

2.0 ENVIRONMENTAL BACKGROUND

2.1 PHYSIOGRAPHY AND HYDROLOGY

The Bridge 2-210A project area is located near the upper end of the Choptank River, in the Coastal Plain physiographic province, the most extensive physiographic zone in the state (Figure 2-1). The Coastal Plain is characterized by unconsolidated sandy and silty sediments, and exhibits relatively little topographic relief. The region is subdivided into two segments—the High and Low Coastal Plains. The Low Coastal Plain, in which the project area is to be found, comprises most of Kent and Sussex counties. It consists of sandy, generally well-drained soils of the early Cretaceous Potomac Formation (Jordan 1964). The region is nearly level, with maximum elevations typically less than 10 meters (30 feet) above mean sea level.

The High and Low Coastal Plain physiographic zones divide the Delmarva Peninsula from north to south, generally on the basis of the character of the underlying Pleistocene sands and their effects on topography. A second series of zones divides the peninsula from east to west, corresponding with the central ridge that forms the backbone of the peninsula (Figure 2-1). This ridge creates a drainage divide between the Delaware Bay and Chesapeake Bay (Matthews and Ireland 1971). The Bridge 2-210A project area is situated to the west of the divide, in the Chesapeake Headwater Drainage zone, above the tidal limit (Figure 2-1). The bridge carries Shady Bridge Road (K210) over one of the small, meandering headwater tributaries of the Choptank River. The region is flat, and streams can be sluggish and winding, often bordered by marshes.

2.2 GEOLOGY AND SOILS

The Columbia Formation sediments consist of unconsolidated quartz and feldspar sands mixed with sandstone, vein quartz, and chert gravels (Jordan 1964). The material was deposited within a braided stream channel that ran roughly north-to-south through the area during the Pleistocene (Spoljaric 1967). Stratigraphically, the sediments exhibit a regional dip toward the south—sediment particle size generally decreases and sorting increases to the south as well. The Columbia Formation sediments are underlain by the Wissahickon Formation, consisting of igneous and metamorphic bedrock including schist, gneiss, and migmatite (Spoljaric 1967; Matthews and Lavoie 1970).

Soils in the region fall into the Rumford-Evesboro-Fallsington association. These soils are described as level, upland soils, consisting of loamy sands, sands, and sandy loams. They contain both excessively drained (Rumford and Evesboro) and poorly drained (Fallsington) components (Matthews and Ireland 1971). The project area is mapped by the Soil Conservation Service as Evesboro series sandy loams, excessively drained upland soils that are deep and structureless, typically consisting of an Ap horizon overlying a C horizon, with no intermediate soil development. Soils mapped in the vicinity of the site location include Rumford loamy sands, also deep and excessively drained, but with a developed B horizon underlying the A or Ap horizon; and Johnston series silt loams, very poorly drained floodplain soils lying along stream margins.

2.3 FLORA AND FAUNA

The Low Coastal Plain zone of Delmarva is located within the Oak-Chestnut Forest Region as defined by Braun (1950). This community typically contains a variety of arboreal species,

including oak, poplar, beech, chestnut, hickory, maple, ash, cherry, elm, walnut, and butternut. Oak remains the dominant species in well drained areas (Matthews and Ireland 1971). The region supports populations of deer, turkey, small mammals, and reptiles, along with a variety of birds, particularly migratory waterfowl (Shelford 1963).

2.4 PALEOENVIRONMENT

The study of the physical environment of the region and the alterations it has undergone during the time the area was occupied by prehistoric human populations furnishes insights into the nature and availability of habitats suitable to prehistoric groups. These environmental changes provide a background or context for cultural change as recorded in the archaeological record.

In general, the environment of the Middle Atlantic region has remained relatively stable for the past 3,000 years. Prior to that time, two broad trends are noted, both of which were related to the retreat of the last continental glaciers during a period that coincides with the arrival of Native American populations in the Northeast. The trends are characterized as gradual warming and the replacement of an open boreal forest, typified by conifers, with temperate, mixed deciduous communities (Gaudreau 1988).

At the end of the last glaciation, much of northeastern North America was considerably colder and wetter than at present, covered by open tundra and boreal forest environments. Sea level has been estimated at as much as 130 meters (430 feet) below current levels (Milliman and Emery 1968), with estuary systems such as the Chesapeake and Delaware Bays still consisting of rivers and outwash channels. Accompanying the retreat of the ice sheets was a gradual warming trend, which saw the replacement of northern forests and their associated faunal communities with varieties more typical of southern temperate zones. By approximately 5000 B.C., an essentially modern climate and environment had become established.

Evidence for cultural adaptation to the changing environment is evident through artifact and settlement pattern variation. Major developments in cultural patterns recognized in the Delaware archaeological record are referred to by period and are described in the following section.