



Phase I Archaeological Survey for HISP NCC, SR 71, Old Porter Road to SR 7, Red Lion

New Castle County, Delaware

July 2014

Phase I Archaeological Survey for HISP NCC, SR 71, Old Porter Road to SR 7, New Castle County, Delaware

Agreement 1651, Task Order 1

Prepared For:



Delaware Department of Transportation

P.O. Box 778

Dover, Delaware 19901

Prepared by:

James G. Parker, MA, RPA

Gideon Singer

HDR

2600 Park Tower Drive, Suite 100

Vienna, VA 22180

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Abstract

Under contract to the Delaware Department of Transportation (DelDOT), HDR Environmental, Operations and Construction, Inc. (HDR) conducted a Phase I archaeological investigation for the proposed State Route (SR) 71, Old Porter Road to SR 7 Project in Red Lion, Delaware. DelDOT plans to undertake improvements along sections of Red Lion Road/SR 71, Bear Corbitt Road/SR 7, Church Road, and Old Porter Road, as well as at the intersections of Red Lion Road/SR 71 and Bear Corbitt Road/SR 7, Red Lion Road/SR 71 and Church Road, and Red Lion Road/SR 71 and Old Porter Road. Additionally, an approximately 2.76-acre parcel (tax parcel numbers 1005200020 and 1005200021) located southwest of the limits of construction (LOC) along Red Lion Road/SR 71 has been set aside as a proposed wetland mitigation area. The purpose of the investigation was to identify all archaeological and historical resources within the LOC and the wetland mitigation parcel, an area encompassing a total of 8.37 acres. In this report, the LOC will refer collectively to the proposed road and intersection improvements and the wetland mitigation parcel. The investigation was completed to assist DelDOT in meeting anticipated regulatory obligations under Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. HDR performed the work in accordance with the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* and the *DE Guidelines for Conducting Architectural and Archaeological Surveys in Delaware* (1993, as amended).

HDR conducted the background research in February and March 2014, and the fieldwork was undertaken in April 2014. The field survey included a controlled surface inspection of the entire LOC, followed by excavation of shovel test pits (STPs) in select portions of the LOC. Areas subjected to shovel testing were designated Survey Areas 1, 2, 3, and 4.

HDR excavated twelve shovel tests and one 1-m by 1-m test unit during the archaeological survey of Survey Area 1. One site was identified; it is designated 7NC-E-203 (CRS N05079) by the SHPO. Subsurface testing revealed a consistent stratigraphy within the site. A total of 469 historic artifacts and 2 modern items were recovered from the seven shovel tests and the 1-m by 1-m test unit that were excavated within the site. One feature, an intact fieldstone foundation, was encountered within the site. The historic assemblage recovered from the site dates from the early nineteenth to mid twentieth centuries, indicating a long span of occupation in the area. This is further supported by historic maps of the Red Lion area, which indicate that there has been settlement in the vicinity of the area since at least 1849. The fieldstone foundation encountered during the survey is likely the remains of one of the structures noted on historic maps. The NRHP eligibility of the site is undetermined; therefore, HDR recommends a Phase II archaeological evaluation to further investigate the vertical and horizontal integrity of the site.

HDR excavated six shovel tests during the archaeological survey of Survey Area 2. One site was identified; it is designated 7NC-D-265 (CRS N01237) by the SHPO. Subsurface testing revealed a generally consistent stratigraphy within the site. A total of 14 historic artifacts were recovered from the three shovel tests that were excavated within the site. The site assemblage dates from the nineteenth to early twentieth centuries. The intersection at Red Lion Road/SR 71 and Church Road has a long history of occupation. The small historic assemblage could be related to the current domestic structure located on the parcel (main house constructed c.1882; Allen and Ruth 2012: 33-37) or to previous occupations in the vicinity. However, interpretation beyond determining an approximate temporal range for the historic assemblage is difficult considering the low quantity of artifacts recovered. Based on the limited assemblage recovered and lack of intact archaeological deposits, HDR recommends this site as not eligible for listing in the NRHP. No further work is recommended.



HDR excavated five shovel tests during the archaeological survey of Survey Area 3. One site was identified; it is designated 7NC-D-266 (CRS N14568) by the SHPO. Subsurface testing revealed a generally consistent stratigraphy within the site. One prehistoric artifact (a possible Savannah River projectile point; Late Archaic) and 11 historic artifacts (mid/late nineteenth to early/mid twentieth century) were recovered from the two shovel tests that were excavated within the site. The projectile point was recovered from a disturbed context with several brick fragments. Interpretation beyond determining an approximate temporal range for the artifact assemblage is difficult considering the low quantity of artifacts recovered; especially considering settlement in the immediate vicinity of the survey area did not occur until the early to mid twentieth century. Based on its lack of integrity, HDR recommend this site as not eligible for listing in the NRHP. No further work is recommended.

HDR excavated 59 shovel tests during the archaeological survey of Survey Area 4. Subsurface testing revealed inconsistent stratigraphy across the area. A total of 22 historic artifacts and six modern items were recovered from four shovel tests. Only two historic artifacts were recovered from a non-historic/modern mixed context along the southern side of the survey area; however, they were situated at the base of a slope, possibly washed down from a high elevation. The other items recovered from the three shovel tests within the front central section of the survey area represent a site; it is designated 7NC-D-267 (CRS N14569) by the SHPO. The historic assemblage recovered from the site primarily dates from the nineteenth century and can likely be linked to the mid to late nineteenth century occupation in the vicinity. Two structures are denoted on an 1860 map of the area, and one on an 1881 and 1893 map. It is likely that the construction of two structures during the late 1940s/early 1950s, and subsequent demolition between 1999 and 2002, destroyed any intact deposits associated with the nineteenth century occupation. Based on its lack of integrity, HDR recommends this site not eligible for listing in the NRHP. No further work is recommended.



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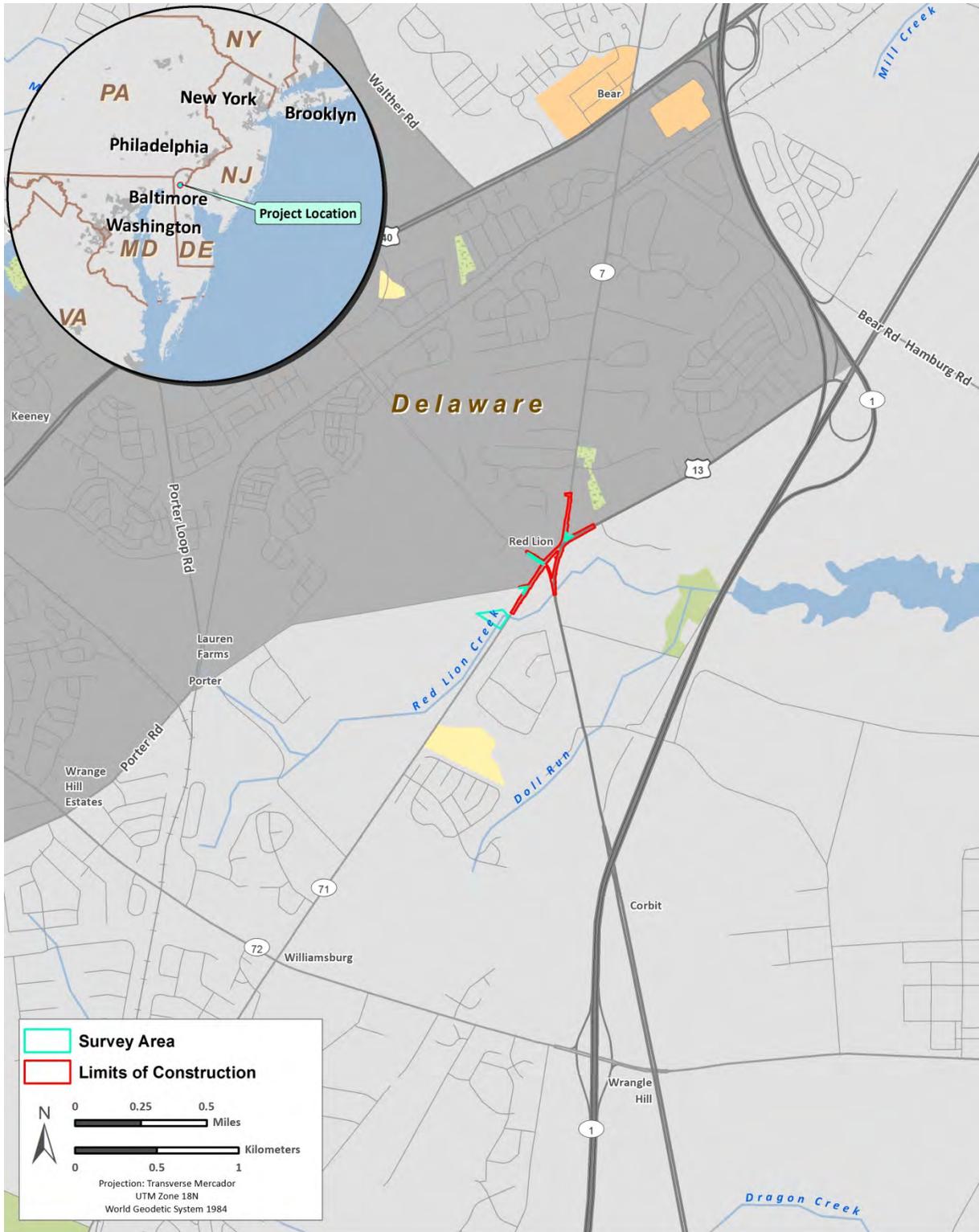
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1 Introduction

Under contract to the Delaware Department of Transportation (DelDOT), HDR Environmental, Operations and Construction, Inc. (HDR) conducted a Phase I archaeological investigation for the proposed State Route (SR) 71, Old Porter Road to SR 7 Project in Red Lion, Delaware (Figures 1-1 and Figure 1-2). DelDOT plans to undertake improvements along sections of Red Lion Road/SR 71, Bear Corbitt Road/SR 7, Church Road, and Old Porter Road, as well as at the intersections of Red Lion Road/SR 71 and Bear Corbitt Road/SR 7, Red Lion Road/SR 71 and Church Road, and Red Lion Road/SR 71 and Old Porter Road (Figure 1-3 to Figure 1-8). Additionally, an approximately 2.76-acre parcel (tax parcel numbers 1005200020 and 1005200021) located southwest of the limits of construction (LOC) along Red Lion Road/SR 71 has been set aside as a proposed wetland mitigation area. The purpose of the investigation was to identify all archaeological and historical resources within the LOC and the wetland mitigation parcel, an area encompassing a total of 8.37 acres. In this report, the LOC will refer to the proposed road and intersection improvements as well as the wetland mitigation parcel. The investigation was completed to assist DelDOT in meeting anticipated regulatory obligations under Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. HDR performed the work in accordance with the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* and the *DE Guidelines for Conducting Architectural and Archaeological Surveys in Delaware* (1993, as amended).

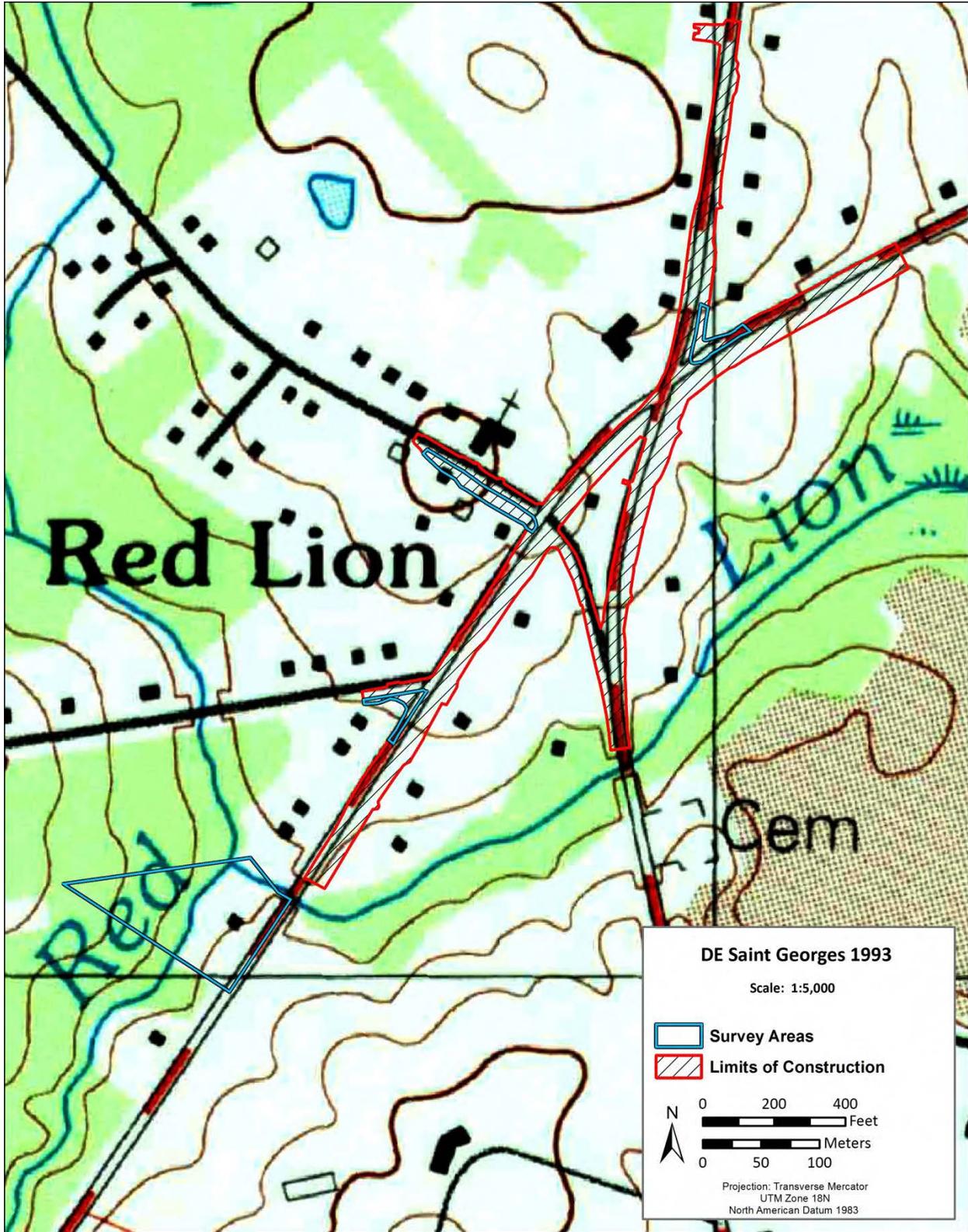
HDR conducted the background research in February and March 2014 and the fieldwork was undertaken in April 2014. The field survey included a controlled surface inspection of the entire LOC followed by excavation of shovel test pits (STPs) in select portions of the LOC. Areas subjected to shovel testing were designated Survey Areas 1, 2, 3, and 4 (Figure 1-9).

HDR archaeologists Jim Parker and Gideon Singer conducted the background investigation in February and March 2014. Fieldwork occurred 7 to 12 April 2014, directed by Parker, and assisted by archaeologists Derek Johnson and Gideon Singer. Parker, Johnson, and Singer processed and analyzed the artifact assemblage at HDR's archaeology laboratory in Vienna, Virginia.



Source: ESRI Streetmap 2010

Figure 1-1. Old Porter Road to SR71 Project LOC and survey areas.



Service Layer Credits: Historic Maps
Library of Congress: <http://hccn.loc.gov/76693265>

Figure 1-2. LOC and survey areas on 1993 USGS Saint Georges Topographic Map.

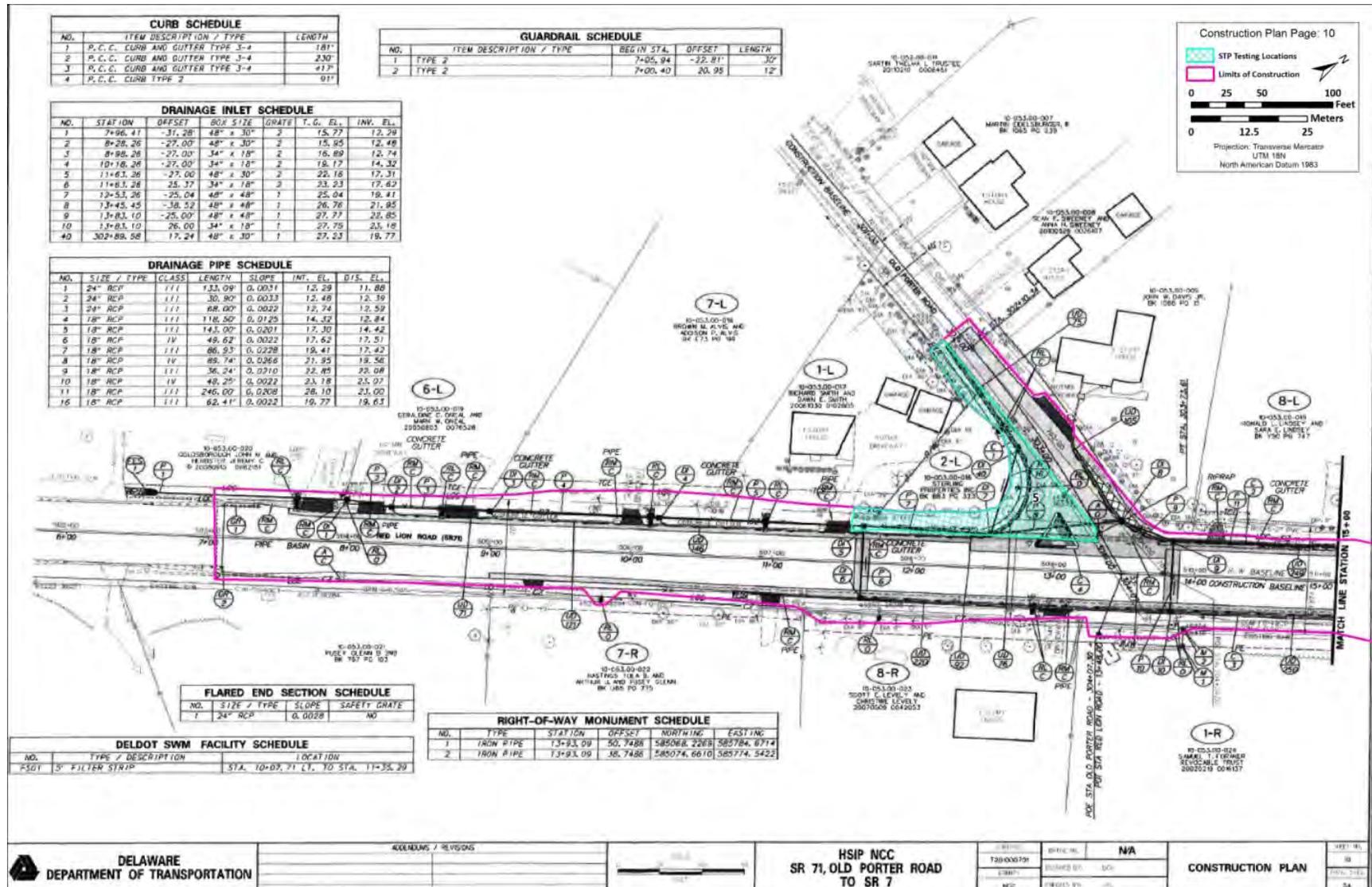


Figure 1-3. HISP NCC, SR 71, Old Porter Road to SR 7 Project Construction Plans (Sheet 10) with LOC outlined. Subsurface testing occurred within areas outlined in blue (Survey Area 3).

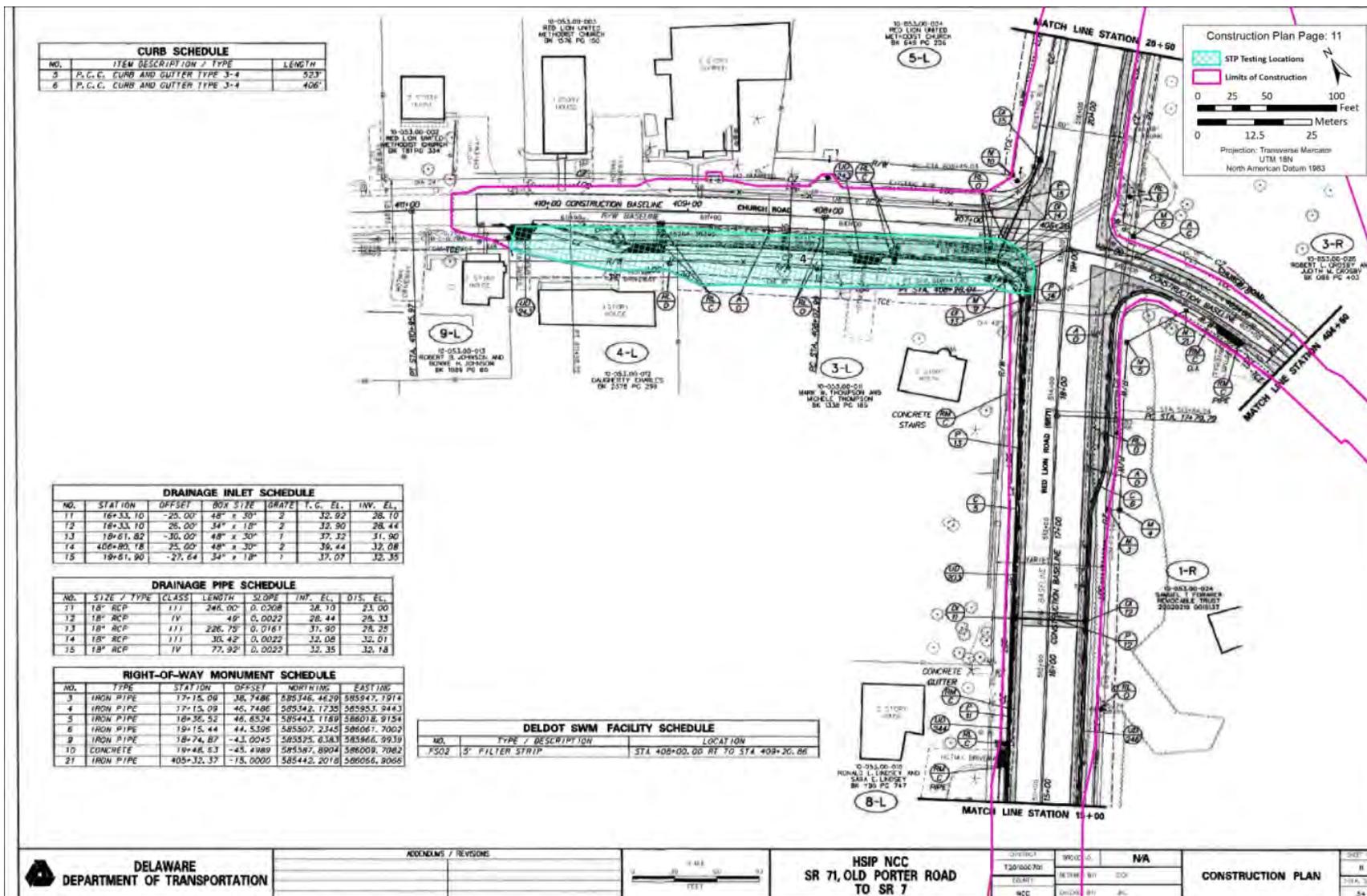


Figure 1-4. HISP NCC, SR 71, Old Porter Road to SR 7 Project Construction Plans (Sheet 11) with LOC outlined. Subsurface testing occurred within areas outlined in blue (Survey Area 2).

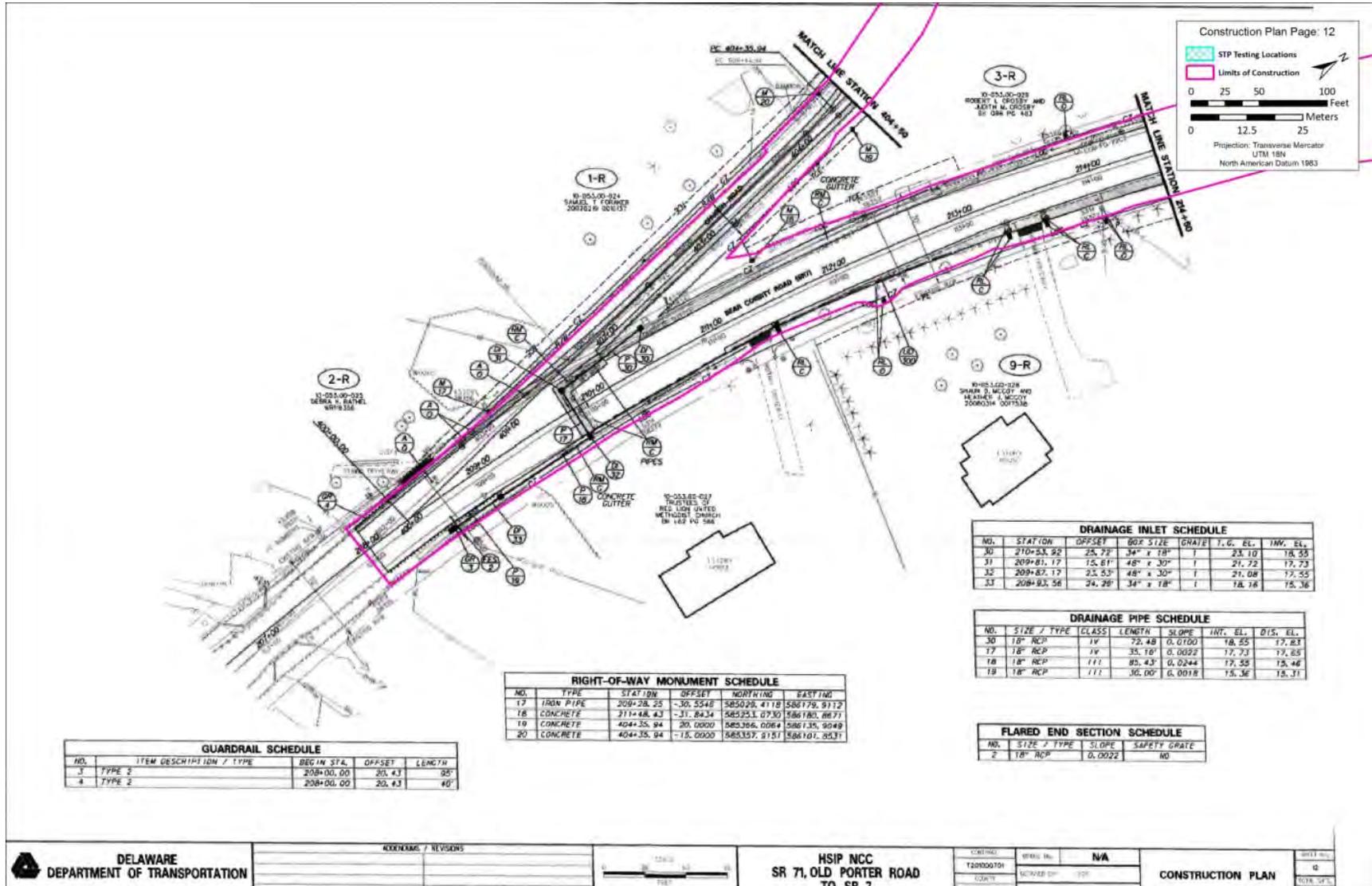


Figure 1-5. HISP NCC, SR 71, Old Porter Road to SR 7 Project Construction Plans (Sheet 12) with LOC outlined.

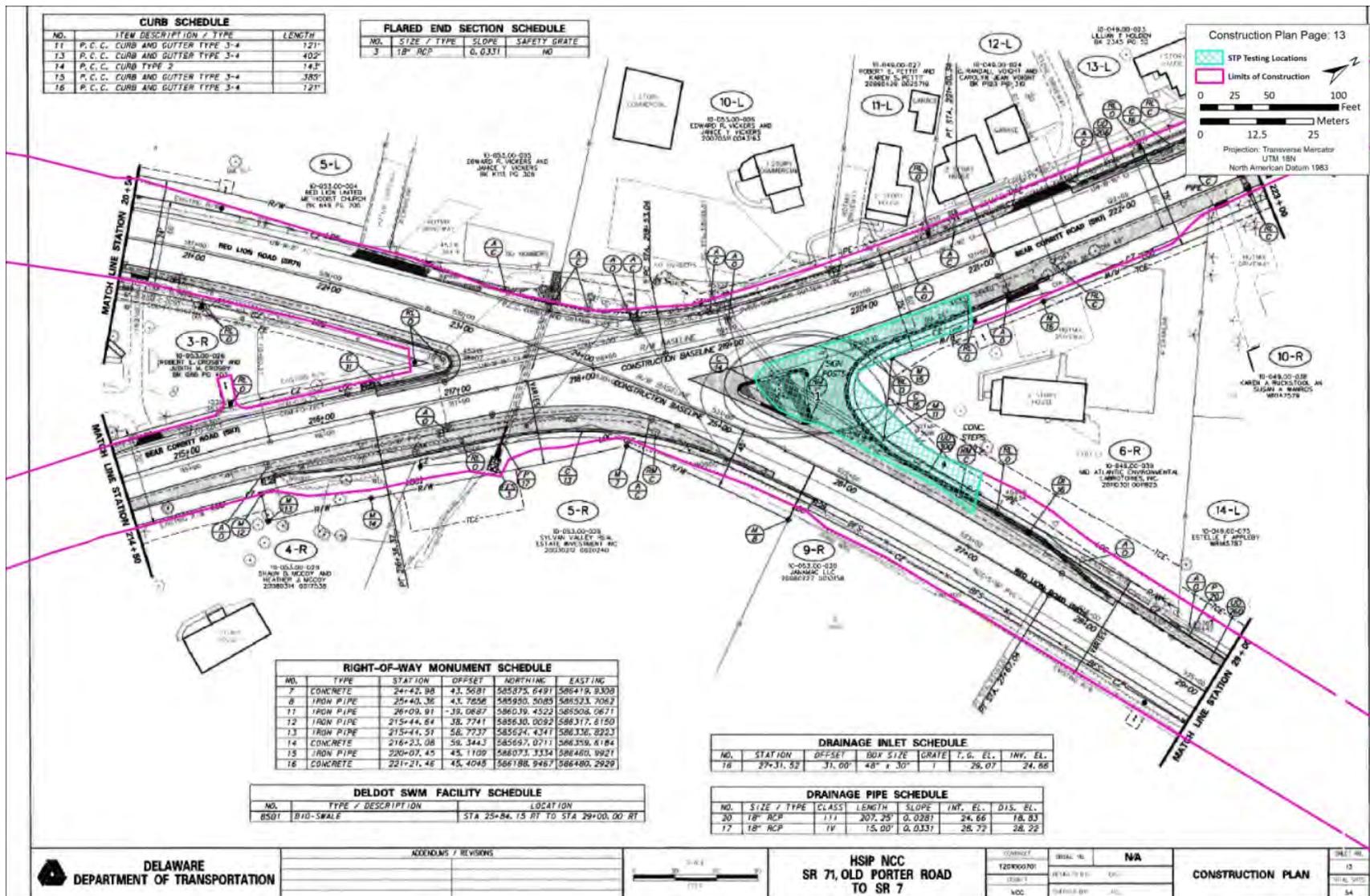


Figure 1-6. HISP NCC, SR 71, Old Porter Road to SR 7 Project Construction Plans (Sheet 13) with LOC outlined. Subsurface testing occurred within areas outlined in blue (Survey Area 1).

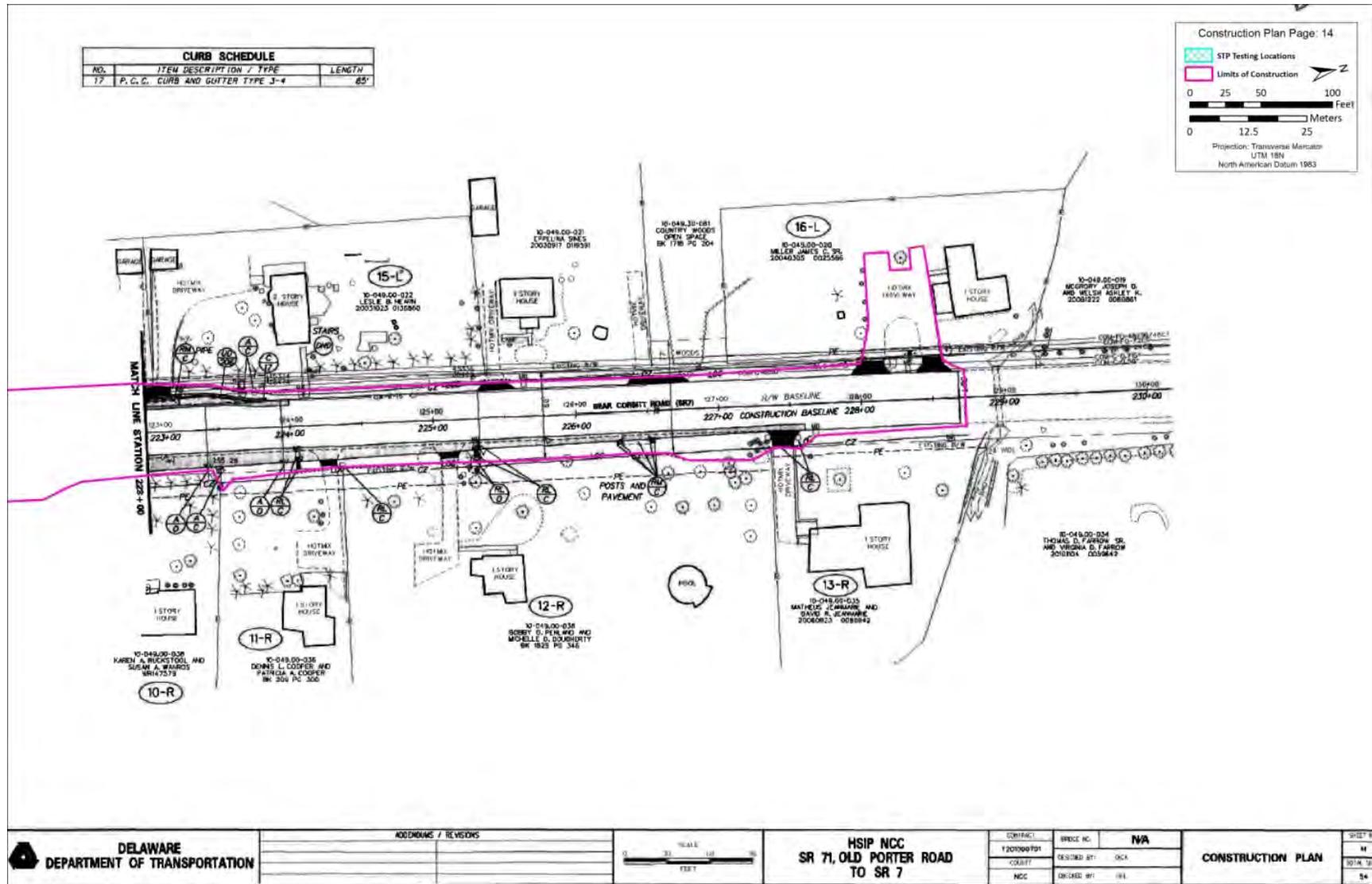


Figure 1-7. HISP NCC, SR 71, Old Porter Road to SR 7 Project Construction Plans (Sheet 14) with LOC outlined.

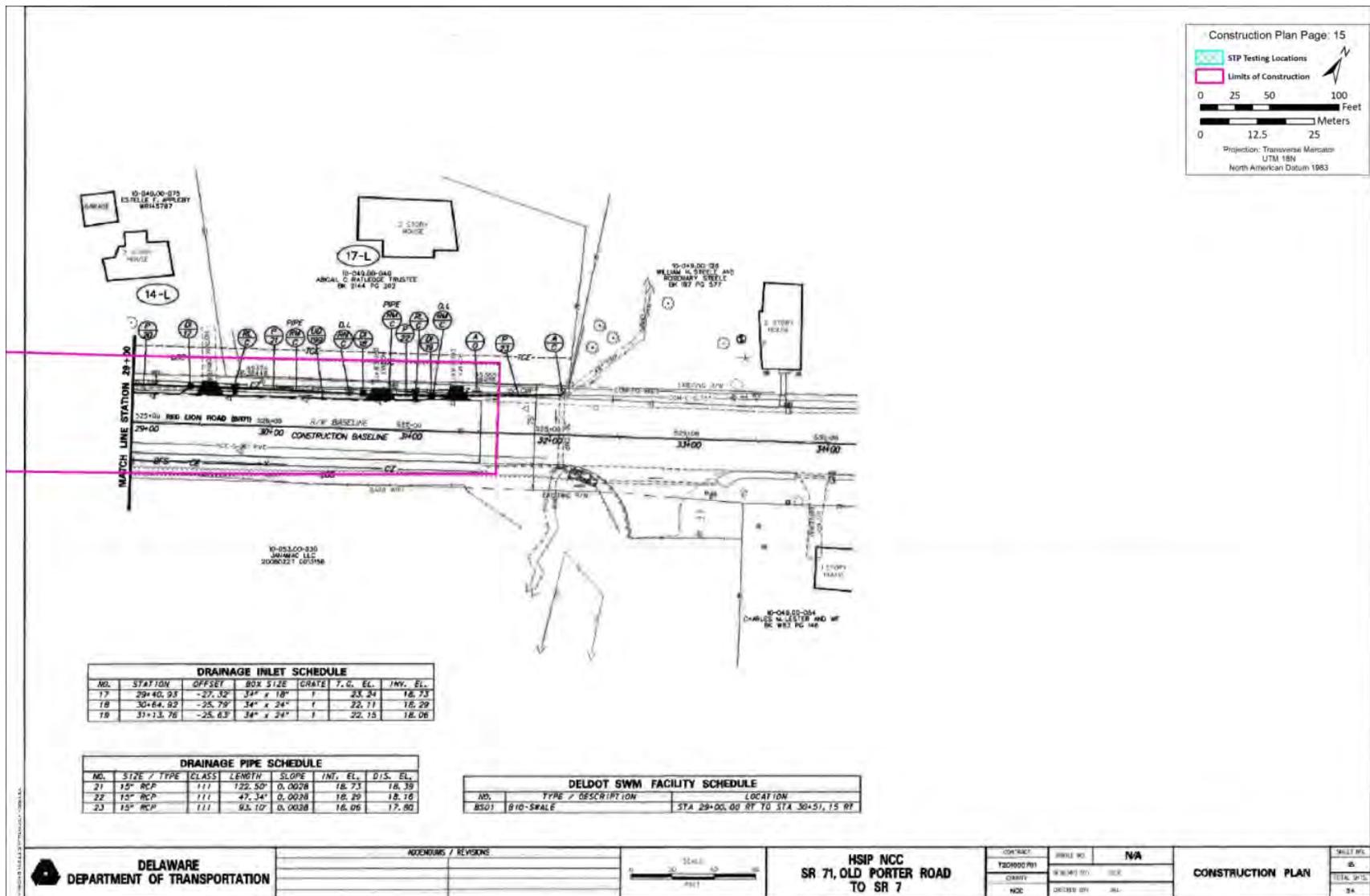


Figure 1-8. HISP NCC, SR 71, Old Porter Road to SR 7 Project Construction Plans (Sheet 15) with LOC outlined.



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, I-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Figure 1-9. HISP NCC, SR 71, Old Porter Road to SR 7 Project Construction Plans with LOC outlined. Subsurface testing occurred within areas outlined in blue.

2 Environmental Setting

The LOC encompasses a total 8.37 acres along sections of Red Lion Road/SR 71, Bear Corbitt Road/SR 7, Church Road, and Old Porter Road in Red Lion, New Castle County, Delaware. The four areas subjected to shovel testing, designated Survey Areas 1 to 4, are 0.19, 0.29, 0.13, and 2.76 acres, respectively. Figure 2-1 to Figure 2-8 show the general conditions of the LOC. Land use in the area is primarily residential. This section provides a brief discussion of the environmental setting of the LOC. Specific topics covered include physiography, geology, hydrology, fauna and flora.



Figure 2-1. General view of southwestern LOC along Red Lion Road/SR 71, facing northeast.



Figure 2-2. General view of LOC along Old Porter Road, facing east.



Figure 2-3. General view of southwestern LOC at intersection of Red Lion Road/SR 71 and Old Porter Road, facing southwest.



Figure 2-4. General view of south end of LOC at intersection of Church Road and Bear Corbitt Road/SR 7, facing north.



Figure 2-5. General view of northwestern LOC along Church Road, facing southeast.



Figure 2-6. General view of northwestern LOC along Church Road, facing northwest.



Figure 2-7. General view of northeastern LOC along Red Lion Road/SR 71, facing southwest.



Figure 2-8. General view of northern LOC along Bear Corbitt Road/SR 7, facing south.



2.1 Physiography

The LOC lies within the Atlantic Coastal Plain Physiographic Province, just south of the Fall Line where the Coastal Plain and Piedmont Plateau Province meet in New Castle County, Delaware. This region is characterized by gently rolling hills and valleys underlain by a southeastwardly thickening sequence of sediments that consists of sand and gravel aquifers interlayered with silt and clay confining units (USDA 2014). Elevations within the LOC range from 10 to 50 ft. above mean sea level (amsl).

2.2 Geology

Soils within the LOC and the four survey areas fall within the Greenwich loam, Woodstown sandy loam, Longmarsh and Indiantown soils, and Hambrook-Urban land complex. Table 1 lists the characteristics of each soil type (USDA 2014).

Table 2-1. Soils within the Phase I Survey Area.

Name	Slope	Drainage	Survey Area(s)
Greenwich Loam (GrB)	2 to 5%	Well Drained	1, 2, and 3
Woodstown Sandy Loam Soils (WdB)	2 to 5%	Moderately Well Drained	3 and 4
Hambrook-Urban land Complex (HkB)	0 to 5%	Well Drained	4
Longmarsh and Indiantown (LO)	0%	Very Poorly Drained	4

2.3 Hydrology

An unnamed tributary from the north empties into Red Lion Creek along the northeast boundary of Survey Area 4. In addition to bounding the northeast side of Survey Area 4, Red Lion Creek bisects the area, running roughly southwest to northeast. Red Lion Creek flows into the Delaware River to the east.

2.4 Flora and Fauna

Prior to Euro-American settlement, New Castle County was densely forested by hardwoods, including oak, tulip poplar, gum, and yellow pine. Subsequently, however, changes in soil due to clear-cutting and farming have allowed for pine trees to become the dominant type (Mathew and Lavaoie 1970). Vegetation within the LOC includes manicured lawns, pine, hardwood and extensive undergrowth. Survey Areas 1 and 3 are manicured lawns. Survey Area 2 is manicured lawn with a row of pines lining a section of Church Road. In the front (southeast) half of Survey Area 4, vegetation is primarily comprised of manicured lawn with extensive undergrowth concentrated along Red Lion Creek; the northwest half contains a mix of pine, hardwood, and extensive undergrowth.

New Castle County faunal assemblages include deer, elk, bear, turkey, rabbits, squirrels, and other small mammals as well as migratory birds, fish, and shellfish. Following European settlement, the introduction of horses, cattle, pig and other domestic animals is expected. No mega fauna remains, such as mammoth and mastodon, have been found in New Castle County (Custer 1984).



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3 Background Research

Background research for this investigation was conducted at the Delaware State Historic Preservation Office, the Delaware Public Archives, the Delaware Historical Society, and online through the Delaware Division of Historical and Cultural Affairs Cultural and Historical Resource Information System (CHRIS). Historic maps and United States Geologic Survey (USGS) maps were also used to locate the existence of any historic properties. The goals of the background research were to address the cultural context of archeological resources in the project area and the land-use history of the study area as it relates to the presence and nature of potential archeological resources. This section provides prehistoric and historic contexts for the region, followed by an overview of known archaeological and historic architecture sites located within a 0.5-mile radius of the LOC, and previous cultural resource investigations conducted within the same distance.

3.1 Prehistoric Context

The prehistory of Delaware is divided into five major Periods known as Paleoindian (13,000–6500 B.C.), Archaic (6500–3000 B.C.), Woodland I (3000 B.C.–A.D. 1000), Woodland II (A.D. 1000–1650), and Contact (A.D. 1650–1750). These Periods are characterized by changes in material culture, settlement patterns, and subsistence strategies. The chronology of Delaware’s prehistory is distinctly modified from the greater regional chronology of the Middle Atlantic (Table 3-1). The regional chronology is further divided into the Paleoindian (12,000 – 9500 BC), the Early Archaic (9500–6000 BC), the Middle Archaic (6000–3500 BC), the Late Archaic (3500–1000 BC), the Early Woodland (1000 BC–AD 200), the Middle Woodland (AD 200–900), and the Late Woodland (AD 900–AD 1600) Periods. The table below shows which regional Periods roughly correspond with Delaware’s prehistoric chronology.

Table 3-1. Delaware and corresponding Middle Atlantic Prehistoric Periods.

Delaware Chronology	Corresponding Middle Atlantic Periods
Paleoindian (13,000–6500 B.C.)	Paleoindian (12,000 – 9500 BC) and the Early Archaic (9500–6000 BC)
Archaic (6500–3000 B.C.)	Middle Archaic (6000–3500 BC)
Woodland I (3000 B.C.–A.D. 1000)	Late Archaic (3500–1000 BC), Early Woodland (1000 BC–AD 200), and the Middle Woodland (AD 200–900)
Woodland II (A.D. 1000–1650)	Late Woodland (AD 900–AD 1600)

While there may be evidence of human occupation in western North America and South America before 10,000–12,000 BC, there is little conclusive evidence in the Middle Atlantic region for human occupation before the Paleoindian Period. There is, however, a great deal of debate over the issue, and archaeological sites such as Cactus Hill in Virginia (e.g., McAvoy and McAvoy 1997) and Meadowcroft Rockshelter in southwestern Pennsylvania (e.g., Adovasio et al. 1978) may have been occupied prior to the onset of the Paleoindian Period.

The Bureau of Archaeology and Historic Preservation in Dover, DE has records of all known prehistoric archaeological sites in Delaware. The following sections are summaries of the five main cultural Periods of Native American occupations in Delaware from approximately 13,000 B.C. through the European Contact Period beginning in the seventeenth century A.D.

3.1.1 Paleoindian Period (13,000 – 6500 B.C.)

During the Late Pleistocene geological Period (i.e., the end of the last Ice Age), the first human activity began in what is now the eastern United States. Paleoindian occupations at the Paw Paw Cove site, located along the



west side of the Delmarva Peninsula, date from approximately 11,200 B.C. through 10,900 B.C. (Lowery 2009). While the dates for the Paleoindian Period are continuously debated, it is generally accepted that human populations had become established in spatially discrete areas of North America by 10,000 B.C.

The Paleoindian Period exhibits a pattern of cultural adaptation to environmental conditions that marked the shift from the Late Pleistocene to the Early Holocene. During this Period, the average annual temperature was three to eight degrees Fahrenheit colder than at present, and the vegetation consisted of spruce, pine, fir, and alder (Brush 1986:149; Leedecker and Holt 1991:72). Paleoindian settlements consisted of small seasonally occupied camps from which forays were made to obtain resources, such as stone for tool manufacture (Custer 1984; Dent 1995; Gardner 1977).

During the Late Glacial environmental episode (15,000-8080 B.C.), melting glaciers increased the rate of water flow and volume and lowered water temperatures. This limited the ability of Paleoindian peoples to effectively exploit estuarine resources (Custer 1984: 47). Throughout the Paleoindian Period, glacial melt waters slowed in the Delaware River and forests began to reduce open land habitats, favoring animals adapted to grassland and forest edge settings (Custer 1984:47). Following the Late Glacial episode, the Pre-Boreal/Boreal episode (8080-6540 B.C.) marks an environmental transition between the end of the Pleistocene and the beginning of the Holocene (Custer 1984:47). The transition is linked with a rise in sea level as glaciers continued to melt. As a result, Paleoindian sites are not widely known on the Delmarva Coastal Plain. Most Paleoindian sites in both Delaware and Maryland are on upland terrestrial areas situated near interfluves. Much of what is known about the Paleoindian Period comes from isolated finds of fluted projectile points, as few Paleoindian sites have been identified in the region (Dent 1995).

While Paleoindian subsistence probably focused on the procurement of hunted game (such as moose, elk and deer) (Kavanagh 1982), there is evidence to suggest that plant foods and fish were also important resources in the Mid-Atlantic region, although they appear to be more limited in Delaware (Dent 1995; McNett 1985). Specialized tools for plant food processing are rare in the Paleoindian archaeological record of Delaware. Additionally, the environmental conditions of this period limited the availability of fish in the Delmarva Peninsula due to the low temperature and high velocity of rivers and other water bodies. Shellfish resources were available, in what are now submerged areas east of the present coastline, as early as the Late Glacial episode. A limited record of Paleoindian sites makes it challenging to assess the degree to which these resources were utilized during this period (Thieler et al. 2000).

Custer (1984:51) has emphasized the use of cryptocrystalline lithic materials from primary quarries in northern Delaware supplemented by secondary cobble sources along southern sections of the Chesapeake Bay. Cryptocrystalline cherts and jaspers are easily fashioned into tools with durable working edges and can be refurbished into a variety of functional tools (Custer 1984:51). Early Paleoindian sites are typically characterized by the presence of large, fluted, lanceolate-shaped projectile point types, such as Clovis and Dalton/Hardaway. Preferred lithic materials for these projectile points were high-quality cryptocrystalline stones. Clovis points have been found throughout North America, from the West Coast to the East Coast and as far north as Nova Scotia.

Paleoindian hunter-gatherers probably traveled long distances to obtain food and raw materials for tool production, as has been shown by studies of lithic procurement systems centered on the Thunderbird site and other Middle Atlantic sites (Custer 1984; Gardner 1977). A study of fluted projectile points in northwestern Pennsylvania showed that most of these projectile points were made of cherts imported from 250 miles away (Lantz 1985). At the Lamb site in western New York, one Clovis point was made out of Knife River chert from North Dakota, over 1,000 miles away, and other Clovis points were made out of chert from Indiana, a

distance of 400–500 miles. Evidently, the local Onondaga chert was not used at this time at the Lamb site (Gramly 1988). Considering these data, the utilization of high-quality lithic materials traveling long distances is a basic component of the Paleoindian late Pleistocene and early Holocene adaptation.

3.1.2 Archaic Period (6500 – 3000 B.C.)

The transition from the Paleoindian to the Archaic Period was associated with a major climatic change that occurred at the end of the Ice Age. During the Archaic Period, rising sea levels submerged the lower Susquehanna River and began forming the Chesapeake Bay, creating large estuarine marshes that offered an increased quantity and variety of food resources (Kraft 1976). As temperatures increased during this period, hemlock, birch, and oak began to replace spruce (Brush 1986:149; Custer 1990:10; Leedecker and Holt 1991:72). Evidence from late Paleoindian period sites suggest that the transition from the Paleoindian lifeway was not a sharp break, but rather a gradual transition (Custer 1990).

The Archaic Period coincides with the onset of the Atlantic Climatic episode, which was a warm, humid period associated with a rise in sea level that led to the development of inland swamps (Barse and Beauregard 1994:9). It was also marked by an increase in summer drought, grassland expansion into the Eastern Woodlands, and the appearance of new plant species (Carbone 1976:106; Hantman 1990:138). During the Atlantic Climatic episode (approx. 6540–3110 B.C.), the formerly cooler, wetter climate shifted to an ecologically more productive, warmer, and drier climate more similar to what exists today. Vegetation in the region shifted from mostly coniferous forests to mixed deciduous and coniferous forests. Subsistence during this time changed along with the environment as many larger mammals became extinct. More specialized hunting techniques were also developed, including a shift from fluted projectile points to side-notched and stemmed points. Spear throwers, also called atlatls, were weighted with bannerstones that added force and distance to the thrown spear.

Known Archaic sites are much more numerous, larger, and richer in artifacts than the earlier Paleoindian sites. They represent a series of adaptations that were increasingly sedentary and focused on large rivers and major tributaries. Other, often smaller, sites located away from the main streams probably represent seasonal or other specialized activity areas. Increasing territoriality and regional diversity are reflected in the varieties of artifacts, especially projectile points, through the Archaic Period. Both Gardner (1974) and Custer (1980) have hypothesized that during the end of the Paleoindian and Archaic periods, people banded together into macro-base camps in the spring and summer (Fusion), and divided up into micro-base camps in the fall and winter months (Fission). The larger base camps were located in valley floodplains, while the smaller autumn and winter encampments were located in upland regions.

As Archaic peoples became more sedentary, they began using more local lithic materials in contrast to the Paleoindian peoples whose preferred material was imported. Cryptocrystalline materials began to be replaced by alternative lithic sources such as quartz, quartzite, rhyolite, cherts and jaspers (Custer 1984:64). The appearance of mortars and pestles suggests that vegetable foods assumed greater importance during the Archaic Period. These changes have been interpreted as a shift in subsistence strategies towards a broad-spectrum adaptation that included a variety of species of animals and plants.

3.1.3 Woodland I Period (3000 B.C. – A.D. 1000)

The Woodland I Period in Delaware corresponds mostly to what is traditionally referred to as the Late Archaic, Early Woodland, and Middle Woodland Periods in Mid-Atlantic prehistory. During the beginning of the Woodland I Period (Late Archaic) there was intensive use of non-local argillite, rhyolite, and steatite, some of which ended up in caches. Non-local materials signify the beginnings of trade and exchange networks which were possible precursors to the later networks that brought Delmarva Adena materials to the region (Custer 2013:134). The Mid-Atlantic Early and Middle Woodland portions are considered part of the Woodland I Period in Delaware prehistory due to their similarities in the utilization of lithic raw material use, including exotic materials, and the presence of elaborate grave offerings at both Delmarva Adena sites (Early Woodland) and the Island Field site (Middle Woodland) (Custer 2013:134).

Distinctive cultural changes occurred in Delaware around 3000 B.C. as the environment became warmer and drier and the sea level continued to rise. In addition, the reappearance of open grassy areas led to the establishment of a comparably more modern faunal assemblage (Carbone 1976:189). The warmer and drier climate made stream valleys and coastal areas in the region more attractive for settlement. Development of estuarine and riverine adaptations were stable and intensive enough to produce large macro-band base camp sites consisting of numerous families among saltwater/freshwater interfaces (oligohaline) and along the major drainages (Custer 1984:77 and 2013:134).

Subsistence was still largely based on hunting and gathering, although there was an increased reliance on riverine resources (Steponaitis 1980). Seasonal hunting and foraging continued, but exploitation of riverine resources rapidly became an important part of the subsistence base. The peoples of Delaware had adapted to the Sub-Boreal and Sub-Atlantic climatic episodes by effectively exploiting fish and shellfish resources in rivers and estuaries, causing population increases and diminished territory sizes. Brackish water marshes with high biological productivity formed as a result of continued sea-level rise within the vicinity of the present coastline of Delaware (Fletcher et al. 1990; Knebel et al. 1988). Non-cryptocrystalline lithic materials were increasingly mined locally and utilized, while elaborate exchange networks were developed to obtain higher quality cryptocrystalline materials from distant sources in Pennsylvania and New Jersey. Soapstone and then ceramic vessel technology were introduced by the middle of the Woodland I Period, around 1500 B.C. – A.D. 1. Ceramics acted as durable containers for more efficient cooking and storage of surplus resources. Throughout the Woodland I Period, ceramics became increasingly refined, rounded, and decorated.

Substantial prehistoric dwellings were constructed at riverine base camps in Delaware, although there was little change in the structure or form of dwellings throughout the Woodland I Period. The small size of individual Paleoindian dwellings suggests that the basic unit of kinship, production, processing and consumption was a nuclear family (Custer 2013:144). Household, or dwelling, clusters were identified by the recording of many pithouses, storage/refuse features, and hearths. Multi-season occupations spanning the cold weather months have been inferred based on faunal and floral remains recovered from refuse pit and midden deposits (Custer 2013:135).

Using cross regional ethnographic analogy, archaeologist hypothesized that status hierarchies arose in light of the need to manage and control the larger sedentary communities and to organize resource procurement and processing, especially of anadromous fish resources. Schindler (2008) tests this hypothesis using experimental archaeology to assess behaviors related to the procurement of anadromous fish. His findings show that small groups of people can produce and process large numbers of anadromous fish, which are available for months at a time. Despite the absence of large sedentary communities in the Woodland I period, status hierarchies are identifiable by the presence of exotic raw materials in grave good contexts and caches (Custer 2013:135,145). While status hierarchies for this Period can be described in terms of material culture, their origins remain unclear.

3.1.4 Woodland II Period (A.D. 1000 – 1650)

Settlement and subsistence patterns during the Woodland II Period were similar to those of the Woodland I Period. From A.D. 1000 to 1650, the development of settled village life supported by horticulture was a common feature amongst peoples in the Mid-Atlantic region. In Delaware, there is little evidence for agriculture, horticulture, and large-scale village life, and only a small number of cultivated plants appear to have been added to the diet. The environment was essentially modern in character and Woodland II populations continued to exploit marine and estuarine resources rather than become farmers, unlike other populations in the Mid-Atlantic region that shifted focus to the cultivation of maize and other crops (Custer 1984:148). Population levels in Delaware remained consistent with the Woodland I Period (Custer 1984:156).

The Woodland II Period marks a shift in ceramic technologies and projectile point styles as triangular project points become increasingly prominent. Small triangular points (Levanna) were made of primarily local cherts and jaspers and functioned as tip projectiles for arrows. Tool kits were made almost exclusively from locally available cobbles that were collected from secondary geologic deposits (Lowery 2009:35). The Middle Atlantic region saw the addition of stone celts and hoes, bone and antler tools, angular pipes, and rarely recovered native copper beads and pendants (Dent 1995). The lack of exotic or non-local lithic artifacts in Late Woodland assemblages suggests that the broad-based exchange networks of earlier periods were disrupted or severely diminished. Ceramics became thinner and finer and feature more-complex decorations, including incised lines and cord-wrapped stick impressions.

In Delaware, the main Woodland II cultural complex in the northern section of the state is known as the Minguannan complex, distinguished by a ceramic type of the same name. Minguannan ceramics are characterized primarily by broadline-incised geometric designs and are usually sand and/or grit tempered with smooth surfaces (Stewart et al. 1986:59). They have virtually identical designs as seen on the Townsend ceramics of the Slaughter Creek complex of southern Delaware and are similar to the Moyaone ceramics found throughout the Western Shore Coastal Plain of Maryland.

Archaeological investigations of Minguannan settlements show an absence of both storage facilities and defined midden areas (Stewart et al. 1986:59). The lack of sub-surface features associated with Minguannan band-level base camps suggests a mobile adaptation, rather than the semi-sedentary lifestyle of contemporary cultural groups in the Middle Atlantic region (Custer 1987:20). Defensive settlements, aggregation, growth and/or re-organization of settlements, and population movements or displacement are noticeably lacking in the Delaware Valley. These people remained nomadic as they increasingly acted as middlemen between the Iroquois to the north and the Algonquian groups to the south (Stewart 1993: 173).

A cultural boundary between the Minguannan-related complexes—associated with Algonquian speakers to the southeast—and the Shenks Ferry-related complexes—associated with Eastern Siouan, or Iroquoian, speakers to the northwest of modern southeast Pennsylvania—is indicated by significant differences in the

archaeological record (Custer 1987:20). While the ceramics of both have crushed rock temper and body sherds with a variety of surface treatments including smoothing, smoothed-over cording, cord impressions, and fabric impressions, the design elements and motifs differ significantly between Minguannan and Shenks Ferry ceramics (Custer 1987:14). Custer (1987:17) contends that the significant differences in design grammars between the two ceramic types show that there was almost no sharing or exchange of ceramic design ideas between the social groups who manufactured these ceramics. Ceramic data has shown basic similarities in design elements and grammars between Minguannan ceramics and other Algonquian ceramic groups, such as Townsend, Overpeck, and Bowmans Brooks (Custer 1987:23).

3.1.5 Contact Period (A.D. 1650 – 1750)

The Contact Period is characterized by access to new trade goods, the displacement of native groups, the establishment of the reservation system, and warfare and conflict (Lowery 2009:38). During this period, diseases introduced by the first European explorers appear to have decimated the native population. The largest grouping of early contact sites occurs in the Cape Henlopen area. Cape Henlopen is associated with an early Dutch whaling station located at Swanendael, which was settled in 1629 and destroyed by local Indians in April 1632 (Custer 1984:176). In the Cape Henlopen area, the Townsend site (7S-G-2) is one of Delaware's few recorded Contact Period sites. European pipes and Native American artifacts have been recovered from the site; however, it is unclear whether or not they are contemporary (Custer 1984:177).

Stone triangular points, Townsend-style ceramics, and other Woodland II artifacts likely persisted during this period, however, the inclusion of European metal goods, ceramics and trade beads altered native material culture (Lowery 2009:39). New Castle County contains no known sites from the Contact Period, although some sites, such as 7NC-E-42, possess limited evidence for an association between Woodland II Minguannan ceramics and a Contact Period feature (Custer 1984:178).

3.2 Historic Context

The historic period in Delaware has been sectioned into seven temporal periods that form the basis for historic resource investigations within the state. These temporal periods include:

- Exploration and Frontier Settlement (1630-1730)
- Intensified and Durable Occupation (1730-1770)
- Early Industrialization (1770-1830)
- Industrialization and Early Urbanization (1830-1880)
- Urbanization and Early Suburbanization (1880-1940)
- The Modern Period (1960-present)

The regional history surrounding the LOC has been well documented (e.g., Eiswert et al. 2011; Ward et al. 2013; Mancl et al. 2013). As a result, this section focuses on the local history of the LOC, with particular emphasis placed on the survey areas subjected to archaeological investigation.

3.2.1 Red Lion LOC Historic Context

The history of Red Lion has been the subject of extensive research for cultural resource studies, most recently by Kuncio and Hyland (2004) and Allen and Ruth (2012; discussed below). Red Lion dates to the early eighteenth century. Kuncio and Hyland (2004: 5) note the following regarding the development of the area:

The history of the Church Road and Red Lion areas can be broadly divided into three eras: pre-railroad [1701-1837], rural village [1838-1945], and post-World War II (WWII) development [1945-present]. In the pre-railroad era, Red Lion was a small but thriving village at the intersection of Red Lion Road, Church Road, and Bear Corbitt Road (the precursor to Route 7). The village was centered around the Red Lion Tavern, which dated to the Colonial era. North of Red Lion the landscape along Church Road was dominated by large residential and tenant farms owned by a discrete number of owners. The completion of the New Castle & Frenchtown Railroad (NC&F) in 1831, which bypassed Red Lion, and the closing of the Red Lion Tavern shortly thereafter, arrested Red Lion's growth. Bear Station, a stop on the NC&F, became the primary transfer point and the largest community in the area. Red Lion became a rural village centered around the Lebanon (later Red Lion) Methodist Church. As the nineteenth century progressed, the agricultural landscape also changed, as large landholdings were divided into smaller farms. In the early and mid-twentieth century, a small amount of infill was added to Red Lion, primarily along Route 7. The rural landscape along Church Road remained largely intact until the post-WWII era, when Ranch style houses and other late twentieth century vernacular style residences were constructed on both sides of the road.

In 2012, Cultural Heritage Research Services, Inc. (CHRS [Allen and Ruth 2012]) conducted a historic resource study for DelDOT, which included extensive documentary research for all properties situated within the current LOC, including Survey Areas 1 and 2. Survey Areas 3 and 4 were not included because there are no extant structures located on the parcels. The following discussion summarizes the parcel history of Survey Areas 1 and 2, using the research conducted by Allen and Ruth (2012), as well as map and aerial photo data collected for the current archaeological investigation. For Survey Areas 3 and 4, map and aerial data is utilized to trace the progression of settlement in the general vicinity of the two parcels. Figure 3-1 is a composite of historic and modern maps illustrating the progression of settlement in Red Lion from 1794 to the present. Figure 3-2 to Figure 3-13 are the individual maps from Figure 3-1, and Figure 3-14 to Figure 3-18 are historic and modern aerial photos of the Red Lion LOC. Table 3-1 lists maps and aerial photos, noting presence/absence of structures for each survey area.

Regarding the creation of roads within the current LOC, Allen and Ruth (2012) note:

The village grew up around an inn established in the mid-eighteenth century under the sign of the Red Lion near the intersection of two colonial cartways. This Red Lion Inn was referred to in “an act of [the Delaware State] Assembly, November 2, 1762, [which] provided a change in roads located in New Castle County, under the act of 1752.” Two of the 60-foot-wide “public roads or highways” commissioned under this act were to be laid out in such a way that travelers could access (among other wayside facilities) “the Inn called Red Lion, where John Rankin now dwells.” One of the highways—connecting the towns of New Castle and Salisbury (now Smyrna)—was laid on the approximate alignments of present-day Red Lion Road (S.R. 0071) northeast of Red Lion, and Bear Corbitt Road (S.R. 0007) south of the village. The other highway laid out in or shortly after 1752 roughly corresponded with Red Lion Road southwest of Red Lion, and Bear Corbitt Road north of the village . . .

The Red Lion and Bear Corbitt Roads intersection is noted on eighteenth-century regional maps of the area (see Figure 3-2). However, no eighteenth-century or early nineteenth-century maps of Red Lion that note the presence of structures were located during the current investigation.

Survey Area 1, located immediately north of the Red Lion Road/SR 71 and Bear Corbitt Road/SR 7 intersection, has a long history of occupation. Historic maps from 1849 (Figure 3-4), 1860 (Figure 3-5), and

1868 (Figure 3-6 and Figure 3-7) note the presence of structures in the vicinity. It could not be determined, however, whether the same structure is denoted on each of these maps. At some point between 1868 and 1881, it appears the structure(s) were removed since nothing is noted in the vicinity on the 1881 map (Figure 3-8). A structure is again noted in the area on a 1904 map (Figure 3-9); it was present until at least 1919 (see Figure 3-10 and Figure 3-11). Between 1919 and 1937 (Figure 3-14), it was removed. The current structure on the parcel (1745 Bear Corbitt Road), referred to as the “Vickers Property” by Allen and Ruth (2012: 69-71), was constructed around 1930. Examination of maps and aerial photos produced subsequent to the erection of the current structure reveal that little has changed within the vicinity of the survey area since the 1930s.

Survey Area 2, the area along the south side of Church Road and immediately north of Red Lion Road/SR 71, has a long history of occupation. Historic research conducted by Kuncio and Hyland (2004) and Allen and Ruth (2012) and maps and aerial photos document the presence of settlement in the vicinity continuously from the eighteenth century to the present. An 1820 map (Figure 3-3) of the area illustrates the presence of the Red Lion Tavern in the vicinity; Church Road, however, had not yet been constructed. After Church Road was constructed (at some point between the 1820s and 1830s), Allen and Ruth note that the tavern was situated “on the northern corner of the intersection of Church and Red Lion Roads” (2012: 35). Several structures have been situated on the current property that the main portion of the survey area encompasses, the most recent of which was erected circa 1882 (see Allen and Ruth 2012: 33-37 for full discussion of the parcel history).

According to the historic maps and aerial photos used for the current investigation, there was no settlement in the immediate vicinity of Survey Area 3 until the early to mid twentieth century, which is located directly southwest of Red Lion Road/SR 71 and Old Porter Road. Old Porter Road, and thus the intersection, were not constructed until some point after 1881 (Figure 3-8) and before 1904 (Figure 3-9). The current structure situated on the adjacent parcel to the south was erected between the late 1940s and early 1950s (see Allen and Ruth 2012: 229-231).

Survey Area 4, the proposed wetland mitigation area, has had intermittent occupation over the last 150 plus years. An 1860 map (Figure 3-5) depicts two structures located within the survey area boundaries, which appear to be situated along the Red Lion Road/SR 71, south of Red Lion Creek. Neither structure is depicted on the 1868 map, but the southern structure is noted on the 1881 map and the 1893 Baist Atlas map (Alice Guerrant, pers.comm.); it was owned by the same individual on both maps. Whether this is the same structure present on the 1860 map is unknown. It appears that the structure was removed at some point between 1893 and 1904 because it does not appear on the 1904 map or subsequent maps. During the late 1940s/early 1950s, there were two structures erected along Red Lion Road/SR 71, south of Red Lion Creek, within the survey area. The southern structure was gone by 1993. The two parcels that compose Survey Area 4 were purchased by DeIDOT in 1999 (New Castle County Deed Book 2705 and 2722: 126 and 262, respectively), and the remaining structure was demolished by 2002.

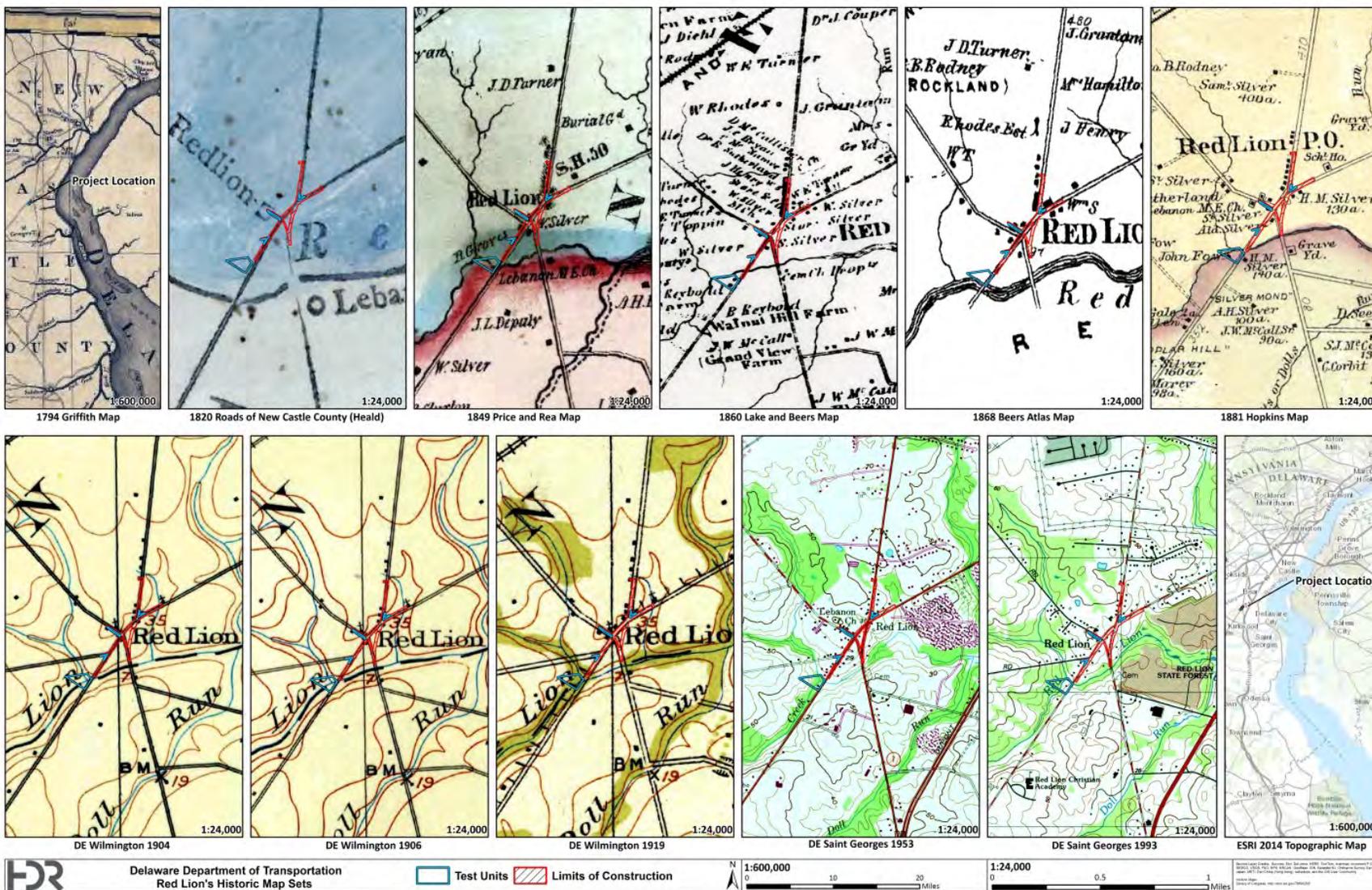
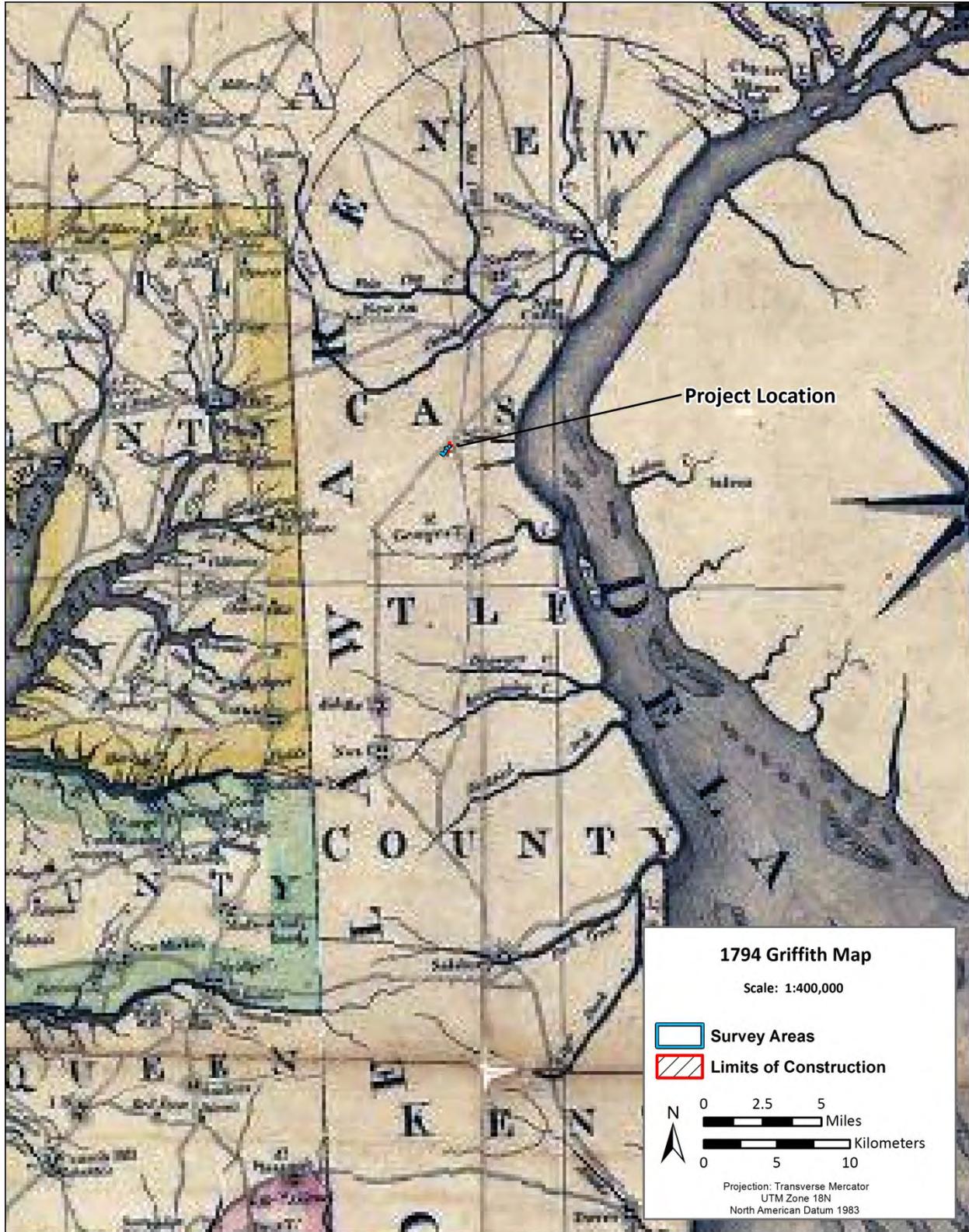


Figure 3-1. Historic and modern maps showing the progression of settlement in Red Lion.



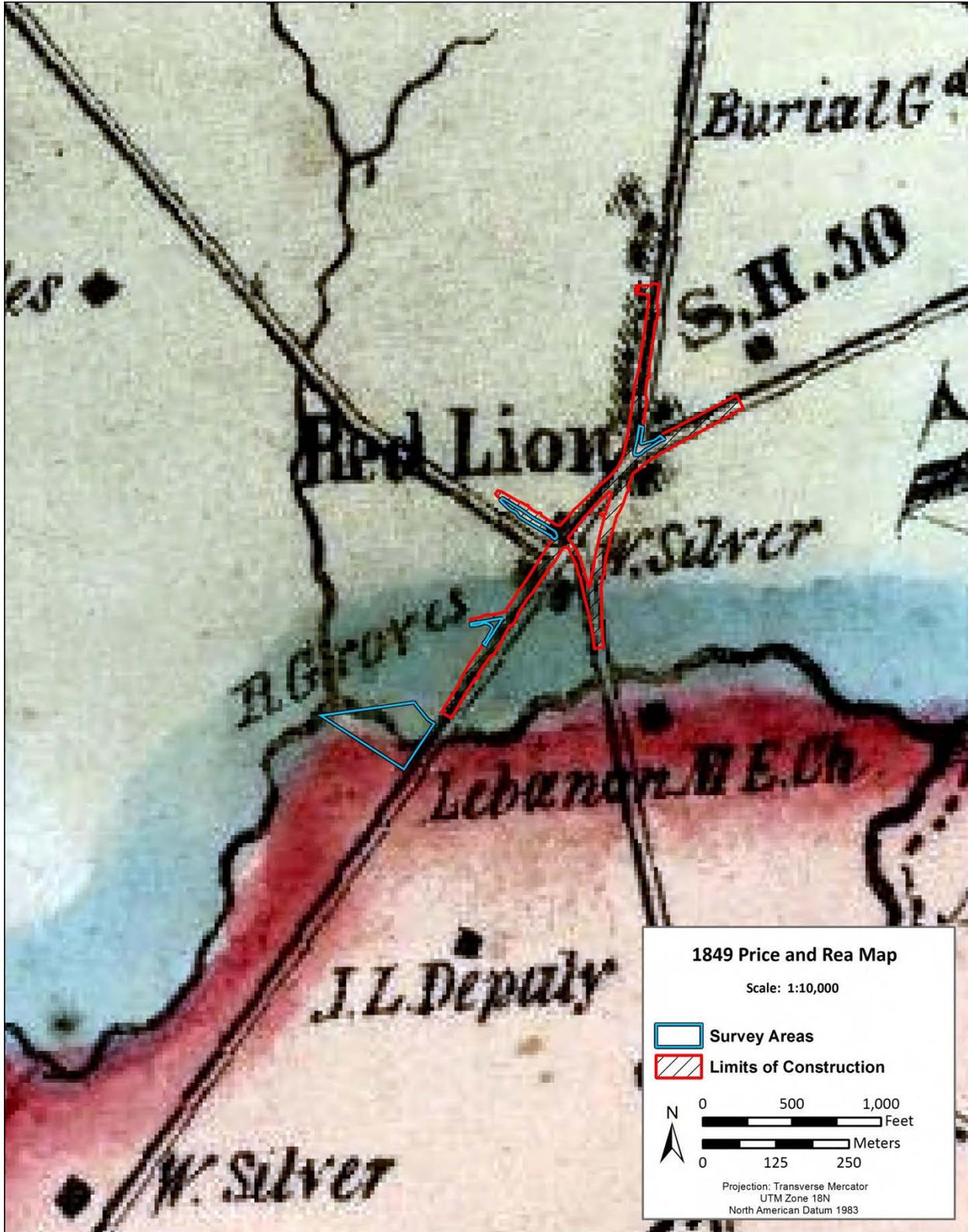
Table 3-2. List of maps and aerial photos noting presence/absence of structures by survey area.

Maps/Aerial Photos	Survey Areas			
	1	2	3	4
1794 Griffith (Figure 3-2)	N/A	N/A	N/A	N/A
1820 Heald (Figure 3-3)	N/A	Red Lion Tavern in vicinity	N/A	N/A
1849 Price and Rea (Figure 3-4)	Structure in vicinity	Structure in vicinity	Nothing	Nothing
1860 Lake and Beers (Figure 3-5)	Structure in vicinity	Structure in vicinity	Nothing	2 structures present
1868 Beers Atlas (Figure 3-6)	Structure in vicinity	Structure in vicinity	Nothing	Nothing
1868 Beers Atlas Red Lion inset map (Figure 3-7)	Structure in vicinity	Structure in vicinity	Nothing	N/A
1881 Hopkins (Figure 3-8)	Nothing	Structure in vicinity	Nothing	1 structure present
1904 USGS Wilmington (Figure 3-9)	Structure in vicinity	Structure in vicinity	Nothing	Nothing
1906 USGS Wilmington (Figure 3-10)	Structure in vicinity	Structure in vicinity	Nothing	Nothing
1919 USGS Wilmington (Figure 3-11)	Structure in vicinity	Structure in vicinity	Nothing	Nothing
1937 Aerial Photo (Figure 3-14)	Nothing	Structure in vicinity	Structure in vicinity?	Nothing
1953 USGS Saint Georges (Figure 3-12)	Nothing	Structure in vicinity	Nothing	2 structures present
1954 Aerial Photo (Figure 3-15)	Nothing	Structure in vicinity	Structure in vicinity?	Structure(s) present?
1961 Aerial Photo (Figure 3-16)	Nothing	Structure in vicinity	Nothing	Structure(s) present
1993 USGS Saint Georges (Figure 3-13)	Nothing	Structure in vicinity	Nothing	1 structure present
1997 Aerial Photo (Figure 3-17)	Nothing	Structure in vicinity	Nothing	Structure(s) present
2002 Aerial Photo (Figure 3-18)	Nothing	Structure in vicinity	Nothing	Nothing



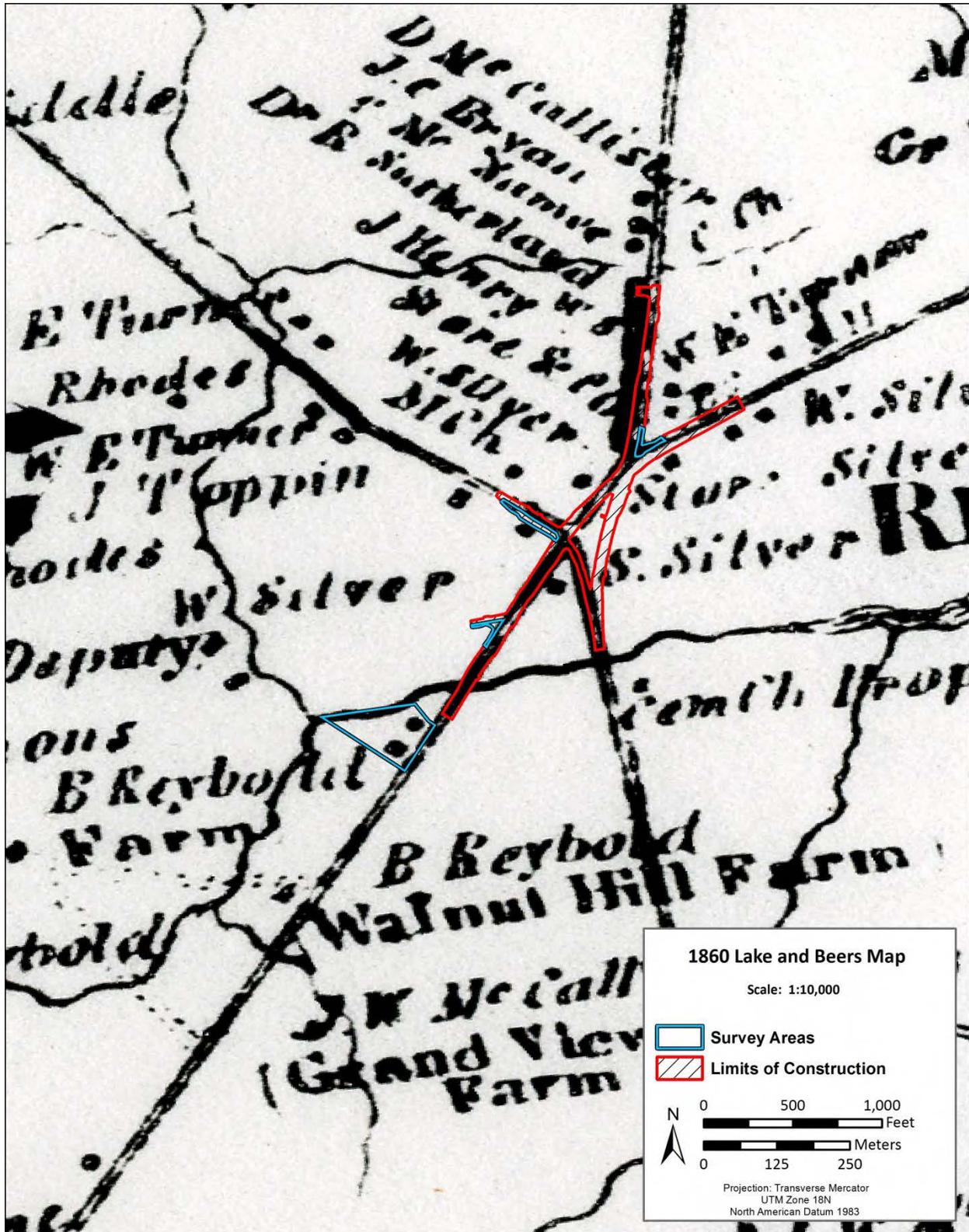
Service Layer Credits: Historic Maps
Library of Congress: <http://lccon.loc.gov/76693265>

Figure 3-2. 1794 Griffith Map.



Service Layer Credits: Historic Maps
Library of Congress: <http://ccn.loc.gov/76693265>

Figure 3-4. 1849 Price and Rea Map.



Service Layer Credits: Historic Maps
Library of Congress: <http://ocw.loc.gov/76693265>

Figure 3-5. 1860 Lake and Beers Map.

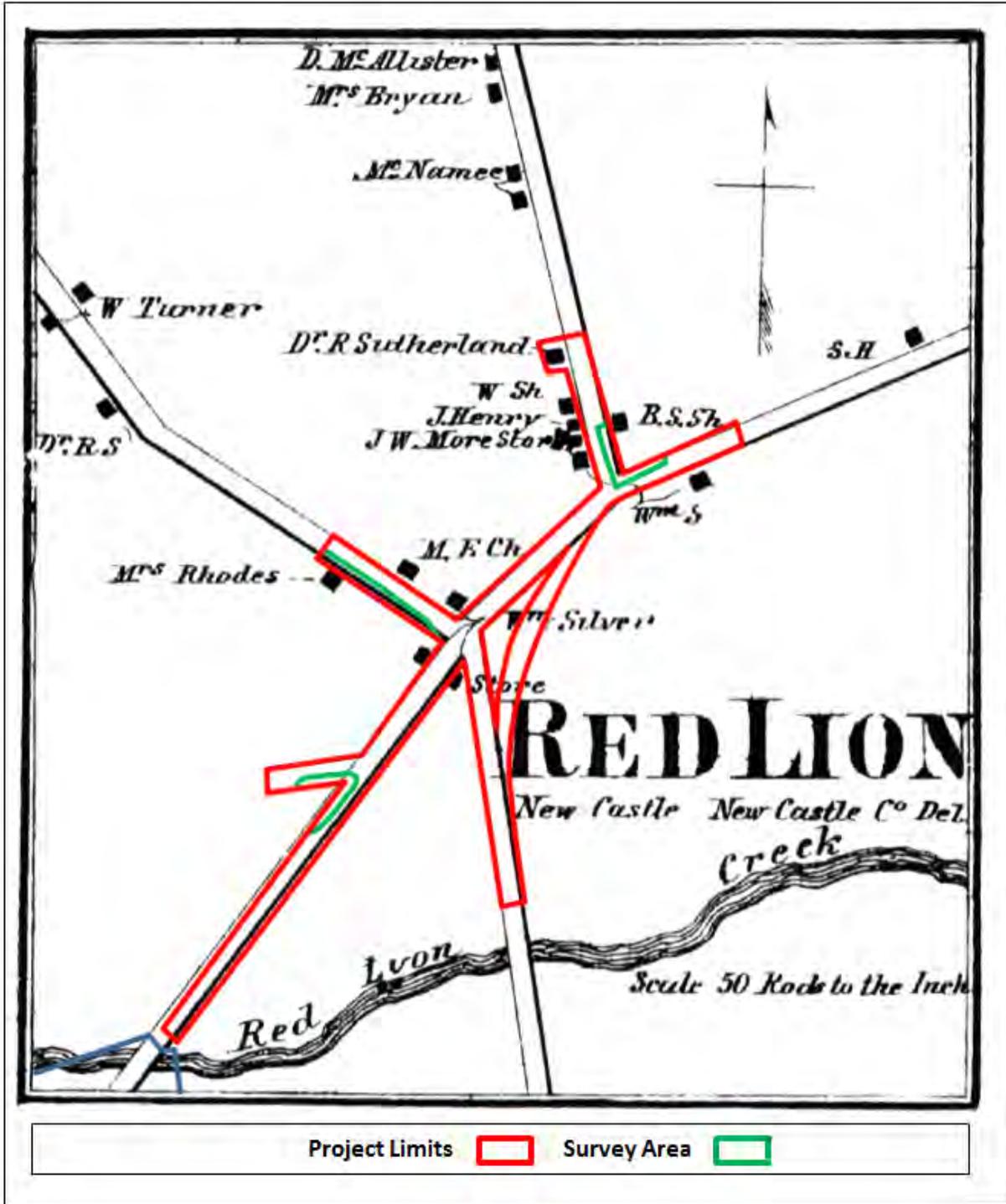
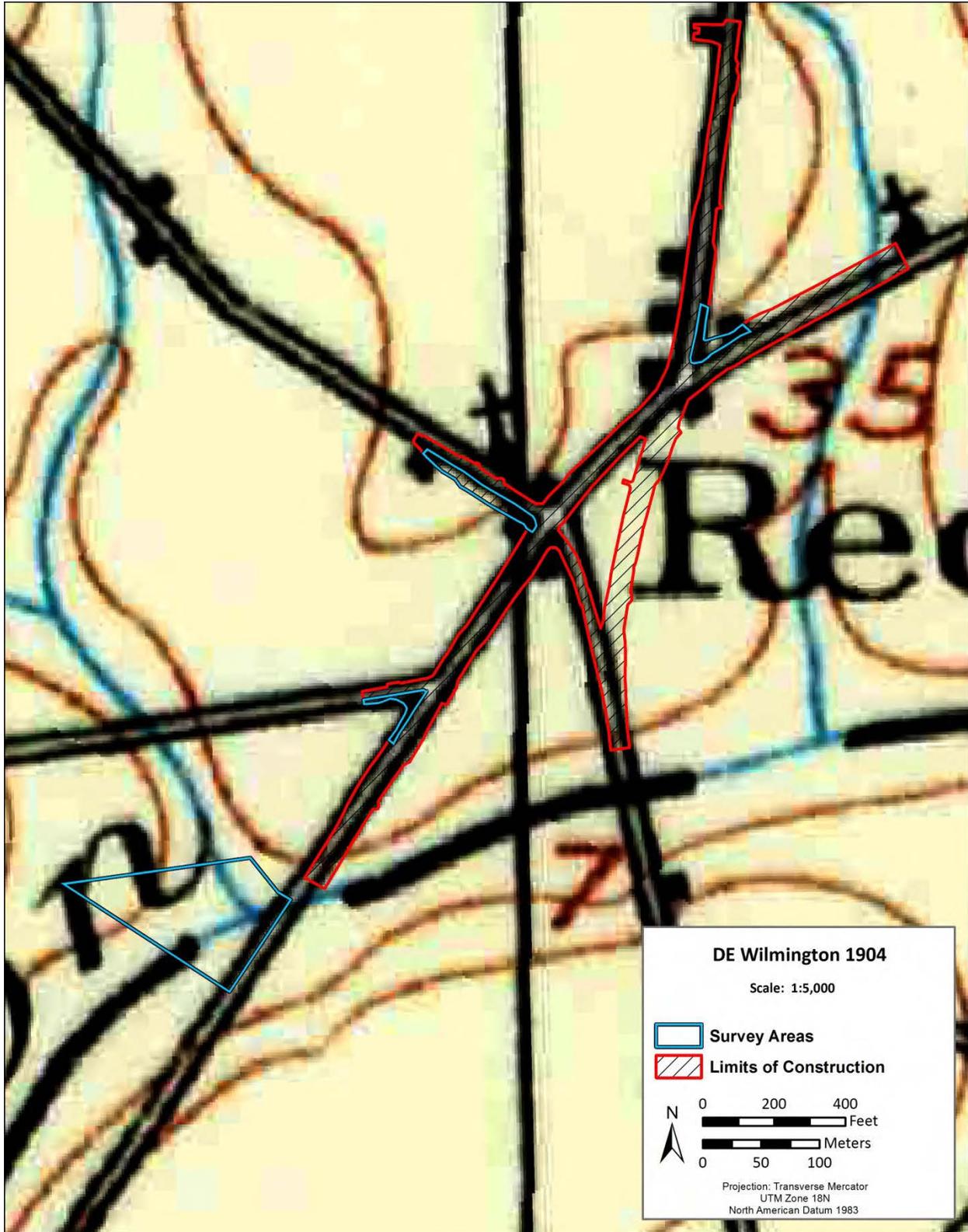


Figure 3-7. 1868 Beers Atlas Red Lion inset map.



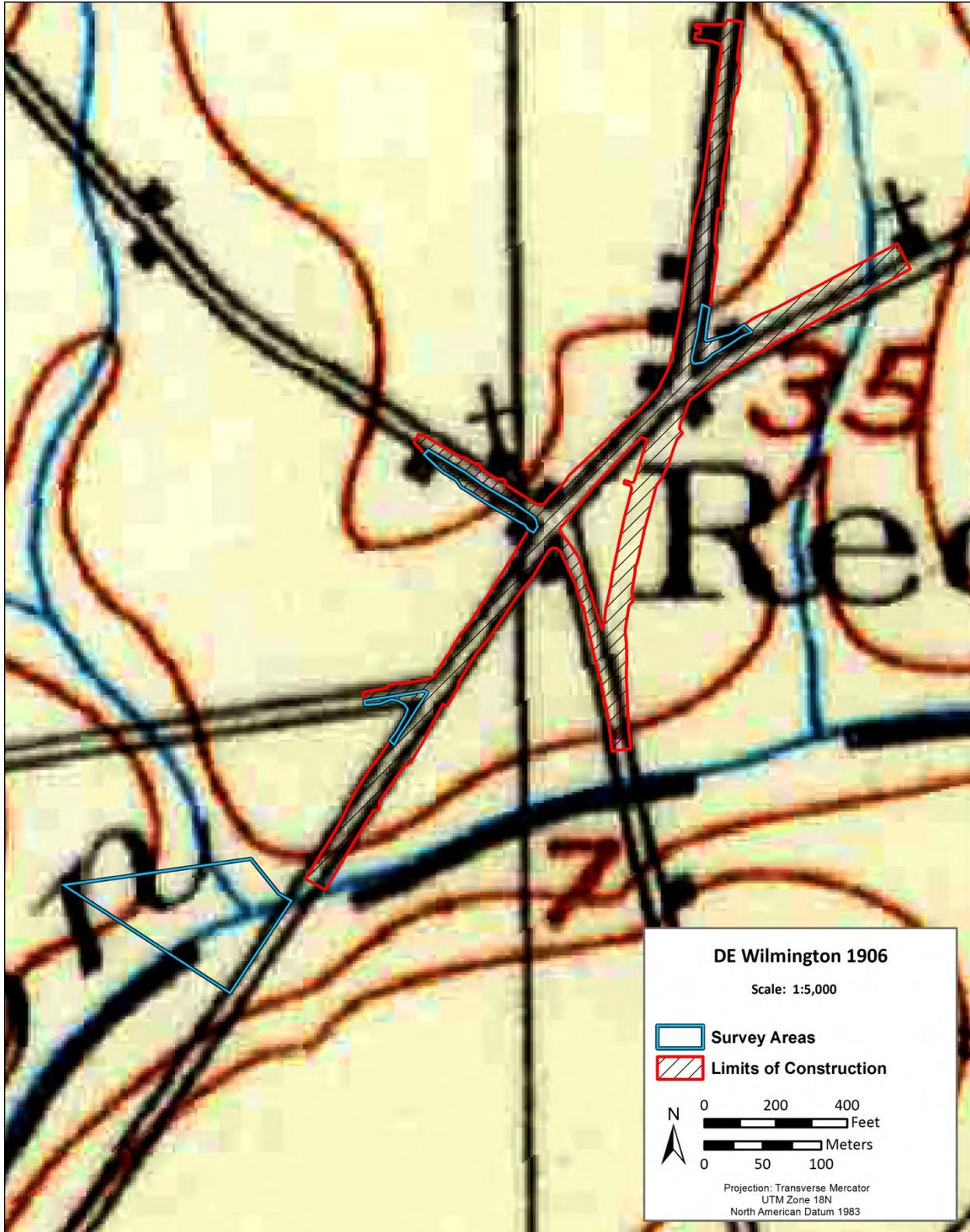
Service Layer Credits: Historic Maps
Library of Congress: <http://ocw.loc.gov/76693265>

Figure 3-8. 1881 Hopkins Map.



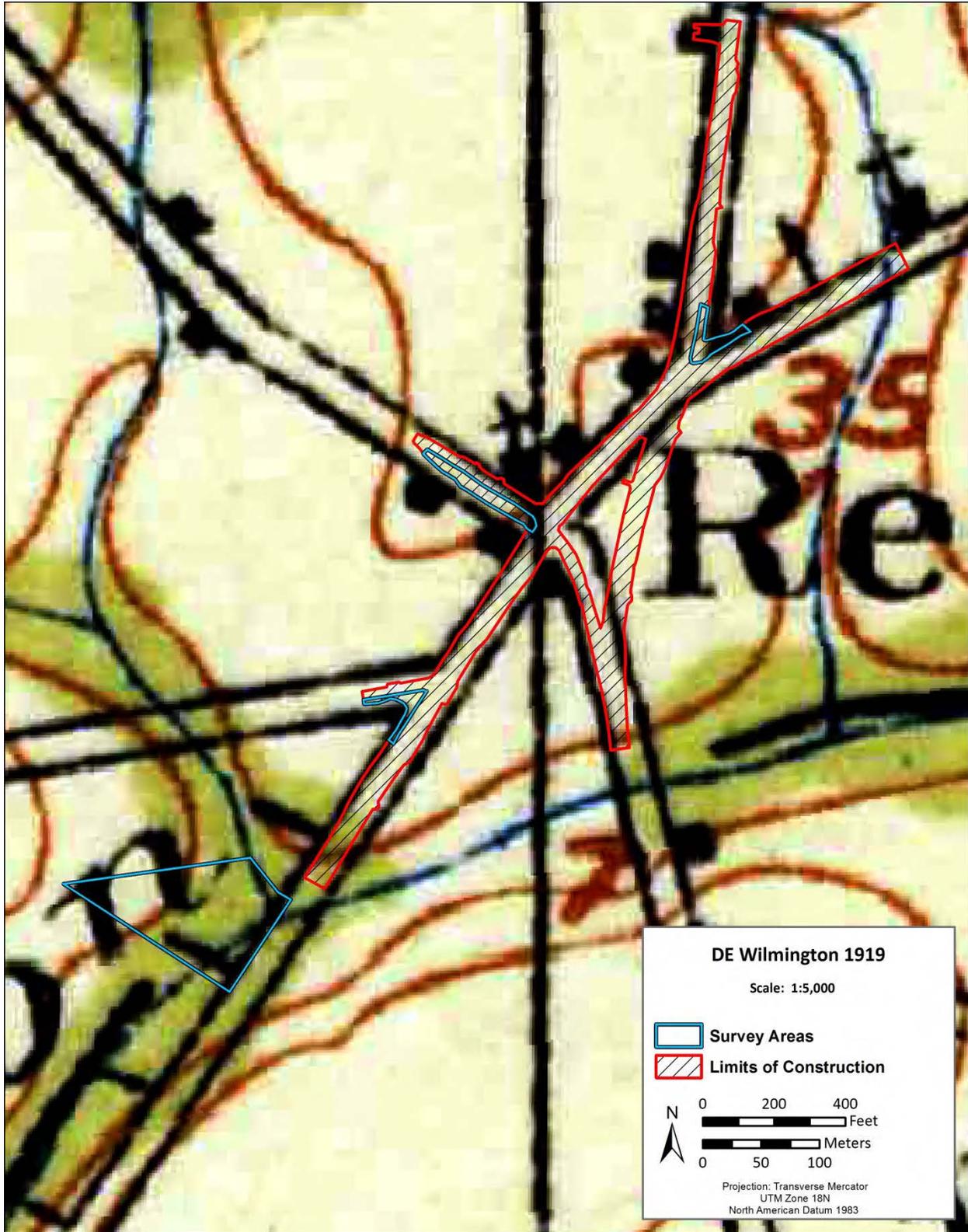
Service Layer Credits: Historic Maps
Library of Congress: <http://ocw.loc.gov/76693265>

Figure 3-9. 1904 USGS Wilmington, DE Map.



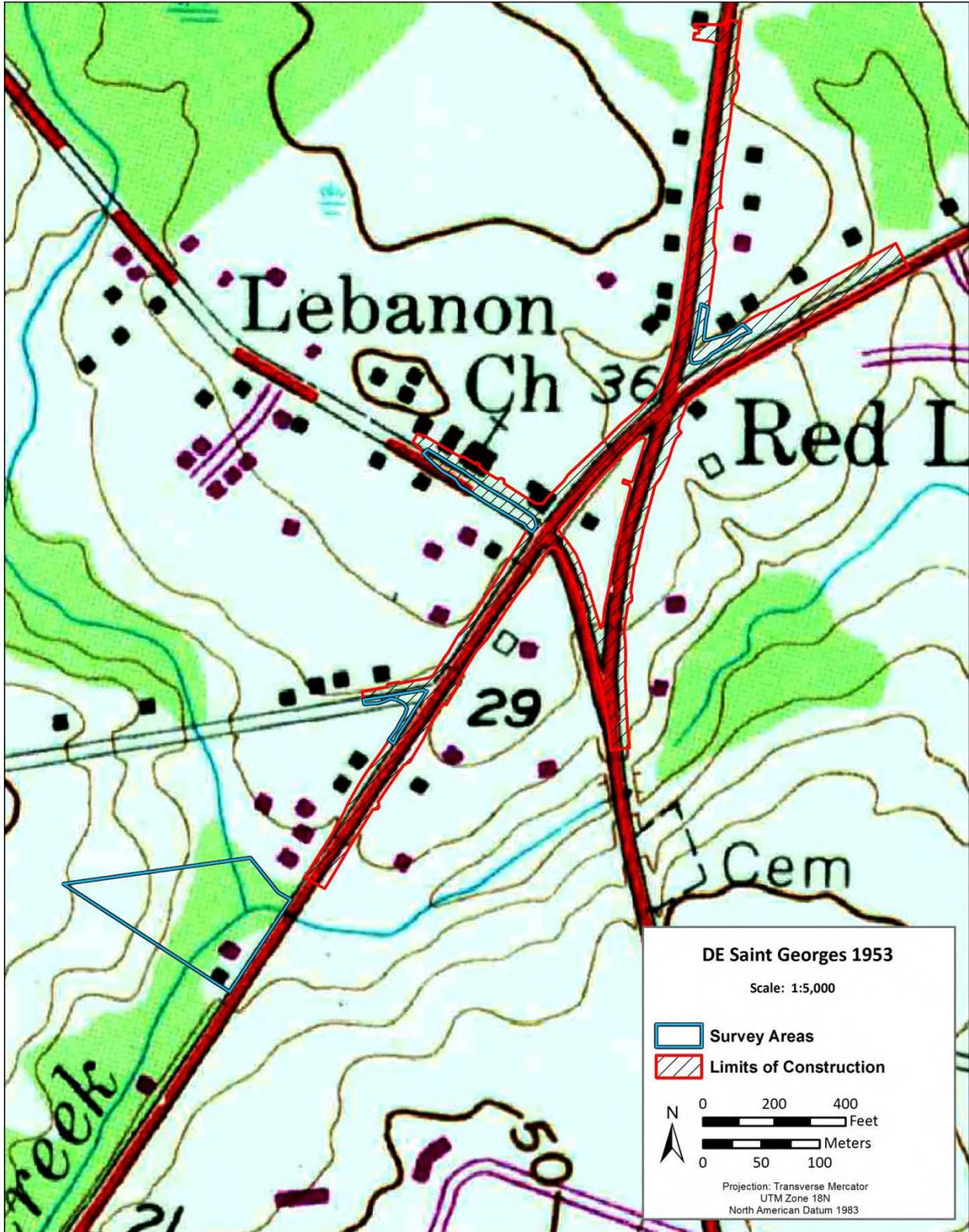
Service Layer Credits: Historic Maps
Library of Congress: <http://lcoc.loc.gov/76693265>

Figure 3-10. 1906 USGS Wilmington, DE Map.



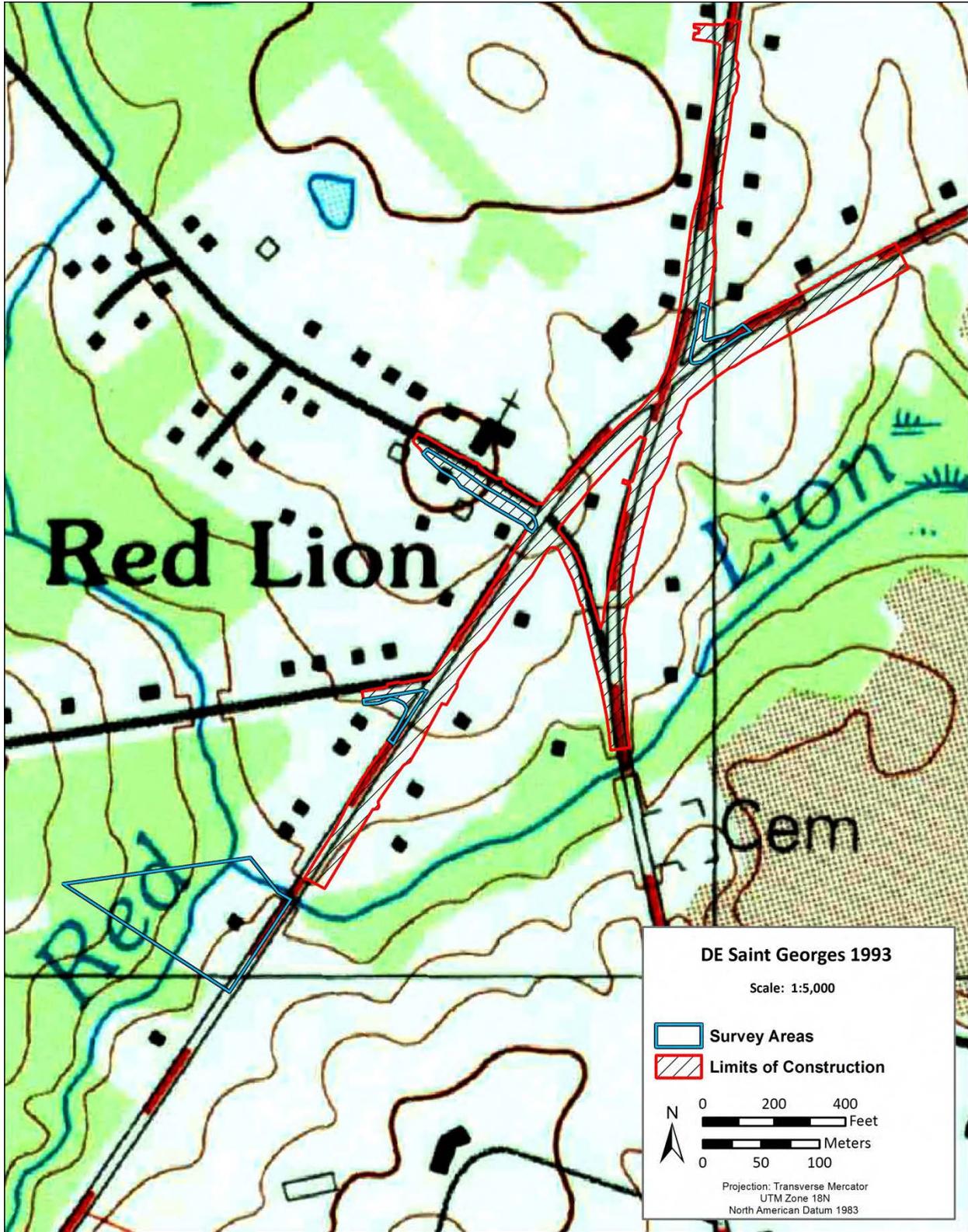
Service Layer Credits: Historic Maps
Library of Congress: <http://ocw.loc.gov/76693265>

Figure 3-11. 1919 USGS Wilmington, DE Map.



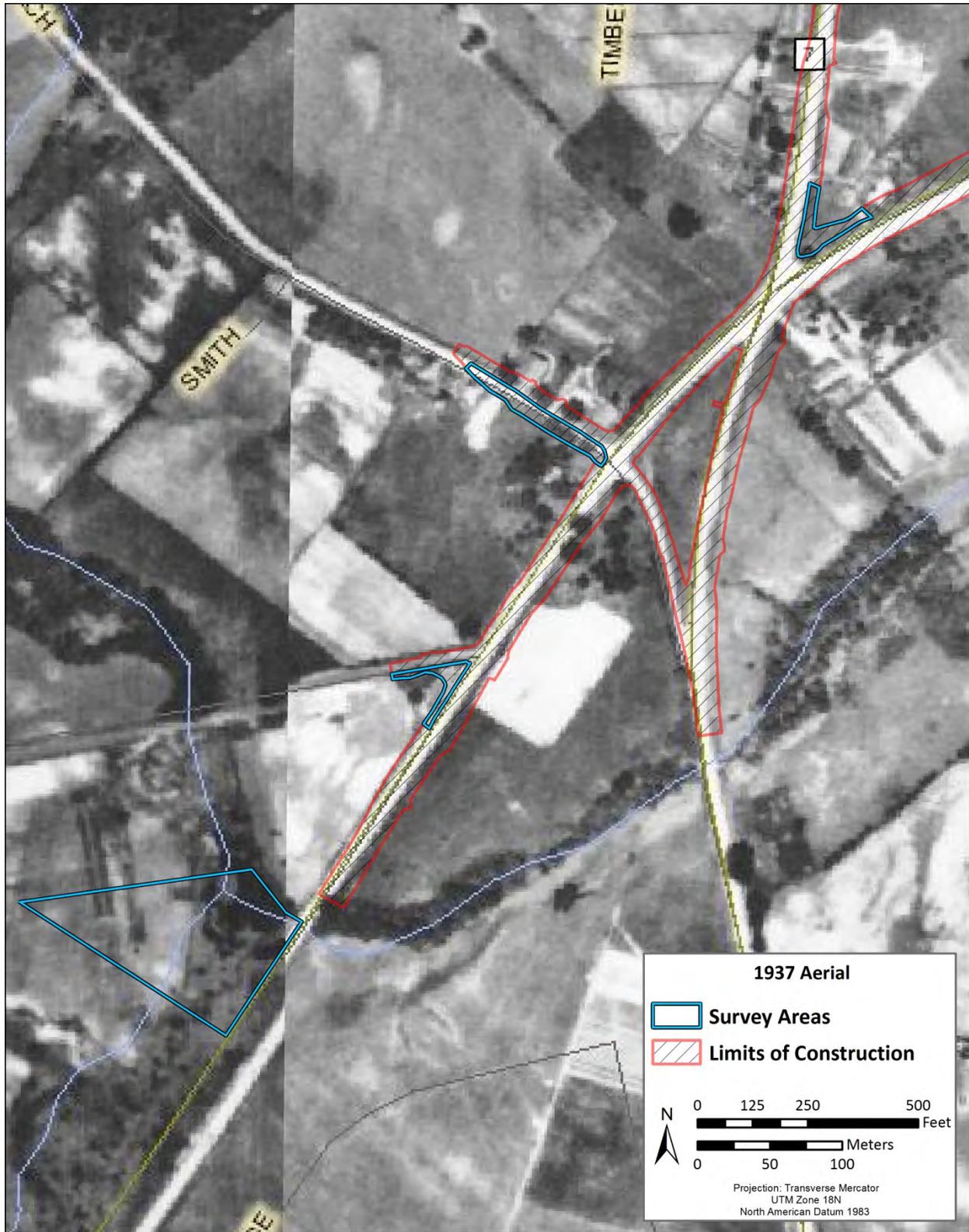
Service Layer Credits: Historic Maps
Library of Congress: <http://locn.loc.gov/76693265>

Figure 3-12. 1953 USGS Saint Georges Map.



Service Layer Credits: Historic Maps
Library of Congress: <http://hcm.lib.loc.gov/76693265>

Figure 3-13. 1993 USGS Saint Georges Map.



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USA, USGS, AEX, GeoMapping, AeroGRID, IGN, IGP, swisstopo, and the GIS User Community Historic Maps Library of Congress. <http://ocw.loc.gov/76693295>

Figure 3-14. 1937 aerial photograph of the LOC and survey areas.

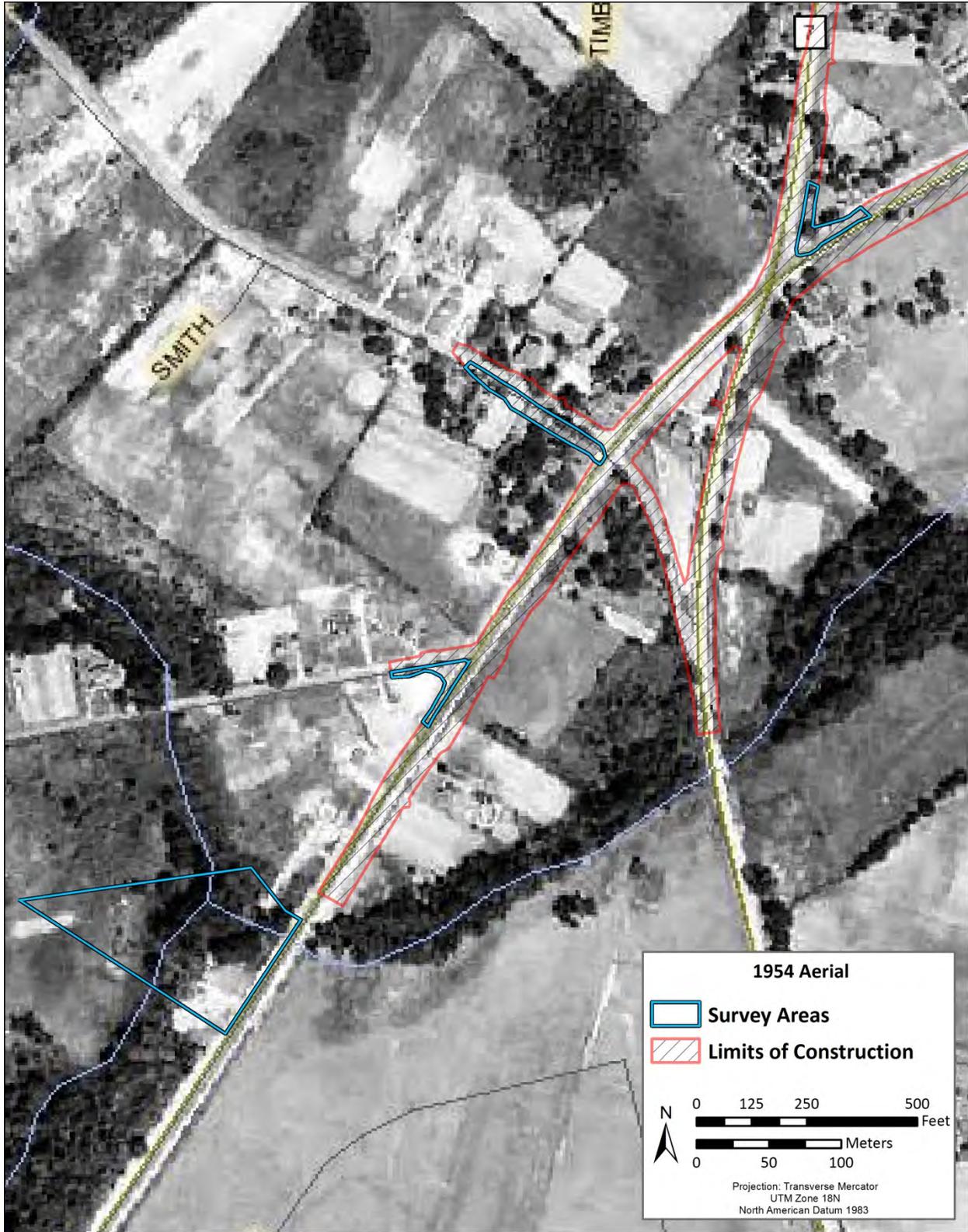


Figure 3-15. 1954 aerial photograph of the LOC and survey areas.

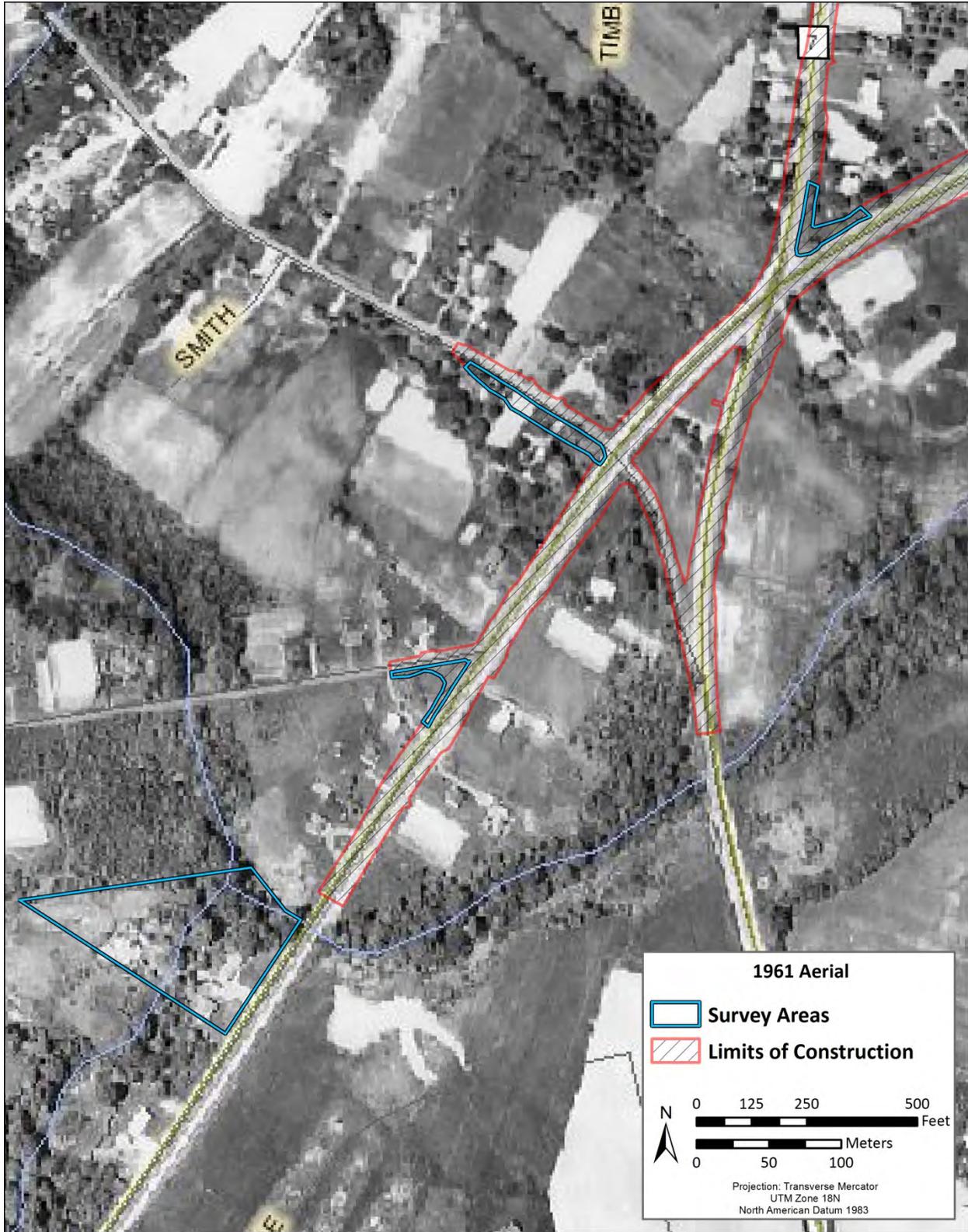
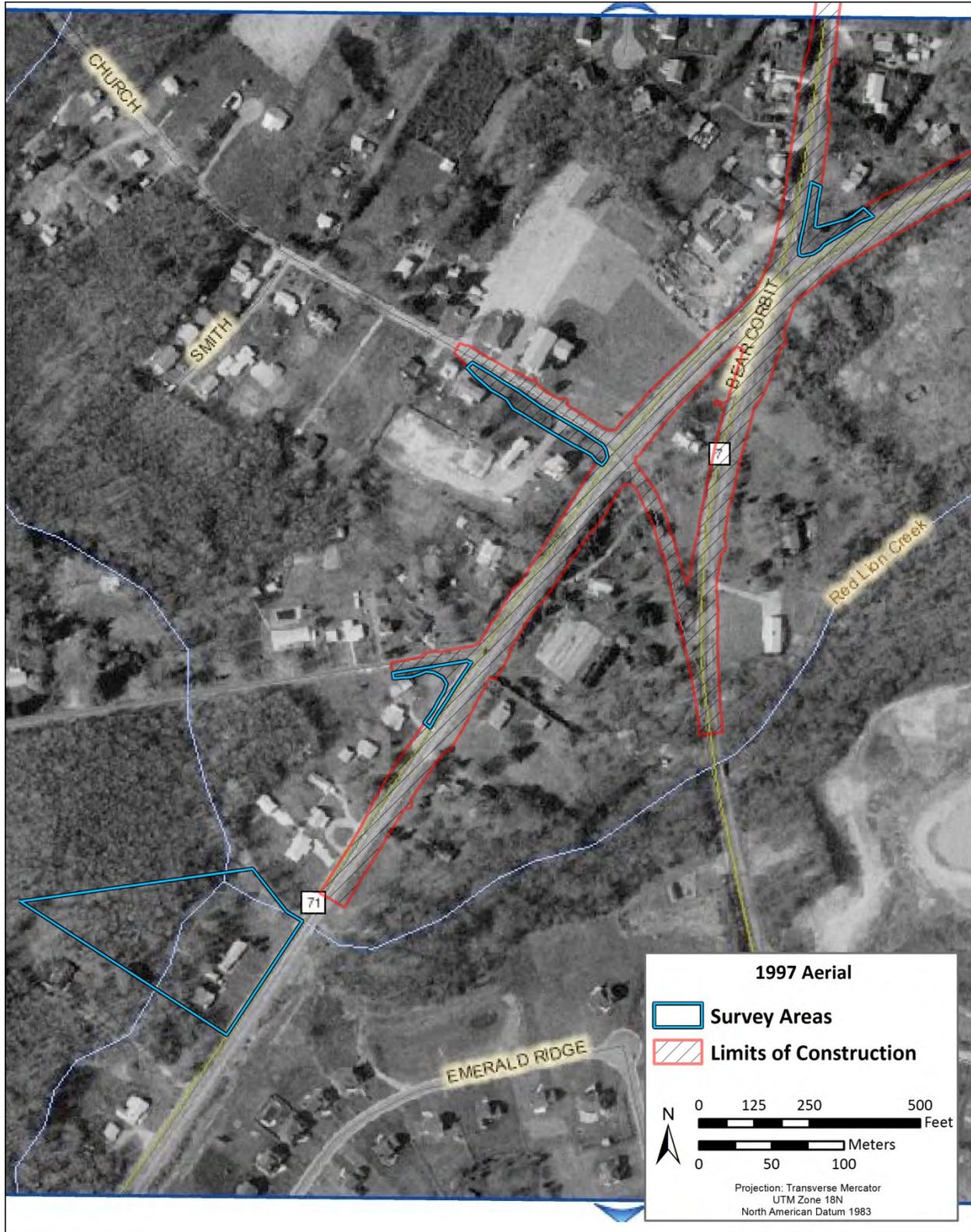


Figure 3-16. 1961 aerial photograph of the LOC and survey areas.



Service Layer Credits: Historic Maps
Library of Congress: <http://hocrn.loc.gov/76693265>

Figure 3-17. 1997 aerial photograph of the LOC and survey areas.



Service Layer Credits: Historic Maps
Library of Congress: <http://fc02.loc.gov/76693265>

Figure 3-18. 2002 aerial photograph of the LOC and survey areas.



3.3 Known Sites and Previous Investigations

Two previously recorded archaeological sites are located within a 0.5-mile radius of the LOC. Table 1 lists the previously recorded archaeological and historic architectural sites within a 0.5-mile radius of the LOC; Table 2 lists cultural resource studies within the same distance.

According to the site form, investigations at the Stanley Site (7NC-E-097) uncovered a hearth in undisturbed soils associated with prehistoric tools and artifacts. The site form for 7NC-E-002 confirms the former location of an archaeological site with artifacts collected by the Wilkins Family at a time prior to the site’s destruction.

Table 3-3. Previously recorded archaeological and historic architectural sites within a 0.5-mile radius of the LOC.

Delaware SHPO Designation	Site Number (if applicable)	Description	National Register Status
N-12123	7NC-E-097	The Stanley Site	Undetermined
N-3768	7NC-E-002	Wilkins Family Collection	Ineligible
N-00498	N/A	Red Lion Church; Red Lion United Methodist Church	Ineligible
N-01237	N/A	Silver Farm	Ineligible
N-04275	N/A	Bridge	Ineligible
N-05065	N/A	Church St.; Rhodes House (Beers)-Red Lion Methodist Church Parsonage	Ineligible
N-05066	N/A	Ray Davis House	Ineligible
N-05078	N/A	Rte. 7; Moore Property	Ineligible
N-05079	N/A	Rte. 7; Vickers Property	Ineligible
N-05080	N/A	Rte. 7; Former Lebanon Methodist Episcopal Parsonage	Ineligible
N-05085	N/A	Dwelling Complex	Ineligible
N-05396	N/A	Red Lion Inn Site	Ineligible
N-07459	N/A	Schauer Property	Ineligible
N-07460	N/A	John T. Ratledge Property	Ineligible
N-07461	N/A	Gray Property	Ineligible
N-07462	N/A	Sutherland Property	Ineligible
N-07463	N/A	Alfred D. Appleby Property	Ineligible
N-07464	N/A	Henry Property	Ineligible
N-07465	N/A	Kreimeier Property	Ineligible
N-07466	N/A	Smith Property	Ineligible
N-07467	N/A	Silver Property	Ineligible
N-07468	N/A	Clark Property	Ineligible
N-07469	N/A	Ellis Property	Ineligible
N-07470	N/A	Ewing Property	Ineligible
N-07471	N/A	J. Edwin Ratledge Property	Ineligible



Table 3-3. Previously recorded archaeological and historic architectural sites within a 0.5-mile radius of the LOC.

Delaware SHPO Designation	Site Number (if applicable)	Description	National Register Status
N-07472	N/A	Harry V. Appleby Property	Ineligible
N-07473	N/A	Adelardi Property	Ineligible
N-07474	N/A	Wilson Property	Ineligible
N-07475	N/A	Nelson Property	Ineligible
N-07476	N/A	Fogler Property	Ineligible
N-08824	N/A	Dwelling Complex	Ineligible
N-08825	N/A	Dwelling Complex	Ineligible
N-12628	N/A	Bridge 299	Ineligible
N-14448	N/A	Cemetery	Ineligible
N-14146	N/A	Complex	Ineligible
N-14147	N/A	Complex	Ineligible
N-14148	N/A	Complex	Ineligible
N-14149	N/A	Complex	Ineligible
N-14150	N/A	Complex	Ineligible

Table 3-4. Previous cultural resource investigations within a 0.5-mile radius of the LOC.

Title	Investigator	Report Date	Report Type
<i>Historic Architectural Resource Survey and Determination of Eligibility, Church Road (Wynnefield to S.R. 71) Improvements, New Castle Hundred, New Castle County, Delaware</i>	Skelly and Loy, Inc. (Kuncio and Hyland 2004)	2004	Historic Resource Survey
<i>S.R. 0071 Transportation Improvements Project, Red Lion, New Castle County, Delaware, Phase Ia Reconnaissance Survey, Agreement 1533 Task 6</i>	Cultural Heritage Research Services, Inc. (Allen and Ruth 2011)	2011	Historic Resource Survey
<i>S.R. 0071 Transportation Improvements Project, Red Lion, New Castle County, Delaware Phase II Historic Resource Survey Evaluation Project</i>	Cultural Heritage Research Services, Inc. (Allen and Ruth 2012)	2012	Historic Resource Survey



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4 Research Design and Methodology

4.1 Research Design

The primary objective of the Phase I survey was to identify all archaeological resources within proposed work areas and recommend follow-up Phase II evaluation of any resources of undetermined eligibility for listing in the National Register of Historic Places (NRHP). Archaeological survey of the project area was conducted in accordance with the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* and the DE SHPO *Guidelines for Conducting Architectural and Archaeological Surveys in Delaware* (1993, as amended).

4.2 Field Methods

The Phase I archaeological investigation included a controlled surface inspection of the LOC followed by excavation of shovel test pits (STPs). STPs were excavated at 15-meter intervals. When STPs were positive for cultural material, close interval shovel tests were excavated in a cruciform pattern at 7.5 meter-intervals in alignment with the grid pattern until two consecutive negative STPs were encountered. STPs measured 30 cm in diameter and were excavated to sterile subsoil. The soil removed from each shovel test was screened through ¼-inch hardware cloth for standardized artifact recovery.

Each shovel test was recorded using HDR's iPad field recording system. Recorded data included provenience, stratigraphic data such as depth, texture, and Munsell color, and the presence or absence of artifacts in each stratum. The nature of any features encountered in the excavations was described in detail and documented via drawings and photographs. Artifacts recovered from the STPs were bagged and labeled by provenience for laboratory processing.

During the archaeological survey, a feature was identified in Survey Area 1. A test unit (TU) was placed on the STP to further investigate the feature. The TU was excavated in arbitrary 10-cm levels within natural strata. All soil from each level was screened through ¼-inch hardware mesh for standardized artifact recovery. All recovered artifacts were bagged and labeled by provenience for laboratory processing. A standardized digital unit excavation form was completed for each provenience (i.e., TU, stratum, and level) using HDR's iPad field recording system. These forms included descriptions of the soil characteristics, artifact content, and cultural and natural features of the provenience. Plan view, profile drawings, and photographs were completed for the TU.

4.3 Laboratory Methods

All artifacts recovered during the field survey were returned to HDR's archaeology laboratory in Vienna, Virginia for processing and analysis. All materials were processed, sorted, and cataloged according to the protocol established by the Delaware SHPO and Delaware State Museums standards for the processing and curation of archaeological collections. The focus of the laboratory analysis was to determine the occupation span, likely function, and degree of artifact preservation at each recorded site. Typological analysis of diagnostic artifacts was the principal mechanism for dating the sites. Artifact assemblages were compared with those described in site reports and publications in order to aid in the identification of both cultural and chronological association. Likely site functions were evaluated in terms of the density and types of artifacts present, the physiographic characteristics of the site, the site size, and the presence and nature of any identified archaeological features and/or structures.



Upon acceptance of the final report, all artifacts and supporting documentation (field notes and forms, maps and drawings, other paper records, photographic records, and all other materials associated with project documentation) will be prepared for permanent curation and delivered to the Delaware Museums Island Field Repository.

5 Field Investigation Results

The Phase I archaeological survey included a controlled surface inspection of the entire LOC, followed by excavation of shovel tests in select portions of the LOC. Areas subjected to shovel testing were designated Survey Areas 1, 2, 3, and 4 (Figure 5-1). The following section discusses the results of the field investigation by survey area. No cultural materials were recovered during the controlled surface inspection of the LOC.



Figure 5-1. Subsurface testing occurred within areas outlined in blue.



5.1 Survey Area 1

Survey Area 1 is situated immediately north of the y- intersection of Red Lion Road/SR71 and Bear Corbitt Road/SR 7. It is bounded by Red Lion Road to the east and Bear Corbitt Road to the west (Figure 5-2). The Phase I archaeological investigation of Survey Area 1 included the excavation of six shovel tests placed at 15-m intervals, three of which were positive for historic artifacts (n=65). One feature, an intact fieldstone foundation, was identified in STP 1c at 25 cm below surface (cmbs) (Figure 5-6; discussed below). Six additional close interval shovel tests were placed at 7.5-m intervals around the positive STPs, three of which were positive for historic artifacts (n=24). One modern item, a stainless steel pocket knife, was recovered from STP 1eE. Table 5-1 lists the positive STPs and the artifact types and totals recovered.

The stratigraphy observed in the shovel tests was consistent across the area. A typical profile consisted of two strata (Figure 5-7 and Figure 5-8). Stratum I was a 23- to 38-cm-thick deposit of black (10YR 2/1) silty loam. Stratum II was yellowish brown (10YR 5/6) silty clay. A different soil profile was only encountered in one shovel test, 1f, which consisted of Stratum I, underlain by Stratum III (light yellowish brown [10YR 6/4] silty clay) and Stratum IV (brownish yellow [10YR 5/6] mottled with light grayish brown [10YR 6/2] silty clay). All cultural materials from STPs were recovered from Stratum I.

Table 5-1. Survey Area 1 STPs and artifact totals.

STPs	Material Type	Total
1c, 1d, 1e, 1bS, 1cN, 1cS, 1cE	Ceramic	11
	Glass	16
	Metal	19
	Brick	6
	Mortar	1
	Coal	11
	Slag	23
	Concretion?/unidentified	2
1eE	Modern	1
	Total	90

Following the completion of shovel testing, a 1-m by 1-m test unit was placed over STP 1c to further investigate the stratigraphy of the area and determine the nature of Feature 1 (Figure 5-9). The stratigraphy in the TU was consistent with soils encountered in surrounding shovel tests. Stratum I was a deposit of black (10YR 2/1) silty loam underlain by Stratum I/II, a mottling of Strata I and II. Excavations revealed the southeast corner of an intact foundation directly beneath Stratum I (Figure 5-10 and Figure 5-11). Varying in depth from 21 to 28 cm below datum (cmdbd), the foundation wall was approximately 43-cm wide and composed of fieldstone and sand-based mortar. Stratum I/II was present on the east side (exterior) of the foundation. Upon removal of Stratum I in the southwest corner, which extended slightly deeper in that corner (foundation interior), it appeared feature-related fill was present. TU excavation was terminated at 36 cmdbd and a tarp was placed over the foundation for future investigation.



In total, 379 historic artifacts were recovered from TU 1, including 105 from Stratum I (modern plastic [n=2] was also recovered from the upper level of the stratum) and 275 from Stratum I/II. Table 5-2 lists the artifact types and totals recovered from the unit.

Table 5-2. Survey Area 1 TU 1 artifacts and totals.

Material Type	Total
Ceramic	16
Glass	101
Metal	156
Brick	29
Mortar	30
Coal	43
Slag	2
Shell	1
Lithic (foundation fragment)	2
Modern (plastic)	2
Total	382



Figure 5-2. Results of the archaeological investigation of Survey Area 1.



Figure 5-3. General view of Survey Area 1 along Bear Corbitt Road/SR 7, facing south.



Figure 5-4. General view of Survey Area 1 at intersection of Bear Corbitt Road/SR 7 and Red Lion Road, facing northeast.



Figure 5-5. General view of Survey Area 1 along Red Lion Road/SR 71, facing west.



Figure 5-6. General view of Feature 1 as encountered in STP 1c.

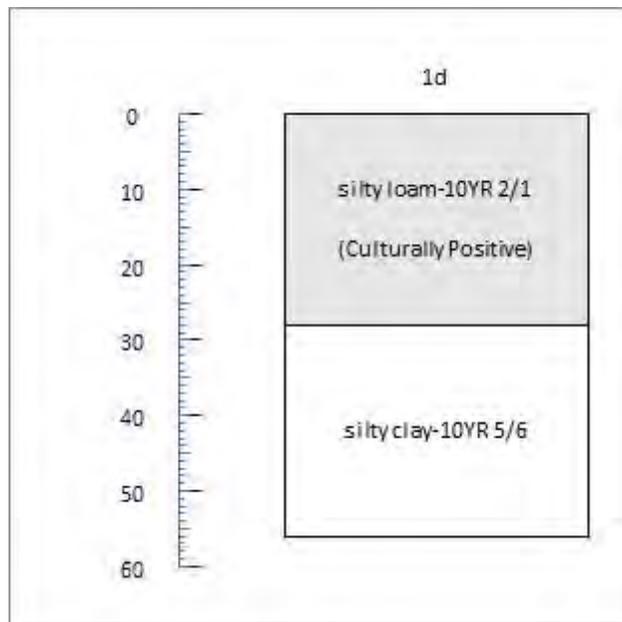


Figure 5-7. Typical STP profile encountered in Survey Area 1.



Figure 5-8. Typical STP profile encountered in Survey Area 1 (1d).



Figure 5-9. TU 1 pre-excavation.



Figure 5-10. TU 1 plan view with Feature 1 fully exposed (north is to the upper left corner).



Figure 5-11. TU 1 West profile.

5.2 Survey Area 2

Survey Area 2 is situated along the southern side of Church Road (Figure 5-12 to Figure 5-14). The Phase I archaeological investigation of Survey Area 2 included the excavation of five shovel tests placed at 15-m intervals, three of which were positive for historic artifacts (n=14). One additional close interval shovel test



was placed at 7.5-m interval northwest of positive STP 3c. Table 5-3 lists the positive STPs and the artifact types and totals recovered.

The stratigraphy observed in the shovel tests was fairly consistent across the area. A typical profile consisted of two to three strata (Figure 5-7 and Figure 5-8). Stratum I was a 15- to 28-cm-thick deposit of dark grayish brown (10YR 4/2) sandy loam. Stratum II was yellowish brown (10YR 5/6) sandy clay. When encountered, Stratum III was a yellowish brown (10YR 5/6) mottled with light brownish gray (10YR 6/2) silty clay. Two probable fill layers were encountered in STP 2a, which was located just west of the intersection of Red Lion Road/SR 71 and Church Road. Stratum Ia was a dark yellowish brown (10YR 4/4) silty loam, underlain by Stratum Ib, a dark yellowish brown (10YR 4/6) silty loam. All artifacts were recovered from Stratum Ib (n=7) or Stratum I (n=7).

Table 5-3. Survey Area 2 STPs and artifact totals.

STPs	Material Type	Total
2a, 2b, 2c	Glass	1
	Metal	1
	Brick	10
	Coal	2
	Total	14



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Figure 5-12. Results of the archaeological investigation of Survey Area 2.



Figure 5-13. General view of Survey Area 2 from intersection of Red Lion Road/SR 71 and Church Road, facing northwest.



Figure 5-14. General view of Survey Area 2 along Church Road, facing southeast.

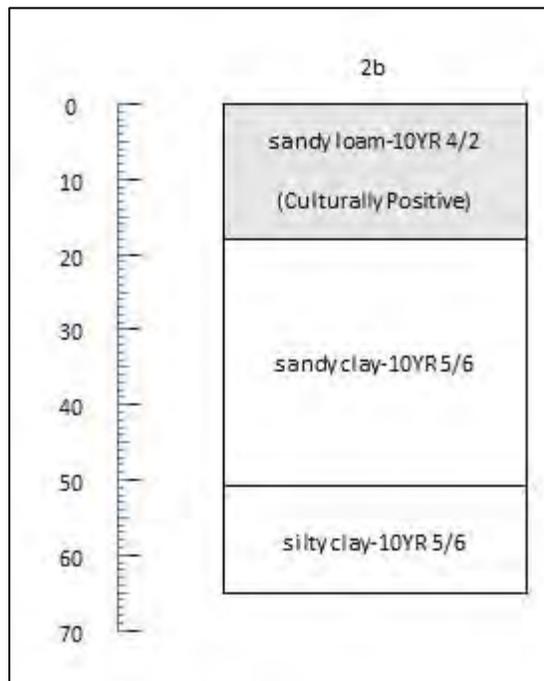


Figure 5-15. Typical STP profile encountered in Survey Area 2.



Figure 5-16. Typical STP soil profile encountered in Survey Area 2 (2b).

5.3 Survey Area 3

Survey Area 3 is situated immediately southwest of the Y-intersection of Red Lion Road/SR 71 and Old Porter Road. It is bounded by Red Lion Road to the southeast and Old Porter Road to the north (Figure 5-17 to Figure 5-19). The Phase I archaeological investigation of Survey Area 3 included the excavation of six shovel tests placed at 15-m intervals, two of which was positive for artifacts (n=12). Table 5-4 lists the positive STPs and the artifact types and totals recovered.

The stratigraphy observed in the shovel tests was consistent across the area. A typical profile consisted of three strata (Figure 5-20 and Figure 5-21). Stratum I was a 10- to 30-cm-thick deposit of dark grayish brown (10YR 4/2) silty loam. Stratum II was a 10- to 17-cm-thick deposit of yellowish brown (10YR 5/6) silty loam underlain by Stratum III, a strong brown (7.5YR 5/8) mottled with light brownish gray (2.5Y 6/2) silty clay. All artifacts were recovered from Stratum I (n=7) and Stratum II (n=5).



Figure 5-17. Results of the archaeological investigation of Survey Area 3.

Table 5-4. Survey Area 3 STPs and artifact totals.

STPs	Material Type	Total
3b, 3d	Projectile Point	1
	Historic Ceramic	2
	Glass	2
	Brick	7
	Total	12



Figure 5-18. General view of Survey Area 3 from the intersection of Red Lion Road/SR 71 and Old Porter Road, facing west.



Figure 5-19. General view of Survey Area 3 from southwest side, facing northeast.

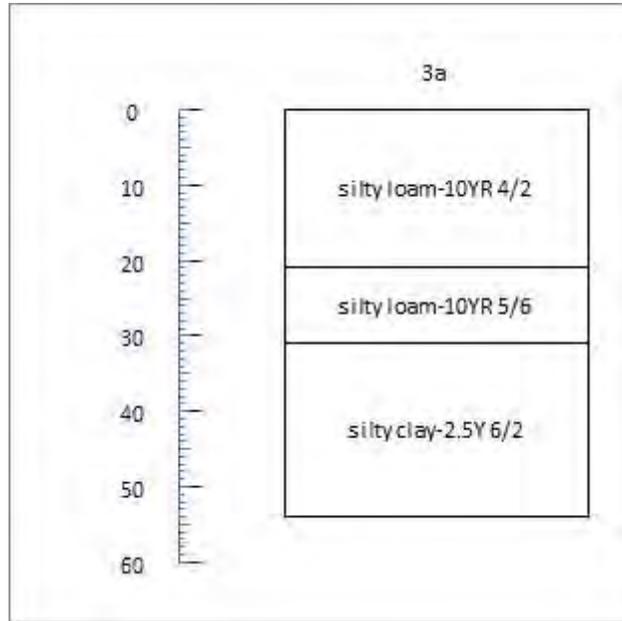


Figure 5-20. Typical STP profile encountered in Survey Area 3.



Figure 5-21. Typical STP soil profile encountered in Survey Area 3 (3a).

5.4 Survey Area 4

Survey Area 4 is situated along the northwestern side of Red Lion Road/SR 71 (Figure 5-22 to Figure 5-31). The Phase I archaeological investigation of Survey Area 4 included the excavation of 56 shovel tests placed at 15-m intervals, four of which were positive for cultural materials (n=26). Shovel test 1.5 was the one STP that yielded only historic artifacts (n=2). A mix of historic and modern materials was recovered primarily from fill soils (discussed below) in STPs 4.3, 5.2, and 5.3 (n=31). Therefore, close interval testing was only conducted around STP 1.5. Table 5-5 lists the positive STPs and the artifact types and totals recovered.

During shovel testing, three areas were identified that exhibited a distinct stratigraphic profile. These areas are consistent with the USDA (2014) designations for the area noted in Table 2-1 above. The three areas are the front section, any area within 15 to 20 m of Red Lion Creek, and the wooded western third of the parcel. A typical profile along the front section of the parcel consisted of several fill layers, likely associated with the demolition of the c. 1950s house that was situated in the area (Figure 5-32 to Figure 5-34 show general disturbance and demolition debris in the area). Table 5-6 lists the five fill layers encountered intermittently across the front section of the parcel. Figure 5-35 and Figure 5-36 show a typical soil profile with several fill layers. When the natural stratigraphy of the area was encountered, which was intermittently, it consisted of



Stratum I and Stratum II. Stratum I was a dark brown (10YR 3/3) silty loam and Stratum II was a brown (10YR 4/3) silty sand. All cultural materials were recovered from Stratum Ia (n=23) or Stratum II (n=3).

Shovel tests within 10 to 15 m of Red Lion Creek consisted of two to three starts (Figure 5-37)—Stratum I, Stratum II, and sometimes Stratum III. Strata I and II thicknesses varied across this area. When encountered, Stratum III was a dark yellowish brown (10YR 4/6) silty clay. All artifacts were recovered from Stratum II (n=2).

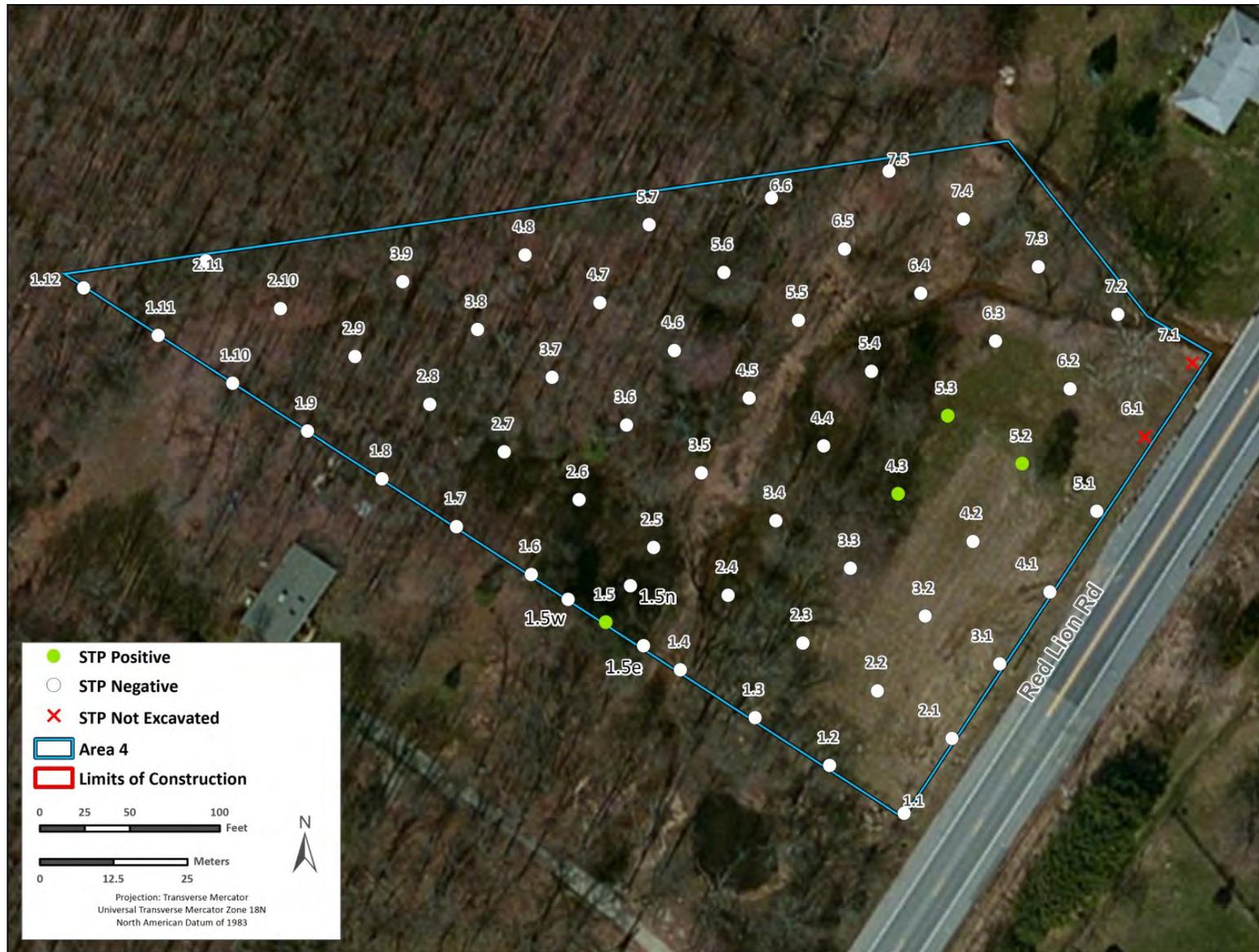
Shovel tests within the wooded western third of the parcel commonly consisted of a combination of two strata, Stratum I and either Stratum IV or Stratum V (Figure 5-38 and Figure 5-39). Stratum IV was a yellowish red (5YR 4/6) clay and Stratum V was a brownish yellow (10YR 6/8) mottled with gray (10YR 6/1) silty clay. No cultural materials were recovered from any shovel tests in this section of Survey Area 4.

Table 5-5. Survey Area 4 STPs and artifact totals.

STPs	Material Type	Total
1.5	Ceramic	2
4.3, 5.2, 5.3	Ceramic	5
	Glass	1
	Metal	6
	Slag	1
	Concretion?/unidentified	7
	Modern (glass, brick, concrete)	6
	Total	28

Table 5-6. Fill layers encountered in front section of Survey Area 4.

Fill Layer	Texture		Munsell Designation			Munsell Color	Notes
1a	sandy	loam	10yr	3	2	very dark grayish brown	
1b	sandy	loam	10yr	3	2	very dark grayish brown	with gravel
1c		clay	2.5yr	4	6	red	compact
1d	sandy	clay	10yr	5	8	yellowish brown	
1e	mottling of strats 1c and II with concrete fragments						



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Figure 5-22. Results of the archaeological investigation of Survey Area 4.



Figure 5-23. General view of Survey Area 4 from southwest corner, facing northeast.



Figure 5-24. General view of south boundary of Survey Area 4, facing west/northwest.



Figure 5-25. General view of front half (southeast of creek) of Survey Area 4, facing south/southwest.



Figure 5-26. General view of Survey Area 4 along north boundary, facing east/southeast.



Figure 5-27. General view of creek running through Survey Area 4, facing northeast.

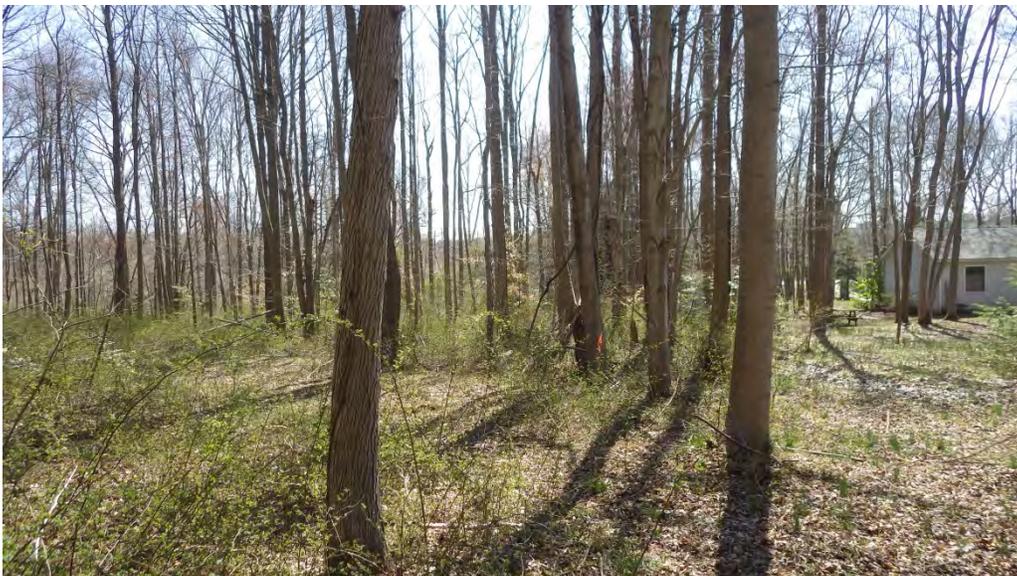


Figure 5-28. General view of Survey Area 4 from west corner, facing southeast.



Figure 5-29. General view of wooded half (northwest of creek) of Survey Area 4, facing east. Note: STP 3.8 is in the foreground.



Figure 5-30. General view of wooded half (northwest of creek) of Survey Area 4, facing east. Note: STP 5.7 is in the left foreground.



Figure 5-31. General view of Survey Area 4 from northeast side, facing southeast.



Figure 5-32. General view of front section (southeast of creek) of Survey Area 4, facing south/southwest.
Note: the raised level area in the center of the photo is where the former house was situated.



Figure 5-33. PVC pipe encountered near STP 3.2.



Figure 5-34. General view of structural debris in creek running through Survey Area 4.

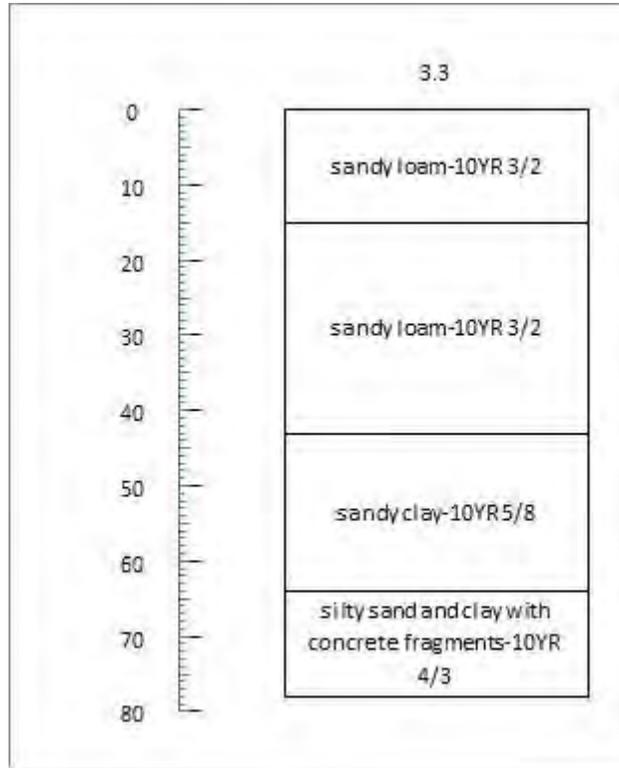


Figure 5-35. Typical disturbed STP soil profile encountered in the front section (southeast of creek) of Survey Area 4.



Figure 5-36. Typical disturbed STP soil profile encountered in the front section (southeast of creek) of Survey Area 4 (3.3).

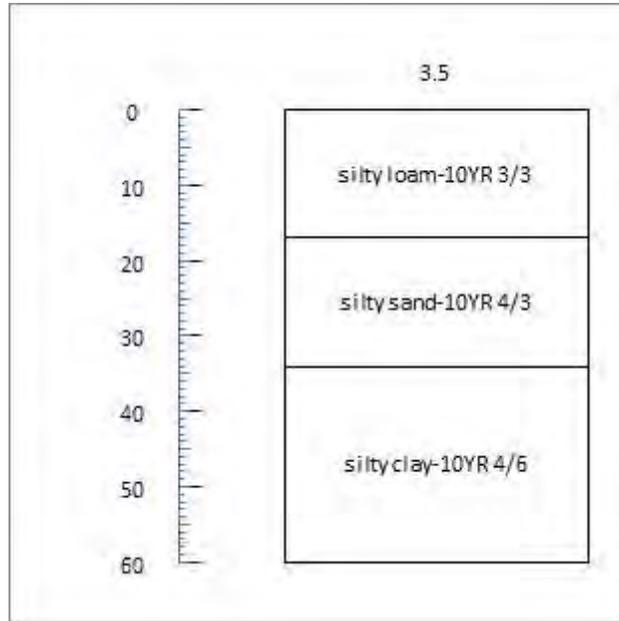


Figure 5-37. Typical soil profile encountered in the vicinity of Red Lion Creek.

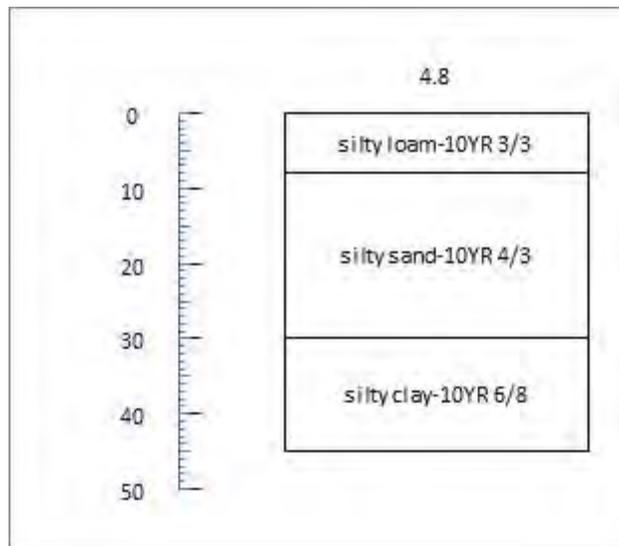


Figure 5-38. Typical STP soil profile encountered in the wooded section (northwest of creek) of Survey Area 4.



Figure 5-39. Typical STP soil profile encountered in the wooded section (northwest of creek) of Survey Area 4 (4.8).



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6 Laboratory Results and Discussion

A principal goal of any artifact analysis is to determine the occupational history and function of the sites from which the artifacts were recovered. In total, 516 artifacts (1 prehistoric and 515 historic) and 10 modern items were recovered during the investigation of the LOC. The following section provides a discussion of the artifact assemblage from each survey area and what information can be gleaned from these data.

6.1.1 Survey Area 1

A total of 469 historic artifacts and 3 modern items were recovered from Survey Area 1. Five shovel tests (artifacts recovered from STP 1c are included in the TU 1 Stratum I discussion below) yielded a mix of domestic and architectural artifacts. Domestic items include lead glazed redware (n=6); undecorated whiteware (n=3); undecorated porcelain; olive bottle glass (n=1); unidentified aqua bottle glass (n=4); unidentified brown vessel glass (n=1); unidentified greenish-yellow vessel glass (possible Depression glass; n=1); unidentified colorless vessel glass (n=2); chimney glass (n=1); and a glass marble. Architectural items include aqua window glass (n=4); an unidentified nail fragment; a wrought nail fragment; wrought or cut nail fragments (n=3); cut nail fragments (n=6); and hand mold made brick fragments (n=5). Other recovered items include coal (n=10); slag (n=23); unidentified ferrous metal fragments (n=7); and concretion/unidentified fragments (n=2).

As previously mentioned, one feature was identified during the investigation of Survey Area 1. The intact fieldstone foundation was first uncovered in STP 1c, and TU 1 was placed over the shovel test to further investigate it. In total, the shovel test and test unit yielded 386 historic artifacts and 2 modern items. Stratum I yielded 111 historic artifacts and 2 modern plastic items. The assemblage is predominantly architectural items (56%; n=62), followed by domestic (24%; n=27) and miscellaneous artifacts (20%; n=22). Table 6-1 lists the artifact types and counts for each group. The assemblage dates from the mid nineteenth to mid twentieth centuries.

A total of 275 historic artifacts were recovered from Stratum I/II. The assemblage is predominantly architectural items (61%; n=169), followed by miscellaneous (20%; n=54) and domestic artifacts (19%; n=52). Table 6-2 lists the artifact types and counts for each group. The assemblage dates primarily from the early/mid nineteenth to early twentieth centuries.

The historic assemblage recovered from Survey Area 1 dates from the early nineteenth to mid twentieth centuries, indicating a long span of occupation in the area. This is further supported by the historic maps researched for this investigation. As previously discussed, there has been settlement in the vicinity of the survey area since at least 1849. In addition, the Red Lion Road/SR 71 and Bear Corbitt Road/SR 7 intersection dates to the colonial period. The fieldstone foundation encountered during the archaeological survey is likely the remains of one of the structures noted on historic maps.

Table 6-1. Artifact types and counts by group.

Architectural	Count
Aqua window glass	22
Brick	19
Mortar	3
Cut nail	16



Table 6-1. Artifact types and counts by group.

Architectural	Count
Cut or wire nail	2
Domestic	
Semi-porcelain/porcelain, blue spongeware	1
Semi-porcelain, brown transfer printed	1
Semi-porcelain, molded	2
Whiteware, undecorated	2
Brown bottle glass	3
Colorless pressed glass, possible drinking vessel	3
Unidentified aqua bottle or vessel glass	7
Unidentified greenish-yellow vessel glass	1
Unidentified milk glass vessel	1
Unidentified colorless vessel glass	6
Miscellaneous	
Shot gun sheel base	1
Coal	14
Slag	3
Unidentified ferrous metal fragments	4
Total	111

Table 6-2. Artifact types and counts by group.

Architectural	Count
Aqua window glass	16
Colorless window glass	1
Brick	11
Mortar	28
Unidentified nail	54
Possible wrought nail	1
Cut nail	53
Possible spike	3
Lithic (foundation fragment)	2
Domestic	
Unidentified earthenware, lead glazed	2
Redware, lead glazed	2
Porcelain, undecorated	1
Semi-porcelain, brown transfer printed	2



Victorian majolica	4
Colorless pressed glass, possible drinking vessel	3
Unidentified aqua bottle or vessel glass	11
Unidentified milk glass vessel	9
Unidentified colorless vessel glass	7
Chimney glass	10
4-hole button, white/milk glass	1
Miscellaneous	
Coal	30
Shell	1
Unidentified ferrous metal fragments	23
Total	275

6.1.2 Survey Area 2

A total of 14 historic artifacts were recovered from Survey Area 2. The small assemblage is composed of one glass marble, two pieces of coal, one wrought or cut nail fragment, and ten hand mold made brick fragments (two of which are glazed on two surfaces). The small assemblage dates from the nineteenth to early twentieth centuries.

As previously discussed, the intersection at Red Lion Road/SR 71 and Church Road has a long history of occupation. The recovered artifacts, dating roughly from the nineteenth to early twentieth century, could be related to the current domestic structure located on the parcel (main house constructed c.1882; Allen and Ruth 2012: 33-37) or to previous occupations in the vicinity. However, interpretation beyond determining an approximate temporal range for the historic assemblage is difficult considering the low quantity of artifacts recovered.

6.1.3 Survey Area 3

One prehistoric artifact, a possible Savannah River projectile point (Late Archaic; Figure 6-1), and eleven historic artifacts were recovered from Survey Area 3. The small historic assemblage, roughly dating from the mid/late nineteenth to early/mid twentieth centuries, is composed of one piece of lead glazed redware, one piece of undecorated whiteware, two window glass fragments, and seven small brick fragments. The projectile point was recovered from a disturbed context with several brick fragments. Interpretation beyond determining an approximate temporal range for the artifact assemblage is difficult considering the low quantity of artifacts recovered, especially considering settlement in the immediate vicinity of the survey area did not occur until the late 1940s/early 1950s.



Figure 6-1. PPK recovered from Stratum I in STP 3b.

6.1.4 Survey Area 4

A total of 22 historic artifacts and 6 modern items were recovered from Survey Area 4. Only two historic artifacts were recovered from a non-historic/modern mixed context; however, they were situated at the base of a slope, possibly washed down from a higher elevation. One piece of blue hand painted pearlware and one piece of lead glazed redware were recovered from an STP (1.5) along the southern side of the survey area. The other three positive STPs within the front central section of the survey area yielded: three pieces of lead glazed redware; one piece of blue transfer printed whiteware; one piece of purple/mulberry transfer printed whiteware; one aqua bottle glass fragment; one possible cut nail; one cut or wire nail, two wire nails; one brick fragment; one probably wrench; one unidentified ferrous metal object; one piece of slag; seven pieces of concretion?/unidentified; four modern bottle glass fragments; and one concrete fragment.

The historic assemblage recovered from the survey area primarily dates from the nineteenth century and can likely be linked to the mid to late nineteenth century occupation in the vicinity. As previously discussed, two structures are depicted on an 1860 map of the area, with one of the structures still present on an 1881 and 1893 map. It is likely that the construction of the two structures during the late 1940s/early 1950s, and subsequent demolition between 1999 and 2002, destroyed any intact deposits associated with the nineteenth century occupation.

7 Summary and Recommendations

Under contract to DelDOT, HDR conducted a Phase I archaeological investigation for the proposed HISP NCC, SR71, Old Porter Road to SR 7 Project in Red Lion, Delaware. DelDOT plans to undertake improvements along sections of Red Lion Road/SR 71, Bear Corbitt Road/SR 7, Church Road, and Old Porter Road, as well as at the intersections of Red Lion Road/SR 71 and Bear Corbitt Road/SR 7, Red Lion Road/SR 71 and Church Road, and Red Lion Road/SR 71 and Old Porter Road. Additionally, an approximately 2.76-acre parcel (tax parcel numbers 1005200020 and 1005200021) located southwest of the limits of construction (LOC) along Red Lion Road/SR 71 has been set aside as a proposed wetland mitigation area. The investigation was completed to assist DelDOT in meeting anticipated regulatory obligations under Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. HDR performed the work in accordance with the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* and the *DE Guidelines for Conducting Architectural and Archaeological Surveys in Delaware* (1993, as amended).

The primary objective of the Phase I survey was to identify all archaeological resources within the LOC and recommend follow-up Phase II evaluation of any resources of undetermined eligibility for listing in the National Register of Historic Places (NRHP). The purpose of the NRHP is to list properties that are “significant in American history, architecture, archaeology and culture” (NHPA Section 101[a][1]). The implementing regulations of the NHPA provide the following criteria for evaluation:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and

- (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
- (b) that are associated with the lives of persons significant in our past; or
- (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- (d) that have yielded, or may be likely to yield, information important in prehistory or history” (36 CFR 60.4).

HDR conducted the background research in February and March 2014, and the fieldwork was undertaken in April 2014. The field survey included a controlled surface inspection of the entire LOC, followed by excavation of shovel tests in select portions of the LOC. Areas subjected to shovel testing were designated Survey Areas 1, 2, 3, and 4.

7.1 Survey Area 1

HDR excavated twelve shovel tests and one 1-m by 1-m test unit during the archaeological survey of Survey Area 1. One site was identified (Figure 7-1); it is designated 7NC-E-203 (CRS N05079) by the SHPO. Subsurface testing revealed a consistent stratigraphy within the site. A total of 469 historic artifacts and 2 modern items were recovered from the seven shovel tests and the 1-m by 1-m test unit that were excavated within the site. One feature, an intact fieldstone foundation, was encountered within the site. The historic assemblage recovered from the site dates from the early nineteenth to mid twentieth centuries, indicating a long span of occupation in the area. This is further supported by historic maps of the Red Lion area, which

indicate that there has been settlement in the vicinity of the area since at least 1849. The fieldstone foundation encountered during the survey is likely the remains of one of the structures noted on historic maps. The NRHP eligibility of the site is undetermined; therefore, HDR recommends a Phase II archaeological evaluation to further investigate the vertical and horizontal integrity of the site.



Figure 7-1. Site identified during the Phase I investigation of Survey Area 1.

7.2 Survey Area 2

HDR excavated six shovel tests during the archaeological survey of Survey Area 2. One site was identified (Figure 7-2); it is designated 7NC-D-265 (CRS N01237) by the SHPO. Subsurface testing revealed a generally consistent stratigraphy within the site. A total of 14 historic artifacts were recovered from the three shovel tests that were excavated within the site. The site assemblage dates from the nineteenth to early twentieth centuries. The intersection at Red Lion Road/SR 71 and Church Road has a long history of occupation. The small historic assemblage could be related to the current domestic structure located on the parcel (main house constructed c.1882; Allen and Ruth 2012: 33-37) or to previous occupations in the vicinity. However, interpretation beyond determining an approximate temporal range for the historic assemblage is difficult considering the low quantity of artifacts recovered. Based on the limited assemblage recovered and lack of intact archaeological deposits, HDR recommends this site as not eligible for listing in the NRHP. No further work is recommended.



Figure 7-2. Site identified during the Phase I investigation of Survey Area 2.

7.3 Survey Area 3

HDR excavated five shovel tests during the archaeological survey of Survey Area 3. One site was identified (Figure 7-3); it is designated 7NC-D-266 (CRS N14568) by the SHPO. Subsurface testing revealed a generally consistent stratigraphy within the site. One prehistoric artifact (a possible Savannah River projectile point; Late Archaic) and 11 historic artifacts (mid/late nineteenth to early/mid twentieth century) were recovered from the two shovel tests that were excavated within the site. The projectile point was recovered from a disturbed context with several brick fragments. Interpretation beyond determining an approximate temporal range for the artifact assemblage is difficult considering the low quantity of artifacts recovered; especially considering settlement in the immediate vicinity of the survey area did not occur until the early to mid twentieth century. Based on its lack of integrity, HDR recommend this site as not eligible for listing in the NRHP. No further work is recommended.

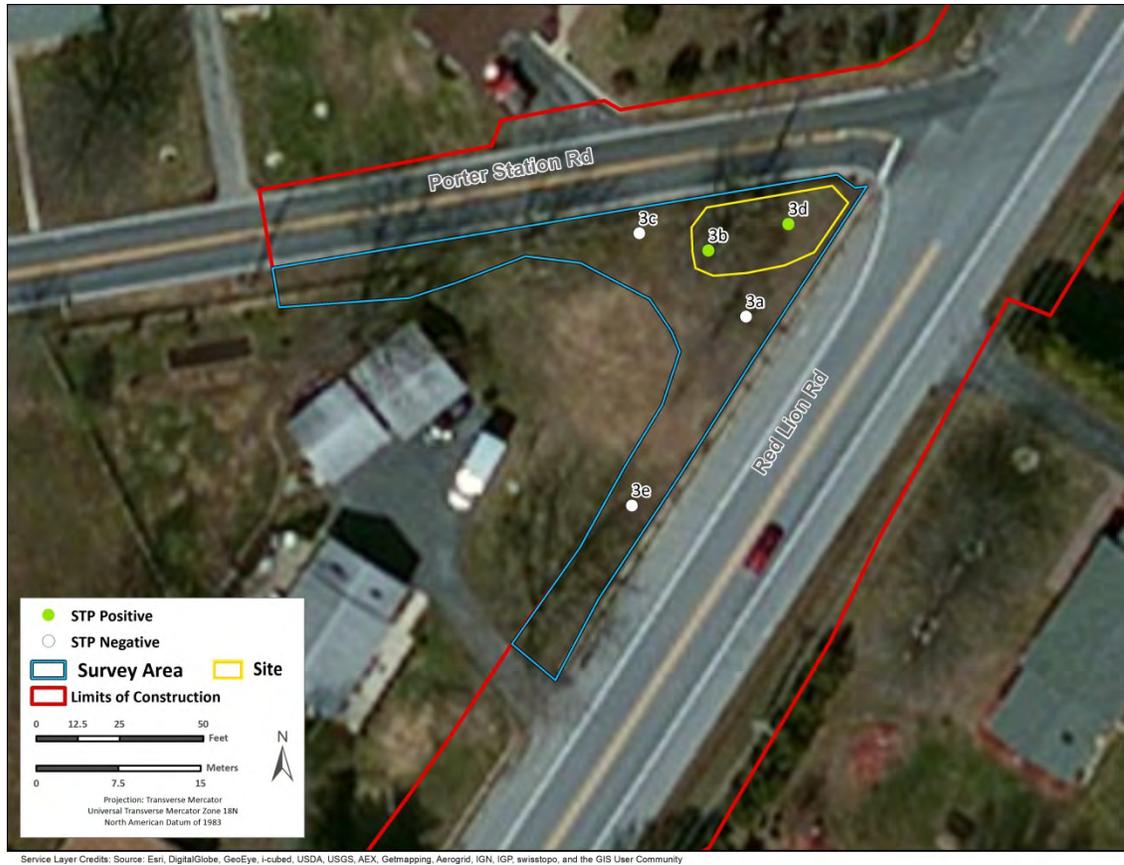


Figure 7-3. Site identified during the Phase I investigation of Survey Area 3.

7.4 Survey Area 4

HDR excavated 59 shovel tests during the archaeological survey of Survey Area 4. Subsurface testing revealed inconsistent stratigraphy across the area. A total of 22 historic artifacts and six modern items were recovered from four shovel tests. Only two historic artifacts were recovered from a non-historic/modern mixed context along the southern side of the survey area; however, they were situated at the base of a slope, possibly washed down from a high elevation. The other items recovered from the three shovel tests within the front central section of the survey area represent a site (Figure 7-4); it is designated 7NC-D-267 (CRS N14569) by the SHPO. The historic assemblage recovered from the site primarily dates from the nineteenth century and can likely be linked to the mid to late nineteenth century occupation in the vicinity. Two structures are denoted on an 1860 map of the area, and one on an 1881 and 1893 map. It is likely that the construction of two structures during the late 1940s/early 1950s, and subsequent demolition between 1999 and 2002, destroyed any intact deposits associated with the nineteenth century occupation. Based on its lack of integrity, HDR recommends this site not eligible for listing in the NRHP. No further work is recommended.

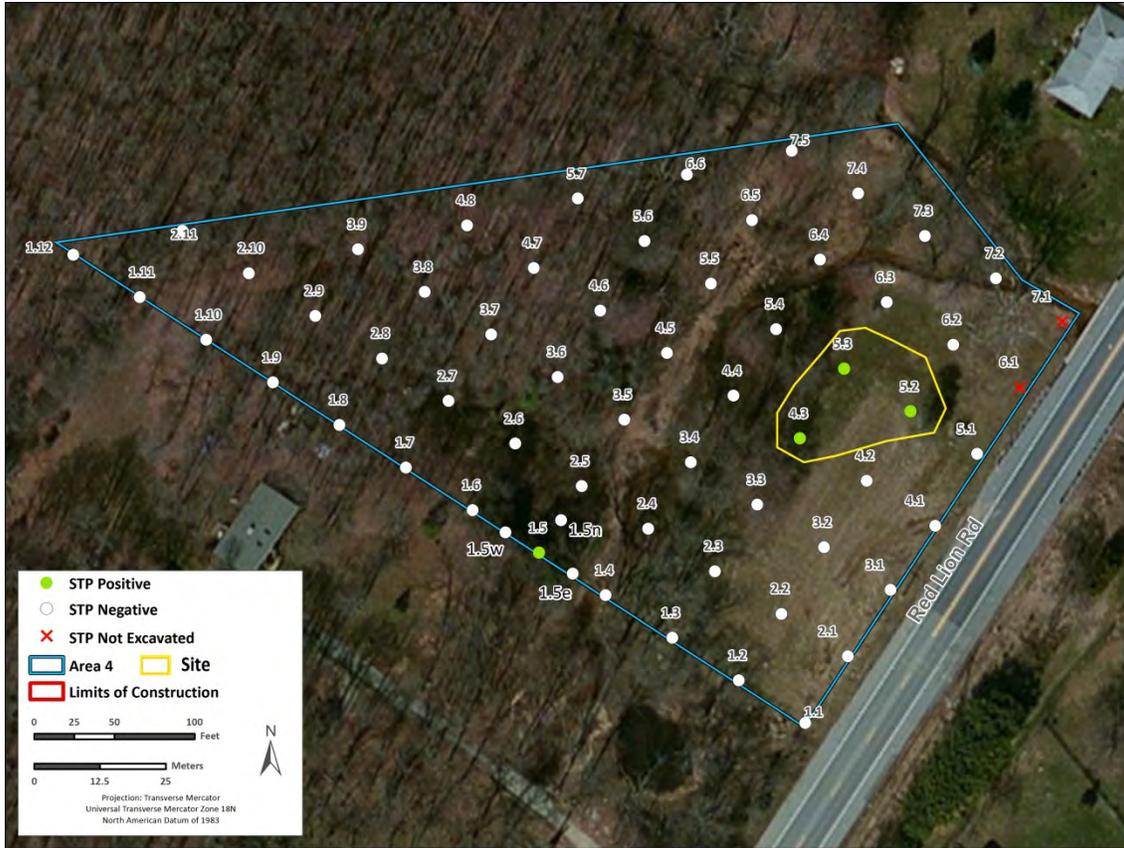


Figure 7-4. Site identified during the Phase I investigation of Survey Area 4.



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Appendix A: Stratigraphic Profiles



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Area	Unit Type	No.	Stratum	Beginning Depth (cmbs)	Ending depth (cmbs)	Soil Texture	Soil Color	Notes
Area 1	STP	1a	I	0	28	silty loam	10YR 2/1	
Area 1	STP	1a	II	28	70	silty clay	10YR 5/6	
Area 1	STP	1b	I	0	25	silty loam	10YR 2/1	
Area 1	STP	1b	II	25	68	silty clay	10YR 5/6	
Area 1	STP	1bN	I	0	23	silty loam	10YR 2/1	
Area 1	STP	1bN	II	23	51	silty clay	10YR 5/6	
Area 1	STP	1bS	I	0	25	silty loam	10YR 2/1	
Area 1	STP	1bS	II	25	50	silty clay	10YR 5/6	
Area 1	STP	1c	I	0	25	silty loam	10YR 2/1	
Area 1	STP	1cE	I	0	21	silty loam	10YR 2/1	
Area 1	STP	1cE	II	21	56	silty clay	10YR 5/6	
Area 1	STP	1cN	I	0	29	silty loam	10YR 2/1	
Area 1	STP	1cN	II	29	69	silty clay	10YR 5/6	
Area 1	STP	1cS	I	0	38	silty loam	10YR 2/1	
Area 1	STP	1cS	II	38	69	silty clay	10YR 5/6	
Area 1	STP	1d	I	0	28	silty loam	10YR 2/1	
Area 1	STP	1d	II	28	56	silty clay	10YR 5/6	
Area 1	STP	1e	I	0	35	silty loam	10YR 2/1	
Area 1	STP	1e	II	38	70	silty clay	10YR 5/6	
Area 1	STP	1eE	I	0	27	silty loam	10YR 2/1	
Area 1	STP	1eE	III	27	58	silty clay	10YR 6/4	
Area 1	STP	1f	I	0	32	silty loam	10YR 2/1	
Area 1	STP	1f	III	32	52	silty clay	10YR 6/4	
Area 1	STP	1f	IV	52	70	silty clay	10YR 5/6	
Area 1	TU	1	I	0	21	silty loam	10YR 2/1	
Area 1	TU	1	I/II	21	36	silty clay	10YR 2/1	Mottled with 10YR 5/6



Area	Unit Type	No.	Stratum	Beginning Depth (cmbs)	Ending depth (cmbs)	Soil Texture	Soil Color	Notes
Area 2	STP	2a	Ia	0	18	silty loam	10YR 4/4	
Area 2	STP	2a	Ib	18	38	silty loam	10YR 4/6	
Area 2	STP	2a	III	38	66	silty clay	10YR 5/6	Mottled with 10YR 6/2
Area 2	STP	2b	I	0	18	sandy loam	10YR 4/2	
Area 2	STP	2b	II	18	51	sandy clay	10YR 5/6	
Area 2	STP	2b	III	51	65	silty clay	10YR 5/6	
Area 2	STP	2c	I	0	16	sandy loam	10YR 4/2	
Area 2	STP	2c	II	16	59	sandy clay	10YR 5/6	
Area 2	STP	2c	III	59	71	silty clay	10YR 5/6	
Area 2	STP	2cNW	I	0	19	sandy loam	10YR 4/2	
Area 2	STP	2cNW	II	19	38	sandy clay	10YR 5/6	
Area 2	STP	2d	I	0	28	sandy loam	10YR 4/2	
Area 2	STP	2d	II	28	71	sandy clay	10YR 5/6	
Area 2	STP	2e	I	0	15	sandy loam	10YR 4/2	
Area 2	STP	2e	II	15	55	sandy clay	10YR 5/6	



Area	Unit Type	No.	Stratum	Beginning Depth (cmbs)	Ending depth (cmbs)	Soil Texture	Soil Color	Notes
Area 3	STP	3a	I	0	21	silty loam	10YR 4/2	
Area 3	STP	3a	II	20	30	silty loam	10YR 5/6	
Area 3	STP	3a	III	31	54	silty clay	2.5Y 6/2	Mottled with 7.5YR 5/8
Area 3	STP	3b	I	0	30	silty loam	10YR 4/2	
Area 3	STP	3b	II	30	45	silty loam	10YR 5/6	
Area 3	STP	3b	III	45	56	silty clay	2.5Y 6/2	
Area 3	STP	3c	I	0	20	silty loam	10YR 4/2	
Area 3	STP	3c	II	20	37	silty loam	10YR 5/6	
Area 3	STP	3c	III	37	60	silty clay	2.5Y 6/2	
Area 3	STP	3d	I	0	24	silty loam	10YR 4/2	
Area 3	STP	3d	II	24	40	silty loam	10YR 5/6	
Area 3	STP	3d	III	40	65	silty clay	2.5Y 6/2	
Area 3	STP	3e	I	0	10	silty loam	10YR 4/2	
Area 3	STP	3e	III	10	40	silty clay	2.5Y 6/2	



Area	Unit Type	No.	Stratum	Beginning Depth (cmbs)	Ending depth (cmbs)	Soil Texture	Soil Color	Notes
Area 4	STP	1.1	Ia	0	19	sandy loam	10YR 3/2	
Area 4	STP	1.1	Ib	19	23	sandy loam	10YR 3/2	Mostly gravel
Area 4	STP	1.1	Ic	23	64	clay	2.5YR 4/6	Compact
Area 4	STP	1.1	II	64	76	silty sand	10YR 4/3	
Area 4	STP	1.2	I	47	65	silty loam	10YR 3/3	
Area 4	STP	1.2	Ia	0	12	sandy loam	10YR 3/2	
Area 4	STP	1.2	Ib	12	18	sandy loam	10YR 3/2	
Area 4	STP	1.2	Id	18	47	sandy clay	10YR 5/8	
Area 4	STP	1.3	I	27	40	silty loam	10YR 3/3	Water at 40 cmbs
Area 4	STP	1.3	Ia	0	10	sandy loam	10YR 3/2	
Area 4	STP	1.3	Ia	0	10	sandy loam	10YR 3/2	
Area 4	STP	1.3	Id	10	26	sandy clay	10YR 5/8	
Area 4	STP	1.5	I	0	20	silty loam	10YR 3/3	
Area 4	STP	1.5	II	20	50	silty sand	10YR 4/3	
Area 4	STP	1.5	III	50	68	silty clay	10YR 4/6	
Area 4	STP	1.5	IV	68	89	clay	5YR 4/6	
Area 4	STP	1.5e	I	0	10	silty loam	10YR 3/3	
Area 4	STP	1.5e	II	10	30	silty sand	10YR 4/3	
Area 4	STP	1.5e	III	30	45	silty clay	10YR 4/6	
Area 4	STP	1.5e	IV	45	65	clay	5YR 4/6	
Area 4	STP	1.5n	I	0	10	silty loam	10YR 3/3	
Area 4	STP	1.5n	IV	10	40	clay	5YR 4/6	
Area 4	STP	1.5s	I	0	16	silty loam	10YR 3/3	
Area 4	STP	1.5s	II	14	35	silty sand	10YR 4/3	
Area 4	STP	1.5s	IV	35	42	clay	5YR 4/6	
Area 4	STP	1.6	I	0	19	silty loam	10YR 3/3	



Area	Unit Type	No.	Stratum	Beginning Depth (cmbs)	Ending depth (cmbs)	Soil Texture	Soil Color	Notes
Area 4	STP	1.6	V	19	41	silty clay	10YR 6/8	Water at 41 cmbs
Area 4	STP	1.7	I	0	14	silty loam	10YR 3/3	
Area 4	STP	1.7	V	14	39	silty clay	10YR 6/8	Water at 39 cmbs
Area 4	STP	1.8	I	0	22	silty loam	10YR 3/3	
Area 4	STP	1.8	V	22	52	silty clay	10YR 6/8	
Area 4	STP	1.9	I	0	19	silty loam	10YR 3/3	
Area 4	STP	1.9	II	19	44	silty sand	10YR 4/3	Water at 44 cmbs
Area 4	STP	1.10	I	0	18	silty loam	10YR 3/3	
Area 4	STP	1.10	II	18	53	silty sand	10YR 4/3	Water at 53 cmbs
Area 4	STP	1.11	I	0	17	silty loam	10YR 3/3	
Area 4	STP	1.11	II	17	56	silty sand	10YR 4/3	Water at 56 cmbs
Area 4	STP	1.12	I	0	23	silty loam	10YR 3/3	
Area 4	STP	1.12	II	23	74	silty sand	10YR 4/3	
Area 4	STP	2.1	Ia	0	14	sandy loam	10YR 3/2	
Area 4	STP	2.1	Ib	14	30	sandy loam	10YR 3/2	
Area 4	STP	2.1	Ic	30	55	clay	2.5YR 4/6	
Area 4	STP	2.2	Ia	0	20	sandy loam	10YR 3/2	
Area 4	STP	2.2	Id	20	60	sandy clay	10YR 5/8	Water at 60 cmbs
Area 4	STP	2.3	Ia	0	12	sandy loam	10YR 3/2	Concrete probably related to PVC pipe installation
Area 4	STP	2.3	Ib	20	55	sandy loam	10YR 3/2	
Area 4	STP	2.3	Id	12	20	sandy clay	10YR 5/8	
Area 4	STP	2.4	I	0	20	silty loam	10YR 3/3	
Area 4	STP	2.4	II	20	45	silty sand	10YR 4/3	
Area 4	STP	2.4	III	45	75	silty clay	10YR 4/6	



Area	Unit Type	No.	Stratum	Beginning Depth (cmbs)	Ending depth (cmbs)	Soil Texture	Soil Color	Notes
Area 4	STP	2.5	I	19	34	silty loam	10YR 3/3	
Area 4	STP	2.5	Id	0	19	sandy clay	10YR 5/8	
Area 4	STP	2.5	II	34	65	silty sand	10YR 4/3	Water at 65 cmbs
Area 4	STP	2.6	I	0	5	silty loam	10YR 3/3	
Area 4	STP	2.6	IV	5	50	clay	5YR 4/6	
Area 4	STP	2.7	I	0	17	silty loam	10YR 3/3	
Area 4	STP	2.7	V	17	50	silty clay	10YR 6/8	
Area 4	STP	2.8	I	0	20	silty loam	10YR 3/3	
Area 4	STP	2.8	II	20	50	silty sand	10YR 4/3	
Area 4	STP	2.8	V	50	60	silty clay	10YR 6/8	
Area 4	STP	2.9	I	0	20	silty loam	10YR 3/3	
Area 4	STP	2.9	V	20	35	silty clay	10YR 6/8	Water at 35 cmbs
Area 4	STP	2.10	I	0	22	silty loam	10YR 3/3	
Area 4	STP	2.10	II	22	45	silty sand	10YR 4/3	
Area 4	STP	2.11	I	0	25	silty loam	10YR 3/3	
Area 4	STP	2.11	II	25	65	silty sand	10YR 4/3	
Area 4	STP	2.11	V	65	75	silty clay	10YR 6/8	
Area 4	STP	3.1	Ia	0	20	sandy loam	10YR 3/2	
Area 4	STP	3.1	IV	20	65	clay	5YR 4/6	
Area 4	STP	3.1	V	65	80	silty clay	10YR 6/8	
Area 4	STP	3.1	I	0	14	silty loam	10YR 3/3	
Area 4	STP	3.1	II	14	49	silty sand	10YR 4/3	Water at 49 cmbs
Area 4	STP	3.2	Ia	0	20	sandy loam	10YR 3/2	
Area 4	STP	3.2	Ic	64	75	clay	2.5YR 4/6	
Area 4	STP	3.2	Id	20	64	sandy clay	10YR 5/8	
Area 4	STP	3.3	Ia	0	15	sandy loam	10YR 3/2	
Area 4	STP	3.3	Ia	50	78	sandy loam	10YR 3/2	



Area	Unit Type	No.	Stratum	Beginning Depth (cmbs)	Ending depth (cmbs)	Soil Texture	Soil Color	Notes
Area 4	STP	3.3	Id	29	50	sandy clay	10YR 5/8	
Area 4	STP	3.3	Ie	15	29	silty sand and clay with concrete fragments	10YR 4/3	Mottling of Strat Ic and II with concrete fragments
Area 4	STP	3.4	I	0	12	silty loam	10YR 3/3	
Area 4	STP	3.4	V	12	56	silty clay	10YR 6/8	
Area 4	STP	3.5	I	1	17	silty loam	10YR 3/3	
Area 4	STP	3.5	II	17	34	silty sand	10YR 4/3	
Area 4	STP	3.5	III	34	60	silty clay	10YR 4/6	
Area 4	STP	3.6	I	0	10	silty loam	10YR 3/3	
Area 4	STP	3.6	II	10	37	silty sand	10YR 4/3	
Area 4	STP	3.6	V	37	50	silty clay	10YR 6/8	
Area 4	STP	3.7	I	0	8	silty loam	10YR 3/3	
Area 4	STP	3.7	IV	8	37	clay	5YR 4/6	
Area 4	STP	3.8	I	0	5	silty loam	10YR 3/3	
Area 4	STP	3.8	V	5	40	silty clay	10YR 6/8	
Area 4	STP	3.9	I	0	18	silty loam	10YR 3/3	
Area 4	STP	3.9	II	18	60	silty sand	10YR 4/3	Water at 60 cmbs
Area 4	STP	4.1	I	0	14	silty loam	10YR 3/3	
Area 4	STP	4.1	Ia	0	20	sandy loam	10YR 3/2	
Area 4	STP	4.1	Ic	20	41	clay	2.5YR 4/6	
Area 4	STP	4.1	II	14	54	silty sand	10YR 4/3	
Area 4	STP	4.1	III	54	69	silty clay	10YR 4/6	
Area 4	STP	4.2	Ia	0	25	sandy loam	10YR 3/2	Modern brick encountered at 16 cmbs and water at 25 cmbs



Area	Unit Type	No.	Stratum	Beginning Depth (cmbs)	Ending depth (cmbs)	Soil Texture	Soil Color	Notes
Area 4	STP	4.3	I	0	89	silty loam	10YR 3/3	Concrete slab encountered at 30 cmbs
Area 4	STP	4.4	I	0	12	silty loam	10YR 3/3	
Area 4	STP	4.4	II	12	20	silty sand	10YR 4/3	
Area 4	STP	4.4	V	20	56	silty clay	10YR 6/8	
Area 4	STP	4.5	I	0	60	silty loam	10YR 3/3	
Area 4	STP	4.5	V	60	80	silty clay	10YR 6/8	
Area 4	STP	4.6	I	0	20	silty loam	10YR 3/3	
Area 4	STP	4.6	IV	20	42	clay	5YR 4/6	
Area 4	STP	4.7	I	0	6	silty loam	10YR 3/3	
Area 4	STP	4.7	IV	6	30	clay	5YR 4/6	
Area 4	STP	4.7	V	30	40	silty clay	10YR 6/8	
Area 4	STP	4.8	I	0	8	silty loam	10YR 3/3	
Area 4	STP	4.8	II	8	30	silty sand	10YR 4/3	
Area 4	STP	4.8	V	30	45	silty clay	10YR 6/8	
Area 4	STP	5.1	I	0	48	silty loam	10YR 3/3	
Area 4	STP	5.2	Ia	0	50	sandy loam	10YR 3/2	
Area 4	STP	5.2	Id	50	60	sandy clay	10YR 5/8	Water at 60 cmbs
Area 4	STP	5.3	I	0	11	silty loam	10YR 3/3	
Area 4	STP	5.3	II	11	68	silty sand	10YR 4/3	Water at 68 cmbs
Area 4	STP	5.4	I	0	16	silty loam	10YR 3/3	
Area 4	STP	5.4	II	16	38	silty sand	10YR 4/3	
Area 4	STP	5.4	V	38	57	silty clay	10YR 6/8	
Area 4	STP	5.5	I	0	18	silty loam	10YR 3/3	
Area 4	STP	5.5	IV	18	59	clay	5YR 4/6	Water at 59 cmbs
Area 4	STP	5.6	I	0	24	silty loam	10YR 3/3	



Area	Unit Type	No.	Stratum	Beginning Depth (cmbs)	Ending depth (cmbs)	Soil Texture	Soil Color	Notes
Area 4	STP	5.6	II	40	74	silty sand	10YR 4/3	
Area 4	STP	5.6	IV	24	40	clay	5YR 4/6	Water at 75cmbs
Area 4	STP	5.7	I	0	24	silty loam	10YR 3/3	
Area 4	STP	5.7	V	24	50	silty clay	10YR 6/8	
Area 4	STP	6.1	N/A	N/A	N/A	N/A	N/A	NOT EXCAVATED -- BRIDGE/SLOPE
Area 4	STP	6.2	I	0	19	silty loam	10YR 3/3	
Area 4	STP	6.2	V	19	36	silty clay	10YR 6/8	Water at 36 cmbs
Area 4	STP	6.3	I	0	48	silty loam	10YR 3/3	Water at 48 cmbs
Area 4	STP	6.4	I	0	60	silty loam	10YR 3/3	
Area 4	STP	6.4	V	60	75	silty clay	10YR 6/8	
Area 4	STP	6.5	I	0	45	silty loam	10YR 3/3	
Area 4	STP	6.6	I	0	10	silty loam	10YR 3/3	
Area 4	STP	6.6	II	10	40	silty sand	10YR 4/3	Water at 40 cmbs
Area 4	STP	7.1	N/A	N/A	N/A	N/A	N/A	NOT EXCAVATED -- BRIDGE/SLOPE
Area 4	STP	7.2	I	0	70	silty loam	10YR 3/3	
Area 4	STP	7.3	I	0	17	silty loam	10YR 3/3	
Area 4	STP	7.3	II	17	34	silty sand	10YR 4/3	
Area 4	STP	7.3	V	34	50	silty clay	10YR 6/8	
Area 4	STP	7.4	I	0	18	silty loam	10YR 3/3	
Area 4	STP	7.4	V	18	36	silty clay	10YR 6/8	Water at 36 cmbs
Area 4	STP	7.5	I	0	16	silty loam	10YR 3/3	
Area 4	STP	7.5	II	25	41	silty sand	10YR 4/3	Water at 41 cmbs



Appendix B: Artifact Catalog



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Artifact Catalog -- Historic Ceramic

Area	STP	Stratum	Depth Range (cmbs)	Count	Group	Class	Material	Ware	Type	Decoration Description	Vessel	Segment	Notes
Area 1	1c	I	0-25	1	Unidentified	Ceramic	Semi-porcelain	Semi-porcelain	Brown transfer printed	Floral and geometric pattern	Possible vase?	Body	Late nineteenth to early/mid twentieth century
Area 1	1d	I	0-28	1	Unidentified	Ceramic	Refined Earthenware	Whiteware	Undecorated		Unidentified	Body	
Area 1	1d	I	0-28	1	Unidentified	Ceramic	Porcelain	Porcelain	Undecorated		Unidentified	Rim	
Area 1	1d	I	0-28	1	Kitchen	Ceramic	Earthenware	Redware	Lead glazed interior(?), missing exterior(?)		Unidentified	Body	
Area 1	1d	I	0-28	1	Kitchen	Ceramic	Earthenware	Redware	Lead glazed interior and exterior		Unidentified	Body	
Area 1	1d	I	0-28	1	Kitchen	Ceramic	Earthenware	Redware	Lead glazed interior and exterior		Unidentified	Rim	
Area 1	1e	I	0-35	1	Kitchen	Ceramic	Earthenware	Redware	Lead glazed interior, unglazed exterior		Unidentified	Body	
Area 1	1e	I	0-35	2	Kitchen	Ceramic	Refined Earthenware	Whiteware	Undecorated		Probable plate or platter	Rim	Possibly same vessel
Area 1	1cE	I	0-24	1	Unidentified	Ceramic	Earthenware	Redware	Lead glazed		Unidentified	Body	One surface missing; small fragment
Area 1	1cE	I	0-24	1	Kitchen	Ceramic	Earthenware	Redware	Lead glazed interior, unglazed exterior		Unidentified	Body	
Area 1	TU 1	I/1	0-14	1	Unidentified	Ceramic	Refined Earthenware	Whiteware	Undecorated		Unidentified	Body	
Area 1	TU 1	I/1	0-14	1	Unidentified	Ceramic	Semi-porcelain/porcelain	porcelain/porcelain	Spongeware	Blue	Unidentified	Rim	Decoartion located just below interior and exterior rim; c. 1840s-1860s
Area 1	TU 1	I/2	14-21	1	Unidentified	Ceramic	Refined Earthenware	Whiteware	Undecorated		Unidentified	Body	
Area 1	TU 1	I/2	14-21	2	Unidentified	Ceramic	Semi-porcelain	semi-porcelain	Molded		Unidentified	Body/ base	Brown transfer printed maker's mark present: "... [BJROS]"; raised bar with incised product(?) number: "[BA] No260042"; pcs. mend
Area 1	TU 1	I/II/1	21-36	2	Unidentified	Ceramic	Earthenware?	Earthenware?	Unglazed interior, lead glazed exterior		Unidentified	Body	Same vessel
Area 1	TU 1	I/II/1	21-36	3	Unidentified	Ceramic	Earthenware	Victorian Majolica	Molded and painted	Unidentified	Unidentified	Body	Same vessel; mid/late nineteenth to early twentieth century
Area 1	TU 1	I/II/1	21-36	1	Unidentified	Ceramic	Porcelain	Porcelain	Undecorated		Unidentified	Body	Small fragment
Area 1	TU 1	I/II/1	21-36	2	Kitchen	Ceramic	Earthenware	Redware	Lead glazed		Unidentified	Body	
Area 1	TU 1	I/II/1	21-36	2	Unidentified	Ceramic	Semi-porcelain	Semi-porcelain	Brown transfer printed	Floral and geometric pattern	Possible vase?	Body	Same vessel, only 1 pc. is transfer printed; late nineteenth to early/mid twentieth century
Area 1	TU 1	I/II/1	21-36	1	Unidentified	Ceramic	Earthenware	Victorian Majolica	Molded and painted	Unidentified	Unidentified	Body	Same vessel; mid/late nineteenth to early twentieth century
Area 3	3b	II	30-45	1	Unidentified	Ceramic	Refined Earthenware	Whiteware	Undecorated		Unidentified	Body	
Area 3	3d	I	0-24	1	Unidentified	Ceramic	Earthenware	Redware	Lead glazed interior(?)		Unidentified	Body	Most of glaze missing; exterior surface missing
Area 4	1.5	II	20-50	1	Unidentified	Ceramic	Earthenware	Redware	Lead glazed interior and exterior		Unidentified	Body	
Area 4	1.5	II	20-50	1	Kitchen	Ceramic	Refined Earthenware	Pearlware	Blue hand painted	Floral	Unidentified	Body	c. 1815-1830
Area 4	4.3	Ia	84-89	1	Kitchen	Ceramic	Refined Earthenware	Whiteware	Purple/Mulberry	Scenery?	Probable cup or bowl	Rim	c. 1830-1867
Area 4	5.2	Ia	0-50	1	Unidentified	Ceramic	Earthenware	Redware	Lead glazed interior(?)		Unidentified	Body	Small fragment
Area 4	5.2	Ia	0-50	1	Unidentified	Ceramic	Earthenware	Redware	Lead glazed interior, unglazed(?) exterior		Unidentified	Base	
Area 4	5.2	Ia	0-50	1	Unidentified	Ceramic	Earthenware	Redware	Lead glazed interior and exterior		Unidentified	Base	
Area 4	5.2	Ia	0-50	1	Kitchen	Ceramic	Refined Earthenware	Whiteware	Blue transfer printed	Unidentified	Unidentified	Body	



Artifact Catalog – Glass

Area	STP	Stratum	Depth Range (cubs)	Count	Group	Class	Material	Color	Segment	Notes
Area 1	1c	I	0-25	1	Unidentified	Unidentified vessel	Glass	Greenish-yellow	Body/base	Depression glass?
Area 1	1d	I	0-28	1	Kitchen	Unidentified bottle	Glass	Olive	Body	
Area 1	1e	I	0-35	1	Architecture	Window	Glass	Aqua	Body	1.65 mm thick
Area 1	1e	I	0-35	1	Furnishings/Lighting	Chimney glass	Glass	Colorless	Body	
Area 1	1e	I	0-35	3	Unidentified	Unidentified bottle	Glass	Aqua	Body (2), base (1)	All 3 pcs. embossed: body "... [PAT]ENTED"/"... [S] 83"; other body pc is illegible; base pc "... [U]MFOR[D] ..." around embossed star
Area 1	1e	I	0-35	1	Unidentified	Unidentified vessel	Glass	Brown	Body	
Area 1	1e	I	0-35	1	Unidentified	Unidentified vessel	Glass	Colorless	Body	
Area 1	1bS	I	0-25	1	Architecture	Window	Glass	Aqua	Body	1.42 mm thick
Area 1	1bS	I	0-25	1	Architecture	Window	Glass	Aqua	Body	2.12 mm thick
Area 1	1cE	I	0-24	1	Architecture	Window	Glass	Aqua	Body	1.22 mm thick
Area 1	1cS	I	20-38	1	Unidentified	Unidentified vessel	Glass	Aqua	Body	
Area 1	1cS	I	20-38	1	Unidentified	Unidentified vessel	Glass	Colorless	Body	
Area 1	1cS	I	20-38	1	Unidentified	Unidentified vessel	Glass	Greenish-yellow	Body/base	Depression glass?
Area 1	1cN	I	0-29	1	Toys	Marble	Glass	Green and white	Complete	
Area 1	TU 1	I/1	0-14	1	Architecture	Window	Glass	Aqua	Body	2.13 mm thick
Area 1	TU 1	I/1	0-14	1	Architecture	Window	Glass	Aqua	Body	1.70 mm thick
Area 1	TU 1	I/1	0-14	1	Architecture	Window	Glass	Aqua	Body	2.88 mm thick
Area 1	TU 1	I/1	0-14	1	Architecture	Window	Glass	Aqua	Body	1.72 mm thick
Area 1	TU 1	I/1	0-14	1	Architecture	Window	Glass	Aqua	Body	1.58 mm thick
Area 1	TU 1	I/1	0-14	1	Architecture	Window	Glass	Aqua	Body	1.81 mm thick
Area 1	TU 1	I/1	0-14	1	Architecture	Window	Glass	Aqua	Body	2.52 mm thick
Area 1	TU 1	I/1	0-14	1	Architecture	Window	Glass	Aqua	Body	1.77 mm thick; slightly melted?
Area 1	TU 1	I/1	0-14	1	Unidentified	Unidentified vessel	Glass	Aqua green	Body	Embossed "[L]A"; small fragment; unidentified manufacture
Area 1	TU 1	I/1	0-14	1	Unidentified	Unidentified bottle	Glass	Aqua	Base	Embossed "F" in side diamond; unidentified manufacture
Area 1	TU 1	I/1	0-14	1	Unidentified	Unidentified vessel	Glass	Milk	Body/base	Probably machine-made; late historic/early modern
Area 1	TU 1	I/1	0-14	1	Unidentified	Unidentified vessel	Glass	Colorless	Body	Late historic/early modern
Area 1	TU 1	I/2	14-21	1	Kitchen	Unidentified bottle	Glass	Brown	Neck	Blown?
Area 1	TU 1	I/2	14-21	2	Unidentified	Unidentified bottle	Glass	Brown	Body	Blown; thin
Area 1	TU 1	I/2	14-21	1	Unidentified	Unidentified vessel	Glass	Colorless (slightly solarized)	Body	
Area 1	TU 1	I/2	14-21	3	Unidentified	Unidentified vessel	Glass	Aqua	Body	
Area 1	TU 1	I/2	14-21	2	Unidentified	Unidentified vessel	Glass	Aqua	Body	Illegible embossing present
Area 1	TU 1	I/2	14-21	4	Unidentified	Unidentified vessel	Glass	Colorless	Body	
Area 1	TU 1	I/2	14-21	3	Kitchen	Possible drinking vessel	Glass	Colorless	Body and base	Pressed glass; geometric pattern around base
Area 1	TU 1	I/2	14-21	1	Architecture	Window	Glass	Aqua	Body	1.93 mm thick
Area 1	TU 1	I/2	14-21	1	Architecture	Window	Glass	Aqua	Body	1.67 mm thick
Area 1	TU 1	I/2	14-21	3	Architecture	Window	Glass	Aqua	Body	1.31 mm thick
Area 1	TU 1	I/2	14-21	1	Architecture	Window	Glass	Aqua	Body	1.70 mm thick
Area 1	TU 1	I/2	14-21	1	Architecture	Window	Glass	Aqua	Body	1.66 mm thick
Area 1	TU 1	I/2	14-21	1	Architecture	Window	Glass	Aqua	Body	1.00 mm thick
Area 1	TU 1	I/2	14-21	1	Architecture	Window	Glass	Aqua	Body	1.17 mm thick
Area 1	TU 1	I/2	14-21	1	Architecture	Window	Glass	Aqua	Body	1.65 mm thick
Area 1	TU 1	I/2	14-21	1	Architecture	Window	Glass	Aqua	Body	1.77 mm thick
Area 1	TU 1	I/2	14-21	1	Architecture	Window	Glass	Aqua	Body	1.81 mm thick
Area 1	TU 1	I/2	14-21	1	Architecture	Window	Glass	Aqua	Body	1.85 mm thick
Area 1	TU 1	I/2	14-21	1	Architecture	Window	Glass	Aqua	Body	1.67 mm thick
Area 1	TU 1	I/II/1	21-36	1	Architecture	Window	Glass	Aqua	Body	1.15 mm thick
Area 1	TU 1	I/II/1	21-36	1	Architecture	Window	Glass	Aqua	Body	1.45 mm thick
Area 1	TU 1	I/II/1	21-36	1	Architecture	Window	Glass	Aqua	Body	1.55 mm thick
Area 1	TU 1	I/II/1	21-36	1	Architecture	Window	Glass	Aqua	Body	1.43 mm thick
Area 1	TU 1	I/II/1	21-36	2	Architecture	Window	Glass	Aqua	Body	1.57 mm thick
Area 1	TU 1	I/II/1	21-36	1	Architecture	Window	Glass	Aqua	Body	1.17 mm thick
Area 1	TU 1	I/II/1	21-36	6	Furnishings/Lighting	Chimney glass	Glass	Colorless	Body	
Area 1	TU 1	I/II/1	21-36	1	Unidentified	Unidentified bottle	Glass	Aqua	Body	Probable square or rectangular bottle
Area 1	TU 1	I/II/1	21-36	1	Unidentified	Unidentified bottle	Glass	Colorless (slightly solarized)	Body	
Area 1	TU 1	I/II/1	21-36	1	Unidentified	Unidentified bottle	Glass	Colorless	Body	Embossed: "... PURE ..." / "... " illegible; mold seam present



Artifact Catalog -- Glass

Area	STP	Stratum	Depth Range (cmbs)	Count	Group	Class	Material	Color	Segment	Notes
Area 1	TU 1	I/II/1	21-36	1	Unidentified	Unidentified	Glass	Colorless	Body	Pressed square pattern
Area 1	TU 1	I/II/1	21-36	5	Unidentified	Unidentified vessel	Glass	Milk	Body	
Area 1	TU 1	I/II/1	21-36	1	Architecture	Window	Glass	Aqua	Body	1.43 mm thick
Area 1	TU 1	I/II/1	21-36	1	Architecture?	Window?	Glass	Aqua	Body	1.53 mm thick; patina present; slightly melted?
Area 1	TU 1	I/II/1	21-36	1	Furnishings/Lighting	Chimney glass	Glass	Colorless	Body	
Area 1	TU 1	I/II/1	21-36	1	Architecture	Window	Glass	Colorless	Body	1.39 mm thick
Area 1	TU 1	I/II/1	21-36	2	Furnishings/Lighting	Chimney glass	Glass	Colorless	Body	
Area 1	TU 1	I/II/1	21-36	1	Unidentified	Unidentified vessel	Glass	Milk	Body	
Area 1	TU 1	I/II/1	21-36	1	Unidentified	Unidentified vessel	Glass	Colorless	Body	Molded
Area 1	TU 1	I/II/1	21-36	1	Unidentified	Unidentified bottle	Glass	Colorless	Body	
Area 1	TU 1	I/II/1	21-36	1	Architecture	Window	Glass	Aqua	Body	1.34 mm thick
Area 1	TU 1	I/II/1	21-36	1	Architecture	Window	Glass	Aqua	Body	1.55 mm thick
Area 1	TU 1	I/II/1	21-36	1	Architecture	Window	Glass	Aqua	Body	1.54 mm thick
Area 1	TU 1	I/II/1	21-36	1	Architecture	Window	Glass	Aqua	Body	1.96 mm thick
Area 1	TU 1	I/II/1	21-36	1	Architecture	Window	Glass	Aqua	Body	1.84 mm thick
Area 1	TU 1	I/II/1	21-36	1	Architecture	Window	Glass	Aqua	Body	1.99 mm thick
Area 1	TU 1	I/II/1	21-36	1	Architecture	Window	Glass	Aqua	Body	1.49 mm thick
Area 1	TU 1	I/II/1	21-36	1	Furnishings/Lighting	Chimney glass	Glass	Colorless	Body	
Area 1	TU 1	I/II/1	21-36	2	Unidentified	Unidentified vessel	Glass	Aqua	Body	Thin pcs.
Area 1	TU 1	I/II/1	21-36	6	Unidentified	Unidentified vessel	Glass	Aqua	Body	Mold seam present on 2 pcs.; all probably from same vessel
Area 1	TU 1	I/II/1	21-36	1	Unidentified	Unidentified vessel	Glass	Aqua	Body	
Area 1	TU 1	I/II/1	21-36	2	Unidentified	Unidentified vessel	Glass	Colorless	Body	
Area 1	TU 1	I/II/1	21-36	1	Unidentified	Unidentified vessel	Glass	Aqua	Body	Embossed: "... [H]UA ..."
Area 1	TU 1	I/II/1	21-36	3	Kitchen	Possible drinking vessel	Glass	Colorless	Body and base	Pressed glass; geometric pattern around base
Area 1	TU 1	I/II/1	21-36	3	Unidentified	Unidentified	Glass	Milk	Body	
Area 1	TU 1	I/II/1	21-36	1	Clothing	Button	Glass	White	Complete	4-hole
Area 2	2b	I	0-18	1	Toys	Marble	Glass	Polychrome	Complete	
Area 3	3b	II	30-45	1	Architecture	Window	Glass	Aqua	Body	
Area 3	3d	I	0-24	1	Architecture	Window	Glass	Aqua	Body	
Area 4	4.3	Ia	0-89	1	Unidentified	Unidentified	Glass	Colorless	Body	Probably modern
Area 4	5.2	Ia	0-50	1	Unidentified	Unidentified vessel	Glass	Aqua	Body	
Area 4	5.2	Ia	0-50	1	Unidentified	Unidentified vessel	Glass	Colorless	Base	Probably modern
Area 4	5.3	II	11-68	2	Unidentified	Unidentified vessel	Glass	Brown	Body	Probably modern



Artifact Catalog -- Metal

Area	STP	Stratum	Depth Range (cmbs)	Count	Group	Class	Material	Type	Condition	Notes
Area 1	1c	I	0-25	1	Architecture	Nail	Ferrous	Cut	Fragment	
Area 1	1d	I	0-28	2	Unidentified	Unidentified	Ferrous	Unidentified	Fragment	
Area 1	1d	I	0-28	3	Architecture	Nail	Ferrous	Wrought or cut	Fragment	
Area 1	1d	I	0-28	2	Architecture	Nail	Ferrous	Cut	Fragment	
Area 1	1e	I	0-35	1	Architecture	Nail	Ferrous	Unidentified	Fragment	
Area 1	1e	I	0-35	1	Architecture	Nail	Ferrous	Cut	Fragment	
Area 1	1cE	I	0-24	5	Unidentified	Unidentified	Ferrous	Unidentified	Fragment	
Area 1	1cE	I	0-24	1	Architecture	Nail	Ferrous	Wrought?	Fragment	
Area 1	1cE	I	0-24	1	Architecture	Nail	Ferrous	Cut	Fragment	
Area 1	1cS	I	20-38	2	Architecture	Nail	Ferrous	Cut	Fragment	
Area 1	TU 1	I/1	0-14	2	Architecture	Nail	Ferrous	Cut or wire	Fragment	
Area 1	TU 1	I/1	0-14	1	Firearms	Shell	Cu alloy? /ferrous	Shotgun	Base fragment	Inscribed on base: "J.M.C. Co. . . . C [MuN] No
Area 1	TU 1	I/2	14-21	4	Unidentified	Unidentified	Ferrous	Unidentified	Fragment	
Area 1	TU 1	I/2	14-21	15	Architecture	Nail	Ferrous	Cut	Fragment	
Area 1	TU 1	I/II/1	21-36	19	Unidentified	Unidentified	Ferrous	Unidentified	Fragment	
Area 1	TU 1	I/II/1	21-36	38	Architecture	Nail	Ferrous	Unidentified	Fragment	
Area 1	TU 1	I/II/1	21-36	1	Architecture	Nail	Ferrous	Possibly wrought	Fragment	
Area 1	TU 1	I/II/1	21-36	24	Architecture	Nail	Ferrous	Cut	Fragment	
Area 1	TU 1	I/II/1	21-36	1	Architecture	Nail	Ferrous	Cut	Fragment	
Area 1	TU 1	I/II/1	21-36	4	Unidentified	Unidentified	Ferrous	Unidentified	Fragment	
Area 1	TU 1	I/II/1	21-36	16	Architecture	Nail	Ferrous	Unidentified	Fragment	
Area 1	TU 1	I/II/1	21-36	11	Architecture	Nail	Ferrous	Cut	Fragment	
Area 1	TU 1	I/II/1	21-36	3	Architecture	Spike?	Ferrous	Unidentified	Fragment	
Area 1	TU 1	I/II/1	21-36	17	Architecture	Nail	Ferrous	Cut	Fragment	
Area 2	2b	I	0-18	1	Architecture	Nail	Ferrous	Wrought or cut	Fragment	
Area 4	4.3	Ia	0-89	1	Tools	Probable wrench	Ferrous		Fragment	
Area 4	4.3	Ia	0-89	2	Architecture	Nail	Ferrous	Wire	Fragment	
Area 4	4.3	Ia	84-89	1	Architecture	Nail	Ferrous	Possibly cut	Fragment	
Area 4	5.2	Ia	0-50	1	Unidentified	Unidentified	Ferrous	Unidentified	Fragment	
Area 4	5.2	Ia	0-50	1	Architecture	Nail	Ferrous	Cut or wire	Fragment	



Artifact Catalog -- Brick

Area	STP	Stratum	Depth Range (cmbs)	Count	Group	Class	Length (in.)	Width (in.)	Height (in.)	Notes
Area 1	1c	I	0-25	1	Architecture	Mold made	N/A	N/A	N/A	Corner pc.
Area 1	1d	I	0-28	1	Architecture	Probably mold made	N/A	N/A	N/A	Small fragment
Area 1	1d	I	0-28	1	Architecture	Mold made	N/A	N/A	Approx 2	
Area 1	1e	I	0-35	3	Architecture	Probably mold made	N/A	N/A	N/A	Small fragments
Area 1	TU 1	I/1	0-14	2	Architecture	Probably mold made	N/A	N/A	N/A	Small fragments
Area 1	TU 1	I/1	0-14	1	Architecture	Mold made	N/A	N/A	N/A	Glazed on two sides; small fragment
Area 1	TU 1	I/2	14-21	15	Architecture	Probably mold made	N/A	N/A	N/A	Small fragments
Area 1	TU 1	I/II/1	21-36	4	Architecture	Probably mold made	N/A	N/A	N/A	Small fragments
Area 1	TU 1	I/II/1	21-36	1	Architecture	Mold made	N/A	Approx. 3 3/4	N/A	At least two surfaces inconsistently glazed
Area 1	TU 1	I/II/1	21-36	1	Architecture	Probably mold made	N/A	N/A	N/A	Small fragment
Area 1	TU 1	I/II/1	21-36	2	Architecture	Probably mold made	N/A	N/A	N/A	Small fragments
Area 1	TU 1	I/II/1	21-36	2	Architecture	Probably mold made	N/A	N/A	N/A	Small fragments
Area 1	TU 1	I/II/1	21-36	1	Architecture	Mold made	N/A	N/A	N/A	Possibly glazed; corner pc.
Area 2	2c	I	0-16	3	Architecture	Probably mold made	N/A	N/A	N/A	Small fragments
Area 2	2c	I	0-16	1	Architecture	Mold made	N/A	N/A	N/A	Glazed on header or footer surface
Area 2	2a	Ib	18-38	2	Architecture	Mold made	N/A	N/A	N/A	
Area 2	2a	Ib	18-38	2	Architecture	Mold made	N/A	N/A	2 1/4	
Area 2	2a	Ib	18-38	1	Architecture	Mold made	N/A	4 1/4	Approx. 2	
Area 2	2a	Ib	18-38	1	Architecture	Mold made	N/A	Approx. 4	Approx. 2 1/4	Glazed on header and footer surface
Area 3	3b	I	0-30	3	Architecture	Probably mold made	N/A	N/A	N/A	Small fragments
Area 3	3b	II	30-45	3	Architecture	Probably mold made	N/A	N/A	N/A	Small fragments
Area 3	3d	I	0-24	1	Architecture	Probably mold made	N/A	N/A	N/A	Small fragment
Area 4	4.3	Ia	0-89	1	Architecture	Mold made	N/A	4	2 1/4	Concrete attached on both surfaces; modern



Artifact Catalog -- Other

Area	STP	Stratum	Depth Range (cmts)	Count	Material	Type	Condition	Notes
Area 1	1c	I	0-25	1	Mortar		Fragment	
Area 1	1c	I	0-25	1	Coal		Fragment	
Area 1	1d	I	0-28	9	Coal		Fragment	
Area 1	1d	I	0-28	9	Slag		Fragment	
Area 1	1d	I	0-28	1	Concretion?/unidentified		Fragment	
Area 1	1e	I	0-35	10	Slag		Fragment	
Area 1	1bS	I	0-25	1	Concretion?/unidentified		Fragment	
Area 1	1cE	I	0-24	4	Slag		Fragment	
Area 1	1eE	I	0-27	1	Composite, ferrous metal and wood(?)	Folding pocket knife	Complete	Modern, blade is stainless steel
Area 1	1cN	I	0-29	1	Coal		Fragment	
Area 1	TU 1	I/1	0-14	6	Coal		Fragment	
Area 1	TU 1	I/1	0-14	3	Slag		Fragment	
Area 1	TU 1	I/1	0-14	2	Plastic		Fragment	Modern
Area 1	TU 1	I/2	14-21	7	Coal		Fragment	
Area 1	TU 1	I/2	14-21	1	Mortar	Shell-based	Fragment	
Area 1	TU 1	I/2	14-21	1	Mortar	Sand-based	Fragment	
Area 1	TU 1	I/II/1	21-36	1	Lithic	Fieldstone	Fragment	Part of Feature 1 foundation
Area 1	TU 1	I/II/1	21-36	1	Shell	Oyster?	Fragment	Small fragment
Area 1	TU 1	I/II/1	21-36	15	Coal		Fragment	
Area 1	TU 1	I/II/1	21-36	11	Mortar	Sand-based	Fragment	
Area 1	TU 1	I/II/1	21-36	2	Coal		Fragment	
Area 1	TU 1	I/II/1	21-36	2	Mortar		Fragment	
Area 1	TU 1	I/II/1	21-36	1	Lithic	Fieldstone	Fragment	Part of Feature 1 foundation
Area 1	TU 1	I/II/1	21-36	9	Coal		Fragment	
Area 1	TU 1	I/II/1	21-36	1	Mortar	Sand-based	Fragment	
Area 1	TU 1	I/II/1	21-36	14	Mortar		Fragment	
Area 1	TU 1	I/II/1	21-36	4	Coal		Fragment	
Area 2	2c	I	0-16	1	Coal		Fragment	
Area 2	2a	Ib	18-38	1	Coal		Fragment	
Area 3	3b	I	0-30	1	Chert	Possible Savannah River projectile point; Late Archaic	Nearly complete	Late Archaic
Area 4	4.3	Ia	0-89	1	Concrete		Fragment	Thin layer of ferrous metal attached to one surface
Area 4	5.2	Ia	0-50	1	Slag		Fragment	
Area 4	5.2	Ia	0-50	6	Concretion?/unidentified		Fragment	
Area 4	5.3	II	11-68	1	Concretion?/unidentified		Fragment	



Appendix C: Site Forms



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Appendix D: Resumes of Key Personnel



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Education

Master of Arts, Anthropology, East Carolina University, 2008

Bachelor of Science, Anthropology, Mercyhurst College, 2002

Professional Registrations

Register of Professional Archaeologists, 2014-Present

Professional Affiliations

Society for Historical Archaeology, Member, 2011-Present

Association for Gravestone Studies, Member, 2011-Present

HDR Tenure

3 years

Industry Tenure

14+ Years

James G. Parker, MA, RPA

Archaeology Project Director and Laboratory Director
2600 Park Tower Drive, Suite 100
Vienna, VA 22180-7342
(571) 327-5832

Professional Experience

Mr. Parker has over 14 years of archaeological experience, the majority of which have involved cultural resource management projects throughout the Northeast, Mid-Atlantic and Southeast. He has over six years of experience at the supervisory level, overseeing Phase I and Phase II archaeological investigations on pipeline projects, military installations, and state and federally funded projects. Mr. Parker holds a master's degree in anthropology with a concentration in historical archaeology, and has extensive experience conducting research for and excavating mid eighteenth through early twentieth-century sites. He also possesses considerable experience in all phases of lab work, including artifact processing, conservation, cataloguing, analysis, and curation preparation. Mr. Parker's varied work experiences as well as academic archaeological projects have provided him numerous opportunities to become proficient in many aspects of the National Historic Preservation Act (NHPA) Section 106 process, including research, testing and assessment.

Relevant HDR Project Experience

Archaeological Testing Next to the Bellwood House/Building 42 for Proposed Improvements to the House Drainage System, Defense Supply Center Richmond, Chesterfield County, Virginia (May 2014-Current). Archaeology Project Director. Conducted archaeological testing next to the Bellwood House to determine whether intact cultural deposits related to the construction and early occupation of Bellwood were present. Analyzed the historic assemblage and lead author of the report.

Phase I Archaeological Survey for HISP NCC, SR 71, Old Porter Road to SR 7, Red Lion, New Castle County, Delaware (2/14-Current). Archaeology Project Director. Conducted a Phase I archaeological survey for the Delaware Department of Transportation. Conducted the SHPO and background/historical research. Analyzed the historic assemblage and lead author of the report.

Phase I Archaeological Survey for HISP US 9 and SR 5 Intersection Improvements, Sussex County, Delaware (2/14-Current). Archaeology Project Director. Conducted a Phase I archaeological survey for the Delaware Department of Transportation. Conducted the SHPO and background/historical research. Analyzed the historic assemblage and lead author of the report.

Phase I Archaeological Survey at Blossom Point Training Facility, Welcome, Maryland (12/13-Current). Archaeology Project Director. Conducted a Phase I archaeological survey at the installation, lead author of the final report, and wrote the cultural resource section of the Environmental Assessment report.

Sea Girt Phase I/II Archaeological Survey and Evaluation at Sea Girt Army National Guard Installation, Sea Girt, New Jersey (10/13-01/14). Archaeology Project Director. Conducted a Phase I survey at the NJ Army National Guard installation in Sea Girt. Identified a late nineteenth to mid twentieth-century site during the Phase I, and evaluated the site during the Phase II. Processed and analyzed the historic assemblage recovered from the site, and lead author of the final report.

Phase I Archaeological Survey at the Rhode Island Air National Guard Station (ANGS), North Smithfield, Providence County, Rhode Island (04/13–6/13). Archaeologist. Conducted a Phase I archaeological survey to identify surface and subsurface cultural resources on the RI ANGS. Conducted the SHPO and background/historical research. Wrote the historic context section of the final report.

Phase I Archaeological Survey, Gulfport CRTC, Gulfport, Mississippi (1/13-4/13). Archaeology Project Director. Conducted a Phase I archaeological investigation of the installation and wrote the archaeology section of the report.

Sea Girt Phase II Archaeological Evaluation at Sea Girt Army National Guard Installation, Sea Girt, New Jersey (12/12-Current). Archaeology Crew Chief. Conducted a Phase II evaluation of a eighteenth to mid-nineteenth-century domestic site for the NJ Army National Guard in Sea Girt. Processed and analyzed the historic assemblage recovered from the site, and lead author of the final report.

East Ship Island Phase I Archaeological Survey, Mississippi (11/12). Archaeology Crew Chief. Conducted a Phase I archaeological investigation along the southern shoreline of East Ship Island. Co-authored the final report.

Friendship Hill National Historic Site (FRHI) Phase I Archaeological Survey, Pennsylvania (10/12-2/13). Archaeologist. Conducted a Phase I archaeological investigation at FRHI for the National Park Service. Processed and analyzed the historic assemblage recovered from the site, wrote the management summary, and lead author of the final report.

Phase I Archaeological Survey at Edison Mission Energy Homer City Generation L.P. for Proposed Wetland Mitigations, Pennsylvania (9/12). Archaeology Crew Chief. Conducted Phase I archaeological investigations of two proposed wetland mitigation areas at the Homer City Generation L.P. Lead author of the final report.

Xcel Project, Colorado (6/12-7/12). Archaeology Monitor and Field Archaeologist.

Phase II Archaeological Evaluations at Defense Supply Center Richmond / Defense Logistics Agency Enterprise Support (DES) Richmond (5/12-6/12). Field Archaeologist. Participated in the Phase II evaluation of sites 44CF616, 44CF648, and 44CF650 in Chesterfield County, Virginia. Analyzed the historic assemblages from sites 44CF648 and 44CF650. Co-authored the final report.

Phase I Archaeological Survey at Charlotte International Airport (IAP) Air National Guard Base (ANGB) and Stanly County Airport Air National Guard Station (ANGS), North Carolina (4/12). Field Archaeologist. Participated in Phase I surveys conducted at the ANGB located at the Charlotte-Douglas International Airport and at the ANGS located at the Stanly County Airport.

Natural Resource Damage Assessment (NRDA) for the MC 252 Oil Spill / NOAA, LA/MS/AL/FL (11/11-Current). Archaeology Monitor. Monitor biologists conducting biota and intertidal oyster sampling.

MC 252 Response Cultural Resources Assessment Program / BP Exploration & Production, Inc., LA/MS/AL/FL (10/11-Current). Field Archaeologist/Archaeology Monitor/Lab Archaeologist. Monitor oil clean-up crews, participate in Phase I archaeological surveys, and site delineations, in addition to conducting historic artifact analysis.

Jamestown Island, VA – Complete Transportation Infrastructure Project, National Park Service, Jamestown, Virginia (9/11-7/12). Archaeology Monitor. Monitored construction activities in the vicinity of the reconstructed Glasshouse demonstration building and Glasshouse ruins. Wrote the final monitoring report.

ONLine Project, Nevada (9/11). Archaeology Monitor. Monitored construction activities for the installation of a power line running from Ely to Las Vegas, Nevada.

Hardwood Air National Guard Range, Juneau County, Wisconsin (7/11). Field Archaeologist. Participated in a Phase I survey and a Phase II evaluation of a Woodland period site.

Proposed PPV Utilities Project, Naval Support Facility, New Orleans, Louisiana (7/11-8/11). Field Archaeologist. Participated in a Phase I survey of the installation. Co-authored the management summary and was the lead author of the final report.

Phase II Archaeological Evaluations at Defense Supply Center Richmond / Defense Logistics Agency Enterprise Support (DES) Richmond (5/11-6/11). Field Archaeologist. Participated in the Phase II evaluation of sites 44CF647 and 44CF649 in Chesterfield County, Virginia. Analyzed the historic assemblages recovered from both sites and lead author of the report.

Phase III Data Recovery at Pointville Town Site, Joint Base McGuire-Dix-Lakehurst, Burlington County, New Jersey (4/11). Field Archaeologist. Participated in a Phase III data recovery at a nineteenth to early twentieth-century town site.

Relevant Non-HDR Project Experience

Phase I Archaeological Surveys and Phase II Archaeological Evaluations for the Secondary Programmatic Agreement (2PA) Project/FEMA MSRO, Biloxi, MS (10/09-9/10; 10/10-3/11). Historic Preservation Specialist. Served as an archaeology field operations team member on a long-term FEMA deployment in support of the 2PA, which was created to assess the effects of Hurricane Katrina and subsequent debris removal and cleanup on cultural resources in Forrest, Pearl River, Stone, George, Hancock, Harrison and Jackson counties. In addition to field work, responsibilities included preparing right-of-entry letters for survey areas, conducting documentary research, preparing excavation unit and survey area field work summaries, and processing, cleaning and cataloguing artifacts.

Savage Fire House Phase II Archaeological Evaluation/Town of Savage, MD (9/10-10/10). Field Archaeologist. Participated in a Phase II archaeological investigation of a late nineteenth to mid twentieth-century farmstead.

Phase I Archaeological Surveys and Phase II Archaeological Evaluations for the Mississippi Development Authority (MDA) Project/Mississippi Development Authority, MS Gulf Coast (7/08-8/09). Crew Chief. Supervised Phase I and II archaeological investigations for property owners participating in the Small Rental Assistance and Elevation Grant Programs sponsored by the MDA for Hurricane Katrina recovery efforts in Pearl River, Hancock, Harrison and Jackson Counties. Additional responsibilities included conducting documentary research, and writing reports for submission to the MS State Historic Preservation Office (SHPO).

Phase I Archaeological Survey for Florida Gas Transmission (FGT) Project/Florida Gas Transmission Company, LLC, southern Alabama and Florida (2/08-7/08). Archaeologist II. Participated in and supervised Phase I archaeological surveys for a proposed natural gas pipeline.

Phase I Archaeological Survey for Elba Express Pipeline Project/Elba Express Pipeline Company, Georgia and South Carolina (3/08-4/08). Archaeologist II. Participated in a Phase I archaeological survey for a proposed natural gas pipeline.

Various Phase I Archaeological Surveys for Eglin Air Force Base, northwest Florida (11/07-1/08). Field Archaeologist. Participated in Phase I archaeological surveys at various locations on the military base in support of NHPA Section 106 compliance efforts.

Phase I Archaeological Survey for Kinder Morgan Pipeline Project/Mustang Pipeline Company, southeast Oklahoma to northern Alabama (10/07-11/07). Field Archaeologist. Participated in a Phase I archaeological survey for a proposed natural gas pipeline.

Phase I Archaeological Surveys and Phase II Archaeological Evaluations at Virginia Army National Guard, Fort Pickett, VA (5/07-8/07). Crew Chief. Supervised Phase I and Phase II archaeological surveys at various locations on the military post in support of NHPA Section 106 compliance efforts, in addition to conducting documentary research, and writing reports for submission to the Virginia SHPO.

Queen Anne's Revenge Shipwreck Project/North Carolina Department of Cultural Resources, Greenville, NC (9/05-5/06; 8/06-5/07). Conservation Lab Graduate Assistant. Participated in processing, cleaning and conserving artifacts recovered from excavations of the early eighteenth-century shipwreck believed to be Blackbeard's flagship.

Fort Pickett Historic Cemeteries Project/Virginia Army National Guard, Fort Pickett, VA (intermittent between 8/04 and 8/07). Field/Lab Archaeologist. Conducted a historic cemetery survey of Fort Pickett and the surrounding area, which entailed creating recordation forms for the field survey; undertaking documentary research; field locating and recording cemeteries and graves/grave markers contained within, and if present, mapping associated farmstead/plantation remains; and writing the final report, which was submitted to the Virginia SHPO and local communities.

Fort Michilimackinac, Michigan (7/04). Archaeology Volunteer. Participated in the excavations of the eighteenth-century fort remains. Excavated units, water screened soils, and completed unit paperwork.

Phase I Archaeological Surveys and Phase II Archaeological Evaluations at Virginia Army National Guard, Fort Pickett, VA (6/03-8/05; 5/06-8/06). Field/Lab Archaeologist. Participated in Phase I and Phase II archaeological investigations at various locations on the military post in support of NHPA Section 106 compliance efforts, in addition to conducting documentary research, and preparing and writing reports for submission to the Virginia SHPO.

Irvine Mills Site/Mercyhurst College Anthropology Department Historic Field School (9/01-6/02). Student Director, Mercyhurst Archaeological Institute Historic Lab. Supervised lab technicians, catalogued and analyzed artifacts from the Irvine Mills Site, and maintained the artifact database.

Various Projects/Mercyhurst College Anthropology Department/Mercyhurst Archaeological Institute, Pennsylvania (intermittent between 9/98 and 8/01). Field/Lab Archaeologist. Participated in various field projects. Worked in the Processing and Historic Labs cleaning, labeling, cataloguing, and analyzing historic artifacts.

Various Phase I Archaeological Surveys and Phase II Archaeological Evaluations /Rochester Museum and Science Center, New York (intermittent between 8/98 and 8/00; 7/02-5/03). Field/Lab Archaeologist. Participated in Phase I and II archaeological investigations, catalogued and analyzed artifacts, conducted historical/documentary research, and prepared and wrote reports for submission to the New York SHPO.

Professional Reports

Lead author with Brandon M. Gabler, Caroline Wright, and Paul Weishar

In press *Phase II Archaeological Investigation at the New Jersey Army National Guard, Sea Girt National Training Center, Monmouth County, New Jersey.* Prepared for The New Jersey National Guard by HDR Environment, Operations, and Construction, Inc., Vienna, Virginia.

Lead author with Caroline Wright and Paul Weishar

2014 *Phase I/II Archaeological Investigation at the New Jersey Army National Guard, Sea Girt National Training Center, Monmouth County, New Jersey.* Prepared for The New Jersey National Guard by HDR Environment, Operations, and Construction, Inc., Vienna, Virginia.

Lead author with Gregory D. Lockard and Derek Johnson

2014 *Phase I Archaeological Survey for the Expansion of Satellite Ground Communications Terminal Facilities and Operations at Blossom Point Research Facility, Charles County, Maryland.* Report prepared for U.S. Army Garrison, Adelphi Laboratory Center.

With Gabler, Brandon, Marjorie Nowick, and Kathryn Plimpton

2014 *Cultural Resources Survey of North Smithfield Air National Guard Station, Providence County, Rhode Island.* Report prepared for Rhode Island Air National Guard, National Guard Bureau, Air National Guard Readiness Center.

With Melissa Wiedenfeld and Paul Weishar

2013 *Cultural Resources Survey and Evaluation Gulfport Combat Readiness Training Center, Gulfport, Mississippi.* Report prepared for the Mississippi Air National Guard, National Guard Bureau.

With Brandon Gabler, Julette Vogel, Melissa Wiedenfeld, Barry Wharton and David L. Brown

2013 *Phase I Archaeological Survey of East Ship Island, Harrison County, Mississippi.* Report prepared for the National Park Service.

Lead author with Brandon Gabler and Kari Schmidt

2013 *Phase I Archaeological Investigation at Friendship Hill National Historic Site, Point Marion, Pennsylvania.* Report prepared for the National Park Service.

Lead author with Brandon Gabler and Robert Quiggle

2012 *Phase I Archaeological Survey for the Homer City Upgrade Project, Wetland Replacement Areas, Black Lick and Center Townships, Indiana, Pennsylvania.* Report prepared for Edison Mission Energy Homer City Generation L.P.

With Brandon Gabler and Gregory D. Lockard

2012 *Phase II Archaeological Evaluation of Sites 44CF616, 44CF648, and 44CF650 at the Defense Supply Center Richmond, Chesterfield County, Virginia.* Report prepared for the Defense Logistics Agency (DLA) Installation Support Richmond.

2012 *Archaeological Monitoring of Construction During the Complete Transportation Infrastructure for Jamestown Project at Colonial National Historical Park, Jamestown, Virginia.* Report prepared for the National Park Service.

Lead author with Alvin Banguilan, Barry Wharton and Laura Dreibelbis

2011 *Phase I Archaeological Survey of the Proposed PPV Utilities Project, Naval Support Activity New Orleans, Louisiana.* Report prepared for NAVFAC SE.

Lead author with Gregory D. Lockard, Alvin Banguilan, and Lori Vermaas

2011 *Phase II Archaeological Evaluation of Sites 44CF647 and 44CF649 at the Defense Supply Center Richmond, Chesterfield County, Virginia.* Report prepared for the Defense Logistics Agency (DLA) Installation Support Richmond.

With Heather Crowl and Audrey Maass

2009 *Phase II Archaeological National Register Evaluation of Site 22HR1042, 1034 Beach Boulevard, Biloxi, MDA Elevation Grant Program, Application Id# 06HA028665, Harrison County, Mississippi.* Report prepared for the Mississippi Development Authority by URS Corporation, Baton Rouge, LA.

2007 *Fort Pickett Historic Cemeteries: Dinwiddie, Nottoway and Brunswick Counties, Virginia.* Fort Pickett Cultural Resource Management Project 2005.06, CMI MLD CR-27. Conservation Management Institute, Virginia Polytechnic Institute and State University Cultural Resources Program, Blackstone, Virginia.

With Wayne C. J. Boyko

2007 *Phase I Archaeological Survey of a Proposed Rehabilitation of Beaver Trail Creek, 51.4 ha (127.05 acres), In Training Area 13, MTC Fort Pickett, Dinwiddie County, Virginia.* Fort Pickett Cultural Resource Management Project 2007.06, CMI MLD CR-33, VDHR File No. 2007-1021. Conservation Management Institute, Virginia Polytechnic Institute and State University Cultural Resources Program, Blackstone, Virginia.

With Wayne C. J. Boyko and Joe R. Davis

2003 *Phase IA Cultural Resource Investigations for the Proposed Sterling Autobody Center Town of Greece, Monroe County, New York.* RMSC/RHPP PIN 2003.02. The Regional Heritage Preservation Program, Rochester Museum and Science Center. Rochester, New York.

With Mary F. Trudeau and Andrew K. Graupman

2003 Phase IA and Phase IB Cultural Resource Investigations for the Proposed Willow Landing Development, Division Street and Meadow Drive, Town of Palmyra, Wayne County, New York. RMSC/RHPP PIN 2003.04. The Regional Heritage Preservation Program, Rochester Museum and Science Center. Rochester, New York.

With Mark W. Ewing

2003 Phase II Cultural Resource Investigations for RMSC Nap 044 (Naples Community Park 1) and RMSC Nap 045 (Naples Community Park 2) for the Proposed Naples Community Park Project Town of Naples, Ontario County, New York. NYSOPRHP Project Review Number 98PR2588, RMSC/RHPP PIN 2002.08. The Regional Heritage Preservation Program, Rochester Museum and Science Center. Rochester, New York.

Professional Presentations

2007 *Rural Settlement Patterns in the Southern Virginia Piedmont*. Paper presented at the 40th Annual Society for Historical Archaeology Conference, Williamsburg, Virginia.

Professional Publications

2007 Review of *Burial Terminology: A Guide for Researchers*, Roderick Sprague, Alta Mira Press. *Historical Archaeology* 41(2):221.



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Brandon M. Gabler, PhD, RPA

Archaeology Project Manager
5405 Data Court
Ann Arbor, Michigan 48108
(734) 332-6412

Education

Doctor of Philosophy, Anthropology,
University of Arizona, 2009

Master of Arts, Anthropology, University of
Arizona, 2004

Bachelor of Arts, Mathematics, Mercyhurst
College, 2003

Bachelor of Arts,
Anthropology/Archaeology, Mercyhurst
College, 2002

Professional Registrations

Register of Professional Archaeologists,
2013–Present

Professional Affiliations

Society for American Archaeology, Member,
2000–Present

Midwest Archaeological Conference, 2013–
Present

HDR Tenure

Three years

Industry Tenure

Fourteen years

Professional Experience

Dr. Gabler has 14 years of experience working on professional archaeological projects and 5 years of experience directing projects in the United States. During these 14 years, he has documented cultural resources in both academic (research-based) and contract (client-based) settings in the Northeast, Southeast, Mid-Atlantic, Southwest, Great Basin, and Mojave Desert regions. He has taught courses in anthropology and archaeology at the University of Arizona. He exceeds the Secretary of the Interior's Standards for archaeology.

Dr. Gabler has substantial experience with project management, agency and tribal consultation, budget oversight, quality control, database development and management, data analysis, GIS data collection and analysis, and cartographic production through all phases of a wide range of cultural resource projects, including Section 106 compliance as well as preservation-based projects. These projects range from initial surveys through data recovery efforts for both private and government clients. Dr. Gabler contributed database and software implementation standards to a research team tasked with designing and executing a tablet-computer- and online-collaboration-based field data collection and reporting strategy. Dr. Gabler is currently leading a team tasked with identifying and changing the industry standards for processing CSX and BNSF railroad tower construction NEPA and NHPA compliance, involving the FCC and many THPOs and SHPOs throughout the US.

HDR Project Experience

CSX Positive Train Control Tower Compliance / CSX Transportation / PA, MD, NC, TN, KY, GA, AL (08/13–present). Project Manager. Designed and implemented database workflow for real-time entry and sharing of critical FCC tower consultation information with client. Working with Indian tribes and the various SHPOs to identify historic properties and areas of Indian heritage that may be affected by tower construction. Workflow involves gathering and processing of background information, GIS data, state archaeological and historic site data, and preparation of cultural resource memos and reports provided to Indian tribes and other interested parties on short notice. Responsible for training other cultural resource personnel to conduct same research and coordinate on the processing towers in seven states to date. Coordinates in tangent with CSX PTC Program Manager and PTC program personnel. Coordinates with Indian tribes on behalf of CSX in consultation with FCC. Co-leading a position statement to request that the FCC allow bundling of towers into groups by region, as well as a statement to exempt replacement towers from the review process. \$980,000.

Burlington Northern Santa Fe Positive Train Control Tower Compliance / BNSF / Illinois, Kansas (08/13–present). Project Manager. Designed and implemented database workflow for real-time entry and sharing of critical FCC tower consultation information with client. Working with over two dozen Indian tribes and the Kansas and Illinois SHPOs to identify historic properties and areas of Indian heritage that may be affected by tower construction. Workflow involves gathering and processing of background information, GIS data, state archaeological and historic site data, and preparation of cultural resource memos and reports provided to Indian tribes and other interested parties on short notice. Also

responsible for training other cultural resource personnel to conduct same research and coordinate on the processing of over 40 towers to date. Coordinates with Indian tribes on behalf of CSX in consultation with FCC. IDIQ.

Natural Resources Damage Assessment (NRDA) Cultural Resources Assessment / BP Exploration & Production, Inc., and NOAA / LA/MS/AL/FL (10/11–present). Project Manager. Coordinated and directed the archaeological monitoring of biota and submerged oil sampling throughout the area affected by the Deepwater Horizon oil spill. Provided treatment recommendations to SHPO and federal trustee representatives throughout the four states for NHPA Section 106 compliance. \$482,809.

MC 252 Response Cultural Resources Assessment Program / BP Exploration & Production, Inc., LA/MS/AL/FL (7/11–present). Coordinator and Field Archaeologist. Provides SCAT archaeology support, operations archaeology monitoring, and laboratory coordination for the Deepwater Horizon oil spill cleanup effort. Serves as Federal Lands Coordinator to act as liaison between National Park Service/US Fish and Wildlife Service/Naval Air Station/Bureau of Land Management and HDR for NHPA Section 106 compliance, including field response, data management, and evaluation of treatment for cultural resources on federal lands. \$10,000,000.

Section 110 Compliance Support Project, U.S. Customs and Border Protection (2/13–02/14). Technical Lead. HDR is leading a multi-disciplinary and multi-faceted project to assist CBP in complying with Sections 106 and 110 of the National Historic Preservation Act for its 361 facilities nationwide. Gabler reviewed reports following the pilot-study survey of six CBP facilities nationwide for archaeological and historic architectural resources including the review of NRHP eligibility evaluation recommendations for surveyed resources. Gabler is also the archaeology technical lead for the combined archaeological and historic architectural surveys planned for 45 additional CBP facilities nationwide to fulfill the goals outlined in the Section 110 program plan.

Phase I Archaeological Survey for the London State Fish Hatchery Capital Project, Union Township, Madison County, Ohio / London State Fish Hatchery, Ohio Department of Natural Resources / Madison County, Ohio (11/13–12/13). Project Manager. Coordinated and managed Phase I archaeological survey in advance of electric line replacement at London State Fish Hatchery. Determined areas for pedestrian and subsurface testing, coordinated GIS data and iPad field recording data collection, and authored final report.

Phase I Archaeological Survey for the Patoka to Trunkline Pipeline Project / Eastern Gulf Crude Access / Marion, Wayne, and Clay Counties, Illinois (05–11/13). Project Director. Coordinated and directed Phase I Archaeological survey in advance of pipeline in southern Illinois. Determined areas for pedestrian and subsurface testing, coordinated and assisted in report preparation and data analysis. Coordinated GIS data and iPad field recording data collection and maintenance.

Phase I Archaeological Survey and Site Delineations on East Ship Island / BP Exploration & Production, Inc. / Harrison County, Mississippi (11/12–08/13). Project Director. Coordinated and directed Phase I Archaeological survey in support of continued oil spill cleanup activities on East Ship Island. Evaluated previous survey information for cultural resource data and implemented surface and subsurface testing strategy along the south shore of the island. \$75,000.

Sea Girt Phase II Archaeological Evaluation / New Jersey Army National Guard / Sea Girt, New Jersey (12/12–08/13). Archaeology Project Director. Directed a Phase II evaluation of a historic site for the NJ Army National Guard in Sea Girt. Analyze field data, research and analyze historical maps, and co-author the management summary and final report. \$55,000.

Burlington Northern Santa Fe La Crosse Rail Yard / BNSF / La Crosse, Wisconsin (06/13–07/13). Project Manager. Provided project support and directed meetings with Wisconsin state agencies to determine the level of effort necessary for the rail yard expansion. Developed plan of action to allow BNSF to proceed without delay in construction while meeting state requirements and exceeding cultural resource responsibilities.

Phase I Intensive Archaeological Survey at the Rhode Island Air National Guard Station, North Smithfield, Rhode Island / North Smithfield, Providence County, Rhode Island (04/13–07/13). Project Director. Coordinated and directed Phase I Archaeological survey to identify surface and subsurface cultural resources on the RI Air National Guard installation. Coordinated with RI Tribal Historic Preservation Office. \$35,000.

H Street/Benning Road Streetcar Project / DDOT / Washington, DC (5/12–06/13). Project Director. Coordinated and directed Phase IA archaeological survey and geoarchaeological coring in advance of a proposed trolley maintenance facility. Provided treatment recommendations to DC HPO. \$69,793.

Phase I Archaeological Investigations at Friendship Hill National Historic Site / National Park Service / Point Marion, Pennsylvania (9/12–2/13). Project Director. Coordinated and directed Phase Ib Archaeological survey in advance of Knoll Road widening. \$17,500.

Environmental Assessment for the Homeporting of the Littoral Combat Ship on the East Coast of the United States, U.S. Navy (7/12–2/13). Technical Section Lead. Prepared the cultural resources sections for an Environmental Assessment (EA). \$217,828.

Archaeological Sensitivity Model for MacDill Air Force Base, Florida (9/12–12/12). Technical Section Lead. Developed archaeological sensitivity model and prepared documentation for the MacDill Installation Development Environmental Assessment (IDEA). \$10,000.

Phase I Archaeological Survey for the Homer City Upgrade Project, Wetland Replacement Areas, Black Lick and Center Townships, Indiana County, Pennsylvania (9/12). Project Director. Coordinated archaeological survey, produced project maps, and reviewed project deliverables for the Homer City Power Plant. \$20,000.

Defense Supply Center Richmond / Defense Logistics Agency Enterprise Support (DES) Richmond (5/12–7/12). Project Director. Conducted Phase II evaluation of two prehistoric lithic scatters (44CF616 and 44CF648) and a historic site (44CF650) in Chesterfield County, Virginia, including excavation, artifact analysis, and reporting. \$49,807.

Defense Supply Center Richmond / Defense Logistics Agency Enterprise Support (DES) Richmond (4/12). Field Archaeologist. Monitored construction activity at a prehistoric lithic scatter (44CF568) in Chesterfield County, Virginia.

Charlotte IAP ANGB and Stanly County Airport ANGS Phase I Survey / National Guard Bureau Air National Guard (4/12). Field Archaeologist. Conducted Phase I archaeological investigations of 210 acres in Mecklenburg and Stanly Counties, North Carolina. \$32,692.

Archaeology Monitoring in the Glasshouse Area of Colonial Parkway, Jamestown Unit, Colonial National Historical Park / National Park Service (10/11–5/12). Field Archaeologist. Provided archaeological monitoring for road construction and landscaping at the historic site of Jamestown (44JC0986), James City, Virginia. \$16,140.

CP Rail–Kenmare Rehabilitation Project, Kenmare, ND (8/11). Field Archaeologist. Participated in Phase I pedestrian survey and shovel probe testing of 3-mile corridor around CP Railway within the Des Lacs Wildlife Refuge. \$150,000.

Non-HDR Project Experience

Calnev Pipeline Expansion Project / Kinder Morgan Energy Partners, San Bernardino County, CA (4/10–5/11). Project Director, William Self Associates, Inc. (WSA). Directed the Class I/III records search and Phase I survey of a 200-mile pipeline through San Bernardino County, California. Coordinated with BLM, USFS, and SHPO officials for project compliance and review. \$500,000.

Pantano Townsite Archaeological Mapping Project / Pima County, Arizona (7/10–3/11). Project Director, WSA. Directed the Class I/III records search, archival review, Phase I survey, mapping, and geodatabase development for the high-resolution surface mapping of the Old and New Pantano Townsites, two early railroad era communities along the Southern Pacific Railroad in the Cienega Creek Natural Preserve, southern Arizona. \$35,000.

UNEV Pipeline Project / Holly Energy Partners, Utah and Nevada (4/09–5/11). Cartography Director and Assistant Laboratory Director, WSA. Managed laboratory and cartography personnel throughout data recovery and artifact and spatial data processing of data from excavations at 16 prehistoric and historic archaeological sites; developed Access relational database for management of all project data, including artifact analysis of over 80,000 artifacts; used Microsoft Project to coordinate field effort with project managers; and managed and participated in final reporting for the compliance volumes. \$6,000,000.

El-Paso-to-Phoenix (EPX) Pipeline Project / Kinder Morgan Energy Partners, Tucson, AZ (4/09–11/10). Assistant Laboratory Director and Cartography Director, WSA. Oversaw final map production, conducted spatial and other statistical analyses, and wrote parts of final compliance report as well as peer-reviewed Arizona State Museum volume resulting from the data recovery investigations at five prehistoric archaeological sites in southern Arizona. \$2,000,000.

Fort McDowell Well Sites Survey / Fort McDowell Yavapai Reservation, AZ (7/10). Field Director, WSA. Conducted Class I/III records search and Phase I survey of 5-acre area around well construction locales. \$7,000.

ASU Pipeline Removal / Kinder Morgan Energy Partners, Mesa, AZ (7/10). Field Technician, WSA. Participated in surface artifact collection and processing; monitored test trench excavation and sketched representative trench profiles in advance of the removal of a legacy petroleum pipeline near a Hohokam village site in Maricopa County, Arizona. \$100,000.
Ft. Huachuca Fire Station Survey / Ft. Huachuca City, AZ (7/09). Field Director, WSA. Conducted Class I/III records search and Phase I survey of small plot for the expansion of a fire station. Prepared final report. \$2,000.

Land Conveyance and Transfer (C&T) Project / U.S. Department of Energy, Los Alamos, NM (6/04–5/09). Field Technician and Researcher, Los Alamos National Laboratory. Participated in the excavation of 15 Ancestral Pueblo field houses in Los Alamos, New Mexico. Conducted spatial and other data analyses using data from these and other surveys and excavations in Los Alamos and the neighboring Bandelier National Monument. The overarching settlement pattern of the Ancestral Puebloan occupants of the region was a secondary research project. \$10,000,000.

Ironwood Forest National Monument Inventory / BLM, Tucson Field Office (1/05–12/05). Research Associate, University of Arizona. Entered archaeological data into AZSite, Arizona's archaeological repository; conducted statistical analyses for the final compliance report; edited and assembled final report.

Sanford Ranch Inventory / BLM, Tucson Field Office (1/05–12/05). Research Associate, University of Arizona. Edited and assembled final report.

Santa Ana de Cuiquiburitac Inventory / BLM, Tucson Field Office (1/05–12/05).

Research Associate, University of Arizona. Edited and assembled final report.

Lakeview Landfill Survey / Erie County, Pennsylvania (9/02). Field Technician, Wilbur Smith Associates. Participated in Phase I survey surface walkover and shovel probe testing of 30-acre area.

Presque Isle Visitor Center / City of Erie, Pennsylvania (1/02). Field Technician, Mercyhurst Archaeological Institute. Participated in Phase I survey including grid setup with Sokkia Set IIB Total Station and shovel probe testing with stratigraphic section preparation.

Buckaloons (36WA29) / Archaeological field school for Mercyhurst College, Warren, PA (6/00–7/00). Field Technician/Field School Student, Mercyhurst Archaeological Institute. Excavated Middle-Late Archaic and Woodland materials. Surveyed and collected 10 acres of the site area.

Fort LeBeouf Survey / Waterford, Pennsylvania, and Girard, Pennsylvania (7/99). Field Technician, Mercyhurst Archaeological Institute. Assisted in ground resistivity survey; conducted Phase I shovel probing and stratigraphic section preparation.

Various Projects / Mercyhurst Archaeological Institute (9/98–5/02). Laboratory Assistant. Washed, sorted, and labeled artifacts. Processed soil samples using water screening, flotation, and hydrochloric acid processing. Cataloged items using Borland Paradox and MS Excel. Prepared soil profile drawings using CorelDraw.

Refereed Publications

B.M. Gabler (2012) Modeling Livestock's Contribution to the Duration of the Village Farming Lifeway in Pre-State Societies. *Journal of Ecological Anthropology* 15(1):5–21.

Boley, M. J. and B. M. Gabler (2011) Flaked Stone Analysis. In *The Prehistory of the Marsh Station Road Site (AZ EE:2:44[ASM]), Cienega Creek, Southeastern Arizona*, edited by J. C. Ravesloot, M. J. Boley, and M. A. Medeiros, pp. 185-222. Arizona State Museum Archaeological Series 202, University of Arizona Press, Tucson.

McKee, B. R., M. Trowbridge, and B. M. Gabler (2011) Ceramic Analysis. In *The Prehistory of the Marsh Station Road Site (AZ EE:2:44[ASM]), Cienega Creek, Southeastern Arizona*, edited by J. C. Ravesloot, M. J. Boley, and M. A. Medeiros, pp. 151-184. Arizona State Museum Archaeological Series 202, University of Arizona Press, Tucson.

Medeiros, M. A., B. M. Gabler, M. J. Boley, and John C. Ravesloot (2011) Synthesis and Interpretations. In *The Prehistory of the Marsh Station Road Site (AZ EE:2:44[ASM]), Cienega Creek, Southeastern Arizona*, edited by J. C. Ravesloot, M. J. Boley, and M. A. Medeiros, pp. 347-360. Arizona State Museum Archaeological Series 202, University of Arizona Press, Tucson.

Medeiros, M. A., J. C. Ravesloot, M. J. Boley, B. M. Gabler, P. M. Rawson, J. McClelland, and G. Huckleberry (2011) Archaeological Investigations at the Marsh Station Road Site, AZ EE:2:44(ASM). In *The Prehistory of the Marsh Station Road Site (AZ EE:2:44[ASM]), Cienega Creek, Southeastern Arizona*, edited by J. C. Ravesloot, M. J. Boley, and M. A. Medeiros, pp. 37-149. Arizona State Museum Archaeological Series 202, University of Arizona Press, Tucson.

Gabler, B. M. (2007) Ethnic Boundary Maintenance and Historical Archaeology from an Agent-based Modeling Perspective. In *Digital Discovery: Exploring New Frontiers in Human Heritage*, edited by J. T. Clark and E. M. Hagemeister, pp. 42-48. CAA 2006. Computer Applications and Quantitative Methods in Archaeology. Archeolingua Press, Budapest.

Lansing, J. S., M. P. Cox, S. S. Downey, B. M. Gabler, B. Hallmark, T. M. Karafet, P.

Norquest, J. W. Schoenfelder, H. Sudoyo, J.C. Watkins and M.F. Hammer. (2007) *Coevolution of Languages and Genes on the Island of Sumba, Eastern Indonesia. Proceedings of the National Academy of Sciences* 104:16022-16026.

Dissertation and Thesis

Gabler, B. M. (2009) *Panarchy on the Plateau: Modeling Prehistoric Settlement Pattern, Land Use, and Demographic Change on the Pajarito Plateau, New Mexico*. Ph.D. Dissertation, Department of Anthropology, University of Arizona. UMI, Ann Arbor.

Gabler, B. M. (2004) *Projecting Duration in Pre-state Farming Societies*. Unpublished MA Thesis, Department of Anthropology, University of Arizona. On file at the Arizona State Museum, Tucson.

Professional reports

Parker, J. G., and B. M. Gabler (2014) *Phase II Archaeological Investigation at the New Jersey Army National Guard Sea Girt National Guard Training Center, Monmouth County, New Jersey*. Prepared for The New Jersey National Guard. On file at HDR.

Gabler, B.M. (2013) *Phase I Archaeological Survey for the London State Fish Hatchery Capital Project, Union Township, Madison County, Ohio*. Prepared for London State Fish Hatchery, Ohio Department of Natural Resources. On file at HDR.

Gabler, B. M. and J. G. Parker (2013) *Phase I Intensive Archaeological Survey of North Smithfield Air National Guard Station, Providence County, Rhode Island*. Prepared for National Guard Bureau, Air National Guard. On file at HDR.

Parker, J. G., and B. M. Gabler (2013) *Phase I Archaeological Investigation at Friendship Hill National Historic Site, Point Marion, Pennsylvania*. Prepared for The National Park Service. On file at HDR.

Parker, J. G., B. M. Gabler, and R. Quiggle (2012) *Phase I Archaeological Survey for the Homer City Upgrade Project, Wetland Replacement Areas, Black Lick and Center Townships, Indiana County, Pennsylvania*. Prepared for Edison Mission Energy, Homer City Generation, L.P. On file at HDR.

Gabler, B. M. and A. McKee (2012) *Geoarchaeological Survey of the Proposed Car Barn Training Center for the H Street/Benning Road Streetcar Project, Washington, DC*. Prepared for District Department of Transportation, Washington, DC. On file at HDR.

Gabler, B. M., J. G. Parker, and G. D. Lockard (2012) *Phase II Archaeological Evaluation of Sites 44CF616, 44CF648, and 44CF650 at the Defense Supply Center Richmond, Chesterfield County, Virginia*. Prepared for Department of Defense, DLA Installation Support at Richmond. On file at HDR.

Gabler, B. M., J. G. Parker, and G. D. Lockard (2012) *Phase I Archaeological Survey of the Charlotte IAP Air National Guard Base, Mecklenburg County, and Stanly County Airport Air National Guard Station, Stanly County, North Carolina*. Prepared for National Guard Bureau, Air National Guard. On file at HDR.

O'Mack, S., A. M. Smith, B. M. Gabler, and L. M. Wygant (2011) *Data Recovery Along the UNEV Pipeline Project Route, Utah Segment—Davis, Salt Lake, Tooele, Juab, Millard, Beaver, Iron, and Washington Counties: Volume IV. History and Archaeology at 42SL255, A Historic Farmstead Site Near Salt Lake City*. WSA Technical Report No. 2011-29; Utah State Project No. U-06-SQ-1530bfps. William Self Associates, Tucson, Arizona.

O'Mack, S., A. M. Smith, B. R. McKee, P. Fransworth, and B. M. Gabler (2011) *Data Recovery Along the UNEV Pipeline Project Route, Utah Segment—Davis, Salt Lake, Tooele, Juab, Millard, Beaver, Iron, and Washington Counties: Volume V. The Basin's Edge: Historic Sites at the Edge of Utah's Western Desert*. WSA Technical Report No. 2011-29;

Utah State Project No. U-06-SQ-1530bfps. William Self Associates, Tucson, Arizona.

Gabler, B. M., S. O'Mack, M. J. Boley, and J. C. Ravesloot (2010) *Class III Cultural Resources Survey Addendum: Proposed Calnev Expansion Project, California Portion*. WSA Technical Report No. 2010-26. William Self Associates, Inc., Tucson, Arizona.

Medeiros, M., J. C. Ravesloot, M. J. Boley, **B. M. Gabler**, and P. M. Rawson (2010) *Archaeological Investigations at the Marsh Station Road Site (AZ EE:2:44[ASM])* (with M. Medeiros, J. Ravesloot, M. Boley, and P. Rawson). In *Results of Testing and Data Recovery, SFPP, LP, El Paso to Phoenix Expansion Project, Arizona Portion: Cochise and Pima Counties, Arizona*, edited by J. Ravesloot, M. J. Boley, and M. Medeiros. Technical Report No. 2008-49. William Self Associates, Tucson.

Boley, M. J. and **B. M. Gabler** (2010) *Flaked Stone Analysis*. In *Results of Testing and Data Recovery, SFPP, LP, El Paso to Phoenix Expansion Project, Arizona Portion: Cochise and Pima Counties, Arizona*, edited by J. Ravesloot, M. J. Boley, and M. Medeiros. Technical Report No. 2008-49. William Self Associates, Tucson.

McKee, B. R., M. Trowbridge, and **B. M. Gabler** (2010) *Ceramic Analysis*. In *Results of Testing and Data Recovery, SFPP, LP, El Paso to Phoenix Expansion Project, Arizona Portion: Cochise and Pima Counties, Arizona*, edited by J. Ravesloot, M. J. Boley, and M. Medeiros. Technical Report No. 2008-49. William Self Associates, Tucson.

Boley, M. J. and **B. M. Gabler** (2009) *A Cultural Resources Survey for the PBW Fire Department Station #2 Addition, Cochise County, Arizona*. WSA Technical Report No. 2009-45. William Self Associates, Inc., Tucson.

Gabler, B. M. (2009) *Class I Inventory and Class III Survey, Fort McDowell Yavapai Nation Well Site 3 and Well Site 4 Arsenic Mitigation, Maricopa County, Arizona*. WSA Technical Report No. 2009-31. William Self Associates, Inc., Tucson.

Gabler, B. M. (2008) *Settlement Change and Demography on the Pajarito Plateau*. In *The Land Conveyance and Transfer Project: Volume 4, Research and Conclusions*, edited by B. J. Vierra and K. M. Schmidt, pp. 161-183. Los Alamos, New Mexico: Los Alamos National Laboratory. LA-UR-07-6205.

Reid, J. J., M. P. Heilen, and **B. M. Gabler** (2006) *Introduction*. In *Class III Cultural Resources Survey of Ironwood Forest National Monument*, edited by M. P. Heilen and J.J. Reid, pp. 1-17. Tucson, AZ: Bureau of Land Management, Tucson Area Field Office.

Gaines, E. P., and **B. M. Gabler** (2006) *Ironwood Forest National Monument Petroglyph Survey*. In *Class III Cultural Resources Survey of Ironwood Forest National Monument*, edited by M.P. Heilen and J.J. Reid, supplemental CD-ROM. Tucson, AZ: Bureau of Land Management, Tucson Area Field Office.

Non-refereed publications

Reid, J. J. and **B. M. Gabler** (2006) *Roosevelt Redware of Grasshopper Pueblo*, CD-ROM, available from J. Jefferson Reid, Department of Anthropology, University of Arizona.

Premo, L. S., J. T. Murphy, J. B. Scholnick, **B. M. Gabler**, and J. E. Beaver (2005) *Making a Case for Agent-Based Modeling*. *Society for Archaeological Sciences Bulletin* 28:11-13.

Professional presentations

Gabler, B. M., and G. D. Lockard (2013) *Lithic Technology during the Transition to Agriculture at the Defense Supply Center Richmond, Chesterfield County, Virginia*. Paper presented at the 78th Annual Meeting of the Society for American Archaeology.

Gabler, B. M., L. Neff, A. Smith, and D. S. Miller (2012) *Preservation and Community Involvement at the Pantano Townsite Conservation Area, Pima County, Arizona*. Paper

presented at the 77th Annual Meeting of the Society for American Archaeology.

Gabler, B. M., D. Yoder, M. J. Boley, M. Medeiros, and J. C. Ravesloot (2011) *Small Sites, Big Questions: Seasonality, Foraging, and Fremont Horticulture in the Eastern Great Basin*. Poster presented at the 76th Annual Meeting of the Society for American Archaeology.

McKee, B. R., B. M. Gabler, D. Stone, and M. J. Boley (2010) *Great Basin Raw Material Selection in a Redundant Lithic Landscape*. Poster presented at the 32nd Great Basin Anthropological Conference.

Ravesloot, J. C., D. T. Yoder, B. M. Gabler, B. R. McKee, M. Medeiros, and M. J. Boley (2010) *On the Surface of It: Assessing Archaeological Deposits in Western Utah*. Poster presented at the 32nd Great Basin Anthropological Conference.

Yoder, D. T., B. M. Gabler, B. R. McKee, J. C. Ravesloot, M. J. Boley, and M. Medeiros (2010) *Digging in the Dunes: Fremont Site Investigations at the Gunnison Bend (42MD3014) and Crater Bench Dune (42MD3285) Sites, Millard County, Utah*. Poster presented at the 32nd Great Basin Anthropological Conference.

Gabler, B. M. (2009) *Aggregation, Migration, and the Environment: Quantitative Approaches to the Puebloan Occupation of the Pajarito Plateau, NM*. Poster presented at the 74th Annual Meeting of the Society for American Archaeology.

Gabler, B. M. (2007) *Modeling Settlement Change and Demography on the Pajarito Plateau*. Invited paper in session called "A Window into the Past," at the 72nd Annual Meeting of the Society for American Archaeology. Austin, TX.

Gabler, B. M. (2006) Organizer and chair of digital simulation session at the Second Biennial Archaeological Sciences of the Americas Symposium. Tucson, AZ.

Gabler, B. M. (2006) *Modeling Landscape Use and Aggregation on the Pajarito Plateau, New Mexico*. Digital presentation in Second Biennial Archaeological Sciences of the Americas Symposium. Tucson, AZ.

Gabler, B. M. (2006) Invited Panelist, Academic Symposium, *Sustainability: Imagining the Role of Science in Earth-Human Engagement*. Mercyhurst College, Erie, PA.

Gabler, B. M. (2006) *Ethnic Boundary Maintenance and Historical Archaeology from an Agent-Based Modeling Perspective*. Invited Long Paper at the Computer Applications and Quantitative Methods in Archaeology Symposium. Fargo, ND.

Gabler, B. M. (2002) *Regression Analysis of Pre-State Farming Societies*. Poster presented at the 67th Annual Meeting of the Society for American Archaeology. Denver, CO.

Non-HDR Training

GRASS Open Source GIS

ESRI ArcInfo

SPSS

Systat

JMP

NORTHEAST REGION NPS ACMS+ / ICMS SOFTWARE TRAINING, 2012