

THOMPSON'S STATION BRIDGE

HAER No. DE-37

(State Bridge No. 216)

Spanning the White Clay Creek on Chambers Rock Road (N329)

Newark

New Castle County

Deleware

HAER  
DEL  
2-NEWCA,  
47-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD

National Park Service

Northeast Region

Philadelphia Support Office

U.S. Custom House

200 Chestnut Street

Philadelphia, P.A. 19106

HISTORIC AMERICAN ENGINEERING RECORD

HAER  
DEL  
2-NEWCA,  
47-

HAER No. DE-37

Thompson's Station Bridge  
(State Bridge No. 216)

Location: Spanning the White Clay Creek on  
Chambers Rock Road (N329)  
Newark, New Castle County, Delaware

USGA Quad: Newark, West, Del.  
UTM 18.434857.4398141

Date of  
Construction: 1928

Engineer: Charles E. Grubb

Present Owner: Delaware Department of Transportation  
P.O. Box 778  
Dover, Delaware, 19903

Present Use: Riverine crossing for vehicles and pedestrians.

Significance: Thompson's Station Bridge (State Bridge 216) is one of six intact historic metal highway truss bridges in Delaware. With its Warren pony truss configuration, Thompson's Station Bridge is typical of the small spans built along local roadways in rural areas throughout the country in response to increasing traffic in the late 19th and early 20th century. In addition, structures like Thompson's Station Bridge played a vital role in the economic development of rural areas during the last quarter of the 19th century and well into the 20th century, as local transportation networks underwent initial phases of development.

Project  
Information: This document was undertaken in August of 1993, in accordance with a Memorandum of Agreement by the Delaware Department of Transportation as a mitigative measure prior to rehabilitation and partial safety upgrade standards to the bridge.

Michael C. Hahn  
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Location & Environmental Studies  
Department of Transportation  
Dover, DE 19903

THOMPSON'S STATION BRIDGE (State Bridge No. 216)  
HAER No. DE-37 (Page 2)

Constructed as a riverine crossing elimination, Thompson's Station Bridge carries Chambers Rock Road (N329) over the White Clay Creek. The bridge is a riveted steel Warren pony truss that is divided into five parts. It is significant because of its structural engineering design as well as its contributing factor within a rural and parkland setting.

Delaware Department of Transportation records state that Bridge 216, known at the time as the "Thompson's Station Bridge", was built in 1928 by authority of the Levy Court of New Castle County. It was designed within the County Engineer's office and plans are on file at the Delaware Department of Transportation. The quarterly statements from the County Engineer's office identify that at least \$8,270.76 of Rural Bridge Bond money was allotted toward the construction of the bridge. The configuration and details of the bridge are illustrated and correspond to the existing configuration. Charles E. Grubb served as the County Engineer of the project. The specifications were distributed in October 1928 and bids were received November 11, 1928. The contractor is undocumented. Structural steel for the bridge was fabricated by the Belmont Ironworks of Philadelphia, Pennsylvania.

Bridge 216 is one of six remaining historic metal highway truss bridges in Delaware and is nearly identical to Bridge 112, the Yorklyn Road Bridge, constructed the following year (1929).

Work under State Contract No. BNC-43 indicates the original construction, design, and materials for the bridge. According to these contract plans, the deck could have consisted of a 1:2:4 reinforced concrete slab with a 2" layer of asphaltic concrete on top, but instead a monetary cheaper wooden floor plan was designed and selected. The wooden floor plan/timber deck had been repaired and replaced numerous times. It has ultimately been replaced under an undocumented maintenance project by a steel open grate deck that was installed in the summer of 1983.

Approach stone masonry walls which were built at all four corners of the bridge were not detailed in the 1928 contract plans, but are believed to be built/included under this contract. The reason being was to stabilize the large amount of abutment fill and embankment area in a floodplain location. Numerous repairs to these approach wing walls as well as abutments included concrete patching and mortar facing.

In September of 1987, State contract 87-570-15 included approach steel guardrail replacement, general rehabilitation cleaning, and repainting.

The present appearance and structural integrity of the bridge shows signs of severe deck and minor steel deterioration due to wear, time, and weathering conditions. Abutments are scouring and

have been undermined by the White Clay Creek. Very little remains of the approach stone wing walls due to vehicle impact damage.

Thompson's Station Bridge (State Bridge No. 216) comprises of a single 66'-82" riveted Warren pony truss that is divided into five parts. The top chords and end posts are made of double 8" channels with cover plates at the top and lacing on the bottom. The diagonals and bottom chords are made of double 5" x 3 1/2" angles with stay plates. The posts are built up members which comprise of angles and plates. The transverse floor beams extend beyond the truss to support angle A-braces for the posts. One lane of traffic is carried on the 16'-5" wide steel deck. The truss is supported in stone and rubble abutments with U-shaped stone wing walls. Approach abutment walls are of stone masonry and vary in length. Both the substructure and approach walls have been parged with concrete. A plaque on the north portal indicates the 1928 construction date.

As the bridge was constructed in 1928, the Thompson's Station Bridge is significant as one of six intact historic metal highway bridges in Delaware. Although few metal truss bridges remain in Delaware, the Delaware Department of Transportation photographic archives from the 1920s illustrate approximately ninety metal truss bridges in New Castle County. In its Warren pony truss configuration employing standardized members, Thompson's Station Bridge is typical of the small spans erected along local roadways in rural areas throughout the country in response to increasing traffic in the late nineteenth and early twentieth century. The metal truss bridge type offered several advantages in this application. It was adaptable to a wide variety of site conditions, its structural behavior was scientifically understood, and its prefabricated components made it easy and economical to manufacture, ship, and erect. Structures like the Thompson's Station Bridge played a vital role in the economic development of rural areas during the last quarter of the nineteenth century and well into the twentieth century, as local transportation networks underwent the initial phases of development. The Warren truss was patented in 1848 by two British engineers, James Warren and Willoughby Monzoni. The original form of a Warren truss was a series of equilateral triangles and as such represents one of the earliest truss types. Later modifications included subdivision by vertical, as seen in the Thompson's Station Bridge, or the addition of alternate diagonals.

The results of the historic bridge survey in Delaware confirm that limited number of Pratt and Warren Trusses are of simple and small spans. This commonly built type exemplifies the continuing expansion and improvement of a former cow and crossroads farming path into a road network improvement under the auspices of the Delaware State Highway Department.

The Thompson's Station Bridge is located in the White Clay Creek Preserve which is regulated and owned under the Delaware Department of Natural Resources and Environmental Control, Division of Parks and Recreation. The surrounding park area is also jointly managed and leased to the Bi-State Advisory Committee which acts as a trustee to the E.I. DuPont de Nemours Co. in facilitating conservation, preservation, and environmental land use practices in this area.

HISTORIC AMERICAN ENGINEERING RECORD

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