ADDENDUM TO:
SEITZVILLE ROAD BRIDGE
Spanning South Branch Codorus Creek
Seitzville
York County
Pennsylvania

HAER PA-633
PA-633

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
U.S. Department of the Interior
1849 C Street NW
Washington, DC 20240-0001

HISTORIC AMERICAN ENGINEERING RECORD

ADDENDUM TO
SEITZVILLE ROAD BRIDGE

HAER No. PA-633

LOCATION:	Spanning South Branch Codorus Creek, Seitzville, York County, Pennsylvania
UTM:	18.349273.4410319, Seven Valleys, Pennsylvania, Quad
STRUCTURAL TYPE:	Reinforced concrete deck arch
DATE OF CONSTRUCTION:	1910
DESIGNER:	William R. Smith, Jr., York, Pennsylvania
BUILDER:	Nelson-Merydith Company, Chambersburg, Pennsylvania
OWNER:	York County, Pennsylvania
USE:	Vehicular bridge
SIGNIFICANCE:	Seitzville Road Bridge is the oldest extant reinforced concrete bridge in York County and an excellent example of early reinforced concrete arch bridge construction. The Nelson-Merydith Company of Chambersburg was a regionally significant early-twentieth century bridge contracting firm.
HISTORIAN:	Researched and written by Lola Bennett, April-May 2006
PROJECT INFORMATION:	The Pennsylvania Historic Bridges Recording Project III is a part of the Historic American Engineering Record (HAER), a long-range program to document historically significant engineering and industrial works in the United States. HAER is administered by Historic Documentation Programs, a division of the National Park Service, U.S. Department of the Interior. The Pennsylvania Department of Transportation funded the project.

Chronology

1747 Codorus Township organized

1749 York County created from part of Lancaster County

1762 Pennsylvania legislature authorizes county governments to build and maintain bridges

1824 Bricklayer Joseph Aspdin of Leeds, England, invents Portland cement

1866 Nicholas Seitz establishes a flour mill at this site

1871 David Saylor begins production of artificial cement at Coplay, Pennsylvania

1872 America's first plain (un-reinforced) concrete bridge built at Brooklyn, New York

1875 Joseph Monier designs a 52' reinforced concrete bridge at Chazelet, France

1883 Thomas Nelson and Andrew Buchanan form Nelson & Buchanan Company

1889 Ernest Ransome builds America's first concrete bridge at San Francisco

1893 Pennsylvania's first reinforced concrete bridge built at Philadelphia

1900 John Slyder purchases Seitzville Mills

1908 Codorus and Springfield townships petition for a county bridge over Codorus Creek

1910 Nelson-Merydith Company builds Seitzville Road Bridge

1994 Seitzville Road Bridge determined eligible for the National Register of Historic Places

2002 Pennsylvania Historic Bridges Recording Project III

Description

Seitzville Road Bridge is a single-span reinforced-concrete closed-spandrel deck arch bridge. The bridge is 60' long and 15' wide overall, with a clear span of 40' and a roadway width of 12'. The arch springs from a point about 1' above the ground, rises approximately 5' to the crown and spans 40'. The parapet walls have recessed panels and are curved to match the profile of the arch, tapering in height from 3'-9" at the crown to 1'-6" at the wings. A concrete plaque on the inside of the west parapet wall is inscribed as follows:

1910

G.E. BORTNER	
E.W. NORRIS	-COUNTY COMMISSIONERS
G.W. HOLTZINGER	
W.H. STRINE	CLERK
B.C. BRENNMAN	SOLICITOR
W.R. SMITH JR.	ENGINEER
NELSON-MERYDITH	CONTRACTORS
	CHAMBERSBURG, PA

History

Present-day Seitzville Road (Township Road 525) was laid out at an unknown date prior to 1860, when it appears on W.O. Shearer's map of York County. In 1866, Nicholas Seitz (1816-1875) established a flour mill near this site on Codorus Creek. By 1876, Seitzville Mills was a small industrial hamlet with several residences, two stores and a school.[1] In 1900, John E. Slyder purchased the mill at Seitzville, which was described as "one of the most substantial mills in the State."[2]

In January 1908, residents of Codorus and Springfield Townships petitioned the York County Court for a county bridge over Codorus Creek, where "the public road ... crosses the said creek at Seitzville, at or near Sleider's [sic] Mill."[3] The judge appointed Edward Helb, Allen M. Seitz and John Wise viewers to examine the proposed bridge site and report their recommendations to the court.[4] Accordingly, on August 24, the viewers reported their findings as follows:

> Your viewers would most respectfully recommend that the said bridge be built at the expense of the County of York, Pa., that it be located at a point nearer to Sleider's [sic] Mill than the present one...that the floor be eight feet from the low water mark, that the wing walls toward Slyder's Mill be extended in that direction

[1] Beach Nichols, "Codorus Township," *Atlas of York County, Pennsylvania* (Philadelphia: Pomeroy, Whitman & Company, 1876), 19.
[2] George R. Prowell, *History of York County, Pennsylvania*, Volume II (Chicago: J.H. Beers & Co., 1907), 521.
[3] *York County Commissioners Minutes*, 1908, 120.
[4] Allen M. Seitz was the grandson of Nicholas Seitz. *York County Commissioners Minutes*, 1908, 121.

> one hundred feet and fifty feet in the opposite direction from the bridge. We further recommend that the Townships be required to fill in all stone and grade the road from their respective sides of the bridge up to said bridge at their own proper cost and charge.[5]

The York County Grand Jury approved the viewers' report on August 29, 1908, but nearly two years passed before further action was taken on the matter. During the interlude, York County Engineer William R. Smith, Jr. prepared plans and specifications for the new bridge at Seitzville.

On June 2, 1910, the York County Board of Commissioners voted to publish a notice in the newspaper requesting bids for "the erection of a concreat [sic] bridge over the Codorus Creek near Larue.... The Bridge is a 40 ft. span, with a 14 ft wide driveway between the railing according to plans and specifications on file."[6] Three weeks later, the county commissioners received the following bids for the proposed bridge:

Ferro Concrete Co., Harrisburg	Plan #1	$1,618
Nelson Merydith Co., Chambersburg	Plan #2	$1,545
Hartley Zeigler Co., York	Plan #2	$1,550
F. Lehman & Co., York	Plan #1	$1,794
" "	Plan #2	$1,968
" "	Plan #3	$2,018
Bateman [?] Bro., York	Plan #2	$1,749
Central Construction Co., Hanover	Plan #2	$1,500
Geo. Frank & Co., York	Plan #2	$1,600
" "	Plan #3	$1,650

The commissioners awarded the contract for $1,545, including labor and materials, to the Nelson-Merydith Company of Chambersburg.[7]

While no reports of its construction have been found, the Seitzville Road Bridge was presumably constructed within the specified period of seventy-four days from the date of the contract, during the summer of 1910.[8] The Nelson-Merydith Company was bidding (albeit unsuccessfully) on other York County bridge contracts by October of that year.[9]

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[5] *York County Commissioners Minutes*, 1908, 122.
[6] Larue Station appears just south of Seitzville on the Pennsylvania State Highway Department's 1915 *Map of the Public Roads in York County, Pennsylvania*. *York County Commissioners Minutes*, 1910, 8.
[7] York County Commissioners Minutes, 1910, 11.
[8] "Bridge Contract Awarded," *York Gazette* (York, Pennsylvania), 28 June 1910.
[9] *York County Commissioners Minutes*, 1910.

Design

Concrete bridges first appeared in Europe in 1840 and in the United States in 1871, but the technology remained largely experimental until the end of the nineteenth century.[10] Concrete, or "artificial stone," has little tensile strength, so early concrete bridges were constructed as solid barrel, filled arches that worked solely in compression and relied on a substantial mass of material to carry loads. Beginning in 1854, when William Wilkinson obtained a British patent for reinforcing concrete with wire rope, European and American inventors experimented with ways of combining the compressive properties of concrete with the tensile strength of iron, to produce stronger, lighter, more cost efficient structures. In 1875, French gardener Joseph Monier (1823-1906) became the first individual to apply reinforced concrete technology to bridges.[11]

In 1889, a decade and a half after Monier's pioneering experiments, concrete contractor Ernest L. Ransome (1844-1917) built America's first concrete-steel span, the Alvord Lake Bridge at Golden Gate Park in San Francisco.[12] The modest 20' span was scored and roughened to imitate a traditional masonry bridge and even had artificial stalactites on the intrados, but beneath the façade was a modern concrete structure, with twisted iron rods embedded in the specific zones where tension forces occur. Though not immediately popular, Ransome's concrete reinforcing system was widely used throughout the United States in the twentieth century.

Throughout the 1890s and early 1900s, other engineers, including Joseph Melan (1853-1941), Fritz von Emperger (1862-1942), Edwin Thacher (1840-1920) and Daniel Luten (1869-1945), aggressively developed and promoted the new technology. Reinforced concrete bridges were durable, aesthetic and cost effective. They used readily available materials, could be built by local laborers and did not require extensive maintenance. With the advent of the automobile and subsequent demand for good roads and bridges, reinforced concrete bridges came into their own. By 1905, reinforced concrete was the preferred material for bridges in the United States.

The development of reinforced concrete bridges in Pennsylvania coincided with national trends, with a few experimental spans in the 1890s and widespread adoption of the technology by 1910.[13] According to the Pennsylvania Department of Transportation Historic Bridges Database, Seitzville Road Bridge is one of eighty-one extant reinforced concrete highway bridges constructed during the first decade of the twentieth century.[14]

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[10] The 39' Caronne Canals Bridge at Grisoles, France, is believed to be the world's first concrete bridge. Designed by landscape architect Calvert Vaux and built by the New York & Long Island Coignet Stone Company, the Cleft Ridge Span (1871-72) at Prospect Park in Brooklyn, New York, was the first concrete bridge in the United States.
[11] The Pont de Chazelet (1875), a 52' reinforced concrete pedestrian bridge, still survives in France.
[12] See HAER No. CA-33, Alvord Lake Bridge.
[13] "Concrete Arch Highway Bridge, Philadelphia, Pennsylvania," *Engineering News* (7 September 1893), 189-190.
[14] A.G. Lichtenstein Associates, Inc., *Pennsylvania Historic Bridge Inventory and Evaluation*, 1997.

Builder

The Nelson-Merydith Company of Chambersburg, Pennsylvania, was an early builder of reinforced concrete arch bridges.[15] Company president Thomas McDowell Nelson (1849-1919; C.E. Lafayette College, 1870) of Chambersburg began his career doing railroad surveys for Walling & Gray of Boston. In 1883, Thomas Nelson and Andrew Buchanan became agents for the Pittsburgh Bridge Company.[16] Nelson moved to Pittsburgh in 1896, where he served as president of the Pittsburgh Bridge Company until 1900, when the firm merged with twenty-four others to form the American Bridge Company, a subsidiary of United States Steel Corporation.

In 1901, Nelson's son Alexander H. Nelson (b.1874; C.E. M.I.T., 1897) and Edward A. Merydith joined the Nelson & Buchanan Company as engineers. In 1906, Andrew Buchanan left the firm, which subsequently reorganized as Nelson Construction Company and again in 1908 as Nelson-Merydith Company.[17] Headquartered in Chambersburg, Nelson-Merydith Company built bridges in Pennsylvania, New Jersey, Ohio, Maryland and West Virginia until 1913, when Alexander Nelson left the firm for employment as county engineer in Atlantic County, New Jersey.[18] Edward Merydith subsequently formed his own consulting firm, the Merydith Construction Company.[19]

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[15] The majority of bridges attributed to the company are reinforced concrete arches, but a few metal truss bridges survive as well.

[16] The Pittsburgh Bridge Company was formed in 1878, incorporated in 1881 and absorbed by the American Bridge Company in 1900.

[17] A. Buchanan bid against the Nelson Construction Company for several Franklin County bridge contracts, including this one, in 1907.

[18] "Nelson, Andrew H.," *Who's Who in Pennsylvania*, Volume I (Chicago: A.N. Marquis Company, 1939).

[19] Totman Bridge (ODOT #8437912), a reinforced concrete closed-spandrel deck arch in Washington County, Ohio, was built by Merydith Construction Company in 1915.

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