3.0 Research Design and Methods

3.0 RESEARCH DESIGN AND METHODS

The purpose of the Phase II investigations was to evaluate the NR eligibility of 7K-F-148B, 7K-F-180, 7K-F-187, 7K-F-194, 7K-F-195, and 7K-F-196. More specifically, the goals of this study were to evaluate the potential of the archaeological-bearing deposits at each site to contain significant historical information, to determine the integrity and spatial extents of those deposits, and to discover the range of historic and/or precontact activities that may have occurred at each site. This required background literature research, fieldwork, lab work, and material culture analyses. Note that research designs and field methods were applied idiosyncratically to each site. Section 4.0 presents the research plan and methods for each site. Section 3.0 presents a broad overview of the background research plan, field methods, and lab methods is presented.

Phase II background research provided historic context for each site. Documentary research generated a more in-depth understanding of each site via reconstructing the history of tax parcel ownership, occupation, land use, and/or development. Sources of information included historic atlases, maps, deeds, census data, wills, probates, and orphan court records. Occupation histories were critical to the goal of evaluating archaeological properties because they provided historical backdrops for the archaeological finds and helped assess the historical significance of each site.

The goal of the Phase II fieldwork was to generate information (in addition to the background research) that would help evaluate historic significance of each site. The fieldwork further sampled the material culture assemblage of each site, determined whether subsurface features (e.g., structural foundations, shafts, and postholes for historic sites; and storage pits, hearths, and postholes for precontact sites) were present, and clarified the functional and spatial nature of each site, in order to assess NR eligibility of each of the five sites. Fieldwork consisted of a combination of shovel test pits (STPs), TUs, and occasionally mechanical stripping.

STPs were placed at each site as directed by DESHPO. STP intervals and numbers to be excavated at each site varied. This information is embedded separately in the discussion of each site. STPs measured approximately 50 cm in diameter and were excavated at least 10 cm into culturally sterile deposits. All excavated sediments were sifted through 0.25-in wire mesh cloth.

Excavation data from all STPs were recorded on standard field forms. Modern debris (plastic, aluminum foil, etc.) was noted on the field forms. Artifacts that were recovered underwent processing and analysis. The locations of the STPs were recorded. Isolated positive (artifact-bearing) STPs were allowed to be bracketed with STPs excavated at 5-m intervals in the cardinal directions to assist in defining site boundaries.

TUs were placed based on the location(s) of artifact concentrations. The locations of all TUs were DESHPO sanctioned. TUs, except where noted, measured 1-m-by-1-m square and were excavated by individual strata to a point at least 10 cm into culturally sterile subsoil. Soil removed from tests was screened through 0.25-in hardware cloth to ensure the uniform recovery of cultural materials, and all recovered artifacts were to be retained in bags labeled with precise provenience information. Standardized forms were used to record data relating to depth of strata, soil Munsell color and texture, and artifact content for each TU.

There was a good likelihood that features would be identified during the Phase II fieldwork. When they were identified, the field director consulted with the principal investigator to determine if the sampling of any features was merited. The principal investigator discussed feature findings with DelDOT staff archaeologists to evaluate which features and how many features were worth sampling during the Phase II investigations. Samples of the exposed portions of features were excavated. Features were drawn in plan and profile view and were photographically documented. All feature soils were screened through 0.25-in hardware cloth, and all artifacts were retained for processing and analysis.

There also existed the possibility that heavy machinery would be employed to mechanically strip portions of sites to further identify features during the Phase II program. The principal investigator consulted with DelDOT and DESHPO concerning the use of heavy machinery. DESHPO ultimately determined that mechanical stripping was warranted for two sites: 7K-F194 and 7K-F-196 (Somy Field Site). Note again that this document does not discuss the results of the Phase II fieldwork at the Somy Field Site.

Artifacts recovered during the Phase II testing were washed, inventoried, cataloged, and prepared for curation according to the most current standards of the State Museum. Artifacts were analyzed according to their relevant attributes. That is, artifacts were characterized as to their type, function, period of attribution, and diagnostic features. Various sources were consulted for identifying the historic materials; these included published works by Jones et al. (1989), Miller (1980), Nöel Hume (1969, 2001), and South (1977). Works by Custer (1989) and Fogelman (1988) were consulted to identify the precontact materials. Analyses of the field findings included basic numerical and qualitative assessments of the artifacts to evaluate the nature of the artifact assemblages and their depositional contexts. The goal of these analyses was to determine the integrity of the archaeological deposits and their potential to provide new and significant information about local and regional history and prehistory.

A.D. Marble & Company recovered 39,200 site artifacts. The high number of artifacts presented cost and storage space issues for DelDOT and the Delaware State Museum. Consequently, A.D. Marble & Company performed a project-specific artifact culling and discard procedure that was sanctioned by DESHPO to diminish the corporeal bulk of the site assemblages, yet simultaneously collect and retain meaningful data and incorporate it into this report. The procedure allowed us to identify the number of artifacts that would require processing, cataloging, and curation during the current stage of the investigation. Table 2 lists the sites, original assemblage totals (combined Phase I and II, when applicable), and adjusted (culled) totals after implementation of the culling and discard procedure.

Table 2. Little Heaven Archaeological Sites and Assemblages: Original and Adjusted Totals.

Site Name	Site #	Original Total (N)	Adjusted Total (N)
-	7K-F-148B*	813	652
Olive School	7K-F-179	8	6
Thomas James	7K-F-180*	10,558	4,027
-	7K-F-181	92	63
Rainbow Inn	7K-F-182	57	25
Baker	7K-F-183	22	8
Dewey-Shahan	7K-F-184	57	41
Baker II	7K-F-185	32	11
James-Faley	7K-F-186	40	28
Somy Field	7K-F-186A, B, and C*	1,897	1,751
J. Grier	7K-F-187*	23,495	5,337
Gray House	7K-F-188	440	211

Site Name	Site #	Original Total (N)	Adjusted Total (N)
Allen-Darby	7K-F-189	20	19
Elfreth	7K-F-190	47	41
Northrop	7K-F-191	51	29
F. Wilkins	7K-F-192	29	23
McIlvane	7K-F-193	25	20
-	7K-F-194*	1,219	1,013
Skeeter Neck Road	7K-F-195*	298	246
		N=39,200	**N=13,551**

*Denotes that the site underwent Phase II fieldwork and totals also reflect Phase II assemblages.

The procedure dictates the practice for culling and discarding items assigned to nine artifact classes: coal, coal slag, shell, nails, bottle glass, window/flat or plate glass, brick, metal, and modern trash. The procedure agreed upon by DESHPO consisted of the following:

> **Coal**: in the field count and weigh it, then collect a representative sample (a few small bags or film containers worth) and then cull/discard, unless from a feature, where you keep it all.
>
> **Coal Slag**: same as Coal.
>
> **Shell**: in the field faunal shell: we will retain all whole or fragments of oyster/clam that have hinges for further analysis. We also retain all other species shells (such as mussel, whelk) for future analysis. We will count/weigh/discard oyster/clam shell body fragments. Please keep a sample of all oyster/clam shell body fragments that are largest ones found as a sample from the site.
>
> **Nails**: in the field wire and Indeterminate Nails – count them and get their length, then only keep a sample before discard. Keep all cut and wrought nails.
>
> **Bottle Glass**: in the lab non-feature contexts (plowzone or fill or features without integrity): count it and weigh it, then cull all non-diagnostic pieces (essentially body pieces, regardless of size). Feature or artifact concentrations w/integrity: keep it all. All early green bottle glass will be kept (green olive glass).
>
> **Window Glass/Flat or Plate Glass**: in the lab count them and weigh them, measure thickness, then collect a representative sample of any different types of window pane glass (retain all "old" shards: thin, light green, scratched, etc.) and cull/discard the remainder.
>
> **Brick**: in the field collect all diagnostic brick (glazed; whole bricks, or bat fragments exhibiting corners or that can otherwise provide dimensions; hand-made; mottled body; those with maker's marks; etc.). If there is a large quantity of diagnostic brick, consult further on a sampling strategy. For non-diagnostic fragments and overtly modern machine-made, count and weigh, collect a sample,

> and then cull/discard the remainder. Ensure that each different type of brick encountered is represented in the sample.
>
> **Metal:** count and weigh all indeterminate ferrous and non-ferrous oxide metal.
>
> **Modern Trash**: All modern trash will be discarded; it will not be counted or weighed. "Modern trash" is defined as an artifact like rubber, plastic, pop-can pull tabs, aluminum cans, car batteries, safety reflector fragments, etc., that are not 50 or more years old. (DESHPO, FW email correspondence from David Clarke DelDOT, January 14, 2011)

Implementation of the culling and discard procedure was archaeologically context dependent. Artifacts originating from intact or mostly intact deposits like features (pits, middens, etc.) contain the potential to shed light on the human past. Artifacts recovered from these kinds of contexts were not subjected to the procedure. Conversely, artifacts (with the exception of those that became the representative sample) originating from deposits lacking temporal and/or compositional integrity were noted and then discarded. Note that the investigations encountered few deposits exhibiting archaeological integrity; therefore, it was anticipated that the procedure would be applied to almost every assemblage. Note that in lieu of listing each layer assemblage from every unit in this multi-site Phase II report, portions of Section 4.0 Site Results rely on the reader to refer to Appendix A to review the artifacts present in the various assemblages. Site artifacts and investigation documents will be curated according to Delaware State Museum guidelines and delivered to the Museum for long-term repository.