West Virginia
Historic Bridge Inventory Form

Bridge No. 03-003/00-033.48 **BARS No.** 03A019 **Federal Bridge No.** 00000000003A019 **Bridge Design No.** 1328.0

IDENTIFICATION INFORMATION

SHPO Survey No. BO-0805
Local Name WHITEOAK BRIDGE
Other Local Name
Owner State Highway Agency
Status Extant - in service

LOCATIONAL AND SETTING INFORMATION

District 01 **County** Boone **Latitude** 38034800 **Longitude** 081341200
Location 0.02 MI E OF CR 14
Facility Carried By Structur WV 3
UTM-Northing
UTM-Easting
UTM Zone
Features Intersected WHITEOAK CREEK
Surrounding Land Use Residential
Type of Development Unincorporated community

STRUCTURAL INFORMATION

Main Span Type Steel Truss - Pony/Riveted
Main Span Type Code 323
Number of Spans in Main Unit 001
Number of Approach Spans 0000
Structure Length (ft) 94
Length of Maximum Span (ft) 90
Average Daily Traffic 003900 **Year** 2004
Sufficiency Rating 0529 **Skew** 00
(Note: Data current as of April 2006 database)

BRIDGE DESCRIPTIVE INFORMATION

Year Built 1932
Year Reconstructed 1985
Truss Bridge Type Warren
Alteration(s)
Replacement of main members
Arrangement Pony
Connection Type Rivet/bolt/weld
Truss Details
Date of Alterations (Year)
Unknown

Architectural Treatment(s)

Bridge Plate Text
(1) plaque. "FABRICATED BY PITTSBURGH DES MOINES STEEL COMPANY, PITTSBURGH PA., ERECTED BY MONTY BROTHERS, CHARLESTON, W. VA., 1932"

BRIDGE HISTORY

Engineer or Designer
Builder or Fabricator Monty Brothers; Pittsburgh-Des Moines Steel Company; State Forces (1985)

Bridge Plan Location District
Additional Details: Concrete deck with asphalt overlay and concrete substructure. Riveted and bolted connections. According to inspection files, main members were replaced at an unknown date. Field observations noted stringers are welded to floor beams. Guardrail has been added, and longitudinal stringers may have been replaced (indicated by filled rivet holes). Steel beam stamped with Jones and Laughlin. Some bolt and welding repairs. Unable to confirm construction by State Forces. The Warren pony truss has a polygonal top chord (innovation in design) and was designed or contructed by a regional or West Virginia-based engineer or firm.

Bridge No.	03-003/00-033.48	BARS No.	03A019	Federal Bridge No.	00000000003A019	Bridge Design No.	1328.0

NATIONAL REGISTER EVALUATION INFORMATION

National Register Determination Eligible **Reason Not Evaluated**

National Register Determination Date 2013

This bridge is not eligible for the National Register under Criterion A as it does not have a significant association with an important historic transportation system, program, event, trend, or policy identified through contextual research and survey activities.
This bridge displays an important design innovation or construction technique that represents a variation, evolution, or transition in bridge construction.
This bridge was designed or constructed by a known regional or West Virginia-based engineer, architect, or firm whose work is recognized as distinguishable within the state of West Virginia.
Although this bridge has undergone alterations, it still retains the historic integrity necessary to convey its engineering significance and, therefore, is eligible for the National Register under Criterion C.

West Virginia Historic Bridge Inventory Form
Form Prepared By Mead & Hunt and KCI
Form Preparation Date 2013

WEST VIRGINIA HISTORIC PROPERTY FORM CONTINUATION SHEET

Name: Whiteoak Bridge Replacement Project
Survey #: State Project S303-3-33.48
Survey / FR#: Federal Project STP-0003(237)D
Form Prepared by Tracy D. Bakic on December 15, 2015

Setting: The existing Whiteoak Bridge carries State Route (SR) 3 – aka Coal River Road - over Whiteoak Creek in unincorporated Orgas, eastern Boone County. Whiteoak Creek is a tributary of the Big Coal River just to the west. The bridge is located about 0.02 miles east of County Route (CO) 14. The 2013 average daily traffic (ADT) count on this bridge is 2,600 vehicles per day. SR 3 is classified as a Coal Resource Transportation System Route. The surrounding landscape is a hilly and forested rural setting that includes dispersed residences and one church directly northwest of the bridge. The CSX railroad tracks are nearby, being along the west bank of the Big Coal River. There is a former branch railroad alignment that crosses SR 3 just south of Whiteoak Bridge.

Description of Bridge: The existing Whiteoak Bridge was constructed in 1932, being fabricated by the Pittsburgh-Des Moines Steel Company of Pittsburgh, PA and erected by Monty Brothers of Charleston, WV. A major rehabilitation of this bridge was completed in 1985 by WV State Forces. This two-lane single-span structure has an overall length of 94 feet, eight and one-half inches (out to out of backwalls). The bridge's road width and horizontal clearance is 24 feet, four-and-one-half inches (between guardrails).

Superstructure: The superstructure of this bridge is a Warren pony truss span. The truss span is 90 feet long, measured from center to center of the truss end bearing pins. The width measurement from centerline of the east (upstream) truss to centerline of the west (downstream) truss is 27 feet, one inch. The steel superstructure consists of a pair of five-sloped trusses, the central slope of each being flat/horizontal. Each truss is composed of top and bottom chords, end posts, and diagonal tension/compression members with vertical supports. The two trusses are connected by floor beams and lateral bracing below. Riveted attachments on the bridge are original and bolted attachments identify later repairs. Components of the superstructure are detailed below:

Bottom Chords. The existing bottom chord of each truss is composed of two sets of back-to-back angles (an exterior and interior set for each truss) with bolted connections. Steel plate bracing is bolted to the bottom side of the bottom chords. The original bottom chord members, which likely included riveted connections, were replaced during the 1980s rehabilitation. In 2012-13 supplemental support angles were added to one or two panels at each end of each truss.

Top Chords and End Posts. Each top chord and slanted end post is composed of two 10-inch steel channels with steel plate riveted onto the upper side and lattice bracing riveted at the underside. At least one channel can be noted to have raised print identifying JONES & LAUGHLIN as the producer. The top chords and end posts are original; the interior-facing channel of each end post received a six-foot, six-inch long fishplate repair during the 1980 rehabilitation. The end posts are pin-connected to expansion bearings that are attached to the abutment breastwalls.

Diagonal Members. The diagonal members within each truss are installed to create triangular webs which carry both tensile and compressive forces, the prominent design feature of the Warren Truss. Each diagonal on this structure is a nine-and-three-fourth-inch-deep Bethlehem H. Many welded patch plate repairs were made to vertical support posts in the 1980s.

Vertical Support Posts. In a Warren truss the main purpose of a vertical member is simply as bracing within the triangular webs. Each vertical support for this structure is an original Bethlehem I - nine-and-three-quarter-inch-deep where diagonals meet at the top chord and nine-and-fifteen-sixteenths-inch-deep where diagonals meet at the bottom chord. The area between each vertical support, as well as between a vertical support and an end post, creates a "panel." Many welded patch plate repairs were made to these posts in the 1980s.

Floorbeams. The existing floorbeams are original, consisting of a 28-and-one-eigth-inch-deep Bethlehem I (or similar equivalent) at each abutment end and four equally-spaced 33-inch-deep Bethlehem Is (or similar equivalent) in between. The floorbeam at each abutment is supported on the breastwall via four steel beam stubs and riveted to the end gusset plates; the existing support stubs appear to be post-1991 additions. The four other floorbeams are affixed between the two trusses, each being riveted to the matching vertical support at each side.

Lateral Bracing. Lateral bracing, consisting of L-shapes, are the criss-crossed members extending between the floorbeams beneath the bridge deck. The majority of the bracing is original with riveted connections at the central crosspoints and at the floorbeams. Splice repairs were made in the 1980s and any new attachments were made with bolts. There are support beams/connectors welded between the end/abutment floorbeams and associated lateral brace ends.

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Description of Bridge (cont.):

Stringers. The original stringer system – which consisted of six stringer alignments composed of 18" Bethlehem Is - was removed and replaced during the 1980s rehabilitation. The existing system is composed of five steel stringer alignments welded between the floorbeams via clip angles. The stringers are wide-flange steel beams, each 21 inches deep.

Decking. The original decking was a reinforced concrete slab topped with wearing surface (noted as one-and-one-half inches thick on 1932 plans) and concrete curbs. As part of the 1980s rehabilitation the original decking was removed and replaced with the existing five-and-three-sixteenth-inch-thick by 24-foot, five-inch-wide concrete-filled open grid decking with bituminous concrete wearing surface. Box drains, a 15-inch-depth steel channel curb and a curved plate splash guard exist along each side of the roadway.

Railings. The original metal railings that were affixed to the inward-facing side of each truss were removed during the 1980s rehabilitation. They were replaced with modern metal posts and flexbeam guardrails.

Sidewalks. This structure has never included sidewalks.

Plaques. One builder's plaque presently exists on this bridge. It is located on the south end post of the east truss. It reads "FABRICATED BY / PITTSBURGH DES MOINES / STEEL COMPANY / PITTSBURGH, PA. / ERECTED BY / MONTY BROTHERS / CHARLESTON, W. VA. / 1932."

Substructure. The bridge's substructure consists of full height reinforced concrete abutments that are founded on spread footings. The abutments each consist of a backwall (high portion that supports the bridge deck) and a breastwall with bridge seat (portion of breastwall on which the truss structure rests).

The available maintenance history of Whiteoak Bridge includes the following (WVDOH 1991-2014):

1985	Bridge was rehabilitated by State Forces.
ca. 1987	Asphalt approaches were paved by an unknown contractor following the April 1987 inspection
ca. 1991	Following the 1991 inspection, State Forces re-welded cracked stringer-to-floor beam clip angles, replaced or repaired broken/deteriorated lower lateral/floorbeam support beams at abutments and welded repair plates on the downstream/west end of the end floorbeam at Abutment 2 (south abutment).
ca. 1993	Following the March 1993 inspection, State Forces re-welded the cracked stringer-floorbeam clip angles, replaced a broken/deteriorated lower lateral/floorbeam support beam at Abutment 1 (northt abutment), welded repair plate on one floorbeam and replaced deteriorated truss connection fasteners on the same beam. Following the 1993 inspection, an unknown contractor resurfaced the Abutment 2 (south abutment) approach with asphalt.
2005	The east end of the end floorbeam (at the south abutment) was plated.
1997-2012	Numerous undocumented floor system repairs performed. Two floorbeams – end floorbeam at south abutment and one interior beam - received plate repairs following a 2011 in-depth inspection.
ca. 2012-13	Areas of 100% deterioration to thin cover plates over lower chord pin connections were repaired. End sections of the bottom chords of both trusses were supplemented with interior and exterior support angles added above the original angles.
b/w 2013-14	Several repairs were made to cracked stringer-floorbeam clip angles and to bottom chords.

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Statement of Significance:

Research for this form did not find a detailed history of the unicorporated locale of Orgas. The community was initially called Orange and had its own post office from as early as 1883 (BCGS, Inc. 1990:21). The Chesapeake & Ohio Railway (C&O) was completed through Orange between 1917 and 1919 (*Black Diamond* 1919; Callahan 1923:441; Labellmodels.com; Sparkmon 1983:23).

The area was renamed Orgas after the ORange GAS and Coal Company was established there in 1919 (BCGS 1990:21; *Coal Industry* 1919). This coal company was succeeded by the Splint Orgas Coal Company in 1921 (*Coal Age* 1921). The property was taken over by Vermillion Coal Company in 1926 (*CG* 1926). Vermillion operated there until at least 1930 (WV Dept. of Mines 1930:174). Strip mines are present in the vicinity today. The Oakland Lumber Company was also located at Orgas, operating from 1920 to at least the mid-1930s. It was considered to have one of the largest and most modern lumber camps in WV when initially built. As well, Oakland Lumber had its own branch railroad along Whiteoak Creek and some of tributaries and that tied into the C&O (now CSX) tracks along the west bank of the Big Coal River. Oakland Lumber no longer existed at Orgas by 1940 (*BRR* 1937; *CG* 1936; *Hardwood Record* 1920; *Lumber World Review* 1920; *Southern Lumberman* 1920, 1936, 1940; USGS 1929).

Today the area includes residences along SR 3 and the Big Coal River dating from ca. 1920s onward, a post office, and at least two churches – White Oak Freewill Baptist Church and Orgas Presbyterian Church.

A local or country road(s) that followed the general alignment of today's SR 3 from Racine to Whitesville, including through Orgas, likely existed by the Civil War. However, the earliest clear depiction of such a road found during research for this form is on an 1873 map of Boone County (White, M. W. 1873). This road may be related to an old Indian trail noted to have existed along the Coal River (Krebs 1916:17-18). It is presently uncertain if the general alignment of today's SR 3 may have been part of a mid-1800s state/turnpike road, such as the Walnut Gap Road (VA 1854:46 & 1859:29).

By 1917-1919 future SR 3 from Racine, thence through Comfort, Seth, Orange and Whitesville to the Raleigh County line was a branch of one of Boone County's two Class A roads (WV SRC 1919:20). By 1926 this route was designated as part of WV SR 65 and then in 1930-31 it was re-designated as part of SR 3 (Rand McNally 1926; WV SRC 1926:232; 1930:257; 1931:260, 282). By 1927-28 the route was gravel surfaced and by 1933 it was fully paved (WV SRC 1927:46; 1928:39; 1933 map).

Prior to the extant White Oak Bridge - a pony truss span - there had been a concrete girder bridge in the same location. Heavy rains in early July 1932 led to flooding which washed out the concrete span over Whiteoak Creek and closed this section of SR 3 for a few days (*CDM* July 6 & 8, 1932). Original plans for the concrete girder structure, dated March 1920, are presently on file with WVDOH. For the short term after the flood, a temporary bridge was constructed by local men (*CG* 1932). The bid for a new permanent structure was opened on August 30, 1932. The contract was awarded to Monty Brothers of Charleston, the low bidder for the superstructure at $5,324 (*CDM* Aug. 30, 1932; WV SRC 1933:269). The pony trusses were fabricated by the Pittsburgh-Des Moines Steel Company of Pittsburg, PA. State forces constructed the substructure. The bridge was completed in December 1932 with final costs at $6,315 for the substructure/approaches and $6,176 for the superstructure (*CDM* Dec. 25, 1932; WV SRC 1941:180).

Pittsburgh-Des Moines Steel Company. "The Pittsburgh-Des Moines Steel Company grew out of an operation formed in 1892 when two young graduates of Iowa State College, William H. Jackson and B. N. Moss, formed a partnership to build municipal water works including steel water towers. Initially, they had their steel tanks fabricated by Keystone Bridge Company in Pittsburgh, Pennsylvania. Because of the cost of transporting the tanks from Pittsburgh was so high, Jackson and Moss took on a third partner, E. W. Crellin, the owner of a small steel fabricating plant in Des Moines. The company they created, the Des Moines Bridge and Iron Company, would sell and erect the structures, and an additional firm they created, the Des Moines Bridge and Iron Works, would ship the steel stock from Pittsburgh and perform the fabrication. The company manufactured a wide range of steel structures including water tanks and water works, bridges, and electric lighting plants" (Goldberg 1995:6).

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Statement of Significance (cont.):

"By 1910 the company had built a plant and new headquarters in Pittsburgh, near their steel suppliers. In 1916 the partners changed the company's name to Pittsburgh-Des Moines Company. Moss left the company around 1905. Crellin was president until 1923, when Jackson bought out his interest and became president" (Goldberg 1995:6). At some point a partner company - Pittsburgh-Des Moines Steel Company - was created. In 1955 Pittsburgh-Des Moines Company and its aforementioned partner company merged to officially be called Pittsburgh-Des Moines Steel Company (West Pub. Co. 1990:638). The company name was changed to Pittsburgh-Des Moines Corporation in 1980 and then to Pitt-Des Moines, Inc. in 1985. Between 2000 and 2002, Pitt-Des Moines, Inc. sold the assets of its various subdivisions and subsidiaries, including sales of its Engineered Construction and Water Divisions to Chicago Bridge & Iron Company, its Steel Service Centers Division to Reliance Steel & Aluminum Co., and its Steel Bridge Division to Steel Bridges, LLC, which is more recently known as PDM Bridge, LLC (FTC.gov).

Pittsburgh-Des Moines built waterworks, tanks and bridges throughout the US. The company later would be known as the fabricator of the "forked" columns for the former World Trade Center and as the fabricator/erector of the Gateway Arch in St. Louis, MO (Wikipedia.org).

Monty Brothers. Little is presently known about Monty Brothers of Charleston, WV, the contractor that erected the superstructure of Whiteoak Bridge. The company appears to have been founded by brothers Joseph (Joe/Guiseppe) and Louis (Luis/Luigi) Monty, both born in Italy and initially coming to the US in 1914 and 1920, respectively (Ancestry.com; *CDM* 1961; *CG* 1971). It appears that the brothers started their bridge-building venture while living in Omar, WV (Logan Co.). By 1929, the company was located in Charleston and by 1945 in St. Albans (WV SRC 1927:188; 1929:238). A general search of Newspaperarchive.com found that Monty Brothers was identified as located in St. Albans by 1942, and that it appears likely the company only contracted for WV projects during its tenure as no associations with projects in surrounding states were found. After Louis died in 1971 (his brother proceeded him in death), the Monty Brothers Construction Company was newly incorporated by John Monty, likely Joseph's son (Ancestry.com; Companies-WestVirginia.com).

Pony Truss Bridges. In a pony truss the travel surface passes between trusses on either side that constitute the superstructure. These trusses are not connected above the deck, and are designed to carry relatively light loads . . . Through trusses [on the other hand] are designed to carry heavier traffic loads than the pony truss and are longer in span, some approaching 400 feet. (PB & EIH:Chap.3, p. 4). Timber pony truss bridges were being built in the US by the early 1800s (PB & EIH:Chap.2, p.10). Metal pony truss bridges are known to have been built in West Virginia by the latter half of the 1800s (KCI et al. 2015).

Warren Truss Design. The Warren Truss design was patented in 1848 in England by James Warren and Willoughby Monzani. They based their patent on similar trusses built in France and Belgium by English entrepreneur and engineer Alfred H. Neville in the late 1830s and early 1940s, as well as on the 1838 French patent to Neville, Nash et Compagnie and the subsequent 1839 English patent obtained by William Nash for the same design. Warren and Monzani were well known English engineers, and their design was for a truss that could be used as a deck or a through truss (Daly & Kierstead 2012:12; Griggs 2015; Guise 2006).

The Warren Truss "has only diagonal members connecting the two chords, with no verticals. The basic design is based on combining a series of equilateral triangles to form an efficient truss in which the diagonals act in compression and tension. Usually this truss type was altered by the addition of verticals [for bracing purposes only] or additional alternating diagonals. The main diagonals, endposts, and top or bottom chord members tend to be thick and visually prominent. Verticals or additional diagonals, when present, are much thinner. As was the case with the Pratt truss, the distribution of stress throughout the structure was easily analyzed in the Warren truss by mathematical calculation . . . In the Warren truss, every part of the truss equally bears its share of the stresses, while in the lattice, Pratt and other truss forms, stresses in the members vary, hence differently sized members" (PB & EIH:Chap.3, p.39).

"As a pin-connected iron truss, this type was never very popular, either as a railroad or a highway bridge. Many steel, field-riveted or bolted Warren pony trusses, however, were erected by counties throughout the country beginning in the 1890s, by state highway departments in the 1920s and 1930s, and by railroads into the 1930s. Warren trusses were also built, occasionally, with polygonal top chords as a through or pony truss; with vertical endposts as a pony truss; or as a bedstead pony truss" (PB & EIH:Chap.3, p.39).

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Statement of Significance (cont.):

Few Warren trusses survive from the nineteenth century, but the form dominated twentieth century bridge design, used in many different configurations by highway departments for short span pony trusses and through trusses for intermediate spans, from the 1900s to the present" (PB & EIH:Chap.3, p.39).

Criterion A. The Whiteoak Bridge was built 1932 as it was necessary to replace an earlier SR 3 bridge that was destroyed during flooding earlier in the same year. Other than general association with the history of the area, there is no reason to believe that this bridge has an important link with events or trends that have made a significant contribution to the broad patterns of history. Thus Whiteoak Bridge does not meet Criterion A of the NRHP for association with events (transportation or other) at a national, regional or local level.

Criterion B. Whiteoak Bridge is not known to have been associated with the significant productive period of some notable person's life, nor to have been associated for any length of time with such a person, nor to be the best representation of such a person's historic contribution. Therefore, this bridge does not meet NRHP Criterion B.

Criterion C. Whiteoak Bridge was previously evaluated for the *West Virginia Statewide Historic Bridge Survey* (WV Historic Bridge Survey) and was determined eligible for the NRHP under Criterion C for its engineering significance and its association with a master builder (KCI et al. 2013 & 2015). Per the WV Historic Bridge Survey there were 63 metal pony truss bridges (both wrought iron and steel) remaining in WV that were built prior to 1965 (KCI eta al 2015:Sect. II, p. 29); since the WV Historic Bridge Survey fieldwork was completed it is known that this number has diminished. It presently appears that at least 25 of the West Virginia's existing pony truss bridges are of the Warren Truss design and they are dispersed amongst 19 counties; this total includes two bridges that each have a main through truss of a different design but their approach spans are Warren pony truss structures. Of the 25 bridges known to include Warren pony truss spans, 10 have polygonal top chords (sometimes noted as Camelback) and they are dispersed in nine counties. They are:

Existing Warren Pony Truss Bridges in WV w/ Polygonal Top Chords			
Bridge Name	**County**	**Year Built**	**Truss Span Length**
Middleway Bridge	Berkeley	1932	100'
Whiteoak Bridge	Boone	1932	90'
Upper Gassaway Bridge*****	Braxton	1935	79'-2" each
Shock Pony Truss	Gilmer	1938	100'
Circleville Bridge	Pendleton	1934	90'
Cheat Bridge	Randolph	1934	110'
Beatrice Bridge	Ritchie	1930	90'
Cairo Pony Truss	Ritchie	1937	124'-2"
Tyler City Bridge	Tyler	1936	100'
Hog Island Bridge (Kenney Hamrick Sr. Mem. Br.)	Webster	1932	100'

*****Upper Gassaway Bridge has a Parker Thru Truss main span with a Warren pony truss approaches

There are three existing pre-1965 pony truss spans in Boone County – Whiteoak Bridge, Pond Fork Bridge (Pratt type; 1948), and Clinton Camp Road Bridge (Pratt type; 1948). Whiteoak Bridge appears to be Boone County's only Warren pony truss bridge built prior to 1965 and it is one of at least 10 remaining in the state with polygonal top chords. In relation to Pittsburgh-Des Moines Steel Company, the steel fabricator for Whiteoak Bridge, it appears that Whiteoak Bridge is one of five extant bridges built prior to 1965 in West Virginia that represent construction by that company; one example is in each of the following counties: Boone, Nicholas Preston, Randolph and Ritchie. In relation to Monty Brothers of Charleston, the builder of Whiteoak Bridge's superstructure, it appears that Whiteoak Bridge is one of 22 extant bridges built prior to 1965 in West Virginia that represent that company; they are dispersed in 15 counties. Along with Whiteoak Bridge, Cheat Bridge (Randolph Co.) – also a Warren pony truss with polygonal top chords - is the only other extant WV bridge both fabricated by Pittsburgh-Des Moines Steel Co. and erected by Monty Brothers.

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Statement of Significance (cont.):

Although Whiteoak Bridge has undergone alterations (mainly to decking and floor beams below), the more visible truss portion retains good overall integrity in conveying the engineering significance of its Warren Truss design and of its builders. WVDOH continues to agree with the WV Historic Bridge Survey finding that Whiteoak Bridge is eligible under NRHP Criterion C. It is eligible under this criterion for its engineering significance as one of the state's few remaining examples of a Warren Pony Truss bridge with polygonal top chords. It is also Criterion C-eligible as a representation of the work of the Pittsburgh-Des Moines Steel Company, a bridge fabricator distinguishable on a national level, and of Monty Brothers of Charleston, a bridge builder distinguishable on a state level.

Criterion D. This structure is not likely to have important information that will contribute to our understanding of human history or prehistory. Construction appears to have utilized commonly known techniques, tools and materials. The potential for information is minimal, so it does not meet NRHP Criterion D.

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WEST VIRGINIA HISTORIC PROPERTY FORM CONTINUATION SHEET

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Form Prepared by Tracy D. Bakic on December 15, 2015

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West (Downstream) Elevation. View NE (WVDOH 11-10-2015)

West (Downstream) Elevation. View SE (WVDOH 11-10-2015)

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East (Upstream) Elevation. View SW (WVDOH 11-10-2015)

East Truss with Builder's Plaque. View NW (WVDOH 11-10-2015)

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North Approach. View SE (WVDOH 11-10-2015)

North Approach. View SW (WVDOH 11-10-2015)

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North Approach. View S (WVDOH 11-10-2015)

South Approach. View NW (WVDOH 11-10-2015)

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South Approach. View NE (WVDOH 11-10-2015)

South Approach. View N (WVDOH 11-10-2015)

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Typ. Truss Detail; West Truss. View SE (WVDOH 11-10-2015)

Underside of Bridge Decking, highlighting
floorbeams, stringers and crossed lateral bracing. View S/SE (WVDOH 11-10-2015)

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South Abutment. View SE (WVDOH 11-10-2015)

North Abutment. View N/NW (WVDOH 11-10-2015)

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Typ. Abutment & Truss/Deck End Connection.
View is of the North Abutment and West Side Truss. View E (WVDOH 11-10-2015)

Typical Truss Expanion Bearing connection to
Abutment Bridge Seat; view is of north end of West Truss. View NE (WVDOH 11-10-2015)

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Typical End Floorbeam Support Posts at Bridge Seat; view is of North Abutment View NE (WVDOH 11-10-2015)

Bridge Builder's Plaque at South End Post of East Truss. View N (down; WVDOH 11-10-2015)