, and design, burial sites and cemeteries are not ordinarily considered eligible for the NRHP due to difficulty in objective evaluation. To qualify for listing under NRHP Criterion A (*events*), Criterion B (*people*), or Criterion C (*design*), a cemetery or grave must meet not only the basic criteria, but also the special requirements of NRHP Criteria Considerations (typically Criteria Considerations A, C, or D relating to graves and cemeteries). Archival research did not associate the cemetery with an important historical event or series of events; therefore, Brockington recommends it not eligible for listing under Criterion A (*events*). Additionally, archival

research did not identify an association of significant persons from the past with the cemetery; therefore, Brockington recommends it not eligible for listing under Criterion B (*people*). Brockington recommends that this resource is not eligible for the NRHP under Criterion C (*architecture*) because it is not a representative example of a type, period, or method of construction. Although the resource has the potential to yield information under Criterion D (*information potential*), Brockington recommends that this resource is not individually eligible under Criterion D. Additionally, the resource is not eligible for the NRHP under Criterion Consideration C (*birthplace or grave of historical figure*) or Criteria Consideration D (*cemetery if it derives its primary significance from graves of persons of transcendent importance, age, design features, or from association with historic events*). Brockington recommends the Denley Cemetery not eligible for listing in the NRHP.

Investigators discovered the base of a notched projectile point (ppk) made of translucent quartz on the ground surface near the center of the Denley Cemetery (see Figure 4.8) fenced enclosure. This isolated artifact may have been discarded at this location or displaced to its location of discovery by activities associated with the use of the cemetery, agricultural activities, or the construction of the CFFF. Although investigators conducted no shovel tests within the Denley Cemetery fenced enclosure, shovel tests excavated outside and adjacent to the fence failed to produce artifacts except at the eastern end of the cemetery (38RD1513 – see above) approximately 200 ft away from the projectile point fragment. Surveyors observed no other artifacts on the ground surface within the cemetery, suggesting that this artifact does not reflect an extensive or dense deposit of pre-contact artifacts. The single artifact can provide little additional information concerning the pre-contact use of the site or the region. Brockington recommends that the pre-contact isolated find within the cemetery cannot contribute to the NRHP eligibility of the cemetery.



Figure 4.7 Denley Cemetery (SHPO Site No. 8119/38RD1518), facing northeast. Note modern markers, placed by WEC.

#### 4.2.3 Cattle Feeding Facility (SHPO Site No. 8120)

SHPO Site No. 8120 is a cattle-feeding facility, with three concrete troughs that date from at least the mid-twentieth century, and a non-historic vacant shed on the former Greenfield Farm property (Richland County R18600-01-01 - see Figure 3.10). The cattle feeding facility lies near the eastern edge of the CFFF, on the bluff above the Congaree River flood plain. This resource is a relic of the livestock raising at the former Greenfield Farm. The three troughs are linear poured concrete feed basins. Two of the troughs measure approximately 2 feet wide by 300 feet long running north/south. These two troughs, approximately 15 feet apart, are parallel to each other. The troughs may have been elevated off the ground; there are remnants of a wood post and fence system at sections of the troughs. A smaller concrete trough approximately 2 feet wide by 15 feet long is approximately 68 feet to the west of the southern end of the two main feed basins. The dilapidated shed, approximately 30 feet west of the southern end of the two main troughs, is a 2-by-4-inch wood-frame building clad in crimped metal siding. The vacant building has

a shed roof also clad in metal and does not appear to be associated with the feed basins. Figure 4.9 displays a view of these structures.

The cattle feeding facility does not retain integrity of design, workmanship, or association due to the dilapidated state of the troughs and the absence of the original building materials. It is also not clear what the dilapidated shed was originally used for, but it does not appear to be historic. Brockington recommends that this resource is not eligible for the NRHP under Criterion C (*architecture*) because it is not a representative example of a type, period, or method of construction. Archival research did not identify the cattle feeding facility and/or its original owner(s) with an important historical event or series of events; therefore, Brockington recommends it not eligible for listing under Criteria A (*events*) or B (*people*). The resource does not have the potential to yield information under Criterion D (*information potential*). Brockington recommends SHPO Site No. 8120 not eligible for listing in the NRHP.

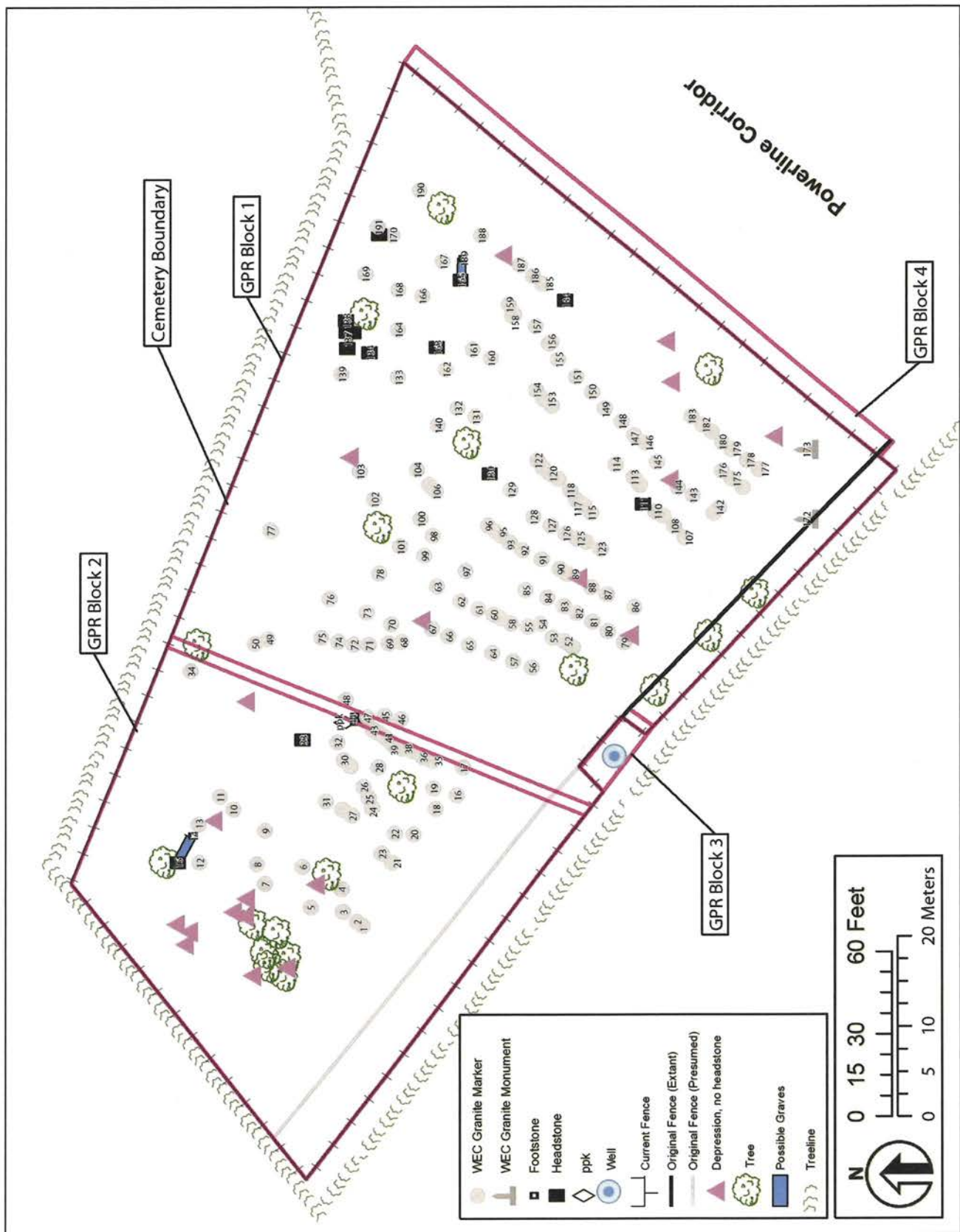


Figure 4.8 Detailed plan of the Denley Cemetery.



Figure 4.9 View of the central section of the two cattle feed troughs, facing east (top), and the southern end of trough 1, facing east (bottom).

#### 4.2.4 CFFF (SHPO Site No. 8689)

SHPO Site No. 8689 is the industrial elements of the CFFF, which includes the 1968 to 1969 office and manufacturing facilities, associated buildings and ponds, and paved parking lots surrounded by a security fence. The CFFF campus is at 5801 Bluff Road (Richland County R18600-01-02), near Hopkins, in lower Richland County. The facility stands approximately 0.6 mile from Bluff Road, with a paved drive from Bluff Road to a parking area east of the building. The primary building is generally oriented north-south on the campus, with its north and east elevations visible from Bluff Road. WEC currently uses two buildings associated with the former Greenfield Farm complex, a Butler building (SHPO Site No. 8690) and a former tractor shed (SHPO Site No. 8691), as outbuildings within the CFFF. Today, the CFFF houses nuclear fuel manufacturing facilities, product engineering and testing laboratories, fuel marketing offices, and contract administration facilities. The site covers 1,155 acres, which includes 550,000 square feet of manufacturing and office space (<https://www.westinghousenuclear.com/about/independent-pages/columbia-community>). Figure 4.10 provides views of the CFFF.

The CFFF manufacturing area is housed in a one-story, flat-roof, rectangular-shaped building (enclosing approximately 360,000 square feet) originally constructed in 1968-1969. The building is of steel construction clad in concrete T panels resting on a raised slab foundation with a metal deck roof (see Figures 3.14-3.15). Windows pierce the north façade of the building.

The CFFF office space wing stands on the manufacturing facility's east elevation. The approximately 42,500-square-foot office building includes a flat-roof, one-story and flat-roof, two-story level. The two-story building features a flat roof with a wide cornice and overhanging eaves that are supported by concrete posts and horizontal partitions. The building has walls of windows on each elevation. The one-story portion also features a flat roof with a wide cornice, and its exterior features floor to ceiling windows. A flat-roofed extension with floor to ceiling windows provides access to the office building from the parking area.

There have been several additions to the original building since its construction. Exterior modifica-

tions to the manufacturing building include a two-story, flat-roof addition on the western half of the north elevation; a one-story, flat-roof addition on the west elevation; and a one-story, flat-roof addition on the southern quarter of the east elevation completed in the late 1970s. The office building and production facilities were expanded circa 1983-1986. By the early 1990s, the CFFF campus included additional ponds on the west and additional outbuildings south and west of the main CFFF building. Figures 4.11 and 4.12 provide views of the CFFF over the course of these modifications and additions.

In 1967, the South Carolina General Assembly passed the "1967 S.C. Atomic Energy and Radiation Control Act," which promoted nuclear energy-based industries in the state. Legislators estimated that the industry would be worth an estimated \$1 billion. Legislators specifically targeted nuclear fuel fabrication plants as one component of the nuclear industry plan (*The State* May 26, 1971). By September 1967, WEC chose to locate a nuclear fuel fabrication plant in South Carolina (*The State* September 8, 1967).

WEC selected McCrory-Sumwalt Construction Company to build an office building and a nuclear fuel manufacturing facility on Bluff Road near Hopkins. Construction was expected to cost \$20 million (*The State* February 2, 1968). At the groundbreaking in March 1968, Westinghouse Vice President John W. Simpson noted the importance of the CFFF in regard to the company's \$370 million national expansion. When it was constructed in 1968-1969, the CFFF was the larger of two WEC nuclear fuel production plants; the other WEC plant was in Pennsylvania (*The Columbia Record* March 14, 1968). The dedication of the CFFF occurred in October 1970; approximately 100 South Carolina businessmen and dignitaries, including Governor Robert E. McNair, attended the dedication. At the time, the plant included 210,000 square feet of manufacturing space and 50,000 square feet of office space.

WEC continued to expand and modernize the plant through the 1980s. By 1980, WEC's CFFF was considered the largest nuclear fuel fabrication plant in the world and was the fourth largest industrial employer in the local economy (*The State* April 13, 1980). WEC invested approximately \$10 million in a plant expansion in the late 1970s, and in May 1982 they announced plans to install a \$36 million



Figure 4.10 View of the CFFC during construction ca. 1969, facing southwest (top), and in 2016 (bottom).



Figure 4.11 View of the CFFF from a 1971 aerial photograph (left), and from a 1994 aerial photograph (right).



Figure 4.12 View of the CFFF during expansion, looking southwest (top), and looking northwest (bottom), circa 1983 (photographs courtesy of WEC archives).

automated production line that would increase production capacity by 40 percent (*Columbia Record* May 10, 1982). In the spring of 1986, WEC selected McCrory Construction Company to build a two-story, 27,000-square-foot office expansion at the site (*Columbia Record* March 24, 1986).

Brockington assessed the CFFF (SHPO Site No. 8689) using historic aerial images, maps, and photographs provided by WEC. The CFFF retains integrity of location and setting but lacks integrity of design, workmanship, and building materials due to multiple exterior modifications to the office building, manufacturing plant, and the overall campus. Brockington recommends that this resource is not eligible for the NRHP under Criterion C (architecture) because it does not represent a type, period, or method of construction, nor is it the work of a master. The CFFF was one of WEC's first nuclear fuel production plants, and in 1970 it was the largest of its type. Today, it is the only nuclear fuel fabrication facility operated by Westinghouse in the United States, but there are four other commercial facilities operated by other entities. WEC has expanded, altered, and modernized this facility since it was originally constructed, as WEC continues to expand its nuclear energy facilities nationwide. Therefore, Brockington recommends the CFFF not eligible for listing under Criteria A (events) or B (people) due to its modifications since its initial construction and operation. The resource does not have the potential to yield information under Criterion D (information potential). Brockington recommends the CFFF (SHPO Site No. 8689) at 5801 Bluff Road not eligible for listing in the NRHP.

#### **4.2.5 Butler Building (SHPO Site No. 8690)**

SHPO Site No. 8690 is a lateral gable, prefabricated Butler building that stands approximately 700 feet southwest of the main CFFF building and was a component of the former Greenfield Farm complex on Richland County parcel R18600-01-02 (see Figure 3.10). The Butler building is in this location on a ca. 1969 photograph of the construction of the CFFF building. Brockington assessed the Butler building (SHPO Site No. 8690) using historic aerial images, maps, and photographs provided by WEC. Figure 4.13 presents a current view of the Butler building.

WEC uses the former Greenfield Farm outbuilding as a maintenance/storage facility. The former storage building retains integrity of location and materials, but it does not retain integrity of setting due to land use changing it to its current industrial setting. Brockington recommends that this resource is not eligible for the NRHP under Criterion C (*architecture*) because it is not a representative example of a type, period, or method of construction. Limited archival research did not identify the resource and/or its original owner(s) with an important historical event or series of events; therefore, Brockington recommends it not eligible for listing under Criteria A (*events*) or B (*people*). The resource does not have the potential to yield information under Criterion D (*information potential*). Brockington recommends the former Greenfield Farm Butler building not eligible for listing in the NRHP.

#### **4.2.6 Tractor Shed (SHPO Site No. 8691)**

SHPO Site No. 8691 is a metal-frame former tractor shed that stands approximately 550 feet south of the main CFFF building, built originally to serve the former Greenfield Farm complex that the CFFF replaced on Richland County parcel R18600-01-02 (see Figure 3.10). The tractor shed is in this location on a ca. 1969 photograph of the construction of the CFFF building. Brockington assessed the Tractor shed (SHPO Site No. 8691) using historic aerial images, maps, and photographs provided by WEC. Figure 4.13 presents a current view of the tractor shed (SHPO Site No. 8691).

WEC uses the former Greenfield Farm outbuilding as a maintenance/storage facility. The former tractor shed retains integrity of location, but does not retain integrity of setting, design, or ma-

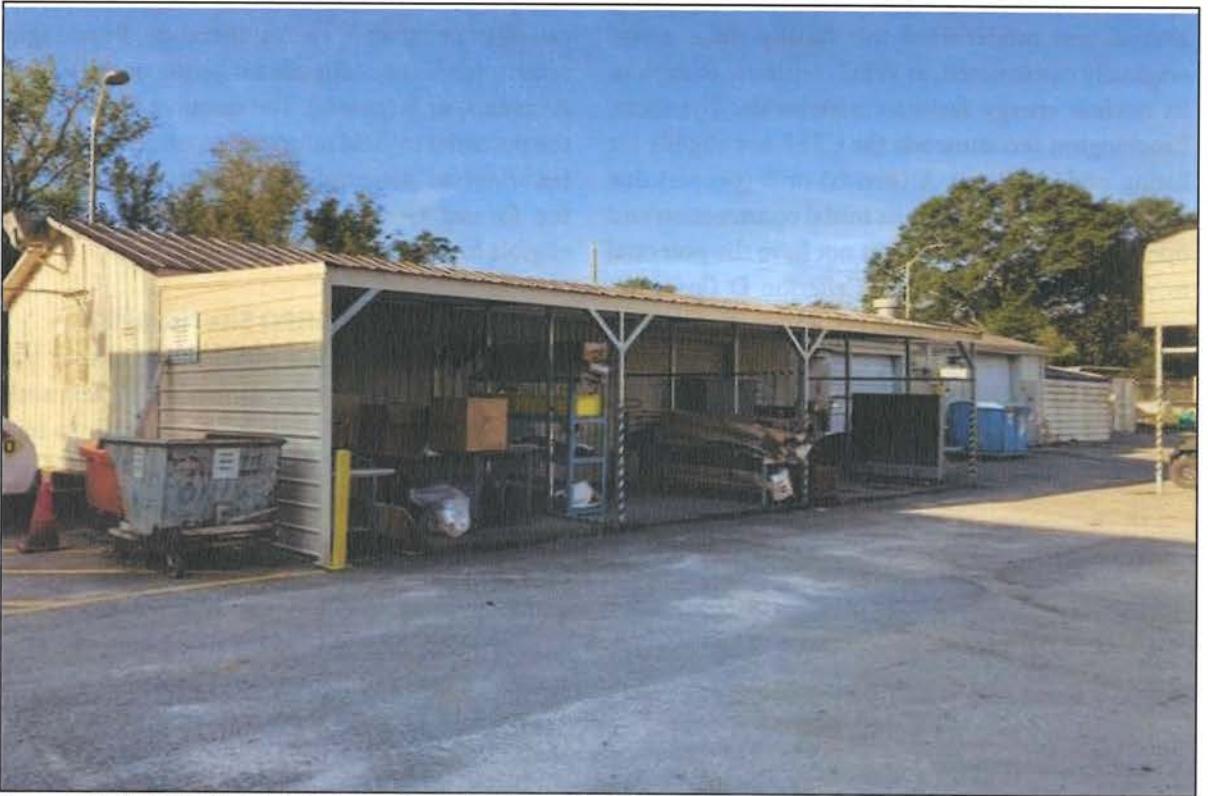


Figure 4.13 SHPO Site No. 8690, facing northwest (top), and SHPO Site No. 8691, facing southwest (bottom).

terials due to modifications and land use changing it to its current industrial setting. Brockington recommends this resource not eligible for the NRHP under Criterion C (*architecture*) because it is not a representative example of a type, period, or method of construction. Limited archival research did not identify the shed and/or its original owner(s) with an important historical event or series of events; therefore, Brockington recommends it not eligible for listing under Criteria A (*events*) or B (*people*). The resource does not have the potential to yield information under Criterion D (*information potential*). Brockington recommends SHPO Site No. 8691 not eligible for listing in the NRHP.

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## 5.0 Project Summary and Management Recommendations

### 5.1 Summary of Investigations

Brockington conducted an intensive cultural resources survey of the CFFF near Hopkins in Richland County, South Carolina. WEC initiated the survey to determine if historic properties are present in the CFFF that may be affected by the continued operation of the plant under an NRC license.

Tasks performed to accomplish this survey included background research; archaeological, architectural, and geophysical field investigations; and the assessment of the NRHP eligibility of identified resources. The archaeological field investigations focused on locating, identifying, and documenting all archaeological sites and isolated occurrences within accessible portions of the CFFF. A model was created that categorized areas of land within the 1,151-acre property into zones of high, low, very low, and no potential to contain archaeological deposits based upon topographic setting; distance to the Congaree River flood plain and historic roads; locales where buildings stood drawn from historic maps, aerial photographs, and historical information; and local conditions and accessibility. The architectural survey examined all aboveground historic resources within the CFFF. The geophysical investigations included a GPR survey and detailed mapping of the Denley Cemetery (SHPO Site No. 8119/38RD1518).

Archaeological survey revealed that much of the upland areas between Bluff Road and the Congaree River flood plain displayed highly truncated soil profiles, with 0-30-cm thick humus zones above sandy clay subsoils. All of this area was actively farmed during the twentieth century (and before) and much of it was graded during the construction of the CFFF. These actions appear to have disrupted the original soils and many of the archaeological deposits that may have once existed. Areas along the eastern bluff of the Congaree River flood plain displayed less disturbed soil profiles. The elevated ridges in the Congaree River flood plain displayed deep sandy deposits reflecting their derivation from flood episodes of Mill Creek and the Congaree River and the migration of both streams across the river flood plain.

During the survey, five archaeological sites (38RD1512-38RD1516), three farm-related sites (a cattle facility - SHPO Site No. 8120, a Butler build-

ing - SHPO Site No. 8690, and a former tractor shed - SHPO Site No. 8691), the Denley Cemetery (SHPO Site No. 8119), and the CFFF facility (SHPO Site No. 8689) were recorded. Additionally, an unnamed canal (SHPO Site No. 3577) was visited and assessed.

Site 38RD1512 is a scatter of pre-contact and post-contact artifacts primarily associated with a former tenant house complex that appears on the USGS 1953 *Hopkins, SC* quadrangle and the 1963 aerial of the former Greenfield Farm. Non-diagnostic eroded/residual ceramic and lithic artifacts define the pre-contact component which is intermixed with later twentieth-century domestic and architectural materials. The site has been severely disrupted by agricultural activities, and the tenant house complex has been demolished. Therefore, Brockington recommends 38RD1512 not eligible for the NRHP.

Site 38RD1513 is a small pre-contact lithic artifact scatter immediately adjacent to the Denley Cemetery. Low artifact frequency and disruption of much of the site area by construction and maintenance of the powerline prevent 38RD1513 from generating important information about the past. Therefore, Brockington recommends 38RD1513 not eligible for the NRHP.

Site 38RD1514 is a scatter of pre-contact and twentieth-century artifacts in a wooded area near the western boundary of the CFFF. Soils at 38RD1514 appear more intact than in other portions of the CFFF. However, the low frequency of artifacts and lack of historical data regarding a post-contact occupation in this portion of the CFFF indicate that the site is unlikely to yield additional important information about the past use of the site or region. Therefore, Brockington recommends 38RD1514 not eligible for the NRHP.

Site 38RD1515 is a scatter of pre-contact lithic artifacts. Like 38RD1514, deeper and less disturbed soils were present in this portion of the CFFF. The low frequency of artifacts prevents the site from generating additional important information about the past. Therefore, Brockington recommends 38RD1515 not eligible for the NRHP.

Site 38RD1516 is a scatter of post-contact domestic and architectural artifacts in a wooded area west of the Denley Cemetery. None of the historic

information gathered during background research indicates a building near this locale. These artifacts may reflect an episode of refuse disposal by the residents of one or more of the nearby former tenant houses or displacement of artifacts from another site on the CFFF. Therefore, Brockington recommends 38RD1516 not eligible for the NRHP.

SHPO Site No. 8120 (a cattle feeding facility) lies near the eastern edge of the CFFF, on the bluff above the Congaree River flood plain. This facility is a surviving relic of the former Greenfield Farm which the CFFF replaced. Three troughs and a dilapidated shed are present at the site. Two of the troughs are concrete basins that measure approximately 2-by-300 feet running north/south. A smaller trough is the same width (2 feet) but only 15 feet long. The shed has a 2-by 4-inch wood frame covered with crimped metal siding and roofing. The cattle troughs are common elements of twentieth-century farms, and they possess no unique qualities or characteristics. Therefore, Brockington recommends SHPO Site No. 8120 not eligible for the NRHP.

A lateral gable, prefabricated Butler building (SHPO Site No. 8690) stands approximately 700 feet southwest of the main CFFF building, built originally to serve the former Greenfield Farm. A wood-frame former tractor shed (SHPO Site No. 8691) stands approximately 550 feet south of the main CFFF building, also a component of the former Greenfield Farm complex. These outbuildings remain in use by WEC as maintenance/storage facilities. The two outbuildings display no unique architectural design or features nor are associated with significant persons or events. Brockington recommends SHPO Site Nos. 8690 and 8691 not eligible for the NRHP.

Brockington revisited SHPO Site No. 3577, the previously recorded canal and associated dike constructed in the early 1950s. Historical documents show the canal was constructed to divert flood waters of Mill and Raiford creeks (Richland County Deed Book D145, Page 241). Based upon its inspection, SHPO Site No. 3577 possesses good integrity but is not a representative example of a type, period, or method of construction nor does it appear that it was associated with an important historical event or owner. Therefore, Brockington recommends SHPO Site No. 3577 not eligible for the NRHP.

The CFFF industrial facility (SHPO Site No. 8689) stands inside the CAA. Brockington historians observed the building through the security fence and WEC provided photographs of the primary building and the two older outbuildings for this documentation. The flat roof, rectangular-shaped CFFF primary building was constructed in 1968 to 1969 and is concrete T panels and steel construction. There have been several additions to the original building since that time. Brockington recommends SHPO Site No. 8689 not eligible for the NRHP due to multiple exterior modifications and because it is not a representative example of a type, period, or method of construction.

GPR surveying and mapping of the Denley Cemetery (SHPO Site No. 8119/38RD1518) documented 191 graves; 12 have inscribed standing headstones. The earliest burial (Nicodemus Epps) dates to 1918. Based upon field observations, the current fence line includes a buffer of at least 30 feet between the identified interments and the metal fence. Brockington recommends that the Denley Cemetery does not meet the very stringent criteria necessary for cemeteries to be eligible for the NRHP. However, it is a locally significant and sensitive resource and is protected from desecration under South Carolina statutes.

## 5.2 Management Recommendations

The survey of the CFFF identified, documented, and evaluated five archaeological sites and six aboveground historic resources. Brockington recommends these five sites (38RD1512-38RD1516) and six above ground resources (SHPO Site No. 171 3577, 8119/38RD1518, 8120, 8689, 8690, and 8691) not eligible for the NRHP. These resources, except the Denley Cemetery, require no further management consideration.

The Denley Cemetery is protected from desecration under South Carolina statutes. WEC's current management plan will maintain the cemetery in its present state. WEC should continue to ensure that the cemetery is protected from any activities that might desecrate or damage the cemetery. The monitoring well adjacent to the cemetery has been separated from it by fencing, and the well can now be accessed without entering the defined limits of the cemetery. Also, since the completion of the survey, WEC has moved the cemetery fence 10 feet east as per the recommendations presented in Appendix D.

As noted in the Research Design (Poplin 2021), there is an area within the CAA that may not have been disturbed during the construction of the plant. Figure 5.1 displays the location of this area. As per RA-432 Procedures Guiding the Unanticipated Discovery of Cultural Resources and Human Remains (WEC 2022), prior to future ground-disturbing activities in this portion of the CAA that will extend more than four feet below the present ground surface. WEC will retain a professional archaeologist to review the location and scope of the proposed ground-disturbing activities to determine if archaeological testing or monitoring is needed. If so, appropriate testing or monitoring of excavations in this area will be undertaken by a professional archaeologist to ensure that no NRHP-eligible sites are affected.

Survey of the sandy levee ridges in the Congaree River flood plain encountered no artifacts or other evidence of past human occupation. However, the soils on these landforms are quite deep, and there is a possibility that deeply buried archaeological deposits may be present. As per *Procedures Guiding the Unanticipated Discovery of Cultural Resources and Human Remains* (WEC 2022), should land-disturbing activities be planned for these portions of the CFFF that will extend more than three feet below the present ground surface, appropriate testing of these locales will be undertaken by a professional archaeologist to ensure that no NRHP-eligible sites are affected. Figure 5.1 displays the location of the areas where this review procedure will be implemented.

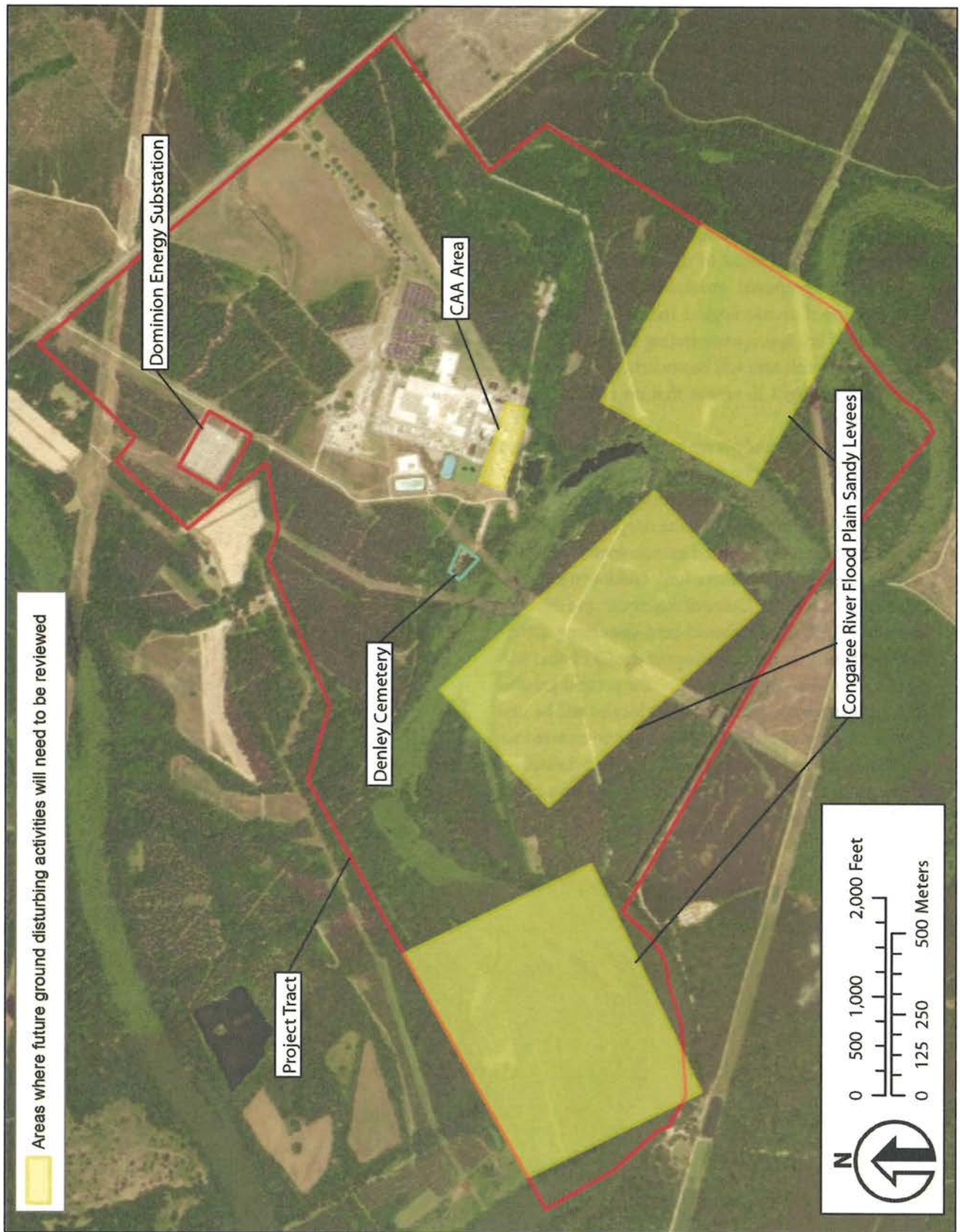


Figure 5.1 Locations within the CFFF that require review prior to deep ground disturbances.

## References Cited

Adovasio, J. M., J. Donahue, and R. Stuckenrath

- 1990 The Meadowcroft Rockshelter Radiocarbon Chronology, 1975-1990. *American Antiquity* 55:348-354.

Anderson, David G.

- 1974 *An Archaeological Survey of the Proposed Alternate Two Route of the Columbia Southeastern Beltway, Richland-Lexington Counties, South Carolina, August, 1974*. South Carolina Institute of Archaeology and Anthropology Notebook 6(5-6):125-63, Columbia.
- 1978 *Excavations at Four Fall Line Sites in South Carolina: A Preliminary Statement on the Southeast Columbia Beltway Project*. Paper presented at the 35<sup>th</sup> Southeastern Archaeological Conference, Knoxville, Tennessee.
- 1979 *Excavations at Four Fall Line Sites in the Southeastern Columbia Beltway Project*. Prepared for the South Carolina Department of Transportation, Columbia.
- 1985 The Internal Organization and Operation of Chiefdom Level Societies on the Southeastern Atlantic Slope: An Explanation of Ethnohistoric Sources. *South Carolina Antiquities* 17:35-69.
- 1989 The Mississippian in South Carolina. In *Studies in South Carolina Archaeology*, edited by Albert C. Goodyear and Glen T. Hanson, pp. 101-132. South Carolina Institute of Archaeology and Anthropology, Anthropological Studies 9. Columbia.
- 2005 Southeast Context. In *National Park Service Landmark Theme Study: The Earliest Americans*. Department of the Interior, National Park Service, Washington, DC. Available online at <http://www.nps.gov/history/archaeology/PUBS/NHLEAM/index.htm>.

Anderson, David G., and Glen T. Hanson

- 1988 Early Archaic Settlement in the Southeastern United States: A Case Study from the Savannah River Basin. *American Antiquity* 53:262-286.

Anderson, David G., and J.W. Joseph

- 1988 *Prehistory and History along the Upper Savannah River: Technical Synthesis of Cultural Resource Investigations, Richard B. Russell Multiple Resource Area (Volume I)*. US Department of the Interior- Park Service, Interagency Archaeological Services, Atlanta, Georgia.

Anderson, David G., and Patricia A. Logan

- 1981 *Francis Marion National Forest Cultural Resources Overview*. US Department of Agriculture, Forest Service, Columbia, South Carolina.

Anderson, David G., and Kenneth E. Sassaman (editors)

- 1996 *The Paleoindian and Early Archaic Southeast*. University of Alabama Press, Tuscaloosa.

Anderson, David G., Charles E. Cantley, and A. Lee Novick

- 1982 *The Mattassee Lake Sites: Archaeological Investigations along the Lower Santee River in the Coastal Plain of South Carolina*. US Department of Interior- Park Service, Southeast Regional Office, Atlanta, Georgia.

- Anderson, David G., R. Gerald Ledbetter, and Lisa O'Steen  
1990 *Paleoindian Archaeology of Georgia*. University of Georgia Laboratory of Archaeology Series Report 28. Athens.
- Blanton, Dennis B. and Kenneth E. Sassaman  
1989 Pattern and Process in the Middle Archaic Period in South Carolina. In *Studies in South Carolina Archaeology*, edited by Albert C. Goodyear, III and Glen T. Hanson, pp. 53-72. South Carolina Institute of Archaeology and Anthropology, Anthropological Studies 9. Columbia.
- Blanton, Dennis B, Christopher T. Espenshade, and Paul E. Brockington, Jr.  
1986 *An Archaeological Study of 38SU83: A Yadkin Phase Site in the Upper Coastal Plain of South Carolina*. Prepared for the South Carolina Department of Transportation, Columbia.
- Bryan, John M., editor  
1992 *City-Wide Architectural Survey & Historic Preservation Plan, Columbia, South Carolina*. City of Columbia, South Carolina.
- Butler, William B.  
1987 Significance and Other Frustrations in the CRM Process. *American Antiquity* 53:820-829.
- Cable, John S., and Charles E. Cantley  
1979 *An Intensive Archaeological Survey of the South Carolina 151 Highway Widening Project*. Prepared for the South Carolina Department of Transportation, Columbia. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.
- 1998 *Archaeological Data Recovery at Sites 38SU45, 38SU33, and 38SU145, with Results of Test Excavations Conducted at Sites 38SU136, 38SU137, and 38SU138, Poinsett Electronic Combat Range, Sumter County, South Carolina*. Prepared for US Army Corps of Engineers, Fort Worth District and Headquarters Air Combat Command, Langley AFB by Geo-Marine, Inc., Plano, Texas.
- Cable, John S., Charles E. Cantley, and David E. Port  
2005 *Phase II Archaeological Testing and Evaluations of Thirteen Sites, Fort Bragg, NC*. Submitted to National Park Service Southeast Archaeological Center, Tallahassee, Florida and Department of the Army, Fort Bragg, North Carolina by Palmetto Research Institute, Irmo, South Carolina.
- Caldwell, Joseph R.  
1958 Trend and Tradition in the Prehistory of the Eastern United States. *Memoirs of the American Anthropological Association* 88.
- Cantley, Charles E., and John S. Cable  
2002 *Shaw Air Force Base: Archaeological Data Recovery at Sites 38SU136/137 and 38SU141, Poinsett Electronic Combat Range, Sumter County, South Carolina*. Prepared for the US Army Corps of Engineers, Savannah District, Savannah, Georgia.
- Carlisle, R. C., and J. M. Adovasio (editors)  
1982 *Meadowcroft: Collected Papers on the Archaeology of Meadowcroft Rockshelter and the Cross Creek Drainage*. University of Pittsburgh Press, Pittsburgh.

Claggett, Stephen R. and John S. Cable (compilers)

- 1982 *The Haw River Sites: Archaeological Investigations at Two Stratified Sites in the North Carolina Piedmont*. Prepared for the US Army Corps of Engineers, Wilmington District. Wilmington, North Carolina.

Cleland, Charles E.

- 1976 *The Focal-Diffuse Model: An Evolutionary Perspective on the Prehistoric Cultural Adaptations of the Eastern United States*. Mid-continental Journal of Archaeology 1:59-76.

Cliff, Maynard B., Gary A. Hebler, and John S. Cable

- 1999 *Test Excavations at 20 Archaeological Sites on the Poinsett Electronic Combat Range, Sumter County, South Carolina*. Prepared for the US Army Corps of Engineers, Fort Worth District and Headquarters Air Command, Langley Air Force Base. Geo-Marine, Inc., Plano, Texas.

Coclanis, Peter A.

- 1989 *Shadow of a Dream: Economic Life and Death in the South Carolina Low Country 1670-1920*. Oxford University Press, New York.

Coe, Joffre L.

- 1964 Formative Cultures of the Carolina Piedmont. *Transactions of the American Philosophical Society* 54(5).

*The Columbia Record*

- "Columbia's New Nuclear Fuel Plant to be 'Cornerstone of Expansion,'" *The Columbia Record*, March 14, 1968, p. 13.

- "Westinghouse Plans to Install Automated Production Line," *The Columbia Record*, May 10, 1982, p. 27.

- "New Construction Begins," *The Columbia Record*, March 24, 1986, p. 44.

Council of South Carolina Professional Archaeologists (COSCAPA), South Carolina State Historic Preservation Office, and South Carolina Institute of Archaeology and Anthropology

- 2013 *South Carolina Standards and Guidelines for Archaeological Investigations*. South Carolina State Historic Preservation Office, Columbia.

Covington, James W.

- 1978 Stuart's Town. The Yemassee Indians and Spanish Florida. *The Florida Anthropologist* 21:8-13.

Dillehay, T. D.

- 1989 *Monte Verde: A Late Pleistocene Settlement in Chile*. Smithsonian Institution Press, Washington, DC.

- 1997 *Monte Verde: A Late Pleistocene Settlement in Chile, Volume II: The Archaeological Context and Interpretation*. Smithsonian Institution Press, Washington, DC.

Dobyns, Henry F.

- 1983 *Their Number Become Thinned: Native American Population Dynamics in Eastern North America*. University of Tennessee Press, Knoxville.

Dodge, John

- 2018 An Analysis of Ceramic Artifacts Regarding the Prehistoric Occupations of the Congaree River. *South Carolina Antiquities* 49:77-87.

Espenshade, Christopher T.

- 1986 *Climbing on the Macro Band Wagon*. Paper presented at the Twelfth Annual Meeting of the Archaeological Society of South Carolina, Columbia.

Espenshade, Christopher T., and Paul E. Brockington, Jr. (compilers)

- 1989 *An Archaeological Study of the Minim Island Site: Early Woodland Dynamics in Coastal South Carolina*. Prepared for the US Army Corps of Engineers, Charleston District, Charleston, South Carolina.

Ferguson, Leland

- 1971 *South Appalachian Mississippian*. Ph.D. dissertation, Department of Anthropology, University of North Carolina, Chapel Hill.

- 1975 Mississippian Artifacts and Geography. Paper presented at the 1975 meeting of the Southern Anthropology Society, Clearwater Beach, Florida.

Ferguson, Leland G., and Stanton W. Green

- 1984 South Appalachian Mississippian: Politics and Environment in the Old, Old South. *Southeastern Archaeology* 3:139-143.

Freedman's Bureau Records

- 1865-1878 Records of the Field Offices, Richland District Office, South Carolina.

Gardner, William H.

- 1974 *The Flint Run Paleo Indian Complex: A Preliminary Report 1971 through 1973 Seasons*. Catholic University of America, Archaeology Laboratory, Occasional Paper No. 1. Washington, DC.

Goodyear, Albert C., III

- 1976 *A Proposed Study of the Archaeology and History of the Otarre Development Company Property*. South Carolina Institute of Archaeology and Anthropology Research Manuscript Series 99. Columbia.

- 1979 *A Hypothesis for the Use of Cryptocrystalline Raw Materials Among Paleo-Indian Groups of North America*. South Carolina Institute of Archaeology and Anthropology Research Manuscript Series 156. Columbia.

- 1999 The Early Holocene Occupation of the Southeastern United States: A Geoarchaeological Summary. In *Ice Age People of North America: Environments, Origins, and Adaptations*, edited by R. Bonnicksen and K. L. Turnmire, pp. 432-481. Oregon State University Press, Corvallis.

Goodyear, Albert C., III, and Glen T. Hanson (editors)

- 1989 *Studies in South Carolina Archaeology*. South Carolina Institute of Archaeology and Anthropology Anthropological Studies 9. Columbia.

Goodyear, Albert C., III, James L. Michie, and Tommy Charles

- 1989 The Earliest South Carolinians. In *Studies in South Carolina Archaeology*, edited by Albert C. Goodyear III and Glen T. Hanson, pp. 19-52. South Carolina Institute of Archaeology and Anthropology, Anthropological Studies 9. Columbia.

Griffin, James B.

- 1945 Collections from Two South Carolina Sites. *Papers of the Michigan Academy of Science, Arts, and Letters* 30:465-468. University of Michigan, Ann Arbor.

Griffin, M., W. Boyko, B. Boyko, S. Culpepper, C. L. Heath Jr., J. Hebert, J. Irwin, and B. Lione

- 2001 Appendix XI: Fort Bragg Physical and Cultural Environment. In *Integrated Cultural Resources Management Plan (ICRMP) for Fort Bragg, Camp Mackall, and Simmons Army Airfield*. Prepared for the XVIII Airborne Corps and Fort Bragg by Griffin Social Technologies, Inc., Chesapeake, Virginia.

Groover, Mark

- 1990 38RD391-38RD398. Archaeological Site Forms. On File at the South Carolina Institute of Archaeology and Anthropology. Columbia.

Hanson, Glen T.

- 1982 The Analysis of Late Archaic-Early Woodland Adaptive Change along the Savannah River: A Proposed Study. South Carolina Institute of Archaeology and Anthropology *Notebook* 14:1-38. Columbia.

Jaeger Company

- 1993 *Lower Richland County Historical and Architectural Inventory*. A report produced by the Jaeger Company, Gainesville, Ga.

Jones, Lewis P.

- 1971 *South Carolina: A Synoptic History for Laymen*. Sandlapper Publishing, Orangeburg, South Carolina.

Judge, Christopher

- 2021 Green Hill Mound (38RD4), Lower Richland County, South Carolina. Manuscript on file, University of South Carolina- Lancaster Native American Studies Program. Lancaster.

King, G. Wayne

- 1981 *Rise Up So Early: A History of Florence County, South Carolina*. The Reprint Company, Spartanburg, South Carolina.

Kissane, Amy C., John A. Kissane, Emmaline Embry and Leslie Sharp

- 1993 *Lower Richland County Historical and Architectural Inventory: Survey Report*. Prepared for the SC Department of Archives and History, Columbia.

- Kreisa, P. P., C. Clement, R. Grunden, J. Quattlebaum, S. Smith, C. Balek, and J. McDowell  
 1996 *Phase I Archaeological Survey of 7,500 Acres at Poinsett Weapons Range, Sumter, South Carolina*. Public Service Archaeology Program, University of Illinois, Urbana-Champaign, and South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia. Submitted to the US Army Construction Engineering Research Laboratories and US Air Force Combat Command, Shaw Air Force Base.
- Lander, Ernest McPherson, Jr.  
 1969 *The Textile Industry in Antebellum South Carolina*. Louisiana State University Press, Baton Rouge.
- Lawrence, C.B.  
 1978 *Soil Survey of Richland County, South Carolina*. United States Department of Agriculture, Soil Conservation Service, Washington, DC.
- Lucas, Marion Brunson  
 1976 *Sherman and the Burning of Columbia*. Texas A & M University Press, College Station.
- McAvoy, J. M., and L. D. McAvoy  
 1997 *Archaeological Investigations of Site 44SX202, Cactus Hill, Sussex County, Virginia*. Virginia Department of Historic Resources, Research Series No. 8. Richmond.
- Meltzer, David J.  
 1988 Late Pleistocene Human Adaptations in Eastern North America. *Journal of World Prehistory* 2:1-53.
- Meltzer, David J., and Bruce D. Smith  
 1986 Paleoindian and Early Archaic Subsistence Strategies in Eastern North America. In *Foraging, Collecting, and Harvesting: Archaic Period Subsistence and Settlement in the Eastern Woodlands*, edited by S. Neusius, pp. 3-31. Southern Illinois University Center for Archaeological Investigations Occasional Papers 6. Carbondale.
- Meltzer, D., D. Grayson, G. Ardila, A. Barker, D. Dincauze, C. Haynes., F. Mena, L. Nunez, and D. Stanford  
 1997 On the Pleistocene Antiquity of Monte Verde, Southern Chile. *American Antiquity* 62:659-663.
- Michie, James L.  
 1971 Excavations at the Taylor Site. *Southeastern Archaeological Conference Bulletin* 13:47-48. Paper presented at the 27<sup>th</sup> Southeastern Archaeological Conference, Columbia, South Carolina.
- 1978 An Intensive Archaeological Test of the Edenwood Site (38LX135), Lexington County, South Carolina. *South Carolina Antiquities* 10:454-495.
- 1980 *An Archeological Survey of Congaree Swamp: Cultural Resources Inventory and Assessment of a Bottomland Environment in Central South Carolina*. Report prepared by the South Carolina Institute of Archaeology and Anthropology. Columbia.
- 1989 *The Discovery of Old Fort Congaree*. South Carolina Institute of Archaeology and Anthropology Research Manuscript Series 208, Columbia.

Middleton, John

- 2002 Historical Sketch of Zion Mill Baptist Church [Hopkins, SC]. New Light Baptist Church, Richland County, SC. Posted on the Richland County, SC African American Families webpage: [www.sciway3.net/clark/richland](http://www.sciway3.net/clark/richland) [accessed 7-21-2021].

Milling, Chapman J.

- 1969 *Red Carolinians*. University of South Carolina Press, Columbia.

Mills, Robert

- 1979 Map of Lexington District. In *Atlas of the State of South Carolina Made under the Authority of the Legislature; Prefaced with a Geographical, Statistical, and Historical Map of the State*, reprint of 1825 Original. The Reprint Company, Spartanburg, South Carolina.

Moore, John Hammond

- 1989 *Siebels Bruce Since 1869....* Seibels Bruce, Columbia, South Carolina.
- 1993 *Columbia and Richland County: A South Carolina Community: 1740-1990*. University of South Carolina Press, Columbia.

Mouzon, Henry, Jr.

- 1775 *An Accurate Map of North and South Carolina*. Robert Sayer and J. Bennett, London.

*Official Records of the War of the Rebellion* (OR)

- 1901 Government Printing Office, Washington, DC.

Oliver, Billy

- 1985 Tradition and Typology: Basic Elements of the Carolina Projectile Point Sequence. In *Structure and Process in Southeastern Archaeology*, edited by Roy S. Dickens, Jr. and H. Trawick Ward, pp. 195-211, University of Alabama Press: Tuscaloosa.

O'Steen, Lisa

- 1983 *Early Archaic Settlement Patterns in the Wallace Reservoir: An Inner Piedmont Perspective*. Unpublished master's thesis, Department of Anthropology, University of Georgia, Athens.
- 2003 *Data Recovery on Three Areas of the Manning Site (38LX50), Lexington County, South Carolina*. Report Submitted to the South Carolina Department of Transportation, Columbia, by New South Associates, Stone Mountain, Georgia.

O'Steen, L., R.J. Ledbetter, D.T. Elliott, and W.W. Barker

- 1986 Paleoindian Sites of the Inner Piedmont of Georgia: Observations of Settlement in the Oconee Watershed. *Early Georgia* 13:1-63.

Poplin, Eric C.

- 1990 *Prehistoric Settlement in the Dog River Valley: Archaeological Data Recovery at 9DO34, 9DO39, and 9DO45, Douglas County, Georgia*. Prepared for the Douglasville-Douglas County Water and Sewer Authority, Douglasville, Georgia by Brockington and Associates, Atlanta, Georgia.

- 2021 *Cultural Resources Survey of Westinghouse Electric Company's Columbia Fuel Fabrication Facility, Richland County, South Carolina*. Research Design.

Potter, Elisabeth Walton, and Beth M. Boland

1992 *Guidelines for Evaluating and Registering Cemeteries and Burial Places*. National Register Bulletin 41. United States Department of the Interior, Washington, DC.

Ramenofsky, Anne P.

1982 *The Archaeology of Population Collapse: Native American Response to the Introduction of Infectious Disease*. Ph.D. dissertation, Department of Anthropology, University of Washington, Seattle.

Reid, Dawn

2004 *Archaeological Survey of the Hopkins Transmission Line and Substation*. Report prepared by ACC, Inc., Raliegh, North Carolina.

Richland County, SC Deed Books

1865-present Originals in the Richland County Register of Deeds Office, Columbia.

Richland County, SC Probate Court Records

1784-1864 Estate Papers, Originals located in the Richland County, SC Probate Office.

Richland County, SC Will Books

1784-1864 Originals in the Richland County, SC Probate Office, Columbia, SC.

Rogers, George C., Jr.

1969 *Charleston in the Age of the Pinckneys*. 1980 edition, University of South Carolina, Columbia.

Ryan, Thomas M.

1974 *Archaeological Survey of the Columbia Zoological Park, Richland and Lexington Counties, South Carolina*. South Carolina Institute of Archaeology and Anthropology Research Manuscript Series 37. Columbia.

Sassaman, Kenneth E. (compiler)

1993 *Early Woodland Settlement in the Aiken Plateau: Archaeological Investigations at 38AK157, Savannah River Site, Aiken County, South Carolina*. Savannah River Archaeological Research Papers 3, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Sassaman, K.E., M.J. Brooks, G.T. Hanson, and D.G. Anderson

1990 *Native American Prehistory of the Middle Savannah River Valley*. South Carolina Institute of Archaeology and Anthropology Savannah River Archaeological Research Papers 1. Columbia.

Sassaman, Kenneth E., I. Randolph Daniel, and Christopher R. Moore

2002 *GS Lewis East: Early and Late Archaic Occupations along the Savannah River, Aiken County, South Carolina*. Savannah River Archaeological Research Papers 12, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Savage, Beth L., and Sarah Dillard Pope

1998 *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*. US Department of the Interior, National Park Service, Washington, DC.

Sherfy, Marcella, and W. Ray Luce

- 1998 *National Register Bulletin 22: Guidelines for Evaluating and Nominating Properties That Have Achieved Significance in the Last Fifty Years*. US Department of Interior, National Park Service, Interagency Resources Division, Washington, DC.

Smith, Bruce D.

- 1975 *Middle Mississippian Exploitation of Animal Populations*. University of Michigan Museum of Anthropology Anthropological Papers 57. Ann Arbor.

Smith, Marvin T.

- 1984 *Depopulation and Culture Change in the Early Historic Period Interior Southeast*. Ph.D. dissertation, Department of Anthropology, University of Florida, Gainesville.

South Carolina State Highway Department

- 1939 *General Highway and Transportation Map of Richland County, South Carolina*. South Carolina State Highway Department, Columbia.

Southerlin, B., D. Reid, C. Huddleston, C. Smith, D. Leigh, and T. Neumann

- 1997 *The Twelfth Street Extension Archaeological Data Recovery Project, Investigations at the Godley Site (38LX141) and the Manning Site (38LX50), Lexington County, South Carolina*. Submitted to the South Carolina Department of Transportation, Columbia, by Brockington and Associates, Inc., Atlanta.

*The State*

- Harrill, Edward D., "Westinghouse To Make Nuclear Fuel Locally," *The State*, Sept. 8, 1967, p. 1.

"Contract Let For Plant on Bluff Rd.," *The State*, Feb. 2, 1968, p. 27.

Wickenberg, Charles, "Nuclear Firm Search Began in '67," *The State*, May 26, 1971, p. 1, 16.

"Westinghouse," *The State*, April 13, 1980, p. 162-163.

Steen, Carl

- 2018 *The Archaeology of Native Americans at Fort Jackson and the Midlands of South Carolina*. Report prepared by Diachronic Research Foundation.

Taylor, Richard L., and Marion Smith

- 1978 *The Report of the Intensive Survey of the Richard B. Russell Dam and Lake Project, Savannah River, Georgia and South Carolina*. South Carolina Institute of Archaeology and Anthropology Research Manuscript Series 143. Columbia.

Trinkley, Michael

- 1983 *Ceramics of the Central South Carolina Coast*. South Carolina Antiquities 12:1-35.

- 1989 An Archaeological Overview of the South Carolina Woodland Period: It's the Same Old Riddle. In *Studies in South Carolina Archaeology*, edited by Albert C. Goodyear III and Glen T. Hanson, pp. 73-90. South Carolina Institute of Archaeology and Anthropology Anthropological Studies 9. Columbia.

United States Census Bureau (USCB)

1850 *US General Population Census of Lexington, South Carolina*. Originals in the National Archives and Records Administration. A microfilm copy is available in the SC Room.

1920 *US General Population Census of Congaree, Lexington, South Carolina*. Originals in the National Archives and Records Administration. A microfilm copy is available in the SC Room.

United States Geological Survey (USGS)

1948 *Hopkins, SC 15-minute quadrangle*.

1953 *Fort Jackson South, SC 7.5-minute quadrangle*.

1953 *Hopkins, SC 15-minute quadrangle*.

1953 *Sailors Lake, SC 7.5-minute quadrangle*.

1972 *Fort Jackson South, SC 7.5-minute quadrangle*.

1972 *Sailors Lake, SC 7.5-minute quadrangle*.

Wallace, David Duncan

1961 *South Carolina - A Short History, 1540-1940*. University of North Carolina Press, Chapel Hill.

Watts, W. A.

1970 The Full Glacial Vegetation of Northern Georgia. *Ecology* 51(1).

1980 Late Quaternary Vegetation History at White Pond on the Inner Coastal Plain of South Carolina. *Quaternary Research* 10.

Weir, Robert M.

1983 *Colonial South Carolina, A History*. KTO Press, New York.

Westinghouse Electric Company (WEC)

1968-present Records at the Columbia Fuel Fabrication Facility, Hopkins, South Carolina.

2022 RA-432 Procedures Guiding the Unanticipated Discovery of Cultural Resources and Human Remains. Columbia Fuel Fabrication Facility, Hopkins, South Carolina

Wetmore, R.Y., A.C. Goodyear III, and D.J. Colquhoun

1986 *Archaeological Investigations at Nipper Creek (38RD18): An Archaic Fall-Line Site*. South Carolina Institute of Archaeology and Anthropology Research Manuscript Series 201. Columbia.

Whitehead, Donald R.

1965 Palynology and Pleistocene Phytogeography of Unglaciaded Eastern North America. In *The Quaternary of the United States*, edited by H.E. Wright, Jr. and D.G. Frey. Princeton University Press, Princeton, New Jersey.

1973 Late Wisconsin Vegetational Changes in Unglaciaded Eastern North America. *Quaternary Research* 3:621-631.

Willey, Gordon R., and Philip Phillips

1958 *Method and Theory in American Archaeology*. University of Chicago Press, Chicago.

Wood, Peter

1974 *Black Majority: Negroes in Colonial South Carolina from 1670 through the Stono Rebellion*. WW Norton, New York.

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# **Appendix A**

## Artifact Catalog



# Artifact Catalog

Brockington and Associates, Inc. uses the following proveniencing system. Provenience 1 designates general surface collections. Numbers after the decimal point designate subsequent surface collections, or trenches. Proveniences 2 to 200 designate shovel tests. Controlled surface collections and 50 by 50 cm units are also designated by this provenience range. For all provenience numbers except 1, the numbers after the decimal point designate levels. Provenience X.0 is a surface collection at a shovel test or unit. X.1 designates level one, and X.2 designates level two.

Table of Contents

Site Number	Page Number	Site Number	Page Number
38RD1512	1-4	38RD1515	6-7
38RD1513	4	Cemetery	7
38RD1514	4-6	Isolates	7

Site Number: 38RD1512

Catalog #	Count	Weight (in g)	Artifact Description	Lithic Type	Ceramic Type	Temporal Range	Comments
SITE NUMBER: 38RD1512							
Provenience Number:							
1	1	100	2. 1 Locus A, Shovel Test, N560, E455, 0-30 cmbs Brick Fragment				Discarded
Provenience Number:							
1	2	1.8	3. 1 Locus A, Shovel Test, N560, E470, 0-30 cmbs Residual Sherd				
Provenience Number:							
1	1	4.1	4. 1 Locus A, Shovel Test, N560, E485, 0-30 cmbs Green Glass Container Body				Discarded
2	1	0.9	Residual Sherd				
Provenience Number:							
1	1	0.3	5. 1 Locus A, Shovel Test, N500, E500, 0-30 cmbs Whiteware, Undecorated Body			c1820+	
Provenience Number:							
1	1	50	6. 1 Locus A, Shovel Test, N530, E500, 0-20 cmbs Brick Fragment				Discarded
Provenience Number:							
1	1	25	7. 1 Locus A, Shovel Test, N560, E500, 0-25 cmbs Brick Fragment				Discarded
2	1	1.3	Solarized - Amethyst Glass Container Body			1880 - 1915	
3	1	0.2	Quartz Flake Fragment				

Site Number: 38RD1512						
Catalog #	Count	Weight (in g)	Artifact Description	Lithic Type	Ceramic Type	Temporal Range
Provenience Number:						
1	1	8.2	Locus A, Shovel Test , N500, E515, 0-20 cmbs Unidentifiable Nail			
Provenience Number:						
1	1	50	Locus A, Shovel Test , N515, E515, 0-30 cmbs Brick Fragment			Discarded
Provenience Number:						
1	1	1	Locus A, Shovel Test , N500, E530, 0-30 cmbs Olive Green Glass Container Body			
2	1	0.5	Aqua Glass Container Body			
3	1	1.1	Colorless Glass Container Body			
Provenience Number:						
1	1	55.9	Locus A, Shovel Test , N515, E530, 0-20 cmbs Iron Hardware			
2	1	0.8	Colorless Glass Container Body			
3	1	0.3	Milkglass Container Body			1743-
Provenience Number:						
1	2	2.3	Locus A, Shovel Test , N530, E530, 0-20 cmbs Colorless Glass Container Body			
Provenience Number:						
1	1	5.7	Locus A, Shovel Test , N485, E545, 0-20 cmbs Iron Staple			
Provenience Number:						
1	1	55.4	Locus A, Shovel Test , N500, E545, 0-20 cmbs Brick Fragment			Discarded
2	1	5.7	Wire Nail			
3	1	1	Brass Centerfire Cartridge			1850-
4	4	4.2	Aqua Glass Container Body			
5	3	5.6	Colorless Glass Container Body			.22 Caliber
6	1	3.2	Colorless Molded Unidentifiable Form Tableglass Rim			
7	1	5.3	Colorless Molded Glass Bottle Finish			
Provenience Number:						
1	1	56	Locus A, Shovel Test , N515, E545, 0-25 cmbs Brick Fragment			Discarded
2	3	14.5	Unidentifiable Nail			
3	2	61.8	Solarized - Amethyst Glass Container Body			1880 - 1915
4	1	0.9	Aqua Glass Container Body			
5	2	6.6	Aqua Glass Flat Body			

Site Number: 38RD1512						
Catalog #	Count	Weight (in g)	Artifact Description	Lithic Type	Ceramic Type	Temporal Range
<b>Provenience Number:</b>						
16. 1	1	1.4	Locus A, Shovel Test , N530, E545, 0-20 cmbs			
			Porcelain, Undecorated Body			
<b>Provenience Number:</b>						
17. 1	1	51.7	Locus A, Shovel Test , N500, E560, 0-30 cmbs			
			Brick Fragment			Discarded
2	9	7.5	Iron Unidentified			Discarded
3	23	96.3	Unidentifiable Nail			
4	1	10.5	Iron Staple			
5	0	0.6	Charcoal			
6	1	2.8	Stoneware, Undecorated Alkaline Glazed Gray-Bodied Body			c1800+
7	4	5.8	Aqua Glass Container Body			
8	4	5.6	Colorless Glass Container Body			
9	2	10.4	Colorless Molded Glass Container Body			
10	6	2.8	Solarized - Amethyst Glass Container Body			1880 - 1915
11	1	0.8	Rock			
<b>Provenience Number:</b>						
18. 1	1	29.2	Locus A, Shovel Test , N515, E560, 0-30 cmbs			
			Brick Fragment			Discarded
2	14	10.8	Iron Unidentified			Discarded
3	0	0.5	Charcoal			
4	5	15.2	Unidentifiable Nail			
5	1	28.6	Iron Spike			
6	1	6.6	Stoneware, Undecorated Brown Glazed Gray-Bodied Body			
7	1	0.6	Aqua Glass Flat Body			
8	3	7.1	Colorless Molded Glass Container Body			
9	1	0.8	Colorless Molded Glass Container Rim			
10	2	1.6	Colorless Glass Container Body			
<b>Provenience Number:</b>						
19. 1	1	27.4	Locus A, Shovel Test , N530, E560, 0-30 cmbs			
			Brick Fragment			Discarded
2	3	4	Unidentifiable Nail			
3	0	0.6	Charcoal			
4	1	1.6	Coarse Earthenware, Undecorated Brown Glazed Buff-Bodied Rim			
5	1	12.5	Aqua Molded Glass Embossed Bottle Body			Embossed: "[C]OLA"
6	1	1.1	Colorless Glass Container Body			

Site Number: 38RD1512							
Catalog #	Count	Weight (in g)	Artifact Description	Lithic Type	Ceramic Type	Temporal Range	Comments
Provenience Number:							
1	2	3.7	20. 1 Locus A, Shovel Test , N485, E575, 0-20 cmbs Colorless Molded Glass Container Base				
Provenience Number:							
1	1	19.9	21. 1 Locus A, Shovel Test , N500, E575, 0-40 cmbs Brick Fragment				Discarded
2	1	70.9	Iron Hardware				
3	4	6.7	Unidentifiable Nail				
4	0	0.5	Charcoal				
5	1	3.5	Pearlware, Undecorated Base				
6	1	0.1	Colorless Unidentifiable Form Tableglass Fragment			1779 - 1840	
7	1	1.2	Residual Sherd				
Provenience Number:							
1	1	1.7	22. 1 Locus A, Shovel Test , N515, E575, 0-60 cmbs Brick Fragment				Discarded
2	1	172.6	Iron Tool				
3	1	0.9	Solarized - Amethyst Molded Glass Container Body			1880 - 1915	
SITE NUMBER: 38RD1513							
Provenience Number:							
1	1	2.5	2. 1 Locus C, Shovel Test , N500, E485, 0-20 cmbs Residual Sherd				
Provenience Number:							
1	1	3.8	3. 1 Locus C, Shovel Test , N500, E492.5, 0-20 cmbs Cord Marked Body Sherd, Coarse Sand Tempered		Deptford	Early/Middle Woodland (1000 BC - AD 700)	
Provenience Number:							
1	1	6.7	4. 1 Locus C, Shovel Test , N500, E500, 0-25 cmbs Cord Wrapped Stick Rim Sherd, Coarse Sand Tempered				
2	2	4.2	Residual Sherd		Deptford	Early/Middle Woodland (1000 BC - AD 700)	
3	1	1.5	Quartzite 1/4 inch Flake Fragment				
SITE NUMBER: 38RD1514							
Provenience Number:							
1	1	3.5	2. 1 Shovel Test , N515, E485, 0-35 cmbs Unidentifiable Nail				
2	1	3.1	Residual Sherd				
3	1	0.5	Metavolcanic Non-Cortical Bifacial Reduction 1/4 inch Thinning Flake				
4	1	2	Metavolcanic Non-Cortical Bifacial Reduction 1/2 inch Flake				
5	1	0.4	Metavolcanic Flake Fragment				

Site Number: 38RD1514							
Catalog #	Count	Weight (in g)	Artifact Description	Lithic Type	Ceramic Type	Temporal Range	Comments
6	1	0.3	Coastal Plain Chert Non-Cortical Bifacial Reduction 1/4 inch Flake				
Provenience Number:			3. 1 Shovel Test , N470, E500, 0-30 cmbs				Discarded
1	1	1.3	Iron Unidentified				
2	3	4.9	Residual Sherd				
3	1	0.8	Coastal Plain Chert Flake Fragment				
Provenience Number:			4. 1 Shovel Test , N485, E500, 0-30 cmbs				
1	1	11.3	Translucent Quartz Flake Fragment				
Provenience Number:			5. 1 Shovel Test , N500, E500, 0-20 cmbs				
1	1	0.4	Pearlware, Undecorated Body			1779 - 1840	
Provenience Number:			6. 1 Shovel Test , N515, E500, 0-30 cmbs				
1	1	2.8	Unidentifiable Nail				
Provenience Number:			7. 1 Shovel Test , N560, E500, 0-30 cmbs				
1	1	48.2	Translucent Quartz Cortical Core Reduction 1 inch Bipolar				
Provenience Number:			8. 1 Shovel Test , N575, E500, 0-40 cmbs				
1	1	565	Iron Hardware				
2	1	7.9	Translucent Quartz Non-Cortical Bifacial Reduction 3/4 inch Flake				
Provenience Number:			9. 1 Shovel Test , N485, E515, 0-35 cmbs				
1	1	4.3	Translucent Quartz Flake Fragment				
2	2	1.4	Translucent Quartz Flake Fragment				
3	1	0.4	Coastal Plain Chert Flake Fragment				
Provenience Number:			10. 1 Shovel Test , N500, E515, 0-30 cmbs				
1	1	0.4	Translucent Quartz Flake Fragment				
Provenience Number:			11. 1 Shovel Test , N515, E515, 0-40 cmbs				
1	1	1.9	Translucent Quartz Cortical Core Reduction 1/2 inch Flake				
2	1	2.7	Translucent Quartz Non-Cortical Core Reduction 1/2 inch Flake				
3	1	4.4	Translucent Quartz Shatter				
Provenience Number:			12. 1 Shovel Test , N530, E515, 0-30 cmbs				
1	1	0.3	Translucent Quartz Flake Fragment				

Site Number: 38RD1514		Artifact Description		Lithic Type	Ceramic Type	Temporal Range	Comments
Catalog #	Count	Weight (in g)					
Provenience Number:							
13. 1	1	Shovel Test , N560, E515, 0-30 cmbs					
1	2	0.5	Translucent Quartz Flake Fragment				
Provenience Number:							
14. 1	1	Shovel Test , N500, E530, 0-30 cmbs					
1	1	0.1	Translucent Quartz Non-Cortical Bifacial Reduction 1/4 inch Pressure Flake				
Provenience Number:							
15. 1	1	Shovel Test , N530, E530, 0-40 cmbs					
1	1	2.1	Quartzite Flake Fragment				
2	2	6.2	Translucent Quartz Shatter				
3	1	0.1	Coastal Plain Chert Flake Fragment				
Provenience Number:							
16. 1	1	Shovel Test , N530, E545, 0-30 cmbs					
1	1	0.5	Ridge and Valley Chert Flake Fragment				
2	1	0.5	Quartzite Non-Cortical Bifacial Reduction 1/4 inch Pressure Flake				
3	1	6.1	Quartzite Cortical Core Reduction 1/2 inch Flake				
Provenience Number:							
17. 1	1	Shovel Test , N500, E560, 0-40 cmbs					
1	1	10.1	Metavolcanic Shatter				
SITE NUMBER: 38RD1515							
Provenience Number:							
2. 1	1	Shovel Test , N500, E500, 0-20 cmbs					
1	2	0.7	Translucent Quartz Flake Fragment				
2	1	0.3	Coastal Plain Chert Flake Fragment				
3	1	0.6	Metavolcanic Flake Fragment				
Provenience Number:							
3. 1	1	Shovel Test , N515, E500, 0-30 cmbs					
1	3	40.2	Simple Stamped Body Sherd, Fine/Medium Sand Tempered				Mend
2	1	3	Residual Sherd				
Provenience Number:							
4. 1	1	Shovel Test , N485, E515, 0-20 cmbs					
1	1	1.7	Metavolcanic Non-Cortical Core Reduction 1/2 inch Flake				
2	2	7.6	Residual Sherd				
Provenience Number:							
5. 1	1	Shovel Test , N500, E515, 0-15 cmbs					
1	1	0.4	Translucent Quartz Flake Fragment				
2	1	33.5	Quartzite Fire Cracked Rock				

Site Number: 38RD1515						
Catalog #	Count	Weight (in g)	Artifact Description	Lithic Type	Ceramic Type	Temporal Range  Comments
3	1	16.6	Chalcedony Flake Fragment			Heavily Ground
4	1	12.8	Steatite, Fragment			
SITE NUMBER: 38RD1516						
Provenience Number: 2. 1 Shovel Test, N500, E485, 0-15 cmbs						
1	4	18.6	Unidentifiable Nail			c1820+
2	1	2.8	Copper 1929 Penny			
3	1	0.9	Amber Glass Container Fragment			
Provenience Number: 3. 1 Shovel Test, N500, E500, 0-20 cmbs						
1	1	0.8	Whiteware, Undecorated Rim			c1820+
2	1	0.2	Colorless Glass Container Body			
3	1	1.5	Aqua Glass Container Body			
SITE NUMBER: Cemetery						
Provenience Number: 1. 0 Locus C, Surface Collection, North of Headstone #44						
1	1	3.2	Translucent Quartz Projectile Point Tool Proximal			Small Notched Point
SITE NUMBER: Isolate 1						
Provenience Number: 2. 1 Locus A, Transect 16, Shovel Test 4, 0-20 cmbs						
1	1	3.5	Wrought Nail			
SITE NUMBER: Isolate 2						
Provenience Number: 2. 1 Locus A, Transect 17, Shovel Test 4, 0-30 cmbs						
1	1	0.1	Translucent Quartz Flake Fragment			



## **Appendix B**

### SC Statewide Survey Cards



# Statewide Survey of Historic Properties

State Historic Preservation Office  
South Carolina Department of Archives and History  
8301 Parklane Road  
Columbia, SC 29223-4905 (803) 896-6100

Site No. 3577      Status U      Revisit ✓  
Quadrangle Name: Fort Jackson South  
Tax Map No. R18600-01-01

## SURVEY FORM

### Identification

Historic Name: canal  
Common Name:  
Address/Location: Bluff Road  
City: Hopkins      ✓ Vicinity of      County: Richland  
Ownership: Private      Category: Structure      Other:  
Historical Use: Landscape  
Current Use: Unknown

SHPO National Register  
Determination of Eligibility:

### Property Description

Construction Date: ca. 1950      Construction:  
Historic Core Shape:      Exterior Walls:  
Other:      Foundation:  
Commercial Form:      Roof Shape:  
Other:      Roof Material:  
Stories:      Porch Shape:  
Other:      Porch Width:

#### Description/Significant Features:

The concrete canal extends 0.76 miles across the base of a large meander loop of Mill Creek shortening its channel approximately 0.8 miles west of Sunset Lake.

Alterations (include date(s), if known):

Architect(s)/Builder(s):

**Historical Information**

Historical Information:

canal constructed between 1948-1953.

Source(s) of Information:

Fort Jackson South 1953 and 1972 USGS topo (northern portion); Saylor's Lake 1953 and 1972 USGS topo (southern portion).

**Digital Photo ID(s)**

File Name:

03577001

03577002

03577003

03577004

03577005

View:

Facing South

Facing Southeast

Facing West

Facing South

Facing North

Other:

**Program Management**

Recorded by:

LE Kittrell

Organization:

Brockington and Associates, Inc.

Date Recorded:

10/07/2021

# Statewide Survey of Historic Properties

State Historic Preservation Office  
South Carolina Department of Archives and History  
8301 Parklane Road  
Columbia, SC 29223-4905 (803) 896-6100

Site No. 8119      Status R      Revisit ✓  
Quadrangle Name: Fort Jackson South  
Tax Map No. R18600-01-01;R18600-01-02

## SURVEY FORM

### Identification

Historic Name: Denley Cemetery  
Common Name:  
Address/Location: near 5801 Bluff Road  
City: Hopkins      ✓ Vicinity of      County: Richland  
Ownership: Private      Category: Site      Other:  
Historical Use: Funerary  
Current Use: Vacant/Not in use

SHPO National Register  
Determination of Eligibility:

### Property Description

Construction Date: 1918-unknown      Construction:  
Historic Core Shape:      Exterior Walls:  
Other:      Foundation:  
Commercial Form:      Roof Shape:  
Other:      Roof Material:  
Stories:      Porch Shape:  
Other:      Porch Width:

#### Description/Significant Features:

Approx. 1,000 ft west of the SW section of the Westinghouse facility; cemetery measures 104 by 76 meters with its long axis oriented east/west. 12 known graves (inscribed markers) have been documented; Brockington mapped 191 burials. Markers include several historic head and foot stones as well as small granite markers and modern stone monuments erected by Westinghouse. It is fenced and maintained by Westinghouse; secured facility only accessible with permission from Westinghouse.

Alterations (include date(s), if known):

Unmarked graves have been marked with simple granite blocks by Westinghouse (based on GPR) (Trinkley 2014)

Architect(s)/Builder(s):

**Historical Information**

Historical Information:

Documented by Trinkley 2014 but no site no. assigned.

Source(s) of Information:

Trinkley, Chicora Foundation Cemetery Form, 04/23/2014.

**Digital Photo ID(s)**

File Name:

08119001

08119002

08119003

08119004

View:

Facing Northwest

Facing Southeast

Facing Northeast

Facing West

Other:

**Program Management**

Recorded by:

LE Kittrell

Organization:

Brockington and Associates, Inc.

Date Recorded:

10/07/2021

# Statewide Survey of Historic Properties

State Historic Preservation Office  
South Carolina Department of Archives and History  
8301 Parklane Road  
Columbia, SC 29223-4905 (803) 896-6100

Site No. 8120 Status R Revisit

Quadrangle Name: Fort Jackson South

Tax Map No. R18600-01-01

## SURVEY FORM

### Identification

Historic Name: cattle feed bunks

Common Name:

Address/Location: Bluff Road

City: Hopkins ✓ Vicinity of County: Richland

Ownership: Private Category: Structure Other:

Historical Use: Agriculture/ Subsistence

Current Use: Vacant/Not in use

SHPO National Register  
Determination of Eligibility:

### Property Description

Other:

Construction Date: ca. 1955

Construction:

Historic Core Shape:

Exterior Walls:

Other:

Foundation:

Commercial Form:

Roof Shape:

Other:

Roof Material:

Stories:

Porch Shape:

Other:

Porch Width:

#### Description/Significant Features:

Two of the troughs measure approx. 2 feet wide by 300 feet long running north/south. These two troughs, approximately 15 feet apart, are parallel to each other. There are remnants of a wood post and fence system at sections of the troughs. A smaller concrete trough approx. 2 feet wide by 15 feet long is approx. 68 feet to the west of the southern end of the two main feed basins.

Alterations (include date(s), if known):

Architect(s)/Builder(s):

**Historical Information**

Historical Information:

Source(s) of Information:

**Digital Photo ID(s)**

File Name:

08120001

08120002

08120003

08120004

View:

Facing East

Facing North

Facing East

Facing East

Other:

**Program Management**

Recorded by:

LE Kittrell

Organization:

Brockington and Associates, Inc.

Date Recorded:

10/07/2021

# Statewide Survey of Historic Properties

State Historic Preservation Office  
South Carolina Department of Archives and History  
8301 Parklane Road  
Columbia, SC 29223-4905 (803) 896-6100

Site No. 8689 Status R Revisit  
Quadrangle Name: Fort Jackson South  
Tax Map No. R18600-01-02

## SURVEY FORM

### Identification

Historic Name: Westinghouse Electric Company's Columbia Fuel Fabrication Facility  
Common Name: WEC CFFF  
Address/Location: 5801 Bluff Road  
City: Hopkins ✓ Vicinity of County: Richland  
Ownership: Private Category: Building Other:  
Historical Use: Industry  
Current Use: Industry

SHPO National Register  
Determination of Eligibility:

### Property Description

Construction Date: 1968-69 Construction: Steel Other:  
Historic Core Shape: Rectangular Exterior Walls: Other concrete  
Other: Foundation: Slab construction  
Commercial Form: Roof Shape: Flat  
Other: Roof Material: Other metal deck  
Stories: 1 story Porch Shape:  
Other: Porch Width:

#### Description/Significant Features:

The flat roof, rectangular-shaped CFFF primary building is of steel construction and clad in concrete T panels. It has a metal decked roof.

Alterations (include date(s), if known):

There have been several additions to the original building since construction including a two-story, flat roof addition on the western half of the north elevation, the west elevation, and the southern quarter of the east elevation.

Architect(s)/Builder(s):

## **Historical Information**

Historical Information:

Source(s) of Information:

Fort Jackson South 1972 USGS topo. Photos supplied by WEC.

## **Digital Photo ID(s)**

File Name:

08689001

08689002

View:

Facing Southwest

Facing Southwest

Other:

## **Program Management**

Recorded by:

LE Kittrell

Organization:

Brockington and Associates, Inc.

Date Recorded:

10/07/2021

# Statewide Survey of Historic Properties

State Historic Preservation Office  
South Carolina Department of Archives and History  
8301 Parklane Road  
Columbia, SC 29223-4905 (803) 896-6100

Site No. 8690      Status R      Revisit  
Quadrangle Name: Fort Jackson South  
Tax Map No.      R18600-01-02

## SURVEY FORM

### Identification

Historic Name: Butler building  
Common Name:  
Address/Location: 5801 Bluff Road  
City: Hopkins      ✓ Vicinity of      County: Richland  
Ownership: Private      Category: Building      Other:  
Historical Use: Agriculture/ Subsistence  
Current Use: Industry  
SHPO National Register  
Determination of Eligibility:

### Property Description

Construction Date: ca. 1960      Construction: Frame      Other:  
Historic Core Shape: Rectangular      Exterior Walls: Other      metal  
Other:      Foundation: Slab construction  
Commercial Form:      Roof Shape: Gable, lateral  
Other:      Roof Material: Other metal  
Stories: 1 story      Porch Shape:  
Other:      Porch Width:

#### Description/Significant Features:

1-story, lateral gable rectangular, metal utilitarian bldg with metal roof; oriented east to west; central metal barn-style door on east elevation; slab construction.

Alterations (include date(s), if known):

originally used when property was farm. WEC left in place and uses as maintenance/storage. No known alterations, but it appears to have been painted since ca. 1969.

Architect(s)/Builder(s):

### **Historical Information**

Historical Information:

originally used when property was farm. WEC left in place and uses. The Butler building is in this location on historic images of construction of plant in 1968-1969.

Source(s) of Information:

Fort Jackson South 1972 USGS topo; WEC historic photos of plant construction (1968-1969).

### **Digital Photo ID(s)**

File Name:

08690001

View:

Facing Northwest

Other:

### **Program Management**

Recorded by:

LE Kittrell

Organization:

Brockington and Associates, Inc.

Date Recorded:

10/07/2021

# Statewide Survey of Historic Properties

State Historic Preservation Office  
South Carolina Department of Archives and History  
8301 Parklane Road  
Columbia, SC 29223-4905 (803) 896-6100

Site No. 8691      Status R      Revisit  
Quadrangle Name: Fort Jackson South  
Tax Map No.      R18600-01-02

## SURVEY FORM

### Identification

Historic Name: tractor shed  
Common Name:  
Address/Location: 5801 Bluff Road  
City: Hopkins      ✓ Vicinity of      County: Richland  
Ownership: Private      Category: Building      Other:  
Historical Use: Agriculture/ Subsistence  
Current Use: Unknown

SHPO National Register  
Determination of Eligibility:

### Property Description

Construction Date: ca. 1960      Construction: Frame      Other:  
Historic Core Shape: Rectangular      Exterior Walls: Other      metal  
Other:      Foundation: Slab construction  
Commercial Form:      Roof Shape: Gable, lateral  
Other:      Roof Material: Raised seam metal  
Stories: 1 story      Porch Shape:  
Other:      Porch Width:

#### Description/Significant Features:

1-story, lateral gable rectangular, metal bldg with raised seam metal roof; oriented lengthwise east to west; north elevation has shed roof open metal frame addition; slab construction; 2 garage bays with metal roll up doors on north elevation as well.

Alterations (include date(s), if known):

originally used when property was farm. WEC left in place and uses. North elevation has shed roof open metal frame addition; also it appears to have been painted since ca. 1969.

Architect(s)/Builder(s):

### **Historical Information**

Historical Information:

originally used when property was farm. WEC left in place and uses. The tractor shed building is in this location on historic images of construction of plant in 1968-1969.

Source(s) of Information:

Fort Jackson South 1972 USGS topo; WEC historic photos of plant construction (1968-1969).

### **Digital Photo ID(s)**

File Name:

08691001

View:

Facing Southwest

Other:

### **Program Management**

Recorded by:

LE Kittrell

Organization:

Brockington and Associates, Inc.

Date Recorded:

10/07/2021

## **Appendix C**

### SHPO Correspondence



**From:** [Johnson, Elizabeth](#)  
**To:** [Eric Poplin](#)  
**Cc:** [Parr, Nancy B.](#); [Judge, Christopher](#); [Leader, Jonathan](#)  
**Subject:** RE: Westinghouse CFFF Survey Research Design - Response to Comments from C Judge  
**Date:** Monday, August 16, 2021 11:00:28 AM  
**Attachments:** [image003.png](#)

---

Eric:

Thank you for providing a response to the comments from Chris Judge.

It is helpful to have the description of the Denley Cemetery and its current status. In the survey report please provide a full discussion of the cemetery and include a map of the boundaries. Thank you for proposing to record as an above-ground site and provided an NRHP evaluation.

It will be important in the report of the survey work that it is clear what area(s) were surveyed, and what areas were excluded and why. It will be important to include a discussion of how the developed portion(s) of the tract could be evaluated if any future ground-disturbing activities undertakings are planned (including those that are considered not significant land disturbances), and how cultural resources identification could be carried out. We understand that it could be difficult but the possibility of the existence of cultural resources in the developed portions needs to be considered.

We look forward to receiving a draft report from the survey.

Thanks,  
Elizabeth



Elizabeth M. Johnson  
Director, Historical Services, D-SHPO  
State Historic Preservation Office  
SC Department of Archives & History  
8301 Parklane Road  
Columbia, SC 29223  
Ph: 803.896.6168 Fax: 803.896.6167 <https://scdah.sc.gov/historic-preservation>

---

**From:** Eric Poplin <EricPoplin@brockingtoncrm.com>  
**Sent:** Monday, August 02, 2021 2:53 PM  
**To:** Johnson, Elizabeth <EJohnson@scdah.sc.gov>  
**Cc:** Parr, Nancy B. <parrnb@westinghouse.com>; Judge, Christopher <judgec@email.sc.edu>; Leader, Jonathan <LEADERJ@mailbox.sc.edu>  
**Subject:** Westinghouse CFFF Survey Research Design - Response to Comments from C Judge

Elizabeth,

Attached are our response to the comments provided by Christopher Judge concerning the research design for the cultural resources survey of Westinghouse's CFFF. If these are acceptable, we will revise the research design as indicated and submit a final version. I am happy to discuss any aspect further with you or Dr. Judge if needed.

As per our discussion, I have copied Chris and Jonathan Leader. Let me know if I can provide any additional information.

**Eric Poplin, Ph.D., RPA 12294**  
Senior Archaeologist

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[www.theflankcompany.com](http://www.theflankcompany.com)

Elizabeth Johnson  
Deputy State Historic Preservation Office  
SC Department of Archives and History  
8301 Parklane Road  
Columbia, South Carolina 29223

August 2, 2021

Re: Cultural Resources Survey of Westinghouse Electric Company's Columbia Fuel  
Fabrication Facility, Richland County, SC, - Research Design

Dear Ms. Johnson:

We received comments from Christopher Judge concerning the survey research design submitted to your office for review. We propose the following to address Dr. Judge's major concerns as we see them.

***Developed Areas excluded from survey-*** no change or add information below defining "Developed Areas"

The developed portion of the CFFF lies within their NRC-mandated restricted access area; access can be gained but is difficult. Most of the developed area lies beneath the built facilities or concrete and other hardscapes through which we could not excavate shovel tests nor observe the ground surface. In addition, most of this area was excavated, graded, and filled as the initial phase of the construction of these facilities. Currently, all buildings stand 4 feet above the original ground surface. Photographs and construction documents are available to determine if any areas remain that were not subjected to the excavation and filling described above. Given that the proposed survey is not triggered by a specific undertaking, the extreme efforts required to access potential undisturbed or minimally disturbed areas seems unwarranted. Should future specific undertakings threaten portions of the developed areas that may be undisturbed, review of the existing documentation concerning the plant's construction to identify potential undisturbed areas and then pre-construction excavation or construction excavation monitoring may be feasible and advisable if these areas are threatened.

***Monitoring/Creative Mitigation-*** no change

As noted above, this survey is not triggered by any specific undertaking. It is designed to provide WEC with the information necessary to determine if historic properties are present on the CFFF. WEC will use this information during the design and implementation of future undertakings to ensure that adverse effects to historic properties are avoided, minimized, or mitigated. Creative mitigation may be appropriate for some future project. It should be noted as well that WEC has no current plans for any undertakings other than their relicensing effort.

**Denley Cemetery-** include additional information concerning the Denley Cemetery

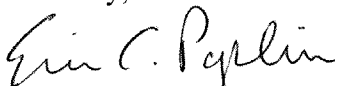
WEC has conducted ground-penetrating radar (GPR) survey of the Denley cemetery to define its boundaries and placed a fence around its 160+ burials to prevent inadvertent incursions. WEC maintains the cemetery and permits descendent visitations. We will not excavate any shovel tests within the fenced boundary of the cemetery per the request of WEC. Also, WEC has not drilled wells within the fenced boundary. One monitoring well was placed immediately adjacent to the boundary fence and then the well site was incorporated into the cemetery boundary fence to create safer access to the well. Currently, the Denley Cemetery is not recorded as an archaeological or historic site in ArchSite. The information gathered by Dr. Trinkley is in a Chicora Foundation cemetery survey form, a copy of which you graciously provided. We will record the cemetery as an above-ground resource and provide a recommendation for its NRHP eligibility based on the information gathered by Dr. Trinkley and that held by WEC.

***Use of USDA soil polygons to define areas of High Potential-*** clarify use of soils in site potential model

We did not use the USDA soil types as a variable in our model of site potential. We employed the soils to assist in defining the uplands and the Congaree River flood plain. As you noted, USDA soil polygons can be very inaccurate especially in areas that are not easily accessed. We relied on the LiDAR imagery to define higher areas within the flood plain. We assume that these higher areas are point bars and natural levees of the Congaree River and Mill Creek that probably have much sandier soils than those mapped and described by the 1978 USDA survey.

I hope our responses will address these concerns. I am happy to discuss further if not. And thanks again to Chris for the information he provided concerning the Denley Cemetery and nearby resources.

Sincerely,



Eric C. Poplin, Ph.D., RPA #12994

Principal Investigator

Cc: Nancy Parr, Westinghouse Electric Company  
Christopher Judge, USC Lancaster  
Jonathan Leader, SC State Archaeologist



July 14, 2021

Dear Elisabeth:

Thank you for the opportunity to review the research design for the Westinghouse Fuel Fabrication Facility, Hopkins, South Carolina prepared by Brockington and Associates. Overall, the proposal seems straight forward but I did notice a couple of issues of concern.

First, given the numerous resources recorded by Mark Groover adjacent to the developed portion (68 acres) of WFFF, I respectfully disagree that this area has "No Potential" to produce cultural resources. Many Native American sites, some of the earliest European settlers in the Midlands and under studied African American sites exist in similar locales nearby, not to mention Spanish explorer Hernando DeSoto trekked through here in April of A.D. 1540. Many sites are preserved under landscapes converted by development/construction, silviculture and agriculture. On the contrary this area has a high potential, in my humble opinion, to produce cultural resources.

Now with that said, do I want my friends and colleagues to dig in the developed portion of this tract that could contain contaminated soil? ... no, of course not. But there are plans for a 50,000 square foot expansion at WFFF and the construction should be monitored for cultural resources by a professional archaeologist. Further, due to the high potential for that area to contain cultural resources, perhaps WFFF could be encouraged to enter into an agreement for some type of creative mitigation, possibly associated with a nearby site such as the Green Hill Mound (38RD4) that the state recognized Pine Hill Indian group believe is an ancestral site. This site is a well-known precontact cemetery dating approximately A.D. 1250-1400 and is located down gradient from WFFF on privately owned property.

Regards the "small family cemetery" that exists within the boundaries of WFFF, this is known as the historic Denley Cemetery, associated with the African American community in Lower Richland. Dr. Michael Trinkley of the Chicora Foundation has studied this cemetery and he has identified at least 130 unmarked graves beyond the 20 marked graves. Dr. Trinkley recommended the site as potentially eligible for the National Register of Historic Places. WFFF has previously proposed drilling test wells within the known boundaries of the cemetery and such activities need to be avoided at all costs.

While the 1978 USDA Soil Survey was utilized by Brockington, in part, to construct a predictive model for levels of site potential at WFFF, I question the validity of soil designations in the floodplain (and elsewhere for that matter) based on that publication's erroneous soil classification for the Green Hill Mound (38RD4) soils.

The 1978 Soil Survey of Richland County does not appear to map the soils of Green Hill Mound in an accurate fashion. Lawrence (1978: Sheet 54) indicates "Co" for Congaree Loam. Lawrence (1978:44) describes the Congaree Series as:

...consists of deep, well drained or moderately well drained, moderately permeable soils that form in loamy alluvial sediment washed from soils of the piedmont region.

This simply does not describe the onsite soils and must have been extrapolated rather than the result of a physical visit during the preparation of the report. A far more accurate description is contained in the early 20<sup>th</sup> century soil survey. According to the 1916 Soil Survey for Richland County (Duyne et al 1916:65-66) the onsite soils surrounding Green Hill Mound are Congaree Silty Clay Loam, described by Duyne as "the least important agricultural soil in the county" possibly due to seasonal flooding, in places as much as 10 feet deep. This type is common in the Mill Creek area in a 2 to 4-mile-wide belt running 25 miles between Gills Creek and the Wateree River. Obviously without the benefit of commercial fertilizer such places would be both precarious regards flooding yet advantageous to precontact farmers. Where agriculture was in place in 1916 on Congaree Silty clay loam, the crops were chiefly corn, oats and cotton (Duyne et al 1916). The mound itself is isolated from the surrounding soil type and was described in 1916 as a separate soil type—Kalmia sandy loam:

The Kalmia sandy loam consists of a light to medium gray sand and or loamy sand, about 6 inches deep, grading into a light-yellow loamy sand which is underlain at a depth of 12 to 18 inches by a yellow sandy clay. The latter, which usually shows brick-red mottlings below the depth of 24 inches, continues to a depth of 3 feet or more... Practically all areas of the type in places contain sand grains coarser than a medium grade. Occasionally the content of such material is sufficient to give the type a coarse texture... A number of areas of coarse sandy loam, a few acres in extent, are included with this type, principally on the terraces on the west side of Mill Creek between the Atlantic Coast Line Railroad and the Bluff Road (Duyne et al 1916:56).

Therefore, it seems probable that soil types that may produce archaeological resources may be present in the areas deemed as low potential.

Sincerely;

*Chris*

Christopher Judge, Archaeologist  
USC Lancaster  
Native American Studies Center  
119 South Main Street  
Lancaster, SC 29720  
[judge@sc.edu](mailto:judge@sc.edu)  
803-206-4125 (cell)

cc. Roberto Munoz-Pando, Chief Michelle Mitchum, Eric Poplin, Jon Leader, Adam King

**From:** [Johnson, Elizabeth](#)  
**To:** [LEADER, JONATHAN](#); [JUDGE, CHRIS](#)  
**Cc:** [Roberto Pando](#); [Eric Poplin](#)  
**Subject:** FW: Cultural Resource Survey of Westinghouse Electric Columbia Facility  
**Date:** Tuesday, July 13, 2021 9:20:30 AM  
**Attachments:** [image001.png](#)  
[Westinghouse Columbia Facility Survey RD cover letter 7-9-2021.pdf](#)  
[CRS Westinghouse CFFF Research Design July 2021.pdf](#)

---

Jon and Chris,

Please see the attached draft survey research design for a survey of the Westinghouse site. We would appreciate your review and any feedback or comments on the research design.

Thanks,

Elizabeth



Elizabeth M. Johnson  
Director, Historical Services, D-SHPO  
State Historic Preservation Office  
SC Department of Archives & History  
8301 Parklane Road  
Columbia, SC 29223  
Ph: 803.896.6168 Fax: 803.896.6167 <https://scdah.sc.gov/historic-preservation>

---

**From:** Eric Poplin  
**Sent:** Friday, July 09, 2021 12:21 PM  
**To:** Johnson, Elizabeth ; Roberto Pando  
**Cc:** Parr, Nancy B.  
**Subject:** Cultural Resource Survey of Westinghouse Electric Columbia Facility

Elizabeth and Roberto,

Attached is a cover letter for the submittal of a research design for a cultural resources survey of Westinghouse Electric Company's Columbia Fuel Fabrication Facility near Hopkins, Richland County. I will send the research design to you through WeTransfer due to its size. Also, I am forwarding a hard copy as well.

Please review the research design. We do not want to initiate our field work based on the proposed approach until we know that it will be acceptable.

Thank you for your assistance and we look forward to your comments.

**Eric Poplin, Ph.D., RPA 12294**  
Senior Archaeologist

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March 7, 2022

Eric Poplin  
Brockington & Associates  
498 Wando Park Blvd., Suite 700  
Mt. Pleasant, SC 29464  
[ericpoplin@brockington.org](mailto:ericpoplin@brockington.org)

Re: Westinghouse Columbia Fuel Fabrication Facility (CFFF)  
Draft Cultural Resources Survey  
Richland County, South Carolina  
SHPO Project No. 15-EJ0022

Dear Eric Poplin:

Thank you for providing electronic and paper copies of the draft *Cultural Resources Survey of the Westinghouse Electric Company's Columbia Fuel Fabrication Facility, Richland County, South Carolina* dated February 2022. The State Historic Preservation Office (SHPO) is providing comments for the U.S. Nuclear Regulatory Commission (NRC) pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR 800. Consultation with the SHPO is not a substitution for consultation with Tribal Historic Preservation Offices, other Native American tribes including those with state recognition, local governments, or the public. We understand that the NRC is coordinating Section 106 review with the National Environmental Policy Act (NEPA) environmental review.

We appreciate that Westinghouse had this survey conducted to help address concerns that have previously raised about the potential for unidentified cultural resources at the CFFF site. Our office previously reviewed and provided comments on the Westinghouse CFFF Survey Research Design along with Christopher Judge, Archaeologist with USC Lancaster.

We provided copies of the draft report for review to Christopher Judge, State Archaeologist Jon Leader, and Chief Michelle Wise Mitchum of the Pine Hill Indian Tribe. Both Mr. Judge and Chief Mitchum have provided their comments to you and are also being sent as attachments for your convenience. Please consider their comments and address in a revised draft report. For example, please incorporate the information provided by the Pine Hill Indian Tribe into the historical context section.

The draft report includes findings from:

- Architectural survey of the CFFF,
- Archaeological survey of 197 acres of the CFFF with high potential for archaeological resources and 379 acres of the CFFF with low potential for archaeological resources, and
- Documentation of Denley Cemetery (SHPO Site No. 8119/38RD1518) including Ground Penetrating Radar (GPR), detailed mapping, and collection of inscriptions and information on all markers.

The survey identified five new archaeological sites (38RD1512 – 38RD1516) and recommends that they are not eligible for the listing in the National Register of Historic Places (NRHP). To assist in our evaluation, please address how the Pre-Contact components of sites might be related to Green Hill Mound (38RD0004) and other prehistoric sites in lower Richland County.

The survey recorded four above-ground sites – three related to the prior agricultural use of the property (SHPO Site Nos. 8120, 8690, 8691), and the CFFF facility itself (SHPO Site No. 8689). A previously recorded resource, SHPO Site No. 3577, an unnamed canal and dike, was revisited. Our office would concur with the recommendations that 3577, 8120, 8690, and 8691 do not meet the criteria for listing in the NRHP and are not eligible.

To further assist in our review of the report's recommendation that the CFFF (SHPO Site No. 8689) does not meet the criteria for listing in the NRHP, we request that additional context about the development and construction of this industrial complex be incorporated into the report. Our office did limited research using online access to local newspapers (Columbia Record, and The State, see attached) about the development and use of the facility. We note that the aerial photographs provided in Figure 4.10 (page 61) show that alterations have occurred that have likely affected the historic integrity of the complex.

We appreciate the additional documentation provided on the Denley Cemetery (SHPO Site No. 8119/38RD1518). The report notes that cemeteries are not ordinarily considered eligible for the NRHP, and recommends that the cemetery does not meet the criteria for listing in the NRHP. Based on the information provided, our office would concur with this evaluation. Regardless of the cemetery's NRHP status, state laws protect cemeteries and burials, and we appreciate the protection provided by Westinghouse for the cemetery.

The survey also makes recommendations regarding any future potential ground-disturbing activities to account for the possibility of deeply buried deposits in two areas.

Disturbed areas inside the security fence: "Prior to future ground disturbing activities in the disturbed areas inside the security fence that will extend more than four feet below the present ground surface, these plans should be reviewed to determine if there is a possibility of archaeological deposits at that locale." Please clarify who would carry out this review, and provide a map of these areas.

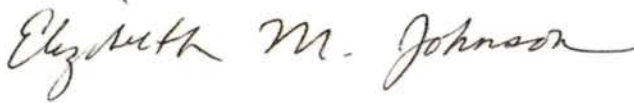
Sandy levee ridges in Congaree River flood plain: "Should land-disturbing activities be planned for these portions of the CFFF that will extend more than three feet below the

present ground surface, appropriate testing of these locales should be undertaken to ensure that no NRHP-eligible sites are affected.” Please provide a map of these ridges.

In addition to the above requests, we have two additional technical comments (see below) that we ask be addressed in the revised report. We also ask that the report address the comments provided by the outside reviewers, and include as appropriate the information in the responses provided by Westinghouse on February 21, 2022 (LTR-RAC-22-12).

Please refer to SHPO Project Number 15-EJ0022 in any future correspondence regarding this project. If you have any questions, please contact me at (803) 896-6168 or [ejohnson@scdah.sc.gov](mailto:ejohnson@scdah.sc.gov).

Sincerely,



Elizabeth M. Johnson  
Director, Historical Services, D-SHPO  
State Historic Preservation Office

Cc: Chief Michelle Wise Mitchum, [pinehillndn@yahoo.com](mailto:pinehillndn@yahoo.com)  
Christopher Judge, [judgec@email.sc.edu](mailto:judgec@email.sc.edu)  
Diana Diaz-Toro, [Diana.Diaz-Toro@nrc.gov](mailto:Diana.Diaz-Toro@nrc.gov)

Attachments:

- February 27, 2022 review by Christopher Judge
- February 28, 2022 letter from Chief Michelle Mitchum
- SHPO background research in local newspapers related to CFFF

Technical Comments

Page 8: Figure 2.2. In the lower left of the tract are areas that appear to be portions of the areas of high probability described in the report as “elevated landforms in the Congaree River flood plain”. Were these areas between the portions of the site noted as “Swamp” fully tested at 30m intervals? The mapping of the shovel tests indicates one transect? Please clarify and/or adjust the map.

Page 43: Bottom of page references Figure 3.11 as the Hopkins quadrangle. Figure 3.11 is actually an aerial view, should it be 3.12?



**Pine Hill Indian Tribe**  
*The First People of Fort Jackson, South Carolina*

February 28, 2022

Elizabeth M. Johnson  
Director, Historical Services, D-SHPO  
State Historic Preservation Office  
SC Department of Archives & History  
8301 Parklane Road  
Columbia, SC 29223

Re: Cultural Resources Survey of the Westinghouse Electric Company's Columbia Fuel Fabrication Facility created by Brockington & Associates, Inc.

Dear Ms. Johnson,

Thank you for the opportunity to review the Cultural Resources Survey of the Westinghouse Electric Company's Columbia Fuel Fabrication Facility created by Brockington & Associates, Inc. (February 2022) under the direction of Principal Investigator, Eric C. Poplin, Ph.D. We intend that our response to the Brockington & Associates report sheds light on our position regarding the report, created to support the pending 40-year permit request by Westinghouse Fuel Fabrication Facility ("Westinghouse") located in Hopkins, South Carolina to the US Nuclear Regulatory Commission. Our review and response work falls under the purpose of

Pine Hill Indian Tribe's State Recognized tribal organization Pine Hill Indian Community Development Initiative ("PHICDI") and its affiliate organizations.

We request that it is noted that neither Westinghouse nor Brockington & Associates contacted our Tribe regarding the NRC permit request, any environmental justice issues surrounding the Westinghouse permit request, nor any cultural investigation to create opinions in any part or portion of the Cultural Resources Survey report in historical or any other context. We disagree with portions of Brockington & Associates account of historical context of the area, and we disagree entirely with Brockington & Associates determination that the area of Westinghouse is not eligible for National Registry of Historic Places.

Brockington & Associates opined in summary within the Abstract of their report, in page iii, that:

4055 Coburg Lane  
Orangeburg, South Carolina 29115

[www.phhn.org](http://www.phhn.org)

(803) 662-3377  
[pinehillIndn@yahoo.com](mailto:pinehillIndn@yahoo.com)

“During the survey, five archaeological sites (38RD1512-38RD1516), three farm-related sites (a cattle facility- SHPO Site No. 8120, a Butler building - SHPO Site No. 8690, and a former tractor shed - SHPO Site No. 8691), the Denley Cemetery (SHPO Site No. 8119/38RD1518), and the CFFF facility (SHPO Site No. 8689) were recorded. Additionally, an unnamed canal and dike (SHPO Site No. 3577) was re-assessed. Brockington recommends 38RD1512-38RD1516, SHPO Site No. 8119 /38RD1518 (Denley Cemetery), and SHPO Site Nos. 3577, 8120, and 8689-8691 not eligible for the NRHP. With the exception of the Denley Cemetery (SHPO Site No. 8119 /38RD1518), these resources warrant no further management consideration.”

We respectfully disagree. We believe the area does warrant protection and further management consideration. As explained by Brockington & Associates within the report, the criteria for the National Register of Historic Places (NRHP) are:

- A. is associated with events that have made a significant contribution to the broad pattern of history;
- B. is associated with the lives of persons significant in the past;
- C. embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, possesses high artistic value, or represents a significant and distinguishable entity whose components may lack individual distinction; or
- D. has yielded, or is likely to yield, information important to history or prehistory may be eligible for the NRHP.

Please accept our rebuttal to the opinion of Brockington & Associates as published in their report, based on the NRHP criterion, as follows:

**A. is associated with events that have made a significant contribution to the broad pattern of history.**

Brockington & Associates paint with a very wide brush, in simple strokes, a snapshot of the establishment and growth of an infant colony into a State we know today as South Carolina. While the intent seems to be to provide a history relevant to Columbia, Richland County and/or Camden/Kershaw Districts, very little is unveiled. However, the Journals of the Commissioners of the Indian Trade, as well as Calendar of State Papers journals, portrays significant importance on this area relating to Indian trade. Without Indian trade, and Native American slavery, the South Carolina colony would not have developed the history held in colonial records that we reflect on today.

For example, the Lady of Cofitachequi is almost celebrated as a legend comparable to that of Pocahontas. Further, it is in this location where historical records indicate activity of Indian Trader, Capt. Richard Parris:

“Capt. Pearis is found in the Roster of Patriots, having set up a meeting with the six Cherokee headmen in Amelia Township, at the Congarees, with Henry William Drayton, leader of the Secret Commission, to discuss the “Quarrel with the Great King.”<sup>1,2,3</sup> The meeting was on September 25, 1775.<sup>4</sup>

**B. is associated with the lives of persons significant in the past.**

Several historical figures come to mind that meet this criterion:

1. Cofitachequi is historically significant in all accounts. As Brockington & Associates explained,

“Cofitachequi is an excellent example of Mississippian social organization present throughout southeastern North America during the late PreContact era (Anderson 1985).” (Id., pg. 25)

We know Dr. Henry Woodward wrote to the Earl of Shaftesbury about Cofitachequi, to which Shaftesbury created a code to discuss discovery of gold and riches. Moreover, is it this route James Moore and his sons assumed to conduct Indian trade as well as travel for purposes such as the Tuscarora War in North Carolina.

2. It is in this location where historical records indicate activity of Indian Trader, Capt. Richard Parris:

“Capt. Pearis is found in the Roster of Patriots, having set up a meeting with the six Cherokee headmen in Amelia Township, at the Congarees, with Henry William Drayton, leader of the Secret

---

<sup>1</sup> Moss, Boby Gilmer. *Roster of South Carolina Patriots in the American Revolution*. Baltimore, MD, USA: Genealogical Publishing Co., 1994.

<sup>2</sup> Krawczynski, Keith T. *William Henry Drayton: South Carolina Revolutionary Patriot*. Louisiana State University Press. 2001. p, 178

<sup>3</sup> Whitmire, Beverly T. “Richard Pearis, Bold Pioneer,” *Proceedings and Papers of the Greenville County Historical Society* (1962-1964): 75-85

<sup>4</sup> “Talk from the Hon. William Henry Drayton.” American Archives: Documents of the American Revolutionary Period, 1774-1776. Southern Illinois University. Retrieved from <http://amarch.lib.niu.edu/islandora/object/niu-amarch%3A98187>

Commission, to discuss the “Quarrel with the Great King.”<sup>5, 6, 7</sup> The meeting was on September 25, 1775.<sup>8</sup>

3. Green Hill Mound. Brockington & Associates explain that

“Green Hill Mound contains burial urns, shell gorgets, a shell cup, and numerous other artifacts that have been routinely excavated and exposed for over 100 years (Steen 2018:59). The mound has been damaged by flooding and sand mining for road fill that has unearthed the burials. Researchers suggest the mound could yield further information regarding late Mississippian burial practice and ritual in the Congaree River valley (Michie 1980:59).” (Id., pg. 25)

We believe Green Hill Mound is sacred and does hold imperative information our Tribe relies on to understand our own history.

4. The first Fort Congaree was near the area. To the best of our knowledge, the exact location of the original Fort Congaree remains unknown but colonial records within the Journals of the Commissioners for Indian Trade explain that Fort Congaree resulted from an independent agreement between our tribal leadership and James Moore assumed by the Commissioners. Capt. Charles Russell was sent to manage Fort Congaree, marrying Mary Sterling. Mary is daughter of George Sterling, original owner of the locally popular “Sterling Land Grant”. The Sterling property remains a well-known Indian trading location from which even today Native American artifacts are unearthed on a regular basis by whom we are informed and believe to be current property owners/guardians. Col. Russell died leaving his widow with several children. Mary’s effort to secure ownership of the land around her for her children led to her legacy in the area. Her children would go on to be recognized today by areas such as McCord’s Ferry for which McCord’s Ferry Road is named.
5. South Carolina Governor Wade Hampton had a successful plantation in the area.
6. It is significant that the Denley Estate, on which Westinghouse is located, endured over twenty (20) years of probate litigation spurring several civil lawsuits, an Executor appointed by the Probate Court, fueled family feuds, and that the ultimate and obvious intent for the entirety of the Denley Estate to be left to William Denley, Sr.’s granddaughter for her life and then, distributed at her discretion, to her children

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<sup>5</sup> Moss, Boby Gilmer. *Roster of South Carolina Patriots in the American Revolution*. Baltimore, MD, USA: Genealogical Publishing Co., 1994.

<sup>6</sup> Krawczynski, Keith T. *William Henry Drayton: South Carolina Revolutionary Patriot*. Louisiana State University Press. 2001. p, 178

<sup>7</sup> Whitmire, Beverly T. “Richard Pearis, Bold Pioneer,” *Proceedings and Papers of the Greenville County Historical Society* (1962-1964): 75-85

<sup>8</sup> “Talk from the Hon. William Henry Drayton.” American Archives: Documents of the American Revolutionary Period, 1774-1776. Southern Illinois University. Retrieved from <http://amarch.lib.niu.edu/islandora/object/niu-amarch%3A98187>

ultimately failed. The report discusses a train depot in Hopkins but made no mention of the impact of the nearby Kingsville train depot. Moreover, governmental exercise of eminent domain to take property for Camp Jackson, now known as Fort Jackson, surely impacted the area significantly from both environmental and economic aspects.

7. Denley Cemetery. Chicora Foundation determined that the cemetery is eligible for NRHP. Further, there is absolutely no evidence to support that the cemetery is solely an African American cemetery. It is very likely that Native Americans are buried there as well, among the over 130 unmarked graves. Descendants of individuals buried in the cemetery whom I have talked to are aware of their Native American ancestry from that specific local. To discount that Native Americans may be buried in Denley Cemetery discounts the ancestry of several Denley Cemetery descendants. Additionally, Denley Cemetery is proof of assimilation into Christianity and transition from traditional burial as evidenced by Green Hill Mound to Christian burial practices.

**C. embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, possesses high artistic value, or represents a significant and distinguishable entity whose components may lack individual distinction.**

We reiterate all the above responses to previous criterion in response to this criterion. Landmarks such as Cofitachequi, Green Hill Mound, Fort Congaree, and Denley Cemetery are too significant to dismiss as lost to economic development. These locations are simply not lost.

**D. has yielded, or is likely to yield, information important to history or prehistory may be eligible for the NRHP.**

Again, we all the above responses to previous NHRP criterion.

While Westinghouse may support the economy of Hopkins, South Carolina, it is well documented that Westinghouse has actively polluted the area for decades and has many documented violations, creating environmental determinates leading to community wide health disparities. Hopkins will survive if Westinghouse is denied any permit and is decommissioned. However, dismissing the cultural significance of the area further denies the continued and documented Native American existence beyond the Yemassee War of 1715 and strips the Hopkins area of historical impact in South Carolina history. Further, dismissing the cultural significance of the area endangers and potentially denies protection of Green Hill Mound and Denley Cemetery. Catawba Indian Nation requested that the Westinghouse area of impact include both Green Hill Mound and Denley Cemetery. We join in their request to protect these sacred places.

Our Tribe, removed forcibly by governmental exercise, depends on the true history of our original lands as they are recorded in historical records and as they are unearthed, reported, studied, published, and held or otherwise displayed. We rely heavily on the accuracy of

archaeological and anthropological studies of our original lands and our history, with good faith expectation that these studies are professionally unbiased and unaffected by politics of any sort. We endeavor to reconstruct our history in an ongoing manner, on our own, as our history was taken away from us along with our land.

Following our Ancestors, it is in good faith that this rebuttal response is provided. However, history shows us the result of our Ancestors' good faith acts ended in being conquered. Pen and paper published by non-Indigenous individuals has successfully held power over our People to determine our tribal existence, assumed our assimilation into other tribes, and our ultimate extinction. Yet, South Carolina reintroduced the Native American population through legislation within the last twenty (20) years, and I am placing this letter as evidence of the continued existence of myself and my People, the Pine Hill Indian Tribe, who are Indigenous to the area of the Wateree-Congaree River Basin and surrounding areas including Fort Jackson and the current location of Westinghouse.

Respectfully,

*Chief Michelle Mitchum*

Chief Michelle Mitchum  
Pine Hill Indian Tribe  
Executive Director, Pine Hill Indian Community Development Initiative  
Director, Pine Hill Health Network  
Ambassador, Community Health Workers Institute, Center of Community Health Alignment,  
UofSC Arnold School of Public Health

CC:  
US Nuclear Regulatory Commission

**Westinghouse Cultural Resources Survey Review**  
Christopher Judge  
USC Lancaster, Native American Studies Center  
2/27/22

The following is a review of a draft of *Cultural Resources Survey of the Westinghouse Electric Company's Columbia Fuel Fabrication Facility, Richland County, South Carolina*. By Brockington and Associates. February 2022.

**NOTE:** Italics below indicate verbatim text from archaeological report

lii "All cultural resources within WFFF" ???

Page 5 Various historic maps of the region also were reviewed determine if any identifiable

Page 5 CFFF. Specific secondary sources consulted include Waddell (1980) Coclanis (1989),. Waddell and Coclanis are about the lowcountry, not the Midlands so not sure of their usefulness here?

Page 6 the developed portion should have potential to produce undisturbed deposits below graded disturbance

Page 24 ... with at least one mound, the Green Hill Mound (38RD0004), on the Congaree River flood plain to the west of the CFFF. Green Hill is not a human constructed Mississippian mound but a natural sandy hummock. It is predominantly a Deptford site with later intrusive Mississippian burials placed in the hummock.

Page 25 The closest recorded mound is the Green Hill Mound (38RD0004) located 2.5 miles southwest of the CFFF (see Figure 3.6). ????? I guess my unpublished work on this site was deemed of no use.

Page 24-25 No mention of John Cable's MegaDrought book detailing recent archaeology in Wateree Valley?

Page 45 38RD1513, no mention or connection to the nearby large Deptford site 38RD04 , or the large Deptford Site called Thoms Creek (38LX2), nor the Sable Site near Riverbanks Zoo at the confluence of Broad and Saluda Rivers at the headwaters of the Congaree River?

Pages 49-50 Conversely, the soapstone fragment could be from Mississippian or early 18<sup>th</sup> century Native American occupation. Soapstone pipes are known from Mississippian sites in the nearby Wateree Valley and John Lawson remarked among the Congaree Indians in 1701 that they smoked tobacco out of large stone pipes, some that could hold upwards of an ounce (Quoted in Steen's Fort Jackson report from a site close to the WFFF.

Page 51 Could the simple stamped sherd possibly be from Late Woodland or Mississippian contexts?

Page 65 Should read conducted survey of "portions of" or "all but"...

Page 66 Were descendants of the folks buried in Denley Cemetery interviewed to see if they could provide any additional information about the cemetery and the community in Lower Richland?

Page 67. While I have often heard mention of the following *"Note also that WEC maintains a management plan for the facility that outlines procedures should cultural resources be discovered during the operation of the facility"* should this document be referenced in this report? Should it be included in its entirety as an appendix to this report? Has it been reviewed by SHPO? Is it available to the public?

References Cited: I noted only a couple of archaeological reports in the last 15-20 years were utilized for this report. Perhaps a reflection of the lack of archaeology near Columbia.

#### Summary

Overall, while no sites were eligible for NRHP, most precontact components identified during the project seem potentially related to Green Hill Mound (38RD04) a large Deptford site located in close proximity to WFFF. Rather disappointingly, no attempt at connections were made by the author. In addition, it is a site that local Native Americans are concerned about both understanding and protecting. While not a published report, and not to toot my own horn, my detailed synthesis of this site was provided to Brockington, but it is rather clear it was ignored as part of the project. This is more of an observation than a complaint and there may be reasons for this that I am not privy to at this time.

It appears that the descendant groups in the nearby African American communities in Lower Richland that are related to Denley Cemetery were not contacted nor included in the process of evaluating this site.

FOR THE RECORD: There was a reference in the Appendix in a MEMO to Elisabeth Johnson that referred to me as "Dr." Judge. While I appreciate the promotion, I hold a M.A. degree in Anthropology.





May 12, 2022

Eric Poplin  
Brockington & Associates  
498 Wando Park Blvd., Suite 700  
Mt. Pleasant, SC 29464  
[ericpoplin@brockington.org](mailto:ericpoplin@brockington.org)

Re: Westinghouse Columbia Fuel Fabrication Facility (CFFF)  
Revised Draft Cultural Resources Survey  
Richland County, South Carolina  
SHPO Project No. 15-EJ0022

Dear Eric Poplin:

Thank you for providing the revised draft *Cultural Resources Survey of the Westinghouse Electric Company's Columbia Fuel Fabrication Facility, Richland County, South Carolina* dated April 2022. We also received your letter describing how the comments from our office, Chris Judge of USC-Lancaster, and Chief Michelle Mitchum of the Pine Hill Indian Tribe were considered. The State Historic Preservation Office (SHPO) is providing comments for the U.S. Nuclear Regulatory Commission (NRC) pursuant to Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR 800. Consultation with the SHPO is not a substitution for consultation with Tribal Historic Preservation Offices, other Native American tribes including those with state recognition, local governments, or the public. We understand that the NRC is coordinating Section 106 review with the National Environmental Policy Act (NEPA) environmental review.

Based on the additional information and context in the revised report, our office concurs with the recommendation that the Columbia Fuel Fabrication Facility (CFFF), SHPO Site No. 8689, does not meet the criteria for listing in the National Register of Historic Places as it “lacks integrity of design, workmanship, and building materials due to multiple exterior modifications to the office building, manufacturing plant, and the overall campus” as Westinghouse Electric has “expanded, altered, and modernized this facility since it was originally constructed.”

Our office recommends to Westinghouse and the NRC that as part of the relicensing process, the information related to cultural resources at the site including this survey, maps, and the referenced cultural resources protocols be gathered in one binder/folder, along with contact information for staff at NRC, SHPO, and Westinghouse, and be provided to our office, and any

other consulting parties, to ensure that each entity has current cultural resources documentation readily accessible. In addition, we would request that our office and other consulting parties be provided with an annual update indicating whether or not any cultural resources work has been undertaken or planned at the site. This annual update, which could take the form of a memo or letter, should also include a status update for the Denley Cemetery.

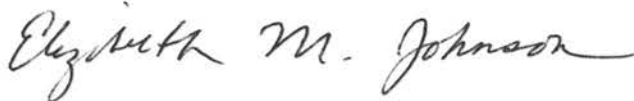
Our office accepts the revised report as final. To complete the reporting process, please provide at least three (3) hard copies of a final report: one (1) bound hard copy and a digital copy in ADOBE Acrobat PDF format for the SHPO; one (1) bound and one (1) unbound hard copies and a digital copy in ADOBE Acrobat PDF format for SCIAA. Investigators should send all copies directly to the SHPO. The SHPO will distribute the appropriate copies to SCIAA. Please ensure that a copy of our comments letter is included in the Appendices and Attachments of the final report.

Please provide GIS shapefiles for the surveyed area (and architectural sites as applicable). Shapefiles for identified archaeological sites should be coordinated with SCIAA. Shapefiles should be compatible with ArcGIS (.shp file format) and should be sent as a bundle in .zip format. For additional information, please see our [GIS Data Submission Requirements](#). Please provide final electronic copies of the survey forms and photographs for the above-ground resources following the [Electronic Submission Requirements for Planning Surveys and Review & Compliance Surveys](#).

Please ensure that all Final survey deliverables (reports, survey forms and photographs, and GIS shapefiles) are sent to the SHPO at the same time using the same medium (e.g., DVD-RW, thumb drive, or FTP/file sharing site) to assist in project tracking. Files should be sent to [rc@scdah.sc.gov](mailto:rc@scdah.sc.gov). This new email address is only to be used for submitting survey deliverables. Contact your assigned reviewer directly for any questions or concerns.

Please refer to SHPO Project Number 15-EJ0022 in any future correspondence regarding this project. If you have any questions, please contact me at (803) 896-6168 or [ejohnson@scdah.sc.gov](mailto:ejohnson@scdah.sc.gov).

Sincerely,



Elizabeth M. Johnson  
Director, Historical Services, D-SHPO  
State Historic Preservation Office

Cc: Chief Michelle Wise Mitchum, [pinehillndn@yahoo.com](mailto:pinehillndn@yahoo.com)  
Christopher Judge, [judgec@email.sc.edu](mailto:judgec@email.sc.edu)  
Stacey Imboden [Stacey.Imboden@nrc.gov](mailto:Stacey.Imboden@nrc.gov)  
Jean Trefethen [Jean.Trefethen@nrc.gov](mailto:Jean.Trefethen@nrc.gov)

## **Appendix D**

### Ground Penetrating Radar Survey of Denley Cemetery



# **Ground Penetrating Radar Survey of Denley Cemetery**

## **Richland County, South Carolina**

**David Baluha (RPA #17120)**

**February 2022**

### **Introduction**

Brockington and Associates, Inc. (Brockington) was subcontracted to conduct remote sensing at State Historic Preservation Office (SHPO) Site Number (No.) 8119 and 38RD1518 (Denley Cemetery) on the Westinghouse Electric Company LLC's (WEC) Columbia Fuel Fabrication Facility (CFFF), located in Hopkins in southern Richland County, South Carolina. Remote sensing included Ground Penetrating Radar (GPR) survey and detailed mapping. The cemetery is located approximately 450 feet (ft) west of the primary CFFF. The cemetery measures 279-by-184 ft (covering 0.9 acre or 39,167.3 ft<sup>2</sup>) with its long axis oriented northwest/southeast. A total of 29 known graves have been documented at the cemetery, most of which are commemorated on a monument erected by the WEC at the cemetery. Brockington mapped 191 stone monuments across the cemetery. These investigations included GPR survey, mapping, GPR analysis, and report preparation, which are summarized below. Figure D-1 shows the location of Denley Cemetery at the CFFF.

In the early 2000's, WEC cleared undergrowth from the cemetery area and conducted a GPR survey to define the limits of the cemetery. During these activities, WEC personnel identified numerous unmarked depressions across the cemetery, which were filled with soil from another location. The unmarked depressions were then marked with custom-made granite markers. WEC installed a new fence approximately 30 feet from observed depressions and GPR anomalies to protect the cemetery from inadvertent damage.

### **Methods of Investigation**

#### **Introduction**

Brockington conducted GPR survey and mapping at Denley Cemetery in two phases on September 23-24 and on November 18-19, 2021. Brockington Senior Archaeologist David Baluha (RPA #17120) conducted the GPR survey, with the assistance of Crew Chief Jimmy Lefebre and Archaeologist Tess Kaiser. The GPR survey conducted September 23-24 proved ineffective because of wet soil conditions, which inhibited the effectiveness of GPR. Therefore, Brockington returned November 18-19, 2021 and conducted additional GPR survey. Brockington used the MALA Ground Explorer and Mini Rough Terrain Cart (MRTC) system with a 450-megahertz antenna to collect the GPR data (<https://www.guidelinegeo.com/product/mala-ground-explorer-gx/>).



Figure D-1. The location of Denley Cemetery on the CFFF (ESRI 2021).

## Environmental Conditions

Before conducting the GPR survey, environmental conditions at the cemetery were assessed. The cemetery extends across a ridge overlooking a meander in the Congaree River flood plain occupied by Mill Creek. An overhead powerline corridor borders the cemetery to the east. At present, numerous mature hardwoods are growing inside the cemetery. Several large stumps are also present. Fire ant nests and small mammal (moles, voles, or mice?) burrows indicate shallow natural disturbances of the ground surface within the fenced enclosure. Figures D-2 and D-3 provide views of Denley Cemetery in September 2021.

Prior to fieldwork, Brockington determined soil conditions in the study area by using data from the National Resources Conservation Services's *Web Soil Survey* (WSS). Vacluse loamy sand was the only soil type identified in the project area. Vacluse loamy sand is a very deep, well-drained, and typical kanhapludult, with five distinct soil horizons ranging in depth from 0-6.00 ft below surface (bs). Table D-1 summarizes the typical soil profile for Vacluse loamy sand ([https://soilseries.sc.egov.usda.gov/OSD\\_Docs/V/VAUCLUSE.html](https://soilseries.sc.egov.usda.gov/OSD_Docs/V/VAUCLUSE.html)).

Table D-1. Vacluse Loamy Sand Typical Soil Profile.

Horizon	Depth (ft below surface)	Characteristics
Ap	0-0.50	dark grayish brown (10YR 4/2) loamy sand; abrupt smooth boundary
E	0.50-1.25	yellowish brown (10YR 5/4) loamy sand; clear wavy boundary
Bt	1.25-2.50	strong brown (7.5YR 5/6) sandy clay loam; abrupt wavy boundary
Btx	2.50-5.00	70 percent red (2.5YR 5/8) sandy loam and 20 percent strong brown (7.5YR 5/8) and 10 percent yellow (10YR 7/6) sandy clay loam; gradual smooth boundary
BC	5.00-6.00	red (2.5YR 5/8) sandy loam

## Survey Blocks

We divided the GPR survey area into four blocks (Blocks 1-4), as summarized in Table D-2. Block 1 measured 190 by 180 ft, covering the eastern portion of the cemetery inside the boundary fence. All transects in Block 1 were oriented perpendicular to the northern fence, spaced 1 ft apart, starting with the back wheels of the MRTC against the northern fence, and ending with the front wheels of the MRTC on the eastern or southern fences. Block 2 measured 137 by 136 ft, covering the western portion of the cemetery inside the boundary fence. All transects in Block 2 were oriented parallel to the northern fence, spaced 2 ft apart, starting with the front wheels of the MRTC behind the western end of Block 1 and ending with the front wheels of the MRTC on the southern or western fences. Block 3 measured 24 by 10 ft, covering the test well area adjacent to the cemetery. All transects in Block 3 were oriented parallel to the southern fence, spaced 1 ft apart, starting with the front wheels of the MRTC outside the gate of the test well area and ending with the front wheels of the MRTC on the fence at the edge of the test well area. Block 4 measured 188 by 5 ft, covering the area immediately adjacent to the eastern fence. All transects in Block 4 were oriented parallel to the eastern fence, spaced 1 ft apart, starting with the front wheels of the MRTC behind the southeastern corner of the cemetery and ending with the back wheels of the MRTC past the cemetery gate.



Figure D-1. Entrance gate facing west (top) and southern portion of cemetery facing east (bottom).



Figure D-2. Central portion of cemetery facing east (top); northern portion of cemetery facing east (bottom).

## Mapping

An Emlid Reach RS2 RTK system capable of centimeter-grade accuracy was used to map cemetery features and the boundary fence. Brockington mapped 191 stone monuments across the cemetery, including several historic head and foot stones, as well as small granite markers and modern stone monuments erected by WEC in the early 2000's. A detailed plan was drawn accompanied by detailed notes on each stone marker, which are presented in Appendix A. Figure D-3 presents a plan of Denley Cemetery, showing the location of the containment fence, all identified features, and the GPR survey blocks.

Table D-2. Summary of the GPR Survey Blocks at Denley Cemetery.

Block	Description	Anomalies	Area (square ft)
1	190 x 180 ft area in eastern portion of cemetery inside containment fence; overlaps Block 2 along western margin; separated from Block 4 by eastern fence; transects oriented perpendicular to northern fence and spaced 1 ft apart	46	26,101
2	137 x 136 ft area in western portion of cemetery inside fence; overlaps Block 1 along eastern margin; transects oriented parallel to northern fence and spaced 2 ft apart; numerous mature trees scatter across block	5	13,395
3	24 x 10 ft area covering test well area; transects oriented parallel to southern fence and spaced 1 ft apart	0	220
4	188 x 5 ft area outside eastern fence; separated from Block 1 by eastern fence; transects oriented parallel to eastern fence and spaced 1 ft apart	0	1,130
Total			40,846

## GPR Analysis

The data were analyzed using GPR-Slice© Version 7.MT. This program allows investigators to look at individual data profiles, sets of data profiles, and a plan view of data at specified depths. Linear features show up well in a plan view of the data. Each block was identified as a separate object mapper project during GPR Slice© analysis. Anomalies show up in profile as inverted parabolas, with the top representing the general depth of the object. Iron or stone objects create a spike of intensity that travels down the entire depth of the profile. These profiles and plans were examined using various filters to draw out features. A great deal of interpretation goes into defining grave locations based on anomalies in profile. The locations are based on relative depth, length, and orientation. Usually, graves are oriented in an east-west direction, range from 3-6 ft in depth, and from 4-6 ft in length. These orientations and lengths are buffered, larger and smaller, to allow for children or partial grave locations. These possible grave locations are not exact and are interpretations of the collected data. Figure D-4 shows examples of a grave in profile and graves in plan from a cemetery at Fort Benning in Georgia. Figure D-5 shows examples of graves identified in profile during the current investigation. GIS shp files for each identified anomaly and numbered marker have been provided to WEC for their records.

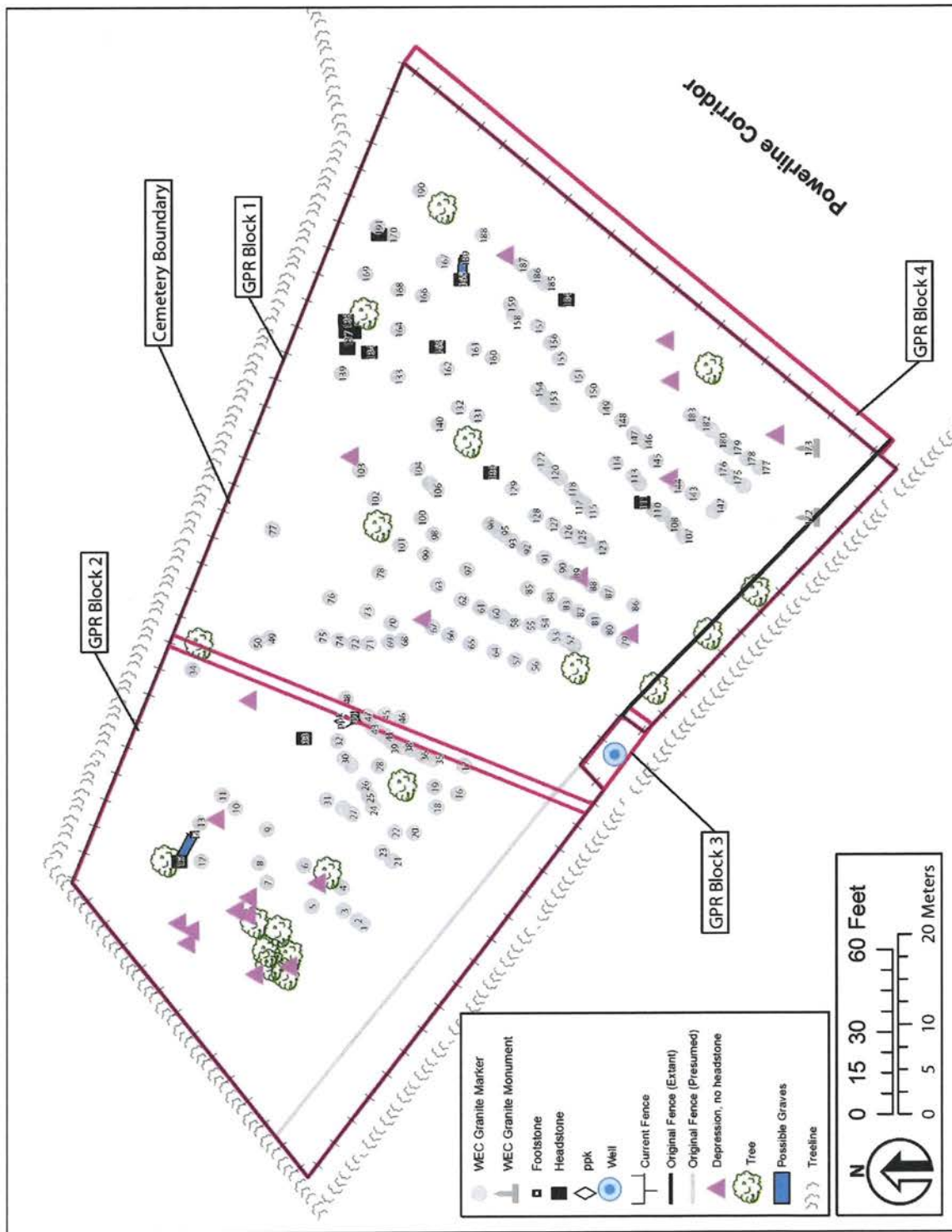


Figure D-3. Plan of Denley Cemetery.

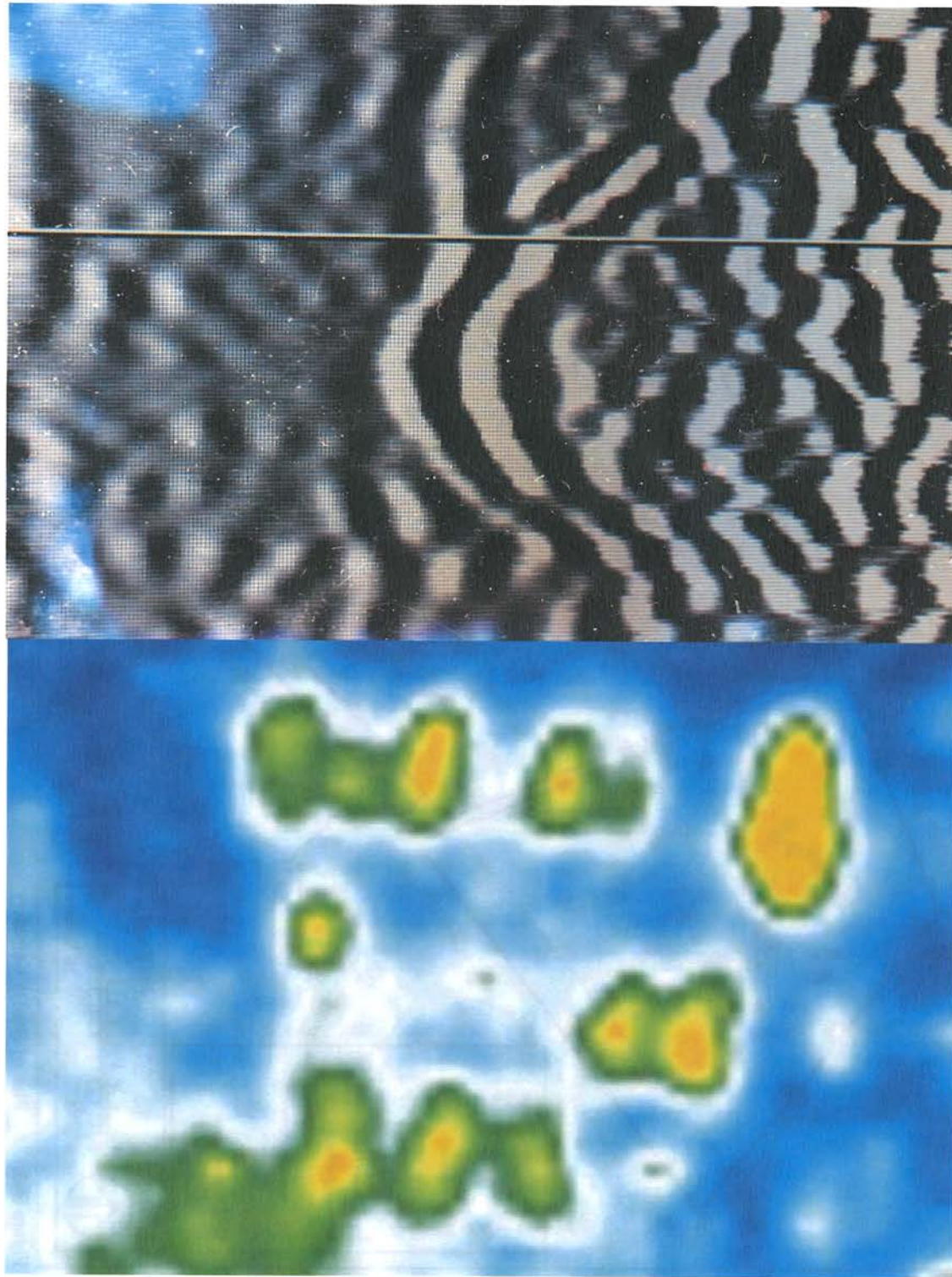


Figure D-4. Examples of positively identified graves through GPR analysis: view of a grave in profile as an inverted parabola on a MALA RAMAC Monitor XVI11 (right) and a GPR Slice© plan of the same cemetery showing a series of graves as ovals oriented east/west (left).

**Brockington**  
D-8

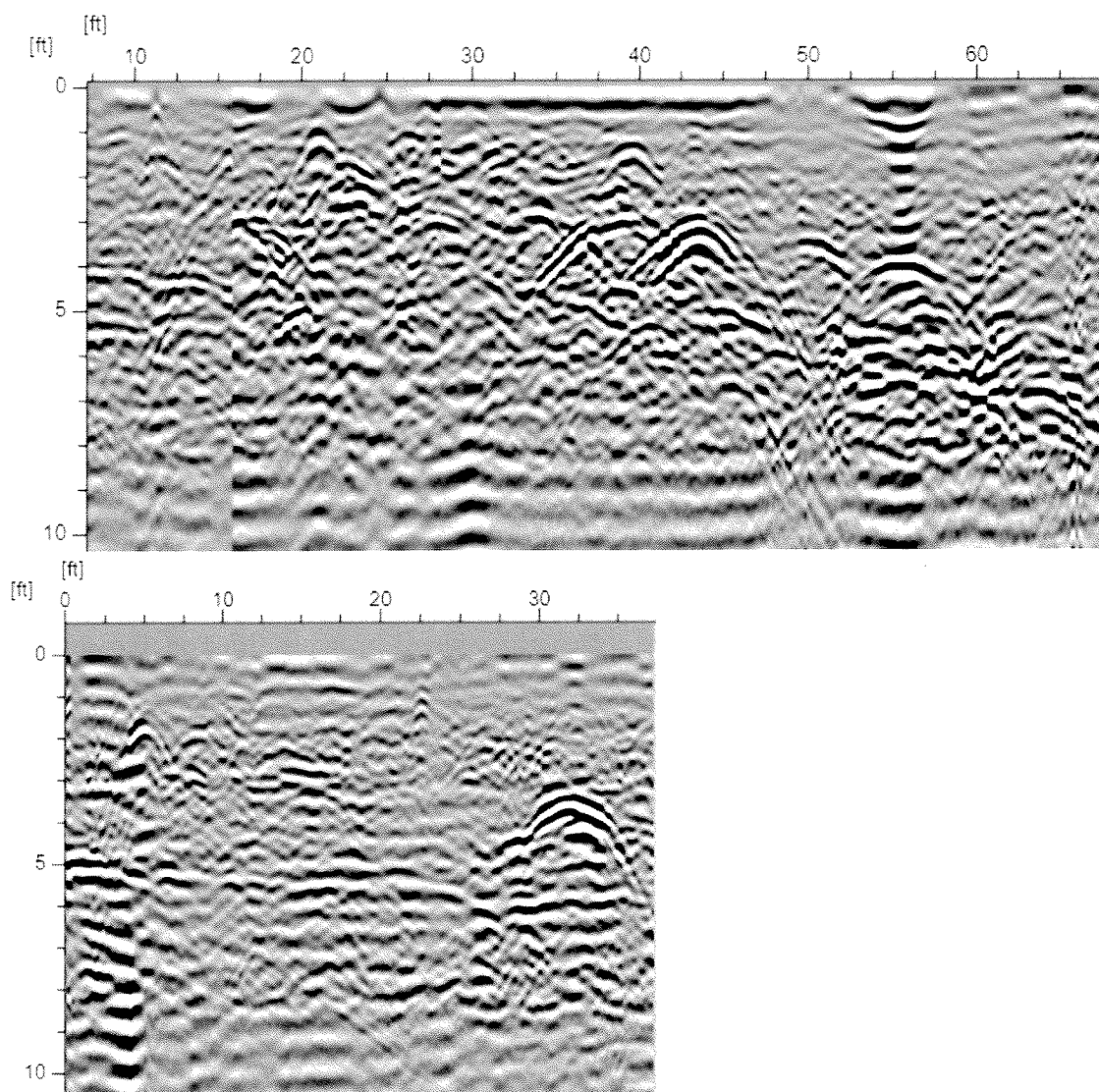


Figure D-5. MALA Controller App imagery showing probable graves in Block 1 on Transect 49, 56 ft north of baseline, 4-6 ft bs (top) and Transect 10, 32 ft north of baseline, 3-5 ft bs (bottom).

## **Brief Cemetery History and Known Interments**

### **Brief Cemetery History**

In 1883, a group of former enslaved people living in the Hopkins area formed the Zion Mill Creek Baptist Church, as part of a Missionary Outreach with the Wateree Baptist Association (Middleton 2002). Likely, they rented former Greenfield Plantation lands, which were part of the Wright Denley estate, circa 1865-1883. Denley Cemetery is associated with members of this church. Two of Zion Mill Creek Baptist Church's early leaders included A. and D. Denley (Middleton 2002). Marker 172 at Denley Cemetery lists three individuals with the last name of Denley buried there. Marker 130 commemorates Luella Denley. However, they are not mentioned specifically in the history of the church. Known interments at Denley Cemetery date no later than 1939. By 1948, the church cemetery was located adjacent to their building along Bluff Road. There are no indications that this area was used as a burying ground prior to its acquisition by Zion Mill Creek Baptist Church.

In the early 2000s, WEC cleared undergrowth from the cemetery area and conducted a GPR survey to determine the cemetery boundaries. In 2007, the cemetery was rededicated, and the extended Epps-Mack family held their annual reunion there (McCormac 2007). South Carolina death records for several individuals interred at Denley Cemetery were identified on *Ancestry.com* (2008). Trinkley (2014) documented Denley Cemetery as part of Chicora Research Foundation, Inc.'s Richland County cemetery inventory. Denley Cemetery has been memorialized on the *Find-a-Grave* website (2021). Brockington will add data presented in this report to this memorial upon the acceptance of the final report.

### **Known Interments**

There are 29 known individuals interred at Denley Cemetery, based on extant markers, background research, and family history. There are 16 historical markers, including headstones and footstones, and two WEC-erected monuments at Denley Cemetery (Table D-3). Additionally, WEC placed 175 granite markers near depressions suspected of being graves in 2007 based on observed depressions and GPR data. All 191 of these markers or monuments are shown in Figure D-3. A WEC monument (Marker 172) erected near the cemetery entrance in 2007 lists 28 interments (Figure D-6). These include Strother Brown (Marker 33), Susie Brown, Jennie Denley, Luella Denley (Marker 130), Thompson Denley, Floyd Ellis, Charlie Epps, Comfort Epps, James Epps, Nicodemus Epps (Markers 14 and 15), Rhoday Epps, Robert Epps, Charlotte Frederick, Jacob Frederick, Drew Garner (Marker 111), Mary Green, Washington Green, Washington D. Green, Tom Hall, Hester Hollie, Susana Johnson (Marker 134), Geneva Jones (Marker 165 and 189), Caroline Lyes, Cradus Mack, Folk Squire Mack, Lias Mack, Wennie Mack, and Arthur Williams (Marker 163). Markers 135 and 136 commemorate the interment of Fannie Johnson. Figures D-7 – D-13 provide views of the historical markers identified at Denley Cemetery.

Table D-3. Historical Markers and Monuments at Denley Cemetery.

Marker	Type	Material	Name		Birth	Death
			Last	First		
14	Footstone	Unknown	"NE"			
15	Headstone	Unknown	Epps	Nicodemus	4/16/1895	4/9/1918
33	Headstone	Marble	Brown	Strother		1/26/1926
44	Headstone	Concrete	Illegible			
111	Headstone	Marble	Garner	Drew		3/25/1925
130	Headstone	Concrete	Denley	Luella		12/28/1923
134	Headstone	Concrete	Johnson	Susana	1888	9/1932
135	Headstone	Concrete	Johnson	Fannie	Illegible	
136	Footstone	Concrete	"FJ"			
137	Footstone	Concrete	Illegible			
138	Headstone	Concrete	Brown	Sue	1845	1935
163	Headstone	Marble	Williams	Arthur		10/6/1922
165	Headstone	Concrete	Geneva Jones			
171	Headstone	Concrete	Illegible			
172	WEC monument	Granite				
173	WEC monument	Granite				
184	Headstone	Concrete	Frederick	Jacob	1863	7/1/1939
191	Footstone	Concrete	Illegible			
189	Footstone	Concrete	"GJ"			

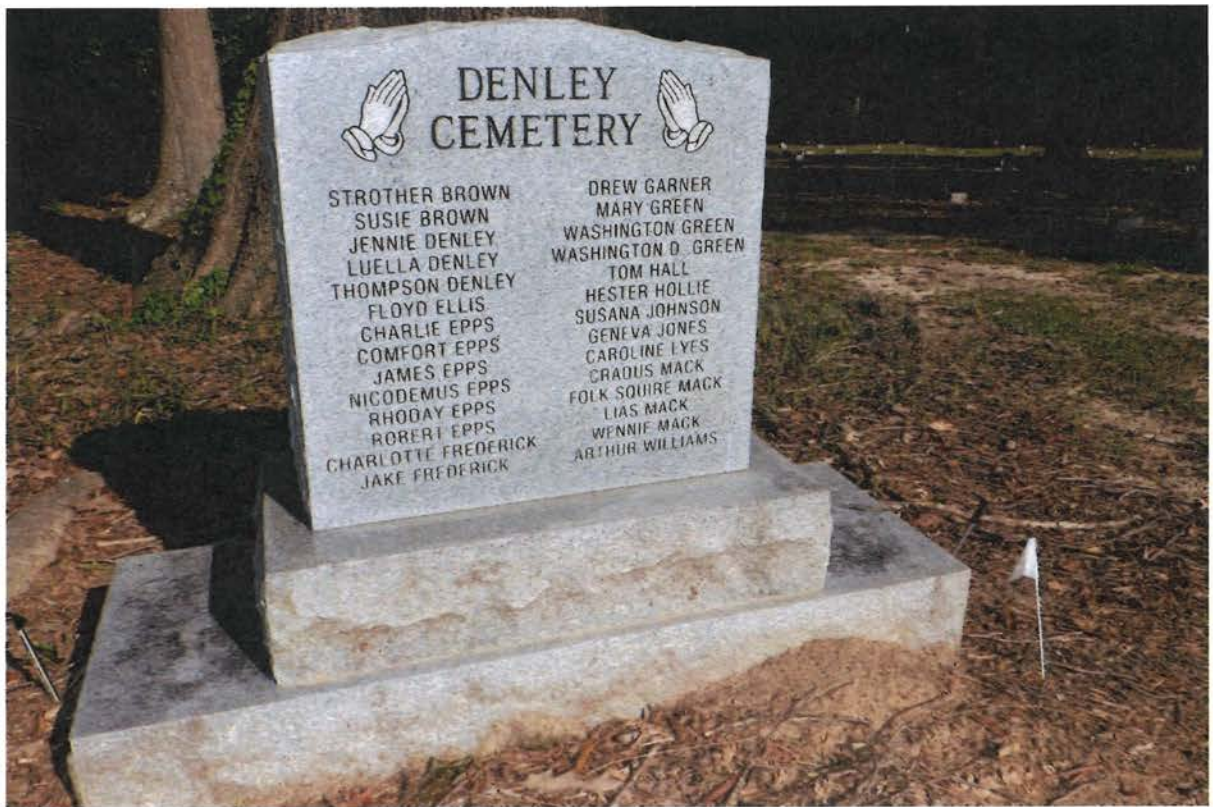


Figure D-6. Marker 172, standing at the cemetery's entrance, lists 28 of the 29 known individuals interred at Denley Cemetery.



Figure D-7. Markers 14 (left) and 15 (right), Nicodemus Epps' footstone and headstone.



Figure D-8. Markers 33 (left) and 44 (right), Strother Brown's headstone and an illegible marker.



Figure D-9. Markers 111 (left) and 130 (right), the Drew Garner and Luella Denley headstones.



Figure D-10. Markers 134 (left) and 137 (right): the Susana Johnson headstone and an illegible footstone.



Figure D-11. Markers 135 (left) and 136 (right), the Fannie Johnson headstone and footstone.



Figure D-12. Markers 165 (left) and 184 (right), the Geneva Jones headstone and the Jacob Frederick headstone.



Figure D-13. Markers 171 and 191, nearby illegible head and foot stones.

### GPR Survey Results

Brockington conducted GPR survey across a 0.94-acre/40,846-ft<sup>2</sup> area in and around Denley Cemetery. It was necessary to cover the GPR survey area in four blocks (Blocks 1-4), as summarized in Table D-2. These blocks were identified as separate object mapper projects (OMPs) in the field and during GPR Slice© analyses were stitched together in GIS. The high number of trees in the central and western portion of the cemetery covered by Block 2 reduced the effectiveness of the GPR coverage in this area, although sufficient data were obtained to identify anomalies as probable graves.

GPR Slice© analyses of Blocks 1-4 identified numerous anomalies to a depth of approximately 8.0 ft below surface (bs). These include dozens of anomalies identified 0-1.0 ft bs associated with depressions filled in by WEC during their efforts to restore the cemetery. We did not count these anomalies as graves unless the anomaly extended to at least 6.0 ft bs. All ovoid anomalies that extended from at least 2.0 to 6.0 ft bs were identified as graves. These include 51 anomalies, including 46 in Block 1 and 5 in Block 2 (Table D-4). Anomaly 16 is amorphous and may represent multiple graves clustered together. Anomaly 23 is round and may represent an infant burial. These 51 anomalies extend approximately 2.0-6.0 ft bs, average 19.5 ft<sup>2</sup>, and are oriented an average of 122° (Azimuth True North). Twenty-six of these anomalies are associated with numbered markers, as listed in Table D-4. Anomaly 3 was identified adjacent to the eastern fence, but no corresponding anomaly was identified in Block 4 east of the fence. Anomalies such as this can be caused by proximity to the metal fences. Figure D-14 displays the location of these anomalies on a plan of Denley Cemetery.

Table D-4. Anomalies identified at Denley Cemetery.

Block	Anomaly	Shape	Associated Marker(s)	Orientation	Area (ft <sup>2</sup> )
1	1	ovoid		133°	10.6
	2	ovoid		125°	30.9
	3	ovoid		124°	31.0
	4	ovoid		104°	25.1
	5	ovoid		141°	31.9
	6	ovoid		124°	28.7
	7	ovoid		130°	16.5
	8	ovoid	190	155°	15.8
	9	ovoid	187	131°	16.6
	10	ovoid	186	121°	22.5
	11	ovoid	173	116°	13.9
	12	ovoid	177	115°	14.5
	13	ovoid	180	125°	13.2
	14	ovoid	182	120°	12.7
	15	ovoid	183	127°	12.0
	16	amorphous		93°	10.5
	17	ovoid	153, 156, 157	51°	83.0
	18	ovoid	159	134°	25.8
	19	ovoid	165, 189	128°	20.2
	20	ovoid	169	126°	19.7
	21	ovoid	168	119°	14.4
	22	ovoid	166	112°	15.3
	23	round		n/a	15.7
	24	ovoid	151	133°	17.8
	25	ovoid	148	128°	26.5
	26	ovoid		99°	14.8
	27	ovoid		142°	12.9
	28	ovoid		143°	9.0
	29	ovoid		174°	16.2
	30	ovoid		124°	23.0
	31	ovoid		132°	13.5
	32	ovoid		117°	20.8
	33	ovoid		110°	14.9
	34	ovoid	162	123°	11.3
	35	ovoid	135, 137	126°	12.3
	36	ovoid	130	135°	17.4
	37	ovoid	129	104°	13.0
	38	ovoid	127	125°	10.4
	39	ovoid	125	122°	11.2
	40	ovoid		135°	12.0
	41	ovoid		203°	20.6
	42	ovoid	77	119°	23.4
	43	ovoid	61	130°	27.3
	44	ovoid		115°	18.4
	45	ovoid		129°	17.0
	46	ovoid		111°	30.9
2	47	ovoid	11	101°	36.3
	48	ovoid		102°	20.7
	49	ovoid	8	125°	12.2
	50	ovoid	47	111°	22.8
	51	ovoid	36	115°	8.6
Average				122°	19.5

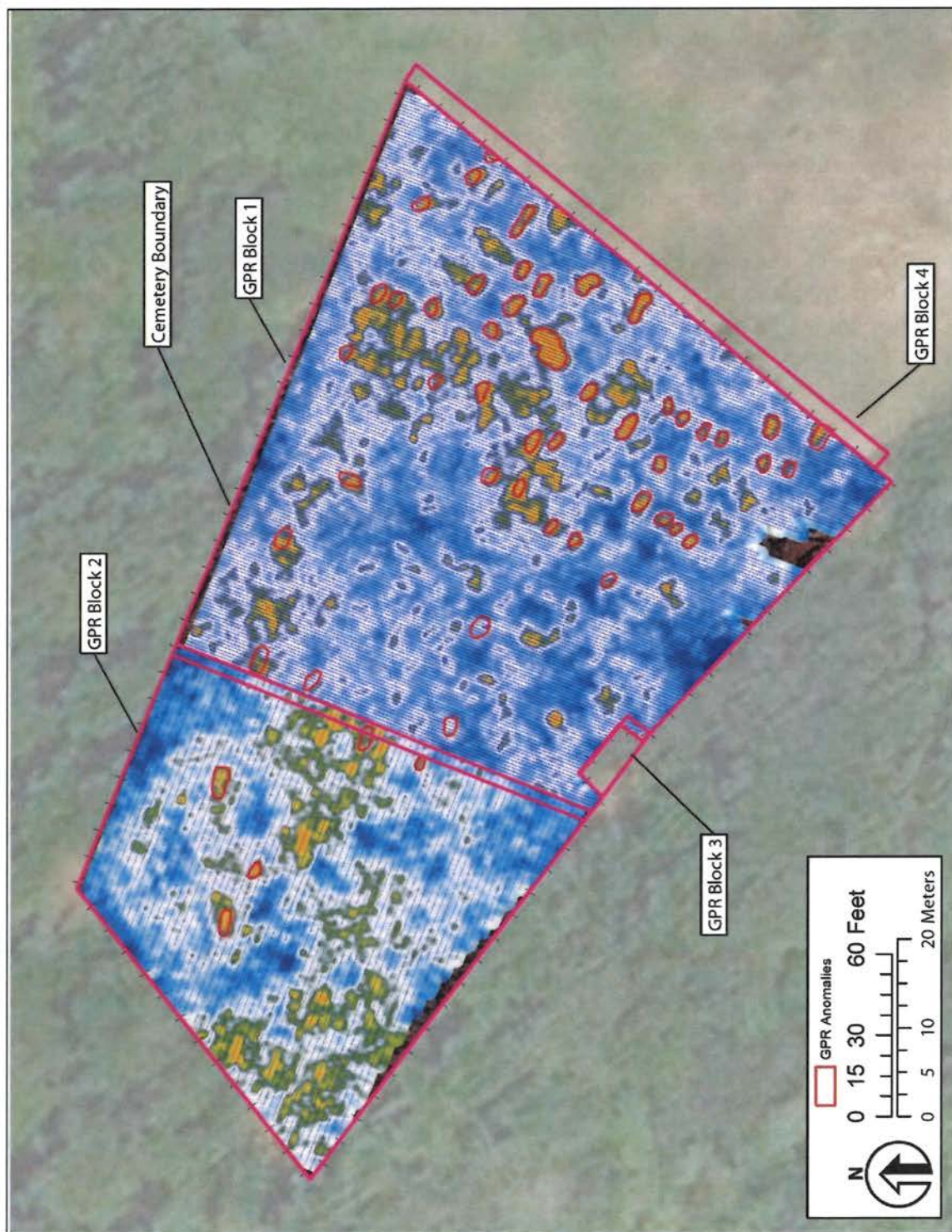


Figure D-14. Plan of Denley Cemetery, showing GPR Blocks 1-4 and Anomalies 1-51, overlaid on GPR Slice™ imagery (2.0-3.0 ft bs).

## Summary and Management Recommendations

Brockington conducted GPR survey and mapping of Denley Cemetery in two phases on September 23-24 and on November 18-19, 2021. The cemetery is located approximately 450 ft west of the primary CFFF. The cemetery measures 279-by-184 ft (covering 0.9 acre or 39,167.3ft<sup>2</sup>), with its long axis oriented east/west. GPR survey was conducted across four blocks (Blocks 1-4) over a total of 40,846 ft<sup>2</sup> in and around the cemetery. As a result, Brockington mapped 191 markers, including 16 historical headstones and footstones. Background research and field observations identified a minimum of 29 individuals interred at the cemetery. GPR survey in Blocks 1 and 2 identified 51 anomalies indicative of graves, including 26 of these associated with historical or WEC-placed markers. The majority of these anomalies lie in the eastern portion of the cemetery. GPR survey in Block 3 (near the test well) and in Block 4 (east of the eastern fence) identified no anomalies indicative of graves.

Because of the presence of Anomaly 3 along the eastern fence, Brockington recommended the fence be moved at least 5-10 ft to the east to ensure that anomalies that may be graves adjacent to the fence are not threatened by activities outside but near the fence. WEC implemented this recommendation on March 1, 2022. WEC should continue to manage and protect Denley Cemetery, preventing activities that may affect the graves or the setting of the cemetery.

## References Cited

### *Ancestry.com*

- 2008 South Carolina, U.S., Death Records, 1821-1969 [database on-line]. Ancestry.com Operations Inc., Lehi, Utah.

### *Find-a-Grave.com*

- 2021 Denley's Graveyard. Find-a-Grave Cemetery 2386042. Electronic document, <https://www.findagrave.com/cemetery/2386042/denley's-graveyard>, accessed December 20, 2021.

### McCormac, Nick

- 2007 Family Reconnects with Its Past. *The State* Community Zone 3 (July 26, 2007): 9-10.

### Middleton, John

- 2002 Historical Sketch of Zion Mill Baptist Church. Electronic document, <https://www.sciway3.net/clark/richland/zionhill.htm>, accessed December 20, 2021.

### Trinkley, Michael

- 2014 Denley Cemetery Chicora Foundation Cemetery Form, Cemetery # FS-26. Chicora Research Foundation, Inc., Columbia, South Carolina.