

**National Register Eligibility Status and Evaluation for Historic Resources affected by the  
Maintenance of Bridge 1-280 on Barksdale Road over Christina River**

**In association with DelDOT State Contract T201007701;  
Federal Aid Number EBHOS-2010(33)**



**Delaware Department of Transportation  
August 2011**

**Prepared by  
Jon Schmidt**

## ABSTRACT

The Delaware Department of Transportation (DelDOT) is proposing to conduct limited maintenance tasks to Bridge 1-280 (N06667) on Barksdale road over Christina Creek. The proposed undertaking involves patching spalls and delaminations in the concrete culvert and concrete rail system.

This National Register eligibility evaluation was prepared as part of a Section 106 undertaking with the Federal Highway Administration (FHWA) as the lead federal agency. As part of project development compliance, DelDOT will complete a Categorical Exclusion for the project. In accordance with Section 106 of the Historic Preservation Act of 1966 and the National Environmental Policy Act of 1969, the Categorical Exclusion will document the anticipated or expected impacts of the proposed project construction on historic architectural resources and archaeology, as well as any other factors deemed appropriate.

A combined reconnaissance and intensive-level historic architectural survey was conducted on July 14, 2011. The survey identified no resources in the area of potential effect that are listed or eligible for listing in the National Register of Historic Places. On behalf of FHWA and in consultation with the Delaware State Historic Preservation Office (DE SHPO), Environmental Studies' cultural resource staff has identified one resource in the area of potential effect (APE) that meets the 50-year age criteria requiring evaluation for National Register eligibility. This resource, Bridge 1-280, was constructed in 1962 and has not been surveyed previously. The resource is surveyed in this document and recommended not eligible for the National Register of Historic Places.

Survey data for the current project is on file at the Delaware Division of Historical and Cultural Affairs and DelDOT in Dover, DE.

## TABLE OF CONTENTS

Abstract	2
Table of Contents	3
List of Figures and Photo Plates	4
1.0 Introduction	5
1.1 Project Description	5
1.2 Area of Potential Effects	5
2.0 Research Design	9
2.1 Research Objectives	9
2.2 Methods	9
2.3 Expected Results	11
3.0 Background Research	12
3.1 Previous Architectural Surveys	12
3.2 Historic Context	12
3.3 Background Context	13
3.4 Property Types and Registration Requirements	14
4.0 Architectural Survey	18
4.1 National Register Evaluations	18
5.0 Conclusions and Recommendations	21
6.0 Sources	22
Appendices	23
Appendix A: Resume of Principal Investigator	23
Appendix B: Cultural Resource Survey Forms	25

## LIST OF FIGURES AND TABLES

### Figures

<b>Figure 1.1</b>	1993 USGS Map	7
<b>Figure 1.2</b>	Area of Potential Effects	8
<b>Figure 3.1</b>	1954 Aerial Photograph	14
<b>Figure 3.2</b>	1961 Aerial Photograph	15
<b>Figure 3.3</b>	1961 Aerial Photograph	15
<b>Figure 3.4</b>	Contract 2039 Sheet 3	16
<b>Figure 3.5</b>	Contract 69-06-003 Sheet 9	16
<b>Figure 3.6</b>	Contract 88-06-105 Sheet 6	17
<b>Figure 4.1</b>	Bridge 1-280 (N06667)	18
<b>Figure 4.2</b>	Bridge 1-280	19
<b>Figure 4.3</b>	Bridge 1-280	19

### Tables

<b>Table 4.1</b>	Summary of historic architectural survey	18
------------------	--	----

## **1.0    Introduction**

DelDOT is proposing to maintain Bridge 1-280 (N06667) carrying Barksdale Road over Christina Creek in Newark, New Castle County, Delaware. This report presents the results of an intensive-level historic architectural survey conducted within the APE for the project. The survey included site visits to the project area on July 14, 2011. A combined reconnaissance and intensive-level historic architectural survey was conducted at that time. A result of Section 106 consultation was that archaeological investigations for this particular project are not required.

Because DelDOT is using federal funds provided by the Federal Highway Administration for the proposed undertaking, this intensive-level historic architectural survey and report has been conducted and written in accordance with the instructions and intent of the following regulations: Section 101(b)(4) of the National Environmental Policy Act of 1969; Sections 1(3) and 2(b) of Executive Order 11593; Section 106 of the National Historic Preservation Act, as amended; 23 CFR 771, as amended; the guidelines developed by the Advisory Council of Historic Preservation published November 26, 1980; and the Procedures for the Protection of Historic and Cultural Properties as set forth in 26 CFR 800. These regulations require sponsors of federally licensed or federally assisted projects to consider the effects of their actions on historic properties. The purpose for this intensive-level historic architectural survey is to evaluate resources within the APE for National Register eligibility.

Survey data for the project, including forms, photographs, and maps, are on file at the Delaware Division of Historic and Cultural Affairs and DelDOT in Dover, Delaware.

### **1.1    Project Description**

This project was identified during routine bridge inspections. The proposed undertaking involves patching spalling and delaminating concrete on the bridge and railing.

### **1.2    Area of Potential Effect**

The APE includes locations that may be impacted by construction or that may experience effects once construction is completed. Included within the APE are all locations where an undertaking may result in ground disturbance, from which elements of the undertaking may be visible, and where the activity may result in changes in traffic patterns, land use, and public access, for example. Project effects on historic resources may include both physical and contextual effects. Direct physical effects could include physical destruction, demolition, damage, or alteration of a historic resource. Indirect contextual effects may include isolation of a property from its surrounding environment, the introduction of visual, audible, or atmospheric elements that are out of character with a property or that alter its setting and context, or elimination of publicly accessible views of the resource.

The APE is defined in 36 CFR 800.16(d) as follows: “the geographic area or area within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.”

One APE has been delineated for this project, an APE for architecture. The APE includes the area in which roadway improvements may directly or indirectly cause changes in the character or use of historic properties. The APE includes all properties that are adjacent to the construction impacts. To account for potential visual or contextual effects, the APE extends beyond the limits of the project to include those properties that would be impacted by visual changes and changes in patterns of use, as well

as those properties that could experience a change in historic character associated with the proposed improvements.

The APE illustrated in Figure 1.2 and discussed in this report is limited to the bounds of the existing bridge. The APE was developed by DelDOT in consultation with the Delaware Historic Preservation Office (DE SHPO). For section 106 compliance under the National Historic Preservation Act, as amended, the APE is ultimately developed and confirmed by DelDOT and the Federal Highway Administration in consultation with the DE SHPO.

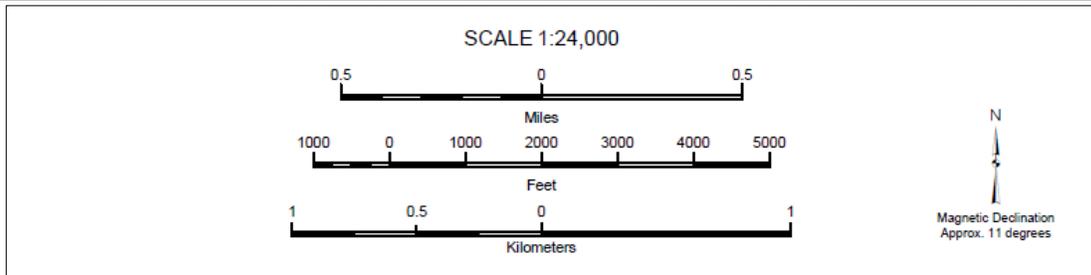


Figure 1.1: Selection from 1993 USGS 7.5' Quadrangle Newark West (DE DataMIL).



**Figure 1.2:** This annotated 2007 aerial photograph depicts DeIDOT's recommended APE for standing structures outlined in blue. Bridge 1-280 (N06667) is marked by the maroon dot.(DE CHRS)

## **2.0 Research Design**

### **2.1 Research Objectives**

In order to comply with the requirements set forth in Section 106 of the National Historic Preservation Act of 1966 as amended, the combined reconnaissance and intensive-level historic architectural survey had as its objective the identification of all historic resources in the project APE.

### **2.2 Methods**

Due to the limited nature of the project to affect resources and a preliminary reconnaissance level survey that identified only one resource meeting the 50-year age requirement in the APE, the methodology for the survey included the completion of a combined reconnaissance and intensive-level survey of the APE to evaluate the resource for eligibility for listing in the National Register of Historic Places. The identified property was surveyed on the intensive level and documented on DE SHPO Cultural Resource Survey (CRS) forms. The surveyed property was then evaluated against the National Register Criteria for Evaluation to determine its significance. Survey update forms were completed for a known resource that was previously demolished.

Background research was conducted at the DE SHPO to identify properties within the APE that are listed in or eligible for listing in the National Register of Historic Places. Previous historic sites surveys and regulatory surveys on file at the DE SHPO were reviewed to identify any previously surveyed resources within the APE. Additional background research consisted of a review of pertinent primary and secondary sources, including local and county histories and historic maps and atlases. A title search was performed on all properties identified in the reconnaissance survey requiring National Register evaluations, to the extent that the original owner of the building and its date of construction could be determined.

Determinations of significance are based on the National Register of Historic Places Criteria. Properties listed in or determined eligible for listing in the National Register can be architectural and archaeological resources. Significant historic properties include districts, structures, objects, or sites that are at least 50 years old and which meet at least one National Register criterion. Criteria used in the evaluation process are specified in the Code of Federal Regulations, Title 36, Part 60, National Register of Historic Places (36 CFR 60.4). To be eligible for inclusion in the National Register of Historic Places, a historic property must possess:

the quality of significance in American History, architecture, archeology, engineering, and culture [that] is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:

(A) that are associated with events that have made a significant contribution to the broad patterns of our history, or

(B) that are associated with the lives of persons significant in our past, or

(C) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components lack individual distinction, or

(D) that have yielded, or may be likely to yield, information important in prehistory

or history. (36 CFR 60.4)

There are several criteria considerations. Ordinarily, cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

- (A) a religious property deriving primary significance from architectural or artistic distinction or historical importance, or
- (B) a building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event, or
- (C) a birthplace or grave of a historical figure of outstanding importance if there is no other appropriate site or building directly associated with his/her productive life, or
- (D) a cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events, or
- (E) a reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived, or
- (F) a property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own historic significance, or
- (G) a property achieving significance within the past 50 years if it is of exceptional importance. (36 CFR 60.4)

When conducting National Register evaluations, the physical characteristics and historic significance of the overall property are examined. While a property in its entirety may be considered eligible based on Criteria A, B, C, and/or D, specific data is also required for individual components therein based on date, function, history, physical characteristics, and other information. Resources that do not relate in a significant way to the overall property may contribute if they independently meet the National Register criteria.

A contributing building, site, structure, or object adds to the historic architectural qualities, historic associations, or archeological values for which a property is significant because a) it was present during the period of significance, and possesses historic integrity reflecting its character at that time or is capable of yielding important information about the period, or b) it independently meets the National Register criteria. A non-contributing building, site, structure, or object does not add to the historic architectural qualities, historic associations, or archeological values for which a property is significant because a) it was not present during the period of significance, b) due to alterations, disturbances, additions, or other changes, it no longer possesses historic integrity reflecting its character at that time or is incapable of yielding important information about the period, or c) it does not independently meet the National Register criteria.

### **2.3 Expected Results**

Based upon the results of the historical research and the project's location in a suburban area of Newark in New Castle County, an APE in this area would have the potential to contain potential for post-WWII residential dwellings and transportation structures. However, the APE of the project is commensurate to its potential impact of surrounding resources. Due to the narrow scope of the maintenance project, it is unlikely that any other resources would be affected. For this reason, the APE is limited to the boundary of Bridge 1-280.

## **Section 3.0    Background Research**

Background research was conducted to locate previously identified architectural resources and to evaluate previously unidentified architectural resources within an appropriate historic context. Research was conducted using the DE CHRIS system to identify architectural resources within the APE that are listed in or eligible for listing in the National Register and to review previously conducted cultural resource surveys. Primary and secondary-source research, including maps and atlases, and local and county histories was conducted at the DE SHPO, DeIDOT, and a variety of electronic resources. Historic maps, atlases and aerial photographs were consulted through a variety of online resources, including the Delaware DataMIL and DE CHRIS.

### **3.1    Previous Architectural Surveys**

Preliminary research has indicated that no previous organized architectural surveys have been conducted within the project APE. There are currently no National Register listed or eligible properties or any previously surveyed resources within the project APE.

### **3.2    Historic Context**

In accordance with state guidelines, the historic context has been divided into chronological periods as first set forth in the *Delaware Comprehensive Historic Preservation Plan* (Ames et al. 1989). The historic themes of Settlement Patterns and Demographic Change, Architecture, and Engineering were identified through research as applicable to the resource found in the DeIDOT recommended APE for the current project and are discussed in the historic context.

The project area is in the piedmont geographic zone as defined by the *Delaware Comprehensive Preservation Plan* (Ames et al. 1989). As the most northern of Delaware's geographic zones, the Piedmont encompasses land north of the fall line separating this zone with the Coastal Plain that crosses the state in a generally northeast to southwest direction. A nearly-level-to-hilly topography composed of fertile clay soils well-suited for agricultural uses characterizes the Piedmont's surface. Major land forms of the Piedmont include Iron Hill and Chestnut Hill, both located to the south, and Mount Cuba, to the west. Early European pioneers noted a rich variety of oak, hickory, poplar, walnut, and ash trees in the Piedmont region prior to extensive land clearing activities. The region's major and minor creeks and streams, including the Red Clay Creek, flow and drain primarily southeastward into the Christina River, which flows northeast before entering the Delaware River at Wilmington (Ames et al. 1989, 32-34).

Settlement and agricultural development of the region quickened during the 18<sup>th</sup> Century. Despite heavy silting that denied navigation, the Piedmont's watercourses provided power for mills and early manufacturing (Ames et al. 2006, 11). At first used primarily to power grist and saw mills, by the early 1800s the area's streams powered a wide variety of manufacturing facilities, including a variety of mills: Paper, woolen, spice, powder, spice, powder, carding, and iron-rolling (Ames et al. 1989, 31). Partly in response to the mills' demand for workers, nucleated settlements surrounding these early industrial centers developed.

Despite continued industrial growth along the Piedmont's rural waterways, during much of the 19<sup>th</sup> century agriculture remained the predominant land use throughout the region. As early as the early-nineteenth century, very little uncultivated, arable land remained in the Piedmont region of Delaware (Ames et al. 1989, 47-49). The innovation of improved transportation networks, such as turnpikes – including the Newport and Gap, PA Turnpike – and railroads, greatly assisted both farming and manufacturing activities, and linked the area into the larger, regional economy. Rail access provided

farmers with more efficient methods of transporting surplus produce to distance markets, thereby boosting productivity and the cultivation of lucrative cash crops (Ames et al. 2006, 12-14). In addition to furnishing outlets for exploring finished goods, railroads also permitted mill and manufacturing centers a means to import new materials not available locally. The railroads also helped focus commercial activities and further settlement at villages and towns with rail stations (Ames et al. 1989, 49-51).

As Wilmington evolved into the state's largest population and manufacturing center during the late 19<sup>th</sup> and early 20<sup>th</sup> centuries, many of the Piedmont's manufacturing centers ceased operations (Ames et al. 1989, 85-90). Improved transportation systems, such as horse-drawn and, later, electric streetcars along with the rise of a wage-earning middle class helped lead to the development of former agricultural land in the immediate surrounding areas of Wilmington (Chase et al. 1992, 6-7). Eventually, advancements in automotive production technology made widespread use of the vehicles affordable. Correlating improvements to surrounding roadways by the State Highway Department provided connections to further hinterlands, thus both intensifying and distributing suburban development across northern New Castle County (P.A.C. Spero & Co. 1991, 180-189). Throughout most other areas of the Piedmont, the economy continued to rely on agricultural activity (Ames et al. 1989, 51).

Since the end of World War II, the Piedmont has experienced continued suburban growth and development. Much of the region's former agricultural land became the locus for tract housing and other pre-fabricated development. Associated development of strip malls, big-box chain stores and regional shopping malls designed to accommodate the commercial needs of area residents unwilling to travel further distances have also encumbered large areas of former farmland. Business parks and research laboratories have additionally evolved or relocated to urban and suburban areas, further impacting the Piedmont landscape.

### **3.3 Background Context**

Bridge 1-280 was designed in 1961 under State Contract 2039 and constructed the following year by the Delaware Department of Transportation. At the time the bridge was constructed, the western part of Newark near the Maryland state line was primarily rural. It is unclear if the road was still dirt at the time Bridge 1-280 was constructed, but the roadway was not fully modernized with drainage and curbs until 1970. The construction of Bridge 1-280 realigned the Christina River from a natural oxbow into a 30 feet wide channel constructed to control the river at the roadway crossing. The bridge is a three-cell, four-sided, reinforced-concrete box culvert with concrete-fence parapet walls. At the time of its construction, the bridge measured 36 feet long, 24 feet wide end to end and 10'6" high from the base of the wingwall to the top of the concrete parapet wall. Each cell measured 10'0" square.

Designed by the Edward H. Richardson consulting firm, Delaware Department of Transportation Contract 69-06-003 reconstructed and widened Barksdale Road in order to facilitate anticipated suburban development. By 1968 the Hunting Hills and Collingswood subdivisions had been platted in the vicinity of Bridge 1-280 and Cherry Hill subdivision was under construction. Subdivisions Barksdale Estates, Abbots Ford, and Country Place were developed after the reconstruction of Barksdale Road. Located along the corridor being widened, Bridge 1-280 was similarly expanded from 36 feet to 58 feet. The length of the span remained 24 feet. The makeup of the road across the bridge was a 7-foot wide sidewalk, curb and gutter at either side; two 7-foot striped shoulders; and, two 14-foot travel lanes (one in each direction). Metal guard rails were mounted to the top of the existing concrete railing.

DelDOT Contract 88-061-05 provided for the rehabilitation of Barksdale Road between Casho Mill Road and the Maryland state line. The roadway across the bridge was milled and repaved, but the bridge was not altered. Since that time, the bridge has continued to function in its intended capacity.

Previous maintenance efforts have been state funded and were not subject to DE SHPO review via Section 106 or NEPA.

### 3.3 Property Types and Registration Requirements

Historic research and field observations identified a concrete box culvert as the resource to be expected within the APE. Reinforced concrete box culverts were used initially on American highways in the first decade of the 20<sup>th</sup> century and have a history nearly identical to the development of slab-on-grade bridges. A box culvert derives its name from its similar appearance to a box with open ends. It is distinguished from a slab-on-grade bridge by the slab being physically connected to the side walls and base. Box culverts are cheap to produce and sturdy in construction, frequently requiring little maintenance. The culvert is designed to support the roadway, live load and any fill. Single or multiple cell culverts are common.

Since the 1910s, box culverts have been determined an economical approach to spanning small creeks, rivers, or seasonal flows. The technology has changed little since the early 20<sup>th</sup> century, with the exception of the increased use of precast sections in the last 50 years. Significant examples of box culverts will be constructed during the early part of the 29<sup>th</sup> century and unaltered physically. Those associated with large water control projects, such as the reconstruction of mill pond spillways and dams represent the best use of technology and innovation.



**Figure 3.1** - A 1954 aerial photograph of the project area with New Castle County Tax Parcel overlay showing the project area prior to the construction of Bridge 1-280. (DE CHRIS)



**Figure 3.2 -** A 1961 aerial photograph of the project area with New Castle County Tax Parcel overlay showing the area just prior to the construction of Bridge 1-280. (DE CHRIS)



**Figure 3-3:** A 1968 aerial photograph of the project area with New Castle County Tax Parcel overlay showing the suburbanization of the area during the 1960s. (Delaware DataMIL)

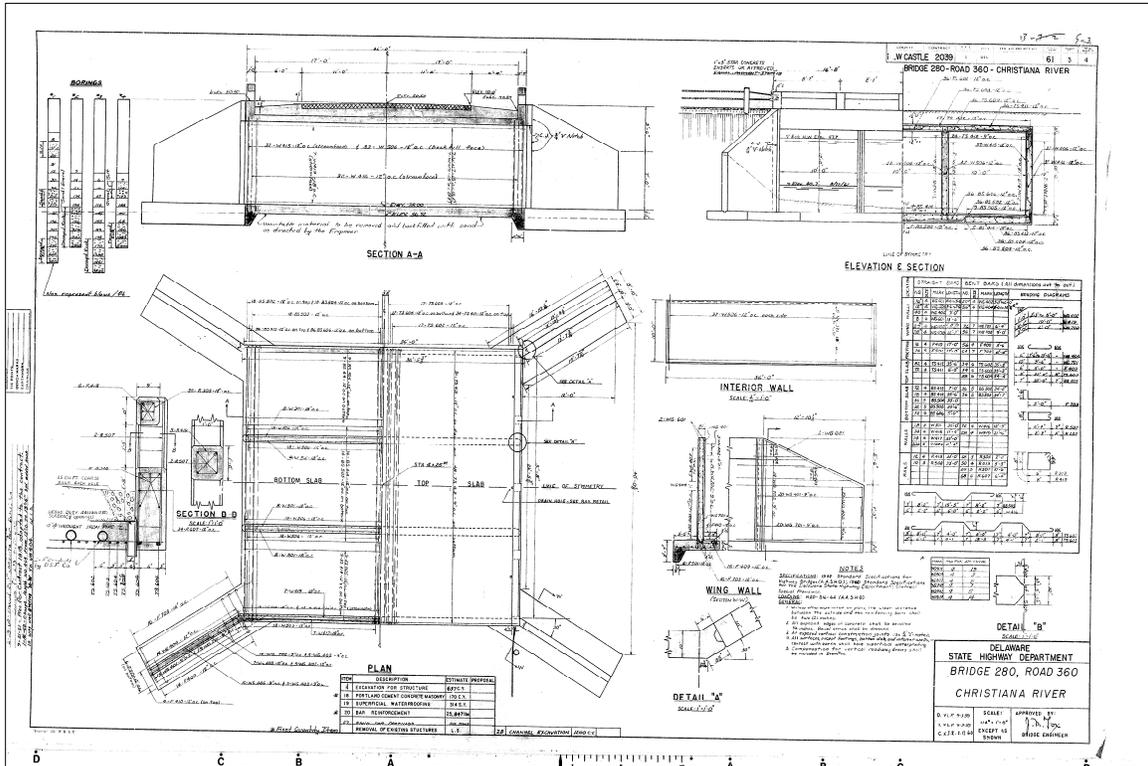


Figure 3.4 - Contract 2039 Sheet 3 showing the construction plans for Bridge 1-280. The construction plans were signed on September 25, 1961. (DeIDOT Archives)

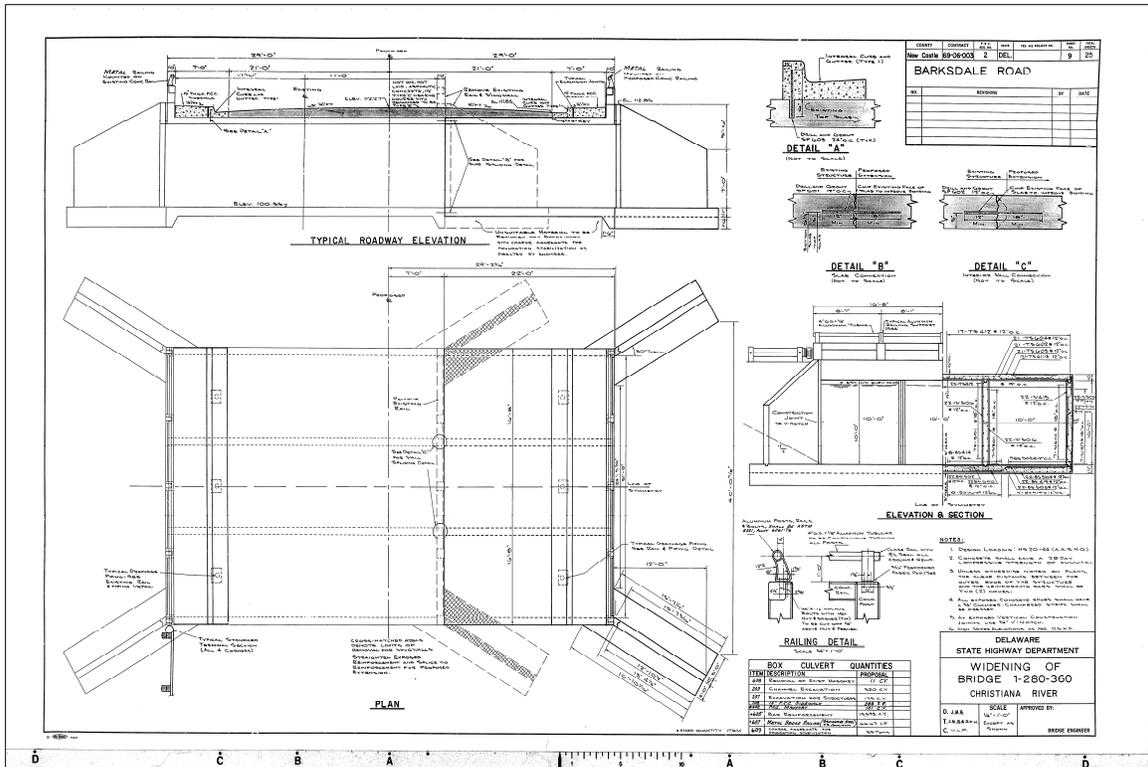
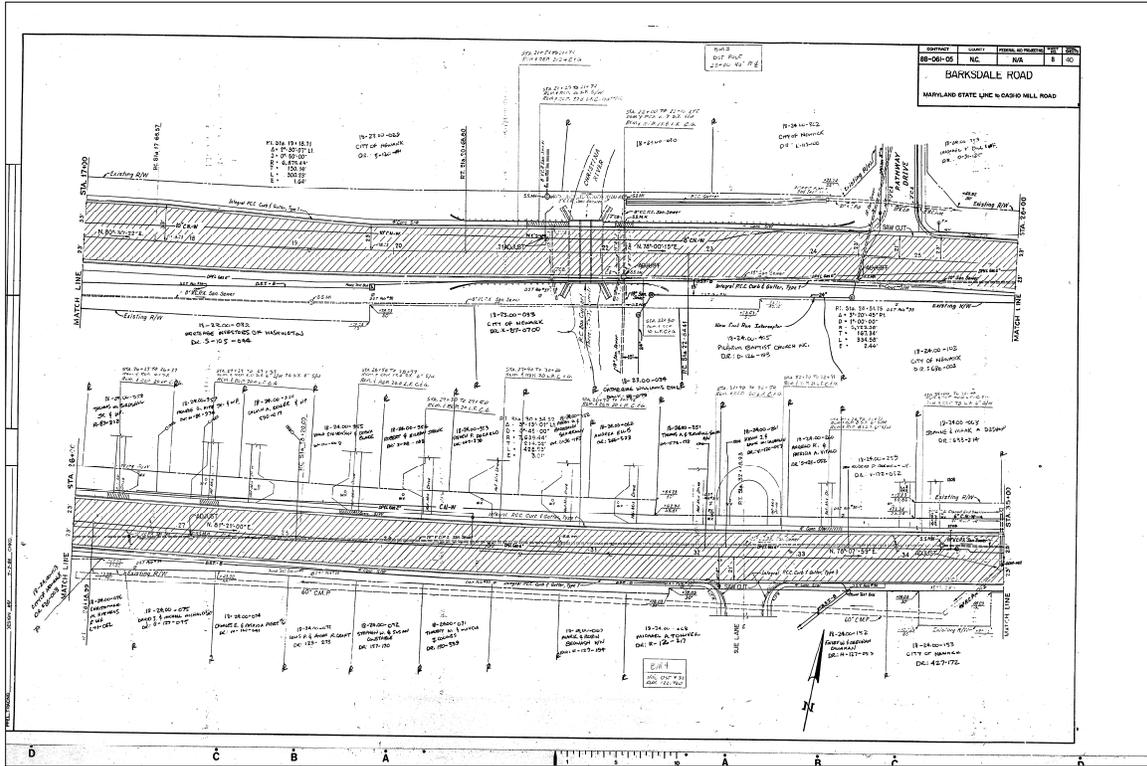


Figure 3.5 - Contract 69-06-003 Sheet 9 showing the construction plans for the expansion of Bridge 1-280. The construction plans were signed on October 28, 1970 and marked "As Built 15 Jan. 73". (DeIDOT Archives)



**Figure 3.6 - Contract 88-06-105 Sheet 8 showing the location of Bridge 1-280 during the roadway rehabilitation project. Aside from pavement rehabilitation, no additional work was stipulated for Bridge 1-280. (DelDOT Archives)**

**Section 4.0 Architectural Evaluation**

A combined reconnaissance and intensive-level architectural survey was conducted on July 14, 2011. This survey consisted of identifying resources greater than 50-years-of-age within the APE (Figure 1.2). After the reconnaissance survey, it was determined that one resource met the 50-year age criteria. This resource, Bridge 1-280, has not been the subject of a Delaware Cultural Resource Survey previously. During this survey, the resource is described and evaluated for the National Register. Delaware CRS forms were also prepared. Table 4.1 summarized the results of the historic architectural survey.

**Table 4.1:** Summary of the historic architectural survey.

CRS Number	Property Name/Address	Property Type	NR Recommendation
N06667	Bridge 1-280	Bridge	Not eligible

**4.1 Architectural Description and National Register Evaluation**

**N06667 Bridge 1-280**

Barksdale Road over Christina River

Newark, DE

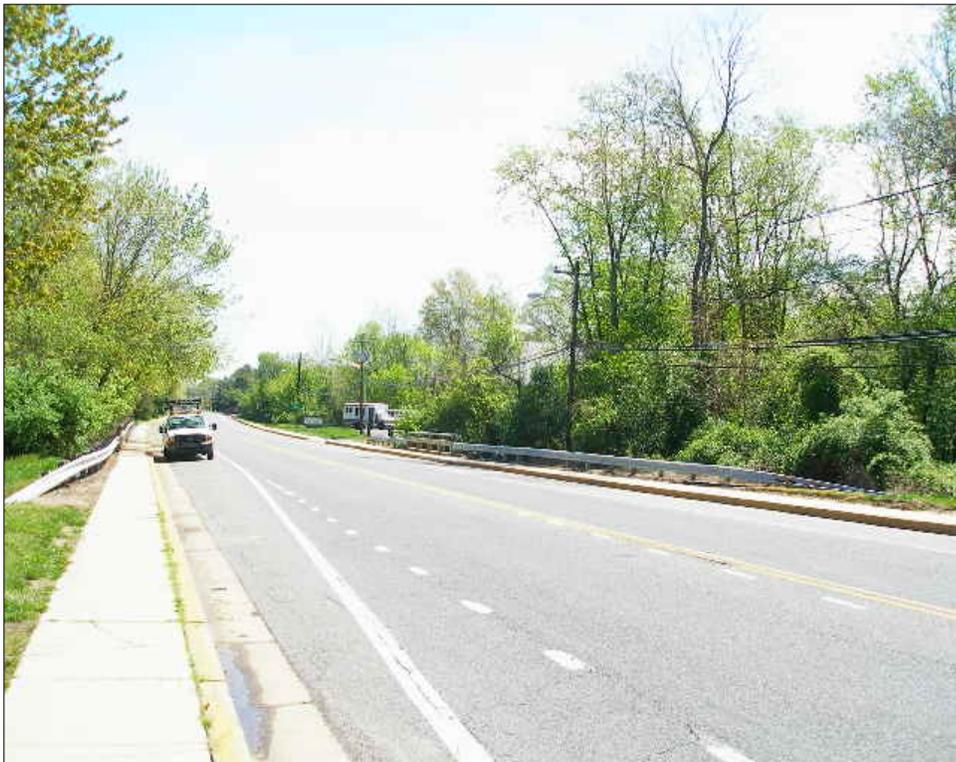
UTM Coordinates: Zone: 18 X: 168752.24 Y:186293.1



**Figure 4-1:** View of the south elevation of Bridge 1-280, looking north.



**Figure 4-2:**View of the north elevation of Bridge 1-280, looking southeast.



**Figure 4-3:** Top view of Bridge 1-280 looking east along Barksdale Road.

**Description and History:** Bridge 1-280 is a three-cell, reinforced-concrete box culvert with concrete-fence parapet walls constructed in 1962 by the Delaware Department of Transportation. The bridge has flared concrete wingwalls and a concrete base covered by silt and fill from the Christina River. At the time of its construction, the bridge measured 36 feet wide, 24-feet long, and 10'6" high from the base of the wingwall to the top of the parapet wall. Within the base of the bridge, each cell measures 10 feet square.

During the reconstruction of Barksdale Road circa 1970, Bridge 1-280 was widened to accommodate the broader roadway. The bridge was widened 22 feet expanding its measurement from 36 feet to 58 feet in width. Metal guardrails were also installed atop the existing concrete fencing. These elements remain in place. Since the widening, at the bridge crossing Barksdale Road consists of two 7-foot wide sidewalks, two 7-foot striped shoulders, and two 14-foot travel lanes.

**Evaluation:** This property has been evaluated for listing on the National Register as a reinforced concrete box culvert. The historic trend with which the property is most closely associated is the introduction of concrete box culverts as a bridge material during the first third of the 20<sup>th</sup> century. This particular example was constructed in 1962 and altered circa 1970. The resource is a late-period example of a common bridge type. Significant examples of box culverts are constructed during the early part of the 20<sup>th</sup> century and unaltered physically. Since Bridge 1-280 meets neither of these characteristics of the trend, it is recommended not eligible for the National Register under Criterion A.

Historic research has not revealed an association of the resource within individuals significant to local, City of Newark, State of Delaware, regional, or national history. As such, it is recommended not eligible for the National Register under Criterion B.

This bridge represents a common example of mid-twentieth century bridge technology. Common elements of this type include the multi-cell design and use of reinforced concrete in all elements of construction. This particular resource was widened from 36 to 58 feet circa 1970, having a deleterious effect on the ability to the resource to convey any integrity it may have once possessed. Metal guardrails added to the concrete fencing circa and thus outside the bridge's historic period further detract from the bridge's integrity of materials, design and workmanship. As a utilitarian design, the qualities of feeling and association are absent. For these reasons the bridge is recommended not eligible for the National Register under Criterion C.

This bridge is a common example of mid-twentieth century bridge construction technology and is not likely to reveal information about this construction method that is not already available through other resources. For this reason, the property is recommended not eligible under Criterion D.

## **Section 5.0      Conclusions and Recommendations**

This intensive-level architectural survey of the APE for the maintenance of Bridge 1-280 in Newark, New Castle County, Delaware has determined that no properties are eligible for the National Register of Historic Places. The survey included historical research, a site visit to the project area, and context development. The research design anticipated the likelihood of locating the resource within the APE. Field work and documentary research identified the property type within the APE. An updated DelDOT bridge survey identifying the National Register eligibility status of bridges in Delaware constructed through 1970 would have been a helpful resource.

## **Section 6.0 Sources**

Ames, David L., Mary Helen Callahan, Bernard L. Herman, and Rebecca J. Siders. *Delaware Comprehensive Historic Preservation Plan*. Newark: Center for Historic Architecture and Engineering, University of Delaware, 1989.

Delaware Division of Historical and Cultural Affairs. *Cultural and Historical Resource Information System (CHRIS)*. <http://chris.delaware.gov/CHRIS/faces/faces/main.html>. Accessed October and June 2011.

Lichtenstein Consulting Engineers, Inc. *Delaware's Historic Bridges: Survey and Evaluation of Historic Bridges with Historic Contexts for Highways and Railroad*. 2<sup>nd</sup> Edition. Prepared for the Delaware Department of Transportation, 2000.

National Park Service. *National Register Bulletin 15b: How to Apply the National Register Criteria for Evaluation*. Washington, DC: U.S. Department of the Interior, 1995.

USGS. Newark, Delaware-New Castle Co., 7.5' Quadrangle, US Geological Survey, Scale 1:24,000, 1993.

**Appendix A Resume of Principal Investigator**

**Jon Schmidt  
Environmental Studies Section  
Delaware Department of Transportation**

**Jon Schmidt**  
Jon.Schmidt@state.de.us

**Experience**

**Planner III, Delaware Department of Transportation**

Dover, DE March 2009 – Present

- Implement NEPA, Section 106 and 4(f) for DelDOT transportation projects
- Manage consultants working in the field on behalf of DelDOT

**Preservation Specialist, Westfield Architects and Preservation Consultants**

Haddon Heights, NJ February 2007 –December 2008

- Developed preservation plans and historic structure reports to preserve historic structures.
- Compiled and managed successful grant applications to Garden State Preservation Trust

**Preservation Intern, New Castle County Department of Planning**

New Castle, DE September 2006 to February 2007

- Conducted reconnaissance level architectural history surveys in support of County planning documents
- Provided staff assistance to New Castle County Historic Review Board

**Education**

**University of Delaware**

**Newark, DE**

Master of Arts, Urban Affairs and Public Policy

2006

Concentration in Historic Preservation

**Thesis:** The Historical Experience of Cheswold: A Methodology for the Research of Fragmentary Landscapes in Delaware

**Penn State University**

**State College, PA**

Bachelor of Arts, History

2003

**Relevant Training and Skill Sets**

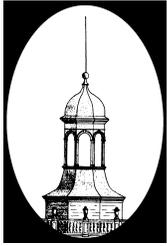
- Friend of Transportation Research Board Subcommittee ADC 50 Historic Preservation and Archaeology
- Attended Various FHWA Training Sessions: NEPA and Performance Evaluation, How NEPA Affects DelDOT, Introduction to Section 106
- Member of Historic Bridge Alliance
- Authored National Register Nominations for Six Mile Run Reformed Church in Somerset, NJ; Saint Mary of Mount Virgin, New Brunswick, NJ; Chesterford School House, Maple Shade, NJ

**Appendix B Cultural Resource Survey Forms**

**N06667**

**Bridge**

**1-280**



DELAWARE STATE HISTORIC PRESERVATION OFFICE  
15 THE GREEN, DOVER, DE 19901

CULTURAL RESOURCE SURVEY  
PROPERTY IDENTIFICATION FORM

CRS # N06667  
SPO Map 04-05-34  
Hundred White Clay Creek  
Quad Newark-W  
Other \_\_\_\_\_

- HISTORIC NAME/FUNCTION: Bridge 1-280
- ADDRESS/LOCATION: Barksdale Road at the crossing of Christina River
- TOWN/NEAREST TOWN: Newark vicinity?
- MAIN TYPE OF RESOURCE: building  structure  site  object   
landscape  district
- MAIN FUNCTION OF PROPERTY: Bridge
- PROJECT TITLE/ REASON FOR SURVEY (if applicable): National Register Eligibility Status and Evaluation for Historic Resources affected by the Maintenance of Bridge 1-280 in Barksdale Road at Christian River

7. ADDITIONAL FORMS USED:

#:	Form:	List property types:
	CRS 2 Main Building Form	
	CRS 3 Secondary Building Form	
	CRS 4 Archaeological Site Form	
	CRS 5 Structure (Building-Like) Form	
	CRS 6 Structure (Land Feature) Form	
	CRS 7 Object Form	
	CRS 8 Landscape Elements Form	
1	CRS 9 Map Form	N/A
	CRS 14 Potential District Form	

8. SURVEYOR INFORMATION:

Surveyor name: Jon Schmidt

Principal Investigator name: Jon Schmidt

Principal Investigator signature: \_\_\_\_\_

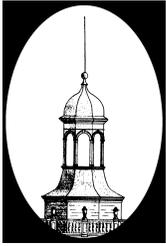
Organization: DelDOT Environmental Studies Date: 07/18/11

10. STATE HISTORIC CONTEXT FRAMEWORK (check all appropriate boxes; refer to state management plan(s)):

- a) Time period(s)
- Pre-European Contact
  - Paleo-Indian
  - Archaic
  - Woodland I
  - Woodland II
  - 1600-1750∇ Contact Period (Native American)
  - 1630-1730∇ Exploration and Frontier Settlement
  - 1730-1770∇ Intensified and Durable Occupation
  - 1770-1830∇ Early Industrialization
  - 1830-1880∇ Industrialization and Early Urbanization
  - 1880-1940∇ Urbanization and Early Suburbanization
  - 1940-1960∇ Suburbanization and Early Ex-urbanization

- b) Geographical zone
- Piedmont
  - Upper Peninsula
  - Lower Peninsula/Cypress Swamp
  - Coastal
  - Urban (City of Wilmington)

- c) Historic period theme(s)
- |  |   |
|--|---|
| <input type="checkbox"/> Agriculture           | <input type="checkbox"/> Transportation and Communication                         |
| <input type="checkbox"/> Forestry              | <input checked="" type="checkbox"/> Settlement Patterns and Demographic Changes   |
| <input type="checkbox"/> Trapping/Hunting      | <input checked="" type="checkbox"/> Architecture, Engineering and Decorative Arts |
| <input type="checkbox"/> Mining/Quarrying      | <input type="checkbox"/> Government   |
| <input type="checkbox"/> Fishing/Oystering     | <input type="checkbox"/> Religion   |
| <input type="checkbox"/> Manufacturing         | <input type="checkbox"/> Education  |
| <input type="checkbox"/> Retailing/Wholesaling | <input type="checkbox"/> Community Organizations                                  |
| <input type="checkbox"/> Finance               | <input type="checkbox"/> Occupational Organizations                               |
| <input type="checkbox"/> Professional Services | <input type="checkbox"/> Major Families, Individuals and Events                   |



CULTURAL RESOURCE SURVEY

CRS # N06667

MAP FORM

1. ADDRESS/LOCATION: Barksdale Road at the crossing with the Christina River

2. NOT FOR PUBLICATION  reason: \_\_\_\_\_

3. LOCATION MAP:

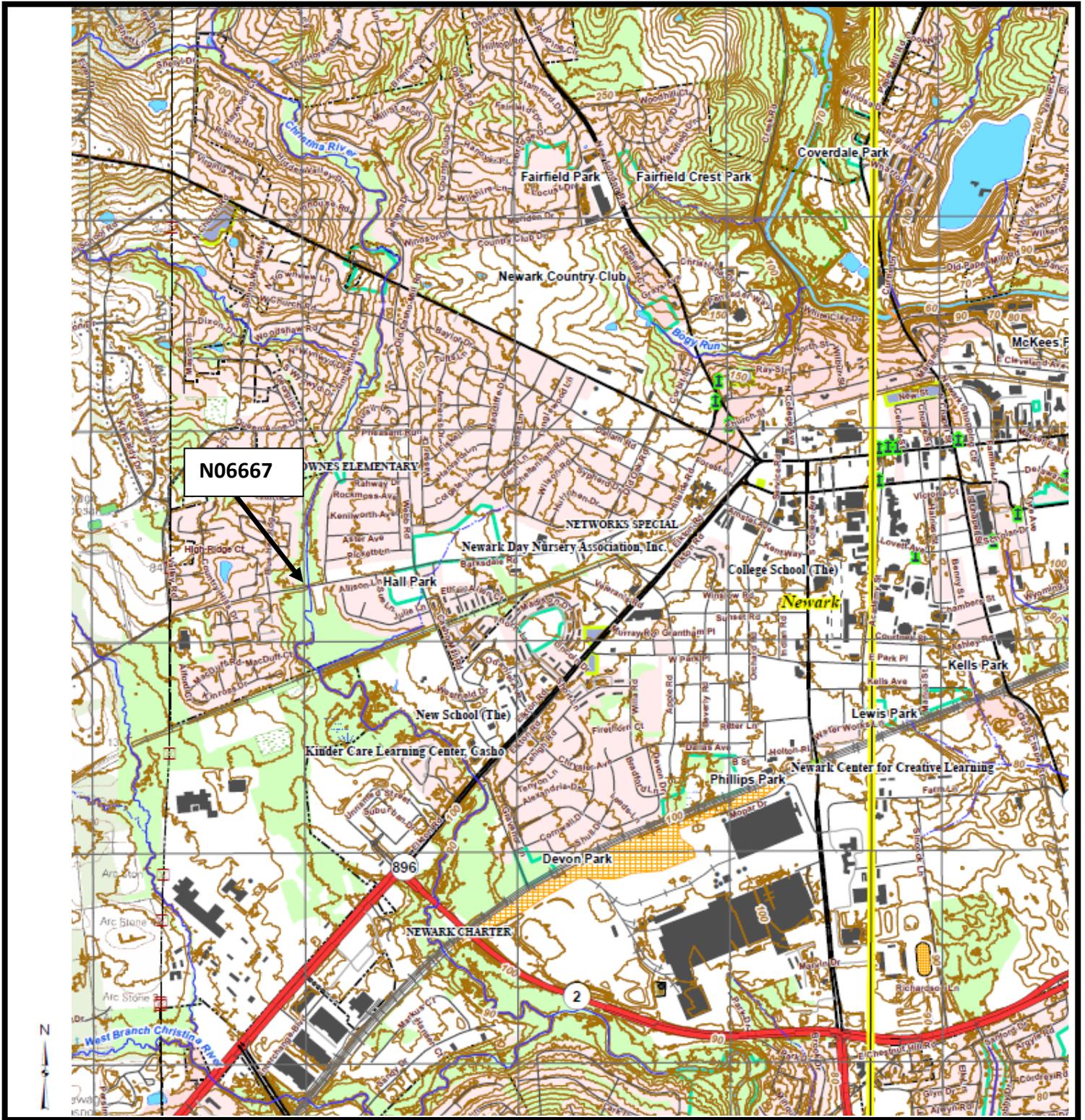
Indicate position of resource in relation to geographical landmarks such as streams and crossroads.

(attach section of USGS quad map with location marked or draw location map )

INDICATE NORTH ON SKETCH



INDICATE NORTH ON PLAN



USE BLACK INK ONLY



CULTURAL RESOURCE SURVEY  
DIGITAL PHOTOGRAPHS FORM

CRS #     N06667    

Date   07/18/11   Surveyor/Photographer   Jon Schmidt/Glenn Miller (Bridge Survey)  

Insert photographs; note file name and brief description of view:  
(size photograph 3" on longest side; MAINTAIN ASPECT RATIO – DO NOT STRETCH PHOTO)



View of the south elevation of N06667, looking north.



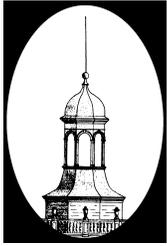
View of the north elevation looking southeast.



**View of the bridge from Barksdale Road, looking east.**



**Closer view of the bridge from Barksdale Road, looking east.**



DELAWARE STATE HISTORIC PRESERVATION OFFICE  
21 THE GREEN, SUITE A, DOVER, DE 19901

CULTURAL RESOURCE SURVEY  
STRUCTURE – BRIDGE/CULVERT  
*DRAFT FORM*

CRS #	N06667
SPO Map	04-05-34
Hundred	White Clay Creek
Quad	Newark - West
Other	

BRIDGE NUMBER: 1-280                      OWNER: DeIDOT                      CRS#:

COUNTY: New Castle                      HUNDRED: White Clay Creek                      ZONE: North

LOCATION: Barksdale Road at the Christina River crossing                      SPO MAP: 04-05-34

ROAD NUMBER: 360                      MILEPOST:                      USGS QUAD: Newark West

FACILITY CARRIED: Barksdale Road  
NAME/FEATURE INTERSECTED: Christina River

TYPE: Three-cell reinforced concrete box culvert      DESIGN: DeIDOT

MATERIAL: Reinforced concrete, metal guardrails, hot mix road surface

# OF SPANS: 3@ 10-feet each                      LENGTH: 24 feet                      WIDTH: 58 feet

DATE OF CONSTRUCTION: 1962                      ALTERATION: c. 1970/1973 and 1988      SOURCE: DeIDOT Archives

DESIGNER/BUILDER: Originally designed and constructed by DeIDOT; 1969 alterations designed by Edward H. Richardson consulting firm, construction unknown.

SETTING: The bridge is situated in a suburban setting and carries the two-lane Barksdale Road across a narrow section of the Christina River.

CURRENT NR STATUS: None

NR RECOMMENDATION: Not eligible

SUMMARY: The bridge is of common design and was constructed late in the period for a reinforced concrete box culvert. The bridge was widened 22 feet circa 1970. Significant examples are typically unaltered and constructed during the first third of the twentieth century.

PHOTO:                      REVIEWED BY:                      DATE:

doc# \_\_\_\_\_

USE BLACK INK ONLY

CRS-N06667

**NAME/LOCATION/DATE OF CONSTRUCTION:** Bridge 1-280 carrying Barksdale Road over the Christina River, constructed c. 1962.

**Physical Description:** Bridge 1-280 is a three-cell, reinforced-concrete box culvert with concrete-fence parapet walls constructed in 1962 by the Delaware Department of Transportation. The bridge has flared concrete wingwalls and a concrete base covered by silt and fill from the Christina River. At the time of its construction, the bridge measured 36 feet wide, 24-feet long, and 10'6" high from the base of the wingwall to the top of the parapet wall. Within the base of the bridge, each cell measures 10 feet square.

During the reconstruction of Barksdale Road circa 1970, Bridge 1-280 was widened to accommodate the broader roadway. The bridge was widened 22 feet expanding its measurement from 36 feet to 58 feet in width. Metal guardrails were also installed atop the existing concrete fencing. These elements remain in place. Since the widening, at the bridge crossing Barksdale Road consists of two 7-foot wide sidewalks, two 7-foot striped shoulders, and two 14-foot travel lanes.

**Summary of Alterations/Modifications:** Widened 22 feet from 36 feet to 58 feet circa 1970. Metal guardrails were also installed at that time. The bridge was part of a pavement and rehabilitation project circa 1989.

**Historical and Technological Significance:** Concrete box culverts were initially found on the highway system during the first decade of the twentieth century and have a history similar to that of slab bridges. A box culvert derives its name from its similarity to a box with open ends. It is distinguished from a slab bridge by a slab integral with the side walls and floor. Box culverts are appropriate for minor or seasonal streams and locations where headroom is limited. They require little foundation work and can be placed in trenches. Box culverts may be single or multiple cell with single-cell spans lengths rarely exceeding twice the height. Box culverts have been found to be economical and practical under the majority of conditions for spans in the range of eight feet to fifteen feet. The technology has changed little since the early 20<sup>th</sup> century.

In Delaware, it is the early, unaltered box culverts and those historically associated with larger water control projects, such as the reconstruction of mill pond spillways and dams, that best represent the box culvert's technological significance.

- Adapted from *Delaware's Historic Bridges: Survey and Evaluation of Historic Bridges with Historic Contexts for Highways and Railroad* (2000) by Lichtenstein Consulting Engineers.

**Sources:**

Lichtenstein Consulting Engineers, Inc. *Delaware's Historic Bridges: Survey and Evaluation of Historic Bridges with Historic Contexts for Highways and Railroad*. 2<sup>nd</sup> Edition. Prepared for the Delaware Department of Transportation, 2000.