

EXISTING DATA BASE

The purpose of this section is to present the existing data base on archaeological site locations, both prehistoric and historic, and standing structures. The cultural context of these sites will also be evaluated in light of the general prehistory and history of the region.

Prehistoric Archaeological Sites

The existing data base on prehistoric archaeological site locations within the proposed project area is the file of all archaeological sites recorded in Delaware that is maintained by the Bureau of Archaeology and Historic Preservation, Delaware Division of Historical and Cultural Affairs. These site files were searched as a part of this project and all known site locations were recorded on United States Geological Survey (USGS) 7.5' quadrangle maps. Relevant information was also recorded from the individual site forms. Appendix I lists the known archaeological sites by USGS map, and Attachment I to this report shows the locations of these sites. The information listed in Appendix I includes:

- 1) Archaeological survey site designation.
- 2) Delaware Cultural Resource Survey (CRS) Number.
- 3) Functional site type. The site types recognized are based on descriptive types developed by Gardner (1982) and applied to Delaware Coastal Plain sites by Custer (1983a, 1983b). The basic types include procurement sites (limited function sites occupied only for a short time for specialized resource procurement and processing activities), micro-band base camps (habitation sites for small social units), and macro-

- band base camps (habitation sites utilized by large social units for relatively long periods of time).
- 4) Time period of occupation. The general time period during which the site was occupied is noted. The time periods are taken from the time periods discussed in the general prehistory section (see Table 1).
 - 5) Components present. Components are specific cultural-temporal complexes that represent common adaptations to environments at a single place and time. The components noted are taken from the Delaware state plan for the management of archaeological resources (Custer 1983b). Table 1 provides a listing of the time/space characteristics of the culture complexes and Table 2 lists the diagnostic artifacts associated with each complex.
 - 6) Comments. Special information or data are noted.
 - 7) References. Any published and unpublished sources for the information on functional site types, time period of occupation, and cultural complexes present are noted. In some cases, artifact collections at the Island Field Museum were studied to check information on time period of occupation and cultural complexes. These sites are noted.

With regard to references, a brief comment on previous studies in the area should be made. A number of large-scale studies of archaeological site distributions have been made within the region of the project area (Figure 3). These studies include an archaeological survey of Lums Pond State Park (Wise 1983), a survey of the dualization of Route 113 in Dover (Cunningham et al. 1980), a sewer line survey of the north bank of the Appoquinimink River between Middletown and Odessa (Gardner and Stewart 1978), a survey of Cultural Resources north of the St. Jones River (Griffith et al. 1979), a survey of portions of the Bombay Hook National Wildlife Refuge (Rappleye and Gardner 1980), a controlled sample survey of selected portions of the St. Jones and Murderkill drainages (Custer and Galasso 1983), and a survey of an early proposed alignment of a West Dover By-Pass (Griffith and Artusy 1976). Also, general summaries of site function and chronology of occupation provided by Custer (1983a: Appendix II) were available for use.

Historic Standing Structures and Associated Archaeological Remains

The existing data base of standing structures within the proposed project area was drawn from the files of the standing structures record in Delaware which are maintained by the Bureau of Archaeology and Historic Preservation, Delaware

**Table 1:
Culture Complexes of Delaware**

Dates	Period	Low Coastal Plain	High Coastal Plain	Piedmont/Fall Line
AD 1600	Woodland II	Slaughter Creek Complex		Minguannan Complex
AD 500		Late Carey Complex	Webb Complex	Delaware Park Complex
			Carrey Complex	
AD 0	Woodland I			
		Wolfe Neck Complex	Delmarva Adens	Wolfe Neck Complex
500 BC		Clyde Farm Complex	Barker's Landing Complex	Clyde Farm Complex
3000 BC	Archaic	(No Special Complexes)		
6500 BC				
	Paleo-Indian	(No Special Complexes)		
12,000 BC				

Table 2

Woodland I Complexes and Diagnostic Artifacts

Late Carey Complex

Mockley/Claggett ceramics
Large triangular projectile points

Webb Complex, Delaware Park Complex

Hell Island ceramics
Misc. stemmed projectile points
Jacks Reef pentagonal projectile points (Webb Complex only)

Carey Complex

Mockley ceramics
Rossville stemmed projectile points
Fox Creek projectile points (southern Delaware only)

Wolfe Neck Complex

Wolfe Neck ceramics
Susquehanna Series ceramics (northern Delaware only)
Misc. stemmed projectile points

Delmarva Adena Complex

Adena side and corner notched projectile points
Coulbourn ceramics
Misc. stemmed projectile points

Clyde Farm Complex and Barker's Landing Complex

Bare Island/Lackawaxen projectile points
Broadspears
Fishtail projectile points
Marcey Creek and Daines Quarter ceramics
Steatite bowls
Long projectile points (Clyde Farm Complex, northern Delaware only)
Selden Island ceramics (Clyde Farm Complex, northern and central Delaware only)

Division of Historical and Cultural Affairs. The standing structure inventory files were examined to locate all known structures within the project area. Information relevant to the historical-architectural interpretation of the standing structures was recorded and is summarized in Appendix II. Appendix II also lists the known standing structures by Hundreds and assesses the archaeological potential and significance of associated archaeological remains. A map showing the boundaries of the New Castle county and Kent county hundreds is included in Appendix II. Locations of the standing structures were recorded on USGS 7.5' quadrangle maps and the individual standing structure locations are presented in Attachment II. The information contained in Appendix II is divided into two sections:

I. Standing Structures

1. CRS #: Delaware Cultural Resource Survey (CRS) Number
2. Quad: USGS 7.5' quadrangle map where structure is located.
3. NRL: Listed on the National Register of Historic Places.
4. Date: Date of initial construction or relative date of construction. Construction dates were obtained from the Bureau of Archaeology and Historic Preservation files or by consulting atlases and maps prepared by Baist (1893), Beers (1868), Price and Rea (1850), Rea and Price (1849), United States Geological Survey (1906), and Varle and Shallus (1802).
5. Cond: Condition of structure.
6. Material: Construction material of structure.

II. Associated Archaeological Remains

1. Function: The primary function of the structure and its associated outbuildings. Functional information was derived from BAHP, DHCA files and documentary research. Functional types are based on descriptive types developed by the BAHP.

A. Residential

1. Dwelling Complex
2. Peach House
3. Estate
4. Agricultural Tenant Dwelling/Farm
5. Industrial Tenant Dwelling
6. Slave Quarters

7. Tenant House
 8. Migrant Worker House
 9. Almshouse
- B. Agricultural
1. Agricultural Complex
 2. Agricultural Outbuilding
 3. Agricultural/Mill Complex
 4. Plantation
 5. Peach Orchard
- C. Industrial
1. Sawmill Complex
 2. Gristmill Complex
 3. Sorghum Mill Complex
 4. Multiple Mill Complex
 5. Manufactory
 6. Blacksmith Shop
 7. Workshop
- D. Commercial
1. Tavern/Inn
 2. Store
 3. Bank
 4. Doctor's Office/Pharmacy
 5. Hotel
 6. Warehouse
 7. Service Station/Garage/Automobile
- E. Religious
1. Church/Meetinghouse
 2. Cemetary
- F. Governmental/Educational
1. Judicial or Governmental Building
 2. Post Office
 3. School
- G. Transportation
1. Bridge
 2. Railroad-related Structure
 3. Railroad-railroad Bed
 4. Railroad Station
 5. Lighthouse
 6. Vessel (sunken)
 7. Landing Operations
 8. Causeway
 9. Stage Coach Station
 10. Canal Company Building
- H. Miscellaneous
1. Structure
 2. Historical District
 3. Race Track

2. NRE: Assessment of eligibility of associated archaeological remains for listing on the National Register of Historic Places.
 3. Evaluation: Evaluation of the archaeological potential and significance of the associated archaeological remains.
 4. Date: Date of the earliest archaeological component associated with the standing structure.
- III. References: Published and unpublished sources providing information on function, age, history, or architecture of standing structures and associated archaeological remains.

The data base of historic archaeological sites within the proposed project area was obtained by consulting 19th century atlases and maps and identifying structures present at that time. The locations of the archaeological sites were plotted on USGS 7.5' quadrangle maps. These data supplement the BAHF inventory file data because they identify the locations of structures no longer extant but for which there is a potential for archaeological remains and they correct omissions in the BAHF standing structure files. Appendix III summarizes the historic and archaeological information available for these sites and assesses the potential and significance of the archaeological remains. The data are grouped by Hundreds. Attachment III to this reports shows the locations of the potential archaeological sites. The information in Appendix III includes:

1. Site Number.
2. Quad: USGS 7.5' quadrangle map where the archaeological site is located.
3. Date: Earliest documented use of the archaeological site obtained from historic atlases and maps. Dates are relative, eg., pre-1849. Occupation of the sites may be earlier in many cases.
4. Function: Primary function of the site based on interpretation of documentary evidence and site setting.
5. Potential: Evaluation of the potential of the archaeological remains.
6. Significance: Evaluation of the significance of the archaeological remains.

7. References: Published sources documenting the relative age of the site.

Cultural Context and Data Quality

The purpose of this section is to assess the quality of the data noted in Appendices I - III and to provide a brief discussion of the cultural context of the sites noted in the inventories. Specifically, the discussion of the cultural context will seek to relate the specific sites in the inventories to the general trends noted in the earlier discussion of the region's prehistory and history.

Prehistoric Sites - Table 3 provides a summary of the known prehistoric sites found within the project area. In general, a variety of sites of many different time periods are noted. However, before considering the cultural context of these sites, it is necessary to consider the quality of the data base of known prehistoric sites.

Table 3

Summary of Known Prehistoric Archaeological Sites

<u>Quad</u>	<u># of sites</u>	<u>Components</u>			<u>Functional Types</u>		
		<u>A</u>	<u>WI</u>	<u>WII</u>	<u>macro.</u>	<u>micro.</u>	<u>procurement</u>
Clayton	10	3	5	4	1	3	2
Dover	19	1	11	1	1	6	4
Frederica	19	0	14	5	2	9	4
Kenton	1	0	0	0	0	0	0
Little Creek	12	3	7	7	4	3	0
Middletown	34	0	18	7	2	10	7
St. Georges	29	4	8	3	0	3	3
Smyrna	7	2	5	3	0	2	0
Wyoming	19	1	5	1	1	3	4
TOTAL	150	14	73	31	11	39	24

NOTE: No Paleo-Indian sites encountered

The state site files, from which the inventory in Appendix I was generated, record only the sites located in place where people have looked for archaeological sites. Although a few large research-oriented projects generated some of the data found in the site files (Figure 3) for the most part these files provide a very biased sample of the possible site locations within the project area. The presence or absence of certain types of sites from varied time periods, and the relative abundance of sites of any function or age, cannot be used for anything other than an initial approximation of the total range of prehistoric cultural resources that may be found in the area. Nevertheless, the data from these site files can be used to develop initial impressions, and testable hypotheses about prehistoric site locations (for example see Custer, Cavallo, and Stewart 1983; Custer and Wallace 1982). It should also be noted that in the southern portion of the study area (from Little Creek south) there is a controlled sample of site data available (Custer and Galasso 1983). With these limitations of the data in mind, the cultural context of the known sites can be evaluated and patterns of site locations can be tentatively noted.

No sites dating to the Paleo-Indian Period are noted in the site files for the study area. Although this finding does not mean that the area was without Paleo-Indian occupation, it can be looked upon as an indication that population densities in this area were probably low. Paleo-Indian settlement pattern models from the Middle Atlantic Coastal Plain (Custer, Cavallo, and Stewart 1983) and summaries of fluted point data from the Delmarva Peninsula (Custer 1983a: Chapter 3) note that there are two concentrations of fluted point finds in Delaware. One is in the northern part of the state between Newark, Delaware, and Elkton, Maryland, and is associated with outcrops of high quality cryptocrystalline lithic materials (Custer and Galasso 1980). Another is along the poorly drained mid-peninsular drainage divide (see Figure 2) where there are good data indicating the presence of

numerous game-attractive swamps and bogs during Later Pleistocene and early Holocene times. The general tendency is for Paleo-Indian sites to be located in association with high quality lithic outcrops, good hunting locations, or both (Gardner 1977).

The majority of the study area lacks either one of these features during the Paleo-Indian periods. Large Pleistocene gravel beds of the Columbia Formation are present in the study area; however, they seem to lack the high frequency of high quality secondary lithic materials that are found in larger gravel beds elsewhere on the Delmarva Peninsula (Custer and Galasso 1980; Jordan 1964). Therefore, it is likely that Paleo-Indian use of the environmental settings within the study area were not as frequent as other parts of Delaware. However, discussing the potential for Paleo-Indian sites within the study area in relation to lithic resources, it should be noted that it is possible that Paleo-Indian resources may be underestimated in these regions because the use of cobble resources within a "serial lithic resource utilization pattern" (Custer, Cavallo, and Stewart 1983:Figure 4) would not produce assemblages of tools and diagnostic artifacts that resemble other "typical" Paleo-Indian assemblages. The tool assemblages recovered from the Turkey Swamp site in New Jersey's Coastal Plain (Cavallo 1982) may be looked upon as an example of these "atypical" Paleo-Indian assemblages. Therefore, further survey research in the study area should be sensitive to the identification of Paleo-Indian assemblages manufactured from cobbles.

In all but one section of the study area, bogs and swamps of Pleistocene age are infrequent. Therefore, it is likely that hunting sites from the Paleo-Indian Period are infrequent as well. The one portion of the study area that is an exception is the area north of Flemings Landing and south of Pine Tree Corners (Figure 4). This area has numerous bay/basin features (Plate 1) and although no

radiocarbon dates are available from these features, pollen assemblages from sediments within them indicate that they were open bogs, or swamps with standing water, at least as early as 9,000 B.C. (Rasmussen 1958; Custer 1983a:Chapter 2). Also, in southern New Jersey these features are the focus of Paleo-Indian settlement patterns (Bonfiglio and Cresson 1978).

A total of fourteen Archaic sites are noted in the state files for the study area. Of these, two are macro-band base camps, six are micro-band base camps, and four are procurement sites. Two sites have insufficient data to ascribe a function. The macro-band base camps are located in the large stream floodplains and their location matches with predictions of settlement models developed in other studies (Custer 1983b). Site 7K-D-69, located during a survey of central Kent County (Custer and Galasso 1983), is an especially good example of this site type. The six micro-band base camps are located in similar settings and are more numerous in the Coastal Plain than previously thought (see discussion in Wise 1983). Of the four procurement sites, two are located in association with bay/basin features, underscoring the importance of these locations discussed earlier.

Sites of the Woodland I period represent the greatest portion of the recorded prehistoric sites in the proposed highway corridor. Of the 73 sites with identifiable Woodland I components, 61 could be classified into one of the three functional categories. Table 4 summarizes the distribution of different functional site types and the components present at each functional site type. Macro-band base camps are located primarily along the floodplains of the major drainages and have the highest proportion of multi-component sites. Three of these macro-band base camps are of special significance. The Robbins Farm site (7K-F-12) is a large site on the Murderkill River near Frederica that contains many artifacts manufactured from non-local rhyolites, argillites, and steatites (Griffith and Artusy n.d.; Custer and Galasso 1983) and was occupied primarily during Woodland I times. The

Hughes-Willis site (7K-D-21) is a large macro-band base camp located on the St. Jones River north of Dover. The site contained numerous storage features and was occupied primarily during the later portion of the Woodland I period (Griffith 1974). Also occupied during the later portion of the Woodland I period, the Hell Island site (7NC-F-7) is located on the Appoquinimink River near Odessa (Plate 2) and contained numerous artifacts that link it in time with the Island Field cemetery site (Thomas 1966; Wright 1962). Both the Hell Island site and the Hughes-Willis site are listed on the National Register of Historic Places.

Table 4

Woodland I Site Summary

<u>Site Type</u>	<u>Sites</u>	<u>Component-Cultural Complexes</u>					
		<u>Clyde Farm</u>	<u>Barkers Landing</u>	<u>Wolfe Neck</u>	<u>Delmarva Adena</u>	Carey	Webb
Macro-Band base camp	11	2	6	3	2	3	4
Micro-band base camp	34	8	13	9	8	12	16
Procurement site	16	3	2	0	0	0	2
TOTAL	61	13	21	12	10	15	22

Micro-band base camps are located in a variety of locations on both major and minor drainages and outnumber all other types of Woodland I sites (84 total). Many of these sites are multi-component, but there are fewer components per site among micro-band base camps than was the case for macro-band base camps. Of the 16 Woodland I procurement sites, only a few had identifiable components at the culture complex level. Most of these sites are in good hunting and gathering locations, such as sand ridges adjacent to poorly drained marsh or swamp areas. However, a few (eg., 7K-C-90) are located adjacent to cobble outcrops and may represent lithic reduction sites.

Generally, all of the various Woodland I culture complexes are represented among the recorded Woodland I base camp sites. However, Barker's Landing Complex, Carey Complex, and Webb Complex components are among the most common among the sites recorded in the study area. In sum, the entire range of Woodland I functional site types, except for specialized mortuary sites, and the entire range of Woodland I culture complexes are present in the study area.

Thirty-one Woodland II sites were noted in the state files for the study area. Table 5 provides a summary of the site distributions by functional type and culture complex. There are more Slaughter Creek Complex sites (14) than Minguannan (8), but Minguannan Complex sites are still well represented in the southern New Castle County and northern Kent County area. This finding is especially interesting and would seem to contradict statements by some researchers which refer to this area as an unpopulated "buffer zone" during Woodland II times (eg., Wilkins 1976). These sites were recognized during the present study by the presence of Minguannan ceramics in the collections at the Island Field Museum and this ceramic type was not recognized as indicative of Woodland II cultures in the northern portion of Delaware until recently (Griffith and Custer n.d.; Custer 1983a: Chapt. 5). Therefore, the "buffer zone" concept is a result of the fact that previous researchers had no basis upon which to identify Woodland II sites in southern New Castle County and northern Kent County. The data presented here clearly show that this "buffer zone" did not exist.

Table 5
Woodland II Site Summary

Functional Type	Minguannan Complex	Slaughter Creek Complex	?	TOTAL
macro-band base camp	1	8	0	9
micro-band base camp	7	6	2	15
procurement site	0	0	3	3
TOTAL	8	14	5	27

It can be noted that most of the Minguannan Complex sites are micro-band base camps while the Slaughter Creek Complex sites include slightly more macro-band base camps than micro-band base camps. Included among the Slaughter Creek Complex macro-band base camps is the Hughes-Willis site which probably represents a summer-fall nut processing camp and which is listed on the National Register of Historic Places (Thomas et al.1975). Whether they are macro-band or micro-band base camps, most of the Woodland II base camps are multi-component and have evidence of earlier Woodland I occupations. This continuity of base camp locations has been viewed as indicative of continuities in adaptations between the Woodland I and II periods in north central Delaware (Stewart et al.1983; Griffith 1983; Custer 1983a: Chapt. 5). Little or no information is available on Woodland II procurement sites. No Contact Period sites were noted for the study area in the state site files.

Historic Sites Tables 6 and 7 present a summary of the historic sites identified in the project area. The majority of sites are early and mid-19th century farmsteads (agricultural complexes, plantations, estates) reflecting the strong agrarian orientation and the period of major settlement expansion of the region. In

TABLE 6: SUMMARY OF KNOWN HISTORIC ARCHAEOLOGICAL SITES IN NEW CASTLE COUNTY - LISTED BY HUNDREDS

Red Lion 100		St. Georges 100			Blackbird 100			Appoquinimink 100							
1911-1950	1869-1910	1803-1868	1682-1802	1638-1681	1911-1950	1869-1910	1803-1868	1682-1802	1638-1681	1911-1950	1869-1910	1803-1868	1682-1802	1638-1681	DWCX
1	7	19	0	0	1	3	16	0	0	11	16	15	0	0	
0	0	1	0	0	0	0	13	0	0	0	1	0	0	0	PEACH
0	1	4	3	0	0	1	7	0	0	0	0	1	0	0	EST
0	3	31	0	0	0	17	85	0	0	0	5	56	0	0	AGTEN
0	0	0	0	0	0	0	4	0	0	0	0	2	0	0	INDTEN
0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	SLAVQ
0	0	0	0	0	0	1	3	0	0	0	0	1	0	0	TENANT
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	MWHSE
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	ALMHSE
0	7	38	1	0	1	4	124	5	1	0	7	81	4	0	AGCX
0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	AGBLD
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	AGMCX
0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	SMCX
0	0	0	0	0	0	0	2	3	0	0	0	1	1	0	GMCX
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	SOMCX
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	MMCX
0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	MANUFY
0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	BSSH
0	0	0	0	0	0	0	1	0	0	0	0	4	0	0	WKSH
0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	TAV
0	0	5	0	0	1	1	6	0	0	0	0	4	0	0	STO
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	BANK
0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	PHYS/ DWCX
0	0	2	0	0	0	1	0	0	0	0	1	0	0	0	HOT
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	WARE
0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	SERVSTA
0	1	3	0	0	0	0	0	0	0	0	0	1	0	0	CHUR

New Castle County				New Castle 100				Pencader 100				
1911-1950	1869-1910	1803-1868	1638-1681	1911-1950	1869-1910	1803-1868	1638-1681	1911-1950	1869-1910	1803-1868	1638-1681	
14	40	58	0	1	0	1	0	0	5	3	0	DWCX
0	1	16	0	0	0	0	0	0	0	0	0	PEACH
0	3	15	0	0	0	0	0	1	2	0	0	EST
0	32	225	0	0	1	9	0	0	7	0	0	AGTEN
0	2	7	0	0	0	0	0	0	0	0	0	INDTEN
0	0	2	0	0	0	0	0	0	0	0	0	SLAVQ
0	4	5	0	0	1	0	0	0	1	0	0	TENANT
0	0	0	0	0	0	0	0	0	0	0	0	MWHSE
0	0	1	0	0	0	0	0	0	0	0	0	ALMHSE
1	37	365	1	0	1	3	0	0	8	2	0	AGCX
0	1	1	0	0	0	0	0	0	0	0	0	AGBLG
0	0	0	0	0	0	0	0	0	0	1	0	AGMCX
0	0	1	0	0	0	0	0	0	0	0	0	SMCX
0	0	4	0	0	0	0	0	0	0	0	0	GMCX
0	0	0	0	0	0	0	0	0	0	0	0	SOMCX
0	0	0	0	0	0	0	0	0	0	0	0	MMCX
0	0	5	0	0	0	0	0	0	0	0	0	MANUFY
0	0	4	0	0	0	0	0	0	0	0	0	BSSH
0	0	5	0	0	0	0	0	0	0	0	0	WKHS
0	0	2	0	0	0	0	0	0	0	0	0	TAV
0	1	23	0	0	0	0	0	0	5	0	0	STO
0	0	0	0	0	0	0	0	0	0	0	0	BANK
0	0	2	0	0	0	0	0	0	0	0	0	PHYS
0	2	6	0	0	0	1	0	0	1	0	0	HOT
0	0	0	0	0	0	0	0	0	0	0	0	WARE
1	0	0	0	0	0	0	0	0	0	0	0	SERVSTA
0	1	6	0	0	0	1	0	0	0	0	0	CHUR

TABLE 7: SUMMARY OF KNOWN HISTORIC ARCHAEOLOGICAL SITES IN KENT COUNTY - LISTED BY HUNDREDS

North Murderkill 100		Duck Creek 100		Kenton 100		Little Creek 100		
1638-1681	0	0	0	0	0	0	0	DWCX
1682-1802	0	0	0	0	0	0	0	PEACH
1803-1868	3	0	1	30	2	0	2	EST
1869-1910	3	0	0	0	0	0	0	AGTEN
1911-1950	5	0	0	0	0	0	1	INDTEN
1638-1681	0	0	0	0	0	0	0	SLAVQ
1682-1802	0	0	1	0	0	0	0	TENANT
1803-1868	4	0	5	37	6	0	0	MWHSE
1869-1910	4	0	0	0	0	0	0	ALMHSE
1911-1950	5	0	0	0	0	0	0	AGCX
1638-1681	0	0	0	0	0	0	0	AGBLD
1682-1802	3	0	4	0	0	0	0	AGMCX
1803-1868	10	1	0	42	3	0	0	SMCX
1869-1910	9	0	0	1	0	0	0	GMCX
1911-1950	12	0	1	3	0	0	0	SOMCX
1638-1681	0	0	0	0	0	0	0	MMCX
1689-1802	0	0	0	0	0	0	0	MANUFY
1803-1868	1	1	0	4	0	0	0	BSSH
1869-1910	13	0	0	0	0	0	0	WKSH
1911-1950	9	0	0	0	0	0	0	TAV
								STO
								BANK
								PHYS
								HOT
								WARE
								SERVSTA
								CHUR

addition, sites representing a broad range of functions from many time periods are recorded. It should be recognized, however, that the quality of the data base varies for each time period and between New Castle county and Kent county.

There is a heavy bias toward early and mid-19th century sites because the majority of the sites were identified using the Beers (1868), Price and Rea (1850), and Rea and Price (1849) atlases. Sites dating to the 17th and 18th century are under represented in the historic site inventory. The majority of the sites of this age no longer possess extant standing structures and would not have been recorded in the Bureau of Archaeology and Historic Preservation standing structure inventory files. Furthermore, many structures of this age had most likely been destroyed or were deteriorated when mid-19th century atlases were prepared, and thus would not have been recorded. Documented sites of the late 17th and 18th centuries will reflect a more permanent and prosperous phase of settlement because less substantial structures dating to initial settlement or associated with lower socio-economic groups would have deteriorated. The broader variety of documentary and archival sources available for the 19th century also provides a more complete data base for this period than for earlier periods. Twentieth century sites may also be under represented because 20th century maps were not consulted consistently and the Bureau of Archaeology and Historic Preservation standing structure inventory files are not complete for this period.

The full range of functional types of historic sites has not been identified because data on this subject are fragmentary. Historical sources frequently provide only partial lists of the activities occurring at a site or they list none at all. Thus, statements about historic site function are often limited. The cultural biases of mid-19th century reporters should also be considered in evaluating the data base. Mid-19th century atlases were most useful to governmental bodies, commercial and industrial concerns, and upper socio-economic stratum groups. For

this reason compilers of these works would be more likely to omit data detailing lower socio-economic stratum lifeways. Therefore, an under representation of particular functional site types is inferred. For example, slave quarters, farm and industrial laborer dwellings, and tenant farms are not identified. Information on ethnic communities, including remnant Indian communities and black populations is often conspicuously missing. In addition, part-time and full-time occupational specializations are difficult to ascertain from the documentary evidence consulted. Therefore, sites which were the loci of craftsmen's workshops, doctor's offices, and seasonal activities are not always identifiable.

Omissions and errors in the mid-19th century atlases, while certainly unavoidable, also impose limitations. And finally, the availability of additional historical sources for New Castle county (Rea and Price 1849; Baist 1893) provides a more complete and more thoroughly dated data base for that county than is available for Kent county. In Kent county the basic documentary sources are the Bureau of Archaeology and Historic Preservation standing structure inventory files and Beer's Atlas (1868). With these limitations taken into consideration, the documented sites have been evaluated within the cultural context of the project area and shifts in settlement, technological, agricultural, industrial, and commercial patterns are identified.

A five-stage temporal framework is presented to order the historic archaeological sites: 1) Colonial Settlement Period (1638-1681); 2) Initial Agrarian Settlement Period (1682-1802); 3) Full Agrarian Expansion Period (1802-1869); 4) Settlement Stabilization and Agrarian Maintenance Period (1869-1910); 5) Modern Period (1911-1950). This framework is in part a reflection of the restrictive nature of the primary documents used to date sites, but more importantly it corresponds to the major trends in Delaware history (Weslager 1961, 1967; Hoffecker 1973, 1977; Munroe 1978) and serves to demarcate shifts in the settlement patterning and economic orientation of a primarily agrarian region.

The Colonial Settlement Period (1638-1681) is represented by only three sites: a causeway/bridge of Dutch construction (N-1309); a landing operation (N-3908); and an early farmstead (N-3909) which are all in the Saint Georges Hundred. Colonial populations during this period were low and settlements were concentrated in the area to the north of the project area. The economy of the early colonies was focused on the export of raw materials to European markets. Furs, timber, naval stores and the only true cash crop, tobacco, were the primary exports and their distribution was dependent on access to water transportation.

The known sites support the pattern of subsistence agriculture and the water orientation of the early colonists. Other site types dating to this period expected within the project area would reflect the extractive focus of the economy: for example, fur trade posts and rudimentary sawmill operations. Sites will be located on the Delaware River-Delaware Bay shore or on the major navigable streams in close proximity to these bodies. In general, the number of early period sites will be few due to low population densities and the small number of settlements. Identification of these sites will be difficult due to the impermanent nature of the early structures, abandonment, and subsequent deterioration by natural processes.

The assumption of proprietary rights by Penn in 1682 over the "three colonies on the Delaware" commences the Initial Settlement Period (1682-1802). While the American Revolution effected political changes in Delaware, the economic and social focus of its inhabitants changed little. For this reason, no temporal break is marked at Independence. Under Penn's proprietorship settlement was strongly encouraged through the granting of land patents. The subsequent speculation in land as the patents were divided resulted in the settlement of all available productive agricultural lands by the mid-18th century (Hoffecker 1977). Dispersed farmsteads on prime agricultural land along navigable streams and early cart roads leading to landings and villages are noted on the Varille and Shallus map (1802).

Fifty late 18th century farmsteads are located in the study along the lower reaches of Red Lion Creek, Drawyers Creek, Blackbird Creek, Appoquinimink Creek, Leipsic River, and Smyrna River. A 1690 settler's farmstead (N-3902) in the Appoquinimink Hundred illustrates this pattern.

The earlier pattern of extracting and exporting raw materials continued into the Initial Settlement Period. Agricultural production was predominately for local consumption; however, a shift toward market-oriented crops was established by the end of the period. Wheat, became a major cash crop and was transported unprocessed or as flour to growing domestic and foreign markets. Water-powered mills were established on navigable streams to process timber, lumber and wheat for export. Thirteen sawmill and/or gristmill sites were established during this period, including a tidal gristmill (N-5215) located on Appoquinimink Creek in the tidal marsh zone.

Increasing pressure for productive agricultural land with access to water transport led to the draining and utilization of the marsh zones along the major streams during the 1750's (Hoffecker 1977). A number of sites in the study area may have been part of this short-lived expansion (N-5177, N-1502, N-5873, N-214, N-5872, Sites 257, 264, 266 and 595). The marshlands along Drawyers Creek, Appoquinimink Creek, and the Leipsic River hold the highest potential for containing unrecorded sites of this type.

Churches and meetinghouses accompanied the establishment of early settlements and by the Revolution all the major faiths present in Delaware today had built houses of worship (Munroe 1978; Hoffecker 1977). Seven sites (N-124, N-154, N-233, N-5041, K-103, Sites 209 and 651) evidence the early churching of the project area.

During the Initial Settlement Period slavery was established on plantations. The only slave quarters identified are N-117.1 and N-5129 in Saint Georges

Hundred, although all plantation sites of the period have the potential for producing slave-related components. No tenant dwellings or farms, or indentured servant quarters have been identified for this period, however, they are expected to be associated with the plantations and large farmsteads that have been recorded.

The Full Agrarian Expansion Period (1803-1968) is marked by a tremendous settlement expansion. Three major factors are responsible for the shift: 1) the lack of available prime agricultural land with ready access to water transport; 2) the increasing demand of large, domestic markets for the agricultural products of the hinterland; and 3) the establishment of reliable transportation facilities which provided an economical alternative to water transport, including the construction of turnpikes, cartroads and more importantly the canal and railroad lines.

The pattern of dispersed farmsteads persisted, but extensive local road systems connected farmsteads to transport facilities and towns. Wheat and peaches were the market-oriented crops and a total of 675 farmsteads have been recorded. Many of these represent the massive holdings of gentlemen farmers. Agricultural tenancy increased as wealthy landowners amassed acreage and the pool of agricultural laborers, frequently free blacks, grew in size (Bausman 1929). The large number of agricultural tenant sites (371) demonstrates the strength of this trend.

Nineteen sites associated with peach production have been located within the project area. N-107, N-109, N-110, N-116, N-117, N-118, and N-119, the residences and plantations of Delaware's large peach producers, evidence the prosperity which the "peach boom" brought to a segment of the population. Not all peach growers or individuals engaged in related industries, however, achieved the wealth of the major producers. N-143, a modest version of the "peach house", affords the opportunity to examine the lifeways of the middle income peach

grower. Peach production was heaviest in New Castle county and 90% of the sites associated with the "peach boom" are located there.

The establishment of canal and rail transport was directly related to the expansion of agricultural production into the unsettled, forested areas. In addition to agricultural expansion, the canal and railroads stimulated the growth of hamlets into towns and the establishment of new towns. Saint Georges became an important distribution center due to its canal location. Middletown, Odessa, Clayton, Smyrna, Kirkwood, Brenford, Green Spring (formerly Sassafras Station), Mount Pleasant and Wyoming are among the towns which served as local commercial and industrial centers due to the proximity of the rail lines. The existing towns on navigable streams and the numerous landings maintained their importance and served the growing steamboat and schooner traffic.

Manufactories, for example, brickyards (Sites 421, 598 and NT5928), a tile factory (Site 255), a lime kiln (K-4025), a shipyard (Site 433), a vineyard (Site 925), and a tanyard (K-3960) were founded near the major transportation routes and the increasingly important service centers. Warehouses for the storage and redistribution of agricultural produce appeared in Smyrna Landing (Sites 434-440) and Brick Store Landing (N-135). Specialized workshops were located in or near the local service centers and provided blacksmith and whitesmith (tinsmith) services, brooms, baskets, and shoes.

The organization of public institutions accompanied the expansion of agricultural communities throughout the study area. In 1829 the Public School Act created Delaware's first public supported and organized school system, resulting in the ubiquitous one-room schoolhouse on the rural landscape. Black school-age children were excluded from the school system. Black education was dependent on support from the black community or churches. Public and church supported almshouses (K-320, Sites 17 and 738) were maintained to shelter the indigent and

mentally ill. The almshouse residents produced their own food and provided services for the larger community. Site 738 was a black almshouse (Beers 1868) and is one of the few known sites which could provide information on one segment of the black community.

Despite the growth of towns and their increasing commercial and industrial activities, the study area does not shift from its primarily agrarian character. Moreover, the towns functioned as service centers for the agrarian region rather than as commercial-industrial centers in their own right. The services and products of the towns were oriented to agricultural production.

The Settlement Stabilization and Agrarian Maintenance Period (1869-1910) is characterized by the continuation of settlement, economic and social patterns established earlier. The project area did not experience the population increases which occurred in the north. Agriculturally productive land was settled, and the small increase in the number of farmsteads most likely reflects the division of large estates and farmsteads. Documentary sources show shifts in landownership (Beers 1868; Baist 1893) which suggest both an increase in tenancy and the assumption of farm ownership by former tenant farmers.

Small increases in the number of town residences and businesses, such as, general merchandise stores, groceries, banks and hotels are noted, but these reflect the town pattern clearly established during the preceding period. The commercial-industrial growth of towns leveled off. Substantial shifts in economic orientation and major population growth was limited primarily to urban centers such as Smyrna, Dover, and Clayton and northern Delaware which are not under consideration in this project.

The growth of a black community in the Point Breeze area north of Clayton is a notable addition to the historic site inventory (N-6212 through N-6235). Although additional black communities have not been identified, others are

expected on the rural landscape. Information on the lifeways of blacks in a still racially segregated society can be gained from the investigation of such communities.

The introduction of mass-produced goods which occurred during this time resulted in changes in home construction and decoration. Improvements in agricultural implements and machinery lessened the labor intensive nature of farming and permitted the cultivation of larger acreages. Amenities such as gas, electricity, central heat, and indoor plumbing became available. These changes will be reflected in the archaeological record as shifts in material culture, structural elements in buildings, discard patterns and rates of discard, for example. Sites of this age will furnish new data on the integration of the material products of the Industrial Revolution in a hinterland society. New information on the concomitant behavioral changes will allow the refinement of theories of cultural change.

The Modern Period (1911-1950) was characterized by an agricultural orientation. There were shifts in the agricultural products with a focus on perishables and chickens. Population growth was heaviest in the larger municipalities which are excluded from this study. In 1911 the construction of the Dupont Highway was authorized and subsequently the region was opened to automobile and truck traffic.

Several important patterns emerged in response to the increased mobility brought about by motorized transportation. The small, local service centers lost their economic importance as storage and redistribution facilities as businesses and service providers became concentrated in the major centers. New houses were constructed in once predominately rural areas and new commercial-industrial-service employers supplied jobs to the growing non-agricultural/suburban populations.

The revamping of the state's educational system led to the abandonment of the one-room schoolhouse. Centralized state agencies administering welfare and relief programs came into existence ending the almshouse system.

Mass-produced goods and household amenities introduced earlier became available to nearly all segments of the population by the end of the period. Lower socio-economic white and black communities, migrant worker dwellings, Mennonite farmsteads, and other ethnic enclaves are not expected to exhibit patterns seen in the larger community. For this reason, sites associated with these groups can provide information on the perpetuation of traditional behavior, technology, and social organization in modern society. The acceptance of selected modern elements by these communities could also be obtained by investigating these sites. One migrant worker dwelling (K-2065) has been identified in the project area.