

VI. STANDARD RESEARCH DESIGN AND METHODOLOGY

The BR 159 Phase I Archaeological Survey was performed within a general research framework designed to achieve several goals. The research design for survey were developed based on the regional historic contexts and the results of background research. Presented below are general discussions of the research design that was developed and implemented by the survey.

A. Project Goals

The Phase I Archaeological Survey was conducted with the intent to achieve several project goals. As noted earlier, the goals of the Phase I Archaeological Survey were to:

- conduct systematic documentary research that could be used to develop a comprehensive archaeological overview of the archaeological survey area and to interpret the archaeological sensitivity of the survey area.
- identify and develop an inventory of known cultural resources, archaeological and historic architectural, in and around the broader archaeological project APE;
- conduct a systematic subsurface archaeological field study of the archaeological survey area to physically locate and delineate any archaeological resources that may constitute a site.
- assist the DelDOT with preparing project recommendations and documentation in accordance with Section 106 compliance requirements.

B. Research Design and Methods

In order to achieve the overall survey goals, the Phase I archaeological survey was conducted with the intent to achieve two specific technical objectives. Specifically, these objectives were:

- to identify areas within the archaeological survey area that are most apt to contain discernable subsurface cultural deposits.
- to systematically examine the subsurface stratigraphy of the archaeological survey area.

- to analyze any encountered archaeological resources. This objective included:
 - delineation of site size and site boundaries,
 - characterizations and interpretation of represented data categories with respect to established local, state and regional cultural/temporal periods,
 - preliminary assessments (or evaluation if sufficient data was available) of NRHP-eligibility of identified archaeological resources.

An archaeological sensitivity analysis of the project APE was conducted prior to archaeological field testing. Information derived from background research and reviews of Delaware cultural resource management plans and historic contexts (Custer 1986, 1989, 1994; Custer and DeSantis 1886; De Cunzo and Catts 1990; DeCunzo and Garcia 1992), as well as current Middle Atlantic archaeological predictive models (e.g., Chesler 1982a, 1982b; Cavallo and Mounier 1980; Sinton 1982), was used to evaluate the overall archaeological of the APE as it relates to established contexts.

Physical and historic characteristics of the project APE such as past environmental setting, historic landscape use, and proximity to known cultural resources, were reviewed in order to ascertain the likelihood for precontact and postcontact sites. An archaeological disturbance analysis was also performed to identify areas within the survey area that had the best chances for containing subsurface stratigraphic profiles with good physical/historical integrity.

C. Potential for Precontact Archaeological Resources

Although no precontact sites have been previously recorded within a 2,500-foot radius of the project APE, sites of various temporal and functional contexts have been found within a five miles of it. Examples of such sites include the “Kopper Property” sites (e.g., 7NC-E-135, 7NC-E-137, 7NC-E-140, 7NC-E-141, 7NC-E-155, 7NC-E-156, 7NC-E-168, and 7NC-E-184), sites northeast of the project APE (e.g., 7NC-E-3, 7NC-E-23, and 7NC-E-24), 7NC-E-1 on the south side of the river; as well as the various sites around Churchman’s Marsh (e.g., 7NC-E-4, 7NC-E-35, 7NC-E-36, 7NC-E-37, 7NC-E-38, and 7NC-E-152).

The past discoveries of these sites are not usual. The Churchman’s Marsh to Newport segment of the Christina River crosses the resource-rich Mid-Drainage physiographic zone, a portion of the state that is well-known as having been visited repeatedly by precontact groups. Prior to European settlement, the freshwater and brackish wetland settings sustained a diversity of floral and faunal resources, and as such, would have been regarded by Native American populations as favorable for resource procurement. Fast, well-drained upland-type settings would have also been viewed as ideal sites for habitation.

The lack of sites recorded precontact archaeological sites within and in the immediate vicinity of the project APE is no doubt a combined reflection of the lack of previous studies and severity of urbanization along the project segment of the Christina River.

Based on archaeological research models and the types of sites that have been recorded in this portion of New Castle County, the general vicinity of the BR 159 project APE would be

most apt to contain precontact sites that date between the Archaic and Woodland II periods. Projected site types range from resource procurement/processing locales to seasonal base camps.

D. Potential for Postcontact Archaeological Resources

The project APE runs through a portion of Newport (Christiana Hundred) and New Castle Hundred that has much potential for containing a diversity of resources associated with the settlement and transportation history of the Christina River. Since 1735, the project APE has physically and economically linked Newport to regional commercial and industrial markets. The project APE is located in the historic core area of Newport and has been germane to the town's:

- early 18th – early 19th century role as key Christina River port town and as a King's Highway coach stop,
- 19th century role as a key commercial node along overland transportation networks,
- early 20th century transformation into a modern industrial town.

Researchers have repeatedly proven the value of integrating historic transportation corridor studies into studies designed to predict, identify, and interpret postcontact archaeological site locations and types (Clarke 2010; Kellogg 1993; De Cunzo and Catts 1990; Catts, Hodny, and Custer 1989).

For example, archaeological studies conducted as part of the US Route 301 project have applied information collected through detailed documentary research on early historic cart roads and aquatic transportation routes towards identifying seventeenth and eighteenth century domestic and commercial site locations, as well as remains of transportation structures (Clarke 2010; Hunter Research, Inc. 2009, 2010; Archaeological and Historical Consultants 2009, 2010; A.D. Marble and Company 2006; Skelly and Loy 2009; Richard Grubb and Associates 2009a, 2009b, 2010a, 2010b).

Another example are the studies of the early 18th- late 19th century Patterson Lane Site Complex (Kellogg 1993; Catts, Hodny, and Custer 1989). During these studies, analyses of landscape alteration and shifts in transportation networks were used to examine the siting, layout, and eventual abandonment of the Patterson Tenant House (7NC-E-100), which was located in Christina along Eagle Run, a tributary of the Christina River in Christiana.

The general location of the project APE is of notable historic interest. The functional use and occupation of this location adapted to New Castle County's shift from use of water routes to terrestrial transportation networks. Although transport across the river could be achieved via ferry, the project APE primarily functioned as key node through which goods and persons passed enroute to and from markets along the Christina River prior to the c. 1813-1818 construction of a toll drawbridge. After the completion of the Gap and Newport Turnpike in

1818, the project APE became an efficient location for the movement of goods and people across the river. Its role as a prominent overland crossing location was no doubt strengthened with the arrival of the railroad to Newport during the 1830s-1840s. While the James Street bridge now serves as a crossing for local traffic, the close proximity of the SR 141 crossing to it is a testament to the important role that this general area has played in the historic development of regional transportation networks.

Newport's general riverfront area, of which the survey area and broader project APE are a part, has the potential for containing a diversity of mid-eighteenth through early twentieth century urban domestic, commercial, industrial, riverine, and transportation site types. The New Castle Hundred side of the Christina River around the project APE has a lower probability for postcontact period sites than the Christiana Hundred side since the majority of the development along this stretch of the river was centered around Newport. Sites of interest could include those associated with Newport's port history and its early history of overland/riverine transport across the Christina River. From a regional perspective, Newport's riverfront is considered to have a high probability for containing sites related to the overall commercial and navigational history of the Christina River. Because of its early settlement history, Newport also has a high probability for containing sites associated with early urban development in New Castle County.

Projected postcontact archaeological resource types could consist of structural remains, artifact deposits, or discrete subsurface pit features associated with former residences, social organizations, commercial/industrial operations, overland transportation facilities (e.g., abandoned road traces, remnants of the former 1813 toll drawbridge), and/or riverine transportation facilities (e.g. docks, landings, wharves, piers, jetties, navigational aids, and other port-related structures). Isolated historic materials or objects, such as those associated with the c. 1813-1818 construction of the Gap and Newport Turnpike or abandoned along the riverfront, could also be encountered.

The general project APE is considered to have a low to medium potential for containing postcontact archaeological sites that pre-date the 1735 founding of Newport, namely resources associated with "Cold Harbor", the circa 1683 tract (630 ac.) from which Newport was removed. Although Newport was the site of military encampments, documentary materials do not provide any descriptive or cartographic information to suggest that the project APE was utilized as such.

E. Summary of Archaeological Sensitivity of the Survey Area

While the project APE may be located in a regional high archaeological probability zone, nearly all of the project APE has been severely and deeply disturbed by previous large-scale earthmoving activities. Recurrent filling and grading has been performed in and around the project APE for various construction and land reclamation purposes for over two hundred years. Like most urban settings, the potential for intact, significant sites in the project APE has declined over the course of Newport's long history of development. One of the earliest major episodes of postcontact ground disturbance was the ca. 1813-1818 construction of the

original Newport and Gap turnpike and toll drawbridge, which required substantial filling of marshland. More modern disturbances include the construction of the 1929 bridge and its temporary crossing as well as subsurface utility construction. The late 1970s-early 1980s construction of SR 141 to the west of the project APE, various industrial activities, as well as general roadway and property maintenance has also altered the historic landscape. Although the survey area is notably less disturbed than other parts of Newport, the land therein has also incurred impacts through historic construction/demolition of buildings, occasional use of the property as a construction staging/storage area, and installation of subsurface utilities. A diversity of underground utilities of varying sizes and orientations transect the archaeological survey area.

The designated survey area was selected for subsurface testing because it was determined to have the best chances for containing truncated remains of its pre-twentieth century, and possibly its natural, soil stratigraphy. Unlike its surroundings, the survey area has remained a vacant, undeveloped lot since the late 1950s. Parts of this vacant lot are also still unpaved. Based on the results of project scoping, the survey area was concluded to have a medium probability for containing identifiable postcontact archaeological deposits, with a reduced potential for intact deposits. Of the projected regional site types, it was concluded that the survey area would be most apt to contain archaeological materials associated with its past domestic/recreational usage, specifically materials associated with the nineteenth century-twentieth century brick house/boathouse that no longer exist at this location.

While the survey area may have at one time contained precontact archaeological resources at one time, it is likely that any such resources have since been disturbed beyond recognition, if not destroyed. Unlike segments of the Christina River where past impacts have been generally limited to historic plowing at most (e.g., 7NC-E-137, 7NC-E-140, 7NC-E-141, 7NC-E-168, 7NC-E-184), the archaeological survey area does not contain any obvious well-preserved natural landscapes. Consequently, the survey area was concluded to have a low probability for intact precontact archaeological sites.

F. Expected Results

Based on the results of documentary research and the sensitivity assessment, overall, the archaeological survey area was concluded to have a medium potential for containing archeological sites, but a low potential for intact subsurface cultural deposits due to the extent of past disturbances. It was expected that the Phase I Archeological Survey would be able to identify any sites within the archaeological survey area. Furthermore, it was also expected that the Phase I Archeological Survey would be able to provide sufficient information that can be used to develop preliminary evaluations of the NRHP-eligibility of any archeological resources therein. It was also anticipated that the Phase I survey would provide sufficient information that could be used to ascertain if the proposed construction undertaking may affect any NRHP -eligible archeological resources.

G. Standardized Methodology

The Phase I archaeological survey entailed background research, subsurface archaeological testing, and laboratory/data analysis.

1. Documentary Research Methods

In addition to in-house references, materials maintained by the DE SHPO, DelDOT, the Town of Newport, the Delaware Public Archives, New Castle County, the Delaware Historical Society, the National Park Service, the University of Delaware, as well as other governmental, historical and educational institutions were subjected to review. The findings of the undertaking's concurrent historic architectural survey (Clouse and Richmond 2012) were also integrated into the background research.

In addition to in-house references, documents that were included historic imagery, historic and environmental maps, historical narratives (published and manuscript), soil and hydrographic information, cultural resource management surveys, technical journals, and public records (e.g., tax parcel mapping and inventories; "As Built" plans; census records). Pertinent publications regarding regional archaeology, history, architectural history, ethnohistory, cultural geography, geology, ecology, and natural history were also examined. Reviews of electronic media (e.g., internet resources) and interviews with knowledgeable individuals were also performed. Online databases and reference materials maintained by Ancestry.com and WorldVitalRecords.com were consulted for genealogical information.

A working inventory of known resources and previous surveys in the project vicinity was prepared. The DE SHPO CHRIS database (paper and electronic) was regarded as a primary reference for previously documented cultural resources.

Much of the research was dedicated toward locating and reviewing primary and secondary documents that could provide insight into the historic land use and individuals suspected as having had direct ties (e.g., owners, residents, managers, and neighbors) to the archaeological survey area. This effort included property-specific deed research, the results of which were used to prepare a summary chain-of-title for the archaeological survey area.

2. Standardized Field Methods

Fieldwork consisted of pedestrian inspections and controlled subsurface archaeological testing. A detailed visual inspection of the designated survey area was conducted prior excavations in order to locate any aboveground features (natural and/or human-made) or surface artifact scatters suggestive of archaeological deposits. Controlled subsurface testing consisted of the hand-excavation of five shovel test pits (STP) at 7.5 meter intervals across the designated survey area. The STP testing grid was aligned to avoid physical obstacles (i.e. pavement and buried utilities); to minimize redundant testing of severely disturbed soils; and to acquire the best representative sample of testable land. One 1- by 1-meter test unit (TU) was also excavated within the survey area.

Standardized excavation methods were implemented to maintain horizontal and vertical control. All test excavations were conducted in natural levels. All excavated soil was screened through 1/4" mesh. Cultural materials recovered from field excavations were bagged by provenience. Field culling of asphalt, concrete, cement, structural wood, and brick was performed after representative samples were collected. The base of all STPs were a minimum of ~40 cm (~1.4 ft.) in diameter, and all STPs were excavated until prohibited by large objects of buried debris. The 1-m by 1-meter test unit was excavated in order 1) to better examine the temporal and depositional contexts of fill horizons encountered during the STP excavations and 2) locate culturally sterile subsoil.

Representative detailed stratigraphic and plan view mapping of test pits were recorded on standardized field forms and high-resolution digital media. All test locations were plotted on project base mapping. All test locations were backfilled and surface areas were restored. Project archaeologists also examined two mechanical trenches that were excavated for pre-construction disposal of refuse water and solids extracted from the river near the bridge.

3. *Standardized Laboratory and Data Analysis*

Laboratory processing consisted of the cleaning, inventorying, and preparation for storage of all artifacts recovered during field excavations. Artifacts were washed, marked, sorted, and packed for eventual curation in accordance with procedures developed by the DE SHPO and Delaware State Museums. A catalog of the artifacts pursuant to state-established systems was generated. Laboratory work also included standard applicable analyses for the artifact types that were recovered.

No precontact artifacts were recovered within the survey area.

Postcontact artifacts were examined based on their material composition, such as ceramic, glass, architectural, and metal. Within these categories, subcategories based on numerous criteria including color, decoration, and function, were identified. When possible, date ranges, minimum vessel counts, and cross-mends were tabulated for ceramic and glass artifacts. Numerous attributes were recorded for recovered historic ceramic artifacts. Whenever possible, the following attributes were noted for each ceramic sherd: ware type, presence/absence of plastic decoration, presence/absence of applied decoration, pattern, color, form/function, attributed date range(s), and anatomical position of the sherd on the vessel. Glass artifacts were examined in a similar manner. Whenever possible, the following attributes were noted for each glass sherd: type (container, table, household, window, other), manufacturing process(es), color, form/function, attributed date range(s), and anatomical position of the sherd on the vessel. Other identifying attributes, such as maker's marks or evidence of alteration, were examined on ceramic and glass artifacts.

Plotted artifact distributions were generated to better assess concentrations across the survey area. The results of documentary research, field investigations, and laboratory/data analyses were applied toward determining if the artifacts recovered from the survey area represented an archaeological site. These analyses were also applied toward identifying the temporal contexts and functional uses of any identified archaeological materials. Analyses were also conducted to assess project effects to any archaeological resources.