

ZUMBROTA BRIDGE  
National Covered Bridges Recording Project  
Spanning North Fork Zumbro River in Covered Bridge Park  
Zumbrota  
Goodhue County  
Minnesota

HAER MN-123  
*HAER MN-123*

REDUCED COPIES OF MEASURED DRAWINGS

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

ADDENDUM TO:  
ZUMBROTA BRIDGE  
National Covered Bridges Recording Project  
Spanning North Fork Zumbro River in Covered Bridge Park  
Zumbrota  
Goodhue County  
Minnesota

HAER MN-123  
*HAER MN-123*

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

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

## ZUMBROTA BRIDGE

### HAER NO. MN-123

- Location:** Spanning North Fork Zumbro River in Covered Bridge Park, Zumbrota, Goodhue County, Minnesota. The Zumbrota Bridge is located at latitude: 44.296340, longitude: -92.670404. The coordinate represents the center of the deck of the bridge. This coordinate was obtained on June 9, 2015, by plotting its location on Google Earth. The accuracy of the coordinate is +/- 12 meters.
- Date of Construction:** 1869; moved to current location 1997
- Designer:** A.J. Thatcher
- Builder:** Evander L. Kingsburg
- Structure Type:** Wood covered bridge; modified lattice truss
- Present Owner:** Town of Zumbrota, Minnesota
- Present Use:** Pedestrian bridge in public park
- Significance:** The Zumbrota Bridge employs an unusual lattice truss design with varying angled lattice members that are connected by bolts to a series of vertical posts, creating a symmetrical pattern. No other lattice trusses are known to have used this unique pattern. The Zumbrota Bridge is Minnesota's last remaining historic covered bridge.
- Description:** The Zumbrota Bridge is a single-span modified lattice truss. The total length of the bridge is 117'-6" from portal to portal. The bridge has a vertical clearance of 14'-2", with a roadway width of approximately 15'. The covered bridge sits upon two continuous steel girders on reinforced concrete abutments and a skewed center pier.
- The truss is a modified lattice, in that it has a variety of angles of lattice members. There is an inner and outer lattice, which sandwiches a series of vertical 4"x8" posts, typically spaced at 5'-4 1/2". All the lattice plank members measure 3"x10". On the outer lattice, half of the planks are angled at approximately 72 degrees. Near the center of the bridge, the angles transition. One plank is 58 degrees, creating space for a window opening. The remaining planks are at 45 degrees until the bottom of the

last full length member meets the end post. Then two lattice planks radiate fanlike above at the end post, at 53 and 64 degrees. This pattern is mirrored from one end to the other on the inner lattice. Where the lattice members intersect the upper and lower chords, they are connected by four 2" treenails in a diamond pattern. Where the planks intersect the vertical posts, they are connected by bolts with an ogee washer.

The upper lateral bracing consists of 8"x8" transverse tie beams seated on top of the upper chord, above a 1" dia. tension rod, which intersects with every other vertical post. There are 6"x6" lateral cross braces between each tie beam, and 2x10 wind braces between the tie beams and posts. The roof is cedar shake shingles.

The portals are straight with hipped openings, pilaster moldings and shelter panels. A thick cornice follows the gable and wraps around the entire length of the bridge. A sign at the south portal reads, "\$10 fine for driving faster than a walk across this bridge." The bridge is sheathed with board and batten siding, with cedar shake shingles. The abutments are cast-in-place concrete with a stone masonry form liner finish, stained light brown. The center pier is 3'-8" wide and skewed at 72 degrees.

**History:**

In 1856 the city of Zumbrota was founded by immigrants from Massachusetts, along the Zumbro River on the Dubuque to St. Paul stagecoach trail. The Zumbrota Bridge was first constructed by Evander L. Kingsburg in 1869, using a modified lattice truss designed by A.J. Thatcher. Originally built uncovered, the bridge was enclosed in 1871 with board and batten siding and a gabled roof with cedar shingles.

In 1932 the Minnesota Highway Department built a new steel bypass bridge to handle the increased traffic of MN-58. The covered bridge was moved to the nearby Goodhue County Fairgrounds in 1970. In 1997 the town of Zumbrota moved the bridge back across the North Fork of the Zumbro River at West Avenue, one block west of its original location. A concrete center pier and steel support beams were added at this time, keeping the historic truss intact. In 2007 fire protection and surveillance equipment were installed from a grant from the National Historic Covered Bridge Preservation Program. The Zumbrota Bridge is Minnesota's last remaining historic covered bridge.

**Historian:**

Christopher H. Marston, HAER Architect, 2015

**Project Information:** The National Covered Bridges Recording Project is 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 the Heritage Documentation Programs Division (Richard O'Connor, Chief), a division of the National Park Service, U.S. Department of the Interior. The Federal Highway Administration's National Historic Covered Bridge Preservation Program (NHCBP) funded the project (Sheila Duwadi, administrator).

The NHCBP funded "Use of Laser Scanning Technology to Obtain As-Built Records of Historic Covered Bridges," a partnership between the USDA Forest Service Forest Products Laboratory (Robert J. Ross, Engineer) and University of Minnesota Duluth Natural Resources Research Institute (UMD NRRI, Brian Brashaw, Program Director). The laser scanning of the Zumbrota Bridge was completed by Sightline, LLC (Penny Anstey, William Krueger) in 2010. The processing of the scan data and draft was completed by Samuel Anderson, UMD NRRI, in 2011. In 2014 HAER took the data and produced final HAER drawings for transmittal to the Library of Congress. The HAER field team consisted of Christopher H. Marston, HAER Project Leader; and Pavel Gorokhov, Benjamin Shakelton, and Hummam Salih (all Catholic University), architects. Martin Stupich shot the large format and digital photography in 2015.

## SOURCES

Mead & Hunt. Minnesota Department of Transportation, Local Historic Bridge Report, Bridge Number 25580. August 2014.

Ross, Robert J., Brian Brashaw, Samuel J. Anderson. *Use of Laser Scanning Technology to Obtain As-Built Records of Historic Covered Bridges*. General Technical Report FPL-RP-669. Madison, Wisconsin: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory. 2012.

"Zumbrota Covered Bridge." National Register of Historic Places Nomination Form, listed in 1975, amended 1990.

**ILLUSTRATED APPENDIX**

All supplemental digital photographs were taken by Martin Stupich, April 2015.



Figure 1. General view of south portal and west side of Zumbrota Bridge; view to northeast.



Figure 2. General context view of bridge over Zumbro River; view to northwest.



Figure 3. West side on cast concrete center pier; view to southeast.



Figure 4. East side elevation; view to west.



Figure 5. View underneath showing steel I-beams and cast concrete pier; view to southwest.

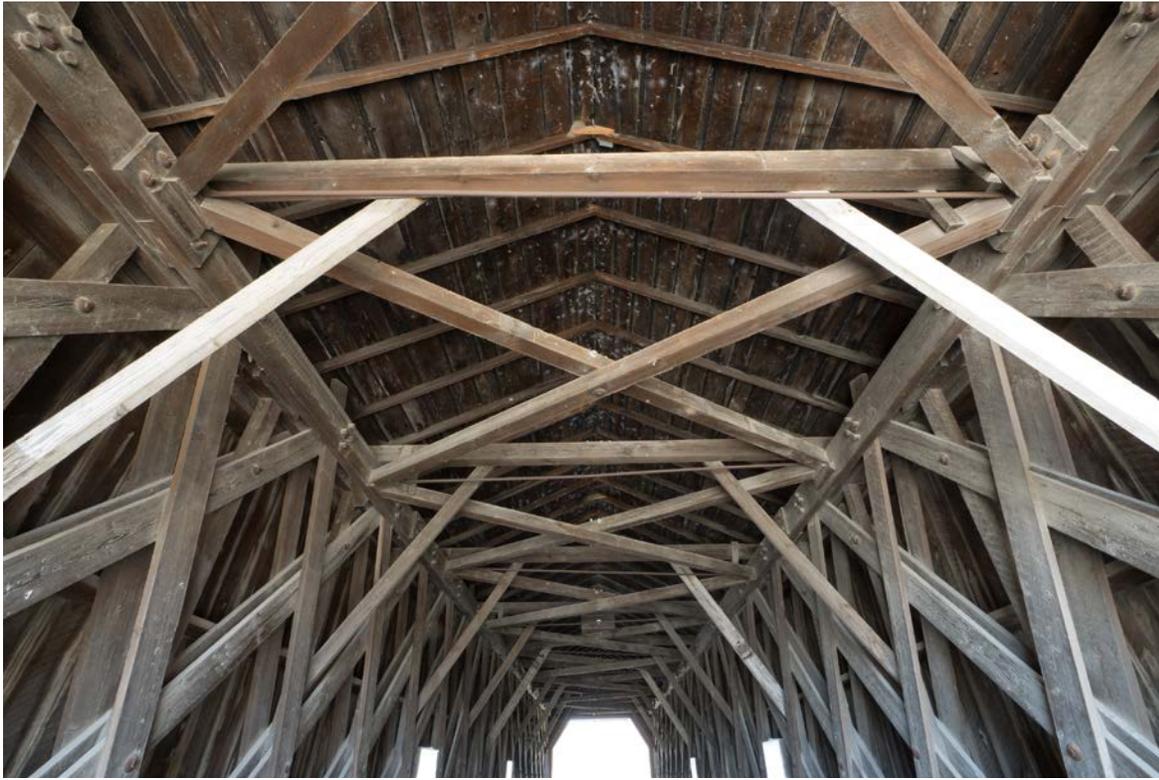


Figure 6. Interior view of truss and upper lateral bracing; view to north.



Figure 7. Detail of truss configuration at north end; view to northwest.



Figure 8. Detail of truss and upper lateral brace connections to upper chord; view to northwest.



Figure 9. Detail east interior showing boxed window opening; view to northeast.