Maryland Historical Trust

Maryland Inventory of Historic Properties number: BA-2856

Name: US 1 (WASHINGTON BLVD.) OVER PATAPSCO RIVER

The bridge referenced herein was inventoried by the Maryland State Highway Administration as part of the Historic Bridge Inventory, and SHA provided the Trust with eligibility determinations in February 2001. The Trust accepted the Historic Bridge Inventory on April 3, 2001. The bridge received the following determination of eligibility.

MARYLAND HISTORICAL TRUST

Eligibility Recommended _____ Eligibility Not Recommended __X___

Criteria: ___A ___B ___C ___D Considerations: ___A ___B ___C ___D ___E ___F ___G ___None

Comments:_____

Reviewer, OPS: Anne E. Bruder Date: 3 April 2001

Reviewer, NR Program: Peter E. Kurtze Date: 3 April 2001

MARYLAND INVENTORY OF HISTORIC BRIDGES **MHT No.** BA-2856
HISTORIC BRIDGE INVENTORY
MARYLAND STATE HIGHWAY ADMINISTRATION/
MARYLAND HISTORICAL TRUST

SHA Bridge No. 3010 **Bridge name** US 1 (Washington Boulevard) over Patapsco River

LOCATION:
Street/Road name and number [facility carried] US 1 (Washington Boulevard)

City/town Halethorpe **Vicinity** X

County Baltimore

This bridge projects over: Road ____ **Railway** ____ **Water** X **Land** ____

Ownership: State X **County** ____ **Municipal** ____ **Other** ____

HISTORIC STATUS:
Is the bridge located within a designated historic district? Yes ____ **No** X
National Register-listed district ____ **National Register-determined-eligible district** ____
Locally-designated district ____ **Other** ____

Name of district ____

BRIDGE TYPE:
Timber Bridge ____:
Beam Bridge ____ **Truss -Covered** ____ **Trestle** ____ **Timber-And-Concrete** ____

Stone Arch Bridge ____

Metal Truss Bridge ____

Movable Bridge ____:
Swing ____ **Bascule Single Leaf** ____ **Bascule Multiple Leaf** ____
Vertical Lift ____ **Retractile** ____ **Pontoon** ____

Metal Girder ____:
Rolled Girder ____ **Rolled Girder Concrete Encased** ____
Plate Girder ____ **Plate Girder Concrete Encased** ____

Metal Suspension ____

Metal Arch ____

Metal Cantilever ____

Concrete X:
Concrete Arch X **Concrete Slab** ____ **Concrete Beam** ____ **Rigid Frame** ____
Other ____ **Type Name** ____

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DESCRIPTION:

Setting: Urban _____ **Small town** ___X___ **Rural** _____

Describe Setting:

Bridge 3010 carries U.S. 1 (Washington Boulevard) over Patapsco River in Baltimore County at the Howard County line. U.S. 1 (Washington Boulevard) runs east-west and the Patapsco River flows north to south. The bridge is located under an interchange between U.S. 1 and I-895 (Harbor Tunnel Thruway) among commercial/industrial property, in the vicinity of Halethorpe.

Describe Superstructure and Substructure:

Bridge 3010 is a 2-span, 4-lane, concrete barrel arch bridge. The bridge was originally built in 1915, and was an open spandrel concrete arch bridge. It was widened on both sides in 1929 with a filled spandrel design, widened again on the west side in 1953, and a jersey barrier median was added in 1972. The structure is 83 meters (272 feet) long and has a clear roadway width of 17.7 meters (58 feet); there are two sidewalks, each measuring 1.5 meters (5 feet) wide. The out-to-out width is 21.4 meters (70.2 feet). The superstructure consists of two arches which support a cast-in-place concrete deck and steel rails. The arches each span 15.2 meters (50 feet). A date imprint on the west parapet states "1953". The substructure consists of two concrete abutments, one concrete pier and four concrete wingwalls. The bridge has a sufficiency rating of 64.5.

According to the 1997 inspection report, this structure was in fair condition. The roadway and sidewalks have longitudinal and transverse cracks. The bottom side of the arch has heavy spalling with exposed and rusted reinforcing bars. The pier wall and abutments have light to moderate erosion with vertical cracks. The wingwalls have random vertical cracks and are covered with vegetation.

Discuss Major Alterations:

The original open spandrel arch bridge was widened in 1929 by the addition of a 2.7 meter (8 foot 11 inch) filled arch on the west side and a 3.7 meter (12 feet 2 inch) filled arch on the east side. The 1953 widening consisted of a 6.2 meter (20 feet 5 inches) wide arch. The pierced parapets were removed and replaced with a railing. A "1953" date imprint is located on the west parapet of the bridge. A jersey barrier median was added to the bridge in 1972.

HISTORY:

WHEN was the bridge built: 1915, 1929, 1953
This date is: Actual ___X___ **Estimated** _____
Source of date: Plaque ____ **Design plans** ___ **County bridge files/inspection form** ____
Other (specify): State Highway Administration Inspection Report/Bridge Files

WHY was the bridge built?

The bridge was constructed in response to the need for more efficient transportation network and increased load capacity.

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WHO was the designer?

State Roads Commission

WHO was the builder?

State Roads Commission

WHY was the bridge altered?

The bridge was widened to allow more traffic to cross.

Was this bridge built as part of an organized bridge-building campaign?

The bridge was widened in 1929 when the route was designated as U.S. 1.

SURVEYOR/HISTORIAN ANALYSIS:

This bridge may have National Register significance for its association with:
A - Events _____ B- Person _____
C- Engineering/architectural character _____

The bridge does not have National Register significance. The bridge was built in 1915, reconstructed in 1929 and in 1952-1953 and a jersey barrier median was added in 1972. As a result, the bridge lacks the integrity and character-defining elements of the original structure.

Was the bridge constructed in response to significant events in Maryland or local history?

The advent of modern concrete technology fostered a renaissance of arch bridge construction in the United States. Reinforced concrete allowed the arch bridge to be constructed with much more ease than ever before and maintained the load-bearing capabilities of the form. As the structural advantages of reinforced concrete became apparent, the heavy, filled barrel of the arch was lightened into ribs. Spandrel walls were opened, to give a lighter appearance and to decrease dead load. This enabled the concrete arch to become flatter and multi-centered, with longer spans possible. Designers were no longer limited to the semicircular or segmental arch form of the stone arch bridge. The versatility of reinforced concrete permitted development of a variety of economical bridges for use on roads crossing small streams and rivers.

Maryland's roads and bridge improvement programs mirrored economic cycles. The first road improvement of the State Roads Commission was a 7 year program, starting with the Commission's establishment in 1908 and ending in 1915. Due to World War I, the period from 1916-1920 was one of relative inactivity; only roads of first priority were built. Truck traffic resulting from war related factories and military installations generated new, heavy traffic unanticipated by the builders of the early road system. From 1920-1929, numerous highway improvements occurred in response to the increase in Maryland motor vehicles from 103,000 in 1920 to 320,000 in 1929, with emphasis on the secondary system of feeder roads which moved traffic from the primary roads built before World War I. After World War I, Maryland's bridge system also was appraised as too narrow and structurally inadequate for the increasing traffic , with plans for an expanded bridge program to be handled by the Bridge Division, set up in 1920. In 1920 under Chapter 508 of the Acts of 1920 the State issued a bond of $3,000,000.00 for road construction; the primary purpose of these monies was

to meet the state obligations involving the construction of rural post roads. The secondary purpose of these monies was to fund (with an equal sum from the counties) the building of lateral roads. The number of hard surfaced roads on the state system grew from 2000 in 1920 to 3200 in 1930. By 1930, Maryland's primary system had been inadequate to the huge freight trucks and volume of passenger cars in use, with major improvements occurring in the late 1930's.

As the nation's automotive traffic increased in the early twentieth century, local road networks were consolidated, and state highway departments were formed to supervise the construction and improvement of state roads. With a diverse topographical domain encompassing numerous small and large crossings, Maryland engineers quickly recognized the need for expedient design and construction through the standardization of bridge designs.

The concept and practice of standardization was one of the most important developments in engineering of the twentieth century. In Maryland, as in the rest of the nation, the standardized concrete types became the predominant bridge types built. In the period 1911 to 1920 (the decade in which standardized plans were introduced), beams and slabs constituted 65 percent and arches 35 percent of the extant 29 bridges built in Maryland during this period. In the following decade, 1921-1930, the beam (now the T-beam) and slab increased to 73 percent and the arch had declined to 27 percent of the 129 extant bridges; in the next decade (1931-1940), the beam and slab achieved 82 percent and arches had further declined, constituting only 18 percent of the total of extant bridges built on state-owned roads between 1931 and 1946.

Although beam and slab bridges became the utilitarian choice, it appears that the arch was selected when aesthetic as well as other site conditions were considered. The architectural treatment of extant arch bridges supports this assessment. Many of these bridges were multiple span structures with open spandrels or masonry facing. Another decorative feature of the concrete arch bridge was an open, balustrade-style parapet. Despite the popularity of ornamental arches and the increase in use of beam and slab bridges, examples of simpler, single and multiple span closed concrete arch bridges with solid parapets continued to be constructed throughout the early twentieth century.

The Washington Boulevard section of U.S. 1 initially connected Baltimore to the port at Elkridge, south of the Patapsco River, in 1741. The road was extended to Georgetown in 1749, following the route of a circa 1704 cart road. The section along the Patapsco River was notorious for its poor travelling conditions until replaced by a gravel toll road in 1820. Due to shrinking profits, the toll road was returned to control by the counties in 1865. Between 1906 and 1915, the road was rebuilt as State Road No. 1, becoming the first road to receive statewide funding. Badly damaged by military traffic during World War I, the road was rebuilt in 1918 and 1919 and widened between 1928 and 1930. It was designated U.S. 1 in 1929 and quickly became a commercial strip. In 1954, the Baltimore-Washington Parkway was constructed parallel to U.S. 1 in order to provide a limited-access expressway for travellers.

When the bridge was built and/or given a major alteration, did it have a significant impact on the growth and development of the area?

The bridge was constructed in 1915 during the state-funded improvement of U.S. 1. The improvement of the road, and the access the road provided to Washington, D.C. and Baltimore, led to the rapid development and commercialization of the region. Therefore, the improvement of U.S 1, as represented by the construction of Bridge 3010 and its alteration, facilitated the development of the area.

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Is the bridge located in an area which may be eligible for historic designation and would the bridge add to or detract from the historic/visual character of the potential district?

This bridge is not located in an area that is eligible for historic designation.

Is the bridge a significant example of its type?

The bridge is not a significant example of a concrete arch bridge due to the 1929, 1952-1953 and 1972 alterations of the structure.

Does the bridge retain integrity of important elements described in Context Addendum?

This bridge was reconstructed in 1929 and 1952-1953, resulting in the loss of character-defining elements such as the pierced concrete parapets, original abutments and spandrel columns and arches.

Is the bridge a significant example of the work of a manufacturer, designer, and/or engineer?

This bridge is not a significant example of the work of a manufacturer, designer, and/or engineer.

Should the bridge be given further study before an evaluation of its significance is made?

No further study of this bridge is required to evaluate its significance.

BIBLIOGRAPHY:

County inspection/bridge files _____ **SHA inspection/bridge files** ___X___
Other (list):_____

Johnson, Arthur Newhall
1899 The Present Condition of Maryland Highways. In *Report on the Highways of Maryland*. Maryland Geological Survey, The Johns Hopkins University Press, Baltimore.

P.A.C. Spero & Company and Louis Berger & Associates
1995 Historic Highway Bridges in Maryland: 1631-1960: Historic Context Report. Maryland State Highway Administration, Maryland State Department of Transportation, Baltimore, Maryland.

State Roads Commission
1958 A History of Road Building in Maryland. Published by author, Baltimore.

Tyrrell, H. Grattan
1909 *Concrete Bridges and Culverts for Both Railroads and Highways*. The Myron C. Clark Publishing Company, Chicago and New York.

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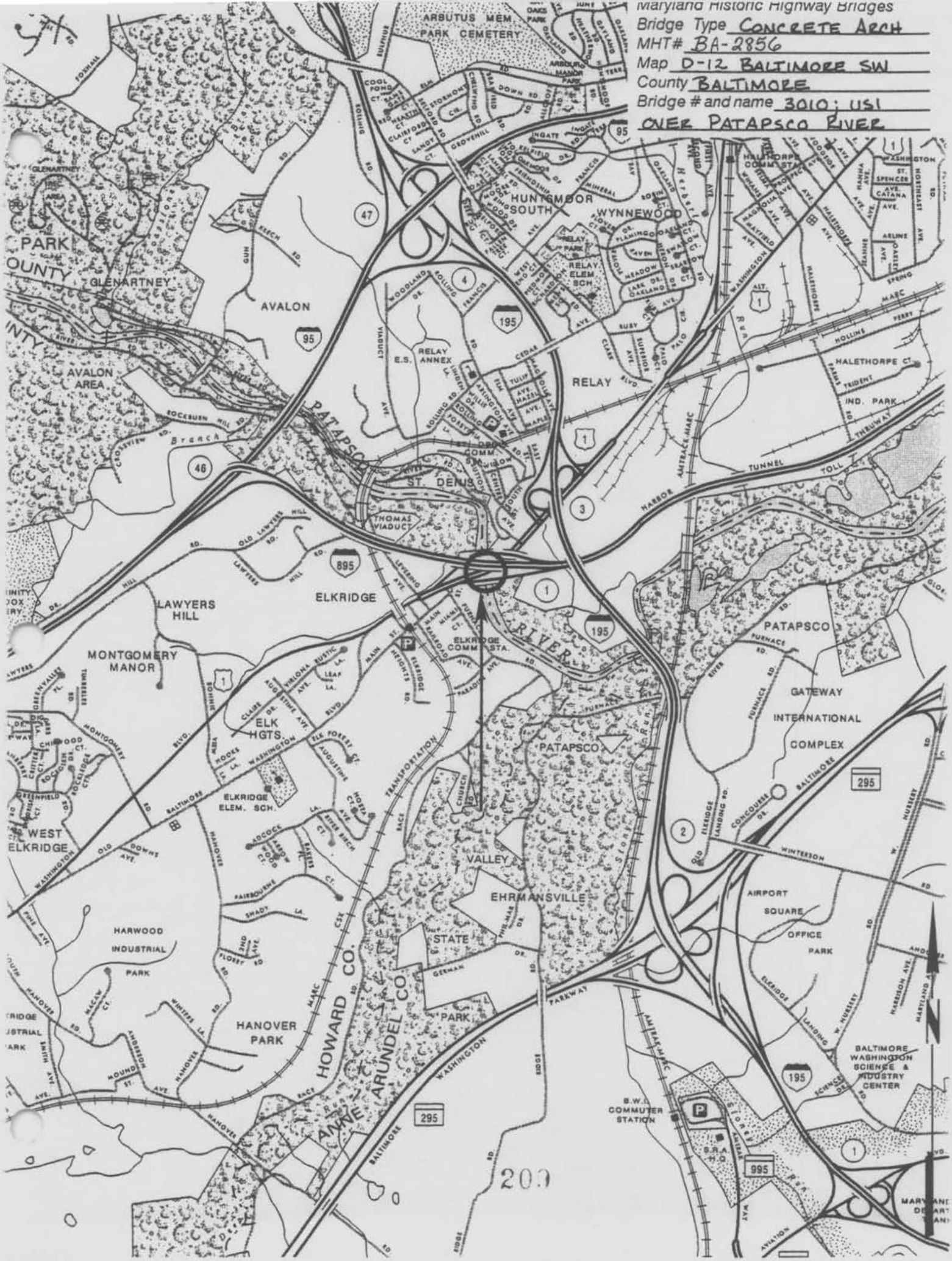
SURVEYOR:

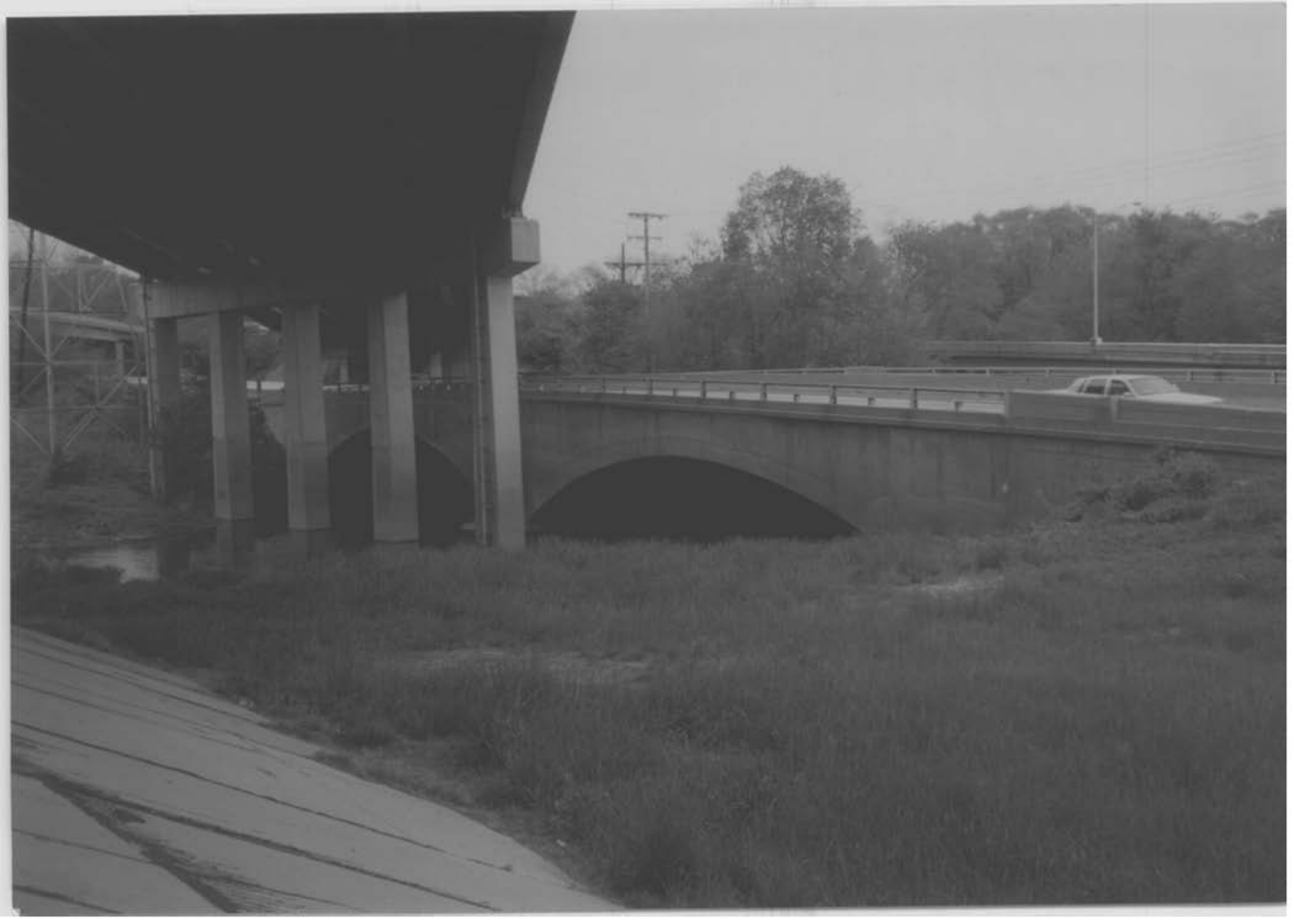
Date bridge recorded December 1997
Name of surveyor Wallace, Montgomery & Associates / P.A.C. Spero & Company
Organization/Address P.A.C. Spero & Co., 40 W. Chesapeake Avenue, Baltimore, MD 21204
Phone number (410) 296-1635 **FAX number** (410) 296-1670

Maryland Historic Highway Bridges
Bridge Type CONCRETE ARCH
MHT# BA-2856
Map D-12 BALTIMORE SW
County BALTIMORE
Bridge # and name 3010; US1
OVER PATAPSCO RIVER



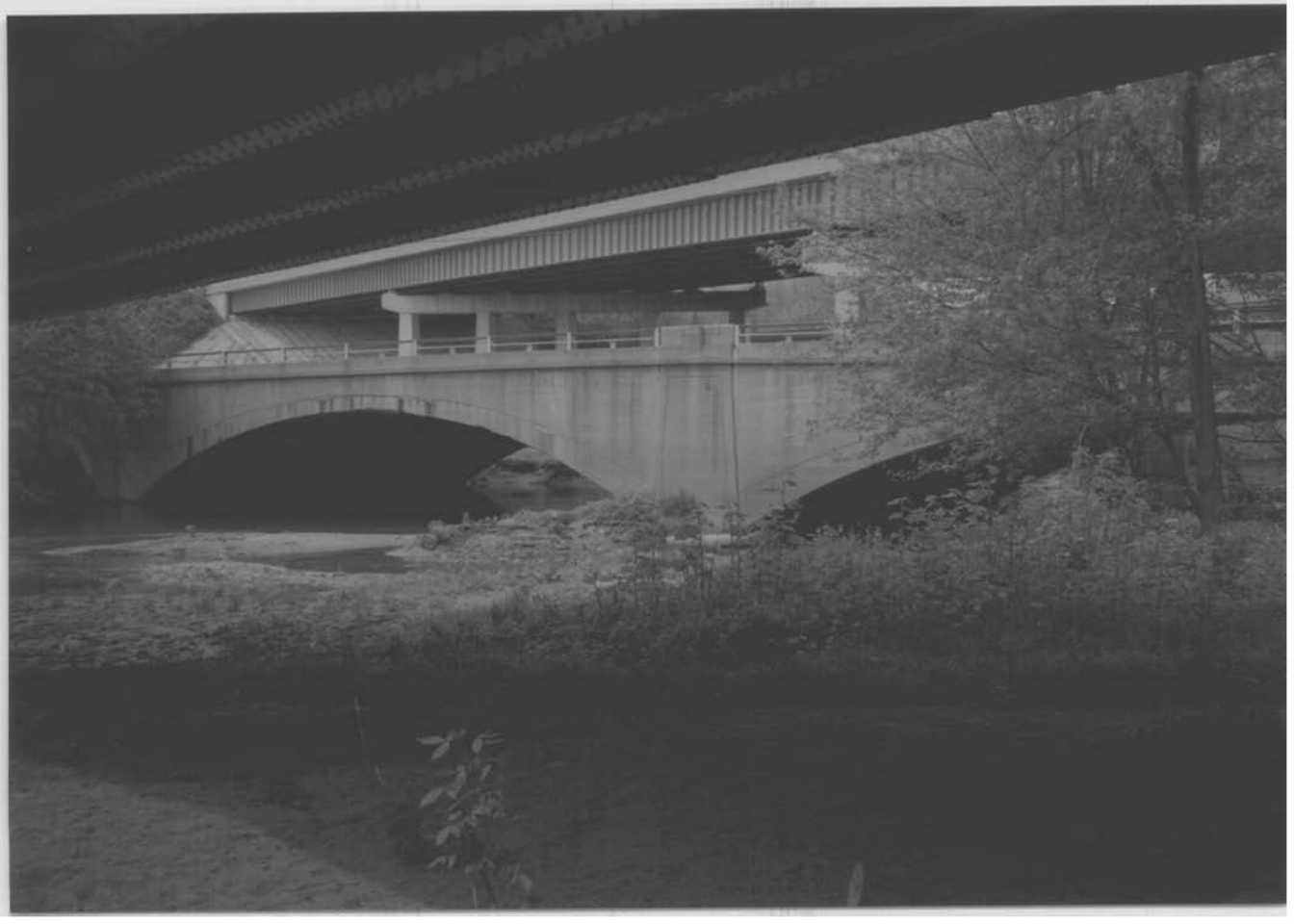
1. BA-2856
2. 3010- US1 over Patapsco River
3. Baltimore Co, MD
4. Stuart Taub, WM&A
5. 4/98
6. MD SHPO
7. east approach, view west
8. 1 of 8

1. BA-2856
2. 3010- US1 over Patapsco River
3. Baltimore Co, MD
4. Stuart Taub, WMA
5. 4/98
6. MD SHPO
7. west approach, view east
8 2 of 8

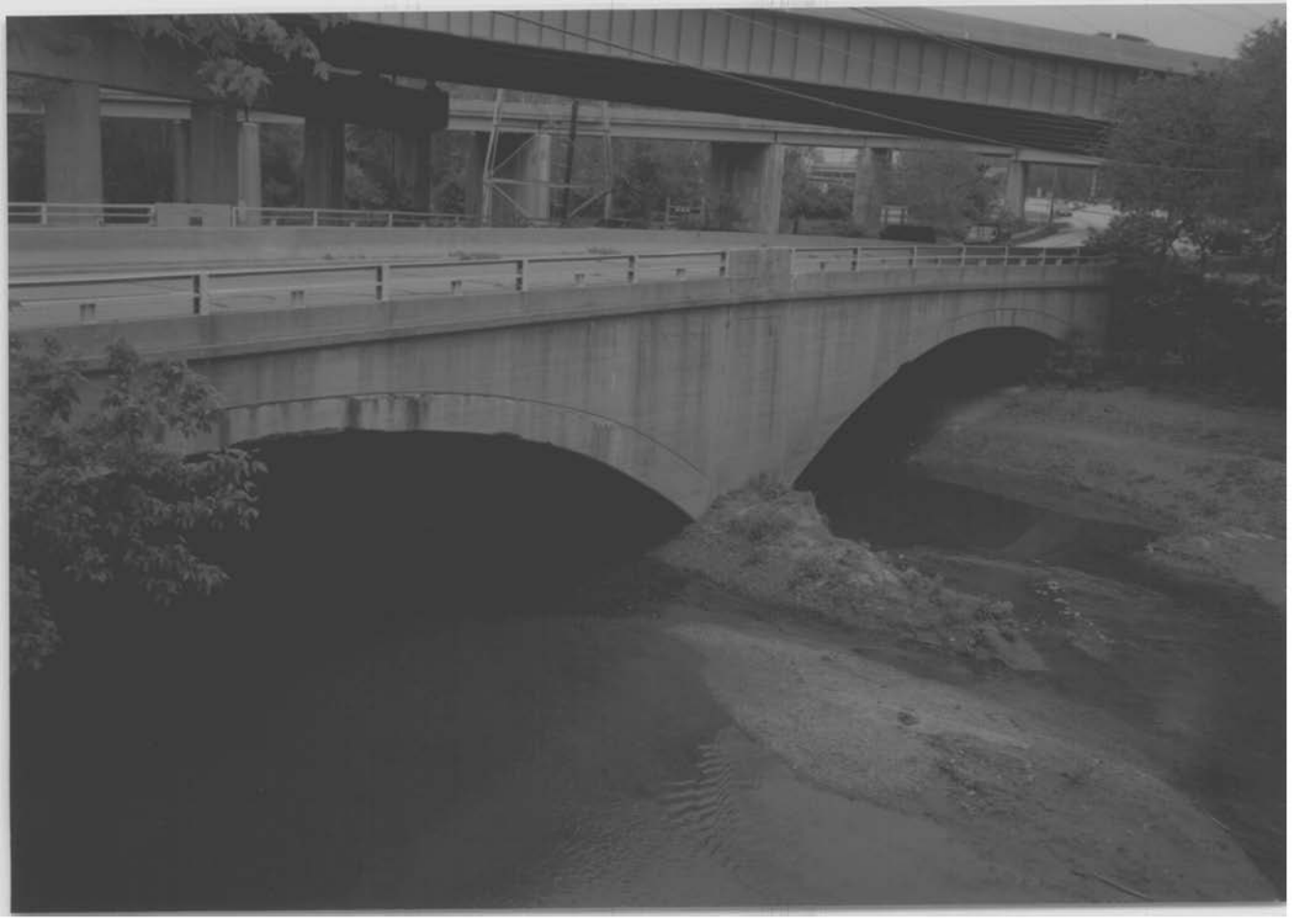


1. BA-2856
2. 3010- US 1 over Patapsco River
3. Baltimore Co, MD
4. Stuart Taub, WMA
5. 4/98
6 MD SHPO
7. north elevation, view south
8. 3 of 8

1. BA-2856
2. 3010- US 1 over Patapsco River
3. Baltimore Co, MD
4. Stuart Taub, WMA
5. 4/98
6. MD SHPO
7. north elevation, view south
8. 4 of 8



1. BA-2856
2. 3010- US 1 over Patapsco River
3. Baltimore Co, MD
4. Stuart Taub, WMA
5. 4/98
6. MD SHPO
7. south elevation, view north
8. 5 of 8



1. BA-2856
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8. 6 of 8

1953

1. BA-2856
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3. Baltimore Co, MD
4. Stuart Taub, WMA
5. 4/98
6. MD SHPO
7. north railing
8. 7 of 8

1953

Inventory # BA-2856

Name 3010~ US1 OVER PATAPSCO RIVER

County/State BALTIMORE COUNTY/MD

Name of Photographer DAVE DIEHL

Date 2/95

Location of Negative SHA

Description DATE IMPRINT ON PARAPET

Number 8 of 8