

## 2.0 Project Description and Environmental Setting

### Project Description

The current project area is located a short distance northwest of the town of Middletown in New Castle County, Delaware, and encompasses a 4.82-mile long section of Choptank Road/S.R. 15 between its intersections with Bethel Church and Bunker Hill Roads (see Figure 1); also included in the project area is an approximately 1500-foot stretch of Bunker Hill Road west of its intersection with Choptank Road. Proposed improvements entail the widening of this entire length of roadway, the construction of paved roadway shoulders, the straightening of a number of curves, and the construction of roundabouts at the Bethel Church, Churchtown Road, and Bunker Hill intersections. The purpose of these measures is to improve overall roadway safety for vehicular, bicycle, and pedestrian traffic.

The survey conducted by KSK was an amendment to the 2001 MTA Phase I investigation, necessitated when the original project alignment for the study area was modified. The project area alterations, as presented to KSK, included portions of the entire 4.82-mile project area, from the intersection of Choptank Road with Bethel Church Road to the intersection of Choptank Road with Bunker Hill Road. Also included in the proposed area of impact was an approximately 1,500-foot (457.2 meter) segment of Bunker Hill Road extending in a westerly direction from the intersection of Bunker Hill Road with Choptank Road (see Figure 8). The proposed modifications include the installation of 3 traffic roundabouts, located from north to south at the intersections of Choptank Road with Bethel Church Road, Churchtown Road, and Bunker Hill Road, respectively. Additional improvements include the widening of the entirety of the roadway, the straightening of several curves, the improvement of existing drainage basins, the installation of 4 new drainage basins, the construction of 3 linear drainage systems, and the construction of roadway shoulders appropriate for use by pedestrians and bicyclists. The proposed Area of Potential Effect (APE) at the time of the primary archaeological field investigation extended a maximum of 114 feet (34.7 meters) from the edge of pavement, with the majority of the proposed limit of construction being within 50 feet (15.24 meters) of the road edge. Following the conclusion of the preliminary fieldwork, engineering plans received from the client indicated a revised limit of construction with a maximum APE of 82 feet from the edge of pavement.

After the analysis of the archaeological data received from MTA, a review of the new alignment engineering plans prepared by E & K, and an initial pedestrian reconnaissance survey of the project area, KSK identified 20 discrete areas of proposed impact exhibiting potential for the presence of archaeological resources from prehistoric or historic periods (see Figures 3-8). Subsequent Phase I subsurface archaeological testing of these 20 areas by KSK involved the excavation of a total of 735 STPs, plus an additional 143 STPs excavated as radials around positive tests. Of the combined 878 STPs that were excavated, a total of 159 contained prehistoric and/or historical artifacts.

Supplemental Phase I testing was performed subsequent to the preliminary survey and situated in areas previously uninvestigated. This testing consisted of the subsurface investigation of three drainage systems, each a narrow linear configuration originating at the roadside and extending to and terminating at a small waterway. Additional Phase I testing was performed at the School Drive test area, located immediately south of and adjacent to KSK #18 at the southernmost extent of the Choptank Road Improvement project test area.

## Environmental Setting

The Choptank Road Improvements project area lies within the northern portion of a subdivision of the Atlantic Coastal Plain known as the Mid-Peninsular Drainage Divide (Custer 1989). Referred to by Thomas (1966) as the backbone of the Delmarva Peninsula, this area is defined by an expanse of low rolling hills, whose heightened elevation in relation to the surrounding coastal plain creates a natural boundary separating the headwaters of streams that drain into the Delaware River and Bay to the east from those that drain into the Chesapeake Bay to the west. Actual elevation variations within this sub-province are slight, a characteristic that serves to restrict the flow of surface water into low-order headwaters of streams and rivers and results in the formation of dispersed swampy marshes and wetlands in areas of poor drainage (Custer 1986). Within the Choptank Road project area, elevations vary between 65 and 75 feet asl.

Land use along the project area consists of a mix of established agricultural and more recent residential properties. Most lands east of Choptank Road, as well as those along its western margins north of Back Creek, and south of Bohemia Mill Road, contain a series of cultivated and fallow fields interspersed with historic farm complexes and more recent private dwellings. In contrast, land bordering the west-central sections of the project area, along with those southeast of Back Creek, predominantly contain recently constructed residential properties and larger, planned housing developments. Immediately southwest of Back Creek Bridge (Bridge 1-377) and toward the northern limits of the project area, the ground bordering the existing roadbed contains a large public golf course with associated residential units.

Soils within the project area belong to the Matapeake-Sassafrass Association (Figure 9) and consist of well-drained, medium to moderately coarse sandy clay loams (United States Department of Agriculture, Soil Conservation Service [USDA, SCS] 1970). Sources of surface water are plentiful throughout the surrounding area and at least three streams cross the Choptank Road alignment between Bunker Hill and Bethel Church Roads. In its northern half the project area is cross-cut by the main channel of Back Creek, while areas south of Armstrong Corner Road are traversed by a series of perennial and intermittent tributaries of Great Bohemia Creek and the Sandy Branch. Numerous other headwaters and upland wetlands are present in lands bordering the entire length of the project area.

Lithic resources in the upper Delmarva Peninsula, the nature and distribution of which were critical factors influencing Native American landscape exploitation patterns, include both primary (outcrop) and secondary (redeposit) source materials of tool grade quality. The predominant primary lithic material throughout northern Delaware and southeastern Pennsylvania is represented by quartz, numerous and regular outcroppings of which appear within the Piedmont Physiographic Province. Another important primary material consists of those cryptocrystalline and microcrystalline jaspers belonging to the so-called "Delaware Chalcedony Complex" (Custer 1989, 1996). Known more commonly as "Iron Hill jasper", this lithic material is of highly variable quality but is locally plentiful, and outcrops in the Broad Run Valley of southern Chester County, Pennsylvania, in extreme western New Castle County, Delaware, in the vicinity of Iron Hill and Chestnut Hill in New Castle County, and eastern Cecil County, Maryland (Mooney, et al 2005).

Secondary lithic resources derive from the coarse sediments of the Columbia Formation and 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 north and west. Surface exposures of these materials, in the form of exposed channel and eroding bank deposits, are widely available throughout the area, including within Back Creek. These secondary source materials, while plentiful, have been subjected to long-term physical and chemical weathering, and therefore tend to be of widely variable quality with respect to their suitability for the production of stone tools.