III. PREHISTORIC BACKGROUND

A. Regional Prehistory

The prehistory of Delaware has been divided into four periods: the Paleoindian period (ca. 12,000 BC - 6500 BC), the Archaic period (ca. 6500 BC - 3000 BC), the Woodland I period (ca. 3000 BC - AD 1000), and the Woodland II period (AD 1000 - AD 1650). The time frame between AD 1600 and approximately AD 1750 marks the final years of Native American occupation of the area during early European colonization of the state (Custer 1984, 1986).

The Paleoindian period (ca. 12,000 to 6500 BC) refers to the initial occupation of the state by small groups of nomadic Native American hunters and gatherers. Their presence coincided with the transition from ameliorating late Pleistocene glacial environmental conditions into the onset of early Holocene conditions consisting of cool temperatures and alternating levels of precipitation. The economic system of the Paleoindians was based largely upon the hunting of large, cold-adapted animals, including both migratory and nonmigratory species. Although direct evidence of Paleoindian use of nonmammalian food resources is lacking in the archaeological record of Delaware, paleoenvironmental data indicate that exploitative territories of Paleoindian groups included habitats in which plant foods and other edible resources were available. Palynological and geomorphological data suggest that the vegetation in Delaware during the Paleoindian period consisted of a mosaic comprised of deciduous and boreal forests and grasslands that would have provided graze, browse, and shelter for a variety of small and large mammals. Where these habitats coincided with surface water settings, they would have been focal points for Paleoindian foragers.

The stone toolkit of the Paleoindians was characterized by a limited number of bifacial and unifacial implements that suggest a heavy emphasis on the procurement and processing of animal resources. These include projectile points, hafted and unhafted knives, scrapers, and less formalized flake tools. Of these, the fluted point is the diagnostic hallmark of the Paleoindian period. Other point styles indicative of the later part of this cultural period include both unfluted triangular forms and notched and stemmed points. The distributions and environmental settings of Paleoindian sites and isolated point finds suggest that these people maintained a way of life that consisted of relatively frequent movements of single or multiple family groups to and from resource-rich habitats. It appears that this basic subsistence/settlement strategy persisted with only minor variations for approximately 5,500 years.

Custer has identified a concentration of Paleoindian sites along the Mid-Peninsular Drainage Divide of the Delmarva Peninsula. Using LANDSAT imagery, Paleoindian site loci were found to be strongly correlated with poorly drained or swampy areas. The Hughes complex in Kent County exemplifies this Paleoindian site distributional pattern. This complex includes

a series of six surface finds located on low, well-drained knolls within or adjacent to a large freshwater swamp and other poorly drained areas (Custer 1986:49-51).

The Archaic period (ca. 6500 to 3000 BC) is characterized by a series of changes in prehistoric Native American technologies, subsistence, and settlement. These shifts are interpreted as gradual human responses to the emergence of full Holocene environmental conditions. The landscape was dominated by mesic oak and hemlock forests. Reductions in open grasslands brought about by warm and wet conditions resulted in the extinction of certain cold-adapted grazing animal species (i.e., caribou and bison) that were the favored prey of Paleoindian groups. These vegetational changes were favorable to browsing animals such as deer which flourish in such settings (Custer 1984, 1986).

A rise in the sea level and an increase in precipitation at the beginning of the Holocene would have facilitated the development of inland swamps within the Mid-Peninsular Drainage Divide. At that time, Native American populations in these locales shifted from the more hunting-oriented foraging pattern of the Paleoindian period to one in which plant foods became a more important part of their economies. In southern Delaware, large swamp habitats such as Cedar Swamp and Burnt Swamp would have served as locations for the first large residential base camps, possibly occupied by several different family groups. Associated with these larger group camps are more numerous and smaller procurement sites situated in various settings that would have been favorable for hunting and gathering activities during different seasons of the year.

Archaic toolkits differ from those of the Paleoindian period in that they include a number of artifacts indicative of plant food processing (i.e., grinding implements and stone mortars). Although Archaic groups in Delaware appear to have been less mobile than the preceding Paleoindian populations, they were more mobile than later Woodland period groups. The sizes of Archaic exploitative groups seem to have fluctuated seasonally and with the availability of food resources.

Based upon palynological and geomorphological data from the Middle Atlantic region, the Woodland I period (ca. 3000 BC to AD 1000) has been described as a time of "dramatic change in local climates and environments" in which "a pronounced warm and dry period" (i.e., a mid-postglacial xerothermic) began at approximately 3000 BC and persisted to approximately 1000 BC (Custer and Bachman 1984). During that period, the mesic oak hemlock forests of the Archaic were replaced by more drought-resistant (xeric) oak and hickory forests and more abundant grasslands. Although these conditions effected the drying up of some interior streams, continued sea level rise resulted in the creation of highly productive and large brackish water marshes. In essence, the xerothermic is hypothesized to have effected shifts in the distributions of plant and animal species and the establishment of new resource-rich settings in some areas of the state.

In turn, these proposed shifts in climate, environmental conditions, and resource distributions are believed to have resulted in radical changes among resident prehistoric Native American populations in the study area including a trend toward greater sedentism and more complex systems of social organization and interactions. For example, major river floodplains and estuarine swamp habitats became the primary resource zones and the locations of large residential base camps occupied on a multiseasonal or year-round basis. Such sites are particularly prominent in northern Delaware; they include the Delaware Park Site, the Clyde Farm Site, the Crane Hook Site, and the Maamans Creek Site. Artifact assemblages and features from these sites suggest intensive utilization by prehistoric populations and a trend toward more sedentary lifeways. In southern Delaware, there was an increase in the utilization of shellfish in the coastal areas, concurrent with an inland shift in the locations of macro-band base camps along the tidal drainages. Within the Mid-Peninsular Drainage Divide zone, there is little evidence that site distribution patterns changed from the preceding Archaic period (Custer 1986).

The toolkits of Woodland I groups contrast with those of the Archaic by the addition of such items as heavy woodworking tools, soapstone and ceramic containers, broad-bladed points, and netsinkers. The increased abundance of plant processing tools over the preceding period suggests more intensive utilization of plant foods, which by the end of Woodland I times may have approached the level of productive intensification. The presence of nonlocal lithic materials such as argillite, rhyolite, and soapstone is interpreted as an indicator of incipient regional trade and exchange networks. Soapstone and ceramic vessels are viewed as items that facilitated more efficient food preparation and storage of surplus foods. Pit features employed for food storage and the remains of prehistoric dwellings have been documented at the Delaware Park and Clyde Farm sites in northern Delaware.

The inferred reduction in overall group mobility, the presence of certain artifact types indicative of intensified resource processing, the possible generation of food surpluses, the presence of artifact caches, and the possible existence of increased interregional exchange networks as inferred from the presence of nonlocal lithic raw materials are interpreted as indicators of the initial development of ranked social organization as opposed to earlier egalitarian systems.

The Woodland II period (ca. AD 1000 to 1650) within the Middle Atlantic region is marked primarily by the development of horticulture and increased sedentism. During this period, villages became larger and more permanent and tended to be located adjacent to areas with easily worked floodplain soils. This period is also characterized by a reduction in the interregional trade and exchange systems.

Two Woodland II complexes have been defined for Delaware. In southern Delaware, the Slaughter Creek complex is characterized by the presence of Townsend ceramics, triangular projectile points, large macro-band base camps, and possibly fully sedentary villages with

numerous food storage features. Most major sites assigned to the Slaughter Creek complex have been identified in the Delaware Shore, Mid-Drainage, and Coastal/Bay physiographic zones of southern Delaware. Current Slaughter Creek complex settlement models indicate that the Mid-Peninsular Drainage Divide zone would have been used for special resource procurement sites (Custer 1986).

The Contact period (ca. AD 1600 to 1750) is marked by both the initial contact between the Native American inhabitants of Delaware and European colonists and the total collapse of traditional native lifeways and sociopolitical organization. The picture is further complicated by the paucity of sites dating to this important period within the state. However, historical sources indicate that resident Native American populations had minimal interaction with European settlers and were subjugated by the Susquehannock of southern Lancaster County, Pennsylvania. A small number of descendants of the original Native American inhabitants of Delaware still reside in the state today.

B. Previous Investigations

A substantial amount of archaeology has been done near the Sarro Wetland Replacement Site. Prior to 1985 amateur archaeologists had identified 11 prehistoric sites in the Muddy Branch, Dyke Branch, and Little River drainages. Studies undertaken by UDCAR as part of the SR 1 corridor project have resulted in the identification of 25 additional sites in the area (Custer et al. 1986; Bachman et al. 1988; Riley et al. 1994). Most of these sites are located along streams, and the largest sites are all located at the confluence of one of the larger streams and a smaller tributary (Figure 3).

No sites dating to the early Paleoindian (Clovis) period have been found in the vicinity of the project area. Five of the largest sites, 7K-C-86, -87, -88, -90, and -364, have yielded artifacts diagnostic of all periods from the late Paleoindian (7500 to 6500 BC) to the Late Woodland (AD 1000 to 1600). (Inventories of the collections from these sites are printed in Custer et al. 1986: appendix II.) The continuing reuse of these sites shows the importance of the wetland environments with which they are associated to all the prehistoric inhabitants of the region. In fact, continuity of occupation is one of the most striking aspects of this assemblage of sites. The five multi-component sites listed above are the only ones with evidence of Paleoindian occupation. The only other site that has yielded evidence of occupation in the Archaic period (6500 to 3000 BC), Site 7K-C-360, was also occupied in the Woodland I period (3000 BC to AD 1000). All of the sites with Woodland II components, including those listed above and 7K-C-23, -40, -99, and -365, were also occupied in the Woodland I period. The only sites that have yielded material diagnostic of a single prehistoric period are 7K-C-97 and 7K-C-99, which are small sites from which a few Woodland I projectile points were recovered. The remainder of the sites, 7K-C-342, -343, -345, -347, -348, -349, -350, -351, -354, -361, -362, -366, -372, -373, -388, -395, -399, and -409, are all small, undated lithic scatters.

FIGURE 3: Prehistoric Sites in the Vicinity of the Project Area

SOURCE: USGS 7.5 Minute Quadrangle, Dover, Del 1993

Full-scale excavations have been carried out at two sites in the vicinity, 7K-C-360 and 7K-C-365 (Riley, Watson, and Custer 1994). Site 7K-C-360 is an Archaic and Woodland I transient camp located 800 feet north of Dyke Branch on a low, sandy knoll, surrounded by wetlands. Excavations at the site revealed cultural deposits that had been buried by three distinct depositional episodes, all probably aeolian. The majority of the artifacts from the site were lithic debitage derived from local jasper, chert, and quartz cobbles, which were primarily being processed into expedient flake tools. No ceramics were recovered from the site. The few charred plant remains recovered, chenopodium and amaranth seeds and unidentified nut fragments, suggest autumn occupation. Site 7K-C-365 is located on a small knoll—steep by Kent County Standards—100 feet from Muddy Branch. The site has a long occupation history, from late Paleolithic (Dalton) times to the Woodland II period. The lithic artifacts were similar to those from 7K-C-360 and suggest a similar industry, except that the debitage from Site 7K-C-365 included a higher percentage of quartzite.

Because of the intense archaeological activity in the Muddy Branch and Dyke drainages, reasonably firm projections can be made about the types of sites expected in the project area. Since the project area is not located at the confluence of Muddy Branch and a substantial tributary, Site 7K-C-396 is probably not a large base camp. Instead, it is most likely a transient camp or procurement site (Custer 1994). The lithic industry is probably based on local cobbles. Intact, buried strata, indicated by the Phase I survey, are not rare in the area, and could result from aeolian processes or slopewash. Since most of the datable sites in the area were revisited repeatedly over thousands of years, Site 7K-C-396 may have been occupied in two or three different prehistoric periods.