

ARCHAEOLOGICAL FIELD REPORT

SCDOT ENVIRONMENTAL SECTION



TITLE: Phase I Cultural Resources Survey of the U.S. 521 over Big Pine Tree Creek Bridge Replacement

DATE OF RESEARCH: 9/28/2017

ARCHAEOLOGIST: James Stewart

COUNTY: Kershaw

PROJECT: U.S. 521 over Big Pine Tree Creek

F. A. No.:

File No.

PIN: P030167

DESCRIPTION:

The South Carolina Department of Transportation (SCDOT) proposes to replace the bridge carrying U.S. 521 (Sumter Highway) over Big Pine Tree Creek in Kershaw County, South Carolina (Figure 1). The project survey area includes the 0.7-mile (1.13-km) portion of U.S. 521 beginning 140 feet north of the Black River Road intersection on the south, and extending 280 feet north of the Ehrenclo Drive intersection to the north. The project area also includes the initial 475 feet of Ehrenclo Drive extending from that road's intersection with U.S. 521. The Area of Potential Effect (APE) measures 300 feet from the existing right-of-way (ROW). The Area of Direct Effect (ADE) extends 200 feet from the centerline of U.S. 521 and 100 feet from centerline along Ehrenclo Drive.

LOCATION:

The project area is in Kershaw County, at the southern edge of the Camden city limits (Figure 1).

USGS QUADRANGLE: Camden South

UTM: NAD 83 **ZONE:** 17N

DATE: 1953 **SCALE:** 7.5'

EASTING: 536362 **NORTHING:** 3787409

ENVIRONMENTAL SETTING:

The APE is in the Sandhills physiographic region. Elevations within the APE range from 130-150 feet above mean sea level (AMSL). This section of U.S. 521 is undeveloped and wooded (Figure 2). Most of the APE is low-lying and swampy. The northern and southern ends of the APE anchor this predominantly floodplain terrain between two ridges. Micro-landforms (e.g., residual stream levees, and flood deposits), ponds, wetlands, and disturbed historical causeway roadbeds are present to either side of U.S. 521. Electrical transmission lines and a natural gas line also traverse the APE. A transmission line crosses U.S. 521 80 meters south of the Ehrenclo Drive intersection, while a natural gas line is located 140 meters north of the southern project area boundary. The U.S. 521 road grade is elevated approximately 10 feet above the surrounding ground.

NEAREST RIVER/STREAM AND DISTANCE: SCDOT Structure Number 2820052100500 passes over Big Pine Tree Creek at the center of the APE. Big Pine Tree Creek Canal flows under SCDOT Structure Number 2820052100400, near the southern end of the APE (Figure 2).

SOIL TYPE: Chewacla silt loam (Ch) extends across 48.7 percent of the ADE. This soil consists of somewhat poorly drained silty loam and sandy clay loam. Grady loam, (Gr) was identified across 28.3 percent of the ADE. These lands are classified as well drained. Persanti sandy loam (PsA) consists of moderately well drained sand loams and clays (13.3%); Noboco loamy sand (NoA) consists of well-drained sands (8.0%); Goldsboro loamy sand (GoA) consists of moderately well-drained soil, loamy sands, and sandy clays (1.7 percent).

REFERENCE FOR SOILS INFORMATION:

USDA-NCRS Soil Survey Division, Custom Soil Resource Report (Soil Survey Staff 2017)

GROUND SURFACE VISIBILITY: 0% ___ 1-25% ☒ 26-50% ___ 51-75% ___ 76-100% ___

CURRENT VEGETATION:

Floodplains hardwoods form a canopy over most of the APE. The canopy includes cypress and white cedars as well as oak trees. The understory is mostly open, with dense scrub located along the edges of the roads, power transmission line, and natural gas pipeline. Dense leaf litter obscured ground surface visibility during the survey.

INVESTIGATION:

New South conducted background research on the South Carolina Institute of Archaeology and Anthropology (SCIAA) ArchSite GIS database, and a review of available historic maps. This resulted in the identification of 10 previously recorded cultural resources and three National Register of Historic Places (NRHP) districts located within 0.5 mile (0.8 km) of the APE (Figure 3). Five potential historic resources were also identified in or near the APE during the map review (see Figure 3). The presence of NRHP districts, archaeological sites, and potential historic resources indicates the APE is in an area of historic significance.

The three NRHP districts include the Historic Camden Revolutionary War Restoration District, the City of Camden Historic District, and the Mulberry Plantation Historic District. The Historic Camden Revolutionary War Restoration District extends across the northern half of the APE. This district was accepted to the NRHP for its significance as the location of a fortified British garrison during the Revolutionary War (Byrnes 1969). The City of Camden Historic District encompasses most of the APE. This district was accepted to the NRHP for architectural and historic significance (Ruff 1971). The Mulberry Plantation Historic District is located 0.38 mile (0.6 km) southeast of the APE. This district encompasses the historic boundaries of the plantation where Mary Boykin Chestnut lived while composing "A Diary from Dixie." The plantation was listed on the NRHP for significance to American literature (Olausen 1997).

The ten previously recorded sites located within 0.5 mile of the APE include: 38KE1, 38KE13, 38KE32, 38KE1058, 38KE1059, 38KE1060, 38KE1061, 38KE1065, 38KE1118, and 38KE1122. Available documentation for four sites (38KE1, 38KE13, 38KE32, and 38KE1122) indicate they contain archaeological deposits. The six remaining site numbers refer to standing resources or places recorded during the Santee-Lynches Council of Governments (1979) historic resources inventory without a formal archaeological resource evaluation.

Site 38KE1, located approximately one kilometer north of the U.S. 521 bridge, outlines the entirety of eighteenth-century Camden settlement. The site is wholly subsumed within the Historic Camden Revolutionary War Restoration Historic District and the City of Camden Historic District. Intensive academic study of site 38KE1 indicates the site offers significant contributions to colonial period and Revolutionary War research (Lewis 1976; 2006). However, the archaeological deposit has not been assessed for NRHP eligibility. Site 38KE13 was recorded by George Stuart (1970) 0.43 mile (690 m) southeast of the survey area. Steatite vessel fragments and "atlatl" weights were collected from the site. This site was not systematically delineated or sampled. Given the absence of ceramic artifacts, Stuart estimated the site dated from the Archaic period. Site 38KE13 is considered unassessed for the NRHP. Site 38KE32 was recorded by Goodyear and Anderson 0.5 mile (0.8 km) northwest of the U.S. 521/Ehrenclou Drive intersection. Surveyed in 1975, this precontact lithic scatter yielded 21 flake/flake fragments. These artifacts were collected through surface collection of a plowed agricultural field. No site map was prepared for 38KE32, and the site was not assessed for NRHP eligibility (site form on file). The plotted site location was revisited during New South's survey of proposed truck routes in 2011 (Lockerman et al. 2012). Shovel testing and surface inspection of the portion of site 38KE32 plotted within the project corridor did not locate any artifacts.

Site 38KE1122 was recorded during New South's 2011 cultural resources survey (Lockerman et al. 2012). This site was plotted 45 meters west of the Ehrenclou Drive/U.S. 521 intersection. The boundaries contain the remnants of the Camden Press Brick Company brickworks. The brickworks operated from the late nineteenth through early twentieth century. The site measures 165x90 meters across and contains several intact brick walls, a brick floor, and an extensive scatter of unarticulated bricks. Additional testing was needed to complete the NRHP assessment recommendation, and New South recommended avoidance of the portion of the site located to the south of Ehrenclou Drive (Lockerman et al. 2012).

The six remaining sites were notable historic locations recorded by the Santee-Lynches Council for Governments (1979). Sites 38KE1058, 38KE1059, 38KE1061, 38KE1065, and 38KE1118 are all plotted within the boundaries of site 38KE1. Site 38KE1060, the Quaker Cemetery, is located immediately west of 38KE1. These locations lack basic assessments or site forms and are considered unevaluated for NRHP eligibility.

During background research, five potential historic resources were identified from historic maps to be in or near the APE. These maps include the Province of South Carolina Map (Cook 1773), a historic soil map (Latimer et al. 1919) and a historic Kershaw County highway map (1938). These potential resources include Carrison Mill, a building of

unknown function, a dam on Big Pine Tree Creek, a store, a possible abandoned farm building, and a Native American village (Figure 4). The Cook map (1773) shows a Native American village located at the confluence of Big Pine Tree and Little Pine Tree Creeks, approximately 1.8 miles northeast of the survey area (Figure 4a). The village may be closer to the survey area, given the imprecision of the eighteenth-century map and the shifting nature of local stream dynamics. The soil map (Figure 4b) plots the mill near the southwestern corner of the APE. While well outside the APE, its location was likely influenced by the waterways mapped within the APE. There is also a building shown just east of the mill, closer to U.S. 521 (Latimer et al. 1919). The highway map (Figure 4c) places the store at the southeastern corner of the survey area, a possible vacant farm building near the northeastern survey area corner, and a dam to the east of U.S. 521 (South Carolina Department of Transportation 1938).

ARCHAEOLOGY

The archaeological survey was conducted on September 28, 2017. The survey evaluated shovel test locations at 30-meter intervals along each side of U.S. 521 (Figure 5). As low-lying wetlands extended across most of the survey area, only 14 of the 44 shovel test positions visited during the survey were excavated. Shovel tests were not excavated in wetlands or when there was pavement, utilities, or where the landscape was clearly altered (Figure 6). The excavated tests encountered 10-25 centimeters of pink (5YR 7/4) alluvium overlying grayish yellow brown (10YR 6/2) silty clay with ferrous concretions. Waterlogged soils were observed in the area southwest of the Ehrenclou Drive/U.S. 521 intersection. The soil profile for this area generally consisted of 15 centimeters of gray (10YR 5/1) silty clay over light yellowish brown (10YR 6/4) silty clay. The water table was encountered approximately 35 centimeters below ground surface. Three archaeological resources were encountered during the survey. These include previously recorded 38KE1122, 38KE1173 (Big Pine Tree Creek Canal), as well as a lithic isolated find.

Isolated Find 1

Shovel Test 4, 160 meters south of the Ehrenclou Drive intersection with U.S. 521, produced two pieces of quartz debitage from 10-35 centimeters below ground surface. This area is elevated slightly above a surrounding wetland. The local canopy is mostly composed of hardwoods with a moderate-density scrub understory. Ground surface visibility in this area was marginal during the survey. Two 15-meter interval shovel tests each were excavated to the north, west, and south of the positive test. These six tests did not locate any artifacts. No tests were excavated to the east of Shovel Test 4, as the area was swampy and disturbed. Two alluvial horizons and subsoil were identified during shovel testing. The typical soil profile included a 10-centimeter deep light reddish brown (7.5 6/4) silty clay overlying 25 centimeters of pink (5YR 7/4) silty clay. A compact grayish yellow brown (10YR 6/2) silty clay subsoil was encountered 35 centimeters below ground surface. The two temporally non-diagnostic quartz flakes were collected from the alluvial horizon identified between 10 and 35 centimeters below ground surface.

38KE1122

As site 38KE1122 was delineated during the Camden Truck Routes Project (Lockerman et al. 2012) (Figure 7) current fieldwork was limited to documentation of current site conditions relative to the construction of a turn lane on the southwestern corner of the Ehrenclou Drive and U.S. 521 intersection (Figure 3). Trenching disturbances to the site were identified along the edge of the new alignment, which appeared to be related to the installation of silt fencing (Figure 8). Although these activities disturbed a lengthy portion of site 38KE1122, they were largely confined to a previously disturbed area within the Ehrenclou Drive existing ROW.

38KE1173

Site 38KE1173 (the Big Pine Tree Creek Canal) extends across the southern edge of the survey area. This canal was excavated through a floodplain and low ridge currently covered by the U.S. 521 causeway (Figure 9). SCDOT Structure 2820052100400 spans the canal. Local vegetation includes a hardwoods canopy with vines and scrub present along the highway corridor. The boundaries of the site were defined with LiDAR data (Figure 10). It extends approximately 400 meters to connect two sections of the Big Pine Tree Creek channel on the north and south. The canal is approximately 10-meters wide with steep to vertical sides and a flat base. The section of the canal located in and around the ADE was mostly dry with some areas of stagnant water less than six inches deep. Wooden timber elements associated with the canal were identified near the survey area's southeastern corner on the east side of U.S.

521 (Figure 11). There is a section of timber construction that measures approximately 25x10 feet and is pinned together with spikes and half-lap joinery. Remnants of what appears to be planking were also observed on the southwestern end of the timber elements. Mortise holes along the upper face of the timbers suggests upright beams were part of the original construction. Based on the mode of construction and location, this structure may have been part of a lock or mill dam. The full extent of these canal related remains is unknown, but timber elements were found to sporadically continue for about 100 feet beyond the edge of the ADE. No similar timbers were found on the west side of U.S. 521.

Background research indicates this canal was constructed circa 1797 by the Pine Tree Navigation Company (Inabinet and Inabinet 2011). Thomas Broom, Duncan McRa, James Kershaw, John Kershaw, and Zach Cantey chartered this company. The route was intended to extend waterborne traffic to the southeastern corner of Camden, where the company planned to construct tobacco barns and an inspection station. The canal's builder, John Christian Senf, was a former Hessian soldier serving for the British during the American Revolution. He was captured at the Battle of Saratoga and switched sides, becoming a Continental Army engineer. Senf supervised the excavation of the canal and was responsible for several canal projects in the Santee River Valley, most notably the Santee Canal. The Pine Tree Creek canal excavation encountered unspecified difficulties near "Brooms Mills" and was unable to be completed. Though the canal was not finished, it did not stand idle. Robert Mills' 1825 Map of Kershaw County shows the canal with a mill located at the southern confluence with Big Pine Tree Creek. A structure was also indicated to the east of the 1825 state highway. Samuel Adams operated a mill on Big Pine Tree Creek in the late nineteenth century and H.G. Carrison, president of the Hermitage Mill, operated a mill on the southwestern corner of the survey area in the early twentieth century.

The canal at 38KE1173 was constructed during the late eighteenth century. It was funded by scions of the Camden community and supervised by one of the first professional engineers to work in South Carolina, John Christian Senf. Later leaders of the Camden community are associated with mills operating along the stream (Inabinet and Inabinet 2011). The canal also represents one of the earliest examples of canal-building in the state. Site 38KE1173 is eligible under Criterion A due to its association with early canal building and commerce in South Carolina. It is also eligible under Criterion B, due to its association with canal builder John Christian Senf. Under Criterion C, additional documentation is necessary to better understand the construction of the canal and its associated components. The site may also be eligible under Criterion D, due to its research potential for understanding canal building and use, based on the presence of intact features. Future work should focus on documenting the canal remains and determining if the surrounding area contains any related structures or archaeological sites. Archival research should also be performed to better understand the canal's history and use through time.

ARCHITECTURE

On October 4, 2017, Architectural Historian Katie Dykens Quinn conducted historic resources survey of the APE to identify unrecorded historic resources 50 years of age or older. The APE for the historic resources survey was defined as a 300-foot buffer around the ADE. Resources more than 50 years in age were surveyed in accordance with the Survey Manual: South Carolina Statewide Survey of Historic Places using a handheld tablet device and were photographed using a digital camera. Resources were evaluated following the NRHP criteria, and a preliminary assessment of effect for the proposed project was conducted for any property in the APE that was NRHP listed or that met the NRHP criteria for eligibility. South Carolina State Intensive Survey Forms were prepared for all individual resources.

The APE is predominately undeveloped woodlands, although some sparse development is located near both the northern and southern termini of the APE. Development at the northern end is industrial and includes an SCE&G Natural Gas facility. Development at the southern end consists of a large modern gas station complex. There are two bridges located within the APE, one carrying U.S. 521 over Big Pine Tree Creek and one carrying U.S. 521 over the Big Pine Tree Creek Canal. The bridge carrying U.S. 521 over Big Pine Tree Creek has components that date to 1940 and is the only architectural resource identified as a result of this survey. It is recommended not eligible for the NRHP and is discussed in more detail below.

Big Pine Tree Creek Bridge (U/55/1855)

Resource U/55/1855 is a circa 1940 T-beam bridge that carries U.S. 521 over Big Pine Tree Creek (Figure 12). The bridge was originally constructed to carry two lanes of traffic and was widened to carry four lanes with a central asphalt median in 1975 (Lichtenstein Consulting Services 2005). The six-span bridge is 150 feet long and was widened from 30 feet to 82 feet across during the 1975 alteration. The historic core of the bridge is supported by reinforced concrete bents, while the added slab extensions are supported by prestressed concrete piles bents. The superstructure includes the prestressed concrete and asphalt roadway and is lined by concrete parapets with metal handrails that date to the 1975 alteration.

Resource U/55/1855 was evaluated during the 2005 Lichtenstein Consulting Services *South Carolina State Bridge Survey* and was recommended as not eligible for the NRHP. This report concurs with that assessment. The bridge is of a common type used extensively throughout the state. It is one of hundreds of similar bridges in South Carolina and its integrity has been negatively impacted by major alterations in the 1970s. Its appearance is that of a modern bridge. It is not architecturally or technologically significant and is not recommended as eligible for the NRHP under Criterion C. It is not known to be associated with events or persons significant in the past. Therefore, the resource is recommended as not eligible for the NRHP under Criterion A or B.

REMARKS AND RECOMMENDATIONS: As a result of the cultural resources survey of the U.S. 521 bridge over Big Pine Tree Creek, one new archaeological site, 38KE1173, and one isolated find were identified in the APE. A revisit to site 38KE1122 documented disturbances to portions of the site affected by the Ehrenclou Drive construction project. Site 38KE1122 was previously recommended for additional work to determine its NRHP eligibility. Site 38KE1173 is recommended as eligible for the NRHP under Criteria A and B, and possibly, C and D. Preservation through avoidance is recommended. One architectural resource, U/55/1855, was identified within the APE. It is recommended not eligible for the NRHP.

Project engineers have developed one No-Build Alternative, and three Build Alternatives for the removal and replacement of the bridge over Big Pine Tree Creek (Figure 13). The three Build Alternatives seek to minimize impacts to surrounding wetlands and utilities, and none are likely to directly affect the archaeological resources identified during the field investigation (Figure 3). Build Alternates 1 and 2 would replace the bridge while staying within the existing alignment. Alternate 3 would create a new alignment for U.S. 521 and the new bridge. The new ROW outlined by Build Alternative 3 abuts the eastern edge of site 38KE1122 (Figure 13; also see Figure 7). If this plan were selected, associated construction activity may affect a previously disturbed portion of the site. Monitoring may be necessary if any ground disturbing activity is planned for this area. Based on engineer mapping, the proposed construction activities near site 38KE1173 occur within the existing right of way. This portion of the site is already disturbed by earlier U.S. 521 construction. If proposed construction activity is limited to the areas defined by these maps (Figure 11), the proposed bridge replacement will avoid damage to elements contributing to the NRHP eligibility of sites 38KE1122 and 38KE1173.

SIGNATURE:



DATE: 6/1/2018

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Figure 1.
Map of the Project Area

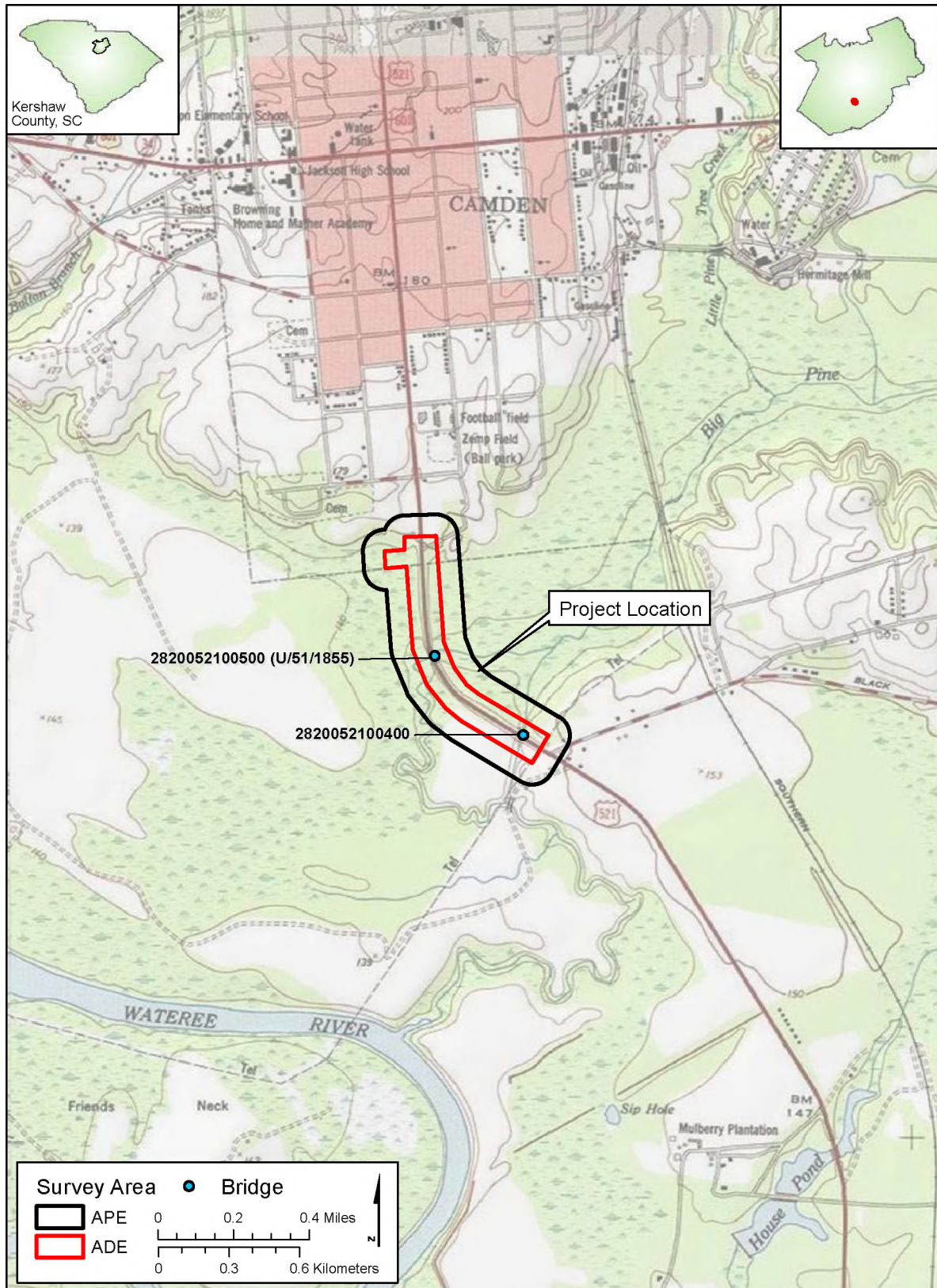
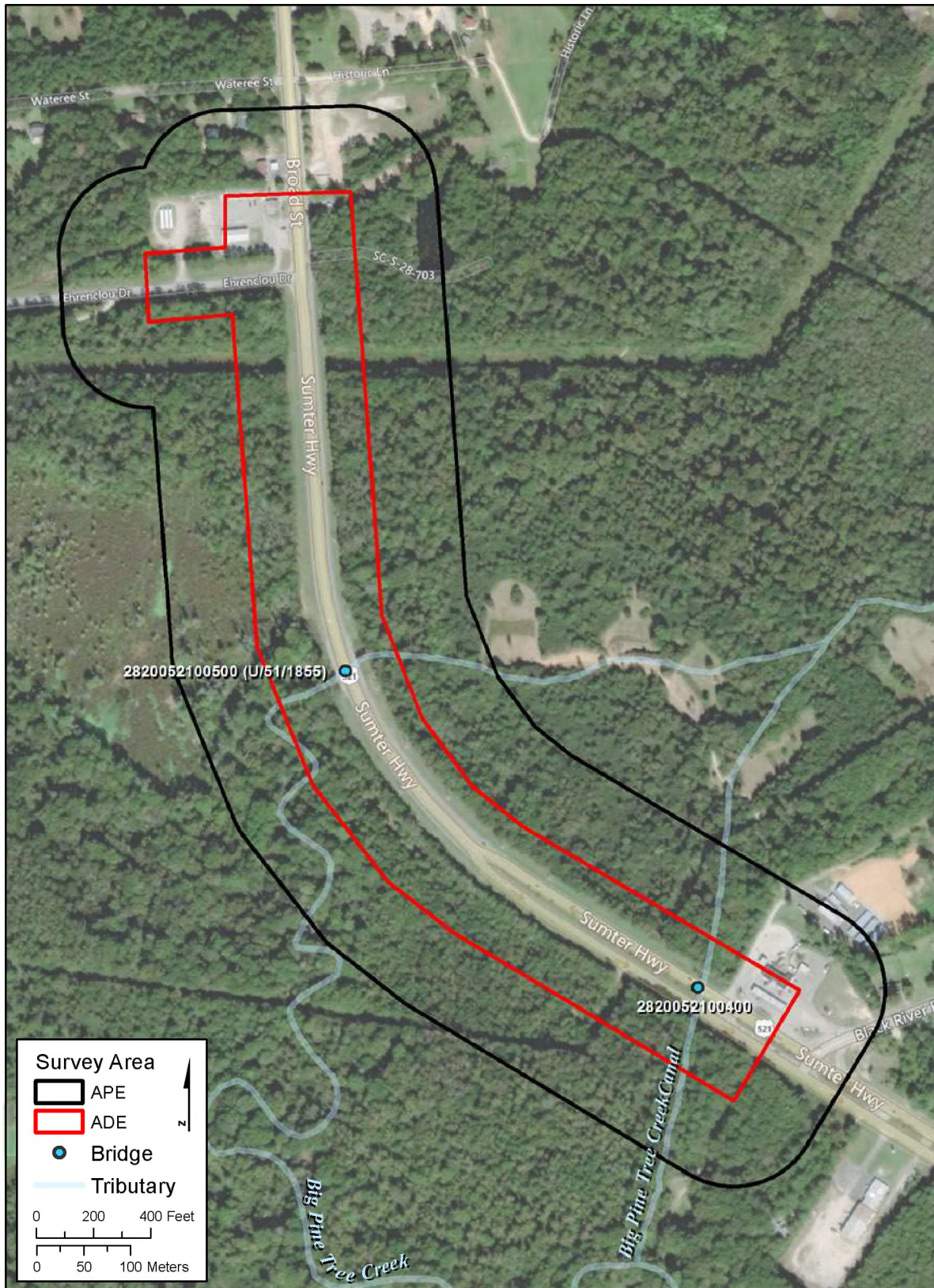
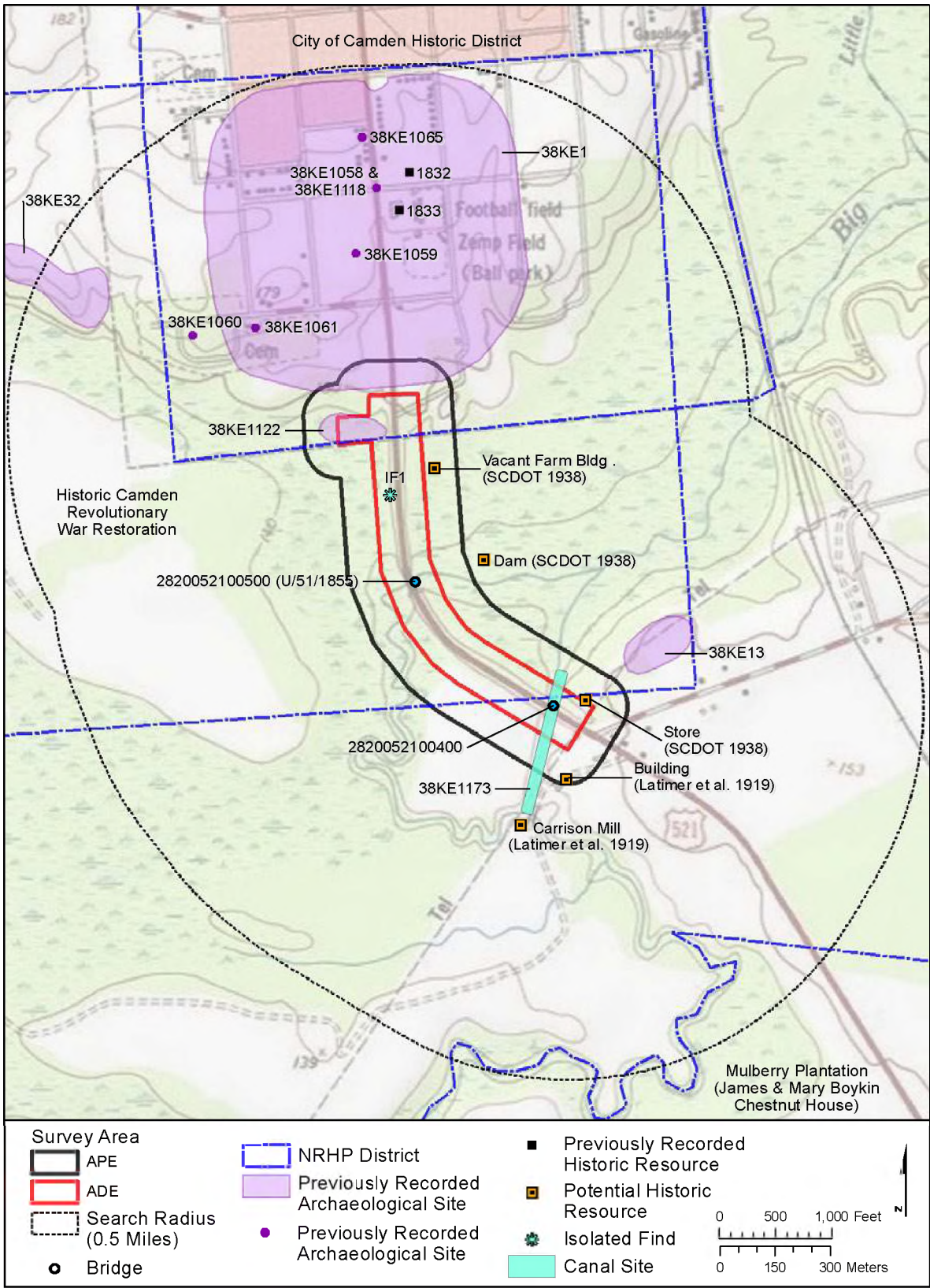


Figure 2.
Aerial Photograph of the Project Area Showing Bridge Locations



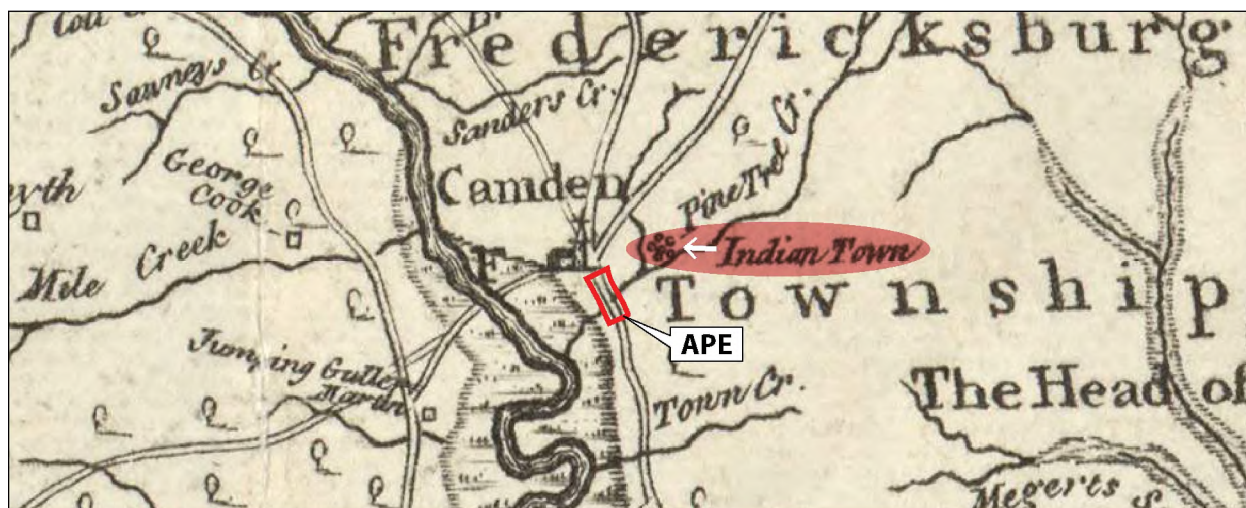
Source: Bing Maps Hybrid (2018)

Figure 3.
Cultural Resources Located Within One-Half Mile of the Project Area

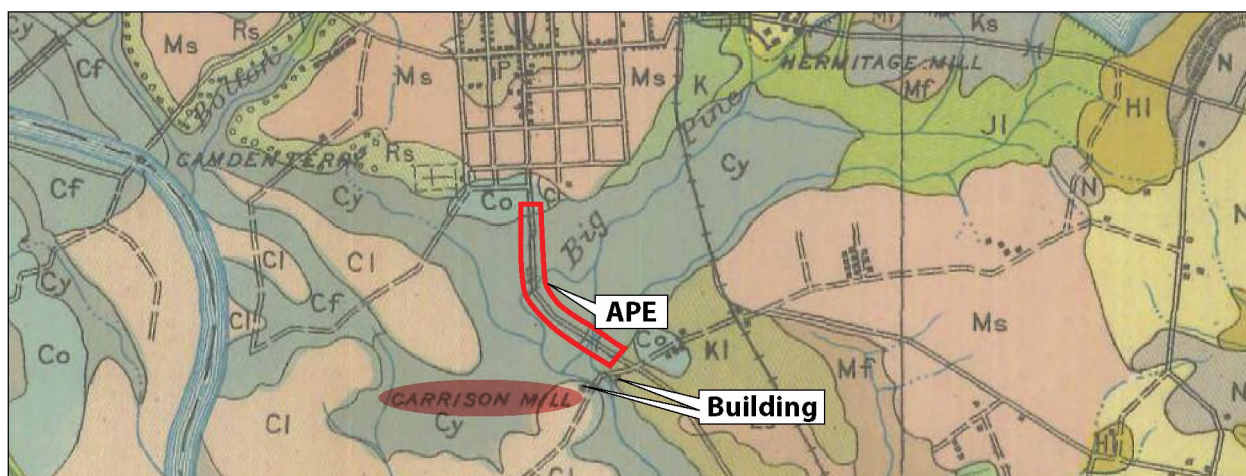


Source: USGS Topographic Quadrangle Map, Camden South, SC (1961)

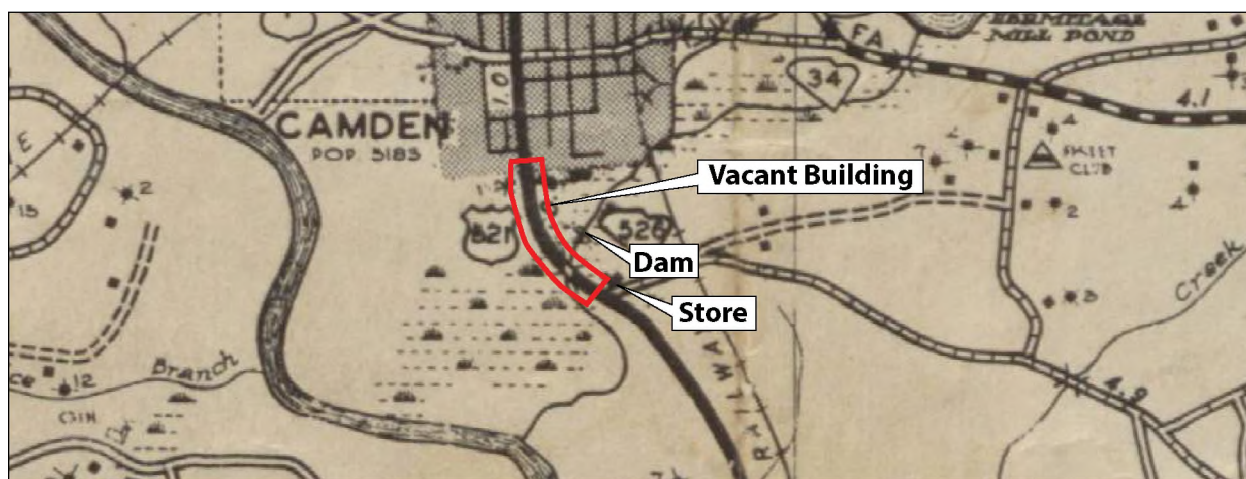
Figure 4.
Historic Maps Showing Resources Near the Project Area



A. Cook Map, 1773



B. Kershaw County Soil Survey, 1919



C. Kershaw County Highway Map, 1938

Figure 5.
LiDAR Hillshade Map of the Project Area Showing Survey Transects and Results

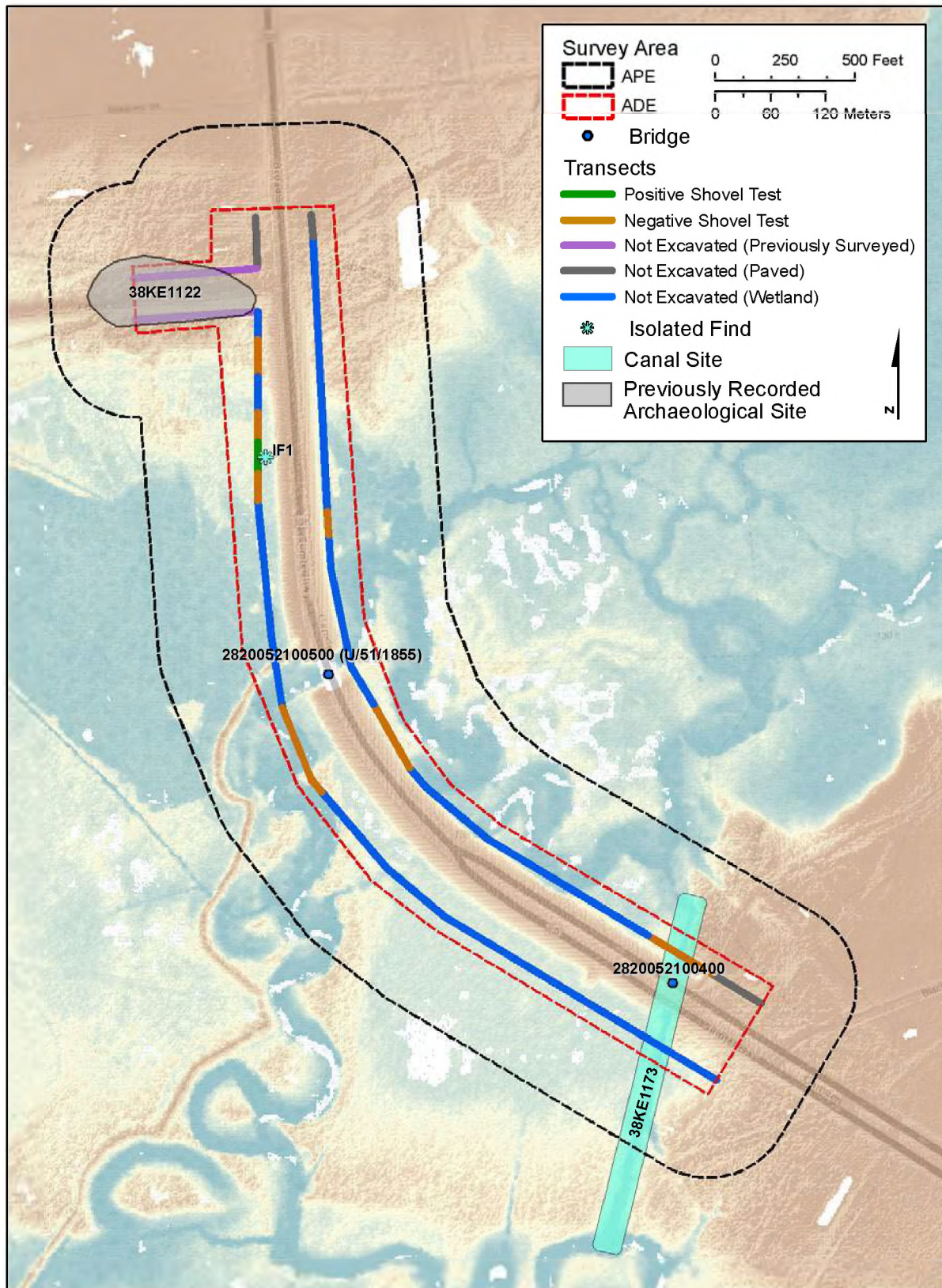


Figure 6.
Photographs of the Proposed Project Area



A. Typical Hardwood Canopy in the ADE, Facing West



B. Swampy Portion of the ADE on the West Side of U.S. 521, Facing Northwest



C. Most of the U.S. 521 Road Grade is Elevated Six to Ten Feet Above the Natural Ground Surface

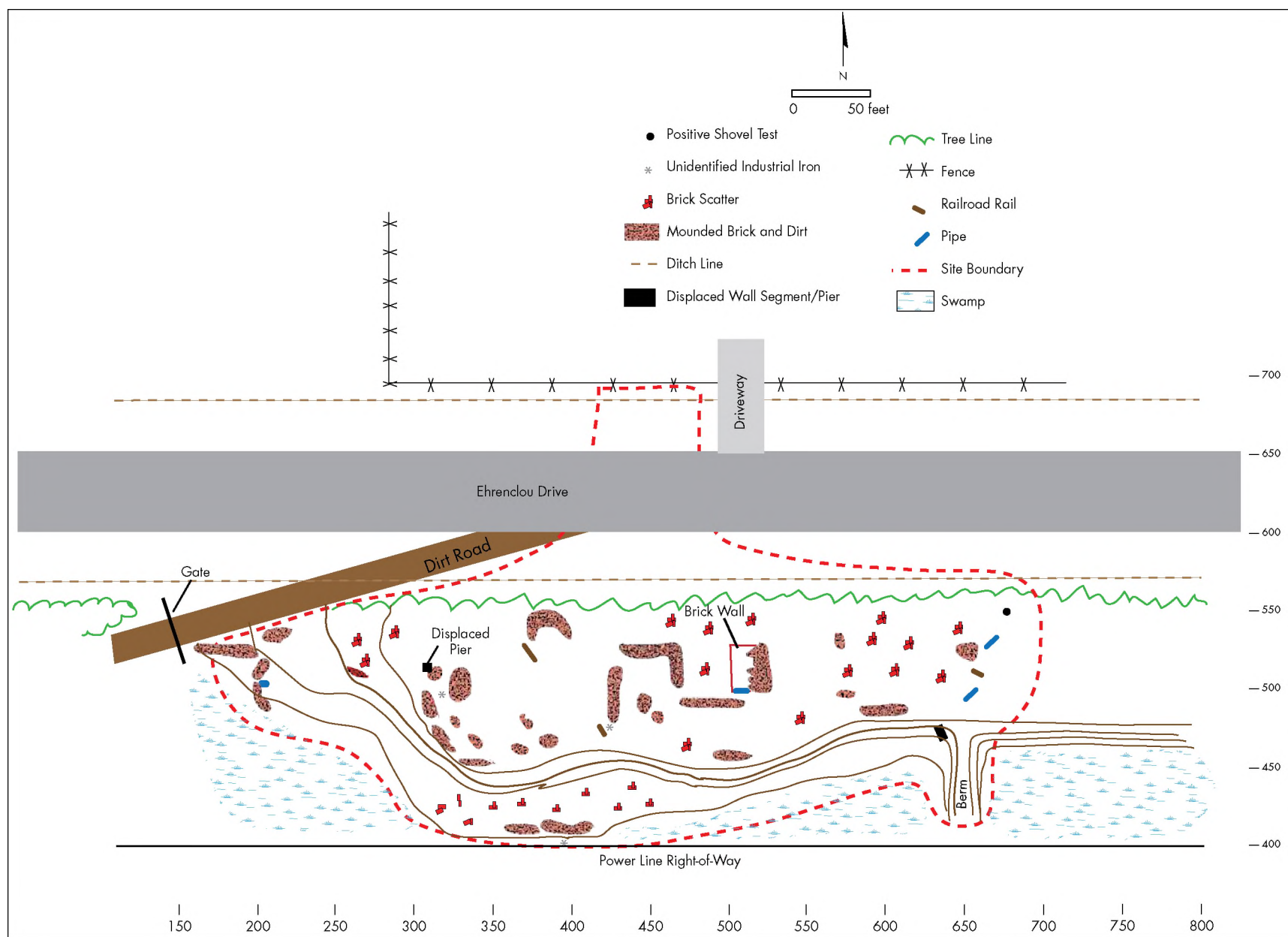


Figure 7.
Map of 38KE1122 from Previous Investigation

Source: New South Associates Report No. 2136, Figure 14

Figure 8.
Disturbances to Site 38KE1122

A. Trenching Disturbance
to 38KE1122, Facing
West



B. A Portion of the
Trenching Disturbance,
Facing West

C. Additional Portion
of the Trenching
Disturbance, Facing East



Figure 9.
Views of Site 38KE1173



A. The Pine Tree Canal on the West Side of U.S. 521, Facing West



B. The U.S. 521 Bridge Over the Pine Tree Canal., Facing West

Figure 10.
Pine Tree Canal LiDAR Hillshade Map

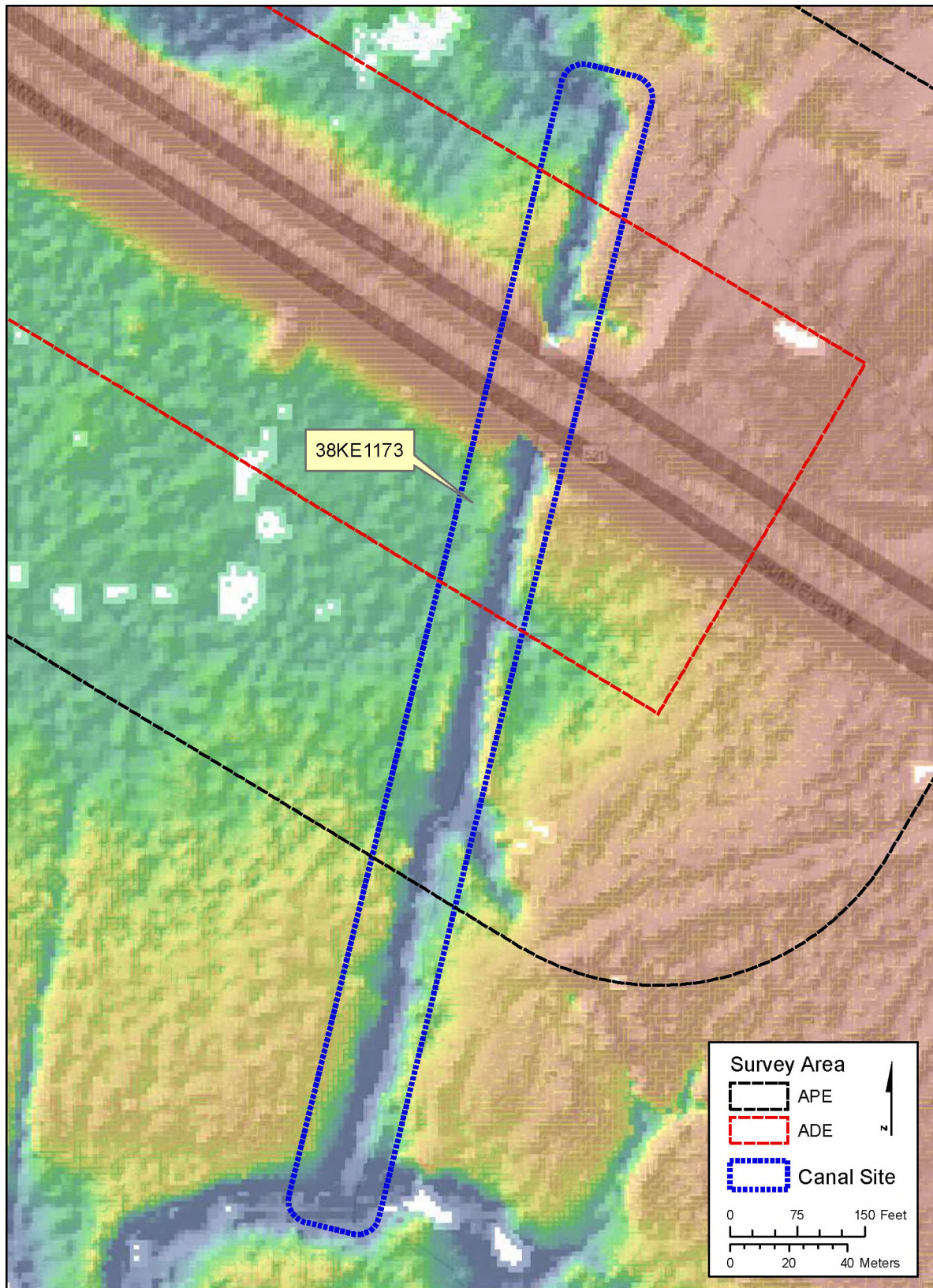


Figure 11.
Wooden Platform Located in the Canal



A. View Facing Southwest



B. Additional View Facing West



Figure 12.
Resource U/55/1855, View Northeast

Figure 13.
Proposed Build Alternatives for the Bridge Replacement Project



Source: ESRI World Imagery (2018)