APPENDIX II

DATA RECOVERY PLAN FOR THE HOCKESSIN VALLEY SITE (7NC-A-17)

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This data recovery plan, schedule and budget provide a recommended alternative for mitigation of the adverse effects of the proposed Route 7 relocation project upon the Hockessin Valley prehistoric site (7NC-A-17) New Castle County, Delaware. Execution of the data recovery plan is contingent upon the concurrence of the State Historic Preservation Officer's staff that a no adverse effect determination would be appropriate upon recovery of significant archaeological data as per 36CFR 800.4c and the Advisory Council's "Treatment of Archaeological Properties: A Handbook".

BACKGROUND

The Hockessin Valley prehistoric site (7NC-A-17) was identified as a result of a Phase I/II location/identification survey and additional data were gathered during intensive test excavations of the site. Site survey and testing were carried out for the Delaware Department of Transportation to fulfill obligations under Section 106 of the National Historic Preservation Act to evaluate the effects of the proposed relocation of Delaware Route 7 on significant, or potentially significant, cultural resources as defined by the National Register of Historic Places (36CFR60, Sec. 1202). The site is located in Mill Creek Hundred, New Castle County, Delaware (Figure 1) at the southernmost point where Delaware Route 7 crosses the Hockessin Valley.

The significant component of the site consists of a buried soil deposit containing prehistoric artifacts. The buried soil is found within the floodplain of a confluence of unnamed tributaries of Mill Creek at the base of a small knoll. The site is currently a pasture. Soils at the site are of the Glenville silt loam series and are somewhat poorly drained.

The Hockessin Valley prehistoric site was discovered when a series of 1m test units were excavated within the proposed Route 7 right-of-way. Debitage from the manufacturing of stone tools were recovered from in situ soils. Geomorphological and pedological analyses indicated that the soils containing the artifacts were deposited by low energy alluvial sedimentation and most likely had never been plowed. The artifacts are, therefore, in good context and have not been moved from their original location of discard by natural processes. Intensive Phase II test excavations were carried out and a total of 11 test units (1m) were excavated to determine the site's boundaries. Artifacts were recovered from most test units and included more debitage, flake tools, and bifaces. The limits of the sites were determined and the site size is approximately 91.4m x 54.9m x 73.2m. The site is approximately triangular in shape. The southern boundary of the site is defined by the foot of a steep slope and the extent of buried artifacts. The northwestern boundary of the site is defined by the unnamed tributary of Mill Creek and the eastern by existing Route 7. The extent of artifact types suggests something more than a procurement site because procurement sites generally include only discarded projectile points and debitage (Custer 1980). However, the site size is

smaller than most base camp sites in the region (Custer and Wallace 1982; Custer and DeSantis 1985a; Custer 1984:105-107). Based on the intermediate site size and the fact that there are more varied artifact types than are present at procurement sites, the Hockessin Valley prehistoric site probably represents a small base camp or procurement staging site similar to the nearby Hawthorn Site (Custer and Bachman 1984). The absence of diagnostic artifacts from the site makes it impossible to determine the site's age, but examination of the soil profile's development suggests that the site is approximately 3000 - 5000 years old.

The Hockessin Valley prehistoric site (7NC-A-17) is significant because it is likely to contribute data important to the understanding of the prehistory of the local area and surrounding region. Test excavations revealed that a variety of artifact types are present in undisturbed soils and the site seems to be a small base camp or procurement staging site. The presence of undisturbed remains will allow the study of spatial variation in activity areas and the separation of occupations at the site. It should be noted that the similarity of the site to the Hawthorn Site is important in terms of site significance because the excavation of the Hawthorn Site added much to the knowledge of High Coastal Plain settlement pattern systems (Custer and Bachman 1984). Data recovery excavations at 7NC-A-17 will add the same kinds of data for the Piedmont. Specific classes of data present at 7NC-A-17 include stone tools of various functions, manufacturing debris, and spatially varied

activity areas. Buried and undisturbed sites are not common in the Delaware Piedmont due to historic farming (plowing), suburban development, natural erosion of the narrow stream valleys, and modern sod farming for the mushroom industry. Consequently, the Hockessin Valley prehistoric site represents a rare intact example of the local prehistoric archaeological record. Indeed, 7NC-A-17 and 7NC-D-101, the only two examples of this site type in the Piedmont were discovered during the Route 7 survey. Not only are buried sites rare in the Piedmont of Delaware, but no sites in small floodplains, such as the Hockessin Valley site, have yet been studied. Furthermore, any buried floodplain archaeological sites in the Piedmont Uplands have been identified as significant cultural resources by the Delaware Cultural Resource Plan (Custer 1983) and the northern Delaware Plan (Custer and DeSantis 1985b). Data recovered from the Hockessin Valley Site can be compared to the data base on small upland procurement sites and large floodplain base camps of the major drainages within the Piedmont (Custer and Wallace 1982) as well as to the similar Hawthorn Site in the Fall Line zone and the Armor Site in the Piedmont. Geomorphological data from the site can be combined with archaeological data on chronology to study regional environmental change. All of these data will add to understanding of the diachronic and synchronic patterns of prehistoric land use in the Piedmont Uplands.

The Hockessin Valley prehistoric site lies within the right-of-way of the proposed relocation of Route 7, and this project will have both direct and indirect effects upon the significant historic archaeological resources of the site. Alternatives for

mitigation of adverse effect include no-build, redesign, preservation-in-place, and data recovery. The first three alternatives were determined to be unfeasible due to cost factors, the need for a wider Route 7 and the fragile nature of the site. Therefore, data recovery is the preferred mitigation alternative combined with avoidance of those portions of the site outside of the limits of construction.

RESEARCH DESIGN AND RESEARCH METHODS

The main goal of the proposed research is to understand the role that the Hockessin Valley prehistoric site played in local settlement patterns. The present models of Piedmont Upland prehistoric settlement patterns (Custer and Wallace 1982; Custer 1984:105-107) stress an adaptation focused on large habitation sites in major floodplains and in the Hockessin/Kennett Square lowlands. Periodic short-term forays were then made to surrounding areas to procure certain types of resources. These forays presumably produced numerous small, scattered archaeological sites in the upland areas away from the major drainages. Because 7NC-A-17 is intermediate in size and is located in a minor stream's floodplain, it does not fit with the existing models. Therefore, its excavation has the potential to refine existing settlement pattern models. This research goal is given a high priority in the Delaware plan for managing prehistoric cultural resources (Custer 1983).

Based on the Phase I/II research, 7NC-A-17 may be a small base camp, similar to other major drainage base camps - only smaller, that was inhabited by smaller social groups. The site

may be identical in function and seasonal occupation to other larger Piedmont Upland base camps, only smaller in size. It is also possible that 7NC-A-17 was a base camp occupied during different seasons than the larger base camps. For example, 7NC-A-17 may represent a base camp of small social units within a seasonally varied fusion-fission settlement/social organization (see Figure 2 for the settlement system model). Yet another possibility is that 7NC-A-17 is a procurement staging site used by hunting and gathering parties dispatched from base camps. The staging site was then used as a central point from which individual procurement forays originated. Initial processing of resources may also have taken place (see Figure 3). An archaeological example of such a site is the Hawthorn Site (Custer and Bachman 1984).

It is also important to note that excavations at 7NC-A-17 will be carried out in conjunction with excavations at 7NC-D-101, which also was discovered during the Route 7 Phase I/II survey. Site 7NC-D-101 is similar in size, local geomorphological setting, and artifact assemblage to 7NC-A-17. However, 7NC-D-101 is located in the Piedmont Uplands close to the Fall Line while 7NC-A-17 is located approximately 8 km north in the Hockessin Lowlands. Both the Hockessin Lowlands and the Fall Line represent major ecotone settings with associated large base camp sites. The excavation of similar sites in each of these diverse environmental settings will reveal whether settlement patterns differ between the two areas. Furthermore, the detailed settlement data developed from the study of these sites can be

compared to similar detailed data from the Coastal Plain portion of the Christina Drainage (Custer 1982; Custer and Bachman 1984) to develop regional settlement models.

Because the major goal of the proposed research at 7NC-A-17 is to understand the role of the site in the regional settlement system, it is important to learn during what time periods and seasons the site was occupied and what kind of activities took place at the site through time. Basic description of chronology and activities at the site are especially important because no similar sites in similar environmental settings have ever been investigated in the Piedmont Uplands region of Delaware, Maryland, or Pennsylvania (Custer and Wallace 1982). Phase I/II excavations at the Hockessin Valley prehistoric site suggested that it was a small base camp, or a procurement staging site. This preliminary functional identification of the site can be used as a hypothesis to guide the data recovery program. Table 1 lists the identifying characteristics of the varied functional site types identified by excavation of local types, and it is expected that 7NC-A-17 will display the characteristics of either the micro-band base camp or the procurement staging site.

In order to collect data to determine the functions of the site, and spatial variation of activities within the site, it will be necessary to open large blocks of contiguous excavation units. These block excavations will focus on the Phase II test units that produced buried artifacts. At least three block excavations will be carried out at the site (Figure 4).

Table 1: Functional Site Type Characteristics

Site Type	Characteristics
macro-band base camp	wide variety of tool types; abundant ceramics; house structures (semi-subterranean); storage pit features; large size (hectare or larger); abundant debitage from tool reduction and manufacture. Examples: 7NC-A-2 (Custer and DeSantis 1985), 7NC-E-6 and 7NC-E-1 (Custer 1982), 36CH3 (Wilkins 1978), 36CH51 (Custer 1985), 18CE29 (Thomas 1982)
micro-band base camp	same characteristics as above, except size is less than .5 hectare. Examples: Green Valley Site Complex (Custer et al. 1981), Morgan Bank Site Complex (Custer, Watson, and DeSantis n.d.)
procurement staging site	small size (less than .5 hectare), limited tool types, limited ceramics, limited debitage, limited tool reduction and manufacture, processing features (hearths and shallow pits), limited house structures (tent ring). Examples: 7NC-E-46 (Custer and Bachman 1984)
procurement site	small size (less than .25 hectare), very small amounts of debitage, almost no evidence of tool manufacture, limited tool reduction, no ceramics, no processing or habitation features. Examples: 7NC-D-114 (Catts, Shaffer, and Custer 1985), Limestone Hills Site Complex (Custer 1980)

Excavation methods will be designed to provide data which are comparable to other DelDOT Projects, such as the Hawthorn Site (Custer and Bachman 1984) so that inter-site comparisons can be undertaken. At the Hawthorn Site, small blocks within standard excavation units were used as the minimum provenience units. Collection of data in these blocks allowed the characterization and identification of discrete activity areas. With these data it was possible to clearly identify the site's function.

One-meter squares will be the basic excavation units and each one-meter unit will be divided into four 50 cm blocks as the

minimum provenience units. Arbitrary 10 cm levels within natural soil horizons will be used in undisturbed soils. Any features (hearths, pits, tent rings) will be plotted in situ and excavated separately. All soils will be screened through 1/4" mesh. Standard column soil samples for particle size, pollen, phytolith, and flotation analysis will be taken from all features and selected excavation units. Geomorphological analysis including column samples, purposeful sampling of interesting soils, and detailed particle size analysis of the immediate site environment will also be carried out in order to better understand the site's depositional context and local paleoenvironments. Because the site is buried by alluvial deposits the analysis of the sediments and the archaeological materials have an especially high potential for providing paleoenvironmental data.

All artifacts will be washed and marked following the procedures developed by the Delaware Bureau of Archaeology and Historic Preservation. All tools and a sample of debitage will be processed for potential blood and bone collagen analysis to determine the raw materials processed with the tool edges. High and low power edge wear analysis will be undertaken for all tools. The edge wear and collagen analysis will help to clarify the activities which took place at the site and will also clarify its functional classification. Debitage will be cataloged by raw material, presence/absence of cortex, size, and refits to cores and bifaces. If ceramics are encountered, they will be cataloged by standard cultural-historical types and analyzed for

functional variability.

A standard archaeological report summarizing the results of the excavations will be produced. Analyses of spatial distributions of artifact categories and inferred activity areas, summaries of all specialized analyses, and a synthesis of the results and their implications for regional and local prehistoric adaptations will be prepared.

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