INTRODUCTION

This report presents the research strategy, results, and recommendations stemming from a Phase I and II cultural resource study of the right-of-way (ROW) for proposed widening and dualization of Delaware Route 896 between Route 4-West Chestnut Hill Road and the Summit Bridge Approach (Figure 1). The project area, all except the northern terminus in White Clay Creek Hundred, is located in Pencader Hundred, New Castle County, and includes approximately 6.3 miles of ROW (Figure 2). The field work and report preparation took place between June 1985 and May 1986. The survey work was undertaken by the University of Delaware Center for Archaeological Research for the Department of Transportation and the Federal Highway Administration under section 106 of the National Historic Preservation Act to evaluate the effects of the proposed relocation of Delaware Route 896 on significant, or potentially significant, cultural resources as defined by the National Register of Historic Places (36 CFR 60).

Proposed dualization of Route 896 (State Contract No. 79-108-01) is intended to provide a safer, upgraded facility where it serves as a major north-south connector between Interstate Route 95 and U.S. Route 13. The proposed width of the dualization will be increased by an average of 30 meters throughout the length of the project area. These changes are to relieve chronic traffic congestion and safety deficiencies of the existing facility, and to accommodate anticipated future increases in traffic volumes. Four preferred alternates are proposed for different segments of the Project Corridor (Figure 2). Following Ostensen and Blendy (1985), these alternates include:

FIGURE 1

Route 896 Project– Regional Location

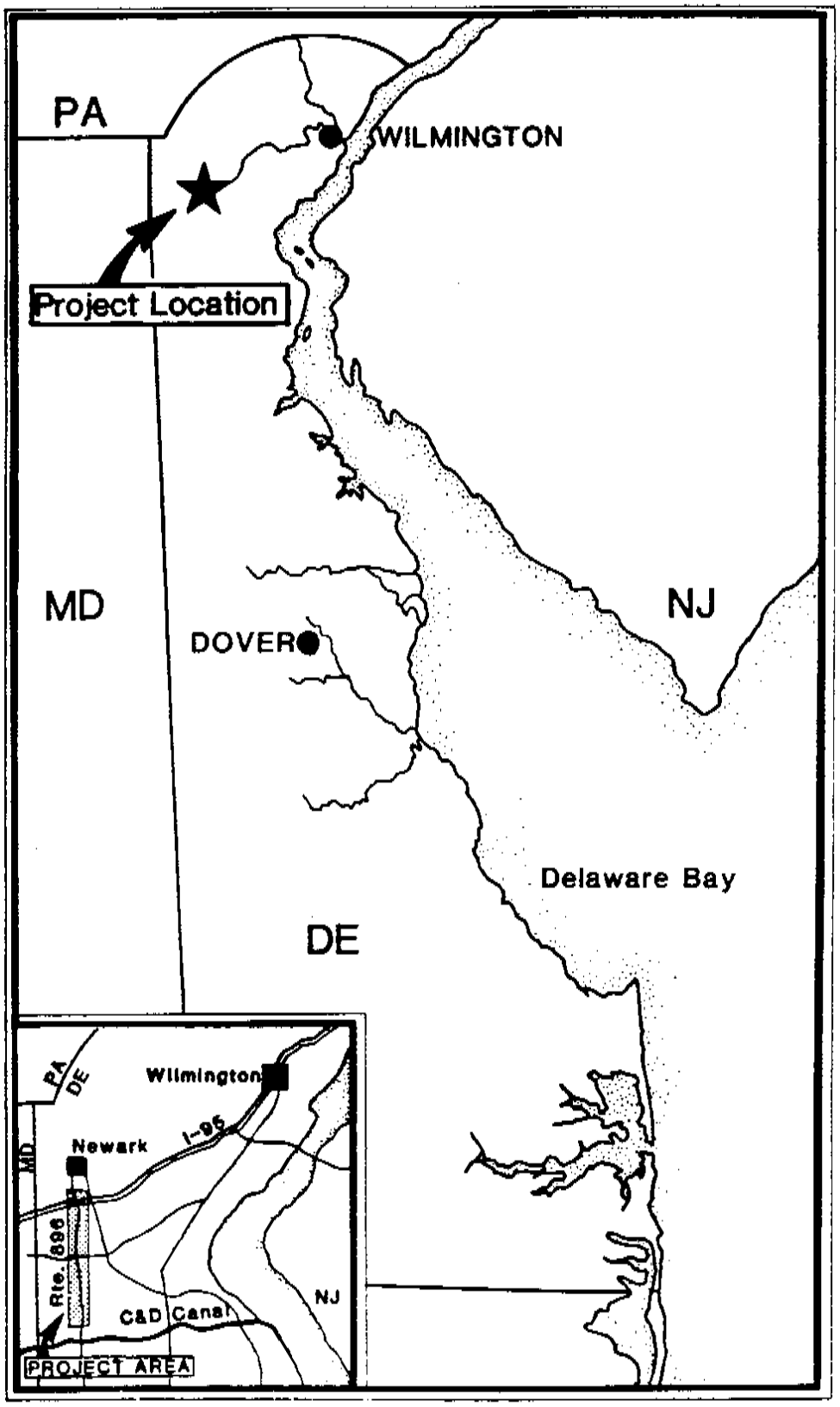
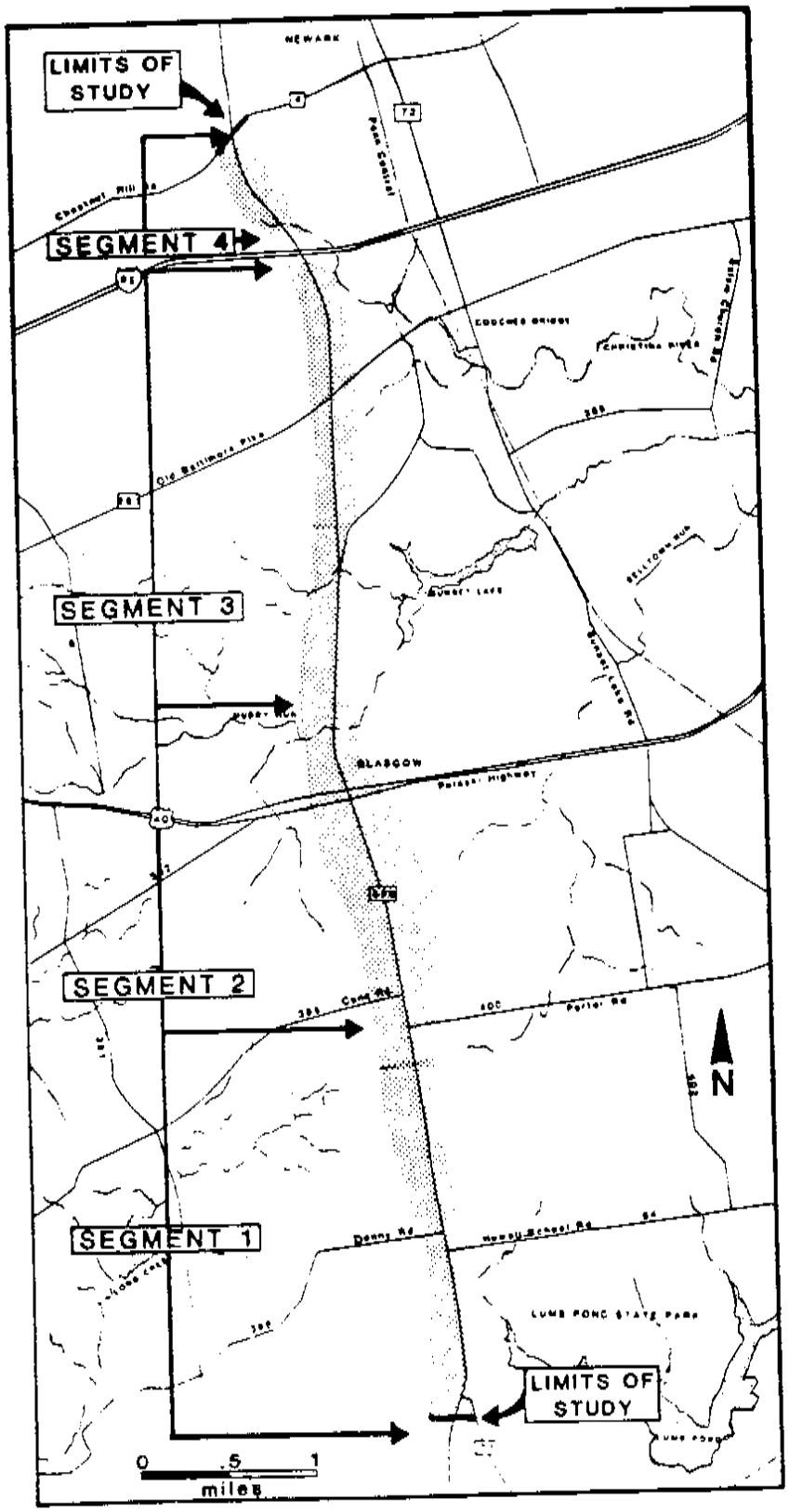


FIGURE 2

Route 896 Project Area and Project Segments



1) Alternative A-2. Widening to provide two 12-foot wide lanes in each direction with a 16-foot wide raised median and 6-foot wide sidewalks from West Chestnut Hill Road to I-95. Twelve-foot wide road shoulders would also be provided between Welsh Tract Bridge Road and I-95.

2) Alternative B-2. From I-95 to DuPont's Glasgow Plant, dualization, with two new 12-foot lanes in each direction and a 20-foot median along the east side of existing Route 896. This existing route will be converted to a service road for local residents.

3) Alternative C-8. From the DuPont Plant to Porter Road, a 1.8 mile length of right-of-way will involve a new alignment skirting the eastern edge of Glasgow, with two new 12-foot lanes in each direction and an intervening 38-foot median.

4) Alternative D-2. Dualization from Porter Road to Delaware Route 71 will provide two new 12-foot lanes for southbound traffic and a 38-foot median. Existing Route 896 will be converted to carry only northbound traffic.

In the present study, the entire proposed right-of-way is considered subject to impact (Figure 2). Initial sections of this report place the Project within the general contexts of environmental setting, and regional prehistoric and historic sequences. Phase I field reconnaissance survey and Phase II site examination are then discussed with reference to field methodologies, testing design, 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 also extended to all the involved individuals:

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Environmental Setting

The Route 896 Project lies in the west-central portion of New Castle County (Figure 1). Although the entire 6.3 mile Project Corridor is formally within the bounds of the Delaware Coastal Plain province (Figure 2), its northern terminus is situated just south of the Piedmont Uplands. The latter is a region of diversified relief cut by narrow, deeply incised stream valleys with elevations ranging from 100 to 400 feet above mean sea level. The Coastal Plain, by contrast, exhibits much smaller elevational ranges over flat terrain drained by generally shallow stream valleys. The juncture between these two zones, the Fall Line, marks a shift in the role of streams in the Piedmont as erosive agents to a depositional role on the Coastal Plain (Spoljaric 1967). Streams with characteristically steep gradients in the Piedmont drop most of their sediment loads upon entering the Coastal Plain.

The Piedmont in northern Delaware is composed of an assortment of crystalline rocks of igneous and sedimentary origin which were heavily metamorphosed during late Precambrian or early Paleozoic orogenies. In the western part of the Delaware Piedmont, micaceous schists, gneisses, and migmatites of the Wissahickon formation predominate (Spoljaric 1972:3). These crystalline rocks slope to the south and southeast, forming a basement over which the wedge-shaped mass of sediments of the Coastal Plain lie.

Resting on this basement complex and surrounded by Coastal Plain sediments are the Iron and Chestnut hills near the northern terminus of the Project. These are composed of primarily igneous

materials, including gabbro, norite, and pyroxenite (Spoljaric 1972:11). In addition, siliceous jasperoids are also present within these formations, probably derived through the formation of laterites. In prehistory, these jasperoids constituted an important source of raw material for the manufacture of stone tools. The igneous materials which comprise Iron and Chestnut Hills do not extend into the basement complex and thus postdate it. Precise nature of the origin of these hills remains obscure (Ward 1959).

Sediments of the Coastal Plain in northern Delaware are composed of two major formations: the Potomac and the Columbia. The former consists of fluvial silts and clays deposited during the Early Cretaceous period. These sediments were later subject to major erosional forces, resulting in the unconformity separating them from the overlying sediments of the Columbia formation. Watercourses from the north and northeast deposited the sediments of this formation sometime in 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). Precise timing of this deposition is a matter of some debate, Jordan (1964) favoring a Sangamon/Early Wisconsin age, while Spoljaric suggests a more recent, possibly late Wisconsin time (1970). There is general agreement, however, that these sediments derive from episodes of glacial outwash in which streams under conditions of high discharge emerged from the Piedmont to drop their bed loads of glacially-derived materials. Decrease of

particle size and increase of sorting of these sediments is noted moving southward on the Delmarva Peninsula (Jordan 1964:14). Studies by Spoljaric (1967:10) suggest that under conditions of peak discharge, most of the Delaware Coastal Plain was submerged under these glacial floodwaters. Recent studies in the Newark area have revealed younger sediments in the form of alluvial fans, themselves unconformably overlying the Columbia Formation. These sandy, coarse sediments may derive from terminal Pleistocene (17,000 B.C.) outwash or more recent episodes of deposition (Spoljaric 1972:2-4).

Custer (1986) distinguishes between Upper and Lower portions of Delaware's Coastal Plain, based primarily on textural differences in the Columbia sediments of these two areas and the resulting topographic differences. Generally coarser deposits in the former have been more resistant to erosion, thus creating a more variable topography with greater relief and a corresponding higher diversity of plant communities than in the Lower Coastal Plain. Though more incised than in the Lower Coastal Plain, major northern watercourses such as the White Clay Creek and the Christina River are nevertheless tidally influenced for substantial distances inland.

For most of its length, the Route 896 Project Corridor runs along central and eastern portions of the Delmarva Mid-Peninsular Drainage Divide, a narrow strip of elevated terrain separating east and west-flowing streams on the Peninsula. With the exception of Christiana Creek, Route 896 crosses only the headwaters of low-order, east-flowing streams. Range of relief over most of the Project is therefore less than more dissected

portions of the Upper Coastal Plain further east and west. Elevations are generally between 40 and 80 feet above sea level, with lower areas restricted to stream channels. Bay/basin features noted for other portions of the Drainage Divide (Custer 1984:26), are absent here. Swampy locales in poorly drained areas lie east and west of the Project Corridor, but none are intersected by it. Due to location on the Drainage Divide, no substantial natural bodies of water exist in or near the Project Area. Lums Pond and Silver Lake, which are near the project area, are nineteenth century impoundments.

The one exception to the low topographic relief is in the vicinity of Iron and Chestnut Hills. These two modest peaks rise over 300 feet in elevation, dominating the immediate Coastal Plain. Near its northern terminus, the Project Corridor skirts the eastern flank of Iron Hill, attaining 125 feet in elevation before dropping down to the Coastal Plain.

A variety of soils have developed in the sediments of the Project Area, belonging to eight individual series types as defined by Matthews and Lavoie (1970). These are summarized in Table 1 with their soil associations, drainage and textural characteristics, and distributional emphases, if any, for the Project Area. Alluvial sediments of the Columbia Formation have served as parent material for six of these soils, while the remaining two (Neshaminy and Aldino) have developed on and around Iron Hill, primarily through weathering of in-situ materials. Most of the soil types are moderately to well-drained. Some of these are concentrated in specific portions of the Project Area.

TABLE 1

SOILS SERIES TYPES FOR THE ROUTE 896 PROJECT AREA (from Matthews and Lavoie 1970)

Soil Series	Drainage/Textural Characteristics	Distributional Emphasis
Aldino	Moderately well-drained silt loam	Vicinity of Iron Hill
Elkton	Poorly-drained silt loam	_____
Fallsington	Poorly-drained loam	_____
Keyport	Deep, moderately well-drained silt loam	_____
Matapeake	Deep, well-drained silt loam	East of Glasgow
Neshaminy	Well-drained silt loam	Vicinity of Iron Hill
Sassafras	Deep, well-drained sandy loam	Southern portion of project area
Woodstown	Deep, moderately well-drained loam	_____

Sandy soils of the Sassafras series are found primarily in the southern portion of the Corridor, while silty-loams of the Matapeake series are prevalent in the Glasgow Bypass portion of the Project. As noted, Neshaminy and Aldino series soils are restricted to the "Piedmont-like" conditions on the slopes of Iron Hill.

Present Day/Modern Environmental Setting

Until recently the Project Area consisted of large-sized rural agricultural farmsteads with the exception of the small hamlet of Glasgow. Since the 1960's, increased development has

changed the environmental setting of the Project Corridor to include commercial and industrial developments and large and small private residential development. The northern portion of this Corridor from Chesnuthill Road to I-95 consists mostly of small scale commercial development and private housing developments. The area immediately south of I-95 to Old Baltimore Pike contains the undeveloped, heavily wooded Iron Hill area located west of the road, an agricultural field to the east and small privately owned home lots at the intersection. Private housing, commercial and industrial development, and small agricultural farms are located further along the road to the Route 40 intersection at Glasgow. South of the intersection the project area contains large scale industrial, commercial development and private housing developments. South of Glasgow the Project Corridor resembles the earlier environmental setting of large-sized agricultural farms with the exception of undeveloped state owned land at the southern terminus of the project area.

Regional Prehistory

This summary of the regional prehistory is abstracted from Custer (1984). The prehistoric archaeological record of the Delaware Coastal Plain can be divided into four large blocks of time: The Paleo-Indian Period (c.a. 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, from A.D. 1650 to A.D. 1750, marks the final phase of occupation by Native American groups of Delaware in anything resembling their pre-

European Contact form. Each of these periods is described below.

Paleo-Indian Period (12,000 B.C. - 6500 B.C.) - The Paleo-Indian Period encompasses both the final retreat of Pleistocene glacial conditions from Eastern North America and the subsequent 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. Paleo-Indians relied on a hunting and gathering adaptation, in which animal food resources comprised a major 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 in northern Delaware and watering areas 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 is apparent in the flaked stone tool kits and careful resharpening and maintenance of tools was common. A mobile lifestyle in which groups focussed on game-attractive environments is hypothesized with a social organization consisting of single and multiple family bands. Throughout the 5500 year time span of the period, this basic adaptation remains essentially uniform, although some adjustments occur with the appearance of Holocene conditions in the latter part 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 near the Wilmington Medical Center (Custer, Catts and Bachman 1982), possible quarry sites near Iron Hill, and isolated point finds. Although no clear associations have yet been found, it is also hypothesized that bay/basin features may have also attracted Paleo-Indian sites (Custer et al. 1983).

Archaic Period (6500 B.C. - 3000 B.C.) - The Archaic Period is characterized by an adaptation to the fully-emerged Holocene environments of Delaware. Mesic forests of oak and hemlock were predominant, while the accompanying reduction of grasslands in the face of warm and wet conditions caused the extinction of many of the grazing animals hunted during Paleo-Indian times, although browsing species such as deer flourished. Sea level rise is also associated with the beginning of the Holocene in Northern Delaware, whose major effect would have been to raise the local water table, thereby creating a number of large interior swamps. Adapations shifted from the hunting focus of the Paleo-Indian Period to a generalized foraging pattern in which plant food resources played a more prominent role. Swamp settings, such as at Churchman's Marsh, supported large base camps, as indicated by remains at the Clyde Farm Site. A number of small procurement sites in favorable hunting and gathering locales are known from northern Delaware.

With the addition of plant processing tools such as grinding stones, mortars, and pestles, Archaic tool kits were more generalized than those of Paleo-Indian groups. A mobile lifestyle

was still common, with a wide range of resources and environmental settings utilized on a seasonal basis. A shifting band level of organization which saw the waxing and waning of group size in response to seasonal resource availability is evident.

Woodland I Period (3000 B.C. - A.D. 1000) - The Woodland I Period coincides with dramatic local climatic and environmental shifts that seem to be part of larger scale changes occurring throughout the Middle Atlantic region at this time. Pronounced warm and dry conditions set in, lasting from 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 these changes was an alteration of the environment, not a degradation. Continued sea level rise at a reduced rate made many areas of the Delaware River and Bay shore the locations of large brackish water marshes which were especially high in productivity.

These changes in environment and resource distributions brought about a radical shift in adaptations for prehistoric groups. Important areas for settlements include the major river floodplains and estuarine swamp/marsh areas. Large base camps are evident at several settings in Northern Delaware, such as at the Delaware Park Site, the Clyde Farm Site, the Crane Hook Site, and the Naaman's Creek Site. These sites seem to have been occupied by larger groups than Archaic base camp sites and may have been the loci of year-round habitations. The overall tendency in this Period is 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 become increasingly common, indicating intensive harvesting of wild plant foods that may have approached the efficiency of agriculture by the end of the Woodland I Period. Chipped stone tool assemblages changed little from the preceding Archaic Period, save for the introduction of broad-blade, knife-like processing tools. The addition of stone, and then ceramic, vessels is also seen. These items enabled more efficient cooking of certain foods and may also have functioned as storage containers for surplus plant foods. Storage pits and house features are also known for Northern Delaware during this period from sites such as Clyde Farm and Delaware Park.

Social organizations also seem to have undergone radical changes during this period. With the onset of relatively sedentary lifestyles and intensified plant harvesting which might have yielded occasional surpluses, incipient ranked societies may have developed. Potential indicators of this include extensive trade and exchange in lithic materials for tools as well as non-utilitarian artifacts, and caching of special artifact forms.

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, Woodland I settlements, especially the large base camps, were in many instances also occupied during Woodland II Period, with very few changes in basic lifestyles and overall artifact assemblages indicated (Stewart, Hummer and Custer 1986). Intensive plant

utilization and hunting remained the basic subsistence activities up to European Contact. Similarly, no major changes are seen in social organization for the Period in Northern Delaware.

Contact Period (A.D. 1650 - A.D. 1750) - The Contact Period begins with the arrival of the first substantial number of Europeans in Delaware. The Period remains enigmatic for Delaware due to the paucity of known archaeological sites that clearly date to this time. Site 7NC-E-42 in northern New Castle County is the only Contact component yet investigated in the State (Custer and Watson 1985). Its small size, impoverished assemblage of European goods, and the persistence of aboriginal lithic technology indicated at the site contrasts with the much larger Contact manifestations known from neighboring southeastern Pennsylvania and elsewhere. These findings support the belief that Native American groups in Delaware interacted little with European groups at this time, and were under virtual domination of the Susquehannock Indians of southern Lancaster County, Pennsylvania. The Contact Period ends with the virtual extinction of Native American lifeways throughout the Middle Atlantic region, save for a few remnant groups.

Regional History

Portions of the following regional history are abstracted from two previous DelDOT reports (Coleman et al. 1984; Coleman et al. 1985). Other sources consulted for this project are found in the attached bibliography. More detailed histories of specific sites and segments of the Route 896 area are contained in the discussion of each project area segment.

Historic settlement of Delaware began with the establishment of a whaling station by the Dutch West India Company in 1630 near what is now Lewes. This occupation was short-lived, however, with its destruction at the hands of Native American groups in 1631. Swedish occupations followed soon after with the founding of a colony at Fort Christina in 1638 near the modern city of Wilmington. In succeeding years, the village of Chistinahamm grew up near the Fort with a mixed populace of Swedish, Finnish, and Dutch colonists.

In 1655, the Dutch attained political control of the region, with this newfound authority manifested in Fort Casimir, situated near New Castle. Here too, settlement gravitated to the Fort and the town of New Amstel soon established itself as a commercial center for the lower Delaware Valley. The political balance again shifted, however, when the English extended their control over this and other Dutch colonies in the New World in 1664. The conferrence of proprietary rights to William Penn by the Duke of York in 1682 provided the basis for the formal granting of land tracts to the European settlers of northern Delaware that was to follow (Munroe 1978a).

Land use patterns in Delaware, Pennsylvania, and Maryland during the 1600's consisted primarily of isolated farmsteads along the Delaware River and its tributaries. In large measure, this reflected the state of transportation facilities at this time. Inland roads on the Delmarva Peninsula were rare and in chronic poor condition. Nearly all transportation was by water, hence the situation of early settlements either along the coast (such as Wilmington and New Castle) or inland along navigable

waterways. Christina Bridge (Modern Christiana) was established in 1660 at the head of navigation of the Christina. Within New Castle County, five tax districts, referred to as hundreds after the English system, had been established by 1687, including Pencader Hundred, which contains the entire Route 896 Project Area (Conrad 1908).

Economy of the seventeenth century was predominantly agricultural. 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 to market-oriented agriculture. Wheat, and to a lesser extent, corn, were grown and shipped by water to local milling sites. The transportation of grains to milling sites supported an extensive coastal trade employing shallops and other similar craft. Milling sites were amongthe earliest manufacturing complexes in the region (Purcell 1958).

Unsuccessful attempts at the mining and smelting of iron ore were made in the Delaware region during the seventeenth century. In Delaware, the Iron Hill area was known to contain iron ore deposits by 1673, when Augustine Hermann's map labelling its location "Yron Hill" was published. The manufacture of iron became better established in the region in the eighteenth century. In Delaware, Sir William Kieth had built a furnace or bloomery on the north slope of Iron Hill along the Christina by

1725, but had little success. Shortly thereafter, this was also the location of the similarly unsuccessful Abingdon Ironworks (Heite 1983:155-156).

Formal settlement of Pencader Hundred and vicinity began with the granting by William Penn of the 30,000 acre "Welsh Tract" in 1701 to three individuals, William Davis, David Evans, and William Willis. Original bounds of this tract began near New Castle and extended seven miles west. Settlers already on the tract without title were dispossessed as Welsh individuals began to claim parcels, most of these on the order of 100 to 500 acres (Scharf 1888:951).

These Welsh groups established churches within Pencader Hundred as settlement of the Welsh Tract proceeded. A Baptist church was established immediately west of present Route 896 near Iron Hill in 1706, while Glasgow was the site of a Presbyterian church, organized in 1711.

The eighteenth century saw the establishment of some additional inland roads on the Peninsula. Though still poor in quality, these routes nevertheless enabled the development of some inland settlements at crossroad locations which were not solely dependant on water transportation for economic survival. Stanton and Newark are two such examples, the latter having been chartered in 1758. The original route from Summit Bridge area through Glasgow to Newark by way of Cooch's Bridge was established in the mid-1700's.

The present day village of Glasgow, formerly called Aiken's Tavern in the early eighteenth century and later in the same century Aikentown, was another hamlet established at the

intersection of overland inter-regional penninsular connectors. Like many similar inland crossroads towns established in the Colonial period, the town stagnated after an initial period of rapid growth in the late eighteenth and early nineteenth century while functioning as a religious and commercial center. Because the town was less than a mile north of the roadbed of the New Castle and Frenchtown Railroad, constructed in 1832, the economic viability of the community was prolonged until after the opening of the Chesapeake and Delaware Canal in 1829 and the Philadelphia, Wilmington, and Baltimore Railroad in 1837. Because the town was not located in close proximity to these new transportation facilities, Glasgow like the neighboring villages of Stanton, Ogletown, and Christiana experienced little economic and population growth throughout the late nineteenth century to the mid-twentieth century.

Glasgow and its vicinity achieved historical significance during the Revolutionary War with the role it played in the Battle of Cooch's Bridge. The only revolutionary engagement between British and American forces in Delaware took place north of Glasgow on September 3, 1777. As argued below, skirmishing probably occurred across a wide front during the Battle, from the vicinity of Cooch's Bridge westward to Iron Hill. In what was intended by General Washington as an harassing action of the British Army, the vastly outnumbered American troops were eventually put to flight. Both before and after the engagement, from September 2-7, Aiken's Tavern in Glasgow served as the headquarters for the British and Hessian forces led by General

Howe. Troop encampements of these forces after the Battle were located around Glasgow and northward to Iron Hill. On September 7, British and Hessian forces departed, marching through Newark to Kennet Square to join other segments of the British Army prior to the Battle of Brandywine.

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 the majority of the population. Wheat remained the dominant grain crop, followed by rye, corn, barley, and oats. 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).

Delaware's manufacturing capacity in this century took shape. The iron industry, lumber products, and grain milling enterprises continued to grow and prosper. New industries developed as well, in the preparation of snuff from tobacco, the production of salt from brines in the lower Delaware, and textiles.

A trend towards tenant farming which began in this century, became increasingly manifest in the 1800's; by the end of the nineteenth century, roughly half of all farmers in Delaware were either tenants or sharecroppers (Shannon 1945:418). This pattern of wealthy gentlemen farmers owning several farms is apparent in much of the Project Area vicinity, with the Cantwell Clark and J.B. Cazier estates serving as prime examples.

Within the nineteenth century, there was a shift toward diversification in agricultural products; the former emphasis on wheat and other grains gave way to production of a range of fruits, vegetables, and dairy items (Lindstrom 1978:125). In part, this reflected the inability of Delaware farmers to compete with western states in grain production at this time, but was also a response to the demands for such perishables by growing urban populations of local industrial centers such as Wilmington (Coleman et al. 1985:40).

In contrast to Sussex and Kent counties in the nineteenth century, New Castle was marked by rapid industrial and urban growth and population expansion, accompanied by a noticeable decline in the number of individuals engaged in agriculture. The rapid growth of the population during the early decades of the century forced many new farmers in the Middle Atlantic Region to clear and farm lands of poor or marginal quality. Many were unable to turn a profit in such endeavors, resulting in an outmigration of a large portion of the population during the 1820's and 1830's to better lands to the west, particularly in the Ohio Valley. The loss of jobs related to agriculture was partly offset by opportunities provided by industrial development, particularly in urban contexts (Taylor 1964:441; Lindstrom 1979:300). Thus, much of the surplus population that had previously served as farm laborer and tenants, moved into the urban industrial centers which afforded employment.

Throughout its history, economic developments in Delaware have been closely connected to transportation advances. Many of these advances were a direct result of commercial and other

interactions between economic centers outside Delaware. Links between Philadelphia and Baltimore became increasingly important from the latter half of the eighteenth century on. Travel between these two points involved crossing both the Delaware and Chesapeake Bays, with an intermediate overland passage on the Delmarva Peninsula. Delaware's strategic location in this link helped foster the expansion and improvement of east-west transportation facilities in the State. Beginning in 1775, stages were making regularly scheduled runs between New Castle, Delaware and Frenchtown, Maryland, to service packet boat passengers from Philadelphia and Baltimore. As a result, New Castle came to rival Wilmington as a major port town during this time (Holmes 1962a:75).

In the nineteenth century, transportation improvements encouraged the industrial expansion occurring in northern Delaware. The most extensive changes in this regard involved road networks, which were expanded or upgraded by turnpike construction. Turnpike companies were chartered by the state to either upgrade select existing roads, or to construct new ones, in return for toll collection rights. Between 1808 and 1815, eight such companies were chartered in New Castle county, two of these in the Project Area. The Elkton and Christiana Turnpike, from Christina Bridge to the Maryland/Delaware line by way of Cooch's Bridge was completed in 1817 (Young 1942a:366-372). It supplanted an earlier road constructed in 1723 whose bed had run parallel to and slightly north of the Turnpike ("Map of Cooches Bridge," McGregor:1791). Today known as Old Baltimore Pike, the

Turnpike route intersects the Project corridor just south of Iron Hill.

Construction of the turnpike between New Castle and Frenchtown was actually the work of two companies. The New Castle Turnpike Company built a two mile section of road from New Castle to Clark's Corner; following completion in 1812, this improved stretch of road received heavy use. Encouraged by the success of this venture, the New Castle and Frenchtown Turnpike Company undertook in 1813 the more substantial commitment of extending the route from Clark's Corner fifteen miles to Frenchtown. The Frenchtown Company was more heavily profit-oriented, and with the replacement of packets by faster steam boats on the Delaware and Chesapeake that year, the company forsaw the coming demand for an improved overland link between the two port towns. The Turnpike route passed through the Project Area at Glasgow, its road bed later to become the west-bound lane of Route 40. With its completion in 1815, the New Castle and Frenchtown Turnpike became the main cross-peninsula transportation route. (Holmes 1962a:89).

The potential for profits was encouraging investment in other modes of cross-peninsula transportation in the early nineteenth century, however. After an abortive first attempt was abandoned in 1805, interest renewed during the 1820's in excavating a canal across the Peninsula. Opened in 1829, the Chesapeake and Delaware Canal eclipsed the New Castle to Frenchtown Turnpikes as a faster and more pleasant means of crossing the Peninsula. Located one mile south of the Project Area at Summit Bridge, the canal connected Delaware City and Chesapeake City on the east and west sides of the Peninsula.

This development in turn helped to spur the New Castle and Frenchtown Turnpike Company into obtaining charters and resources for the construction of a railroad between these two port towns. Building began in the spring of 1831, employing 1600 men, under an ambitious schedule of completing the 17 mile track within one year. Construction involved excavation of a bed, on which a base of sand and gravel was put down. Stone cross-ties or "sleepers" were then set at three-foot intervals, over which rails were laid (Holmes 1962b:172-173). Paralleling the Canal, the Railroad's route roughly bisected the northern and southern halves of the Project Area, intersecting modern Route 896 south of Glasgow. Laying of the rails proceeded from east to west along the route, with portions of the track set adjacent to the turnpike between New Castle and Clark's Corner (Young 1940b:371).

Construction was completed within the original schedule in February, 1832. The railroad officially opened for passenger service on the 28th of that month, although horses pulled cars over the rails for the first eight months until the track was fully prepared for bearing a steam locomotive. On September 10, the transition to steam-power was made, with travel time for the seventeen mile crossing on the Peninsula's first railroad reduced to a mere one hour (Holmes 1963:246-248).

Regional development during the nineteenth century was much more complex than in 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 witnessed 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 foreign markets of Philadelphia's agricultural produce. The region responded by diversifying its agricultural production and devoting more resources to manufacturing.

Much of the reemergence and success of both industry and agriculture in Delaware can be attributed to improved transportation facilities beginning in the 1830's. The linking of Wilmington by railroad with Baltimore and Philadelphia in 1837 provided Wilmington and its hinterland with markets for raw materials and finished goods. Also contained within this hinterland was a sizeable population of mechanics and machinists able to perform the skilled labor required by new technologies. This combination of enhanced transportation facilities, a large trained labor pool, and a ready supply of raw materials allowed industry in northern New Castle County to grow and diversify rapidly into the twentieth century.

RESEARCH METHODS

Background Research

PhaseI background research included consultation with the staff of the Delaware Bureau of Archaeology and Historic Preservation (BAHP), review of all inventories of prehistoric and historic cultural resources maintained by the BAHP, review of historic atlases and maps, interviews with local landowners and experts in local history, examination of archival materials such as deeds, tax assessments, probate records, road books and petitions, and other court records, inspection of aerial