INTRODUCTION

The purpose of this report is to describe the results of a Phase I and II cultural resource study of the proposed Ogletown Interchange project area. The project area is located in White Clay Creek Hundred in north-central New Castle County, Delaware (Figure 1), and encompasses an area of approximately 100 acres. Approximately 3.5 miles of linear right-of-way (ROW) were studied in the 1985 and 1986 surveys (Figure 2, 3, and 4). The field work and report preparation took place between June 1985 and December 1986. The survey work was undertaken by the University of Delaware Center for Archaeological Research (UDCAR) for the Delaware Department of Transportation (DelDOT) and the Federal Highway Administration (FHWA) under Section 106 of the National Historic Preservation Act to evaluate the effects of the proposed relocation and reconstruction of Delaware Routes 4 and 273 on significant, or potentially significant, cultural resources as defined by the National Register of Historic Places (36CFR60).

The cultural resource survey of the project area was performed in two phases in 1985 and 1986 due to a design change that took place in late 1985. The 1985 survey, based on the modified concept alignments discussed in an environmental assessment by Blendy and Ostensen (1985) included three segments; Segment 1 - Birchwood Park to Ogletown Home Cooking, Segment 2 - Salem Church Road Industrial Park to Red Mill Road, and Segment 3 - Route 4 improvements (Figure 3). The results of this survey were summarized in a management report published by DelDOT (Coleman and Custer 1985). The 1986 survey was based on expanded project area alignments discussed in a preliminary case report

FIGURE 1

Project Area and Regional Location

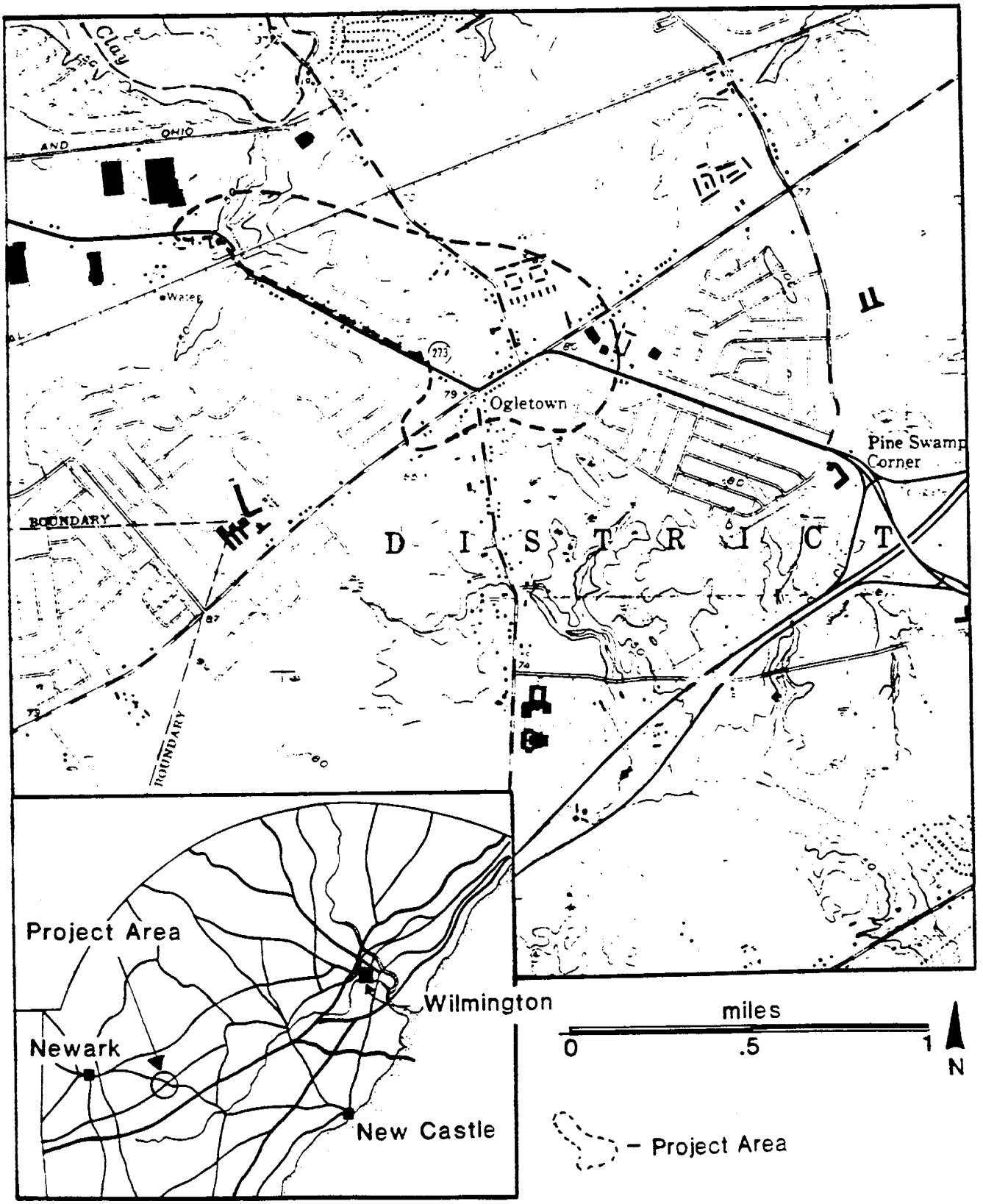


FIGURE 2

Project Area and Project Segments

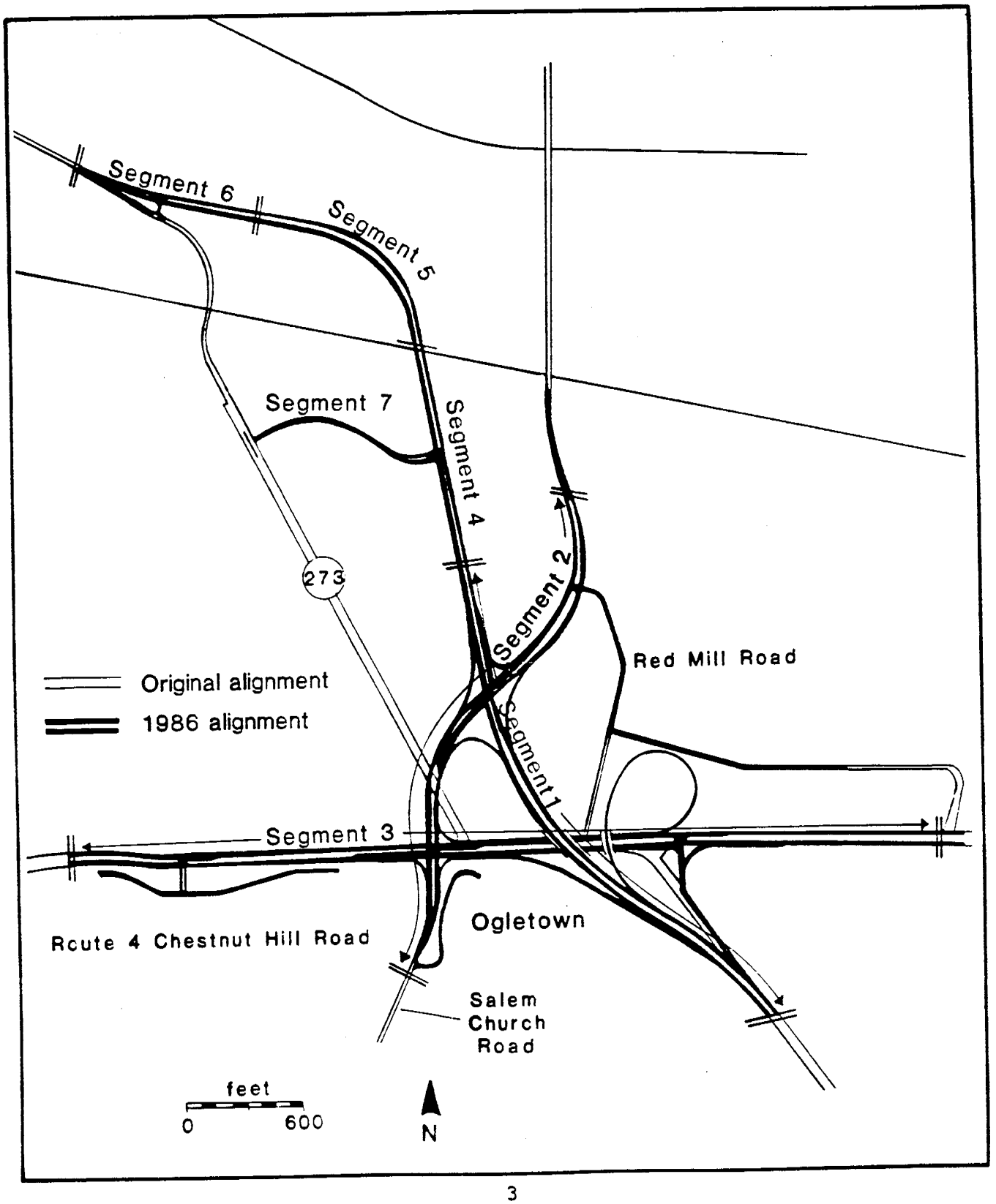


FIGURE 3

Modified Alternative Design Plan

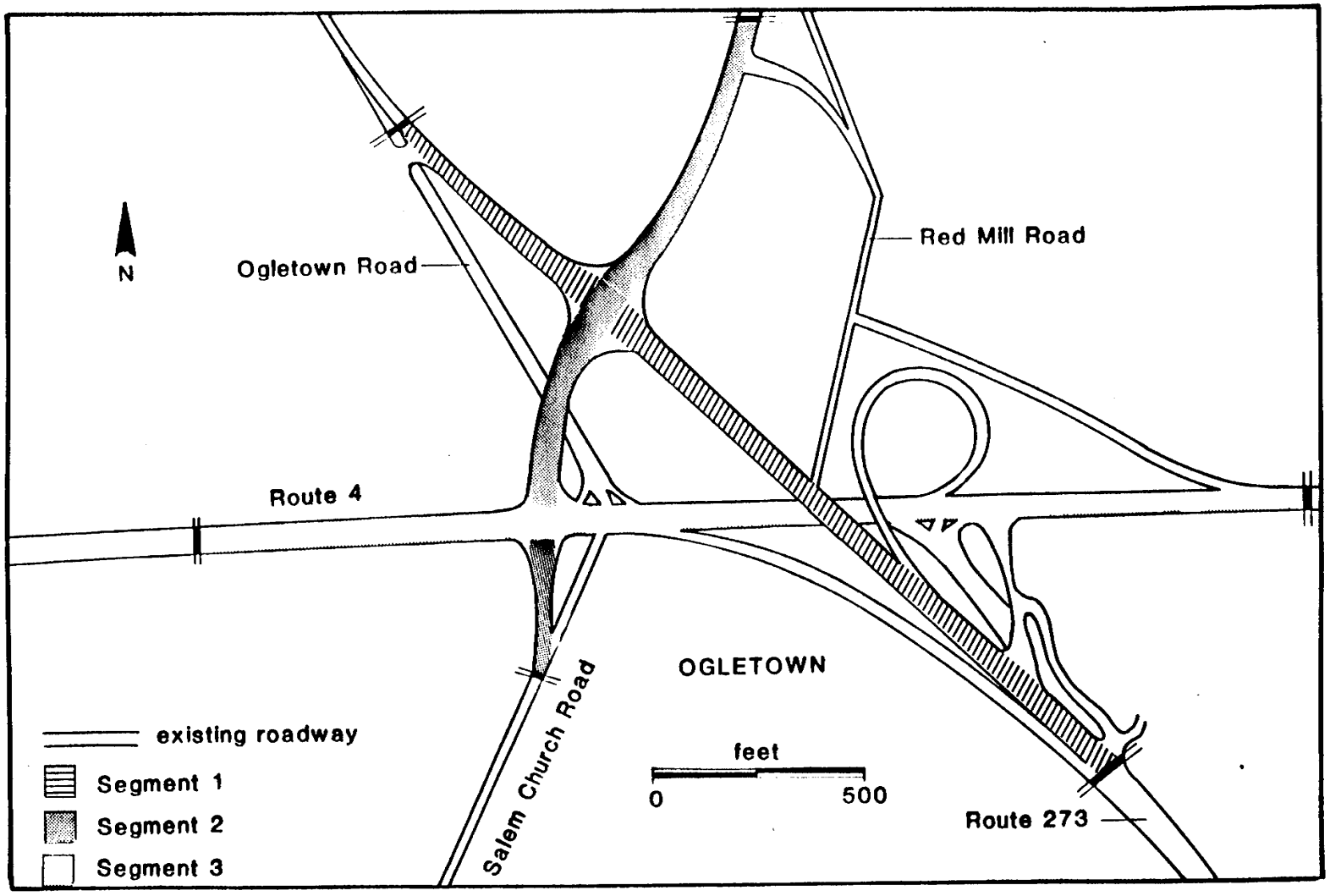
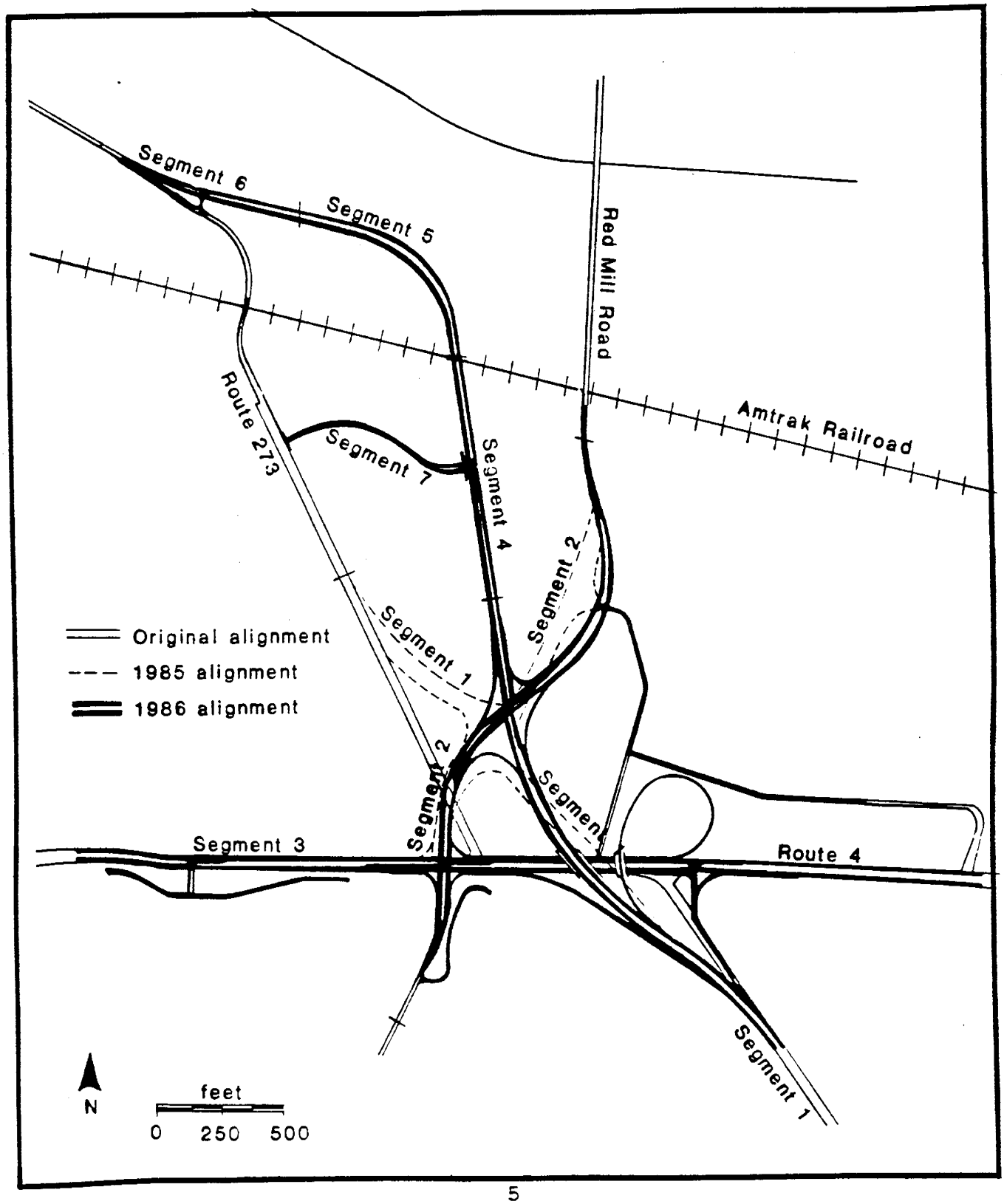


FIGURE 4

1985 vs. 1986 Alignments



by Blendy and Ostensen (1985). The major alignment changes included the expansion of the northern tie back of the new Route 273 alignment with the present Route 273 roadway (Figures 2 and 4). This action necessitated additional archaeological survey due to a change of the terminus of Segment 1 from Ogletown Home Cooking to Greenleaf Manor. The 1986 recommended design concept created an additional one mile of Route 273 ROW which was subjected to Phase I/II survey. For organizational purposes this one mile of new ROW was divided into Segments 4, 5, and 6 (Figures 2 and 4). Previously unsurveyed areas also affected by the new design concept were included in a shift of the ROW alignment of Segment 2 which involved a westward shift of the alignment at the Rt. 273 crossing and an eastward shift in the Paradise Lane area (Figure 4). The previously surveyed Route 4 alignment improvements, designated as Segment 3, was not changed although the creation of a frontage road will encroach further onto the previously identified A. Temple site (7NC-D-68, N-5308) (Thomas 1980). The creation of an additional segment of ROW (Segment 7) by the 1985 design change necessitated the Phase I/II survey of an access road originating within Segment 4 and terminating at Route 273 and approximately 1,100' in extent (Figure 4).

Within the project area the built environment consists of standing structures dating almost exclusively to the 20th century. Only one historic structure (the 19th century John Sayer House [N-11072]) exists within the project area (Table 1). The results of a preliminary architectural survey determined that this structure has received extensive 20th century modifications.

TABLE 1
Ogletown Interchange
Current Status of Cultural Resources

CULTURAL RESOURCE NAME	CRS #	ARCH. SITE #	A	B	C	D	E	F	G	H	I	J
Dairy Queen Site	10895	7NC-D-129	X				X		X	X		
Paradise Lane Site & Extension	10891	7NC-D-125	X				X		X	X		
W. E. Heisler Site	10894	7NC-D-128	X	X	X	X		X		X	X	
Ogle Site (Prehistoric Component)	215 5309	7NC-D-69	X				X		X	X	X	
W. E. Heisler Tenancy Site	10893	7NC-D-127	X		X	X		X		X	X	
A. Temple Site	5308	7NC-D-68	X	X	X	X	X	X		X	X	X
Ogle Site (Historic Component)	215 5309	7NC-D-69	X	X	X	X	X	X		X	X	
John Ruth Inn Site	10892	7NC-D-126	X	X	X	X		X		X		
Robert Ogle Site	11071	7NC-D-105	X	X	X	X		X				
Norman Tyndall Site	10945	7NC-D-132	X						X	X	X	
John Sayer	11072	7NC-D-133	X		X	X		X				
Gabor Site (Areas A and B)	10944	7NC-D-131	X							X	X	

Key:

A - BAHP File information with CRS Number
B - appears on Rea and Price (1849)
C - appears on Beer's Atlas (1868)
D - appears on Baist's Atlas (1893)
E - identified by Thomas (1980)
F - historic archaeological site
G - prehistoric archaeological site
H - Phase I investigation completed
I - Phase II testing completed
J - data recovery recommended if site can't be avoided

In the present study, the entire proposed right-of-way is considered to be subject to potential impact (Figure 2). Initial sections of this report describe the environmental setting, and the regional prehistoric and historic context for the project area. Phase I field reconnaissance and Phase II site examination are then discussed with reference to field methodologies, design of the research and testing program, background research, and results of investigations. Finally, recommendations are provided for cultural resources encountered within the project area.

Appreciation for their support, administration, research and services is extended to all the involved individuals:

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ENVIRONMENTAL SETTING

The Ogletown Interchange project area is located in the east-central portion of New Castle County (Figure 1). The entire project area is in an area transitional between the Fall Line and High Coastal Plain physiographic zones of Delaware. The summary of the local environmental setting presented below is abstracted from the work of Custer (1984:23-25) and Custer and DeSantis (1986).

The Fall Line/High Coastal Plain transition zone of Delaware is a northeast-southwest trending zone through the northern portion of the Delmarva Peninsula and is characterized by a combination of features common to both the Fall Line and High Coastal Plain (Spoljaric 1967:3). The Fall Line Zone is itself a transitional zone between the Piedmont Uplands and the flatter Coastal Plain areas to the south. Streams flowing with steep gradients from the Piedmont reach the Fall Line Zone, which is less steep, and drop their bed loads (Spoljaric 1967). At present, the bed loads of the Piedmont streams are quite small, but at various times in the past these streams carried tremendous loads and dropped the gravels, cobbles, boulders, and various sorted sands that make up the Columbia Formation described by Jordan (1964). These deposits were unconformably deposited on the Potomac Formation, which consists of fluvially deposited silts and clays dating to the early Cretaceous Period. Watercourses from the north and northeast deposited the gravels, sands, silts, and clays of the Columbia Formation sometime during the Quaternary. Sands, which form the primary component of these sediments, consist mostly of quartz and feldspar while gravels are dominated by sandstone, vein quartz, and chert (Jordan 1964). These geologic deposits created a series of well-drained soils and interspersed cobble beds throughout the Fall Line Zone. Cobble beds are of special interest because they provide good sources of raw material for the manufacture of stone tools. Water resources are abundant and are comprised of variously sized tributaries of the White Clay Creek, which flows parallel to the

Fall Line.

Custer (1984) following Jordan (1964), distinguishes between the Higher (Upper) Coastal Plain and lower portions of Delaware's Coastal Plain based primarily on textural differences in the Columbia sediments of these two areas. Located between the Fall Line and the Smyrna River, the High Coastal Plain represents the southeastern extension of the very coarse glacial deposits of the Columbia sediments (Jordan 1964:40). In many areas these coarse deposits resisted erosion, creating a rolling topography with up to 16 meters (50 feet) of elevation difference between the headlands bordering the larger streams and the adjacent floodplain marshes. Elevation differences surrounding the project area range up to 52 meters (170) feet from the floodplains of White Clay Creek to the edge of the Fall Line. Even though these Upper Coastal Plain elevation differences are considerably less than those noted for the Piedmont and Fall Line, they are great enough to significantly influence seasonal differences in plant communities (Braun 1967:246-247). Water courses tend to be deeply incised and are lined by a veneer of relatively recent sediments that is thin along the upper reaches of drainages and thickens toward their mouths (Kraft et al. 1976:13). Most streams are tidal and the saltwater/freshwater mix allows for a wide range of resources. Bay basin features, noted for other portions of northern Delaware, are present within the project area (Custer 1984). Soil types present within the project area include a variety of well-drained to poorly drained series that are distributed in a mosaic pattern across the project area. Various alluvial sediments of the Columbia Formation have served as

parent material for all of these soils. These soil series are summarized in Table 2 with their soil associations, drainage, and textural characteristics. The transitional nature of the project area's physiographic setting is mirrored by the distribution of the soil associations with the Elsinboro-Delanco-Urban association found in the northern half of the project area and the Sassafras-Fallsington-Matapeake association found in the southern section.

TABLE 2

SOILS SERIES TYPES FOR THE
OGLETOWN IMPROVEMENT AREA
(From Matthews and Lavoie 1970)

Soil Series	Drainage/textural Characteristics	General Location
Matapeake	Deep, well drained silt loam	South/Central
Fallsington	Poorly drained loam	All 3
Delanco	Moderately drained, silt loam	South/Central
Woodstown	Deep, moderately well drained loam	South
Bayboro	Very poorly drained silt loam	South/Central
Sassafras	Deep, well-drained sandy loam	South/Central
Elkton	Poorly-drained silt loam	South/Central
Elsinboro	Deep, well-drained silt loam	North
Hatboro	Very poorly drained silt loam	North

Note: Northern = Project Area North of Amtrak RR
Central = Project Area South of Amtrak RR and North of Route 4 and Route 273
South = Project Area South of Route 4 and Route 273

The 20th century environment of the Ogletown area bears little resemblance to the overwhelmingly rural nature of the project area during the previous two centuries. Prior to limited residential development which began in 1920 and continued into the 1960's, the project area consisted of dispersed farmsteads, agricultural fields and pastures, woodlots, and limited commercial facilities such as a country store and post office. Within the last three decades, considerable residential and commercial development took place and the area has assumed the appearance of a mixed land-use suburban environment including housing subdivisions and small business and commercial complexes. The northern section of the project area has not been subjected to this development and has retained its agricultural/rural land use.

REGIONAL PREHISTORY

The prehistoric archaeological record of northern New Castle County area can be divided into four blocks of time: The Paleo-Indian Period (ca. 12,000 B.C. - 6500 B.C.), The Archaic Period (6500 B.C. - 3000 B.C.), the Woodland I Period (3000 B.C. - A.D. 1000), and the Woodland II Period (A.D. 1000 - A.D. 1650). A fifth time period, the Contact Period, may also be considered and includes the time period from A.D. 1650 to A.D. 1750, the approximate date of the final Indian habitation of northern Delaware in anything resembling their pre-European Contact form. Each of these periods is described below and the descriptions are summarized from Custer (1984) and Custer and DeSantis (1986).

Paleo-Indian Period (12,000 B.C. - 6500 B.C.) - The Paleo-Indian Period encompasses the time period of the final disappearance of Pleistocene glacial conditions from Eastern North America and the establishment of more modern Holocene environments. The distinctive feature of the Paleo-Indian Period is an adaptation to the cold, and alternately wet and dry conditions at the end of the Pleistocene and the beginning of the Holocene. This adaptation was primarily based on hunting and gathering, with hunting providing a large portion of the diet. Hunted animals may have included now extinct megafauna and moose. A mosaic of deciduous, boreal, and grassland environments would have provided a large number of productive habitats for these game animals throughout northern Delaware, and watering areas in the study area, would have been particularly good hunting settings.

Tool kits of Paleo-Indian groups were oriented toward the procurement and processing of hunted animal resources. A preference for high quality lithic materials has been noted and careful resharpening and maintenance of tools was common. A lifestyle of movement among the game attractive environments has been hypothesized with the social organizations being based upon single and multiple family bands. Throughout the 5500 year time span of the period, the basic settlement structure remained relatively constant with some modifications being seen as Holocene environments appeared at the end of the Paleo-Indian Period.

Numerous Paleo-Indian sites are noted for northern Delaware including hunting and processing sites near Hockessin (Custer and

DeSantis 1985) and adjacent to the Wilmington Medical Center (Custer, Catts, and Bachman 1982), possible quarry sites near Iron Hill, and isolated point finds. Although no clear-cut associations have yet been found, it is also hypothesized that bay/basin features may have also attracted Paleo-Indian groups (Custer, Cavallo, and Stewart 1983).

Archaic Period (6500 B.C. - 3000 B.C.) - The Archaic Period is characterized by a series of adaptations to the newly emerged full Holocene environments. These environments differed from earlier ones and were dominated by mesic forests of oak and hemlock. A reduction in open grasslands in the face of warm and wet conditions caused the extinction of many of the grazing animals hunted during Paleo-Indian times; however, browsing species such as deer flourished. Sea level rise was also associated with the beginning of the Holocene Period in northern Delaware. The major effect of the sea level rise was to raise the local water table, which helped to create a number of large swamps, such as Churchmans Marsh, which is located approximately 6km northeast of the study area. Adaptations changed from the hunting focus of the Paleo-Indians to a more generalized foraging pattern in which plant food resources would have played a more important role. Large swamp settings such as Churchmans Marsh supported large base camps as indicated by the remains at the Clyde Farm site. A number of small procurement sites at favorable hunting and gathering locales are also known in northern Delaware.

Tool kits were more generalized than earlier Paleo-Indian tool kits and showed a wider array of plant processing tools such as grinding stones, mortars, and pestles. A mobile lifestyle was probably common with a wide range of resources and settings utilized on a seasonal basis. A shifting band-level organization which saw the waxing and waning of group size in relation to resource availability is evident.

Woodland I Period (3000 B.C. - A.D. 1000) - The Woodland I Period can be correlated with a dramatic change in local climates and environments that seem to have been a part of events occurring throughout the Middle Atlantic region. A pronounced warm and dry period set in and lasted from ca. 3000 B.C. to 1000 B.C. Mesic forests were replaced by xeric forests of oak and hickory, and grasslands again became common. Some interior streams dried up, but the overall effect of the environmental changes was an alteration of the environment, not a degradation. Continued sea level rise also made many areas of the Delaware River and Bay shore the sites of large brackish water marshes which were especially high in productivity.

The major changes in environment and resource distributions caused a radical shift in adaptations for prehistoric groups. Important areas for settlements included the major river floodplains and estuarine swamp/marsh areas. Large base camps with fairly large numbers of people are evident in many areas of northern New Castle County such as the Delaware Park site, the Clyde Farm site, the Crane Hook site, and the Naamans Creek site, These sites supported many more people than previous base camp sites and may have been occupied on nearly a

year-round basis. The overall tendency was toward a more sedentary lifestyle.

Woodland I tool kits show some minor variations as well as some major additions from previous Archaic tool kits. Plant processing tools became increasingly common and seem to indicate an intensive harvesting of wild plant foods that may have approached the efficiency of horticulture by the end of the Woodland I Period. Chipped stone tools changed little from the preceding Archaic Period; however, more broad-bladed knife-like processing tools became prevalent. Also, the presence of a number of non-local lithic raw materials indicates that trade and exchange systems with other groups were beginning to develop. The addition of stone, and then ceramic, containers is also seen. These items allowed more efficient cooking of certain types of food and may also have functioned as storage for surplus food resources. Storage pits and house features during this period are also known from the Delaware Park site and the Clyde Farm site. Social organization also seem to have undergone radical changes during this period. With the onset of relatively sedentary lifestyles and intensified food production, which might have produced occasional surpluses, incipient ranked societies may have begun to develop, as indicated by the presence of extensive trade and exchange and some caching of special artifact forms. By the end of the Woodland I Period a relatively sedentary lifestyle existed in northern Delaware.

Woodland II Period (A.D. 1000 - A.D. 1650) - In many areas of the Middle Atlantic, the Woodland II Period is marked by the

appearance of agricultural food production systems; however, settlements of the Woodland I Period, especially the large base camps, were also occupied during the Woodland II Period and very few changes in basic lifestyles and artifact assemblages are evident (Stewart, Hummer, and Custer 1986). Intensive plant utilization and hunting remained the major subsistence activities up to European Contact. Similarly, no major changes are seen in social organization for the Woodland II Period of northern Delaware.

Contact Period (A.D. 1650 - A.D. 1750) - The Contact Period is an enigmatic period of the archaeological record of northern Delaware which began with the arrival of the first substantial numbers of Europeans in Delaware. The time period is enigmatic because few Native American archaeological sites that clearly date to this period have yet been discovered in Delaware, although numerous Contact Period sites are evident in southeastern Pennsylvania. It seems clear that Native American groups of Delaware did not participate in much interaction with Europeans and were under the virtual domination of the Susquehannock Indians of southern Lancaster County, Pennsylvania. The Contact Period ended with the virtual extinction of Native American lifeways in the Middle Atlantic area except for a few remnant groups.

REGIONAL HISTORY

The following regional history is abstracted from two previous DelDOT reports (Coleman et al. 1984; Coleman et al. 1985). More detailed histories of specific sites and segments

within the Ogletown improvement area are contained in the discussion of each project area segment (Figure 2).

The earliest colonial settlement in Delaware known as Swanendael ("valley of swans") was made at present Lewes in 1631 under the sponsorship of patroons of the Dutch West India Company for the purpose of whaling and raising grain and tobacco. This venture was privately financed, but it ended in tragedy when the all-male population was massacred by the local Indians in 1632. Farther north a group of Swedes in the employ of the New Sweden Company built Fort Christina in 1638 in what is now part of the present city of Wilmington and established the first permanent European settlement in Delaware. The Swedish government supported the venture, and Fort Christina became the nucleus of a scattered settlement of Swedish and Finnish farmers known as New Sweden.

The Dutch claimed the identical land -- from the Schuylkill River south -- by right of prior discovery, and in 1651 the West India Company retaliated by building Fort Casimir at New Castle in an attempt to block Swedish efforts to control commerce in the Delaware River. The Swedes captured this fort in 1654 and renamed it Fort Trinity. Rivalry between Swedes and Dutch continued, and the Dutch recaptured Fort Trinity in 1655, and also seized Fort Christina. As a result, New Sweden went out of existence as a political entity. Nonetheless, the Swedish families continued to observe their own customs and religion.

In 1657, as a result of peaceful negotiations the City of Amsterdam acquired Fort Casimir from the West India Company, and founded a town in the environs of the fort called New Amstel.

This was a unique situation in American colonial history in that a European city became responsible for the governance of an American colony. A small fort was also erected at Lewes in 1659 for the purpose of blocking English intrusion, and a few settlers built homes there including 41 Dutch Mennonites who established a semi-socialistic community in July of 1663. They, too, were under the supervision of local officials appointed by the burgomasters of Amsterdam.

English hegemony of the region began in 1664 when Sir Robert Carr attacked the Dutch settlement at New Amstel on behalf of James Stuart, Duke of York, brother to Charles II. This was an important move on England's part to secure her economic position in the New World. New Amstel, renamed New Castle, was besieged and sacked by English soldiers and sailors resulting in the deaths of three Dutch soldiers and the wounding of ten others. English troops plundered the town, and English officers confiscated property, livestock, and supplies belonging to the City of Amsterdam, as well as the personal property and real estate owned by the local Dutch officials. The homes of the Mennonites and other settlers at Lewes were also pillaged.

A transfer of political authority from Dutch to English then followed, and the Dutch settlers who swore allegiance to the English were allowed to retain their lands and personal properties with all the rights of Englishmen. Former Dutch magistrates continued in office under English authority, and Swedes, Finns, and Dutch all peacefully accepted the rule of the Duke of York through his appointed governors. In 1682, the

granting of proprietary rights to William Penn and his representatives gave economic and political control of the Delaware region to Philadelphia, the new seat of government (Munroe 1978).

The settlement pattern for this early period was one of dispersed farmsteads located along the Delaware and its tributaries, such as the Christina, Appoquinimink, Brandywine, Mill Creek, White Clay and Red Clay Creeks, where the land possessed good agricultural qualities. The Swedish and Dutch settlers had pushed their settlement far up the valley of the Christina toward the Elk River. The town of Christina Bridge (modern Christiana), so named because it was the crossing place of that river, was established by about 1660 at the head of navigation of the Christina.

With the arrival of Penn in the 1680's, settlers pursued an individualistic system of land settlement, with the proprietors granting tracts or parcels of land. Penn usually granted land to families, with the standard size being about 500 acres. In the study area, property sizes at the end of the seventeenth century ranged between 100 and 700 acres, but there were also nearby tracts of over 1000 acres. These large grants belonged to land speculation companies, such as the London Company, or to the friends and relatives of the proprietors, such as Letitia Penn's Manor of Stenning. Based on contemporary deeds, land warrants and surveys, there were less than a half a dozen land owners in the project area at the turn of the eighteenth century.

By 1683 the cultivated areas of the region consisted of the three lower counties, New Castle, Kent, and Sussex, and three

Pennsylvania counties, Philadelphia, Buckingham (Bucks), and Chester. The total population of all six of these counties in 1683 has been estimated to have been about four thousand people. In New Castle County five tax districts, called Hundreds, had already been established by 1687. With the growth of the population, four more hundreds were created in 1710, with White Clay Creek Hundred, which includes the study area, being one of these (Conrad 1908:287).

With the exception of the port towns of Philadelphia and New Castle, there were no other major commercial or social centers in the area during the seventeenth century. The small clusters of dwellings (hamlets) that sprang up were situated either on the major transportation routes of the period, or on a navigable watercourse. The most prosperous of these communities were those located so as to take advantage of both forms of transportation. The villages of Christina Bridge and Cantwell's Bridge (present-day Odessa) were the only hamlets of any size in the area and both were located on major rivers and roads. Very few were located inland or accessible only through road transportation, for the inland road network was almost nonexistent. An exception to this was "Ogle's Town", which was located along the road to the Elk River as early as 1679. Ogle's Town along with neighboring Glasgow (Aiken's Tavern) was established at the intersection of overland inter-regional connectors. Like many similar inland crossroads towns established in the Colonial period, Ogletown stagnated after an initial period of rapid growth in the late 18th and early 19th

century even though it continued to function as a religious and commercial center. Ogletown, like neighboring Stanton and Glasgow, experienced little economic and population growth throughout the late 19th century and mid-20th century.

In the New Castle County region, water transportation was a major mode of travel and commerce in the late seventeenth century. Most of the farmstead tracts and land grants had frontage on, or access to, a water course to ensure that communication and the moving of produce to local markets could be accomplished (Hoffecker 1977). In a country that was heavily wooded with a mixture of oaks, walnut, hickory, chestnut, and maple, water travel was the easiest, safest, and most effective means of transport. Overland travel was extremely difficult, because roads were few in number and very poor. The road from the Head of Elk to Christina Bridge, the area's major overland transportationroute and one of the most heavily travelled roads in pre-Revolutionary America, was in horrible condition.

Swedish settlers in the region grew rye and barley on their farms, but later immigrants quickly replaced these grains with wheat when it was found that it could be grown more easily. More importantly, it was realized that wheat was a marketable commodity, and the farmers and settlers in the area soon shifted from a subsistence-oriented agricultural system to one which was market-oriented. Wheat, and to a lesser extent corn, were grown and then shipped by water to local milling sites. The transportation of grains to milling sites supported an extensive coastwide trade employing shallops or other similar boats. Milling sites were among the earliest manufacturing complexes in

the region. There was a mill in New Castle by 1658, and one on Red Clay Creek by 1679 (Pursell 1958). Villages such as Christiana Bridge, Newport, and Appoquinimink grew larger as a result of this shipping trade, and became market places for the surrounding country. By the start of the eighteenth century, the region was beginning to be recognized as a wheat and grain producing area.

Attempts at the mining and smelting of iron ore were unsuccessful in the Delaware region during the seventeenth century. In Delaware, the Iron Hill area in western Pencader Hundred was an area known to contain iron deposits by 1673, the date of publication of Augustine Hermann`s map which labels the spot "Yron hill". The manufacture of iron became more widespread with the start of the eighteenth century. By 1716, iron production was well established in Pennsylvania. In Delaware, Sir William Keith had started a blast furnace on the slopes of Iron Hill by 1725, and a bloomary furnace was known to be in operation near St. James Church in Mill Creek Hundred, operated by John Ball (Swank 1884:142, 179). From documentary sources, it appears that Ball purchased the land in 1706, and erected the bloomary soon thereafter. Deed records indicate that he was a blacksmith by trade.

White Clay Creek Hundred and New Castle County were part of a broader regional economy that was centered in Philadelphia, which quickly began to dominate the economies of the lower Delaware Valley during the last quarter of the seventeenth century. New Castle County was part of Philadelphia's

agricultural and commercial hinterland, along with western New Jersey, northeast Maryland, southeastern and northeastern Pennsylvania, and Kent and Sussex counties in Delaware. Farmers in the region sent their grains to the local milling centers, and the wheat flour was then shipped to Philadelphia for export to the West Indies, other North American colonies, and southern European countries. The farmers and merchants in New Castle County quickly adapted to this market system of agriculture. It is estimated that over one-half of the farmers in the area were situated within eight miles (or a half-day's journey) of a mill or shipping wharf (Walzer 1972:163).

Settlement in New Castle County during the 18th century continued much as it had in the previous century. In the Philadelphia region, there was a large influx of immigrants between 1725 and 1755, particularly Scotch-Irish, most of whom were indentured servants. As the overland road transportation network improved, colonists began to move inland away from the navigable rivers and streams. Good, productive land was settled first, but as the population began to grow, marginal land was also occupied. The size of farms in New Castle County ranged between 100 and 200 acres, indicating a decline in size from the seventeenth century due to a tendency for the large grants and tracts to be divided and subdivided by sale and inheritance (Munroe 1954:19). By mid-century, improved land in the Ogletown area was selling for a little over one Pennsylvania pound per acre. In the study area, settlement of patented tracts began in earnest in the first quarter of the eighteenth century. Deed records become more common during this period, and several houses

in the vicinity of Ogletown were constructed at this time. Some of these houses are still extant although others are not.

Lemon (1967, 1972) has divided the eighteenth century in the Philadelphia region into three periods of urban growth. The first period (1700 to 1729) was one of urban stagnancy after the initial rapid growth of the seventeenth century. However, hamlets, which are defined here as unplanned towns that sprang up at crossroads and around taverns, ferries, churches, and mills, did begin to appear at this time. Ogletown, in White Clay Creek Hundred, and the Mermaid Tavern intersection on Limestone Road, are examples of eighteenth century hamlets in New Castle County. Both were located at crossroads on major transportation routes.

The second period of urbanization that Lemon recognizes (1730 to 1765) saw a renewal of town growth based on internal trade. Towns such as Newport, Cuckholdstown (modern Stanton), Milltown, Hockessin (then known as "Ockesson") and Newark were established and prospered during this period. Christina Bridge, which had stagnated since initial settlement in the 1680's, began a remarkable period of growth and prosperity as a major grain transshipment port for agricultural products from Delaware and the Upper Chesapeake Bay area.

The town of Stanton, known as Cuckoldstown as early as 1746, became an important milling and grain center in the late eighteenth century. A grist mill is known to have been in the vicinty of Stanton by 1679, and by 1800 the town rivaled Newport as a local grain processing center. Ships of moderate draft were able to navigate up the Red Clay Creek and take on farm produce

from the local area and southeastern Pennsylvania. Located at the confluence of Red and White Clay Creeks, Stanton was never a large town. A map of the New Castle County region, drawn in 1777, did not include the location of Stanton, and a travelers' guide, published in 1789, showed only a mill and ten houses in the vicinty of the town (Colles 1961:170). Hockessin, or Ockesson, grew around the location of the Hockessin Friends Meeting House, constructed in 1738. Nearby were a school and a blacksmith shop, the only structures in the hamlet until the 1820's.

Wilmington was by far the largest urban center in New Castle County that developed in this period. Chartered in 1739, Wilmington soon became a port of entry and a post town, and was an important link in the Philadelphia trading network. Of special significance was the city's proximity to the Brandywine Mills. Wilmington was thus a receiving center for local and regional farm produce, brought by water from Christina, Stanton, and Newport, and shipped up the Delaware to Philadelphia (Lindstrom 1978; Walzer 1972).

Lemon's third period of urban development (1766-1800) was marked by less noticeable town growth which paralleled more erratic economic patterns. Little growth in the towns of New Castle County took place during this period. However, increases in population and land tenancy were noted (Lemon 1972:216) and in New Castle County this period witnessed a rapid growth in inland transportation routes.

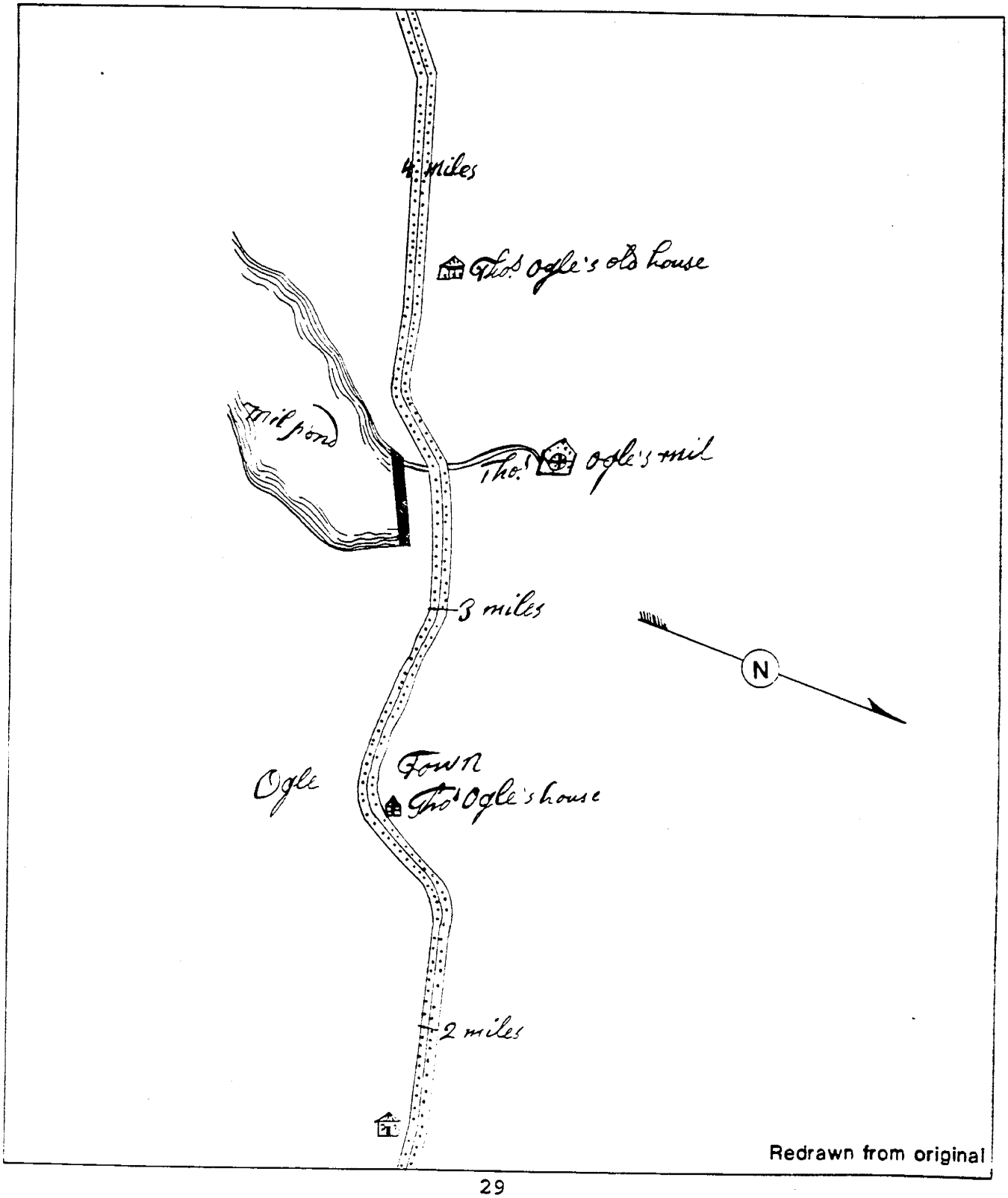
The conditions of roads in New Castle County improved considerably over the course of the eighteenth century, but in

some locations they were still unsatisfactory even by contemporary 18th century standards. Most improvement was due to increased population growth and interregional trade. By 1750, the roadbeds of many of the area's present-day state roads (Routes 4, 7, 273, and portions of Pennsylvania's Route 896) were already established. The extensive road construction and reconstruction that began in the mid-18th century was preceeded by a 1752 Act of the Legislature directed to "erecting public bridges, causeways, and laying out and maintaining highways" (Laws of the State of Delaware 1797). Because the public roads were not adequately maintained, an additional Act was passed in 1762 "for the better regulation of the roads in New Castle County". This act established a statewide system of King's Roads which were to receive the highest priority for maintenance and improvement. Prior to the Revolutionary War, all of the roads in the area were simply intra-regional connectors to locations to the surrounding area. The road network within the study area represents the earliest roads within the Mid-Atlantic region (Walzer 1972). As stated earlier, secondary historic references, (Scharf 1888:933) place the existence of a road from Ogle's Town to the Elk River as early as 1679.

The earliest extant road plat for the project area is a 1750 road return showing the course of a road running from Christiana Bridge to Nottingham (Route 273). Within the project area Thomas Ogle's House, Thomas Ogle's Mill and Mill Pond, and Thomas Ogle's old house are all shown (Figure 5). No other structures in Ogletown are shown on this plat. A 1755 road plat also includes

FIGURE 5

New Castle County Road Petition Plat, 1750, Road from Christiana Bridge to Ogletown to Pennsylvania



Redrawn from original

the Ogletown area and shows three main roads in the project area: The Great Road from Ogle Town to Head of Elk, the great road from Christiana Bridge to Ogle town and to Nottingham, and the great road from Ogle Town to Joseph England's Mill and northward to Corner Ketch (Figure 6).

Based on these dates and events, and the known influx of colonists to the area which resulted in the formation of White Clay Creek Hundred in 1710, it is probable that the England's Mill Road was initially laid out in the first quarter of the eighteenth century. In addition to its use as a major agricultural produce transportation route, extending from the Pennsylvania farmlands to the transshipment centers on the streams, the road may also have functioned as an overland route for the transport of burned and unburned limestone, which was quarried and processed in the vicinity. An 1832 repetition for the proper laying out of Red Mill Road supports this contention. "The road..... has been from time immemorial a useful public road, not only from the general access it affords to Mill, Meeting, and Market but from its bearing towards points favorable to the general intercourse of a large portion of our citizens. It is believed that this road was a long time ago laid out as a public road and that the record of it has been lost....." Within the project area this road plat shows the John Ruth Inn and the William Heisler House site (Figure 7). Throughout the late 18th and early and mid-19th century the road from the head of Elk to Christiana Bridge (Route 4) and from Newark to Christiana Bridge (Route 273) was constantly being petitioned for straightening and other improvements. Petitions from this era

FIGURE 6

New Castle County Road Return Plat, 1755, Three Roads, White Clay Creek, Ogle's Mill, Christiana Bridge

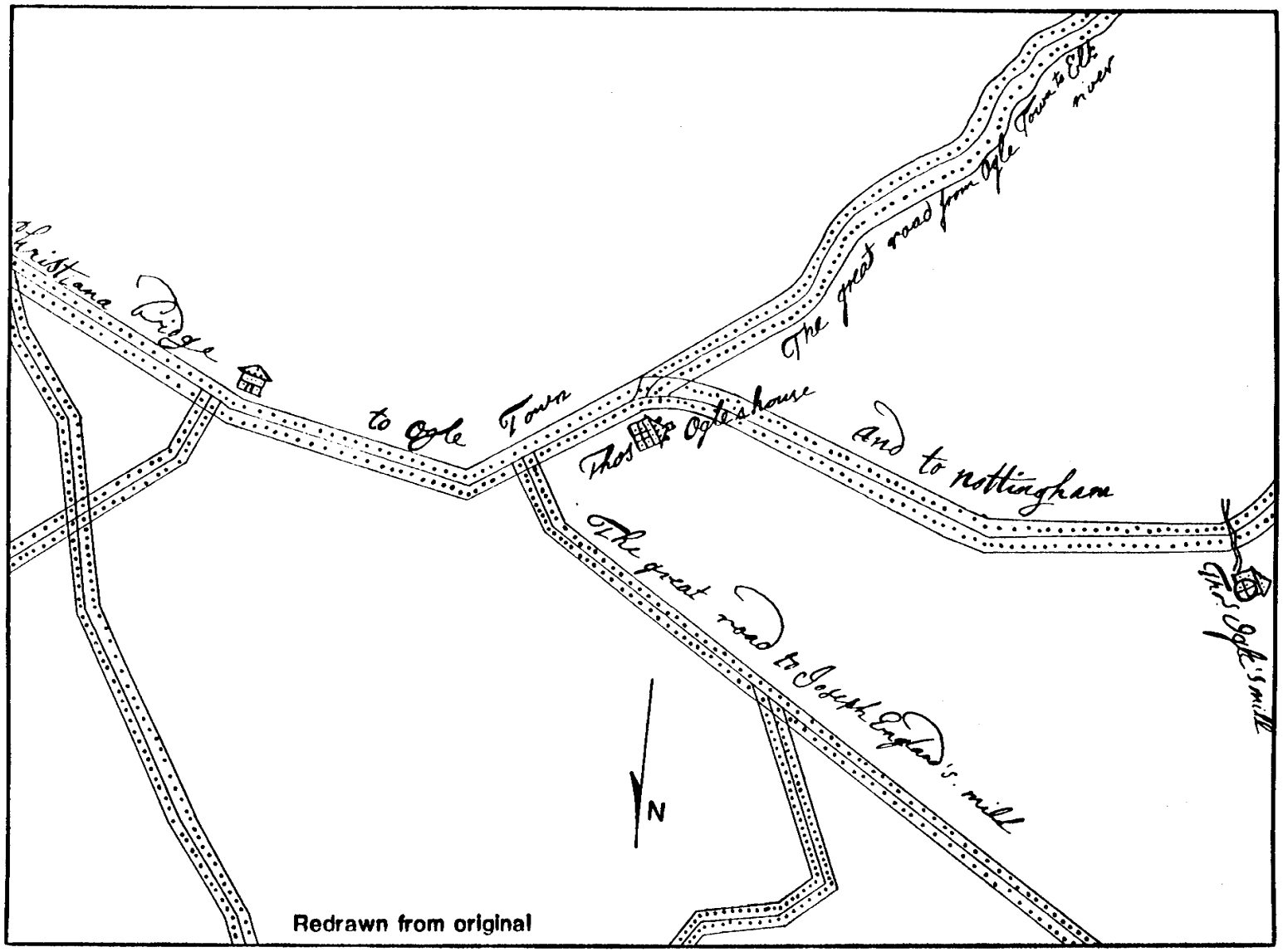


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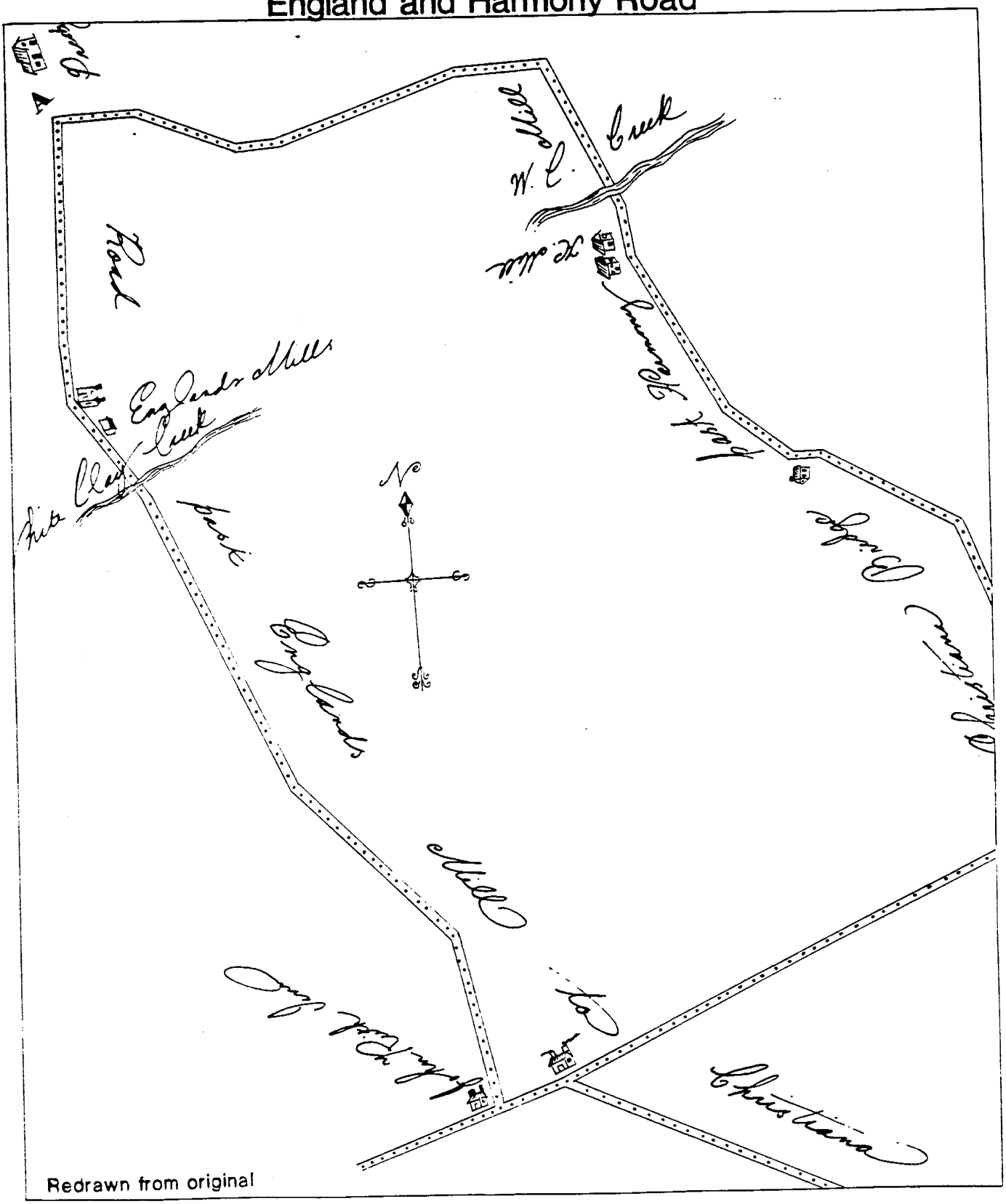
FIGURE 7

New Castle County Road Petition Plat, 1832, England and Harmony Road



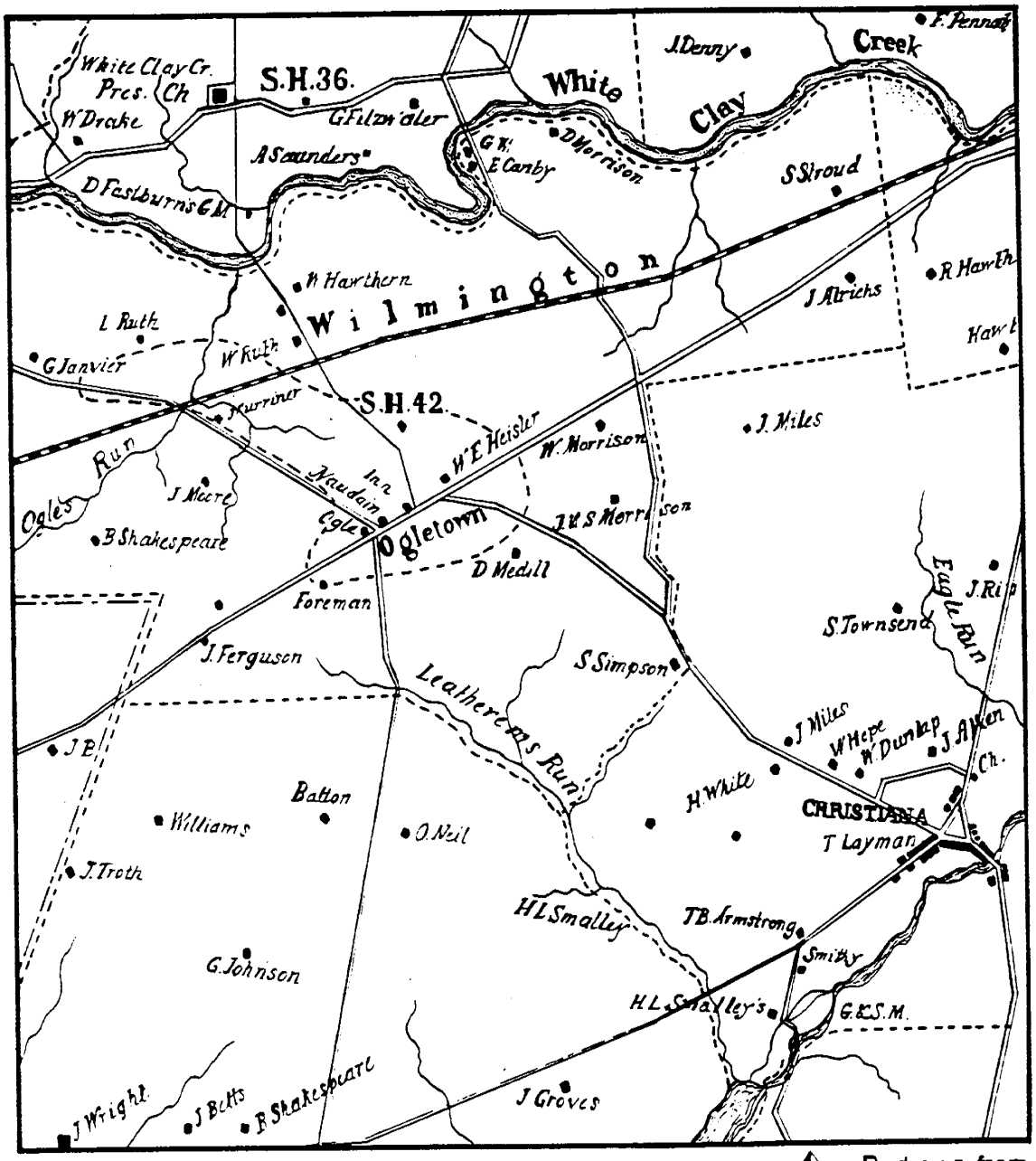
of improvement date to 1763, 1766, 1812, 1842, and 1850. The most significant attempt at a lasting road improvement was the formation of the Elk and Christiana Turnpike Company to control the road running from Christiana Bridge to the Delaware-Maryland line, covering seven miles and forty-two perches. The company, chartered in 1813, opened the road for business in 1817, abandoned the road less than 25 years after it had been completed. A February 1841 act revoked the charter and the road was converted to a toll-free road.

The last road to be laid out within the project area was the Salem Church Road which was petitioned in 1827 and laid out from the house of Nicholas LeHury in Ogletown to the Christiana and Elkton Turnpike near the Methodist Meeting House. After 1827 and throughout the 19th century there were essentially no additional roadways added in this area as can be seen from a comparison of the 1849 Rea and Price Map (Figure 8) with the 1868 Beer's Atlas (Figure 9), Hopkin's 1881 Map (Figure 10), and Baist's 1893 Atlas (Figure 11).

Farming in the eighteenth century in New Castle County continued to be a system of mixed husbandry, combining the cultivation of grains with the raising of livestock. Farming was the most important occupation for between 80 and 90 percent of the area's population (Egnal 1975). Wheat remained as the primary grain produced, followed by rye, corn, barley, oats, and garden vegetables. In many areas, generations of repeated tillage had begun to exhaust the soil. Agricultural practices in New Castle County followed an extensive, rather than an intensive, use of the land (Lemon 1972:179).

FIGURE 8

Detail of Ogletown, White Clay Creek Hundred, Rea and Price "Map of New Castle County, Delaware" (1849)



Redrawn from original

- Limits of Ogletown project area

N

FIGURE 9

Detail of Ogletown, White Clay Creek Hundred,

D. G. Beers' "Atlas of the State of Delaware" (1868)

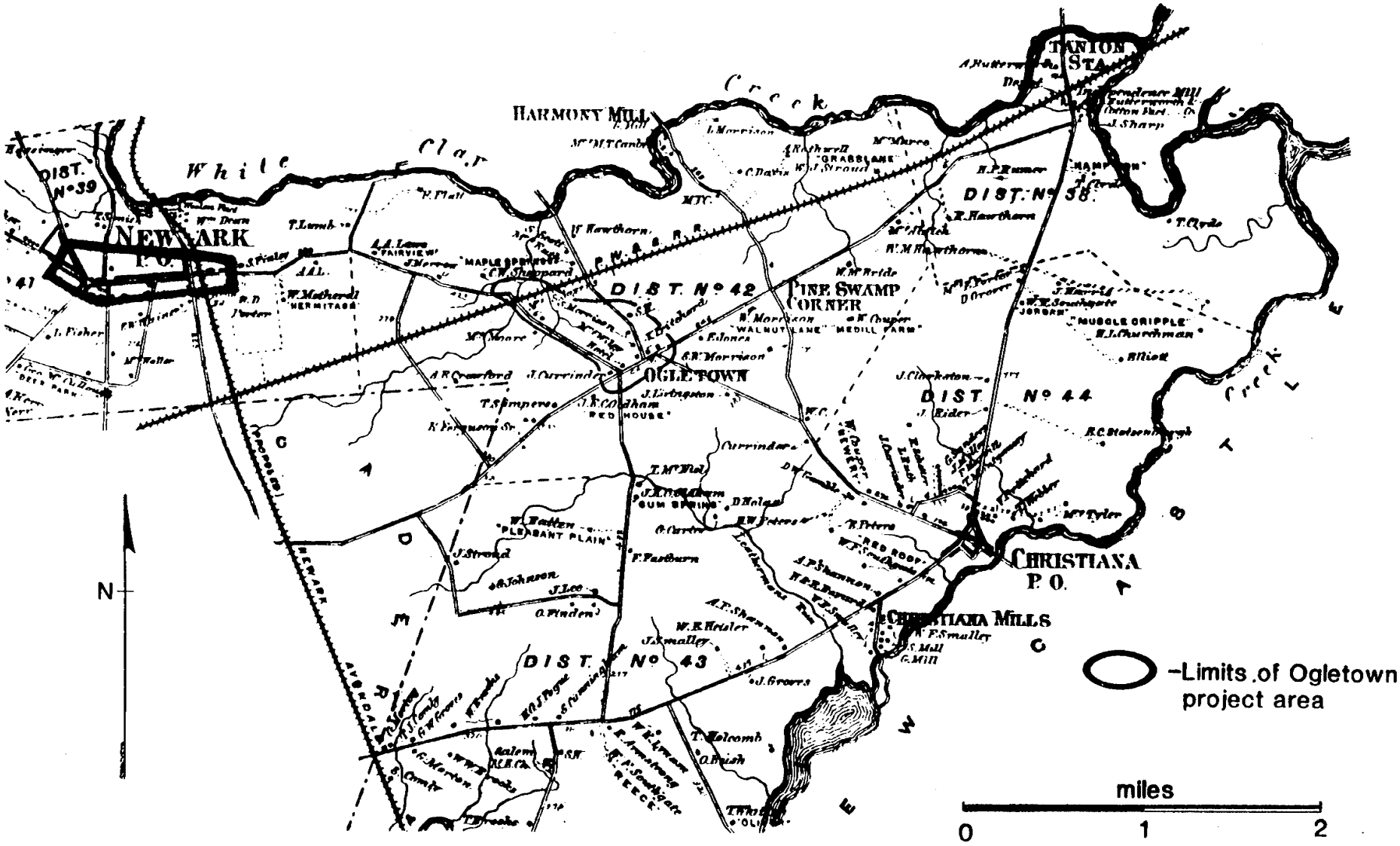
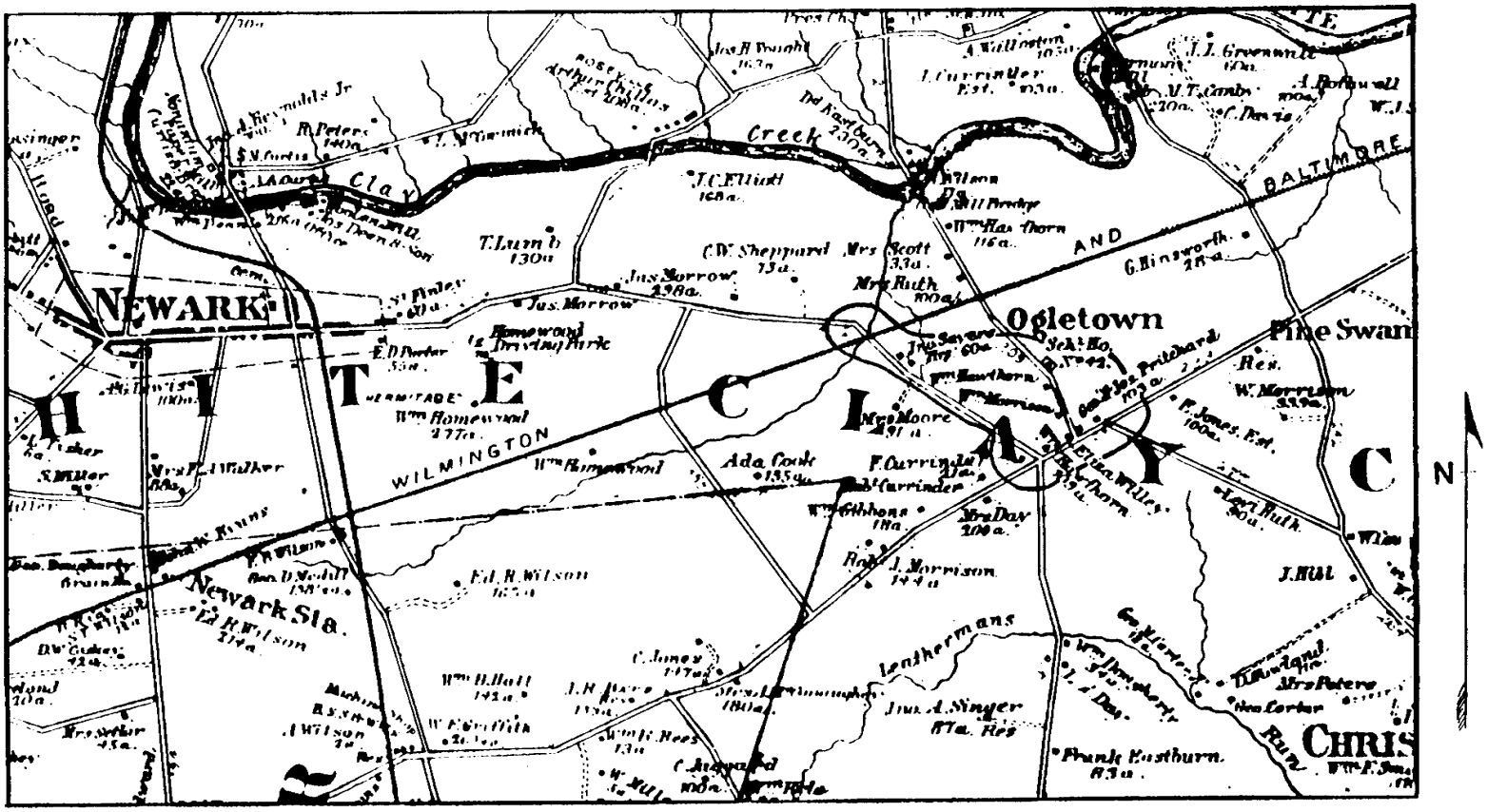


FIGURE 10

Detail of Olgetown, White Clay Creek Hundred,

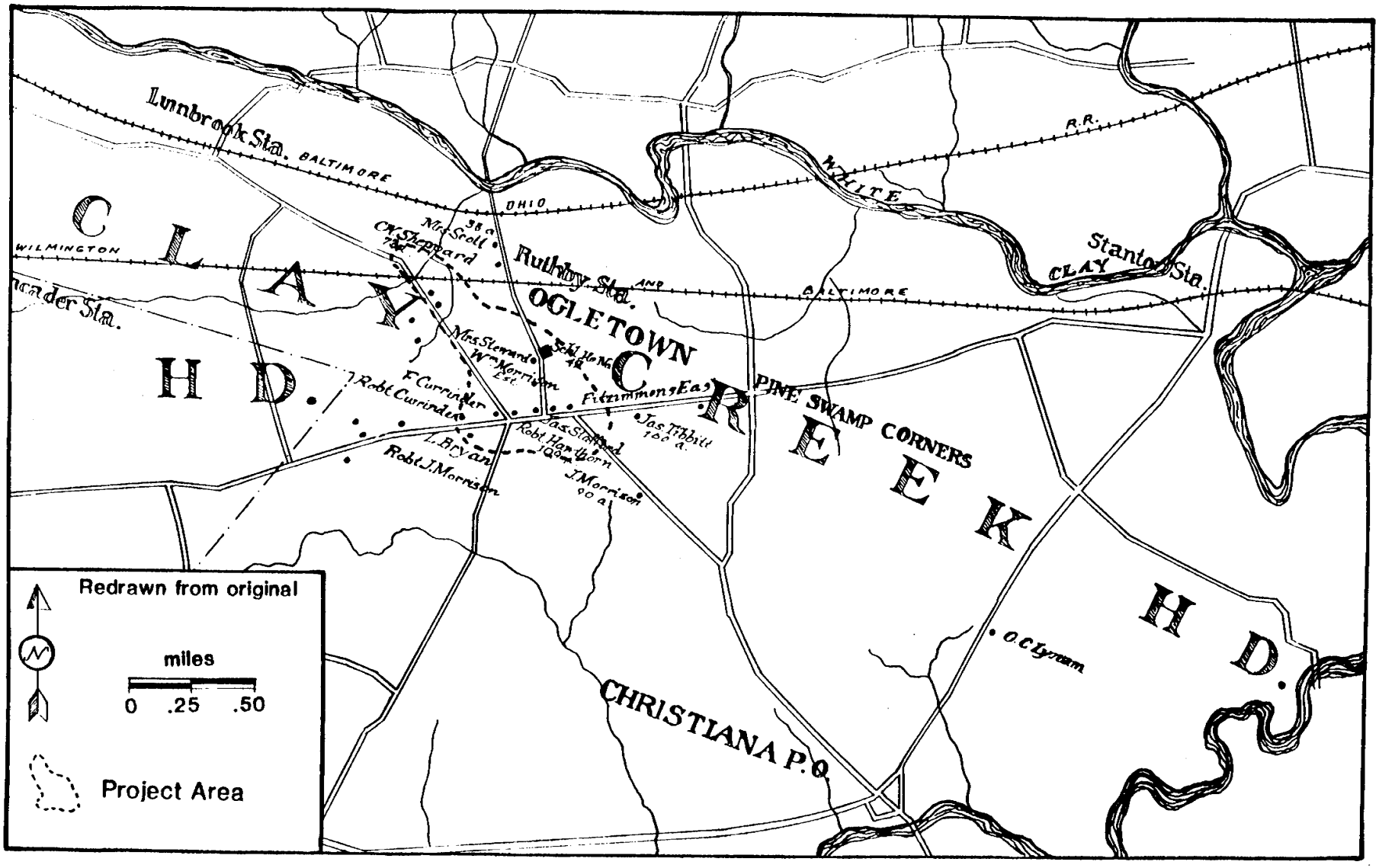
Hopkin's "Map of New Castle County, Delaware" (1881)



○ –Limits of Ogletown project area

FIGURE II

Detail of Ogletown, White Clay Creek Hundred,
G. W. Baist's "Atlas of New Castle County, Delaware" (1893)



Delaware's manufacturing capacity in this century began to become realized. During the 18th century the iron industry, lumber products, and grain milling enterprises continued to grow and prosper. New industries were started that engaged in the preparation of snuff from tobacco, the production of salt from brines in lower Delaware, and the rudimentary beginnings of the textile industry. By the end of the century Delaware was one of the leading manufacturing states and Wilmington and its environs constituted one of America's leading industrial areas.

In the northern Delaware area, the nineteenth century was marked by rapid industrial and urban growth and population expansion, and was accompanied by a noticeable decline in the number of people engaged in agriculture. The rapid growth of the population during the early decades of the century forced many new farmers in the Middle Atlantic area to clear and farm lands of poor or marginal quality. Many of these farmers were hard pressed to turn a profit from their farmsteads, and this resulted in an outmigration of a large portion of the population during the 1820s and 1830s to better lands to the west particularly in the Ohio River Valley (Hancock 1947). The loss of jobs related to agriculture was partly offset by the development of new sources of income and employment, particularly in urban and industrial contexts. Thus, much of the surplus population that had in previous centuries been farm laborers, tenants, or unemployed, moved into urban and industrial centers where jobs were more plentiful. These trends occurred over the first half of the nineteenth century, and by 1860 were well established (Lindstrom 1979).

Urbanization in New Castle County during the first quarter of the century was closely tied to transportation routes and agricultural and industrial production. However, most of the towns of importance in the eighteenth century, which were settled because of their location on major transportation arteries, remained major marketing, milling and shipping centers for only a brief period into the nineteenth century.

In the first half of the nineteenth century, methods and routes of transportation underwent substantial changes in New Castle County as first turnpikes, then canals, and finally railroads were introduced. Throughout the century, improved transportation was the key to urban, agricultural, and industrial development. One of the first successful turnpikes in Delaware, and most important to the history and development of the study area, was the Newport and Gap Turnpike, begun in 1808. Although the pike was a more direct route to the wharves of Newport, it was a toll road, had numerous grades, and crossed several watercourses, all of which made the Limestone Road (Route 7) an important and well-traveled transportation route for teamsters throughout most the nineteenth century. By 1820, White Clay Creek Hundred had 28.5 miles of roads, rating it number eight out of the nine hundreds in the County, above only Red Lion Hundred in the proportion of road to surface area.

The most significant canal built in Delaware was the Chesapeake and Delaware Canal, completed in 1829. Originally planned to connect the Elk and Christina Rivers, it was later constructed across the peninsula below New Castle, just north of

Reedy Island. The canal was expected to bring wealth and prosperity to the communities of northern Delaware, and in fact, two new towns were constructed, Delaware City and Chesapeake City, at the termini of the Canal. Instead of widespread prosperity, however, the canal contributed to the economic decline of Christina, Newport, Stanton, and New Castle, as goods previously shipped overland across the peninsula could now be sent more cheaply by water. Even Chesapeake City and Delaware City were disappointed in their expected economic boom, and growth in these towns was slow. Only Wilmington, fast becoming an important regional industrial town, benefited from the Canal. Although not the original purpose of its construction, the Canal also came to serve as a border between two distinct socio-cultural sections of Delaware: the industrial/commercial area of northern New Castle County, and the agrarian communities of southern New Castle, Kent, and Sussex Counties. The Canal would continue to function as a borderline throughout the remainder of the century, and does so today.

Railroads came to New Castle County in the 1830s. The first line, the New Castle and French Town Railroad, was constructed in 1832 as a direct result of the opening of the Chesapeake and Delaware Canal, and was an effort to compete with that transportation route (Hoffecker 1977:43). In 1838, the Philadelphia, Wilmington, and Baltimore Railroad was completed, and quickly became the major transportation route across the peninsula. Throughout the remainder of the century, rail lines continued to be built in northern New Castle County, such as the Baltimore and Ohio, the Wilmington and New Castle, and the

Wilmington and Western railroads. The Philadelphia, Wilmington and Baltimore Railroad intersected the Red Mill Road a few hundred feet north of the Route 4 intersection, at Ruthby Station (Figure 11). The towns of Newark, Stanton, Hockessin and Newport benefited from their proximity to these railroads, staving off the economic stagnation and decline that were experienced by Christina, Ogletown, and Glasgow in the late 19th century. Locally, the advent of the railroad, and with it cheaper and more efficient means of transporting goods and produce, marked the end of the prevalence of small market towns. In conjunction with the general economic demise of these locations, taverns, hotels, and stores also disappeared from the landscape in the Ogletown vicinity. The John Ruth Inn in Ogletown lost its tavern license in 1869 and terminated functioning as a store in 1880, while the Hawthorn Hotel stopped functioning as a hotel in 1870 and as a post office in 1900.

New Castle County continued to be predominately agricultural throughout the nineteenth century. In White Clay Creek Hundred in 1816, there were 315 taxables, the overwhelming majority of whom were farmers, or worked in some related field, such as blacksmithing/ wheelwrighting, coopering, or carpentry. At that time there were approximately 190 houses of which 26% were log, 19% were brick, 5% were stone. Comparing these totals with the totals for Mill Creek Hundred (Catts et al. 1986), which contained in the 1804 assessment of 168 houses, 59% log houses, 28% stone houses, and 12% brick houses, indicates the more substantial nature of the Mill Creek Hundred housing stock.

At the start of the 1800s, however, agriculture in New Castle County was in a dismal situation. Farming practices continued much as they had during the previous century with the use of the four field system of cropping. Wheat was the dominant crop and the use of fertilizers was infrequent. A large number of tenant farmers worked the land. Production was, on the whole, quite low during the first quarter of the century. The 1818 revival of the New Castle County Agricultural Society, one of the first such organizations in the nation, encouraged farmers in the use of improved drainage techniques, fertilizers, and machinery. With these developments, New Castle County was on its way to becoming one of the finest agricultural counties in the United States by 1860. Fertilization, farm machinery, and improved drainage were helpful in this agricultural success, but the county's rich natural resources, its fine transportation network, and the proximity of cities were advantages with which other areas, particularly Kent and Sussex Counties, found it difficult to compete in quantity and number of agricultural and raw products.

Mill Creek Hundred, which is adjacent on the north to White Clay Creek contributed to this agricultural success through the quarrying and transporting of limestone for fertilizer. Many of the families in the study area maintained quarries and kilns, such as the Eastburn's, Black's, and Jeanes'. By 1850, there were at least twenty limestone kilns in the vicinity of Limestone Road (Cooch 1936:43).

Tenant farming, which had been quite common in the eighteenth century, became even more prevalent during the

nineteenth century. Large landowners, having acquired much of their holdings during the hard times of the 1820s and 1830s, leased their lands to tenants. Most land owners were white farmers, while some tenants and farm laborers, particularly in Kent and Sussex counties, were black. In other cases, the tenant was a member of the land owner's family, as was the situation with the Robert Ferguson farm (Coleman et al. 1983). By 1900 over 50% of all the farmers in Delaware were tenants or share croppers and tenancy remained a dominant farming practice into the twentieth century (Bausman 1933:165).

Regional development during the nineteenth century was much more complex than in the previous decades, primarily due to the great strides in industrialization, urbanization, and transportation that were part of the Industrial Revolution. The first half of the century witnesses a noticeable decline in Philadelphia's economic influence over the region, caused by Baltimore's rise, the competition for markets between the two cities, and a drop in the consumption by both local and foreign markets of Philadelphia's agricultural produce due to the development of mid-western centers of production. The area responded by diversifying its agricultural production, but primarily it devoted increasingly more of its resources to manufacturing (Lindstrom 1978:122).

Much of the reemergence and success of both industry and agriculture in Delaware can be attributed to improvements in transportation facilities which began in the 1830's. The linking of Wilmington by railroad with Baltimore and Philadelphia in 1837

provided Wilmington, and its hinterland, with excellent markets both for the purchase of raw materials and the sale of finished products. Contained within this hinterland was also a sizable population of skilled mechanics and machinists who were able to perform the skilled labor required by the new technologies. This combination of good transportation, a large trained labor pool, and a ready supply of raw materials allowed industry in northern New Castle County to grow and diversify very rapidly into the 20th century (Hoffecker 1977).

RESEARCH DESIGN

PREHISTORIC RESEARCH TESTING DESIGN

Within the Ogletown study area, soil drainage is the major determinant of prehistoric site potential. Poorly drained swamps, bogs, and springheads are productive hunting and gathering locales; however, their poor drainage precludes settlement within these settings. Nonetheless, well-drained knolls adjacent to poorly drained settings are likely site locations because they represent a suitable living area from which the resources of poorly drained swamps and bogs can be exploited. Figure 12 shows the distribution of likely site locations based on these criteria. The floodplain of Ogle's Run, a low order tibutary of the White Clay Creek within the study area, is also a likely site location.

Management plans for prehistoric cultural resources in Delaware (Custer 1986; Custer and DeSantis 1986) indicate the potential for specific archaeological resources of each prehistoric time period within the project area. For the Paleo-