

7.0 PHASE II
RESEARCH DESIGN
AND METHODOLOGIES

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7.1 Phase II Research Design

The Phase II archaeological investigation was designed to test a concentration of lithic debitage identified on an upland area in Parcel 4 adjacent to Little Mill Creek. This area of lithic debitage was recorded as archaeological site 7NC-E-175. This area is proposed to be developed as part of a stormwater management basin for the SR 141 Centre Road Corridor Improvements Project. A series of 55 STPs conducted during a Phase IB archaeological survey in March 2005 by staff archaeologists from A.D. Marble & Company identified an approximately 76.2-meter-long by 30.5-meter-wide concentration of lithic debitage, as well as an assortment of late-nineteenth- through twentieth-century refuse, limited mostly to the A-horizon at the eastern end of Parcel 4. It is important to note that based on the agreement of DeIDOT and the DESHPO with the findings and recommendations reported in the Phase I management summary (Emory and Fanz 2005) and the Phase II workplan, the Phase II investigation was limited to the 76.2-meter-long by 30.5-meter-wide area in the eastern portion Parcel 4, mentioned above.

The purpose of the Phase II archaeological investigation was to document the horizontal and vertical limits of Site 7NC-E-175, identify any subsurface features associated with the lithic scatter, determine the function of the prehistoric artifact concentration, and determine the age of this site, if possible, in relation to prehistoric occupation of the area.

The Phase II was also designed to answer two research questions about the site. The first concerns whether the lithic concentration at 7NC-E-175 represent an intact site. During the Phase I, the majority of lithic materials were recovered from an A-horizon, with one quartz flake recovered from the subsoil in STP 9C+25 ft west. An examination of the project area suggests that the landscape may have been modified through deforestation and residential occupation, and that the project setting reverted to a grassy and shrubby setting. The lithic concentration was documented on an upland setting at the edge of slope. It is possible that landscape modification activities have contributed to soil deflation through erosion of the landscape, but the initial survey did not yield sufficient evidence to verify or refute this theory.

The second question addresses what new information the lithic assemblage can provide regarding local material sources and tool maintenance activities. Perhaps the flakes exhibit particular characteristics that can be used to identify whether these waste products came from a cobble, core, or finished tool. Possibly the lithic concentration has the potential to yield discrete flake clusters indicative of a small chipping feature, features that can suggest the focus of the activity within the larger resource.

Data collected about the site during the Phase II investigation was used to determine the site's eligibility for inclusion in the National Register of Historic Places. Archaeological reports and surveys conducted within the Little Mill Creek drainage, as well as the adjacent Red Clay Creek and Brandywine Creek drainages, were reviewed in conjunction with the archaeological excavations. The information collected from surrounding archaeological sites provide a background context on how any cultural features and the artifacts documented in Parcel 4 represent early Native American activities in the project area.

7.2 Methodologies

7.2.1 Phase II Field Methods

The Phase II fieldwork followed the methods prescribed in the Phase II workplan. Prior to Phase II excavations, the Phase IB archaeological survey employed a 15.2-meter grid system across the site. At the onset of the Phase II, the Phase I grid was reestablished across the APE. This allowed for the orientation of the Phase II test units to the Phase I STPs. However, the grid system was converted to metric for the Phase II work.

A total of 16, one-meter-square test units (TU) were excavated during the Phase II investigation. Seven TUs were excavated across the 76.2-meter-long east to west axis of the site. This was labeled as the N200 transect. Units were placed at 12.0-meter intervals along the eastern two-thirds of the N200 transect. However, the easternmost unit, TU N200 E240, was placed at a decreased interval (6.0 meters) in order to keep within the eastern boundary of the APE. The spacing intervals for the westernmost two units along the N200 transect were increased to 15.0- and 16.0-meter intervals, respectively, to avoid large trees. The Phase I workplan also

stipulated that six additional test units should be excavated along two separate north-south transects across the artifact concentration identified during the Phase I testing. The E215 and E230 transects were established across the portion of the site that exhibited the highest relative artifact density. Three test units were placed at 10.0-meter intervals along both the E215 and E230 transects.

The Phase II workplan also called for the excavation of a one-meter-square test unit adjacent to Phase I STP 9C+25 ft West. This pit had produced a quartz flake from the subsoil. Hence, TU N215 E205 was excavated to further test the subsoil for precontact artifacts at this location.

Finally, the Phase II workplan provided for the excavation of six optional test units to be placed at the discretion of the principal investigator to further expose any subsurface features, cultural deposits, or soil patterns identified within the site. Limits to the remaining field budget near the conclusion of the Phase II investigation allowed for the excavation of two additional test units, which were employed to test area of relative artifact concentration in the subsoil adjacent to TU N210 E215 and N210 E230, expanding them into 1.0 meter by 2.0 meter units.

Standard test unit size for the Phase II investigation was one meter square. All soils in all units were excavated in 10.0-centimeter arbitrary levels within naturally occurring strata. Each test unit was excavated 20.0 centimeters into culturally sterile, subsoil soil. The Phase II workplan anticipated that TU excavations would not exceed 70.0 centimeters in depth, which was generally the case. All soils were screened through 0.64-centimeter hardware cloth and all artifacts, regardless of age or cultural affiliation, retained. Soil profile information, including soil texture and color, was recorded on standardized forms. Scale drawings of unit soil profiles were drawn and photographed in black-and-white and digital formats. The site area and environs were also photographed. Test unit locations were plotted on scale maps of the APE. All excavations were backfilled upon completion of the Phase II investigation and the ground restored as close as possible to original condition.

7.2.2 *Laboratory Methods*

All artifacts recovered from the field were processed in the laboratory. The bags of artifacts collected in the field were inventoried and subjected to preliminary sorting. A computerized database categorizing all recovered artifacts by functional group was created. The Laboratory Manager supervised all operations in the laboratory. The remaining laboratory work included artifact preparation and cataloging: All artifacts recovered from the field were cleaned. Artifacts were removed from their respective bags, wet or dry washed, and returned to clean bags with new provenience tags. All artifacts were cataloged and entered into a relational database with appropriate fields for provenience, artifact type, counts, material and attributes, as required.

Artifact analysis included an examination of site distribution, material types, and function. The sample size included all prehistoric lithic artifacts from test units, as well as those collected during Phase IB excavations. Lithic artifacts were analyzed by their vertical and horizontal distribution across the site. Lithic artifacts also provided information concerning tool function, lithic technologies, site function, lithic material preferences, numbers of occupations, and the age of the site. Collectively, this information was used to identify the types of activities taking place in the site, where raw resources were obtained, possible trading/migration patterns inferred by raw resources of the site's inhabitants, and the technology employed in tool manufacture.

The final task for laboratory work was the preparation of all artifacts and paperwork related to this project for curation at the Delaware State Museum (DSM). Artifacts were processed in accordance with the DSM's *Guidelines and Standards for the Curation of Archaeological Collections*, dated October 2001. This included labeling all artifacts over a specified size and the use of acid-free paper to provenience all bags of artifacts. All paperwork produced by the project was copied on acid-free paper to be delivered together with the photographs and artifacts for permanent curation at the DSM. Curated materials will be delivered by A.D. Marble & Company to the DSM storage upon acceptance of the final draft version of the combined Phase I/II report.