Maryland Historical Trust

Maryland Inventory of Historic Properties number: BA-2709

Name: Sudbrook Lane over C&O Railroad

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 ___X____ Eligibility Not Recommended _____

Criteria: ____A ____B ___X___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. BA-2709

SHA Bridge No. B0139 **Bridge name** Sudbrook Lane over CSX Railroad

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

City/town Pikesville **Vicinity** X

County Baltimore

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

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

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

Name of district Sudbrook Park Historic 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 X:
Rolled Girder ____ **Rolled Girder Concrete Encased** ____
Plate Girder X **Plate Girder Concrete Encased** ____

Metal Suspension ____

Metal Arch ____

Metal Cantilever ____

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

BA-2709

DESCRIPTION:

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

Describe Setting:

Bridge No. B 0139 carries Sudbrook Lane over CSX Railroad in Baltimore County. Sudbrook Lane runs northeast-southwest and CSX Railroad runs northwest-southeast. The bridge is located in the vicinity of Pikesville, and is surrounded by late nineteenth and early twentieth century single family homes.

Describe Superstructure and Substructure:

Bridge No. B 0139 is a 3-span, 1-lane, metal girder bridge. The bridge was originally built in 1907. In 1983 the bents were encased in concrete and a protective pedestrian barrier was added to both sides of the deck. The structure is 97 feet long and has a clear roadway width of 16 feet, 5 inches; there is one (1) sidewalk measuring 4 feet, 2 inches wide on the west side of the bridge. The out-to-out width is 22 feet, 6 inches. The superstructure consists of two (2), steel plate girders, which support a timber plank deck and a metal railing. The girders are 39 inches x 12 inches and are spaced 18 feet apart. The two plate girders support four (4) rolled metal floorbeams per span with timber stringers measuring 2 inches x 12 inches. The roadway is carried through the girders. The timber plank deck is 4 inches thick and it has a bituminous wearing surface. The structure has metal guard rails and the roadway approaches are tangent with the bridge. The substructure consists of two (2) concrete abutments and two (2) concrete encased steel bents with exposed steel cross-bracing. The bridge is posted for 9 tons, 10 tons, and 19 tons for the H, the MD Type 3, and the MD Type 3S2 vehicles, and has a Baltimore County sufficiency rating of 26.5.

According to the 1995 inspection report, this structure was in marginal condition with the steel plate girder bearings exhibiting heavy corrosion with section loss up to 25 percent. The timber stringers exhibit splitting, and minor decay at various locations. The floorbeams exhibit moderate to heavy corrosion on the top and bottom flanges. The main girders have heavy corrosion on the bottom flanges and minor to moderate corrosion on the web and top flanges. The asphalt wearing surface has numerous 1/16-inch to 1/8-inch wide longitudinal and transverse cracks. The concrete is in poor condition in the abutments. Both abutments have spalling, scaling, and heavy erosion on the side and front embankments. The east abutment stem and footing have heavy deterioration and exposed aggregate. There is minor spalling in the encased concrete steel bents. The exposed steel cross-bracing also has moderate to heavy rust with some angles exhibiting 60 to 80 percent section loss.

Discuss Major Alterations:

The steel bents were encased in concrete during a 1983 restoration of the bridge by CSX Transport.

HISTORY:

WHEN was the bridge built: ___1907___
This date is: Actual ___X___ **Estimated** _____
Source of date: Plaque ____ **Design plans** __X__ **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?

According to the original design plans, the bridge was designed by the Western Maryland Railroad.

WHO was the builder?

Unknown

WHY was the bridge altered?

The bridge was altered to correct functional or structural deficiencies.

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____

The bridge is eligible for the National Register of Historic Places under Criterion C, as a significant example of metal girder construction. The structure has a high degree of integrity and retains such character-defining elements of the type as the plate girders, concrete abutments and steel bents. Although the steel bents were encased in concrete during the 1983 reconstruction of the bridge, they retain sufficient integrity as an integral component of the original structural system of the bridge.

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

Metal girder bridges were most likely introduced and first popularized in Maryland by the state's major railroads of the nineteenth century including the Baltimore and Susquehanna, its successor the Northern Central, and the Baltimore and Ohio Railroad. Bridge engineering historians have documented the fact that James Milholland (or Mulholland) erected the earliest plate girder span in the United States on the Baltimore and Susquehanna Railroad in 1846 at Bolton Station, near present-day Mount Royal Station. The sides (web) and bottom flange of Milholland's 54-foot-long span were wholly of wrought iron and included a top flange reinforced with a 12x12-inch timber. Plates employed in the bridge were 6 feet deep and 38 inches wide, giving the entire bridge a total weight of some 14 tons. Milholland's pioneering plate girder cost $2,200 (Tyrrell 1911:195). By December 31, 1861, the Northern Central Railroad, which succeeded the Baltimore and Susquehanna, maintained an operating inventory in Maryland of 50 or more bridges described simply as "girder" spans, in addition to a number of Howe trusses. Most of these were probably iron girder bridges; the longest were the 117-foot double-span bridge over Jones Falls and the 106-foot double-span girder bridge at Pierce's Mill (Gunnarson 1990:179-180).

As in the nation, girder bridge technology in Maryland was quickly adapted to cope with the increasingly heavy traffic demands of the twentieth century caused by automobile and truck traffic. The 1899 Maryland Geological Survey report on highways noted that "there are comparatively few I-beam bridges, one of the cheapest and best forms for spans less than 25 or 30 feet" (Johnson 1899:206). Interestingly, the report also urged construction of a composite metal, brick, and concrete bridge, noting that "no method of construction is more durable than the combination of masonry and I-beams, between which are transverse arches of brick, the whole covered with concrete, over which is laid the roadway" (Johnson 1899:206). Whether any such bridges (transitional structures between I-beams and reinforced concrete spans) were built is unknown.

Official state and county highway reports—issued between 1900 and the early 1920s through the Highway Division of the Maryland Geological Survey and its successor, the State Roads Commission—generally do not reference or describe girder construction. An analysis of the current statewide listing of county and municipal bridges (a listing maintained by the State Highway Administration) reveals that 48 county bridges, out of the total of 141 approximately dated to "1900" by county engineers, were listed as steel girder, steel stringer, or variants of such terms. (It should be noted that the "1900" date is often given when no exact date is pinpointed for a bridge that is clearly old). A grand total of 200 bridges (including "steel culverts"), out of 550 bridges dated on the county list between 1901 and 1930, were described as steel beam, steel girder, or steel stringer and girder varieties. The total suggests that among the various highway bridge types built in the early twentieth century metal girder bridges in Maryland between 1900 and 1930 were second in popularity only to reinforced concrete bridges. However, these numbers must be interpreted with caution, as they do not necessarily include all county and municipal bridges.

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?

This bridge is located within the Sudbrook Park Historic District, which is listed on the National Register of Historic Places. The north boundary of the district begins at the southwest side of the railroad tracks and bisects the bridge. The bridge contributes to the significance of the historic district, as an example of a metal plate girder bridge that dates to the period of significance of the historic district.

Is the bridge a significant example of its type?

The bridge is a significant example of its type, due to its early date of construction, and it possesses a high degree of integrity. The plate girders and concrete abutments are unaltered. The bents were encased in concrete during the 1983 reconstruction of the bridge, but retain a high degree of structural integrity and remain an integral component of the original structural system.

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 the plate girders and concrete abutments. Although the original bents have been encased in concrete, they remain intact as an integral component of the original structural system of the bridge.

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

This bridge may be a significant example of the work of the Western Maryland Railroad during the 1900s.

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):

Gunnarson, Robert
1990 *The Story of the Northern Central Railway, From Baltimore to Lake Ontario*. Greenberg Publishing Co., Sykesville, Maryland.

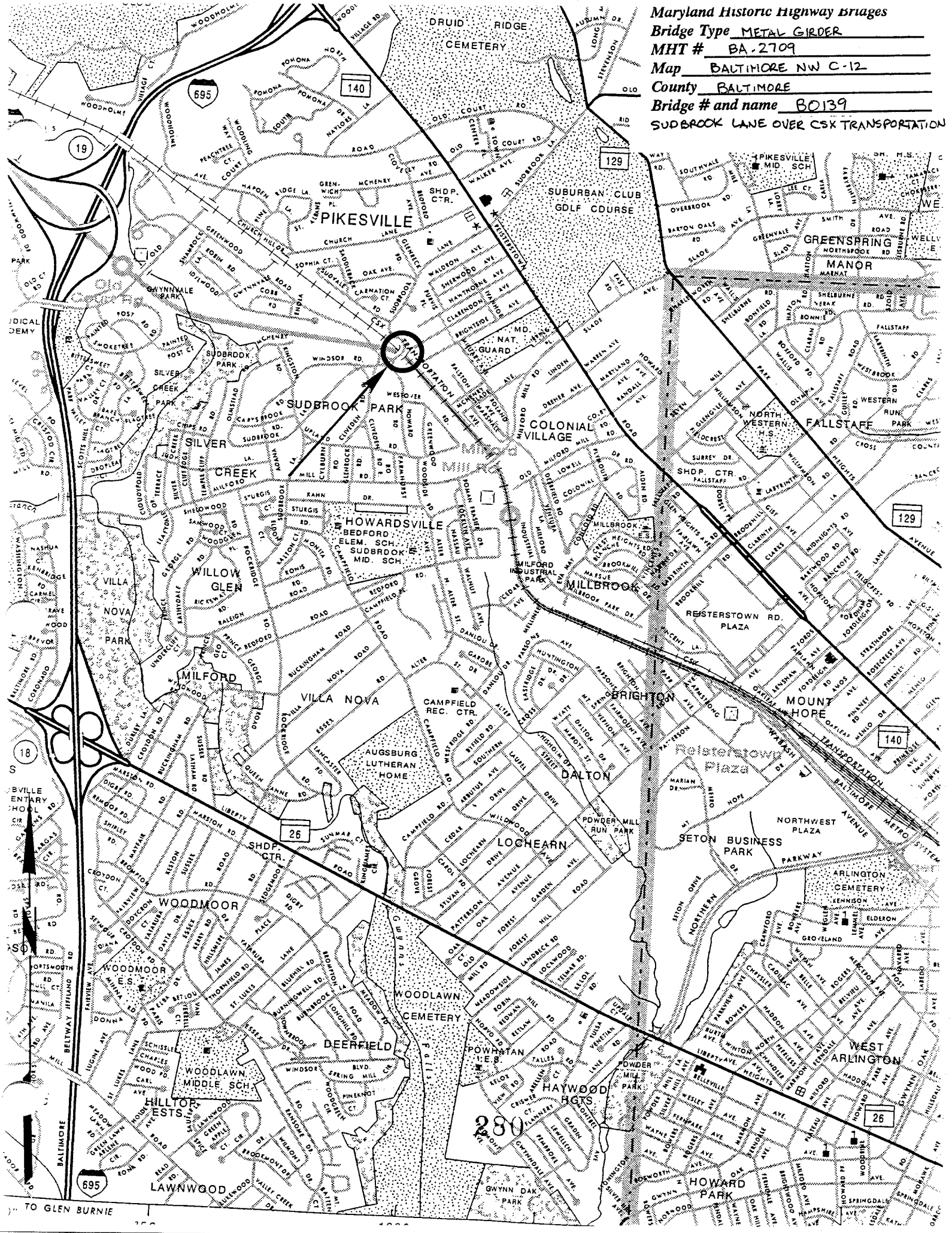
Johnson, Arthur Newhall
1899 The Present Condition of Maryland Highways. In *Report on the Highways of Maryland*. Maryland Geological Survey, The Johns Hopkins University Press, Baltimore.

Tyrrell, Henry G.
1911 *History of Bridge Engineering*. Published by author, Chicago.

SURVEYOR:

Date bridge recorded 2/28/97
Name of surveyor Caroline Hall/Eric F. Griffitts
Organization/Address P.A.C. Spero & Co., 40 W. Chesapeake Avenue, Baltimore, MD 21204
Phone number (410) 296-1685 **FAX number** (410) 296-1670

Maryland Historic Highway Bridges
Bridge Type METAL GIRDER
MHT # BA-2709
Map BALTIMORE NW C-12
County BALTIMORE
Bridge # and name B0139
SUDBROOK LANE OVER CSX TRANSPORTATION



1. BA-2709
2. Sudbrook Ln. over CSX RR
3. Balto. Co., MD
4. Eric Griffitts
5. 3/97
6. MD SHPD
7. west elevation
8. 1 of 6

1. BA-2709
2. Sudbrook Ln over CSX RR
3. Balto. Co MD
4. Eric Griffitts
5. 3/97
6. MD SHPO
7. east elevation
8. 2 of 6

1. BA-2709
2. Sudbrook Ln. over CSX RR
3. Balto Co. MD
4. Eric Griffitts
5. 3/97
6. MD SHPO
7. girder detail + south abutment
8. 3 of 6

WEIGHT
LIMIT
9 T
10 T
19 T

1. BA-2709
2. Sudbrook Ln over CSX RR
3. Balto. Co, MD
4. Eric Griffitts
5. 3/97
6. MD SHPO
7. north approach
8. 4 of 6

WEIGHT
LIMIT
9T
10T
19T
ONE LANE
BRIDG
15

1. BA-2709
2. Sudbrook Ln. over CSX RR
3. Balto Co. Md.
4. Eric Griffitts
5. 3/97
6. MD SHPO
7. south approach
8. 5 of 6

1. BA-2709
2. Sudbrook Ln over CSX RR
3. Balto Co, MD
4. Eric Griffitts
5. 3/97
6. MD SHPO
7. north abutment
8. 6 of 6