



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

**1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505**

**Earl Ray Tomblin
Governor**

**Paul A. Mattox, Jr., P. E.
Secretary of Transportation/
Commissioner of Highways**

April 29, 2014

**Ms. Susan Pierce, Deputy State
Historic Preservation Officer
Division of Culture and History
1900 Kanawha Boulevard, East
Charleston, West Virginia 25305**

Dear Ms. Pierce:

**State Project: S326-74-18.50
Federal Project: N/A
Adaline Bridge
Marshall County, West Virginia**

Attached, in accordance with the Memorandum of Agreement (MOA) Stipulations I and II is the State Level Historic Documentation for the Adaline Bridge. Also attached is a CD-ROM of the documentation. Upon concurrence a copy will be given to the Moundsville-Marshall County Public Library in Moundsville as stated in Stipulation I of the MOA.

Should you have any questions, please do not hesitate to contact Randy Epperly of our Environmental Section at (304) 558-9385.

Very truly yours,

A handwritten signature in blue ink that reads "Ben L. Hark".

**Ben L. Hark
Section Head
Environmental Section
Engineering Division**

H:k

Attachments

Bcc: DDE (RE)

State Level Historic Documentation Report

State Project No. S326-74-18.50

Adaline Bridge Marshall County



Prepared by:

Randy Epperly III, Historian

Department of Transportation
Division of Highways
Engineering Division
Environmental Section

April 29, 2014

STATE LEVEL HISTORIC DOCUMENTATION
ADALINE BRIDGE

Location: County Route 74, over Fish Creek
Marshall County
West Virginia

USGS Glen Easton Quadrangle

Date of Construction: 1892

Builder: Wrought Iron Bridge Company

Present Owner: West Virginia Department of Transportation
Division of Highways
1900 Kanawha Boulevard, Building 5, Room A-110
Charleston, WV 25305

Present Use: Vehicular Bridge

Significance: The Adaline Bridge is eligible under Criterion C of the National Register of Historic Places for its significance as a good example of a pin connected Whipple Truss design and the work of a master builder, Wrought Iron Bridge Company.

Project Information: The project has been undertaken due to the poor condition of the superstructure and its narrow width. The project will allow trucks to better negotiate the approaches. The existing bridge warrants replacement. The documentation was undertaken in April 2014 in accordance with a Memorandum of Agreement among the West Virginia Department of Transportation and West Virginia State Historic Preservation Office. These measures are required prior to replacement of this National Register eligible structure.

Randy Epperly III, Historian
West Virginia Division of Highways
Charleston, WV 25305
April 29, 2014

The Adaline Bridge carries County Route 74 over Fish Creek in Marshall County near the town of Adaline. It was built in 1892, by the Wrought Iron Bridge Company. No original plans were found for the bridge. The bridge is eligible under Criterion C of the National Register of Historic Places as a significant example of a pin-connected Whipple Truss design and its association with Wrought Iron Bridge Company, a master builder.

Adaline Bridge is a steel, pin-connected, Whipple through truss supported by cut stone abutments. The overall length is 194 feet 6 inches and the width between the railings is 15 feet 4 ½ inches. The truss has a 12 foot 6 inch minimum vertical clearance restriction for a 10 foot wide wheel path. It is posted for 10 ton weight limit. The bridge has a wood deck and steel guardrail is fastened to the truss members. The average daily traffic on the bridge is 100 vehicles per day. Bridge plates are located on the portal of each side of the bridge showing the builder's name and Canton, Ohio (WVDOH Bridge Files).

Metal truss bridges evolved from the wooden truss bridges as stronger materials were needed for railroads and were first built using wrought iron. The Whipple Truss design was first used in 1841 and was the first metal truss based on scientific principles. It was the first type of metal truss that was widely used (Carver, 2008). Squire Whipple received a patent for a double intersection Pratt truss in 1847. Later J.W. Murphy improved the design by adding diagonals that crossed two panels and became known as Whipple-Murphy truss. This type was used in counties along the Ohio River (KCI, 2013). Adaline Bridge was surveyed by K.M. Jourdan in 1993 and was rated as eligible for the National Register. Although the bridge has been repaired through the years, it has retained its integrity as a good example of a pin-connected Whipple thru truss.

The Wrought Iron Bridge Company built a variety of styles of bridge and was a prolific builder of iron trusses in the late 1800s. In the 1870s they opened a fabricating plant in Canton, Ohio. Around 1901 Wrought Iron Bridge Company was consolidated by JP Morgan with 27 other firms to form the American Bridge Company. The Canton fabricating plant was closed in 1930 (Carver, 2008). Most of the company's bridges were short spans built for highway use. Adaline Bridge was a common design type for them.

BIBLIOGRAPHY

Carver, Martha. Tennessee's Survey Report for Historic Highway Bridges. Tennessee DOT. 2008.

KCI Technologies, Inc., and Mead & Hunt, Inc. West Virginia Statewide Historic Bridge Survey: Final Survey Report. "Volume 1-Survey Report and Historic Context." December 2013.

West Virginia Division of Highways, Bridge Files, Maintenance Division, Building 5, Capitol Complex, Charleston, WV 25305.

STATE LEVEL HISTORIC DOCUMENTATION
INDEX TO PHOTOGRAPHS

Adaline Bridge
County Route 74
Fish Creek
Marshall County, West Virginia

Photographer: Randy Epperly

October 2012

ADALINE BRIDGE-1	View of Adaline Truss looking west.
ADALINE BRIDGE-2	View of Adaline Truss looking east.
ADALINE BRIDGE-3	View of Adaline Truss looking east.
ADALINE BRIDGE-4	View of bridge builder plate and truss looking east.
ADALINE BRIDGE-5	View of bridge builder plate.
ADALINE BRIDGE-6	View of inside of truss looking west.
ADALINE BRIDGE-7	View of the wooden deck.
ADALINE BRIDGE-8	View of the top chords and bracing.
ADALINE BRIDGE-9	View of the hangers.
ADALINE BRIDGE-10	View of endpost connection.
ADALINE BRIDGE-11	View of pin connection.
ADALINE BRIDGE-12	View of cut stone abutment.



1. View of Adaline Truss looking west.



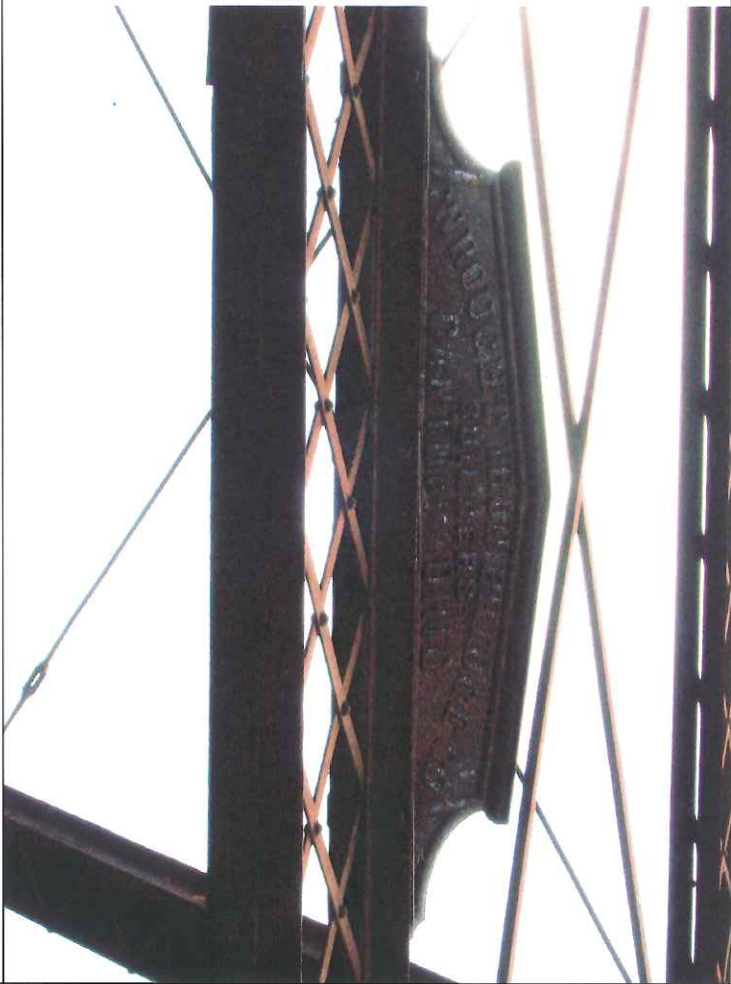
2. View of Adaline Truss looking east.



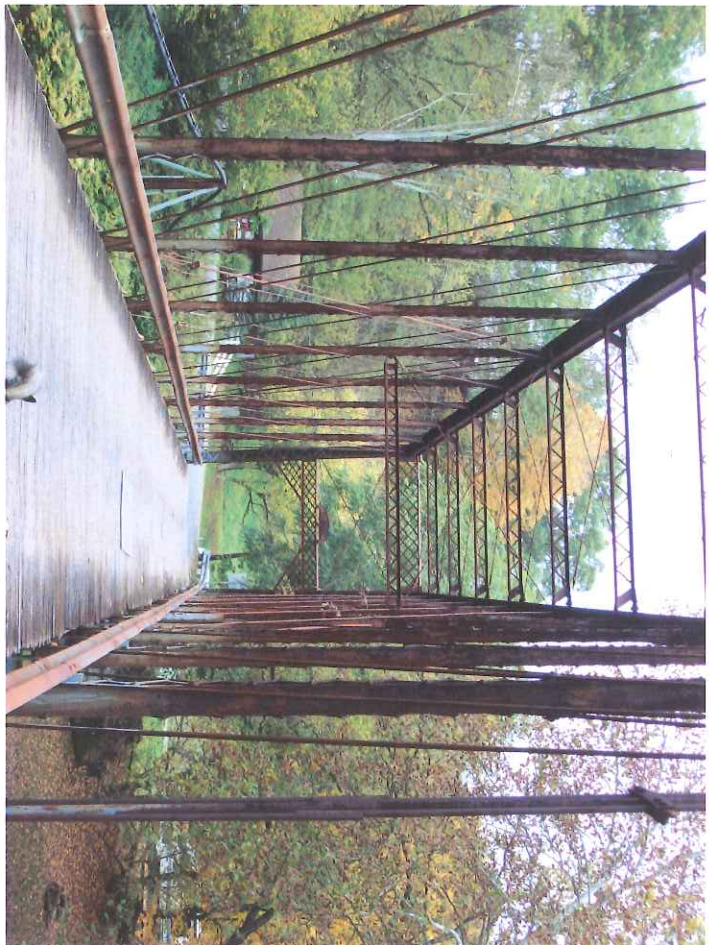
3. View Adaline Truss looking east.



4. View of bridge builder plate and truss looking east.



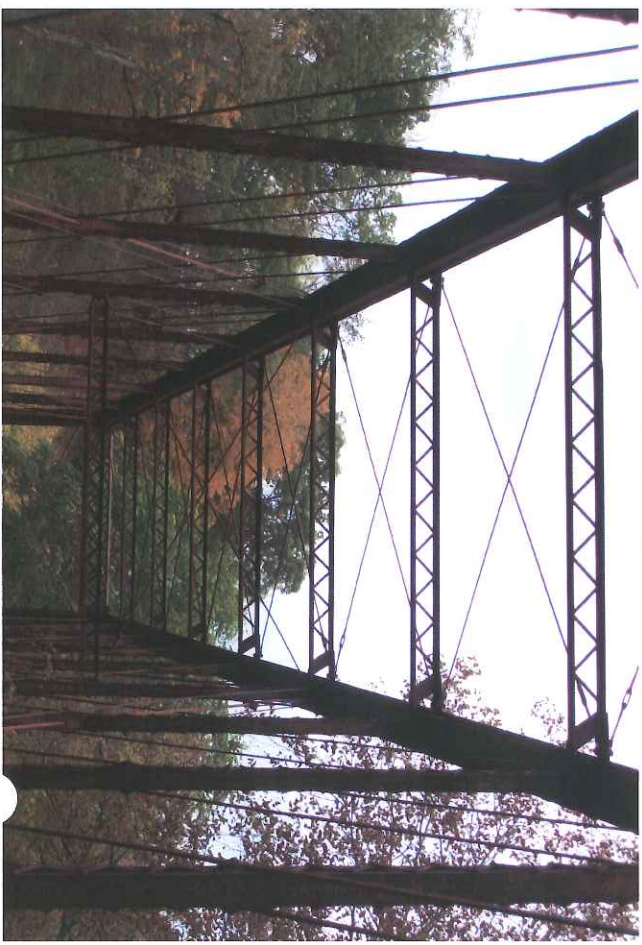
5. View of bridge builder plate.



6. View of inside of truss looking west.



7. View of the wooden deck.



8. View of the top chords and bracing.



9. View of the hangers.



10. View of endpost connection.



11. View of pin connection.



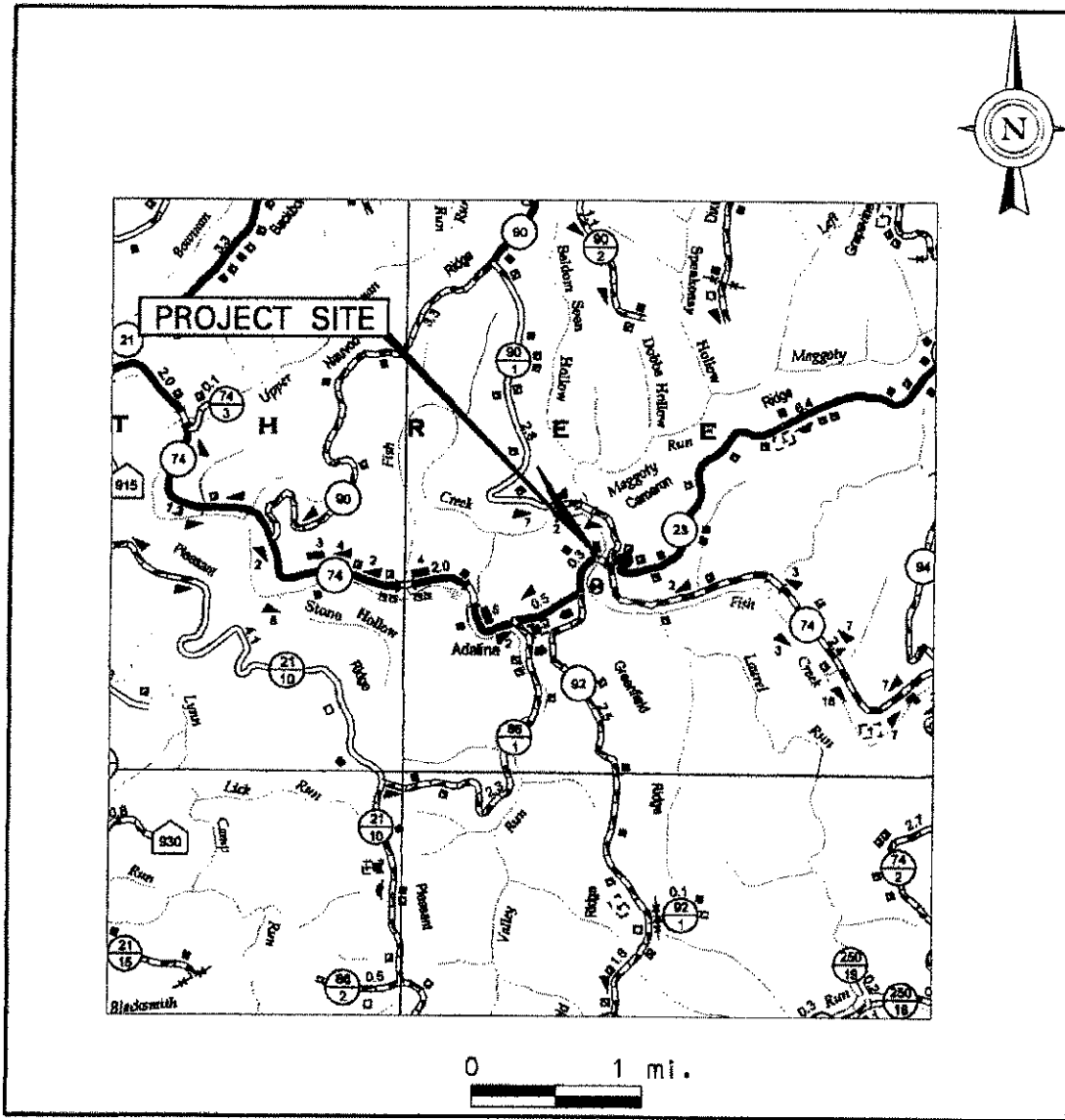
12. View of cut stone abutment.

BRIDGE REPLACEMENT STUDY

ADALINE BRIDGE (26-74-18.50)

STATE PROJECT NO. S326-74-18.50

MARSHALL COUNTY



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

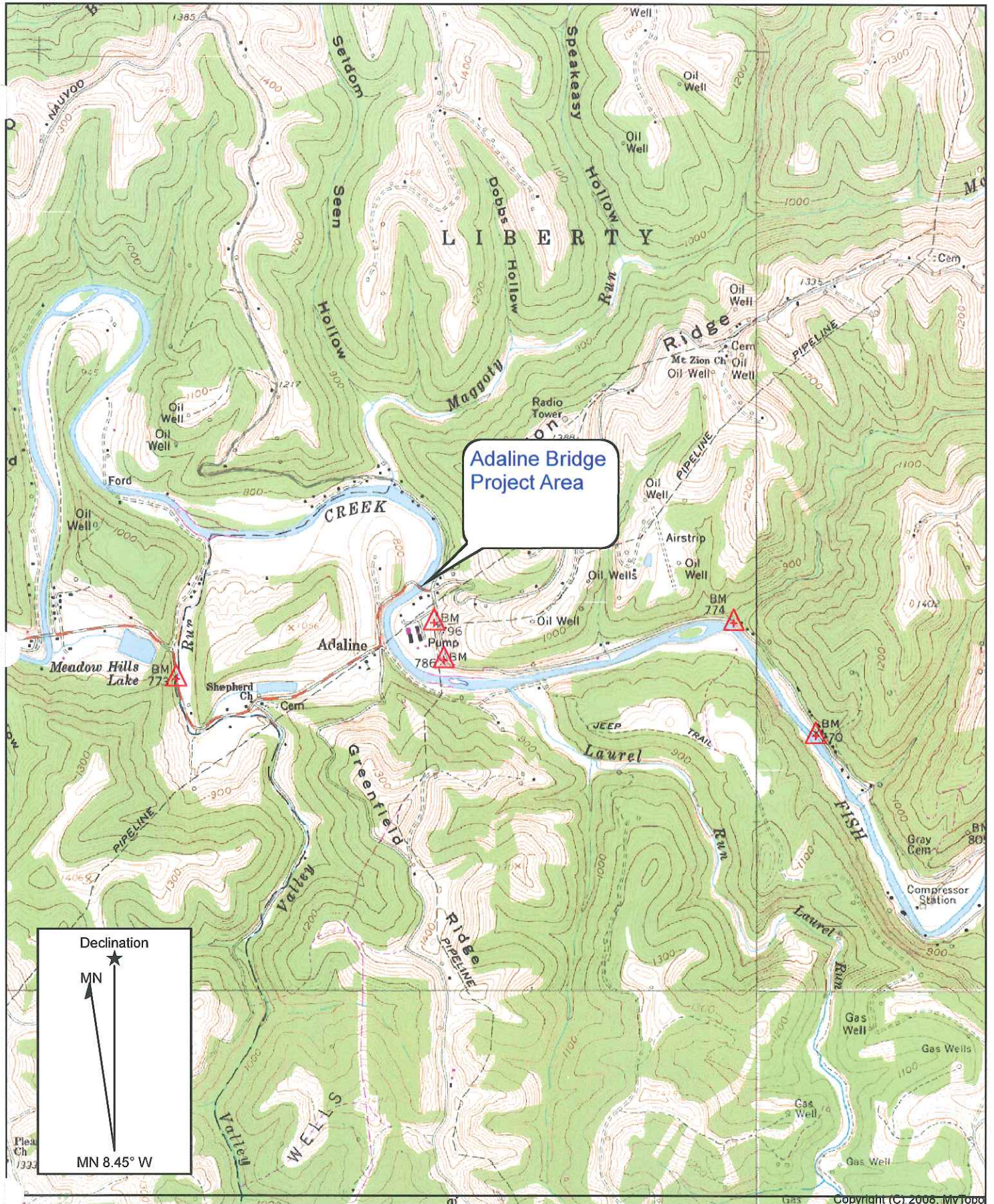
DIVISION OF HIGHWAYS

DISTRICT SIX BRIDGE DEPARTMENT

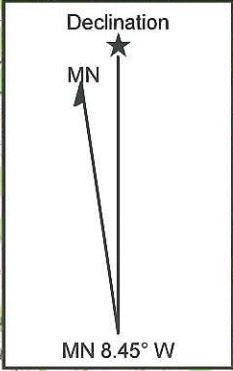
DISTRICT ENGINEER

David Star

DATE 12-1-11



Adaline Bridge
Project Area

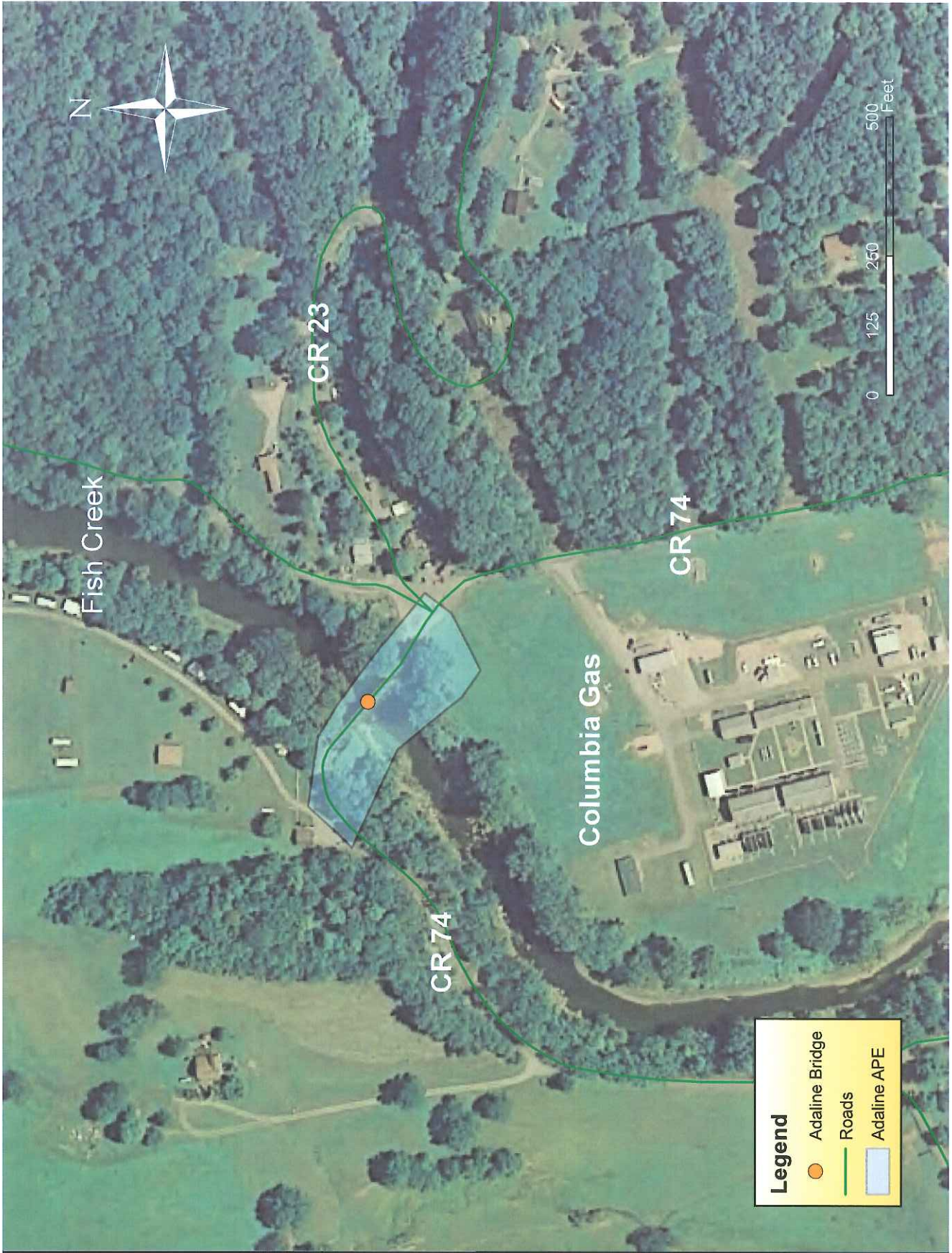


Adaline Bridge
S326-74-18.50
Marshall County

Location: 17 0530835 E 4401981 N

West Virginia Division of Highways
Engineering Division
Environmental Section
Randy Epperly
October 17, 2012

Adaline Bridge
Marshall County
S326-74-18.50



**MEMORANDUM OF AGREEMENT
BY AND AMONG
THE WEST VIRGINIA STATE HISTORIC PRESERVATION OFFICER
AND THE WEST VIRGINIA DIVISION OF HIGHWAYS
REGARDING IMPLEMENTATION OF THE ADALINE BRIDGE
REPLACEMENT PROJECT
STATE PROJECT #S326-74-18.50
MARSHALL COUNTY, WEST VIRGINIA
FEBRUARY 2014**

WHEREAS, the West Virginia Division of Highways (WVDOH) proposes to replace Adaline Bridge, which spans Fish Creek in Marshall County, hereinafter referred to as the Project. The improvements involve the construction of a new bridge and the removal of the existing bridge using state funds; and

WHEREAS, the WVDOH has determined that the Project will have an adverse effect upon the Adaline Bridge, a property eligible for the National Register of Historic Places (NRHP) under Criterion C; and

WHEREAS, the WVDOH has consulted with the West Virginia State Historic Preservation Officer (WVSHPO) pursuant to West Virginia Code Chapter 29, Article 1 and its implementing regulations (82 CSR 2), as well as 36 CFR Part 800.5 Implementing Section 106 of the National Historic Preservation Act; (16 U.S.C., 470f); and

WHEREAS, the WVDOH has determined that the Project will not affect archaeological properties;

WHEREAS, the WVDOH contacted the Preservation Alliance of West Virginia, Coal Heritage Authority, Marshall County Historical Society, and Marshall County Commission regarding the Project. No response was received from these groups.

NOW, THEREFORE, the WVSHPO and the WVDOH agree that the undertaking will be implemented in accordance with the following stipulations in order to take into account the effects of the undertaking on historic properties.

STIPULATIONS

The WVDOH shall ensure that the following stipulations are carried out:

Adaline Bridge

- I. Adaline Bridge will be documented in its present historic setting. The documentation package will include 5"x7" black and white digital prints in accordance with the National Register of Historic Places and National Historic Landmarks Survey Photo Policy Expansion of March 2005. Also, the documentation will be sent to the

Moundsville-Marshall County Public Library in Moundsville, West Virginia.

- II. A brief history of the structure will be included along with fully completed West Virginia Historic Property Inventory forms and copies of plan sheets and drawing of the bridge from WVDOH bridge files if they are available.
- III. A brochure of the Adaline Bridge will be developed by WVDOH and distributed to the Moundsville-Marshall County Public Library in Moundsville, and Marshall County Historical Society. The WWSHPO will be given the opportunity to review all educational materials developed for this stipulation.
- IV. The bridge will be documented on a future website listing historic bridges once the WV Historic Bridge Survey is complete.

V. Duration

This MOA will expire if its stipulations are not carried out within five (5) years from the date of its execution. At such time, and prior to work continuing on the undertaking, the WVDOH shall execute a MOA pursuant to 82 CSR 2.5.4.d. Prior to such time, WVDOH may consult with other signatories to reconsider the terms of the MOA and amend it in accordance. WVDOH shall notify the signatories as to the course of action it will pursue.

VI. Post-Review Discoveries

If any unanticipated discoveries of historic properties or archaeological sites, including human burial sites and/or skeletal remains, are encountered during the implementation of this undertaking, work shall be suspended in the area of the discovery until the WVDOH has developed and implemented an appropriate treatment plan in consultation with the WWSHPO pursuant to 36 CFR 800.13 (b).

VII. Monitoring and Reporting

Each year following the execution of this MOA until it expires or is terminated, WVDOH shall provide all parties to this MOA a summary report detailing work carried out pursuant to its terms. Such report shall include any scheduling changes proposed, any problems encountered, and any disputes and objections received in WVDOH's efforts to carry out the terms of this MOA.

VIII. Amendments

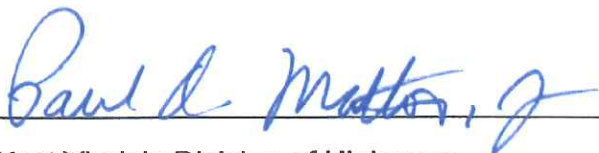
This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the SHPO.

IX. Termination

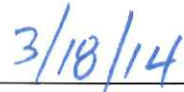
If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation VIII, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.

Once the MOA is terminated, and prior to work continuing on the undertaking, WVDOH must execute a MOA pursuant to 82 CSR 2.5.4.d.

EXECUTION of the Memorandum of Agreement by the WWSHPO and the WVDOH, and implementation of its terms evidence that the WVDOH has afforded the SHPO an opportunity to comment on the Adaline Bridge Replacement project and its effects on historic properties, and that the WVDOH has taken into account the effects of the undertaking on the historic property.



West Virginia Division of Highways



Date

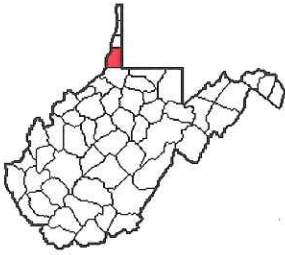


West Virginia Deputy State Historic Preservation Officer



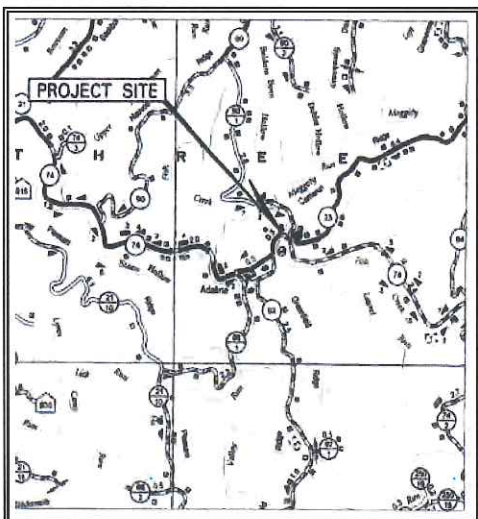
Date

Internal Rating: _____



WEST VIRGINIA HISTORIC PROPERTY INVENTORY FORM

Street Address Located along County Route 74, approximately 0.09 miles west of County Route 23, spanning Fish Creek.	Common/Historic Name/Both <input checked="" type="checkbox"/> Adaline Bridge	Field Survey # HPI #1	Site # (SHPO Only)
Town or Community Adaline	County Marshall	Negative No.	NR Listed Date
Architect/Builder Wrought Iron Bridge Company	Date of Construction 1892	Style (SHPO Only)	
Exterior Siding / Materials Simple Span Pin Connected Whipple Thru Truss	Roofing Material Deck Material: Timber	Foundation Abutments: Cut Stone	
Property Use or Function Transportation	UTM Zone 17 NAD 1983 Easting 0530451E Northing 4402069N		
Survey Organization & Date WVDOH October 10, 2012	Quadrangle Name Glen Easton		
(Continuation of Survey Organization & Date)	Part of What Survey / FR# State County Route S326-74-18.50		



Name: Adaline Bridge
 Survey #: HPI #1
 Survey / FR#: State County Route: S326-74-18.50

Present Owners WVDOT	Owners Mailing Address Building 5, Capitol Complex Charleston, WV 25305
Describe Setting <div style="float: right;"> Unknown--<1 Acres <input type="checkbox"/> Archaeological Artifacts Present </div> <p>The bridge is located in Adaline, a rural area of Marshall County. It is located on County Route 74, approximately 0.09 miles west of County Route 23 and spans Fish Creek.</p>	
Description of Buildings or Site (Original and Present)	Stories Front Bays
<p>The structure is a simple span pin connected Whipple thru-truss bridge supported by cut stone abutments. It was built in 1892 by the Wrought Iron Bridge Company of Canton, Ohio. The deck is timber and there is guardrail fastened to the truss members. The bridge is 194.5 feet long and the roadway width is 15.3 feet. The bridge is posted for 10 ton weight limit. The average daily traffic is 100 vehicles per day.</p>	
Alterations <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe 1973: Endposts repaired with plates. 1974: Section of deck replaced. 1975: Floorbeams repaired with plates. 1977: Section of L12 bearing stone removed and repaired with concrete. 1980: Stringers and floorbeams replaces. Angle diaphragms, loop bars, bearing plates installed. Deck boards replaced. 1984: Diameter rods added to diagonals on trusses and plates welded to top chord channels. Stock welded to verticals. 1997: Deck replaced and vertical post holes plated. 1998: Steel bars and diameter bars added. 1999: Deck boards replaced. 2006: Deck boards replaced.	
Additions <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe. 1980: Guardrail has been fastened to the truss members.	
Describe All Outbuildings N/A	
Statement of Significance: See Continuation Sheet.	
Bibliographical References Carver, Martha. <u>Tennessee's Survey Report for Historic Highway Bridges</u> . Tennessee DOT. 2008. WVDOT Maintenance Division. WV Bridge Inspection Data. Charleston, WV	
Form Prepared By: Name/Organization: Randy Epperly III Address: WV Division of Highways Capitol Complex Building 5, Rm. 463 Charleston, WV 25305 Phone #: 304-558-9385	Date: October 11, 2012

WEST VIRGINIA HISTORIC PROPERTY FORM CONTINUATION SHEET

Name: Adaline Bridge
Survey Number: HPI #1
Project / FR#: State County Route: S326-74-18.50

Other than a general association with the history of the area, there is no reason to believe this structure is an important link to events or trends that have made a significant contribution to the broad patterns of our history. The Fish Creek Turnpike was located in this area but no remnants can be found in the project area. Very little information can be found on the Fish Creek Turnpike. This bridge was built after the turnpike's charter date of March 30, 1853. Adaline Bridge is not eligible for the National Register under Criterion A.

The Adaline Bridge is not associated with the significance of an individual or an individual's historic contribution. The bridge is not eligible under Criterion B.

The Adaline Bridge was built in 1892 by Wrought Iron Bridge Company. The company was a prolific builder of iron truss bridges in the late 1800s. In 1900 it was consolidated with 27 other firms in the American Bridge Company by JP Morgan. Most of the bridges were short spans for highway use.

Adaline Bridge is a simple span pin connected Whipple thru truss supported by cut stone abutments and has a timber deck. Bridge plates are located on the portal on each side of the bridge with the builder's name and Canton, Ohio. Although the bridge has had repairs, it has retained its integrity as a good example of a pin connected Whipple thru truss. The bridge was surveyed by K.M. Jourdan in July 1993 and was rated as eligible for the National Register. The Whipple Truss was first used in 1841 and was the first metal truss that was based on scientific principles. The Whipple Truss was the first metal truss that was widely used (Carver, 2008). Adaline Bridge is a good example of a Whipple Truss and is eligible for the National Register of Historic Places under Criterion C for work by a master builder and bridge design.

The Adaline Bridge does not contain any important information that will contribute to the understandings of human history or prehistory. The potential for information is minimal. Therefore the bridge is not eligible under Criterion D.