F-8-153

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

MHT No. ~~F-4-106~~

SHA Bridge No. 10041 **Bridge name** MD 75 over Beaver Dam Creek

LOCATION:
Street/Road name and number [facility carried] MD 75

City/town Johnsville **Vicinity** X

County Frederick

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_____ **Concrete Slab** X **Concrete Beam** _____ **Rigid Frame** _____
Other _____ **Type Name** _____

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DESCRIPTION:

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

Describe Setting: Bridge No. 10041 carries MD 75 over Beaver Dam Creek It is near the village of Johnsville in eastern Frederick County. There are two early nineteenth century, brick two-story houses located within a few hundred yards of the bridge. The overall setting is rural.

Describe Superstructure and Substructure:

Bridge No. 10041 is a one span concrete slab bridge with concrete abutments and wingwalls. It has a span length of 20'. The bridge has a clear roadway width of 24'. It has an unknown design load. The construction date is also unknown although the State Highway Administration in 1991 stated that the bridge appeared to be a 1924 standard bridge. The parapets are solid and decorated with panelling and possess articulated coping stones. The wingwalls form a forty five degree angle with the center of the road. The 1993 State Highway Administration inspection report stated that there is scale on the abutment and the upstream wingwall and the top corner of the wingwall is broken. The west abutment contains numerous cracks.

The channel has an adverse alignment. The upstream flow approaches the bridge at a sharp angle and flows into the the wingwall of the west abutment. The channel banks are vegetated. There is erosion behind the downstream wingwall of the east abutment and at the upstream end of the west abutment. No scour was observed.

CLASSIFIED AS A SMALL STRUCTURE.

Discuss Major Alterations:

There have been no major alterations to this bridge.

HISTORY:

WHEN was the bridge built 1920s

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

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

Other (specify): SHA files

WHY was the bridge built?

The need for a more efficient transportation network and increased load capacity in the decades following World War I.

WHO was the designer?

State Highway Administration

WHO was the builder?

State Highway Administration

WHY was the bridge altered?

This bridge has not been altered.

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

As part of an effort by the State to increase load capacity on secondary roads during the 1930's.

SURVEYOR/HISTORIAN ANALYSIS:

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

Was the bridge constructed in response to significant events in Maryland or local history?
Reinforced concrete slab bridges are a twentieth century structure type, easily adapted to the need for expedient engineering solutions. Reinforced concrete technology developed rapidly in the early twentieth century with early recognition of the potential for standardized design. The first U.S. attempt to standardize concrete design specifications came in 1903-04 with the formation of the Joint Committee on Concrete and Reinforced Concrete of the American Society of Civil Engineers.

Maryland's road and bridge improvement programs mirrored economic cycles. The first road improvement program 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 to 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 become inadequate to the huge freight trucks and volume of passenger cars in use, with major improvements occurring in the late 1930s. Most improvements to local roads waited until the years after World War II.

With a diverse topographical domain encompassing numerous small and large crossings, Maryland engineers quickly recognized the need for expedient design and construction.

In the early years, there was a need to replace the numerous single lane timber bridges. Walter Wilson Crosby, Chief Engineer stated in 1906, "The general plan has been to replace these [wood bridges] with pipe culverts or concrete bridges and thus forever do way with the further expense of the maintenance of expensive and dangerous wooden structures". Within a few years, readily constructed standardized bridges of concrete were being built throughout the state.

The creation of standard plans and a description of their use was first announced in the 1912-15 Reports of the State Roads Commission whereby bridges spanning up to 36 feet were to use standardized designs.

Published on a single sheet, the 1912 Standard Plans included those structures that were amenable to such an approach: slab spans, (deck) girder spans, box culverts, box bridges, abutments, and piers (State Roads Commission 1912). Slab spans, with lengths of 6 to 16 feet in two foot increments, featured a solid parapet that was integrated into the slab, with a roadway of 22 feet.

In the Report for the years 1916-1919, a revision of the standard plans was noted:

> During the four years covered by this report, it has been found necessary to revise our standard plans for culverts and bridges, to take care of the increased tonnage which they have been forced to carry. Army cantonments...increased their operations several hundred per cent, and the brunt of the enormous truck traffic resulting therefrom, was borne by the State Roads of Maryland. In addition to these war activities, freight motor lines from Baltimore to Washington, Philadelphia, New York, and various points throughout Maryland, and the weight of many of these trucks when loaded, was in excess of the loads for which our early bridges were designed (State Roads Commission 1920:56).

Published on separate sheets, the new standard plans (State Roads Commission 1919) for slab bridges reveal that the major changes was an increase in roadway width from 22 feet to 24 feet and a redesign of the reinforcement. The slab spans continued to feature solid parapets integrated into the span. The range of span lengths remained 6 to 16 feet, but the next year (1920) witnessed the issue of a supplemental plan for a 20 foot long slab span (State Roads Commission 1920).

The 1924 standard plans remained in effect until 1930, when the roadway width for all standard plan bridges was increased to 27 feet in order to accommodate the increasing demands of automobile and truck traffic (State Roads Commission 1930). The range of span lengths remained the same, but there were some changes designed to increase load bearing capacities. The reinforcing bars were increased in thickness. Visually, the 1930 design can be distinguished from its predecessors by the pierced concrete railing that was introduced at this time.

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. The buildings around the bridge are much older than the bridge.

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 a rural area with many structures dating from the late nineteenth century to the early twentieth century. The area possess a high degree of integrity. It has potential as a rural historic landscape. The bridge would not detract from the historic/visual character of the potential district.

Is the bridge a significant example of its type?
No, this bridge is an undistinguished example of a standardized concrete bridge.

Does the bridge retain integrity of important elements described in Context Addendum?
Yes, the character defining elements have retained their integrity.

Is the bridge a significant example of the work of a manufacturer, designer, and/or engineer?
No, this is an undistinguished, standardized bridge conforming to standardized state plans.

Should the bridge be given further study before an evaluation of its significance is made?
No further evaluation is necessary to determine National Register significance. However, additional research concerning the history of this bridge and its relationship to the surrounding landscape may be useful in providing a more complete picture of the bridge's background.

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BIBLIOGRAPHY:

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

SURVEYOR:

Date bridge recorded 8/95

Name of surveyor Leo Hirrell
Organization/Address P.A.C. Spero & Company, 40 W. Chesapeake Avenue, Suite 412, Baltimore, Maryland 21204
Phone number 410-296-1635 **FAX number** 410-296-1670

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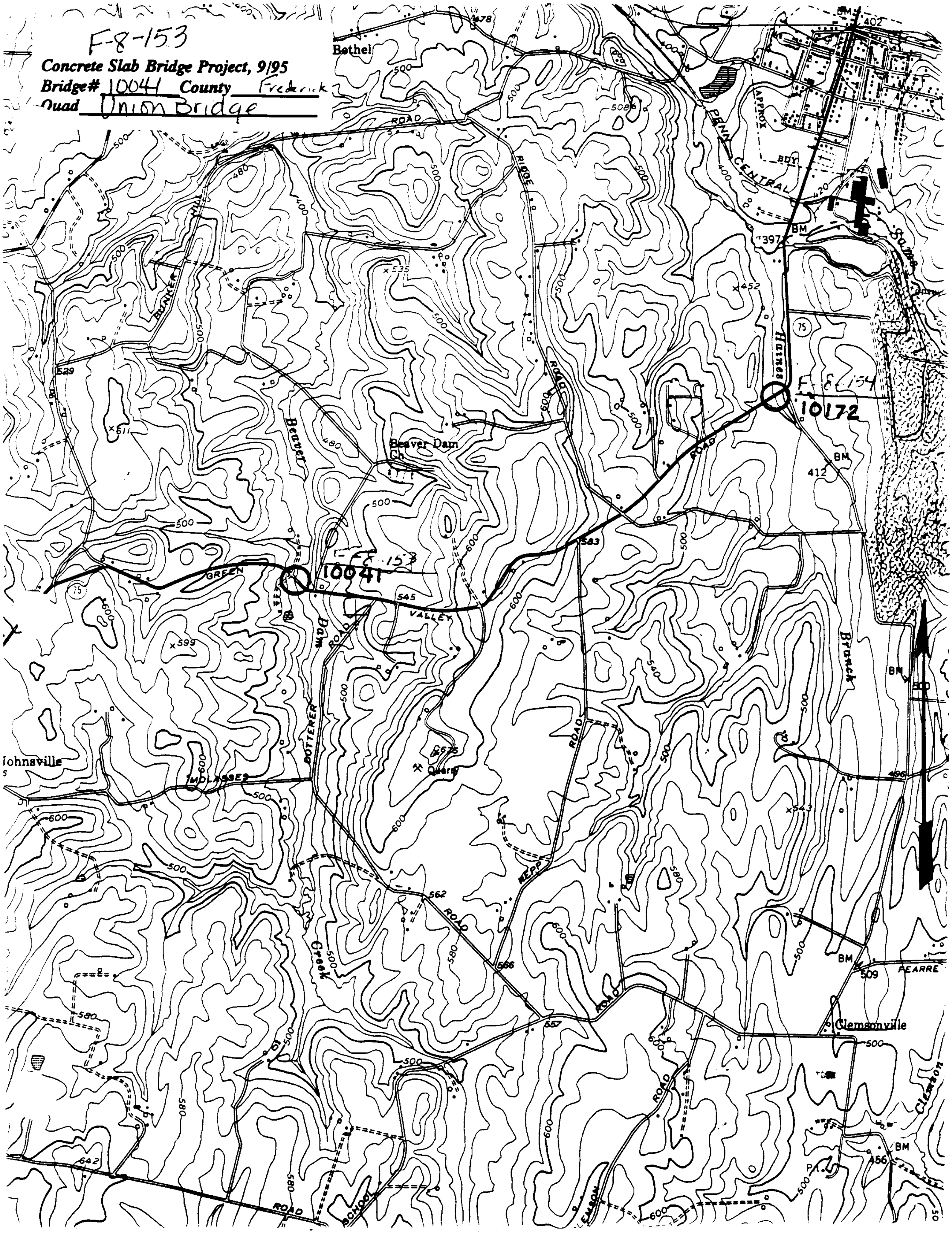
Concrete Slab Bridge Project, 9/95

Bridge# 10041 **County** Frederick

Quad Union Bridge



Inventory # F-8-153

Name 10041-MD75 OVER BEAVER DAM CREEK

County/State FREDERICK COUNTY/MD

Name of Photographer FRANK JULIANO

Date 2/95

Location of Negative SHA

Description APPROACH EAST

Number ~~10~~ 1 of ~~35~~ 4

Inventory # F-8-153

Name 10041-MD75 OVER BEAVER DAM CREEK
County/State FREDERICK COUNTY/MD
Name of Photographer FRANK JULIANO
Date 2/95

Location of Negative SHA

Description ELEVATION LOOKING NORTH

Number ~~17~~ 2 of ~~35~~ 4

Inventory # F-8-153

Name 10011-MD 75 OVER BEAVER DAM CREEK
County/State FREDERICK COUNTY/MD
Name of Photographer FRANK JULIANO
Date 2/95

Location of Negative SHA

Description APPROACH WEST

Number 3 ~~10~~ of ~~35~~ 4

Inventory # F-8-153

Name 10041-MD 75 OVER BEAVER DAM CREEK
County/State FREDERICK COUNTY/MD
Name of Photographer FRANK JULIANO
Date 2/95

Location of Negative SHA

Description ELEVATION LOOKING SOUTH

Number 19 of 35 4