PHASE IA CULTURAL RESOURCES SURVEY
FOR
THE FORMER KOPPERS COMPANY, INC. PROPERTY,
NEW CASTLE COUNTY, DELAWARE

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FINAL
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Ms. Lisa Marino
U.S. Environmental Protection Agency
Region III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

Re: Revised Report
Phase IA Cultural Resources Survey
Former Koppers Company Property
New Castle County, Delaware

Dear Ms. Marino:


Your letter of September 7 also requested a revised project schedule to reflect WCC's proposed approach to performing the follow-on phases of the Cultural Resources work at the former Koppers Company site. This schedule will be submitted to you under separate cover, and will be sent to you and Ms. Stocum for receipt on or about September 24, 1994 as requested in your letter.

As always, if you or Faye should have any questions, please call us right away. We appreciate your ongoing cooperation on this project.

Very truly yours,

H. Scott Laird, P.G.
Project Manager

cc: P. Ludzia - EPA
M. Zhang - DNREC
J.M. Patarcity - BEI
T. Faye, Esquire - BEI
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ABSTRACT

Background archaeological and historical research was undertaken to determine the presence/absence of cultural resources and potential for archaeological sites on the former Koppers Company, Inc., Newport site. The study is part of the Remedial Investigation and Feasibility Study being conducted on behalf of Beazer East, Inc. and E.I. DuPont De Nemours & Company, Inc., pursuant to an Administrative Order on Consent (dated September 31, 1991) with the Environmental Protection Agency (EPA).

No prehistoric archaeological sites had been previously identified in the project area. A brief field reconnaissance identified two prehistoric archaeological sites through surface inspection of unpaved roads in the project area. The significance of these finds cannot be evaluated without subsurface investigations. Regional archaeological studies and background geological research suggest that there is a high potential for prehistoric archaeological sites along the southern and western boundaries of the project area where moderately well-drained soils on higher ground occur near water courses or wetlands. The potential for prehistoric archaeological sites in the remainder of the project area is relatively low except where well-drained soils occur on topographic highs.

Two historical occupations of the former Koppers property were documented in the State of Delaware files. One structure, a house used for a time as the office of the Koppers facility, was removed in the 1970s; the archaeological potential of the building site is not known. The house was probably a late nineteenth century dwelling and later may have been associated with the railroad. Historic Archaeological Site 7NC-E-124 is the foundation of a farmhouse and agricultural complex, probably dating to the middle of the nineteenth century (Lynam Farm).

Historical maps and documents suggest that there may have been an eighteenth century occupation (Widow Colston) in the vicinity of Site 7NC-E-124, but inaccuracies and ambiguities in historical maps leave some uncertainty; thus, a third potential historical archaeological site may be present. Another agricultural complex occupied the eastern portion of the property and is now considered an archaeological site (Wright Farm). Workers' housing for the original Koppers facility stood along Hershey Run at the western side of the property and is considered as a fifth potential historical archaeological site. There is also the potential for a landing or wharf along the southern boundary of the project area along White Clay Creek. The will of John Justice (ca. 1804) mentions a log cabin belonging to freed slaves on, or in the vicinity of, the project area. In summary, three known historical archaeological sites exist on the former Koppers property, and four other historical archaeological sites may be present. There is also potential for seventeenth century occupation of the project area.
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1.0 INTRODUCTION

1.1 Nature of the Project

The purpose of the Phase IA Cultural Resources Survey described herein was to summarize existing information on known archaeological resources within the project area and to identify areas that are likely to contain significant prehistoric or historic archaeological resources on the site of the former Koppers Company, Inc. Newport site (Figure 1). The study was carried out by MAAR Associates, Inc. (MAI) of Newark, Delaware, as subcontractors to Woodward-Clyde Consultants (WCC), Plymouth Meeting, Pennsylvania, on behalf of Beazer East, Inc. and E.I. DuPont De Nemours. Geoarchaeology Research Associates completed the background research on the geology, geomorphology, and pedology of the region, which has been incorporated into this report. The information contained in this report will serve as a guide for further investigation of the project area as per the Revised Work Plan (Woodward-Clyde, January 31, 1994).

An administrative Order of Consent has been executed between Beazer East, Inc., E.I. DuPont De Nemours and Company, Inc. and the United States Environmental Protection Agency (U.S.EPA), Region III, to perform a Remedial Investigation (RI) and a Feasibility Study (FS) at the former Koppers Company, Inc., Newport Superfund Site in Newport, Delaware. Pursuant to Section 106 and Section 110(f) of the National Historic Preservation Act (NHPA), as amended, the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) remedial actions are required to take into account the effects of such remedial action on any historic properties included on or eligible for inclusion on the National Register of Historic Places.

Potential effects (impacts) on cultural resources are currently unknown, but will be determined through the RI/FS process. At this time remedial action, if necessary, is the only activity that is anticipated. No further development is planned at this time. As such, NHPA is among the Applicable or Relevant and Appropriate Requirements (ARARs) that must be considered in the RI/FS. The first step towards substantive compliance with the NHPA is the completion of the Phase IA Cultural Resources Survey. The Phase IA survey is an initial element of the Cultural and Historical Resource Work Plan, which is an appendix to the Revised Work Plan (RWP January 31, 1994) approved by the U.S.EPA, May 26, 1994.

The primary goal of the Phase IA Cultural Resources Survey is to gather relevant secondary and readily available primary source material on the prehistory and history of the project area. This study is designed to compile available background information on prehistoric archaeological sites or potential sites, and historical information and documentation of European occupation and use of the property. The background research has been undertaken according to the Delaware State Historic Preservation Office Guidelines for Architectural and Archaeological Surveys in Delaware (Delaware SHPO 1993) and the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation (48 FR 44716). A brief field reconnaissance of the project area was undertaken in accordance with the RWP.
This report reviews the prehistoric archaeology of the region in order to infer the kinds of cultural material and deposits that may be encountered in the project area. This information provides the basis for specifying sensitivity zones for the project area based on predictive models and settlement patterns. Historical information and documentation establish the known activities in and around the project area. There may be additional resources discovered in the course of the RI/FS. As per SHPO cultural resource survey guidelines, an evaluation of significance of known cultural deposits or an assessment of the integrity of the archaeological record was not attempted on the basis of this Phase IA background research.

1.2 Project Area Location and Description

The former Koppers property is situated on the north side of the Christina River at and just west of the confluence with White Clay Creek (Figure 1). Hershey Run forms the western boundary of the project area. To the south is Churchmans Marsh and to the west is Bread and Cheese Island, formed by present and past channels of Red Clay Creek. White Clay and Red Clay creeks drain the Piedmont uplands to the north and west, while the Christina River drains the Coastal Plain province below the Fall Line. White Clay Creek joins the Christina River approximately 16 river kilometers (km) (10 miles [mi]) from the mouth of the Christina River at the Delaware River in Wilmington (United States 1894-1895:7). The lower 27 km (16.5 mi) of the Christina River, as well as both the White Clay and Red Clay creeks in the immediate vicinity of Bread and Cheese Island, are tidal (United States 1894-1895:7).

The project area itself lies 5 km (3.1 mi) south of the Fall Line, which separates the predominately erosional Piedmont Zone (Figure 2) from the predominantly depositional Coastal Plain province (Spoljaric 1972:3). Custer (1983:23-28) identifies a High Coastal Plain physiographic zone extending from the Fall Line south to the Smyrna River as an extension of thick Columbia Formation deposits onto the Coastal Plain (Jordan 1964:2). Streams are deeply incised into the High Coastal Plain and the topography is gently rolling (Custer 1983:25).
SCHEMATIC REGIONAL CROSS SECTION

MSL MEAN SEA LEVEL
Wp WISSAHICKON FORMATION, PELITIC FACIES
Cm COCKEYSVILLE FORMATION
Wmg WISSAHICKON FORMATION, META GRAYWACKE FACIES
fmg FELSIC AND MAFIC GNEISS AND MINOR SCHIST
Kpt CRETACEOUS POTOMAC FORMATION

FROM: GEOLOGY OF THE NEWARK AREA, DELAWARE, DELAWARE GEOLOGIC SURVEY
GEOLIGIC MAP SERIES NO. 3, K. D. WOODRUFF & A. M. THOMPSON, 1972

MAI PROJECT: D-41
KOPPERS SITE PHASE 1A

FIGURE 2
GENERALIZED GEOLOGICAL CROSS SECTION OF NORTHERN DELAWARE-NORTHWEST TO SOUTHEAST

NOT TO SCALE

SCALE

-350
2.0 PALEOENVIRONMENTS

2.1 Geology and Geomorphology

Knowledge of the local geology and geomorphology is important to archaeologists because prehistoric peoples lived more closely to the land and modified the landscape to a much lesser extent than modern day occupants of northern Delaware. The paleogeology of a region is also a background against which climate and vegetation changes occurred in the past. The geology and geomorphology of a region can be affected by climate and vegetation changes also. Some geological processes occur at rates that alter landscapes on a scale that affects historic archaeology as well (e.g., Kellogg 1993a).

Climate and environments have changed almost continuously over the last 1.6 million years - the Quaternary geological period (Palmer 1983) - the period of the Ice Ages. The Quaternary period is divided into the Pleistocene Epoch (1.6 million years ago [mya] to 10,000 years ago) and the Holocene Epoch (10,000 years ago to the present). People first entered North America at the end of the Pleistocene Epoch and occupied the entire "New World" during the Holocene. Research designed to recreate past environments is termed "paleoenvironmental" research, or paleoenvironmental reconstruction. Paleoenvironmental reconstructions based on the study of geological strata, sediments, and fossils (including peat, pollen, and other plant remains) are essential for a full understanding of past human adaptations and for archaeological interpretations of cultural material. The review and summaries that follow are aimed at establishing relevant environmental contexts for both prehistoric and historic occupations of the study site. The information is also important for establishing the possibility of changes in the local landscape that could affect land use in the past and thus for guiding the present search for cultural material.

The Delaware Coastal Plain is formed on Early Cretaceous period (144 - 97.5 mya) Potomac Formation unconsolidated deposits consisting of variegated red, gray, purple, yellow, and white silts and clays interbedded with white, gray, and rust-brown quartz sands and some gravel (Woodruff and Thompson 1975). Borings taken for the construction of Interstate 95 show that the marine clays are over 68 meters (m) deep (200 feet [ft]) (Delaware Geological Survey n.d.). Dark red and variegated clay strata mark the top of the Cretaceous deposits locally, and White and Red Clay creeks are named for the underlying Cretaceous marine clays (Woodruff and Thompson 1975) into which they are incised.

The Quaternary period Columbia Formation of fluvial sand and gravel was deposited by a system of braided and meandering stream channels and unconformably overlies the Potomac Formation clay beds of the Delaware Coastal Plain on an erosional surface (Jordan 1964; Jordan and Talley 1976). Spoljaric (1967:10) found that the major streams of New Castle County now tend to flow in the areas which were topographic highs (interchannel areas) during the Pleistocene epoch. The modern Christina River channel adjacent to Churchmans Marsh flows northeast on an interchannel bar between the south-trending paleochannel (old or former channel) and the southwest-trending interchannel. The average thickness of the deposits in the eastern paleochannel, between the modern Christina and Delaware rivers, is about 14 m (40 ft); the maximum thickness recorded is 25 m (75 ft). Sand and gravel layers assignable to the Columbia Formation are less than 7 m (20 ft) thick along the Christina River in the vicinity of the project area.
The age of the modern Christina River channel is uncertain. The channel follows a northeast-southwest trending fault developed in the Potomac Formation surface. According to Doyle (1981:IX-30), Late Cretaceous period (97.5-66.4 mya) faulting changed the course of the stream draining the Piedmont from a southerly trend to a new northeast to east direction. White Clay Creek and the Christina River are interpreted as structurally subsequent streams which acquired their modern channel morphology in the Late Cretaceous or Early Tertiary period (66.4 - 23.7 mya). As seen above, Spoljaric (1967), on the other hand, dates the reversal in direction of the Christina River much later, to sometime in the Pleistocene or early Holocene after deposition of the Columbia Formation. A likely explanation for the reversal would then be crustal rebound of the glacially depressed Baltimore Canyon Trough Geosyncline (Belknap and Kraft 1977:621-624). From Churchmans Marsh to the Delaware River, the Christina River meanders through a trough 1.5 km (0.9 mi) wide that pinches down to only 200 m (650 ft) width in downtown Wilmington where metamorphic bedrock of the Piedmont outcrops (Woodruff and Thompson 1975). Marsh areas indicated on geological and quadrangle maps suggest that the position of the active channel varied within the larger trough throughout the Holocene. Unfortunately, no dates are available for the Christina River oxbows or abandoned channels.

Adjacent to the former Koppers property, the present channel of the Christina River appears to occupy the most northerly position of the river's Holocene history. No abandoned channels are evident on topographic maps or aerial photographs of the project area. Some small sloughs and channels in the marsh trend east-west between small tributary creeks and runoff channels. The downstream artery of White Clay Creek, now forming the southern boundary of the project area, may have migrated through Churchmans Marsh over time. A relatively large tributary of White Clay Creek, indicated as Hershey Run on recent USGS quadrangle maps, forms the western boundary of the project area. Hershey Run trends north-south through what may be a remnant of the late Pleistocene or early Holocene course of Red Clay Creek. Some historical maps show Hershey Run as "old Red Clay Creek." The confluence of White and Red Clay creeks is now west of Bread and Cheese Island.

The history of Churchmans Marsh is also uncertain. Although numerous wells and borings have been recorded in the area (Delaware Geological Survey, n.d.), no radiocarbon dates have been taken on marsh deposits. Custer (1982) reconstructed the stratigraphy of the marsh based on borings for Interstate 95 and excavations of archaeological sites to the west, and suggested that the marsh probably formed in the early Holocene between 10,000 and 8,000 yrs before the present (B.P.), when sea-level rise is thought to have raised the water table above the surface of the Cretaceous period clays that form the floor of the marsh basin, thus creating a wetland. The borings on which this scenario is based are not detailed enough for archaeological purposes, as stratigraphy is recorded only in gross terms and at wide intervals down core; and again, no dates were obtained on any of the cores or borings. The relationship between sea-level rise and water tables is also speculative and undated.

Minor drainages of the former Koppers property have probably been "drowned" or evolved into poorly-drained marsh environments during Holocene sea-level rise. Present marsh surfaces are lower in elevation than adjacent ridges and knolls. Up to 1 m of freshwater peat and fine silty and clay sediments have accumulated during the Holocene transgression.
Soils of the region form a mosaic of well and poorly-drained series based on the underlying geology (Matthews and Lavoie 1970). In addition, wind-blown loess-like silts generally blanket the region (Carey et al. 1976; Foss et al. 1978; Rebertus et al. 1989; Simonson 1982). The project area itself has been mapped as Othello-Fallsington-Urban, poorly-drained, nearly level soils, contrasting with areas of Aldino-Keyport-Matapex-Urban, moderately well drained, level to nearly level soils. Intact profiles of Othello and Fallsington soils should have gleyed argillic horizons within a 25 to 50 cm depth that cause rain and surface run-off to pond. The Aldino-Keyport-Matapex soil series are better-drained, upland silt loams with argillic horizons. The better-drained soils are considered more sensitive in terms of prehistoric and historic culture. Low-lying areas and drainages have been mapped as Tidal Marsh (Matthews and Lavoie 1970). Much of the area used for the former wood treatment facilities is covered with a layer of limestone gravel.

2.2 Vegetation and Climate

The Delmarva Peninsula is in a transitional area between the northeast-trending Appalachian highlands and the Atlantic coast and also between broad latitudinal climate zones (see Delcourt and Delcourt 1984; Kutzbach 1987; Watts 1979; Webb et al. 1987). The Holocene climate history is difficult to infer from broad regional reconstructions based on pollen sites chiefly found in swamps on the southeastern coastal plain and bogs and lakes in the Appalachian highlands. Altitude effects the local climate recorded in the pollen evidence from the Appalachian highlands (Gaudreau 1988). The southern Atlantic coast is dominated by different air masses than the northern Mid-Atlantic coast, including Delaware (Delcourt and Delcourt 1984; 1987a,b).

Most published studies on vegetation and climate along the Atlantic coast of the United States emphasize the radical changes in climate and vegetation following the end of the last ice age (e.g., Delcourt and Delcourt 1984, 1987a,b; Jacobson et al. 1987; Watts 1979, 1983; Webb et al. 1987; Kutzbach 1987; Whitehead 1973). Holocene changes are less dramatic and more idiosyncratic and local (Gaudreau 1988; Webb et al. 1987; Kutzbach 1987). The lack of ideal sites for pollen study on the Mid-Atlantic coastal plain, especially on the Delmarva Peninsula and the Jersey coastal plain, leaves gaps in the local vegetation and climate history for the area over the last 10,000 years. A complete Holocene pollen diagram for the coastal plain north of the Dismal Swamp does not exist. Thus, many questions remain about the Holocene vegetation and climate of the Delmarva Peninsula and surrounding regions.

Holocene pollen profiles nearest to the Delmarva Peninsula are from the Dismal Swamp (Whitehead 1972) in northeastern Virginia and Rockyhock Bay in northeastern North Carolina (Whitehead 1981), Tannersville Bog and Long Swamp in eastern Pennsylvania (Watts 1979), and Criders Pond in southern central Pennsylvania (Watts 1979). For the purposes of the discussion below, the last 21,000 years is divided into four parts based on the broadest climate and vegetation trends. These divisions do not necessarily coincide with the divisions of time used by archaeologists in the region (Custer 1984a:30; Custer 1989:36; see below), although some of the changes in prehistoric cultures were influenced by changes in the environment.
2.2.1 The Last Ice Age and the Melting of the Ice Sheets

At the maximum extent of the last glaciation, from about 21,000 to 14,000 years B.P., a dome of ice more than a mile thick was centered over Hudson Bay. Climate zones were pushed south during the glacial maximum so that arctic tundra extended as much as 100 km (62 mi) south of the ice (Clark and Ciolkosz 1988; Watts 1983). Spruce and northern pine trees grew in Georgia (Watts 1980; Whitehead 1973) and Louisiana (Delcourt et al. 1980). Sea level was lowered over 100 m (330 ft) so that the continental shelves were almost completely exposed because the ice sheets kept water on land instead of in the oceans (Bloom 1983).

The ice sheets began to melt and break up starting about 14,000 years B.P. Large volumes of cold water raged down rivers, draining the ice sheets, including the Susquehanna and Delaware rivers (Baker 1983:116). However, most of the melt water drained down the Mississippi and St. Lawrence rivers from large lakes next to the retreating ice sheet (Teller 1990). The last remnants of glacial ice finally disappeared over northern Canada about 6000 years B.P. (Mayewski et al. 1981).

2.2.2 Post-Glacial Environments: 14,000 - 10,000 years B.P.

Tundra conditions are evident at Long Swamp in eastern Pennsylvania 60 km (38 mi) south of the ice at the maximum of the last glaciation and also in northern New Jersey (Sirkin et al. 1970; Sirkin and Minard 1972). On the southern Delmarva Peninsula, there is evidence for stands of spruce trees scattered about on grassland and possibly tundra (Sirkin et al. 1977). Spruce trees were one of the most abundant tree types in the mid-atlantic forests at about 14,000 years B.P., and spruce trees were common until about 11,000 years B.P. (Gaudreau 1988; Watts 1983). Regional climate was probably cold and wet, and air masses interacted with ocean currents and the retreating ice-margin, creating atmospheric circulation patterns that were much different from present patterns (Delcourt and Delcourt 1984; Kutzbach 1987).

The position of the coastline changed dramatically during the early post-glacial time. Between 14,000 and 10,000 years B.P., sea level was much lower than at present, but was rising rapidly (Bloom 1983:220-222). The coastline of the Delmarva Peninsula would have been 100 km (60 miles) east of its present position at the time of the glacial maximum (Bloom 1983:220-222; Edwards and Merill 1977; Kraft 1971). As sea level has risen, the lower reaches of streams and rivers have been progressively drowned by marine waters (Belknap and Kraft 1977; Fletcher 1988). Drainage systems were affected by the change in gradient, and floodplains built up, potentially burying some evidence of human occupations.

2.2.3 Early Holocene Environments: 10,000 - 6,000 years B.P.

Plant species responded individually to the climate changes that melted the ice, but in general, vegetation zones shifted northwards rapidly as the ice retreated (Delcourt and Delcourt 1987a,b; Gaudreau 1988; Webb et al. 1987). Increased solar warmth at northern latitudes in summer that reached a maximum at 9,000 years B.P. (Kutzbach 1987:426) led to an expansion of prairie vegetation eastward, until about 7,000 years B.P. (Delcourt and Delcourt 1984). Solar radiation was 8 percent greater than at present in July, but winters were cooler; therefore, seasonal variation was greater at 9,000 years B.P. (Kutzbach 1987:426). At the same time, boreal forest species (e.g., spruce, fir, and northern pines) retreated far north of their present ranges (Jacobson et al. 1987).
The number of spruce trees on the landscape had declined in the Mid-Atlantic region by 10,000 years B.P. Spruce and fir trees were replaced largely by pines and oaks (Gaudreau 1988). The somewhat late decline of spruce tree populations may have been due to a cool, maritime climate east of the Appalachian Mountains that ended when the Atlantic Ocean’s Gulf Stream shifted northward (Delcourt and Delcourt 1984:280). From 10,000 to 8,000 years B.P., a mixed forest of pines and oaks dominated the Mid-Atlantic region. Oak populations expanded east of the Appalachians after 10,000 years B.P. (Gaudreau 1988). At Rockyhock Bay in North Carolina (Whitehead 1981), water levels had dropped about 10,000 years B.P. The climate of the mid-Atlantic region became drier as the edge of the ice sheet retreated north into Canada and as solar warmth increased. Watts (1979:463) concluded that the drier climate along the Atlantic coast and in the Appalachian Mountains from before 8,000 years B.P. to about 5,500 years B.P. was dominated by oak tree species.

The history of pine tree populations along the Atlantic seaboard is difficult to interpret from the pollen evidence because there are so many different pine species, and their pollen is similar (Gaudreau 1988; Watts 1979:462-463). Gaudreau (1988:238-239) found that three population centers of pines developed between 10,000 and 6,000 years B.P. Each of these areas was apparently dominated by different species of pine trees: southern varieties, northern varieties, and a coastal plain mixture adapted to drier conditions. Watts (1979:462-463) found early migrations of pine species northward, then a drop in pine populations along the Mid-Atlantic coast. Finally, pine populations expanded again in the late Holocene.

After approximately 9,000 years B.P., climate conditions gradually approached modern values and vegetation has shifted accordingly (Delcourt and Delcourt 1984; Gaudreau 1988; Watts 1983). Prairie shifted west, and the boreal forest adopted its present configuration across Canada. Climate has been gradually cooling since about 9,000 years B.P., but fluctuations have occurred (Denton and Karlen 1973) as in, for example, the "Little Ice Ages" (Grove 1988).

2.2.4 Middle - Late Holocene Environments: 6,000 years B.P. - Present

Oak trees remained an important component of the vegetation of the Mid-Atlantic region throughout the last 6,000 years, but pines were expanding to the south along the Atlantic coast in the last 2,000 years (Gaudreau 1988). Southern pines expanded as sea level approached present levels, perhaps because water tables rose as well. A cooler and wetter climate also contributed to the expansion of pines after about 5,500 years B.P. (Watts 1979). Leaching of soil nutrients on the sandy, well-drained coastal plain may also have favored pines over deciduous tree species in the past 6,000 years (Watts 1979:463). Hickory, an important species in the present forests of the Mid-Atlantic, was a late arrival expanding out of the southeastern U.S. to reach the Delmarva Peninsula area after 6,000 years B.P. (Jacobson et al. 1987).

Some archaeological studies suggest that the climate of the Delmarva Peninsula and New Jersey coastal plain after 5,000 years B.P. was quite variable (Curry and Custer 1982; Custer 1989:176-184; Custer and Watson 1987a; Stewart 1983). Woodland period archaeological sites have been reported buried below wind-blown sediments, which implies that the climate was relatively dry and forest cover in the region was not complete at times. Fresh water was apparently a critical resource, so prehistoric people frequently camped near ephemeral ponds (Custer and Bachman 1986a).
3.0 PREHISTORY

3.1 Prehistoric Time Periods for Delaware

The prehistoric archaeological record of the northern Delmarva Peninsula can be divided into five major periods (Custer 1989):

1) the Paleo-Indian Period (ca. 14,000 - 8,500 years B.P.);
2) the Archaic Period (8,500 - 5,000 years B.P.);
3) the Woodland I Period (5,000 - 1,000 years B.P.);
4) the Woodland II Period (1,000 - 350 years B.P.), and;
5) the Contact Period (A.D. 1650 - A.D. 1750).

The descriptions of these periods given below are based on Custer (1983, 1984a, 1989), the Management Plan for Prehistoric Archaeological Resources of Northern Delaware (Custer and DeSantis 1986), and Kellogg (1993b).

3.2 Prehistoric Overview of Northern Delaware

3.2.1 Paleo-Indian Period (ca. 14,000 - 8,500 years B.P.);

Native Americans first inhabited Delaware sometime after 14,000 years B.P., based on dates from Paleo-Indian period sites in the eastern United States (Custer 1989:81-86) beginning during the recession of the last glaciation. Paleo-Indian groups probably lived mainly by hunting animals that roamed the shifting woodland and grassland mosaic of vegetation on the landscape at the time. Game animals may have included musk ox, caribou, moose, and the extinct mastodon; however, modern game animals, such as white-tailed deer, were also present in the region. Paleo-Indians probably led a wandering existence in small family groups (Custer 1989:95-98). The Paleo-Indian stone tool kit was designed for hunting and processing animals. Careful resharpening and maintenance of tools was common because of a preference for rare, fine-grained, and often colorful, lithic material. Distinctive fluted points, characteristic of the early Paleo-Indian period, show the preference for high quality stone (Custer 1984b).

Fresh water became a more critical resource for both game animals and the hunters who stalked them as solar warmth increased. Late Paleo-Indian period sites dating to after 10,000 years B.P. are relatively rare in Delaware and in the Mid-Atlantic region in general. The known sites are often small and ephemeral, indicating a transitory occupation and a low population density (Custer 1989:120-121).

The types of Paleo-Indian sites known on the northern Delmarva Peninsula in the vicinity of the project area are quarry reduction camps, base camp maintenance stations, and hunting sites. The riverine settings of the Christina River and its major tributaries would be the expected locations for base camps, while poorly-drained interior swamps and bogs would be expected...
locations of maintenance and hunting sites. Bedrock outcrops on and around Iron Hill provided high quality jasper and chalcedony raw material that were preferred for tool manufacture (Custer and Galasso 1980).

In the Management Plan for Northern Delaware, Custer and DeSantis (1986:30-38) identify three Paleo-Indian Study Units. One of these includes the area around Churchmans Marsh, including the former Koppers property. Six sites with evidence of Paleo-Indian period occupation are known in the Lower Christina River/Churchmans Marsh area (Custer and DeSantis 1986:53). One site (7NC-E-6) lies west of Bread and Cheese Island and the former Koppers property at the Clyde Farm. The Clyde Farm site is included in the Clyde Farm Historic District, a rectangular area (Figure 3) that includes a complex of sites that were occupied during all known periods of northern Delaware prehistory. Varisco and Custer (1992:49) consider the potential for Paleo-Indian period campsites as relatively low, but with a high probability for hunting camps. Paleo-Indian groups that frequented northern Delaware are known to have used the high quality lithic materials available in the Iron Hill area of northwestern New Castle County (Custer et al. 1986). Cobbles of this material occur along White Clay Creek and the Christina River.

3.2.2 Archaic Period (8,500 - 5,000 years B.P.)

The beginning of the Archaic period in Delaware is marked by major changes in human adaptations (Custer 1989:122). By 9,000 years B.P., solar radiation had reached a maximum, and northern species of plants and animals had migrated northward out of the Mid-Atlantic region. Temperate plant and animal species were more common, and climate patterns had become more like those of the present. Few Archaic sites have been excavated in Delaware, so what is known is extrapolated from other areas (Custer 1989:127-129). The major change in the archaeology is a wider variety of tools in the Archaic tool kit, suggesting that Archaic period peoples exploited a wider array of plants and animals than did the Paleo-Indian inhabitants of Delaware.

During the Archaic period, human adaptations became more generalized, and foraging for plant food resources was an important activity. Archaic period tool kits were less specialized than the earlier Paleo-Indian tool kits and included a wide variety of plant processing tools, such as grinding stones, mortars, and pestles. A seasonal, mobile lifestyle exploiting a wide range of resources and settings was probably common. The archaeology suggests that band size probably shifted as resources fluctuated through the year. A study of Archaic site distributions on the Delmarva Peninsula (Custer 1986a) found that despite the changes in adaptations between the Paleo-Indian and Archaic time periods, the types of places chosen for occupation were similar, but Archaic sites occur in a wider variety of settings. Site distribution maps for the Delmarva Peninsula (Custer 1989:132) show that swamp settings were still preferred by people using bifurcate base stone points that date to approximately 7,500 years B.P.

Archaic period sites appear to have been occupied for longer periods of time, perhaps on a seasonal basis by flexible kinship-based groups (Custer 1989:129). Exchange of stone tools tied together people across large areas of the eastern United States, providing a basis for the more elaborate exchange networks established later (Custer 1989:140).
Bifurcate base projectile points diagnostic of the Archaic period have been found at the Clyde Farm site (7NC-E-6), the Julian site (7NC-E-17) 0.6 km north of the former Koppers property, site 7NC-E-1 across the Christina River from the former Koppers property, and Site 7NC-E-4 on the south side of Churchmans Marsh (Custer 1989:132-134). The clustering of Archaic period sites around Churchmans Marsh may be correlated with the development of the extensive wetlands there (Custer 1987); alternatively, the focus on wetlands may reflect the scarcity of other freshwater sources during the height of post-glacial warmth ca. 9,000 years B.P. Custer and DeSantis (1986:40-43) consider the Churchmans Marsh area as a potentially significant area for Archaic period sites.

3.2.3 Woodland I Period (5,000 - 1,000 years B.P.)

The Woodland I period has been correlated with dramatic changes in local climates and environments that occurred throughout the Mid-Atlantic region (Custer 1984a, 1989). Although Custer considers warmer and dryer conditions as one cause for the cultural changes seen, in actuality, the climate was becoming cooler and moister (Joyce 1988; Stevens 1991). Continued sea-level rise brought extensive brackish water marshes with high biological productivity to within the vicinity of the present coastline. Thus, Woodland I period settlement patterns reflect a much more extensive use of the landscape and higher population densities. The overall tendency during the Woodland I period was toward a more sedentary lifestyle with increasing population densities.

Many sizeable base camps occupied by large numbers of people occur in many areas of the Delmarva Peninsula. The sites were occupied by many more people than earlier base camp sites and may have been occupied almost year-round. From large base camps, smaller task or kin groups exploited the surrounding countryside, establishing smaller base camps and procuring and processing food at small campsites. Woodland I period sites are, thus, very common in the region.

Woodland I tool kits show some minor variations, as well as some major additions, compared with Archaic tool kits. Plant processing tools became increasingly more common, indicating intensive wild plant harvesting for food. Chipped stone tools changed little from the preceding Archaic period; however, broad-bladed, knife-like processing tools increased in number. Also, the presence of nonlocal lithic raw materials indicates that regional trade and exchange systems were beginning to develop (Custer 1984c). Caching (storage) of special artifact forms may also signify the development of class differences in the societies. Soap stone, and then ceramic, containers were also added to the artifact assemblages. These durable containers allowed more efficient cooking of some types of food, and also made storage of food surplus possible.

Several large Woodland I base camps are situated near the former Koppers property. Again, the Clyde Farm site at the west end of Churchmans Marsh was intensively occupied during the Woodland periods (Custer 1982; Custer et al. 1987; Custer and Watson 1987b). The Delaware Park site (Thomas 1981), 2.5 km (1.5 mi) west of the former Koppers property, is a large base camp with many underground features used for food storage and as dwellings. Site 7NC-E-1 also has a large Woodland I period component (Custer 1989:199). Many small Woodland I period sites, probably hunting and procurement sites, are known west of the former Koppers property (Custer and DeSantis 1986; Varisco and Custer 1992). Very few prehistoric
archaeological sites are known east of the former Koppers property (e.g., 7NC-E-23, 7NC-E-24, 7NC-E-3, 7NC-E-19; see Figure 3). Custer and DeSantis (1986:49-54) note that the Churchmans Marsh and lower Christina River areas contain most of the known Woodland I "macroband" base camps in northern Delaware. All other types of Woodland I sites also occur in the area around Churchmans Marsh.

3.2.4 Woodland II Period (1,000 - 350 years B.P.)

In some areas of the Mid-Atlantic region, agriculture and large-scale village life mark the Woodland II period (Custer 1986b). In northern Delaware, Woodland II period subsistence patterns are similar to those of the Woodland I period, but small amounts of cultivated plants were added to the diet. In general, settlement patterns changed little from the Woodland I period, and the Management Plan Study Units for the Woodland II period are the same as for the Woodland I period (Custer and DeSantis 1986:54-58)

Changes in ceramic technologies and projectile point styles make Woodland II period archaeological sites recognizable. Triangular projectile points appeared in stone tool kits immediately before the beginning of the Woodland II period; and by 1,000 years B.P., triangular projectile points are the only styles found. Woodland II ceramics of northern Delaware fall within the Minguanan series (Custer 1984a). The distribution of Minguanan pottery is not well-established, but it is concentrated in northern Delaware. Townsend ceramics are common in southern Delaware, but apparently are rare in New Castle County (Custer 1989:302-308). The appearance of more complex decorations, including incised lines and cord-wrapped stick impressions, distinguish Woodland II period ceramic styles from Woodland I period ceramics.

In addition to the Clyde Farm site, Site 7NC-E-76 (Basalik et al. 1987) is a Woodland II period base camp with Minguanan ceramics and triangle bifaces. Site 7NC-E-1 also has a Woodland II base camp component (Custer 1982). Many other Woodland II occupations are known in the region as well (Custer and DeSantis 1986:52; Custer 1989:311-316).

3.2.5 Contact Period (A.D. 1650 - A.D. 1750)

The archaeological record of the Contact period, which began with the first substantial European settlements, is enigmatic in Delaware. Only two possible Contact period, Native American archaeological sites have been proposed for Delaware. Site 7NC-E-42 (Custer and Watson 1985) is in the Clyde Farm Historic District directly across White Clay Creek from Bread and Cheese Island. In southern Delaware, Contact period occupation has been reported for the Townsend Site (Owake and Stewart 1963); however, the associations between European and Native American artifacts are problematic (Custer 1984a:177). At Site 7NC-E-42, no diagnostic European artifacts were found in association with aboriginal material (Custer and Watson 1985:114), but stratigraphic interpretation suggests a Contact period component.

Numerous Contact period sites are known in southeastern Pennsylvania and on the Maryland Eastern Shore (Davidson 1982; McNamara 1985; Davidson, Hughes, and McNamara 1985). Despite documentary accounts that suggest otherwise (e.g. Lindstrom 1925; Dahlgren and Norman 1988), Native American groups in Delaware may not have interacted much with the European colonists. Local groups were dominated politically by the Susquehannock Indians of
southern Lancaster County, Pennsylvania (Kent 1984), who monopolized the fur trade. However, a recent re-examination of artifact collections from Delaware (Fithian 1992) found evidence of Contact period interaction between Native Americans and Europeans. Any Contact period site would be considered very significant, and the lower Christina River would be a likely place for aboriginal contact with the Europeans settled at the mouth of the river in the mid-seventeenth century.

3.3 Previous Archaeological Research in Northern New Castle County

Numerous archaeological projects have been carried out in the vicinity of the former Koppers property (Table 1; Figure 4). The vast majority of these projects have been undertaken to mitigate the impacts of highway construction on the archaeological record (Figure 5) and have been published and widely disseminated by the Delaware Department of Transportation. The purpose of this section of the report is to review excavations at prehistoric sites near the former Koppers property to show what kinds of data might be expected on prehistoric sites in the project area.

3.3.1 The Clyde Farm Historic District

The Clyde Farm site complex is listed on the National Register of Historic Places as an Historic District. The Clyde Farm site itself (7NC-E-6) extends out on a finger of land east between White Clay Creek and Churchmans Marsh. The site has been known for many years and was subject to numerous surface collections over the years. Excavations were first undertaken in 1964 and have continued intermittently ever since (Custer et al. 1987). Major excavations were undertaken in the early 1980s by field schools from the University of Delaware (Custer 1982; Custer et al. 1987). The majority of the occupation of the site occurred in the Woodland periods during which the site can be interpreted as a series of macroband base camps. Several features similar to those found at the Delaware Park site (7NC-E-41, see below) were excavated and interpreted as storage pits. Excavations also revealed deep deposits with superimposed occupations below a clear plow zone.

One cluster of pit features excavated by Custer et al. (1987) was interpreted as representing a household cluster with spatially separated activity areas. One radiocarbon date of 2955 ± 90 years B.P. was obtained on charcoal from Feature 8 - a hearth (Custer et al. 1987:231). Although the site had been farmed for many years, significant data were recovered from below the plow zone in feature contexts. Custer (1982) and Custer et al. (1987) also claim that Woodland I period archaeological materials were buried by aeolian deposition before plowing, allowing the preservation of unplowed contexts.
TABLE 1:
Previous Archaeological Research in Northern Delaware

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<tr>
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<td>Custer and Hodny 1989</td>
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<td>5</td>
<td>Thompson 1984</td>
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<td>Taylor et al. 1987</td>
<td>15</td>
<td>Custer et al. 1990</td>
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<td>7</td>
<td>Barse 1985</td>
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<td>Brown et al. 1990</td>
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<td>Custer et al. 1986b</td>
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<td>Hodny et al. 1989</td>
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<td>Custer and Galasso 1980</td>
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<td>Custer and Bachman 1984</td>
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<td></td>
<td>Hoseth et al. 1990</td>
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</table>

*Numbers refer to locations and areas of research shown on Figure 4.*
3.3.2 The Delaware Park Site (7NC-E-41)

The Delaware Park site is a large site situated on the south side of White Clay Creek west of the former Koppers property (Thomas 1981). The site was occupied throughout the Woodland I period. Salvage excavations of the site revealed numerous pit features extending below the plow zone. Twenty-one radiocarbon dates were obtained on charcoal from the feature fill, ranging between 1,310 years B.P. and 3,800 years B.P. The majority of the occupation, however, was centered around ca. 2,500 years B.P. Features were interpreted as hearths, storage pits, and semi-subterranean houses. The site is considered a "macroband" base camp, where a large group of people lived for substantial portions of the year while exploiting the surrounding countryside from smaller "microband" base camps and hunting and gathering stations (Custer 1984a:114). The Delaware Park site is also important because pollen samples were analyzed from feature fill, yielding data on local environments at the site.

3.3.3 The Hawthorn Site (7NC-E-46)

The Hawthorn site is on the high ground between the Christina River and White Clay Creek, approximately 1.5 km (0.93 mi) west of Churchmans Marsh (Custer and Bachman 1984). Three features were excavated: a hearth, a soil stain with charred hickory nuts (disturbed hearth), and a cobble concentration interpreted as a structure. Artifact styles indicated an early Woodland I occupation. The stratigraphy of the site suggested that the archaeological materials were buried in place under aeolian silts after occupation. Although a wide variety of point styles were found, a single component occupation was inferred. The structure was a U-shaped arrangement of large cobbles that may have held down the edges of a tent. The site is believed to represent a procurement-related campsite where hunting activities were staged and game was processed before return to a base camp like the Clyde Farm or Delaware Park sites.

3.3.4 The Lewden Green Site (7NC-E-9)

The Lewden Green site is on the floodplain along the south side of the Christina River near the town of Christiana (Custer et al. 1990). Both Woodland I and II period occupations were present at the site. Over 80 percent of the Woodland I prehistoric ceramics discovered were of the late Woodland I Hell Island type, but earlier Wolfe Neck, Coulburne, and Dames Quarter sherds were recovered as well. The site had a concentrated habitation area with a high concentration of artifacts surrounded by processing areas with lower artifact densities. The site is interpreted as a Woodland I and II "microband" base camp. No subsurface features were discovered; thus, occupations of the site were short, but repeated visits were made over thousands of years. No buried soils were identified in geological studies of the site.

3.3.5 Other Sites in the Region

Other macroband and microband sites have been recently investigated within the vicinity of the former Koppers property. Site 7NC-E-1, now crossed by Interstate 95 and a number of automobile reclamation facilities, extended over a large area to the south of the Christina River. Early collections from this site indicate that it, like the Clyde Farm and Delaware Park sites, represents a series of macrobase camps occupied over thousands of years. A sizable number of excavated sites are small with poorly-preserved contexts. Most have been plowed and eroded. None of these smaller sites has evidence of occupation buried by aeolian
processes. Sites 7NC-D-70 and 7NC-D-72 (Custer et al. 1982) were excavated during studies of Delaware Route 4 west of the former Koppers property. Site 7NC-D-70 was a processing camp with refurbished tools and evidence of tool manufacture from local cobbles. The occupation may have dated to the Paleo-Indian period and extended into the Woodland I period. Also excavated as part of the Route 4 studies were Sites 7NC-E-43, 7NC-E-45, and 7NC-E-75 (Bachman and Custer 1983). All three of these sites were procurement/processing sites similar to 7NC-D-70, dating predominantly to the Woodland I period, but with a few Woodland II Minguannan sherds present at 7NC-E-43 and 7NC-E-75.

The Dairy Queen site (7NC-D-129) near Ogletown on Route 4 (Custer et al. 1988) was on a low knoll adjacent to extensive poorly-drained soils. The deposits were initially thought to be relatively thick, but no buried occupations were discovered. The site is interpreted as the other small sites discussed above, and was occupied during both the Woodland I and Woodland II periods. One discernable trend is the increasing use of Delaware Chalcedony complex lithic material as one moves to the west towards the source area around Iron Hill. To the east, cobbles taken from the streams and the Columbia Formation were used. The variability in stone use for tool manufacture (e.g., Custer et al. 1988:39, Table 7) is one of the only types of cultural information that can be gleaned from these sites if they have been plowed. Subsurface features are rare, and radiocarbon dates are lacking for the majority of the sites that have been excavated.

3.3.6 Summary

Prehistoric archaeological sites in northern Delaware (Figure 5) in general, and in the vicinity of the former Koppers property in particular, appear to represent all periods of aboriginal occupation of the region. Sites range from very small, thin scatters of chipping debris representing overnight camping spots to extensive sites with numerous subsurface features. The features range from shallow hearths with burnt rock concentrations to deep cylindrical pits for food storage to large shallow depressions that represent semi-subterranean houses. Base camps are thought to have been occupied by large groups of people for long periods of time.

The large numbers of small, thin procurement/processing/hunting sites in the region are impressive. Kellogg et al. (in press) estimated the average density of procurement sites on the High Coastal Plain at one site per 22.6 acres for a portion of the State Route 1 highway corridor (based on a sample of less than 0.1 percent of New Castle County). Custer (1988:41) calculated the density of small, procurement sites in the Piedmont of New Castle County at 30 sites per square kilometer. Thus, the small microband site represents a major part of the settlement pattern and the adaptive strategy of the Woodland time periods within the general region (Custer 1988:35).

Paleo-Indian and Archaic period sites are rare, usually small, and situated near a water source or near a source of rocks suitable for stone tool manufacture. Woodland I period sites are most abundant in the region and run the gamut of site type. Most of the small procurement/hunting sites in the region date to the Woodland I period, as do the majority of the large base camp sites. A concentration of Woodland I base camp sites is situated near Churchmans Marsh on relatively high well-drained ground near streams. Smaller "microband" base camps are also common and may be further away from streams, but often near wetlands. Procurement/hunting sites are usually on low knolls of better drained soils near areas of poorly-drained soils or wetlands, and are very common. Woodland II period sites are usually smaller.
and not as common as Woodland I period sites, but occur in the same settings. Many sites in the region were repeatedly occupied during more than one period of prehistory. Especially favored locations, such as the Clyde Farm site, have long, complex records of human occupation.

3.4 Prehistoric Site Potential and Field Reconnaissance

A sensitivity map for prehistoric archaeological sites on the former Koppers property (Figure 6) was prepared based on three factors:

- Distance to marsh edge
- Soil drainage characteristics
- Topography

The composite sensitivity rating arrived at by using these factors can be modified downward once evidence of heavy modern disturbance can be demonstrated during the RI period.

Areas within 100 m (330 ft) of the marsh edge are considered Highly sensitive based on previously developed predictive models for the Delaware coastal plain (see Custer and Bachman 1986b:131-132; Kellogg 1993b:60-71). Areas more than 100 m (330 ft) from the marsh edge are considered Medium sensitivity. Areas greater than 200 m (150 ft) from the marsh edge are considered Low sensitivity. The better-drained Aldino-Keyport-Mattapex-Urban soil complex is considered sensitive, while the poorly-drained Othello-Fallsington-Urban soils are considered low in sensitivity for prehistoric archaeological sites. Topographic highs, low knolls, or ridges are considered sensitive areas. Any significant knolls have a potential for small procurement/hunting type sites. Urban soils lying within the former Koppers property indicate altered land surfaces. Because of the absence of detailed soil/topographic maps dating prior to the alterations, prior site sensitivity cannot be adequately assessed. Based on these characterizations, a scoring system was developed in order to assign sensitivity values to areas of the former Koppers property (Table 2).

A half-day walk-over by Doug Kellogg and Don Theime along the roads on the western half of the former Koppers property suggests some of the prehistoric archaeological potential of the former Koppers property. Based on field observations, aerial photo inspection, and detailed contour maps, and due in part to ground disturbance which may have altered resource integrity, the actual area used by Koppers for wood treatment and storage, pending on-site examination, can be considered to have low potential for significant prehistoric archaeological sites. Even though "as built" plans are not available, it appears that prior to laying tracks, the area was leveled. Also, a layer of limestone gravel was deposited over the leveled area as a base for the railroad tracks. The area was also likely to have been further disturbed when tracks were removed. Some vestiges of the original soil mosaic may remain under the gravel, especially if aeolian deposition occurred within the immediate area, but higher, better-drained knolls where small procurement/hunting sites might have been established have probably been removed.
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FAX TRANSMITTAL
Date: 9-23-94 Time Sent: 11:00 A.M. P.M.
Sent To: Lisa Maruno
Fax Number: 1-215-597-7906
From: J. Billy
Dept./Div: Reports
Number of Pages (including cover sheet) 2
Message: Re: Phase IA Cultural Resource Survey for Former Koppers Co., Inc. Property, WCC, Delaware

Attached please find errata sheet 3-12. Please substitute this page for that which appeared in report copy Fed X'd to you today.

This is the original; no other copies have been sent.

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_ Federal Express
_ Other

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TABLE 2:
Explanation of Scoring for Former Koppers Property Sensitivity Map

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Sensitivity Scoring:

- Highly sensitive: Score ≥ 3 (3 or 4)
- Medium sensitivity: Score = 1 or 2
- Low sensitivity: Score = 0

Explanation:
Scores for any particular place were calculated based on overlay maps of distance zones, soil associations, and topography. Figure 6 shows the results of the analysis. Note that on Figure 6, all areas covered by the former Koppers wood treatment plant railroad siding complex, are considered to have low sensitivity for prehistoric archaeological sites because the area was leveled; therefore, the topography score is 0.
South of the wood treatment and storage area, the original topography appears more intact. Ephemeral drainages and a soil mosaic of wet and dry soils remain. Detailed contour maps show a gently rolling relief. Along the original roads (as shown on historical maps, see below), there may be areas of fill in low spots, but disturbance is probably limited to plowing. As discussed above and indicated in the Management Plan for Northern Delaware (Custer and DeSantis 1986), prehistoric sites of all time periods are to be expected in the vicinity of Churchmans Marsh. The upland edge of marshes fringing Hershey Run (formerly the main channel of the Red Clay Creek), White Clay Creek, and the Christina River are considered High Potential areas for prehistoric archaeological sites. However, "macroband" base camps are unlikely here because the upland edge is relatively far removed from the river channels to the south. Upland areas adjacent to Hershey Run (sometimes referred to as "old Red Clay Creek") may be likely areas for larger Woodland period campsites if Red Clay Creek did flow here during the past 5,000 years.

As per the expectations outlined above, two prehistoric sites were discovered in the course of field reconnaissance at the former Koppers property (Figures 3 and 6). Both sites yielded flakes of a variety of stone types and pottery. Both sites are situated on the edge of marsh areas relatively close to present river channels. Site #1 was discovered at the end of an unpaved road on the western end of the property. One incomplete, stemmed Late Archaic/Woodland I biface (ca. 5,000 years B.P.) was found along with 18 flakes, and two pottery sherds (Hell Island type) of Woodland II period age (ca. 5,000 years B.P. - A.D. 500). Although the total size of the site could not be determined by surface inspection, it covers a minimum of 225 square meters. The northern limit of the site is not known as the area is heavily wooded. To the south of the site, are drainages to White Clay Creek, which is approximately 60 m (195 ft) away. To the east of the site the solid land appears to have been extended around A.D. 1929 over marshland through filling, presumably to provide a foundation for a powerline tower (New Castle County 1929). The access road for the powerline crosses a lower area that may have been somewhat filled with sand and gravel. The integrity of the deposits could not be determined through surface inspection.

Site #2 had been exposed as a result of vegetation clearing to provide access for the RI at the end of a road down the center of the former Koppers property. The road provides access to a point of land projecting south between two extensive areas of marsh. In the exposed area prehistoric cultural material was observed and collected across approximately 5,400 square meters. In addition to lithic debitage (waste flakes from stone tool manufacture), fire-cracked rock was also observed. Two prehistoric pot sherds (Minguannin type), indicating a Woodland II period occupation, were also found on Site #2. Some sand and gravel fill had been deposited over the area, perhaps as fill across a low area near the end of the point north of the site. The plow zone cultural deposits do not appear to be very deep; subsurface sand and gravel Columbian deposits are exposed in the ruts in the road. Historic debris also covers some of the area (railroad ties, corrugated metal, bottle glass).

It is likely that other prehistoric sites exist in similar settings around the marsh areas on the former Koppers property, especially where the river channels are not far away. If there have been changes in the courses of the streams, then almost all of the marsh-edge uplands should be considered highly sensitive areas.
4.0 HISTORY

4.1 Methodology of Historical Research

Three objectives were defined for the historical research undertaken in conjunction with the archaeological investigations at the former Koppers property, namely:

- To provide specific information concerning the historic settlement and occupation of the former Koppers property
- To develop a cultural context to assist in the evaluation of the potential significance of historic resources within the former Koppers property
- To furnish information bearing on the physical and cultural parameters of potentially significant archaeological resources anticipated at the former Koppers property

Three primary sources were utilized to structure the historic research: the Delaware Comprehensive Historic Preservation Plan (Ames, Herman, and Siders 1987), the Management Plan for Delaware's Historical Archaeological Resources (De Cunzo and Catts 1990), and the National Register Criteria for Evaluation (United States 1983).

The Delaware Comprehensive Historic Preservation Plan (Ames, Herman, and Siders 1987:84-89) defined five geographic zones as an appropriate geographical framework for the investigation of the state's historic resources:

- Pennsylvania Piedmont
- Upper Peninsula
- Lower Peninsula/Cypress Swamp
- Coastal
- Urban

The Management Plan for Delaware's Historical Archaeological Resources (DeCunzo and Catts 1990:119-120) considered only the first four geographic zones and dropped the fifth zone (Urban) because Wilmington had developed its own management plan for historic preservation (Goodwin 1986). Although the former Koppers property lies wholly within the Upper Peninsula zone, the division of the state into study units based on geography was utilized in the search for comparative archaeological data, with greater weight given to the examination of other historic sites located within this geographic zone.

The Delaware Comprehensive Historic Preservation Plan (Ames, Herman, and Siders 1987) defined five temporal study units as an appropriate chronological framework for the investigation of the state's historic resources:

- Exploration and Frontier Settlement (1630-1730)
- Intensified and Durable Occupation (1730-1770)
- Early Industrialization (1770-1830)
• Industrialization and Early Urbanization (1830-1880)
• Urbanization and Suburbanization (1880-1940)

These temporal study units were adopted unaltered in the Management Plan for Delaware's Historical Archaeological Resources (DeCunzo and Catts 1990:119) and have been utilized as a basis for the historical background and site documentation in this report.

The Delaware Comprehensive Historic Preservation Plan (Ames, Herman, and Siders 1987) also designated 22 thematic units defining various cultural behaviors which might be effectively addressed through the investigation of the state's archaeological resources. These thematic units were subsequently reorganized into the Management Plan for Delaware's Historical Archaeological Resources (De Cunzo and Catts 1990: 120-121) four research domains within which the various thematic units are interpreted:

• Domestic Economy
• Manufacturing and Trade
• Landscape
• Social Group Identity, Behavior, and Interaction

All four research domains were thought to have application in the identification and evaluation of potentially significant archaeological resources associated with the former Koppers property.

Established National Register criteria of significance and integrity (United States 1991) were utilized in the evaluation of anticipated historic archaeological resources associated within the framework of the above-described geographic, chronological, and thematic study units.

The principal archival repositories consulted include the Historical Society of Delaware in Wilmington, Delaware; various New Castle County offices in Wilmington, Delaware; the Hall of Records in Dover, Delaware; the library of the University of Delaware in Newark, Delaware; and the Library at Hagley Museum in Wilmington, Delaware. Materials from the in-house library at MAI in Newark, Delaware, were also consulted. Among the principal record groups utilized in the preparation of this report were local histories and genealogies, deed records, probate records, manuscript surveys, atlas and insurance maps, tax records, census tracts, and reports of previous archaeological investigations.

4.2 Previous Historic Archaeological Investigations

Although a large number of archaeological investigations have been conducted in New Castle County, Delaware, only five of these investigations involved sites located within three miles of the former Koppers property.

In 1979, De Leuw, Cather/Parsons (1979) conducted a cultural resources survey along the Northeast Railroad Corridor between Boston, Massachusetts, and Washington, D. C. Seven historic structures and two historic archaeological zones were identified in the Stanton-Newport area (Figure 7). Westernmost of the two historic archaeological zones is an irregularly-shaped area encompassing portions of Bread and Cheese Island adjacent to the former Koppers property. According to De Leuw, Cather/Parsons (1979),
6. Prehistoric archaeological zone (I206). This area is predicted sensitive to prehistoric resources. One prehistoric site of unknown occupation has been located there.


8. Historic archaeological zone (I204). This island was occupied as early as 1856, and was the site of several mills in the late 18th century. It is considered archaeologically significant by the Delaware Division of Historical and Cultural Affairs.


10. Jalloway House, 107 Johns Street. A two-story brick structure with gambrel roof, dating from the 1790's. It is located approximately 100 feet from the rail line.


12. Vaughton National Bank, 100 Market Street. A three-story brick structure originally built as a bank in 1865. It now houses professional offices.


14. Historic archaeological zone (I203). An early residential area developed during the early 1800's.

15. Prehistoric archaeological zone (I202). An area containing three known prehistoric sites, one of which revealed chips and flakes and two of which are multicomponent. Two of the sites have been partially destroyed.

16. Banning Park and Woodstock House, 102 Middleborough Road. Banning Park is an open space area with recreational facilities. Woodstock House is a 2-story brick structure with gable roof topped with a balustrade.

SOURCE: DELEUW, CATHER/PARSONS 1979

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FIGURE 7 ARCHAEOLOGICAL AND HISTORIC SITES IDENTIFIED IN THE NORTHEAST RAILROAD CORRIDOR
This island was occupied as early as 1656, and was the site of several mills in the late 17th century. It is considered archeologically significant by the Delaware Division of Historical and Cultural Affairs.

The other historic archaeological zone identified by De Leuw, Cather/Parsons consists of an area of eighteenth century residential occupation situated on the east side of Newport. Nearby historic structures include the Hale-Byrnes House located on the north side of White Clay Creek about a mile west of the former Koppers property, five buildings in Newport, and the Woodstock House located east of Newport in Banning Park (Figure 7).

In the same year, a preliminary study of the Hale-Byrnes Mill Race, which included historical research but no excavations, was undertaken by Colflesh (1979).

In 1988, Bachman and Custer (1988) conducted archaeological investigations at four late nineteenth century historic sites located on Red Clay Creek in the Newport-Gap Pike (Route 41) Corridor about 2 3/4 miles north of the former Koppers property.

A year later, Catts, Hodny, and Custer (1989a) conducted archaeological investigations at three sites called the Patterson Lane Site Complex located on the Christina River about 2 1/2 miles southwest of the former Koppers property (Figure 8). The Patterson Lane Site (7NC-E-53) included an early to mid-eighteenth century dwelling, wharf, store, and landing; the William Dickson Site (7NC-E-82) included a late eighteenth century store that was replaced by a dwelling in the mid-nineteenth century; and the Heisler Tenancy Site (7NC-E-83) included a mid-nineteenth century tenant house. One of the illustrations in the Patterson Lane Site Complex report (Catts, Hodny, and Custer 1989a:25, Figure 5) shows the locations of various mid-eighteenth century landings and dwelling sites along the upper Christina River and its major tributaries (Figure 8). This map was taken from a 1746 survey (Figure 9) which shows the dwelling of Widow Colston located on the former Koppers property.

In 1992, Varisco and Custer (1992) conducted a survey of parts of the White Clay Creek and Christina River drainages. During the course of their survey, they recorded the foundation of an historic structure located between Hershey Run and White Clay Creek, which they identified as the remains of Widow Colston's house (Figure 9). This site is designated 7NC-E-124 (CRS # N-12860). According to Varisco and Custer (1992: 42):

The structure is brick with a stone and mortar foundation and is labeled on the Supreme Court Draft Petition map of 1746 [See Figure 9, this report]. Only parts of the east and west walls of the main house are still standing. The wall on the south side of the house is completely collapsed, bricks strewn throughout the area of the house, mixed with industrial garbage from peripheral dumping. The site is surrounded by many large deciduous trees and shrub growth. . .the site showed good overall potential for supporting research domain models described in De Cunzo and Catts (1990:14-22), the probability for valuable cultural information being high.

To summarize, of the three previous investigations involving nearby sites, Colflesh's preliminary evaluation of the mill race at the Hale-Brynes House (Colflesh 1979) and Bachman
Note: The name "Colston" was mistakenly transcribed as "Colson" by Catts et al. (1989). "Colston" is used throughout the text in this report.

SOURCE: DELDOT ARCHAEOLOGICAL SERIES #74, PATTERSON LANE SITE COMPLEX, CATTS, HODNY & CUSTER, 1989a

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FIGURE 8
MAP SHOWING LANDINGS ON THE UPPER CHRISTINA, ca. 1750
PLEASE NOTE THAT THE ORIGINAL NORTH ARROW IS UPSIDE DOWN.

SOURCE: SU N.C.CO SUPREME COURT HALE VS MCPHERSON SURVEY, OCT (APR) 7, 1746, VOLUME 86, PAGE 2830

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FIGURE 9
SURVEY MAP SHOWING THE PROJECT AREA IN 1746
and Custer's investigations of four late nineteenth century sites located on the Newport-Gap Pike (Route 41) Corridor near Red Clay Creek (Bachman and Custer 1988) are of limited value in the evaluation of potentially significant historical resources in the former Koppers property. On the other hand, the archaeological investigations undertaken by Catts, Hodny, and Custer at the Patterson Lane Site Complex at Christina (Catts, Hodny, and Custer 1989a) have potential application to the former Koppers property in the context of comparative data. Both the railroad corridor survey undertaken by De Leuw and Cather/Parsons (1978) and the survey conducted by Varisco and Custer in the White Clay Creek and Christina River drainages (1992) are pertinent to the former Koppers property, and have established its potential for historic archaeological investigation.

4.3 Historic Overview

4.3.1 Exploration and Frontier Settlement (1630-1730)

Between the initial settlement of Delaware by the Swedes in 1638 to the end of the period of initial settlement in 1730, New Castle County was under the control of three different colonial jurisdictions: Swedish (1638-1654), Dutch (1654-1664), and English (1664 to the American Revolution). Each of these colonial experiences left their particular mark on historic settlement patterns in northern Delaware.

In 1638, a company of Swedish settlers arrived on the lower Delaware River established a small, fortified settlement called Fort Christiana in the marshes on the north side of the Christina River near the present site of Wilmington (Figure 10). Within a decade, Swedish settlements extended along both sides of the Delaware River between Wilmington and Philadelphia. Despite its geographic extent, the Swedish community remained small, with an estimated population of no more than 250-300 people (Printz 1647; Delaware County 1980). The Swedes either lived in small, fortified settlements like that which developed around Fort Christiana or on widely scattered, independent farmsteads located in the marshes along the Delaware River and the lower reaches of the larger rivers and creeks which emptied into it. The Delaware River and its tributaries provided the major means of transportation and communication between these isolated settlement sites.

The Swedish colony was a commercial venture, concerned primarily with profit-making ventures such as the cultivation of tobacco and trade with the Indians for furs and hides. Initially, the Swedes had great difficulty finding people who were willing to emigrate to New Sweden. Most of the early Swedish settlers were either employees of the company, bond servants, or convicts, most of whom never intended to become permanent inhabitants of the Delaware Valley. By 1650, however, deteriorating economic conditions in Sweden made colonization more attractive and later expeditions to the Delaware Valley attracted a larger number of permanent settlers, many of whom were of Finnish extraction (Weslager 1988:130). Swedish settlers who were not involved in company business appear to have engaged in subsistence farming. They planted orchards, raised crops, and pastured livestock on the natural

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1 The term Christina River is used throughout this report in accordance with the spelling and nomenclature which appears on USGS maps of northern Delaware. Common variants which appear on historic maps and other documents are Christiana Creek or Christiana River. It is understood that these terms all refer to the same northern Delaware stream.
grasses of the marsh environment. Horses, cows, oxen, sheep, hogs, geese, and ducks were kept while grain, hemp, and flax were cultivated for domestic use. Undoubtedly, early settlers took advantage of the abundance of fish and game as a source of food (Fletcher 1971; Acrelius 1874; Kalm 1964).

With the exception of a few royal land grants, no formal system of land surveys, patents, or deeds was instituted in New Sweden. All land was owned by the company; there were no civil divisions of the colony into units of local government; no taxes were collected; and no program of public works was undertaken to provide the community with facilities such as roads, courthouses, landings, and bridges. It is known that Governor Printz held courts at Tinicum but to what extent these courts were accessible to the general population of New Sweden is open to question (MAAR Associates, Inc. 1991: 29-30; Frens and Frens 1989: 17). In short, virtually no historical evidence exists to document daily life in New Sweden during the early years of settlement.

The first Dutch settlement in Delaware was undertaken in 1631, by Samuel Blommaert and Samuel Godwyn who established a fortified whaling station called Fort Oliphant at Lewes, Delaware. By 1633, Fort Oliphant had been destroyed by the Indians and the site abandoned (Meyers 1959: 18-19). During the 1640s, the Dutch recognized that the Swedes posed a potential threat to their colonial interests in the region, especially with regard to control of the fur trade. Accordingly, they reoccupied Fort Nassau on the east side of the Delaware River and erected a new fortification, called Fort Beversreede, at the mouth of the Schuykill River in southeastern Pennsylvania (Meyers 1959:43; O'Callaghan 1858:58). The Dutch maintained a presence in the Delaware Valley until 1654, when they assumed control over New Sweden. Despite the fact that the lower Delaware Valley was nominally under Dutch control for nearly a decade, the Swedes remained the dominant cultural influence in the region, retaining their own language and customs well into the eighteenth century. For the most part, the Dutch disliked and distrusted the Swedes, who were suspected of both plotting with the Indians and siding with the English (MAAR Associates, Inc. 1991:31).

The Dutch interests in Delaware centered on their settlements at New Castle, which they called New Amstel, and at Lewes which was resettled as Swaanandal. Dutch control over their settlements in Delaware ended in 1664, when they ceded all of their North American colonies to the English. The Dutch tended to settle among the Swedes and, like the Swedes, appear to have resided on independent, subsistence farms where they engaged in general farming and animal husbandry. New Amstel served as the religious and commercial center of Dutch settlement in the lower Delaware Valley. Villages also developed around Swedish settlement sites at Wilmington, Upland (Chester), and Wiccaco (the Southwark section of Philadelphia) as their principal village centers.

Initially, the former Dutch colonies in North America were governed by the English as a royal colony belonging to the Duke of York. In 1682, the "Lower Counties" were conveyed to William Penn and annexed to Pennsylvania. In 1704, Delaware became a separate colony with the establishment of its own Assembly but retained close ties with Pennsylvania until the American Revolution. Under English rule, both the Dutch and the Swedes were permitted to maintain their own languages and customs. However, the English initiated many changes in colonial administration, which resulted in the imposition of new settlement patterns. First, the English established a court system accessible to all inhabitants of the region with sessions.
meeting at Upland (Chester) in Pennsylvania and at New Castle in Delaware. The establishment of courts at these locations served as stimuli to the development of these settlements into regional market towns.

Second, the English attempted to impose order on the landholding system by instituting a system of surveys and patents and by requiring that all land transactions between individuals be certified by the courts. As a result of these changes in landholding policy, many early settlers acquired formal title to land that they or their families had occupied for several decades (State of Delaware n.d.; Gerhing 1977). On the other hand, during the process of recordation, ancient boundaries were often altered, holdings reduced in size, and place names Anglicized or changed.

Third, the English began the systematic collection of taxes which required the establishment of formally-defined civil jurisdictions. Accordingly, in 1673, the bounds of New Castle County were defined; and in 1676, the first county taxes were collected. As early as 1670, settlement on the north side of the Christina River had extended at least as far upstream as Bread and Cheese Island. By 1671, three individuals were listed as inhabitants of Bread and Cheese Island (State of Delaware n.d.; Gehring 1977), while five individuals were listed as inhabitants of Christenee [sic] (State of Delaware n.d.: 34; Gerhing 1977:307). In 1676, 65 taxables were listed as residing north of Christina River (Scharf 1888:611-612); and, by 1683, 87 taxable inhabitants were residing on the north side of Christina River (Scharf 1888: 612).

Finally, the English instituted a program of public works that included the construction of roads, bridges, and ferries (Scharf 1888). The development of land-based transportation not only permitted better communication between existing settlements but also permitted settlement of the inland areas of Delaware which were not readily accessible to navigable streams.

During the 1680s, many Quaker settlers took up land in the upland regions of northern Delaware. Between 1704 and 1730, Philadelphia replaced both New Castle and Chester as the principal commercial center on the lower Delaware River, although both communities continued to serve as regional market centers. By 1710, Christiana Hundred was established as a subdivision of New Castle County. Agriculture remained the principal economic activity of the area. Upland areas were generally cultivated, while the marshes were either used as pasture for cattle or mown for salt hay.

4.3.2 Intensified and Durable Occupation (1730-1770)

In the 1730s, the town of Wilmington was laid out on high ground overlooking the Christina River near its confluence with the Delaware River. Wilmington grew rapidly as a market town, specializing in provisioning ships and the shipment of agricultural products to the West Indies. As the commercial cultivation of grain became a major part of the region’s agricultural production, milling became an important part of the local economy. By the end of the colonial period, mills were situated on virtually every stream in northern Delaware which was capable of generating a sufficient head of water to support a merchant mill. Settlement moved rapidly inland into the upland areas of Delaware, where the expensive process of ditching and draining farmland was unnecessary. To accommodate the westward shift of the farm population, a number of small, agricultural market towns and villages developed, including Newport, Newark, Cantwell’s Bridge (Odessa), and Christiana Bridge. These communities
served as collection points for grain from farms in Maryland and Pennsylvania as well as the inland areas of Delaware (Hancock 1987; Conrad 1908).

The community of Newport, originally called Newport Ayre, is located less than a mile east of the former Koppers property. The town was laid out by John Justis (variant spelling of Justice) in 1735 on land which he had purchased from Henry Parker in 1731 (New Castle County 1731). Justis sold a number of town lots himself, and he also conveyed an 18-acre tract of land to Samuel Marshall who also laid out and sold his land in town lots (Scharf 1888: 893). Wharves, storehouses, and granaries were erected along the Newport waterfront to accommodate the grain trade. During the eighteenth century, a number of private landings were also located along the tidal portions of the Christina River, Red Clay Creek, and White Clay Creek (Figure 9). The Christina River and its tributary creeks were bridged at several points. Christiana Bridge and the bridge at Newport were the bridges closest to the former Koppers property (Figure 8).

During the eighteenth century, the Swedish influence remained strong among residents in the Newport area. In 1764, Anders Borell, pastor of Holy Trinity (Old Swede's) Church in Wilmington, made a census of the church membership (Borell 1764). Of the 187 households recorded by Borell (Appendix A), 40 either lived in Newport or the Christiana Pike (presently Delaware Route 4) near Newport. Most of the adults and many of the older children either spoke or understood some Swedish and many could read the Bible in both English and Swedish, suggesting that a strong ethnic identification still existed nearly 100 years after the demise of New Sweden.

4.3.3 Early Industrialization (1770-1830)

Industrialization and Urbanization (1830-1880)

Despite its proximity to Wilmington, the early industrialization of New Castle County had little effect on the Newport area. In 1795, Joseph Scott described Newport as:

...a small post town in the state of Delaware. It carries on a considerable trade with Philadelphia in flour. It contains about 30 houses (Scott 1795).

Judging by mid-nineteenth century maps, the southern end of Christiana Hundred along the Christina River remained largely rural and agricultural throughout the nineteenth century (Figures 11, 12, 13, 14, 15, and 16). A major development in this area during the nineteenth century was the construction of the Philadelphia, Wilmington, and Baltimore Railroad along the north side of the Christina River. The railroad, which was completed in 1831, ran at grade through this area, bisecting a number of farms which formerly extended from the river to the Wilmington-Christiana Turnpike. Otherwise, it seems that the presence of the railroad had little effect on land use in the area and overlaid rather than disrupted traditional settlement patterns in the area. A comparison of the surnames of inhabitants and/or landowners shown on nineteenth century maps of the area (Figures 11, 12, 13, 14, 15, and 16) suggests an extremely stable community where property was generally maintained through several generations of the same family and, if sold, the purchaser tended to come from the local area. A cursory examination of will and deeds pertaining to land in and around the former Koppers property suggests that many of the inhabitants were also bound by family ties as the local families intermarried with each other over several generations.
During the nineteenth century, farms in the northern part of Delaware were relatively small and intensively cultivated, with emphasis on dairying and feeder cattle. Farms tended to be family-operated, with relatively little hired farm labor (De Cunzo and Garcia 1992).

4.3.4 Urbanization and Suburbanization (1880-1940)

During the late nineteenth and twentieth centuries, the area along the north side of Christiana Creek west of Wilmington was an area of mixed land use. As late as 1930, industrial sites, housing tracts, and working farms lay in close proximity to each other in the Newport area (Figure 17). The northern portion of the former Koppers property, lying adjacent to and with direct access to a railroad, as is noted below, has been an industrial site during most of the twentieth century. In contrast, as aerial photographs of the former Koppers property taken in the 1930s suggest, the southern half of the property continued to be actively farmed even while industrial activities subsumed the northern half (Plates 1, 2, 3, and 4) (see Sections 4.4.2 and 4.4.4). According to Weslager, as late as 1947, development along the Christina River, with the exception of the towns of Newport and Christiana, consisted primarily of scattered farmhouses and a few sportsmen’s shacks.

4.4 Site History

In 1929, the former Koppers property was acquired by the Delaware Wood Preserving Company as two parcels of land: one of which was called the "Wright Farm," containing 136 acres land, and the other called the "Lynam Farm," containing 160 acres of land (Figure 17). A chart summarizing the chain of title for these properties is included as an appendix to this report (Appendix B). As Figure 17 illustrates, the property line between these farms divided the former Koppers property approximately in half with the Wright Farm occupying the eastern part of the property and the Lynam Farm occupying the western part of the property. The existing property line between the two farms was established in 1814 by Peter Garretson2 (the Wright Farm) and Peter Justice (the Lynam Farm) to clarify the boundary between their respective properties which "...is somewhat uncertain but has been held by their predecessors for time immemorial where the present fence now stands between them" (New Castle County 1814).

4.4.1 The Wright Farm

The Wright Farm, which occupied the eastern part of the former Koppers property, can be traced to the estate of Henry Garretson who acquired the property from Peter Garretson in 1764 (Appendix B). Garretson is described in the survey of Swedish church members by Andres Borell (1764) as a singleman, aged 26, whose household included an unmarried, 16-year-old sister (Appendix A). His occupation was listed as "skipper." When and under what circumstances the Garretson family acquired the property is unknown at this time.

Originally, the farm property extended to the Christiana-Wilmington Pike. The tracks of the Philadelphia, Wilmington, and Baltimore Railroad were built across the property in 1831, and access to the area south of the railroad tracks was provided over a farm road, the easements for which were included in subsequent deed descriptions (Appendix B). In 1833, the "Wright

2 Son of Henry Garretson and grandson of Peter Garretson, the earliest documented owner of the property.
Farm" was sold to John Whitman and remained in the Whitman family until 1856. A. Whitman is listed as the owner and/or occupant of the property on the 1849 map of the project area (Figure 12). In 1862, the "Wright Farm" was acquired by Henry Churchman and remained in the Churchman family until 1900. Churchman is shown as owner and/or occupant of the property on an 1868 map of the project area (Figure 13) but the farm structure is located too close to the railroad tracks. However, the farmstead structure is correctly sited on the 1881 map of the project area (Figure 14). Churchman is shown as owner of the property in 1893 (Figure 15), but neither the farm lane nor any structures are shown. A year later, a Corps of Engineers survey of the Christina River made in 1893-94 shows a structure at the correct location (Figure 16). In 1910, the farm was acquired by J.F. Wright whose name was subsequently used in reference to the eastern part of the project area. The "Wright Farm" was acquired by Grant B. Shipley in February 1929 and sold to Delaware Wood Preserving Company two months later (Appendix B).

Although obtained for industrial use, agricultural activities and/or residential land use appear to have continued on the southern part of the "Wright Farm," concomitant with development and use of the northern part of the property as part of a wood treatment facility. What appears to be cultivated fields are shown at this location in the 1938 aerial photographs (Plates 1 and 4) of the area. These photographs also show a complex of standing buildings at the approximate location of the farm buildings shown on nineteenth century maps of the project area (Figures 12, 14, and 16).

4.4.2 The Lynam Farm

The "Lynam Farm," which occupied the western part of the former Koppers property, can be traced to the estate of John Justice (Justis). Justice died in 1805 and, according to his Last Will and Testament, devised to his son Peter, "...all my present dwelling plantation or tract of land and marsh, bounded by lands and marshes of Henry Garretson's heirs, Jacob Robinson, Aaron Justis and others, by the ancient bed of Red Clay Creek..." (New Castle County 1804). Justice also manumitted two slaves and provided that one acre of his plantation, including a log house and a spring of water, was to be set-aside for use by the manumitted slaves, Will and Poll. A year later, an Orphan's Court evaluation described the property as a brick house and kitchen, granary, barn stable, and orchard (New Castle County 1805). When and under what circumstances John Justice acquired the property is unknown at this time. However, a dwelling, identified as Widow Colston's, appears to have been located on the western part of the project area and is shown at this location on a survey of adjoining properties made in 1746 (Figure 9). The existing foundation previously described and recorded as Site 7NC-E-124 (CRS # N-12860) is probably associated with this dwelling site.

The "Lynam Farm," like the "Wright Farm," originally extended to the Christiana-Wilmington Pike. The tracks of the Philadelphia, Wilmington, and Baltimore Railroad were also built across this property in 1831, and access to the area south of the railroad tracks was also provided over a farm road, the easements for which were included in subsequent deed descriptions (Appendix B). In 1814, the "Lynam Farm" was sold to John Wardell by Peter

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*Indications of structures on many 19th century maps are often used to give the general location of residential complexes, but they do not necessarily record the exact location of the house, its size, or the number and placement of ancillary buildings which may be associated with the residence in question.*
Justice; and in 1842, it was acquired by Abraham Brown who is listed as the owner and/or occupant of the property on the 1849 map of the project area (Figure 12). During the mid-nineteenth century, the property was owned briefly by Henry Churchman and subsequently acquired by John R. Lynam in 1864 (Appendix B). The property remained in the Lynam family until it was purchased by Grant B. Shipley and conveyed to the Delaware Wood Preserving Company in 1929 (Appendix A). Thomas P. Lynam is shown as owner and/or occupant of the property on both the 1868 and 1881 maps of the project area (Figures 13 and 14). A Lynam dwelling near the railroad appears on the 1881 map of the project area, and the earlier dwelling site is no longer shown (Figure 14). On the other hand, in 1893, the earlier dwelling site is shown and the dwelling by the railroad is not depicted (Figure 15). The earlier dwelling site is, however, shown on a Corps of Engineer's survey of the Christina River made in 1893-94 (Figure 16).

A frame structure within the "Lynam Farm" was also located along the railroad tracks at the site of the structure shown on the 1881 map. The building was standing in the twentieth century and was subsequently used as an office by the wood preserving company (Figure 18; Plates 1, 2, 3, and 4). This structure was recorded by the state and designated CRS # N-381 by the Delaware SHPO. The state record for this structure dates the building ca. 1910. A question exists as to the relationship between the 1910 office building and the earlier Lynam farm dwelling shown on the 1881 map (Figure 14).

Although the "Lynam Farm" was also obtained for industrial use, agricultural activities and/or residential land use appears to have continued on the southern part of the property, concomitant with development and use of the northern part of the property as part of a wood treatment and shipping area. Aerial photographs of the project area made in 1938 (Plates 2 and 3) show a complex of standing buildings, thought to represent farm buildings, at the approximate location of the earlier building site.

4.4.3 Early Settlement Sites

Initial settlement in the vicinity of the former Koppers property probably occurred during the mid-seventeenth century. De Leuw, Cather/Parsons dates the settlement of Bread and Cheese Island as early as 1656 (De Leuw, Cather/Parsons 1979), while the Herrman map of Maryland and Virginia (ca. 1670) shows several dwellings along the north side of the Christina River in the vicinity of the former Koppers property (Figure 10).

Although no early settlement sites can be specifically documented within the former Koppers property, the potential presence of early settlement sites cannot be ignored. Both the "Wright Farm" and the "Lynam Farm" have historical associations with Swedish families whose presence in the vicinity of the Christina River can be documented as early 1702 (Figure 9). Topographically, the site is ideally situated for early settlement by the Swedes, who generally selected dwelling sites situated on navigable rivers at the edges of the marsh. Since both farms appear to have been historically separate properties, the division line between the two may actually be an "ancient" boundary. Accordingly, both the eastern and the western parts of the former Koppers property might include an early historical component dating as early as the mid-seventeenth century.
FIGURE 18
MAP SHOWING THE PROJECT AREA ca. 1931-1935

MAI PROJECT: D-41
KOPPERS SITE PHASE IA

SCALE

0 FEET 1600
0 METERS 500

SOURCE: KOPPERS COMPANY: 1931-1935

NEWPORT PLANT WOOD PRESERVING COMPANY
4.4.4 Industrial Land Use

In 1929, the Delaware Wood Preserving Company subsumed the northern end of the project area as the site for a wood treatment facility. Structural components associated with this operation included railroad yard and wood-processing facilities, all of which were located at the north end of the project area (Figures 18 and 19; Plates 1, 2, 3, and 4). This operation also included a cluster of workers' housing located southwest of the industrial facilities (Figure 18). The workers' housing appears in the 1938 aerial photographs of the project area (Plates 2, 3, and 4). The southern part of the project area remained largely undeveloped. Existing farm structures which were not disturbed were apparently occupied at the same time that industrial activities were ongoing at the north end of the project area. Aerial photographs of the project area made in 1938 suggest that some fields may have also remained under cultivation (Plate 1, Plate 2, Plate 3, Plate 4).

4.5 Anticipated Resources

On the basis of historical research, the following seven potentially significant historic sites have been identified within the project area (Figure 20): the Workers Village; Building #381, the Delaware Wood Preserving Company office building; the Lynam/Justice residence; the Wright residence; the Widow Colston house; the Will and Poll log house (location unknown at present); and possible stream landings. Site locations, when they can be delineated, have been based on nineteenth century published maps, twentieth century surveys of the property, and mid-twentieth century aerial photographs showing various standing buildings. At the present time, no structures remain standing in the area designated as potentially significant.

The "Wright Farm Site" is located in the eastern part of the project area and was occupied as a farm property until 1929, when it was purchased for industrial development. The parameters for this site were determined from a mid-twentieth century survey, which shows a dwelling in this area (Figure 19), as well as nineteenth century published maps of the area (Figures 12, 14, and 16) and a series of aerial photographs of the project area taken in 1938 (Plates 1 and 4). On recent inspection, a concrete pad that may cover a well of unknown origin was reported in this area (LaBrake 1994). This site may have been occupied as early as the mid-eighteenth century.

The "Lynam Farm Site" is located in the western part of the project area and was occupied as a farm property until 1929, when it was purchased for industrial development. The parameters for this site were determined also from a mid-twentieth century survey, which shows a house and barn at this locus (Figure 18). These structures also appeared on nineteenth century published maps of the area (Figures 12, 15, and 16) and in the aerial photographs of the project area made in 1938 (Plates 2 and 3). This site includes the locus of the foundation feature recorded as 7NC-E-124. This site may have been occupied as early as the mid-eighteenth century (Widow Colson) and may even include an early settlement component. The most likely area for an early settlement site is an area of natural high ground bounding on White Clay Creek. It was noted that lines of osage orange were present at this loci (LaBrake 1994). Osage orange was a popular ornamental widely used in Victorian landscaping and probably represents feral garden remains (MAAR Associates, Inc. 1993). On recent inspection of the project area, the foundation reported by Varisco and Custer in 1992 (site 7NC-E-124) was not revisited. No location has been determined for the log house mentioned in 1804 (New Castle County 1804).
MAP SHOWING THE PROJECT AREA ca. 1935
SITE BOUNDARIES ARE BASED ON HISTORICAL DOCUMENTATION.

POTENTIAL 18TH CENTURY COMPONENT - LANDING

CREEK

CHRISTINA

RIVER

PROJECT AREA BOUNDARY

MAI PROJECT: D-41

KOPPERS SITE PHASE IA

FIGURE 20

MAP OF POTENTIALLY SIGNIFICANT HISTORIC SITES

SCALE

0 FEET 1200
0 METERS 400

CRS# N-381
(HOUSE SITE)

WRIGHT FARM SITE (PETER CARRETSON)

LYNAM FARM SITE (JOHN JUSTICE)

"WAG E. 124" (HOUSE SITE)

WAGNER FARM SITE (ROBERT WAGNER)

HERSHEY

RUNN

WORKERS' HOUSING SITE

SCALE

AR304303
The "Workers' Housing Site" is located in the southwestern part of the property and dates to the period of industrial development of the site in the 1930s. The parameters for this site were determined from a mid-twentieth century survey which shows a row of houses at this locus (Figure 18). These structures also appear in aerial photographs of the project area made in 1938 (Plates 2 and 3). During a recent inspection of the site, no structural remains of these houses were noted. However, a possible capped privy or cesspool feature was noted as were other lines of osage orange (LaBrake 1994).

The nineteenth-early twentieth century frame building (designated CRS #381) has also been designated as a potentially significant historic site. The structure is no longer standing, and although the site of this structure appears to have been substantially disturbed by industrial development of the northern part of the project area (see Site Description), field investigation would be necessary to confirm this supposition.

To summarize, both the "Wright Farm Site" and the "Lynam Farm Site" are potentially significant with regard to three of the five chronological study units defined as appropriate to the investigation of historic archaeological sites in Delaware (Ames, Herman, and Siders 1987; De Cunzo and Catts 1990). These known periods of occupation include:

- Early Industrialization (1770-1830)
- Industrialization and Early Urbanization (1830-1880)
- Urbanization and Suburbanization (1880-1940)

It is likely that the period of Intensified and Durable Occupation (1730-1770) is also represented at these sites (Figure 9, Widow Colston). Further historical research, which may be undertaken as part of the Phase II (evaluation of significance) investigations, would provide additional information about the pattern of eighteenth century land use within the project area. Given the absence of an extensive historic database for the seventeenth century settlement of the lower Delaware Valley, it is unlikely that additional information about the patterns of seventeenth century land use would be forthcoming through historical research. The most likely area for an early settlement site is shown as a component of the "Lynam Farm Site" (Figure 20).

"The Workers’ Housing Site" is potentially significant with regard to the period of Urbanization and Suburbanization (1880-1940). No earlier components have been identified for this site.

Four research domains and six historic themes were thought to have application in the identification and evaluation of potentially significant archaeological resources associated with both the "Lynam Farm Site" and the "Wright Farm Site." It should be noted that these sites possess the added potential of intrasite comparison, since the two farms have a long history as independent, contemporary establishments. The applicable historic themes by research domain include (De Cunzo and Catts 1990):

- Domestic Economy
  - Agriculture
  - Transportation
  - Settlement Patterns and Demographic Change
  - Architecture and Decorative Arts
• **Manufacturing and Trade**
  - Agriculture
  - Manufacturing
  - Transportation and Communication
  - Engineering
  - Architecture
  - Settlement Patterns and Demographic Change

• **Landscape**
  - Settlement Patterns and Demographic Change
  - Engineering
  - Architecture
  - Agriculture
  - Manufacturing
  - Transportation

• **Social Group Identity, Behavior, and Interaction**
  - Government, Transportation, and Communication
  - Settlement Patterns and Demographic Change

Within the context of these research domains, the "Workers' Housing Site" addresses a more narrowly-defined range of questions dealing primarily with the domains of Manufacturing and Trade and Social Group Identity, Behavior, and Interaction.
Background documentation and cultural resource survey literature review, as well as limited field reconnaissance, suggest that prehistoric sites in the project area probably occur in soils formed on top of sand and gravel deposits derived from the Columbia Formation. The network of braided and meandering channels reconstructed by Spoljaric (1967) appears to have left behind isolated knolls and ridges rather than a continuous terrace surface. Individual knolls typically stand less than 5 km (15 ft) above the elevation of the Christina River and often abut directly against tidal marsh.

Sediment accumulated on top of these late Pleistocene through early Holocene materials may derive from aeolian, colluvial, or alluvial deposition, possibly stimulated in part by human settlement itself. While depositional changes observed so far appear to be continuous rather than discontinuous, careful analysis of grain size, mineralogy, geochemistry, and artifacts often contradict initial impressions.

The poorly-drained (Othello-Falsington-Urban) upland flats in the north-central portion of the project area are the areas of greatest historic disturbance and potential site impacts. Fortunately, these are also areas of relatively low archaeological potential. Poorly-drained soils in and adjacent to the tidal marsh have formed from a combination of redeposited clays derived from the Potomac Formation, humus derived from decaying aquatic plants, and silt transported from adjoining uplands. There is some tentative evidence that more stable, older land surfaces may in some cases be buried beneath gleyed, marshy soils. Evaluation of soil coring samples recovered during the RI will be looked at to investigate this possibility.

Prehistoric aboriginal occupation of the region surrounding the former Koppers property dates as far back as 12,000 years ago, and continued until after European colonization circa A.D. 1620. Woodland I period occupation is most intensive in the region, and the former Koppers property is close to several large Woodland I archaeological sites. The Clyde Farm Historic District is across from Bread and Cheese Island, near the former Koppers property to the south, and is one of the most intensively occupied areas known in the state of Delaware. Despite this fact, little is known of the geological history of Churchmans Marsh adjacent to which both the Clyde Farm site and the former Koppers property are situated. Many prehistoric sites have been located and excavated to the north, west, and south of the project area, but few sites are known to the east along the Christina River and in the Wilmington area.

Background literature research suggested that prehistoric archaeological sites would be present on the former Koppers property. Preliminary field reconnaissance confirmed this expectation. Two concentrations of prehistoric cultural material were discovered through surface inspection of bare soil in roads across the project area. Both sites date minimally to the Woodland period (5,000 years B.P. - A.D. 500) as indicated by the presence of pottery sherds. The boundaries of the sites are not known at this time, and the condition of the deposits is also not known. A simple predictive model was employed to define sensitivity zones on the property based on three factors: distance to marsh, soils drainage characteristics, and topography (Figure 6). The major portion of the wood treatment plant itself may be considered a low sensitivity area due to the distance from open water and because the original soils were probably relatively poorly-drained. The fact that the ground was probably leveled and heavily disturbed also contributes towards this lack of potential resource sensitivity determination.
On the basis of historical research, three historic sites have been identified within the former Koppers property (Figure 20). At present, no structures remain standing in the area designated as potentially significant. The "Wright Farm Site" is located in the eastern part of the project area and was occupied as a farm until 1929. The "Lynam Farm Site" is located in the western part of the project area and was also occupied as a farm property until 1929. The "Workers' Housing Site" is located in the southwestern part of the project area and dates to the period of industrial development of the site in the 1930s.

Initial settlement in the vicinity of the former Koppers property probably occurred during the mid-seventeenth century. Although no early settlement sites were specifically documented within the former Koppers property, there is a potential for early settlement sites. Swedish families can be documented as early as 1702 along the Christina River in the vicinity of Churchmans Marsh. Both the eastern and the western parts of the former Koppers property might include an early historical component dating as early as the mid-seventeenth century. Both the "Wright Farm Site" and the "Lynam Farm Site" are potentially significant in terms of priorities set by the State of Delaware (Ames, Herman and Siders 1987; De Cunzo and Catts 1990). The "Workers' Housing Site" is potentially significant for the period of Urbanization and Suburbanization (1880-1940).

The research and data presented here are the results of a Phase IA Cultural Resource Survey of the former Koppers property as specified in the RWP (January 31, 1994). This completes the initial phase of archaeological and historical research of the project area. Phase IB investigations have also been specified in the Revised Work Plan. Phase IB investigations involve field research to determine the actual presence/absence and status (preservation and integrity) of archaeological deposits in areas of likely future disturbance within the project area. Phase IB investigations for prehistoric archaeological sites are dependent on results of the RI/FS (Figure 4-1: Section 106 Compliance Process, Revised Work Plan). However, as specified in the Work Plan, geoarchaeological evaluation of marsh cores will be conducted if the results of the RI suggest that marsh areas that potentially contain prehistoric resources have been affected. Field investigations of the historic archaeological sites identified during Phase IA research could proceed with approval by the Delaware SHPO and the EPA of the Phase IA investigations and this report; however, the results of the RI should be obtained prior to initiating any Phase IB excavations. Avoidance of, or mitigation of the impacts of remediation, if any, to historic properties on the former Koppers property, depend on the results of the RI/FS and results of Phase II archaeological research.
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1867

Rea, Samuel and Jacob Price
1849

United States Geological Survey
1985
Newark East, Delaware Quadrangle. Originally published 1953.

1987
Wilmington South, Delaware-New Jersey Quadrangle. Originally published 1967.

Woodruff, Kenneth D. and Allan M. Thompson
1972
Geology of the Newark Area, Delaware. Delaware Geological Survey Map Series No. 3, Delaware Geological Survey, Newark, Delaware.

1975
Geology of the Wilmington Area, Delaware. Delaware Geological Survey Map Series No. 4, Delaware Geological Survey, Newark, Delaware.
APPENDIX A: Census of Church Membership (1764) - Holy Trinity (Old Swedes) Church, Wilm., DE

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<td>Both</td>
<td>Tolerably</td>
<td>Tolerably</td>
<td>27</td>
<td>Farmer</td>
</tr>
<tr>
<td>Carolus Palsson and his sister Anna Used English Tolerably Tolerably</td>
<td></td>
<td></td>
<td>23</td>
<td></td>
<td></td>
<td>Tailor</td>
</tr>
<tr>
<td>Both unmarried</td>
<td></td>
<td></td>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peter Palsson-S Wife Eleonora-S One little child</td>
<td>Completely   Both</td>
<td>Well   Well</td>
<td>Celebrates</td>
<td>38</td>
<td>Farmer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Understands</td>
<td>English</td>
<td>Tolerably</td>
<td>Tolerably</td>
<td>38</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A little</td>
<td>English</td>
<td>Some</td>
<td>A little</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Hindrich Wyna-S Wife Susannah-S One little child</td>
<td>Understands</td>
<td>Both</td>
<td>Tolerably</td>
<td>Tolerably</td>
<td>27</td>
<td>Farmer</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>23</td>
<td></td>
<td></td>
<td>Cabinetsaker</td>
</tr>
<tr>
<td>Anders Palsson-S Wife Margaretha-S One little child</td>
<td>Understands</td>
<td>Both</td>
<td>Tolerably</td>
<td>Tolerably</td>
<td>23</td>
<td>Farmer</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>23</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anders Stahlkop-S Unmarried</td>
<td>Completely</td>
<td>Both</td>
<td>Well</td>
<td>Well</td>
<td>29</td>
<td>Priest</td>
</tr>
<tr>
<td>Norton Justis-S Wife Magdalena-S Dau. Eleonora</td>
<td>Completely   Both</td>
<td>Well   Well</td>
<td>Celebrates</td>
<td>77</td>
<td>Landowner on Cheese and Bread Island</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Understands</td>
<td>Both</td>
<td>Well</td>
<td>Tolerably</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Israel Stahlkop-S Wife Anna The children small</td>
<td>Understands</td>
<td>English</td>
<td>Well</td>
<td>Tolerably</td>
<td>47</td>
<td>Farmer on the same island</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peter Peterson-S Wife Oliha-E One little child</td>
<td>Completely   Both</td>
<td>Well   Well</td>
<td>Celebrates</td>
<td>38</td>
<td>Shoemaker at Christina Bridge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A little</td>
<td>English</td>
<td>Well</td>
<td>Well</td>
<td>32</td>
<td>12 miles from Willington</td>
</tr>
<tr>
<td>Date</td>
<td>Transaction</td>
<td>Description</td>
<td>Deed References</td>
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</tr>
<tr>
<td>31 Dec. 1940</td>
<td>The Wood Preserving Corp. to Koppers Co.</td>
<td>Land in Christiana Hundred cont. 294 a. (See Parcel A &quot;The Wright Farm&quot; and Parcel B &quot;The Lynam Farm&quot;.</td>
<td>New Castle Co. Deedbook F-42-539</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>20 Aug. 1934</td>
<td>Century Wood Preserving Co. to State of Delaware</td>
<td>Pvt. road connecting property on the south side of the railroad tracks with the Wilmington-Christiana Tnpk.</td>
<td>Unrecorded deed in the property records of Koppers Co.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 July 1931</td>
<td>Delaware Wood Preserving Co. to Century Wood Preserving Co.</td>
<td>Land in Christiana Hundred cont. 294 a. (See Parcel A &quot;The Wright Farm&quot; and Parcel B &quot;The Lynam Farm&quot;.</td>
<td>New Castle Co. Deedbook G-38-144</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>22 July 1929</td>
<td>Delaware Wood Preserving Co. to Delaware Power &amp; Light</td>
<td>Power line ROW</td>
<td>New Castle Co. Deedbook N-36-595</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27 April 1929</td>
<td>Grant B. Shipley et. ux to Delaware Wood Preserving Co.</td>
<td>Farm or tract of land w/ bldgs. thereon cont. 160 a. (See Parcel B &quot;The Lynam Farm&quot;.</td>
<td>New Castle Co. Deedbook F-36-488</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Date</td>
<td>Parties</td>
<td>Description</td>
<td>Book</td>
<td>Page</td>
<td></td>
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</tr>
<tr>
<td>27 April 1929</td>
<td>Grant B. Shipley et. ux to Delaware Wood Preserving Co.</td>
<td>Farm or tract of land w/ bldgs. thereon cont. 136 a. (See Parcel A &quot;The Wright Farm&quot;)</td>
<td>New Castle Co. Deedbook F-36-439</td>
<td></td>
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</table>

* Company correspondence indicates adjustments to the power line ROW 1954, 1965.

**BOT PARCEL A - "Wright Farm"**

<table>
<thead>
<tr>
<th>Date</th>
<th>Parties</th>
<th>Description</th>
<th>Book</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 Feb. 1929</td>
<td>Ethel L. Wright &amp; John F., her husband to Grant B. Shipley</td>
<td>That certain farm or tract of land in Christiana Hundred w/ the bldgs. thereon erected cont. 136 a. also that certain lane or pc. of land leading from the afsd property to the Wilmington-Christiana Bridge Tnpk.</td>
<td>New Castle Co. Deedbook C-36-215</td>
<td></td>
</tr>
<tr>
<td>25 June 1917</td>
<td>Wm. W. Knowles &amp; Clara h/w to Ethel L. Wright</td>
<td>That certain farm or tract of land in Christiana Hundred w/ the bldgs. thereon erected cont. 136 a. also that certain lane or pc. of land leading from the afsd property to the Wilmington-Christiana Bridge Tnpk.</td>
<td>New Castle Co. Deedbook Z-26-559</td>
<td></td>
</tr>
<tr>
<td>12 June 1917</td>
<td>John F. Wright &amp; Ethel L. h/w to Wm. W. Knowles</td>
<td>That certain farm or tract of land in Christiana Hundred w/ the bldgs. thereon erected cont. 136 a. also that certain lane or pc. of land leading from the afsd property to the Wilmington-Christiana Bridge Tnpk.</td>
<td>New Castle Co. Deedbook Z-26-555</td>
<td></td>
</tr>
<tr>
<td>24 Oct. 1911</td>
<td>Wm. E. Thompson &amp; Anna L. h/w to John F. Wright</td>
<td>That certain farm or tract of land in Christiana Hundred w/ the bldgs. thereon erected cont. 136 a. also that certain lane or pc. of land leading from the afsd property to the Wilmington-Christiana Bridge Tnpk.</td>
<td>New Castle Co. Deedbook Q-23-74</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Parties</td>
<td>Description</td>
<td>Sources</td>
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<td></td>
</tr>
<tr>
<td>25 April 1910</td>
<td>John R. Lynam &amp; Sadie E. h/w to Wm. E. Thompson</td>
<td>That certain farm or tract of land in Christiana Hundred w/ the bldgs. thereon erected cont. 136 a. also that certain lane or pc. of land leading from the afsd property to the Wilmington-Christiana Bridge Tnpk.</td>
<td>New Castle Co. Deedbook W-22-269</td>
<td></td>
</tr>
<tr>
<td>6 Aug. 1892</td>
<td>Will of Henry L. Churchman</td>
<td>All real and personal property to his daughters Annie O. Churchman, Sally B. Churchman, and Rebecca P. Churchman</td>
<td>New Castle Co. Will Book S-2-373</td>
<td></td>
</tr>
<tr>
<td>10 Dec. 1862</td>
<td>Isaac Miller &amp; Mary h/w and Caleb Miller and Julia A. h/w to Henry L. Churchman</td>
<td>Two tracts of land: 1st (Parcel A-1) Cont. 128 a. upland and marsh together w/ mud flats and the lane extending from afsd. tract of land to the Tnpk leading from Wilmington to Christiana Bridge. 2nd (Parcel A-2) Cont. 7 1/4 a located along White Clay and Christiana Creeks</td>
<td>New Castle Co. Deedbook Q-7-481</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Grantor &amp; Description</td>
<td>Grantee &amp; Description</td>
<td>Parcels/Executors/Estates</td>
<td></td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>18 March</td>
<td>Lewis W Stidham, Sheriff to Isaac &amp; Caleb Miller</td>
<td>Parcel A-1 Cont. 128 a. upland and marsh together w/ mud flats and the lane extending from afsd. tract of land to the Tnpk leading from Wilmington to Christiana Bridge. Est. of John C. Booth sold by order of court.</td>
<td>New Castle Co. Deedbook Q-7-449</td>
<td></td>
</tr>
<tr>
<td>18 March</td>
<td>Heirs of Emma Whitman, dec'd widow of John Whitman to John C. Booth</td>
<td>Parcel A-1 Cont. 128 a. upland and marsh together w/ mud flats and the lane extending from afsd. tract of land to the Tnpk leading from Wilmington to Christiana Bridge.</td>
<td>New Castle Co. Deedbook X-6-194</td>
<td></td>
</tr>
<tr>
<td>12 Jan.</td>
<td>Will of Emma Whitman</td>
<td>Devises 1/4 of her estate to nephew John Peach, 1/4 to sister Mary Peach, 1/4 to sister Lydia Dennison, 1/4 to sister Elizabeth Boys for life and after her death to her daughter Hannah Boys if she has children, if Hannah is childless, her share in estate reverts to other heirs.</td>
<td>New Castle Co. Will Book W-1-179</td>
<td></td>
</tr>
<tr>
<td>28 July</td>
<td>Will of John Whitman</td>
<td>Devises estate to wife and if she dies first, estate to John Peach, Mary Peach, Lydia Dennison, Elizabeth Boys.</td>
<td>New Castle Co. Will Book W-1-179</td>
<td></td>
</tr>
<tr>
<td>13 June</td>
<td>Marcus E. Capelle, Sheriff to John Whitman</td>
<td>Farm in Christiana Hundred cont. 172 3/4 acres, 18 p. including what lies between the bank and low water (mud flats). Estate of Peter Garretson per surviving executors.</td>
<td>New Castle Co. Deedbook Q-4-346</td>
<td></td>
</tr>
<tr>
<td>29 May</td>
<td>Joseph Ball &amp; Hannah h/w to Peter Garretson</td>
<td>Farm in Christiana Hundred cont. 172 3/4 acres, 18 p. including what lies between the bank and low water (mud flats).</td>
<td>New Castle Co. Deedbook W-2-290</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Description</td>
<td>Paragraph</td>
<td>Reference</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------------------------------------------------------------------</td>
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<td></td>
</tr>
<tr>
<td>29 May 1801</td>
<td>Peter Garretson, adm. est. of Henry Garretson to Joseph Ball</td>
<td>Farm in Christiana Hundred cont. 172 3/4 acres, 18 p. including what lies between the bank and low water (mud flats).</td>
<td>New Castle Co. Deedbook W-2-459</td>
<td></td>
</tr>
<tr>
<td>16 Jan. 1799</td>
<td>Will of Henry Garretson</td>
<td>Letters of Administration to Peter Garretson who was authorized by Orphan’s Court to sell estate of deceased to pay debts.</td>
<td>New Castle Co. Deedbook W-2-290</td>
<td></td>
</tr>
<tr>
<td>3 May 1790</td>
<td>Charles Williams &amp; Mary h/w to Henry Garretson</td>
<td><strong>Parcel A-1A</strong> Land standing in the mouth of a gut by Christiana Creek cont. 4 1/4 acres together w/ a syphoned road along a small branch to there the road from the late Peter Garretson’s house to Newport crosses said branch and then over the road to the King’s Road.</td>
<td>New Castle Co. Deedbook I-2-108</td>
<td></td>
</tr>
</tbody>
</table>

**BOT PARCEL B** - "Lynam Farm"

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Paragraph</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 Feb. 1929</td>
<td>Harvey F. Lynam &amp; Beulah h/w to Grant B. Shipley</td>
<td>Certain farm or tract of land w/ bldge thereon erected situate in Christiana Hundred w/ use of road leading to Wilmington and Christiana Tnpk.</td>
<td>New Castle Co. Deedbook G-36-214</td>
</tr>
</tbody>
</table>

**AR304334**
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Description</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 April 1883</td>
<td>Will of John R. Lynam</td>
<td>Devised to Thomas P. Lynam, his son, the farm on which he now lives in Christiana Hundred cont. about 160 a.</td>
<td>New Castle Co. Will Book G-2-470</td>
</tr>
<tr>
<td>25 March 1864</td>
<td>Robert E. Flinn &amp; Joanna h/w to John R. Lynam</td>
<td>All that plantation or tract of land in Christiana Hundred bounded by Old Red clay Creek, White Clay Creek, The Philadelphia, Baltimore, and Wilmington R.R. Co. Cont. about 160 a. being all that part of the original purchase by Flinn lying south of the RR except for a few acres sold to Henry Churchman. Includes use of road or lane leading to Wilmington-Christiana Tnpk.</td>
<td>New Castle Co. Deedbook W-7-327</td>
</tr>
<tr>
<td>10 Jan. 1863</td>
<td>Henry L. Churchman &amp; Sarah h/w to Robert B. Flinn</td>
<td>Parcel B-1 Land in Christiana Hundred beg. on the S side if Philadelphia, Wilmington &amp; Baltimore RR. cont. 2 a.+</td>
<td>New Castle Co. Deedbook W-7-335</td>
</tr>
<tr>
<td>10 Dec. 1862</td>
<td>Isaac Miller &amp; Mary h/w and Caleb Miller and Julia A. h/w to Henry L. Churchman</td>
<td>NOTE: Title for this parcel follows title for Parcel A, the Wright Farm from this point.</td>
<td>See H-18-127 (Parcel A)</td>
</tr>
<tr>
<td>Date</td>
<td>Event Description</td>
<td>Details</td>
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</tr>
<tr>
<td>25 March 1851</td>
<td>Exclusive Est. of Abraham Brown to Robert B. Flinn</td>
<td>Parcel B-2 Three tracts of land in Christiana Hundred</td>
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<td></td>
<td></td>
<td>Tract 1 cont. 235 a 50 p.</td>
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<td></td>
<td></td>
<td>Tract 2 cont. 1 a. Upland and 7 1/2 a. marsh</td>
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<td></td>
<td></td>
<td>Tract 3 cont. 8 a. 12 p (conveys half interest)</td>
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<tr>
<td></td>
<td></td>
<td>executors empowered to sell and convey real estate.</td>
<td></td>
</tr>
<tr>
<td>16 Feb. 1836</td>
<td>Will of John Wardell</td>
<td>Devises residual estate to Abraham Brown</td>
<td></td>
</tr>
<tr>
<td>4 Jan. 1833</td>
<td>Marcus E. Capelle, Sheriff to John Wardell</td>
<td>Parcel B-2, Tract 2 Sold to satisfy Judgment John L. Morris vs John</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Justis, est. of John Justis</td>
<td></td>
</tr>
<tr>
<td>19 March 1814</td>
<td>Peter Justis to John Wardell</td>
<td>Land in Christiana Hundred beg. in the Line of Andres Morgan’s land</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>passes an old gate to Herring Branch thence down the same to Old Red</td>
<td></td>
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<td></td>
<td></td>
<td>Clay Creek. Also bounds on White Clay Creek and Christiana Creek to the</td>
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<tr>
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<td></td>
<td>mouth of a small gut corner of Peter Garretson and up sd. gut thence</td>
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<td></td>
<td>by a line fixed by Peter Justis and Peter Garretson (See N-3-430)</td>
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<td></td>
<td></td>
<td>Cont. 175 a.</td>
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New Castle Co. Will Book V-1-243
New Castle Co. Will Book T-1-227
New Castle Co. Deedbook Z-3-31
New Castle Co. Deedbook W-7-335
| 11 Feb. 1805 | Will of John Justis | Devised to son Peter all my present dwelling plantation or tract of land and marsh, bounded by lands and marshes of Henry Garretson's heirs, Jacob Robinson, Aaron Justis and others, by the ancient bed of Red Clay Creek. One acre thereof including a log house and spring of water to be set aside for use of manumitted slaves, Will and Poll h/w, for life. | New Castle Co. Will Book Q-1-81 |
Prehistoric Artifact Catalog

Site #1

1 - Dark grey quartzite biface fragment; tip missing. Narrow stem, weak shoulders, serrated blade - probably retouched. Untyped, Late Archaic - Woodland I period.

1 - Undecorated, grit-tempered, coil-built body sherd. Relatively thin (c. 5mm thick), well made. Untyped, Woodland II

1 - Fabric impressed (faint), quartz-tempered sherd. Relatively thin (c. 5 mm thick), well made, coil-built. Hell Island, Woodland II.

1 - Delaware Chalcedony Complex (DCC) utilized flake.

5 - DCC flakes. 1 probably heat treated.

2 - Tan chert flakes. 1 heavily weathered.

6 - Quartz flakes, milky to clear. 3 with cobble cortex.

5 - Grey to black chert flakes. 3 with cobble cortex.

Summary:

1 - Late Archaic - Woodland I period biface fragment.
2 - Woodland II period pot sherds.
1 - Utilized DCC flake.
18 - Debitage flakes, 6 with cobble cortex.
Site #2

1 - DCC ovate biface. Untyped, Woodland I period.

1 - Dark grey chert, early stage biface reject.

1 - DCC late stage biface reject.

1 - DCC early stage biface reject.

1 - Fabric-impressed, quartz/grit-tempered body sherd. Minguannan type, Woodland II period.

1 - Cord-impressed, grit-tempered, badly-eroded body sherd. Minguannan type, Woodland II period.

1 - Quartz hammerstone.

2 - Ironstone (quartzite) flakes.

2 - Light grey chert flakes.

1 - Jasper (translucent red to white) flake.

9 - Dark grey to black chert flakes. 6 with cobble cortex.

18 - DCC flakes. 2 with cobble cortex; some heat treated.

32 - Quartz flakes, milky to clear. 2 with cobble cortex.

Summary:

1 - Woodland I period biface.
2 - Woodland II period pot sherds.
3 - Biface rejects.
1 - Quartz hammerstone.
64 - Debitage flakes, 10 with cobble cortex.