MANAGEMENT CONSIDERATIONS AND RECOMMENDATIONS

Previous sections of this report have focused on the compilation and description of the known and potential cultural resources for the project corridor, and have provided prehistoric and historic cultural contexts for the resources. This section of the report addresses three topics:

1) the known and potential significance of the cultural resources;
2) identification of areas within the larger study area that are most "sensitive" in terms of cultural resources; and
3) recommendations for future cultural resources management in the study area.

Sections of the project area that will require intensive archaeological research to assess and mitigate the effects of the proposed highway will be identified, and potential research methods and mitigation costs will be discussed.

Site significance assessment is critical to a reconnaissance and planning study for cultural resource management because site significance determines the kinds of archaeological investigations that may be required by Federal law. In particular, the eligibility of a site for listing on the National Register of Historic Places - based on significance - needs to be addressed because National Register eligibility ultimately determines the need for further work. Discussions of site significance, and the potential eligibility for the National Register, are provided below for prehistoric and historic archaeological sites.

PREHISTORIC SITE SIGNIFICANCE

The Delaware State Plan for the Management of Prehistoric Archaeological Resources (Custer 1983: Chapter 8), similar plans for the upper and lower Eastern Shore of Maryland, and regional management plans (Custer 1983, 1987, 1989b; Davidson 1982) provide the basis for assessing prehistoric site significance. The Delaware plan divides the state into various zones that have different sensitivities for containing significant archaeological sites (Figure 34). It can be seen that some portions of the project area fall into the highest sensitivity zone while other portions are lower in sensitivity. Although this reveals something of the potential significance of project area sites, a more detailed consideration that addresses individual site type significance is needed.

One way to consider the potential significance of prehistoric sites within the study area is to use the series of management zones developed in the state plan. Figure 35 shows the management zones and their relation to the study area, while Table 31 identifies the management zones, and Table 32 shows their relationship to the sensitivity zones. The Composite sensitivity zones shown in Figure 34 have been modified from those shown in the State Plan (Custer 1983) because of the increased rate of development in northern New Castle County since the State Plan was written. Figure 6 shows the extent of development in the Route 301 study area based on a blue print, aerial photo mosaic of the study area produced in 1991 for DelDOT.

The study area intersects six management units - the Northern Delaware Fall Line and Delaware Chalcedony Units, the Northern Sub-unit of the Interior Management Unit, the Mid-Peninsular Drainage Divide Unit, the Delaware Drainage Sub-unit of the Mid-Drainage Unit, and a small portion of the Northern Bay Sub-unit of the Coastal Unit. Tables 33-36 list the site types from different time periods and indicates their potential significance, the general probability of their occurrence, and the quality of the available data. The listings generally indicate which types of sites are most likely to be significant within the study area.

A comparison of the probability zones mapped on Attachment V and prehistoric sites mapped on Attachment I shows that the largest High probability zones contain significant macro-band and micro-band base camps. In most cases, the High probability zones along the major drainages contain significant sites that are from the Archaic and later periods. Areas with potential Paleo-Indian Interior Management Unit sites, which would automatically be significant given their scarcity, as well as later sites, are generally restricted to High probability zones that are associated with interior sand ridges near poorly-drained soils, and areas near Iron Hill where outcrops of the Delaware Chalcedony Complex occur.

TABLE 31

DELAWARE PREHISTORIC MANAGEMENT UNITS

1 - Northern Delaware Management Unit
- 1a - Piedmont Uplands (Archaic - Woodland II)
- *1b - Fall Line (Woodland I and II)
- *1c - Delaware Chalcedony Complex (Paleo-Indian)

2 - Interior Swamp Management Unit
- 2a - Churchmans Marsh - Includes New Castle Contact Study Unit
- 2b - Upper Pocomoke

3 - Interior Management Unit
- 3a - Northern Sub-Unit
- 3b - Southern Sub-Unit

4 - Mid-Peninsular Drainage Divide Management Unit - Includes Mid-Peninsular Drainage Divide
- *Non-Quarry Paleo-Indian Site Complexes

5 - Mid-Drainage Management Unit
- *5a - Delaware Drainage
- 5b - Nanticoke Drainage

6 - Coastal Management Unit
- *6a - Northern Bay
- 6b - Southern Bay
- 6c - Atlantic Coast

* - The Route 301 Study area intersects these Management Units.

TABLE 32

PREHISTORIC ARCHAEOLOGY MANAGEMENT PRIORITIES

Category I (more than 50% in Zone I)
- Fall Line sub-unit of Northern Delaware Management Unit
- Delaware Chalcedony Complex sub-unit of Northern Delaware Management Unit
- Churchmans Marsh sub-unit of Interior Swamp Management Unit
- Atlantic Coast sub-unit of Coastal Management Unit
- South Bay sub-unit of Coastal Management Unit

Category II (more than 50% in Zones I and II)
- Piedmont Uplands sub-unit of Northern Delaware Management Unit
- Upper Pokomoke sub-unit of Interior Swamp Management Unit
- Mid-Peninsular Drainage Divide Management Unit
- Nanticoke sub-unit of Mid-Drainage Management Unit

Category III (more than 50% in Zone III)
- Delaware sub-unit of Mid-Drainage Management Unit
- Northern Bay sub-unit of Coastal Management Unit

Category IV (more than 50% in Zone IV)

TABLE 33

SITE PROBABILITIES AND DATA QUALITY
NORTHERN DELAWARE MANAGEMENT UNIT

Site Types	Site Probabilities: Fall Line	Site Probabilities: DE Chalcedony Complex	Data Quality
Paleo-Indian			
*quarry	L-M	H	P
*quarry reduction	L-M	H	P
*quarry related base camp	L	H	P
*base camp	L	L	P
*base camp maintenance station	L	H	P
*hunting sites	M	H	P
DATA QUALITY	P-F	P	
Archaic			
macro-band base camp	L-M	L	P
micro-band base camp	M-H	L	P
procurement site	M-H	H	F-G
DATA QUALITY	P	P	
Woodland I			
*macro-band base camp	L-M	L	P
micro-band base camp	H	L	P-F
procurement site	M-H	H	F-G
DATA QUALITY	F	P	
Woodland II			
*macro-band base camp	L-M	L	F
micro-band base camp	H	L	P
procurement site	M-H	H	F
DATA QUALITY	F	P	
Contact			
general Contact sites	P	P	P
DATA QUALITY	P	P	

*Site types likely to yield significant data.

KEY:

Site Probabilities

L - low
L-M - low to medium
M - medium
M-H - medium to high
H - high

Data Quality

P - poor
P-F - poor to fair
F - fair
F-G - fair to good
G - good

TABLE 34

SITE PROBABILITIES AND DATA QUALITY
MID-PENINSULAR DRAINAGE DIVIDE MANAGEMENT UNIT

Site Types	Site Probabilities	Data Quality
Paleo-Indian		
quarry	L	F
quarry reduction	L	F
quarry related base camp	L	F
*base camp	M-H	F
*base camp maintenance station	M-H	F
*hunting sites	H	F
DATA QUALITY	F	
Archaic		
macro-band base camp	L	P
*micro-band base camp	L-M	P
*procurement site	M	P
DATA QUALITY	P	
Woodland I		
macro-band base camp	L	P
micro-band base camp	L-M	P
*procurement site	M	P
DATA QUALITY	P	
Woodland II		
macro-band base camp	L	P
micro-band base camp	L-M	P
procurement site	M	P
DATA QUALITY	P	
Contact		
general Contact sites	L	P
DATA QUALITY	P	

*Site types likely to yield significant data.

KEY:

Site Probabilities	Data Quality
L - low	P - poor
L-M - low to medium	P-F - poor to fair
M - medium	F - fair
M-H - medium to high	F-G - fair to good
H - high	G - good

TABLE 35

SITE PROBABILITIES AND DATA QUALITY
MID-DRAINAGE MANAGEMENT UNIT

Site Types	Site Probabilities Delaware Sub-Unit	Data Quality
Paleo-Indian		
quarry	L	P
quarry reduction	L	P
quarry related base camp	L	P
base camp	L	P
base camp maintenance station	L	P
hunting sites	L-M	P
DATA QUALITY	P	
Archaic		
macro-band base camp	M	P
micro-band base camp	M	P
procurement site	M	P
DATA QUALITY	P	
Woodland I		
*macro-band base camp	H	F-G
*micro-band base camp	H	F-G
*procurement site	H	F-G
*major mortuary/exchange sites	H	P-G
*minor mortuary/exchange sites	H	P-F
DATA QUALITY	F-G	
Woodland II		
*macro-band base camp	M	P
*micro-band base camp	M	P
*procurement site	H	F-P
DATA QUALITY	P-F	
Contact		
General Contact sites	L	P
DATA QUALITY	P	

*Site types likely to yield significant data.

KEY:

Site Probabilities	Data Quality
L - low	P - poor
L-M - low to medium	P-F - poor to fair
M - medium	F - fair
M-H - medium to high	F-G - fair to good
H - high	G - good

TABLE 36

SITE PROBABILITIES AND DATA QUALITY -COASTAL MANAGEMENT UNIT

Site Types	Site Probabilities North Bay Sub-Unit	Data Quality
Paleo-Indian		
quarry	L	P
quarry reduction	L	P
quarry related base camp	L	P
base camp	L	P
base camp maintenance station	L	P
hunting sites	M	P
DATA QUALITY	P	
Archaic		
macro-band base camp	L	P
micro-band base camp	L	P
procurement site	M	P
DATA QUALITY	P	
Woodland I		
*macro-band base camp	L	
*micro-band base camp	M-H	F-G
*procurement site	H	F-G
*mortuary site	L	P
DATA QUALITY	P	
Woodland II		
*macro-band base camp	M	F-G
*micro-band base camp	M	F-G
procurement site	H	F-G
DATA QUALITY	P	
Contact		
*general Contact site	L	P-F
DATA QUALITY	P	

*Site types likely to yield significant data.

Key:

Site Probabilities
- L - low
- L-M - low to medium
- M - medium
- M-H - medium to high
- H - high

Data Quality
- P - poor
- P-F - poor to fair
- F - fair
- F-G - fair to good
- G - good

TABLE 37

Prehistoric Sites and Predictive Model
vs.
Digitized Modern Impacts

Sites	%	DESCRIPTION
68.	61.26 %	Undeveloped
43.	38.74 %	Developed
111.	100.00 %	Totals

Prehistoric Predictive Zones
vs.
Developed Areas

Undeveloped Grid Squares	%	Developed Grid Squares	%	Undeveloped by Pred. Zone*	Predictive Zone %
3753.	47.61 %	1818.	52.94 %	67.37 %	High
2862.	36.31 %	1105.	32.18 %	72.15 %	Medium
1268.	16.09 %	511.	14.88 %	71.28 %	Low
7883.	100.00 %	3434.	100.00 %		Totals

* For example, the percentage of High predictive zone squares that coincided with undeveloped grid squares is: (3753/(3753+1818))x100 = 67.37%.

Medium probability zones along lower order interior drainages will most likely contain micro-band base camps post-dating the Archaic period. If the area has not been plowed, or otherwise destroyed, the sites are likely to be significant. Smaller procurement sites are also likely to be found in these isolated Medium probability zones; however, their significance is probably not as great. At least, fewer are likely to be undisturbed and significant. Even if they are significant, the costs of their mitigation and excavation is much lower than for larger base camp sites. It should be noted that macro-band base camps may be present in these Medium probability areas; however, they will be uncommon.

In the Low probability zones, the frequency of any kind of base camp is expected to be quite low. Frequencies of procurement sites may be high, but in general, the Low probability zones are the least sensitive for prehistoric cultural resources. Nonetheless, it is possible that a few significant sites occur in the Low probability zones. Many of the low probability areas of flat interior terrain without associated surface water or poorly-drained soils settings are unlikely to contain any sites. Even if they do contain sites, the sites are likely to be small lithic scatters that have a low probability of significant data (see Custer 1982b; and Kinsey and Custer 1982). Also, these kinds of topographic settings are likely to be plowed and disturbed, reducing the chance that they would produce significant data.

In sum, the probability zones can be used as a rough guide to potential site significance and sensitivity. The High probability zones have the greatest sensitivity and the greatest potential for significant sites. Medium probability zones have less potential and a lesser sensitivity; and Low probability zones have the lowest potential and are the least sensitive.

Table 37 shows the relationship between Figure 6 (developed areas) and the prehistoric site predictive model (Figure 31). Of 103 grid cells with recorded sites 63% fall in undeveloped areas grid cells. Sixty seven percent of the High probability zone falls into Undeveloped (not unoccupied or unutilized) areas. The areas of heavy development are unlikely to yield significant archaeological information especially if massive ground disturbance such as bulldozing and earth mover landscaping has occurred.

HISTORIC SITE SIGNIFICANCE

In Appendices II, III, and IV the archaeological potential and the archaeological significance of all of the historic resources identified within the project corridor are assessed on a site specific basis. The significance of the Historic Standing Structures inventoried in Appendix III is not addressed in this report; rather, the potential of archaeological remains associated with a structure is assessed. The same is true for Potential Standing Structures. The archaeological potential in this context refers to the potential of a locale to contain undisturbed, historically-meaningful, archaeological remains. The archaeological potential of a standing structure and potential site locations was evaluated on the basis of information obtained from the BAHP standing structure inventory files, background historic research for the project corridor, and through examination of current editions of USGS 7.5' quadrangle maps. In Appendices III, IV and V the potential of a locale is categorized as:

1) **Y** - Yes, exhibits archaeological potential;
2) **N** - No, exhibits no archaeological potential due to severe disturbance or destruction of the location; and
3) **U** - Unknown, there is no present basis for an evaluation of the archaeological potential of the location.

The evaluation of the archaeological significance of a location within the study area is tentative and presented only as a management tool. Without field inspection a significance assessment of archaeological deposits can only be preliminary. On the basis of data compiled for this report, the significance of the potential archaeological remains is evaluated. Four levels of significance are used in the evaluation process: (**H**), high, (**M**), medium, (**L**), low, and (**U**), unknown. The criteria applied in the evaluation integrated temporal, functional, and social-historical data. Table 38 presents the criteria applied to the data base to determine the potential archaeological significance of historic resources (after Wall 1981:146-147; see Schiffer and Gumerman 1977:229; see also Custer et al. 1984 for use of these criteria in the planning process). The criteria are not rank ordered, nor are they all-inclusive. The evaluation of the historic resources according to the criteria was based on presently available archaeological data. As additional information is obtained more refined determinations of the significance of historic resources within the project corridor will be possible. Each historic resource assessed is expected to provide additional information on criteria listed in the Significance column in Appendices II, III, and IV.

MANAGEMENT UNITS

Management units for the historic cultural resources in the study area were developed with reference to the Management Plan for Delaware's Historic Archaeological Resources (DeCunzo and Catts 1990). Rather than base management zones on the underlying natural environment as in the prehistoric state plan (Custer 1983), Decunzo and Catts (1990) emphasized the impact of destructive processes on the archaeological record. Figure 36 shows their "Developed and Developing Areas" for the Route 301 study area.

The predictive models for the two earliest historic time periods - 1630-1730 and 1730-1770 - can be considered as sensitivity and management zones for historic sites in the study area. The developed area of the Route 301 study area (Figure 6) were digitized and then converted to match the AERIS grid using the ERDAS software package. Tables 39 and 40 shows a cross tabulation of the two predictive models (by AERIS grid square) with the developed grid squares.

TABLE 38

CRITERIA FOR EVALUATING THE ARCHAEOLOGICAL SIGNIFICANCE OF POTENTIAL HISTORIC RESOURCES

1. Age: Sites providing information on early settlement, technology commerce, industry, or lifeways are more significant.

2. Regional Interest: Sites which have impact on regional or local research problems are more significant.

3. National Interest: Sites which have impact on national or universal research problems are more significant.

4. Preservation: Sites containing well-preserved structural, faunal, floral, or skeletal remains are more significant.

5. Multi-function: Sites exhibiting a range of well-defined activity/functional loci are more significant.

6. Uniqueness: Sites containing rare or unique features (technological innovations, slave-related components) are more significant.

7. Previous Knowledge: Site types about which little is known are more significant and those which provide information on poorly understood social-historical contexts are more significant.

8. Public Significance: Sites which may easily be used in public education programs due to site contents and accessibility for public viewing are more significant.

9. Size and Density: Larger sites and those containing dense deposits of material culture are more significant.

10. Famous Events or Persons: Sites associated with a person or event of local, regional, or national interest are more significant.

11. Duration of Occupation: Sites exhibiting discrete temporal loci whether in the context of long-term or short-term occupations are more significant.

Unfortunately for earlier historical periods, waves of development and rebuilding have adversely impacted the historical archaeological record. Tables 39 and 40 show this trend clearly. For both time periods the majority of grid cells with known sites fall into heavily developed areas. The predictive zones show the same trend - higher probability zones are more developed(eg., have a lower percentage of their area undeveloped). Thus, areas of heavy development have a much lower probability of containing intact, and therefore, potentially significant historical archaeological remains. Conversely, any historic sites that have survived within the general area of heavy development are likely to be significant as examples of lost resources.

The "Developed and Developing Zone" of DeCunzo and Catts (1990), shown in Figure 36, can also be viewed as a sensitivity zone for cultural resources and used as a management tool for the later historic time period (post-1770) by comparing to the distribution of historic resources identified in Attachments II, III, and IV. The site specific archaeological potentials listed in Appendices III, IV, and V were assigned considering more specific development impacts visible on Quadrangle maps and the aerial photograph mosaic from which Figure 6 was drawn.

TABLE 39

Pre-1730 Sites and Predictive Model
vs.
Digitized Modern Impacts

Sites	%	DESCRIPTION
4.	19.05 %	Undeveloped
17.	80.95 %	Developed
21.	100.00 %	

Pre-1730 Predictive Zones
vs.
Developed Areas

Undeveloped Grid Squares	%	Developed Grid Squares	%	Undeveloped by Pred. Zone*	Predictive Zone
22.	0.28 %	54.	1.57 %	28.95 %	Highest
222.	2.82 %	189.	5.50 %	54.01 %	High
1359.	17.24 %	689.	20.06 %	66.36 %	Medium
2776.	35.22 %	1222.	35.59 %	69.43 %	Lower
3504.	44.45 %	1280.	37.27 %	73.24 %	Lowest
7883.	100.00 %	3434.	100.00 %		Totals

* See note for Table 37.

Within the broad "Developed and Developing Zone" the highest sensitivity zones are adjacent to drainages and the early road network. More moderate significance areas are mainly located near secondary roads and lower order water courses. The lowest sensitivity areas are interior regions away from roads and other transportation access.

On the basis of the foregoing discussion, Management Zones were mapped for the Route 301 study area (Attachment VI). Table 41 identifies the zones and shows their relationship to the prehistoric and historic significance criteria presented earlier. The zonation used here follows that developed in the earlier studies of Route 13 (Custer et al. 1984) and for Route 404 in Sussex County, Delaware (Catts et al. 1991). Zone 1 extends on either side of the major drainages in the study area. This incorporates both the navigable drainages important to early historic occupation of the study area and the streams important to aboriginal occupation. Zone 2 follows the earliest road network in the study area based on the same information as the two historic predictive models presented earlier. The distinction between Zones V and VI was based on the prehistoric predictive model shown in Attachment V. Areas assigned to Management Zone V fell into the High Probability zone of the predictivemodel, while Management Zone VI included Medium and Low site probability.

TABLE 40

Pre-1770 Sites and Predictive Model
vs.
Digitized Modern Impacts

Sites	%	DESCRIPTION
13.	27.08 %	Undeveloped
35.	72.92 %	Developed
48.	100.00 %	Totals

Pre-1770 Predictive Zones
vs.
Developed Areas

Undeveloped Grid Squares	%	Developed Grid Squares	%	Undeveloped by Pred. Zone*	Predictive Zone
22.	0.28 %	55.	1.60 %	28.57 %	Highest
264.	3.35 %	223.	6.49 %	54.21 %	High
2232.	28.31 %	1107.	32.24 %	64.90 %	Medium
4107.	52.10 %	1543.	44.93 %	72.69 %	Lower
1258.	15.96 %	506.	14.74 %	71.32 %	Lowest
7883.	100.00 %	3434.	100.00 %		Totals

* See note for Table 37.

TABLE 41

MANAGEMENT ZONES

Zone	Prehistoric	Pre-1830	Post-1830
I	H, M, or L	H, M	M, L
II	L	H, M	H
III	M	H, M	L
IV	L	M, L	H
V	M	L	H
VI	L	L	L

KEY:
H = high
M = medium
L = low

KEY TO ZONES:
I = Major Drainages
II = Early Road Network
III = Lower Order Drainages
IV = Secondary Roads
V = Interior Regions, well-utilized
VI = Interior Regions, less-utilized

Keyed to Attachment VI

MANAGEMENT STRATEGIES AND RECOMMENDATIONS

Before considering the possible uses of the data presented in this report, it is important to consider its limitations. Similarly, it is important to note inappropriate uses of the management data. The data presented and assessments are not and should not be used as substitutes for cultural resources locationand identification surveys of specific alignments within the project area selected at a later date. Also, the assessments of potential National Register significance cannot be viewed as final determinations of eligibility for any sites in the study area. The only exception would be the few sites that are already listed on, or determined eligible for, the National Register. The report does provide reliable and accurate estimates of expected site distributions in the study area and assesses the potential significance of the expected sites.

With the limitations noted above in mind, it is possible to outline a number of possible applications of the management data presented in this report. First, the management zones listed in Attachment VI can be used as guides to the sections of the project area that will be potential "problems" during future phases of the construction project. Herein, "problems" refers to the existence of significant resources that will cost both time and money to mitigate from potential adverse effects. Generally, these problem areas would include all areas classified as Zones I and II of the Management zones (Attachment VI).

Secondly, the data presented in this report can be used to develop plans and strategies to deal with the problem areas noted above. The simplest strategy is the avoidance of sensitive and/or high probability areas, if at all possible. The maps of specific prehistoric site probability zones (Attachment V) and historic sites (Figures 32 and 33) could be used to avoid specific high probability, high significance zones. Site avoidance would be most feasible in the later phases of engineering and design at specific locales, as opposed to general alignment selection. Avoidance of areas with high probabilities of significant sites is a preferred option both because the costs to the Delaware Department of Transportation for mitigation are minimized and because the impact of construction on the cultural resource base is reduced.

If avoidance is not possible, the data presented in this report can be used as a guide to the potential fieldwork that would be required. In general, Phase I location and identification surveys will have to be done for most, if not all, of the proposed alignment areas. Also, Phase II excavations to determine the National Register eligibility of any prehistoric or historic sites discovered during the Phase I survey will be necessary. Thus, except in a few cases to be discussed later, Phase I and II surveys will have to be carried out along its entire length of the final highway alignment. However, not all sites will require Phase III data recovery excavations, or detailed documentation (in the case of standing structures). Only those sites determined eligible for the National Register of Historic Places would require intensive research. The present report provides a regional summary of known sites and research goals to help to determine what types of sites are significant and a guide to where significant sites may be located.

For prehistoric sites, Table 42 lists the functional site types for each time period and indicates the levels of field investigations that would be appropriate given either undisturbed (unplowed) or disturbed (plowed) contexts. The settlement models and maps listed in this report provide a means of determining where sites are likely to occur and estimating numbers of sites requiring Phase III data recovery excavations. A similar listing for historic sites is not possible because the comparative data base for Delaware is poor and decisions of significance and need for further research will have to be made on a case-by-case basis. However, it can be noted that most site locations dating from between 1630 and 1830 are likely locations for Phase III data recovery excavations. The majority of sites from later time periods might also be eligible for Phase III data recovery excavations or detail documentation, in the case of standing structures, depending on the specific type of site or structure.

Finally, this report can be used to develop specific plans for the research and field methods to be used in the Phase I location/identification surveys as listed below:

a) All standing structures within the proposed alignment should be field checked against the BAHP survey records and an inventory of sites for the alignment should be developed. The significance of these structures should be assessed on a case-by-case basis by a competent architectural historian.

TABLE 42

LEVELS OF FIELD INVESTIGATION BY PREHISTORIC SITE TYPES

Site Types		Location and Identification	Phase II	Data Recovery
Paleo-Indian/Early Archaic				
quarry	(U)	X		
	(P)	X		
quarry reduction	(U)	X		
	(P)	X	X	
quarry-related base camp	(U)	X	X	X
	(P)	X	X	X
base camp	(U)	X	X	X
	(P)	X	X	X
base camp maintenance station	(U)	X	X	X
	(P)	X	X	X
hunting sites	(U)	X	X	X
	(P)	X		
Middle Archaic				
macro-band base camp	(U)	X	X	X
	(P)	X	X	
micro-band base camp	(U)	X	X	X
	(P)	X	X	
procurement site	(U)	X	X	X
	(P)	X	X	
Late Archaic - Middle Woodland I				
macro-band base camp	(U)	X	X	X
	(P)	X	X	
micro-band base camp	(U)	X	X	X
	(P)	X	X	
procurement site	(U)	X	X	X
	(P)	X		
Late Woodland				
macro-band base camp	(U)	X	X	X
	(P)	X	X	
micro-band base camp	(U)	X	X	X
	(P)	X	X	
procurement site	(U)	X	X	X
	(P)	X	X	

KEY: (U) - unplowed (P) - plowed

b) All locales with standing structures (Appendix III and Attachment II) should be assessed for associated historic archaeological deposits. Furthermore, the structure and associated archaeological deposits should be considered as a single cultural resource, not as two unrelated phenomena.

c) The potential standing structure site locations (Appendix IV and Attachment III) where structures are no longer extant or replaced by later structures should be treated as potential historic archaeological sites and should be evaluated for archaeological remains.

d) Areas denoted as having a high probability for historic sites dating from 1630-1830 should be checked for archaeological deposits after the completion of archival research to document precise settlement locations. Remaining areas within specific alignments can be surveyed for historic sites as part of the general fieldwork that will search for both historic and prehistoric sites.

e) Alignments with areas identified as High or Medium probability zones for prehistoric sites should be carefully checked during the Phase I survey. Low probability areas should also be surveyed; however, it may not be necessary to completely survey all low probability zones. It is suggested here that a non-proportional stratified sample could be used in some project areas during the Phase I survey. Prior to the beginning of Phase I survey fieldwork, the sampling design can be agreed upon in consultation with the DelDOT Archaeologist and engineers and the staff of the Delaware Bureau of Archaeology and Historic Preservation. The result would be substantial savings in time and money.

f) The site data in Appendices I through V have been entered into a computerized data base and be cross-tabulated and sorted by individual variables or combinations of variables. The cross-tabulations can be used to assess the uniqueness of certain classes of cultural resources (see Tables 6 - 10).

In conclusion, this report has documented the known and potential cultural resources of the project area and outlined management considerations for use in project planning. Predictive models provide a guide to the archaeological potential of the study area for the prehistoric period and early historic times. The data compiled in this report, especially the historic data for the period from c. 1830 to c. 1910, is very comprehensive for agricultural sites because of the excellent map coverage available for New Castle County. The data base can be used to develop and test historical and geographic models of settlement and farm economy. The time between 1830 and 1910 includes the transportation revolution that saw the development of canal, railroad, and ultimately modern highway systems. Therefore, the data, maps from which they were drawn, and other associated documents provide a resource in and of themselves for historic and archaeological research into this important time of economic and landscape development.

CULTURAL RESOURCES OF ROUTE 301 CORRIDOR OPTIONS

Corridor options within the larger study area were divided into segments that can be linked together to form the various corridor possibilities. The Reconstruction option comprises 10 segments that provide two route alternatives (Figure 37). The Northeast options - north of the C&D Canal, and the Ridge option - south of the C&D Canal, were divided into 13 segments that provide four route alternatives (Figure 37). Herein combinations of the Northeast and Ridge segments are refered to as the Ridge option. Archaeological data are listed by corridor segment in Appendix VI. The cultural resources within each of the six possible routes comprising the two major corridor options are also listed in Appendix VI. The data were excerpted from Appendices I-V. The six Route 301 corridor alternatives are discussed below. Individual properties of historical significance are discussed and the implications of predictive models are considered also.