2. ENVIRONMENTAL SETTING

The proposed S.R. 41 Hockessin project area lies within the Piedmont Uplands Physiographic Province, and is situated some 6 miles (ca. 9.7 kilometers) north of the Fall Line between the Piedmont and Coastal Plain. Sections of the Piedmont Uplands in this portion of the State are underlain by bedrock of the Baltimore Gneiss (felspathic biotite, gneiss, and minor schist) and Dockeysville Marble Formations (Delaware Geologic Survey 1976) and are characterized by an overall hilly relief. Lands throughout this portion of the State exhibit a moderately to steeply sloping upland topography dissected by narrow, dendritic-pattern incising stream valleys (United States Department of Agriculture, Soil Conservation Service [USDA, SCS] 1970). While elevations throughout the Piedmont generally fall within 100 – 400 feet (30 and 120 meters) above mean sea level (amsl) ground surfaces in the vicinity of the present project area lie between ca. 250 – 350 feet (76 and 107 meters) amsl.

Topographically, the project area is situated on the lower portions of a moderately sloping hillside adjacent to the Mill Creek drainage bottom. Ground in this area averages between approximately three and five percent inclination, with a surface strike that dips downslope to the southeast toward the creek channel. Whereas Mill Creek now flows underneath the intersection of S.R. 41 and Valley Road, historical maps and As-Built plans for S.R. 41 (see Chapter 5) indicate that the stream course originally traversed the extreme southeastern corner of the project area before exiting under Valley Road. In light of these findings portions of the present project area actually occupy former active drainage channel, floodplain, and stream margin settings.

Within this region of Delaware major drainages, including the Brandywine, Red Clay, and Mill Creeks, all flow in a general south-southeast trending direction following the strike of the of the Piedmont front before intersecting higher order streams (White Clay Creek/Christina River) along the Fall Line with the Atlantic Coastal Plane Physiographic Province. Mill Creek, the primary drainage for the project area vicinity, is a third-order stream that originates from headwaters located a short distance north of S.R. 41. Flowing under that roadway and past the project area to the east of Valley Road (in its present configuration) the creek meanders to the south and southeast before ultimately intersecting White Clay Creek to the southwest of the Village of Stanton. While no other natural drainages intersect the project area, several additional small tributary streams are present in lands just to the south of Old Lancaster Pike.

Near surface soils within the project area fall into the Glenelg-Manor-Chester group and are represented by a total of two individual type classifications (Table 1) that, taken together, support a rich and varied assortment of plant and animal resources (Figure 3). Individual soils present include those of the Glenelg and Hatboro series and are listed in Table 1, along with brief descriptions of their basic characteristics and habitat potentials. Of the types represented Glenelg and Manor Loams (GmB2) soils are deep well-drained soils normally found within upland areas of the Piedmont Plateau (3-15% slopes). The Hatboro Silt Loam (HbA) series soils are characterized as deep poorly drained soils normally found in association with floodplains and upland areas of the Piedmont Plateau (0-3% slopes) (USDA, SCS 1970).

Lithic resources within the vicinity of the S.R. 41/Hockessin APE include both primary outcrop formations and secondary cobble deposits. Primary lithic sources are represented by jasper, chert, and chalcedony materials associated with the Delaware Chalcedony Complex, the nearest outcrops of which are found to the southwest, in the Broad Run Valley of southern Chester County, in Pennsylvania, and in the vicinity of Newark, Delaware. Additional primary lithic sources include natural outcrops of quartz, quartzite, argillite, diabase, and granite found in scattered locations throughout the Piedmont uplands. Secondary lithic resources derive from the course sediments of the Columbia Formation in the Atlantic Coastal Plain. These materials consist of alluvial cobble deposits of quartz and quartzite, along with lesser

amounts of jasper, chert, and chalcedony that have been eroded out of the Piedmont Uplands, to the west (Custer, 1989). The nearest deposits of these materials are found within both the White Clay and Christina River valleys, along the shores of Churchman's Marsh to the southeast (Custer and Desantis 1986).

Table 1: Project area soils and soils properties

Symbol	Name	Slope	Landform	Soil Properties	Habitat Potential
GmB2	Glenelg and Manor Loams	3-8%	Upland areas of the Piedmont Plateau	Deep, well drained soils; subject to moderate erosion	Good for a variety of mixed hardwoods, mainly oak. These soils are good for most agricultural uses with erosion as the only limitations.
HbA	Hatboro Silt Loam	0-3%	Floodplains and Uplands of the Piedmont Plateau.	Deep, poorly drained soils subject to minimal erosion.	Good for a variety of water tolerant hardwoods including willow, alder, and gum. These soils are limited for most agricultural uses due to flooding and a seasonally high water table.