Nationwide Permit 12

Pre-Construction Notification

Thomson-Vogtle 500kV Transmission Line

Burke, Jefferson, McDuffie, and Warren Counties, Georgia

Prepared for:

Georgia Power Company

Prepared by:

Wetland & Ecological Consultants, LLC

WEC Project No. 02-050508

November 20, 2012

Part 2 of 2

APPENDIX E

CULTURAL RESOURCES SURVEY

CULTURAL RESOURCE SURVEY FOR THE PROPOSED 55.18-MILE THOMSON-VOGTLE TRANSMISSION LINE CORRIDOR IN BURKE, JEFFERSON, MCDUFFIE, AND WARREN COUNTIES, GEORGIA

DRAFT REPORT

January 2012

CULTURAL RESOURCE SURVEY FOR THE PROPOSED 55.18-MILE THOMSON-VOGTLE TRANSMISSION LINE CORRIDOR IN BURKE, JEFFERSON, MCDUFFIE, AND WARREN COUNTIES, GEORGIA

DRAFT REPORT

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MANAGEMENT SUMMARY

From August 29 through November 18, 2011, TRC conducted a Phase I cultural resource survey for a transmission line project in Burke, Jefferson, McDuffie, and Warren counties, Georgia. The survey included archaeological and historic architectural investigations along an approximate 55.18-mile route for a proposed 500-kV transmission line between the Vogtle nuclear generating facility and a substation located near Thomson, Georgia. The Area of Potential Effects (APE) for archaeological resources consists of the actual areas where Georgia Power Company's work could create ground-disturbing activities, which was limited to the proposed 150-foot transmission line corridor. The APE for historic resources includes an area 0.5 km (0.3 miles) from the proposed center line encompassing possible lines of sight to new construction or clearing of vegetation. The results of the survey are summarized below.

Survey Results

Background research prior to the fieldwork using the GNAHRGIS online cultural resources database indicated that 13 archaeological sites are located within a half-mile radius of the project corridor. One of these sites, 9BK109, falls within areas where ground-disturbing activities are to take place. During the field survey, TRC was unable to relocate this previously recorded site, which was recommended ineligible for the National Register of Historic Places (NRHP). In addition to the previously recorded sites, 15 newly recorded sites and 12 isolated finds were identified. Four of the newly recorded archaeological sites exhibited various combinations of buried, intact deposits, diagnostic artifacts, and preserved features, and are recommended eligible for the NRHP pending further investigation. The remaining 11 newly recorded sites have limited research potential, and are therefore recommended ineligible for listing on the NRHP. Likewise, the isolated finds do not consist of intact sites, and therefore retain no research value.

Additionally, the background research found seven previously recorded architectural resources within the 0.5-km radius of the project corridor. Two of the resources, 51181 and 51267, were not relocated, and are presumed to be demolished. Three of the previously recorded resources are potentially eligible for the NRHP, but the project will not adversely affect them. In addition to these resources, 28 newly identified resources were recorded as a result of the current survey. However, several of these are not within view of the project. Ten of the identified resources are recommended potentially eligible for inclusion on the NRHP; however, of these resources, only one, HR-22 will be adversely affected by the project. The remaining NRHP-eligible resources will not be adversely affected by the current undertaking due to distance, intervening tree cover, and the presence of existing transmission structures in their viewshed.

Summary and Recommendations

Eleven of the 15 newly recorded archaeological sites and 12 newly recorded isolated finds are recommended ineligible for inclusion on the NRHP. In the case of these resources, TRC recommends that no further work is necessary at these locations prior to

project implementation. The remaining four newly recorded sites are recommended potentially eligible for the NRHP pending further investigation. If avoidance of these sites is not possible, TRC recommends that Phase II investigations be implemented prior to commencement of ground-disturbing activities.

One historic architectural resource, HR-22, which has been recommended potentially eligible for listing on the NRHP, will be adversely affected by the project as currently proposed. The proposed transmission line corridor will pass through an agricultural field approximately 600 feet from this farmhouse and its supporting outbuildings. The proposed transmission structures will be obtrusive from various vantage points on the property, which will undermine the property's historic setting. If the project cannot be redesigned to avoid effects to this resource, Georgia Power Company will need to consult with the State Historic Preservation Office, Nuclear Regulatory Commission, and U.S. Army Corps of Engineers on measures to mitigate the project's adverse effects to this resource.

The remaining historic architectural resources recommended eligible for the NRHP will not be adversely affected by the proposed undertaking. Therefore in the case of these resources, work should be allowed to proceed as planned without any further consideration.

ACKNOWLEDGMENTS

TRC would like to thank Georgia Power's Joey Charles for the project information he provided, and Bob Brinkman and Steve Brown for their on-the-ground assistance in various portions of the project area.

The field directors for the archaeological field investigations were Price Laird and Ramona Grunden. They were assisted by Emily Tucker-Laird, Thomas Garrow, Tim Copeland, Cory Green, and Katie Sutton. Emily Tucker-Laird carried out the historic architectural survey. The historical context section of the report was prepared by Jeffrey L. Holland. Tommy Garrow conducted the laboratory analysis of the artifacts recovered. Vince Macek and Price Laird produced the report graphics, while Larissa Thomas edited the report.

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I. INTRODUCTION

From August 29 through November 18, 2011, TRC conducted a Phase I cultural resource survey for a transmission line project in Burke, Jefferson, McDuffie, and Warren counties, Georgia (Figure 1). The survey included archaeological and historic architectural investigations along an approximate 55.18-mile route for a proposed 500-kV transmission line between the Vogtle nuclear generating facility and a substation located near Thomson, Georgia. The work was carried out to assist Georgia Power Company comply with Section 106 of the National Historic Preservation Act of 1966, as amended, as required for U.S. Nuclear Regulatory Commission (NRC), and U.S. Army Corps of Engineers (COE) permitting under the provisions of Section 404 of the Clean Water Act.

Background research conducted prior to the fieldwork using the GNAHRGIS online cultural resources database indicated that 13 archaeological sites are located within a half-mile radius of the project corridor (see Figure 1). One of these sites, 9BK109, falls within areas where ground-disturbing activities are to take place. During the field survey, TRC was unable to relocate this previously recorded site, which was recommended ineligible for the National Register of Historic Places (NRHP). Additionally, seven previously recorded historic architectural resources are located within the 0.5-km radius of the project corridor (see Figure 1). Two of the resources, 51181 and 51267, were not relocated, and are presumed to be demolished.

The goal of the archaeological survey was to record and assess all archaeological sites within the Area of Potential Effects (APE), which was defined as the transmission line corridor itself, where ground-disturbing activities might take place. Fifteen newly recorded sites and 12 isolated finds were identified (see Figure 1). Four of the newly recorded archaeological sites (9BK498, 9JF336, 9JF337, and 9JF339) exhibited various combinations of buried, intact deposits, diagnostic artifacts, and preserved features, and are recommended eligible for the NRHP pending further investigation. The remaining 11 newly recorded sites have limited research potential, and are therefore recommended ineligible for listing on the NRHP. Likewise, the isolated finds do not consist of intact sites, and therefore retain no research value.

In the case of the 11 newly recorded archaeological sites and 12 newly recorded isolated finds recommended ineligible for inclusion on the NRHP, TRC recommends that no further work is warranted at these locations prior to project implementation. With respect to the remaining four newly recorded sites recommended potentially eligible for the NRHP, TRC recommends that Phase II investigation be implemented prior to commencement of ground-disturbing activities if avoidance of these sites is not possible.

The APE for historic architectural resources was defined as a 0.5-km radius around the project corridor, and is further defined as "the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist" (36 CFR Part 800.16[d]). One historic architectural resource identified during the current survey, HR-22, is recommended potentially eligible for listing on the NRHP, and will be adversely affected by the project as currently proposed. The transmission line corridor will pass through an agricultural field approximately 600 feet from the farmhouse and its

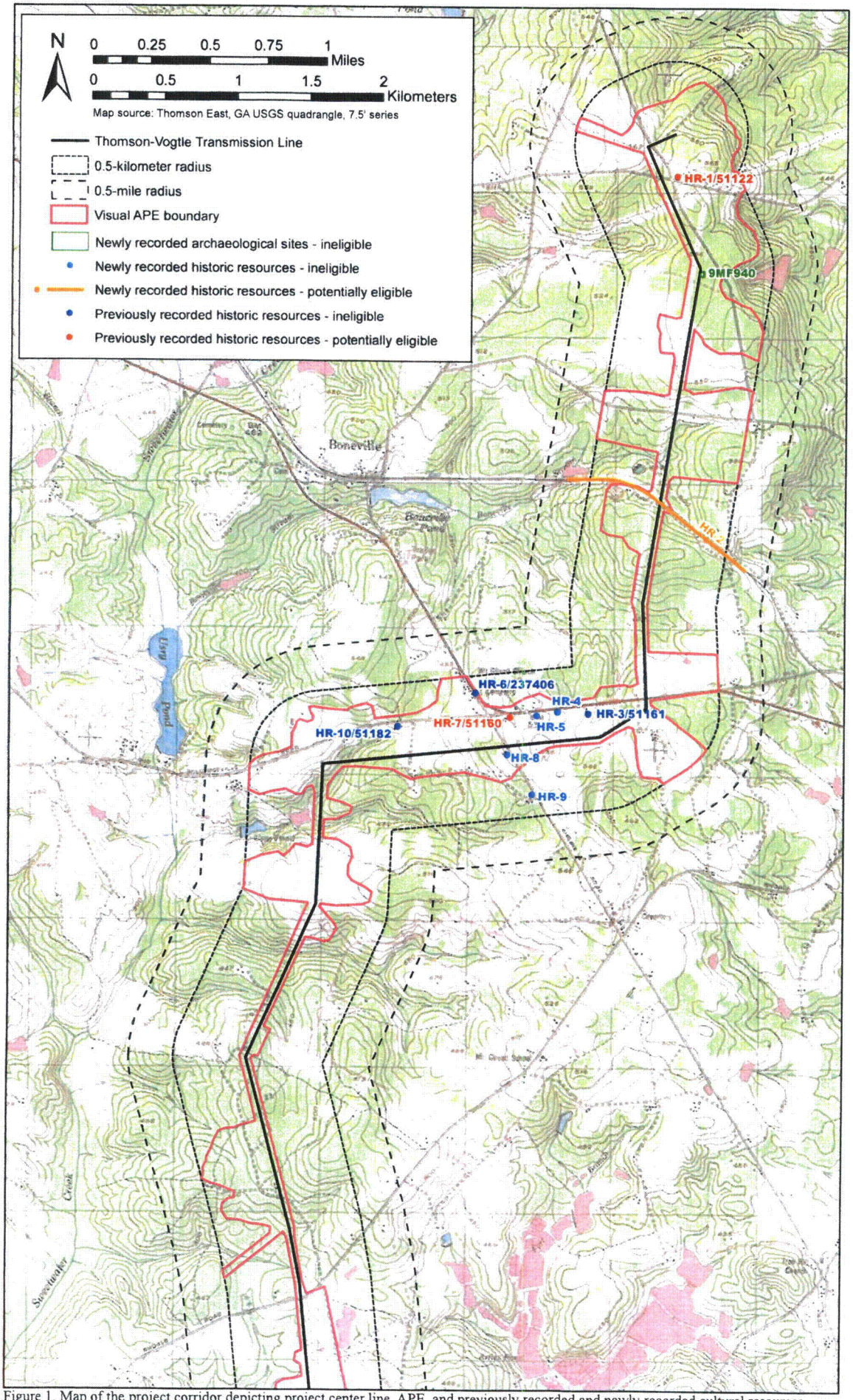

Figure 1. Map of the project corridor depicting project center line, APE, and previously recorded and newly recorded cultural resources (sheet 1 of 10).

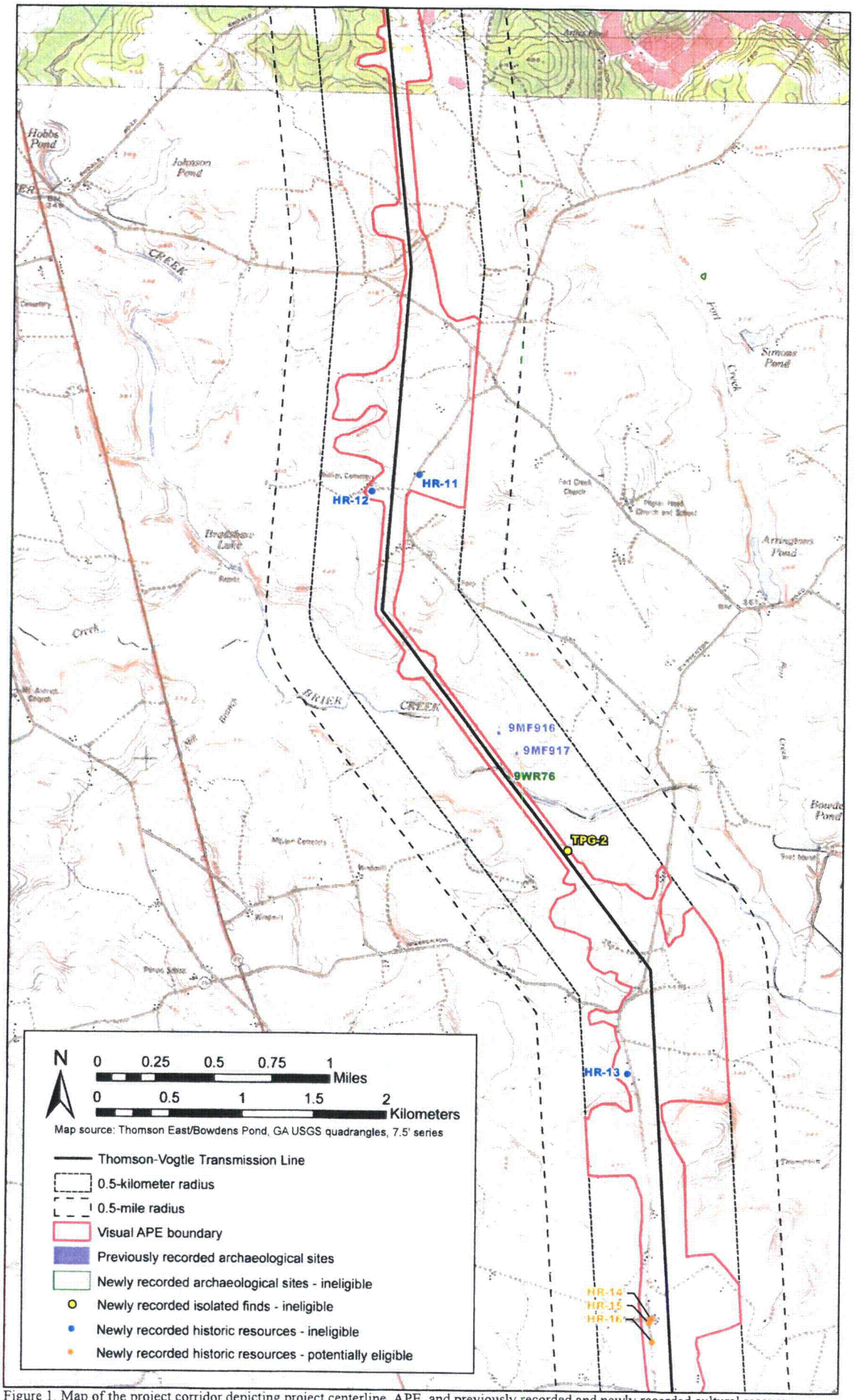

Figure 1. Map of the project corridor depicting project centerline, APE, and previously recorded and newly recorded cultural resources (sheet 2 of 10).

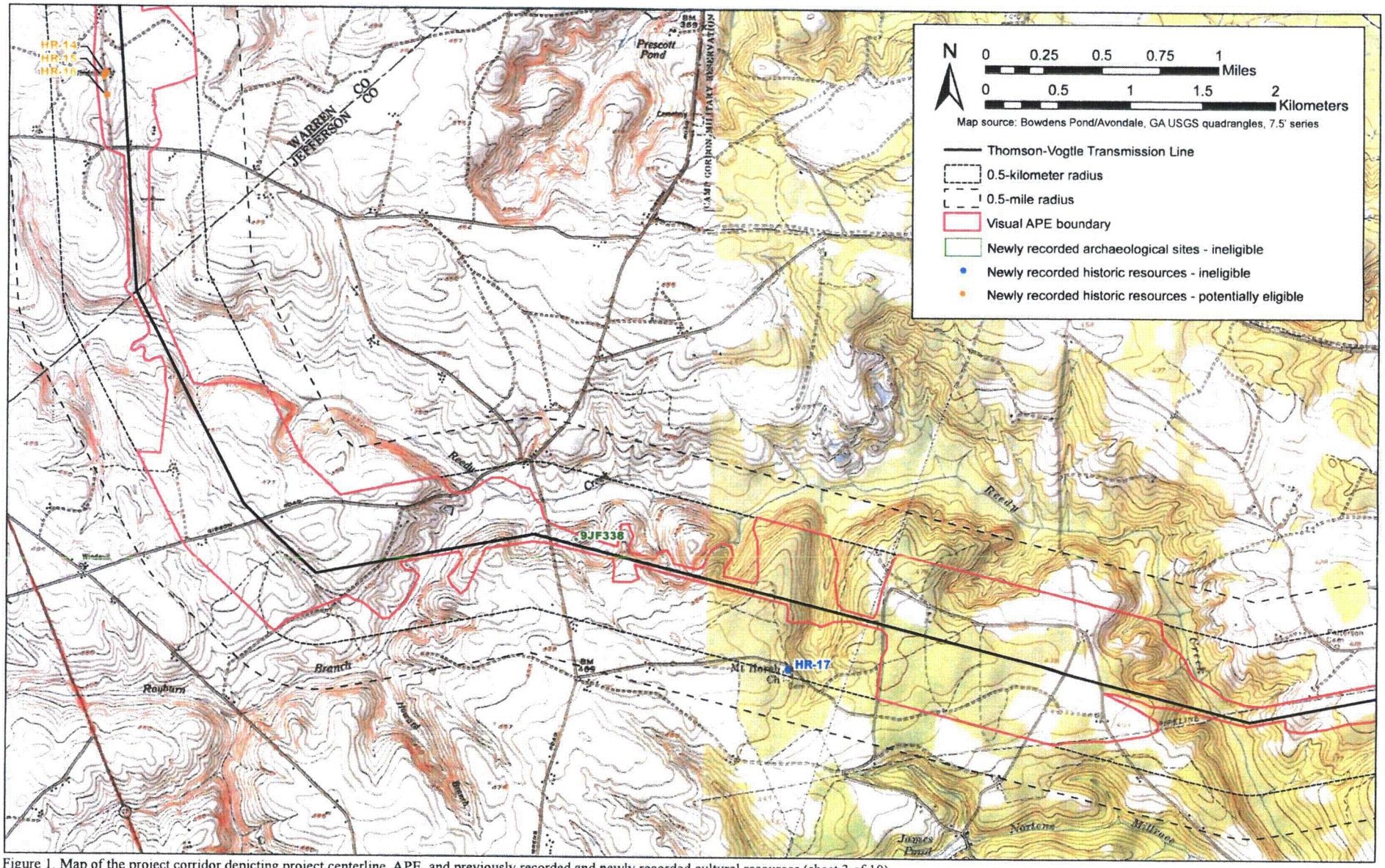

Figure 1. Map of the project corridor depicting project centerline, APE, and previously recorded and newly recorded cultural resources (sheet 3 of 10).

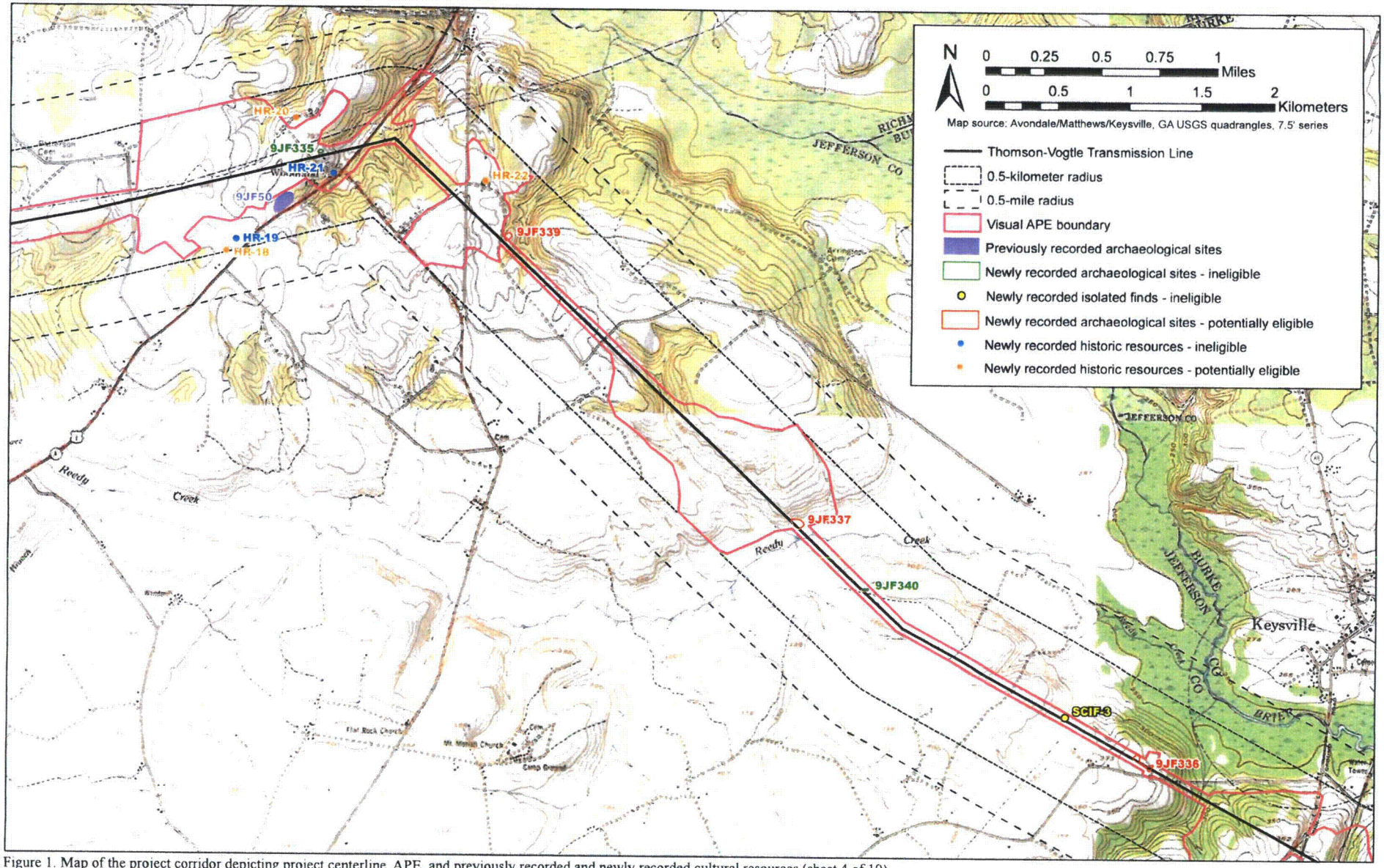

Figure 1. Map of the project corridor depicting project centerline, APE, and previously recorded and newly recorded cultural resources (sheet 4 of 10).

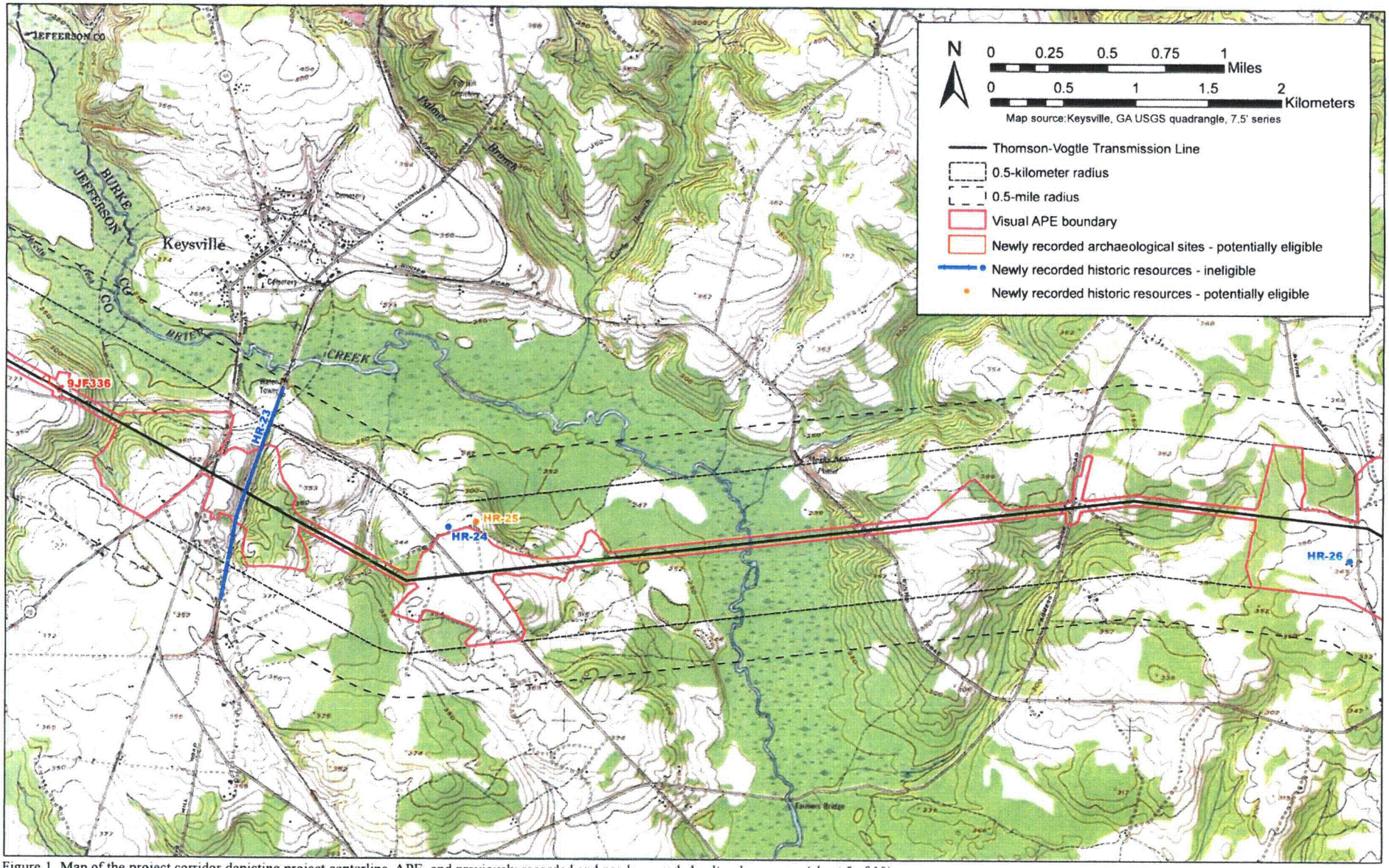

Figure 1. Map of the project corridor depicting project centerline, APE, and previously recorded and newly recorded cultural resources (sheet 5 of 10).

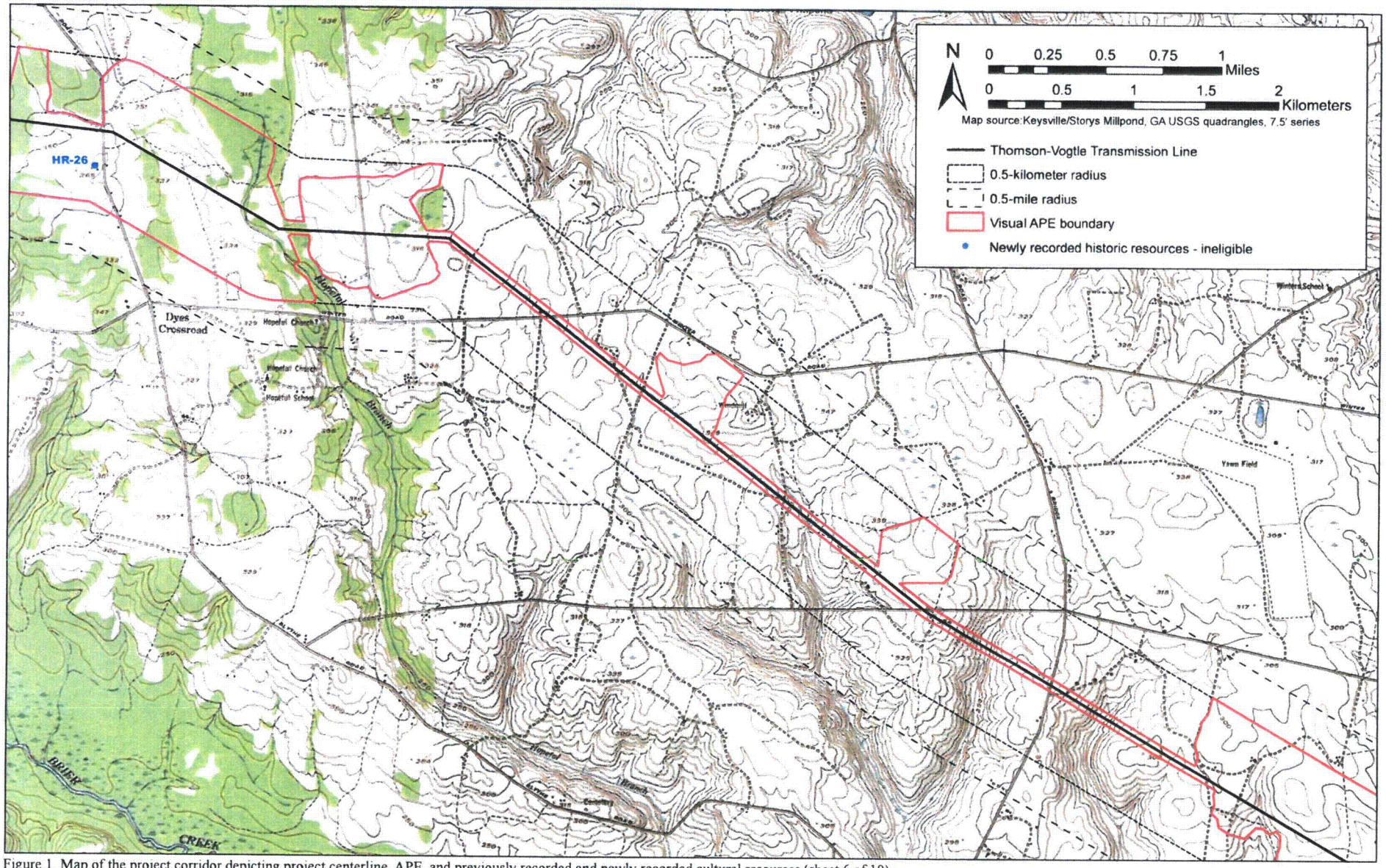

Figure 1. Map of the project corridor depicting project centerline, APE, and previously recorded and newly recorded cultural resources (sheet 6 of 10).

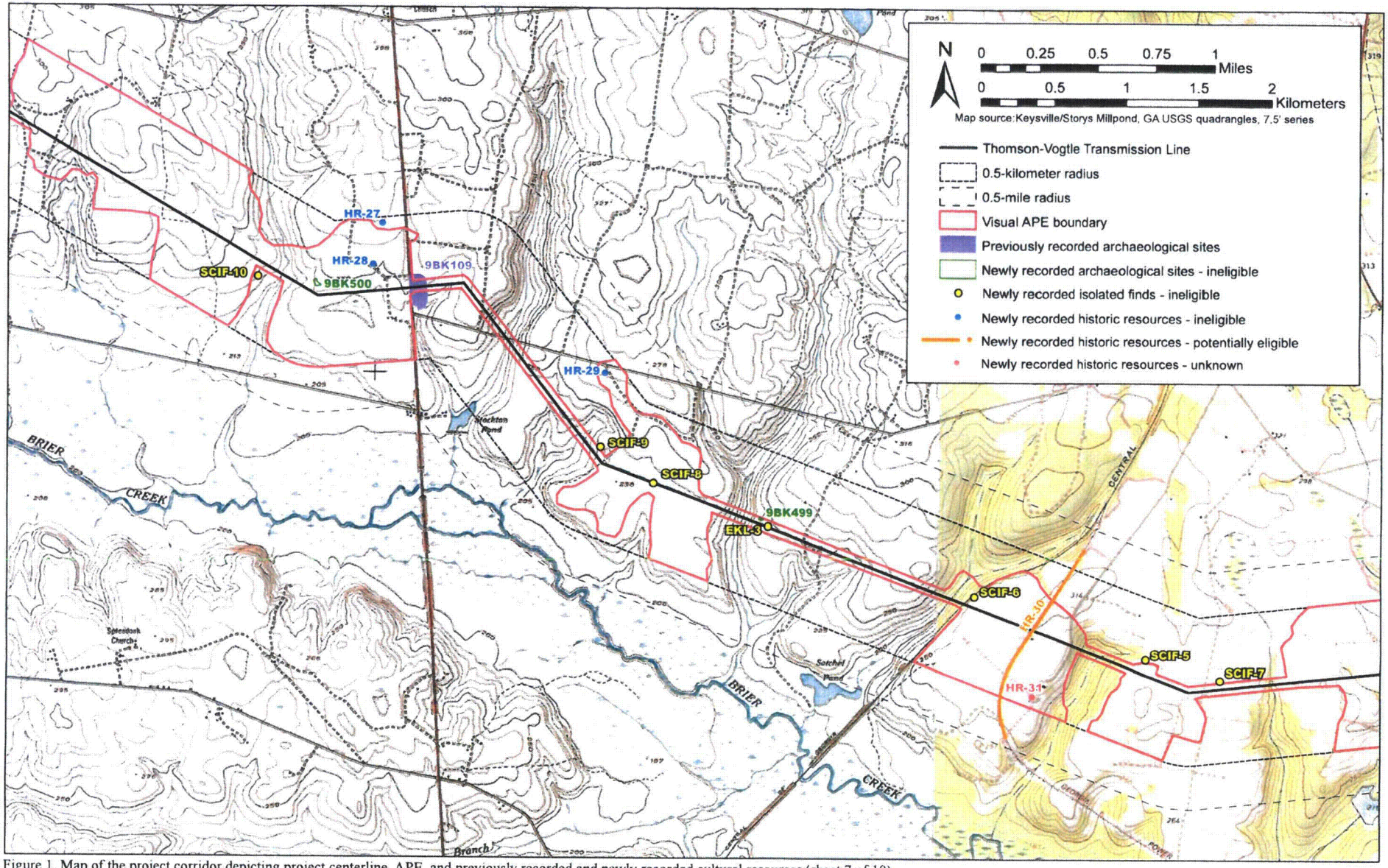

Figure 1. Map of the project corridor depicting project centerline, APE, and previously recorded and newly recorded cultural resources (sheet 7 of 10).

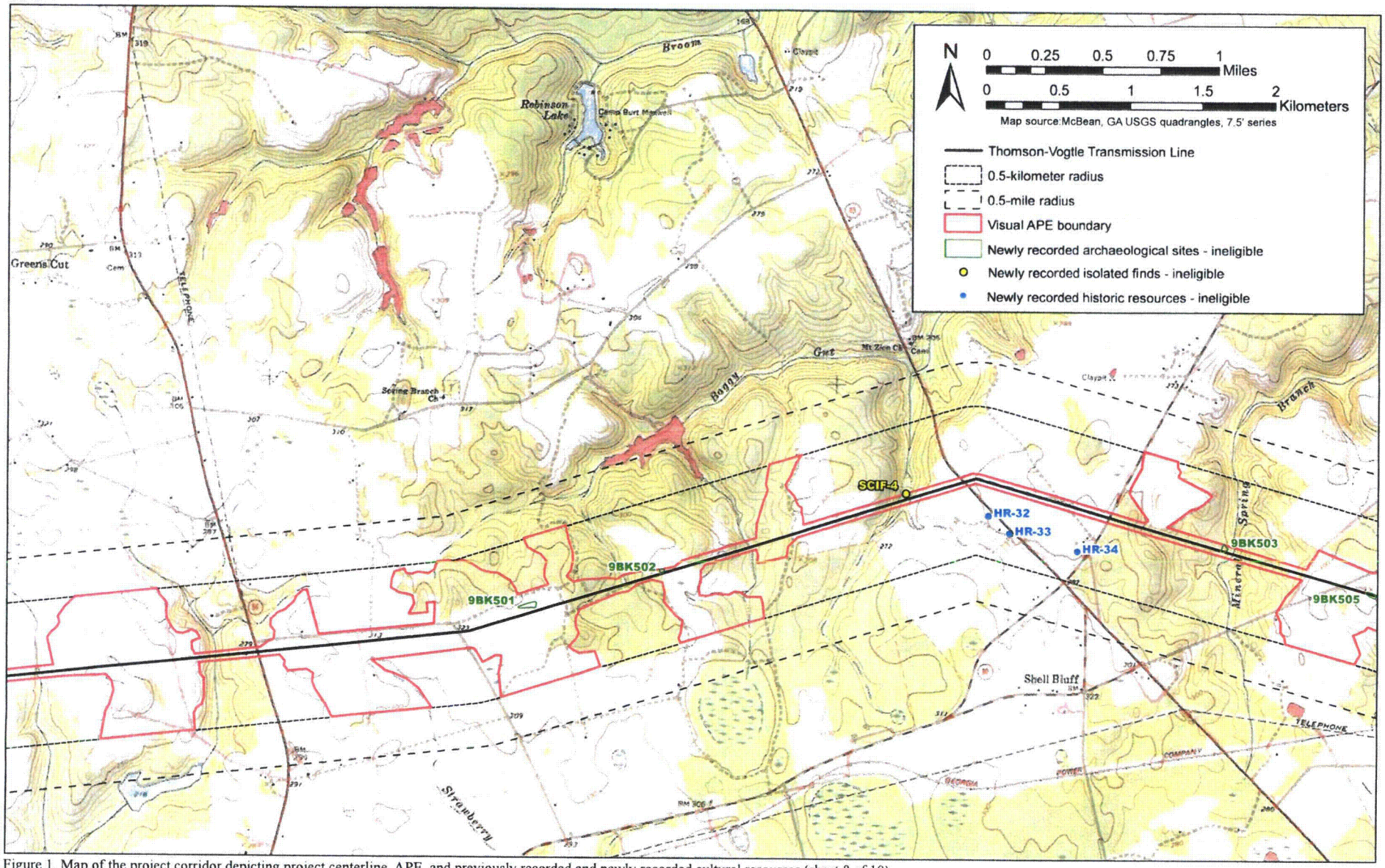

Figure 1. Map of the project corridor depicting project centerline, APE, and previously recorded and newly recorded cultural resources (sheet 8 of 10).

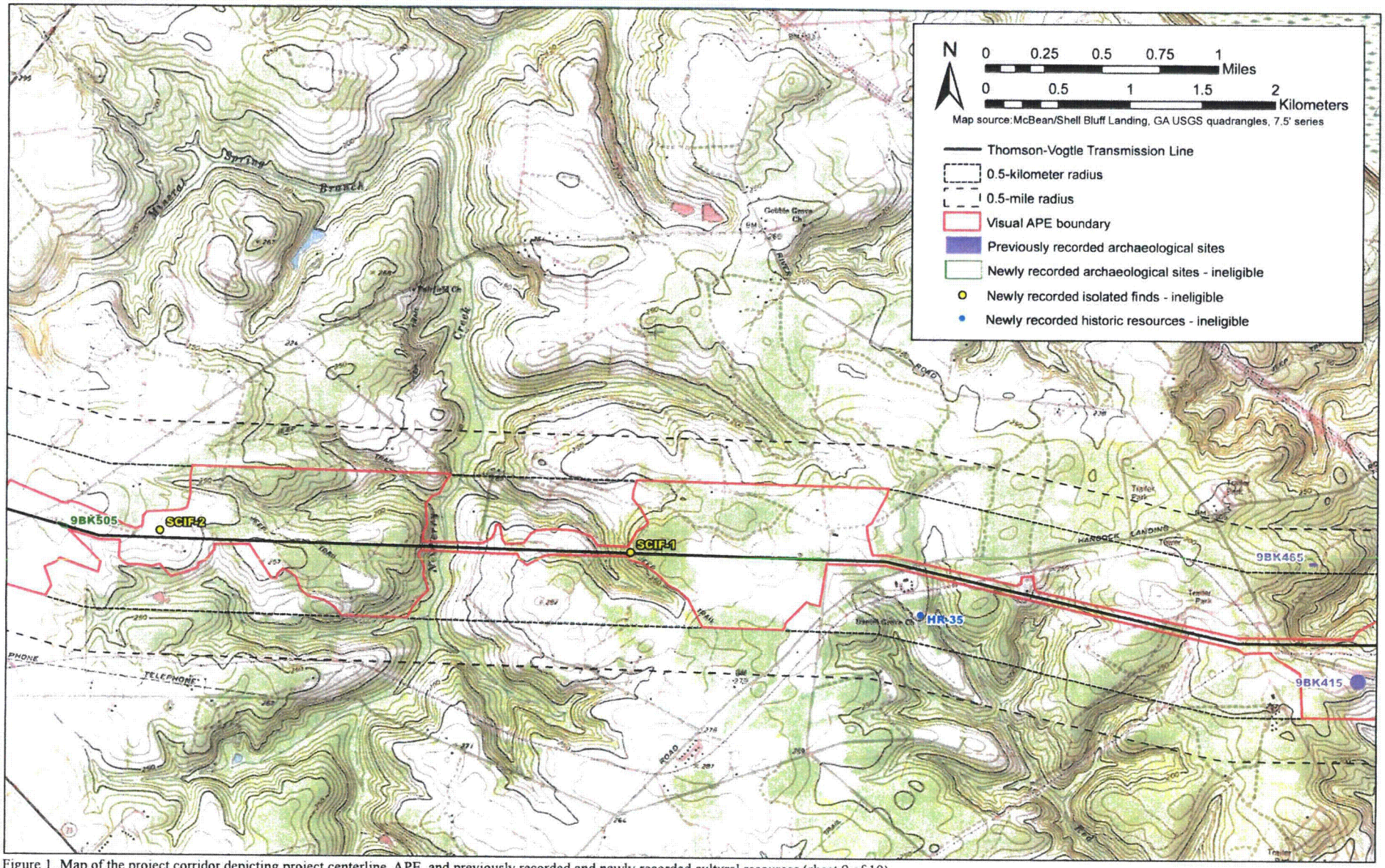

Figure 1. Map of the project corridor depicting project centerline, APE, and previously recorded and newly recorded cultural resources (sheet 9 of 10).

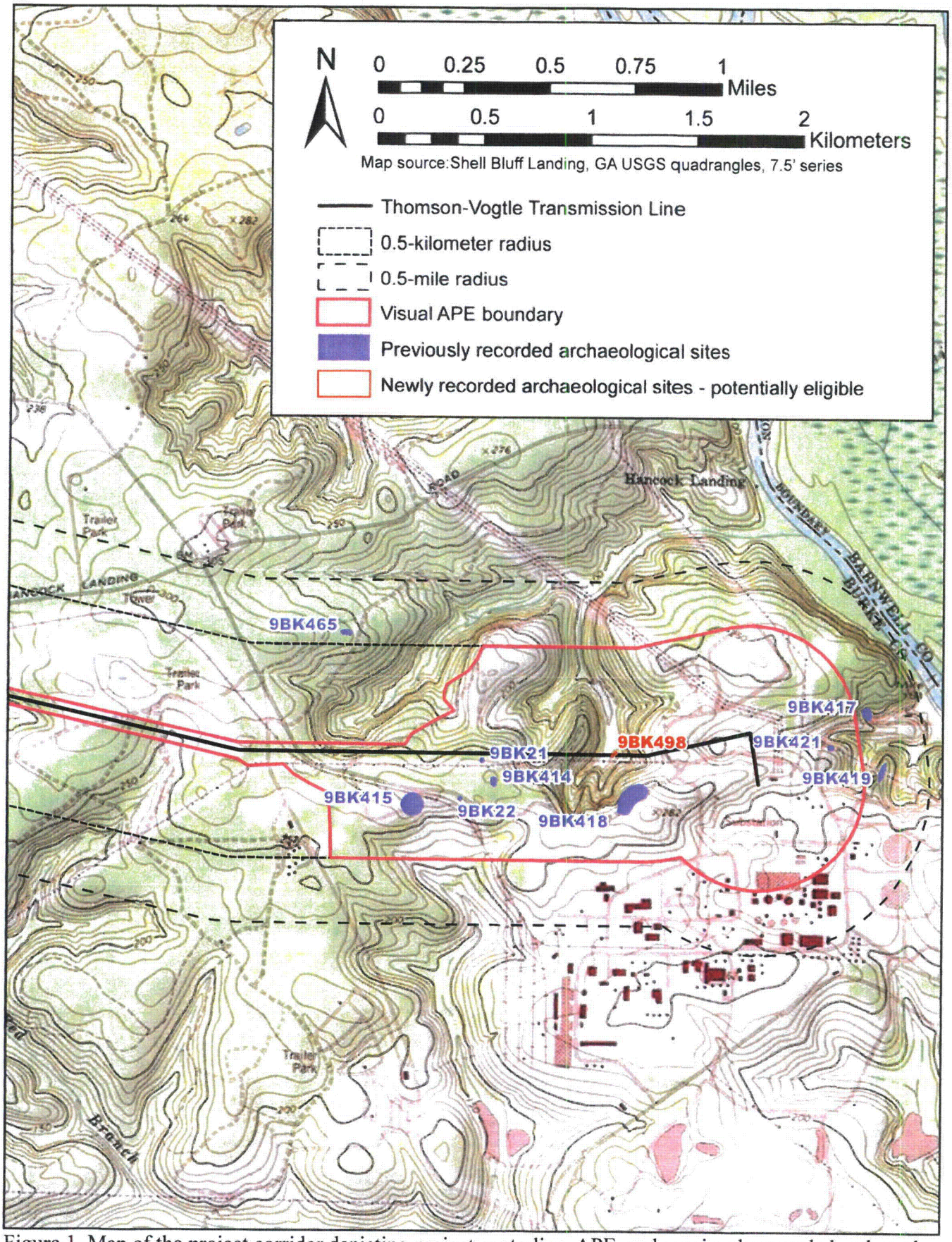

Figure 1. Map of the project corridor depicting project centerline, APE, and previously recorded and newly recorded cultural resources (sheet 10 of 10).

outbuildings. The proposed transmission structures will be obtrusive from various vantage points on the property, which will undermine the property's historic setting. If the project cannot be redesigned to avoid effects to this resource, Georgia Power Company will need to consult with the State Historic Preservation Office (SHPO), NRC, and COE on measures to mitigate the project's adverse effects to this resource.

The remaining historic architectural resources recommended eligible for the NRHP will not be adversely affected by the proposed undertaking. Therefore in the case of these resources, work should be allowed to proceed as planned without any further consideration.

The report proceeds with a discussion of the environmental context for the project in Chapter II, prehistoric and historic cultural context in Chapter III, survey and analysis methods in Chapter IV, archaeological and historic architectural survey results in Chapters V and VI, and summary and recommendations in Chapter VII. The references cited are provided at the end of the report, followed by appendices with resumes for key project staff and the archaeological site forms.

II. NATURAL SETTING

PROJECT SETTING

The project area consists of a proposed 150-foot-wide transmission line corridor approximately 55.18 miles in length, proceeding southward and eastward in an arc from the north side of Randall Hunt Road, east of Thomson in McDuffie County, Georgia, to the Vogtle nuclear generating facility grounds in Burke County, Georgia. Topography and vegetation varies widely along the proposed route. The terrain ranges from upland terraces and ridges characterized by gentle and steep sideslopes that descend to drainages with channels and floodplains of various width. The vegetation encountered along the corridor includes open pasture, planted pine, mixed pine and hardwood forest, mixed hardwood forest, scrub, and wetland areas (Figures 2–7).

PHYSIOGRAPHY AND GEOLOGY

The northwestern end of the proposed corridor, in McDuffie County, traverses the interface between the Washington Slope and Fall Line Hills districts of the Coastal Plain physiographic province. It then crosses the Fall Line Hills to enter the Vidalia Uplands near Keysville, Georgia, extending from this boundary to its southeastern terminus in Burke County. According to the University System of Georgia's Digital Library of Georgia (2011a, 2011b, and 2011c):

> The Washington Slope District is characterized by a gently undulating surface which descends gradually from about the 700 foot elevation at its northern margin to about the 500 foot elevation at its southern edge. Streams occupy broad, shallow valleys with long, gentle side slopes separated by broad, rounded divides. Relief throughout this district is 50–100 feet except in the vicinity of the Ocmulgee River, which flows in a steep-walled valley 150–200 feet below the adjacent area…The southern boundary, known as the Fall Line, follows the contact between the metamorphic rocks of the Piedmont and the sediments of the Coastal Plain.
>
> …The Fall Line is the northern boundary of [the Fall Line Hills] district as well as the boundary between the Atlantic Plain and the Appalachian Highlands Major Divisions. Geologically, it is the contact between the Cretaceous and younger sediments of the Coastal Plain and the older, crystalline rocks of the Piedmont. Several stream characteristics change as they flow south through this area: rapids and shoals are common near the geologic contact, floodplains are considerably wider on the younger sediments, and the frequency of stream meanders increases.
>
> The southern boundary of the Fall Line Hills District approximates the 250 foot elevation and separates this district from the Dougherty Plain. Eastward, the southern boundary follows the northern extremity of the Pelham Escarpment separating the Fall Line Hills from the Tifton Upland. The southern boundary then closely follows the northernmost occurrence of the undifferentiated Neogene geologic unit which underlies the Vidalia Upland.
>
> The Fall Line Hills District is highly dissected with little level land except the marshy floodplains and their better drained, narrow stream terraces. Stream valleys lie 50 to 250 feet below the adjacent ridge tops. Stream dissection seems to be greatest in the East Gulf portion of this district. Relief gradually diminishes to the south and east. Maximum elevations are

Figure 2. General view of project corridor within open pasture.

Figure 3. General view of project corridor within area of planted pine.

Figure 4. General view of project corridor within mixed pine and hardwood forest.

Figure 5. General view of project corridor within mixed hardwood forest.

Figure 6. General view of project corridor within scrub vegetation.

Figure 7. General view of project corridor within wetland.

approximately 760 feet between Columbus and Macon and gradually diminish to a minimum elevation of 150 feet south of Augusta.

...The Vidalia Upland District is a moderately dissected area with a well developed dendritic stream pattern on gravelly, clayey sands. Floodplains are narrow except along the principal rivers which have a wide expanse of swamp bordering both sides of the channel. Relief varies from 100 to 150 feet. Elevations in the district range from 500 feet in the northwest to 100 feet in the southeast indicating the regional dip. The northern and northwestern boundary approximates the northernmost occurrence of the undifferentiated Neogene geologic unit. The southwestern and southern boundary is the base of the Pelham Escarpment and the southern drainage divide of the Altamaha River. The southeastern boundary follows the Orangeburg Escarpment at approximately the 150 foot elevation. The escarpment rises 50–70 feet above the Barrier Island Sequence District.

HYDROLOGY

The project area is drained by Brier Creek and several of its tributaries, Boggy Gut Creek, and Newberry Creek and its tributary, Mineral Spring Branch, all of which flow into the Savannah River to the east and southeast. The Savannah River flows southeast along the Georgia-South Carolina border to empty into the Atlantic Ocean near Savannah.

SOILS

The proposed project corridor falls across a total of five soil associations, which are outlined in Table 1.

Table 1. Soil Associations within the Project Corridor (USDA, NRCS n.d.).

Soil Association	Soil Series Descriptions
Orangeburg-Lucy-Faceville	*Orangeburg* - very deep, well drained, moderately permeable soils; formed in loamy and clayey sediments of the Coastal Plain; slopes range from 0 to 25 percent *Lucy* - very deep, well drained, moderately permeable soils; found on uplands; formed in sandy and loamy marine and fluvial sediments of the Southern Coastal Plain; slopes range from 0 to 45 percent *Faceville* - very deep, well drained, moderately permeable soils; formed in red clayey Coastal Plain sediments; found on Coastal Plain uplands; slopes range from 0 to 15 percent
Rains-Pelham-Osier	*Rains* - very deep, poorly drained, moderately permeable soils; formed from marine deposits, fluviomarine deposits; found on flats, depressions, and Carolina bays; slopes range from 0 to 2 percent *Pelham* - very deep, poorly drained, moderately permeable soils; formed in unconsolidated Coastal Plain sediments; found on nearly level broad flats, toe slopes, depressions and drainageways; slopes range from 0 to 5 percent *Osier* - very deep, poorly drained, rapidly permeable soils; found on flood plains or low stream terraces; formed in sandy alluvium; slopes range from 0 to 2 percent

Table 1. Soil Associations within the Project Corridor, continued (USDA, NRCS n.d.).

Soil Association	Soil Series Descriptions
Tifton-Grady-Dothan	*Tifton* - very deep, well drained, moderately slowly permeable soils; formed in loamy marine sediments; found on nearly level to gently sloping uplands; slopes range from 0 to 8 percent *Grady* - poorly drained, slowly permeable soils; formed in thick beds of clayey marine sediments of the Coastal Plain; found mostly in upland depressions but are also along drains; slopes range from 0 to 2 percent *Dothan* - very deep, well drained, moderately slowly to slowly permeable soils; found on broad uplands; formed in thick beds of unconsolidated, medium to fine-textured marine sediments of the Coastal Plain; slopes range from 0 to 12 percent
Troup-Pelham-Fuquay-Dothan-Cowarts	*Troup* - deep, somewhat excessively drained, moderately permeable soils with thick sandy surface and subsurface layers and loamy subsoils; formed in unconsolidated sandy and loamy marine sediments; found on Coastal Plain uplands; slopes range from 0 to 40 percent *Pelham* - see above *Fuquay* - very deep, well drained, moderately to slowly permeable soils; formed in sandy over loamy marine deposits or fluviomarine deposits; found on marine terraces, uplands, and flats; slopes range from 0 to 10 percent *Dothan*- see above *Cowarts*- very deep, well drained and moderately well drained soils; found on ridge tops and side slopes on uplands of the Coastal Plain; formed in loamy marine sediments; slopes range from 1 to 60 percent
Wagram-Troup-Norfolk-Lakeland	*Wagram* - very deep, somewhat excessively drained, moderately permeable soils; found on uplands; formed in fluviomarine and marine deposits; slopes range from 0–15 percent *Troup* - see above *Norfolk* - very deep, well drained, moderately permeable soils; found on uplands or marine terraces; formed in fluviomarine and marine deposits; slopes range from 0–10 percent *Lakeland* - very deep, excessively drained, rapid to very rapidly permeable soils on uplands; formed in thick beds of eolian or marine sands; slopes are dominantly from 0 to 12 percent but can range to 85 percent in dissected areas

CLIMATE

Lingering moist tropical air from the Gulf of Mexico plays a major role in the weather of this area. Long hot summers, with frequent afternoon thunderstorms are the norm. The average summer temperature is 79 degrees F with the average daily maximum of 90 degrees. Winters are short, and rare cold waves usually do not persist more than one or two days. The average winter temperature is 47 degrees, with the average minimum of 36 degrees. Annual precipitation averages 48 inches, half of which falls in April through September (Frost 1981:1–2).

FLORA AND FAUNA

As early as the sixteenth century, Europeans and Africans have purposefully and inadvertently altered the native plant communities in Georgia as a product of colonization and settlement of the area. During the Holocene, but before the arrival of Europeans, the landscape of the project region was likely forested with mixed hardwoods and pines in the uplands and species adapted to wetter floodplain contexts along the drainages. The potential natural vegetation of the project area includes loblolly-shortleaf pine forests and mixed deciduous forests (Hodler and Schretter 1986:52).

Currently, the overstory vegetation of the project tract consists of pine, oak, hickory, poplar, beech, and sweetgum. Secondary vegetation is very thick and includes greenbrier, blackberry, and poison ivy. Fauna currently inhabiting the region include deer, squirrel, reptiles, and a variety of avian species such as wild turkey, waterfowl, and various songbirds. In the past, the Savannah River and its associated tributaries probably supported a more diverse set of aquatic species such as freshwater mussels and a variety of fish, but only a few species of fish inhabit these waters today (Hally and Rudolph 1982:8).

PALEOENVIRONMENT

The contemporary climate and vegetation of the Piedmont are products of a long and complex process of natural and human-induced change. The earliest European settlers reported large stands of yellow pine in the oak-hickory forests of this region. Whether these were products of natural forces or the results of aboriginal hunting methods, which used fire to drive and concentrate game, is unknown. In earlier times, streams in the project area would have contributed to the Precolumbian population's diet by providing a variety of fish, freshwater mollusks, and waterfowl.

Average temperatures in the last full glacial period (ca. 23,000–13,000 B.C.), which presumably predated the arrival of *Homo sapiens sapiens,* were considerably cooler than at present. At that time, the study area was covered by a northern coniferous forest dominated by pines and spruce (Delcourt and Delcourt 1983; Whitehead 1973). In the Late Wisconsin glacial period, when humans apparently first arrived in what is now the State of Georgia, ca. 13,000–8000 B.C., the climate gradually warmed and precipitation increased. These trends occurred in conjunction with northern hardwoods replacing pine and spruce as the dominant overstory species.

This was a dynamic period with regard to faunal communities as well. Many large mammals that inhabited Georgia during this time (mastodon, giant ground sloth, horse, camel, saber-toothed tiger, etc.) became extinct by 8000 B.C., victims of a mass North American extinction that involved 33 genera of large mammals adapted to the cold, dry environmental systems of the Late Pleistocene (Martin 1984:361). The retreat of the Laurentide Ice Sheet, which induced a warmer, wetter climate throughout North America, and the arrival of humans heavily reliant on many of these animals for subsistence, are considered major factors in the megafauna's demise (Martin 1984).

The period ca. 8000–3000 B.C. is termed the Altithermal, a period of continued warming but decreased precipitation (Bryson et al. 1970; Watts 1975). The dominant overstory vegetation was

oak-hickory forest (Watts 1975; Whitehead 1973). Since ca. 3000 B.C. the climate has cooled slightly and precipitation has possibly increased, leading to the conditions that exist today. The evolution to modern conditions preceding settlement by Euro-Americans involved a decrease in oak-hickory stands and an increase in the number of pines (Wharton 1977).

Faunal resources were much the same as those that exist today, though the numbers of individuals and the geographical distribution of species have been greatly altered. Between ca. 8000 B.C. and A.D. 1540, the animals inhabiting northern Georgia included bear, white-tailed deer, elk, bison, wolf, fox, bobcat, beaver, rabbit, mink, skunk, opossum, raccoon, and a variety of reptiles and amphibians. Migratory waterfowl, turkey, dove, quail, and bald and golden eagles were plentiful. Aquatic resources such as freshwater mussel and a variety of fish were also present (Golley 1962). Many animals, including bison, elk, cougar, and wolf, have been eradicated from the area since the advent of the historical period. Many others, such as bear and beaver, have been greatly reduced in number (Golley 1962).

Vegetation in the Georgia Piedmont has suffered extensive alteration in the past two centuries, complicating any estimation of the relative quantities of original species and their distribution across the landscape. Originally, the land was predominantly forested, consisting of a mix of hardwood trees and pine. Large-scale clearing and cultivation of cotton in the nineteenth century removed large tracts of native forest and caused serious erosion. As a consequence, by the 1930s much of the Piedmont region was abandoned, with the result that up to 70 percent of the area now lies in secondary forest dominated by pine (Wharton 1977:144).

last stages of the Pleistocene glaciation. The earliest securely dated Paleoindian site is in Monte Verde, Chile, where dates as early as ca. 11,800 B.C. have been obtained (Dillehay 1989). The end of the Paleoindian period coincides with the Pleistocene/Holocene transition and in most areas of the Southeast is given an arbitrary terminal date of 8000 B.C.

The Clovis point is the best-known item in the Paleoindian toolkit (dating 9800–9000 B.C.), and is generally recognized as the earliest tool form on the continent. However, a recent excavation at the Topper Site, on the South Carolina side of the Savannah River (Goodyear 2001, 2002), offers tantalizing evidence of a pre-Clovis occupation. Here, in stratigraphic position below the Clovis levels, researchers uncovered spatially clustered concentrations of chert flakes and chunks along with several flake tools. These tools, referred to as "bend break tools", are essentially thin flakes broken to provide a chisel-like working edge, some of which exhibit use wear patterns suggesting use as a burin or graver. This apparent pre-Clovis occupation is also distinguished by exploitation of a separate chert source than that of later occupations. Several researchers remain skeptical that these items are cultural, however. Research here is ongoing and is subject to intense scrutiny and discussion.

By 8000 B.C. environmental conditions were approaching those that exist today. North of 33° N,[2] "patchy" enclaves of xeric boreal forest/parkland vegetational communities were gradually replaced by widespread stands of mesic oak-hickory forests. This forest type lasted until large-scale Afro/Euro-American agriculture and construction severely modified the landscape. South of that parallel, the oak-hickory canopy was present much earlier (Delcourt and Delcourt 1985). The project area lies just north of the postulated vegetational interface (33°40' N) and, given the coarse-grained nature of this reconstruction, it is not possible from the available data to determine whether the oak-hickory regime was present in the area during most or all of the Paleoindian period, or whether there was a change from the boreal forest/parkland regime to oak-hickory then.

The Paleoindian lithic tool kit was based on a highly refined flake and blade technology. Examples of Paleoindian lithic tool types include unspecialized flake tools, formal side and end scrapers, gravers, denticulates, specialized hafted unifacial knives, large bifacial knives, and specialized lanceolate projectile points, which were sometimes "fluted." The best known of these is the Clovis point, the earliest recognized projectile point type in the western hemisphere (dating 9800–9000 B.C.). Clovis variants have been found from Canada to the southern tip of South America.

Formal variation in projectile point morphology began to emerge in regions of the Southeast by about 9000 B.C., probably due to restricted movement and the formation of loosely defined social networks and habitual use areas (Anderson 1995; Anderson et al. 1992). These new forms include the Cumberland, Suwannee, Simpson, Beaver Lake, and Quad types (Anderson et al. 1990; Justice 1987:17–43; Milanich and Fairbanks 1980).

A significant wood, bone, and antler technology was present as well. Organic materials such as these do not preserve in the acidic soils that cover much of the Southeast, and they are very

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[2]As a reference point, Macon, Georgia, is located about 13 km south of 33° N.

rarely found. However, at sites where they have been preserved, primarily in Florida, it is clear that organic media such as wood, bone, and antler were very important. These materials were manufactured into projectile points, foreshafts, leisters, awls, and needles, to name just a few tool categories (Milanich and Fairbanks 1980:Figures 3, 5, and 6).

Original views of the Paleoindian subsistence economy were based on observations from a series of sites in the western United States where Paleoindian artifacts, particularly large, lanceolate, fluted points, were recovered in direct association with the remains of several species of now extinct Pleistocene megafauna. Initial interpretations of Paleoindian subsistence suggested that these early inhabitants focused primarily on hunting such large mammals as mammoth, mastodon, bison, ground sloth, giant armadillo, tapir, horse, wild pig, and caribou. Resources such as arboreal seed and nut crops as well as small mammals, birds, and fish were, until recently, assumed to have been minor dietary constituents.

Over the past 15 years there has been a reevaluation of Paleoindian subsistence, particularly for eastern North America, based upon data from sites such as the Meadowcroft Rockshelter in southwestern Pennsylvania. Cushman's (1982:207–220) analysis of the Paleoindian occupation at Meadowcroft Rockshelter suggests that the occupants were geared toward the type of "broad spectrum" resource utilization traditionally associated with the subsequent Archaic period. Her examination of the botanical remains indicates that a variety of leafy plants, seeds, nuts, and berries (Cushman 1982:207–220) were important dietary components.

Because of the striking similarity in Paleoindian technological organization that pervaded most regions of the western hemisphere until ca. 8500 B.C., the large game-oriented subsistence model devised from the western United States evidence was initially assumed to have applied to all Paleoindian economic systems, including those associated with groups in Georgia. However, archaeologists working in Georgia have yet to document a clear association between Paleoindian tools and the remains of displaced and extinct animal species known to have been present in the state as late as 11,000–10,200 B.P.—mastodon, bison, giant ground sloth, and giant armadillo, for example (Holman 1985:569–570).

Over the past 20 years there has been a reevaluation of Paleoindian subsistence, particularly for eastern North America, based upon data from sites such as the Meadowcroft Rockshelter in southwestern Pennsylvania. Cushman's (1982:207–220) analysis of the Paleoindian occupation at Meadowcroft Rockshelter suggests that the occupants were geared toward the type of broad spectrum resource utilization traditionally associated with the subsequent Archaic period. Her examination of the botanical remains indicates that various leafy plants, seeds, nuts, and berries (Cushman 1982:207–220) were important dietary components.

Broad-based Paleoindian subsistence is also indicated by evidence from Florida. At Little Salt Spring, an important underwater site in Sarasota County, Florida, a variety of smaller mammals, fish, plants, and reptiles (including a now-extinct form of giant land tortoise) have been shown to be constituents of the Paleoindian diet in that region (Clausen et al. 1979).

There is very little evidence for resource exploitation in the littoral by Paleoindian peoples living in the Southeast. This is probably due to site obfuscation and destruction caused by coastal

submergence during the Holocene, and not because the resources these ecozones contained were not used (e.g., Dunbar et al. 1988; Dunbar et al. 1991).

In summary, new perspectives on Paleoindian subsistence economy emphasize the usage of a broader spectrum of ecotones and resources and de-emphasize the degree to which Paleoindians relied on large-game hunting for sustenance. In the Eastern Woodlands, the majority of Paleoindian sites consist largely of diffuse lithic scatters at open locations, with more intensive occupations in rockshelter or cave settings. No conclusive evidence for permanent structures or long-term encampments has been located for this time period in the Southeast. The majority of the Paleoindian data recovered in Georgia to date derives from surface scatters of projectile points and a small assortment of chipped stone implements collected from settings in which the depositional integrity has been compromised. However, a limited amount of data has been recovered from intact contexts (Anderson and Schuldenrein 1985; Elliott and Doyon 1981; Gresham et al. 1985; Kelly 1938; O'Steen et al. 1983; O'Steen et al. 1986).

Several models of early Paleoindian settlement patterning have been advanced in the past quarter century (see Anderson et al. [1992] for an overview). Some are concerned with Paleoindians in general (Anderson 1990; Kelly and Todd 1988; Martin 1973), and others with regional trends (Anderson 1995; Morse and Morse 1983). Most are mechanistic models that portray specific economic strategies as primary reasons for how Paleoindians settled on and utilized the landscape. Each is slightly different in its focus, with primacy placed on one of three major influences: (1) the need to maintain access to prominent, high-quality raw material sources (e.g., Gardner 1983); (2) a preference for exploiting specific habitual use zones and staging areas (e.g., Anderson 1995); or (3) a nomadic or seminomadic existence dictated to a large degree by the movements and availability of large game (e.g., Kelly and Todd 1988).

An attempt to review and assess each model is impractical in this context; however, there is a general consensus among archaeologists involved in Paleoindian research regarding Paleoindian settlement. Each group probably comprised four or five extended families and counted 25–50 individuals. Marriage was almost certainly exogamous, and residence was likely extralocal. This would have ensured that primary social groups remained small enough to remain economically sustainable, but linked with a larger, interactive social network that provided information, cooperation, and mates of suitable kin distance. Primary social groups very likely met at predetermined locations with other groups at specific times of the year to cooperate in large-scale food acquisition (nut harvesting, fishing, shellfish gathering, etc.) and/or lithic resource extraction, as well as to exchange information, renew or create alliances, fulfill social obligations, find mates, and perform rituals. For most of the year, however, primary groups appear to have dispersed into loosely defined habitual use areas. They probably exploited a wide variety of economic resources, moving often to take advantage of seasonal resources. It is also possible that they periodically established logistical base camps and used them as staging areas for special activity forays.

Joseph et al. (1994:21–24) discuss the four site types identified by O'Steen et al.'s (1986) survey of the Wallace Reservoir (Lake Oconee). The site types are based upon the diversity of tools present, and include short-term camps, quarry camps, residential camps, and kill sites. Joseph et al. (1994:22) note that many of the sites identified at Fort Gordon, near the project area, appear to correspond with the residential camp type identified by O'Steen et al. (1986). O'Steen et al.

(1986) noted that within the Wallace Reservoir, the Early Paleoindian sites occur on floodplains, while Late Paleoindian sites tend to occur on upland areas overlooking floodplains. This cultural landscape pattern suggests a gradual expansion from the Oconee River into the surrounding uplands (Joseph et al. 1995:21–24). Also noted was a shift to local raw materials within the Middle and Late Paleoindian periods (Joseph et al. 1994:22–24).

In their examination of the Paleoindian period at Fort Gordon, Joseph et al. (1994) also discuss settlement system theories based upon excavations at the Taylor Hill site in the Phinizy Swamp area of Richmond County, Georgia. Speculation on the function of the Taylor Hill site has resulted in different theories. Elliott and Doyon (1981) believed the site was a residential camp, while Anderson and Hanson (1988) and Anderson et al. (1990) believed the Taylor Hill site was a specialized logistical camp that provided access to a wide variety of natural resources due to its location near the Fall Line. The location of the Taylor Hill site would have allowed access to resources in both the Coastal Plain and the Piedmont, and may have served as an aggregation point for Paleoindian groups (Joseph et al. 1994:15).

Joseph et al. (1994:15–16) also discuss the swamp margin model proposed by Cantley et al. (1991) and Cantley and Raymer (1991), applying it to the Taylor Hill site. The swamp margin model is based on studies of Archaic settlements around swamps in Alabama. It is suggested that the environmental variability of swamps would have provided a wide variety of food resources, and the location of the Taylor Hill site near the Fall Line would have allowed access to additional resources in the Piedmont and Coastal Plain (Joseph et al. 1991:15–16).

The end of the Paleoindian period (ca. 8000 B.C.) is associated with the end of the Wisconsin Ice Age and the onslaught of new environmental conditions, which influenced how humans organized their society and coped with the environmental and social pressures that came about during the climatic transition. New settlement and subsistence patterns were established and regional technological innovations were developed. These trends are associated with the subsequent Archaic culture period.

As of 1995, six Paleoindian sites were identified within Fort Gordon. Outside of the base, another significant Paleoindian site investigated in Richmond County is the Pig Pen site, which featured a late Paleoindian Dalton component (Ledbetter 1988). Other Paleoindian sites in the vicinity of the project area have been found along Brier Creek (Anderson et al. 1990).

Archaic Period (ca. 8000–1000 B.C.)

The transition from Paleoindian to Archaic is loosely defined, and in the Southeast the chronological interface ranges from ca. 8000 to 6500 B.C. In Georgia, the transition has been arbitrarily designated as 8000 B.C. In addition to rapid changes in environmental conditions that were nearing completion by 8000 B.C. (Delcourt and Delcourt 1985), and the changes in utilitarian technology that were developed to cope with those changes, population demography and diversity in social organization distinguish the Archaic experience. A tripartite scheme, dividing the Archaic period into Early, Middle, and Late subperiods, is traditionally used to demarcate some of the important developments of this time. It should be emphasized, however, that these subdivisions are heuristic devices; changes were more gradual and nonuniform across the Southeast than a discussion with these limitations intimates.

Early Archaic (ca. 8000–6000 B.C.). Tool assemblages associated with the Early Archaic period are similar to those of the preceding Paleoindian period, although a variety of ground stone tools first appear at this time. Notched and/or stemmed hafted bifaces replace lanceolate forms by 8000 B.C. in the Southeast. Big Sandy, Palmer-Kirk series, Kirk Corner Notched, Kirk Stemmed, and several bifurcate styles are the Early Archaic types known in the project region. Wear patterns suggest that these tools were used for activities such as killing, butchering, and skinning game, as well as woodworking.

The Early Archaic lifeway is represented by social, settlement, and subsistence strategies designed to take advantage of the biotic diversity of the early Holocene environment, and also to cope with movement restrictions placed upon some Early Archaic populations because of increased population. Environmental conditions were approaching those that the first Europeans encountered in the sixteenth century. Hardwood primary forests and extensive palustrine swamps provided large and small game as well as a variety of plants for medicine, subsistence, clothing, and shelter. Rivers were used as travel corridors and provided fresh water, fish, and shellfish. The only areas of low productivity would have been the pine stands that began to emerge in the uplands by about 6000 B.C. (Delcourt and Delcourt 1985).

Joseph et al. (1994:26) note that several models of settlement and social organization have emerged as a result of excavations conducted at southeastern Archaic sites. They discuss three of the models, based upon Anderson and Joseph's (1988) synopsis, including Cable's (1982) "effective temperature/technological organization" model, the Wallace Reservoir model proposed by O'Steen (1986), and Anderson and Hanson's (1988) "band/macroband" model.

Cable's (1982) "effective temperature/technological organization" model postulates that the transition from the Paleoindian to the Archaic periods, and the resultant Archaic settlement and social organization, is tied to the climactic changes and gradual warming during the Holocene (Joseph et al. 1994:26). The model states that mobility of groups increased as the temperature increased. The model also suggests that the increase in residential mobility would be reflected in a shift from curated to expedient technologies more suited to a forager adaptation (Joseph et al. 1994:27).

The Wallace Reservoir survey conducted by O'Steen (1986) found that Early Archaic sites are most likely to occur in areas that contain the greatest diversity and density of resources; specifically, drainages. Both multi-component and single component sites were examined. The majority of the multi-component sites were located at drainage confluences. These sites were considered spring, summer, or fall base camps. The remaining multi-component sites located in the uplands were considered fall or winter camps. No settlement pattern was identified for the more numerous single component sites. These sites were viewed as transitory hunting or butchering sites (Joseph et al. 1994:27).

O'Steen (1986) estimated that approximately 80–200 people could be supported by the resources in the reservoir, based upon the carrying capacity of the area, and upon estimates of band size. O'Steen (1986) argues that the Early Archaic occupation of the reservoir was sedentary, and focused on a relatively small territory, based upon the contention that hunter/gatherers in ecologically diverse, temperate environments tend towards a sedentary lifestyle (Joseph et al. 1994:27).

Anderson and Hanson (1988) propose a "band/macro-band" model for Early Archaic settlement. This model proposes two levels of band organization: local bands consisting of 50–150 members, and macro-bands consisting of 500–1,500 members. Four factors were seen to influence the structure of Early Archaic settlement and social organization: availability of resources based upon seasonal and geographic variation; availability of mates; the extent of social and economic interaction among groups, including the exchange of information and resources; and the size and locations of groups (Joseph et al. 1994:28).

Anderson and Hanson (1988) propose an "annual settlement round" to explain the Early Archaic settlement pattern, in which mobility is required for resource procurement and group interaction. Groups utilized resources in the Coastal Plain during the spring, moving to the Piedmont during the summer and fall to utilize resources available there. Groups would return to drainages directly below the fall line for the winter, interacting with other groups from nearby drainages at this time (Joseph et al. 1994:28).

While analyzing the distribution of artifact types among seven sites identified during the Savannah River study, Anderson and Hanson (1988) noted several characteristics of the assemblages. The differences in artifact types between sites were attributed to specific site functions. Most of the tools used were expedient, and local raw materials were used. A gradual transition was noted in the distribution of raw material types used among the sites, indicating social interaction or migration (Joseph et al. 1994:28–30).

Hanson (1988) and Sassaman et al. (1990) have refined the "band/macro-band" model, and applied it to the Savannah River Site. This refined model proposed that winter residential base camps would be located along the first terraces of the Savannah River, where domestic activities were conducted. Two zones were proposed, a Foraging Zone, and a Logistical Zone, based upon the distance from the Savannah River. Foraging zones would be located around each base camp, providing small game, plant foods, and raw materials. Logistical zones would be further away from the base camp, to obtain larger game and other raw materials. Sites within the logistical zone would consist of tool caches, expedient tools, and exhausted tools (Joseph et al. 1994:30–33).

Joseph et al. (1994:33) conclude that the Fort Gordon area was likely a logistical zone during the Early Archaic, and that short-term camp sites are to be expected in the Fort Gordon area. Logistical camps are suggested to occur along drainages, which are more likely to attract game. A total of 67 Early Archaic components were identified at Fort Gordon as of 1995, comprising 14.5 percent of the identified sites.

Middle Archaic (ca. 6000–2800 B.C.). As was the case in the final stages of the Early Archaic, climax hardwood forests were established in the lowlands, and upland pine stands became mature and fairly widespread. Diagnostic bifaces dated to this period include the Stanly, Morrow Mountain, Guilford, and MALA types. Unremarkable quartz ovate hafted bifaces are common as well. Although all of these are known to occur in Georgia, the Morrow Mountain styles are the most frequently encountered diagnostic hafted bifaces in north and north-central Georgia.

The Middle Archaic period tool kit was, for the most part, expedient and manufactured from locally available raw materials. Quartz, which is ubiquitous in northern Georgia, was the

preferred source of lithic raw material in the region during this period. Chert tools or debitage are rarely encountered in Middle Archaic contexts in northern Georgia. Compared to chert, quartz is difficult to work; it yields a dull edge and requires frequent resharpening. Chert was probably not used to any great extent because of limited access to (or knowledge of) source areas.

The earliest components at shell midden sites along the coast and larger inland rivers are Middle Archaic. This suggests an increased reliance on coastal and riverine resources at this time. However, coastal submergence and rising sea level may have inundated earlier sites, obfuscating the importance of littoral and palustrine resources in earlier periods (see above).

Upland Middle Archaic sites have been described as small, randomly distributed occupations exhibiting very little intersite technological variability. As noted above, local raw materials were used almost exclusively, and the vast majority of tools were technologically expedient (Blanton and Sassaman 1989; Sassaman 1993a).

In terms of social organization, small hunting and gathering bands of 25–50 people probably still formed the primary social and economic units. Residences were moved frequently, subsistence was generalized, and social groups were small, mobile, and likely coresidential. Long-term investments and social obligations were probably kept to a minimum, insuring that there were very few restrictions on group movement or fissioning (Sassaman 1993b).

Late Archaic (ca. 2800–1000 B.C.). The hafted biface most commonly associated with the Late Archaic period in Georgia is the Savannah River point. These point types are often very large (12+ cm in length is not uncommon) and exhibit a straight stem, straight base, and triangular blade.

Other Late Archaic varieties found in the project region are known by various names such as Appalachian Stemmed, Kiokee Creek, Ledbetter, Otarre, and Paris Island (Bullen and Greene 1970; Cambron and Hulse 1983; Chapman 1981; Coe 1964; Elliott 1994; Harwood 1973; Keel 1976; Sassaman 1985; Stanyard 2003; Whatley 1985). Except for the Ledbetter hafted biface, which appears to have had a specialized function—it exhibits a heavily reworked, asymmetrical blade—these type names are more a product of parochial terminology than actual morphological differences. Like Savannah River hafted bifaces, they are characterized by triangular blades, straight or slightly contracting stems, and straight bases. The primary difference is size; Savannah River points tend to be longer and wider than the other types.

The earliest ceramics in the region were tempered with fiber. According to radiocarbon evidence obtained from Rabbit Mount, a Late Archaic shell midden along the southern portion of the Savannah River in Allendale County, South Carolina, this ceramic technology may have been introduced as early as 2500 B.C. (4465±95 B.P.). This date, and another of 4450±150 B.P., were obtained from wood charcoal recovered from excavation levels containing fiber-tempered sherds (Stoltman 1966).

The earliest ceramic-bearing components on the Georgia Coast date to approximately 2200 B.C. (Sassaman 1993b). It is possible that coastal groups produced and used pottery prior to 2200 B.C., but that sea level rise may have inundated earlier ceramic-bearing assemblages. It is also possible

that ecological restrictions may have prevented humans from occupying the present-day coastline before 2200 B.C. (Sassaman 1993b:19).

A detailed Late Archaic phase sequence exists for the Savannah River region in the vicinity of The project area. The Paris Island phase is the earliest local Late Archaic phase. It was defined based on excavations in the Russell Reservoir, where small, stemmed points, including Paris Island Stemmed, were linked to pre-ceramic Late Archaic components (Elliott et al. 1994). Other artifacts include perforated soapstone slabs and ovate atlatl weights. A series of radiocarbon dates suggests a time range of 4550–4200 B.P. (2600–2250 B.C.) (Elliott and Sassaman 1995:42). The subsequent Mill Branch phase (ca. 4200–3600 B.P. or 2250–1650 B.C.) was defined partially on the basis of excavations at 9WR4, roughly 10 miles south of the project area (Elliot et al. 1994; Ledbetter 1991). Excavations at 9WR4, revealed an assemblage of distinct artifact types from a cluster of well-preserved features, including a semi-subterranean house floor (Ledbetter 1991). Associated artifacts include large Savannah River points, typically made of metavolcanic materials, perforated soapstone slabs, drill cores, winged atlatl weights, cruciform drills and small amounts of fiber-tempered pottery. Sites with Mill Branch phase components include Mill Branch, Toliver, Chase, 9RO7, and 9RO20 (Ledbetter 1991, 1994; Stanyard and Stoops 1995; Stanyard 1997). A shift back to quartz and chert as the preferred lithic raw material characterizes the following Lovers Lane phase. Other trends observed include a decreased use of soapstone cooking slabs, fewer atlatl weights and drills. Fiber-tempered pottery saw continued use, and associated point types include Kiokee Creek stemmed, Otarre and smaller versions of the Savannah River type. A time range of 3800–3400 B.P. (1850–1450 B.C.) is suggested (Elliott and Sassaman 1995). This phase corresponds to previously defined phases in the Middle Savannah River area, including Stallings III (Stoltman 1974) and Sassaman's (1993c) phase II.

After around 1550 B.C. (3500 B.P.) in the central Savannah River, large riverine sites were abandoned and populations made increased use of upland areas for multiseasonal habitations. This period is marked by increasingly divergent material culture. A wide variety of stemmed bifaces saw continued use but temporal associations are unclear.

The most intensively occupied Late Archaic site yet discovered in Georgia is on Stallings Island, located in the Savannah River in Columbia County (Bullen and Greene 1970; Claflin 1931; Crusoe and DePratter 1976; Fairbanks 1942; Jones 1873). One type of bone tool found at Stallings Island is the bone pin. These objects are intricately decorated and highly prized by artifact collectors. Unfortunately, they were mined at the site until recent measures were taken to prevent unauthorized access there. The mining has devastated the site; large potholes and mining trenches have destroyed much of its integrity.

This unfortunate circumstance notwithstanding, a great deal has been learned from professional excavations at Stallings Island. Large quantities of projectile points, drills, grooved axes, perforated soapstone slabs, and other formal lithic, bone, and antler tools have been discovered. Plain and punctated fiber-tempered ceramics, which bear the type name Stallings, have also been recovered.

The earliest Late Archaic levels at Stallings Island have been dated to between 2700 and 2450 B.C. (Williams 1968). These basal levels lacked ceramics but, among many other tool types, contained classic Savannah River projectile points (Coe 1964). Subsequent excavations

elsewhere in the region have shown that these large classic Savannah River points are associated with the incipient use of fiber-tempered ceramics (Elliott 1994:370). Ceramics have been dated as early as 2500 B.C. in the region, but they did not appear at Stallings Island until about 1730 B.C., when ceramic technology first began to be utilized on a regional scale. Projectile point styles associated with the ceramic levels at Stallings Island are smaller than Savannah River point types and tend to have slightly contracting, rather than straight, stems (Bullen and Greene 1970). Elliott (1994) refers to this technological expression of the Late Archaic period as the Lovers Lane phase and frames it between about 1800 and 1400 B.C.

Curiously, soapstone vessels, a hallmark of the Late Archaic in the interior of Georgia, are almost absent in the archeological record at Stallings Island specifically (n = 1 sherd [Elliott et al. 1994]) and in the central Savannah River Valley in general. This is despite several nearby sources of soapstone that were used to obtain raw material for perforated slabs, gorgets, and bannerstones.

Sassaman has recognized a correlation between pottery use and soapstone utilization in Late Archaic groups inhabiting the fall zone and coastal plain region of the Savannah River Valley (Sassaman 1993b). During the early part of the Late Archaic (ca. 3000–2200 B.C.), fall zone and coastal plain groups utilized soapstone as cooking slabs for indirect cooking in fiber-tempered pots. Sassaman has introduced evidence that the residents of the fall zone were exchanging soapstone slabs with coastal plain people for some unknown commodity (Sassaman 1993b: 213–215). By 2200 B.C., however, soapstone slabs disappear from the archaeological record of the coastal plain. It was at this time (Group I/St. Simons I/Stallings II) that ceramic vessels began to be used for direct fire cooking in the interior coastal plain and on the coast. Soapstone slab manufacture continued among fall line groups until about 1500 B.C., however, in a social context that apparently precluded the use of ceramic vessels for direct fire cooking. Pottery continued to be used for indirect cooking with heated soapstone slabs.

The break in the exchange conduit between the Fall Line and Coastal Plain at approximately 2200 B.C. is thought to represent the appearance of two distinct social entities with diverging historical trajectories, one associated with the interior Coastal Plain and Coast and one identified with the fall zone environs of the central Savannah River valley. While Coastal Plain groups applied new ceramic technology to cooking innovations and found little need for soapstone slabs, fall zone residents resisted changes in cooking technology. Sassaman (1993b) postulates that this was because the control of soapstone in general, and soapstone slabs specifically, played an important role in the acquisition and maintenance of power in their society. By 1500 B.C., that once cohesive social entity had dissolved, and power was no longer manifest in the control of cooking technology. As a result, direct fire cooking became widely adopted in the region.

Late Archaic settlement patterns varied significantly for those that inhabited the fall zone versus those occupying the coast. Recent modeling of Late Archaic settlement organization for groups near the Fall Line is based on extensive archaeological investigations in the Savannah River region and surrounding area (Brooks and Hanson 1987; Elliott et al. 1994; Ledbetter 1991; Sassaman 1983; Sassaman et al. 1990; Stanyard 1997). This scenario posits that groups congregated in large numbers at specific locations along the Savannah River in the spring and summer; Stallings Island and Lake Spring are two notable sites where this is thought to have occurred. Base camps were established near the mouths of large tributaries; they functioned as

multi-household staging areas from early spring through fall. In the late fall and winter months, small groups dispersed into the uplands along smaller tributaries of large rivers and led a relatively autonomous existence within specified foraging zones. Some of these fall/winter hunting territories extended far into the Piedmont, along the Oconee and Upper Ocmulgee drainages in Georgia (Stanyard 1997) and the Santee River drainage in South Carolina (O'Steen 1994). In the spring and summer, subsistence was directed toward obtaining freshwater shellfish and anadromous fish. White-tailed deer was also important, as were smaller mammals, freshwater fish, birds, and turtles (House and Ballenger 1976; Stoltman 1974). In the late fall/winter dispersal, it is suspected that a focus was placed on white-tailed deer and comestible nuts, such as hickory nut, walnut, and acorns.

Coastal groups, on the other hand, are thought to have been fairly sedentary (DePratter 1979; Trinkley 1980). They maintained permanent residences in the littoral zone and made forays into estuarine and interior settings for specific needs. The permanent settlements are recognized as shell rings, while amorphous shell mounds are thought to represent base camps. Interior sites do not have a defining characteristic (Marrinan 1975; Simpkins 1975; Trinkley 1980; Waring and Larson 1968). Interior sites on the Coastal Plain near the project region that are attributable to coastal groups likely served a short-term specialized function. These occupations were generally small and ephemeral; the cultural deposits reflect the specific nature of the occupation, such as a hunting camp.

The upland setting within the vicinity of the project area would provide locations suitable for fall and winter settlements. Previous archaeological surveys have identified 89 Late Archaic components at Fort Gordon, accounting for 22.1 percent of identified sites. These sites are thought to represent seasonal households and logistical camps (Joseph et al. 1994:40).

Late Archaic architecture is not well understood and only a few examples have been investigated in the interior. Six structures associated with the Late Archaic occupation of the Lovers Lane site in Richmond County have been documented (Elliott et al. 1994). All were subrectangular or oval in plan; one was determined to be a pithouse. The smallest structure measured 5 × 8 m and the two largest 8 × 8 m. None of the structures contained discernible hearths. Excavations at 9WR4, in Warren County, Georgia, discovered another Late Archaic pithouse measuring approximately 4 × 5 m (Ledbetter 1991:200). It was subrectangular in plan and approximately 35 cm deep (Ledbetter 1991:200). Large corner posts and a few wall posts defined the perimeter. A large hearth area in the eastern portion of the structure is interpreted as a hearth and earth oven that may have been partitioned (Ledbetter 1991:201); three caches of debitage surrounded the hearth area.

Although post holes have been discovered below the large shell middens that characterize coastal settlements, structures associated with these occupations have never been completely delineated. Therefore, very little data concerning their size, shape, or function exists. It is presumed that a major factor in the inability to identify structures is that they were often constructed within the shell midden, and their configuration has become obfuscated by human activity subsequent to their occupation (Waring and Larson 1968; Marrinan 1975).

Shellfish were very important to Late Archaic populations that inhabited the coast, as evidenced by the large accumulation of shell at coastal sites. The degree of their importance to subsistence

is debated, however. Based on the sheer amount of shell that had accumulated, early researchers believed that shellfish exploitation significantly affected both settlement and subsistence. Shellfish were thought to have decreased the need to hunt deer and other mammals and to have freed [people] from the necessity of continually moving in search of food (Caldwell 1958:14).

More recent research has demonstrated that, while mollusks were nutritionally important, they were likely used to supplement a broader diet. Faunal evidence indicates that a variety of animals such as white-tailed deer, various small mammals, turkey, waterfowl, turtles, fish, and crustaceans were eaten in significant quantities (Parmalee and Klippel 1974; Marrinan 1975; Trinkley 1980).

Plant foods such as nuts (hickory and acorn), fruits (hackberry), and seeds (hawthorn) have been discovered at many sites in variable quantities (Marrinan 1975; Trinkley 1986). Nuts were probably a major food source, especially in the fall; hackberry and hawthorn presumably supplemented sustenance as well. Although lacking in the archaeological record, many other plant materials are assumed to have been used not only for sustenance but as medicine, fabric, and construction material. There is no conclusive evidence that horticulture was practiced by Late Archaic people in the Southeast, but it is possible that the growth of certain useful opportunistic plants was encouraged by clearing overstory and protecting certain established plant communities. If low intensity horticulture was being practiced in the area (as it was in some other parts of the Southeast), the most likely cultigens are squash (*Cucurbita* sp.) and starchy seed plants (e.g., *Chenopodium* sp.).

The end of the Archaic period and advent of the Woodland era is an arbitrary demarcation created by archaeologists in recognition of the widespread adoption of an improved ceramic technology by 1000 B.C.

Woodland Period (ca. 1000 B.C.–A.D. 900)

The improved ceramic technology that became widely available by 1000 B.C. in the Southeast greatly altered food storage and preparation capabilities, though it did not have an immediate effect on subsistence. Throughout most of the Woodland period, subsistence strategies were a continuation of earlier hunter-fisher-gatherer ways. On the lower coastal plain and coast, cultigens did not begin to play an important economic role until approximately A.D. 1300.

With a few exceptions, the nature of Woodland peoples' ideological and nonsubsistence-related economic systems are more accessible to modern researchers than those of earlier peoples because they involved activities, architecture, and artifacts that are more visible in the archaeological record. For example, large mounds associated with the mortuary, ceremonial, and status-related domestic domains first appear by about A.D. 1. Also, large quantities of magico-religious and prestige goods manufactured from such durable media as stone and unsmelted metal were deposited in and around these mounds beginning at approximately this time. The Woodland period also witnessed intensified participation in long-distance trade and exchange in exotic materials such as copper, mica, obsidian, and marine shell, hallmarks of the phenomenon known as the Hopewell Interaction Sphere (Seeman 1979).

The introduction of very small triangular projectile points (<1–3 cm in length) around A.D. 600 suggests that bow and arrow technology was adopted in the southeastern United States at about this time.

Ceramics became more refined, and regional technological differences, particularly with respect to temper, paste, and surface decoration, became manifest during the period. Woodland cultures are often discussed and categorized by reference to established ceramic types. Woodland period ceramic types frequently recovered in the project vicinity include: Refuge Plain, Punctate, Incised, Simple Stamped, and Dentate Stamped; Deptford Simple Stamped, Check Stamped, Linear Check Stamped, Zoned-Incised, and Cord Marked; Swift Creek Plain and Complicated Stamped; Napier Complicated Stamped; Wilmington Plain, Cord Marked, and Brushed; and St. Catherines Plain, Cord Marked, and Net Marked.

Diagnostic projectile point styles attributable to Woodland developments south of the Fall Line include small-stemmed specimens, large and small triangular types, and notched varieties.

The Woodland period, like the Archaic, is divided into three subperiods—Early, Middle, and Late—based upon major demarcations in general social patterns. As with the Archaic period, changes were actually more gradual and nonuniform across the Southeast than the discussion intimates.

Early Woodland (ca. 1000–300 B.C.). The Late Archaic/Early Woodland interface is placed at ca. 1000 B.C. based on extensive archaeological evidence that an improved ceramic technology was developed and widely adopted by this time. Early Woodland social formations on the Georgia Coast and Coastal Plain arose out of the dissolution of the relatively centralized populations that previously inhabited the region.

Along the Georgia Coast and on the Coastal Plain, the onset of the Early Woodland period is recognized archaeologically by the appearance of Refuge ceramics. This pottery complex was defined by Waring (1968) based on data obtained from the Refuge site, which is on the southern South Carolina coast. Waring described four types of surface decorations associated with the Refuge ceramic series: Refuge Punctate, Refuge Incised, Refuge Simple Stamped, and Refuge Dentate. These surface treatments are still used as diagnostic criteria for identifying Early Woodland occupations in the region.

Two Early Woodland sub-phases are recognized in the Middle Savannah River area (Sassaman et al. 1990). Refuge I assemblages (3000–2800 B.P. or 1050–850 B.C.) contain simple-stamped, dentate-stamped, punctuated, and plain pottery. Only simple-stamped and plain pottery is associated with Refuge II (2800–2600 B.P. or 850–560 B.C.). These ceramic types will be described in further detail below. Associated bifaces include small stemmed and notched forms resembling the terminal Late Archaic types. These are usually more crudely made and smaller than their antecedents and not easily accommodated by conventional classification schemes. Triangular points (i.e., Yadkin) may appear at a slightly later date in the Coastal Plain than in the Piedmont, where they are a hallmark of the Early Woodland Kellogg phase. However, in the Middle Savannah River area, Sassaman et al. (1990:162) observe that on Middle Woodland sites that lack Early Woodland components, triangular points and Deptford pottery are associated in the absence of stemmed points. Where both Early and Middle Woodland components are present

stemmed points prevail, suggesting that triangular points were introduced after the appearance of Deptford pottery, and then rapidly and thoroughly replaced the stemmed biface tradition around 50 B.C. (2000 B.P.).

Survey data from the Savannah River Site indicates that the pattern of upland land use that began during the Late Archaic continued into the Early Woodland period (Sassaman et al. 1990). Noting the abundance of Early Woodland sites along upland tributaries at the Savannah River Site, Brooks and Hanson (1987) suggest that occupation of upland tributaries became more permanent and with territories restricted to individual tributaries as climatic changes rendered floodplains more productive.

Survey data from the Mill Branch Tract, west of Fort Gordon, indicates frequent use of the area during the Early Woodland period. Excavations at two of the Mill Branch sites (9WR4 and 9WR11) revealed two partial post patterns suggesting two separate Refuge phase structures (Ledbetter 1991). Simple-stamped sherds were recovered from the post holes and surrounding vicinity. At 9WR11, simple-stamped pottery was found in deposits radiocarbon dated to 2820 +/- 117 B.P. (ca. 870 B.C.). Benson (2003) reports a steady decrease in lowland occupation from the Middle Archaic through the Middle Woodland, suggesting a pattern of increased exploitation of upland areas similar to that at the Savannah River Site. However, the project area appears to have been less intensively settled than the Savannah River Site during the Early Woodland period.

Simple stamping of ceramics was a technique developed in the Late Archaic but was used as a decorative motif until the end of the Middle Woodland. As a result, the sand/grit-tempered wares associated with the Early Woodland (Refuge) and Middle Woodland (Deptford) periods are difficult to distinguish. Waring (1968:200) noted that Refuge simple stamping tended to be haphazard and that the lips of these vessels were sometimes notched. Deptford wares, by contrast, primarily exhibit parallel or crossed designs that were applied with more control. Recent stratigraphic evidence obtained from 38AK157, which is on the Aiken Plateau at the Savannah River Site in Aiken County, South Carolina, suggests that Refuge simple stamping can be distinguished from Deptford on the basis of the decorating technique (Anderson in Sassaman et al. 1990). Anderson (Sassaman et al. 1990) observed that there were proportionally more sherds with V-shaped grooves than U-shaped grooves. In addition, parallel and evenly crossed designs were present in proportionally larger numbers in the upper levels, while sloppy designs were more prevalent in the lower levels. It is suggested that the earlier, more haphazard designs were applied with a dowel or stick, while the more controlled designs were applied with a carved paddle (Anderson in Sassaman et al. 1990). Since the check-stamped pottery associated with Deptford was definitely created with a carved paddle, Sassaman postulates that the even, U-shaped groove simple stamping is associated with Deptford, while the haphazard V-shaped design was produced by people associated with Refuge ceramics.

Although the data from 38AK157 is useful when dealing with large assemblages, distinguishing between Refuge and Deptford simple-stamped designs is an imprecise exercise when sample sizes are small.

Refuge ceramics from sites on the Georgia Coastal Plain and coast are usually grit-tempered and generally have a very sandy paste. Grog tempering occurs in a minority of wares found in the South Carolina Coastal Plain (Anderson 1982), but is dominant on the Refuge series of the

Santee River (Espenshade and Brockington 1989). The predominant vessel form is a hemispherical bowl with a rounded base. Deep, straight-sided jars were also produced but in lesser numbers. Rims are incurving or straight; the lips are rounded or squared and are occasionally decorated (DePratter 1979). Punctations and incising sometimes occur on vessel interiors (Anderson in Sassaman et al. 1990)

With the exception of ceramics, very little is known about Refuge material culture. Diagnostic lithics associated with the Refuge phase consist of small, stemmed hafted bifaces that are similar to the varieties manufactured in the later part of the Late Archaic period. Lithics occur in low frequencies at Refuge sites, which may indicate that the lithic sources in the interior were not easily accessible (Hanson and DePratter 1985). Another reason lithics are not abundant, one that may or may not be directly related to the availability of lithic material, is the ready accessibility of shell. Shell and bone tools are common additions to components of this age (Lepionka 1983).

The Refuge phase has been divided into subphases based on temporal differences in the popularity of ceramic surface design types. DePratter (1979) describes three subphases, Refuge I, Refuge II, and Refuge III. In his scheme, Refuge I dates to ca. 1100–1000 B.C. and is defined by punctate and incised wares. Dentate stamping appears approximately 1000–900 B.C., and the appearance of that design demarcates Refuge II. According to DePratter, Refuge III (ca. 900–400 B.C.) is defined by the manufacture of linear check and check-stamped wares. Plain and simple-stamped pottery was manufactured throughout all three subphases. But Anderson (Sassaman et al. 1990) argues that, given the general lack of radiocarbon dates, DePratter's chronology is too refined. In addition, there is no conclusive evidence that linear check and check-stamped designs were in use as early as 900 B.C. Sassaman (1993c:190) suggests that only two subphases are recognizable with the Refuge ceramic complex. Refuge I dates to ca. 1000–800 B.C. and is defined by Refuge Punctate and Refuge Dentate designs. Refuge II is characterized by the absence of punctate and dentate surface designs and by the emergence of plain and simple-stamped surfaces as the primary design types. According to this chronology, Refuge II occurred between approximately 800 and 600 B.C.

The social transformations at the end of the Late Archaic resulted in population decentralization (Sassaman 1991, 1993c; Stanyard 1997). Small groups disengaged from their social obligations to the larger community and created dispersed year-round settlements. People that produced Refuge ceramics settled the fall zone uplands, the lower Coastal Plain interior, and the Coast. Upland and interior sites tend to be on well-drained ridges, while coastal sites are often situated near marshes in riverine and estuarine settings (DePratter 1976). The upland and interior sites are usually small and lack evidence of intensive utilization (Hanson and DePratter 1985; Sassaman 1993c). The coastal sites usually contain large middens and appear to have been utilized more intensively and extensively (Hanson and DePratter 1985). This pattern suggests that coastal and lower Coastal Plain sites functioned as permanent or semipermanent residences, while interior sites perhaps served as single-household seasonal base camps.

Subsistence was generalized, and the resource base was very similar to that of the Late Archaic period, with the possible exception of shellfish. White-tailed deer, bear, a variety of small mammal species, reptiles, freshwater fish, marine fish, anadromous fish, and mollusks have been recovered from Refuge contexts (Marrinan 1975; Lepionka 1983; Hanson and DePratter 1985). Although shellfish were harvested during the Refuge phase, their degree of dietary importance

appears to have been dramatically lower than it was in the Late Archaic. This may be due to lower productivity caused by sea level fluctuations (DePratter 1977). It is also possible that the larger shell midden sites are currently inundated, as sea level has risen about three meters since the Early Woodland period (Hanson and DePratter 1985).

Only 7.8 percent of the identified sites contain Early Woodland components at Fort Gordon. A lack of sand-tempered punctated sherds suggests that this area was not used extensively. As such, the Early Woodland period is poorly understood in the area (Joseph et al. 1994:42–44).

Middle Woodland (ca. 300 B.C.–A.D. 500). The Middle Woodland period on the Coastal Plain and Coast is known as the Deptford phase; the term is derived from the ceramic series of the same name. Deptford wares exhibit plain, linear check-stamped, check-stamped, simple-stamped, cord-marked, and zoned-incised surface designs. Swift Creek Complicated Stamped pottery also appears in Deptford assemblages that date to the latter portion of the period. During the Deptford phase, similarities in ceramic technology and preference for specific surface designs indicate that the people of interior and coast interacted regularly. Deptford people resided in permanent villages, both in the interior and on the coast. No secure evidence indicates that horticulture was practiced to any significant extent. The resource base was essentially the same as that utilized in the Late Archaic period, as shellfish became an important resource once again, after its apparent decline in importance during the Refuge phase.

Two sub-phases, Deptford I and Deptford II, are defined for the lower Savannah River (DePratter 1979). The distinction is based on observed differences in the relative frequencies of certain surface design types found in Deptford assemblages of different ages. Deptford Plain, Deptford Simple Stamped, Deptford Check Stamped, and Deptford Cord Marked vessels were produced during both Deptford I and Deptford II subphases, according to DePratter (1979:111–112). Deptford I (ca. 400 B.C.–A.D. 300) is defined by Deptford Linear Check Stamped pottery in addition to the types mentioned above. Deptford Linear Check Stamped designs were no longer produced during Deptford II (ca. A.D. 300–500), while Swift Creek wares appeared in assemblages at this time.

Anderson has proposed a chronological sequence for Deptford ceramics from the middle Savannah River valley that is similar to DePratter's, sequence for the coastal region (Sassaman, et al. 1990). Anderson places Deptford I between ca. 600 B.C. and A.D. 1 and defines it by the presence of Deptford Plain, Deptford Simple Stamped, Deptford Check Stamped, and Deptford Linear Check Stamped surface designs. Deptford II (ca. A.D. 1–500) includes the above with the exception of Deptford Linear Check Stamped motifs and the addition of Deptford Cord Marked, Deptford Zoned-Incised, and Swift Creek Complicated Stamped surface treatments. Anderson places the advent of Deptford II about 300 years earlier than DePratter implying that Deptford Cord Marked, Deptford Zoned-Incised, and Swift Creek Complicated Stamped designs were first introduced in the interior.

The Deptford ceramic series was defined on the basis of results obtained during WPA excavations at the Deptford site, a large shell midden along the Savannah River near Savannah (Waring and Holder 1968). Excavations at Deptford and at Evelyn Plantation demonstrated through stratigraphic evidence that Deptford ceramics were manufactured later than Stallings series pottery and earlier than those produced during the Wilmington phase.

Deptford pottery usually exhibits a sandy paste and medium to fine sand/grit temper. The primary vessel type is a cylindrical jar with a rounded or conoidal base; tetrapods may or may not be present. Rims are straight or slightly out-flaring, and lips are square, rounded, or beveled (DePratter 1979:123–127). Swift Creek pottery, which appears in Middle Woodland sites as early as 100 B.C. in northern and central Georgia, is not a frequent occurrence in the Middle Savannah River region, which is the eastern margin of this culture. When found, the majority of Swift Creek sites date to the later part of the period (Elliott 1998), and often are attributed to a Late, rather than Middle Woodland occupation (Anderson 1998).

Diagnostic lithics associated with the Deptford phase include small stemmed hafted bifaces and medium to large triangular hafted bifaces. Polished stone ornaments and pipes, engraved shell and bone, bone awls and pins, manos, metates, and a variety of formal and expedient chipped stone tools also occur in Deptford components (Hanson and DePratter 1985). Although some aspects of their material cultural are elaborate—platform pipes and engraved bone and shell, for example—there is no evidence that Deptford people participated in, or were significantly affected by, the Hopewellian exchange system that was flourishing in many parts of the eastern United States in the first few centuries A.D.

The following settlement model has emerged from extensive research on the Deptford phase (Milanich 1973); it applies to both interior Fall Line/upper Coastal Plain and lower Coastal Plain/coastal populations. Deptford people resided in permanent villages both in the interior and on the Coast. At various times of the year, task groups were sent to specific locations in the surrounding area to obtain seasonally available resources or to extract important resources—lithic raw material, for example—that had become depleted. For example, marsh-edge sites, and the majority of interior sites, appear to be logistical encampments occupied by task groups obtaining seasonally available and/or specialized resources (Espenshade et al. 1993; Hanson et al. 1981). These specialized forays were probably of short duration. Mortuary sites consist of small sand mounds containing human interments; they appear to have been used solely as cemeteries (Thomas and Larsen 1979).

Four types of Deptford settlements are recognized on the lower coastal plain and coast: large, permanently occupied villages that contain midden deposits, marsh-edge gathering loci, interior specialized extraction sites, and specialized mortuary sites (Hanson and DePratter 1985; Milanich 1973; Sassaman et al. 1990).

Two of the best examples of large, permanently occupied village sites are Deptford (Waring and Holder 1968) and G. S. Lewis (Hanson 1985). Deptford contained Middle Woodland midden deposits that extended over 10 hectares. The site yielded evidence that several structures were once present and that the site was occupied year-round by at least a portion of the population (Waring and Holder 1968; Hanson and DePratter 1985). The G. S. Lewis site, in the interior upper Coastal Plain along the Savannah River, is a multicomponent site that also contained an extensive Deptford midden; cultural deposits extended over at least 5 hectares (Hanson 1985). Evidence of three or four Deptford structures was discovered in the course of investigations at G. S. Lewis. They are roughly circular, have central support posts, and are 4–6 m in diameter. At least 25 refuse pits used by the Deptford occupants were also encountered, as was a single burial (Hanson 1985; Hanson and DePratter 1985). This site appears to have been permanently occupied (Hanson and DePratter 1985; Sassaman et al. 1990).

Many of the Woodland period sites at Fort Gordon could not be attributed to a particular phase. The sherd temper and projectile points identified at these sites suggest Middle and Late Woodland phases. Eighty Middle Woodland components were identified at Fort Gordon, comprising 17.5 percent of all components (Joseph et al. 1994:45). The Fort Gordon survey data (Benson 2003) indicates that Woodland occupation was heaviest during the Middle Woodland. This may be due to the paucity of widely recognized Early and Late Woodland ceramic types in the area. In a similar vein, Sassaman reports that, at the Savannah River Site, Middle Woodland sites have a more widespread distribution than during the preceding period, with the densest sites occurring at stream confluences (Sassaman et al. 1990).

Late Woodland (ca. A.D. 500–1000). The Late Woodland period is poorly understood in the vicinity of the project area. No Late Woodland component was recognized at the Mill Branch sites (Ledbetter 1991) and few Late Woodland sites are documented along Briar Creek (Elliott and O'Steen 1987). Late Woodland ceramic assemblages in the Russell Reservoir contain Napier and Swift Creek B Complex pottery. Associated point types were described as small with contracting stems. Anderson and Joseph (1988) suggest that simple stamping and brushing, along with plain types, are probably more representative of the Late Woodland ceramic assemblages. At the Savannah River Site, there are no unambiguous diagnostic artifacts to date assemblages exclusively to the Late Woodland period, which is provisionally described as an interior Wilmington equivalent (Sassaman et al. 1990). Associated ceramics include sand-tempered plain, cordmarked, and fabric-impressed pottery. At Fort Gordon, Late Woodland sites, which were identified by small triangular points and rectilinear complicated stamped pottery, comprised less than one percent of the site total (Benson 2003).

From what little is known, Late Woodland settlements are small, dispersed, and less integrated than those associated with the Deptford phase (Sassaman et al. 1990:14; Stoltman 1974). The subsistence economy was based on generalized hunting, fishing, and gathering. Although cultigens such as squash and corn had been introduced into the region by this time, they were not a significant source of sustenance (Wood et al. 1986). Very little attention has been focused on other aspects of material culture associated with Late Woodland societies inhabiting the Coastal Plain and Coast. The small to medium-sized triangular hafted bifaces associated with this period were also produced in subsequent eras, and therefore are not diagnostic when discovered out of context. In general, lithic tools are uncommon in Late Woodland assemblages. Shell and bone are known to have been used in a variety of ways, however. Whelk was an especially important raw material; it was used to manufacture awls, picks, chisels, adzes, abraders, toggles, and ornaments (Cable 1992; Trinkley 1989).

Late Woodland ceramics can be differentiated from Middle Woodland ceramics by the decline in Deptford stamped wares (Sassaman et al. 1990). In the Piedmont, Late Woodland ceramics include sand-tempered, complicated stamped Napier and Swift Creek wares. Wilmington Cord Marked ceramics found on the Coast and in the lower Coastal Plain are grog-tempered. The sand-tempered cord-marked pottery that occurs in the upper Coastal Plain and fall zone in the Savannah River drainage has also been included in the Wilmington Cord Marked category (Anderson 1985; Hanson and DePratter 1985; Stoltman 1974). By A.D. 1000, vessels with finer grog temper that exhibit burnished plain surfaces, fine cord marking, and, rarely, net marking were being produced. Ceramics with these traits belong to the St. Catherines series (Caldwell 1971; DePratter 1979).

These observed temporal differences in ceramic technology formed the basis for DePratter's (1979) chronology. In this scheme, Wilmington I dates to ca. A.D. 500–600 and is defined by Wilmington Plain, Wilmington Cord Marked, Walthour Check Stamped, and Walthour Complicated Stamped surface designs. Wilmington II occurred between A.D. 600 and 1000; Wilmington Plain, Wilmington Cord Marked, and Wilmington Brushed ceramics distinguish this subphase of the Late Woodland period. St. Catherines is placed between A.D. 1000 and 1150. DePratter defines this phase by the appearance of the more refined St. Catherines Cord Marked design, burnished plain surfaces, and the rare occurrence of St. Catherines Net Marked wares. However, the lack of radiocarbon evidence from secure contexts may preclude such a refined chronology for the Late Woodland period.

The continuation of earlier Woodland ceramic styles into the Late Woodland, and the overlap of Late Woodland projectile points into the Mississippian period provide few diagnostic materials for the Late Woodland Period at Fort Gordon. Only 34 Late Woodland components were identified at Fort Gordon, while 77 sites are identified as "Woodland/Mississippian" (Joseph et al. 1994:46).

Social, economic, and technological manifestations that are associated with the Mississippian period became established on the lower Coastal Plain and Coast at approximately A.D. 1150. These changes were dramatic, and some have argued that they occurred when the loosely integrated Late Woodland populations in the region were colonized and acculturated by the chiefdom-level societies that had emerged in the Etowah River and Piedmont Oconee River valleys by A.D. 1100 (Anderson et al. 1986).

Mississippian Period (ca. A.D. 1000–1600)

The Mississippian period marks the appearance of chiefdom-level societies in the southeastern United States. Society was stratified; an elite class exerted ascribed and achieved power over the general population. Earthen temple mounds were constructed, and the villages that surrounded these features became political centers where elites resided and ruled. Nonmound settlements became larger and more permanent as territoriality increased and warfare became more prevalent. The central Savannah River region was likely controlled in the Mississippian period by polities centered at the Hollywood and Silver Bluff mound sites[3], which are located just below the Fall Line in Georgia and South Carolina, respectively (Anderson et al. 1986).

Settlement pattern research in the upper Savannah River area indicates a substantial population during the early Mississippian period through the thirteenth century. Early Mississippian sites are identified by Etowah and Savannah Complicated Stamped, cordmarked and corncob impressed pottery. The central Savannah River area does not appear to have been as thickly settled at this time. The Savannah River Site data indicate a larger Late Woodland population than the Russell Reservoir area, with a reversal of the trend during the Mississippian period (Sassaman et al.

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[3] The relationship of Hollywood and Silver Bluff is poorly understood. The precise age of Silver Bluff is not known, as the site was destroyed by riverbank erosion by the end of the nineteenth century (Anderson et al. 1986). Therefore, it is not clear if the sites were paired centers within the same polity, or if one replaced the other at some point during the Mississippian period.

1990), and Benson (2003) reports unequivocally Mississippian components on only 1.4 percent of the sites from Fort Gordon. However, 20 percent of sites on the base contain Late Woodland or Mississippian triangular points (Braley and Price 1991).

A total of 68 Mississippian components were identified at Fort Gordon, although some of the "Woodland/Mississippian" sites are probably attributable to the Mississippian period (Joseph et al. 1994:47). The low incidence of ceramics on Mississippian sites at Fort Gordon complicates the tasks of identifying components. The paucity of ceramics at sites on the base likely reflects the fact that the area was used by small, mobile hunting parties who occupied small, short-term camps where pottery was not used (Braley and Price 1991).

At Fort Gordon, 16 of the 19 Mississippian components were identified by Savannah or Irene phase ceramic motifs. In terms of settlement patterns, Benson (2003) observes that Late Woodland and Mississippian lithic artifacts were typically found further from a water source than were artifacts from earlier time periods. At Fort Gordon most (13 of 14) of the Woodland triangular points were of Coastal Plain chert, whereas the Late Woodland and Mississippian triangulars were more often made of quartz (9 of 13). This use of raw material is reflected by recent investigations at a site (9MF155) west of Fort Gordon in McDuffie County, where most of the Mississippian points were made of quartz as well (Price 2003).

At the Savannah River Site, Sassaman et al. (1990) report that a sharp drop in ratio of projectile points to ceramic sherds coincides with the shift from the Woodland to the Mississippian period, which is interpreted as a decrease in sherd discard with an increase in the discard of small triangular points. The area is thought to have been largely abandoned by A.D. 1450, but apparently hunting parties operating from extralocal settlements continued using the area (Anderson 1990b).

In Georgia, archaeological definitions and chronologies concerning the Mississippian period diverge at the Fall Line. Three major cultural expressions—Etowah, Savannah/Wilbanks, and Lamar—are recognized north of the Fall Line, while two primary cultures, Savannah and Irene, have been defined on the Coastal Plain and Coast. In the middle Savannah Valley, early Mississippian occupations are comparable to the Savannah II/III phases further downstream and the Jarrett/Beaverdam phase defined for the upper Savannah. Some researchers place late Wilmington and St. Catherines in the Mississippian period and therefore consider the onset of the Mississippian to have occurred at approximately A.D. 900 instead of A.D. 1150 (Crook 1986). Others consider Wilmington and St. Catherines to be Late Woodland manifestations (e.g., DePratter 1979, 1991; Sassaman et al. 1990).

Arguments for placing the advent of the Mississippian period at A.D. 900 include the discovery of grog-tempered cord-marked pottery and grit-tempered Savannah Check Stamped sherds in what is described as a contemporary community structure complex (Crook 1986:37). Crook also cites evidence from the Bourbon Field site, on Sapelo Island, that St. Catherines and Savannah ceramics were significantly correlated within midden deposits to suggest contemporaneity (Crook 1986:37). The differences in technological attributes, according to Crook (1986:37), are probably functional rather than chronological.

Other evidence suggests that Wilmington and St. Catherines wares are associated with the Late Woodland and were not produced at the same time Savannah pottery was manufactured. St. Catherines pottery has been found in premound features at Johns Mound on St. Catherines Island (Larsen and Thomas 1982). There is no evidence of mixing with the Savannah II assemblage, which was clearly associated with the mound at that site. There is also no conclusive evidence that platform mound building, a hallmark of the Savannah period on the lower Coastal Plain, was practiced by people who produced Wilmington and St. Catherines ceramics.

In addition, the technology used to produce St. Catherines pottery has clear antecedents in the Wilmington phase. Although the design is more refined, St. Catherines Cord Marked wares continued to be tempered with grog, as were the plain and net-marked varieties. With the exception of the rare St. Catherines Net Marked surface design, the repertoire of design elements is essentially the same. By contrast, clear differences exist between ceramics produced just prior to A.D. 1150 (St. Catherines) and those that were manufactured after that date (Savannah). Grog tempering is replaced by grit tempering by A.D. 1150, and check stamping reappears at approximately that time as well.

The archaeological evidence indicating that Wilmington and St. Catherines wares are contemporaneous with Savannah pottery is equivocal. Since the former types cannot be directly associated with Mississippian social and technological manifestations in the region, the stance taken here is that the Mississippian period in the project region began with the onset of the Savannah phase (ca. A.D. 1150).

Savannah (ca. A.D. 1150–1300). Savannah period sites are characterized by platform mounds and/or grit-tempered ceramics that belong to the Savannah series. For example, the Irene site is a Savannah period mound center in Chatham County near the mouth of the Savannah River. The largest mound at Irene consists of eight superimposed construction episodes. The first seven are associated with the Savannah period, and the eighth was constructed during the Irene period. All seven of the Savannah mound summits had at least one structure and/or palisade (Caldwell and McCann 1941:8–18). These structures are thought to have been temples, public buildings, and/or residences for chiefs, priests, and other members of the elite class. Another mound at Irene was used as a burial facility. The burial mound was approximately 16.75 m (55 feet) in diameter and 0.75 m (2.5 feet) high. It consisted of a central shell deposit surrounded by shell layers separated by layers of sand (Caldwell and McCann 1941:22). A total of 106 interments were identified during the 1937–1940 excavations, and although both Savannah and Irene period burials were present, most are attributable to the Savannah occupations (Caldwell and McCann 1941:22).

The Savannah ceramic series consists of Savannah Cord Marked, Savannah Check Stamped, Savannah Complicated Stamped, and Savannah Plain types. Savannah Cord Marked pottery is grit-tempered. Cord marking is usually cross-stamped on these wares; vessel forms include flared-rimmed globular jars and conoidal jars. Savannah Check Stamped vessels are tempered with sand or grit. Flared-rimmed globular jars, conoidal jars, and hemispherical bowls are the most common forms. Savannah Complicated Stamped ceramics exhibit a variety of surface designs. The most common motifs are diamond, barred-diamond, double-barred circle, double-barred oval, figure eight, figure nine, and concentric circle. Savannah Complicated Stamped pottery is also tempered with sand or grit; the common form is the flared-rimmed globular jar.

Savannah Plain wares are usually burnished. They have a sand or grit temper and were produced in a variety of forms. Vessel shapes include carinated bowls, shallow bowls, and hemispherical bowls with outflaring rims; cup-shaped and boat-shaped forms also occur (Caldwell and McCann 1941:46).

Temporal differences in ceramic technology and decoration have long been noted within the Savannah period, and several Savannah sequence chronologies have been proposed (Anderson et al. 1986; Caldwell 1971; DePratter 1979; Braley 1990; Crook 1990). This report follows the sequence proposed by Braley (1990) and recognizes two phases: Savannah I and Savannah II. Savannah I (ca. A.D. 1150–1200) is defined by large jars with check-stamped surfaces, vessels with cord-marked surfaces, and carinated bowls with plain surfaces. Check-stamped wares and carinated bowls with plain surfaces also occur during Savannah II (ca. A.D. 1200–1300); large complicated-stamped jars and vessels with noded rims distinguish Savannah II from Savannah I.

Other media associated with Savannah period material cultural include chipped stone, polished stone, shell, bone, and copper. The vast majority of hafted bifaces are small triangular projectile points that presumably functioned as arrowheads and dart points. Various utilitarian items were manufactured from stone, bone, and shell.

An elaborate material culture associated with ideological and religious beliefs and practices also existed. These items, part of the Southeastern Ceremonial Complex, were used symbolically to obtain, maintain, and sanction chiefly and priestly power and status. Goods associated with the Southeastern Ceremonial Complex include embossed copper plates and cutouts, monolithic polished stone axes, shell gorgets, stone statues, carved slate palettes, and pins made of shell or copper.

In terms of settlement organization, local mound centers such as Irene or Hollywood formed the center of political power. These villages were permanently occupied by the ruling elite and a resident population. As political control waxed and waned among elite factions in this politically turbulent era, mound centers were periodically constructed, maintained, and abandoned (Anderson 1990b). Many mound centers were abandoned and then reoccupied several times.

Large permanent villages that were not associated with mounds were also established during the Savannah period, usually along major rivers. These places were probably inhabited by elites who were subordinate to those residing at the mound centers. A resident population of commoners is also assumed.

Small hamlets and homesteads were established as well. In addition to sustaining themselves and their families, residents of these locations likely provided villages with food and other important resources as tribute, in return for protection and inclusion in the political system.

Hunting, gathering, and fishing were still very important to the Savannah period subsistence economy. Maize, beans, and squash were cultivated during that era, but it appears that horticulture was more important in the upper Coastal Plain and Piedmont than on the Coast. The production and distribution of cultivated foods may have been controlled by the elite as part of their efforts to acquire and maintain power (Anderson 1990b).

Irene (ca. A.D. 1300–1450). The Irene period is associated with political instability and dramatic demographic shifts. Archaeological manifestations of the Irene period include earthen mound construction and specific pottery types that belong to the Irene ceramic sequence.

During the Savannah period, political authority appears to have remained relatively stable. Central authority seems to have begun to break down by A.D. 1300, however, and fortified villages became common. This suggests that warfare between polities was an integral part of the political landscape at that time, and it probably erupted over such important issues as the control of trade routes, agricultural land, and hunting territories (Anderson 1990b; Anderson and Joseph 1988:316; Anderson and Schuldenrein 1985; Larson 1972).

By ca. A.D. 1350, some mound centers—Hollywood and Irene, for example—were abandoned, and the regional population may have declined considerably (Anderson 1990b:483). It is also possible that this apparent population decrease may actually represent population dispersal. Small Irene period sites are known to have been established in the region by approximately A.D. 1340 (e.g., Stanyard 1993).

Irene period mounds were circular and relatively large and exhibited rounded summits, rather than the flat summits associated with the platform mounds of the Savannah period (Caldwell and McCann 1941:18–20). Burials occur in the mounds, but the presence of structures on the summits suggests that the mounds were also used for ceremonial purposes and/or as residences for the elite. At Irene, the summit structures appear to have been significant, as wall trenches, fired wall plaster, and daub were discovered in association with Mound 8. Mound 8 was the final mound building episode at the large mound, and the only one of the eight episodes associated with the Irene period occupation.

As discussed earlier, the burial mound at Irene was used during both the Savannah and Irene occupations, but the majority of interments are from the Savannah period. The mortuary, however, appears to be exclusively associated with the Irene period inhabitants. This structure consisted of wall posts arranged as a square with rounded corners; each wall was approximately 7.3 m (24 feet) long. The walls were apparently plastered, and it may have had a palmetto thatch roof (Caldwell and McCann 1941:25).

Two concentric walls, or palisades, surrounded the main structure. They are thought to have demarcated the boundary of the Irene period cemetery created after the mortuary was destroyed by a fire, which may have been intentionally set (Caldwell and McCann 1941:25, 27–28).

Irene series ceramics include Irene Plain, Irene Incised, and Irene Complicated Stamped types. Irene Plain vessels are tempered with grit and may exhibit rims with nodes, punctations, rosettes, or appliqué strips. The most common form is the hemispherical bowl; rims may be straight, slightly incurving, or slightly outflaring.

Irene Incised pottery is also tempered with grit. Motifs consist of parallel lines arranged in patterns of straight lines, curves, and right angles. The incising technique varies from precise to careless. Designs are usually placed just below the rim or at the collar; nodes may also be present. The most common vessel form is the flat-bottomed hemispherical bowl. Rims are

usually incurving, but the carination is rounded rather than angular. Incised globular jars with outflaring rims are rare (Caldwell and McCann 1941:48).

Irene Complicated Stamped wares are also tempered with grit. The most popular designs are variations in the filfot cross motif. Nodes, punctations, rosettes, and appliqué strips are commonly found on this vessel type. The most common forms exhibiting Irene Complicated Stamped designs are hemispherical bowls with incurved or straight rims and globular jars with outflaring or straight rims.

Small triangular arrowheads and dart points manufactured from chipped stone continued to be produced during the Irene period. Utilitarian, decorative, and ceremonial items were produced from polished stone, bone, and shell, but the importance of items specifically associated with the Southeastern Ceremonial Complex apparently diminished in this era.

Based on investigations at Harris Neck, an Irene period site in McIntosh County, Georgia (Braley et al. 1986), Braley (1990) has defined two phases of the Irene period: Irene I and Irene II.

Irene I (ca. A.D. 1300–1350) is characterized by large jars with plain surfaces and by reed punctated and noded rims. Irene II dates to ca. A.D. 1350–1450; large jars with appliqué and segmented rim strips were produced in this era, as were small jars with simple scroll designs. Carinated bowls also occur in assemblages of this age. They exhibit various straight-lined, curved, and angular designs consisting of two or three incised parallel lines (Braley 1990).

Identified ceramic types for Irene phases are not well established chronologically. Irene Diamond Check Stamped appears to represent a transition from Savannah to Irene I, while Irene Check Stamped, Irene Burnished Plain, Irene Filfot Stamped, Irene Incised, and Irene Complicated Stamped seem to have been present during both Irene I and Irene II (Williams and Thompson 1999:56–59).

Little is known about Irene period settlement, and the following description is based on evidence derived from ethnohistorical accounts of contact period groups (Guale) in the region (Crook 1978; DePratter 1984; Larson 1980). It is therefore possible that Irene settlement patterns had been sufficiently altered by European contact to distort the perspective obtained from the early Spanish accounts.

Based on the available archaeological and ethnohistorical data, it is thought that the large mound centers were permanently occupied by paramount chiefs and their families; a resident population of non-elites protected and maintained the village. Large surrounding villages are postulated to have been permanent residences for subordinate chiefs, their families, and a contingent of non-elites. Small single-family farmsteads may have been established in outlying areas, perhaps to tend small fields cultivated with corn, beans, and squash. Seasonal camps likely took advantage of seasonally available resources—nuts and fish, for example—at the appropriate time of year.

Horticulture was probably practiced during the Irene period, but the degree to which corn, beans, and squash contributed to the diet in the project region is unclear (Crook 1978, 1986; DePratter 1984; Larson 1980). It appears that hunting, gathering, and fishing remained an important part of the subsistence economy.

Post Irene (A.D. 1450–1540). Very little is known about social and technological developments in the project area between A.D. 1450 and 1540. The project area may have been essentially depopulated by A.D. 1450 (see Anderson 1990b:618–620) and could have been part of a buffer zone between the politically powerful polities of Ocute and Cofitachequi.

Braley (1990) defined the Pine Harbor (A.D. 1450–1575) and Altamaha/Sutherland Bluff (A.D. 1575–1700) phases for coastal Georgia. Pine Harbor traits include: reed-punctated, appliquéd rim strips on large jars; intricate incising on small jars; bold incising; punctation, and cazuelas with multiple-line incising. The Altamaha/Sutherland Bluff phase is linked with Guale populations and its traits include: large jars with wide folded rims, reed-punctated rims, rectilinear complicated stamping, or cross-simple stamping; small jars with fine incising, red filming, or punctations; and cazuelas with narrow or broad incising or punctations (Braley 1990).

HISTORICAL CONTEXT OF THE PROJECT VICINITY

The project corridor is located east and south of Augusta, Georgia, in McDuffie, Warren, Jefferson, and Burke counties. The corridor lies primarily within the Red Hills Fall Line subregion of the Coastal Plain Physiographic Province. The Fall Line marked the head of navigation on the Savannah River and was a natural crossing point of the river. Numerous Native American trails converged there, and so it became a center of trade during the eighteenth century.

Initial European Contact, Native American Removal, and Colonial History

The first Europeans to arrive in Georgia were the Spanish, who established missions and forts along the Georgia coast during the second half of the sixteenth century (Spalding 1977:9–10). Although permanent settlements were confined to coastal areas, the Spanish carried on extensive trade with interior tribes. Of the several expeditions that explored the interior, the most important was the De Soto expedition of 1540 (Hudson et al. 1984:71–72). De Soto and his men, traveling from the town of Cofaqui on the Oconee River east to Cofitachequi on the Saluda River north of what is now Columbia, South Carolina, likely passed through the project area. The party is believed to have crossed the Savannah River near the site of Augusta. De Soto's expedition found no villages along this route, which appears to have been a buffer region between competing tribes of Native Americans at that time. A few other Spanish expeditions penetrated the interior of Georgia after De Soto, but actual contact with interior tribes was rare in the seventeenth century. Nevertheless, disruptions caused by the European presence on the continent (war, introduction of trade goods, disease, enslavement) altered the native cultures. By the mid-seventeenth century, two major Native American groups inhabited Georgia: the Cherokee and the Creek, with the Creek generally controlling the area south of the Chattahoochee River.

In the late seventeenth and early eighteenth centuries, Georgia was a battleground of competing forces as the European colonists fought for influence among the Creek and Cherokee in Georgia. British traders penetrated the Cherokee territory from the Carolinas and Virginia, while Spanish set up missions along the Georgia coast. By the late 1600s, however, Spanish power in what is now Georgia had begun to wane. Incursions against the Creek along the Chattahoochee pushed

them eastward, closer to the British influence, and the British exerted steady pressure on the missions of the coast until the Spanish could no longer maintain them (Spalding 1977:12–13).

Hoping to establish a barrier colony between the Carolinas and Spanish Florida, the British crown granted a charter to James Oglethorpe, and in 1733 he launched his Georgia colony at Savannah. The Indian trade provided an immediate source of income, and in 1736, Oglethorpe authorized a fort to be placed on the Georgia side of the Savannah River just south of present-day Augusta. This was already a well-established gathering place for traders and customers who met at the Savannah River fall line to transport their goods to the coast. The Upper, Middle, and Lower Creek trading paths met here, as well as the Hightower Trail from North Georgia. A Shawnee settlement named Savannah Town was founded on the South Carolina side of the river before the end of the seventeenth century and was later the site of Fort Moore. Fort Augusta, located at the head of navigation on the Georgia side of the river, was completed in 1738 and became a focal point for traders and tribes throughout the Southeast (Callahan 1980:17). It became one of the greatest fur trading centers in the Southern colonies, hosting up to 600 traders with 2,200 horses carrying skins at the height of the trading season (Coulter 1947:62). Nevertheless, few Europeans settled in the backcountry prior to the 1760s. In 1740, the mouth of Briar Creek was established as the northern boundary of the Georgia colony, and English settlement was not permitted beyond that point. George and Thomas Walker settled on Briar Creek in the 1740s, and in the 1750s, the Crown began to survey and grant lands in what is now Burke County (Baldwin and Hillhouse 1956:3).

By the early 1750s, Fort Augusta was abandoned and falling into disrepair. The fort was reoccupied six years later, during the French and Indian War, after the townspeople petitioned the royal government for protection. At that time, the area was organized into parishes under the administration of the Anglican Church. The project corridor is located within the boundaries of what were originally St. Paul and St. George parishes. At the close of the French and Indian War, the demand for western lands increased dramatically. The colonial government held a conference in Augusta that was attended by over 700 representatives of five Indian nations and four royal governors (Coulter 1947:91–92). Treaties were established with Native Americans in 1763 and 1773 that made lands available to Euro-American settlers from the Savannah River west to the Ogeechee River.

The newly acquired area became known as the "ceded lands" (Callahan 1980:15–17). Yeoman farmers from the Carolinas and Virginia began moving into this territory in large numbers. Queensborough Township and Galphinton were two settlements in what is now Jefferson County that were established about 1768 and settled by Irish Protestants. Also in 1768, a group of Quakers obtained a grant from the Royal Governor, Sir James Wright, in the northern part of what is now McDuffie County as a buffer between the Creek and Cherokee. The town of Wrightsboro was named in his honor, and by 1775 over 200 Quaker families had settled in the township. However, the pacifist Quakers soon found themselves in the middle of Native American conflicts, the Revolutionary War, and the expansion of slavery, and most had moved away by 1800 (Brown 2007; Frost 1981:5; Work Projects Administration [WPA] 1940).

Growth of the Region from the Revolution through the Civil War

By the start of the American Revolution, the majority of Georgia's population lived outside the coastal region. The importance of the backcountry was underscored during the Revolution when the colonial legislature was moved to Augusta in 1778 after the British captured Savannah. Augusta fell to British forces just a year later, however, and the capital was moved to a temporary location near Washington, Georgia. At the close of the Revolutionary War, the state capitol returned to Savannah, but because of the growing importance of the upcountry region, the governor and his council resided part-time in Augusta and the assembly alternated sessions between the two cities. By 1785, the need for a centrally-located capital led to the selection of Augusta as the sole seat of government until such time as the town of Louisville could be laid out near Galphinton. Continuing conflicts with native groups delayed the establishment of Louisville until 1796 (Coleman 1977a:91; Georgia Building Authority 1979; WPA 1940).

In 1777, St. Paul and St. George parishes were reorganized as Richmond and Burke counties, respectively. Augusta was selected as the seat of Richmond County, while Waynesboro was laid out as the seat of Burke County in 1783. At the first census of the United States in 1790, the population of Richmond County was 11,317, exceeding even Chatham County, which included Savannah. Burke County had another 9,467 residents. In 1793, portions of the corridor in Richmond County became part of the newly created Warren County. The site of the Warren County Courthouse was incorporated as Warrenton in 1810. In 1796, portions of Warren and Burke counties, including parts of the project corridor, were taken to create Jefferson County. Louisville was laid out as the state capital and county seat of Jefferson County in 1796. Louisville served as the state capital until 1806, when it was moved to Milledgeville. In 1800, Burke County's population stood at 9,504, Warren County had 8,329 residents, and Jefferson County had 5,684 inhabitants (Walker 1872a). McDuffie County was created in 1870 from Warren and Columbia counties.

Early settlers in the hills around Augusta practiced subsistence farming and produced crops such as corn, wheat, rye, fruit, and vegetables. Corn was grown throughout Georgia and was the backbone of the state's agricultural regime, providing food for the family and livestock, with some left over for barter or sale. Like the Native Americans, pioneers favored settlement along the creek and river bottoms. Lands already cleared by the previous inhabitants were among the first to be settled. Less desirable lands were soon taken up as well, however. Streams were dammed for the purpose of constructing water-powered sawmills. The timber adjacent to these millponds was harvested and transported to the mills to be sawn into lumber. When the area surrounding the streams was cut out, the loggers moved to the next drainage and the process was repeated. Most of the land that had been cleared of timber was converted to agricultural production (Otto and Anderson 1982).

As the number of settlers in an area increased, new roads were cleared to facilitate commerce and communication. Road construction improved access to distant markets and thus encouraged production of cash crops such as cotton and tobacco. Tobacco roads, which were used to roll hogsheads of tobacco to market, were immortalized in Erskine Caldwell's novel *Tobacco Road* (Ledbetter el al. 1980). Small communities developed at crossroad centers to serve the needs of the agricultural population. These communities might contain no more than a store, but often included a post office, church, mill complex, and possibly a cotton gin. The residents of these

communities were generally linked by common churches and schools, as well as kinship ties. Trips to the county seats were necessary to attend to county business such as land transfers and court appearances.

Beginning in the 1790s the cotton gin dramatically increased the profitability of short staple cotton production and as a result shifted the agricultural regime of the Georgia upcountry. As early as 1796, there were four water-driven gins in Waynesboro. Augusta prospered in the late eighteenth and early nineteenth centuries as the main shipping point to Savannah. The continuous expansion of Georgia's territory and the phenomenal profitability of cotton production contributed to a highly mobile frontier community. The frequent availability of cheap land farther west encouraged many farmers to sell their land to established landholders and move whenever they saw greener pastures. Planters with large slaveholdings soon controlled the best lands in the Augusta region. By 1810, cotton had replaced tobacco as the principal cash crop (Elliott and Doyan 1981:33; Hillhouse 1985:62).

The lower Piedmont of Georgia, around the Fall Line, was the center of the cotton-growing region of Georgia. It was here that the largest plantations were found, as well as the largest populations of African-American slaves. The percentage of slaves in the total population of the counties in the project area increased steadily between 1790 and 1860, while the number of white residents remained steady or even declined. Burke County had over 17,000 residents by 1860, while Jefferson and Warren counties had around 10,000 residents. However, the white population of all three counties was less than 5,000. Slaves outnumbered whites for the first time in Burke County in 1820, when 5,820 slaves represented 50.3 percent of the population. Slaves outnumbered whites in Jefferson County by 1830 and Warren County by 1850. In 1850, slaves represented over two-thirds of the total population in Burke County, and nearly 60 percent in Jefferson County, which includes portions of the project corridor. Warren County's slave population in 1850 was just under half the total at 49 percent (Bode and Ginter 1986:74–83; DeBow 1853; Walker 1872a).

In much of Georgia, the typical slaveowner held less than 10 slaves and operated farms of less than 100 acres, but in the Augusta region, large land and slaveholdings were common. In 1860, nearly half of Burke County slaveowners held more than 10 slaves, accounting for approximately 90 percent of the total. Wealth in land and slaves was more concentrated in Burke County, but in Warren and Jefferson counties, over a third of slaveowners held 10 or more bondsmen, and about two-thirds of all farmers owned 100 acres or more. The plantations of these planters were often communities in themselves, and the slaves who worked on them were typically employed in all manner of tasks from planting and picking to small-scale manufacturing and household chores (Coleman 1977b:163–165; Kennedy 1864).

By 1860, Burke County was the third largest producer of cotton in Georgia, with 23,419 bales produced. Its farms were valued at over $4 million, more than any other county. Jefferson and Warren counties were relatively prosperous, as well. Jefferson County produced over 10,000 bales of cotton, and Warren County produced over 8,500 bales. Jefferson County was also one of the state's leading producers of rye and had livestock valued at over $450,000 in 1860. Warren County had the second largest crop of peas and beans in 1860, totaling over 46,000 bushels (Kennedy 1864).

The quick fortunes that could be made from cotton production tended to discourage industrial development and other capital improvements in the project vicinity. Instead, profits were invested in more land and slaves. The emphasis on agriculture stunted industrial development in the region. An inventory of industrial output in the Burke County in 1810 notes only 86,000 yards of cotton goods and small amounts of other textiles (Cornman 1814). The small amount of industry that developed in the region was principally concerned with resource extraction and agricultural processing such as sawmills, brickyards, tanyards, and ginneries (McCommons and Stovall 1988:59). Warren County could boast two textile mills in 1849: Rock Mills factory on the Ogeechee River with 600 spindles and 40 operatives, and Brother's Factory with 1,000 spindles and 30 employees. There were also five or six merchant mills, a dozen sawmills, 10 gristmills, and three wool-carding machines. Jefferson County had eight sawmills, 13 gristmills, two flour mills, and a stone quarry. No industry was reported for Burke County in 1849 (White 1849).

Rather than lead to industrialization, improved transportation in the form of railroads beginning in the 1830s further supported the plantation system by providing easily accessible markets for cash crops and bringing manufactured goods from the northern states to remote areas. In 1834, the Charleston and Hamburg Railroad brought rail service to the Savannah River across from Augusta. Cotton farmers in the upcountry quickly sought to connect to the line and chartered the Georgia Railroad Company to run from Augusta to Athens. The line was completed in 1841 and gave rise to the towns of Dearing and Thomson in what would become McDuffie County. A spur line was constructed from Camak in Warren County to the county seat in Warrenton. Burke County did not get railroad connections until 1854, when the Waynesboro Railroad was constructed from Millen to Augusta, linking Georgia's two rival lines, the Georgia Railroad and the Central of Georgia (Boney 1977:158–159).

Augusta played an important role in the Civil War as the site of the main Confederate Arsenal and a rich agricultural hinterland. On his March to the Sea, General William T. Sherman's Left Wing marched from Milledgeville to Louisville, with General Judson Kilpatrick's cavalry protecting its left. Kilpatrick sparred with his Confederate counterpart, Joseph Wheeler in a series of skirmishes near Waynesboro in late November and early December 1864. Wheeler first drove Kilpatrick back to Louisville, but he returned with infantry support and sent Wheeler back toward Augusta, where General Braxton Bragg waited to meet Sherman with 10,000 men. Instead, the Left Wing feinted at Augusta, then turned east across Burke County and followed the Savannah River south toward Savannah (Lenz 1995). As a result, Augusta fared better than most other towns in the path of the march (Callahan 1980:53), but the countryside suffered from the loss of livestock and the destruction of fields, fences, and barns by foragers from both armies.

Recovery and Stagnation

The emancipation of the slaves, the reduced number of able-bodied men, and the economic and political constrictions placed on the Confederate states following the Civil War had a significant effect on the local economy. The 1870 agricultural census reflects the impacts of the war on the region's farmers. The value of Burke County farms fell over 60 percent to $1.5 million between 1860 and 1870, and cotton production dropped nearly 40 percent. Jefferson County cotton output was a third less in 1870 than 10 years earlier. The effects were less severe in Warren County, where the plantation system was less firmly established. There, cotton production was only

10 percent below prewar levels, and farm value was nearly 90 percent of what it had been in 1860. By 1880, cotton production had returned to comparable levels from before the war, but other problems remained (Kennedy 1864; U.S. Census Bureau 1883; Walker 1872b).

Without slave labor, the plantation system was effectively destroyed, and a new labor system was needed to take its place. A variety of tenancy arrangements emerged in the ten years following the war that were satisfactory to both blacks and whites, but which served neither well. Under the sharecropper system, which was most common for black farmers, the tenant received a percentage share of the crops in exchange for providing the labor and half of the seed and fertilizer, while the landlord provided the land and most of the equipment necessary to produce the crop. The landlord often extended credit to the tenant for living expenses, which was taken out of the tenant's share of the crop. If the lien exceeded the value of the crop, the tenant was obligated to the landlord for the following season, leading to a spiraling debt that prevented the black population from acquiring land of their own. Tenants might fare better under a cash rent arrangement in which the tenant provided most of the equipment and supplies and paid the landlord a fixed rent in cash or a portion of the crop. Cash tenants had more control over the crop, and thus were not as likely to be taken advantage of by the landlord, but this arrangement was not always available to African Americans without the resources to supply the necessary items in advance (Orser 1988).

The large African-American population in the four counties of the project corridor resulted in high tenancy rates for the farm population there. In 1880, only about a third of the farmers owned their own land (U.S. Bureau of the Census 1883). As farm size decreased and land wealth was increasingly consolidated, white farmers were often forced into tenancy as well. By 1900, over 80 percent of Burke County farms were operated by tenants or managers. The number was even higher among African-American farmers, only 5 percent of whom owned their farms. The situation in Jefferson, McDuffie, and Warren counties was similar. In those counties, about half of all white farmers and over 90 percent of black farmers were tenants (U.S. Census Bureau 1902). High cotton prices in the years before World War I encouraged tenants to continue to plant cotton. In addition, many landlords required their tenants to plant cotton, since it was easily shipped and stored, and the support structure for growing and marketing it was already in place (Range 1954).

Thus tenancy, with its emphasis on cotton production, persisted in the region until the 1930s. Periods of high prices and the availability of commercial fertilizer further increased the viability of cotton monoculture in the late nineteenth and early twentieth centuries, and many tenants, especially cash renters, were able to prosper during this period. Burke County produced over 46,000 bales of cotton in 1900. Jefferson County was a distant second with 25,000 bales, while Warren and McDuffie counties each produced less than 10,000 bales. In Waynesboro, the main industries in 1900 were two fertilizer factories, two cottonseed-oil mills, and a cotton factory, all serving the cotton economy. In addition, there were 17 gristmills, about a dozen steam sawmills, and three turpentine distilleries in the county. Nine gristmills and two flouring mills were reported in Jefferson County in 1900 (Georgia Department of Agriculture 1901). No industries were noted in Warren or McDuffie counties in 1900, but by the 1930s, McDuffie County had a textile mill producing men's work clothes. The Thomson Company, just outside of Thomson, employed about 400 workers in 1937 (Booth 1937).

Attempts were made in the early twentieth century to decrease cotton crop dependency in the state by establishing a state department of agriculture to promote diversification and by encouraging scientific farming through local societies, agricultural journals, and universities. Although these efforts perhaps laid the groundwork for diversification and greater self-sufficiency on the farm, it was a combination of factors, including the destruction caused by the boll weevil to the cotton crops of 1919–1923, a worldwide decline in cotton prices during the 1920s, out-migration of tenant labor as a result of increasing farm mechanization, and finally New Deal agricultural reform in the 1930s, that led to a steady decline in the importance of cotton in the local economy. Many farmers lost their lands through foreclosure, and farms were consolidated under corporate owners that could invest in mechanization. Tenants, many of whom were African-American, were forced to move to towns to work in the mills or to the North in search of better job opportunities and more equitable legal treatment. Many of those in the area who continued farming cotton into the 1930s faced financial ruin as a result of the Depression, collapse of the cotton culture, and the marginal nature of the exhausted soils of the region. In Burke County, 10 of 12 banks closed. Since that time, the area has undergone several changes in land use, including an increase in pasture and forestland and a decrease in cropland (Frost 1981:7–8).

World War II brought relief from the Depression in the form of government funds for construction expenditures, commodity purchases, and payrolls (Coulter 1947:438–440). The Army Air Corps opened a base at Daniel Field in Richmond County in 1941. Plans were announced in 1941 for the construction of Camp Gordon. The new base, to be located just southwest of Augusta, was already under construction when the Japanese bombed Pearl Harbor (Callahan 1980:155). The camp became a permanent installation in 1956 and the name was changed to Fort Gordon. The boundaries of the reservation encompass approximately 55,000 acres in four counties, including a small portion of McDuffie and Jefferson counties (Braley and Price 1991:24).

After World War II, peaches, livestock, and timber all became important agricultural products in the area. Many cotton gins were dismantled and very little cotton was grown, except in Burke County, which ranked eighth in the state in cotton production in 1987. Soybeans and peanuts have also been grown in significant quantities (Bachtel 1989; Bachtel and Boatright 1993; Webb 1987:30). In the 1960s, a number of kaolin mines were opened in region, extracting the white clay for industrial uses such as paint, toothpaste, ceramics, and paper. The mining companies secured mineral rights for large tracts of land, effectively stalling development as a result of the encumbrances attached to the land (Seabrook 1995). Families tended to move away from the more rural areas, and began to cluster along the major routes and toward towns like Thomson, Wrens, and Waynesboro. The population of Burke County declined steadily from 1920 to 1970, losing more than a third of its population. The population of Jefferson County remained fairly stable at about 20,000 residents during the same period. In Warren and McDuffie counties, the population decline did not begin until after World War II. All four counties saw a reduction in the percentage of blacks in the population between 1930 and 2000 (Boatright and Bachtel 2001; Forstall 1995).

III. CULTURAL CONTEXT

PREHISTORIC OVERVIEW[1]

The prehistory of Georgia begins ca. 9000 B.C. and ends with the de Soto entrada of A.D. 1540 (Table 2). Archaeological evidence indicates that humans have periodically visited the project region for at least 10,000 years (Caldwell 1958; Fairbanks 1954; Hally and Rudolph 1986; Wauchope 1966). Much of this section uses information from a study conducted concerning Fort Gordon, which is geographically located near the center of the project area.

Table 2. Cultural Chronology for Prehistoric Occupation of North and North-Central Georgia (modified from Elliott et al. 1994).

Period	Phase	Date Range
Mississippian	Lamar	A.D. 1350–1540
	Savannah/Wilbanks	A.D. 1200–1350
	Etowah	A.D. 1000–1200
Late Woodland	Woodstock	A.D. 750–1000
	Late Swift Creek/Napier	A.D. 500–750
Middle Woodland	Early Swift Creek	A.D. 1–500
	Cartersville/Deptford	300 B.C.–A.D. 500
Early Woodland	Dunlap/Cartersville	1000–300 B.C.
Late Archaic[a]	Dickens Complex?	1350–900 B.C.
	Lovers Lane	1850–1350 B.C.
	Mill Branch	2200–1850 B.C.
	Paris Island	2500–2200 B.C.
	Phinizy Swamp Complex?	3500–2500 B.C.
Middle Archaic[a]	MALA↑	4000–2800 B.C.
	Morrow Mountain	6000–4000 B.C.
Early Archaic[a]	Kirk Stemmed↓	6500–6000 B.C.
	Bifurcate↔	7000–6500 B.C.
	Palmer/Kirk↑	7500–7000 B.C.
	Taylor/Bolen/Big Sandy↔	8000–7500 B.C.
Paleoindian	Dalton	8500–8000 B.C.
	Simpson/Suwanee/Quad	9000–8500 B.C.
	Clovis	Unknown–9000 B.C.

[a]The Archaic sequence overlaps considerably. The direction of overlap is represented by the following symbols: ↑ represents overlap into later time periods; ↓ represents overlap into earlier time periods; and ↔ indicates overlap into both earlier and later time periods.

Paleoindian Period (ca. 10,000–8000 B.C.)

The Paleoindian period marks the beginning of human occupation in the New World. Exactly when the first human populations permanently settled the western hemisphere is uncertain; most Americanist archaeologists believe it was sometime between 20,000 and 14,000 years ago, in the

[1]After Stanyard 1997.

IV. METHODS

LITERATURE AND RECORDS SEARCH

In August 2011, TRC collected information on previously recorded archaeological and historic architectural resources for an area encompassing the current Thomson-Vogtle transmission line project area. The research was conducted using the GNAHRGIS online cultural resources database. The purpose of the research was to identify previously surveyed archaeological sites within a 0.5-mile radius of the project area, as well as historic structures and NRHP properties within a 0.5-km radius of the project area. The library maintained by TRC in Atlanta also was used as a source of relevant background information.

ARCHAEOLOGICAL FIELD METHODS

The archaeological field survey was accomplished by pedestrian coverage of the entire project corridor and systematic shovel testing where appropriate. Shovel testing was not implemented in locations exhibiting slope greater than 10 percent, or in places where ground-disturbing activities have affected deposits to a depth reaching any archaeological remains that may have once been present. The most common types of disturbances observed in the project area derived from logging activities, and involved bladed areas and large push piles (Figures 8 and 9).

Along most of the project corridor, shovel tests were excavated at 30-m intervals. In areas with greater than 25 percent surface visibility (e.g., recently plowed fields), careful surface inspection supplemented but did not replace shovel testing; however, shovel test intervals were lengthened to 90 m. Standard shovel tests with a diameter of 30 cm were excavated to sterile subsoil or to a depth of 75 cm below surface. Soils were screened through 0.64-cm (¼-inch) mesh hardware cloth to consistently recover any artifacts that might be present. For each shovel test, the depth, artifact content, soil color, and soil consistency were recorded. A total of 5,232 shovel test locations were investigated in the project area (Figure 10). When artifacts were discovered, additional shovel tests were excavated at 10-m intervals to delineate site boundaries in each cardinal direction. In some cases, the site extended beyond the project area; no shovel tests were conducted beyond that limit.

Hand-held Global Positioning System units were used throughout the project to obtain site locations and other provenience information. Archaeological resources and general field conditions were photographed and documented with digital media.

LABORATORY METHODS

The artifacts, notes, photographs, maps, and other project-related materials were returned to TRC's Atlanta laboratory for processing upon completion of the field studies. Artifacts were washed, accessioned, analyzed, and are being temporarily curated at that facility. The complete artifact inventory from each site is presented in Chapter V. Artifact analysis focused on