

Maryland Historical Trust

Maryland Inventory of Historic Properties Number: CAR-302

Name: Boyer Mill Rd over Gravelly Pk.

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 <input checked="" type="checkbox"/> X <input type="checkbox"/> | Eligibility Not Recommended <input type="checkbox"/> |
| Criteria: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D | Considerations: <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F <input type="checkbox"/> G <input type="checkbox"/> None |
| Comments: _____ | |
| _____ | |
| Reviewer, OPS: <u>Anne E. Bruder</u> | Date: <u>3 April 2001</u> |
| Reviewer, NR Program: <u>Peter E. Kurtze</u> | Date: <u>3 April 2001</u> |

MARYLAND INVENTORY OF HISTORIC BRIDGES
HISTORIC BRIDGE INVENTORY
MARYLAND STATE HIGHWAY ADMINISTRATION/
MARYLAND HISTORICAL TRUST

MHT No. CAR-302

SHA Bridge No. CO-13 Bridge name Boyce Mill Road over Gravelly Branch

LOCATION:

Street/Road name and number [facility carried] Boyce Mill Road

City/town Three Corners Vicinity X

County Caroline

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 Retractable 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

DESCRIPTION:

Setting: Urban _____ Small town _____ Rural X

Describe Setting:

Bridge CO-13 carries Boyce Mill Road over Gravelly Branch in Caroline County. Boyce Mill Road runs north-south and Gravelly Branch flows east to west at the location of the bridge. The bridge is located in the vicinity of Three Corners and is surrounded by woodland.

Describe Superstructure and Substructure:

Bridge CO-13 is a 1-span, 2-lane, filled spandrel concrete arch bridge. The bridge, built in 1919, is 12.5 meters (41 feet) long and has a clear roadway width of 6 meters (19.75 feet); there are no sidewalks. The out-to-out width is 6.9 meters (22.5 feet). The north approach roadway is 6.2 meters (20.5 feet) wide, while the south approach roadway is 5.1 meters (17 feet) wide. The approaches do not have guardrails. The superstructure consists of one concrete barrel arch, with a span of 12.5 meters (41 feet), which supports a concrete deck and concrete parapets. The concrete deck is of varying thickness and it has a bituminous wearing surface. The solid panel concrete parapets are .8 meters (2.5 feet) in height and are integral with the structure. A bronze plaque located on the east parapet states, "1919, Luton Bridge Co., York, PA." The substructure consists of two concrete abutments and four concrete wingwalls. The bridge has a sufficiency rating of 67.8.

According to the 1995 inspection report, this structure was in satisfactory condition. The concrete arch has cracks, spalls and scaling. The parapets have minor collision damage to all corners and minor spalls throughout. The wingwalls are in satisfactory condition with minor cracking and scaling. The top of the northeast wingwall has several surface spalls.

Discuss Major Alterations:

There is no record of any major alterations to Bridge CO-13.

HISTORY:

WHEN was the bridge built: 1919

This date is: Actual X Estimated _____

Source of date: Plaque X 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?

Luton Bridge Company of York, Pennsylvania

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.

Bridge CO-13 was constructed by the Luten Bridge Company in 1919. Daniel B. Luten's patented bridges were built throughout the eastern and midwestern United States. From 1895 to 1900, Luten was instructor of civil engineering at Purdue University, and in 1900 he resigned to design bridges. One year later, he was designing and patenting his designs. Luten patents, totaling over 30, included numerous variations, among them a hinged arch and viaducts; systems of reinforcement; ingenious centering forms and methods; methods of bridge construction; and reinforced concrete beams.

By 1919, Luten claimed to have designed some 17,000 arches and stated that examples of his designs could be found in all but three states of the Union. Indiana alone had some 2,000 Luten arches. Luten arch bridges known to have been built in Maryland often featured curved, simply ornamented solid parapets, similar to the parapets on Bridge CO-13. Characterized by the graceful arch and curved, incised solid parapets, this bridge type was described in Luten Company catalogs as "Highway Bridge of Plain Design." This type of concrete arch was widely built as a proprietary type in the first quarter of the twentieth century. Luten's "Park Bridge of Attractive Design" also influenced concrete arch design in Maryland. Variations in the Luten style arch and parapet detail soon developed and resulted in similar nonproprietary designs prepared by highway department staffs.

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.

RESTRICTED BRIDGE
SINGLE UNIT
30,000 LBS GVW
COMBINATION UNIT
50,000 LBS GVW



MAR 25 018 NNND 29

CAR-30A

CAROLINE COUNTY

MATT HICKSON

3-16-95

MARGARET SHPO SHHA

BRIDGE CO-13, LOOKING NE

1 OF 5



CAR-302A

CARLINE COUNTY

MATT HICKSON

3-16-95

ANDREW SHPO-SHA

BRIDGE CO-13, Looking SW

2 of 5

MAR 29 018 11ND 30

1919

STEEL BRIDGE CO

MARX, PA.

CAR-302

CAROLINE COUNTY

MATT HICKSON

3-16-95

MARYLAND SHRO SHA

BRIDGE CO-13, PLAQUE ON DOWNSTREAM PARAPET

3 OF 5



CAR-302

CAROLINE COUNTY

MATT HICKSON

3-16-95

~~ANDREW SHPO~~ S HA

BRIDGE CO-13, LOOKING UPSTREAM (SE)

4/05



CAR-302

CAROLINE COUNTY

MATT HICKSON

3-16-95

MARYLAND SHPO

SHA

BRIDGE CO-13, LOOKING DOWNSTREAM (NW)

5 OF 5