PHASE I ARCHEOLOGICAL SURVEY OF THE MANHOLE 43 IMPACT AREA ASSOCIATED WITH THE POTOMAC INTERCEPTOR REPAIR PROJECT, LOUDOUN COUNTY, VIRGINIA

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November 2013

Executive Summary

This report presents the findings of archeological testing conducted at the location of planned improvements to the Potomac Interceptor sewer line in Sterling, Virginia. The testing was conducted within the right-of way for the sewer line maintained by DC Water on land owned by the Home Owners Association (HOA) for the South Bank/Rivercrest residential development. The project area is situated on the floodplain of the Potomac River at the confluence with a tributary of Old Sugarland Run. The archeological survey was completed by The Ottery Group, Inc. at the request of DC Water.

The Potomac Interceptor carries waste from Fairfax, Loudoun, and Montgomery Counties and Washington D.C. to Blue Plains Treatment Plant in Southeast Washington, D.C. DC Water intends to conduct repairs to the Potomac Interceptor, which was initially constructed between 1960 and 1963, by relining portions of the sewer line for the purpose of extending the life and functionality of the system. The relining process involves the insertion of approximately 5,300 linear feet of 66-inch diameter conduit into the existing line at various access points along the sewer line. One of the insertion points for the relining project is Manhole 43. The archeological survey was conducted as part of the review and permitting process overseen by the Loudoun County Department of Planning.

Between August 1 and August 2, 2013, the Ottery Group conducted archeological testing within the right-of-way for the Potomac Interceptor. Two transects of 50cm by 50cm shovel test pits (STPs) were excavated at 10m intervals approximately 15m north of the Potomac Interceptor line, at the edge of the right-of-way. A total of 24 STPs were excavated within the project area. No cultural material was encountered.

A total of 65 archeological sites have been recorded within one mile of the project area, and the majority of these are prehistoric, Native American sites. Although archeological resources are known for similar landforms in the general vicinity, ground disturbance and grading was evident that can be attributed to the construction of the Potomac Interceptor and stormwater outfalls from the South Bank/Rivercrest residential development. A geoarcheological evaluation of the soils within the project area was conducted by Dr. Dan Wagner of Geo-Sci Consultants, LLC. As the project area is on the floodplain at the edge of the upland slope, and approximately 2km from the Potomac River, alluvial deposition that would result in deeply buried cultural deposits was considered unlikely. Dr. Wagner identified the subsoil horizon encountered at the base depth of STPs as Pleistocene deposits that predate the human occupation of the area.

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1.0 Introduction

This report presents the results of archeological testing conducted in the immediate vicinity of Manhole 43 within the right-of-way for the Potomac Interceptor sewer line prior to proposed construction associated with the repair of the sewer line. The tested portion of the DC Water Potomac Interceptor right-of-way is situated land owned by the Home Owners Association (HOA) for the South Bank/Rivercrest residential development (Figure 1.1). Proposed improvements to the Potomac Interceptor at Manhole 43 initiated review by the Loudoun County Department of Planning, which requested an archeological survey based upon the large quantity of archeological sites that have been identified in the vicinity of the project area. The archeological investigation was performed by The Ottery Group under contract with DC Water.

Between August 1 and August 2, 2013, The Ottery Group conducted archeological testing within the right-of-way adjacent to Manhole 43 for the Potomac Interceptor in order to determine whether archeological resources were present, and to provide recommendations for future construction activities in the vicinity of the project area. Testing was limited to the DC Water right-of-way immediately north of Manhole 43 (Figure 1.2).

The archeological investigation included background research, field survey, and report preparation. Lyle Torp, RPA, is the Principal Investigator of this study. The field survey was conducted by Karl Franz with the assistance of David Hixson and Geri Knight-Iske. Karl Franz and Lyle Torp prepared the technical report. The archeological testing was completed in accordance with *Guidelines for Conducting Cultural Resource Survey in Virginia* (VDHR 2003) and section 7.810 of the Facilities Standard Manual of the Loudoun County Department of Building and Development (Loudoun County 2012).

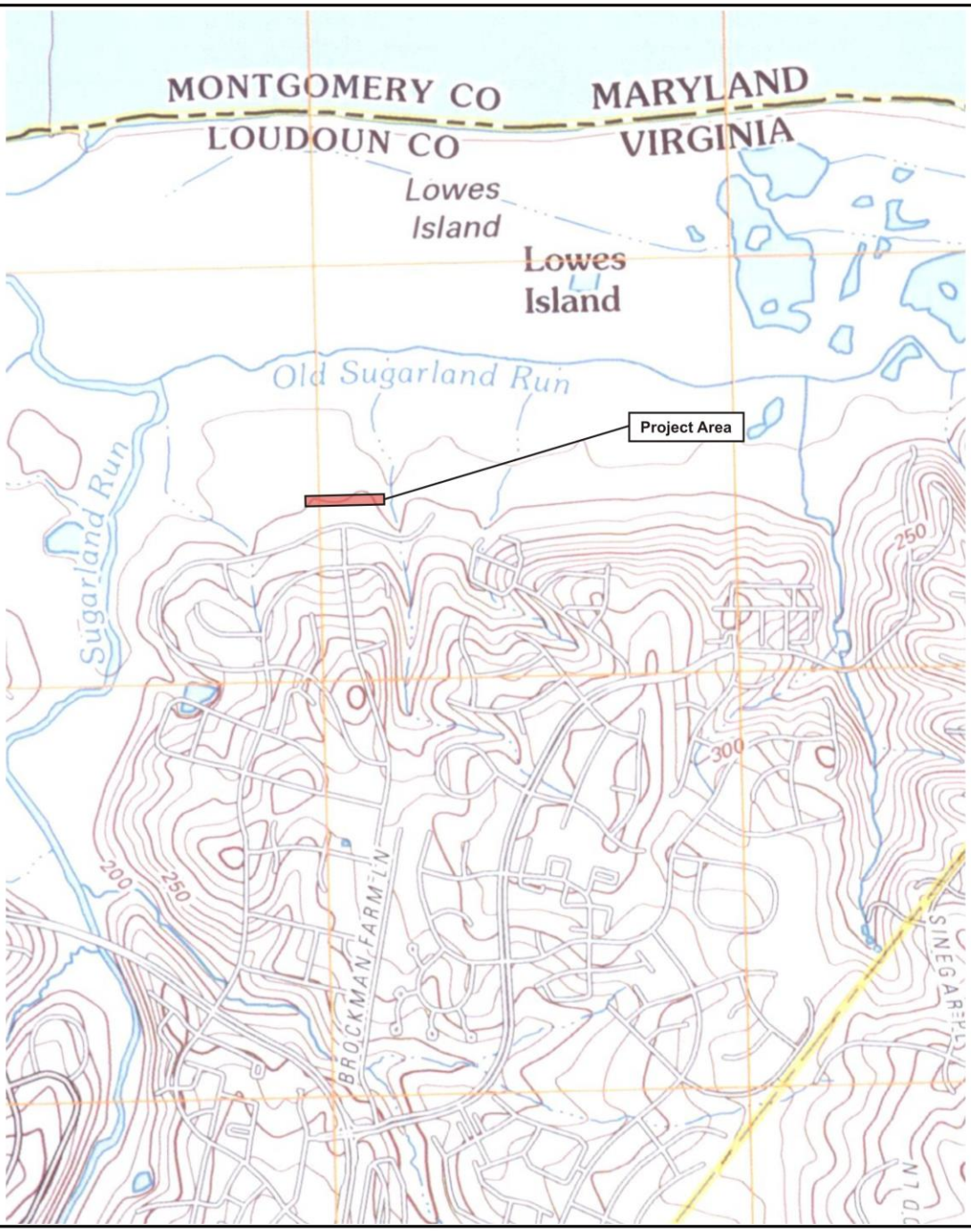

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Figure 1.1:

Location of the Project Area on the 2011 USGS Seneca, MD Quadrangle

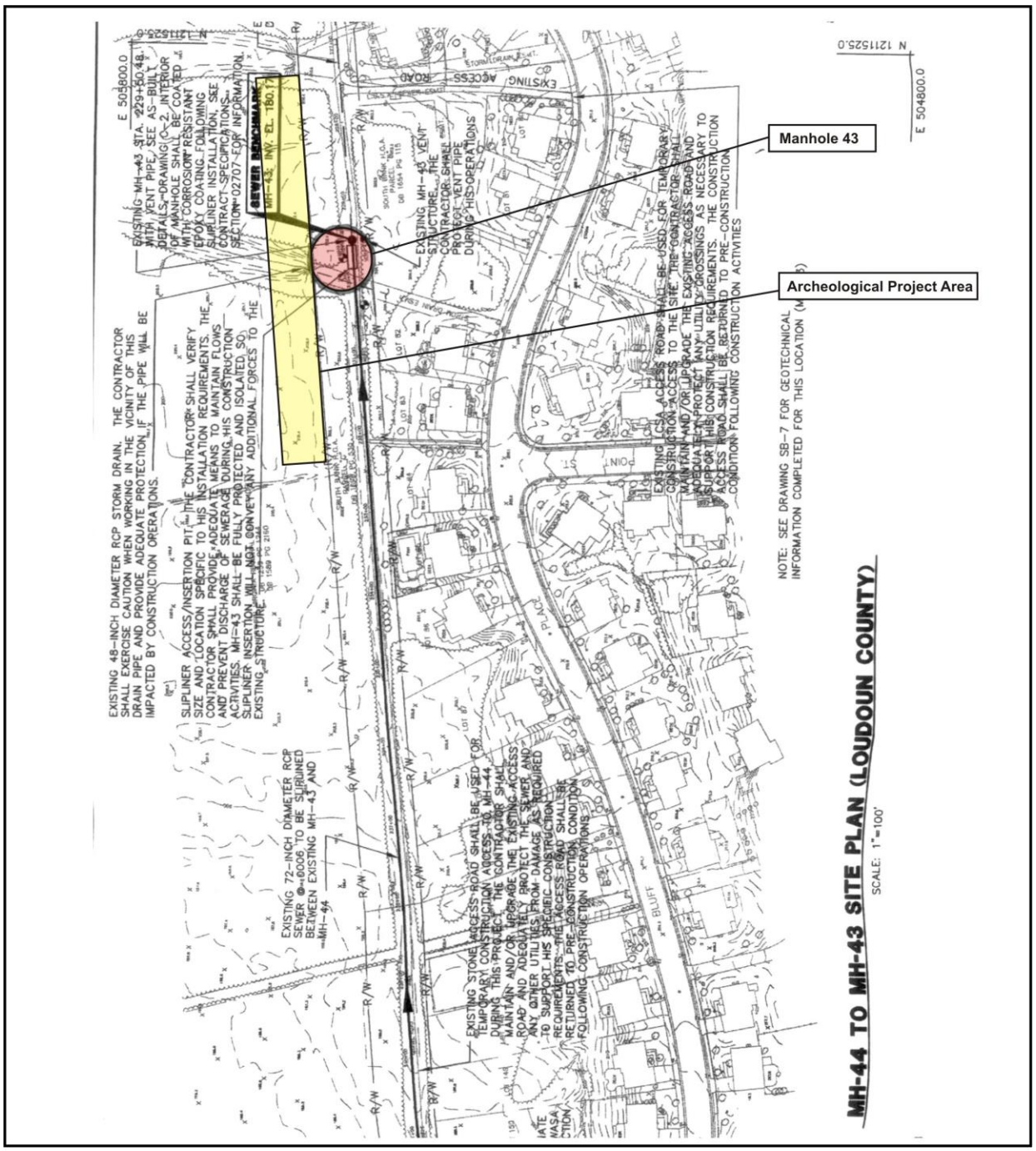

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Figure 1.2:

Project Plans showing Manhole Site 43 and the Archeological Project Area

2.0 Project Location and Description

The Potomac Interceptor is situated immediately to the north of the South Bank/Rivercrest residential development, which was constructed during the period between 1998 and 2001. Proposed improvements to the sewer line are intended to extend the functional life of the 50-year old system. Impacts associated with the undertaking include the staging of construction equipment and materials in the project area and trenching around Manhole 43 to allow for the insertion of a lining into the existing sewer line. In order to avoid archeological testing within areas previously-disturbed by the original construction of the Potomac Interceptor in 1963, the archeological testing was conducted approximately 15 meters north of the existing line, within the DC Water right-of-way.

The project area is situated at the interface of the Potomac River floodplain and upland landforms. An unnamed intermittent tributary of Old Sugarland Run forms the eastern boundary of the project area. Old Sugarland Run is effectively a backchannel of the Potomac River that flows into Sugarland Run and the Potomac River approximately 4,200 feet northwest of the project area. Elevations within the project area range from 200 to 204 feet above mean sea level (AMSL) (Figure 2.1).

The Natural Resources Conservation Service (NRCS 2013) indicates that soils within the project area consist Hibler silt loam, 0-7% slopes, rarely flooded (93B) and Kinkora-Delanco complex soils, 0-2% slopes, rarely flooded (99A) (Figure 2.2). Both soil types are classified as floodplain soils and are typically found on the summit and shoulder of terraces. The soils range from poorly drained to moderately well drained. Observed soil profiles within the project area are consistent with the mapped soils.

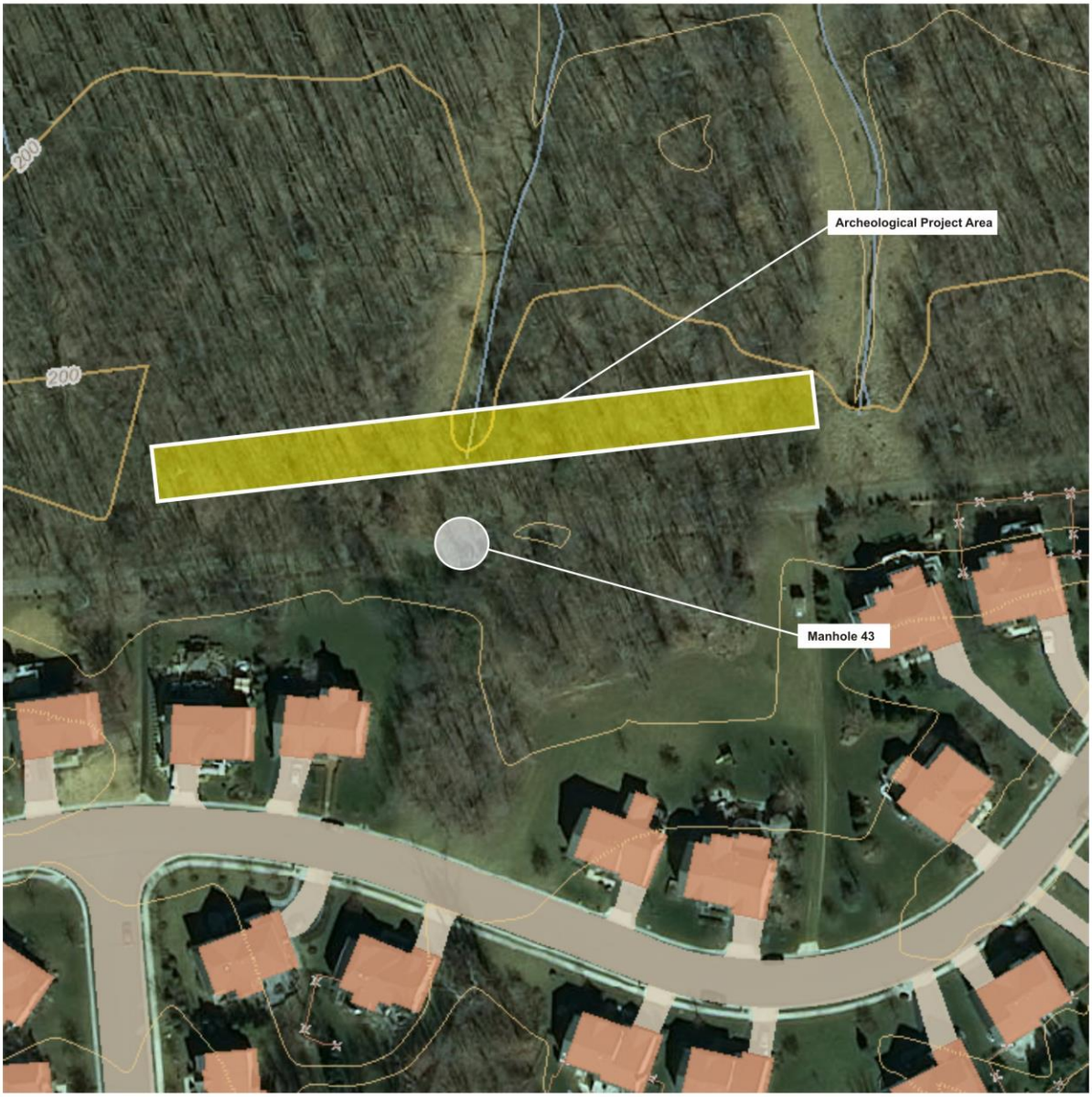

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Figure 2.1:

Project Location on Loudoun County GIS Map with 4-Foot Countours

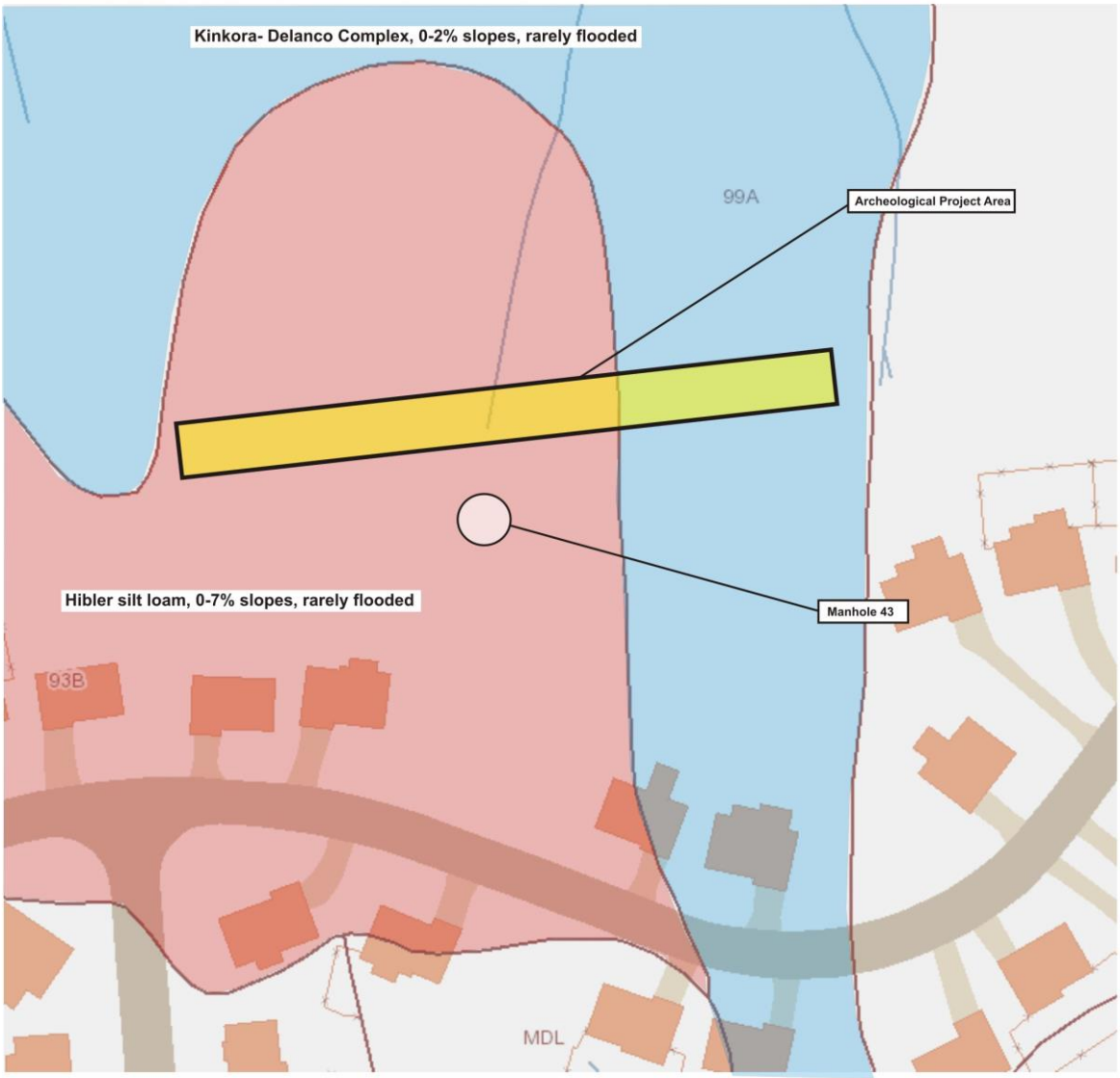

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Figure 2.2:

Soil Types Present within the Project Area

3.0 Environmental and Historical Background

3.1 Environmental Context

The natural environment has been an important determinant of settlement and subsistence patterns during prehistoric and historic occupations of the region. Specific environmental characteristics, such as soils and proximity to water, influenced the quantity and variety of resources available to prehistoric peoples (i.e., wild plants, animals, and raw lithic materials for the manufacture of stone tools). In a broader sense, climate influences the distribution of fauna, flora, and the nature and distribution of soils. Climate also determines, in part, where people travel or settle and how they exploit natural resources in their surroundings. Throughout the Middle Atlantic region, the locations and types of prehistoric sites are closely correlated with the modern biophysical environment (ca. 3,000 years before the present [BP]-Present) and with paleoenvironments (ca. 12,000-3,000 BP).

3.1.1 Paleo-Climate

The climate of the Middle Atlantic region underwent a series of changes following the retreat of the glaciers at the end of the Pleistocene. An understanding of climatic change is important in understanding the environmental conditions facing prehistoric peoples and how adaptation to these conditions shaped human settlement patterns and subsistence. Climatic episodes defined by Carbone (1976) for the Shenandoah Valley are broadly applicable to the project area. The vegetation history of the project area may be inferred from general vegetation histories of the Middle Atlantic region that have been developed from data provided by fossilized pollen. Plant communities also influence the faunal resources that were available in the past.

The last glacial episode reached its peak at approximately 18,000 BP. Sea levels were lower, and a significant portion of the continental shelf was exposed land. By about 15,000 BP, the Wisconsin glacier began to diminish and sea levels began to rise (Dent 1995:83). The glaciation occurring at the terminal Pleistocene had profound effects upon the climate of the Middle Atlantic region. The climate during this time was cool and wet (Carbone 1976). The landscape consisted of a relatively open tundra-like environment nearest the ice sheets, with open grassland and stands of spruce and fir further from the ice sheets.

Surface runoff from the retreating glaciers and heavy precipitation resulted in numerous upland bogs and poorly drained lowlands (Custer and Wallace 1982). A warming trend occurred at about 13,000 BP, during which a relatively open forest dominated by spruce and pine was the predominant vegetative cover. A resurgence of the glacial cold, referred to as the Younger Dryas, continued from 10,800 BP to 10,000 BP. It is speculated that the Younger Dryas oscillation was caused by the breach of glacial meltwater from the St. Lawrence River valley mixing with the Atlantic Ocean (Teller et al. 2002). This period also coincided with an increase in the rate of sea level rise (Bonnichsen et al 1985).

Beginning around 10,000 BP the temperatures began to stabilize and spruce woodlands gave way to pine-oak forests. By 9,000 BP, the hardwood content was sufficient to produce a closed-canopy forest (USDA 2002). With increasing deciduous forest constituents, the resources available to native occupations changed. An increase in nut-bearing trees also might have resulted in an increase in small foraging animals. Anadromous fish increased in number by the end of this climatic episode. Moist climatic conditions during this episode promoted the development of uplands and increased wetland areas associated with stream drainages. These vegetation communities would have provided unique sets of resources and unique resource distributions for Paleo-Indian and Early Archaic populations.

As the effects of the ice sheets diminished, the rise in sea levels resulted in the slow inundation of many river valleys. The most pronounced embayment in the Middle Atlantic region occurred with the drowning of the Susquehanna River, which eventually resulted in the formation of the Chesapeake Bay. This rise in sea level would have affected all tributaries to the Bay, including locations far away from its shores. Possible results of this rise include a cessation of stream incision, a decrease in stream competency that results in an increase in deposition throughout the drainage basin, and an increase in headwater erosion. During this time, seasonality increased and deciduous forests spread. Many Pleistocene fauna became extinct or migrated out of the region altogether.

Between 8,500 and 5,000 BP, the climate was warmer and more humid (Custer 1984), becoming increasingly warmer and drier, with the warmest and driest period from 5,000 to 4,000 BP (Carbone 1976). With increasing deciduous constituents, the resources available to Middle Archaic populations changed. An increase in nut-bearing trees also might have resulted in an increase in small foraging animals. Anadromous fish increased in number by the end of this climatic episode. The warmer and drier climatic conditions at the end of this period resulted in the draining of bogs and pocosins, which decreased the number of water sources available across the landscape.

By 5,000 BP, colder and wetter climatic conditions resulted in the replacement of the oak-hemlock forest community by an oak-pine-hickory community (Custer and Wallace 1982). The period between 5,000 and 3,000 BP has been interpreted as a xerothermic climate regime (Carbone 1976), which resulted in fewer lower order streams and a concentration of resources in lowlands (Custer and Wallace 1982). By the end of this climatic episode, climax forests dominated by mixed oak-hickory-pine were established, composing a community similar to modern forest communities. The Late Holocene (3,000 to the present) represents essentially modern climatic conditions, although several climatic perturbations are suggested after the beginning of this period.

3.1.2 Modern Climate, Flora, and Fauna

Today, Loudoun County has a humid, temperate, semi-continental climate with well-defined seasons. Weather conditions for the area are typical of its position in the middle latitudes, where air flow generally is from west to east across the continent. The last half of July is the hottest period with an average afternoon high temperature of 76 degrees Fahrenheit. The later part of January is the coldest month with an average afternoon high of 36 degrees Fahrenheit. The annual precipitation averages approximately 39 inches. Average annual snowfall is 18 inches. This number varies considerably from year to year (Porter et al 1963).

3.2 Prehistoric Cultural Sequence

Loudoun County is located within the Middle Atlantic culture area, which is traditionally defined as extending from the Dismal Swamp of the North Carolina/Virginia border to the Hudson estuary in New York, and from the Appalachian mountains to the Atlantic Ocean.

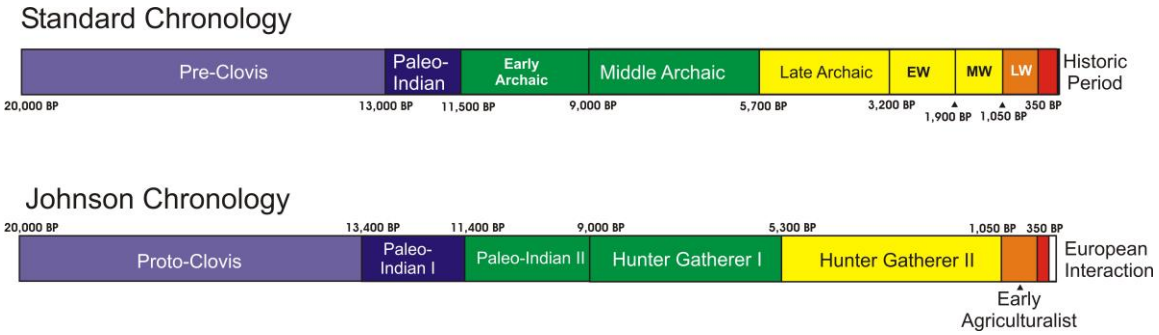
There are three general prehistoric cultural traditions recognized in the Middle Atlantic region: Paleo-Indian, Archaic, and Woodland. Originally developed as cultural historical units primarily intended to treat temporal and spatial questions, these traditions are defined by diagnostic artifact forms and assemblages. In more recent years, this scheme has been modified to emphasize cultural adaptations to changing ecological conditions. While the various terms continue to be used, their use is now as much behavioral as classificatory.

Former Fairfax County Archeologist Mike Johnson developed a distinct prehistoric chronology that, while not specifically addressing Loudoun County, is often used as a de facto chronology for Northern Virginia. Johnson's chronology consists of seven culture periods that roughly correspond to the standard designations. Table 3.1 shows the relationship between the generally-accepted chronological sequence and that developed by Johnson.

3.2.1 Pre-Clovis Period

Traditionally, archeologists have dated the earliest North American habitation to the period 13,000 to 11,500 years BP but recent discoveries at the Topper site in South Carolina suggest earlier dates for human habitation in North America, perhaps to 25,000 years BP or earlier (Spotts 2004). In 1997 Joseph McAvoy, excavating at the Cactus Hill site in southeast Virginia, provided samples that date from between 18,000-19,000 years BP (Chandler 2004). Robert Wall's excavations at the Barton site in western Maryland have yielded radiocarbon dates ranging from 7,000-14,000 years BP. In spite of such discoveries, the Pre-Clovis argument has not been universally accepted. Johnson's (2009) Proto-Clovis is analogous to the Pre-Clovis period. No Pre-Clovis archeological sites have been identified in Loudoun County.

Table 3.1: Date Ranges for Standard and Fairfax County Cultural Divisions



3.2.2 Paleo-Indian Period

Although some current research questions the age of the earliest human presence in the Middle Atlantic region, the Paleo-Indian period (ca. 13,000-11,500 BP) represents the first undisputable occupation of the Americas. Paleo-Indian populations were mobile, frequently changing location throughout the year within a territory in order to utilize available resources. Gardner's research at the Flint Run Complex in Virginia (Gardner 1974, 1977, 1979) has identified several types of sites organized around the base camp, which was the main focus of habitation by aggregate bands. Base camps tend to have heterogeneous artifact assemblages, in contrast to smaller special purpose sites that were occupied by smaller groups for shorter periods of time to make use of seasonally available resources. Base camps were tied to quarry sites where high-quality cryptocrystalline lithic materials were extracted for stone tool manufacture. Smaller camps and special use sites radiate from the base camps in varying distances.

Gardner (1974) notes that Paleo-Indians placed an emphasis on hunting, although it is most likely that exploitation of available floral resources were also a critical component of Paleo-Indian subsistence strategies. In many areas, Paleo-Indian sites are associated with large Pleistocene megafauna such as mammoth and mastodon; however, Gardner (1980) notes that the hunting economy probably focused on deer, elk, and possibly caribou. Diagnostic projectile point forms include (from earliest to latest) Clovis, Mid-Paleo, and Dalton-Hardaway. Throughout the Middle Atlantic, Paleo-Indian occupations are poorly documented, and are generally represented through isolated finds or in mixed assemblages. Johnson's Paleo-Indian I period is consistent with the

standard Paleo-Indian period as defined by Gardner, and is also based upon the use of diagnostic fluted points.

There is a documented presence of Paleo-Indian sites along the banks of the Potomac River in the vicinity of the project area. The Clark's Branch site (44FX3226) contained a living floor that was radiocarbon dated to 8,600 BP and also yielded artifacts from below that context. No diagnostic Paleo-Indian point forms were recovered from the site. All other evidence of Paleo-Indian occupation along the Potomac comes from fluted points recovered from surface context (18MO4, 18MO6, 44LD81) (McDaniel 1980).

3.2.3 Archaic Period

The Archaic period (11,500-3,200 BP) in the eastern United States generally refers to pre-ceramic sites associated with nomadic hunter-gatherer populations that occupied the emerging Holocene deciduous forests. This was considered distinct from the Paleo-Indian period that was characterized by highly mobile hunters reliant on big game for their livelihood. Warmer and drier climatic conditions at the onset of the Holocene resulted in a more varied floral and faunal resource base, and resulted in cultural adaptations during the Archaic period. Settlement patterns were seasonally oriented, and groups were still semi-nomadic, with a subsistence base focused on hunting and gathering. Research over the last two decades has revealed that the transition between the Paleo-Indian and Early Archaic was not as great as previously thought. The transition to the Archaic appears to have been more gradual and characterized by exploitation of an increasingly broad range of local resources and decreasing mobility (Egloff and McAvoy 1990:63; Gardner 1988).

The Early Archaic sub-period (11,500-9,000 BP) is viewed as a continuation of the earlier Paleo-Indian lifeways, with an emphasis on the use of cryptocrystalline lithic materials for tool making (Knepper et al 2006:11). Johnson (1999) identifies this sub-period as Paleo-Indian II. Lithic technology, however, shifted to a variety of corner-notched types, including Palmer and Kirk, as well as bifurcate-base types such as Lecroy during the transition to the Middle Archaic period (Custer 1990:6). This shift in projectile point form may indicate diversification within the system of production, as economies shifted from a concentration on hunting deer and other large game to more diverse faunal exploitative patterns focused on smaller game. By the end of this sub-period, less emphasis is placed upon high-quality cryptocrystalline stone, suggesting that the settlement system based on quarry-related base camps became less important. In his analysis of surface collected archeological sites along the Potomac River, McDaniel (1980) identified a total of 45 sites with Early Archaic components.

Mid-Atlantic archeologists view the Middle Archaic sub-period (9,000-5,700 BP), which is analogous to Johnsons Hunter-Gatherer I (9,000-5,300 BP), as a time when hunting and gathering groups began to develop a subsistence strategy that incorporated a diverse array of seasonally available resources. This is indicated by the addition of specialized plant processing tools in Middle Archaic assemblages (Knepper et al 2006:12). A wider variety of projectile point styles is evidenced during this time; however, the use of cryptocrystalline stone for tool production was nearly abandoned. Diagnostic artifacts include Stanley, Morrow Mountain, Guilford, and Halifax point types (Custer 1990:6). Tool kits are seen as becoming increasingly diversified during this period. The focus of settlement is at seasonally occupied base camps located on the floodplains of major drainages where seed plants could be exploited. Hunting and limited-use sites are located in the uplands, along lower-order streams and near lithic sources, and adjacent to interior swamps and swampy floodplains of low order drainages. In his analysis of surface collected archeological sites along the Potomac River, McDaniel (1980) identified a total of 98 sites with Middle Archaic components. McDaniel's classification of Middle Archaic point forms includes some types that other chronologies place within

the Late Archaic, resulting in a skewed site count for the Middle and Late Archaic periods (Inashima 2008).

The Late Archaic sub-period (5,700-3,200 BP) is characterized by cultures that made efficient use of their local environments, and as a result, there is an increased degree of regional distinction that is visible in the archeological record. During this time semi-sedentary settlement systems expanded, possibly as a result of greater aridity that tethered groups to critical resources, or an increase in population that resulted in territorial circumscription.

Increased use of riverine and estuarine resources is evident. The development of estuaries throughout the Coastal Plain from the continued rise in sea levels resulted in the increased distribution of crabs and oysters and extensive seasonal runs of anadromous fish. Steatite bowls are introduced into the technology inventory. The majority of projectile points representative of this time period consist of side-notched and stemmed varieties, which are typically manufactured from quartz.

The Late Archaic sub-period represents the culmination of what Caldwell (1958) termed primary forest efficiency. Caldwell stressed the variety and availability of food sources in the eastern forests, and stressed that prehistoric groups could move seasonally to maximize resource acquisition. Thus, in the eastern United States in general, Middle and Late Archaic groups are seen as mobile hunting and gathering peoples who exploited seasonal resources and scheduled their movements accordingly. In parts of the Middle Atlantic region, the Late Archaic period also is associated with large bivalve middens. Scattered campsites focused on major rivers appear to form a major element within the settlement pattern; short-term campsites in upland zones along small streams have also been documented.

Culturally-diagnostic artifacts for this period include the Savannah River and Susquehanna Broadspear projectile point types, which appear to be represented in different frequencies above and below the Fall Line separating the Piedmont and Coastal Plain. The presence of steatite bowls in assemblages is also a diagnostic artifact of this period. In his analysis of surface collected archeological sites along the Potomac River, McDaniel (1980) identified a total of 100 sites with Late Archaic components.

3.2.4 Woodland Period

The Woodland period is divided into three sub-periods: Early Woodland (3,200-1,900 BP), Middle Woodland (1,900-1,000 BP), and Late Woodland (1,000-350 BP). The Woodland period was defined originally in the 1930s by the appearance of ceramics, maize agriculture, and sedentary villages. At the time, it was believed that ceramics, food production, and sedentary village life were mutually inclusive. Research over the last few decades, however, has revealed that the transition between the Archaic and Woodland were not as great as previously thought. Witthoft (1953) defined a Transitional Period, particular to the northeastern and Middle Atlantic regions of the United States that linked the Archaic and the Woodland periods. Custer (1989; Custer and Wallace 1982) considers the Late Archaic through Middle Woodland as a related continuum.

The Early Woodland sub-period represents a continuation of trends begun during the Middle and Late Archaic periods towards increased exploitation of local resources and decreased mobility. The increased productivity of coastal and estuarine resources resulted from the stabilization of sea levels; marshes developed and estuarine areas rapidly became places on the landscape in which fish, waterfowl, and shellfish could be easily exploited. Floodplains are increasingly the focus of plant harvesting. Early Woodland technology included two sets of diagnostics. The first is a series of projectile points, typified by fishtail and by contracting stemmed varieties. The second set of

diagnostics is ceramics. Characteristic ceramics of the period include steatite-tempered Marcey Creek and Selden Island types, and sand-tempered Accokeek ceramics.

During the Middle Woodland sub-period (1,900-1,000 BP), villages grew in size and became more permanent. Handsman and McNett (1974:26) have suggested that there was a greater reliance on horticulture resulting from an increasing population. Similarly, the recovery of exotic lithic raw materials from Middle Woodland contexts indicates the establishment and maintenance of long distance trade networks. Collectively, the increase in population and village size and maintenance of trade routes suggests increased social complexity from the Early Woodland (Knepper et al. 2006:13) Diagnostic artifacts include Popes Creek ceramics that are more frequent in the Coastal Plain, and Albermarle wares which are more common in the Piedmont, as well as shell-tempered Mockley wares.

Johnson's Hunter-Gatherer II (5,300-1,050 BP) combines the Late Archaic, Early Woodland, and Middle Woodland periods into a single overarching period that bridges the foraging-based survival systems that predated it with the sedentary, agricultural cultures that followed it. The Hunter-Gatherer II period incorporates the development of pottery and the evolution of the stemmed, side-notched, and corner-notched projectile point forms.

Sedentism and subsistence based on food production were solidly established by the Late Woodland sub-period (1,000-350 BP), also known as the Early Agriculturist period (1,050-350 BP) by Johnson. Large, permanent villages were located on the floodplains of major rivers. By 600 BP, there is evidence of stockaded villages, suggesting extensive warfare throughout the Middle Atlantic region. Shell-tempered Townsend series ceramics are predominant in Late Woodland assemblages, while crushed-rock-tempered Potomac Creek wares are prevalent in the Inner Coastal Plain to the Fall Line zone. Either ceramic type could occur on Late Woodland sites in the project area. Triangular projectile points are typical of this period.

After contact with European settlers, the traditional lifeways were disrupted. European settlement rapidly led to the nearly complete elimination of Native American groups in the Middle Atlantic region. Settlement and subsistence of historic Native Americans at the time of contact were most likely a continuation of patterns observed in the Late Woodland period.

At the time of European arrival into the Chesapeake region, the coastal area of northern Virginia and Maryland was inhabited by the Algonquian speaking groups, most notably the Piscataway (Conoy). Algonquian speaking groups occupied much of the land on both sides of the Potomac River up to the Fall Line. Jennings (1978) claims that Iroquoian speaking Susquehannocks were primarily located north and west of Prince George's County, Maryland but proved significant during the early colonial period. However, as European settlements began encroaching into former Indian lands, many of these original inhabitants left the area or were ravaged by diseases for which they had no resistance.

3.3 Historic Background

Prior to its establishment in 1757, Loudoun County was initially part of a five million acre tract called the Northern Neck of Virginia Proprietary that was granted to seven noblemen in 1649 by King Charles II of England. The county was named after John Campbell, Fourth Earl of Loudoun, who was Scottish nobleman and Commander-in-Chief for all British armed forces in North America and titular Governor of Virginia from 1756 to 1768.

The first European colonial settlement within the area that became Loudoun County began between 1725 and 1730. Settlers moved into this area from neighboring colonies of Maryland and

Pennsylvania, and also New Jersey and New York. During this time, the primary motivation for settling here was the presence of fertile land on which tobacco plantations were established. Culturally, the emigrants derived from diverse backgrounds including English Quakers, Germans, Irish, and Scots-Irish.

By the mid-eighteenth century, colonial agriculture was shifting away from tobacco cultivation due, in part, to the nutrient-depletion caused by the annual tobacco crops. Tobacco growing gave way to other crops, including wheat and other grains during the last part of the eighteenth century. The population in northern Virginia continued to grow steadily during the eighteenth century, partly as a result of grants of land located in the Piedmont region. Population growth also occurred because of the presence of a reliable and cheap labor force found in the rapidly-increasing number of slaves.

In the third quarter of the eighteenth century, the American colonies responded to perceived injustices perpetrated by the English Crown to the detriment of the colonials. The most overt and occasionally violent responses to English policy occurred in port city of Boston, Massachusetts. In 1770, the town erupted after the events dubbed "The Boston Massacre," and three years later, independence-minded Bostonians disguised as Mohawk Indians dumped tea from British ships into Boston Harbor, in what would come to be known as "The Boston Tea Party." The British reacted by blockading Boston Harbor. Bostonians, in particular, protested the "Intolerable" or "Coercive" Acts. These included the earlier Quartering Act, imposed in 1765, as well as the Boston Port Bill and the Administration of Justice, Massachusetts Government, and Quebec Acts of 1774.

The repercussions of these events were felt throughout the colonies. On June 14, 1774 freeholders from Loudoun County assembled at the county courthouse. They issued a set of 'Resolves' directed at the British Authorities. While the authors regarded themselves as British subjects, rather than revolutionaries, the spirit of revolt echoes in the decree. The assembly agreed to, "…relieve our brethren of Boston, suffering under the most oppressive and tyrannical Act of the British Parliament" (Head 1908). The 'Loudoun Resolves' continued by accusing the British of taxing the politically unrepresented colonists and inflicting punishment without trial. The freemen went further, declaring a boycott of English goods.

The American Revolution came early to Virginia. Shortly after Patrick Henry's famous, "Give me liberty or give me death" speech, the appointed royal governor, Lord Dunmore, ordered stocks of gunpowder confiscated from a public magazine and then safeguarded aboard a British naval vessel. In response, Patrick Henry formed a militia and demanded restitution. This incident transpired only hours after the British march on Concord, Massachusetts. The Committee of Loudoun County declared their support for Henry's actions and denounced British actions toward the colony in resolutions issued on May 26, 1775. According to returns, 1,746 Loudoun county men volunteered for the patriot cause, more than any other county in Virginia. Loudoun County's German population contributed significantly; many served in Arniand's Legion, a force comprised of non-English speakers (Head 1908).

Transportation to and from the outlying Loudoun County region was essential to the establishment of an agricultural economy during the eighteenth and early nineteenth centuries. The Great Road was authorized as a turnpike in 1785. This route became increasingly important to regional economic and cultural development. In addition to roads, local river systems were utilized for transporting goods and products from Loudoun County to points north and east. The nineteenth century Chesapeake and Ohio Canal along the Potomac River, and a canal along Goose Creek, provided easy passage for barges carrying commercial goods. However, about the same time that such massive canal construction projects were completed, transportation methods were on the verge of being radically altered by the introduction of the train. In 1860, the Alexandria, Loudoun, and Hampshire Railroad Company opened service between Alexandria and Leesburg.

From the early-nineteenth century until the start of the American Civil War in 1860, the Southern states developed an agrarian economy almost entirely dependent on slave labor. With the appearance of the cotton gin about 1793, vast stretches of the South could profitably grow the fibrous plants. Samuel Slater's water powered cotton mill, first introduced in the United States in 1790, heightened northern demand for southern cotton in the nineteenth century. Plantations from the Carolinas to Texas provided northern mills with the raw materials for textile manufacture (Eaton 1975:214).

Loudoun County occupies the region where the Virginia Piedmont meets the Shenandoah Valley. The Shenandoah Valley developed separately from the piedmont and coastal regions of the state, in large part because the Valley was generally unsuitable for large-scale plantation systems. Furthermore, many of the settlers in the Valley opposed the institution of slavery on moral or religious grounds and/or were culturally disposed towards familial or communal, rather than plantation, agriculture. Although many slaves resided in the region, their numbers were low compared to those in the southern Mid-Atlantic lowlands. By 1860, slaves accounted for approximately 40 percent of the total Virginia population. This number somewhat obfuscates regional diversity, aggregating the western counties that had relatively small slave populations with coastal counties, some of which possessed a black demographic majority. The total population of Loudoun County numbered 24,774, of which 15,021 were white, 5,501 enslaved, and 1,252 free blacks (Head 1908). Therefore, in 1860, approximately 22 percent of the county population was enslaved, and in total, almost 27 percent of the county was African-American.

During the early- and mid-nineteenth century, the nation increasingly diverged over social and economic issues along sectional lines, north and south. In the early-nineteenth century, the United States Congress passed a set of import tariffs. One of these, dubbed by the southern states as the 'Tariff of Abominations', greatly increased the costs of goods entering southern ports, particularly Charleston, South Carolina. In response South Carolina, with John C. Calhoun at the forefront, adopted a policy of nullification whereby the state government refused to enforce federal mandates deemed contrary to state interests. Secessionists gained popularity in the state. President Andrew Jackson, realizing the ramifications of this action pushed the "Force Bill" through congress in 1833. Called the "Bloody Bill" in South Carolina, the legislation asserted federal supremacy over the state, authorizing the president to utilize military force to quell insurrection. Threatened with federal military response, South Carolina accepted the Compromise Tariff of 1833, but in a final act of belligerence, nullified the Force Bill. Jackson, weary of exacerbating a volatile situation, ignored the nullification, satisfied with South Carolina's acceptance of the new tariff (Eaton 1975:336-37).

Tobacco, long the staple in the upper south, became less profitable. Land-rich but financially poor upper-south tobacco planters looked for ways to mitigate losses. Many recognized a diminished need for labor. Conversely, Deep South planters increasingly demanded greater numbers of slaves. The situation resulted in a forced migration as tobacco planters sold their slaves 'down the river.' Adding to the inherent malice of the system, cotton planters desired mostly healthy male field hands. The separation of families, one of the many often cited horrors of slavery, became a regular occurrence.

As the nineteenth century progressed, abolitionists in the north and pro-slavery advocates in the South more fiercely asserted their positions. The U.S. Congress, hoping to avert hostilities, passed laws conciliatory to southern slaveholders. The Fugitive Slave Act, which reasserted federal protection of slaves as the property of their masters, proved especially contentious. The American court system appeared equally supportive of slavery through decisions such as the Dred Scott case in 1856. In the north, militant abolitionists prevailed over more conservative groups that attempted redress through the court system. In the South, slave rebellions caused fear and residents argued for even more comprehensive slave codes. As sectionalist sentiments intensified, social institutions such as churches divided into northern and southern sects over the question of slavery.

Southern states reacted strongly to the 1860 election of Abraham Lincoln, who had not even appeared on most southern ballots. On December 20, 1860, South Carolina seceded from the American union. Mississippi became the second state to secede, on January 9, 1861, followed by Florida (January 10), Alabama (January 11), Georgia (January 19), Louisiana (January 26), and Texas (February 1). On February 9, 1861, the newly formed Confederate States of America elected Jefferson Davis as president. In Virginia, the largely unionist State Convention voted against immediate secession, opting instead to evaluate federal reaction to the present crisis. Maintaining forts, in particular Fort Sumter, in South Carolina, and Fort Pickens, in Florida, were of the greatest concern to the federal government. The southern states asserted jurisdiction over federal property within their borders. However, soldiers at Forts Sumter and Pickens refused to surrender their charges to Confederate troops outside the forts (Latner n.d.).

As supplies at Fort Sumter dwindled, General Pierre Gustave Toutant Beauregard, commander of Southern troops outside Fort Sumter, urged a quick and peaceful surrender by the Union army. Intent on keeping the fort, President Lincoln authorized a relief mission. General Beauregard received the information of the Sumter re-supply on April 8, 1861, and demanded federal withdrawal on April 11. Major Anderson, in charge of United States troops at Sumter refused. At approximately 4:30 on the morning of April 10, Edmund Ruffin, a Virginia secessionist fired the first shot at Fort Sumter, starting the Civil War. On April 17, 1861, the Virginia convention voted to join the Confederacy. The last states to secede were Arkansas (May 6), Tennessee (May 7), and North Carolina (May 20) (Latner nd).

The Civil War greatly impacted residents of northern Virginia who witnessed many of the war's battles and suffered the consequences of frequently oscillating front lines. The first, large-scale battle of the war occurred at Manassas, in neighboring Prince William County. After this First Battle of Manassas, the federals retreated towards Washington D.C. and the Confederates strengthened their positions throughout northern Virginia. Following First Manassas, General Beauregard, then commanding Confederate forces in the region, ordered several units to Leesburg. Included among these was the 8th Virginia Infantry, a unit composed entirely of Loudoun County volunteers. These Southern units formed the 7th Brigade of the Confederate Army of Potomac and guarded Loudoun County from Federal forces positioned a short distance, across the Potomac, in Maryland.

Miscommunication between General McClellan, then commanding all Union troops in the region, and his subordinate General Banks, in charge of a division stationed at Darnestown in Maryland, culminated in the Battle of Ball's Bluff. Alternately called the Battle of Leesburg, federal troops crossed the Potomac River and attacked the waiting Confederates. The Confederates won the ensuing battle and drove the Union Army back across the Potomac in disarray. Other Civil War actions that occurred in Loudoun County include the Battle of Aldie and actions around Middleburg. John Singleton Mosby, among the most famed Confederate partisan leaders, drew much of his command from Loudoun County and regularly used the county as a safe haven.

After four years of conflict, the South capitulated. On April 9, 1865, Robert E. Lee, commander of Confederate forces, met with his Union counterpart, Ulysses S. Grant, in the parlor of Wilmer McLean's home at Appomattox Court House. After the war, soldiers returned home and, in the southern states, began the process of rebuilding.

By fall of 1865, all southern states had ratified new constitutions abolishing slavery and proclaiming allegiance to the federal government. However, issues centered on the rights of freedmen, pitted Radical Republicans in Congress against a President who viewed freedmen as merely a labor force. Johnson bitterly fought the radicals and vetoed both the Freedman's Bureau and Civil Rights Bills. Congress responded by drafting the 14th Amendment to the U.S. Constitution, which established equal protection under the law. Shortly thereafter, ratification of the 14th Amendment became

prerequisite for readmission of former Confederate states into the American Union. The passage of the 14th Amendment and of the 1867 Reconstruction Act represented a shift into the second, and final, Radical Reconstruction phase (Foner 1990: 114-123). Congress impeached Johnson for "high crimes and misdemeanors" in 1868. Although Johnson was acquitted, his administration lost control. Union war hero Ulysses S. Grant accepted the Republican Party nomination and was elected president in 1868.

Loudoun County recovered from the Civil War and Reconstruction. The county resumed its agricultural tradition. By 1900, only three Virginia Counties -- Fauquier, Pittsylvania, and Augusta -- reported more acres of improved farmland (Head 1908). As the twentieth century progressed, the character of Loudoun County, and all of northern Virginia, underwent drastic changes. Following the Second World War, the region witnessed rapid demographic expansion. Agricultural lands yielded to suburban development. The establishment of Dulles International Airport drew businesses to the region. Economically, the region has become decreasingly vested in agriculture.

3.3.1 Tract History

A review of available historic maps of the area from the mid- to late-nineteenth century depicts the historic development of the vicinity of the project area. During the nineteenth century, the area was occupied by large farms. The 1853 Taylor *Map of Loudoun County, Virginia* shows three structures situated to the south of the project area (Figure 3.1). The 1908 USGS Seneca quadrangle shows that the structures are still present, and depicts the roads that lead to them (Figure 3.2). The addition of elevation contours shows that the structures were all situated on upland bluffs overlooking the floodplain of the Potomac River. Twentieth century aerial photography shows that the project area was in agricultural lands. The 1957 photo shows that the project area was not currently cultivated, although the land immediately to the west was actively plowed (Figure 3.3). The 1963 photo shows the construction of the Potomac Interceptor. Clearing for the sewer line construction appears to have included the entire right-of-way. The current aerial photograph (Figure 3.5) depicts the completed Rivercrest development, which was under construction from 1998 to 2001 (Zillow 2013).

3.4 Previous Archeological Testing

A total of 65 archeological sites have been recorded within one mile of the project area (Table 3.2). The majority of the sites are prehistoric sites; only four historic period sites were identified. A total of 13 sites had no time period specified, although they are presumed to be prehistoric sites. Of the 65 recorded sites, 21 were classified as prehistoric sites with an undetermined chronology, indicating that no diagnostic artifacts were present. A total of 17 sites are categorized as Woodland period sites, with no breakdown into subperiod. One Archaic site was identified. Two sites were listed as Archaic and Woodland. Eight prehistoric sites were identified by subperiod, some of which are recorded as multi-component sites. Identified components include one Paleoindian component, three Early Archaic components, two Middle Archaic components, two Early Woodland components, and one Late Woodland component.

The majority of the 65 sites were identified by R.E. McDonald in work for his doctoral dissertation (1977). His study was centered on Lowes Island, which is immediately north of the project area and is currently the location of the Trump National Golf Club. The majority of the sites (36) are situated within 1000 feet of the Potomac River. All of the sites identified by McDonald were surface collected or examined by exposed stream bank or road cuts.

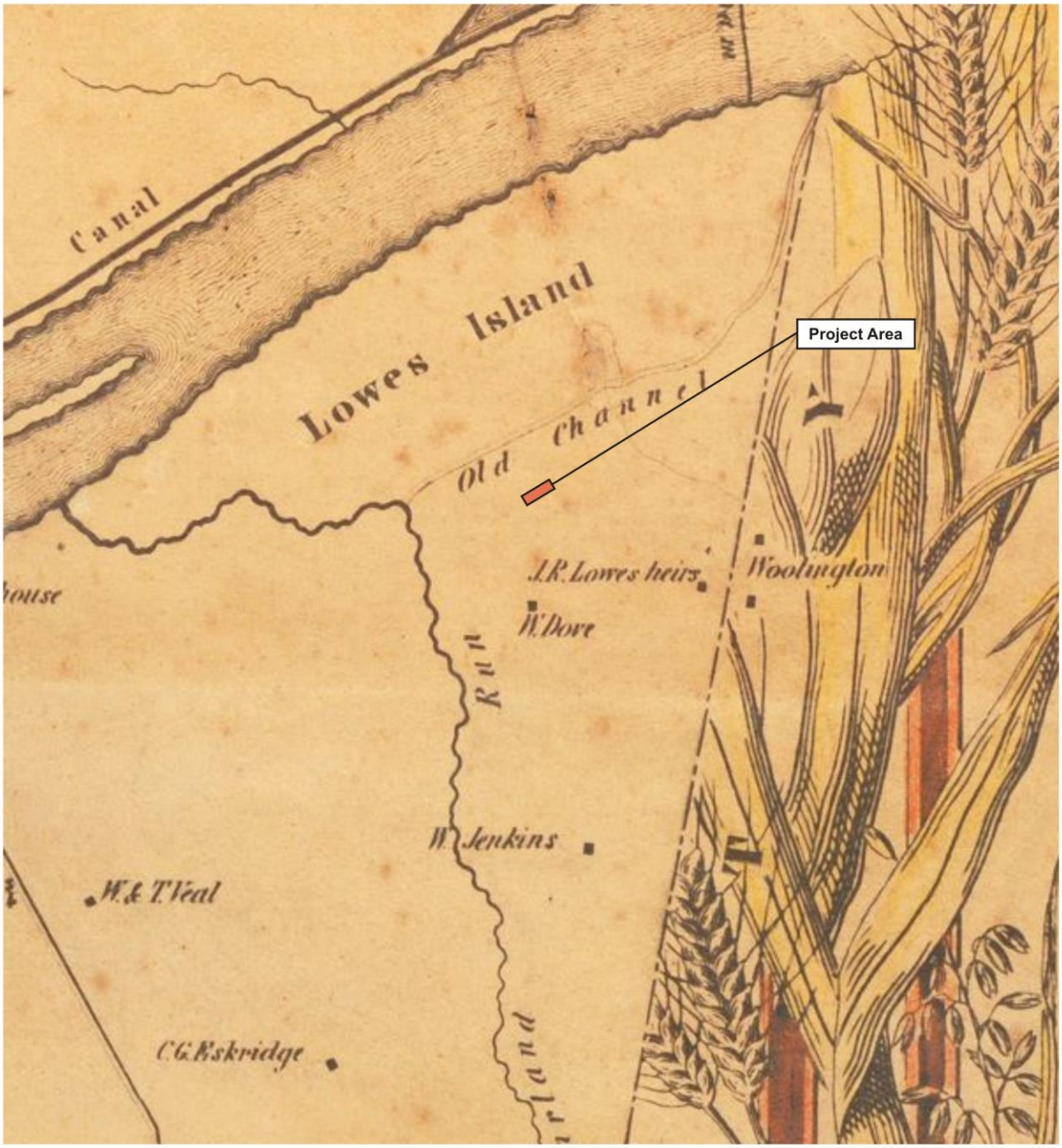


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Figure 3.1:

Approximate Location of the Project Area on the 1853 Yardley Taylor *Map of Loudon County, Virginia*

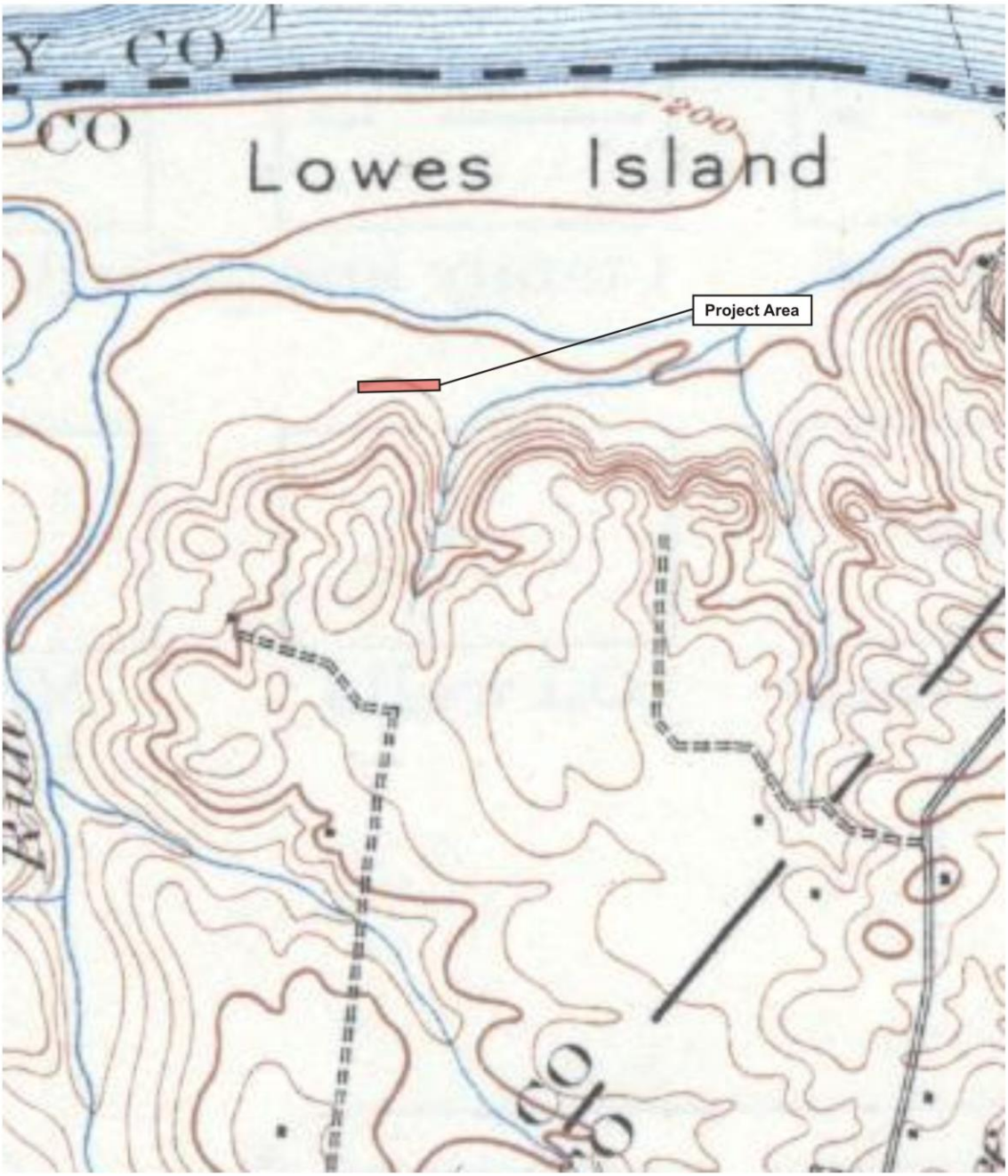

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Figure 3.2:

Location of the Project Area on the 1908 USGS Seneca, MD Quadrangle

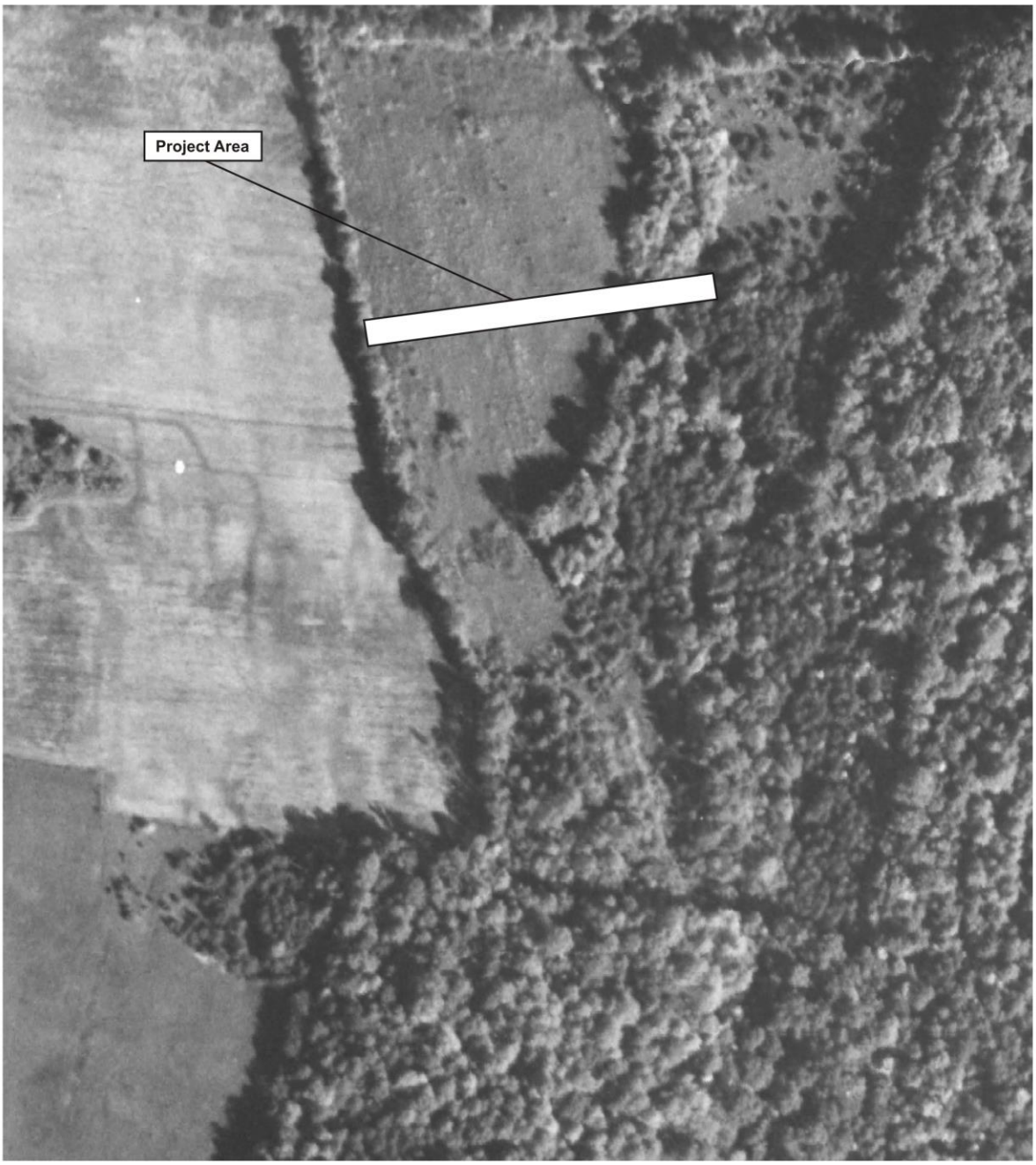

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Figure 3.3:

Location of the Project Area on a 1957 Aerial Photograph

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Figure 3.4:

Location of the Project Area on a 1963 Aerial Photograph

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Figure 3.5:

2013 Google Earth Image showing the Location of the Project Area

In addition to McDonald's research, five surveys have been completed within the one-mile radius (Bazuin 1982; Jorgenson and Paw 2004; Owens 2004; Wittkofski 1984; WMCAR 1997). No citation was present for two of the surveys (Bazuin 1982 and Wittkofski 1984) and the purpose and extent of the surveys are unknown. The remaining surveys were all Phase I identification surveys. Jorgenson and Paw (2004) and Owens (2004) were conducted prior to the construction of residential developments while WMCAR (1997) was conducted for a sewer line.

Table 3.2: Previously Identified Archeological Sites within One Mile of the Project Area.

Site Number	Time Period	Investigation
44LD0002	19th century (first half)	McDaniel 1979
44LD0003	Woodland (3200-400 BP)	McDaniel 1979; Bazuin 1982; WMCAR 1997
44LD0032	UID prehistoric	McDaniel 1979; WMCAR 1997
44LD0033	Woodland (3200-400 BP)	McDaniel 1979; WMCAR 1997
44LD0034	Woodland (3200-400 BP)	McDaniel 1979; Bazuin 1982
44LD0035	Early Woodland (3200-2299 BP)	McDaniel 1979; WMCAR 1997
44LD0036	Early Archaic (10500-8501 BP)	McDaniel 1979; WMCAR 1997
44LD0037	Woodland (3200-400 BP)	McDaniel 1979; WMCAR 1997
44LD0038	Woodland (3200-400 BP)	McDaniel 1979
44LD0039	Woodland (3200-400 BP)	McDaniel 1979; WMCAR 1997
44LD0040	Not specified	McDaniel 1979; WMCAR 1997
44LD0041	Archaic (10500-3201 BP); Woodland (3200-400 BP)	McDaniel 1979
44LD0043	Early Archaic (10500-8501 BP)	McDaniel 1979; WMCAR 1997
44LD0044	Woodland (3200-400 BP)	McDaniel 1979; WMCAR 1997
44LD0045	UID prehistoric	McDaniel 1979; WMCAR 1997
44LD0046	UID prehistoric	McDaniel 1979
44LD0047	UID prehistoric	McDaniel 1979; WMCAR 1997
44LD0048	Archaic (10500-3201 BP)	McDaniel 1979
44LD0049	Not specified	McDaniel 1979
44LD0050	Not specified	McDaniel 1979
44LD0051	Woodland (3200-400 BP)	McDaniel 1979
44LD0052	Paleoindian (17000-10501 BP); Early Archaic (10500-8501 BP)	McDaniel 1979
44LD0053	Not specified	McDaniel 1979
44LD0054	Woodland (3200-400 BP)	McDaniel 1979; WMCAR 1997
44LD0055	Archaic (10500-3201 BP); Early Woodland (3200-2299 BP)	McDaniel 1979
44LD0056	UID prehistoric	McDaniel 1979; WMCAR 1997
44LD0060	Middle Archaic (8500-5001 BP)	McDaniel 1979; Wittkofski 1984
44LD0063	UID prehistoric	McDaniel 1979
44LD0064	UID prehistoric	McDaniel 1979; Wittkofski 1984
44LD0065	UID prehistoric	McDaniel 1979; Wittkofski 1984
44LD0066	UID prehistoric	McDaniel 1979; Wittkofski 1984; Owens 2004
44LD0067	UID prehistoric	McDaniel 1979; Wittkofski 1984
44LD0068	UID prehistoric	McDaniel 1979; Wittkofski 1984
44LD0069	UID prehistoric	McDaniel 1979; Wittkofski 1984
44LD0070	UID prehistoric	McDaniel 1979; Wittkofski 1984
44LD0071	UID prehistoric	McDaniel 1979; Wittkofski 1984
44LD0072	UID prehistoric	McDaniel 1979; Wittkofski 1984; WMCAR 1997
44LD0073	UID prehistoric	McDaniel 1979; Wittkofski 1984; WMCAR 1997
44LD0074	Not specified	Wittkofski 1984
44LD0075	Not specified	Wittkofski 1984
44LD0076	Not specified	McDaniel 1979; Wittkofski 1984
44LD0077	Woodland (3200-400 BP)	McDaniel 1979; Wittkofski 1984

Site Number	Time Period	Investigation
44LD0078	Woodland (3200-400 BP)	McDaniel 1979; Wittkofski 1984
44LD0079	Not specified	McDaniel 1979; Wittkofski 1984; WMCAR 1997
44LD0080	Woodland (3200-400 BP)	McDaniel 1979; WMCAR 1997
44LD0084	Woodland (3200-400 BP)	McDaniel 1979; WMCAR 1997
44LD0085	Not specified	McDaniel 1979; Wittkofski 1984
44LD0086	Not specified	McDaniel 1979; Wittkofski 1984
44LD0087	Not specified	McDaniel 1979
44LD0088	Archaic (10500-3201 BP); Woodland (3200-400 BP	McDaniel 1979
44LD0089	Woodland (3200-400 BP)	McDaniel 1979; WMCAR 1997
44LD0090	Late Woodland (3000-400 BP)	McDaniel 1979; Wittkofski 1984; WMCAR 1997
44LD0091	UID prehistoric	McDaniel 1979; Wittkofski 1984; WMCAR 1997
44LD0092	Woodland (3200-400 BP)	McDaniel 1979; WMCAR 1997
44LD0093	UID prehistoric; 19th century (third quarter)	McDaniel 1979; Wittkofski 1984; WMCAR 1997
44LD0094	Middle Archaic (8500-5001 BP)	McDaniel 1979
44LD0095	19th century (first half)	McDaniel 1979
44LD0096	Woodland (3200-400 BP)	McDaniel 1979; WMCAR 1997
44LD0097	Woodland (3200-400 BP)	McDaniel 1979; WMCAR 1997
44LD0098	UID prehistoric	McDaniel 1979; Wittkofski 1984
44LD0099	UID prehistoric	McDaniel 1979; Wittkofski 1984
44LD0100	Not specified	McDaniel 1979; Wittkofski 1984
44LD1094	UID prehistoric	Owens 2004
44LD1165	19th-20th century	Jorgensen and Paw 2004

3.5 Potential for Deeply Buried Prehistoric Deposits

To determine the likelihood of encountering deeply buried cultural deposits within the project area, a geomorphological analysis of the project area was conducted in conjunction with the field testing by Dr. Dan Wagner of Geo-Sci Consultants, LLC. Dr. Wagner's examination of the excavated STPs as well as auger tests led to the conclusion that while alluvial deposition is not present within the project area, colluviums from slopewash or more likely, grading from the construction of the Potomac Interceptor and residential development, have buried three successive plow or fill deposits.

4.0 Research Design and Methods

4.1 Research Design

The Ottery Group, Inc. conducted archeological testing within a portion of the DC Water Potomac Interceptor right-of-way to determine whether archeological deposits were present. The archeological testing was conducted in the vicinity of Manhole 43, where mechanical excavation is proposed as part of a repair and relining project.

This project included archival research, field investigations, and an analysis of any recovered artifacts or other data developed from the investigation. Archival research was conducted in order to locate previously identified cultural resources in the surrounding area and to guide an assessment of the potential for locating undiscovered archeological sites within the project area. A review of aerial photography provided information on twentieth century land use and revealed the nature of disturbances from the construction of the Potomac Interceptor. Field investigations consisted systematically excavated 50cm by 50cm shovel test pits (STPs) approximately 15 meters north of the Potomac Interceptor line.

4.2 Archival Research

Archival review of archeological sites and reports was conducted using the VDHR's V-CRIS online database. Historic maps were retrieved from a variety of online sources including: the Library of Congress American Memory website, the historic USGS map archive at Maptech.com, and the Johns Hopkins online map database. Aerial photography was obtained from historicaerials.com. The construction dates for the South Bank/Rivercrest residential development were determined using real estate data from Zillow.com.

4.3 Field Methods

The fieldwork phase of the archeological investigation was conducted between August 1 and August 2, 2013. Fieldwork consisted of manual excavation of shovel test pits on two transects within the Potomac Interceptor right-of-way, approximately 15 meters north of the existing sewer line. The 50cm by 50cm STPs were excavated at 10m intervals along the transects.

Strata present on the site were broken down using standard geomorphological terminology. The mechanically removed overburden was identified as artificially deposited Fill soils. The underlying plowed agricultural level is identified as an A_PB horizon. A B horizon is the undisturbed substrate. At the interface with the B horizon, cultural features can be clearly identified, as they contain materials or soils that would not otherwise be present at that depth.

Once an STP was completed observations regarding artifacts recovered and stratigraphy were recorded. Measurements were recorded in metric units. Stratigraphy was recorded with notations concerning color, texture, and consistency.

4.4 Laboratory Methods

No artifacts were recovered during the archeological survey and no laboratory work was conducted.

5.0 Results

Archeological testing at Manhole 43 was conducted in association with the relining of a portion of the Potomac Interceptor, a sewer line maintained by DC Water. The tested portion of the project area is on property owned by the HOA for the South Bank/ Rivercrest residential development. The testing was conducted in order to determine whether archeological sites were present within the immediate vicinity of the project area. A total of 24 50 x 50 cm STPs were excavated at 10-meter intervals in the vicinity of Manhole 43. No artifacts were recovered.

5.1 Field Investigation

In total, 24 50 x 50 cm STPs were excavated at 10-meter intervals immediately north of the existing Potomac Interceptor line (Figure 5.1). The testing area was lightly wooded with trees that appeared to be less than 30 years old (Figure 5.2). It is unlikely that the area was clear cut during the construction phase of the South Bank/Rivercrest development, which was constructed during the period between 1998 and 2001. However, clearing has likely taken place since the construction of the Potomac Interceptor, which was underway in 1963 (see Figure 3.4). Stormwater outfalls from the residential subdivision also flank the project area, and have likely contributed to ground disturbance observed at the project area.

Four strata were present in the STPs. The soil profile was consistent with a graded landform. The typical STP profile contained a 10YR 3/4 dark yellowish brown silt loam AO horizon 10-15 cm deep overlying a 7.5 YR 4/6 strong brown displaced B horizon. This stratum was interpreted by the geomorphological evaluation as slope wash or a buried plowzone but it appears to be a graded deposit. The third stratum is a 10YR 4/4 dark yellowish brown silt loam buried plowzone that is likely the original plowed surface. The buried plowzone is encountered at approximately 40 cm below ground surface and is approximately 15 cm thick, suggesting that part of the original plowzone was removed when the soils were graded. The buried plowzone overlies a 10YR 6/4 brownish yellow B horizon that extended to a depth exceeding 80 cm. All of the STPs were excavated to depths exceeding 60 cm. No artifacts were recovered from any of the STPs.

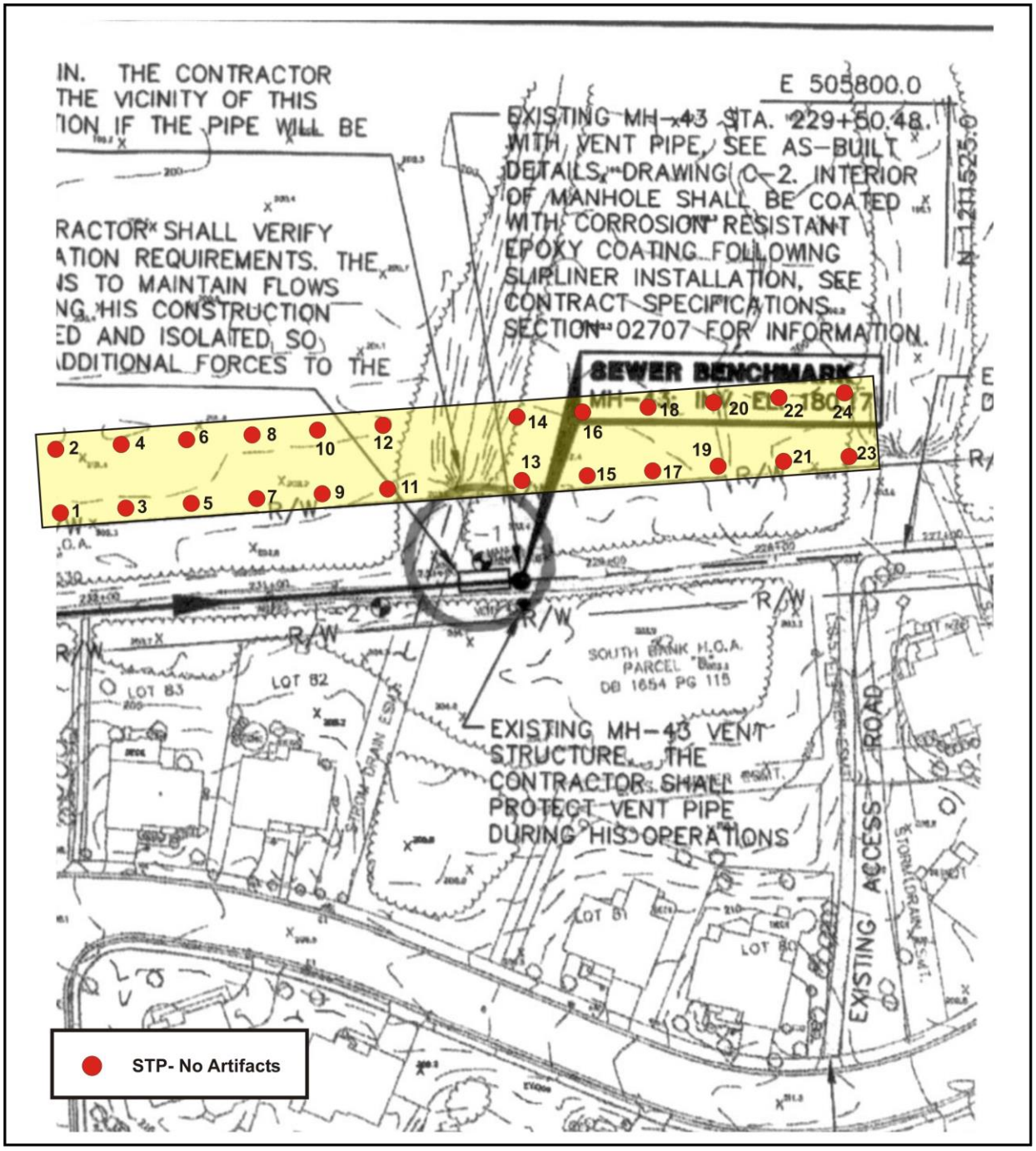

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Figure 5.1:

Location of Archeological Testing

Overview of Project Area facing West

Potomac Interceptor Route from Manhole 43, facing East

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Figure 5.2:

Photographs of the Project Area

6.0 Summary and Recommendations

This report presents the results of a Phase I archeological survey conducted within the right-of-way for the Potomac Interceptor in the immediate vicinity of Manhole 43. Subsurface impacts associated with the planned repair of the Potomac Interceptor are anticipated in the project area. A total of 24 50 x 50 cm STPs were excavated at 10-meter intervals across the project area. No artifacts were recovered from the archeological testing.

6.1 Summary

During the course of this investigation, a total of 24 STPs were excavated. Testing was conducted within the Potomac Interceptor right-of-way immediately north of Manhole 43, where ground disturbance is anticipated in association with the proposed repair project. STPs were excavated at 10-meter intervals to natural subsoil. No cultural material was encountered in any of the STPs.

A geomorphological evaluation of the soils within the project area indicated a low likelihood of encountering deeply buried alluvial deposits within the project area. Surface level disturbance was present that can be attributed to grading associated with the construction of the Potomac Interceptor, the South Bank/Rivercrest residential development, and with stormwater outfalls associated with the residential development.

6.2 Recommendations

As no archeological sites were identified within the project area, no additional archeological investigation is warranted prior to the planned construction activities in the vicinity of Manhole 43.

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APPENDIX A:
Geomorphological Assessment Report

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Comments on the Geoarchaeology of the Area Designated MH 43, Potomac Interceptor Project, Great Falls, Virginia

Submitted to
The Ottery Group, Inc.

By
Daniel P. Wagner, Ph.D.
Pedologist

September 28, 2013

The site area designated MH 43 was examined on August 2, 2013 at which time landscapes in and near the area were traversed, and a soil profile was described at the location of STP 18.

The area landscape is contained within a broad terrace continuum of the Potomac River. Although the full sequence is roughly 2 km in breadth, the study location is situated near the landward and highest limit of the terrace landform not far from where upland terrain rises just south of the sewer line. Given this disposition together with a gently undulating surface gradient typically averaging about 2-3% slope, considerable antiquity likely extending well into the Pleistocene is suggested for the age of the site terrace. This terrace appears to yield to one(s) of Holocene age within about 150 m or so to the north where the surface grade becomes more level. Unlike much older forms for which surface topography has been altered by eons of geologic erosion, Holocene terraces usually still exhibit the nearly level gradients produced by successive episodes of occasional alluviation. In contrast, the site terrace is carved by local drainages to nearly the same extent as the landward uplands, and its surface has likely been spared all but the most extreme Potomac flood events for many thousands of years.

Consistent with topographic indicators, the site soil is strongly developed and testifies to a prolonged history of soil weathering and formation. Pronounced argillic subsoil horizon (Bt) subsoil development with considerable clay enrichment and reddish coloration (5YR) is readily consistent with an age reaching into the Pleistocene and probably well before the earliest human occupation of the region (Figure 1). Accordingly, a near-surface restriction applies for most cultural materials. Although wooded now, the terrace had formerly been plowed, and its surface has also received agricultural slope wash from formerly cultivated uplands to the south to produce a sequence of three stacked Ap horizons. Most cultural deposits should be associated with the original surface horizon (Ap3) and the immediately underlying subsoil (BE), but some may also have been introduced into overlying horizons by upward mixing during tillage.

Soil Profile Description

Boring adjacent to STP 18

Horizon	Depth (cm)	Properties
Ap1	0-17	Dark brown (7.5YR 3/3) loam; friable consistence
Ap2	17-33	Brown (7.5YR 4/4) loam; friable consistence
Ap3	33-51	Dark brown (7.5YR 3/4) loam; friable consistence
BE	51-68	Dark yellowish brown (10YR 4/4) sandy loam; friable consistence
Bt1	68-101	Reddish brown (5YR 4/4) sandy loam; friable consistence
Bt2	101-119	Reddish brown (5YR 4/4) sandy clay loam; friable consistence
2Btg	119-132+	Gray (10YR 6/1) clay; common, medium prominent mottles of reddish brown (5YR 4/4); extremely firm consistence

Other comments: Terrace position; 2-3% slope; upper 33 cm are agricultural slope wash; Ap3 horizon is original surface; well drained; described 8/2/13

Figure 1. The strongly developed terrace soil likely dates well into the Pleistocene. It was formerly tilled and is now capped by 33 cm of slope wash derived from higher, previously cultivated positions to the south.