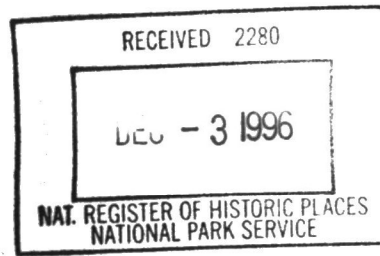


96-1546

United States Department of the Interior
National Park Service



National Register of Historic Places
Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in How to Complete the National Register of Historic Places Registration Form (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Chinworth Bridge
other names/site number _____ 085-080-55007

2. Location

street & number Old U.S. 30 and CR 350 West N/A not for publication
city or town Warsaw vicinity
state Indiana code IN county Kosciusko code 085 zip code 46580

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36CFR Part 60. In my opinion, the property meets does not meet the National Register criteria. I recommend that this property be considered significant nationally statewide locally. (See continuation sheet for additional comments.)

Pat R. Rish

10-31-96
Date

Signature of certifying official/Title

Indiana Department of Natural Resources

State or Federal agency and bureau

In my opinion, the property meets does not meet the National Register criteria. (See continuation sheet for additional comments.)

Signature of certifying official/Title

Date

State or Federal agency and bureau

4. National Park Service Certification

I hereby certify that the property is:

- entered in the National Register.
 See continuation sheet.
- determined eligible for the National Register
 See continuation sheet.
- determined not eligible for the National Register
- removed from the National Register
- other, (explain:) _____

Signature of the Keeper

Edson H. Beall

Date of Action

1-2-97

Chinworth Bridge
Name of Property

Kosciusko IN
County and State

5. Classification

Ownership of Property

(Check as many boxes as apply)

- private
- public-local
- public-State
- public-Federal

Category of Property

(Check only one box)

- building
- district
- site
- structure
- object

Number of Resources within Property

(Do not include previously listed resources in the count)

Contributing	Noncontributing	
0	0	buildings
0	0	sites
1	0	structures
0	0	objects
1	0	Total

Name of related multiple property listing

(Enter "N/A" if property is not part of a multiple property listing.)

N/A

Number of contributing resources previously listed in the National Register

0

6. Function or Use

Historic Functions

(Enter categories from instructions)

TRANSPORTATION: Road-Related (vehicular)

Current Functions

(Enter categories from instructions)

TRANSPORTATION: Pedestrian-Related

7. Description

Architectural Classification

(Enter categories from instructions)

OTHER: Pratt through truss

Materials

(Enter categories from instructions)

foundation STONE
walls METAL: Steel
roof
other WOOD
ASPHALT

Narrative Description

(Describe the historic and current condition of the property on one or more continuation sheets.)

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Section number 7 Page 1

Narrative Description

Crossing the Tippecanoe River three and one-half miles west of Warsaw, Indiana the Chinworth Bridge connects the Tippecanoe River Road on the south to Old Road 30 on the north. It is located on the township line between Harrison and Wayne Townships in a rural setting southwest of the Tippecanoe Rest Park. The Park is bounded on the south by the north bank of the Tippecanoe River and on the north by Old Road 30 (Photo 1). The Tippecanoe Rest Park contains approximately two acres of land. Closed to vehicular traffic in 1975, the bridge is limited to pedestrian traffic.

The Chinworth Bridge, constructed by the Bellefontaine Bridge and Iron Company of Bellefontaine, Ohio, is a 140-foot Pratt through truss span. Shop-riveted, field-bolted, and pin-connected, the trusses consist of eight panels of 17 1/2 feet each seated upon abutments consisting between them of 392 perch of field and cut stone. At some point, concrete was poured ahead of the southern abutment's stone.

The perimeter of the trusses is marked by horizontal and parallel top and bottom chords placed about 24 feet apart and by inclined posts on the ends. The top chords and the endposts were fabricated from a pair of channels with a cover plate riveted above and lacing bars below. Because they generally address tension, the lower chords consist of a pair of die-forged eyebars varying in size from the smallest in the end panels (2 1/2 x 3/4 inches) to the largest towards the midspan (3 3/4 x 1 inches) where the greatest amount of tension is anticipated (Photos 2 and 3).

The truss webbing is also adjusted for the nature and amount of stress a particular member might face. Acting as a hanger for a floorbeam, the outer or hip verticals are designed to address compression. Each is composed of a pair of lace channels, varying in size from six inches for the second vertical to five inches for the third and fourth (Photo 4).

Pratt diagonals are designed for tension with greater stress expected toward the span's end. In the second panel from the end, Bellefontaine used a pair of 2 1/2 x 3/4 inch die-forged eyebars which dropped by the fourth panel to 1 1/2 x 5/8 inches. The company also used a single counterbrace in the third panel and a pair in the fourth of 3/4 inch round rods with turnbuckles.

Bracing between the trusses from one to the other of the upper and of the lower chords adds rigidity to the structure. Struts consisting of two pairs of angles, with one pair laced to the other and placed between and bolted to the sides of the top chords at panel points, help to keep the trusses from shifting away from or towards one another. Angle-iron knee braces bolted to the strut.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Section number 7 Page 2

above and the intermediate vertical below add more stability (Photo 5). For protection against stresses induced through swaying, a round iron rod with threaded ends runs diagonally from one truss to the other within parallel panels. The end of the sway bracing rod extends through a plate attached to the top chord. A nut at each end tightens the rod at the respective plates.

As a secondary function, floorbeams behave like struts below the lower chords. Again, round-rod sway bracing runs diagonally from one truss to the other within the boundaries of parallel panels below. Each of the rod's threaded ends extends through an opening in a floorbeam where plates and nuts allow the rod to be tightened.

U-bolted around the lower pines of the verticals, 16-foot long and 15-inch deep rolled I-floorbeams carry the span's deck. Sets of nine I-beam stringers run longitudinally above the floorbeams and help support the 14-foot timber running surface (Photo 6). The timber deck had a three inch deep bituminous coating added in 1927. A latticed guardrail is fastened to the inside of each truss, terminating on the interior side of each inclined end post (Photo 7).

Portals are structured simply by using a reinforced A-frame of a pair of angles riveted to each other. The bridge allows a clearance of 19 feet between the portals and the riding deck.

Plaques attached to the south and north portal struts identify the construction company and its location (Bellefontaine Bridge and Iron Company, Bellefontaine, Ohio) and the date of construction (1897). An additional plaque, hung by a chain on the north strut, gives the name of the bridge (The Chinworth Bridge). There is a finial atop each endpost-top chord point of connection (Photos 8, 9, and 10).

The Chinworth Bridge remains intact. The bridge was closed to vehicular traffic in 1975 when New Road 30 was completed and vehicular traffic was rerouted two miles north of the site.

8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- A** Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B** Property is associated with the lives of persons significant in our past.
- C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- D** Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all the boxes that apply.)

Property is:

- A** owned by a religious institution or used for religious purposes.
- B** removed from its original location.
- C** a birthplace or grave.
- D** a cemetery.
- E** a reconstructed building, object, or structure.
- F** a commemorative property.
- G** less than 50 years of age or achieved significance within the past 50 years.

Narrative Statement of Significance

(Explain the significance of the property on one or more continuation sheets.)

Areas of Significance

(Enter categories from instructions)

ENGINEERING

Period of Significance

1897-1946

Significant Dates

1897

Significant Person

(Complete if Criterion B is marked above)

N/A

Cultural Affiliation

N/A

Architect/Builder

Bellefontaine Bridge & Iron Company

9. Major Bibliographic References

Bibliography

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS):

- preliminary determination of individual listing (36 CFR 67) has been requested
- previously listed in the National Register
- previously determined eligible by the National Register
- designated a National Historic Landmark
- recorded by Historic American Buildings Survey # _____
- recorded by Historic American Engineering Record # _____

Primary location of additional data:

- State Historic Preservation Office
- Other State agency
- Federal agency
- Local government
- University
- Other

Name of repository:

Chinworth Bridge
Name of Property

Kosciusko IN
County and State

10. Geographical Data

Acreage of Property <1

UTM References

(Place additional UTM references on a continuation sheet.)

1 1 6 5 9 1 2 8 0 4 5 6 6 5 4 0
Zone Easting Northing

3 1 6
Zone Easting Northing

2 1 6
Zone Easting Northing

4 1 6
Zone Easting Northing

See continuation sheet

Verbal Boundary Description

(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification

(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Neal Carlson, James Cooper, Nancy Hanson
organization Historic Landmarks Foundation of Indiana date 8-19-96
street & number 520 E. Colfax Avenue telephone 219/232-4534
city or town South Bend state IN zip code 46617

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

Maps

A **USGS map** (7.5 or 15 minute series) indicating the property's location.

A **Sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs

Representative **black and white** photographs of the property.

Additional items

(Check with the SHPO or FPO for any additional items)

Property Owner

(Complete this item at the request of SHPO or FPO.)

name Kosciusko County Commissioners
street & number 100 W. Center St. telephone 219/372-2433
city or town Warsaw state IN zip code 46580

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 *et seq.*).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Projects (1024-0018), Washington, DC 20503.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Section number 8 Page 1

Narrative Statement of Significance

Chinworth Bridge is eligible for inclusion in the National Register of Historic Places under Criterion C for engineering. The bridge is significant locally as the only Pratt through truss bridge remaining in Kosciusko County, and is important regionally as one of the few surviving spans built by the Bellefontaine Bridge and Iron Company.

This crossing of the river was originally a ford where teams and wagons could cross safely in the shallow water. The ford, used for many years, was on the west side of the bridge and there are some references to a wooden pier bridge at the site. Just south of the bridge was the original Yellow Stone Trail. Marked by bands of yellow paint on posts with a "Y" in a black circle, the Yellow Stone Trail went from coast to coast.

In 1884, citizens and taxpayers requested a new bridge across the Tippecanoe River on the township line to connect the road from Warsaw, south of the river, with a north-south road to Atwood and Etna Green north of the river. It would cross property owned by Robert Chinworth. Capt. David Braden, known locally as a Civil War hero, served as a salesman-consultant to the Kosciusko County Board of Commissioners. Working for the Bellefontaine Bridge and Iron Company, he agreed to have a 140-foot span erected across the Tippecanoe River at a cost of \$18 per linear foot, a total of \$2520.00. The bridge was to be wide enough to comfortably accommodate a horse and buggy. The contract was signed in April of 1897; the bridge was completed in August, 1897. The Chinworth Bridge also reflects the work of notable Kosciusko County bridge builders: Henry Loy received payment for stone and hauling, Alonzo Doty for masonry work, and Shelden Webber for sand and mortar.

The Bellefontaine Bridge and Iron Company was a prolific Ohio firm which built many bridges across Indiana in the 1890s and the first decades of the twentieth century. Unfortunately, very few of the bridges they built in Indiana still exist.

In 1924, when US Highway 30 was built, surveyors and engineers took a close look at the Chinworth Bridge but decided to bypass it because the structure was too light and too narrow for motor vehicular traffic. Also, the bridge sat at right angles to traffic at both of its ends if US 30 crossed it. The Indiana State Highway Commission, however, enhanced the Chinworth Bridge by building a rest area alongside the structure. This incorporation into a roadside rest area on a cross-country, federal-state highway places the Chinworth Bridge within the development of a regional transportation system.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Section number 8 Page 2

With the development of New Highway 30, a 4-lane super highway completed in 1975, traffic was relocated away from the Chinworth Bridge, the bridge's importance diminished, and the bridge was closed to vehicular traffic. In July of 1975, the Kosciusko County Historical Society (KCHS) secured rights to the Tippecanoe Rest Park from the Indiana State Highway Department for a fee of \$600.00 and signed a 99-year lease with Kosciusko County for the bridge at \$1.00 per year. The KCHS dedicated the bridge as a historic landmark of Kosciusko County on July 6, 1975, to begin the county's celebration of America's bicentennial celebration. A permanent committee of the KCHS, the Old Iron Bridge Committee, was set up in June of 1985.

The Chinworth Bridge was scraped, primed, and re-painted bright red in 1992. The signs were redone and repair work was done on guard rails and the cement abutments.

Chinworth Bridge is significant as an example of a Pratt through truss bridge. Patented in 1844 by father and son Caleb and Thomas Pratt, the truss is noted for its vertical elements acting in compression and diagonal components acting in tension. As distinguished in an American Association for State and Local History's booklet on identifying bridges, a pin-connected Pratt through truss is "representative of perhaps the most common type of early twentieth century truss bridges." (p. 5) Although bridge scholar James L. Cooper identifies over 350 Pratt through truss bridges remaining in Indiana in his comprehensive study Iron Monuments to Distant Posterity: Indiana's Metal Bridges, 1870-1930, many of the bridges have been demolished since the study's publication in 1987.

Once omnipresent, it is estimated that Indiana's metal bridges are disappearing at an annual rate of five percent. Clearly, the Chinworth Bridge deserves recognition as the only pre-1930 metal truss or plate girder bridge known to exist in Kosciusko County. Both of the Kosciusko County bridges listed in Cooper's statewide inventory of metal bridges have been removed. (Professor Cooper did not know about the Chinworth Bridge when his book was published.) Additionally, the bridge was rated Outstanding in the Kosciusko County Sites and Structures Inventory published in March, 1991. Considering these factors, the Chinworth Bridge should definitely be regarded as eligible for listing in the National Register of Historic Places.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Section number 9 Page 1

Bibliography

Comp, T. Allan and Donald Jackson. "Bridge Truss Types: a guide to dating and identifying." American Association for State and Local History Technical Leaflet 95, History News, Vol 32, No. 5, May, 1977.

Cooper, James L. Iron Monuments to Distant Posterity: Indiana's Metal Bridges, 1870-1930. Indianapolis: Technical Publishing Services, 1987.

Cooper, James L. "Orion and the Chinworth Bridge." 1996.

Jackson, Donald C. "Great American Bridges and Dams." A National Trust Guide, Great American Places Series, The Preservation Press.

Preservation Information. Preserving Historic Bridges. National Trust for Historic Preservation.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Section number 10 Page 1

Verbal Boundary Description

The Chinworth Bridge over the Tippecanoe River, located in Wayne Township, Kosciusko County, Indiana, NW 1/4 of NE 1/4 of Section 11, Twp 32 North Range 6 East. The boundary includes the bridge itself, its historic abutments, and an area 15' in length and as wide as the portals in front of the edge of the bridge structure which contains the approaches on either end.

Boundary Justification

The boundary includes the steel truss structure and its historic abutments.

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: NOMINATION

PROPERTY NAME: Chinworth Bridge

MULTIPLE NAME:

STATE & COUNTY: INDIANA, Kosciusko

DATE RECEIVED: 12/03/96 DATE OF PENDING LIST: 12/17/96
DATE OF 16TH DAY: 1/02/97 DATE OF 45TH DAY: 1/17/97
DATE OF WEEKLY LIST:

REFERENCE NUMBER: 96001546

NOMINATOR: STATE

REASONS FOR REVIEW:

APPEAL: N DATA PROBLEM: N LANDSCAPE: N LESS THAN 50 YEARS: N
OTHER: N PDIL: N PERIOD: N PROGRAM UNAPPROVED: N
REQUEST: N SAMPLE: N SLR DRAFT: N NATIONAL: N

COMMENT WAIVER: N

ACCEPT RETURN REJECT 1.2.97 DATE

ABSTRACT/SUMMARY COMMENTS:

RECOM./CRITERIA _____

REVIEWER _____ DISCIPLINE _____

TELEPHONE _____ DATE _____

DOCUMENTATION see attached comments Y/N see attached SLR Y/N



1. Chinworth Bridge
2. Kosciusko County, Indiana
3. Nancy Hanson
4. August 1996
5. Historic Landmarks Foundation of Indiana
Northern Regional Office
520 E. Colfax Avenue, South Bend, IN
6. Camera facing southwest from Tippecanoe
Rest Park
7. Photo # 1



Chinworth Bridge

1. Chinworth Bridge
2. Kosciusko County, Indiana
3. Neal Carlson
4. October 1995
5. Neal Carlson
One Miner Drive
Warsaw, IN 46580
6. Camera facing east
7. Photo # 2



1. Chinworth Bridge
2. Kosciusko County, Indiana
3. Neal Carlson
4. October 1995
5. Neal Carlson
One Miner Drive
Warsaw, IN 46580
6. Camera facing northwest
7. Photo # 3



1. Chinworth Bridge
2. Kosciusko County, Indiana
3. Nancy Hanson
4. August, 1996
5. Historic Landmarks Foundation of Indiana
Northern Regional Office
520 E. Cottax Avenue South Bend, IN
6. Camera facing northeast, lace channel vertical
7. Photo # 4



1. Chinworth Bridge
2. Kosciusko County, Indiana
3. Nancy Hanson
4. August 1946
5. Historic Landmarks Foundation of Indiana
Northern Regional office
520 E. Colfax Avenue, South Bend, IN
6. Camera facing north,
7. Photo # 5



1. Chinworth Bridge
2. Kosciusko County, Indiana
3. Nancy Hanson
4. August 1996
5. Historic Landmarks Foundation of Indiana
Northern Regional Office
520 E. Colfax Avenue, South Bend, IN
6. Camera facing southeast,
7. Photo # 6



1. Chinworth Bridge
 2. Kosciusko County, Indiana
 3. Nancy Hanson
 4. August 1996
 5. Historic Landmarks Foundation of Indiana
Northern Regional Office
520 E. Colfax Ave., South Bend, IN
 6. Camera facing northeast,
7. Photo # 7

1887
BELLEFONTAINE
BRIDGE & IRON CO.
BELLEFONTAINE, OHIO

CHINWORTH
BRIDGE



1. Chinworth Bridge
2. Kosciusko County, Indiana
3. Nancy Hanson
4. August 1996
5. Historic Landmarks Foundation of Indiana
Northern Regional Office
520 E. Colfax Avenue, South Bend, IN
6. Camera facing south, north portal of bridge
7. Photo # 8

THE
BELLEFONTAINE
BRIDGE & IRON CO.
BELLEFONTAINE, OHIO



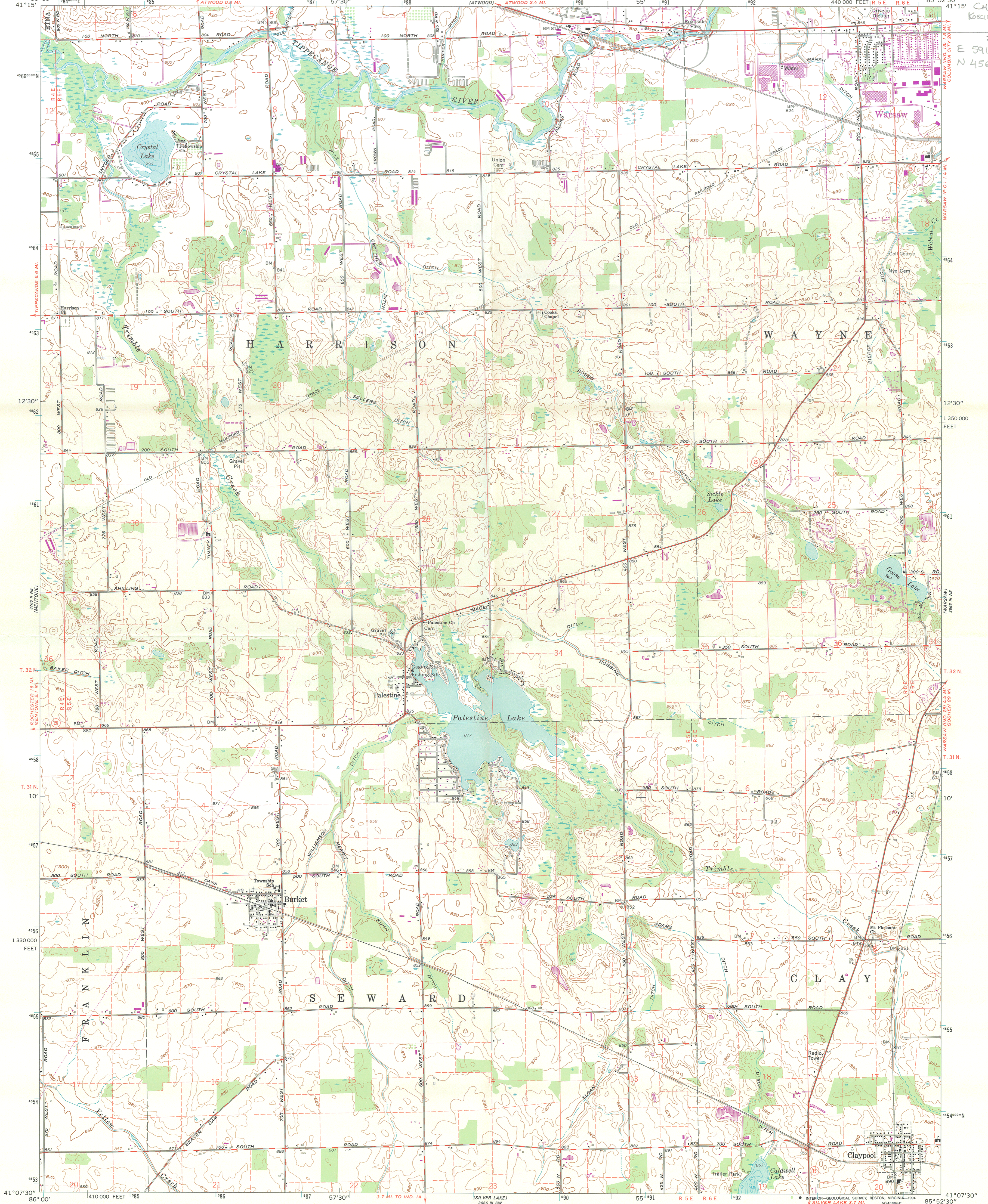
1. Chinworth Bridge
2. Kosciusko County, Indiana
3. Neal Carlson
4. October 1995
5. Neal Carlson
One Miner Drive
Warsaw, IN 46580
6. Camera facing north, south portal of bridge
7. Photo # 9

1897
BELLEFONTAINE
BRIDGE & IRON CO
BELLEFONTAINE OHIO

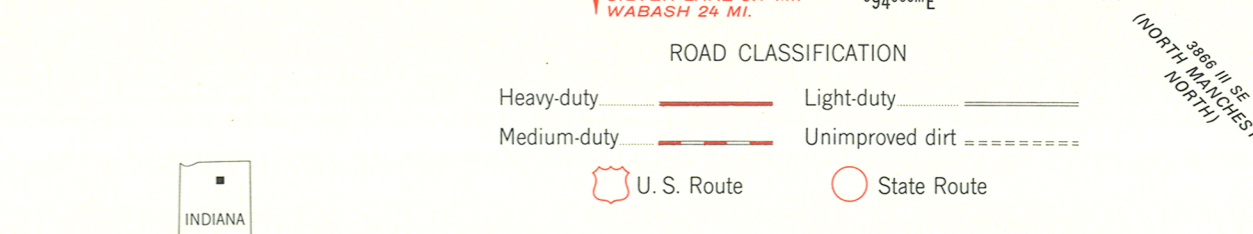
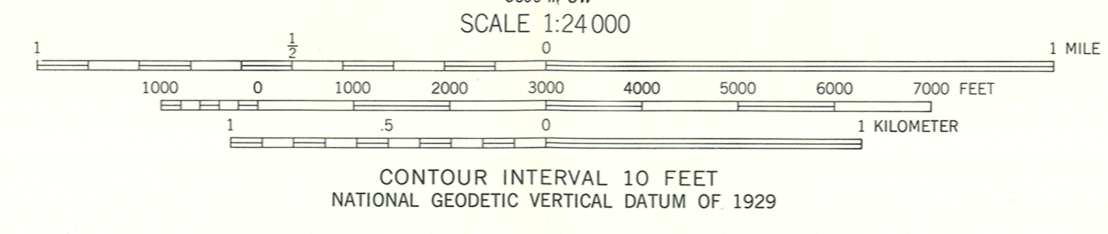
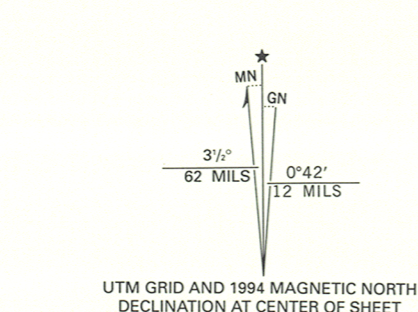
CHINWORTH
BRIDGE



1. Chinworth Bridge
2. Kosciusko County, IN
3. Neal Carlson
4. October 1995
5. Neal Carlson
One Miner Drive
Warsaw, IN 46580
6. Camera facing south, plaques at north
portal of bridge
7. Photo # 10



Produced by the U. S. Geological Survey
Control by USGS and NOS/NOAA
Topography by photogrammetric methods from aerial photographs taken 1960. Field checked 1961
Depth curves and soundings compiled from USGS-Indiana Department of Conservation lake charts
North American Datum of 1927 (NAD 27). Projection and 10 000-foot ticks: Indiana coordinate system, east zone (transverse Mercator)
Blue 1000-meter Universal Transverse Mercator ticks, zone 16
No adjustment is necessary to place this map on the predicted North American Datum 1983
Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked
Photinspected from 1992 source; no major culture or drainage changes observed. Names revised and boundaries verified 1994



THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
AND INDIANA DEPARTMENT OF NATURAL RESOURCES, INDIANAPOLIS, INDIANA 46204
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Revisions shown in purple and woodland compiled in cooperation with State of Indiana agencies from aerial photographs taken 1979 and other sources. This information not field checked. Map edited 1981

BURKET, IND.
41085-B8-TF-024
1961
PHOTOREVISED 1981
MINOR REVISION 1994
DMA 3866 III NW - SERIES V851

Handwritten notes: *Chinworth Bridge*, *Zone 16*, *E 591280*, *N 4566540*, *WARSAW (IND.) 1.5 MI. N. COLUMBIA CITY 2.0 MI.*, *WARSAW (IND.) 1.5 MI. N. COLUMBIA CITY 2.0 MI.*, *WARSAW (IND.) 1.5 MI. N. COLUMBIA CITY 2.0 MI.*, *WARSAW (IND.) 1.5 MI. N. COLUMBIA CITY 2.0 MI.*



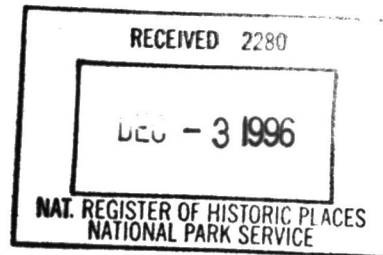
INDIANA DEPARTMENT OF NATURAL RESOURCES

PATRICK R. RALSTON, DIRECTOR

Division of Historic Preservation
and Archaeology
402 W. Washington St., Rm. 274
Indianapolis, Indiana 46204
317-232-1646

November 1, 1996

Carol D. Shull
Keeper of the National Register
National Register Branch
Interagency Resources Division
National Park Service
Post Office Box 7127
Washington, D.C. 20013-7127



Dear Ms. Shull:

Enclosed is a National Register of Historic Places nomination for Chinworth Bridge, Kosciusko County, Indiana.

The Indiana Historic Preservation Review Board reviewed the nomination and voted to recommend its inclusion in the National Register of Historic Places.

Very truly yours,

Daniel J. Fogerty, AIA
Director, Division of Historic Preservation
and Archaeology

DJF:FDH:mb

Enclosure

"EQUAL OPPORTUNITY EMPLOYER"



PRINTED ON RECYCLED PAPER