Maryland Historical Trust

Maryland Inventory of Historic Properties Number: M-27-18

Name: Baltimore Rd over Tributary of Rock Creek

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 bridged received the following determination of eligibly.

MARYLAND HISTORICAL TRUST

Eligibility Recommended ___X____ Eligibility Not Recommended _____

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
HISTORIC BRIDGE INVENTORY
MARYLAND STATE HIGHWAY ADMINISTRATION/
MARYLAND HISTORICAL TRUST

MHT No. M: 27-18

SHA Bridge No. M-201 **Bridge name** Baltimore Road over Tributary of Rock Creek

LOCATION:
Street/Road name and number [facility carried] Baltimore Road

City/town Rockville **Vicinity** X

County Montgomery

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

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

HISTORIC STATUS:
Is the bridge located within a designated historic district? Yes ____ **No** ____
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** ____

M:27-18

DESCRIPTION:

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

Describe Setting:

Bridge M-201 carries Baltimore Road over a tributary to Rock Creek in Montgomery County. Baltimore Road runs north-south and Rock Creek flows east-west. The bridge is located in the vicinity of Rockville, in Rock Creek Regional Park and is surrounded by a wooded area.

Describe Superstructure and Substructure:

Bridge M-201 is a 1-span, 2-lane, filled, concrete arch bridge. The bridge was constructed in 1911. The structure is approximately 18.6 meters (61 feet) long and has a clear roadway width of 6.6 meters (21 feet 8 inches). The out-to-out width is 6.7 meters (22 feet). The superstructure consists of 1 arch which supports a concrete deck and parapets. The arch spans 18 meters (59 feet). The concrete deck has a bituminous wearing surface. The structure has raised panel parapets and the roadway approaches have metal guardrails. The substructure consists of 2 concrete abutments. There are 4 flared concrete wingwalls. The bridge is not posted, and has a sufficiency rating of 80.0.

According to the 1995 inspection report, this structure was in satisfactory condition with some deterioration. The asphalt wearing surface has some potholes. The superstructure is in fair condition. The underside of the arch barrel has several minor hairline cracks. The spandrel walls have cracked areas with efflorescence. The substructure is in good condition. Several spalled areas have recently been patched. Heavy vegetation is growing along the wingwalls. Also, the concrete parapets have spalled areas and cracks.

Discuss Major Alterations:

This bridge has had no major alterations.

HISTORY:

WHEN was the bridge built: 1911

This date is: Actual ___X___ **Estimated** _____

Source of date: Plaque ____ **Design plans** ___ **County bridge files/inspection form** __X__

Other (specify): _____

WHY was the bridge built?

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

WHO was the designer?

Unknown

WHO was the builder?

Unknown

WHY was the bridge altered?

N/A

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

There is no evidence that the bridge was built as part of an organized bridge building campaign.

SURVEYOR/HISTORIAN ANALYSIS:

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

This bridge was determined eligible by the Interagency Review Committe in March 1996.

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 facilitate 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.

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?

There is no evidence that the construction of this bridge had a significant impact on the growth and development of this area.

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?

The bridge is located in an area which does not appear to be eligible for historic designation.

Is the bridge a significant example of its type?

The bridge is a potentially significant example of a concrete arch bridge, possessing a high degree of integrity.

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

The bridge retains the character-defining elements of its type, as defined by the Statewide Historic Bridge Context, including paneled parapets, barrel, spandrel walls, abutments and wingwalls, however some deterioration is evident.

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.

M:27-18

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 X **SHA inspection/bridge files** _____
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.

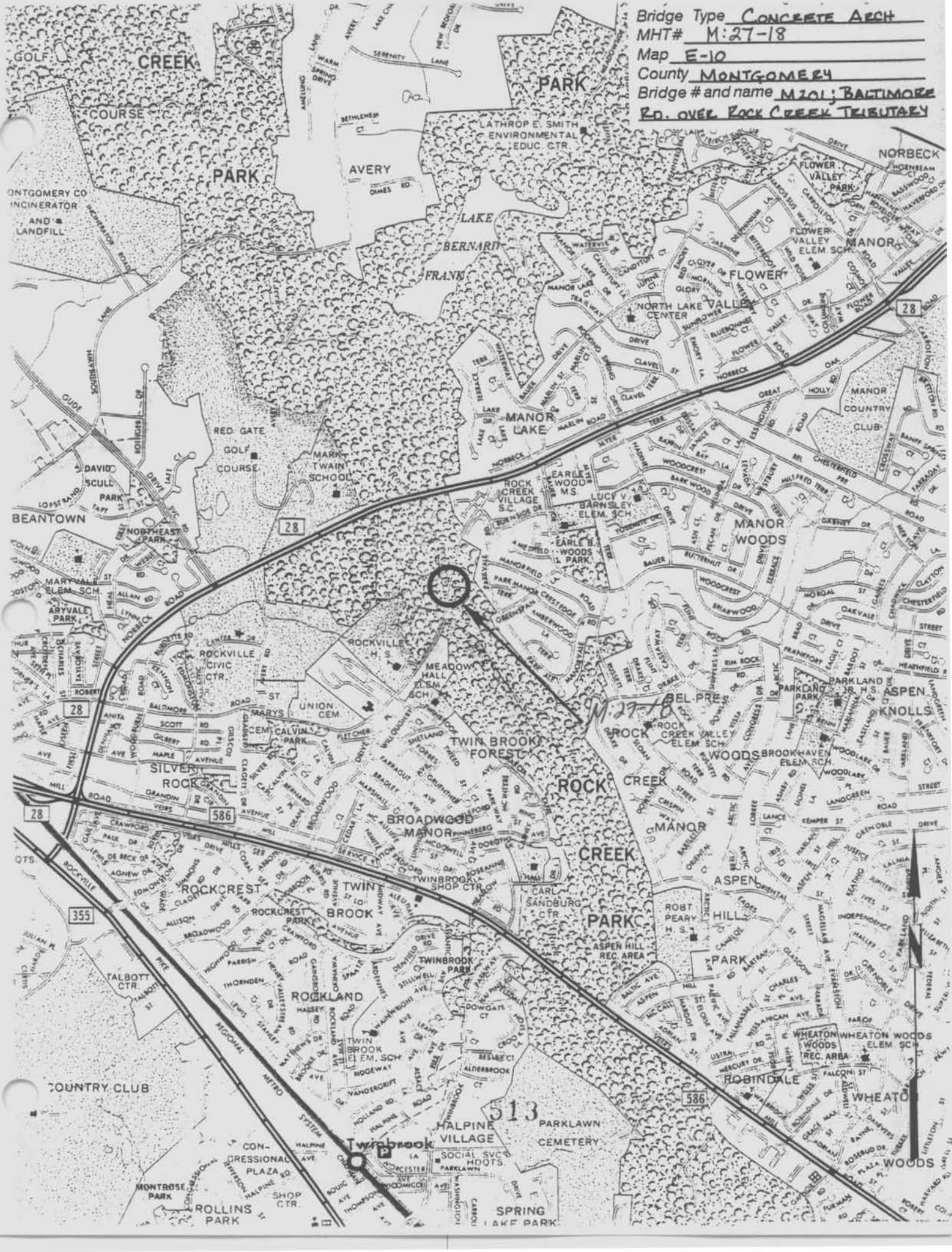
P.A.C. Spero & Company and Louis Berger & Associates
1995 Historic Highway Bridges in Maryland: 1631-1960: Historic Context Report. Maryland State Highway Administration, Maryland State Department of Transportation, Baltimore, Maryland.

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

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
Revised by P.A.C. Spero & Company, July 1998

Bridge Type CONCRETE ARCH
MHT# M:27-18
Map E-10
County MONTGOMERY
Bridge # and name M201; BALTIMORE RD. OVER ROCK CREEK TRIBUTARY



Inventory # M:27-18

Name M201 - BALTIMORE RD OVER TR TO ROCK CREEK
County/State MONTGOMERY / MD
Name of Photographer FRANK JULIANO
Date 2/95

Location of Negative SHA

Description NORTH APPROACH

Number ~~23~~ 1 of ~~36~~ 4

Inventory # M:27-18

Name M201- BALTIMORE RD OVER TR TO ROCK CREEK

County/State MONTGOMERY / MD

Name of Photographer FRANK JULIANO

Date 2/95

Location of Negative SHA

Description ELEVATION LOOKING EAST

Number ~~24~~ 2 of ~~36~~ 4

Inventory # M:27-18

Name M201- BALTIMORE RD OVER TR TO ROCK CREEK

County/State MONTGOMERY / MD

Name of Photographer FRANK JULIANO

Date 2/95

Location of Negative SHA

Description ELEVATION LOOKING WEST

Number ~~25~~ 3 of 30 4

Inventory # M:27-18

Name M201- BALTIMORE RD OVER TR TO ROCK CREEK

County/State MONTGOMERY / MD

Name of Photographer FRANK JULIANO

Date 2/95

Location of Negative SHA

Description SOUTH APPROACH

Number ~~26~~ 4 of ~~30~~ 4

Capsule Summary
for
Baltimore Road Bridge

June 1991

Mont. Co. survey prefix :
Site number : M: 27-18
Approx. building date : 1911
Town/town vicinity : Rockville
Access : √ **Public** _ **Private**

Short Description of Site:

The bridge over Rock Creek on Baltimore Road is a single-span Luten barrel arch highway bridge. It carries a 21.7 foot (curb-to-curb) wide two-land roadway; the span is 62 feet and the bridge is 75 feet in length. The bridge consists of a concrete slab supported by a spandrel-filled concrete arch. The parapet is solid concrete with articulated panels. Stone plaques at the southeast and northwest corners of the bridge provide the date of its erection, and identify the builder and designer:

"Built by the State Roads Commission
1911
Luten Bridge Co., York, PA."

A more recent (c. 1980s) pedestrian bridge across Rock Creek parallels the bridge on its east side.

The Baltimore Road bridge is a graceful structure which contributes to the scenic quality of Baltimore Road and reinforces its rural character.

Analysis of Evaluation
for
Baltimore Road Bridge

M:27-18

June 1991

Value Descr.			
Outstanding			
Considerable	✔	✔	✔
Moderate			
Minor			
Evaluation Criteria	Arch. Signif.	Arch. Integrity	Historical Signif.

Procedure:

$$\text{Rating} = \frac{\text{\# of Boxes Selected}}{12} \times 100$$

0 - 25 % = Unqualified
25 - 50 % = Minimal
50 - 75 % = Mid-level
75 - 100% = Good
90 - 100% = Natl. Reg. (with possible exceptions)

Rating for this site: Good

Criteria:

Arch. Significance - that quality which embodies 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 component may lack individual distinction.

Historical Significance - that quality present in sites associated with events that have made a significant contribution to the broad patterns of our history; or that are associated with the lives of persons significant in our past; or that have yielded, or may be likely to yield, information important in history.

Arch. Integrity - determined by the number of architectural changes to the site...using the following list as a guide...(and) noting other unusual changes.

Detrimental Changes (depending on the quality of its original character):

___ new or relocated chimney
___ rebuilt foundation
___ new porch
___ original windows changed (at a later, but still historical, date)
___ modern windows in original frames
___ original windows intact but extra ones added
___ change in shape or size of window openings
___ lack of outbuildings
___ aluminum siding (unless original architraves and trim are retained)
___ asphalt or asbestos siding (over original siding)
___ recent change of location

Critical Changes:
___ aluminum siding added; architraves eliminated
___ additions engulfing or removing portions of original building

Value Descriptions

Outstanding - distinguished; of particular import. to Md. historic & arch. past.

Considerable - deserving of recognition; contributes to the understanding of history or architectural heritage represented in Maryland

Moderate - commonality...lack of historic signif. or arch. style, except if scarce

Minor - unimportant or inferior; little arch. worth and absence of hist. importance

Site Information Summary

for

Baltimore Road Bridge

M:27-18

June 1991

Site number :
Co. tax account number :
Street address : Baltimore Road over Rock Creek
Name of property owner : Montgomery County Department of Transportation
Addr. of property owner : 101 Monroe Street
Rockville, Maryland 20850

Historic Preservation Master Plan Recommendation:

Historic Preservation Ordinance Criteria

(1) *Historical and cultural significance*. The historic resource:

- ✓ a. Has character, interest or value as part of the development, heritage or cultural characteristics of the county, state or nation;
- __ b. Is the site of a significant historic event;
- __ c. Is identified with a person or group of persons who influenced society;
- __ d. Exemplifies the cultural, economic, social, political or historic heritage of the county and its communities.

(2) *Architectural and design significance*. The historic resource:

- ✓ a. Embodies the distinctive characteristics of a type, period, or method of construction;
- ✓ b. Represents the work of a master;
- __ c. Possesses high artistic values;
- __ d. Represents a significant and distinguishable entity whose components may lack individual distinction; or
- ✓ e. Represents an established and familiar visual feature of the neighborhood, community or county due to its singular physical characteristic or landscape.

Environmental Setting Recommendation:

The environmental setting recommended is a rectangular area 500′ x 1000′ with the bridge at its center. The east and west boundary lines (running in a north/south) should parallel the direction of the roadway and bridge, 250′ from it and extend 500′ north and 500′ south of the bridge. The north and south boundary lines (running in east/west) should be perpendicular to the bridge 500′ from it and extend 250′ east and 250′ west of the bridge.

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#27/18 Baltimore Road Bridge, Rockville

This bridge is a single-span Luten barrel arch highway bridge. It was built in 1911 and carries Baltimore Road over Rock Creek.

The Baltimore Road Bridge is one of only five such concrete arch bridges in the County and it utilizes a design developed by a prominent early 20th century bridge designer, Daniel B. Luten.

Staff is recommending it for historic designation for the following reasons:

1. It embodies the distinctive characteristics of a type and method of construction - concrete arched bridge construction (Historic Preservation Ordinance criteria 24A-3(b)2A). The first use of concrete for an arched bridge was in 1840; however, it was not until the turn-of-the-century that concrete arched bridges began to be built with regularity in the United States. At this time, concrete was a new and innovative building material. Bridges which were both functional and beautiful were created. A Maryland Historical Trust statewide bridge survey in 1980 noted that the form of concrete arched bridges is significant and represents a bridge type that in all probability will never again be built.

2. This bridge represents the work of a master (Historic Preservation Ordinance criteria 24A-3(b)2B). The Baltimore Road Bridge was designed by Daniel B. Luten, a prolific designer of concrete arch bridges and the holder of more than 30 bridge patents. This bridge is modeled after Luten's 1907 patent #852970. Luten was a major force in the construction of concrete arch bridges at the turn-of-the-century and his work is found throughout the East.

3. The Baltimore Road Bridge represents an established and familiar visual feature (Historic Preservation Ordinance criteria 24A-3(b)2E). As noted above, there are very few concrete arch bridges in the County. This bridge contributes to the scenic quality of Baltimore Road and reinforces its semi-rural character.

It should be noted that the Montgomery County Department of Transportation (DOT) does not support designation of this bridge. DOT brings up concerns about the structural longevity of the bridge and the potential need for replacement in the future (see attached letter from Robert Merryman).

Staff recommended environmental setting would be the bridge structure only.

Survey No. M: 27-18

Magi No.

DOE __yes __no

Maryland Historical Trust
State Historic Sites Inventory Form

1. Name (indicate preferred name)

historic: Baltimore Road Bridge (No. M. 0201)

and/or common: same

2. Location

street & number: Baltimore Road over Rock Creek ___ not for publication

city, town: Rockville x vicinity of congressional district: 8

state: Maryland county: Montgomery

3. Classification

Category	Ownership	Status	Present Use	
___ district	x public	___ occupied	___ agriculture	___ museum
___ building(s)	___ private	___ unoccupied	___ commercial	___ park
x structure	___ both	___ work in progress	___ educational	___ private residence
___ site	**Public Acquisition**	**Accessible**	___ entertainment	___ religious
___ object	___ in process	___ yes: restricted	___ government	___ scientific
	___ being considered	x yes: unrestricted	___ industrial	x transportation
	x not applicable	___ no	___ military	___ other:

4. Owner of Property (give names and mailing addresses of all owners)

name: Montgomery County Department of Transportation

street & number: 101 Monroe Street telephone no.: (301) 217-2121

city, town: Rockville state and zip code: Maryland 20850

5. Location of Legal Description

courthouse, registry of deeds, etc. --- liber

street & number: folio

city, town: state

6. Representation in Existing Historical Surveys

title: none

date: ___ federal ___ state ___ county ___ local

depository for survey records

city, town: state

7. Description

Survey No. M: 27-18

Condition		Check one	Check one
X excellent	___ deteriorated	X unaltered	X original site
___ good	___ ruins	___ altered	___ moved date of move _____
___ fair	___ unexposed		

Prepare both a summary paragraph and a general description of the resource and its various elements as it exists today.

The bridge over Rock Creek on Baltimore Road is a single-span Luten barrel arch highway bridge. It carries a 21.7 foot (curb-to-curb) wide two-land roadway; the span is 62 feet and the bridge is 75 feet in length. The bridge consists of a concrete slab supported by a spandrel-filled concrete arch. The parapet is solid concrete with articulated panels. Stone plaques at the southeast and northwest corners of the bridge provide the date of its erection, and identify the builder and designer:

"Built by the State Roads Commission
1911
Luten Bridge Co., York, PA."

A more recent (c. 1980s) pedestrian bridge across Rock Creek parallels the bridge on its east side.

The Baltimore Road bridge is a graceful structure which contributes to the scenic quality of Baltimore Road and reinforces its rural character.

8. Significance

Survey No. M: 27-18

Period	Areas of Significance—Check and justify below			
___ prehistoric	___ archeology-prehistoric	___ community planning	___ landscape architecture	___ religion
___ 1400–1499	___ archeology-historic	___ conservation	___ law	___ science
___ 1500–1599	___ agriculture	___ economics	___ literature	___ sculpture
___ 1600–1699	___ architecture	___ education	___ military	___ social/ humanitarian
___ 1700–1799	___ art	___ engineering	___ music	___ theater
___ 1800–1899	___ commerce	___ exploration/settlement	___ philosophy	X transportation
X 1900–	___ communications	___ industry	___ politics/government	___ other (specify)
		___ invention		

Specific dates 1911 **Builder/Architect** State Roads Commission/Luten Bridge Co.

check: Applicable Criteria: __A __B __C __D
and/or
Applicable Exception: __A __B __C __D __E __F __G

Level of Significance: __national __state __local

Prepare both a summary paragraph of significance and a general statement of history and support.

The Baltimore Road bridge over Rock Creek is significant because it is one of only five such concrete arch bridges in the county and it utilizes a design developed by a prominent early twentieth century bridge designer, Daniel B. Luten. It is an excellent example of Luten's single-span, barrel arch highway bridge of a type built widely throughout Virginia. Other examples have not, as yet, been identified in Montgomery County.[1]

1. Historic Period Theme(s): Transportation
2. Geographic Organization: Piedmont (Montgomery County)
3. Development Period: Industrial/Urban Dominance 1870-1930 A.D.
4. Resource Type(s): Bridge

Concrete arch bridges, while not rare, are not found in large numbers in the county. The 1990 "Montgomery County Bridge Inventory" lists only four others in addition to the one on Baltimore Road. The earliest of these dates from before 1900, and the latest from 1930.[2]

A Maryland Historical Trust statewide bridge survey in 1980 found that:

> "While concrete bridges of the period of this survey (1935 and older) are not uncommon (in the state) their form is significant as a type . . . that in all probability will never again be built."[3]

Concrete is the oldest synthetic material used in building, having been used by Mayan builders as early as the eleventh century. It was not until 1824, however, that Joseph Aspdin of Leeds, England obtained a patent for the prime cementing agent in modern structural concrete, Portland cement.

(cont.)

[1] Paula A.C. Spero, "A Survey and Photographic Inventory of Concrete and Masonry Arch Bridges in Virginia: ((Charlottesville: Virginia Highway and Transportation Research Council, 1984). p. 30.

[2] Montgomery County Department of Transportation, Bridge Inventory Summary (Montgomery County Government: 1990) p. 1-11.

[3] John Hnedak, "Inventory Form for State Historic Sites Survey", (Maryland Historical Trust: 1980) Maryland 195 over Sligo Creek Bridge.

Concrete was not used widely in this country until the latter half of the nineteenth century, when David O. Saylor patented an American equivalent of Portland Cement and built a mill at Coplay, Pennsylvania to manufacture the product.

> "This marked the establishment of the artificial cement industry in the United States as well as the beginning of a scientific understanding of the physical properties and structural behavior of concrete."[4]

The first use of concrete for an arch bridge was a highway span built in 1840 over the Garonne Canal at Grisoles, France. It was another thirty years before the concrete arch bridge was adopted in the United States, for a small footbridge constructed in Prospect Park, Brooklyn, New York, in 1871.[5]

German and French engineers were the first to reinforce concrete arch construction in the mid 1880s. Reinforcing of arches was still an unfamiliar technique in this country through the 1890s, and reinforcement techniques were primarily trial-and-error.

> "Concrete, although scientifically understood in some degree of sophistication in the 1890s, began to be used generally in a more structurally efficient manner in the United States after the first decade of the twentieth century . . . Between 1894 and 1904 about 100 concrete bridges had been built in the United States in spans up to 125 feet."[6]

The most prolific designer of concrete arch bridges was Daniel B. Luten, who designed hundreds of them throughout the east and midwest in the early decades of the twentieth century and was the holder of more than thirty bridge patents.

An 1894 civil engineering graduate of the University of Michigan, Luten was an instructor in the subject at Purdue University from 1895 to 1900, resigning in 1900 to design bridges.

In 1899, Luten applied for his first patent (for an arch bridge of concrete, stone, brick, iron, or steel in which ties were placed below the water, from abutment to abutment); it was granted in 1900. This concept developed into a patent for a concrete arch in which steel tie rods were embedded in a concrete pavement across the streambed. Other Luten patents included numerous variations on the design of the arch; reinforcement systems; methods of bridge construction; and reinforced concrete beams.[7]

The Luten system of reinforcement came into being before the end of the century, initially in concrete culverts. In the Luten system, bars were bent

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[4] Carl W. Condit, American Building (Chicago: University of Chicago Press, 2nd ed., 1982) p. 158.

[5] Condit, p. 159.

[6] Spero, p. 7.

Spero, p. 28.

M:27-18

into loops conforming to the cross-sectional shape of the culvert.[8]

Luten's first bridge company was the National Bridge Company, formed in 1902. It contracted and constructed its bridges until 1905, but was involved only in engineering, design, and supervision after that.

Luten was concerned with the appropriateness of his designs, as well as their technical capabilities. A 1917 Luten publication called "Reinforced Concrete Bridges" illustrated a broad range of arch types, including a "Highway Bridge of Plain Design" and a "Park Bridge of Attractive Design". Both had the same arch form, but the parapet wall of the highway bridge was a solid recessed panel and that of the park bridge a balustrade type. The Baltimore Road Bridge is of the "Highway Bridge of Plain Design" type.[9]

Luten was an enthusiastic salesman for his bridge designs and his company catalogs stress the advantages of concrete bridges. He also used professional meetings to describe their virtues. In the American Concrete Institute Proceedings of 1912, Luten is quoted as saying that:

> "Concrete as a structural material is full of surprising possibilities and one of these is that the most beautiful and appropriate applications of concrete to bridges, that is in the arch form, is also the most satisfactory from almost every engineering standpoint."[10]

The Baltimore Road bridge is modeled after Luten's 1907 patent #852970, which shows a barrel arch with recessed panel parapet walls and filled spandrels. (See Figure 23, attached.)[11] It is a type of bridge which, according to a Montgomery County Department of Transportation staff person, is unlikely to be built again because it is no longer cost effective.[12]

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[8] Condit, p. 174.

[9] Spero, p. 29.

[10] Spero, p. 28.

[11] Spero, p. 28, 29.

[12] Conversation with Mitra P. Kamdjou, P.E., Montgomery County Department of Transportation, June, 1991.

M: 27-18

From:

Paula A.C. Spero, "A Survey and Photographic Inventory of Concrete and Masonry Arch Bridges in Virginia: (Charlottesville: Virginia Highway and Transportation Research Council, 1984).

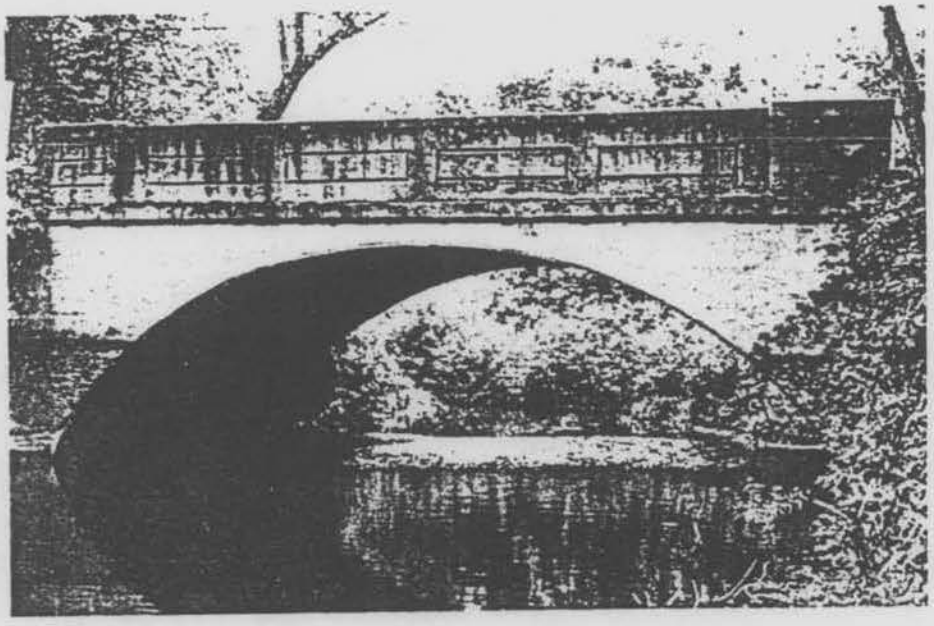


Figure 23. Typical single-span Luten barrel arch highway bridge. This type, patented by Daniel B. Luten, was built throughout Virginia.

9. Major Bibliographical References

Survey No. M: 27-18

Attached

10. Geographical Data

Acreage of nominated property 1.2 ac

Quadrangle name Kensington

Quadrangle scale 1:24000

UTM References do NOT complete UTM references

	Zone	Easting	Northing		Zone	Easting	Northing
A				B			
C				D			
E				F			
G				H			

Verbal boundary description and justification

n/a

List all states and counties for properties overlapping state or county boundaries

state	code	county	code
state	code	county	code

11. Form Prepared By

name/title	Lois Snyderman, Historic Preservation Consultant		
organization		**date**	June 1991
street & number	8804 Spring Valley Road	**telephone**	(301) 654-6423
city or town	Chevy Chase	**state**	Maryland 20815

The Maryland Historic Sites Inventory was officially created by an Act of the Maryland Legislature to be found in the Annotated Code of Maryland, Article 41, Section 181 KA, 1974 supplement.

The survey and inventory are being prepared for information and record purposes only and do not constitute any infringement of individual property rights.

return to: Maryland Historical Trust
Shaw House
21 State Circle
Annapolis, Maryland 21401
(301) 269-2438

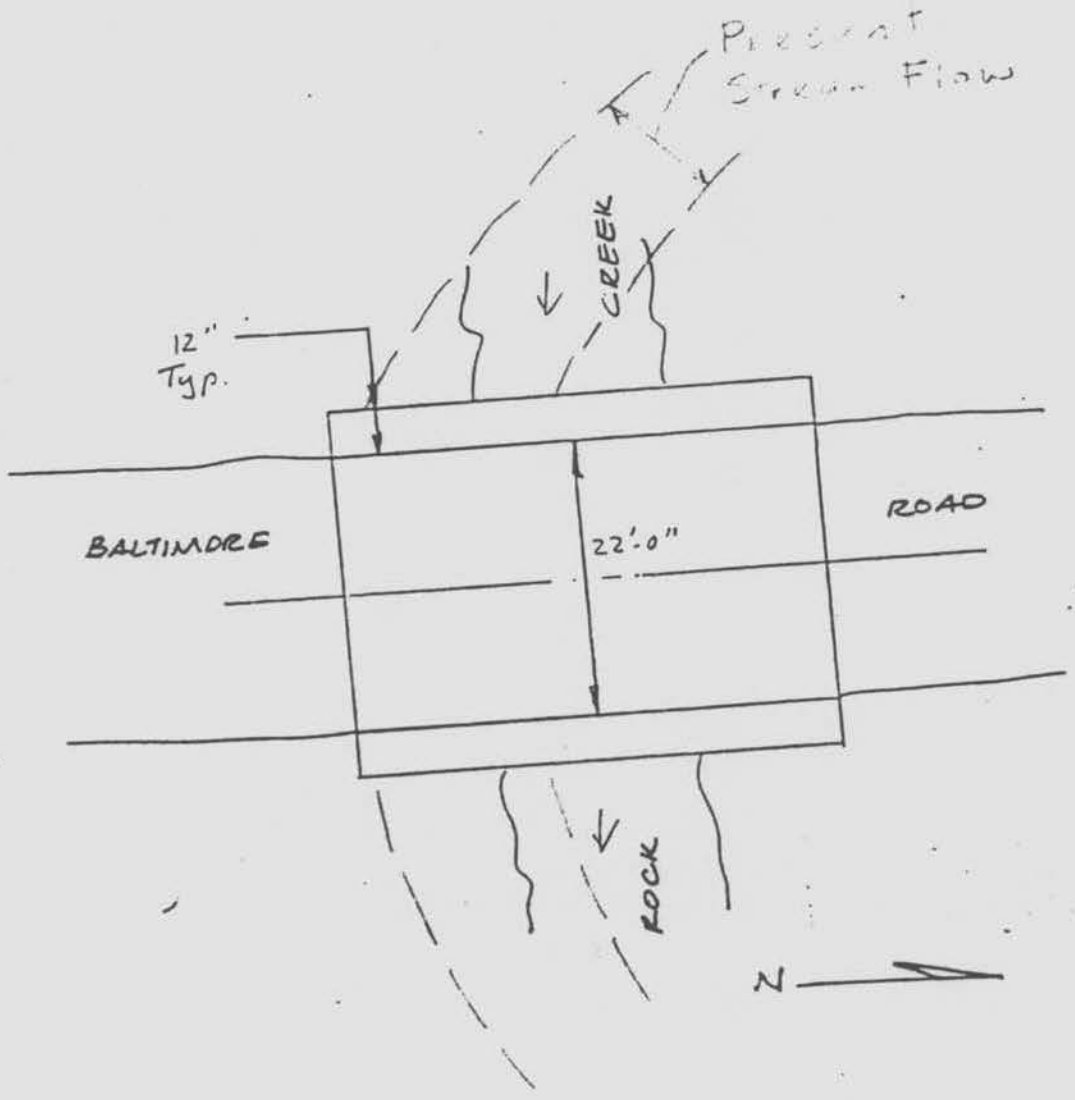
Spero, Paula A.C., "A Survey and Photographic Inventory of Concrete and Masonry Arch Bridges in Virginia (Charlottesville: Virginia Highway and Transportation Research Council, 1984).

Bridge Inventory Summary Montgomery County Department of Transportation, (Montgomery County Government: 1990)

Hnedak, John, "Inventory Form for State Historic Sites Survey", (Maryland Historical Trust: 1980) Maryland 195 over Sligo Creek Bridge.

Condit, Carl W. American Building (Chicago: University of Chicago Press, 2nd ed.) 1982

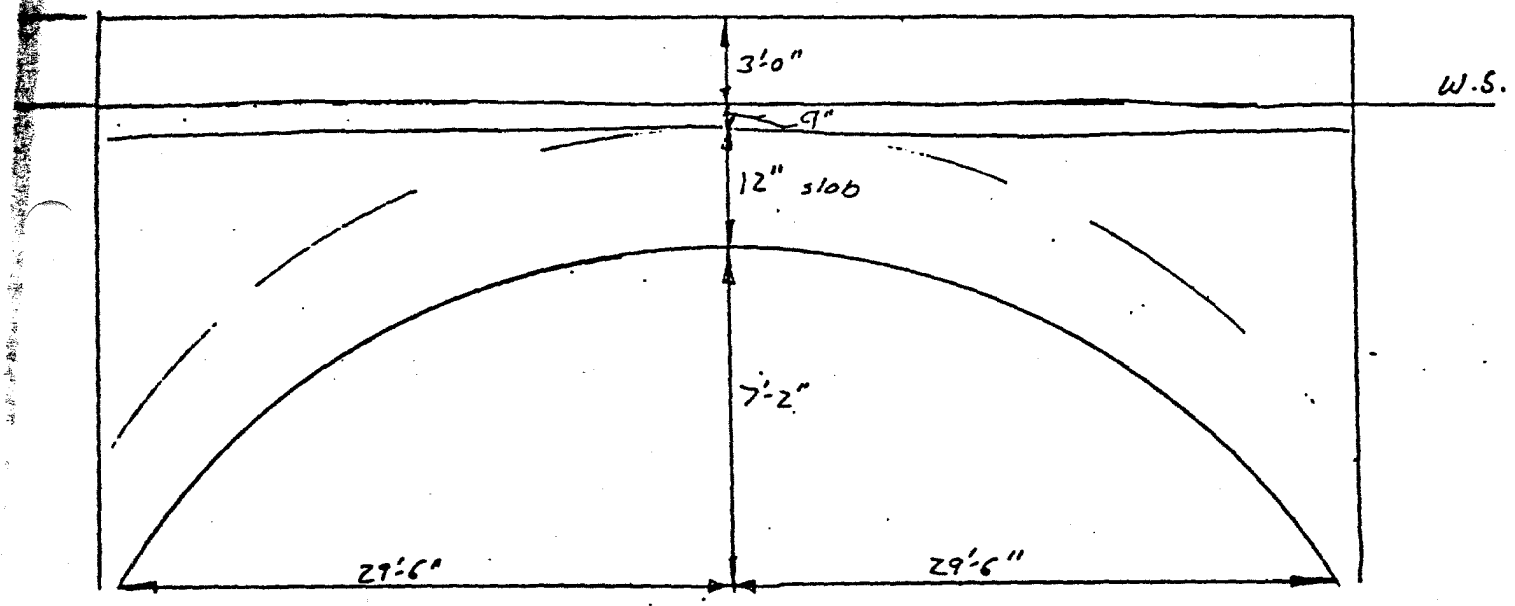
M:27-18



PLAN

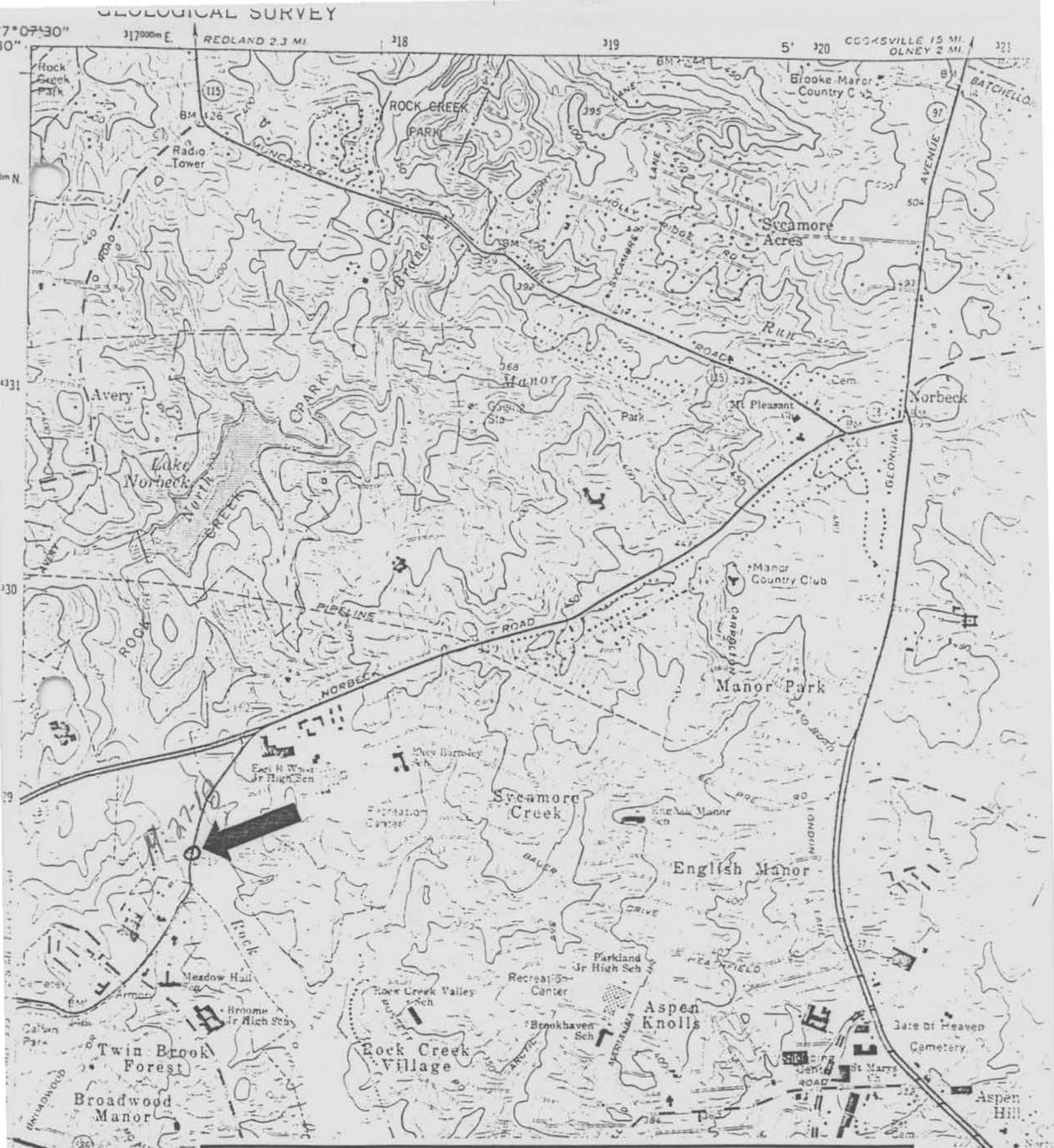
BRIDGE NO. 201

M:27-18



ELEVATION

BRIDGE NO. 201



BALTIMORE ROAD BRIDGE

Rockville (Vicinity)
Montgomery County

USGS Map
7.5 Minute Topographic Series (1:24,000)
Kensington Quadrangle

M:27-18

M: 27-18

Baltimore Road Bridge (#201)

Mont Co. Md

by L. Snyderman 4/91

Neg - Mont Co. Hist Pres. Comm.

Bridge - E. Elev.

1972

M: 27/-18

Baltimore Road Bridge (#201)
Mont Co MD
by L. Snyderman 4/91
Neg - Mont Co Hist Pres Comm
Setting - Looking S
2 of 2