

# SR 24 Mount Joy Road and Bay Farm Road

## Sussex County, Delaware

WSSI #22370.01

Agreement 1653, Task 1

DelDOT Project # T200711201

## Phase I Archeological Investigation

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*Prepared for:*  
*Delaware Department of Transportation*  
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## ABSTRACT

A Phase I archeological survey was conducted on two proposed stormwater pond locations, part of the planned improvements to a 2.25-mile section of State Road 24 (SR 24) in Indian River Hundred, Sussex County, Delaware. The work was carried out in March and April of 2014 by Thunderbird Archeology, a division of Wetland Studies and Solutions, Inc., of Gainesville, Virginia, for the Delaware Department of Transportation. Three new archeological sites were recorded during the Phase I archeological survey of the project area, two within the actual stormwater pond locations (7S-G-202 and 7S-G-204) and one in the agricultural field surrounding the southern stormwater pond location (7S-G-203).

Site 7S-G-202 corresponds to the location of the “Satterfield” house on the 1868 Beers Map of Indian River Hundred. The site includes a historic domestic component and a historic cemetery. The proposed location of the southern stormwater pond is completely contained within the site limits. The Phase I investigation indicates that the site contains unplowed cultural deposits dating to the historic period of occupation. In our opinion, site 7S-G-202 is potentially eligible for listing on the National Register of Historic Places (NRHP) under Criterion D relevant to its potential to provide new information about the domestic economy and manufacture and trade at agricultural sites from the Early Industrialization and Industrialization and Early Suburbanization periods in the Coastal Zone of Sussex County, Delaware. Avoidance or Phase II archeological site evaluation is recommended. Additionally, archeological cemetery delineation is recommended to define the limits of interments within the site.

Site 7S-G-203 is a prehistoric Native American lithic scatter site. This site produced debitage from deeply buried, unplowed E horizons and based on geospatial investigation, may date to the Archaic and/or PaleoIndian periods. In our opinion, this site has significant research potential relevant to settlement patterns and lifeways in prehistoric Delaware and is potentially eligible for listing on the NRHP under Criterion D. This site is located outside of the currently proposed limits of disturbance. As such, no additional archeological work is recommended at this time; however, should impacts to the site be considered in the future, avoidance or Phase II archeological site evaluation is recommended.

Site 7S-G-204 was identified in the northern stormwater pond location and roughly corresponds to the location of a dwelling on the 1918 USGS Rehoboth, DE 15-minute quadrangle map. The dwelling noted on the 1918 quadrangle was probably demolished during the realignment of SR 24 in 1928, as no structures are noted in this location on a 1937 black and white aerial image, or subsequent maps and aerial photographs of the project vicinity. All of the artifacts recovered at the site during this investigation were found within the plow zone and there is no evidence to suggest that intact cultural deposits associated with the domestic occupation exist within the proposed stormwater pond location. Archival research revealed no association for the site with significant persons or events. In our opinion, site 7S-G-204 is not potentially eligible for inclusion on the NRHP under Criteria A-D. No additional archeological work is recommended.

## TABLE OF CONTENTS

<b>ABSTRACT .....</b>	<b>i</b>
<b>TABLE OF CONTENTS .....</b>	<b>ii</b>
<b>LIST OF EXHIBITS .....</b>	<b>iii</b>
<b>LIST OF TABLES.....</b>	<b>iv</b>
<b>LIST OF PLATES.....</b>	<b>iv</b>
<b>INTRODUCTION.....</b>	<b>1</b>
<b>ENVIRONMENTAL SETTING .....</b>	<b>1</b>
<b>PALEOENVIRONMENTAL BACKGROUND.....</b>	<b>5</b>
<b>CULTURAL BACKGROUND .....</b>	<b>7</b>
<b>Prehistoric Overview .....</b>	<b>7</b>
<b>Contact Period (AD 1600-1750).....</b>	<b>12</b>
<b>Historic Overview .....</b>	<b>13</b>
Geographic Zones.....	13
Research Domains .....	14
Historic Periods .....	14
<b>Property Ownership History .....</b>	<b>37</b>
Southern Parcel (Tax Parcel 234-29.00-263.01) .....	37
Northern Parcel (Tax Parcel 234-29.00-49.04).....	38
<b>PREVIOUS ARCHEOLOGICAL RESEARCH .....</b>	<b>40</b>
<b>RESEARCH EXPECTATIONS .....</b>	<b>44</b>
<b>FIELD AND LABORATORY METHODS .....</b>	<b>44</b>
<b>Fieldwork .....</b>	<b>44</b>
<b>Laboratory .....</b>	<b>45</b>
<b>RESULTS OF FIELD INVESTIGATIONS.....</b>	<b>46</b>
<b>Area A.....</b>	<b>46</b>
Secondarily Deposited Refuse (Delmarva Field Scatter) and Findspots.....	56
Site 7S-G-202 .....	57
Site 7S-G-203 .....	62
<b>Area B.....</b>	<b>63</b>
Site 7S-G-204 .....	66
<b>SUMMARY AND RECOMMENDATIONS.....</b>	<b>68</b>
<b>REFERENCES CITED .....</b>	<b>71</b>
<b>PLATES .....</b>	<b>77</b>
<b>APPENDIX I .....</b>	<b>93</b>
<b>APPENDIX II.....</b>	<b>103</b>
<b>APPENDIX III .....</b>	<b>121</b>

## LIST OF EXHIBITS

Exhibit 1	: Vicinity Map Showing the Location of the Project Area .....	2
Exhibit 2	: Portion of the USGS 1984 Fairmont, DE and 1984 Frankford, DE 7.5' Quadrangles Showing the Location of the Project Area .....	4
Exhibit 3	: Summer 2013 Natural Color Imagery Aerial Photograph Showing the Location of the Project Area .....	6
Exhibit 4	: Portion of the 1797 Bohn Map of Maryland und Delaware Showing the Approximate Location of the Project Area .....	21
Exhibit 5	: Portion of 1827 Boye Map of the State of Virginia Showing the Approximate Location of the Project Area .....	22
Exhibit 6	: Portion of 1859 Boye Map of the State of Virginia Showing the Approximate Location of the Project Area .....	24
Exhibit 7	: Portion of 1868 Pomeroy and Beers Atlas of Indian River Hundred Showing the Location of the Project Area .....	26
Exhibit 8	: Portion of the USGS 1918 Rehoboth, DE 15' Quadrangle Showing the Location of the Project Area .....	28
Exhibit 9	: 1937 Black and White Aerial Photograph Showing the Location of the Project Area.....	29
Exhibit 10	: Portion of the USGS 1938 Rehoboth, DE 15' Quadrangle Showing the Location of the Project Area .....	31
Exhibit 11	: Portion of the USGS 1944 Rehoboth, DE 15' Quadrangle Showing the Location of the Project Area .....	32
Exhibit 12	: Portion of the USGS 1954 Fairmont, DE and 1955 Frankford, DE 7.5' Quadrangles Showing the Location of the Project Area .....	33
Exhibit 13	: 1961 Black and White Aerial Photograph Showing the Location of the Project Area .....	34
Exhibit 14	: 1997 Black and White Aerial Photograph Showing the Location of the Project Area.....	35
Exhibit 15	: 2012 Natural Color Aerial Photograph Showing the Location of the Project Area.....	36
Exhibit 16	: Previously Recorded Cultural Resources within the Vicinity of the Project Area .....	42
Exhibit 17	: Overview Map Showing the Locations of the Project Areas.....	47
Exhibit 18	: Overview Map of Phase I Investigations in Area A.....	49
Exhibit 19	: Representative STP Profiles from Area A.....	50
Exhibit 20	: Representative STP Profiles from Area A.....	51
Exhibit 21	: Detail Map of Phase I Investigation in Area A Showing the Proposed Stormwater Pond Location and Site 7S-G-202 .....	54
Exhibit 22	: Representative STP Profiles from the Proposed Stormwater Pond Location in Area A .....	55
Exhibit 23	: Overview Map of Phase I Investigations in Area B .....	64
Exhibit 24	: Representative STP Profiles from Area B .....	65
Exhibit 25	: Portion of the USGS 1984 Fairmont, DE and 1984 Frankford, DE 7.5' Quadrangles Showing the Location of Sites 7S-G-202, 7S-G-203, and 7S-G-204.....	69

## LIST OF TABLES

Table 1: Delaware’s Geographic Zones, Research Domains, and Historic Periods.....	12
Table 2: Previously Recorded Architectural Resources within Project Area Vicinity .....	40
Table 3: Artifacts Recovered from the Secondarily Deposited Refuse Scatter .....	57
Table 4: Artifacts Recovered from Site 7S-G-202 .....	58
Table 5: Artifacts Recovered from Site 7S-G-203 .....	62
Table 6: Artifacts Recovered from Site 7S-G-204 .....	67

## LIST OF PLATES

Plate 1: Snow Cover within the Project Area during Field Investigations.....	79
Plate 2: Overview of Area A.....	79
Plate 3: Stormwater Pond Location within Area A .....	81
Plate 4: Site 7S-G-202: Locus A.....	81
Plate 5: Site 7S-G-202: Locus B.....	83
Plate 6: Grave Marker in Site 7S-G-202: Locus B .....	83
Plate 7: Detail of Grave Marker in Site 7S-G-202: Locus B .....	85
Plate 8: Site 7S-G-203 .....	87
Plate 9: Debitage Recovered from E and E2 Horizons within Site 7S-G-203.....	87
Plate 10: Additional Testing Area within Area B.....	89
Plate 11: Stormwater Pond Location within Area B.....	89
Plate 12: Stormwater Pond Location within Area B.....	91
Plate 13: Site 7S-G-204 .....	91

## INTRODUCTION

This report presents the results of a Phase I archeological investigation conducted in advance of proposed improvements to a 2.25-mile section of State Road 24 (SR 24) between Long Neck Road to the north, and extending beyond the intersection of SR 24 and Mount Joy Road/Oak Orchard Road at its southern extent; and improvements to the intersections of SR 24 and Mount Joy Road and Bay Farm Road in Indian River Hundred, Sussex County, Delaware (Exhibit 1). The project area included  $\pm 20.8$  acres and with the exception of the proposed locations of two stormwater retention ponds, was confined to the existing road right of way. Phase I investigations were limited to the locations of the two proposed stormwater ponds and two Additional Testing Areas encompassing  $\pm 9.7$  acres that were external to the project area. Thunderbird Archeology, a division of Wetland Studies and Solutions, Inc., of Gainesville, Virginia, conducted the study described in this report for the Delaware Department of Transportation of Dover, Delaware. The fieldwork was carried out in March and April of 2014.

Boyd Sipe, M.A., RPA served as Principal Investigator on this project. The fieldwork was conducted by Associate Archeologist Craig Rose, M.A., RPA with the assistance of Andrés E. Garzón-Oechsle and Benjamin Pollack. Beth Waters Johnson, M.A., RPA served as Laboratory Supervisor, and conducted the artifact analysis with assistance from David Carroll.

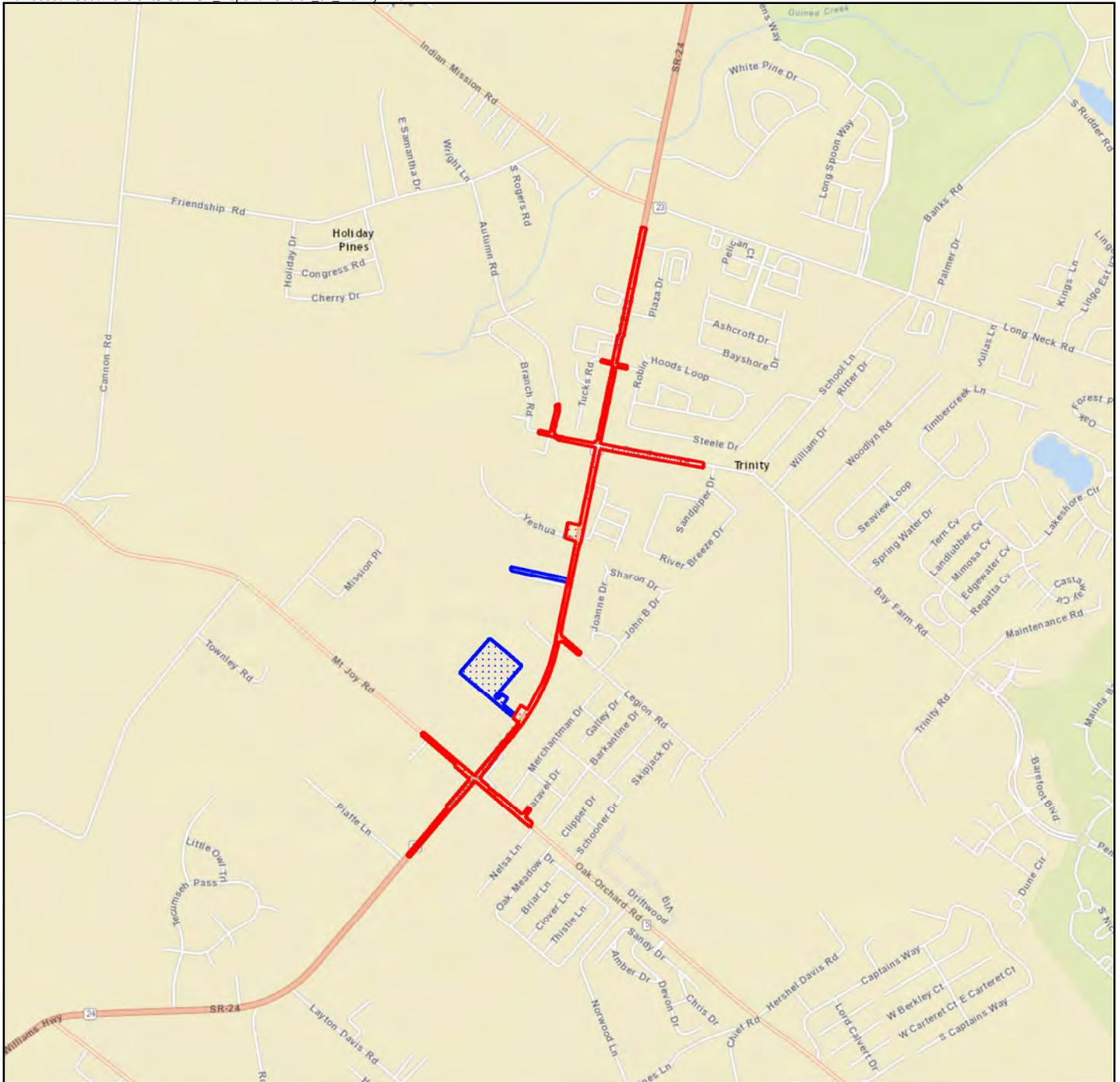
Fieldwork and report contents conformed to the guidelines set forth by the Delaware Division of Historical and Cultural Affairs, State Historic Preservation Office guidelines for a Phase I identification level survey as outlined in their draft guidelines *Archaeological Survey in Delaware* (Delaware Division of Historical and Cultural Affairs, 2012) as well as the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* (Department of the Interior 1983).

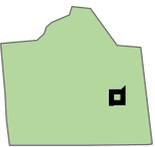
The purpose of the survey was to locate any cultural resources within the impact area and to provide a preliminary assessment of their potential significance in terms of eligibility for inclusion on the National Register of Historic Places. If a particular resource was felt to possess the potential to contribute to the knowledge of local, regional or national prehistory or history, Phase II work would be recommended.

All artifacts, research data and field data resulting from this project are currently on repository at the Thunderbird offices in Gainesville, Virginia.

## ENVIRONMENTAL SETTING

Delaware encompasses portions of the Appalachian Piedmont and the Atlantic Coastal Plain Physiographic Provinces. Sussex County falls within the Coastal Plain; which is underlain by sediments that have been carried from the eroding Appalachian Mountains to the northwest and includes layers of Jurassic and Cretaceous clays, sands and gravels.





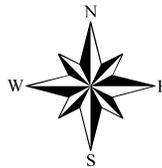
Sussex County

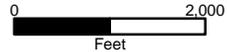


Approximate Project Area: ±20.8 acres



Additional Testing Areas: ±9.7 acres





Original Scale: 1" = 2,000'

## Exhibit 1 Vicinity Map

SR 24 Mount Joy Road and Bay Farm Road Improvements - Phase I Investigation

These are overlain by fossiliferous marine deposits and, above these, sands, silts and clays continue to be deposited. The Coastal Plain is characterized by very low relief, broken by several low terraces, with elevations ranging from 0 to 90 feet above mean sea level (a.m.s.l.). Nearly all of Delaware and the Eastern Shores of Maryland and Virginia fall within the Province; which runs west to the Fall Line, a low escarpment at circa 90 feet a.m.s.l. (in Delaware) which formed where the softer sedimentary rocks of the Coastal Plain abut the more resistant rocks of the Piedmont. In Delaware, the Fall Line is located in the northwestern corner of the State, stretching between the cities of Newark and Wilmington. Where rivers cross this juncture, rapids or falls have developed.

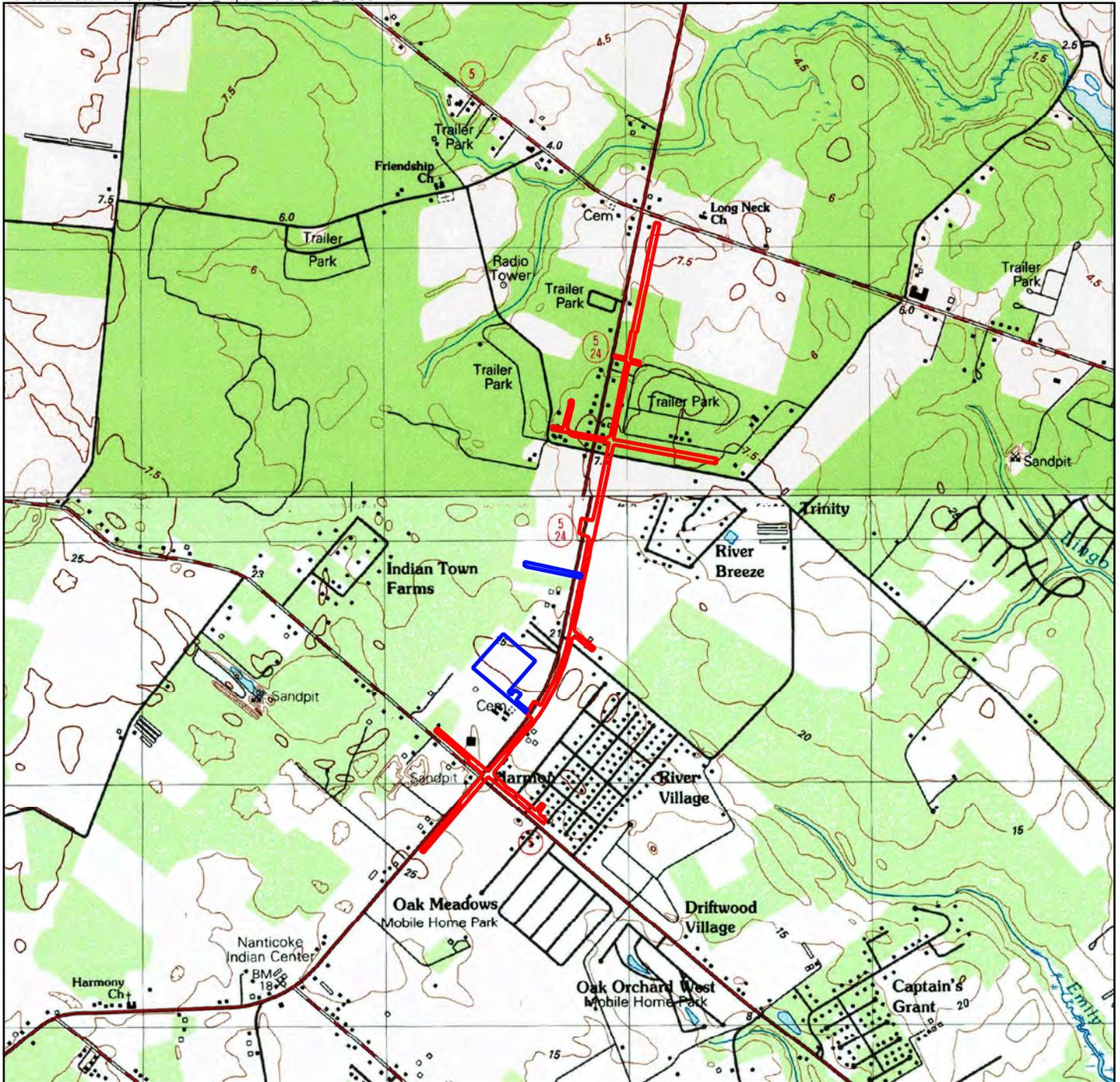
The project area is located within the Inland Bays/Atlantic Ocean Basin watershed of the Coastal Plain physiographic region. The watershed includes Rehoboth Bay, Indian River Bay, and Assawoman Bay, from north to south. These inland bays are separated from the Atlantic Ocean by a barrier island. The project area is located north of Indian River Bay, approximately one and a half miles west of the headwaters of Lingo Creek; which forms the southern boundary of Long Neck. Drainage in the project vicinity is provided by a series of south/southeast flowing tributaries of Indian River Bay.

Elevations within the watershed extend from sea level along its eastern boundary, to approximately 30 feet a.m.s.l. along its western boundary. In the project area, elevations range between 16 and 25 feet a.m.s.l. As is the case with much of eastern Sussex County, the landscape surrounding the project area is generally flat, with the highest elevations in the project vicinity located within the right of way of the existing roads (Exhibit 2).

Sandy loams are the most common soil types within the Inland Bays/Atlantic Ocean Basin watershed. In areas north of Indian River Bay, soils are typically well drained, while those south of the bay are poorly drained and in this portion of the watershed, man-made drainage ditches, or tax ditches, are used to drain swamps and wetlands, and make farming practical. Soils within the testable portions of the project area (i.e. the locations of the proposed stormwater ponds) were made up of Fort Mott loamy sand with 0 to 2% slopes. Fort Mott series soils are well drained and commonly found on hills and ridges in higher elevations in the Coastal Plain.

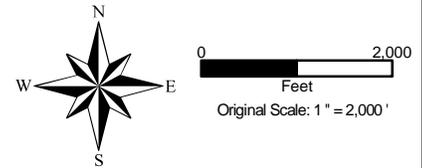
Much of the watershed has been cleared and is either under cultivation or used for residential development. Forests, composed of loblolly pine (*Pinus taeda*), Virginia pine (*Pinus virginiana*), white oak (*Quercus alba*), southern red oak (*Quercus falcate*), tulip poplar (*Liriodendron tulipifera*), red maple (*Acer rubrum*), and sweet gum (*Liquidamber styraciflua*), with an understory of American holly (*Ilex opaca*), are typically found in poorly drained areas not suitable for cultivation or development.

At the time of this investigation, the southern stormwater pond location fell within a recently harvested soybean field. The northern stormwater pond location was located



-  Approximate Project Area
-  Additional Testing Areas

Latitude: 38° 37' 17" N  
Longitude: 75° 11' 58" W



## Exhibit 2 USGS Quad Map Fairmount, DE 1984, and Frankford, DE 1984

SR 24 Mount Joy Road and Bay Farm Road Improvements - Phase I Investigation

within an overgrown, former agricultural field (Exhibit 3). Field investigations were conducted in March and April of 2014 and conditions were seasonably wet. Two separate storms blanketed the landscape with snow during excavations (Plate 1).

## **PALEOENVIRONMENTAL BACKGROUND**

The basic environmental history of the area has been provided by Carbone, Gardner, and Johnson (Carbone 1976, Gardner 1985, Gardner 1987, Johnson 1983). The following will present highlights from this history, focusing on those aspects pertinent to the project area.

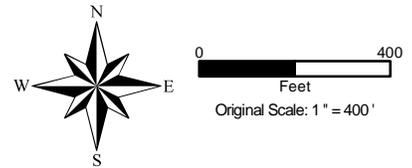
At the time of the arrival of humans into the region, about 11,000 years ago, the area was beginning to recover rapidly from the effects of the last Wisconsin glacial maximum of circa 18,000 years ago. Geologic processes and the rising sea level in Delaware have created a landscape that is drastically different than what was encountered by its earliest inhabitants. At that time, sea level was about 100 feet below its current elevation and the project area would have been located approximately 120 feet above sea level and 15 miles west of the ancestral channel of the Delaware River; and approximately 20 miles from the Atlantic coast (Catts 1992).

The areas that now form the tidal reaches of Indian River Bay and Rehoboth Bay would have been the headwaters of a network of freshwater streams interspersed with freshwater swamps. Higher elevations surrounding the project area would have likely been covered with evergreen forests, while poorly drained areas probably would have been bogs or swamps. Paleoenvironmental studies place the project area along the boundary between the Interior Watercourses and Interior edaphic zones of the Coastal/Bay physiographic sub-zone of the Low Coastal Plain (Catts 1992). The Interior Watercourses zone includes dry land and marshes in the immediate vicinity of the zone's major watercourses. In the project vicinity, these include Love Creek, Herring Creek, and Indian River. The Interior zone encompasses areas without direct access to major drainages. Within this zone, wooded marshes would have been attractive grazing locations for deer and other game animals and are thought to be the most likely locations to find evidence of human activity (Catts 1992).

Vegetation was in transition from northern dominated species and included a mixture of conifers and hardwoods. Higher elevations surrounding the project area would have likely been covered with evergreen forests, while poorly drained areas probably would have been bogs or swamps. The primary trend was toward a reduction in the openness; which was characteristic of the parkland of 14,000-12,000 years ago. Animals were undergoing a rapid increase in numbers as deer, elk and, possibly, moose expanded into the niches and habitats made available as the result of wholesale extinctions of the various kinds of fauna that had occupied the area during the previous millennia.



-  Approximate Project Area
-  Additional Testing Areas



Imagery Source: National Agriculture Imagery Program (NAIP)

### Exhibit 3 Summer 2013 Natural Color Imagery

The current cycle of ponding and stream drowning began 18,000-16,000 years ago at the beginning of the final retreat of the last Wisconsin glaciation (Gardner 1985); sea level rise has been relatively steady since that time.

These trends continued to accelerate over the subsequent millennia of the Holocene. One important highlight was the appearance of marked seasonality circa 7000 B.C. This was accompanied by the spread of deciduous forests dominated by oaks and hickories. The modern forest characteristic of the area, the mixed oak-hickory-pine climax forest, prevailed after 3000-2500 B.C. Continued forest closure led to the reduction and greater territorial dispersal of the larger mammalian forms such as deer. Sea level continued to rise, resulting in the inundation of interior streams. This was quite rapid until circa 3000-2500 B.C., at which time the rise slowed, continuing at a rate estimated to be ten inches per century (Darmody 1978). This rate of rise continues to the present.

Based on archeological evidence (Gardner and Rappleye 1979), it would appear that the mid-Atlantic migratory bird flyway was established circa 6500 B.C. Oysters had migrated to their maximum upriver limits, by circa 750 B.C. with anadromous fish arriving in the Inner Coastal Plain in considerable numbers circa 1800 B.C. (Gardner 1982).

During the historic period, circa A.D. 1700, cultural landscape alteration becomes a new environmental factor (Walker 1989). Around this time, Euro-American settlement extended along navigable waterways throughout Delaware. With these settlers came land clearing and deforestation for cultivation, as well as the harvesting of wood for use in a number of different products. At this time the stream tributaries to the Delaware Bay were broad expanses of open waters with channels of sufficient depth to provide access for ocean-going vessels. Consequently, these streams were conducive to the establishment of ports and harbors, elements necessary to commerce and contact with the outside world and the seats of colonial power. Most of these early ports were eventually abandoned or reduced in importance, for the erosional cycle set up by the land clearing resulted in tons of silt being washed into the streams, ultimately impeding navigation.

The historic vegetation would have consisted of a mixed oak-hickory-pine forest. Associated with this forest were deer and smaller mammals and turkey. The nearby open water environments would have provided habitats for waterfowl year round as well as seasonally for migratory species.

## **CULTURAL BACKGROUND**

### **Prehistoric Overview**

Within the State of Delaware, the regional prehistory is described in terms of physiographic and edaphic zones and chronological periods. In *A Management Plan for Delaware's Prehistoric Cultural Resources*, Custer divides the State into three

physiographic zones; Piedmont Uplands and Fall Line Zone, Upper Coastal Plain, and Lower Coastal Plain (Custer 1986a). Physiographic zones are further divided into edaphic, or environmental, zones (Delaware Shore, Mid-Drainage, Drainage Divide, Chesapeake Headwater Drainage, Interior Swamps, and Coastal/Bay) that, based on soil type, elevation, exposure, and slope, would have had unique floral and faunal communities (Custer 1986a).

Although the present conditions found within each of the edaphic zones are much different than what would have been encountered by the earliest inhabitants of Delaware, the environmental factors described above (elevation, soil type, exposure, slope, etc.) are thought to have remained relatively consistent and, therefore, would have defined distinct environmental zones throughout prehistory.

Delaware prehistory has been divided into four major time periods by Custer (1984, 1986a, 1986b, 1989, 1994, 1996a): the Paleo-Indian Period, ca. 12000 B.C. to 6500 B.C.; the Archaic Period, from 6500 B.C. to 3000 B.C.; the Woodland I Period, from 3000 B.C. to A.D. 1000; and the Woodland II Period, from A.D. 1000 to 1650. In the following discussion, paleoenvironments are discussed by chronological periods, with particular emphasis on the Coastal/Bay region of the Lower Coastal Plain.

#### *Paleoindian (12000-6500 B.C.)*

The Paleoindian cultural period dates to the terminal Late Pleistocene and early Holocene eras, a time that marks the final retreat of glaciers from the Wisconsin Glaciation and the beginning of the gradual development of modern climatic conditions. The earlier part of this period falls within the Late Glacial Episode (up to 8000 B.C.), a time when the Middle Atlantic would have been affected by the northern ice sheets.

A mosaic of different vegetation communities--grassland settings within a broader coniferous matrix dominated by spruce, with deciduous elements in the riverine zones--apparently supported a mixture of mammals, some now extinct (mastodon, mammoth, woodland musk ox, giant moose) and some modern (white-tailed deer, caribou, and elk). Some of these mammals were browsers, while others were grazers. The latter part of the Period, falling within the Pre-Boreal/Boreal Episode (8000 B.C. to 6500 B.C.), marked the transition between the end of the Pleistocene and the beginning of the Holocene. This was characterized by a reduction in grasslands and a spread of mixed woodland settings dominated by boreal species, particularly pine. This environmental change resulted in the extinction of many of the Pleistocene megafauna dependent on open grassland habitats and a redistribution of animals affected by the reduction in forest edge settings.

Within these settings, the Paleo-Indian lifestyle is assumed to have been one of both hunting and gathering, but with a marked emphasis on hunting. The tools in general appear to be for the acquisition of game animals and for the processing of these animals and their by-products. These tools include projectile points for killing, bifacial knives for

butchering, and various flake tools for scraping, cutting, and piercing meat, bone or hide.

A preference for a high quality cryptocrystalline lithic material is one of the diagnostic features of the Paleoindian tool kit, and the careful resharpening and maintenance of tools was common. This reliance on such high quality lithics had important implications for Paleoindian settlement patterns. Base camps were located in the vicinity of quarries, with hunting camps and special resource procurement sites radiating out from the base camp/quarry locale (Gardner 1989). A fairly mobile lifestyle in which groups focused on the quarries and on game-attractive environments is hypothesized, with a society organized by the interaction of single and multiple family bands.

Diagnostic artifacts include such spear points styles as the Clovis, Middle Paleo, and Dalton-Hardaway points and, towards the latter part of the period, corner and side-notched styles such as Palmer, Amos and Kirk points. Fluted points from the Paleoindian period have been identified in northwestern Delaware, near Iron Hill, where sources of high quality jasper are known to exist; and along the west-central boundary of Delaware, a region where paleoecological studies have documented the presence of freshwater wetlands. Such areas would have provided food and water for game animals, as well as Paleoindian populations (Custer 1996b).

#### *Archaic (6500- 3000 B.C.)*

The continually changing climatic conditions resulted in the emergence of essentially modern environmental conditions by approximately 6500 B.C. A corresponding change in the adaptive strategies of aboriginal groups living in the Middle Atlantic region is also evident in the prehistoric record. Most important to these early settlers was the extinction of the large game species caused, at least in part, by the reduction in the grassland environments and their replacement by the closed mesic forests of oak and hemlock of the Atlantic Episode (6500 B.C. to 3100 B.C.).

A general warming trend and an increase in precipitation favored the expansion of the dense mesic forests; swampy and boggy areas were probably widely distributed in areas of poor drainage. Faunal components were essentially modern, with deer and turkey figuring as major game animals. Thus the aboriginal hunting patterns adapted to the habits of these more solitary species, and the gathering of plant foods became increasingly important in their subsistence systems. This change in subsistence is indicated in the archeological record by the increased presence of various types of ground stone tools such as axes, gouges, and grinding stones, by plant processing tools such as mortars and pestles, and by a variety of new projectile point styles, bifurcated and stemmed, made from a wide variety of lithic materials, including quartz and non-local materials, such as rhyolite (Custer 1996b). Temporally diagnostic projectile points from the Archaic period include Kirk, Stanley, and Pequea point types.

Archaic sites are located in a wider variety of environmental settings and in different

locations than are the earlier Paleoindian sites (Gardner 1987). Many of the new site settings are related to emerging environmental zones associated with the spread of the mesic forests, variations in the water table, and sea level rise. This increase in the variety of environmental settings would have been reflected in a concomitant increase in the variety of seasonally available resources.

Areas of high probability for Archaic sites in the Piedmont would be low rises located around marshy or swampy areas away from major drainages and locations at sheltered locales along smaller streams which allowed the utilization of available resources such as plant or animal foods or lithic raw materials. In the Coastal Plain, Archaic period sites are most often identified on ridges surrounding “bay basins”, poorly drained areas that may have provided food and water for game animals. The lack of Paleoindian sites in similar settings suggests the changing environmental conditions of the Archaic period would have made these locations more desirable (Custer 1996b).

#### *Woodland I (3000 B.C. –A.D. 1000)*

This period is correlated with the Sub-Boreal Episode (3110 B.C. to 810 B.C.) and the Sub-Atlantic Episode (810 B.C. to A.D. 1000). The Sub-Boreal Episode begins with a pronounced warm and dry period characterized by an increase in the xeric oak/hickory and oak/chestnut forest cover and a waning of the mesic forests, at least in the northern portion of Delaware. In some portions of the Coastal Plain, the drier conditions led to the formation of Oak/pine forests, while evidence of aeolian erosion and deposition in other areas of the Coastal Plain indicate a landscape devoid of vegetation (Custer 1996b). The warmer, drier climate was accompanied by an increase in grassland areas and a decrease in the rate of sea level rise, sufficient to allow the formation of estuarine resources.

During the Sub-Atlantic Episode, a cooling trend accompanied by increasing precipitation led to the development of forest communities that approximate modern distributions. By 3000 B.C. the rising sea level and climatic/environmental changes led to a reorganization of the prehistoric way of life. Earlier groups seem to have had relatively mobile lifestyles associated with flexible social organizations and an easily transported tool technology. In contrast, the Woodland I period is characterized by a more sedentary lifestyle, a less portable storage technology, more developed exchange systems, and complex burial patterns (Custer 1986b).

Sea level rise resulted in the development of brackish water estuaries and the appearance of fish and shellfish along the continent's coastal areas, creating a rich environmental zone that could support the occupants of seasonal base camps. While basecamps were commonly established near rivers and the coastline; which provided clean water and a relatively reliable food source (fish/shellfish), processing and procurement sites are also found throughout the interior uplands, where game animals, lithic materials, or other desirable resources may have been more plentiful, depending on the season.

Seasonal base camps, composed of semi-subterranean pit houses, likely indicate a population that was sedentary for a large part of the year. The dome-shaped dwellings were typically less than 20 feet in diameter and were dug out to create a semi-subterranean living surface. They included interior hearths and interior storage pits. Archeological evidence indicates the size and layout of the pit houses changed very little during the Woodland I period and groups of more than two houses are uncommon in any one location, suggesting the family unit was the dominant social group during the Woodland I period (Custer 1996b).

The Woodland I tool kit is characterized by broad-bladed, bifacially chipped broadspears, as well as by the appearance of a solid container technology. This technology is first apparent in the appearance of soapstone, or steatite, bowls, which were later replaced by ceramic vessels. Ground stone tools continued to be a part of the tool kit, and there was an increase in the number and variety of such tools including adzes, gouges, celts and axes. Participation in regional trade networks also seems evident for this era, as indicated by the extensive use of non-local materials such as argillite, rhyolite and steatite, used both for tools as well as for non-utilitarian items. This is most evident at Delmarva Adena sites. Perkiomen, Susquehann, Lehigh/Koens-Crispin, Fox Creek, and Savannah River projectile points, steatite bowls, or Mockley, Wolf Neck, Susquehanna, or Selden Island ceramic vessel types are considered temporally diagnostic for the Woodland I period. Much larger versions of temporally diagnostic projectile points have been identified in association with burial features and are thought to have been used as grave goods, rather than tools (Custer 1996b).

#### *Woodland II (AD 1000 -1600)*

The environmental setting of the Woodland II Period is essentially modern in character. It is at this time period that a stable agricultural adaptation appears to have developed throughout much of the Middle Atlantic region, accompanied by more sedentary lifestyles (Custer J. F., 1989). While a movement to the more arable lands in the floodplains of major drainages accompanied by the appearance of more permanent structures and large villages is typical for the Middle Atlantic at this time, a shift to large village sites has not been identified in Delaware (Stewart 1986, Custer 1996b, Custer and Cunningham 1986).

Settlement patterns continue to focus on areas of reliable water sources; the smaller campsites that are found for this time period probably represent short-term exploitative sites. There appears to be a breakdown in the trade and exchange systems that existed during the Woodland I Period, possibly caused by the disruption of social networks as a result of fissioning communities, resulting in fewer and less distinctive non-local materials to be found at sites. The lack of non-local lithics may also be related to the changing settlement system at the source areas (Custer 1984). It is the various new ceramic types, with their complex decorations including incised lines and cord-wrapped stick impressions that characterize the Woodland II Period in Delaware. These wares

evolved out of the earlier Woodland I ceramics. Crushed shell Townsend Ware with fabric impressed exterior surfaces and Minguannon ceramics tempered with sand, grit and crushed quartz with smooth or cord marked surfaces are the primary types. Townsend ware is associated with the Slaughter Creek Complex in southern Delaware, while the Minguannon complex is found in New Castle County and surrounding areas. Small triangular projectile points that appeared late in the Woodland I period become ubiquitous and indicate the use of the bow and arrow. These are generally made from high quality cryptocrystalline stone (Custer 1984).

### **Contact Period (AD 1600-1750)**

It was during this time that the Delaware Indians developed an active interaction with the newly arrived European traders and settlers. Ethnohistorical accounts chronicle a rapid disruption of the Indian way of life from deculturation brought about by a combination of factors. These include the expulsion of the Indians from their land; introduced European diseases, to which the indigenous populations had no immunity and which frequently struck down the people even before direct contact was made; a new dependence on European manufactured goods; and an increase in inter-group warfare due to competition for access to fur trading (Custer 1984).

Large quantities of trade goods are not found in Delaware sites, making contact period sites difficult to recognize. This may be because the fur trade moved swiftly to the west and the Susquehannocks blocked Native American groups in Delaware from participation in the European trade spheres in this area.

At this time in their history, the Indians in the northern region of Delaware were a part of the rather loosely defined Delaware Nation. All of the groups belonged to the larger linguistic grouping known as the Coastal Algonquian, of which Delaware is a subdivision. The Delaware Nation consisted of widely scattered, rather fluidly organized and relatively independent local groups that seemed to be organized at a band or tribal level, lacking large scale organization and large communities. During the latter part of this period, Native American groups began to leave areas where Europeans had established relatively dense settlements, further disrupting Indian traditions and cultural institutions (Custer 1984). The Contact Period terminates with the Native American populations' shift to an acculturated way of life. It was much later in time that the shattered remnants of these groups were able to form a cohesive Pan-Delaware polity.

Few Contact Period Native American sites have been identified in Delaware and given the general lack of trade goods, the artifact assemblages characteristic of sites from this era appear to resemble Woodland II sites (Custer 1996b).

**Historic Overview**

The *Delaware Comprehensive Historic Preservation Plan* (Ames 1989) and the *Management Plan for Delaware’s Historical Archaeological Resources* (De Cunzo and Catts 1990) share a planning framework in which cultural resources are classified by time periods and research themes. The plans also recognize regional variability by dividing the state into five geographic zones. For Sussex County, a context report on agricultural sites also serves as an important source of information (De Cunzo and Garcia 1993).

**Table 1: Delaware’s Geographic Zones, Research Domains, and Historic Periods**  
(De Cunzo and Catts 1990)

<b>Geographic Zones</b>	<b>Research Domains</b>	<b>Historic Periods</b>
<i>Piedmont</i>	<i>Domestic Economy</i>	<i>Exploration and Frontier Settlement (1630-1730±)</i>
<i>Upper Peninsula</i>	<i>Manufacturing and Trade</i>	<i>Intensified and Durable Occupation (1730-1770±)</i>
<i>Lower Peninsula/ Cypress Swamp</i>	<i>Social Group Identity, Behavior, and Interaction</i>	<i>Early Industrialization (1770-1830±)</i>
<i>Coastal</i>	<i>Landscape</i>	<i>Industrialization and Early Urbanization (1830-1880±)</i>
		<i>Urbanization and Early Suburbanization (1880-1940±)</i>

The classification of historic archeological sites based on geographic zones, research domains, and historic periods creates a system for evaluating the significance of a site based on the concept of representativeness and provides a framework for researchers to make decisions concerning a site’s eligibility for inclusion on the National Register of Historic Places (NRHP).

*Geographic Zones*

Geographic zones used for studying the historic period are modeled after those created by Custer and include: the Piedmont, Upper Peninsula, Lower Peninsula/Cypress Swamp, and Coastal. The Piedmont Zone corresponds to the Piedmont physiographic province and is confined to the northwestern corner of Delaware, above the Fall Line. The Upper Peninsula Zone incorporates the largest portion of the state, including portions of southern New Castle County, nearly all of Kent County, and the northeastern corner of Sussex County. The Lower Peninsula includes the southern third of the state.

Soil types within the Upper and Lower Peninsula are very similar. The primary difference is the flora found in the Upper and Lower Zones. In the Upper Zone, forests include oak, hickory, poplar, walnut, and ash. In the Lower Peninsula, cypress, loblolly pine, tulip poplar, magnolia, Atlantic white cedar, holly, maple, ash, and oak are the dominant species (Ames 1989). The Coastal Zone extends from the head of navigation along Delaware’s tidal streams, including the land in the immediate vicinity of the shoreline, where water-related activities were likely to take place. The Coastal Zone extends to the State boundary within Delaware Bay; and extends about three miles into the Atlantic Ocean beyond Delaware’s Atlantic Coast. Due to the siltation of Delaware’s



rivers and streams during the historic period, the up-river boundary of the zone changes from one historic period to the next.

### *Research Domains*

Research domains, or historic themes, are used to group associated human activities and may or may not be confined to specific geographic locations or time periods. The Management Plan for Delaware's Historic Archaeological Resources provides four research domains (Domestic Economy; Manufacturing and Trade; Social Group Identity, Behavior, and Interaction; and Landscape) to guide the identification, evaluation, and treatment of historic archeological resources within the State. Research domains intentionally overlap and are intended to generate a broader context for interpretation and evaluation of site-specific data.

Domestic economy involves the study of household composition, the division of labor, and the goods and services produced, reproduced, or consumed by the family for the achievement of specific goals; as well as its participation in the local economy. Manufacturing and Trade is intended to develop a better understanding of the local or regional economy through analysis of the ethnic and cultural composition of the community, the goods and services provided, and the evolution of the technology used to provide them. This research domain is primarily applicable to production sites, but also applies to farmsteads and domestic sites where there is evidence of income generated from specialized skills or a production surplus. While the family unit and occupational groups are explored under the two previous research domains, religious, political, educational, and other social institutions also influence community identity and the way its members interact with outsiders. Social Group Identity, Behavior, and Interaction explores all of the groups that define a community and the influence they exert on its interactions with other communities at regional, state, and/or national levels (De Cunzo and Catts 1990).

Landscape explores the relationship between settlement patterns and the natural environment in frontier, rural, nucleated, and urban settings (De Cunzo and Catts 1990). Culture; ethnicity; religion; and social, political, and economic status all influence the way in which people interact with the natural environment and are integral to the study of landscape.

### *Historic Periods*

The *Delaware Comprehensive Historic Preservation Plan* (Ames 1989) divides the historic period into five time periods; Exploration and Frontier Settlement, Intensified and Durable Occupation, Early Industrialization, Industrialization and Early Urbanization, and Urbanization and Early Suburbanization, based on evolving settlement, subsistence, and economic patterns.

## Exploration and Frontier Settlement (1630-1730±)

Although European explorers visited the Delaware Bay area in the early 1600s, it was not until decades later that any were motivated to settle along its western shores. The earliest known colonial settlement in Delaware was founded by the Dutch West India Company in 1631, with the establishment of Zwaanendael or Swanendael, just north of present day Lewes. This palisaded encampment was intended to develop into a whaling station, trading center, and farming community, but local Indians, sparked by a dispute with the settlers, destroyed the settlement and massacred all its inhabitants within a year (Munroe 1978, 1984).

New Sweden, the first permanent colony, was established near the juncture of the Brandywine and Christiana Rivers in 1638 by the New Sweden Company and settled by Swedes and Finns. This venture was partly financed by disenchanted members of the Dutch West India Company until 1641 when the Swedes bought out the Dutch shares. The colony grew into a string of small farming settlements situated on the western shore of the Delaware River and reaching as far north as the Schuylkill in present day Philadelphia. Small communities grew up at Fort Christiana, in the vicinity of what is now Wilmington, at Upland (now Chester, Pennsylvania), and on Tinicum Island, just south of Philadelphia. However by 1647, suffering neglect from its homeland, the colony had only grown to about 183 individuals (Munroe 1978, 1984).

In 1651 a small group of Dutch, acting independently of the West India Company, set up Fort Casimir at what is now New Castle, ostensibly for the purpose of trade with the Native Americans but mainly as an attempt to interrupt New Sweden's commerce. Fort Casimir was about seven miles downriver of Fort Christiana and therefore in a position to block Swedish trade and obtain control over all river traffic. The Swedes took this fort in 1654 and renamed it Fort Trinity, but a conflict ensued that resulted in the Swedish surrender of the fort and enabled the Dutch to gain control of the entire colony of New Sweden (Munroe 1978, 1984).

In 1656 the Dutch West India Company, indebted to the City of Amsterdam, sold its interest in the land along the western shore of the Delaware from the mouth of the bay to the former Fort Casimir to the City. Merchants from the City established a new colony and its capital, the town of New Amstel, grew up around the former Fort Casimir. New Amstel, under Dutch rule, was essentially a separate colony (Hoffecker 1977; Monroe 1984). During this time the area north of New Castle still contained a high population of Swedes and Finns, while the Dutch population was more prevalent to the south. Under a prior agreement, the Swedes were permitted to elect their own officers, although they were officially under the Dutch West India Company rule. This northern area became known as the "Company Colony" and reestablished Fort Christiana as its capital, renaming it Fort Altena. The southern area was the "City Colony" and kept New Amstel as its capital (Munroe 1978, 1984).

In 1663 the Dutch West India Company, driven by mercantilism, not colonization, sold its remaining interest to the City of Amsterdam. That year the City financed the settlement of a group of Mennonites at Whorekill, present-day Lewes, and brought in large numbers of blacks from West Africa via Curacao, a center for the Dutch slave trade. Throughout this early period of settlement, the Delaware colonies were influenced by and under the unofficial control of New Amsterdam [New York], the center of Dutch colonial activity (Munroe 1978, 1984).

In 1664, the English, unhappy with the Dutch presence, captured New Amstel and destroyed the Mennonite community to the south. For nearly two decades the area was governed under the Duke of York as a part of New York, with only one short-lived resurrection of Dutch rule in 1673. It was during that time that separate court jurisdictions in Whorekill, New Castle, and Upland were established. Two years later New Salem, later Salem, was established by a small group of Quaker settlers from England. Based on a longstanding boundary dispute, the Duke of York and Lord Baltimore made conflicting claims to the land along the western shore of the Delaware River, with the land around Whorekill most frequently contested (Munroe 1978, 1984).

William Penn was granted a charter for Pennsylvania in 1681, and the Colony of Delaware was officially cleaved from lands to the north. Penn was however unsatisfied, as his new territory was essentially landlocked, with no access to navigable waters. In 1682 the Duke of York agreed to grant proprietary rights to Penn for the three counties of Delaware. These lands were issued in two separate deeds: the first included the land within twelve miles of New Castle, and the second, the land from twelve miles south of New Castle to Cape Henlopen, present day Fenwick Island. In gaining this land, Penn inherited the dispute with Lord Baltimore, but in 1688 was granted rights over the 'province of Lower Pennsylvania' by King James, formerly the Duke of York. This was a gesture intended to settle a long-standing debt to Penn's family, and for the time it squashed Lord Baltimore's claim over the Lower Counties. However, the boundaries that divided the Lower Counties from Maryland were not settled upon until 1751 and not made official until 1775 with the Mason and Dixon survey (Munroe 1984).

Philadelphia, established by Penn in 1682, had a population of 6,000 within a decade and, as planned, became a center for commerce, shipping, and government. As the capital of Penn's colony, New Castle County was under its control, both economically and politically. Growing political and religious hostilities between the provincial colony (Pennsylvania) and the territorial colony (Delaware) materialized in 1701 when Penn was forced to grant Delaware political autonomy (Munroe 1978). Seeing the opportunity within this schism, a Scottish petition for the Lower Counties was made in 1717 but was apparently ignored. After Penn's death, proprietary rights to the Lower Counties were passed by order of his will to his three sons, John, Richard, and Thomas (Munroe 1978). In the same year that Penn established Philadelphia, he also created nine hundreds in Delaware, based on an old Saxon land division that was similar to a precinct (Hancock 1983). Lewes and Rehoboth Hundred, which at that time included the area that would

become Indian River Hundred, was one of these original divisions.

Throughout the Exploration and Frontier Settlement Period, the colony primarily consisted of dispersed farmsteads located near navigable waterways. Water was the primary mode of transportation throughout the 17<sup>th</sup> century, and major land grants had access to a watercourse for transportation (Hoffecker 1977).. Most farms were situated within twelve miles of navigable water (Munroe 1954), and shipbuilding was conducted early along navigable watercourses (Munroe 1978). Overland transportation was a limited option as roads were not well developed and land transportation was generally more difficult and expensive than water transport.

#### Intensified and Durable Occupation (1730-1770±)

In 1740, the population of Delaware was estimated at approximately 13,000, with one third to one fifth of the population composed of enslaved Africans and African-Americans. The majority of the Delaware's inhabitants were located within the towns and urban areas in the New Castle County, while most slaves were held by Kent and Sussex Counties, where settlement patterns and plantation-based agriculture resembled the southern colonies (De Cunzo and Catts 1990).

Settlements continued to expand into the rich agricultural lands in Piedmont and Upper Peninsula and former woodlands were converted to agricultural fields and pasture. An increase in commerce and agriculture contributed to the establishment of new towns and the growth existing towns and the expansion of more reliable over-land transportation routes that facilitated the transport of goods to markets. In the Upper Peninsula, small settlements, including Newark, Christiana, and Dover developed along roads extending between Wilmington, Baltimore, and Philadelphia. Additional settlements were established along navigable waterways leading to Delaware Bay, in support of the Atlantic Coastal trade (Ames 1989). The towns of Lewes and New Castle, founded during the 17<sup>th</sup> century, remained important components of the local economy; however, Wilmington developed into the most populated urban center due to its proximity to the mills along Brandywine Creek, where locally grown grains were ground into flour and shipped to markets in Philadelphia (De Cunzo and Catts 1990).

Much of the Lower Peninsula remained unimproved, with the exception of settlements in the immediate vicinity of Lewes and other small settlements that developed along navigable waterways, such as Laurel and Dagsborough (Ames 1989). Harvesting shellfish and oak, pine, cedar, and cypress became important components of the economy in Sussex County. Lumbering supported the construction of new homes and a shipbuilding industry centered in Lewes, and provided the vast amounts of wood and charcoal needed for a short-lived iron industry (De Cunzo and Catts 1990). Areas of the Lower Peninsula not covered with timber, were commonly swampy and unfit for most agricultural purposes. Consequently, this period witnessed the continued expansion of a

network of drainage ditches intended to convert tidal marshes into meadows for pastures and other agricultural uses (Ames 1989).

A small Native American population, remained in the Lower Peninsula, but as Euro-American settlements expanded westward from their initial coastal locations, many Native Americans were forced westward or assimilated into Anglo-American culture. However, in the project area vicinity, the Nanticoke continued to live and prosper. While Native populations suffered some displacement and decline after the arrivals of multiple European cultures, the number of people of Native descent in Sussex County, and Delaware as a whole, is estimated to be higher today than during the initial Native and European encounter (Mellin 2008). Although Anglo populations continued to expand into previously unsettled portions of the Lower Peninsula during this period, an ongoing dispute between Maryland and Pennsylvania concerning ownership of Sussex County hindered population growth (Rose 2008).

Agriculture was the dominant industry in the colony, employing eighty to ninety percent of the population (De Cunzo and Catts 1990). Although subsistence farming remained important, particularly in Sussex County, with farming oriented to the production of goods for household use, the production of goods for consumption for the growing international market was an increasingly important factor (Lemon 1972). Agricultural production for home consumption can be described as general mixed farming, with most farms producing several types of small grains, com, flax, hemp, and vegetables. Most farms also had substantial orchards. Cattle, pigs, and a few sheep were generally kept, and horses were used more often than other animals for farming operations and hauling. Many farmers were also artisans, making products for use by the local population (Lemon 1972).

Tobacco had been the most profitable crop and primary export throughout the middle and late-17<sup>th</sup> century. Primarily grown in Kent and Sussex Counties, its production was probably responsible for the larger landholdings and larger slave population that characterized these two counties during that period (Monroe 1978). An extractive crop, its profitability was short-lived and its cultivation abandoned in favor of grains. With the decline in tobacco production, the need for slave labor also diminished, and in 1775, with the abolition movement already underway, the three counties of Delaware drafted a provision that outlawed slave importation (Monroe 1978).

#### Early Industrialization (1770-1830±)

During this period, most of the land in the Piedmont region was improved for agricultural or industrial purposes. Agricultural activities were centered on the production of wheat and dairying (De Cunzo and Catts 1990). Population expansion also accelerated following the resolution of a land dispute between Maryland and Pennsylvania. A trans-peninsular boundary line between the Delaware counties and Maryland was established in 1750 and 1751, and surveyed and marked by Mason and Dixon in the mid-1760s.

Until the “West Line”, as it was known, was ratified by English Courts, Maryland authorities continued to exercise control over the portion of Sussex County located south of Indian River (Rose 2008) Following the decision, Sussex County, and the rest of the Delaware Counties were determined to be part of Pennsylvania and remained part of the Colony until 1776, when the Colonial Assembly of Delaware declared its independence from British and Pennsylvania authority (City of New Castle 2014).

The Battle of Cooches Bridge, in New Castle County, was the only major battle fought on Delaware soil during the Revolutionary War; however, British actions and loyalist sympathy created economic hardship and fostered an environment of social and political unrest throughout the Colony. Whilst most military campaigns were confined to New Castle and Kent Counties, the British Blockade of the Delaware Bay interrupted trade networks and landing parties continually raided food supplies, and captured livestock and slaves from the inhabitants of Delaware (De Cunzo and Catts 1990). The Colony was again impacted by military campaigns during the War of 1812, when the British Navy and privateers bombarded the town of Lewes in 1813.

Following the Revolutionary War, rapid industrialization and population growth was observed in the Piedmont and Upper Peninsula. Milling was the principal industry in the region; although siltation from land clearing left many of the streams unnavigable, they remained suitable for the establishment of mills. The demand for mill workers contributed to considerable population growth in the Piedmont during this period. Wilmington remained the major urban center in the state and its population continued to expand throughout the period (Ames 1989). Population growth and the loss of navigable waterways led to an expansion of over-land transportation routes and as new roads were constructed, nucleated settlements developed around mills and the intersections of major transportation routes in the Piedmont. However, non-nucleated settlements remained the norm in the Upper and Lower Peninsula (Ames 1989).

In the Upper Peninsula, settlement patterns were influenced by the transition of the seat of State government from New Castle to Dover in 1777 and the construction of a canal connecting the Chesapeake Bay and the Delaware River [opened in 1829], which provided a new access route to markets in Baltimore. Dover expanded as a population center in the Upper Peninsula and new towns, including Delaware City near the mouth of the Chesapeake and Delaware Canal on the Delaware Bay, formed along the recently constructed canal. With expanded populations came improved and expanded over-land transportation networks (De Cunzo and Catts 1990).

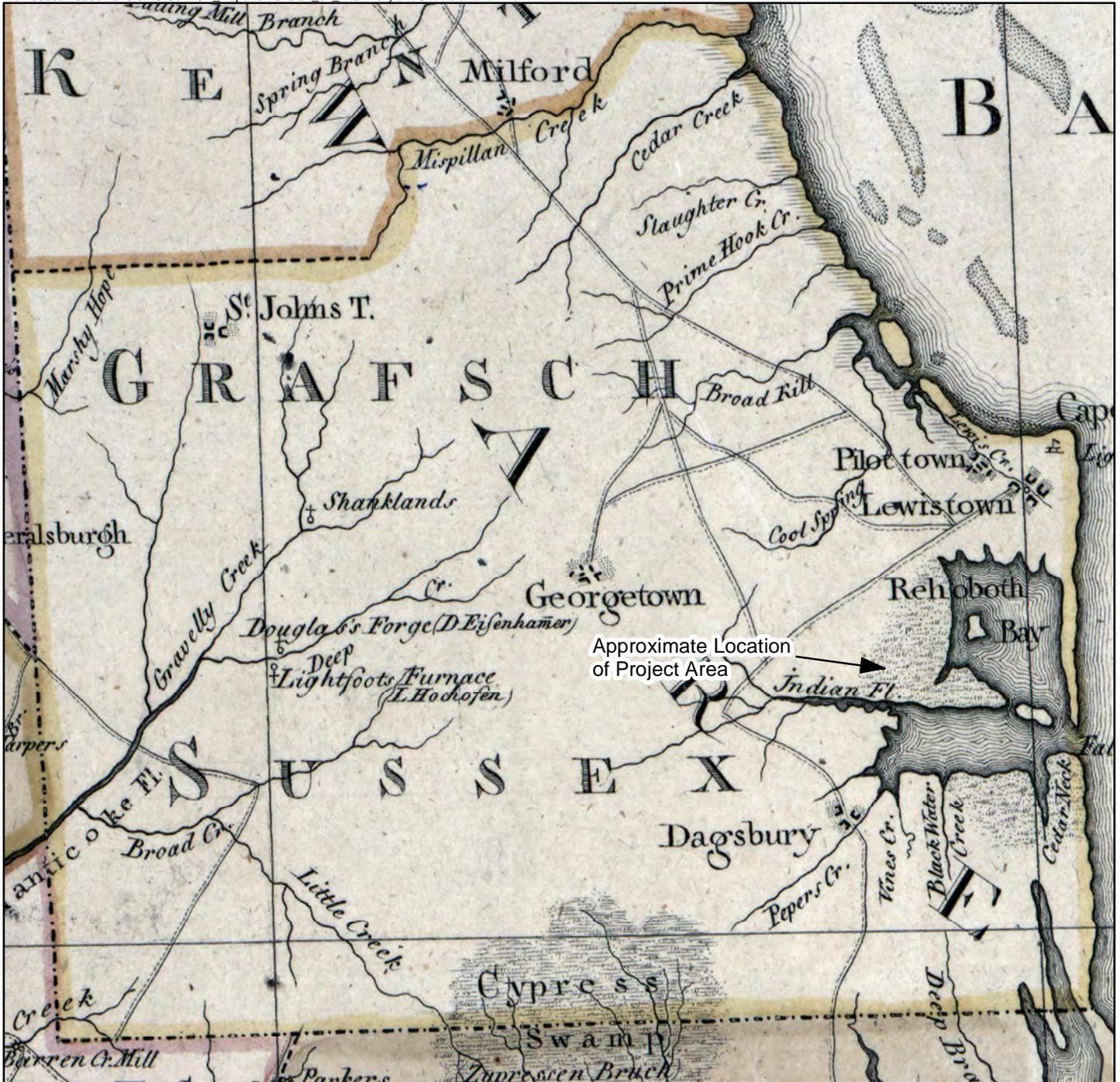
In the 1790s, the Sussex County seat was relocated from Lewes to Georgetown spurring marked enhancements to over-land transportation networks in the county. Mills, markets, and coastal shipping towns formed nodes in the developing transportation network. During this period, populations expanded into formerly unsettled portions of the County’s interior. Markets in established towns rapidly expanded as rural populations increased and spread throughout the County (Ames 1989). C.E. Bohn’s 1797 map “Maryland und

Delaware” shows the principal settlements in Sussex County at that time, St. Johns, Lewistown, Pilot Town, Georgetown, and Dagsbury (Dagsboro) with burgeoning overland transportation networks connecting population centers within the county, including a north/south road extending between New Castle, Delaware and Snow Hill, Maryland, via Lewistown and Dagsbury; and east/west routes between Lewistown [Lewes] and Pilot Town to the east, and Georgetown to the west (Exhibit 4). At the time, an ironmaking industry flourished along the Nanticoke River and its tributaries, in western Sussex County. Bog iron was plentiful in this part of the state and forges and furnaces, such as Lightfoots Furnace, Douglas’s Forge, and Shanklands Forge, as noted on the 1797 map, were established to extract usable iron from the raw material.

In 1800, 64,273 people were living in Delaware (US Census 1800). Although the population of New Castle County was slightly higher, the inhabitants were relatively evenly distributed throughout the state. Following the abolition of the importation of slaves in 1775, the number of free Africans and African-Americans in Delaware increased from nearly half of the African/African-American population in 1790 to more than seventy-five percent by 1810. Consequently, free African-American labor became an increasingly significant component of the local economy (De Cunzo and Catts 1990).

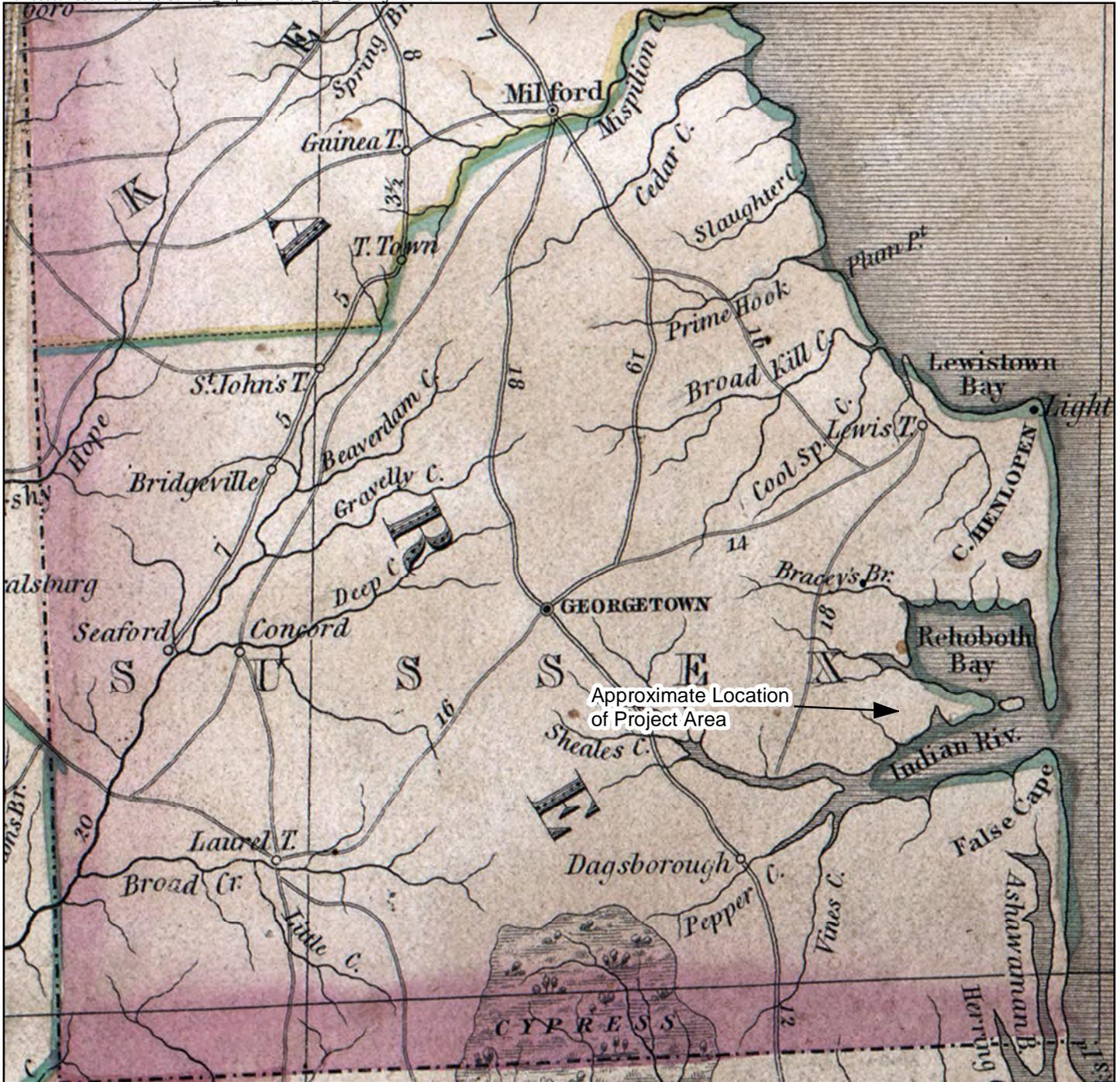
Extensive subsistence agriculture, domestic manufacturing, and exploitation of forest resources formed the backbone of economic activity in Sussex County. Agricultural production centered on corn, while hogs and beef cattle also contributed to the economy of southern Delaware. A new, more successful iron industry based on bloomery technology replaced the old. Salt production emerged as an important industry along the coast. Textile production was the most important early industry, with seventy percent of the looms in the state held by Sussex County households. Two-thirds of the value of flaxen goods produced in Delaware, and seventy percent of wool came from Sussex County (Coxe 1814). By 1827, settlements, including Laurel, Bridgetown, Middleford, Concord [formerly Lightfoots Furnace], and Seaford, had been established in the western portion of Sussex County. Overland transportation networks continued to expand to provide new population centers with access to markets in more established towns. As the seat of the county, Georgetown became a hub of major transportation routes in the county (Exhibit 5).

Exhaustive farming techniques and a decline in the price of wheat created economic hardship for Delaware’s farmers in the early-19<sup>th</sup> century. It was during this period that many farmers emigrated, and for the first time since its settlement, the population of Delaware began to decrease. The economic crisis led some farmers to introduce new methods, including improved drainage and fertilization that over time imposed a lasting beneficial effect. By 1850 more than ninety percent of farmland had been improved utilizing these methods (De Cunzo and Catts 1990).

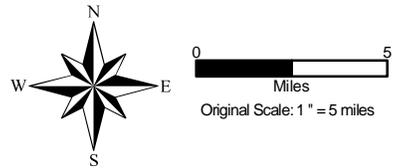


Historic Map Source:  
 Maryland und Delaware, W. Sander, & Sotzmann, D. F.  
 Hamburg, C. E. Bohn, 1797. Library of Congress.  
 g3840 ct004147 <http://hdl.loc.gov/loc.gmd/g3840.ct004147>

**Exhibit 4**  
**1797 Maryland and Delaware Map**



Historic Map Source:  
 A map of the state of Virginia : reduced from the nine  
 sheet map of the state in conformity to law. Map of Virginia.  
 Böye, Herman, H.S. Tanner and E.B. Dawson, 1827.  
 Library of Congress. g3880 ct003676  
<http://ccn.loc.gov/2012589665>



### Exhibit 5 1827 Map of Virginia

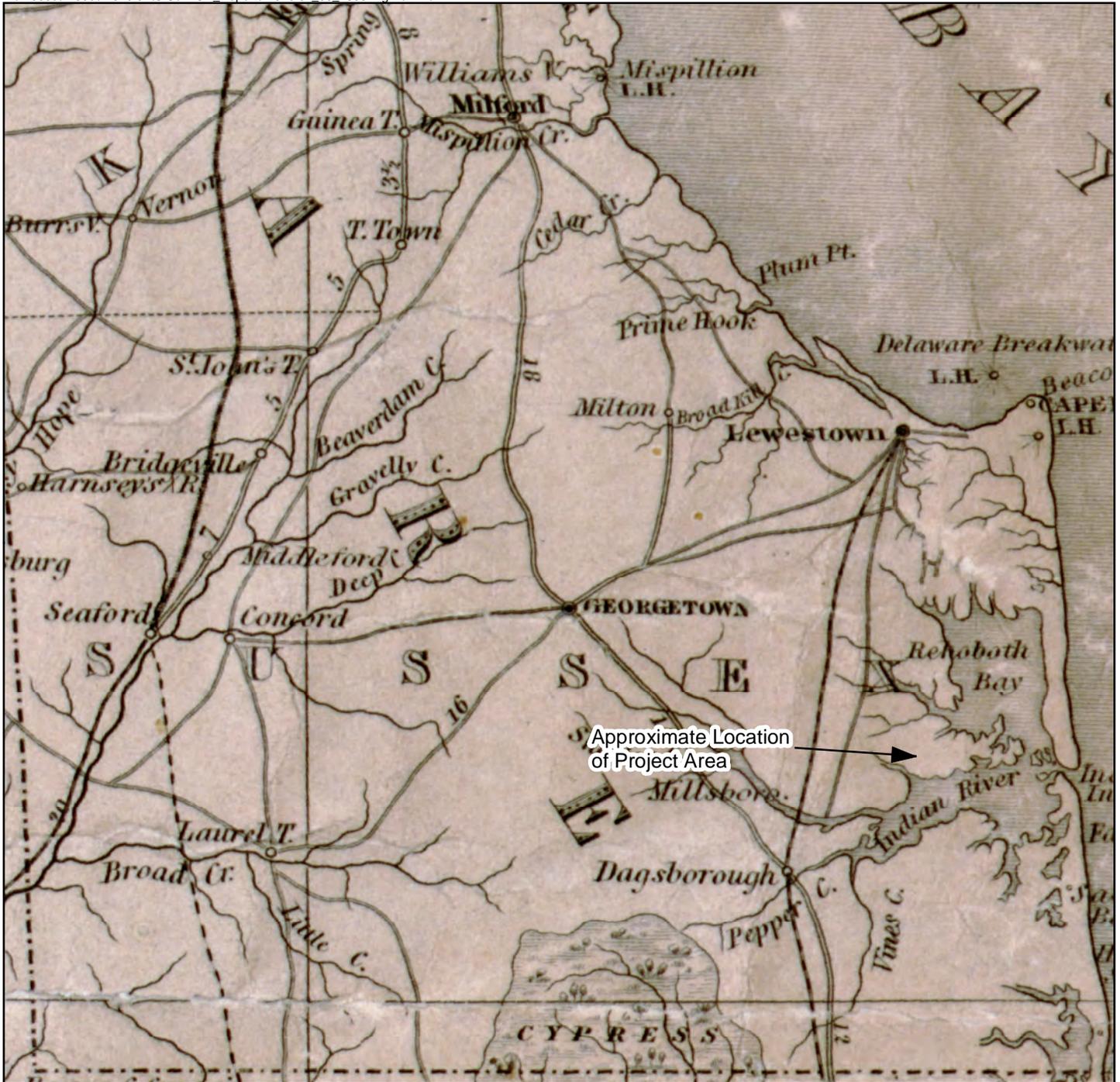
## Industrialization and Early Urbanization (1830-1880±)

Following the opening of the Philadelphia, Wilmington, and Baltimore railroad in 1839, additional towns, including Newark and Greenville, formed around railroad stations (Ames 1989). In the 1850s, a branch of the railroad was extended to Dover, and into Sussex County by 1878. With the completion of the branch railroad line to Rehoboth Beach in 1869 and a later addition connecting Lewes in 1878, Lewes became a bustling industrial trading point in Sussex County. Businesses included a drugstore, the “Viriden House” hotel, a fish processing plant, a fruit-drying facility, a steam-powered mill, and several merchants’ stores (Eckman 1955). The extension of the railroad also provided farmers in the Upper and Lower Peninsula with a more efficient means to transport produce to markets throughout the Mid-Atlantic and Northeastern United States, sparking the growth of agriculture and industry in the region and establishing the Delaware coast as an easily accessible tourist destination.

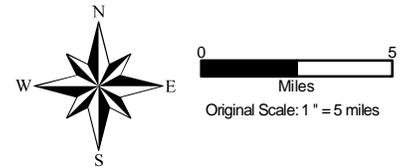
Census data shows that by 1861, about 112,200 people lived in Delaware. Nearly half of the State’s population was located in New Castle County. Population growth in the Piedmont was most intense in towns that formed around the region’s most prominent mills. Although it accounted for more than fifty percent of the land area in the state, Sussex County was home to only twenty-five percent of the State’s population. Most enslaved African-Americans were held by small farmers in Sussex County and tended crops or worked as domestic servants. During the Civil War, Sussex County sent men to fight with Union and Confederate forces. In their absence, women and children assumed the responsibility of maintaining family farms, without the assistance of emancipated slaves (Mellin 2008). The emancipation of slaves following the Civil War freed all slaves from forced labor, but made no provisions to better their social or economic standing (De Cunzo and Catts 1990). Once freed, many former slaves were employed as farm hands or day laborers throughout the state.

During the mid-nineteenth century overland transportation networks continued to expand and improve. By 1859, two railroad lines had been established in the County. The eastern route extended from Lewistown to Cape Charles, at the southern extent of the Eastern Shore of Virginia; the western line ran from present-day Bear in New Castle County, Delaware, along the Nanticoke River to Seaford, where the line split with one branch continuing to Vienna, Maryland and the other to Salisbury (Exhibit 6). New settlements, including Milton, located along the Broad Kill River, northwest of Lewistown, and Millsboro were established during this period. Millsboro, located near the headwaters of Indian River, approximately five miles southwest of the project area, got its name from the numerous grist mills and saw mills established on the headwaters of Indian River in the early-19<sup>th</sup> century.

Wheat and dairy farming remained the focus of agricultural activities in the Piedmont and Upper Peninsula, while corn and beef cattle were the primary source of income for farmers in the Lower Peninsula (De Cunzo and Catts 1990). With only limited access to



Historic Map Source:  
A map of the state of Virginia : reduced from  
the nine sheet map of the state in conformity  
to law. Böye, Herman, 1859. Library of Congress.  
g3880 ct001508 99464501http://lccn.loc.gov/99464501



### Exhibit 6 1859 Map of Virginia

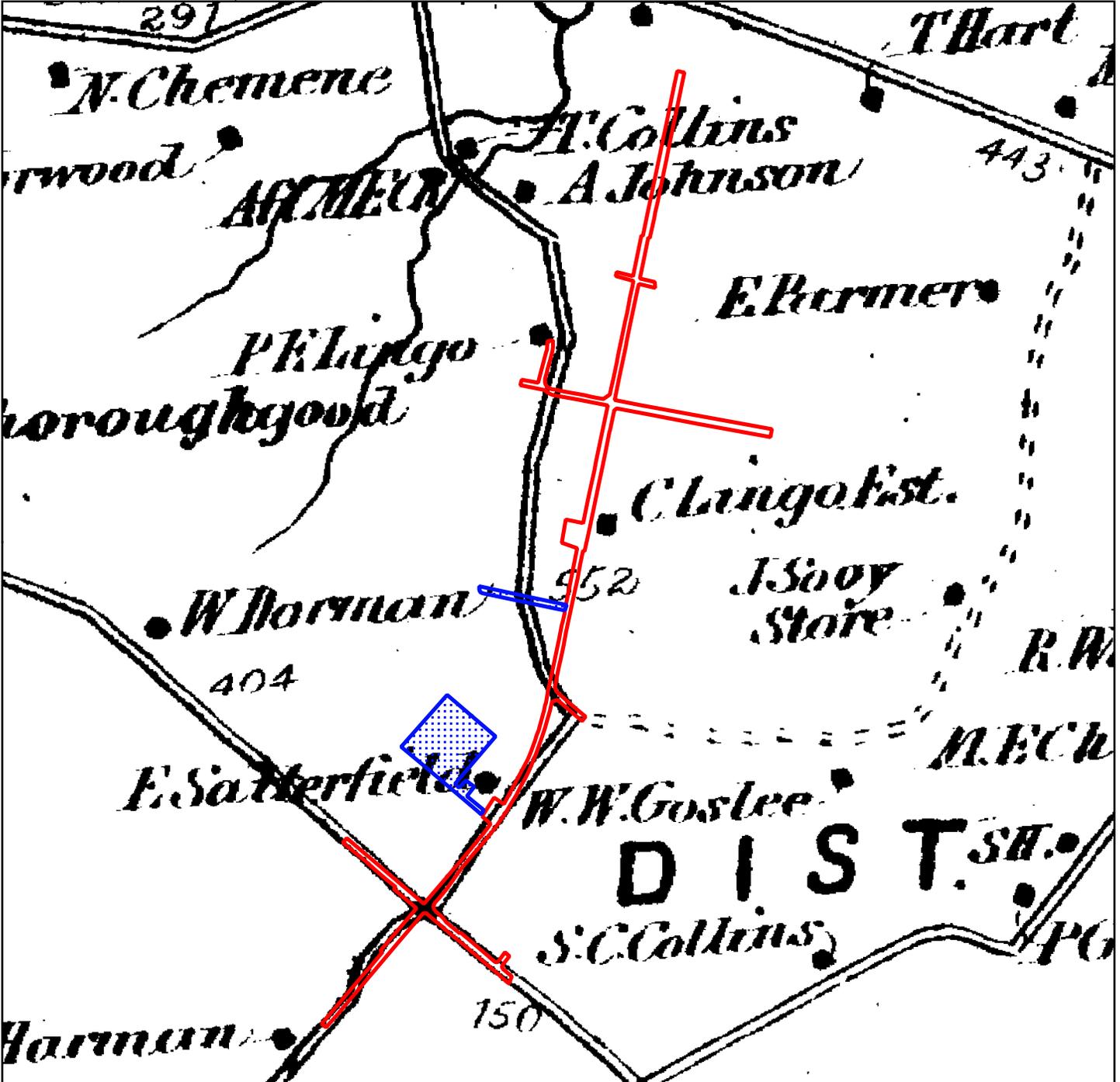
markets throughout the historic period, rural farmers in the Lower Peninsula were generally more self-reliant than their counterparts in the northern portion of the State and typically supplemented their household income with home manufactures, including textile production, tanning, carpentry, and hunting. Grist and sawmills were the dominant industrial activities in Sussex County, constituting two-thirds of the manufacturers reported in 1860. Other industries included blacksmithing, shipbuilding, fisheries, and wagon and carriage shops (Mellin 2008).

Pomeroy and Beers Atlas of Indian River Hundred is the earliest map to show a dwelling in the immediate vicinity of the project area (Exhibit 7). According to property history research, discussed in detail later in the report, “E. Satterfield” (Elijah Satterfield) purchased the property containing the southern testing area from Kendall Stockley in 1864 and may have been living in a house constructed by an earlier owner of the property. Other dwellings in the project vicinity include “P E Lingo” and the estate of C. Lingo. Although the predecessors to Long Neck Road, Mount Joy Road, and Legion Road can be discerned, the present route of SR 24 had not been established.

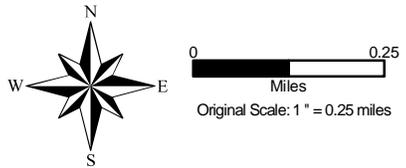
Most of Delaware remained an agrarian society during this period, but a decline in foreign demand for Philadelphia’s agricultural trans-shipments and the economic rise of the city of Baltimore led to a waning of Philadelphia’s influence on the regional economy during the mid-19<sup>th</sup> century. As markets in Baltimore grew, traffic along the recently constructed Chesapeake and Delaware Canal continued to increase. Fertilization methods and improved drainage techniques introduced during the previous period became more widely adopted throughout the State, and coupled with recently introduced mechanical farm implements, made the Piedmont and Upper Peninsula one of the most productive agricultural regions in the United States (De Cunzo and Catts 1990). Fertilizers including manure, shell lime, guano, fish, and horseshoe crabs were spread across agricultural fields and successfully restored vital nutrients depleted from the soil through years of exhaustive farming practices. As a result, industries dedicated to the production of various fertilizers appeared throughout the coastal region during this period. Household waste, including food waste, ceramic and glass vessel fragments, and tiny bits of brick and coal, was commonly mixed with manure and spread across agricultural fields during fertilization.

Beginning with the construction of railroads, a peach industry flourished in Delaware, and prior to the Civil War, peach production was a highly profitable enterprise within the State. Peaches grown in Delaware were shipped by rail and steamships throughout the eastern United States. However, the industry was short-lived and a blight known as the “Yellows” virtually wiped out the industry in the 1870s (De Cunzo and Catts 1990).

The canning industry was introduced in Delaware in the 1860s. Peaches, tomatoes, and other perishable produce grown on Delaware farms could now be transported by trains and ships to the farthest reaches of existing trade networks any time of the year. The



Approximate Project Area  
 Additional Testing Areas



Original Scale: 1" = 0.25 miles

Historic Map Source: Indian River Hundred - Pomeroy & Beers. Delaware State Atlas, 1868.

**Exhibit 7**  
**1868 Pomeroy and Beers Atlas - Indian River Hundred**

innovation increased the volume of produce that could be sold from farms and revolutionized the commercial food industry (Rose 2008).

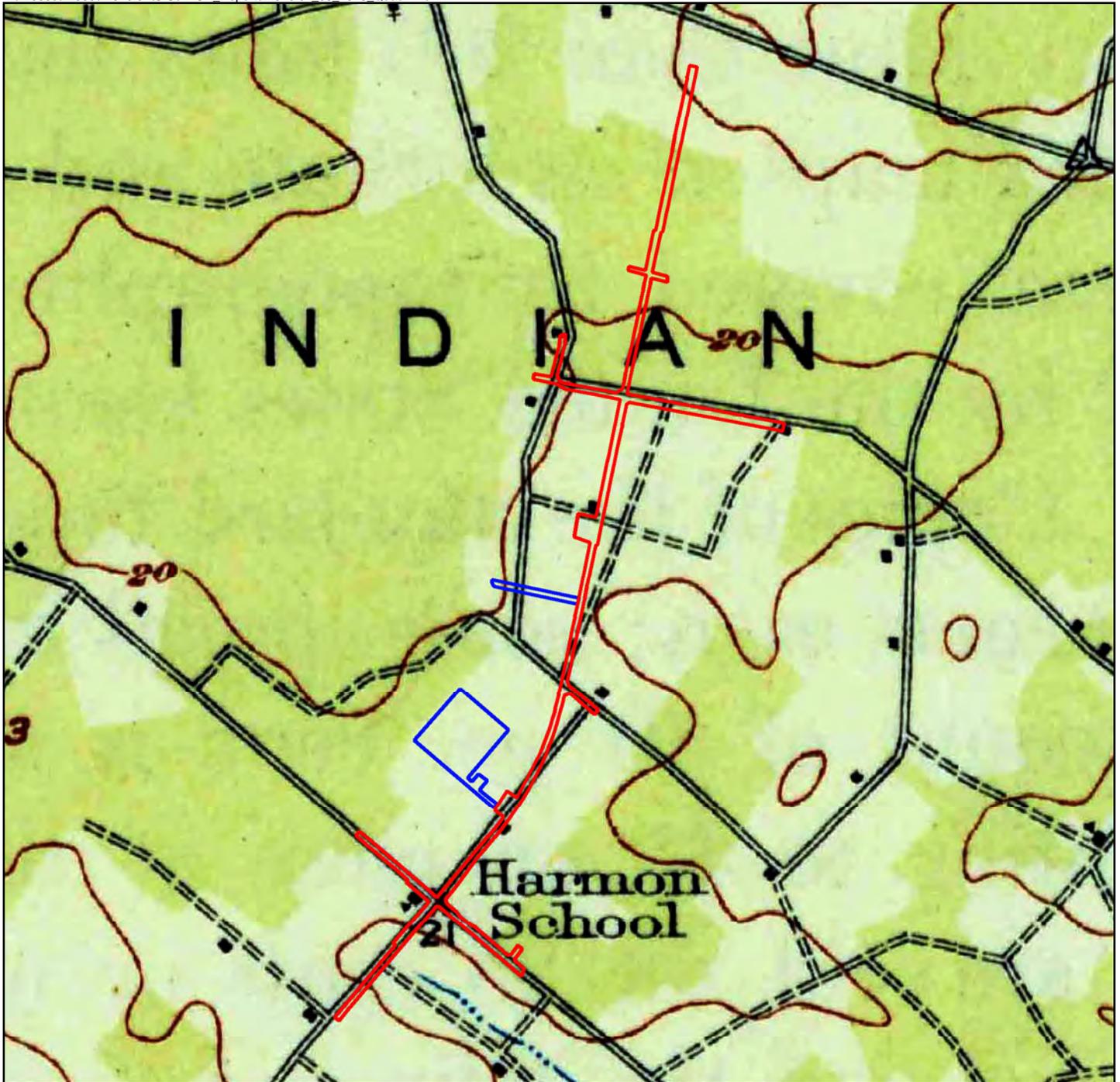
### Urbanization and Early Suburbanization (1880-1940±)

By 1900, the population of Delaware included 184,735 inhabitants and approximately forty-one percent of the State's population was located in the city of Wilmington. Kent and Sussex counties contained eighteen percent and twenty-three percent of the State's population, respectively. For the first time in the State's history, agriculture was surpassed by industry as the State's major occupation (De Cunzo and Catts 1990). Industrial enterprises were concentrated in the city of Wilmington and many of the mills previously constructed along streams throughout the Piedmont region were relocated within the city. Mill towns that had developed around the mills were quickly abandoned (Ames 1989). By 1907, Wilmington was the most industrially diverse city in the United States and was ranked seventh in the nation in manufacturing based on per capita population (Hoffecker 1974).

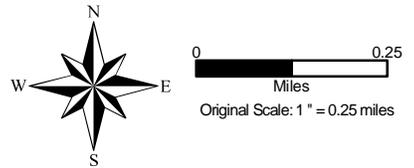
The introduction of the automobile and improved transportation routes within Delaware and the surrounding region dramatically changed the cultural landscape of the State. In the Piedmont and Upper Peninsula, expanded roads and public transportation networks fostered suburbanization and allowed a growing professional middle class to live in newly constructed residential neighborhoods outside of major cities and easily commute to jobs, primarily located in urban areas. Initially suburban developments were concentrated around major cities; however, widespread suburbanization was common in the post- World War II era (Ames 1989).

Notable transportation projects included the opening of the Maryland, Delaware, and Virginia Railroad in 1910, extending from the Delaware seashore to the Chesapeake Bay; and the construction of the Du Pont Highway [Route 113] in 1924. The new highway, constructed by Coleman Du Pont, was made entirely of concrete and extended from the northern to the southern end of the state (De Cunzo and Catts 1990). The new railroad line and highway provided easy access to Delaware beaches for the residents of northern Delaware, Washington, D.C. and Baltimore, stimulating the growing tourism industry. Large seaside hotels were constructed in Lewes and Rehoboth Beach to cater to the influx of tourists. Lewes became known a saltwater fishing destination, and industries related to commercial fishing and processing flourished (Rose 2008).

In the project vicinity, the local population increased as transportation networks continued to expand. The E. Satterfield house is no longer visible on the 1918 U.S.G.S. Rehoboth, DE 15-minute quadrangle; however, a new dwelling had been constructed in the northern testing area (Exhibit 8). In 1928, the present alignment of SR 24 was established and the structure in the northern testing area was likely demolished during the construction of the new roadway, as no structures are visible in this portion of the project area on the 1937 aerial photograph of the project vicinity (Exhibit 9). The former

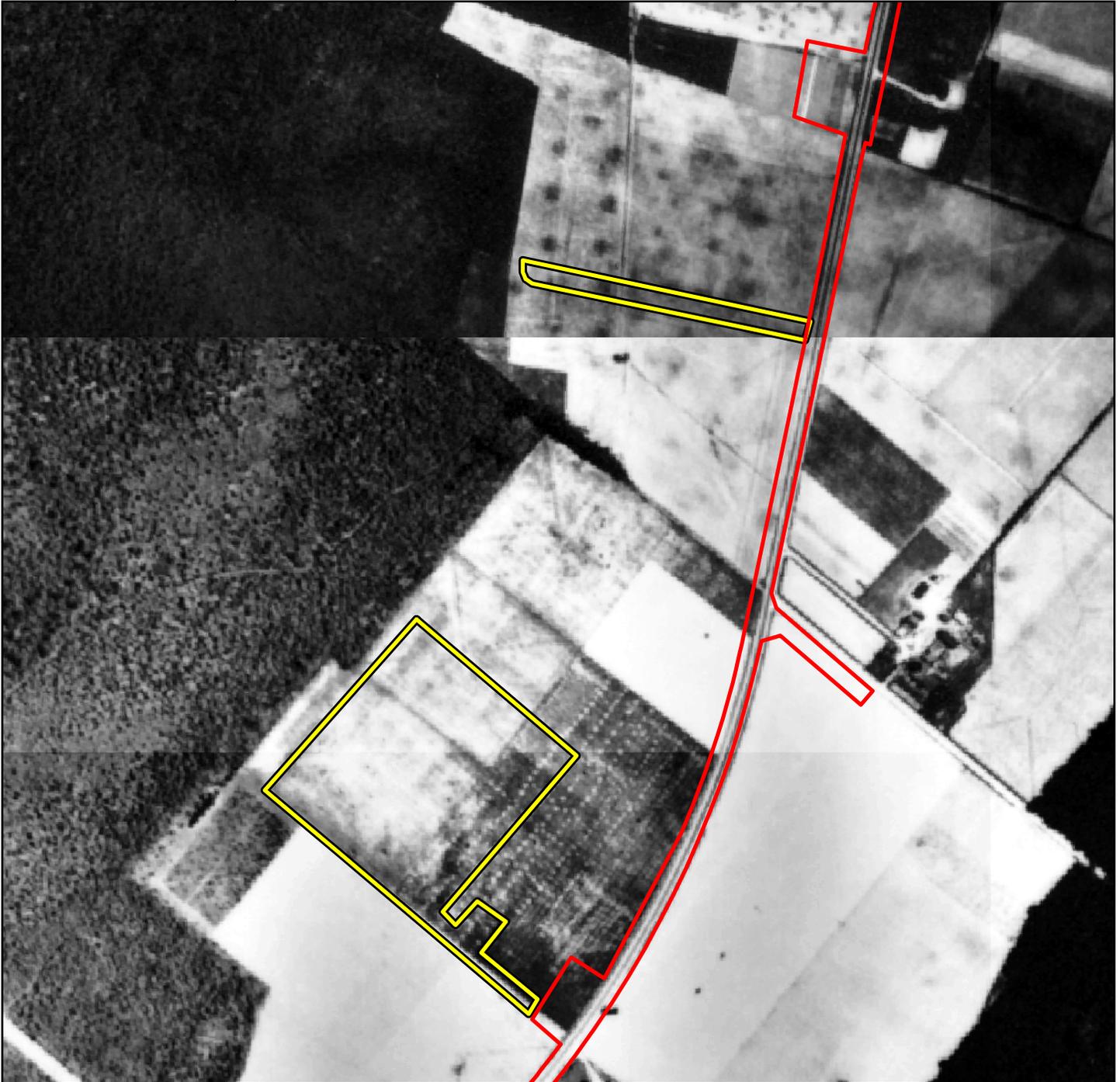


-  Approximate Project Area
-  Additional Testing Areas

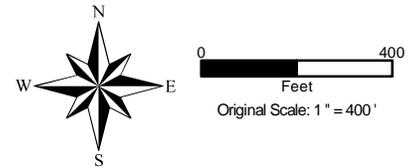


**Exhibit 8**  
**USGS 15' Quadrangle Map**  
**Rehoboth, DE 1918**

SR 24 Mount Joy Road and Bay Farm Road Improvements - Phase I Investigation



-  Approximate Project Area
-  Additional Testing Areas



Imagery Source: USDA Agricultural Adjustment Administration

## Exhibit 9 1937 Black and White Imagery

alignment of the preceding road can still be seen in the agricultural field and wooded area west of the northern testing area. The former road appears as an unimproved road on the 1938 and 1944 U.S.G.S. Rehoboth, DE 15-minute quadrangles, but is no longer in use by the mid-1950s (Exhibits 10-12).

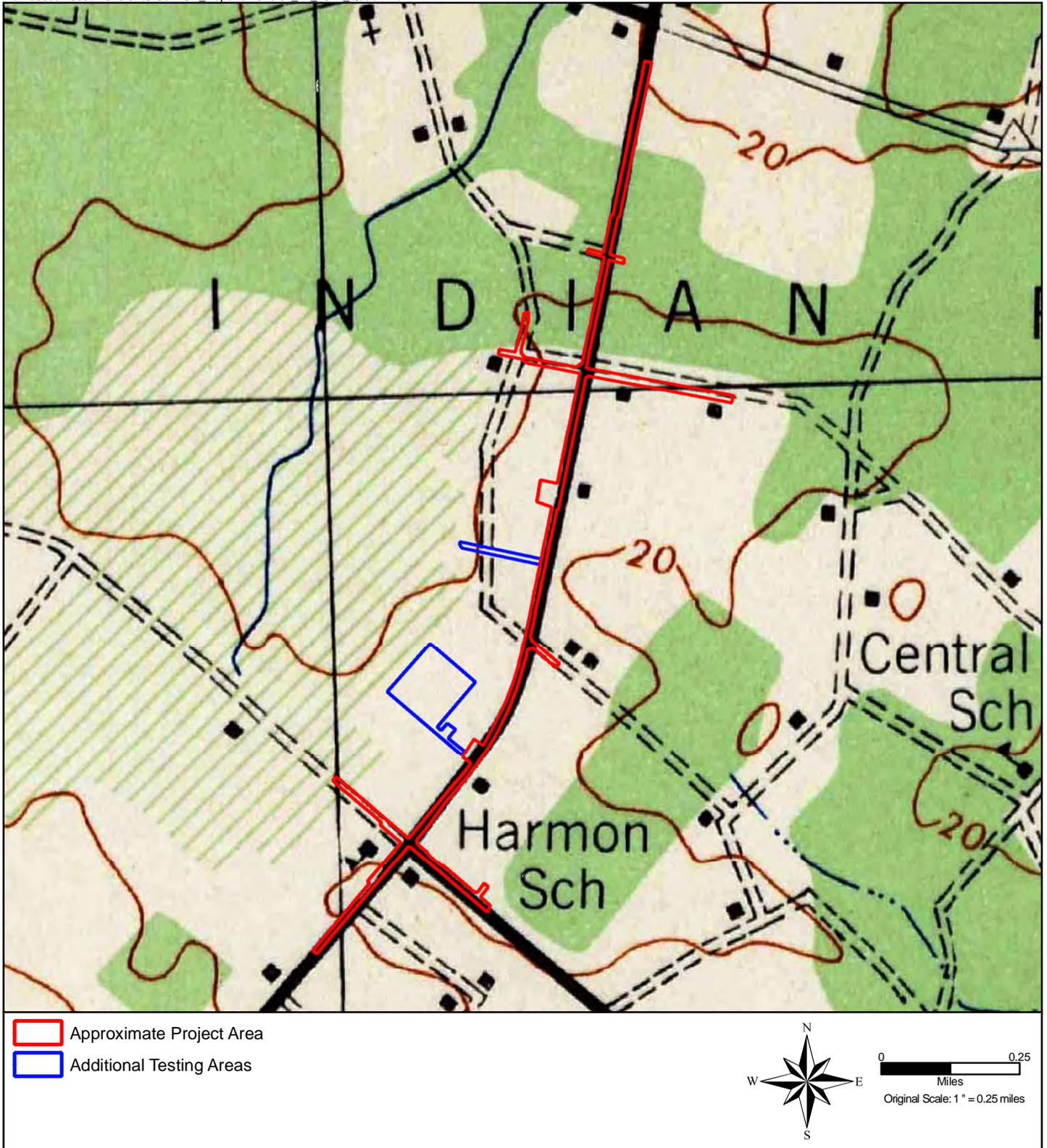
Improved transportation networks also affected agricultural production. Farmers began to focus on producing perishable items, such as strawberries, tomatoes, apples, potatoes, and corn, for urban markets throughout the northeastern United States. Dairying and poultry farming expanded rapidly throughout Kent and Sussex Counties in the second quarter of the twentieth century, and by 1930 nearly one third of the farms in Sussex County were dedicated to poultry production. Dressing plants appeared in the region in 1938, after which time broilers (processed chickens under 3 pounds) replaced live chickens in regional markets. By 1940, Delaware farms produced nearly twenty-five percent of the broilers in the entire country (De Cunzo and Catts 1990).

Throughout the first half of the 20<sup>th</sup> century, the project area and the surrounding environs were either under cultivation or left as wood lots. However, as the Delaware coast became an increasingly popular tourist destination, local populations increased and numerous dwellings, businesses, and eventually commercial and residential developments, were constructed in the former agricultural fields fronting on SR 24. The transformation from an agricultural to suburban community is clearly illustrated in the 1961, 1997, and 2012 aerial photographs of the project vicinity (Exhibits 13- 15).



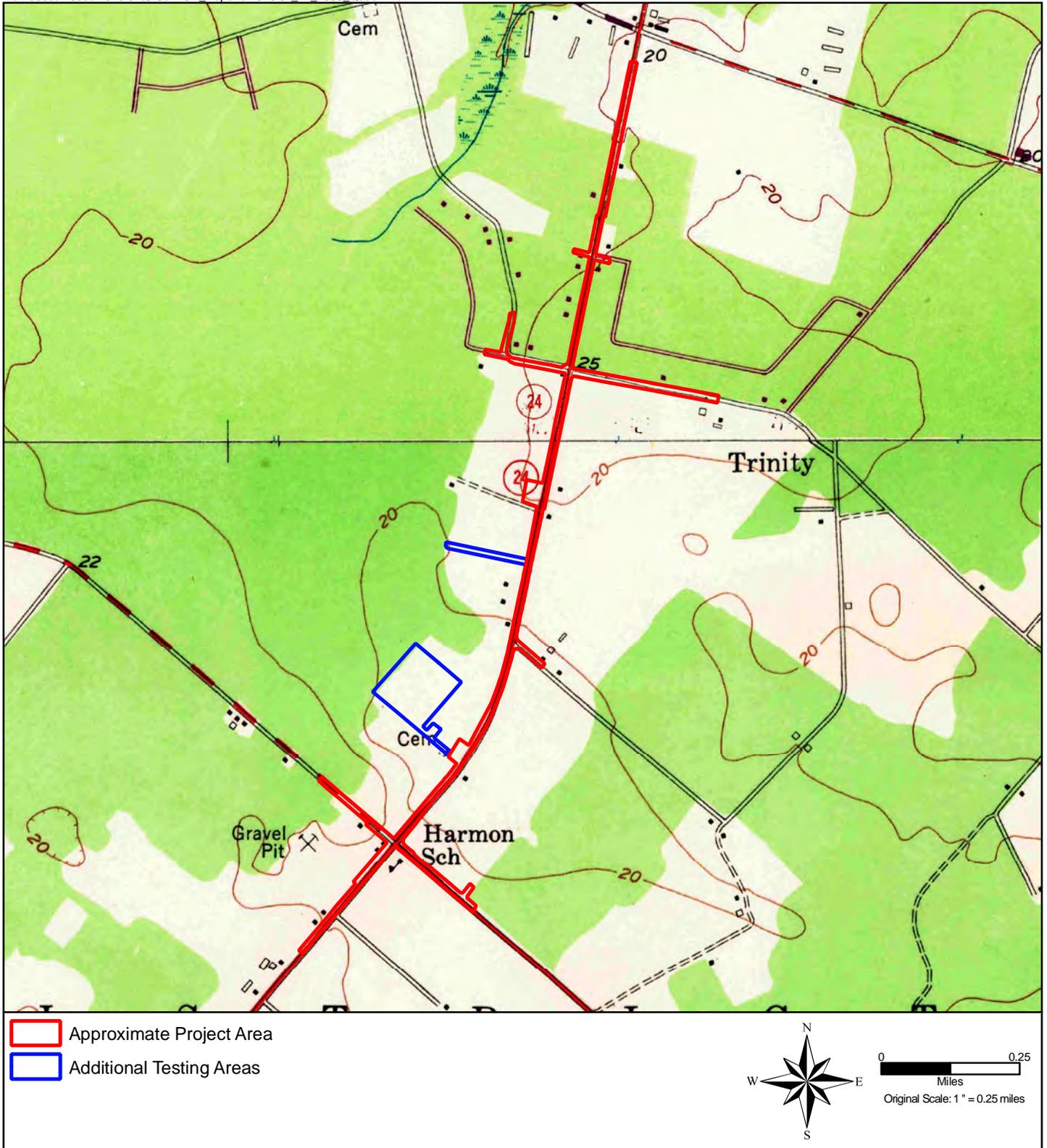
**Exhibit 10**  
**USGS 15' Quadrangle Map**  
**Rehoboth, DE 1938**

SR 24 Mount Joy Road and Bay Farm Road Improvements - Phase I Investigation



**Exhibit 11**  
**USGS 15' Quadrangle Map**  
**Rehoboth, DE 1944**

SR 24 Mount Joy Road and Bay Farm Road Improvements - Phase I Investigation

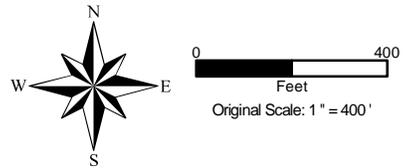


**Exhibit 12**  
**USGS 7.5' Quadrangle Map**  
**Fairmont, DE 1954 & Frankford, DE 1955**

SR 24 Mount Joy Road and Bay Farm Road Improvements - Phase I Investigation

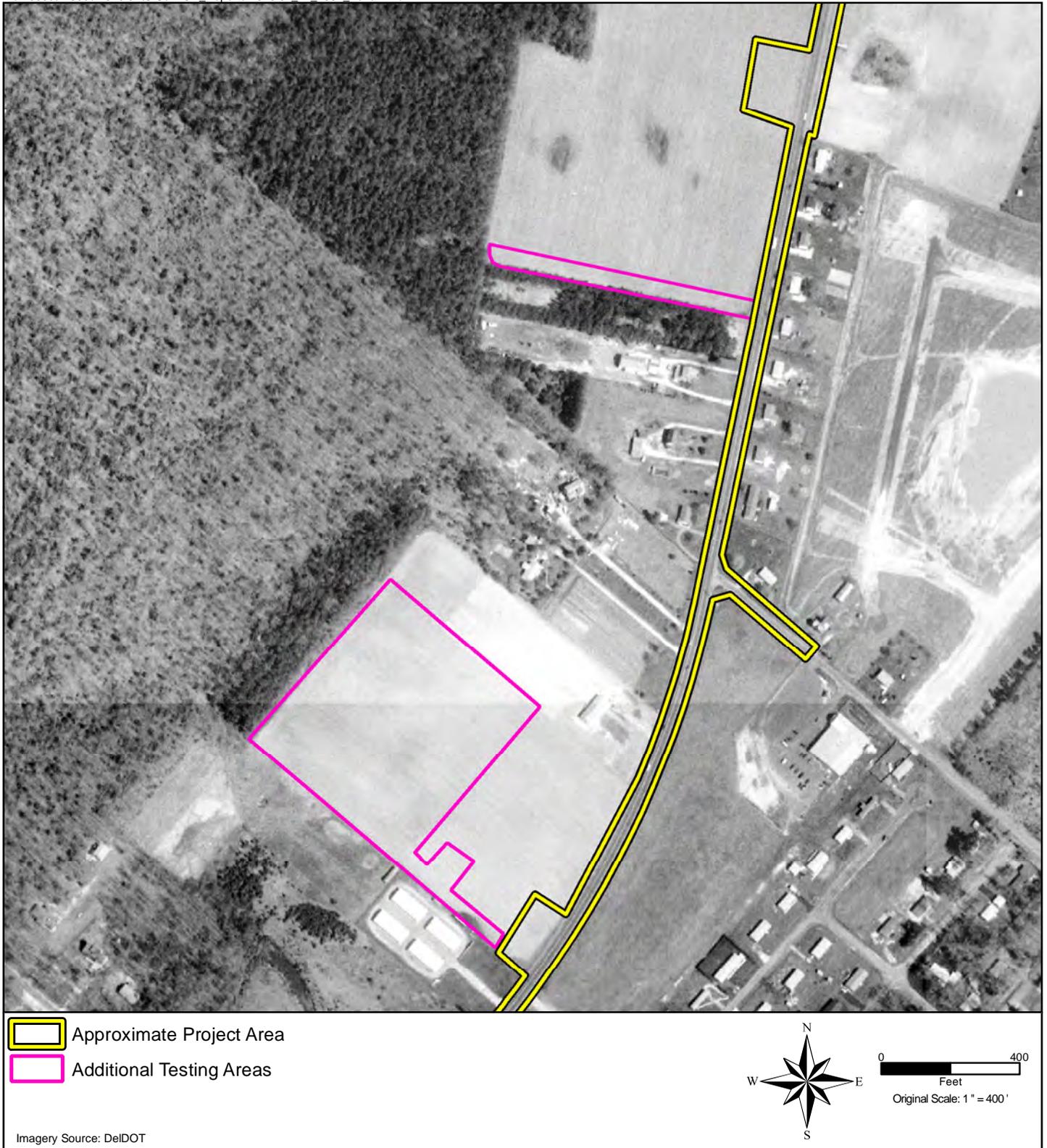


-  Approximate Project Area
-  Additional Testing Areas



Imagery Source: USDA Agricultural Stabilization and Conservation Service (FSA)

### Exhibit 13 1961 Black and White Imagery



### Exhibit 14 1997 Black and White Imagery

SR 24 Mount Joy Road and Bay Farm Road Improvements - Phase I Investigation



-  Approximate Project Area
-  Additional Testing Areas

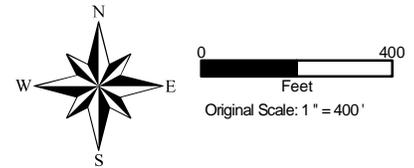


Photo Source: National Agriculture Imagery Program (NAIP)

## Exhibit 15 Summer 2013 Natural Color Imagery

## Property Ownership History

The following property ownership history is based on archival research conducted at the Delaware Public Archives and the Sussex County Courthouse and is intended to place the Phase I archeological field data into context through a better understanding of the owners and occupants of the parcels slated for proposed construction. While proposed construction includes improvements to a 2.25 mile section of the existing right-of-way of State Route (SR) 24, archeological investigations were limited to the proposed locations of two new stormwater retention ponds, located on the west side of SR 24 (see Exhibits 2 and 3). In the following discussion, the results of the property history investigation are presented under the headings Southern Parcel and Northern Parcel; which include the locations of the southern and northern stormwater ponds, respectively.

Both parcels are located in Indian River Hundred, in the southeastern Sussex County, Delaware. The two parcels have distinct chains of title, having remained separate properties since the 17<sup>th</sup> century. The chains of title for both parcels have been included as Appendix I of this report.

### *Southern Parcel (Tax Parcel 234-29.00-263.01)*

The southern parcel falls within a 1684 warrant for 750 acres to Thomas Welbourne, a merchant from Accomac County, Virginia (Turner 1909, Sussex County, Delaware Deed Book 8:12). On December 8, 1686 Welbourne sold the entire parcel to John Barker, who on the same day, transferred ownership to William Burton. The property remained in the Burton family until 1734. According to the genealogical research, on December 3 William Burton II sold 775 acres of land known as “Cheat” to William Prettyman; and in 1735/36 Prettyman had the property resurveyed; which was determined to include 750 acres. Following the resurvey, Prettyman renamed the property “Honesty”. On March 30, 1742, William Prettyman sold 260 acres of the parcel to Thomas Waples and an additional 100 acres to Burton Waples (Descendants of William Sr. Pratyman n.d.). On May 5, 1747 Prettyman sold an additional 100 acres to Thomas Waples. In contrast, Sussex County, Delaware Deed Book 8:12, \*:132 indicates 650 acres were transferred to Thomas Waples in 1742; followed by the remaining 100 acres of the parcel in 1747.

On May 3, 1763 Thomas Waples [Waples] conveyed a 198-acre tract of land, including the southern parcel study area, to Lewis West (Sussex County, Delaware Deed Book 9:453). The heirs of Lewis West conveyed the parcel to Benjamin Prettyman in 1803 (Sussex County, Delaware Deed Book 23:319). Benjamin Prettyman died around 1824 and the property was left to his wife Elizabeth [Brereton] Prettyman, who likely died later the same year (Sussex County, Delaware Deed Book 62:246). In 1855, Benjamin S. and Sarah A. Prettyman sold the 198-acre parcel to Kendall B. Stockley, “...*provided the burying ground immediately back of the dwelling house as now enclosed shall be forever preserved and kept sacred for a family burying ground.*” (Sussex County, Delaware Deed Book 62:246). This marks the first mention of a cemetery on the property in deed

records; however, the only currently marked grave within the cemetery is that of Lewis and Hester West, died 1775, indicating the cemetery was either established or in use during the 4<sup>th</sup> quarter of the 18<sup>th</sup> century.

Kendall Stockley and his wife Lettie conveyed the parcel to Elijah Satterfield on July 19, 1864 (Sussex County, Delaware Deed Book 72:42). "Satterfield" is listed as a resident of the property on Pomeroy and Beers Delaware State Atlas of 1868 (see Exhibit 7), and based on the description of the property in the deed between Prettyman and Stockley in 1855, it seems likely that he was living in a dwelling possibly constructed by Lewis West or the Prettyman family; or in a dwelling constructed in a similar location to the one described in the earlier deed.

On November 13, 1880 Elijah and Sarah Satterfield sold the 198-acre parcel to John Lingo (Sussex County, Delaware Deed Book 168:575). John Lingo died on January 29, 1900 (Delaware Death Records, 1811-1933) and his real estate was divided amongst his heirs (Sussex County, Delaware Will Book, 18:91). John's son, Rufus Lingo, inherited a 156-acre portion of the parcel, including the current investigation area. Following Rufus's death on May 11, 1923, ownership of the property was transferred to his oldest son Raymond Lingo. Raymond retained ownership of the property until his death in 1971. Raymond's widow Ruth D. Lingo and heirs sold 55.78 acres, including the project area to J. Everett Sr., Ronald W., and Merrill C. Moore of Moore Farms on February 22, 1982 (Sussex County, Delaware Deed Book 1105:121). In 1989, Ronald W. Moore (trading as Moore Farms) transferred the property to himself and Patsy Moore; and in 2003 the property was sold to Moore's Cloverleaf Farms (Sussex County, Delaware Deed Books 1639:203 and 2923:322).

#### *Northern Parcel (Tax Parcel 234-29.00-49.04)*

The northern parcel occupies lands that were warranted to Alexander Reed [Partridge Tract] in 1747 and to William Dyer ("Dyer's Choice") in 1717. By the last quarter of the 18<sup>th</sup> century, both tracts (and others) were in the possession of Samuel Lingo, a prominent landholder in the region, who acquired numerous tracts in Sussex County between the 1760s and 1790s.

The Partridge Tract was granted to Alexander Reid by Anthony Palmer, Commissioner of the Property, on November 25, 1747. The tract included 250 acres and adjoined "*the Tracts formerly of James Davidson William Dyer and others on both Sides of the Saw Mill Road in Indian River Hundred.*" (Sussex County, Delaware Warrants Record Number R: 1). In 1763, a 175-acre portion of the tract was sold by order of the Orphans Court of Sussex County, Delaware to William Stuart, the highest bidder at public auction to settle the estate of Alexander Reed (Wright, 2008). On February 2, 1774 William Stuart sold the parcel to Samuel Lingo. In 1792, Samuel Lingo acquired an additional 20-acre parcel from the widow of Allen Reid; however, it is not known if the parcel was also once part of the Partridge Tract (Sussex County, Delaware Deed Book 14:652).

On January 13, 1717 William Dyer was granted a 200-acre tract, later known as “Dyers Choice”, in Sussex County, Delaware by Richard Hill, Issac Norris, and James Logan, Commissioners of Property for a “*yearly quitrent [paid to the Proprietary] of one penny Sterling for every acre thereof...*” (Sussex County, Delaware Warrants Record Number D:2). All or a portion of the grant appears to have been sold by Dyer to Alexander or Allen Reed; however no record of the transfer was located during this investigation.

On February 3, 1783 Allen Reed sold 170 acres to James Murray Sr. “*being part of the aforesaid Tract of Dyers Choice lying on the Eastside thereof with the plantation and all other the Improvements thereunto belonging*”. Prior to the transfer, Allen Reed had agreed to sell the tract to John Burton to settle a debt; however, John Burton died intestate prior to the confirmation of the sale and the property was ordered to be sold by the Orphans Court of Sussex County, Delaware and the proceeds distributed among Burton’s heirs (Sussex County, Delaware Deed Book 12:535). Two days after the sale of the property to James Murray Sr., Murray sold the entire parcel to James Murray Jr. “*being part of a larger Tract Situate lying and being in Indian River hundred in the County of Sufsex aforesaid Called and known by the name of Dyers Choice*” (Sussex County, Delaware Deed Book 12:536). On August 6 of the same year James Murray Jr. sold 18 acres to Samuel Lingo “*being part of a larger Tract of Land Surveyed and laid out for one William Dyer*” (Sussex County, Delaware Deed Book 12:539).

Samuel Lingo died intestate in 1806 or 1807; in 1808 his son Henry Sr. took possession of an unspecified acreage left to his brother William, believed to include the current investigation area, in exchange for land left to Henry’s wife Nancy Jones, by her father Whittington (Sussex County, Delaware Deed Book 28:406). On March 1, 1831 Henry Sr. bequeathed “*one third part [each] of all my lands south of Williams and Tormey’s mill pond*” including 541.5 acres to his sons Jesse, Henry Jr., and Elisha; and on May 14, 1831 Henry Jr. and Elisha sold 240.5 acres of their shares to their brother Jesse (Sussex County, Delaware Will Book 8:102 and Deed Book 51:251). Jesse, listed as a farmer in Indian River Hundred in the 1850 U.S. Census, died in November 1851 and in accordance with his Will, all of his personal estate was divided amongst his children. In December of 1853, Benjamin Lingo, acting as executor, petitioned for the sale of his father’s estate and the proceeds divided between the surviving heirs (Sussex County, Delaware Will on record with the Public Archives in Dover, Delaware).

On August 19, 1919 John P. Warrington purchased two parcels from Kendall J. and Annie P. Warrington totaling 60 acres; which included the project area (Sussex County, Delaware Deed Book 216:270). Kendall and Annie Warrington purchased several of the parcels previously owned by Jesse Lingo in the late-19<sup>th</sup> and early-20<sup>th</sup> centuries. However, we were unable to locate a record of sale between the heirs of Jesse Lingo and the Warringtons. Either the Warringtons or one of Jesse Lingo’s children appear to have been living on the property at the time of the sale, as a structure appears on the property between 1868 and 1918 (see Exhibits 7 and 8). The 1937 historic aerial photograph of

the project vicinity indicates the structure was probably demolished during the construction of the current alignment of SR 24 in 1928, as it is no longer visible on the 1937 aerial (see Exhibit 9).

On July 17, 1946 John P. Warrington conveyed both parcels to Charles McKinney and his wife, “*being the same lands conveyed to John P. Warrington by Kendall J. Warrington and Annie P. Warrington, his wife*” (Sussex County, Delaware Deed Book EMC 363:250). In October 1948 Matilda and Charles E. McKinney sold Agnes and Robert Stevenson two, twenty acre tracts “*being the residue of tract no. 1 as mentioned in a Deed of John P. Warrington to Charles E. McKinney and wife...being tract no. 2 as conveyed to the said Charles E. McKinney and wife, by John P. Warrington*” (Sussex County, Delaware Deed Book 380:496). In 1954, Agnes and Robert Stevenson sold both parcels to Charles M. and Cecelia E. Coursey (Sussex County, Delaware Deed Book 429:110). In his Last Will and Testament, Charles M. bequeathed both parcels to his son Charles W. Coursey; and in 2005 Charles W. sold 4 acres of the property to DelDOT (Sussex County, Delaware Will Book 157:525, Sussex County, Delaware Deed Book 3106:059).

## PREVIOUS ARCHEOLOGICAL RESEARCH

The following inventory of previously recorded cultural resources within and near the project area was compiled from records housed at the Delaware Division of Historical and Cultural Affairs in Dover, Delaware.

No archeological sites or architectural resources have been recorded within the current project area. Twenty architectural resources and one former grave location have been identified within a one-mile radius of the project area (Table 2).

**Table 2: Previously Recorded Architectural Resources within One Mile of the Project Area**

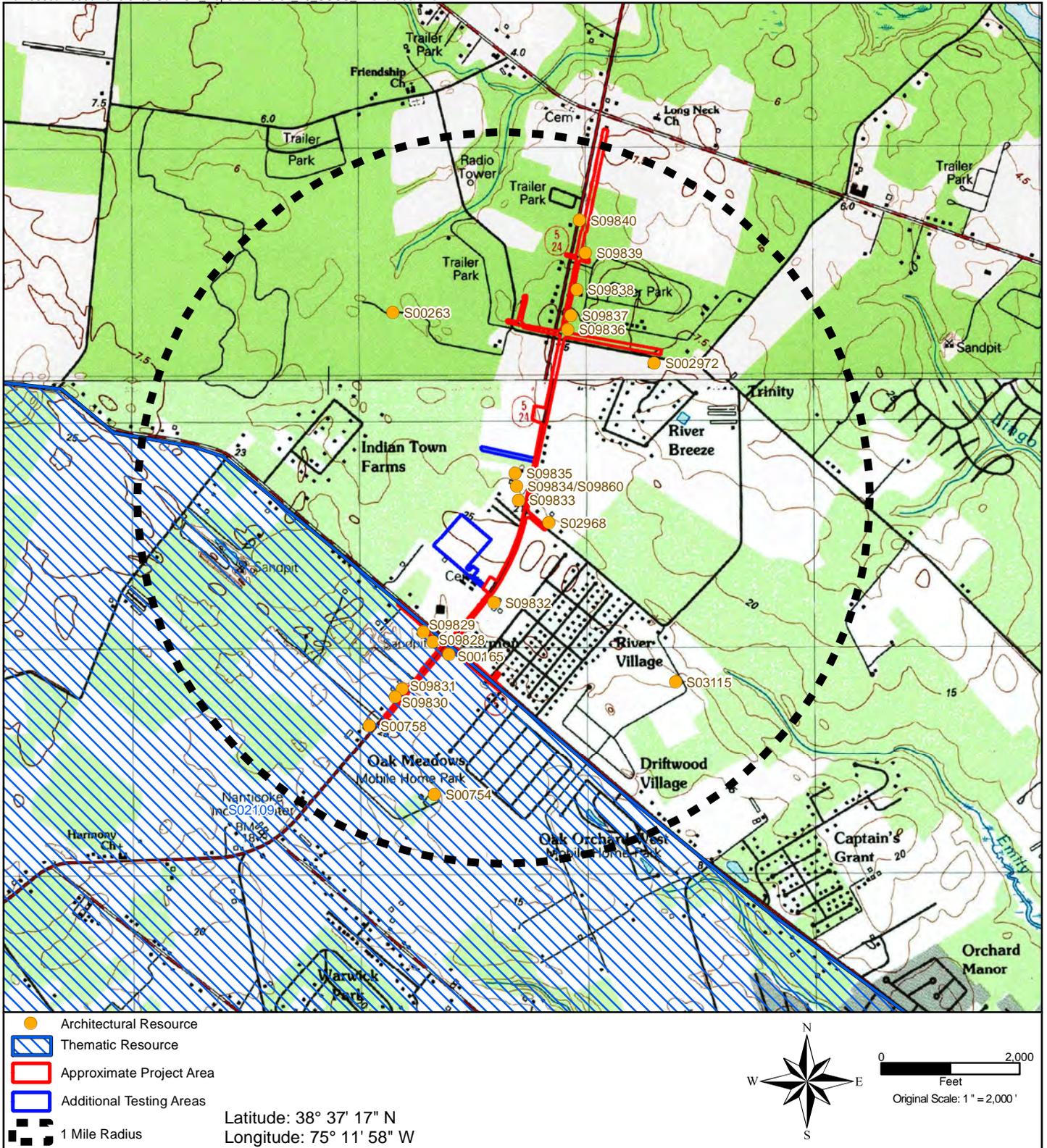
Resource Number	Resource Name	Resource Type	Temporal Affiliation	National Register Eligibility
S00165	Harmon School/Moor School	School	ca. 1920	Listed April 26, 1979
S00263	Grave of Lydia Clark (relocated)	Cemetery	Unknown	Unknown
S00754	Robert Davis Farmhouse	Dwelling/ Outbuildings	1900	Listed April 26, 1979
S00758	Warren T. Wright Farmhouse	Dwelling	ca. 1900	Listed April 26, 1979
S02109	Nanticoke Indian Community	Thematic	19 <sup>th</sup> /20 <sup>th</sup> Century	Nominated April 19, 1978
S02968	House, Legion Road	Dwelling	20 <sup>th</sup> Century	Unknown

**Table 2: Previously Recorded Architectural Resources within One Mile of the Project Area (Continued)**

Resource Number	Resource Name	Resource Type	Temporal Affiliation	National Register Eligibility
S02972	Warrington House	Dwelling/ Outbuildings	Unknown	Unknown
S03115	J. Alvin Collins House	Dwelling/ Outbuilding	Unknown	Unknown
S09828	House, Route 24 and Mount Joy Road	Dwelling	ca. 1955	Not Evaluated
S09829	House, Rt. 24 Box 111 Millsboro, DE 19966	Dwelling	ca. 1950	Not Evaluated
S09830	House, Rd. 4, Box 1105 Millsboro, DE 19966	Dwelling/ Outbuilding	ca. 1880, relocated ca. 1940	Not Evaluated
S09831	House, Rt. 24 Box 167 Millsboro, DE 19966	Dwelling/ Outbuildings	ca. 1950	Not Evaluated
S09832	House, Rt. 24, South of American Legion Road	Dwelling/ Outbuilding	ca. 1950	Not Evaluated
S09833	House, R.R. 6 Box 424-A Millsboro, DE 19966	Dwelling/ Outbuilding	ca. 1950	Not Evaluated
S09834	House, R.R. 11 Box 424 Millsboro, DE 19966	Dwelling/ Outbuilding	Late 19 <sup>th</sup> Century	Not Eligible
S09835	House, R.R. 11 Box 423 Millsboro, DE 19966	Dwelling/ Outbuilding	ca. 1950	Not Evaluated
S09836	House, R.R. 11 Box 285 Millsboro, DE 19966	Dwelling/ Outbuilding	1954	Not Evaluated
S09837	House, R.R. 11 Box 284-1 Millsboro, DE 19966	Dwelling/ Outbuilding	ca. 1955	Not Evaluated
S09838	House, Rt. 24 E, South of Sherwood Forest	Dwelling/ Outbuildings	ca. 1955	Not Evaluated
S09839	House, Rt. 24 E, South of Long Neck Road	Dwelling	1952	Not Evaluated
S09840	House, Rt. 24 W, South of Long Neck Road	Dwelling/ Outbuildings	ca. 1940	Not Evaluated
S09860	Same as S09834			

Exhibit 16 shows the locations of these cultural resources.

Of the twenty-one recorded architectural resources in the project area vicinity, three resources have unknown temporal associations and National Register eligibility. These resources include the grave of Lydia Clark (S00263), moved prior to 1977; the Warrington House (S0297); and the J. Alvin Collins House (S03115). Fifteen resources date from the 20<sup>th</sup> century and include single dwellings, outbuildings, and a school. The majority of these resources have not been evaluated for NRHP eligibility; however, three have been listed on the National Register and are discussed below.



**Exhibit 16**  
**1 Mile Radius From Point Between Study Areas**  
**USGS Quad Map - Fairmount, DE 1984, and Frankford, DE 1984**  
 SR 24 Mount Joy Road and Bay Farm Road Improvements - Phase I Investigation

The three remaining resources include two dwellings constructed in the late-19<sup>th</sup> century and the Nanticoke Indian Community Thematic Resource. One of these dwellings has not been evaluated; the second was recommended eligible for the National Register by the historic preservation planner for Sussex County, but due to the relocation of the dwelling in 1947 and subsequent alterations it was determined ineligible in 2002.

The Nanticoke Indian Community Thematic Resource (S02109) was nominated for inclusion on the National Register in 1977. The community is located along the northern shore of Indian River in Sussex County, Delaware; bound by the Indian River to the south, County Route 297 to the north and east, and County Routes 309 and 309A to the west. The properties included within the Thematic Resource, including the Harmon School, the Robert Davis House, and the Warren T. Wright House “exemplify the contrasting processes of assimilation and isolation which have characterized the social, economic, and institutional life of the Nanticoke community during the nineteenth and twentieth centuries” (Wise 1977). The southern limits of the current project area extend into the Nanticoke Indian Community Thematic Resource.

The Harmon School (S00165) was constructed in the 1920s. The colonial revival schoolhouse is a one-and-one-half story frame structure covered in wood shingles with composition shingle roof and central brick chimney; constructed on top of a concrete foundation. The north façade includes a central portico covering double doors with 4, 6/6 double hung sash windows on both sides (Wise 1977). The Harmon School replaced an earlier one-room schoolhouse constructed by the separatist Nanticoke faction in the 1880s. The original school was only open to members of the Nanticoke Community and following the introduction of African-American teachers at the Harmon School, many members of the Community, withdrew and constructed a new Nanticoke-only school, known as the Indian Mission School. The Harmon School is significant due to its association with the Nanticoke separatist movement and the assimilation of some community members into the African-American community of Sussex County (Wise 1977). The Harmon School is located southeast of the intersection of Mount Joy/Oak Orchard Road and SR 24, near the southern extent of the project area.

The Robert Davis Farmhouse (S00754) is located within the Oak Meadows Mobile Home Park, approximately one-quarter mile southeast of the project area. Constructed around 1900, the farmhouse is one of the oldest structures in the Nanticoke community. The dwelling is a five-bay, two-story frame structure clad in composite shingles with an enclosed three-bay porch and interior, brick chimneys on the gabled ends. The domestic complex also includes two log corncribs on brick piers. Both corncribs are clad in wood shingles. The dwelling and outbuildings were listed on the National Register in 1978 because of their ability to exemplify the similarities and differences between farming practices within the Nanticoke community and the rest of rural Sussex County (Wise 1977).

The Warren T. Wright Farmhouse (S00758) was destroyed by fire in 1978. Earlier photographs of the structure indicate it was similar in appearance to the Robert Davis Farmhouse. Warren T Wright was an important figure in the nativist movement, following Frank G. Speck's ethnography of the Nanticoke community, published in 1915. The property was listed on the National Register based on its potential to provide information related to the "material assimilation exhibited by separatist Indian farmers in the early-20<sup>th</sup> century" (Wise 1977). The Wright Farmhouse is located approximately 200 feet southwest of the project area, on the north side of SR 24.

## **RESEARCH EXPECTATIONS**

The following presents an assessment of the probability that archeological sites will occur within the project area based on topography, drainage, the presence of roads and historic map projection.

There is a moderate probability of locating prehistoric period artifacts within the project area. The probability for locating prehistoric sites generally depends on the variables of topography, proximity to water, and internal drainage. Sites are more likely on well-drained landforms of low relief in close proximity to water.

The probability for the occurrence of historic period sites largely depends upon the historic map search, the history of settlement in the area, the topography and the proximity of a particular property to historic roads. However, the absence of structures on historic maps does not eliminate the possibility of an archeological site being present within the property as it was common for tenant, slave, and African-American properties to be excluded from these maps.

Based on the presence of the "Satterfield" house on the 1868 Beers map of Indian River Hundred in the vicinity of the proposed location of the southern stormwater pond, the project area is thought to have a high probability to contain historic archeological sites.

## **FIELD AND LABORATORY METHODS**

### **Fieldwork**

The Phase I field methodology included both the use of surface reconnaissance and shovel testing to locate and define boundaries of archeological sites. The surface reconnaissance consisted of walking over the area and examining all exposed areas for the presence of artifacts. For the purposes of this investigation, exposed areas included plowed agricultural fields. The surface reconnaissance was also used to examine the topography of specific areas in order to assess their potential to contain archeological sites. All high and moderate probability areas--areas that were well drained and possessed low relief--were tested at 15-meter (50-foot) intervals. High probability areas also included historic structure areas identified through surface reconnaissance or through archival

review of historic maps. Additional shovel tests were excavated at 7.6-meter (25-foot) intervals in a cruciform pattern around the positive shovel tests as necessary to define site boundaries and to delineate artifact concentrations. In general, the low probability areas were those that were sloping, poorly drained or that had been disturbed.

Shovel test pits measured at least 40 centimeters (16 inches) in diameter and were excavated in natural or cultural soil horizons, depending upon the specific field conditions. Excavations ceased when gleyed soils, gravel, water, or well-developed B horizons too old for human occupation were reached. All excavated soils were screened through 1/4-inch mesh hardware cloth screens and were classified and recorded according to standard pedological designations (A, Ap, B, C, E, etc.); excepting the terms Fill and Fill horizon, which are used to describe culturally modified, disturbed or transported sediments and soils. Such use of the terms is consistent with use in standard geomorphological studies and recordation of geo-boring profiles in environmental studies. Soil colors were described using Munsell Soil Color Chart designations and soil textures were described using the United States Department of Agriculture soil texture triangle. Artifacts recovered during Phase I shovel testing were bagged and labeled by shovel test pit number and soil horizon.

The location of each shovel test pit was mapped; unless otherwise noted, the graphic representation of the test pits and other features depicted in this report are not to scale and their field location is approximate.

## **Laboratory**

All artifacts were cleaned, inventoried, and curated. Historic artifacts were separated into four basic categories: glass, metal, ceramics, and miscellaneous. The ceramics were identified as to ware type, method of decoration, and separated into established types, following South (1977), Miller (1992), and Magid (1990). All glass was examined for color, method of manufacture, function, etc., and dated primarily on the basis of method of manufacture when the method could be determined (Hust 1990; Lockhart 2004). Metal and miscellaneous artifacts were generally described. Nails were classified by form and method of manufacture.

Prehistoric lithic artifacts were classified by functional types and lithic material. In addition, the debitage was studied for the presence of striking platforms and cortex, wholeness, quantity of flaking scars, signs of thermal alteration, size, and presence or absence of use. Lithic materials classified as “chunks” are fragments of lithic debitage; which, although they appear to be culturally modified, do not exhibit clear flake or core morphology.

Artifacts were entered into a Structured Query Language (SQL) Server database in order to record all aspects of an artifact description. For each artifact, up to 48 different attributes are measured and recorded in the database. Once entered in the SQL Server

database, users can create queries and reports through a Microsoft Access front end. Several pre-existing report templates are available, or users can create custom queries and reports for complex and unique analyses. The use of a relational database system to store artifact data permits a huge variety of options when storing and analyzing data. A complete inventory of all the artifacts recovered can be found in Appendix II of this report.

## **RESULTS OF FIELD INVESTIGATIONS**

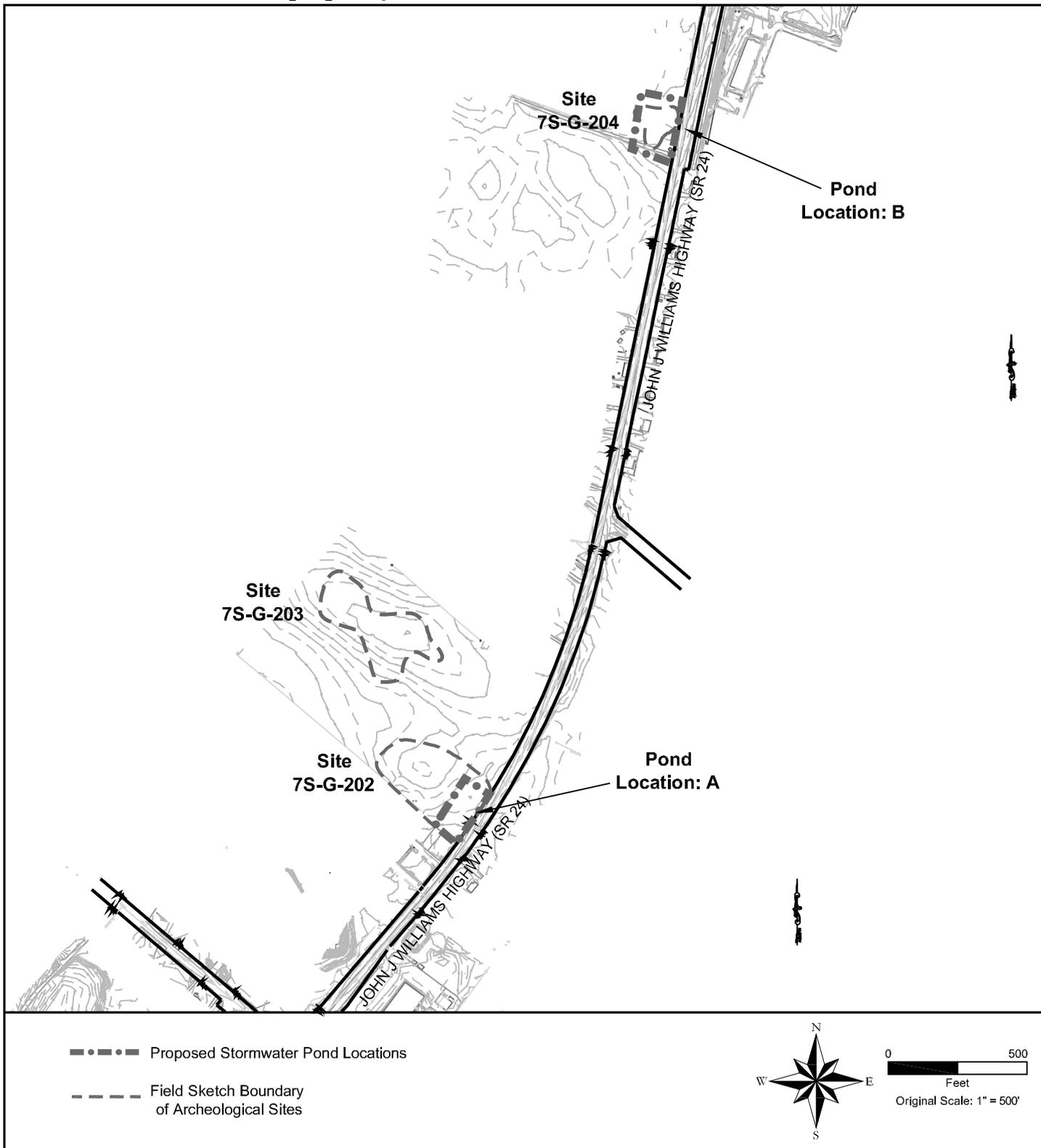
The project area includes a two-and-one-quarter-mile section of State Route 24, located between the intersection of that road and Long Neck Road, to the north, and SR 24 and Piaffe Lane, to the south. Proposed construction plans call for improvements to the roadway and its intersections with Bay Farm/Autumn Road and Mount Joy/Oak Orchard Road, including the installation of curbing and sidewalks within the existing road right-of-way; and the construction of two stormwater retention ponds outside of the existing right of way. During this investigation, shovel test pits (STPs) were excavated only in the vicinity proposed locations of the proposed stormwater ponds.

For ease of discussion, the project area has been divided into two survey areas, designated Area A, (southern stormwater pond location) and Area B (northern stormwater pond location) (Exhibit 17). Due to questions concerning the extent of the limits of disturbance in the locations of the stormwater ponds, additional testing was conducted in the agricultural fields surrounding the southern and northern stormwater ponds and will be discussed under the subheading “Additional Testing” for Areas A and B.

### **Area A**

Area A was initially thought to contain a 13.5-acre field on the west side of SR 24 between Legion Road and Mount Joy Road (Plate 2). The agricultural field is bounded by an existing commercial storage facility to the southwest; SR 24 to the southeast; a dwelling, overgrown pasture, and small corner of the agricultural field to the northeast, and a wooded area to the northwest.

Subsurface testing began along the southwestern boundary of the field and continued along the northwestern boundary, moving in a southeasterly direction. After conferring with the DelDOT archeologist on April 1, 2014, it was determined that Area A was actually confined to a 0.5 acre area in the southern corner of the agricultural field and excavations were abandoned in the Area A Additional Testing Area.



### Exhibit 17 Overview of Project Areas

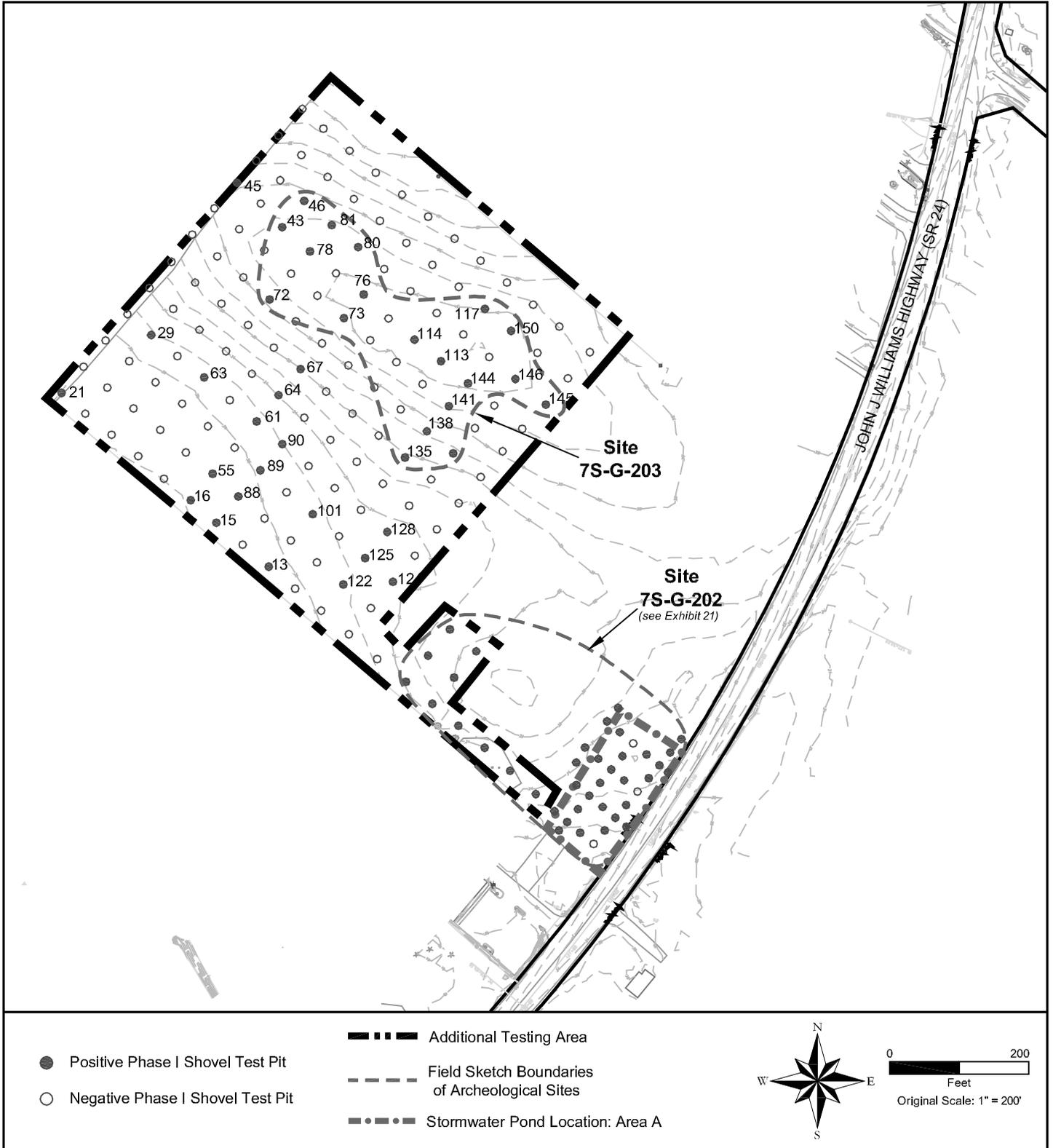
In this section, field excavations will be discussed in the order in which they occurred, beginning with excavations in the surrounding agricultural field (Additional Testing: Area A), followed by a discussion of the Geoarcheological Study of soils within the additional testing area, conducted by Dan Wagner, Ph.D., and concluding with excavations at the proposed location of the stormwater pond in Area A (Stormwater Pond Location: Area A) (Exhibit 18).

#### *Additional Testing: Area A*

Elevations within the Area A Additional Testing Area range between 20 and 24 feet above mean sea level (a.m.s.l.). Within the field, the terrain is relatively flat, with the higher elevations on a northwest/southeast trending ridge located in the northwestern quadrant of the field and a small hilltop located near its southern corner (see Exhibit 18). At the time of this investigation, ground surface visibility in most portions of the agricultural field were approaching 50% and a concentration of brick, glass, ceramic, coal, and shell fragments were observed on the ground surface on the hilltop near the southern corner of the agricultural field. Further inspection revealed the presence of a historic family cemetery along the southern boundary of the field, immediately southwest of the artifact concentration.

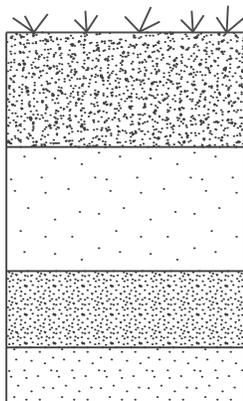
Following a brief pedestrian inspection of the historic artifact concentration, a total of 155 shovel test pits were excavated at 15-meter (50 foot) intervals in the Additional Testing area. STP excavations in the Additional Testing area were undertaken between March 24 and April 1, 2014 and resulted in the identification of a random scatter of secondarily deposited refuse covering most of the area, subsurface deposits associated with the historic artifact concentration and cemetery observed during the pedestrian inspection, designated site 7S-G-202; and a prehistoric lithic concentration (7S-G-203) on the ridge crest in the northwestern portion of the field.

The typical soil profile in the Area A Additional Testing Area consisted of a plow zone (Ap), above one, or two distinct E horizons, overlying subsoil. At higher elevations, particularly along the ridge crest and the south-facing slope of the ridge, the plow zone was shallower as recorded in STP 109; whereas the plow zone was much deeper in STP 99, located in the saddle between the ridge crest and the hilltop. In other STPs excavated in the saddle, the B horizon was not present; instead, excavators encountered a plow zone, above one or two distinct E horizons, above a C horizon, as was found in STP 57. The profiles of STPs 109, 99, and 57 are summarized below and illustrated in Exhibits 19 and 20.



### Exhibit 18 Overview Map of Phase I Investigations in Area A

STP 109



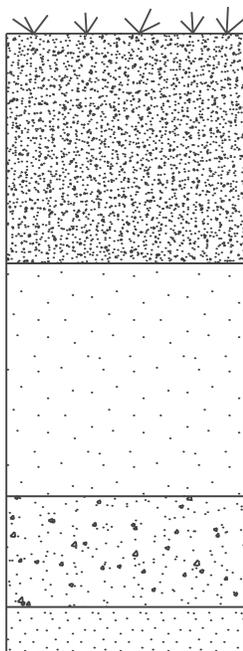
Ap horizon: 2.5Y 4/3 olive brown sandy loam

E1 horizon: 2.5Y 6/3 light yellowish brown sandy loam

E2 horizon: 10YR 6/3 pale brown sandy loam with 60% gravel

B horizon: 10YR 5/6 yellowish brown sandy clay loam

STP 99

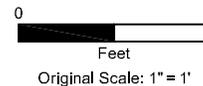


Ap horizon: 2.5Y 4/2 dark grayish brown sandy loam

E horizon: 2.5Y 6/3 light yellowish brown sandy loam

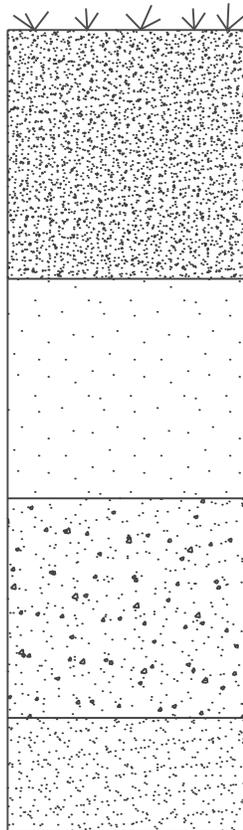
BE horizon: 10YR 6/4 light yellowish brown mottled with  
10YR 5/6 yellowish brown sandy loam

B horizon: 10YR 5/6 yellowish brown silty clay loam



**Exhibit 19**  
**Representative STP Profiles from Original Survey Area A**

STP 57

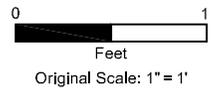


Ap horizon: 2.5Y 4/2 dark grayish brown sandy loam

E horizon: 2.5Y 6/3 light yellowish brown sandy loam

BE horizon: 10YR 6/4 light yellowish brown mottled with  
10YR 5/6 yellowish brown sandy loam

C horizon: 2.5Y 7/3 pale yellow sandy loam



**Exhibit 20**  
**Representative STP Profile from Original Survey Area A**

#### STP 109

- Ap: 0-18 centimeters below surface – [2.5Y 4/3] olive brown sandy loam
- E1 horizon: 18-38 centimeters below surface – [2.5Y 6/3] light yellowish brown sandy loam
- E2 horizon: 38-50 centimeters below surface – [10YR 6/3] pale brown sandy loam with 60% quartz/quartzite pebbles
- B horizon: 50-60 centimeters below surface – [10YR 5/6] yellowish brown sandy clay loam

#### STP 99

- Ap: 0-37 centimeters below surface – [2.5Y 4/2] dark grayish brown sandy loam
- E horizon: 37-74 centimeters below surface – [2.5Y 6/3] light yellowish brown sandy loam
- BE horizon: 74-91 centimeters below surface – [10YR 6/4] light yellowish brown sandy loam mottled with [10YR 5/6] yellowish brown sandy loam
- B horizon: 91-101 centimeters below surface – [10YR 5/6] yellowish brown sandy clay loam

#### STP 57

- Ap: 0-40 centimeters below surface – [2.5Y 4/2] dark grayish brown sandy loam
- E horizon: 40-75 centimeters below surface – [2.5Y 6/3] light yellowish brown sandy loam
- EB horizon: 75-110 centimeters below surface – [10YR 6/4] light yellowish brown sandy loam mottled with [10YR 5/6] yellowish brown sandy loam
- C horizon: 110-128 centimeters below surface – [2.5Y 7/3] pale brown sand

#### Geoarcheological Study

On March 27, 2014, Dan Wagner, Ph.D., a pedologist with Geo-Sci Consultants, was contracted to perform a geoarcheological assessment of soils within the Additional Testing Area in Area A. This assessment, included as Appendix III to this report, concluded that long-term agricultural plowing has caused a leveling of the landscape, as evidenced in the varying plow zone depths on the ridge tops and the saddle in STPs 109 and 99, respectively (see Exhibit 19). Wagner (2014) also postulated that there is a genetic discontinuity between the surficial sand and subsoil horizons, and that the subsoil is actually derived from truncated paleosols that existed prior to the deposition of the upper E horizon encountered during the Phase I excavations.

Evidence for the stratigraphic discontinuity can be seen in the rocky layer encountered in the E2 horizon as seen in the profile of STP 109; which formed when the original paleosols were destabilized and eroded, concentrating the heavier pebbles included within the upper soil horizons into a layer on top of the more stable subsoil.

Wagner suggests that the significant erosion of surficial deposits and the subsequent deposition of the E horizons observed within the project area probably resulted from the dramatic climate change observed during the Younger Dryas; and therefore, cultural deposits could be found within any of the soil horizons above the B or C horizon, with the earliest, Paleoindian and Early Archaic, artifacts found within the rocky layer in the E2 horizon. Earlier deposits, including the B horizon and C horizon encountered during our excavations, are likely to be culturally sterile (Wagner 2014).

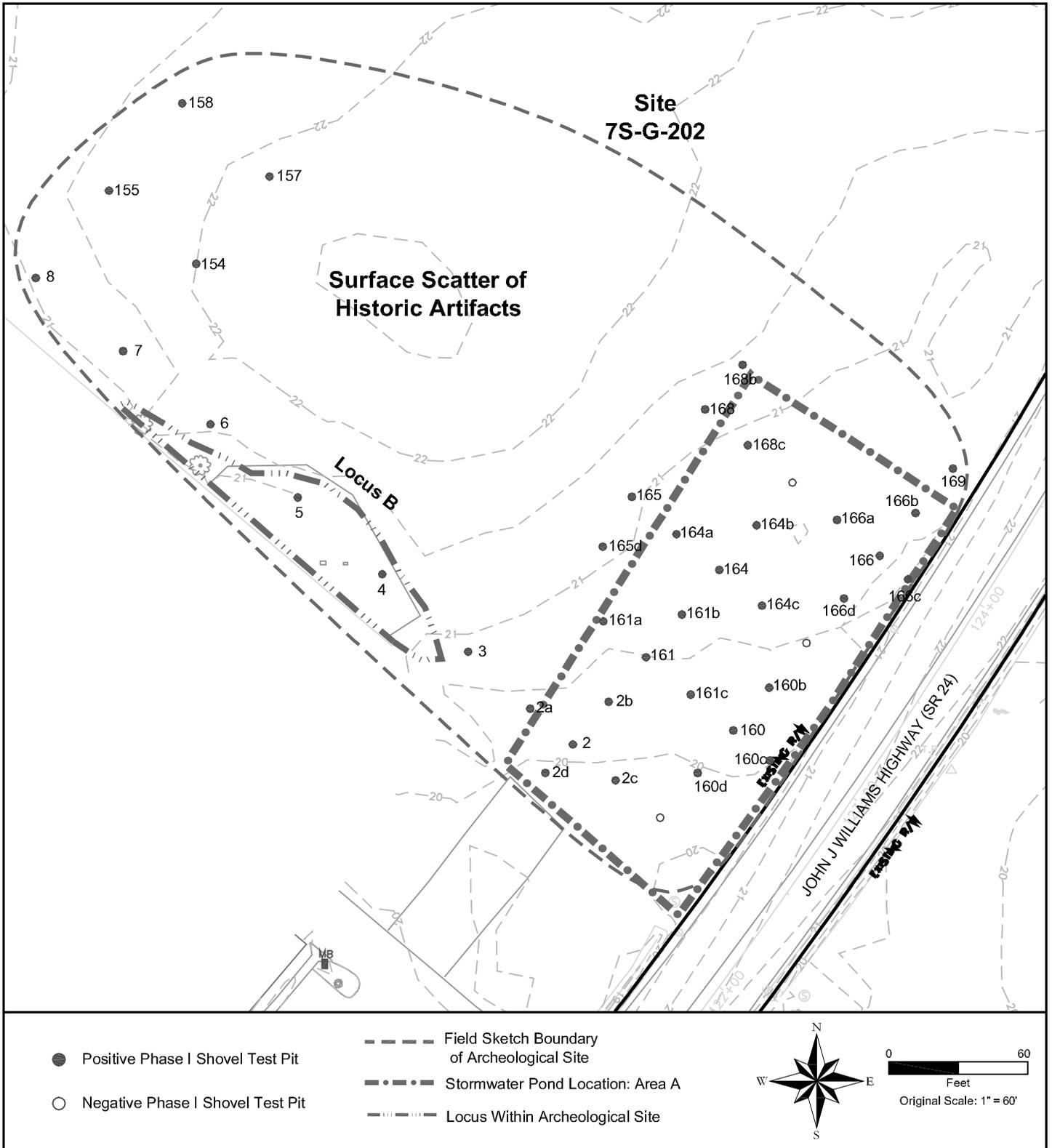
#### *Stormwater Pond Location: Area A*

The Stormwater Pond Location in Area A encompasses approximately one half acre on the western side of SR 24, and is the southernmost of the two proposed stormwater ponds. The area is bounded by SR 24 to the southeast, an existing strip mall and storage facility to the southwest, and an agricultural field to the northeast and northwest (Exhibit 21). At the time of this investigation, the Stormwater Pond Location in Area A was in the southwestern corner of a harvested soybean field (Plate 3).

The Stormwater Pond Location in Area A measured approximately 190 from the southwest to the northeast corners and averaged 115 feet from the northwest to the southeast. It includes the southern face of a small hilltop located northwest of the Stormwater Pond Location, in the Additional Testing area. Elevations within the Stormwater Pond Location range between 21 feet above mean sea level (a.m.s.l.) at the northern corner to 20 feet a.m.s.l. at the southern corner.

Excavations in the Stormwater Pond Location began on April 2 and concluded on April 3, 2014. A total of eleven shovel test pits (STPs) were excavated at 15-meter intervals (50-foot) within the Stormwater Pond Location in Area A during the shovel test investigation. Nineteen additional STPs were excavated at 7.6-meter (25-foot) intervals around positive shovel test pits to assess the integrity of deposits within the historic artifact concentration (7S-G-202, Locus A) that covered the majority of the investigation area.

The typical soil profile encountered in the Stormwater Pond Location in Area A and site 7S-G-202 was similar to the soil sequence observed in the Additional Testing area and consisted of a plow zone (Ap), overlying two distinct E horizons (E1 and E2), above subsoil (B horizon) as observed in STP 161. Unique amongst the soil profiles was that of STP 164a; which contained a plow zone above two separate fill layers (believed to be a Yard Fill and Construction Fill), above a C horizon. The profiles of both STPs are summarized below and illustrated in Exhibit 22.



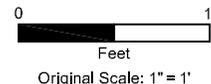
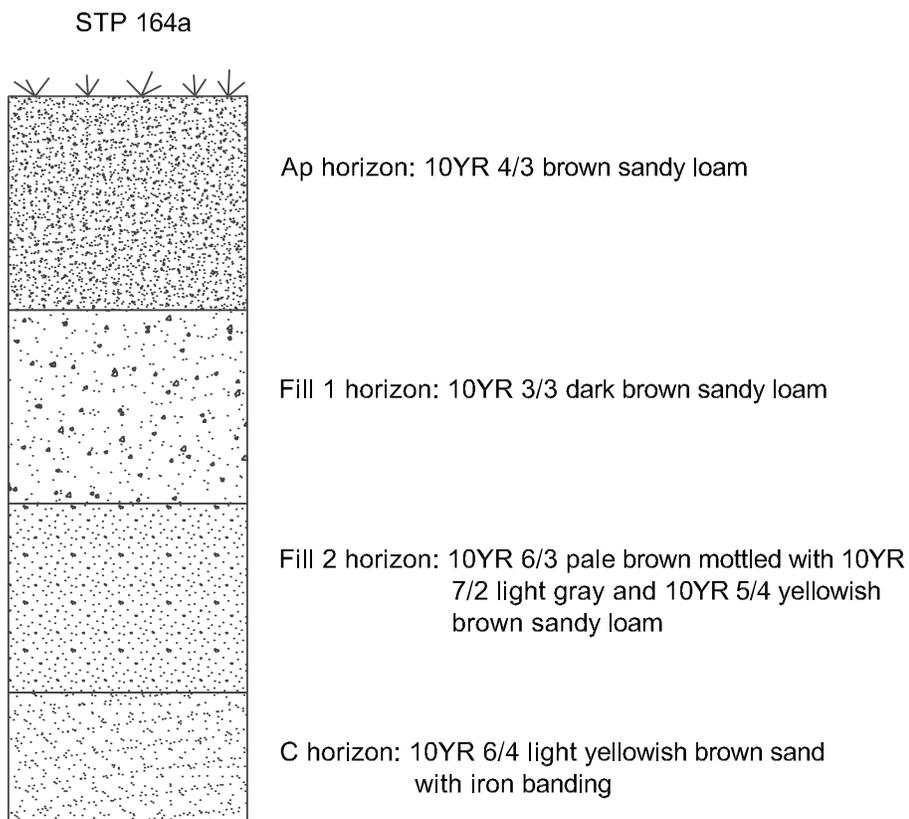
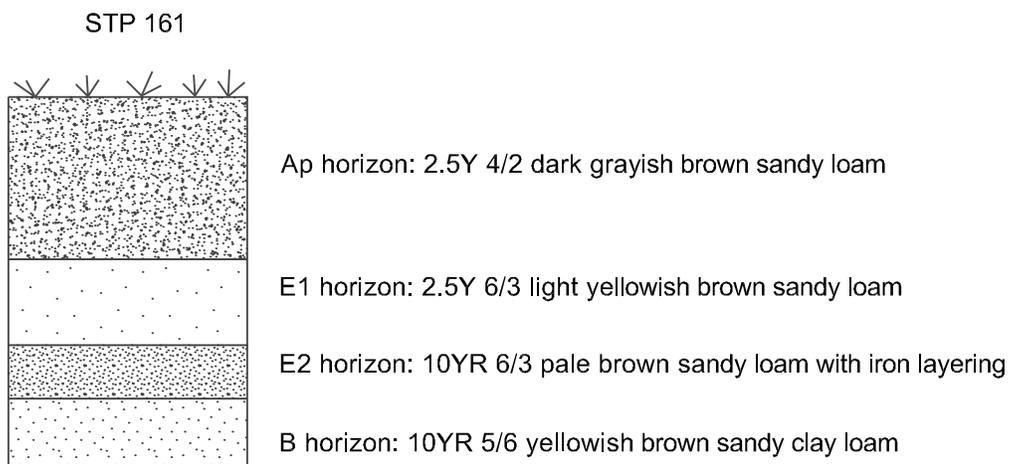
### Exhibit 21

## Detail Map of Phase I Investigation in Area A Showing the Proposed Stormwater Pond Location and Site 7S-G-202

SR 24 Mount Joy Road and Bay Farm Road Improvements - Phase I Investigation

WSSI # 22370.01 - November 2014





**Exhibit 22**  
**Representative STP Profiles from the Proposed Stormwater Pond Location in Area A**

### STP 161

- Ap: 0-26 centimeters below surface – [2.5Y 4/2] dark grayish brown sandy loam
- E1 horizon: 26-39 centimeters below surface – [2.5YR 6/3] light yellowish brown sandy loam
- E2 horizon: 39-48 centimeters below surface – [10YR 6/3] pale brown sandy loam with iron banding [7.5YR 5/6] strong brown sand
- B horizon: 48-60 centimeters below surface – [10YR 5/6] yellowish brown sandy clay loam

### STP 164a

- Ap: 0-34 centimeters below surface – [10YR 4/3] brown sandy loam
- Yard Fill: 34-65 centimeters below surface – [10YR 3/3] dark brown sandy loam
- Construction Fill: 65-96 centimeters below surface – [10YR 6/3] pale brown sandy loam mottled with [10YR 7/2] light gray sandy loam and [10YR 5/4] yellowish brown sandy loam
- B horizon: 96-116 centimeters below surface – [10YR 6/4] light yellowish brown sand with iron banding [7.5YR 5/6] strong brown sand

### *Secondarily Deposited Refuse (Delmarva Field Scatter) and Findspots*

During field excavations in Area A, a low-density scatter of historic artifacts was identified within the plow zone randomly scattered throughout the Additional Testing area. The historic artifacts found in random scatter were generally small and weathered and are likely attributable to phenomenon known as Delmarva Field Scatter, frequently associated with mid-nineteenth and early twentieth century domestic sites in Delaware.

The Delaware Division of Historical and Cultural Affairs State Historic Preservation Office's 2008 *Guidelines and Instructions for Using the Delaware State Historic Preservation Office's Archaeological Survey Report Form*, defines historic field scatter as follows:

*Historic Field Scatter:* Light density of dispersed, ca. 1830 to 1920 period artifacts in a currently or formerly plowed field, with no soil discoloration, ruins, or any other indication of a historic activity area. Field scatter is the result of the 19th and early 20th century practice of field manuring to increase the fertility of the soil, and for the purposes of these Guidelines, does not constitute an archaeological site (Delaware Division of Historical and Cultural Affairs, 2008).

In the 19<sup>th</sup> century, farmers began using manure to fertilize agricultural fields to increase productivity. Often, household trash, including broken ceramic vessels and glass containers, coal, and food waste were mixed in with the manure and spread across

agricultural fields, resulting in low-density artifact scatters covering many agricultural fields. These low-density historic artifact scatters are commonly considered secondarily deposited refuse and are not indicative of a historic occupation. Consequently, artifacts found in the low-density historic artifact scatter in the Additional Testing Area are not included within the historic site (7S-G-202) boundary and have been excluded from the inventory of the prehistoric site (7S-G-203) identified in the Additional Testing area. These artifacts were classified as secondarily deposited refuse and are listed in Table 3.

**Table 3: Artifacts Recovered from the Secondarily Deposited Refuse Scatter**

<b>Artifact Type</b>	<b>Ap horizon</b>
<b>Ceramics</b>	
hard paste porcelain	1
whiteware (1820-1900+)	3
refined white earthenware	3
redware	4
<b>Glass</b>	
bottle/jar, clear manganese (1880-1915)	1
bottle/jar, (ABM)* (post-1907)	2
unidentified glass	12
<b>Metal</b>	
cast iron pot	1
<b>Miscellaneous</b>	
brick	10
coal	3
<b>Total Secondarily Deposited Refuse</b>	<b>40</b>

Two additional artifacts were classified as Findspots. Included within the category of Findspots were one pearlware sherd, recovered from the plow zone in STP 125, and one chert primary reduction flake, found within the E horizon in STP 61. Although both artifacts were similar to artifacts recovered from sites 7S-G-202 and 7S-G-203, respectively; their horizontal provenience placed them well outside of the delimited boundaries of the two artifact concentrations.

#### *Site 7S-G-202*

Site 7S-G-202 was initially identified during the pedestrian inspection of the Additional Testing Area and included a surface concentration of historic artifacts (Locus A) and a small family cemetery (Locus B) (Plates 4 and 5). Elevations within the site range between 20 and 22 feet a.m.s.l. Shovel test pits were excavated in a portion of the site (Locus A) to refine site boundaries and to assess the integrity of subsurface deposits. The

portion of site 7S-G-202 defined during the current investigation measures approximately 114 meters (375 feet) east to west by 125 feet 38 meters (125 feet) north to south (see Exhibit 21). However, the surface artifact scatter and the results of subsurface testing suggest the site continues beyond the limits of testing conducted during this investigation. The boundaries for site 7S-G-202 indicated on Exhibit 21 are approximate.

Site 7S-G-202 Loci A and B are described in detail below and recommendations concerning the treatment of the resources contained within both loci are provided in the following paragraphs. Their current condition was documented with digital photographs during the field investigation.

### Locus A

Forty STPs were excavated in 7S-G-202: Locus A during this investigation, including ten STPs excavated in the Area A Additional Testing Area (see Exhibit 18). Thirty-seven of the forty STPs excavated in within the site limits were positive and comprise the portion of site 7S-G-202: Locus A defined during this investigation. With the exception of STPs 1 through 8, STP 154, and STPs 156 through 158, excavated during the Additional Testing portion of the investigation, and STP 164a (described above); excavations within Site 7S-G-202: Locus A terminated at the surface of the E horizon, as this horizon predated the site occupation. Artifacts recovered from STPs within the site are shown on Table 4.

**Table 4: Artifacts Recovered from Site 7S-G-202**

<b>Artifact Type</b>	<b>Ap horizon</b>	<b>Ap/Apb horizon</b>	<b>Fill 1 horizon</b>
<b>Ceramics</b>			
creamware (1762-1820)	2		
pearlware (1780-1830)	11		
whiteware (1820-1900+)	11	1	
Rockingham/Bennington (1800-1900+)	1		
refined white earthenware	14		
redware	5	2	
stoneware	1		1
yellowware (1830-1940)	1		
<b>Glass</b>			
bottle, bottle/jar	6		
bottle/jar, tableware, clear manganese (1880-1915)	4		
bottle, bottle/jar, (ABM)* (post-1907)	13		
bottle, duraglas (post-1940)	1		
unidentified glass	8		
windowpane, lime soda (post-1864)	1		

**Table 5: Artifacts Recovered from Site 7S-G-202, continued**

<b>Artifact Type</b>	<b>Ap horizon</b>	<b>Ap/Apb horizon</b>	<b>Fill 1 horizon</b>
<b>Metal</b>			
lead bullet		1	
ferrous wire	1		
nail, cut (post-1790)	1		
nail, cut, machine headed (post-1830)	2		
nail, unidentified	9	1	
unidentified ferrous metal	12		
<b>Miscellaneous</b>			
brick	125	1	3
clam shell	15		
coal	11		
egg shell	1		
mortar	1		
<b>Total Site 7S-G-202</b>	<b>257</b>	<b>6</b>	<b>4</b>

\*automatic bottle machine (ABM)

Temporally diagnostic kitchen and architectural artifacts suggest a domestic occupation dating from the late 18<sup>th</sup>/early 19<sup>th</sup> century to the mid-20<sup>th</sup> century. Nearly all of the artifacts recovered at the site were found within the plow zone (Ap) or a combined Ap/Apb; however, in STP 164a, one stoneware sherd and three brick fragments were also recovered from the Fill 1 horizon, interpreted as a possible yard fill associated with the domestic occupation of the site.

### Locus B

Locus B of site 7S-G-202 includes the remains of a historic family cemetery (see Exhibit 18). At the time of this investigation, Locus B was wooded with a canopy of sweet gum (*Liquidambar styraciflua*) and pine (*Pinus sp.*) trees, with an understory of sassafras (*Sassafras albidum*). As is typical of cemeteries in Sussex County, the ground surface was covered with a mix of daffodils (*Narcissus sp.*) and daylilies (*Hemocallis sp.*) (Plate 6). Above ground resources within Locus B include the headstone and foot stone marking the grave of Hester and Lewis West (Plate 7); which reads:

“IN  
memory of  
HESTER WEST  
wife of  
LEWIS WEST  
who departed this life  
*February 25<sup>th</sup>, 1775*  
also  
LEWIS WEST  
who departed this life  
*Februrary 26<sup>th</sup>, 1775*

Their remains both rest in one  
grave.”

Lewis West purchased a 198-acre parcel from Thomas Waples, including the current investigation area, in 1763 (Sussex County, Delaware Deed Book 9:453). In 1803, the heirs of Lewis West sold the property to Benjamin Prettyman. In 1855, Benjamin’s grandson (Benjamin) and his wife sold the property to Kendall B. Stockley (Sussex County, Delaware Deed Book 62:246) and the Deed of Transfer specifically references a house and cemetery; “provided the burying ground immediately back of the dwelling house as now enclosed shall be forever preserved and kept sacred for a family burying ground.”

The location of the family cemetery was still known in the mid- to late-20<sup>th</sup> century, as it is noted on the 1954/1955 (see Exhibit 12) and 1984 (see Exhibit 2) U.S.G.S Fairmont and Frankford, DE 7.5 minute quadrangles. No subsurface testing was conducted within Locus B during the current investigation and the horizontal limits of the cemetery and the numbers of interments within the cemetery are not known. It appears that construction of a storage facility and parking lot south of the property, may have truncated its southern boundary.

#### Site 7S-G-202: Summary and Recommendation

Site 7S-G-202 corresponds to the location of the “Satterfield” house on the 1868 Beers Map of Indian River Hundred. Property history research suggests a dwelling was standing in this location in 1855 when Benjamin Prettyman sold a 198-acre parcel, including site 7S-G-202, to Kendall B. Stockley (Sussex County, Delaware Deed Book 62:246). Although a dwelling, cemetery, and outbuilding are noted in the location of 7S-G-202 Locus A on the 1984 U.S.G.S. Farimount and Frankford, DE 7.5 minute quadrangles, historic aerial photographs from 1954 until the present show no structures in this location; suggesting the site had been abandoned by the middle of the 20<sup>th</sup> century.

The objective of the current investigation in this area was to establish the presence or absence of cultural resources in the location of the proposed stormwater pond in Area A. A pedestrian inspection of the area and subsurface testing confirmed the presence of a historic archeological site (7S-G-202) within the limits of disturbance, including unplowed cultural deposits believed to date to the occupation of the site. However, due to the small size of the investigation area, this investigation was not able to define the limits of the archeological site or define the limits of interments within the historic family cemetery, located less than one hundred feet west of the proposed stormwater pond location.

Artifacts observed on the ground surface during the initial pedestrian inspection of the site indicate that it may continue into untested portions of the Additional Testing Area to the northeast of the recorded site boundary. Based on topography, the actual limits of site 7S-G-202 are estimated at about 114 meters (375 feet) east to west by 76 meters (250 feet) north to south, as opposed to the 114 meters (375 feet) by 38 meters (125 feet) dimensions recorded during this investigation.

The southwestern and southeastern boundaries of site 7S-G-202 are marked by a commercial facility and SR 24, respectively. Historic deposits associated with the site are not expected to extend beyond SR 24, but may have continued to the south, prior to the construction of the commercial/storage facility. In particular, a graded parking lot surrounding the storage facility and chain link fence around the perimeter of the parking lot may have impacted the cemetery in Locus B. Grading for the parking lot surrounding the separate commercial facility also may have impacted the southwestern corner of the dwelling site in Locus A.

Unplowed historic deposits are uncommon in this region of Delaware and, in our opinion, site 7S-G-202 is potentially eligible for inclusion on the National Register of Historic Places (NRHP), under Criterion D, based on its potential to provide new information about the domestic economy and manufacture and trade at agricultural sites from the Early Industrialization and Industrialization and Early Suburbanization periods in the Coastal Zone of Sussex County. The proposed stormwater pond in Area A will constitute an adverse impact to the cultural resources included within Locus A of site 7S-G-202, including an unplowed, artifact bearing soil horizon believed to date to the occupation of the site (STP 164a-Fill 1). Locus B includes the remains of a historic family cemetery, located less than one hundred feet from the proposed stormwater pond location. Only one gravemarker was identified within the cemetery during this investigation; however, the horizontal extent of the burial area has not been defined and additional unmarked burials may be present.

Avoidance of site 7S-G-202 is recommended. If avoidance of the site is impracticable, Phase II archeological investigations are recommended to refine the site boundaries and to assess its potential for inclusion on the National Register of Historic Places. In

addition, archeological cemetery delineation is recommended to define the limits of interments within Locus B of site 7S-G-202.

*Site 7S-G-203*

Site 7S-G-203 is located approximately 350 feet (107 meters) northwest of 7S-G-202, situated along a northwest/southeast trending ridge crest in the Additional Testing area, with elevations ranging between 22 and 24 feet a.m.s.l (see Exhibit 18). The archeological site limits and STP locations depicted in Exhibit 18 are approximate. At the time of this investigation, the site was located within a harvested soybean field (Plate 8).

The site was defined on the basis of 11 positive STPs excavated at 15-meter intervals and measures approximately 500 feet (152 meters) northwest/southeast by about 150 feet (46 meters) northeast/southwest. All of the excavated STPs within the site contained a plow zone, overlying one or two distinct E horizons, above a B horizon; similar to the typical soil profile in other portions of the Additional Testing area. Aside from agricultural plowing, disturbances within the site were minimal.

Eleven out of the thirteen artifacts recovered from site 7S-G-203 contexts, came from the E2 horizon (Table 5; Plate 9). The artifact assemblage consists of chert debitage associated with the three main stages of lithic tool production.

**Table 6: Artifacts Recovered from Site 7S-G-203**

<b>Artifact Type</b>	<b>Ap horizon</b>	<b>E horizon</b>	<b>E2 horizon</b>
chert decortication flake			1
chert primary reduction flake			5
chert biface thinning flake	1		3
chert flake fragment			2
quartz primary reduction flake		1	
<b>Total Site 7S-G-203</b>	<b>1</b>	<b>1</b>	<b>11</b>

Site 7S-G-203: Summary and Recommendation

No temporally diagnostic artifacts were recovered during the Phase I investigation at site 7S-G-203. Site activities appear to be limited to the manufacturing or maintenance of stone tools using locally available raw materials. The small number of artifacts and limited functional variety within the assemblage suggest transient use of the site during an unknown period. However, given the time period for the E2 horizon suggested by Dr. Wagner’s geoarcheological study, it is possible that the site may date to the Early Archaic or Paleoindian periods.

Sites with similar soil profiles and cultural deposits to those discovered at 7S-G-203 have been studied in western Sussex County's James Branch Watershed (Blume 1995) and the Blueberry Hill Site in Kent County (Heite 1995) and have demonstrated their potential to contribute to our understanding of prehistory. In our opinion, site 7S-G-203 is considered to be potentially eligible for inclusion on the NRHP under Criterion D. Current construction plans pose no threat to this resource as defined during the current investigation and no additional work is recommended. However, should construction plans be altered in a manner that results in any adverse impacts to the site, Phase II evaluation of the site is recommended.

## **Area B**

Area B was initially thought to include a 11.4-acre field south of the intersection of Yeshua Lane and State Route 24 (SR 24). The field is bound by SR 24 to the east, Yeshua Lane to the north, and woods to the south and west (Exhibit 23). Shovel test pits were excavated along the southern boundary of the field on March 26, 2014. After conferring with the DelDOT archeologist on April 1, 2014, it was determined that proposed impacts within Area B was actually confined to 0.7 acres located northwest of the intersection of Yeshua Lane and SR 24, northeast of the Area B Additional Testing Area, and excavations were abandoned in the Area B Additional Testing Area.

### *Additional Testing: Area B*

Prior to consulting with the DelDOT archeologist, a total of 15 STPs were excavated along the southern boundary of a recently harvested soybean field (Plate 10). The typical soil profile encountered in these shovel tests included a plow zone (Ap), above an E horizon, above a transitional EB horizon, overlying subsoil (B horizon), as recorded in STP 4, described below and illustrated in Exhibit 24.

#### STP 4

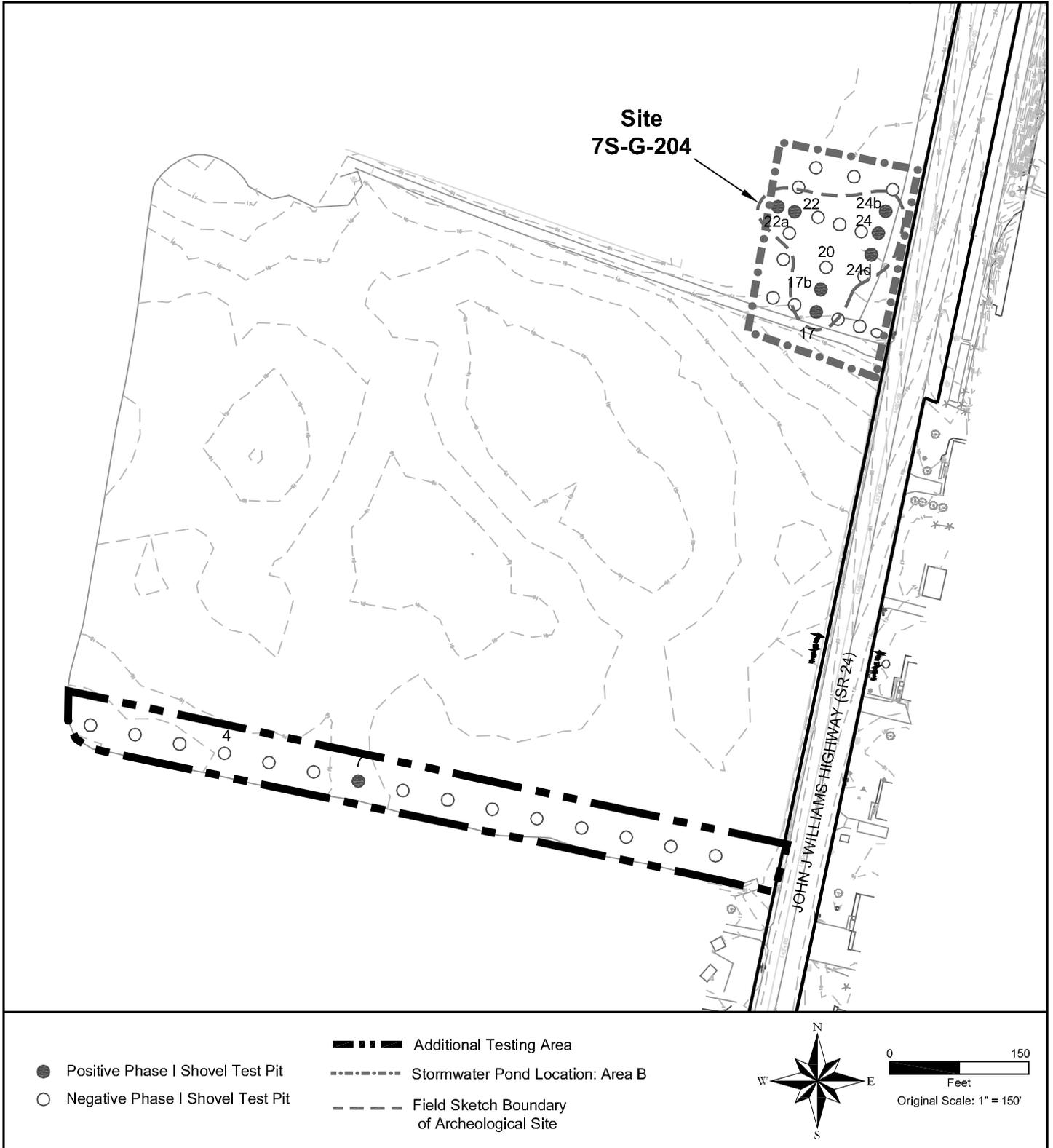
Ap: 0-20 centimeters below surface – [2.5Y 4/2] dark grayish brown sandy loam

E horizon: 20-50 centimeters below surface – [2.5Y 6/3] light yellowish brown sandy loam

EB horizon: 50-64 centimeters below surface – [10YR 6/4] light yellowish brown sandy loam mottled with [10YR 5/6] yellowish brown sandy loam

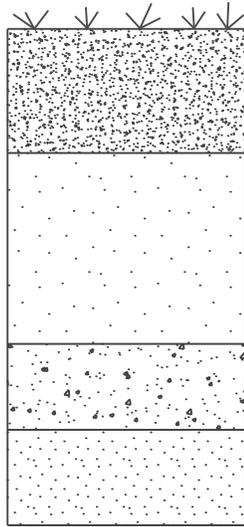
B horizon: 64-80 centimeters below surface – [10YR 5/6] yellowish brown sandy loam with iron concretions

One chert decortication flake and 1 chert primary reduction flake were recovered from the E horizon in STP 7. These artifacts are considered isolated finds and were not given a site number.



### Exhibit 23 Overview Map of Phase I Investigations in Area B

STP 4



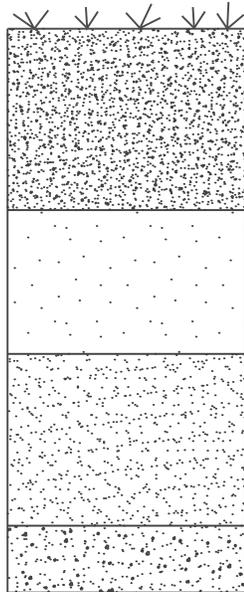
Ap horizon: 2.5Y 4/2 dark grayish brown sandy loam

E horizon: 2.5Y 6/3 light yellowish brown sandy loam

EB horizon: 10YR 6/4 light yellowish brown mottled with  
10YR 5/6 yellowish brown sandy loam

B horizon: 10YR 5/6 yellowish brown sandy loam with  
iron banding

STP 20  
(Site 7S-G-204)

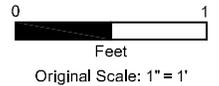


Ap horizon: 2.5Y 4/3 olive brown sandy loam

E horizon: 2.5Y 5/4 light olive brown sandy loam

C horizon: 2.5Y 5/4 light olive brown mottled with 10YR  
5/6 yellowish brown sandy clay loam

CB horizon: 10YR 5/6 yellowish brown sandy clay



**Exhibit 24**  
**Representative STP Profiles from Area B**

### *Stormwater Pond Location: Area B*

The Stormwater Pond Location in Area B encompasses nearly three-quarters of an acre on the western side of SR 24 (see Exhibit 23). At the time of this investigation, the area was covered in grass, briars, and small trees (Plates 11 and 12). The Stormwater Pond Location in Area B measured approximately 190 feet from north to south by 160 feet, east to west. Elevations range between 16 feet a.m.s.l. in the southwestern corner to 18 feet a.m.s.l. in the northeastern corner.

Excavations in the Stormwater Pond Location were conducted on April 3, 2014. A total of twelve shovel test pits (STPs) were excavated at 15-meter (50-foot) intervals within the Stormwater Pond Location in Area B during the shovel test investigation. Eleven additional STPs were excavated at 7.6-meter (25-foot) intervals around positive shovel test pits to establish the horizontal extent and assess the integrity of deposits within a historic artifact concentration (7S-G-204) that covered the majority of the investigation area.

The typical soil profile encountered in the Stormwater Pond Location in Area B and site 7S-G-204 consisted of a plow zone (Ap), overlying an E horizon, followed by a transitional CB horizon, above a culturally sterile B horizon, as observed in STP 20. The profile of STP 20 is summarized below and illustrated in Exhibit 24.

#### STP 20

Ap: 0-29 centimeters below surface – [2.5Y 4/3] olive brown sandy loam

E horizon: 29-52 centimeters below surface – [2.5Y 5/4] light olive brown sandy loam

CB horizon: 52-80 centimeters below surface – 2.5Y 5/4] light olive brown sand mottled with [10YR 5/6] yellowish brown sandy clay

B horizon: 80-90 centimeters below surface – [10YR 5/6] yellowish brown sandy clay

#### *Site 7S-G-204*

Site 7S-G-204 was defined on the basis of 7 positive STPs excavated at 15-meter and 7.6-meter intervals and measures approximately 150 feet (46 meters) north to south by about 125 feet (38 meters) east to west (Plate 13). The archeological site limits depicted in Exhibit 23 are approximate.

Fifteen artifacts were recovered from the plow zone at site 7S-G-204 (Table 6). Temporally diagnostic artifacts recovered from the site included whiteware, clear manganese glass fragments, and glass bottle fragments produced with an Automatic Bottle Machine. Kitchen-related artifacts comprise the majority of the artifact assemblage recovered from site 7S-G-204 and suggest the presence of a domestic site dating to the late 19<sup>th</sup>/early 20<sup>th</sup> century.

**Table 7: Artifacts Recovered from Site 7S-G-204**

<b>Artifact Type</b>	<b>Ap horizon</b>
<b>Ceramics</b>	
hard paste porcelain	1
whiteware (1820-1900+)	4
<b>Glass</b>	
tableware, clear manganese (1880-1915)	1
bottle, bottle/jar, (ABM)* (post-1907)	6
<b>Miscellaneous</b>	
brick	1
coal	1
slag	1
<b>Total Site 7S-G-204</b>	<b>15</b>

Site 7S-G-204: Summary and Recommendation

Site 7S-G-204 is located slightly southwest of the “C. Lingo” estate as shown on the 1868 Beers Map of Indian River Hundred and in the location of a dwelling on the 1918 U.S.G.S. Rehoboth, DE 15 minute quadrangle (see Exhibits 7 and 8). This structure appears to have been demolished or relocated during the realignment of SR 24 in the project vicinity, circa 1928, as no structures are noted in this location on the 1937 black and white aerial image, or subsequent maps and aerial photographs of the project vicinity. If the structure was relocated, it has since been demolished as no historic structures were noted in the vicinity of site 7S-G-204 during the visual inspection of SR 24.

Based on the relatively small artifact assemblage recovered from site 7S-G-204, it likely represents the periphery of the domestic site. This supposition is supported by cartographic evidence; which suggests the domestic site may have been located slightly north of the stormwater pond location. As mentioned previously, all of the artifacts recovered at the site during this investigation were found within the plow zone and there is no evidence to suggest that intact cultural deposits associated with the domestic occupation exist within the proposed stormwater pond location. In our opinion, site 7S-G-204 lacks research potential and is not potentially eligible for inclusion on the NRHP under Criterion D. Archival research indicated that the site also lacks association with significant historic persons or events and, in our opinion, is also not potentially eligible for listing on the NRHP under Criteria A-C. No additional archeological work is recommended.

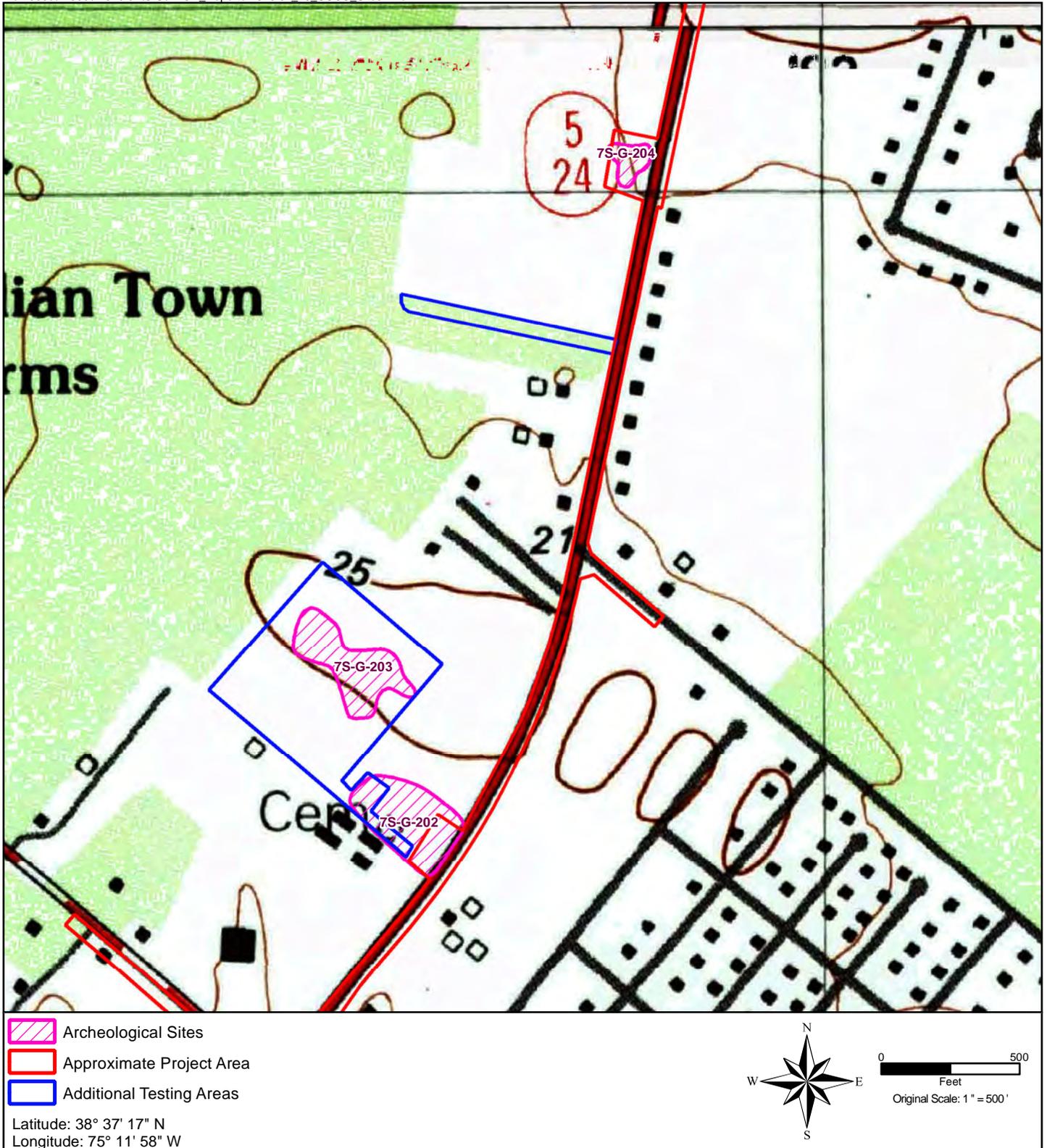
## SUMMARY AND RECOMMENDATIONS

A Phase I archeological survey was conducted of the proposed improvements to a 2.25-mile section of State Road 24 (SR 24) between Long Neck Road to the north, and extending beyond the intersection of SR 24 and Mount Joy Road/Oak Orchard Road at its southern extent; and improvements to the intersections of SR 24 and Mount Joy Road and Bay Farm Road in Indian River Hundred, Sussex County, Delaware. The project area included  $\pm 20.8$  acres and with the exception of the proposed locations of two stormwater retention ponds, was confined to the existing road right of way. Phase I investigations were limited to the locations of the two proposed stormwater ponds and two Additional Testing Areas encompassing  $\pm 9.7$  acres that were external to the project area. The work was carried out in March and April of 2014 by Thunderbird Archeology, a division of Wetland Studies and Solutions, Inc., of Gainesville, Virginia for the Delaware Department of Transportation.

The Phase I survey methodology included a literature review and fieldwork. A review of files housed at the Delaware Division of Historical and Cultural Affairs revealed no previously recorded archeological sites or historic architectural resources within the current study area. A review of historic maps of the project vicinity was carried out in an effort to identify any historic structures, which may have been located within the project area and might be identified as archeological sites during the fieldwork. The fieldwork included a pedestrian inspection and photographic documentation of the project corridor followed by shovel testing at 15-7.5 meter intervals in the proposed locations of two stormwater retention ponds. Due to questions concerning the extent of the limits of disturbance in the locations of the stormwater ponds, additional testing was conducted in the agricultural fields surrounding the stormwater pond locations.

Three new archeological sites were recorded during the Phase I archeological survey of the project area, two within the proposed stormwater pond locations (7S-G-202 and 7S-G-204) and one in the agricultural field northeast of the southern stormwater pond location (7S-G-203) (Exhibit 25).

Site 7S-G-202 corresponds to the location of the "Satterfield" house on the 1868 Beers Map of Indian River Hundred. The site contains Locus A, a historic archeological site and Locus B, a historic cemetery. The southern stormwater pond location is subsumed by the site, believed to include a small hilltop, located northwest of the stormwater pond location. Documentary research suggests a dwelling was standing in this location in 1855 when Benjamin Prettyman sold the property to Kendall B. Stockley and the presence of the gravemarker of Lewis and Hester West, owners of the property from 1763 until 1775, may indicate the historic occupation dates back to the second half of the eighteenth century. Although a dwelling, cemetery, and outbuilding are noted in the location of 7S-G-202 on the 1984 U.S.G.S. Farimount, DE 7.5 minute quadrangle, historic aerial photographs from 1954 until the present show no structures in this location; suggesting the site had been abandoned by the middle of the 20<sup>th</sup> century.



**Exhibit 25**  
**USGS Quad Map**  
**Fairmount, DE 1984, and Frankford, DE 1984**

SR 24 Mount Joy Road and Bay Farm Road Improvements - Phase I Investigation

In our opinion, site 7S-G-202 is potentially eligible for inclusion on the NRHP under Criterion D, based on the presence of unplowed historic deposits that likely date to the historic period of occupation. Stratified deposits are uncommon in the region and suggest the site has the potential to provide new information about the domestic economy and manufacture and trade on agricultural sites from the Early Industrialization and Industrialization and Early Suburbanization periods in the Coastal zone of Sussex County. The horizontal extent of the site's historic domestic component and cemetery were not defined during this investigation as these likely extend beyond the proposed impact area. Avoidance of the site is recommended. If avoidance of the site is impracticable, Phase II archeological investigations are recommended to define the site boundaries and to formally assess its potential for inclusion on the NRHP. In addition, a cemetery delineation survey is recommended to define the limits of interments within Locus B of site 7S-G-202.

Archeological site 7S-G-203 is interpreted as a lithic scatter dating from an unknown prehistoric time period; however, based on geoarcheological analysis, deposits may date to the Early Archaic and/or PaleoIndian periods. The small quantity and limited variety of artifacts collected during the Phase I investigation suggest this was a location of limited activity, such as a location used for expedient tool manufacture or the sharpening of existing stone tools. With the exception of one chert biface thinning flake, all of the artifacts recovered from the site were found within unplowed soil horizons. Sites with similar soil profiles and cultural deposits to those discovered at 7S-G-203 have been studied in western Sussex County and Kent County and have demonstrated their potential to contribute to our understanding of prehistory. In our opinion, site 7S-G-203 is potentially eligible for inclusion on the NRHP under Criterion D. This site is located in the Additional Testing Area surrounding the southern stormwater pond location and current construction plans pose no threat to this resource. No additional work is recommended at this time; however, should construction plans be altered in a manner that results in impacts to the site, Phase II evaluation would be warranted.

Site 7S-G-204 was identified in the northern stormwater pond location and roughly corresponds to the location of a dwelling on the 1918 U.S.G.S. Rehoboth, DE 15-minute quadrangle. All of the artifacts recovered at the site during this investigation were found within the plow zone and there is no evidence to suggest that intact cultural deposits associated with the domestic occupation exist within the proposed stormwater pond location. Given the small artifact assemblage recovered from site 7S-G-204, the site, as defined during this investigation, likely represents the periphery of a larger domestic site. The dwelling noted on the 1918 quadrangle probably was demolished during the realignment of SR 24 in 1928, as no structures are noted in this location on the 1937 black and white aerial image, or subsequent maps and aerial photographs of the project vicinity. In our opinion, site 7S-G-204 lacks research potential and any association with significant historic persons or events, and is not potentially eligible for inclusion on the NRHP under Criteria A-D. No additional archeological work is recommended.

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Sussex County, Delaware Will Books  
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## PLATES





**Plate 1: Snow Cover within the Project Area during Field Investigations;  
View to the Southwest**



**Plate 2: Overview of Area A;  
View to the Southwest**





**Plate 3: Stormwater Pond Location within Area A;  
View to the South**



**Plate 4: Site 7S-G-202: Locus A;  
View to the West**





**Plate 5: Site 7S-G-202: Locus B  
View to the Southwest**



**Plate 6: Grave Marker in Site 7S-G-202: Locus B  
View to the Southeast**





**Plate 7: Detail of Grave Marker in Site 7S-G-202: Locus B  
View to the Southeast**





**Plate 8: Site 7S-G-203;  
View to the West**



**Plate 9: Debitage Recovered from E and E2 Horizons within Site 7S-G-203**





**Plate 10: Additional Testing Area within Area B;  
View to the West**



**Plate 11: Stormwater Pond Location within Area B;  
View to the North**





**Plate 12: Stormwater Pond Location within Area B;  
View to the Southwest**



**Plate 13: Site 7S-G-204;  
View to the West**



**APPENDIX I**  
**Chain of Title**



**South Parcel (Tax Parcel 234-29.00-263.01)**

2003 December 19

Moore's Cloverleaf Farm LLC	Ronald W. Moore Patsy M Moore David W. Baker, Esq.	55.784 acres, [less the land included in several out- conveyances, as noted in DB1639:203]
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(Sussex County, Delaware Deed Book 2923:322)

1989 April 7

Ronald W. Moore Patsy Moore	Ronald W. Moore (trading as Moore Farms)	55.784 acres
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*Deed lists nine out-conveyances made between 1982 and 1984 from this parcel but does not provide metes and bounds or acreage for said sales.*

(Sussex County, Delaware Deed Book 1639:203)

1982 February 22

J. Everett Moore Sr. Ronald W. Moore Merrill C. Moore (trading as Moore Farms) (Sussex County, Delaware Deed Book 1105:121)	Ruth D. Lingo (widow) and Heirs of Raymond Lingo	55.784 acres
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1923 May 11

Raymond Lingo	Rufus D. Lingo	156 ac.
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*Rufus Lingo died intestate on May 11, 1923, his land transferring to son Raymond.*

1900

Rufus D. Lingo	John A. Lingo	All his real estate divided amongst heirs
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*Son Rufus Lingo named executor of John Lingo's estate.*

(Sussex County Will Book 18:9)

1880 November 13

John A. Lingo	Elijah Satterfield Sarah A. Satterfield	198 acres
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(Sussex County, Delaware Deed Book 168:575)

<u>1864 July 19</u>		
Elijah Satterfield	Kendall B. Stockley Lettie C. Stockley	198 acres
(Sussex County, Delaware Deed Book 72:42)		
<u>1855 June 25</u>		
Kendall B. Stockley	Benjamin S. Prettyman Sarah A. Prettyman	198 acres
<i>“provided the burying ground immediately back of the dwelling house as now enclosed shall be forever preserved and kept sacred for a family burying ground.”</i>		
(Sussex County, Delaware Deed Book 62:246)		
<u>N. D.</u>		
Benjamin S. Prettyman	Elizabeth Prettyman	198 acres
(see Sussex County, Delaware Deed Book 62:246)		
<u>N. D.</u>		
Elizabeth Prettyman	Benjamin Prettyman	198 acres
(see Sussex County, Delaware Deed Book 62:246)		
<u>1803 October 31</u>		
Benjamin Prettyman	Robert West et. al. (Heirs of Lewis West)	198 acres
(Sussex County, Delaware Deed Book 23:319)		
<u>1763 May 3</u>		
Lewis West	Thomas Wapels	198 acres
(Sussex County, Delaware Deed Book 9:453)		
<u>1747 May 5</u>		
Thomas Waples	William Prettyman	100 acres
(Sussex County, Delaware Deed Book 8:132)		
<u>1742 March 30</u>		
Thomas Waples	William Prettyman	650 acres
(Sussex County, Delaware Deed Book 8:12)		
<u>1734 December 3</u>		
William Prettyman	William Burton (II)	750 acres
(see Sussex County, Delaware Deed Book 8:12)		
<u>N.D.</u>		
William Burton (II)	Joseph Burton	750 acres
(see Sussex County, Delaware Deed Book 8:12)		



**North Parcel (Tax Parcel 234-29.00-049.04)**

2005 March 1

DelDOT Charles W. Coursey 4 acres  
(Sussex County, Delaware Deed Book 3106:059)

1986 October 23

Charles W. Coursey Charles M. Coursey 20 acres  
Tract #1  
20 acres  
Tract #2

(Sussex County, Delaware Will Book 157:235)

1954 January 13

Charles M. Coursey Agnes Stevenson 20 acres  
Cecelia E. Coursey Robert Stevenson Tract #1  
20 acres  
Tract #2

*“Nos. 1 and 2 all BEING the same tracts...conveyed to Agnes Stevenson and Robert D. Stevenson, her husband, by Deed of Charles E. McKinney and Matilda McKinney, his wife, dated the 18<sup>th</sup> of October, A.D. 1948”*

(Sussex County, Delaware Deed Book 429:110)

1948 October 18

Agnes Stevenson Matilda McKinney 20 acres  
Robert Stevenson Charles E McKinney Tract #1  
20 acres  
Tract #2

*Tract 1: “Being the residue of tract no. 1 as mentioned in a Deed of John P. Warrington to Charles E. McKinney and wife, dated the 17<sup>th</sup> day of July A.D. 1946...”*

*Tract 2: “Being tract no. 2 as conveyed to the said Charles E. McKinney and wife, by John P. Warrington...”*

(Sussex County, Delaware Will Book 380:496)

1946 July 17

Charles McKinney  
and wife

John P. Warrington

Tract #1  
40 acres  
Tract #2  
20 acres

*“Being the same lands conveyed to John P. Warrington by Kendal J. Warrington and Annie P. Warrington, his wife, by deed dated the 23<sup>rd</sup> day of August, A.D. 1919... ”*  
(Sussex County, Delaware Deed Book EMC 363:250)

1919 August 23

John P Warrington

Kendall J. Warrington  
Annie P. Warrington

Tract #1  
40 acres  
Tract #2  
20 acres

*Tract 1 - “fronting on the Public Road leading from Paynter Lingo’s Farm to Archie Lingo’s Store, adjoining another Public Road on the West Side thereof...the field where the said John P. Warrington now resides and about one half of the field between the first named field and the field where Kendal O. Warrington now resides...containing about 40 acres”*

*Tract 2 – “that part of a larger tract of land which lies on the eastern side of a glade or branch, which runs through the whole tract of land containing about 20 acres”*

(Sussex County, Delaware Deed Book 216:270)

\*Record of Sale/Transfer to Kendall J. Warrington and Annie P. Warrington not located\*

1853 December

Benjamin G. Lingo  
Jane Lingo  
Sally Ann Lingo  
William Henry Lingo  
Joseph B. Lingo  
Cornelius B. Lingo  
Hetty Lingo

Jesse Lingo

All Jesse Lingo’s  
Personal Estate

*Executor Benjamin Lingo petitioned for the sale of the land and the proceeds divided between the surviving heirs*

(Sussex County Will on record with Public Archives in Dover, DE)

1831 May 14

Jesse Lingo.

Henry Lingo (II)  
Elisha Lingo

240.5 acres

*Land inherited by the three sons of Henry Lingo (I) are divided into three parcels*  
(Sussex County, Delaware Deed Book 51:251)

1831 March 1

Jesse Lingo.

Henry Lingo (I)

541.5 acres

Henry Lingo (II)

Elisha Lingo

*The three sons of Henry Lingo (I) are bequeathed "one third part of all my lands south of Williams and Tormey's mill pond"*

(Sussex County, Delaware Will Book 8:102)

1831 May 14

Henry Lingo (I)

William Lingo

unspecified  
acreage

*Henry Lingo(I) takes possession of all of the land left to Henry (I) and William Lingo by Samuel Lingo (intestate) in exchange for his share of land left to Henry's (I) wife Nancy by her father, Whittington Jones*

(Sussex County, Delaware Deed Book 27:507)

\*Samuel Lingo acquired large amounts of land from numerous sources between the 1760s and 1790s. George Prettyman, James Murray, and William Stuart appear to be the most likely sources for the land that includes the northern study parcel.\*

### **Prettyman Tract**

1792 May 10

Samuel Lingo

George Prettyman  
Martha Prettyman (Reed)

20 acres

*George Prettyman married widow Martha Reed who possessed lands belonging to her deceased husband Allen Reed. Martha Prettyman petitioned the Orphan's Court of Sussex County to sell sufficient amounts of Allen Reed's property to settle the debts of his estate; the Orphan's Court issued an order to do so as found in Vol E:238 of the records of that court. It is unclear if the parcel sold by Prettyman to Reed is a part of Alexander Reed's "Partridge Tract" or was originally a part of other lands acquired by Alexander or Allen Reed.*

(Sussex County, Delaware Deed Book 14:652)



## Stuart Tract

1774 February 2

Samuel Lingo

William Stuart

175 acres

*“situate, lying and being in the County Sufsex afsd and in Indian River Hundred lying on the east side of ye county road that Leads from St. Georges Chappel to ye sawmill adjoining on Land formerly surveyed for William Dyer John Prittyman and James Davidson Lands the afsd certain Tract of Land surveyed by Virtue of Warrant Granted unto Alexander Read...for Two hundred and sixty five acres of Land called Partridge Tract...”*

*The 175 acre tract was sold from the Partridge Tract by order of the Orphans Court of Sussex County in 1763 to settle the estate of Alexander Reed (record not located); William Stuart was highest bidder and received the 175 acre tract.*

(Sussex County, Delaware Deed Book 11:382)

1747 November 25

Alexander Reid

Anthony Palmer

250 acres

Commissioner of Property

*“Land adjoining the Tracts formerly of James Davidson William Dyer and others on both Sides of the Saw Mill Road in Indian River Hundred”*

(Sussex County, Delaware Warrants Record Number R:1)

**APPENDIX II**  
**Artifact Inventory**



**DELDOT SR 24 MOUNT JOY ROAD AND BAY FARM ROAD PHASE I  
ARTIFACT INVENTORY**

**AREA A**

**Isolated Finds**

**STP 061, E horizon (2014.10.1)**

Prehistoric

- 1 chert primary reduction flake, proximal, weathered (2014.10.1.A)

**STP 125, Ap horizon (2014.10.2)**

Ceramics

- 1 pearlware sherd, undecorated, indeterminate vessel shape (1780-1830, South 1977; Miller 1992) (2014.10.2.A)

**Secondarily Deposited Refuse**

**STP 013, Ap horizon (2014.10.3)**

Glass

- 1 clear manganese cylindrical bottle/jar sherd, scratched (1880-1915), 0.3 grams (2014.10.3.A)

**STP 015, Ap horizon (2014.10.4)**

Ceramics

- 1 whiteware sherd, undecorated, indeterminate vessel shape (1820-1900+, South 1977; Miller 1992) (2014.10.4.A)

Glass

- 1 unidentified clear sherd, flat, 2.3 mm, 0.4 grams (2014.10.4.B)

Miscellaneous

- 1 brick fragment, 178.7 grams (2014.10.4.C)

**STP 016, Ap horizon (2014.10.5)**

Miscellaneous

- 1 brick fragment, 21.5 grams (2014.10.5.A)

**STP 021, Ap horizon (2014.10.6)**

Ceramics

- 1 redware spall, indeterminate vessel shape (2014.10.6.A)
- 1 whiteware sherd, green hand painted floral decoration, indeterminate vessel shape (1820-1900+, South 1977; 1825-1860+, Miller 1992) (2014.10.6.B)

**STP 029, Ap horizon (2014.10.7)**

Glass

- 1 unidentified clear sherd, flat, scratched, 2.0 mm, 0.5 grams (2014.10.7.A)

**STP 043, Ap horizon (2014.10.8)**

Metal

- 1 cast iron fragment, curved, rim fragment, possible pot fragment (2014.10.8.A)

**STP 045, Ap horizon (2014.10.9)**

Ceramics

- 1 hard paste porcelain sherd, unidentified polychrome decoration, molded, hollow vessel (2014.10.9.A)

**STP 055, Ap horizon (2014.10.10)**

Ceramics

- 1 redware sherd, unglazed, indeterminate vessel shape (2014.10.10.A)

Glass

- 1 unidentified light green sherd, flat, scratched, 1.1 mm, 0.2 grams (2014.10.10.B)

**STP 063, Ap horizon (2014.10.11)**

Glass

- 1 unidentified clear sherd, flat, stained, patinated, 2.3 mm, 1.0 grams (2014.10.11.A)

**STP 064, Ap horizon (2014.10.12)**

Glass

- 1 unidentified clear sherd, flat, stained, patinated, 2.1 mm, 0.6 grams (2014.10.12.A)

**STP 067, Ap horizon (2014.10.13)**

Glass

- 1 unidentified very pale aqua sherd, flat, 2.1 mm, 0.6 grams (2014.10.13.A)

**STP 078, Ap horizon (2014.10.14)**

Glass

- 2 light aqua cylindrical bottle/jar sherds, automatic bottle machine (1907-present), 5.5 grams (2014.10.14.A)

**STP 080, Ap horizon (2014.10.15)**

Miscellaneous

- 1 brick fragment, 1.0 grams (2014.10.15.A)

**STP 088, Ap horizon (2014.10.16)**

Ceramics

- 1 redware sherd, dark brown glazed, handle fragment (2014.10.16.A)
- 1 redware spall, indeterminate vessel shape (2014.10.16.B)

**STP 089, Ap horizon (2014.10.17)**

Miscellaneous

- 1 coal fragment, 4.8 grams (2014.10.17.A)

**STP 090, Ap horizon (2014.10.18)**

Glass

- 1 unidentified clear sherd, flat, 2.6 mm, 1.2 grams (2014.10.18.A)

**STP 101, Ap horizon (2014.10.19)**

Glass

- 1 unidentified clear sherd, flat, 2.1 mm, 0.6 grams (2014.10.19.A)

**STP 113, Ap horizon (2014.10.20)**

Miscellaneous

- 2 brick fragments, 5.3 grams (2014.10.20.A)

**STP 114, Ap horizon (2014.10.21)**

Glass

- 1 unidentified pale aqua sherd, flat, cracked, 2.1 mm, 0.3 grams (2014.10.21.A)

**STP 117, Ap horizon (2014.10.22)**

Glass

- 1 unidentified clear sherd, flat, 2.0 mm, 0.7 grams (2014.10.22.A)

**STP 122, Ap horizon (2014.10.23)**

Ceramics

- 1 whiteware sherd, undecorated, indeterminate vessel shape (1820-1900+, South 1977; Miller 1992) (2014.10.23.A)

Glass

- 1 unidentified clear sherd, thin, curved, 0.05 grams (2014.10.23. B)

Miscellaneous

- 1 brick fragment, 0.2 grams (2014.10.23.C)

**STP 124, Ap horizon (2014.10.24)**

Miscellaneous

- 1 coal fragment, 17.3 grams (2014.10.24.A)

**STP 128, Ap horizon (2014.10.25)**

Glass

- 1 unidentified pale green sherd, flat, 0.9 mm, 0.1 grams (2014.10.25.A)

**STP 144, Ap horizon (2014.10.26)**

Ceramics

- 2 refined white earthenware sherds, undecorated, indeterminate vessel shape (2014.10.26.A)

Miscellaneous

- 4 brick fragments, 10.1 grams (2014.10.26.B)

**STP 145, Ap horizon (2014.10.27)**

Ceramics

- 1 refined white earthenware sherd, undecorated, indeterminate vessel shape (2014.10.27.A)

**STP 150, Ap horizon (2014.10.28)**

Miscellaneous

- 1 coal fragment, 1.4 grams (2014.10.28.A)

**Site 7S-G-202, CRS#S12277.01**

**STP 002, Ap horizon (2014.7.1)**

Glass

- 1 aqua cylindrical bottle/jar sherd, scratched, 0.1 grams (2014.7.1.A)

Miscellaneous

- 6 brick fragments, 21.5 grams (2014.7.1.B)

**STP 002a, Ap horizon (2014.7.2)**

Ceramics

- 1 whiteware sherd, undecorated, indeterminate vessel shape (1820-1900+, South 1977; Miller 1992) (2014.7.2.A)

Metal

- 1 unidentified ferrous metal fragment, small (2014.7.2.B)
- 2 unidentified nail fragments (2014.7.2.C)

Miscellaneous

- 3 brick fragments, 1.5 grams (2014.7.2.D)
- 6 clam shell fragments, 5.3 grams (2014.7.2.E)

**STP 002b, Ap horizon (2014.7.3)**

Ceramics

- 1 pearlware sherd, undecorated, indeterminate vessel shape (1780-1830, South 1977; Miller 1992) (2014.7.3.A)
- 1 refined white earthenware sherd, unidentified blue decoration, indeterminate vessel shape (2014.7.3.B)

Glass

- 1 clear manganese cylindrical tableware sherd, scratched (1880-1915), 0.1 grams (2014.7.3.C)

Miscellaneous

- 12 brick fragments, 12.8 grams (2014.7.3.D)
- 1 clam shell fragment, 0.1 grams (2014.7.3.E)

**STP 002c, Ap horizon (2014.7.4)**

Glass

- 1 clear cylindrical bottle/jar sherd, automatic bottle machine (1910-present), 1.1 grams (2014.7.4.A)

Miscellaneous

- 2 brick fragments, 17.1 grams (2014.7.4.B)

**STP 002d, Ap horizon (2014.7.5)**

Ceramics

- 1 redware sherd, brown glazed interior, unglazed exterior, hollow vessel (2014.7.5.A)

Glass

- 1 unidentified very pale aqua sherd, flat, scratched, 2.1 mm, 0.5 grams (2014.7.5.B)

Metal

- 1 cut nail fragment, machine headed (post-1830) (2014.7.5.C)
- 4 unidentified ferrous metal fragments (2014.7.5.D)

Miscellaneous

- 5 brick fragments, 9.3 grams (2014.7.5.E)
- 2 clam shell fragments, 1.1 grams (2014.7.5.F)

**STP 003, Ap horizon (2014.7.6)**

Ceramics

- 1 American Rockingham/Bennington sherd, undecorated, indeterminate vessel shape (1800-1912, Miller 1992; 1845-1900+, Magid 1990) (2014.7.6.A)
- 1 whiteware sherd, undecorated, indeterminate vessel shape (1820-1900+, South 1977; Miller 1992) (2014.7.6.B)

Glass

- 1 clear manganese cylindrical tableware sherd, rounded lip finish fragment (1880-1915), 0.6 grams (2014.7.6.C)

Metal

- 1 cut nail fragment (post-1790) (2014.7.6.D)

Miscellaneous

- 9 brick fragments, 38.0 grams (2014.7.6.E)
- 1 mortar fragment , 1.3 grams (2014.7.6.F)

**STP 004, Ap horizon (2014.7.7)**

Ceramics

- 1 pearlware sherd, molded decoration, indeterminate vessel shape (1780-1830, South 1977; Miller 1992) (2014.7.7.A)
- 1 refined white earthenware sherd, polychrome annular decoration, indeterminate vessel shape (2014.7.7.B)
- 1 refined white earthenware sherd, polychrome hand painted floral decoration, indeterminate vessel shape (2014.7.7.C)
- 1 refined white earthenware sherd, undecorated, indeterminate vessel shape (2014.7.7.D)
- 1 whiteware sherd, blue shell edge decoration, rim fragment, flat vessel, indeterminate rim diameter (1820-1900+, South 1977; 1830-1860+, Miller 1992) (2014.7.7.E)
- 1 whiteware sherd, undecorated, indeterminate vessel shape (1820-1900+, South 1977; Miller 1992) (2014.7.7.F)

Glass

- 1 clear manganese cylindrical bottle/jar sherd (1880-1915), 0.2 grams (2014.7.7.G)
- 1 greenish-aqua cylindrical bottle/jar sherd, scratched, 0.3 grams (2014.7.7.H)
- 1 unidentified pale aqua sherd, flat, scratched, 1.8 mm, 1.4 grams (2014.7.7.K)

Metal

- 1 cut nail fragment, machine headed (post-1830) (2014.7.7.L)

Miscellaneous

- 6 brick fragments, 16.5 grams (2014.7.7.M)

**STP 005, Ap horizon (2014.7.8)**

Ceramics

- 1 refined white earthenware sherd, unidentified polychrome decoration, indeterminate vessel shape (2014.7.8.A)

**STP 006, Ap horizon (2014.7.9)**

Ceramics

- 1 redware sherd, brown glazed, indeterminate vessel shape (2014.7.9.A)
- 1 whiteware sherd, undecorated, indeterminate vessel shape (1820-1900+, South 1977; Miller 1992) (2014.7.9.B)

**STP 007, Ap horizon (2014.7.10)**

Glass

- 1 unidentified pale aqua sherd, flat, scratched, 1.1 mm, 0.2 grams (2014.7.10.A)

**STP 008, Ap horizon (2014.7.11)**

Ceramics

- 1 pearlware sherd, undecorated, base fragment, indeterminate vessel shape and base diameter (1780-1830, South 1977; Miller 1992) (2014.7.11.A)

**STP 154, Ap horizon (2014.7.12)**

Ceramics

- 1 refined white earthenware sherd, undecorated, indeterminate vessel shape (2014.7.12.A)
- 1 refined white earthenware sherd, undecorated, indeterminate vessel shape, burned (2014.7.12.B)

Miscellaneous

- 2 brick fragments, 4.5 grams (2014.7.12.C)
- 1 coal fragment, 1.1 grams (2014.7.12.D)

**STP 155, Ap horizon (2014.7.13)**

Miscellaneous

- 2 coal fragments, 16.8 grams (2014.7.13.A)

**STP 157, Ap horizon (2014.7.14)**

Ceramics

- 2 pearlware sherds, undecorated, indeterminate vessel shape (1780-1830, South 1977; Miller 1992) (2014.7.14.A)
- 1 whiteware sherd, unidentified blue decoration, indeterminate vessel shape (1820-1900+, South 1977; Miller 1992) (2014.7.14.B)

Glass

- 1 clear manganese cylindrical tableware sherd, scratched, patinated (1880-1915), 0.1 grams (2014.7.14.C)
- 1 unidentified pale green sherd, slightly curved, cracked, scratched, 0.4 grams (2014.7.14.D)

Miscellaneous

- 1 coal fragment, 1.3 grams (2014.7.14.E)

**STP 158, Ap horizon (2014.7.15)**

Glass

- 1 light aqua cylindrical bottle/jar sherd, patinated, 0.8 grams (2014.7.15.A)

**STP 160, Ap horizon (2014.7.16)**

Ceramics

- 1 redware sherd, unglazed, indeterminate vessel shape (2014.7.16.A)

Glass

- 1 clear cylindrical bottle sherd, applied color label, automatic bottle machine (post-1934), 0.3 grams (2014.7.16.B)
- 2 green cylindrical bottle sherds, automatic bottle machine (1907-present), 0.4 grams (2014.7.16.C)

Metal

- 2 unidentified ferrous metal fragments, thin (2014.7.16.D)

Miscellaneous

- 2 brick fragments, 1.1 grams (2014.7.16.E)
- 1 coal fragment, 4.1 grams (2014.7.16.F)

**STP 160b, Ap horizon (2014.7.17)**

Ceramics

- 1 whiteware sherd, blue hand painted decoration, indeterminate vessel shape (1820-1900+, South 1977; 1830-1860+, Miller 1992) (2014.7.17.A)

Glass

- 2 amber cylindrical bottle sherds, automatic bottle machine (1907-present), 21.0 grams (2014.7.17.B)
- 1 aqua cylindrical bottle/jar sherd, scratched, 4.1 grams (2014.7.17.C)

**STP 160c, Ap horizon (2014.7.18)**

Glass

- 1 amber cylindrical bottle sherd, duraglas stippling, automatic bottle machine (1940-present), 0.5 grams (2014.7.18.A)
- 1 amber cylindrical bottle sherd, automatic bottle machine (1907-present), 0.4 grams (2014.7.18.B)
- 3 clear cylindrical bottle/jar sherds, automatic bottle machine (1910-present), 1.3 grams (2014.7.18.C)
- 1 light green cylindrical bottle sherd, 0.4 grams (2014.7.18.D)

Metal

- 1 unidentified nail fragment (2014.7.18.E)

**STP 160d, Ap/Apb horizon (2014.7.19)**

Ceramics

- 2 redware spalls, indeterminate vessel shape (2014.7.19.A)
- 1 whiteware sherd, undecorated, rim fragment, indeterminate vessel shape and rim diameter (1820-1900+, South 1977; Miller 1992) (2014.7.19.B)

Metal

- 1 lead bullet fragment (modern) (2014.7.19.C)
- 1 unidentified nail fragment (2014.7.19.D)

Miscellaneous

- 1 brick fragment, 11.8 grams (2014.7.19.E)

**STP 161, Ap horizon (2014.7.20)**

Ceramics

- 1 whiteware sherd, undecorated, indeterminate vessel shape (1820-1900+, South 1977; Miller 1992) (2014.7.20.A)

Miscellaneous

- 3 brick fragments, 45.6 grams (2014.7.20.B)

**STP 161a, Ap horizon (2014.7.21)**

Ceramics

- 1 creamware sherd, undecorated, indeterminate vessel shape (1762-1820, South 1977; Miller 1992) (2014.7.21.A)
- 1 pearlware sherd, undecorated, base fragment, indeterminate vessel shape and base diameter (1780-1830, South 1977; Miller 1992) (2014.7.21.B)
- 2 pearlware sherds, undecorated, indeterminate vessel shape (1780-1830, South 1977; Miller 1992) (2014.7.21.C)
- 1 redware sherd, brown glazed interior, unglazed exterior, base fragment, hollow vessel, 10.0 inch diameter (2014.7.21.D)

Glass

- 1 unidentified light green sherd, flat, 1.2 mm, 0.3 grams (2014.7.21.E)
- 1 windowpane sherd, lime soda (1864-present), 1.9 mm, 1.5 grams (2014.7.21.F)

Metal

- 1 unidentified nail fragment (2014.7.21.G)

Miscellaneous

- 8 brick fragments, 15.4 grams (2014.7.21.H)
- 3 clam shell fragments, 6.2 grams (2014.7.21.K)

**STP 161b, Ap horizon (2014.7.22)**

Ceramics

- 1 refined white earthenware sherd, unidentified blue decoration, indeterminate vessel shape (2014.7.22.A)
- 1 refined white earthenware sherd, unidentified polychrome decoration, indeterminate vessel shape (2014.7.22.B)
- 1 whiteware sherd, undecorated, indeterminate vessel shape (1820-1900+, South 1977; Miller 1992) (2014.7.22.C)

Metal

- 1 unidentified nail fragment (2014.7.22.D)

Miscellaneous

- 6 brick fragments, 64.8 grams (2014.7.22.E)

**STP 161c, Ap horizon (2014.7.23)**

Ceramics

- 1 gray and buff bodied stoneware sherd, unglazed interior, light brown salt glazed exterior, hollow vessel (2014.7.23.A)
- 1 whiteware sherd, unidentified blue decoration, indeterminate vessel shape (1820-1900+, South 1977; Miller 1992) (2014.7.23.B)
- 1 yellowware sherd, undecorated, indeterminate vessel shape (1830-1940, Miller 1992) (2014.7.23.C)

Miscellaneous

- 3 brick fragments, 49.6 grams (2014.7.23.D)

**STP 164, Ap horizon (2014.7.24)**

Metal

- 2 unidentified ferrous metal fragments, flat, thin (2014.7.24.A)

**STP 164a, Ap horizon (2014.7.25)**

Ceramics

- 2 pearlware sherds, undecorated, indeterminate vessel shape (1780-1830, South 1977; Miller 1992) (2014.7.25.A)
- 1 redware spall, indeterminate vessel shape (2014.7.25.B)

Miscellaneous

- 26 brick fragments, 29.4 grams (2014.7.25.C)
- 1 coal fragment, 0.8 grams (2014.7.25.D)

**STP 164a, Fill 1 horizon (2014.7.26)**

Ceramics

- 1 gray and buff bodied stoneware sherd, brown glazed interior, clear salt glazed exterior, hollow vessel (2014.7.26.A)

Miscellaneous

- 3 brick fragments, 129.3 grams (2014.7.26.B)

**STP 164b, Ap horizon (2014.7.27)**

Miscellaneous

- 4 brick fragments, 3.3 grams (2014.7.27.A)

**STP 164c, Ap horizon (2014.7.28)**

Glass

- 1 light aqua cylindrical bottle/jar sherd, scratched, patinated, 1.3 grams (2014.7.28.A)

**STP 165, Ap horizon (2014.7.29)**

Miscellaneous

- 6 brick fragments, 23.1 grams (2014.7.29.A)
- 1 clam shell fragment, 0.1 grams (2014.7.29.B)

**STP 165d, Ap horizon (2014.7.30)**

Ceramics

- 1 creamware sherd, undecorated, indeterminate vessel shape (1762-1820, South 1977; Miller 1992) (2014.7.30.A)
- 1 pearlware sherd, undecorated, indeterminate vessel shape (1780-1830, South 1977; Miller 1992) (2014.7.30.B)
- 2 refined white earthenware sherds, undecorated, indeterminate vessel shape, burned/stained (2014.7.30.C)

Glass

- 1 unidentified light aqua sherd, flat, 1.1 mm, 0.2 grams (2014.7.30.D)
- 1 unidentified very pale aqua sherd, flat, scratched, 2.2 mm, 0.9 grams (2014.7.30.E)

Metal

- 2 unidentified nail fragments (2014.7.30.F)

Miscellaneous

- 12 brick fragments, 105.0 grams (2014.7.30.G)
- 2 clam shell fragments, 7.6 grams (2014.7.30.H)
- 1 coal fragment, 0.4 grams (2014.7.30.K)
- 1 egg shell fragment (2014.7.30.L)

**STP 166, Ap horizon (2014.7.31)**

Ceramics

- 1 refined white earthenware sherd, undecorated, indeterminate vessel shape (2014.7.31.A)

Glass

- 1 light aqua cylindrical bottle/jar sherd, automatic bottle machine (1907-present), 1.1 grams (2014.7.31.B)

Metal

- 1 unidentified nail fragment (2014.7.31.C)

Miscellaneous

- 1 brick fragment, 1.8 grams (2014.7.31.D)
- 2 coal fragments, 6.0 grams (2014.7.31.E)

**STP 166a, Ap horizon (2014.7.32)**

Ceramics

- 1 refined white earthenware sherd, undecorated, indeterminate vessel shape (2014.7.32.A)

Metal

- 2 unidentified ferrous metal fragments (2014.7.32.B)

Miscellaneous

- 1 brick fragment, 16.1 grams (2014.7.32.C)

**STP 166b, Ap horizon (2014.7.33)**

Glass

- 1 amber cylindrical bottle sherd, automatic bottle machine (1907-present), 1.5 grams (2014.7.33.A)

Miscellaneous

- 2 brick fragments, 2.1 grams (2014.7.33.B)

**STP 166c, Ap horizon (2014.7.34)**

Glass

- 1 clear cylindrical bottle/jar sherd, automatic bottle machine (1910-present), 0.8 grams (2014.7.34.A)

Metal

- 1 unidentified ferrous metal fragment, spherical (2014.7.34.B)

**STP 166d, Ap horizon (2014.7.35)**

Ceramics

- 1 whiteware sherd, undecorated, indeterminate vessel shape (1820-1900+, South 1977; Miller 1992) (2014.7.35.A)

Miscellaneous

- 1 brick fragment, 6.8 grams (2014.7.35.B)
- 1 coal fragment, 1.7 grams (2014.7.35.C)

**STP 168, Ap horizon (2014.7.36)**

Miscellaneous

- 1 brick fragment, 0.5 grams (2014.7.36.A)
- 1 coal fragment, 3.7 grams (2014.7.36.B)

**STP 168b, Ap horizon (2014.7.37)**

Miscellaneous

- 2 brick fragments, 2.2 grams (2014.7.37.A)

**STP 168c, Ap horizon (2014.7.38)**

Ceramics

- 1 refined white earthenware sherd, undecorated, indeterminate vessel shape, stained (2014.7.38.A)

Miscellaneous

- 1 brick fragment, 3.3 grams (2014.7.38.B)

**STP 169, Ap horizon (2014.7.39)**

Glass

1 unidentified clear spall, 0.1 grams (2014.7.39.A)

Metal

1 ferrous metal wire fragment (2014.7.39.B)

1 unidentified nail fragment (2014.7.39.C)

Miscellaneous

1 brick fragment, 0.2 grams (2014.7.39.D)

**Site 7S-G-203, CRS#S12278**

**STP 046, E horizon (2014.8.1)**

Prehistoric

1 quartz primary reduction flake, proximal, weathered (2014.8.1.A)

**STP 072, E2 horizon (2014.8.2)**

Prehistoric

1 chert primary reduction flake, proximal, weathered (2014.8.2.A)

**STP 073, E2 horizon (2014.8.3)**

Prehistoric

1 chert decortication flake, proximal, weathered (2014.8.3.A)

1 chert primary reduction flake, medial, weathered (2014.8.3.B)

**STP 076, E2 horizon (2014.8.4)**

Prehistoric

1 chert biface thinning flake, proximal, weathered (2014.8.4.A)

**STP 081, E2 horizon (2014.8.5)**

Prehistoric

1 chert biface thinning flake, proximal, weathered (2014.8.5.A)

**STP 117, E2 horizon (2014.8.6)**

Prehistoric

1 chert primary reduction flake, medial, weathered (2014.8.6.A)

**STP 135, E2 horizon (2014.8.7)**

Prehistoric

1 chert flake fragment, weathered (2014.8.7.A)

**STP 137, Ap horizon (2014.8.8)**

Prehistoric

1 chert biface thinning flake, proximal, weathered (2014.8.8.A)

**STP 141, E2 horizon (2014.8.9)**

Prehistoric

1 chert flake fragment, heavily weathered (2014.8.9.A)

1 chert primary reduction flake, medial, heavily weathered  
(2014.8.9.B)

**STP 144, E2 horizon (2014.8.10)**

Prehistoric

1 chert primary reduction flake, distal, weathered (2014.8.10.A)

**STP 146, E2 horizon (2014.8.11)**

Prehistoric

- 1 chert biface thinning flake, medial, weathered (2014.8.11.A)

**AREA B**

**Isolated Finds**

**STP 07, E horizon (2014.11.1)**

Prehistoric

- 1 chert decortication flake, whole, weathered (2014.11.1.A)
- 1 chert primary reduction flake, medial, weathered (2014.11.1.B)

**Site 7S-G-204, CRS#S12279**

**STP 17, Ap horizon (2014.9.1)**

Miscellaneous

- 1 coal fragment, 10.6 grams (2014.9.1.A)

**STP 17b, Ap horizon (2014.9.2)**

Glass

- 1 clear manganese cylindrical tableware sherd (1880-1915), 2.6 grams (2014.9.2.A)

**STP 22, Ap horizon (2014.9.3)**

Ceramics

- 1 whiteware sherd, blue transfer printed, indeterminate vessel shape (1820-1900+, South 1977; 1830-1865+, Miller 1992) (2014.9.3.A)

**STP 22a, Ap horizon (2014.9.4)**

Ceramics

- 1 whiteware sherd, undecorated, indeterminate vessel shape (1820-1900+, South 1977; Miller 1992) (2014.9.4.A)

**STP 24, Ap horizon (2014.9.5)**

Ceramics

- 1 hard paste porcelain sherd, undecorated, indeterminate vessel shape (2014.9.5.A)
- 1 whiteware sherd, undecorated, indeterminate vessel shape (1820-1900+, South 1977; Miller 1992) (2014.9.5.B)

Glass

- 1 amber cylindrical bottle sherd, automatic bottle machine (1907-present), 0.8 grams (2014.9.5.C)

Miscellaneous

- 1 slag fragment, 3.8 grams (2014.9.5.D)

**STP 24b, Ap horizon (2014.9.6)**

Glass

- 1 aqua cylindrical bottle/jar sherd, automatic bottle machine (1907-present), 0.5 grams (2014.9.6.A)
- 3 clear cylindrical bottle/jar sherds, automatic bottle machine (1910-present), 5.5 grams (2014.9.6.B)

Miscellaneous

- 1 brick fragment, 1.4 grams (2014.9.6.C)

**STP 24d, Ap horizon (2014.9.7)**

Ceramics

- 1 whiteware sherd, green annular decoration, rim fragment, hollow vessel, indeterminate rim diameter (1820-1900+, South 1977; 1830-1875+, Miller 1992) (2014.9.7.A)

Glass

- 1 clear cylindrical canning jar sherd, embossed "K (in keystone)/R72/24...", base fragment, automatic bottle machine, manufactured by Knox Glass Bottle Company, Knox, Pennsylvania (1924-1968, Lockhart 2004), 55.9 grams (2014.9.7.B)



**APPENDIX III**  
**Geoarchaeology of the South Field in the Bay Farm Improvement Project in Sussex  
County, Delaware**

**By Daniel P. Wagner, Ph.D.**



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## **Geoarchaeology Of the South Field In the Bay Farm Road Improvement Project In Sussex County, Delaware**

By  
Daniel P. Wagner, Ph.D.  
Pedologist

April 3, 2014

The following is a discussion of geoarchaeological interpretations for the southern field in the Bay Farm Road Improvements Project in Sussex County, Delaware. The project area was investigated on March 27, 2014 at which time a number of shovel test excavations were available for examination. Two considered representative of principal landscape positions were selected for detailed soil descriptions, which entailed soil examinations by means of hand auger borings adjacent to the excavations. Examined soil profiles were described in accordance with standard techniques and nomenclature for the field description of soil, and the compiled descriptions are attached at the end of this discussion.

The project area landscape is typical of much of southern Delaware, and consists of gently sloping to nearly level terrain with a likely long history of tillage. As a consequence of this history it should be expected that the existing relief across the field is almost surely more subdued than that of the original topography prior to European settlement. The usual result of long term tillage is a pattern of soil movement in which soil is deflated from higher landscape positions and then conversely amassed at lower positions. Thus, surfaces across high positions would be lowered and those of low positions raised. Evidence for this would be a tendency for upper soil horizons on the high positions to be either thinned or entirely missing, with the opposing action of over-thickening of surface horizons along lower positions. An example of the latter is given by the profile of STP 57 where extending to the depth of 40 cm, the thickness of the plow zone is roughly twice the norm for a typical plow zone.

Also typical of much of southern Delaware is the sandy composition of the project area soils. The examined area is blanketed by a surficial mantle of sand that can best be described as a sheet deposit of eolian sand. At some locations in the region interior eolian sand deposits exhibit dunal forms similar to those along coasts and river shoreline. Dunal sands of this nature can be quite deep, but more commonly interior sand deposits like those of the study location are relatively thin (<1 m) and distributed fairly uniformly across the landscape (Figure 1). Also unlike dunal sands in which there is usually little or no subsoil formation, well developed argillic (Bt) subsoil horizons occur beneath the project area sands.



**Figure 1. At the location of STP 46 grayish eolian sands with a gravel concentration near the base extend to contact with an underlying argillic horizon at the depth of 59 cm.**

Interpreting the relationship between the surficial sand and underlying subsoil horizons is a topic of speculation. Although these upper deposits are often described as E (eluvial) horizons from which minerals and elements would typically be removed and translocated downward into the subsoil, in actuality these upper horizons are unlikely to be genetically linked to the underlying subsoil B horizons. That is, translocated illuvial constituents in the subsoil were probably not derived from the overlying sand, but rather from an earlier upper horization sequence that no longer exists. Specifically, the subsoil horizons beneath the sand are interpreted to be the truncated remnants of a paleosol that occupied the landscape prior to the arrival of the sand. That some truncation event occurred is strongly evinced by pebble concentrations and even erosional stone lines at the base of the sand and atop the subsoil (Figure 2). The paleosols would presumably have suffered truncation during the same period of instability responsible for sand mobilization, and indeed the sand could very well have been derived from the winnowing of soil materials that once formed the upper levels of the paleosols. It is also possible that more than one period of destabilization and winnowing occurred.

The nature and origin of the sand mantle has significant implications for archaeology. In all probability the lower subsoil levels date well into the Pleistocene and should be considered culturally sterile. However, two scenarios are in play for potential cultural deposits within the upper sand, and neither is especially straightforward. If like the underlying subsoil the upper sand mantle also dates to the Pleistocene, then all occupations would have utilized essentially the existing land surface. That being the case the bulk of any cultural materials present would likely occur at near-surface levels. However, it is also important to recognize that natural processes of bioturbation tend to be more active in sandy soils than in more loamy soils, and it is accordingly not uncommon for artifacts to be introduced to considerable depths in sand

mantles. Hence, while some integrity may be lost in the downward mixing of artifacts, some potential for cultural deposits does exist throughout the thickness of the sand. This interpretation would also apply even if the sands originated during the Holocene after human settlement of the region, but an additional consideration for artifact distribution also comes into play with this possibility. Any early cultural deposits that might have been present prior to the sand mobilization would now very likely occur as lag deposits akin to the gravel concentrations near the base of the sand. This would almost surely be the case for any Paleoindian material, and with regard to the Paleoindian period a strong contender for initiating eolian mobilization of sand would be the Younger Dryas cold reversal that occurred between Clovis and Early Archaic occupations.



**Figure 2.** At the base of the deeper (84 cm) sand mantle at the location of STP 63, an erosional stone line separates the sand from the underlying subsoil horizons.

## Soil Profile Descriptions

### Boring Adjacent to STP 46

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Horizon	Depth (cm)	Properties
Ap	0-22	Very dark grayish brown (2.5Y 3/2) loamy fine sand; few pebbles; very friable consistence
E1	22-42	Grayish brown (2.5Y 5/2) loamy fine sand; ~5% pebbles; very friable consistence
E2	42-59	Grayish brown (2.5Y 5/2) gravelly sand; ~30% pebbles; loose consistence
2Bt	59-122	Strong brown (7.5YR 4/6) and light brownish gray (10YR 6/2) sandy loam to loam; few pebbles; friable consistence
2BC	122-156	Light brownish gray (10YR 6/2) sandy loam; few pebbles; very friable consistence
2C	156-175+	Light yellowish brown (10YR 6/4), fine sandy loam; few pebbles; very friable consistence

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**Other comments:** Upper backslope position; 3% slope; well drained; description 3/27/14

### Boring Adjacent to STP 63

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Horizon	Depth (cm)	Properties
Ap	0-24	Very dark grayish brown (2.5Y 3/2) loamy fine sand; few pebbles; very friable consistence
E	24-84	Grayish brown (2.5Y 5/2) loamy fine sand; few pebbles; very friable consistence
2BE	84-116	Strong brown (7.5YR 4/6) and pale brown (10Y6 6/3) sandy loam; few pebbles throughout and stone line on top; friable consistence
2Bt1	116-157	Dark yellowish brown (10YR 4/6) and pale brown (10YR 6/3) sandy loam to loam; few pebbles; friable consistence
2Bt2	157-180+	Yellowish brown (10YR 6/2) sandy clay loam; common, coarse distinct mottles of light gray (2.5Y 7/1); few pebbles; friable consistence

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**Other comments:** Lower backslope position; 2% slope; well drained; description 3/27/14