Archaeology of the Woodlawn Plantation: 2014 Update

Fairfax County, Virginia

New South Associates, Inc.

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ABSTRACT

New South Associates, Inc., was contracted by the Federal Highway Administration to provide an updated synthesis of archaeological work at Woodlawn Plantation (Figure 1). This study was conducted in support of improvements to U.S. 1/Richmond Highway.

The current study is an update of the archaeological survey report of the Woodlawn Plantation prepared by the Chicora Foundation (Trinkley 2000). The National Trust completed the Chicora report as a planning document, and it was never submitted to the Virginia Department of Historic Resources (VDHR) for review. The current update has been prepared for regulatory review in relation to proposed improvements along U.S. 1. In addition to updating the Chicora survey, the current scope of work included several additional items: 1) bring existing survey information and site boundaries into a project GIS; 2) inspect the location of sites 44FX1146 (Woodlawn Plantation) and 44FX2461 (Otis Mason House) to record current conditions; 3) use ground-penetrating radar (GPR) to locate the possible privy northeast of the main house; 4) use GPR and metal detector survey to locate the garden house northeast of the main house; 5) use GPR to locate a brick wall exposed by Frick on the waterline to the fire hydrant; 6) use metal detector and GPR in southwest portion of the plantation to determine if a structure reported by Edward Flanagan (1985) is present; 7) conduct artifact analysis as needed; 8) update the Woodlawn Plantation site form (44FX1146); and 9) produce a final report.

Results of the GPR survey and archaeological investigations indicate that certain portions of the Woodlawn Plantation may contain intact archaeological deposits, features, and artifact concentrations. Archaeological anomalies related to Woodlawn's landscape and former structures had components ranging from 50 to 80 centimeters below ground surface (cmbgs), which was deeper than expected at this site. These depths may suggest some fill deposits on top historic features. In addition, extensive modifications of the landscape were observed. Additional geophysical survey and archaeological fieldwork may be useful for further resolution.

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New South Associates, Inc., was contracted by the Federal Highway Administration (FHWA) to provide an updated synthesis of archaeological work at Woodlawn Plantation (Figure 1). This work was conducted in support of improvements to U.S. 1/Richmond Highway.

The current study is an update of the archaeological survey report of the Woodlawn Plantation prepared by the Chicora Foundation (Trinkley 2000). The National Trust completed the Chicora report as a planning document, and it was never submitted to the Virginia Department of Historic Resources (VDHR) for review. The current update has been prepared for regulatory review in relation to proposed improvements along U.S. 1. The scope of work included several additional items: 1) bring existing survey information and site boundaries into a project GIS; 2) inspect the location of sites 44FX1146 (Woodlawn Plantation) and 44FX2461 (Otis Mason House) to record current conditions; 3) use GPR to locate the possible privy northeast of the main house; 4) use GPR and metal detector survey to locate the garden house northeast of the main house; 5) use GPR to locate brick wall exposed by Frick on the waterline to the fire hydrant; 6) use metal detector and GPR in southwest portion of the plantation to determine if a structure reported by Flanagan is present; 7) conduct artifact analysis; 8) update the Woodlawn Plantation site form (44FX1146); and 9) produce a final report.

Archaeological fieldwork was conducted the week of September 15, 2014. Sarah Lowry was the field director, and Becca Peixotto assisted. Field conditions were generally favorable for ground-penetrating radar (GPR) survey and metal detecting.

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The remainder of this report is divided into the following sections. Chapter I is the introduction. Chapter II is the environmental context. Chapter III is the cultural context. Chapter IV is a discussion of methods. Chapter V is a summary of previous research. Chapter VI presents the results of investigations and recommendations. Appendix A includes the artifact catalog. Appendix B is an updated form for Woodlawn Plantation (44FX1146).

Figure 1.
Location of the Woodlawn Plantation in Fairfax County, Virginia

Source: Microsoft Imagery 2002

II. ENVIRONMENTAL CONTEXT

Woodlawn Plantation is located in the western portion of Virginia's Coastal Plain physiographic province. The Coastal Plain is an eastward sloping surface exhibiting mostly low relief, although western parts of the province are higher in elevation and more dissected and hilly than to the east. Owing to the low relief, streams and rivers are slow and stream margins are often marshy. Branching bays and estuaries cut into the land at the coast and the rivers are tidal as far as the Fall Line (Dietrich 1970:101–102).

The project area occupies part of a broad upland overlooking Dogue Creek to the east, Accotink Bay and Gunston Cove on the southwest, and the Potomac River to the southeast. Bailey (1999) termed such areas as upland sub-provinces of the Coastal Plain, characterizing them as broad areas with low slopes and gentle drainage divides, although steep gradients develop as a result of stream erosion. The upland area containing the project area exhibits a level crest and abrupt flanks. Elevations lie between 30 and 40 meters (100 and 130 ft.) above sea level (asl).

The underlying bedrock of the Coastal Plain consists of unconsolidated or partially consolidated sediments that slope to the east and rest on an eroded surface of Precambrian to early Mesozoic rock. The uppermost sediments in the Coastal Plain are late Tertiary and Quarternary age sands, silts, and clays deposited during interglacial high stands of the Atlantic Ocean. These materials lie above thin, fossiliferous marine sands of Tertiary age laid down during repeated periods of high sea levels (College of William & Mary 2014; Dietrich 1970:103).

Coastal Plain sediments in Virginia do not produce outcrops of lithic material such as would have been sought for prehistoric chipped-stone tool manufacture. Suitable raw materials, however, are available from secondary sources, along watercourses and in uplands.

The soils in the project vicinity are associated with the unconsolidated sand, silt, clay, and gravel of the Coastal Plain. Many soils have moderately slow to slow permeability and create seasonal high water tables in large areas (Fairfax County 2014). Soils at the Woodlawn Plantation include Kingstowne-Sassafras-Neabsco complex (72B), 2-7 percent slopes; Codorus and Hatboro soils (30A), 0-2 percent slopes, occasionally flooded; Mattapex loam (77B), 2-7 percent slopes; Sassafras-Marumsco complex (91D), 7-15 percent slopes; and urban land.

The Woodlawn plantation house, drive, and gardens are built on Kingstowne-Sassafras-Neabsco complex (72B), 2-7 percent slopes. This complex consists of well-drained sandy clay loams with about 80 centimeters to the restrictive feature. Soil parent materials are earthy fill of fluviomarine deposits and formed from marine terraces.

The project area is located in the Potomac River basin. Primary water sources in the site vicinity are low-order streams that drain into Accotink Bay and Dogue Creek, both of which empty into the Potomac River.

The vegetation of this region is northern pine-oak or oak-hickory-pine forest. The main forest cover type is loblolly pine-hardwood, where hardwood species are chiefly sweetgum, varieties of oak, white ash, yellow poplar, red maple, and swamp hickory. Species on bottomlands include green ash, sugarberry, water oak, American sycamore, sweetgum, and American elm (Kricher 1988:65–66; McNab and Avers 1994).

Fauna that are extant or formerly common in this region, and that had economic importance to prehistoric and later historic humans, include elk, white-tailed deer, mountain lion, wolf, black bear, bobcat, gray fox, raccoon, cottontail rabbit, and squirrel. Birds include turkey, bobwhite, and dove, as well as varieties of migratory waterfowl. Box turtle, gopher tortoise, indigo snake, garter snake, and timber rattlesnake are common reptiles, while the region's rivers contain numerous species of fin and shellfish (McNab and Avers 1994).

III. CULTURAL CONTEXT

PREHISTORIC CONTEXT

The prehistoric period in Virginia is typically divided into the Paleoindian (12,000-8000 B.C.), Archaic (8000-1000 B.C.), and Woodland (1000 B.C.-A.D. 1600) periods. The Archaic and Woodland are separated into Early, Middle, and Late subperiods. Recent studies of the Cactus Hill Site in Virginia suggest that humans may have occupied Virginia prior to the Paleoindian period. At the end of the prehistoric era, the time span from about A.D. 1500-1675 covers the period of European contact in the Chesapeake Bay region (Boyd 1986; Virginia Department of Historic Resources 2003).

PALEOINDIAN

Long considered to be the earliest humans in North America, Paleoindians were in the Chesapeake Bay region during the early postglacial period. Diagnostic artifacts include Clovis, Cumberland, Quad, Dalton, and Hardaway projectile points (Humphrey and Chambers 1977; Johnson 1981). Recent work at the Cactus Hill Site in Sussex County, Virginia, however, has produced lithic tools below Clovis-bearing levels, with these lower strata providing radiocarbon dates of around 15,000-20,000 years old (Bower 2000; McAvoy and McAvoy 1999). This and other sites in the Americas suggest the potential for a pre-Paleoindian period, the details of which are not well understood at the present.

Small and diffuse camps are the primary manifestation of the Paleoindian period (12,000-8000 B.C.) in the Coastal Plain, although possible base camps have been noted (Lowery 1989; 1990). Human populations are characterized as mobile small bands having a subsistence economy based on hunting and collecting wild foods. Although large game animals are commonly cited as the main subsistence resource for eastern Paleoindians, small game, fish, and wild plants were probably also important (Boyd 1989; Dent 1981; Gardner 1981; Kelly and Todd 1988; Smith 1986).

ARCHAIC

Diagnostic Early Archaic (8000-6000 B.C.) artifacts include Palmer and Kirk projectile points (Coe 1964:121–122). Ground stone woodworking and plant processing tools are also known for the period (Custer 1990). Sites are located in similar settings as Paleoindian sites, suggesting

continuity of settlement, subsistence, and general lifeways. Sites in upland areas might reflect the use of emerging post-glacial environments (Custer 1990; Dent 1981; Kauffman and Dent 1982; Wesler et al. 1981).

Middle Archaic (6000-3500 B.C.) artifacts include Stanly, Morrow Mountain, Guilford, Halifax, LeCroy, and St. Albans projectile points (Broyles 1971; Coe 1964; Egloff and McAvoy 1990). Although Middle Archaic populations are thought to have followed a generalized hunting and gathering lifestyle, settlement and subsistence might have begun diverging from Early Archaic patterns. For instance, sites tend to concentrate in floodplains of larger drainages (Custer 1990:27). Additionally, these floodplain sites contain storage pits, middens, and quantities of fire-cracked rock, implying they were occupied for relatively lengthy periods (Smith 1986:26; Steponaitis 1986:372). Most Middle Archaic sites in the Coastal Plain seem to represent transient occupations, although Blanton (1996) has suggested that larger and intensively utilized sites are located on now submerged terraces in Chesapeake Bay, which would have comprised floodplains when sea levels were lower.

The Late Archaic period (3500-1000 B.C.) coincided with warm and dry conditions that caused the expansion of grasslands and oak-hickory forests. The increase in nut-bearing trees benefited squirrel and turkey populations, which, along with the mast, became important subsistence resources for humans (Carbone 1976; Custer 1984). Stabilizing sea levels at this time created extensive estuaries, which produced other important subsistence resources. The early part of the Late Archaic resembled the preceding era, as people followed a generalized hunting and gathering regimen, and possibly established residential camps of longer duration in now-submerged bottomlands. Late in the period, though, new artifact forms, such as Savannah River points, steatite containers, and a variety of ground stone implements appeared. Sites were in a greater variety of environmental settings and sociopolitical systems became more elaborate. The prevalence of sites in riverine settings indicates a focus on aquatic resources at this time (Egloff and McAvoy 1990; McLearen 1991; Smith 1986; Steponaitis 1986; Stevens 1991:208–209). This period is sometimes referred to as “Transitional.”

WOODLAND

The onset of the Early Woodland (1000 B.C.-A.D. 200) period is marked by the introduction of ceramic technology, but cultural adaptations are thought to have remained fundamentally the same as those of the Late Archaic (Anderson and Mainfort 2002; Ayers 1972). Early ceramic forms were modeled on Late Archaic steatite bowls. The earliest pottery type in the project region is known as Marcey Creek (1000-750 B.C.), distinguished by crushed steatite temper and unevenly smoothed exterior and interior surfaces (Maryland Archaeological Conservation Lab

2014). Later Early Woodland pottery types include Seldon Island (1000-750 B.C.), identified by steatite temper and cordmarked exterior; Accokeek (900-300 B.C.), which is tempered with sand or crushed quartz and exhibits cordmarked exteriors; and Popes Creek (500 B.C.-A.D. 300), a sand tempered and net-impressed variety that persists into the Middle Woodland (Maryland Archaeological Conservation Lab 2014). Other diagnostic Early Woodland artifacts include small Savannah River, Calvert, and Piscataway projectile points. Overall settlement and subsistence practices show a focus on estuarine resources and substantial riverine settlements have been documented (Mouer 1981:57–58).

The Middle Woodland (A.D. 200-900) period did not diverge significantly from the preceding era in terms of general lifeways, but is indicated by new artifact styles. Diagnostic ceramics include Popes Creek, which originated in the Early Woodland, and Mockley (AD 200-900), a crushed shell tempered variety (Maryland Archaeological Conservation Lab 2014; Potter 1993:62; Stewart 1992:8–9). Projectile point types include Selby Bay/Fox Creek, Jack's Reef, and triangular varieties (Stewart 1992:5). Settlement patterns suggest that trends toward greater sedentism continued from the earlier periods, while collecting wild foods remained the principal subsistence strategy. The intensive use of food resources, requiring the management of people, goods, and ideas, suggest increasingly complex social relationships (Stewart 1992:4). Burial mounds appeared during the period and these might reflect evidence of social stratification or expressions of social cohesion (Anderson and Mainfort 2002:1; Hantman and Gold 2002).

The Late Woodland (900-1600) period saw greater use of cultivated plants, rising populations, larger numbers of sedentary villages, and more complex forms of sociocultural integration within the region (Turner 1992:97). Diagnostic artifacts include Townsend pottery (A.D. 950-1600), a shell-tempered variety exhibiting fabric-impressed surfaces with various decorative motifs. Other pottery types of the period are sand- and mica-tempered Moyaone (1300-1650); Potomac Creek (1300-1700), a crushed quartz or sandstone-tempered variety; and shell-tempered Yeocomico (1500-1700) (Maryland Archaeological Conservation Lab 2014; Potter 1993:103). All of these varieties persisted into the European contact period. Other artifacts include triangular projectile points, along with shell, stone, and copper items (Turner 1992:103–105). Late Woodland subsistence focused on the exploitation of a few abundant resources, but by A.D. 1000, people had begun to incorporate cultivated plants into their diets (Turner 1992:106). A reliance on domesticated plants led settlement to concentrate in floodplain-based villages (Potter 1982; 1993:101–102). Late in the prehistoric period, village inhabitants took to enclosing settlements with wooden palisades (Turner 1992). Small resource procurement and processing camps were in riverine and upland zones (Potter 1993; Turner 1992).

The Late Woodland period in the Chesapeake Bay area has also been associated with ranked societies, most notably the Powhatan chiefdom, which consisted of an aggregation of small chiefdoms led by a single paramount chief (Potter 1993:150). Hantman and Gold (2002) argued that hierarchical social arrangements such as these were a long-standing aspect of the region, extending as far back as the Late Archaic/Transitional period and that they were cyclical rather than permanent.

The Contact and early historic periods refer to the era during which European and the North American societies first encountered each other and began interacting. Contact between Virginia's Native Americans and Europeans may have occurred as early as the 1580s, but intensified after the English settled at Jamestown. Aboriginal material culture of the period includes the pottery types associated with the Late Woodland to which were added European products (Hodges 1993). Depopulation due to disease and warfare and trade with Europeans caused significant changes to native cultures (Hodges 1993:28).

HISTORIC CONTEXT

SETTLEMENT TO SOCIETY (1607-1750)

The Northern Neck, containing roughly 5,000,000 acres, was originally held as a proprietary by a group of six Englishmen who received a grant to the territory in 1649 as a reward for their support of King Charles II during his exile. Eventually, in 1692, the Fairfax family obtained control of the entire proprietary, in part though marriages to the Culpepers. Thomas, Lord Fairfax, appointed Robert Carter his agent in 1702 and charged him with placing tenants on the Northern Neck for nominal quitrents (Bryant and Sperling 2007:14; Cooke et al. 2001:11).

The Virginia Assembly originally included the entire Northern Neck in a single large county called Northumberland. As population expanded, requiring smaller divisions with separate courthouses, Northumberland was divided up, the majority of its northern portion becoming Westmoreland County in 1653. Stafford County was carved from the northern part of Westmoreland in 1664. Over the next 60 years, population grew enough to require the division of additional counties. In 1730, the Assembly created Hamilton Parish in the northern part of Stafford County and, using the parish boundaries, established Prince William County in 1731. The following year, the Assembly separated the northern part of Hamilton Parish to form Truro Parish, which became Fairfax County in 1742 (Netherton et al. 1978).

Settlement was slow to get underway in the Northern Neck and only began in earnest during the first part of the eighteenth century. Treaties with the local Aboriginal tribes restricted early settlement along the Potomac Valley. A 1648 treaty, however, opened the region beyond the

James River Valley for colonization. Initial European settlement was sparse, and much of the initial landholding involved speculation rather than actual settlement. Nevertheless, people moved into the area and by the time Fairfax County was established it contained three Anglican churches, tobacco warehouses, small farms, and large plantations. In the northern part of the county, the settlement on Great Hunting Creek, later Alexandria, contained the houses of factors for Scottish merchants. The county economy was based on tobacco produced by enslaved Africans and tenant farmers (Netherton et al. 1978:11).

Tobacco emerged as the dominant staple of the Chesapeake region over the course of the colonial period, and it had profound influences on aspects of the economy, settlement, and society. The crop was the chief export of the region and sometimes served as a medium of exchange. The search for fresh land instigated European expansion up the Potomac Valley and contributed to the sparse settlement pattern because the tobacco cultivation required the accumulation of large land holdings so that new fields could be continuously opened (Carr 1987:5–6). After the initial tenants, who were placed there to secure patents, wealthy tobacco planters came to dominate the county, bringing with them slaves and indentured servants (Cooke et al. 2001:11; Meinig 1986:149; Netherton et al. 1978:22).

Life during the first years of settlement was difficult and characterized by harsh and rudimentary conditions. Documentary and archaeological evidence indicate early dwellings were small and insubstantial earthfast structures. These rough shelters housed settlers of all economic and social ranks. Larger, more durable and elaborate structures did not appear until well into the eighteenth century (Carr 1987; Wells 1987). Material culture was also basic, with the belongings of even the wealthiest Chesapeake residents being only as good as those owned by the lowest economic groups in England (Horn 1988). To sailors and new arrivals, the occupants of the region looked like Englishmen living in “dangerous and squalid exile” (Meinig 1986:150). As people adapted to conditions, though, greater economic and social stability emerged. These led to higher standards of living and increased social stratification. By the later seventeenth century, refined lifestyles (for some residents) based on land wealth, tobacco production, and slave labor had started to materialize (Carr 1987:21; Pogue 1993).

COLONY TO NATION (1750-1789)

By 1780, dispersed large estates and small farms typified the landscape and the general character of the region was rural. Trade was conducted through hundreds of collection points consisting of private landings or storehouses that served local areas (Meinig 1986:154–155). Regional market towns or focal points were rare and local capitals were busy only during political seasons. County seats, for example, often consisted of a court building with a few related structures sitting

alone at a crossroads. These locations only became busy when court was in session, times that were occasionally combined with markets or special social events (Netherton and Waldeck 1977:1).

Except for river travel, transportation was primitive through this era. Roads were underdeveloped, although Fairfax County residents did not require many because of their access to water transportation. As settlement spread inland, however, the road network developed, with roads extending from river landings and connecting churches and courthouses. As networks developed further, the roads often followed old Indian paths, animal trails, or other paths with less resistance, such as natural ridge crests. One of these, the Potomac Path, began as an Indian trail along the natural ridge between the Potomac and Rappahannock rivers. A branch of this road that ran closer to the Potomac to serve the plantations here later became part of the Potomac Path and was ultimately incorporated into U.S. Route 1 (Frisbee 1969:1; Netherton et al. 1978:20). In 1773, the road became an official postal route and its name changed to King's Highway. The road gained prominence during the American Revolution as a major route for American and French forces heading south toward Yorktown (Cooke et al. 2001:12).

One outcome of the American Revolution was the change in land ownership. Residents of Virginia were considered to be British subjects, and therefore enemy aliens had their personal property, including slaves, confiscated beginning in 1777. Land in the Northern Neck belonging to Fairfax family heirs was taken and given to American citizens who took possession of it upon obtaining a certificate from the Governor, completing a Northern Neck survey, and paying a small fee (Bryant and Sperling 2007:15).

ANTEBELLUM PERIOD (1789-1861)

In the last quarter of the eighteenth century, the county's economy began to transition from tobacco to wheat, rye, corn, and related processing activities (i.e., milling). This switch was a consequence of the tobacco fields becoming exhausted and increased duties on tobacco, with a simultaneous increase in the demand for wheat in England (Bryant and Sperling 2007:15). Market demand caused the Chesapeake to emerge as the pre-eminent wheat producer in the country during the first part of the nineteenth century and contributed to the growth of the port of Alexandria at this time (Cooke et al. 2001:13). Outmoded farming methods combined with general depletion of the soils led to an economic depression in the county during the early 1800s, however, and damage to Alexandria during the War of 1812 exacerbated the situation.

During a period of economic decline in the early nineteenth century, many northern Virginia residents migrated westward, leaving their farms to go fallow. An outcome of the sagging economy was an influx of northern farmers into northeastern Virginia who took over abandoned farms and introduced new agricultural practices, such as resting the soil, crop rotation, and deep plowing (Bryant and Sperling 2007:17; Cooke et al. 2001:15).

The project area was part of one such location, having been bought by a partnership of Quaker lumbermen from Philadelphia and neighboring New Jersey who later subdivided portions of it into farms of between about 50 and 200 acres and sold them to fellow Friends from the northeast. This practice gave rise to a community of Quakers and the establishment of the Woodlawn Friends Meetinghouse around 1853 (Frisbee 1969:1; Muir 1943). The town of Accotink, situated on King's Highway at the ford of Accotink Creek (southwest of Woodlawn Cemetery), became the business center for this community. The town served as a post village and had an official post office by 1853. The arrival of the Friends to the area led to improvements being made to the old gristmill here as well as the addition of a sawmill, stores, a blacksmith shop, and a carriage maker (Muir 1943:84–85).

After struggling through economic hardships early in the century, the county experienced an upswing in the late antebellum period along with rising population rates. Commercial fertilizers, growing urban markets, transportation upgrades, and agricultural diversification contributed to the improved circumstances (Cooke et al. 2001:15; Lowery 1973; Netherton et al. 1978; Rubin 1984:121). The region's society at this time was highly stratified on the basis of wealth, ethnicity, gender, and legal status (King 1994:238). The Quaker settlement was an exception, however. In addition to acquiring timber, the Troth-Gillingham Company had an interest in demonstrating to the local aristocracy the workability of farming the land with free labor. Land sales were thus made not only to northeastern Quakers, but also to Baptists from New England, such as John Mason who acquired the project site in 1850, as well as local families, including former slaves. Temperance was another point of interest to the community, and deeds to properties that the company sold included the proviso that no intoxicants could be sold from the properties (Frisbee 1969:4; Tuminaro 1998:21).

CIVIL WAR (1861-1865)

Because northerners, many of who were Quakers, heavily populated the area the Accotink district was overwhelmingly opposed to the Ordinance of Secession of 1861. When war broke out, many of the Union sympathizers evacuated. Those who remained faced various hardships. Paul Hillman Troth, one of the original members of the northern Quakers to arrive and buy land, was taken prisoner and sent to Richmond (Frisbee 1969:5). Although the two Battles of

Manassas were the only only major fighting in Fairfax County, the overall region was the scene of considerable disruption from both sides during the war. After the First Manassas, Confederate forces occupied various parts of the county, including the area around Accotink where forward troops were placed in defense of the main army in Manassas. In late 1861 and early 1862, Union troops were camped in the vicinity of the project site. Chalkley Gillingham, another of the first Quaker settlers, "entertained" three Union officers and two privates for dinner at his farm near Mount Vernon on New Year's Day 1862. He reported 15,000 Union infantry and cavalry camped within four miles of the farm and complained about the damage and mess they created at the Friends' meetinghouse, which they converted into their headquarters. Because of the proximity of the forces, there were frequent clashes in the county, and much of the military activity during the first years of the war involved troop movements, skirmishes, raids, and ambushes. In 1863 and 1864, operations turned mostly to guerilla warfare as Confederate forces engaged in hit and run attacks on Union supply and communication lines. Mosby's Virginia Rangers were the most well-known and successful of these groups (Mauro 2006).

RECONSTRUCTION AND GROWTH (1865-1917)

The war ended Virginia's economic recovery and overturned established social hierarchies. Fairfax County residents turned back to agriculture, producing dairy products, livestock, poultry, and flour as well as fruit, vegetables, and flowers, which were marketable in Washington D.C. Despite the potential market, the county's economy remained depressed through the 1870s. The Quaker community centered on Accotink and the meetinghouse just west of the study site prospered, however, and the meetinghouse was expanded during the 1860s to handle increased membership (Lautzenheiser and Hall 2007:17).

Additional local developments included the establishment of the Woodlawn Baptist Church Congregation and construction of the church building during the late 1860s and early 1870s. In 1850, New Hampshire-born John Mason had purchased the remaining acreage of the Woodlawn plantation and moved into the mansion with his family. His wife Rachel established a Baptist Sunday School there in 1859. A formal congregation based at the Woodlawn plantation was established in 1868. In 1869 the congregation was received into the body of the Potomac Baptist Association of the Southern Baptist Convention (Woodlawn Baptist Church 1968).

Also during this period, institutions oriented toward the many African-American farmers in the vicinity emerged. These included an African-American school, the Woodlawn Methodist Church and cemetery, and the Mount Vernon Enterprise Lodge of the Odd Fellows (Lautzenheiser and Hall 2007:17).

A significant political development was the establishment of the Fairfax County Board of Supervisors in 1870. The Board took over county property, which had been handled by the courts, as well as worked to pay off the county's debt, promoted agriculture, implemented plans to improve transportation, and established a county school system (Cooke et al. 2001; Netherton et al. 1978).

Transportation was also an important theme during the last part of the nineteenth century. Railroads had been established in the county during the 1850s, and improved travel and haulage within the county's interior as well as better economic conditions. By the 1870s, three rail companies operated lines within the county and were significant influences on economic development (Cooke et al. 2001:17). Later in the century, trolley lines enhanced commuter travel, although these did not greatly affect the areas further from the major cities. The project vicinity, like most of the county, remained rural until the twentieth century, and in some instances localities promoted themselves as healthful retreats from the nearby cities (Bryant and Sperling 2007:21, 24).

WORLD WAR I TO WORLD WAR II (1917-1945)

During the first part of the twentieth century, the county became proactive with respect to growth and development in an effort to attract Washington, D.C. residents. Taking advantage of access to electric rail lines, bus lines, and improved roads, land developers started building housing for middle-class residents. Despite these efforts, development did not extend very far into the Washington hinterland until after World War II (Bryant and Sperling 2007:24). The county's fortunes remained tied to agriculture, as it became a significant dairy producer. The dairy economy contributed to enhanced transportation as improvements were made to better serve Washington, D.C. markets (Cooke et al. 2001:17). The railroads remained viable transportation modes though the middle part of the century, but after World War II, they mostly ceased providing passenger service (Bryant and Sperling 2007:24).

U.S. Route 1 became more prominent during this period. As noted, this road began as an Indian path and later developed into a major post road and turnpike. Eventually, by the early twentieth century, it became part of the major north-south road along the east coast of the United States until Interstate 95 replaced it (Frisbee 1969:1).

An important event in the project vicinity during the early part of the twentieth century was the establishment of Ft. Belvoir. This military installation occupied the lands associated with Belvoir Manor, the eighteenth-century tobacco plantation of William Fairfax, which lay between Accotink and Dogue creeks. Fairfax was a cousin of Thomas, Sixth Lord Fairfax, who obtained the Northern Neck proprietary in the 1730s. The Belvoir manor house was destroyed in the

1780s and was never rebuilt. By the 1840s, the estate was essentially abandoned and came under the ownership of a German-born Quaker Philip Otterback, who developed some of the property for agriculture and let the remainder revert to forest. By the turn of the twentieth-century, the former Belvoir estate lands were generally undeveloped and rural. The Federal Government purchased 1,500 acres of the property for use as a children's reformatory in 1910, but local opposition caused the abandonment of this plan. The land was subsequently transferred to the War Department for use as an Engineer School, the original school being squeezed out of its original location in Washington, D.C., and named Camp Belvoir. When the U.S. entered World War I in 1917, the installation was renamed Camp Andrew A. Humphreys and expanded into a training cantonment for engineer soldiers. By 1918, the government obtained the remainder of the Belvoir estate. Following the First World War, the installation remained open as the permanent Army Engineer School. It was renamed Fort Humphreys in 1922 and then Fort Belvoir in 1935 (Price and Joseph 2007:9–11).

Following the First World War, the county's economic situation worsened, as prices on farm produce declined and prevented farmers from purchasing supplies and equipment. Moreover, the expansion of the Federal Government caused the county's cities to grow. County government turned its attention toward growth in urban centers and neglected the concerns of the farming community (Cooke et al. 2001:17–18).

Through the period leading to World War II, Fort Belvoir continued to develop. The Corps of Engineers Board there coordinated efforts to develop and test new forms of equipment and materials. In 1940, the Engineer Board obtained the Fort Belvoir Engineer Proving Ground, located about 1.5 miles northwest of the main installation, for testing landmines. This post was subsequently expanded for a variety of other programs (Price and Joseph 2007:11).

THE NEW DOMINION (1945-PRESENT)

After the Second World War, the county underwent substantial growth, doubling in population between 1940 and 1950. Nevertheless, nearly half the land in the county remained farmland through 1950, with development and change toward suburban land use intensifying afterwards. The county population nearly tripled in the decade leading up to 1960 (Bryant and Sperling 2007:29). Urban and suburban development expanded quickly, requiring new schools, libraries, paved streets, utilities, and other amenities. The growth of the District of Columbia and the county's emergence as one of its principal suburbs led to the extension of public transportation systems into the county. Ultimately, Fairfax County has grown into one of the most populous and affluent counties in Virginia (Cooke et al. 2001:17).

WOODLAWN PLANTATION

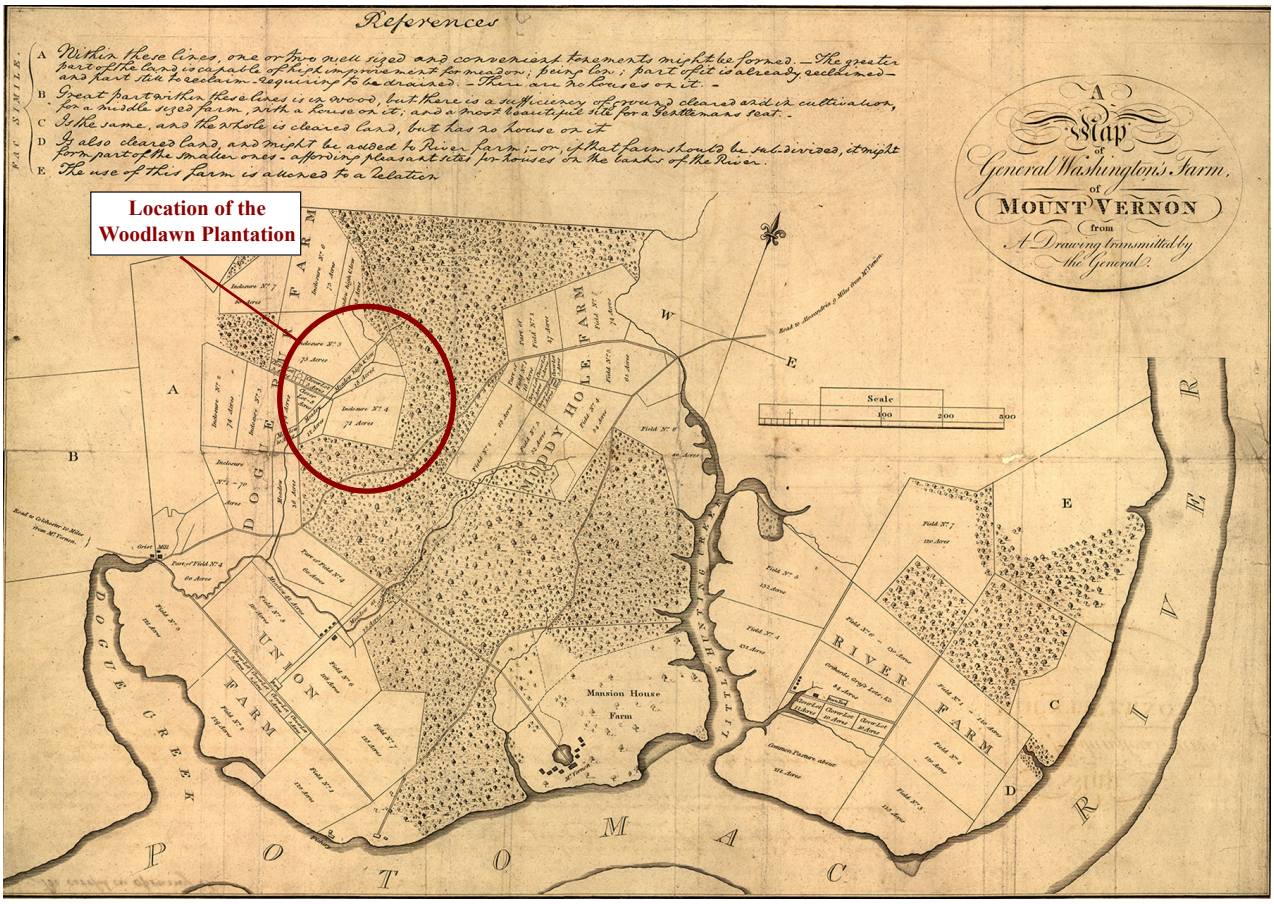
The land on which Woodlawn mansion sits was part of George Washington's vast Mount Vernon estate, which was divided into five farms during the eighteenth century: Mansion House, Union, Muddy Hole, Dogue Run, and River. Eleanor (Nelly) Custis Park and Lawrence Lewis, Washington's beloved adopted step-granddaughter and nephew, received nearly 2,000 acres of the expansive land holdings on which to construct their home. As early as 1793, Washington had already described the area denoted as "B" on a map of his property holdings as a "most beautiful site for a Gentleman's Seat" (Figure 2). The gift not only included the site atop cresting Gray's (often spelled "Grey's") Hill with a view looking toward Washington's own home at Mount Vernon but also included his circa 1771-constructed mill and distillery on Dogue Creek.

Dr. William Thornton, the first architect of the United States Capitol, designed the Palladian-plan, five-part mansion and its dependencies, which was constructed between 1800 and 1805. A beam in the Woodlawn attic reading "September 9, 1805," indicates the presumed date of completion (Frisbee 1969:4). The mansion design includes a prominent central block with flanking wings and connecting hyphens. The immense parcel originally held many outbuildings, including slave quarters, barns, and other secondary buildings and structures located throughout the roughly 2,000 acres. A bower, dairy, garden, icehouse, two necessities, and a smokehouse were all constructed in close proximity to the mansion, situated in an arc along each side.

Unlike Washington's Mount Vernon, Woodlawn was never a truly successful plantation but did produce wheat, corn, and some tobacco (Mayer 1981). The amount of responsibility associated with owning and managing the great expanse of land proved to be a burden to Lawrence and Nelly Lewis. Woodlawn suffered both agriculturally and economically (Frisbee 1969:4). Its fields could not produce enough crops to support the lifestyle of the Lewis family and sustain the plantation population, which included many slaves. However, Lewis reportedly raised crops, held cattle, and bred blooded horses on the property (Gutek and Gutek 1996:365). In efforts to make Woodlawn an income-producing property, Lewis eventually grew hay as the primary product of the plantation and, along with his brother-in-law, George Washington Parke Custis, was one of the first Virginia planters to raise Marino Sheep (Wrenn 1974). Struggling crops eventually led Lewis to provide food for Woodlawn's population from crops at his plantation in Clarke County, Audley (Tuminaro 1998:21).

Around 1845, Chalkley Gillingham and other Quakers of Pennsylvania and New Jersey began searching for a plot on which to establish "a settlement of individuals alike in habits and sentiments" (Gillingham 1871). The following year, an advertisement for the sale of Woodlawn

Figure 2.
A Map of General Washington's Farm of Mount Vernon from a Drawing Transmitted by the General, Surveyed 1793, Printed 1801



Courtesy: Library of Congress

by Lorenzo Lewis, son of Nelly and Lawrence, described the acreage, which included "…more than one thousand acres of which are woods, with a quantity of fine ship timber, tanners bark &c…" (White 1846). Correspondence between state officials and a physician, combined with visits to Virginia by representatives of the Quaker group, solidified their interest in the property inherited by Lorenzo Lewis. According to a later account by Gillingham, "…we were so much pleased with the property, its location, timber, water-power, and other capabilities for a permanent settlement…" (Gillingham 1871).

The primary aim of the northern, abolitionist Quakers was to establish a group of small farms of 50-200 acres, with tracts sold to both free African Americans and white settlers, that would successfully operate using only free labor in a slave-holding state. After purchasing the whole of Woodlawn in the late 1840s, the Troth-Gillingham Company began a lumber-supply operation on the property. Members of the company included Chalkley Gillingham, Jacob Troth, Lucas Gillingham, and Paul Hillman Troth. The company shipped and sold cordwood in Washington and Philadelphia, and shipbuilding lumber to builders in Bath, Maine, Portsmouth, Virginia, Baltimore, Philadelphia, and areas throughout New England (Catlin 2009; Troth n.d.:3). The company also designed boats, including the "Mary Washington," built in 1874, and operated a mill at nearby Accotink. The successful timber operation kept the land affordable and prepared tracts for subdivision and farming opportunities (Catlin 2009:12).

The Gillinghams, Troths, and other Quakers divided the property into small farms, and sold lands from the parcel to many free African Americans, including members of the Holland and Quander families. Some such purchasers, like William H. Holland, were former slaves of the Washingtons who were set free in 1801 by Martha Washington just prior to her death. The white Quakers, as well as the soon-to-follow white Baptist settlers, were proponents of land ownership and economic independence by African Americans, both in the Woodlawn vicinity and in nearby Gum Springs, a free black community founded by West Ford. Aid from the Woodlawn-area settlers was vital to many, as freed slaves often struggled to reach economic stability, particularly during the years prior to the Civil War (Catlin 2009:13; Gum Springs Historical Society 2005; History in Motion 1996).

The mansion at Woodlawn served as the first meetinghouse, gathering place, and temporary boarding house for newly arrived Quakers, whose numbers quickly grew following the initial purchase by the Troths and Gillinghams. Soon, more than 40 Quaker families purchased tracts at Woodlawn and in the vicinity and relocated from northern states to Fairfax County (Netherton et al. 1978:259). In 1850, John Mason, a Baptist abolitionist with ties to the northern Quakers, began purchasing land at Woodlawn, which included the mansion itself. While many of the tracts sold by Quaker settlers were less than 200 acres, the Masons purchased 546.3 acres from

Paul and Hannah Troth on April 9, 1850 (Fairfax County Courthouse, Fairfax, Virginia (FCC) 1850: Deed Book [DB] O-3:361). The Mason's purchase of the property meant the mansion's return to use as a private home. The Quakers relocated their meeting to the miller's house at Washington's Gristmill, then to a log addition to the home of fellow Friend Thomas Wright, and finally to a newly constructed meetinghouse located west of the mansion at Woodlawn (Catlin 2009:9).

The Masons, like the Quakers before them, proved to be successful cultivators of the land. By 1860, their acreage was producing 40 bushels of wheat, 1,000 bushels of Indian corn, 300 bushels of Irish potatoes, 160 pounds of butter, and 30 tons of hay. Livestock worth $1,000 included five horses, four asses or mules, 26 milk cows, 3 other cattle, and 20 hogs (U.S. Census Bureau 1860).

John and Rachel Mason began dividing portions of their Woodlawn tract among their children in the 1860s (Fairfax County Deed Books). During this time, Woodlawn was a frequent site for the monthly Woodlawn Farmers' Club or Woodlawn Agricultural Society, which was established in 1866 following a strained period of agricultural production during the Civil War (Gillingham 1876:40).

By 1870, the Masons had 310 acres that included the mansion. The land continued to produce, and 100 bushels of oats were also described in the farm's yields. At that time, Mason's improved land totaled 170 acres, while unimproved "wood-land" covered 40 acres (U.S. Census Bureau 1870). The Masons' property held 100 acres of improved land and 40 acres of unimproved land by 1880, which included 35 acres of mowed grass. By that date, Mason's crops did not vary much from previous years; however, apple and peach orchards are also reported during this period. Additionally, Mason also reported 40 sheep fleeces weighing 200 pounds (U.S. Census Bureau 1880).

After John and Rachel Mason passed away in 1888 and 1889, respectively, and were buried in the cemetery of Woodlawn Baptist Church, Woodlawn Mansion and the Mason acreage were left to the Mason heirs. As Mason heirs all had primary homes elsewhere, the property was sold to Griffith E. Abbott and others of The Land and River Improvement Company of New Alexandria (FCC 1888; DB N-5:517; 1889 DB H-6:172). Among the various ambitions of the group included redeveloping the Woodlawn property for use as a trolley stop and the house as a memorial to the Lewises (Wrenn 1972:30). Preservation of the mansion was important to the Masons and contributed to the sale of the property to an organization with such goals (Tuminaro 1998:23).

However, following a destructive cyclone on September 29 and 30, 1896 and financial issues associated with the development group, Woodlawn Mansion fell into disrepair. The cyclone uprooted several trees on the property and only minor repairs were made to the house before the 65.6-acre property was sold to New York City playwright Paul Kester in 1901 (Wrenn 1972:30; FCC 1896; DB H-6:283). Kester's purchase likely rescued the mansion from possible demolition by neglect. Kester, his brother Vaughn, their mother, and 60 cats resided at Woodlawn for only four years. However, Kester and his brother were quick to stabilize, repair, enhance, and preserve the mansion and its immediate grounds.

The Kesters not only repaired and preserved Woodlawn mansion, but also reacquired more of the acreage originally associated with the Lewis plantation. In 1902, Paul Kester bought 61 acres belonging to John and Rachel Mason's son, Otis T. Mason, an anthropologist living in Washington, DC. The procurement brought the total area of the Woodlawn property to 126.6 acres, a tract much smaller than the Lewis plantation, but nonetheless vital to the preservation of the mansion's originally intended view shed (FCC 1902: DB L-6:379).

In 1905, Paul Kester sold both tracts to Elizabeth M. Sharpe, a coal heiress from Princeton, New Jersey (FCC 1905: DB R-6:594). Just two months after purchasing the parcels from Kester, Sharpe bought adjacent acreage from the Troth family, bringing her holdings to 139.49 acres (FCC 1905: DB S-6:226). This tract included Grand View, a home constructed by Quaker settler Joseph Cox in 1869.

A frequent traveller, Sharpe was only a sometime resident of Woodlawn. Despite her frequent absence from the property, however, Sharpe continued the preservation efforts the Kesters began at Woodlawn. Hoping to accurately restore the mansion at Woodlawn, Sharpe hired two distinguished Washington, DC architects well-versed in designing in the Colonial Revival style: Edward W. Donn, Jr. and Waddy Wood. The long-term restoration project cost Sharpe more than $100,000 and spanned her 20-year ownership of Woodlawn (Wrenn 1972:31). Sharpe also had a complex of barns constructed on the southern tract of her property around 1913.

While visiting Boston in 1924, Sharpe succumbed to pneumonia and was buried in a family cemetery in Wilkes-Barre, Pennsylvania. Heirs to Woodlawn sold part of her acreage the following year to Senator Oscar Wilder and Bertha W. Underwood of Birmingham, Alabama (FCC 1924: DB M-9:356). As the last private owners of Woodlawn, the Underwoods continued the restoration work at Woodlawn begun by Elizabeth Sharpe. Like the Kesters and Sharpe, the Underwoods focused on preserving the main block of the house, while substantial alterations were reserved for the wings and hyphens. Again, Waddy Wood was hired, and completed work on the south hyphen and dining room for the Underwoods. Wood's work was completed in the Colonial Revival style; thus, his changes complemented the building's original Georgian design

elements. Senator Underwood passed away at Woodlawn in early 1929 after suffering a stroke in late 1928. Bertha Underwood lived at Woodlawn Mansion off and on until 1935, when she rented the property to Secretary of War and Mrs. Harry W. Woodring for two years.

Bertha Underwood made Woodlawn her permanent residence again in 1937, and remained a regular resident at the mansion until her death in 1948 (Wrenn 1972:31). While Bertha Underwood did not pass away until October 28, 1948, she did so while in a hospital in Philadelphia (*Pottstown Mercury* 1948). By the previous August, the guardians of Underwood's estate were making arrangements for the sale of Woodlawn. On August 18, 1948, Judge Paul Brown of the Fairfax County Circuit Court tentatively approved the sale of Woodlawn by the guardians of Bertha Underwood's estate to the Immaculate Heart of Mary, Inc. for $170,000. The Belgian missionary order intended to use Woodlawn as both a boys' school and as the worldwide headquarters for the order. In quick response, the Woodlawn Public Foundation, Inc. formed on September 3, 1948 under the leadership of Armistead Rood and George Maurice Morris and filed a petition requesting that the August 18 decree by Judge Brown be stayed until December 31, 1948. Before that date, the newly formed Foundation would "make an alternative offer to buy Woodlawn for devotion of the entire American people as a part of their national historic heritage" (Morris 1948; Tuminaro 1998:26).

Aided by the newly formed National Council of Historic Sites and Buildings and public pleas for monetary donations, the Woodlawn Public Foundation gained the deed to Woodlawn in February of 1949 (FCC 1949: DB 699:135). By April of that year, the property opened to visitors (Tuminaro 2001). The Foundation operated the property with the support of Paul Mellon until 1951, when it leased Woodlawn to the National Trust for Historic Preservation (NTHP) for a 50-year term (FCC 1951: DB 897:451; Tuminaro 1998:28).

As part of the grounds restoration stipulation in its lease of the property, the NTHP continued the work of preserving and enhancing the landscape at Woodlawn by seeking the guidance of the Garden Club of Virginia beginning in 1951. Alden Hopkins, landscape architect for Colonial Williamsburg, was hired by the Garden Club charged with the task and, with little documentary evidence of the grounds, set forth to restore the nineteenth-century gardens. While Hopkins had access to letters written by both Nelly Custis Parke Lewis and her daughter, Angela Lewis, that reflect the life of a passionate gardener and describe some plants at Woodlawn, no plans or maps from the Lewis period remain. Nelly's garden was located west of the mansion, on lands now partly occupied by Fort Belvoir. Before this area was redeveloped by Fort Belvoir, Alden Hopkins visited the site and recalled daffodils in rows and hollies at the corners of the pasture. Though only minor indications, these layouts suggested a formal garden with an axial relationship to the Mansion.

Though correspondence and recollections were available to Hopkins, a full and true restoration was not possible and much of his design was thus inspired by garden restorations at Mount Vernon and Tudor Place in Washington, DC, which was also designed by Dr. William Thornton (Johnson 1954). Assisted by Woodlawn curator, Worth Bailey, and the archaeologist at Colonial Williamsburg, James Knight, Hopkins also conducted minor archaeological testing at Woodlawn to guide his designs, which included formal parterres and a serpentine walk as well as an added summer house or gazebo (Webster 2004).

Hopkins noted that serpentine walks were in style when Woodlawn was constructed. A serpentine walk surrounded the bowling green at Mount Vernon, and in 1808 Thomas Jefferson had a serpentine walk at Monticello. Most of Hopkins' plan was implemented, though his goal of removing the Underwood Garden did not come to fruition. Additionally, four turf panels were installed in the formal garden in place of his originally planned planting beds (Webster 2004:11) (Webster 2004:11).

Following Hopkins' and subsequent designs by other landscape architects, orchard paths and a kitchen garden were added to the grounds alongside the extant gardens in the 1960s and 1970s. The exact locations and layouts of the original kitchen gardens, herb gardens, or orchards remains unknown to date, though both Nelly and her daughter, Angela often referred to herbs and vegetables obtained from such during the early nineteenth century (Webster 2004:12). In order to minimize the visual and audible impact of four-lane Route 1, groups of trees and native shrubs were eventually planted at the base of the hill to serve as a natural, inconspicuous buffer (Tuminaro 1998:12).

In 2011, much of Hopkins' formal garden design was repurposed for use as a small farm. A brick path installed as part of the Hopkins plan divides small fields now used by Arcadia Farm to grow vegetables. The brick path leads to the Hopkins-designed summerhouse, or gazebo, and parterre designs closest to Woodlawn Mansion remain faintly visible. The dual-arm drives leading from the paved main driveway of Woodlawn to the Mansion are intact, as is Hopkins' serpentine walk.

IV. METHODS

The current study included several tasks that required multiple methods, including background research, ground-penetrating radar (GPR), systematic metal detecting, limited shovel testing, and formal unit excavation.

BACKGROUND RESEARCH

Background research was conducted at the Virginia Department of Historic Resources (VDHR) in Richmond and with the V-CRIS system. Existing reports and site files were reviewed to identify the scope and scale of previous investigations at Woodlawn Plantation and its immediate vicinity. Additional information was collected from the National Trust archives and the National Register. New South Associates has an extensive database of information on other aspects of Woodlawn's history, including landscape and architectural development prepared for other tasks associated with the present study.

GROUND-PENETRATING RADAR (GPR)

GPR survey was conducted in locations where Chicora Foundation had recommended further archaeological investigations at Woodlawn Plantation. These included:

- Locate a possible privy in the area northeast of the main house;
- Locate garden house northeast of the main house;
- Locate the brick wall identified by R.P.L. Frick during monitoring of a water line;
- Examine the area southwest of the main house to locate the servants quarters; and
- Determine if there is a structure on the southwest edge of the property as reported by Edward Flanagan.

GPR is a remote sensing technique frequently used by archaeologists to investigate a wide range of research questions. In archaeological applications, GPR is used to prospect for potential subsurface features. Because GPR is a remote sensing technique, it is non-invasive, non-destructive, relatively quick, efficient, and highly accurate when used in appropriate situations.

The use of GPR for identifying potential archaeological features is based on the concept of contrast, which may include differences in physical, electrical, or chemical properties between an object and its surrounding matrix . Not surprisingly, greater contrast generally equates to better detection and resolution.

GPR data are acquired by transmitting pulses of radar energy into the ground from a surface antenna, reflecting the energy off buried objects, features, or bedding contacts, and then detecting the reflected waves back at the ground surface with a receiving antenna (Conyers 2004b:1). When collecting radar reflection data, surface radar antennas are moved along the ground in transects, typically within a surveyed grid, and a large number of subsurface reflections are collected along each line. As radar energy moves through various materials, the velocity of the waves will change depending on the physical and chemical properties of the material through which they are traveling (Conyers and Lucius 1996). The greater the contrast in electrical and magnetic properties between two materials at an interface, the stronger the reflected signal, and, therefore, the greater the amplitude of reflected waves (Conyers 2004a).

When travel times of energy pulses are measured, and their velocity through the ground is known, distance (or depth in the ground) can be accurately measured (Conyers and Lucius 1996). Each time a radar pulse traverses a material with a different composition or water saturation, the velocity will change and a portion of the radar energy will reflect back to the surface and be recorded. The remaining energy will continue to pass into the ground to be further reflected, until it finally dissipates with depth.

The depths to which radar energy can penetrate, and the amount of resolution that can be expected in the subsurface, are partially controlled by the frequency (and therefore the wavelength) of the radar energy transmitted (Conyers 2004a). Standard GPR antennas propagate radar energy that varies in frequency from about 10 megahertz (MHz) to 1000 MHz. Low frequency antennas (10-120 MHz) generate long wavelength radar energy that can penetrate up to 50 meters in certain conditions but are capable of resolving only very large buried features. In contrast, the maximum depth of penetration of a 900 MHz antenna is about one meter or less in typical materials, but its generated reflections can resolve features with a maximum dimension of a few centimeters. A trade-off therefore exists between depth of penetration and subsurface resolution.

The success of GPR surveys in archaeology is largely dependent on soil and sediment mineralogy, ground moisture, subsurface material moisture retention, the depth of buried features, and surface topography and vegetation. Electrically conductive or highly magnetic materials will quickly attenuate radar energy and prevent its transmission to depth. Depth

penetration varies considerably depending on local conditions. Subsurface materials that absorb and retain large amounts of water can effect GPR depth penetration because of their low relative dielectric permittivity (RDP). In practical applications, this generally results in shallower than normal depth penetration because the radar signal is absorbed (attenuated) by the materials regardless of antenna frequency (Conyers 2004b; 2012; Conyers and Lucius 1996). Differential water retention can also positively affect data when a material of interest, such as a burial, retains more water than the surrounding soils and, therefore, presents a greater contrast.

The basic configuration for a GPR survey consists of an antenna (with both a transmitter and receiver), a harness or cart, and a wheel for calibrating distance. The operator then pulls or pushes the antenna across the ground surface systematically (a grid) collecting data along transects (Figure 3). These data are then stored by the receiver and available for later processing.

The "time window" within which data were gathered was 36 nanoseconds (ns). This is the time during which the system is "listening" for returning reflections from within the ground. The greater the time window, the deeper the system can potentially record reflections. To convert time in nanoseconds to depth, it is necessary to determine the elapsed time it takes the radar energy to be transmitted, reflected, and recorded back at the surface by doing a velocity test. Hyperbolas were found on reflection profiles and measured to yield a relative dielectric permittivity (RDP), which is a way to calculate velocity. The shape of hyperbolas generated in programs is a function of the speed at which electromagnetic energy moves in the ground, and can therefore be used to calculate velocity (Conyers and Lucius 1996). An RDP value of 9.4 was calculated based on velocity analysis. All profiles and processed maps were converted from time in nanoseconds (ns) to depth in centimeters using this average velocity.

GPR FIELD METHODS

The field survey was conducted using a GSSI SIR-3000 using a 400 MHz antenna over selected portions of the study area (Table 1, Figure 4). GPR data were collected in seven different grids covering a total area of approximately 5,195 square meters (1.3 ac.). It is generally standard practice to orient transects perpendicular to the long axis of suspected features (when known). In this case data were collected in the Y-direction. Transect spacing was 50 centimeters, an interval that has been demonstrated to generate the best resolution possible (Pomfret 2005). Transects were collected in a zig-zag pattern, alternating starting direction, along the Y-axis (north-south) and starting in the southwest grid corner.

Figure 3.
GPR Survey in Progress

Figure 4.
Map Showing GPR Grids

Source: Microsoft Imagery 2002

Table 1. GPR Survey Grids

Grid	Direction	Acres	Square Meters
GPR 1	Y-Direction	0.2313	936
GPR 2	Y-Direction	0.2152	871
GPR 6	Y-Direction	0.1038	420
GPR 3	Y-Direction	0.0712	288
GPR 4	Y-Direction	0.1433	580
GPR 7	X-direction	0.2780	1,125
GPR 5	X-direction	0.2409	975
Total		1.2837	5,195

Prior to data collection, it was first necessary to establish a grid. This was accomplished using metric measuring tapes. Survey flags and stakes were used to mark each grid corner. Grid corners were mapped using a Trimble GPS unit. Large galvanized spikes were pounded flush with the ground in the two grid corners closest to the existing courthouse.

The antenna was calibrated to local conditions by walking the survey area and adjusting the instrument's gain settings. This method allows the user to get an average set of readings based on subtle changes in the RDP (Conyers 2004a). Field calibration was repeated as necessary to account for changes in soil and/or moisture conditions (Conyers 2004b). Effective depth penetration was approximately 2.5 meters (6-7 ft.). This is excellent depth penetration for a 400 MHz antenna, very slight signal attenuation occurred at the bottom of the profile.

GPR DATA PROCESSING

All data were downloaded from the control unit to a laptop computer for post-processing. Radar signals are initially recorded by their strength and the elapsed time between their transmission and receipt by the antenna. Therefore, the first task in the data processing was to set "time zero", which tells the software where in the profile the true ground surface was. This is critical to getting accurate results when elapsed time is converted to target depth. A background filter was applied to the data, which removes the horizontal banding that can result from antenna energy "ringing" and outside frequencies such as cell phones and radio towers. Background noise can make it difficult to visually interpret reflections. Hyperbolic reflections are generated from the way the radar energy reflects off point targets. In cemeteries, graves are often visible as hyperbolic reflections.

The next data processing step involved the generation of amplitude slice-maps (Conyers 2004a). Amplitude slice-maps are a three-dimensional tool for viewing differences in reflected amplitudes across a given surface at various depths. Reflected radar amplitudes are of interest

because they measure the degree of physical and chemical differences in the buried materials. Strong, or high amplitude reflections often indicate denser (or different) buried materials. Such reflections can be generated at pockets of air, such as within collapsed graves, or from slumping sediments. Amplitude slice-maps are generated through comparison of reflected amplitudes between the reflections recorded in vertical profiles. Amplitude variations, recorded as digital values, are analyzed at each location in a grid of many profiles where there is a reflection recorded. The amplitudes of all reflection traces are compared to the amplitudes of all nearby traces along each profile. This database can then be "sliced" horizontally and displayed to show the variation in reflection amplitudes at a sequence of depths in the ground. The result is a map that shows amplitudes in plan view, but also with depth.

Slicing of the data was done using the mapping program *Surfer 8*. Slice maps are a series of x,y,z values, with x (east) and y (north) representing the horizontal location on the surface within each grid and z representing the amplitude of the reflected waves. All data were interpolated using the Inverse Distance Weighted method and then image maps were generated from the resulting files.

From the original .dzt files (raw reflection data), a series of image files was created for cross-referencing to the amplitude slice maps that were produced. Two-dimensional reflection profiles were also analyzed to determine the nature of the features identified on the amplitude slice maps. The reflection profiles show the geometry of the reflections, which can lend insight into whether the radar energy is reflecting from a flat layer (seen as a distinct band on profile) or a single object (seen as a hyperbola in profile). Individual profile analysis was used in conjunction with amplitude slice maps to provide stronger interpretations about possible graves.

The final step in the data processing is to integrate the depth slices with other spatial data. This was done using ArcGIS 10, which can display and manipulate all forms of spatial data created for this project, including GPR results, GPS data, and base graphics such as aerial photography and topographic maps. The resulting anomalies were digitized as individual features and referenced to the arbitrary coordinate system.

SYSTEMATIC METAL DETECTING

Systematic metal detecting was conducted in select areas as outlined above and based on GPR results. New South used high quality metal detectors, including a Fisher ArchTech, Fisher ArchPro, and Teknetics G2. The Fisher ArchTech and ArchPro models are new to the market and have been designed specifically for archaeologists. Garrett pinpointers were used for further target refinement.

Metal detector sweeps were approximately 1.5 meters wide. As the metal detectorists located a potential target, it was marked with a nylon-shaft pin-flag and then excavated. Pinpointers were used to identify small targets. This helped each operator develop a feel for and understanding of the types of artifacts and their associated signals, and also saved time. If the item was historic, it was assigned a Metal Detector Find (MDF) number, and the flag and bag were marked accordingly. If a modern target was recovered, the flag was pulled and the item was replaced in the ground. Iron (ferrous) artifacts were not collected because of their high frequencies and the desire to find more diagnostic items.

EXCAVATIONS

Archaeological investigations consisted of judgmental shovel testing and the excavation of a single formal test unit. Shovel tests measured approximately 30 centimeters in diameter and were excavated at least 10 centimeters into the subsoil or sterile soil. All sediments were screened through 0.25-inch mesh hardware cloth. Shovel test locations were recorded with sub-meter GPS for accurate placement.

The formal test unit was excavated in 10-centimeter levels. At least one profile was drawn and photographed. All information was recorded on individual level forms. Artifacts were collected by provenience and labeled accordingly.

LABORATORY ANALYSIS

Artifacts recovered from the current study were taken to New South Associates' laboratory in Stone Mountain, Georgia, where they were washed, catalogued, and analyzed. Analysis of historic artifacts was based on methods outlined by South (1977) for pattern analysis. Although South's system was intended for Colonial-era British sites it was been widely adopted and modified for use on other historic sites. For purposes of this project artifacts were classified only as a way to organize the data into meaningful analytic units and to provide consistency with previous studies. Other analytical schemes were also used to supplement this information (Orser et al. 1987). Basic classification followed the sorting of individual artifacts into functional groups. Functional groups used in the current analysis included Kitchen (ceramics, glasswares, cooking utensils, medicinal containers, etc.), Architecture (brick, mortar, stone, nails, window glass, construction hardware, roofing material, etc.), Furniture (knobs, pulls, bed parts, etc), Arms (rifle parts, bullets, shotgun shells, cartridges, etc.), Clothing (buttons, snaps, buckles, pins, beads, etc.), Personal (coins, keys, combs, eyeglasses, etc.), Activities (farm tools, toys, fishing gear, etc), and Miscellaneous (unidentified metal, etc.).

Artifacts were also identified by material type, function, and presumed date range following well-known sources such as Noel-Hume (1970), Miller (2000) and Toulouse (2001). New South Associates has an extensive database of historic artifacts. Specific attention was paid to establishing the chronological framework for historic sites by providing date ranges for all artifacts to the best extent possible. In most cases, the historic assemblages were too small to provide reliable data for mean ceramic dates (MCD) or terminus post quem (TPQ) dates.

Historic Ceramics were classified according to well-established types (e.g., creamware, pearlware, whiteware, etc). Most of these have established date ranges that often provide good information about site occupation and use. It must be remembered that the dates for ceramics at a particular site may be highly variable depending on whether or not it was in an urban or rural setting and how much access individuals had to markets.

Creamware is a refined earthenware covered with a thin lead glaze. It was a common type during the late eighteenth century and exported in large quantities from the Wedgewood factory in Britain. It was designed as an inexpensive alternative to Chinese export porcelain. A wide variety of decorations have been noted, including hand painting, transfer printing, slipwares, and feathered and shell-edged rim designs. Approximate date ranges for this type are 1762 to the 1820s (Miller 1991).

Pearlware was introduced by the Wedgewood factory in 1779 as an alternative to creamware (Majewski and O'Brien 1987; Miller 1987; 1991). Its bluish glaze typically identifies it. Decorations were similar to those used on creamware. Approximate date ranges for this type are 1779 to the 1830s.

Whiteware is a general term for a range of refined earthenwares that emerged in Britain around 1820. Variations of this type were manufactured throughout the nineteenth and twentieth centuries, making its usefulness as a dating tool problematic in the absence of other artifact types. Specific design elements have more temporal sensitivity, with decal and transfer printing popular at different times in the nineteenth century. Makers' marks became common on whiteware and are important for dating sites.

Ironstone is a term that generally applies to the paste of ceramics between earthenware and porcelain (Majewski and O'Brien 1987). This type became popular as tableware for both individual and institutional use, particularly restaurants and hotels. Decorated ironstone was more common in the late nineteenth century and plain types dominated into the twentieth century. Ironstone appeared as early as the mid-nineteenth century and continued into modern times.

Porcelain is a highly vitreous white-bodied ware (Ketchum 1983; Majewski and O'Brien 1987). It has an extensive date range depending on its manufacture's origin. Early porcelain was developed and manufactured in China, but was expensive to acquire. By the later nineteenth century, American and British manufacturers dominated the domestic markets with less expensive alternatives.

Redware is an unrefined type with or without a lead glaze that was often used for tablewares and other utilitarian items (South 1999). The production of redwares by Moravian potters and others in the mid-Atlantic region in the eighteenth and nineteenth centuries is well known (Bivins 1972).

Stoneware generally refers to a dense, hard-bodied ceramic fired at very high temperatures. It was common throughout the United States in the eighteenth and nineteenth centuries for utilitarian purposes in the forms of crocks, jugs, and jars. Salt glazing was a common exterior finish. It was added to the kiln during the firing process and vaporized in response to the intense heat. Interiors were generally finished with slips. Other forms, such as Albany slip and alkaline glaze, were common in the south during the late nineteenth century.

Ceramic vessels in archaeological assemblages may have been imported from foreign sources, particularly in the Colonial period, or from local sources beginning in the mid-nineteenth century. Additional materials such as brick and tile were also manufactured locally.

Container glass was used for a variety of forms and windowpanes (Lorrain 1968). Early forms of glass were blown by hand and were relatively expensive to produce and transport (Miller and Sullivan 1984). By the mid-nineteenth century manufacturing improvements led to higher output and less expensive options. Container glass forms depend on the vessel type, manufacturing method, decorations and labeling, and color. Bottles were available in a range of styles and for different purposes (Munsey 1970). Amethyst glass (solarized) is common on many historic sites and is the product of manganese minerals in the glass reacting to sunlight. Container glass is amenable to dating based on changes in style, function, and technology (Baugher-Perlin 1982; Stell 1970).

Nails are important stylistic and chronological indicators (Edwards and Wells 1993; Jurney 1987; Nelson 1968; Wells 1998). Hand-forged nails were manufactured exclusively until the end of the eighteenth century. Cut nails (machine made) were introduced at that time and quickly spread in popularity because they were mass produced and relatively inexpensive (Nelson 1968). Wire nails appeared during the 1850s but did not replace cut nails entirely until the 1890s. Nails are important artifacts for assessing chronological placement of archaeological sites. Morphologically, they can be distinguished based on their shafts, cross sections, tapers, and to a certain extent, their heads (Wells 1998).

Bricks are common features on historic sites in the region. Archaeologically, they are typically associated with chimneys and often occur in highly fragmented forms, perhaps a result of material salvage and recycling (Steen 2008)(Steen 2008). Prior to the mid-nineteenth century brick-making was done by hand using a process involving forms, molds, and firing in brick clamps (Howe et al. 1997). Machine-made bricks appeared at that time and quickly gained popularity.

CURATION

Artifacts recovered from Woodlawn will be returned to the National Trust for long-term curation. A full inventory of the recovered cultural material is presented in Appendix A.

V. PREVIOUS RESEARCH

ARCHAEOLOGICAL INVESTIGATIONS

Woodlawn Plantation and its immediate vicinity have been subjected to a moderate number of archaeological investigations that began in the 1950s (Table 2). Work completed prior to 2000 was summarized in detail by Trinkley (2000). Much of the early work (1950s) consists of brief letter reports that are on file at Woodlawn Plantation. None of these have any detailed mapping showing the locations of specific investigations and/or features. A brief summary of that research is presented here and more discussion is provided for those reports that relate directly site locations on Woodlawn Plantation.

Table 2. Summary of Previous Archaeological Investigations

VDHR Ref. Number	Year	Author	Title
	(1952a)	Frick, R.P.L.	April-May Report to National Trust, Ms. on file, Woodlawn Plantation, Mount Vernon, Virginia
	(1952b)	Frick, R.P.L.	June Report to National Trust, Ms. on file, Woodlawn Plantation, Mount Vernon, Virginia
	(1952c)	Frick, R.P.L.	July Report to National Trust, Ms. on file, Woodlawn Plantation, Mount Vernon, Virginia
	(1952d)	Frick, R.P.L.	December Report to National Trust, Ms. on file, Woodlawn Plantation, Mount Vernon, Virginia
	(1953)	Frick, R.P.L.	March Report to National Trust, Ms. on file, Woodlawn Plantation, Mount Vernon, Virginia
	(1960)	Hopkins, Aldin	The Woodlawn Garden Restorations. The Garden Club of Virginia Journal, September-October 8-10
	(1968)	Ellesin, Dorthy Elaine	Woodlawn Plantation. Unpublished M.A. Thesis, University of Delaware
	(1971)	National Trust for Historic Preservation	Woodlawn Plantation: A Property of the National Trust for Historic Preservation. National Trust for Historic Preservation.
FX-175	(1981)	Wehner, Nowysz, Pattschull & Pfiffner Architects	Woodlawn Comprehensive Development Plan: Landscape Components
	(1982)	Wilson, Rex L.	Archaeological Testing at Woodlawn. Memo to George Smith, Director, Woodlawn, dated July 22
	(1983)	Lewis, Lynne G.	Woodlawn Archaeological Reconnaissance. Ms. On file, Woodlawn Plantation, National Trust for Historic Preservation

Table 2. Summary of Previous Archaeological Investigations

VDHR Ref. Number	Year	Author	Title
FX-085	(1985)	Flanagan, Edward J.	Woodlawn Plantation, Mt. Vernon, Virginia Archaeological Reconnaissance Survey
	(1987)	Lewis, Lynne G. and Scott K. Parker	Woodlawn/Pope-Leighey House Archaeology, 17-18 August 1987, 26-30 October 1987. National Trust for Historic Preservation
	(1992)	Knock, Patricia Ilura	Report on Research Year 1992. Ms. In files, Woodlawn Plantation, Mount Vernon Virginia
	(1997)	Lewis, Lynne G.	May it Rest in Peace: Archaeological Survey and Monitoring of the Final New Site of the Pope-Leighey House, Mount Vernon, Virginia. Monograph Series 12.
	(2000)	Trinkley	Archaeological Survey of the Woodlawn Plantation, Fairfax County, Virginia
FX-323	(2002)	Wells	An Early American Context for Woodlawn Plantation, Fairfax County, Virginia
	(2007)	Lautzenheiser, Loretta and Bill W. Hall	Phase I Archaeological Survey, Old Mill Road Connector and Proposed Property Transfer of Fort Belvoir Land Between Woodlawn Friends Meetinghouse and Woodlawn Plantation, Fairfax County, Virginia
FX-542	(2010)	Gosser, Dennis and Bill Hall	Phase I Cultural Resources Survey, Proposed Woodlawn Drive and Telegraph Road Stormwater Management Pond, Fairfax County, Virginia
FX-575	(2012)	Deetz, J. Eric, Jeroen Van Den Hoerk, Lindsay Flood, Jonathan R. Libbon, and Susan E. Bamann	Archaeological Survey of Proposed Area of Potential Effects Route 1 Improvements at Fort Belvoir (Telegraph Road to Mount Vernon Memorial Highway), Fairfax County, Virginia
	(2013)	Patch, Shawn M., Sarah Lowry, Brad Botwick, and Valerie Davis	Grave Marker Assessment and Ground Penetrating Radar Survey of the Woodlawn Baptist Church Cemetery

R.P.L. FRICK (1952 AND 1953)

R.P.L. Frick was the first person to conduct archaeological investigations at Woodlawn. Frick (1952b) reported the discovery of a probable wall foundation during construction of a water line and fire hydrant. It was described as a footing 18 inches deep between the circular drive and the west gate. He suggested the remains of a possible octagonal garden house, but did not cite evidence for this interpretation. No additional work was done to further evaluate this feature. Consequently, this became one of the research questions for the present study.

HOPKINS (1960)

Alden Hopkins, a landscape architect from Williamsburg, was hired by the National Trust in 1954 to undertake a garden restoration. His work consisted primarily of archaeological investigations through mechanical trenching (Hopkins 1960). The trenches were excavated across the lawn area and in other locations (Figure 5). Hopkins (1960) noted that large segments of the lawn had been artificially filled. Trinkley (2000) lamented the extent of this work and commented that it had severely affected the overall archaeological integrity. Trinkley was correct to note that no details on any of these excavations exist, which makes it impossible to assess the overall degree of alteration that occurred historically.

LEWIS (1983)

In 1982, Lynne Lewis and Mike Johnson conducted a selective walkover survey of portions of the Woodlawn Plantation. The available map and accompanying text indicate they essentially followed existing trails (Figure 6).

FLANAGAN (1985)

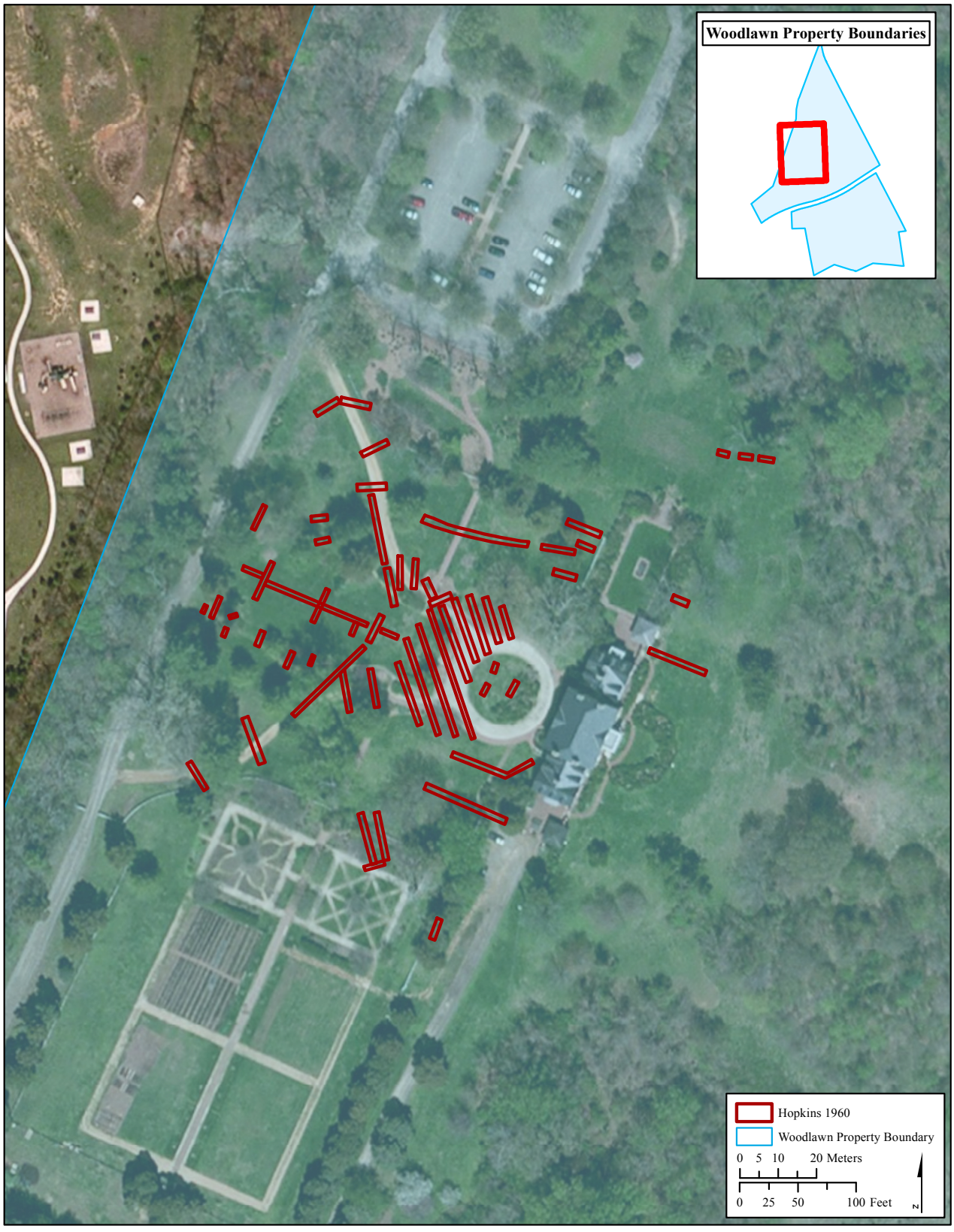
Engineering Science conducted an archaeological reconnaissance survey at Woodlawn Plantation in 1984 associated with proposed construction of a storm drain (Flanagan 1985). The survey was confined to an area of approximately 75x50 feet along the east edge of the Woodlawn Plantation property, along Old Mill Road, approximately 1,000 feet northwest of U.S. Route 1 (Figure 7). The survey consisted of pedestrian survey, excavation of nine posthole probes, and excavation of a 1x2 meter test unit.

One archaeological feature, Feature 1, was identified in the 1x2 meter test unit. Feature 1 was described as a row of layered semi-dressed quartzite and quartz boulders and cobbles and semi-dressed sheets of schist extending a minimum of three meters along the edge of a topographic depression. Flanagan suggested that Feature 1 was likely a portion of a foundation for a structure. Flanagan (1985:19) recommended that the feature be avoided by the proposed undertaking or that addition work be conducted, if avoidance was not possible. Further investigation of this feature was one of the research questions for the current study.

TRINKLEY (2000)

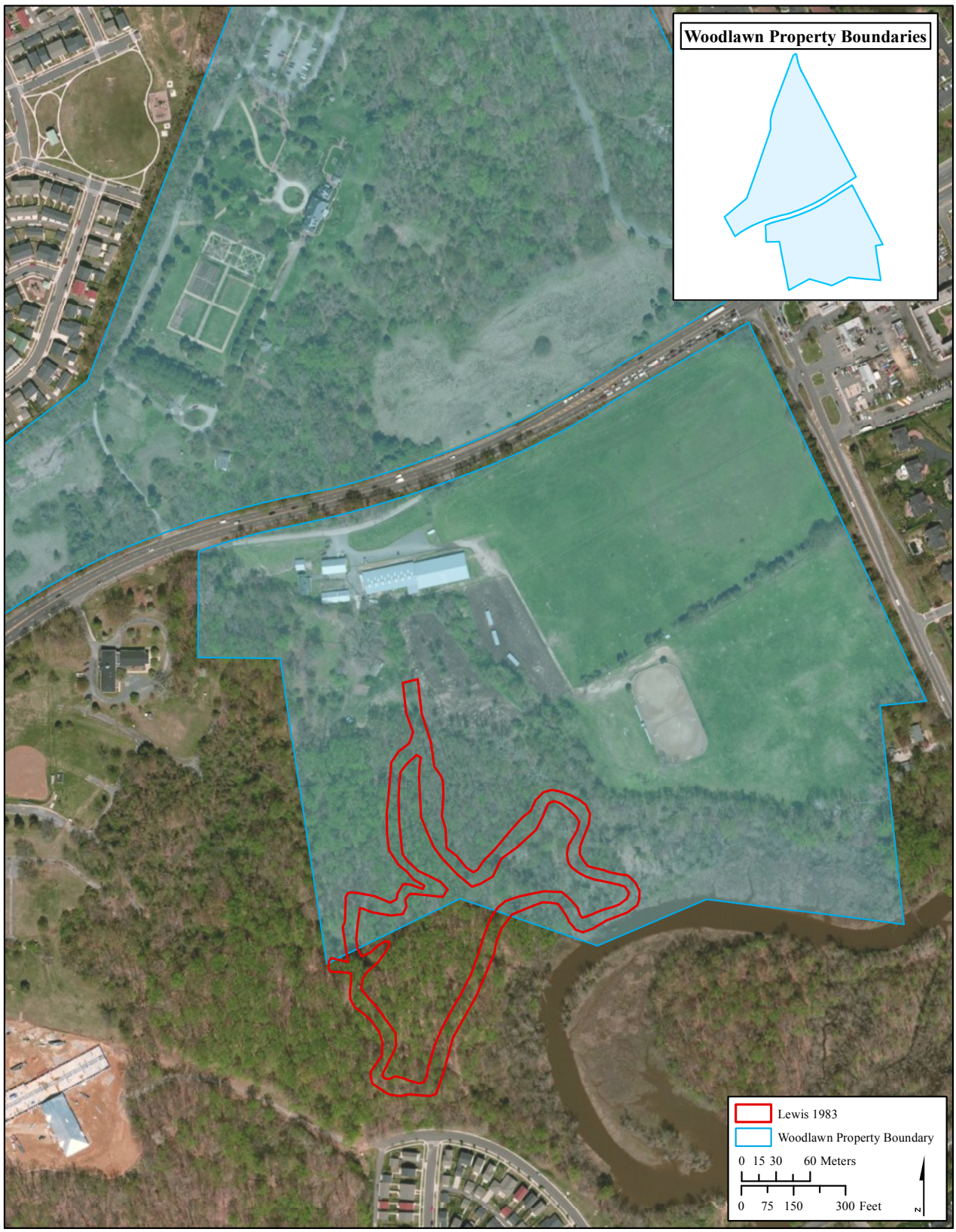
Chicora Foundation, Inc., completed archaeological survey at Woodlawn Plantation in 2000 to assist the National Trust in producing a Historic Structure and Historic Landscape report of the property (Trinkley 2000). The Chicora Foundation survey included shovel testing and pedestrian

Figure 5.
Map Showing the Location of Mechanical Trenches Excavated by Hopkins in 1960



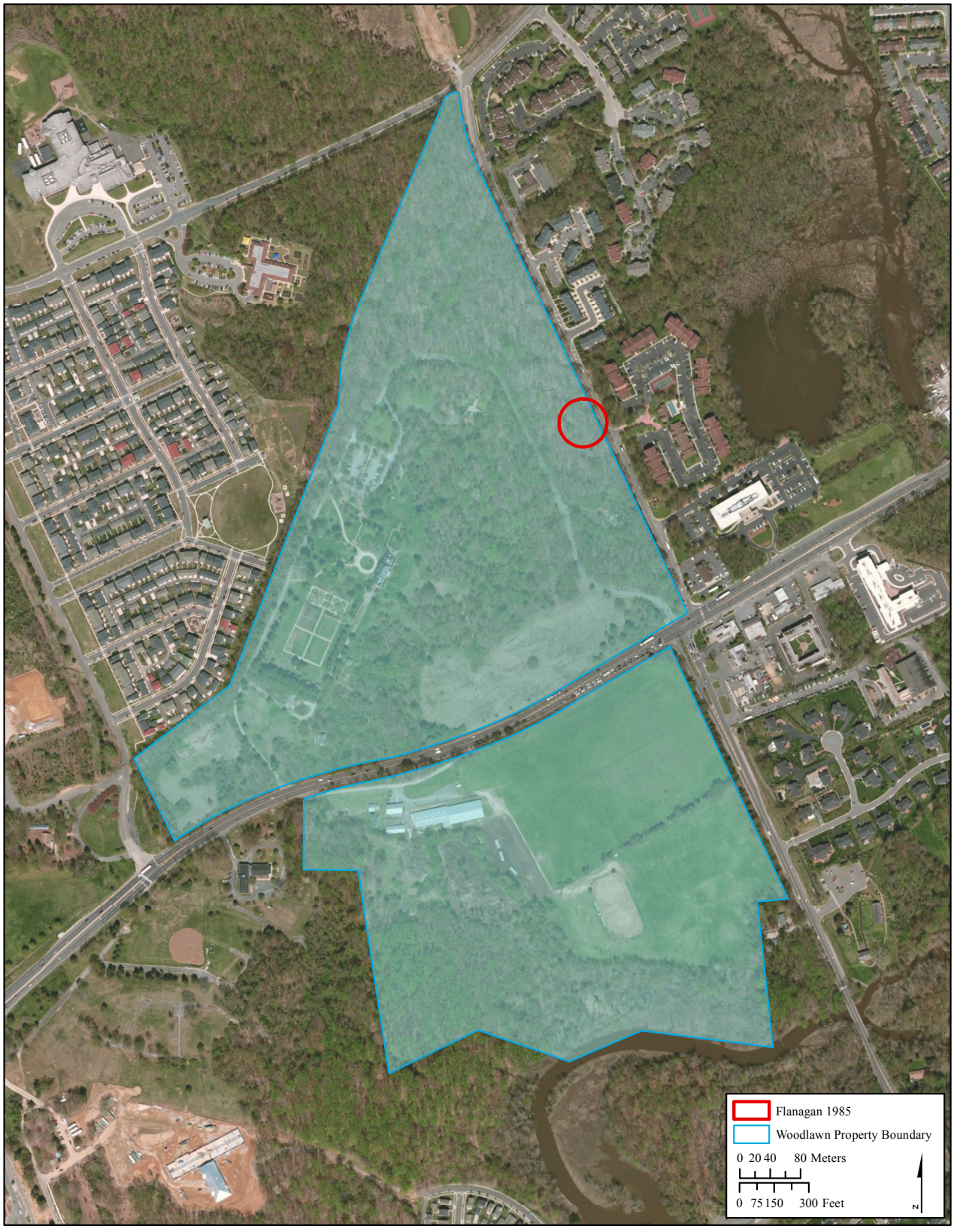
Source: Microsoft Imagery 2002

Figure 6.
Map Showing the Location of the Archaeological Investigations Conducted by Lewis and Johnson in 1983



Source: Microsoft Imagery 2002

Figure 7.
Map Showing the Location of the Archaeological Investigations
Conducted by Flanagan in 1985



Source: Microsoft Imagery 2002

survey at the entire National Trust property of 126 acres: 69.6 acres were surveyed at a parcel along the north side of U.S. Route 1 and 56.4 acres were surveyed at a parcel along the south side of U.S. Route 1 (Figure 8). The survey resulted in the identification of one archaeological site, 44FX2361, and multiple isolated finds. In addition, artifacts were collected from shovel tests in the vicinity of the Woodlawn mansion, an area that Trinkley (2000:35) described as "the main site area" of the Woodlawn Plantation site, 44FX1146.

Site 44FX2361 is located in the vicinity of the Otis Tufton Mason House along the south side of U.S. Route 1. The site measures approximately 200 feet north-south by 100 feet east-west and was identified by the recovery of 19 artifacts from three shovel tests placed to the north of the Otis Tufton Mason house. Recovered artifacts include container glass, window glass, nail fragments and unidentified metal fragments. Trinkley (2000:46) recommended that site 44FX2361 was "potentially eligible [for inclusion on the NRHP] pending additional investigations".

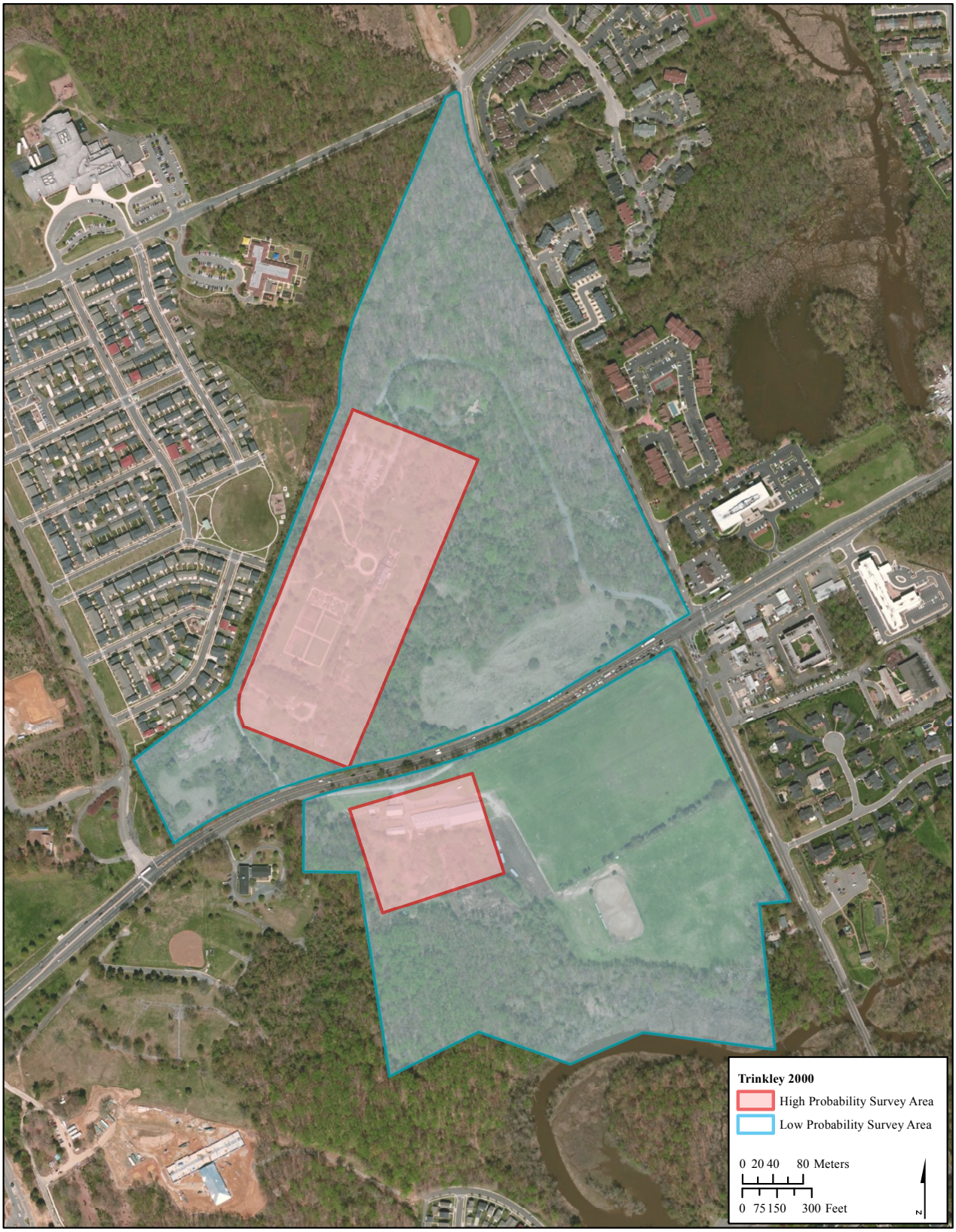
Eight isolated finds were recorded in the survey parcel to the south of U.S. Route 1. These consisted primarily of modern debris from shovel tests and surface collections. At least two of the isolated finds consisted of probable nineteenth century artifacts, including a fragment of "black" glass and a fragmented specimen of brown salt glazed stoneware.

The artifact assemblage recovered from shovel tests in the vicinity of the Woodlawn mansion consisted of highly fragmented specimens of ceramics, nails, glass (window and container), slate, and brick. The Chicora Foundation survey also resulted in the relocation of a black stain feature in the west yard of the Woodlawn mansion; this feature had been identified through previous research (Hopkins 1960 as cited in Trinkley 2000). Despite the paucity of artifacts and features at 44FX1146, and the fragmented condition of recovered artifacts, Trinkley (2000:44) recommended that the portion of 44FX1146 in the vicinity of the main house "be considered potentially eligible for inclusion on the National Register of Historic places under Criterion D." Trinkley's reasoning for this recommendation was that there was still potential to identify evidence of additional structures in this portion of the site and that some of the archaeological materials may provide information on African American slave settlement at Woodlawn.

In addition, Trinkley (2000:18–19) made recommendations for additional work, including:

- Locate probable privy northeast of the main house (north façade);
- Locate servant's quarters southwest of the main house (south façade) and determine whether antebellum or postbellum;

Figure 8.
Map Showing the Location of the Archaeological Investigations Conducted by Trinkley in 2000



Source: Microsoft Imagery 2002

- Locate garden house northeast of the main house;
- Investigate the foundation Frick identified near the fire hydrant to determine whether or not it is the garden house; and
- The area of the posited structure at the southwest edge of the property originally reported by Flanagan.

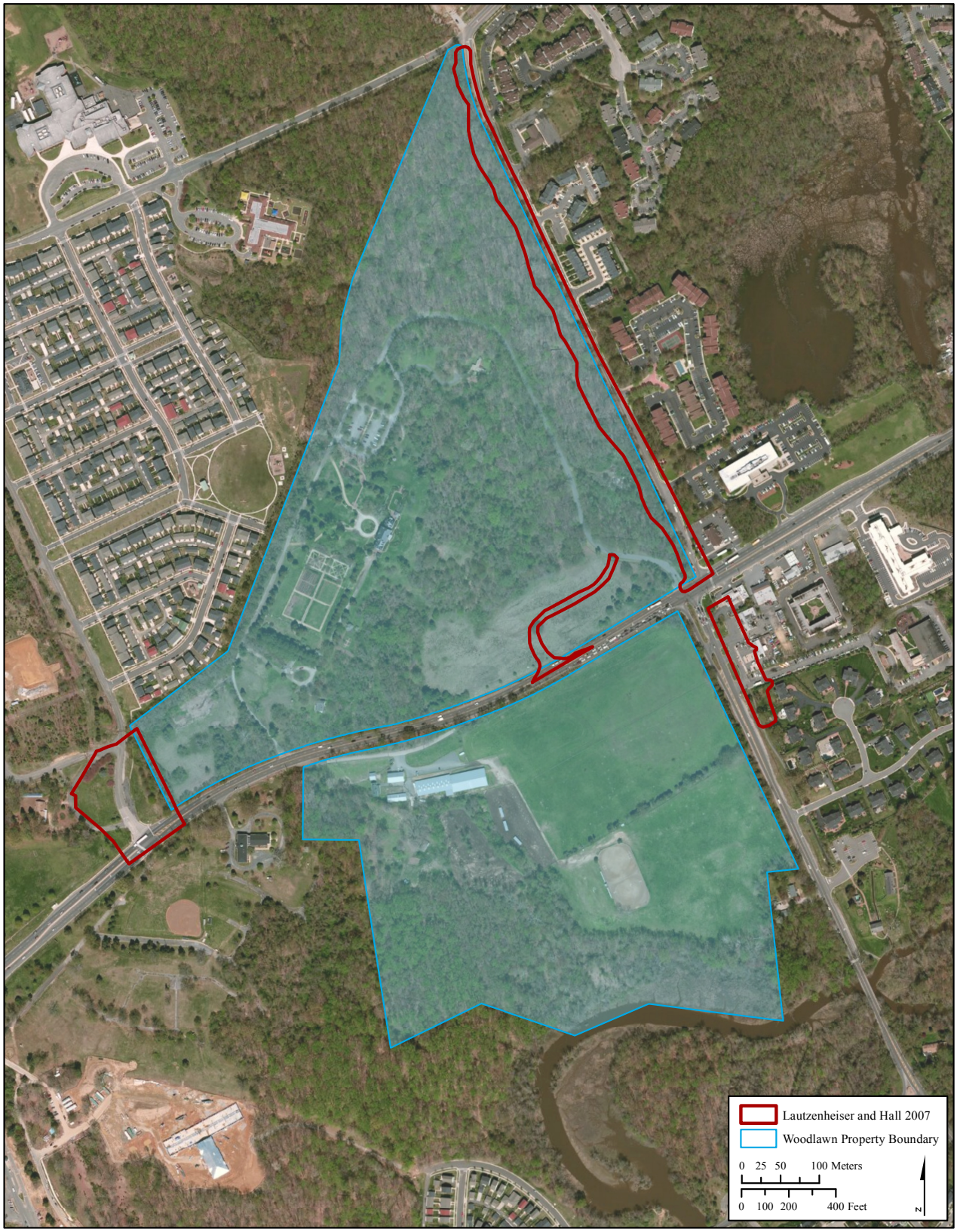
LAUTZENHEISER AND HALL (2007)

In 2007, Coastal Carolina Research, Inc. (CCR) recorded two archaeological sites that appeared to be associated with the Woodlawn Plantation (Lautzenheiser and Hall 2007). These sites, 44FX1146-001 and 44FX3256, were identified during an archaeological survey for proposed improvements to Old Mill Road and for a property transfer of 2.5 acres of land located between the Woodlawn Friends Meetinghouse and Woodlawn Plantation (Figure 9). Two artifact locations, 07-25-03 and 07-25-04, were also recorded as a result of the survey.

Site 44FX1146-001 is located along the east side of the Woodlawn Plantation property and was recorded during survey along the west side of Old Mill Road. The site was identified by the presence of a possible chimney fall composed of stone and brick and has been defined as a component of the Woodlawn Plantation site (44FX1146). Hand-made bricks from the possible chimney fall, along with cut nail fragments recovered from a shovel test on the east side of the feature, indicated a possible mid-nineteenth-century date for the component. Lautzenheiser (2007:32) recommended that 44FX1146-001 "may be a contributing element of the Woodlawn National Landmark Historic Site, and evaluation of the site is necessary to determine if that is the case."

Site 44FX3256 was recorded in a 2.5-acre parcel that was, at the time, part of Fort Belvoir and was planned for transfer from United States ownership to the National Trust for Historic Preservation. The parcel, known as the exchange tract, was located along the north side of U.S. Route 1, immediately west of the Woodlawn Plantation boundary and immediately east of the Woodlawn Friends Meetinghouse. Site 44FX3256 was identified based on the recovery of seven artifacts, including olive glass, brick fragments, and wrought nail fragments, from two shovel tests. The artifact assemblage was potentially contemporaneous with the construction of the Woodlawn manor house and indicated the possible location of a structure. However, Lautzenheiser (2007:32) recommended that 44FX3256 as "not eligible for the NRHP" due to extensive disturbance and lack of research potential.

Figure 9.
Map Showing the Location of the Archaeological Investigations Conducted by Lautzenheiser and Hall in 2007



Source: Microsoft Imagery 2002

Both artifact locations, 07-25-03 and 07-25-04, were identified at the 2.5-acre exchange tract. Location 07-25-03 was defined by the recovery of one piece of modern glass and one .44 caliber Bartholow bullet from one shovel test. Location 07-25-04 was defined by the recovery of "13 small brick fragments" that "may be the remains of a single brick" (Lautzenheiser 2007:35) from one shovel test. Lautzenheiser (2007:35) recommended both artifact locations as not eligible for the NRHP.

GOSSER AND HALL (2010)

CCR completed a cultural resources survey of the proposed plantation drive for Woodlawn Plantation in 2010 (Gosser and Hall 2010). The area of potential effects for the proposed Woodlawn Drive was located at the southwest of the Woodlawn Plantation property (Figure 10). Survey methods consisted of the excavation of seven shovel tests, at 25-foot intervals, along the proposed Woodlawn Drive. No cultural resources were identified as a result of the survey.

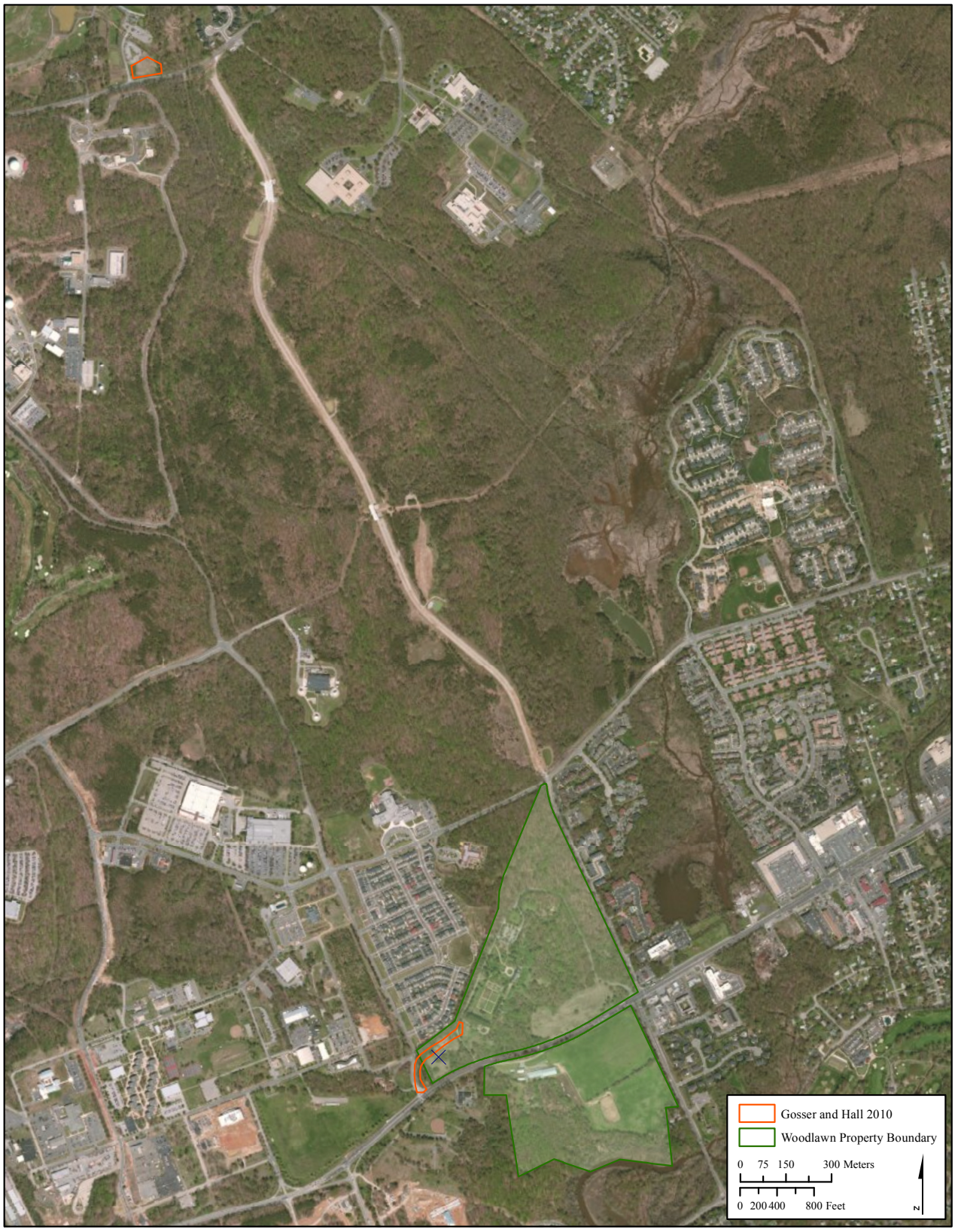
DEETZ ET AL. (2012)

Coastal Carolina Research (CCR) conducted an intensive archaeological survey of the US 1/Richmond Highway corridor (Deetz et al. 2012). This study expanded on earlier assessments of the same corridor. Investigations included assessment of previously recorded sites and survey to identify new sites that might be impacted. The APE was defined as 100 feet from the edge of existing roadway along U.S. 1, as well as expanded areas at the intersections of Telegraph Road, Old Colchester Road, Pohick Road, Fairfax County Parkway, and Mount Vernon Memorial Highway, an avoidance alternative for Woodlawn Baptist Church, and storm water management areas (Figure 11). One new site (44FX3634) and one isolated find were identified, both of which were recommended not eligible for the NRHP. Woodlawn Plantation (44FX1146) and Woodlawn Baptist Church cemetery (44FX1212) were both previously determined to be contributing elements to the Woodlawn Historic District (VDHR# 029-5181). The Otis T. Mason site (44FX2461) was previously investigated by Trinkley (2000), however, CCR recommended it not eligible for the NRHP.

WOODLAWN CEMETERY (2012)

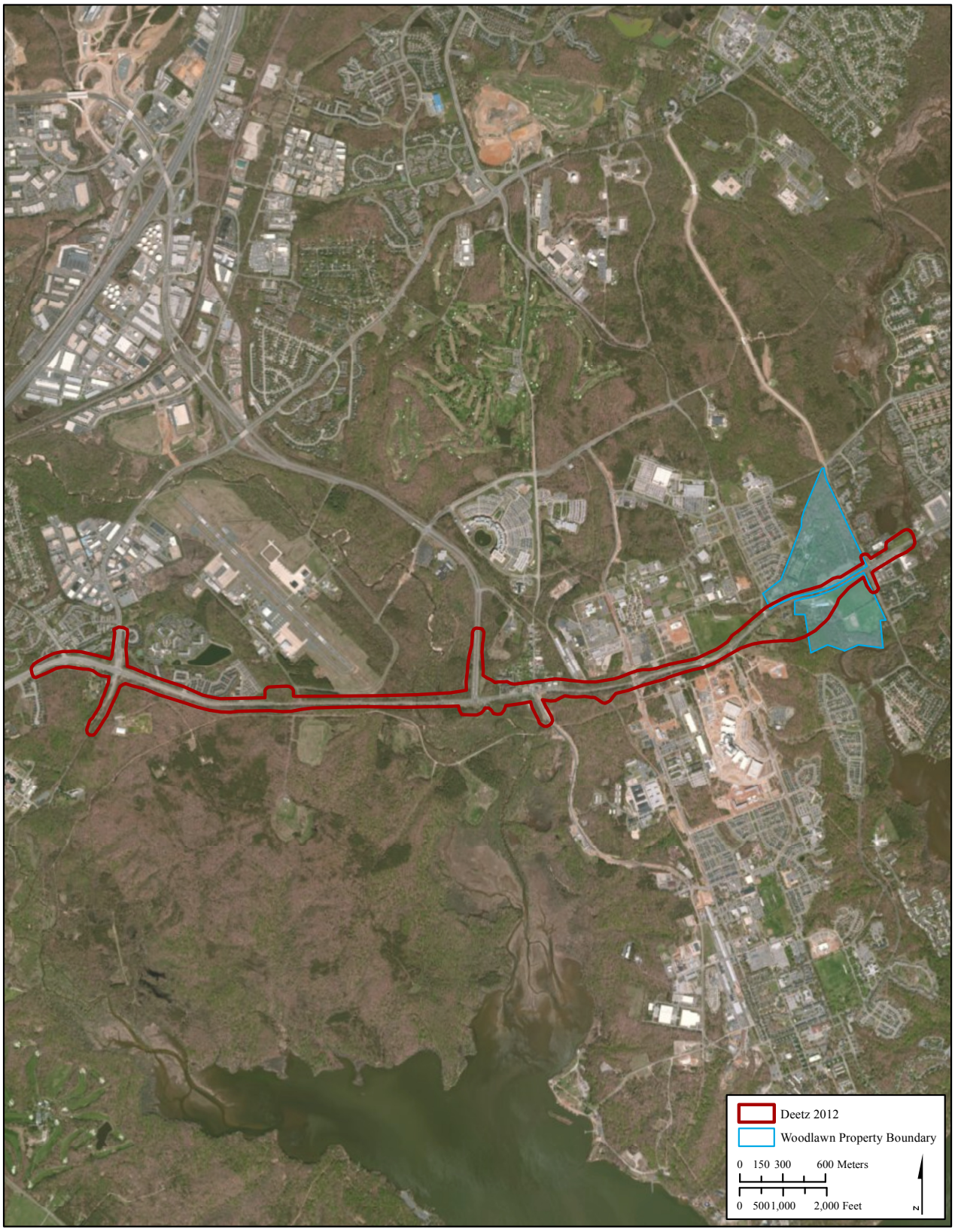
New South Associates, Inc., conducted historical research, mapping, marker inventory, and ground penetrating radar (GPR) survey of the Woodlawn Baptist Church Cemetery (Patch et al. 2013). This study was funded by FHWA as part of the proposed widening of U.S. 1/Richmond Highway. All grave markers were mapped and their inscriptions were recorded to produce a database for the church. GPR was used to identify the extent of unmarked graves (Figure 12).

Figure 10.
Map Showing the Location of the Archaeological Investigations Conducted by Gosser and Hall in 2010



Source: Microsoft Imagery 2002

Figure 11.
Map Showing the Location of the Archaeological Investigations Conducted by Deetz et al. in 2012



Source: Microsoft Imagery 2002

Figure 12.
Map Showing the Location of the Archaeological Investigations Conducted by Patch et al. in 2013

Source: Microsoft Imagery 2002

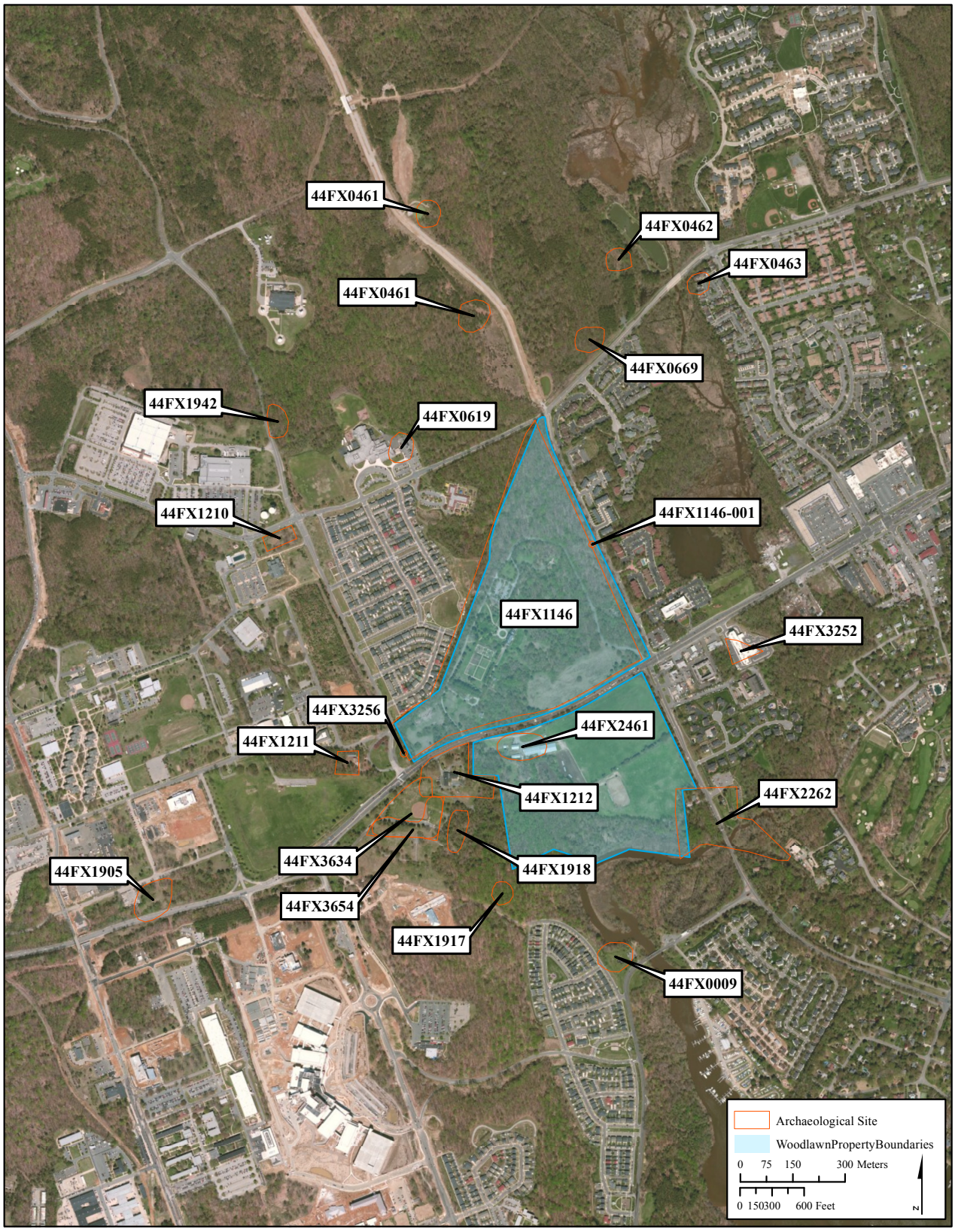
KNOWN SITES

Multiple archaeological sites and architectural resources have been recorded in and around Woodlawn Plantation (Figure 13; Table 3). The Woodlawn Plantation (VDHR# 029-0056) is recorded as site 44FX1146. There have been 19 archaeological sited previously identified within one-half mile of the Woodlawn site boundary. These sites are primarily historic dwellings, cemeteries, camps, and farmsteads. Two sites (44FX0619 and 44FX3654) had prehistoric artifacts identified. Notable neighboring sites include George Washington's gristmill (44FX2262). The remaining sites were identified as not evaluated or not eligible.

Table 3. Archaeological Sites Located within One Half-Mile of the Woodlawn Plantation

Site Number	Name	Site Type	Recommendation
44FX1211	Woodlawn Friends Meeting House & Cemetery	Cemetery, Church, Military camp	Not Evaluated
44FX2461	Mason (Otis T.) House	Dwelling, single	Not Eligible
44FX1918	None	Farmstead	Not Eligible
44FX1212	Woodlawn Baptist Church	Cemetery, Church	Not Eligible
44FX1146	Woodlawn Plantation	Farmstead	NHL Listing
44FX0619	Cortez Sims Site	Prehistoric and Historic Scatter	Not Eligible
44FX1210	None	Cemetery	Not Evaluated
44FX1942	Jasper Farmstead	Camp, Dwelling, single	Not Eligible
44FX0461	None	Earthworks, Farmstead, Military base/facility	Not Evaluated
44FX0669	None	Historic	Unknown
44FX0462	None	Dwelling, single	Not Evaluated
44FX0463	None	Historic Scatter	Not Evaluated
44FX3252	None	Camp, temporary, Trash scatter	Not Evaluated
44FX1917	None	Camp, Dwelling, single	Not Eligible
44FX0009	GW Village Tot Lot	Camp, base	Not Evaluated
44FX2262	George Washington's Gristmill	Agricultural field, Camp, temporary, Distillery, Dwelling, multiple, Mill, raceway	NRHP Listing, VLR Listing
44FX1905	None	Camp, temporary, Dwelling, single, Well	Not Eligible
44FX3634	Grays Hill Village	Dwelling, multiple	Not Eligible
44FX3654	None	Lithic workshop	Not Evaluated

Figure 13.
Location of Previously Recorded Archaeological Sites within One-Half Mile of the Woodlawn Plantation



Source: Microsoft Imagery 2002

VI. RESULTS AND RECOMMENDATIONS

New South Associates was tasked with updating the archaeological report of the Woodlawn Plantation, prepared by the Chicora Foundation (Trinkley 2000). The archaeological portion of the scope used GPR and metal detector survey to locate the garden house northeast of the main house, to also determine if there was a structure in the southwest portion of the plantation reported by Flanagan, and to conduct artifact analysis.

GPR

The primary purpose of the GPR survey was to identify geophysical anomalies consistent with the expected signatures for historic features. Specifically, the GPR survey was prospecting for a privy, servant's quarters, a garden house, and a previously identified (but never mapped) brick wall. A targeted survey to locate these features was recommended by Trinkley (2000) as the result of his archaeological work at the site. GPR grids were placed using archival research that mentioned where features may be located and these results were based on analysis of the 400MHz dataset, using both in amplitude slice maps and individual reflection profiles (Figures 14-18). Analysis of the results indicated the area around the Woodlawn mansion has had multiple construction episodes, some of which likely date to the historic period. It is impossible to determine if features identified in the GPR results date to the Lewis period as metal detecting and unit excavation identified no artifacts that are temporally limited to that period. It is also important to note that features are primarily located 20 centimeters below the ground surface (cmbgs), and this would have been too deep for the metal detector to find artifacts consistently. Results indicate the presence of 40 cultural anomalies (Table 4; Figure 19).

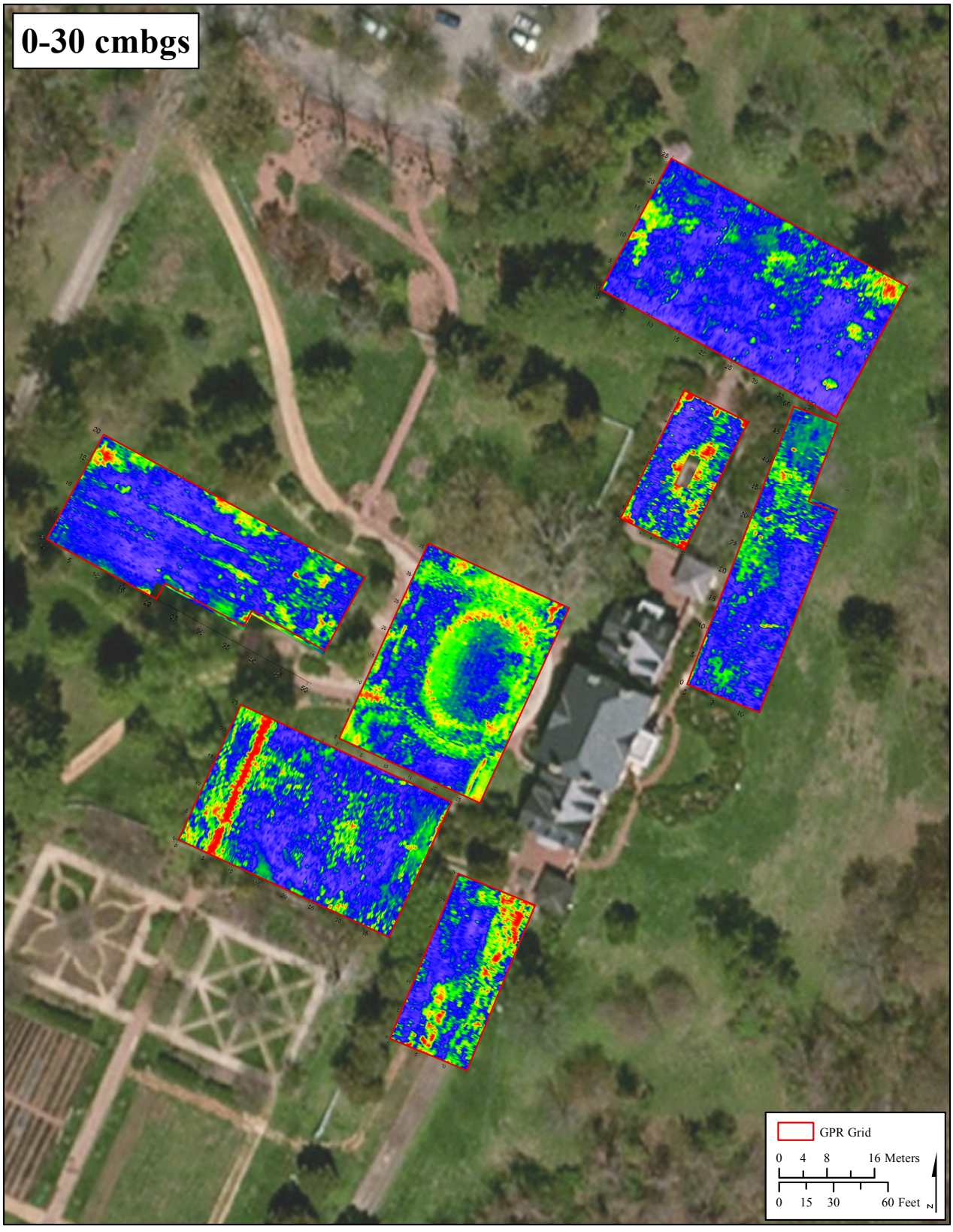
Table 4. Summary of GPR Anomalies

Anomaly ID	Grid	Estimated Depth	Label	Description
1	GPR 5	10-80 cm	Structure	Compacted surface and point reflections
2	GPR 7	0-20 cm	Activity Area	Compacted Surface
3	GPR 7	0-20 cm	Activity Area	Compacted Surface
4	GPR 4	30-80 cm	Landscape Feature	Compacted surface and point reflections
5	GPR 4	25-50 cm	Probable Pipe	Point Reflections
6	GPR 5	0-15 cm	Sidewalk	Compacted Path
7	GPR 5	70-90 cm	Utility	Point Reflection
8	GPR 5	45-80 cm	Driveway	Compacted Surface

Table 4. Summary of GPR Anomalies

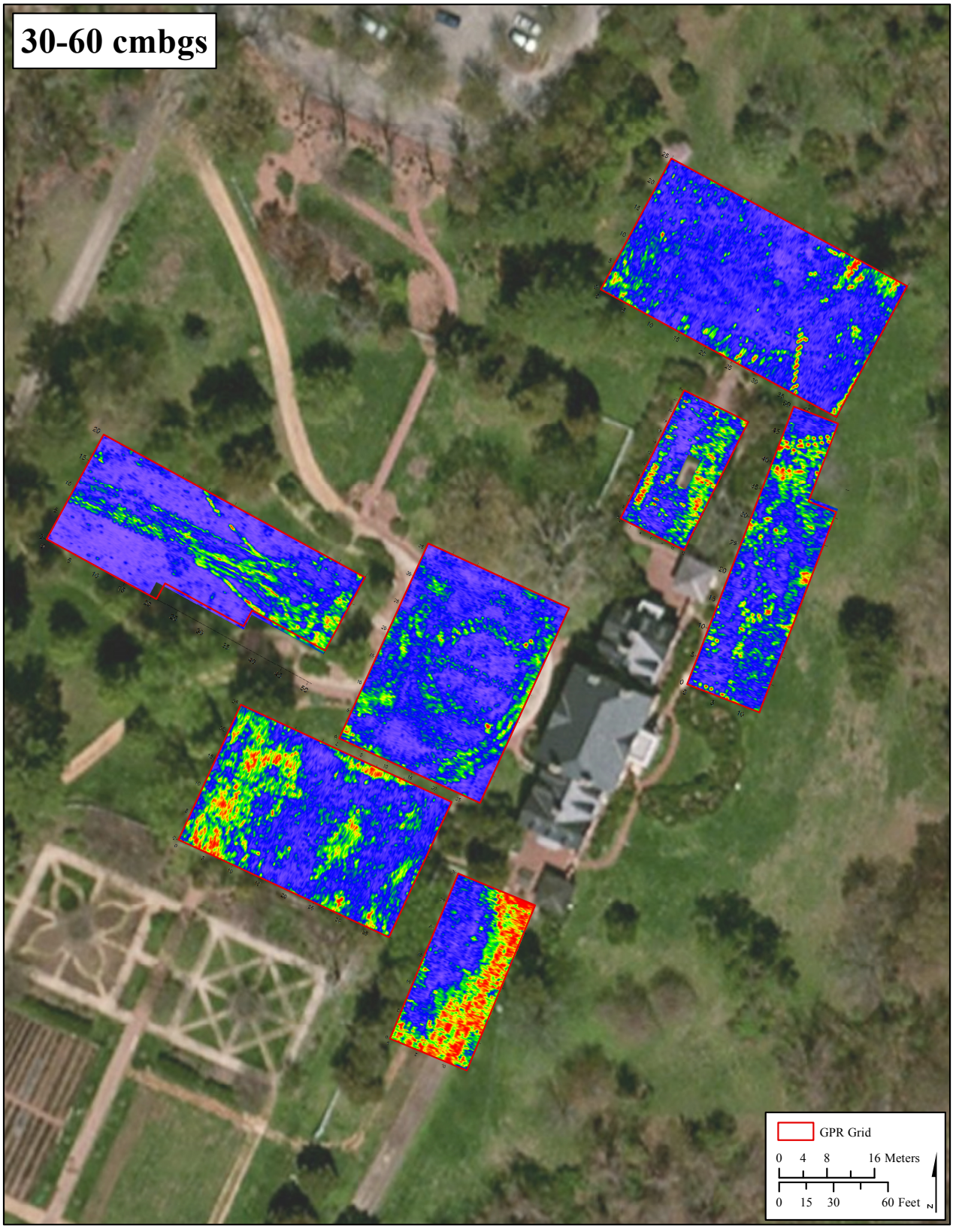
Anomaly ID	Grid	Estimated Depth	Label	Description
9	GPR 1	20-70 cm	Landscape Feature	Compacted surface and point reflections
10	GPR 1	30-50 cm	Utility	Point Reflections
11	GPR 1	20-90 cm	Driveway	Compacted Surface
12	GPR 1	55-95 cm	Landscape Feature	Compacted surface and point reflections
13	GPR 1	55-80 cm	Landscape Feature	Compacted surface and point reflections
14	GPR 1	45-100 cm	Utility	Point Reflections
15	GPR 1	65-100 cm	Driveway	Compacted Surface
16	GPR 1	50-95 cm	Driveway	Compacted Surface
17	GPR 1	0-25 cm	Driveway	Compacted Surface
18	GPR 2	45-70 cm	Utility	Point Reflections
19	GPR 2	45-75 cm	Utility	Point Reflections
20	GPR 2	15-75 cm	Driveway	Compacted surface and point reflections
21	GPR 2	30-90 cm	Utility	Point Reflections
22	GPR 2	20-80 cm	Driveway	Compacted surface and point reflections
23	GPR 2	15-40 cm	Utility	Point Reflections
24	GPR 2	80-110 cm	Utility	Point Reflections
25	GPR 2	30-100 cm	Landscape Feature	Compacted surface and point reflections
26	GPR 3	50-75 cm	Landscape Feature	Compacted surface and point reflections
27	GPR 3	50-70 cm	Landscape Feature	Compacted surface and point reflections
28	GPR 3	80-115 cm	Landscape Feature	Compacted surface and point reflections
29	GPR 3	80-115 cm	Landscape Feature	Compacted surface and point reflections
30	GPR 3	0-50 cm	Fountain Construction	Surface and Point Reflections
31	GPR 3	55-80 cm	Landscape Feature	Point Reflection
32	GPR 4	25-90 cm	Probable Pipe	Point Reflections
33	GPR 4	65-110 cm	Landscape Feature	Compacted surface and point reflections
34	GPR 4	25-60 cm	Landscape Feature	Compacted Surface
35	GPR 4	10-50 cm	Landscape Feature	Compacted surface and point reflections
36	GPR 7	25-55 cm	Path	Compacted Surface
37	GPR 7	30-100 cm	Landscape Feature	Compacted Path
38	GPR 6	50-75 cm	Probable Pipe	Compacted Path
39	GPR 6	15-60 cm	Fill	Compacted Surface - fill
40	GPR 6	15-50 cm	Utility	Compacted Surface

Figure 14.
GPR Slice Map from 0-30 cmbgs



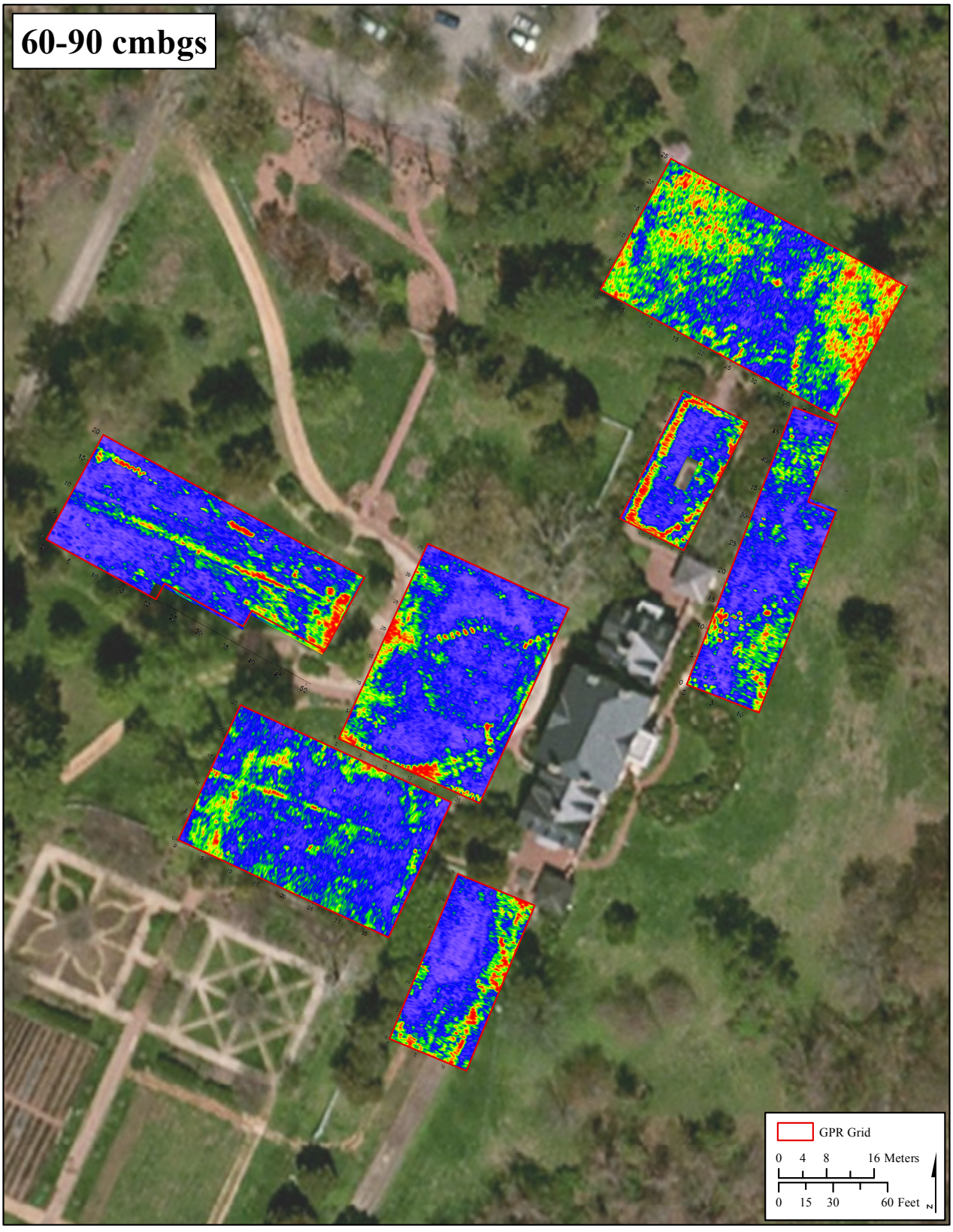
Source: Microsoft Imagery 2002

Figure 15.
GPR Slice Map from 30-60 cmbgs



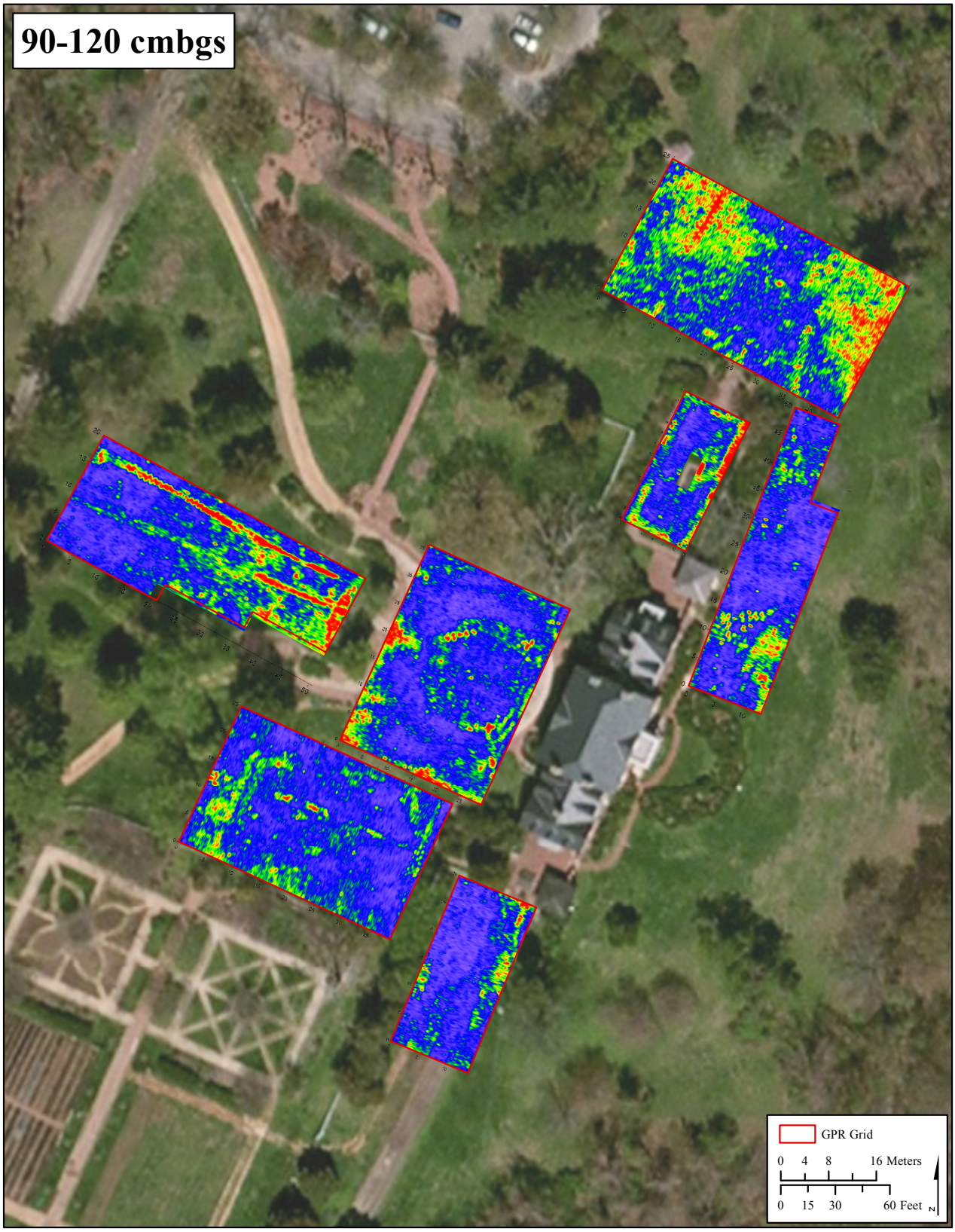
Source: Microsoft Imagery 2002

Figure 16.
GPR Slice Map from 60-90 cmbgs



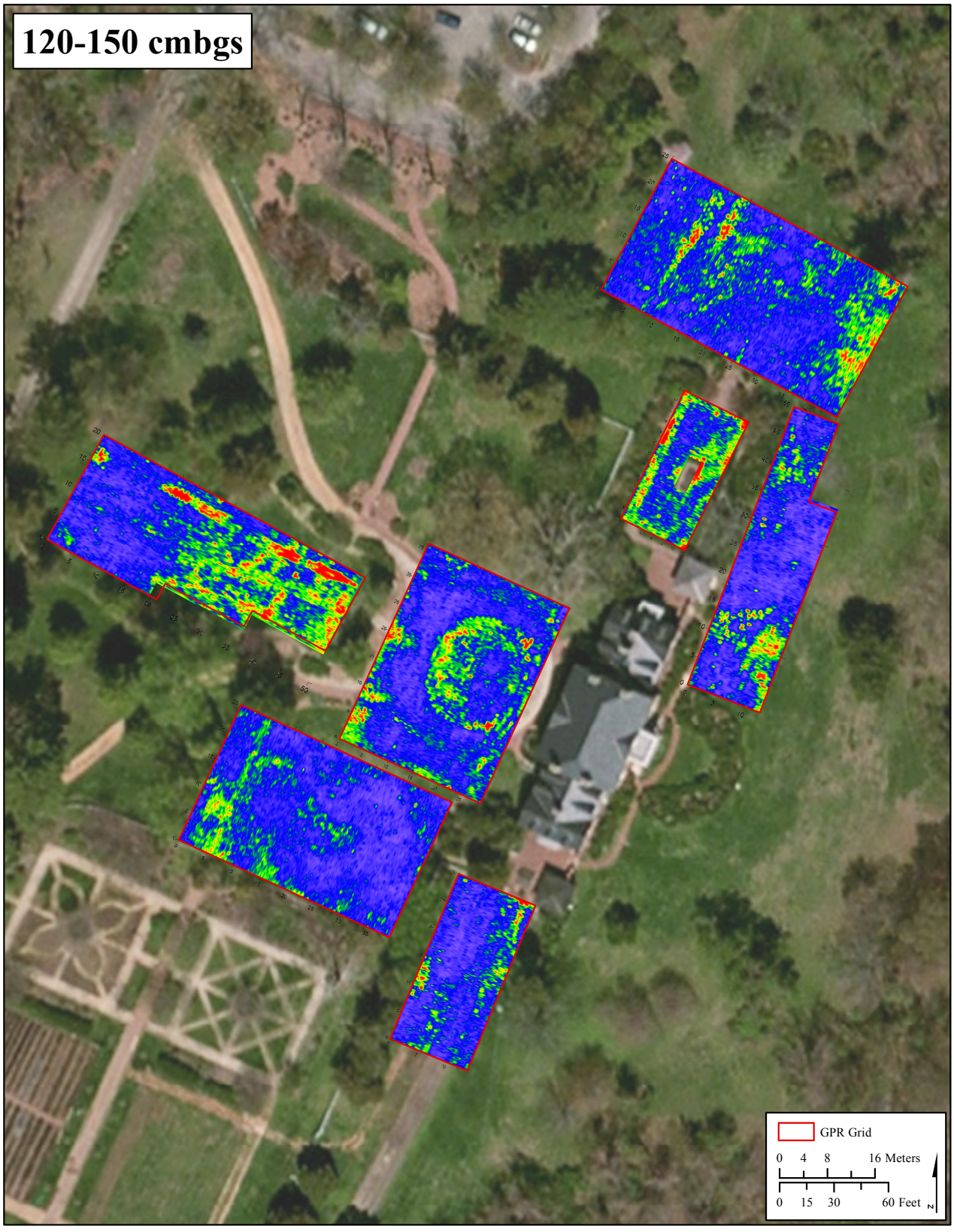
Source: Microsoft Imagery 2002

Figure 17.
GPR Slice Map from 90-120 cmbgs



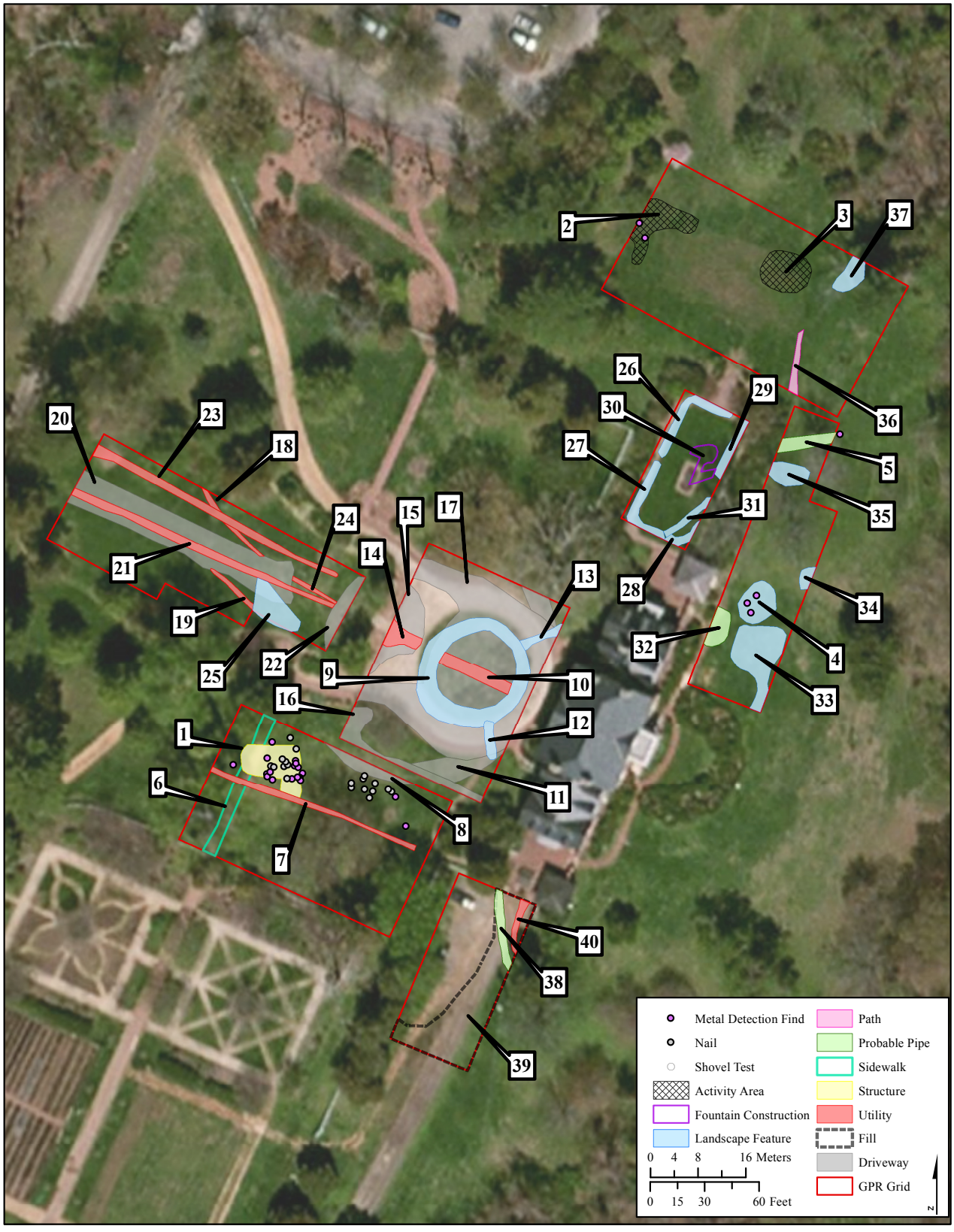
Source: Microsoft Imagery 2002

Figure 18.
GPR Slice Map from 120-150 cmbgs



Source: Microsoft Imagery 2002

Figure 19.
Map Showing Distribution of All GPR Anomalies



Source: Microsoft Imagery 2002

STRUCTURE (N=1)

One GPR anomaly was identified as a possible structure (Anomaly 1). This feature is approximately 10x5 meters and is oriented roughly north-south. The profile view consists of point reflections and surfaces (Figure 20a). The possible structure is located to the southwest of the house along the circular drive. The metal detecting done on this feature identified a large scatter of cut nails and a metal drawer pull. This feature had the densest number of artifacts found in any of the metal detection surveys. It was also the shallowest feature, so artifacts may have been closer to the surface at this location, and thus more easily detected with the metal detector. It is possible this anomaly represents the remains of the servants quarters, as they were hypothesized by Trinkley (2000) to be located to the southwest of the house in this approximate area. The presence of a large quantity of cut nails provides another line of evidence that there was a structure at this location. However, no artifacts were identified confirming the possible structure's purpose or exact period of its use.

ACTIVITY AREAS (N=2)

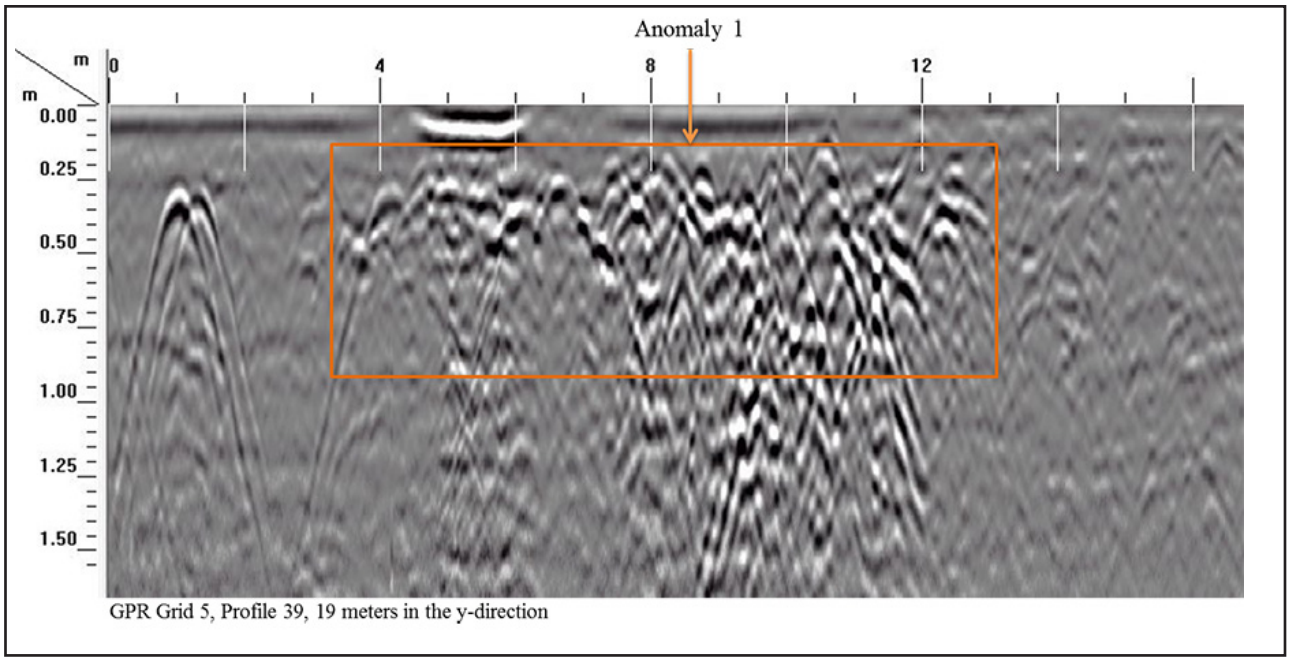
Two activity areas were identified north of the house (Anomalies 2 and 3). These features were both located within the top 20 centimeters and primarily consist of compacted surfaces. They were both metal detected and the only potential historic artifacts identified were two horseshoe fragments in Anomaly 2. The shallow depth of the features and the results of the metal detecting survey suggest these features may be related to more modern activities taking place on this lawn.

LANDSCAPE FEATURES (N=14)

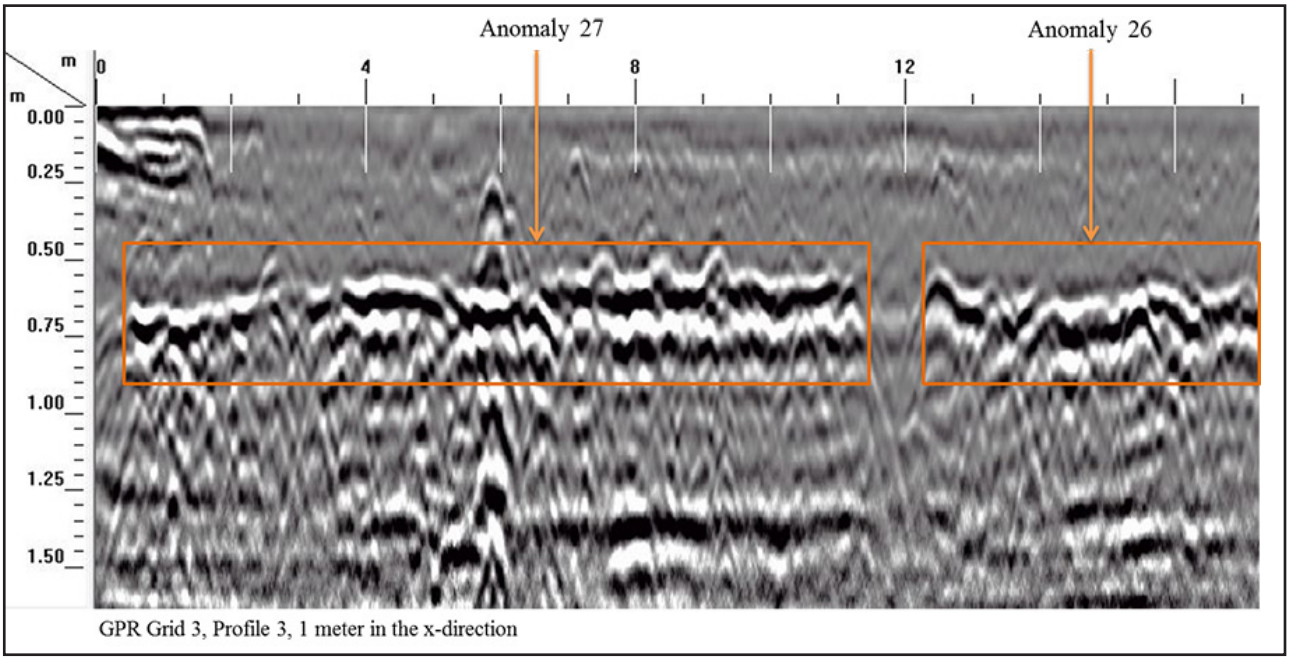
The most common feature class was landscape features. This group of 14 anomalies is interpreted as non-structural garden or landscaping features. They can be divided into three groups for discussion based on their location around the mansion and hypothesized function: northeast, north, and west.

To the northeast of the Woodlawn mansion, five potential landscape features were identified (Anomalies 4, 33-35, and 37). These anomalies were all compacted surfaces and point reflections and were unclassified probable landscape features. They may have been pathways, garden features or work areas during any occupation period of the mansion. Anomaly four was metal detected, but artifacts were minimal and did not conclusively identify the feature. This is likely because the anomaly did not begin until 30 cmbgs, which is below the range of the metal detector.

Figure 20.
GPR Profiles Showing Possible Structure and Examples of Landscapes Features



A. Anomaly 1, Possible Structure



B. Anomalies 26 and 27

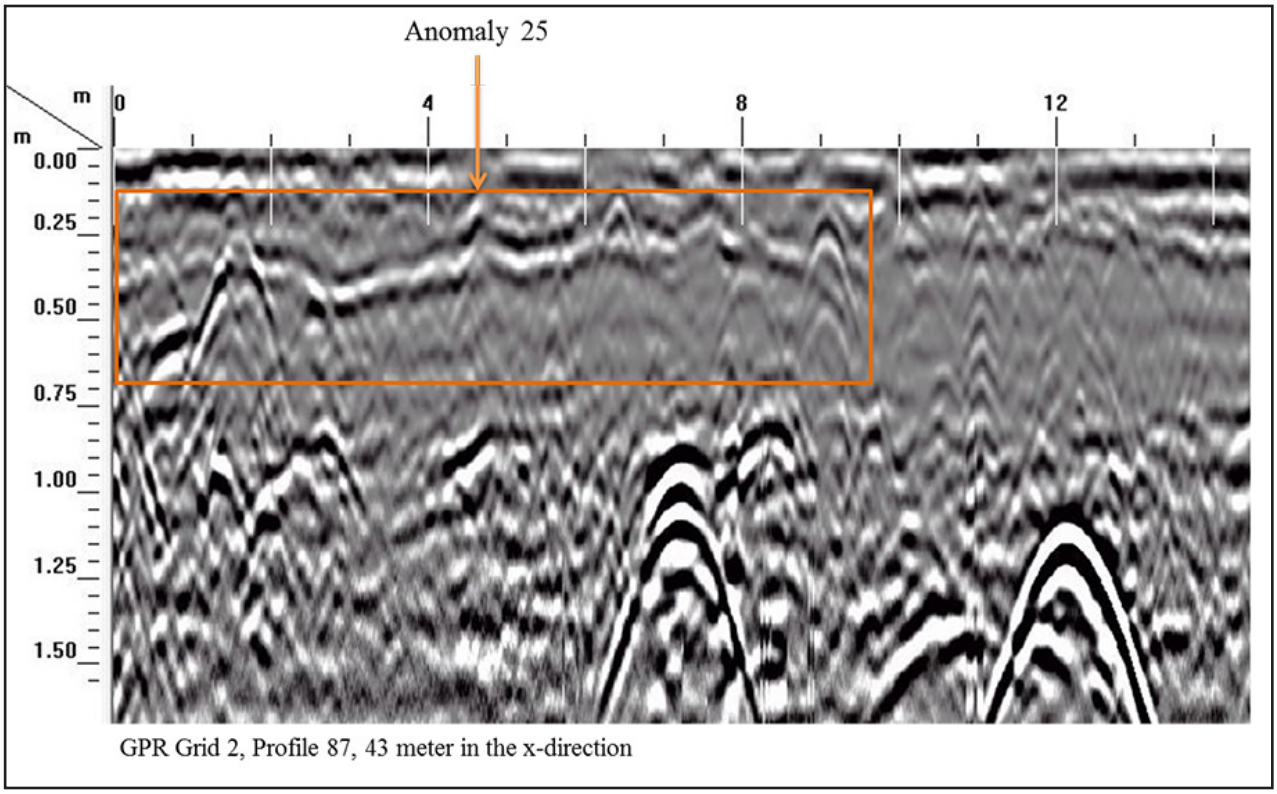
To the north of the mansion a series of five landscape features form a rectangular boundary that mirrors the brick path on the surface (Anomalies 26-29 and 31). These features are located between 50 and 100 centimeters and are likely flat surfaces of some kind (Figure 20b). They seem to be close to the existing brick pathways and form a rectangle. It is possible that these features represent a previous garden feature or path at the location of present day garden paths. No metal detecting was done in this area as the sidewalk prevented access to the subsurface.

To the west of mansion, at one of the main entrances, there were four landscape features identified (Anomalies 9, 12, 13, 25). All four are related to the house entrance. Anomaly 25 is about 45 meters from the house and is a surface with multiple point reflections and a distinct edge (Figure 21a). This feature appeared to be bisected by a utility line and was thought to potentially represent the wall Frick identified during water line installation (Trinkley 2000:11). This is the feature Test Unit 1 investigated. The test unit found a brick feature and a gravel surface. From these results, this feature is hypothesized to be a brick-edged gravel landscape feature, possibly a walkway related to the house entrance. No temporally diagnostic artifacts were identified and no temporal classification can be made. Anomaly 9 is a somewhat circular series of point reflections located between 20 and 70 cmbgs (Figure 21b). This anomaly is visible on the 1937 aerial imagery (the earliest aerial imagery available for the mansion) and appears to be a landscaping feature in front of the house entrance (Figure 22). Anomalies 12 and 13 are symmetrical linear features likely associated with the landscaping feature Anomaly 9. The period that these features were built in is unknown, however, they are visible on the 1937 and 1953 aerials and removed by 1968 when the next known aerial photos were flown.

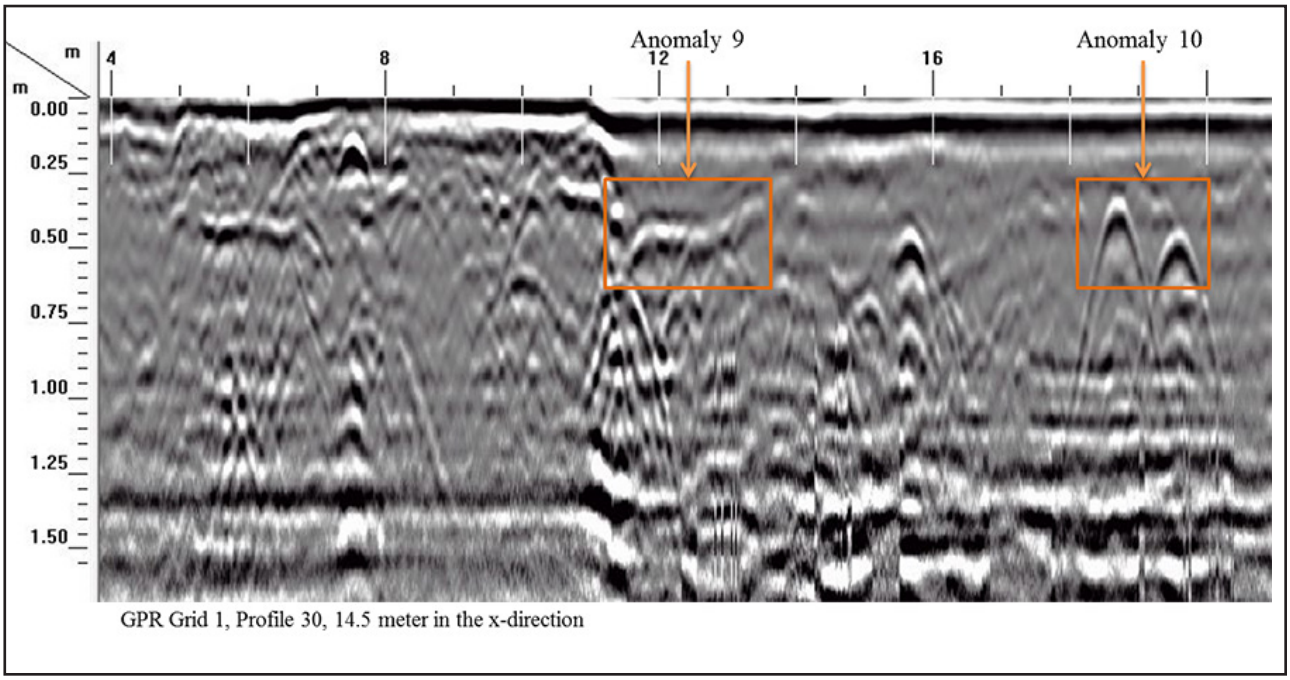
DRIVEWAYS (N=7)

Seven anomalies identified as driveway features were identified (Anomalies 8, 11, 15-17, 20, and 22). All of the driveway features were identified to the west of the mansion where the historic carriage/vehicle approach was located. Anomaly 17 is located at the surface and is likely related to the present driveway configuration. Anomalies 8, 11, 15, 16, and 22 together form a large circular driveway located from about 20-100 cmbgs. The present day circular drive is approximately 19 meters in diameter from inside edge to inside edge. The historic circular drive found in the GPR results is approximately 33 meters from inside edge to inside edge. Anomaly 20 is a straight entrance driveway leading to the large circular drive located about 15 cmbgs. This driveway is visible in the 1937 and 1953 aerials and was probably replaced with the present day circular drive during the 1950s-era landscaping (Figure 23). The 1968 aerials have the present day circular drive. It is unknown when these driveway features were constructed or if they were original to the Lewis period use of the mansion. They were built prior to 1937 and had been removed in the 1950s. The evidence Hopkins used during the 1950s-era "historic"

Figure 21.
GPR Profiles Showing Examples of Landscape Features



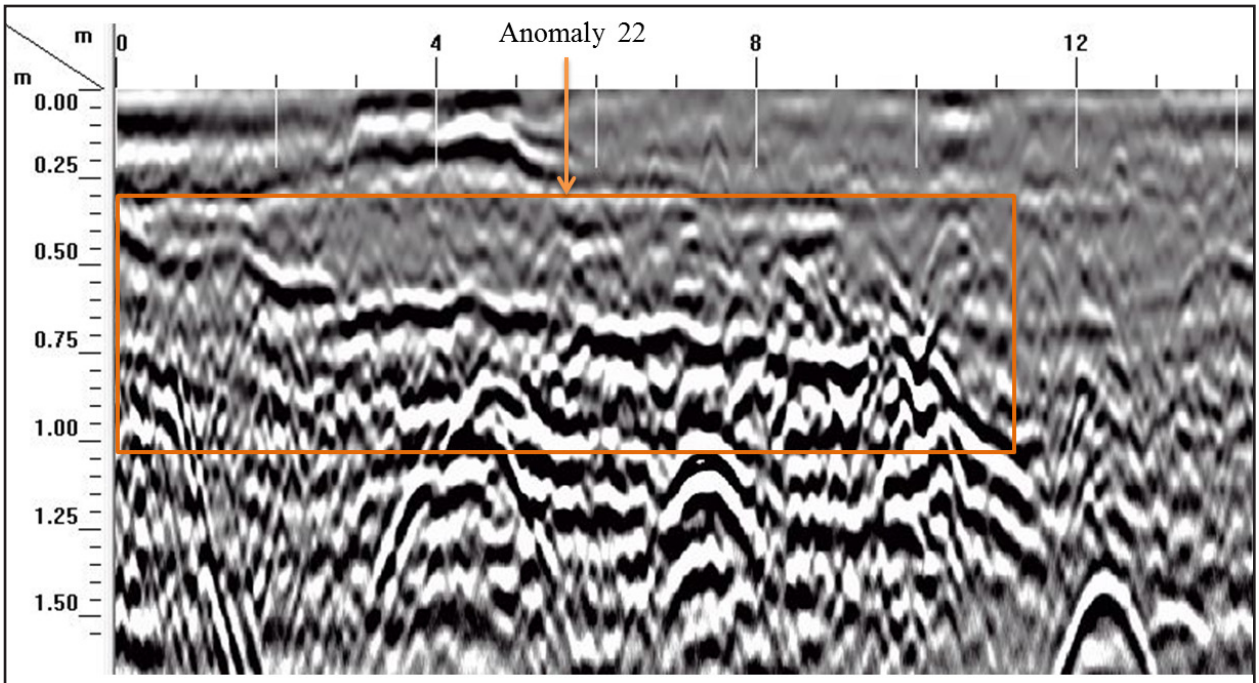
A. Anomaly 25



B. Anomalies 9 and 10

Figure 22.
Aerial Photograph from 1937 Showing Larger Circular Drive, Straight Driveway, and Central Landscape Feature

Figure 23.
Example of a Driveway Feature in Profile (Anomaly 22)



GPR Grid 2, Profile 98, 48.5 meter in the x-direction

landscape design that installed the present circular drive and entrance drive locations was based on the series of trenches he excavated. The results of these excavations are unknown and it is difficult to determine if another earlier drive mirroring the present configuration was found or if the present entrance drive represents an ideal as determined by the landscape designer.

PATH (N=1)

Anomaly 36 is flat surface located about 25 cmbgs and due to its linear configuration is hypothesized to be a path. This could be a garden path or a path used to move around buildings at the estate; no temporal determination could be made.

PROBABLE PIPELINES AND UTILITIES (N=12)

Twelve probable pipelines and other unknown utility features were identified (Anomalies 5, 7, 10, 14, 18, 19, 21, 23, 24, 32, 38, and 40). These features formed linear reflections and likely represent utilities going to the mansion and drainages away from the mansion. Several of the larger pipes were probably used for water delivery and/or drainage. Utility is a more general classification when the specific type (e.g., water, sewer, electrical or gas) is not known. These features could date to many periods of the mansion's use, but are likely not associated with the Lewis period and were installed as retrofits to the house to accommodate modern electricity and plumbing.

SIDEWALK AND FOUNTAIN CONSTRUCTION (N=2)

Two anomalies were identified that are associated with the sidewalk and fountain modern surface features (Anomalies 6 and 30). These anomalies indicate areas that were disturbed in the construction of these features. They are relatively shallow and are areas with some disturbed soils.

FILL (N=1)

Anomaly 39 outlines an area with fill soils from the surface to 60 cmbgs. It is unknown when these soils were brought in, but they were probably intended to level the hilltop the mansion sits on to form a more even topography. This area has the most obvious fill soils, but it is likely that fill was deposited in many places across the surveyed area. It is probable that the 1950s-era landscape redesign involved bringing in fill, as well as various landscaping designs done by house residents. Most features thought to date to the historic period are located from 15-30 cmbgs and sometimes as deep as 50-60 cmbgs, suggesting that various amounts of fill have been imported to level the landscape to its present configuration.

SUMMARY

The features identified in GPR suggest a complex and evolving landscape around the Woodlawn mansion. The possible remains of the servant's quarters and a variety of landscape features were identified around the mansion. All of these features are located under varying levels of fill soils, suggesting that historic features are likely deep and have been obscured by decades of landscape modification/alteration. It is difficult to determine the temporal association of these features, but it is likely some are from the Lewis occupation of the house and others are probably related to Quaker occupation.

METAL DETECTION

New South excavated 25 metal detector finds (MDF) found within four GPR anomalies (Figure 24). These areas were given full metal detector coverage. Additionally, metal detection was conducted within a controlled grid (Metal Detector Grid 2) where no anomalies were detected, to gauge the accuracy of the GPR method. Within this grid, there were two additional positive metal detector hits.

New South recovered 29 artifacts from 27 MDFs. These artifacts consisted primarily of cut nails; however, there were also horseshoe fragments, a modern bullet, whiteware, and other metal artifacts recovered. Table 5 summarizes the artifacts recovered. All artifacts were recovered within the first 20 centimeters below ground surface (cmbgs), with the majority of artifacts recovered within the first 10 cmbgs.

Table 5. Artifact Summary from Metal Detecting

Artifact Type	Count
Bullet	1
Drawer/Door Pull, Metal	1
Hinge, Iron/ Steel	2
Horseshoe	4
Iron/ Steel, Unidentified/ Corroded	1
Iron/Steel Rings	1
Nail, Cut fragment	16
Nail, Unidentified Fragment	1
Sheet of Copper	1
Whiteware, Unidentified	1
Grand Total	29

Figure 24.
Map Showing the Location of Metal Detector Grids and MDFs

Source: Microsoft Imagery 2002

The artifacts recovered date from the mid-nineteenth century to the present (1830–present). The diagnostic artifacts were the cut nails (1805–present) and whiteware (1830–present) (Miller 1991). Based on the artifact assemblage recovered from the MDFs, a more definitive date cannot be provided. However, the nails are consistent with a nineteenth-century occupation. The success of metal detector survey suggests the likelihood for identifying additional features in the future.

SHOVEL TESTING

New South conducted judgmental shovel testing within the southwest portion of the plantation, where Flanagan (1985) reported a structure. In Flanagan's report, he mentioned a drainage near the structure but no other landmarks. New South excavated six shovel tests within the presumed location as reported by Flanagan (1985) (Figure 25). All shovel tests were negative.

The stratigraphy of this area is best represented in Judgmental Shovel Test 2, which contained three major strata: Stratum I, a dark grayish brown (10YR 4/2) sandy silt from 0-7 cmbgs; Stratum II, a mottled grayish brown (10YR 5/2) with a red (2.5YR 5/8) sandy silt from 7-20 cmbgs; and Stratum III, a mottled grayish brown (10YR 5/2) with a red (2.5YR 5/8) sandy clay below 20 cmbgs.

There were no artifacts recovered from the shovel tests placed within the estimated location given by Flanagan. It was clear at the time of the field investigations that recent construction activities along Old Mill Road had impacted the area. The Lautzenheiser and Hall (2007) survey was conducted prior to this construction, although it did not relocate this wall feature. One of the on-site engineers indicated the widening had occurred to the west, toward Woodlawn. Based on the recent disturbance from the road cut and recently built sidewalk, it is likely that the structure that Flanagan mentioned was destroyed during the construction.

TEST UNIT 1

GPR anomaly 25 was chosen for excavation based on its location and reflective properties (Figure 26). In the GPR results, it was interpreted that a linear feature had been bisected by the water line installation. The unit was excavated in 10 centimeter levels within natural strata. The unit yielded a brick wall feature in the northeast corner of the unit, as well as an assortment of historic artifacts.

The test unit stratigraphy is best represented in north wall, which contained five major strata (Figure 27): Stratum I, a pale brown (10YR 6/3) silt from 10 to 20 centimeters from 0-10 cmbgs; Stratum II, a yellowish brown (10YR 5/6) sandy silt from 10 to 28 cmbgs; Stratum III, a

yellowish red (5YR 5/8) sand from 28-40 cmbgs; Stratum IV, a brown (7.5YR 4/2) loamy clay from 40-55 cmbgs; and Stratum V, a dark yellowish brown (10YR 3/6) loamy clay below 55 cmbgs. The brick feature is found within Stratum III.

New South recovered 13 artifacts from the test unit within Strata I and III (Table 6). Artifacts consisted of nails, clear and olive green glass, coal, and a sewer tile/pipe fragment. The only diagnostic artifacts recovered were the pieces of whiteware (1830-present), providing a temporal range of mid-nineteenth century to present (Miller 1991).

Table 6. Artifact Summary of Test Unit 1

Artifact Type	Count
Ceramics, Unidentifiable	1
Coal	1
Container Glass, Clear	1
Container Glass, Olive Green	1
Glass, Unmeasured Flat	1
Nail, Unidentified Fragment	4
Sewer Tile/ Pipe Fragment, Ceramic	1
Whiteware, Unidentified	3
Grand Total	13

A brick feature was uncovered in the northeast corner of the unit at a depth of approximately 30 centimeters below ground surface (Figure 28). There were five handmade bricks total with three on the bottom and two more places on top. Below these bricks, in Level 4 in Stratum III, there was 10 centimeters of gravel fill of to a depth of approximately 46 cmbgs. There were also additional brick fragments within the fill, though none were collected. The bricks were in alignment with little to no mortar and the gravel fill was on one side of the brick. Due to the length and width of the brick feature and the gravel fill, it appears to be brick-edged gravel landscape feature, possibly a walkway related to the house entrance .

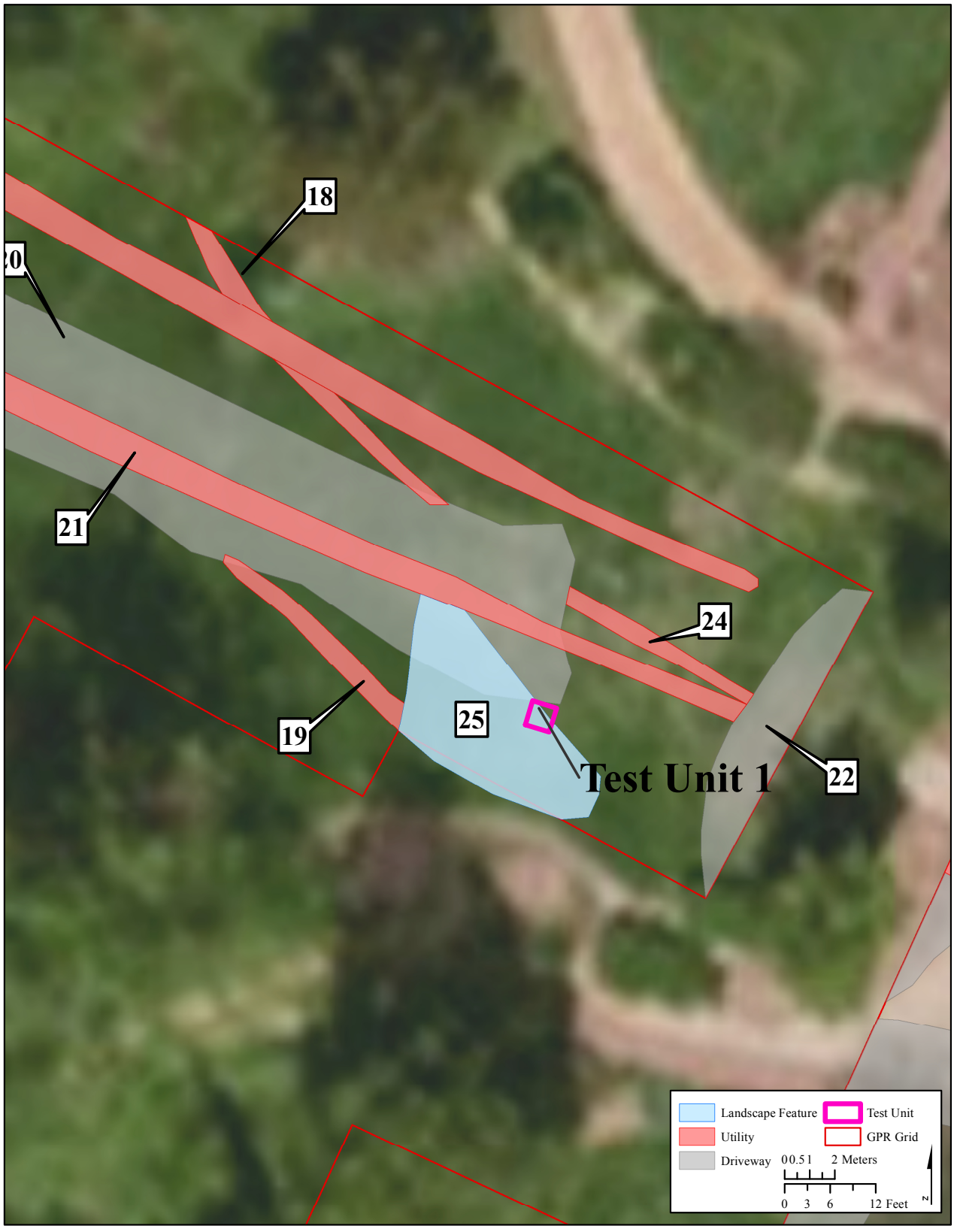
DISCUSSION OF RESEARCH GOALS

Research questions were outlined in Chapter 1. Each of these is reviewed below in light of the work conducted for the current study.

Figure 25.
Map Showing Shovel Test Locations

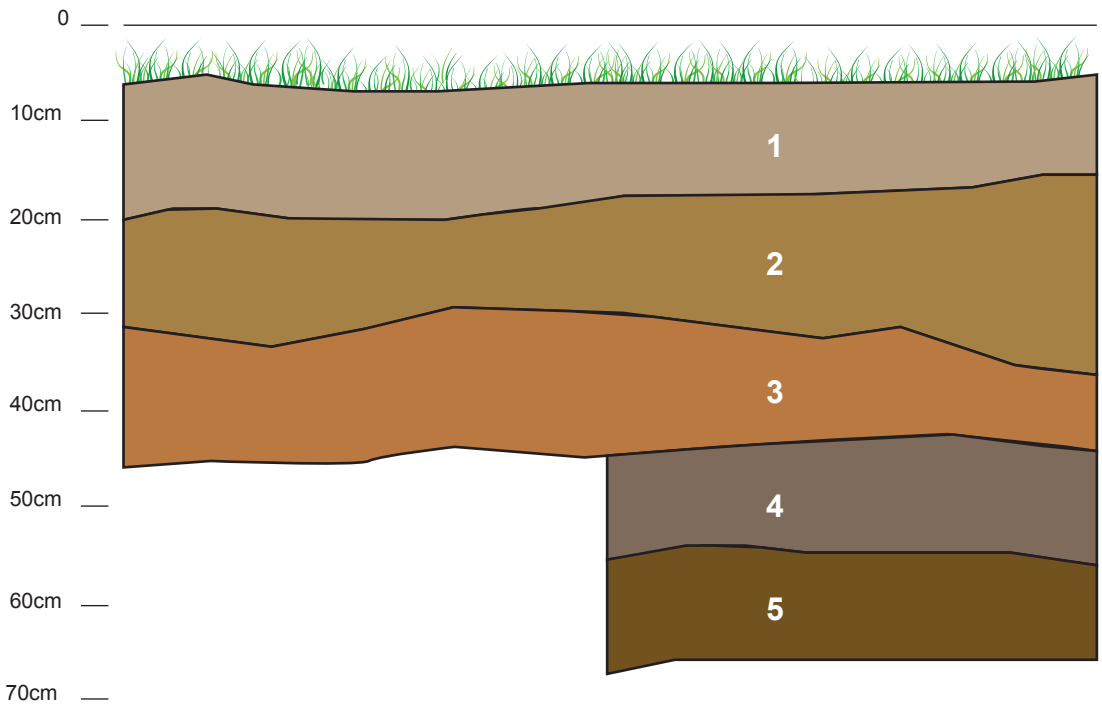
Source: Microsoft Imagery 2002

Figure 26.
Location of Unit 1 and GPR Anomaly 25



Source: Microsoft Imagery 2002

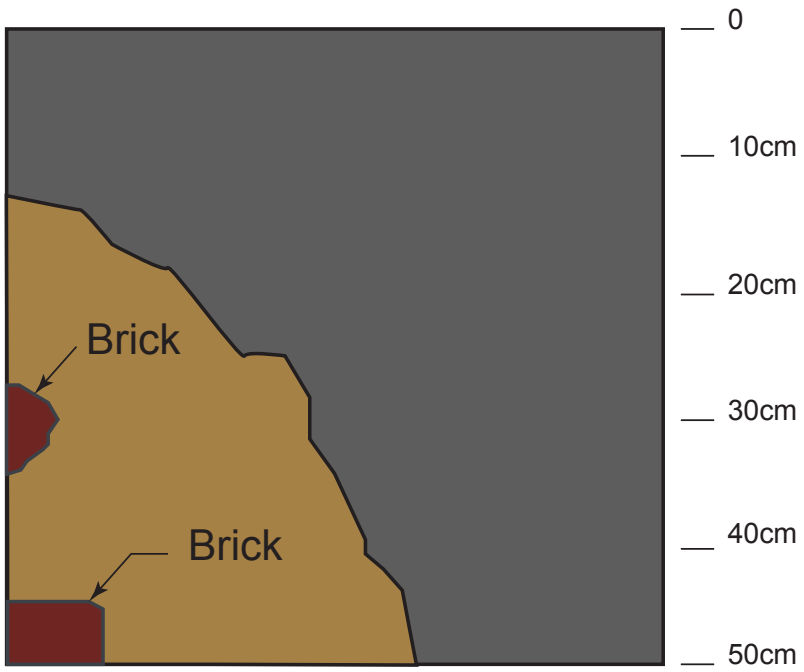
Figure 27.
Drawing and Profile of Unit 1 West Wall



44LX1146
Unit 1
West Profile

1 = 10YR6/3 Pale Brown Sand
2 = 10YR5/6 Yellowish Brown Silty Sand with Brick and Small Rock Inclusions
3 = 5YR 5/8 Yellowish Red with Very Large Gravel, Brick and Burned
4 = 7.5YR4/2 Brown Loamy Clay
5 = 10YR 3/6 Dark Yellowish Brown Loamy Clay

Figure 28.
Drawing and Photograph of Feature 1



1) *Bring existing survey information and site boundaries into a project GIS*:

   Previous reports of archaeological investigations at Woodlawn Plantation were reviewed. Most of these did not have any mapping showing survey boundary locations. Available maps were digitized and brought into GIS as specified in the scope of work. These were discussed in Chapter 4. Future work at Woodlawn Plantation should be mapped in sufficient detail and added to the existing GIS data.

2) *Inspect the location of sites 44FX1146 (Woodlawn Plantation) and 44FX2461 (Otis Mason House) to record current conditions*:

   Both Woodlawn Plantation (44FX1146) and the Otis Mason house (44FX2461) appear to be in good condition at present. The Otis Mason house is scheduled to be removed at some point in the future. Archaeological monitoring should be considered if/when the move is scheduled to identify, evaluate, and assess any additional features or intact deposits that might be present.

3) *Use GPR to locate the possible privy northeast of the main house*:

   GPR survey was conducted northeast of the main house. No evidence of the possible privy was found. Based on the location of the extant privy to the south of the house and the symmetry inherent in Georgian construction, the archaeological remains of the privy are likely under the boxwood hedge and tree to the north of the house. This area was inaccessible to metal detecting and GPR. If this vegetation is ever removed, GPR and metal detection should be brought in to determine if privy remains can be located.

4) *Use GPR and metal detector survey to locate the garden house northeast of the main house*:

   GPR survey northeast of the main house did not identify the garden house. Metal detecting identified primarily modern artifacts and a high frequency of horseshoes associated with a stable. It is possible some of the landscape features identified in the survey were associated with the garden house. The actual house may have been removed and the landscape sufficiently altered to remove its archaeological signature.

5) *Use GPR to locate brick wall exposed by Frick on the waterline to the fire hydrant*:

   GPR survey in the area of the fire hydrant and waterline that Frick investigated yielded new information. Several probable features were identified in the GPR data and GPR

anomaly 25 was investigated with a single test unit. Feature 1 was identified that consisted of a line of bricks and gravel. It was interpreted as a probable walkway landscape feature rather than a foundation. Additional work in this area would likely yield greater resolution on the overall landscape development and changes that occurred throughout the historic period. The GPR data suggest that intact features may be present at depths of up to 50 centimeters or more.

6) *Use metal detector and GPR in southwest portion of the plantation to determine if a structure reported by Flanagan is present:*

   The area investigated by Flanagan is actually along the southeast side of the property based on the mapping in his report. Using his description of the landscape the probable location was identified in the field. However, active construction related to the widening of Old Mill Road had impacted this area and likely erased all traces of this feature.

7) *Conduct artifact analysis:*

   Artifacts recovered from the current project were analyzed according to standard techniques and discussed in the Results section.

8) *Update the Woodlawn Plantation site form (44FX1146):*

   The updated site form for Woodlawn Plantation is attached in Appendix B. It was been filed with V-CRIS.

CONCLUSIONS AND RECOMMENDATIONS

Woodlawn Plantation has undergone significant landscape alterations and changes over the past 200 years. The geophysical survey and archaeological research conducted for the current study have demonstrated moderate potential for intact archaeological features. Additional work would be likely to contribute new and important information regarding the locations of individual features reported in various historic accounts and previous archaeological research and overall changes in the landscape.

No definitive features from the Lewis period were identified. However, the GPR data and excavation results suggest the potential for more deeply buried features and deposits. GPR survey may be particularly useful for identifying these and then targeted excavations would be productive for finer resolution.

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APPENDIX A: SPECIMEN CATALOG

Specimen Catalog

County: Fairfax County
State: Virginia
Project: Woodlawn Archaeology

State Site #	Field Bag #	Catalog #	Excavation Unit	Metal Detector Find #	Vertical Location	Count/ Weight	Artifact Description	Field Date
44FX1146	1	44FX1146-1-1	GPR Feature 1	1	0-10 cmbs	1 (6.2g)	Nail, Cut Fragment	9/16/14
44FX1146	2	44FX1146-2-1	GPR Feature 1	2	0-10 cmbs	1 (8.9g)	Bullet, lead	9/16/14
44FX1146	3	44FX1146-3-1	GPR Feature 1	3	0-10 cmbs	1 (7.8g)	Nail, Cut Fragment	9/16/14
44FX1146	4	44FX1146-4-1	GPR Feature 1	4	0-10 cmbs	1 (12.2g)	Nail, Cut Fragment	9/16/14
44FX1146	5	44FX1146-5-1	GPR Feature 1	5	0-10 cmbs	1 (1g)	Nail, Cut Fragment	9/16/14
44FX1146	6	44FX1146-6-1	GPR Feature 1	6	0-10 cmbs	1 (2.1g)	Nail, Cut Fragment	9/16/14
44FX1146	7	44FX1146-7-1	GPR Feature 1	7	0-10 cmbs	2 (24.6g)	Hinge, Iron/ Steel	9/16/14
44FX1146	8	44FX1146-8-1	GPR Feature 1	8	0-10 cmbs	1 (6.4g)	Nail, Cut Fragment, mend	9/16/14
44FX1146	9	44FX1146-9-1	GPR Feature 1	9	0-10 cmbs	1 (5.6g)	Drawer/Door Pull, Metal	9/16/14
44FX1146	10	44FX1146-10-1	GPR Feature 1	10	0-10 cmbs	2 (10.1g)	Nail, Cut Fragment	9/16/14
44FX1146	11	44FX1146-11-1	GPR Feature 1	11	0-10 cmbs	1 (5g)	Nail, Cut Fragment	9/16/14
44FX1146	11	44FX1146-11-2	GPR Feature 1	11	0-10 cmbs	1 (0.2g)	Whiteware, Unidentified	9/16/14
44FX1146	12	44FX1146-12-1	GPR Feature 1	12	0-10 cmbs	1 (6.4g)	Nail, Cut Fragment	9/16/14
44FX1146	13	44FX1146-13-1	GPR Feature 1	13	0-10 cmbs	1 (7.3g)	Nail, Cut Fragment	9/16/14
44FX1146	14	44FX1146-14-1	GPR Feature 1	14	0-10 cmbs	1 (7.2g)	Nail, Cut Fragment	9/16/14
44FX1146	15	44FX1146-15-1	Control Grid 2	15	10-15 cmbs	1 (45.7g)	Iron/Steel Rings	9/16/14
44FX1146	16	44FX1146-16-1	GPR Feature 1	16	0-10 cmbs	1 (14g)	Nail, Cut Fragment	9/16/14
44FX1146	17	44FX1146-17-1	GPR Feature 2	17	10-15 cmbs	1 (85.1g)	Horseshoe, fragment	9/18/14
44FX1146	18	44FX1146-18-1	GPR Feature 1	18	0-10 cmbs	1 (8.6g)	Nail, Cut Fragment	9/16/14
44FX1146	19	44FX1146-19-1	GPR Feature 2	19	15-20 cmbs	1 (144.4g)	Horseshoe, fragment	9/18/14
44FX1146	20	44FX1146-20-1	GPR Feature 1	21	0-10 cmbs	1 (1.5g)	Nail, Cut Fragment	9/16/14
44FX1146	21	44FX1146-21-1	GPR Feature 5	20	10-15 cmbs	1 (232.5g)	Horseshoe	9/18/14
44FX1146	22	44FX1146-22-1	Control Grid 2	22	0-10 cmbs	1 (1.1g)	Sheet Of Copper	9/16/14
44FX1146	22	44FX1146-22-2	Control Grid 2	22	0-10 cmbs	1 (11.3g)	Nail, Unidentified Fragment	9/16/14
44FX1146	23	44FX1146-23-1	GPR Feature 4	23	5-10 cmbs	1 (76.2g)	Horseshoe, fragment	9/18/14
44FX1146	24	44FX1146-24-1	GPR Feature 4	25	5-10 cmbs	1 (24.8g)	Nail, Cut Fragment	9/18/14
44FX1146	25	44FX1146-25-1	GPR Feature 4	27	10-15 cmbs	1 (27.1g)	Iron/ Steel, Unidentified/ Corroded	9/18/14
44FX1146	26	44FX1146-26-1	Unit 1 Level 2			4 (31.8g)	Nail, Unidentified Fragment	9/17/14
44FX1146	26	44FX1146-26-2	Unit 1 Level 2			1 (0.3g)	Container Glass, Clear	9/17/14
44FX1146	26	44FX1146-26-3	Unit 1 Level 2			1 (0.5g)	Glass, Unmeasured Flat	9/17/14
44FX1146	26	44FX1146-26-4	Unit 1 Level 2			1 (0.4g)	Container Glass, Olive Green	9/17/14
44FX1146	26	44FX1146-26-5	Unit 1 Level 2			2 (0.8g)	Whiteware, Unidentified	9/17/14
44FX1146	26	44FX1146-26-6	Unit 1 Level 2			1 (1.6g)	Coal	9/17/14
44FX1146	26	44FX1146-26-7	Unit 1 Level 2			1 (0.3g)	Ceramics, Unidentifiable	9/17/14
44FX1146	27	44FX1146-27-1	Unit 1 Level 3			1 (77.2g)	Sewer Tile/ Pipe Fragment, Ceramic	9/17/14
44FX1146	27	44FX1146-27-2	Unit 1 Level 3			1 (0.3g)	Whiteware, Unidentified	9/17/14

New South Associates, Inc.
6150 E. Ponce de Leon Avenue
Stone Mountain, GA 30083

APPENDIX B: UPDATED FORM FOR SITE 44FX1146

Snapshot

Date Generated: October 17, 2014

Site Name: Woodlawn Plantation
Site Classification: Terrestrial, open air
Year(s): 1754 - 1805
Site Type(s): Farmstead
Other DHR ID: 029-0056
Temporary Designation: No Data

Site Evaluation Status

NHL Listing

Locational Information

USGS Quad: FORT BELVOIR
County/Independent City: Fairfax (County)
Physiographic Province: No Data
Elevation: No Data
Aspect: No Data
Drainage: No Data
Slope: No Data
Acreage: No Data
Landform: Other, Terrace
Ownership Status: Private
Government Entity Name: Federal (indeterminate)

Site Components

Component 1

Category: Domestic
Site Type: Farmstead
Cultural Affiliation: Euro-American
DHR Time Period: Colony to Nation, Early National Period
Start Year: 1754
End Year: 1805
Comments: Historic Plantation. ca. 1754? ca. 1805

January 1985

Bibliographic Information

Bibliography:

No Data

Informant Data:

Name: Unknown
Owner Relationship: Owner of property

CRM Events

Event Type: Other

Project Staff/Notes:

Sarah Lowry - Archaeologist
Work completed under contract with Federal Highways

Project Review File Number: No Data
Sponsoring Organization: No Data
Organization/Company: New South Associates
Investigator: Shawn Patch
Survey Date: 9/15/2014

Survey Description:

The current study is an update of the archaeological survey report of Woodlawn Plantation prepared by the Chicora Foundation in 2000. This project included: 1) bringing existing survey information and site boundaries into a project GIS, 2) inspect the location of site 44FX1146 (Woodlawn Plantation) to record current conditions, 3) use ground-penetrating radar (GPR) and metal detectors to locate historic features as described in historic accounts and previous archaeological surveys 4.) conduct artifact analysis. Results of the GPR survey and archaeological investigations indicate that certain portions of Woodlawn Plantation may contain intact archaeological deposits, features, and artifact concentrations. Many of these may be more deeply buried. In addition, extensive modifications of the landscape were observed. Additional geophysical survey and archaeological fieldwork may be useful for further resolution.

Current Land Use	Date of Use	Comments
Museum	10/1/2014 12:00:00 AM	*No Data*

Threats to Resource: Development, Erosion, Neglect, Transportation Expansion
Site Conditions: 0-24% of Site Destroyed, Subsurface Integrity
Survey Strategies: Historic Map Projection, Metal Detection, Observation, Other Remote Sensing, Subsurface Testing, Surface Testing
Specimens Collected: Yes
Specimens Observed, Not Collected: Yes

Artifacts Summary and Diagnostics:

Cut nails, white ware, modern lead bullet, iron objects, horseshoes, and one copper handle

Summary of Specimens Observed, Not Collected:

Hand made bricks were observed and mapped in the excavation unit, but left in place.

Current Curation Repository: New South Associates, Inc, Stone Mountain, GA
Permanent Curation Repository: National Trust
Field Notes: Yes
Field Notes Repository: National Trust
Photographic Media: Digital
Survey Reports: Yes

Survey Report Information:

(2014) Patch, Shawn M., Ryan Robinson, Sarah Lowry, Lauren Souther, Brad Botwick, Archaeology of Woodlawn Plantation (44FX1146): 2014 Update, New South Associates Technical Report.

Survey Report Repository: VHDR, Federal Highway Administration
DHR Library Reference Number: No Data
Significance Statement: No Data
Surveyor's Eligibility Recommendations: No Data
Surveyor's NR Criteria Recommendations, : No Data
Surveyor's NR Criteria Considerations: No Data

Event Type: Survey:Phase I/Reconnaissance

Project Staff/Notes:

No Data

Project Review File Number: No Data

Sponsoring Organization: No Data
Organization/Company: Unknown (DSS)
Investigator: Engineering-Science, Inc.
Survey Date: 1/1/1985
Survey Description:

Survey and testing condicted in 1985 by Engineering -Science prior to storm drain contruction. See report in DHL Library for details of the work.

2000: a survey was performed by the Chicora Foundation, Inc.

Threats to Resource: No Data
Site Conditions: No Data
Survey Strategies: Observation, Subsurface Testing
Specimens Collected: No Data
Specimens Observed, Not Collected: No Data
Artifacts Summary and Diagnostics:

No Data

Summary of Specimens Observed, Not Collected:

No Data

Current Curation Repository: No Data
Permanent Curation Repository: No Data
Field Notes: No Data
Field Notes Repository: No Data
Photographic Media: No Data
Survey Reports: No
Survey Report Information:

Woodlawn Plantation, Mt. Vernon, Virginia: Archaeological Survey Edward J. Flanagan, Engineering-Science, Washington, D.C. 1985.

Survey Report Repository: No Data
DHR Library Reference Number: No Data
Significance Statement: No Data
Surveyor's Eligibility Recommendations: No Data
Surveyor's NR Criteria Recommendations, : No Data
Surveyor's NR Criteria Considerations: No Data

Event Type: Survey:HABS Inventory

Project Staff/Notes:

No Data

Project Review File Number: HABS 150
Sponsoring Organization: No Data
Organization/Company: Unknown (DSS)
Investigator: Netherton, Mrs. Ross D.
Survey Date: 10/6/1969
Survey Description:

No Data

Threats to Resource: No Data
Site Conditions: No Data
Survey Strategies: No Data
Specimens Collected: No Data
Specimens Observed, Not Collected: No Data
Artifacts Summary and Diagnostics:

No Data

Summary of Specimens Observed, Not Collected:

No Data

Current Curation Repository: No Data

Permanent Curation Repository: No Data
Field Notes: No Data
Field Notes Repository: No Data
Photographic Media: No Data
Survey Reports: No Data
Survey Report Information:
No Data
Survey Report Repository: No Data
DHR Library Reference Number: No Data
Significance Statement: No Data
Surveyor's Eligibility Recommendations: No Data
Surveyor's NR Criteria Recommendations, : No Data
Surveyor's NR Criteria Considerations: No Data

Event Type: NHL Listing

DHR ID: 44FX1146
Staff Name: No Data
Event Date: 1/1/1969
Staff Comment No Data