

2.0 PROJECT SETTING

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The project APE predominantly consists of agricultural lands overlooking the estuarine setting of the Murderkill River in southern Kent County (Figures 1 and 2). Gently rolling plowed fields are found on the eastern and western sides of SR 1, as well as in the small area of land situated between SR 1 and SR 12. Grassy banks generally line the edge of the roadway. Residential properties are situated intermittently in the northwestern, northeastern, southwestern, southern, and southeastern portions of the APE. A small wedge-like area at the intersection of SR 1 and Milford Neck Road contains commercial properties.

The project APE occurs within well-drained, sandy-textured, Pleistocene uplands south of the Murderkill River within the Mid-Drainage section of the Lower Coastal Plain of the Delmarva Peninsula. Surficial deposits are Pleistocene in age, are up to 10-m in thickness, and rest on semi- to poorly consolidated Miocene-age, gray diatomaceous-to-sandy, fossiliferous bedrock of the Calvert Formation (Pickett and Benson 1983). The project APE is situated approximately 5.3 mi upstream from the mouth of the Murderkill River, which is located at South Bowers Beach on the Delaware Bay.

Upland topography in eastern Kent County forms a relatively flat surface that slopes gently toward Delaware Bay. Near the bay, this upland is at an altitude of 3 m to 5 m above sea level (masl), while further west it rises to 15 to 18 masl. This plain is mainly Pleistocene in age and has been dissected by a trellised drainage system of east-west and northwest-southeast flowing streams (Groot and Jordan 1999; Jordan 1964; Pickett and Benson 1983). The center of this zone marks the tidal limit for drainages, with fresh water found to the west and brackish water to the east. The surrounding upland constitutes the interfluves within this drainage system. The mouths of the dissecting streams at the bay (including the Murderkill) have been drowned, and today they contain extensive marsh deposits that are thickest near the bay and thinnest near the upstream limits of tidal influence. While no marsh areas are present in the APE, two unnamed tributaries traverse the northern and southern ends of the APE. The Murderkill River flows west to east approximately 1 mi north of the northern limit of the APE.

A result of Pleistocene depositional processes was the concentration of gravels in the local area. Most of the soils in Kent County formed primarily from weathered Pleistocene sediments or secondarily from aeolian or alluvial deposits. The upper meter of near-surface deposits exhibit advanced pedogenesis. Aeolian processes have resulted in the redistribution of surficial fine-grained sediments throughout Kent County. The possibility that aeolian processes have occurred during the Holocene period of human occupation of the Delmarva Peninsula has been addressed from both the standpoint of landform history (Daniels 1995; Denny and Owens 1979; Stolt and Rabenhorst 1987) and archaeological site genesis (Blume 1995; Custer et al. 1996; Hayes and Monaghan 2001; Kellog and Custer 1994; Petraglia et al. 1998).

Aeolian activity is considered to have been a major factor in the evolution of the local landscape. While establishing a definite chronology for aeolian activity is somewhat difficult, several distinct periods and preconditions have been suggested. Many upland dune features (Denny et al. 1979) and Carolina Bays (Stolt and Rabenhorst 1987) are often attributed to late Pleistocene conditions when strong, dune-building winds originated from the northwest (Denny and Owens 1979). Dunes flanking rivers are thought to differ from upland dunes in both source and age; the common position of these features on the eastern and southeastern sides of river valleys has led to speculation that they formed during the Holocene, prior to development of adjacent marsh and swamp conditions related to postglacial rise in sea level (Denny and Owens 1979). Aeolian landform features such as blowouts and dunes are apparent across the upland areas bordering the Murderkill River. Carolina Bays are unequivocally present in the project area. Archaeological research in Delaware has demonstrated that the edges of these natural features were commonly occupied in the past because they contained many plant resources and attracted many animal resources.

The APE contains Sassafras soils (Sassafras sandy loam, SaB, 2 to 5 percent slopes) in the northern end, Ingleside soils (Ingleside sandy loam, IgA, 0 to 2 percent slopes) in the center, Woodstown soils (Woodstown sandy loam, WdB, 2 to 5 percent slopes; Woodstown loam, WoA, 0 to 2 percent slopes) in the southern and southwestern areas, and Carmichael soils (Carmichael loam, CaA, 0 to 2 percent slopes) in the southeastern end (Web Soil Survey, accessed 3 June 2010; Figure 3). All of the soils occur in approximately the same setting: in flats,

on upland terraces, in depressions, and swales. Only the Carmichael soils are poorly drained and are derived from aeolian silts; the others are very sandy, moderate or well drained, and are derived from fluviomarine sediments. In summary, the project area is generally composed of well-drained soils, which would have been an attractive landscape attribute for precontact and historic human settlement.