

## 9.0 SUMMARY AND RECOMMENDATIONS

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### 9.1 Summary

This project involved the refinement and adaptation of ADM's predictive model for the US 301 Project Development (Baublitz et al. 2006) to the specific conditions encountered in the archaeological APE for Purple Section 1 of the highway project. Methods used included literature review; site file, historic map, and archival research; and walkover field survey. The literature review was selective, and focused on sources of relevance to the goals of the project. Sources used primarily included previous predictive models developed for this project and for other nearby projects, and literature on the types of archaeological resources to be expected within this project's APE. The Delaware archaeological site files and historic maps were also examined. Archival research focused on deeds, will books, and census records. All tax parcels crossed by the Purple Section 1 alignment were researched, but in some cases, chains of title could not be traced to warrant due to complex or obscure property transactions. During walkover survey, the entirety of the APE was examined several times during approximately one week of fieldwork. The topographic and hydrologic characteristic of the landscape, current ground cover, and the extent of obvious previous disturbance were documented. Auger probes were placed opportunistically to provide a preliminary understanding of sedimentation within drainageways. Local informants were interviewed.

At completion of background research and fieldwork, the APE of Purple Section 1 was divided into segments, each of which had a specific probability for archaeological site occurrence. A sample of these APE segments was selected for Phase Ib field survey. The sample was drawn to generate varying percentages of coverage for different probability designations, and segments were selected to maximize the amount of cultivatable land in the portion of the APE to be surveyed, to avoid disturbed areas, and at random. The end result of these efforts was a predictive model that had been refined and adapted for the specific conditions found in the Purple Section 1 APE, and a detailed strategy for Phase Ib field survey that was based on this predictive model.

### 9.2 Recommendations Concerning Phase Ib Archaeological Field Survey

Table 3 provides a listing of the segments of the Purple Section 1 APE that A&HC is recommending for Phase Ib field survey coverage, and detailed maps of the Purple Section 1 APE delineating these segments are included in Appendix 1. To summarize, the segments recommended for survey include all those with a high or moderate probability for either historic or precontact archaeological sites. In addition, the recommended segments provide coverage of 63% of areas with a low probability for precontact sites, and 65% of areas with a low probability for historic sites. In all, approximately 68 % of the Purple Section 1 APE will be subjected to Phase Ib field survey.

Prior to initiating Phase Ib survey, A&HC will arrange for plowing and disking of the appropriate portions of the APE. A&HC will attempt to schedule this well in advance of the initiation of field survey, to allow for several heavy rains to "wash" the fields. At the beginning

of Phase Ib archaeological survey, A&HC will perform a systematic geomorphological reconnaissance to evaluate the nature and extent of sedimentation in drainageways. Geomorphological reconnaissance will involve placing hand driven auger probes at sampling locations to be determined by the project soils scientist. The resulting information will guide the placement of test units, which will be used to sample areas that have the potential to contain buried precontact or historic period archaeological resources. The geomorphological survey results will also supplement the delineation of areas that have been previously disturbed, and have no archaeological potential.

After completion of the geomorphological reconnaissance, A&HC proposes to survey 100% of each APE segment selected for Phase Ib field survey. Where feasible, the survey methodology will consist principally of plowing, disking, and pedestrian surface survey, as described above (see Section 8.3). This approach will be supplemented by opportunistic excavation of shovel tests in representative situations to confirm soil stratigraphy.

On vegetated uplands unsuitable for plowing and disking, A&HC will excavate shovel tests at a 15 m interval throughout the APE. Shovel tests will penetrate the plow layer and extend into subsoil, or to a maximum depth of 60 cm. Radial shovel tests at 7.5 m intervals will be placed to confirm isolated finds of precontact artifacts. Shovel tests will also be placed at 7.5 m intervals within historic artifact scatters to increase the size of the artifact sample and the probability of finding diagnostic artifacts and features.

In areas with the potential for buried archaeological resources, A&HC proposes to excavate 1 m x 1 m test units placed at 30 m intervals. Test units will be excavated in 10 cm levels to the depth of pre-Holocene deposits.

A&HC will clean, identify, and catalogue all artifacts recovered during Phase I survey, and will retain the collection until it is curated at the end of the project. A&HC will prepare a detailed report of the Phase Ib survey methods and results that meets the reporting guidelines of the Delaware SHPO and the Secretary of the Interior's standards for the treatment of archaeological resources.

If unmarked human interments are found during Phase Ib field survey, proper protocols will be followed. Fieldwork will cease and DelDOT will be notified immediately so they may notify the SHPO and the Advisory Council within 24 hours of the discovery. A&HC will assist DelDOT in its compliance with the Delaware Unmarked Human Remains Act (Delaware Code Title 7, Chapter 54). Any further activities, under guidance from the SHPO and DE DOT, will comply with 36 CFR Part 800 and the Native American Graves Protection and Repatriation Act of 1990 (PL 101-601) with regard to disposition of the remains and/or associated funerary objects.

A&HC will utilize disadvantaged businesses (DBEs) as sub-consultants/sub-contractors during the Phase Ib project to contribute towards achieving the DBE participation goals of the project. A&HC identified Straughn Environmental Services, Inc. as a DBE sub-consultant in its parent agreement. Straughn has archaeological capability, and A&HC will request that they provide a

subset of the field technicians to be employed for Phase Ib field survey. A&HC may also seek DBE assistance with digital mapping of Phase Ib survey results.

### **9.3 Recommendations Concerning Phase II Survey**

The background and archival research performed during this Phase Ia study was intended to be sufficient for the purposes of resource identification during Phase Ib field survey. A&HC anticipates that select sites found during Phase Ib survey will be recommended for Phase II evaluation level survey to determine their eligibility for inclusion on the National Register of Historic Places. Evaluation of sites will be performed within the context of relevant research issues, to establish the potential of each site to contribute to an understanding of important events or processes in history or prehistory. Recommendations for Phase II survey will be developed in consultation with DeIDOT and the SHPO, and will take into account such factors as artifact density and typology, archaeological context including stratification and potential for features, chronology, and the like. Clearly, the nature of the work to be completed will depend on the types of site(s) discovered. Field methodologies for Phase II survey will be developed after Phase Ib survey is complete. However, preliminary recommendations concerning likely avenues of background and archival research, as well as some suggested research issues for evaluation of sites, are provided below.

*Additional Research for Precontact Sites:* Previous archaeological work in the vicinity of the Purple Section 1 APE suggests that the most likely type of precontact sites to be found within the project's APE are small lithic scatters, several of which were found in close proximity to one another along Scott Run just to the northwest of the project. A&HC also noted distinct cobble concentrations in portions of the APE, which were designated as high probability areas for precontact sites because they may have served as sources for lithic raw material and could be identified as such during survey. In the event that small lithic scatter sites or lithic raw material procurement localities are found and deemed worthy of Phase II survey, additional research that might need to be done might include:

- A survey of previous research on regional lithic raw material use and sources, with a focus on local procurement of lithic materials from surface cobbles like those in this project's APE. Previous research (e.g. Baublitz et al. 2006) suggests that the cobble concentrations may be derived from the underlying Columbia Formation, and would consist predominantly of quartz, chert, and quartzite. Additional field research on this issue could include the collection of natural lithic raw material from cobble source locations and their comparison with archaeological materials, macroscopically and perhaps through chemical characterization methods.
- Review of the regional literature on the function of lithic scatter sites. For example, Custer (1984) and others have proposed that precontact settlement types in Delaware represent a hierarchy of site types, generally including macroband base camps, microband base camps, and procurement localities, or their equivalents using different nomenclature. Clearly, small lithic scatters represent one or the other or both of the latter two settlement types, but further

information concerning their age, function, and role in precontact settlement systems would be valuable.

- Performance of systematic microwear and protein residue analysis on samples of tools and debitage from lithic scatter sites, to elucidate inter-site differences and similarities in tool using behavior.

*Additional Research for Historic Period Sites:* In the event Phase II survey of historic period sites needs to be performed, a variety of additional sources will need to be consulted to amplify information on site history presented herein. Specifically, if sites are found on any of the properties for which A&HC was unable to complete chain of title research, additional work will need to be performed to fill these information gaps, if possible. Additionally, and again depending to some extent on the type of site found, some or all of the following sources might need to be consulted:

- Road Petitions and Returns
- Orphan's Court Records
- Genealogies
- Business Records, including Day Books and Account Books
- Newspapers
- Journals
- Tax Records
- The 1850 and 1860 slave censuses

Research of these and potentially other sources would need to be integrated into an organized and comprehensive historical overview of the individuals, families, business enterprises, and the like that might be represented in the historic archaeological record. Such research and analysis might be fruitfully expanded from the specific site to the local community of which it was a part, and within which its occupants lived and worked. For example, the families that historically occupied the area traversed by the Purple Section 1 alignment were neighbors and perhaps were inter-related through marriage. They likely interacted both socially and economically, and information on this community as a whole would enhance an understanding of its various component parts.