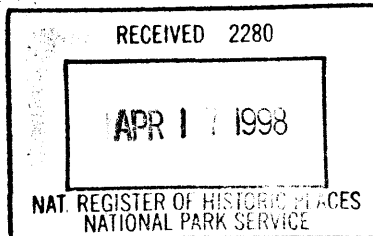


United States Department of the Interior
National Park Service

National Register of Historic Places
Registration Form



497

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 Minerva Creek Bridge

other names/site number _____

2. Location

street & number County Road S52 over Minerva Creek not for publication

city or town 1.7 miles north of Clemons vicinity

state Iowa code IA county Marshall code 127 zip code 50051

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 36 CFR 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.)

Patricia Outenkins OSMP 4-7-98
Signature of certifying official/Title Date

STATE HISTORICAL SOCIETY OF IOWA

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): _____

Elson F. Beall 5-15-98

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(s)
- 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)

Highway Bridges of Iowa

Number of contributing resources previously listed in the National Register

0

6. Function or Use

Historic Functions
(Enter categories from instructions)

TRANSPORTATION/road-related

Current Functions
(Enter categories from instructions)

TRANSPORTATION/road-related

7. Description

Architectural Classification
(Enter categories from instructions)

other: concrete Luten arch

Materials
(Enter categories from instructions)

foundation Concrete
 walls
 roof
 other Concrete

Narrative Description

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

Located 1.7 miles north of Clemons, the Minerva Creek Bridge spans Minerva Creek in a rural Marshall County setting that has changed little since the structure's period of significance. A description of the structure follows:

span number: 1 construction date: 1910
 span length: 60.0' construction cost: \$2550.00
 total length: 68.0' current condition: fair
 roadway wdt.: 15.5' alterations: none

superstructure: concrete Luten arch with cambered deck
 substructure: concrete abutments and wingwalls
 floor/decking: earth covered cambered concrete deck
 other features: solid concrete guardrails with parapet walls and incised panels

Other than maintenance-related repairs, the bridge remains essentially unaltered as it continues to carry vehicular traffic. The Minerva Creek Bridge today retains a high degree of integrity of location, design, setting, materials, workmanship, feeling and association.

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.

Areas of Significance

(Enter categories from instructions)

ENGINEERING
[Blank lines for additional categories]

Period of Significance

1910
(The period of significance is derived from the original construction date.)

Significant Dates

1910 (construction date)

Significant Person

(Complete if Criterion B is marked above)

N/A

Cultural Affiliation

N/A

Architect/Bullder

designer: W.W. Morehouse, Marshall County Engineer

fabricator: unknown

builder: N.M. Stark and Company, Des Moines IA

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 continuation sheets.)

9. Major Bibliographical 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:

10. Geographical DataAcreage of Property less than one acre**UTM References**

(Place additional UTM references on a continuation sheet)

1 15 487120 4665020 2 _____
 zone easting northing zone easting northing

Verbal Boundary Description

(Describe the boundaries of the property)

The nominated property is a rectangular-shaped parcel measuring 18 feet by 68 feet, which is centered on the UTM point(s) listed above. Included within this rectangular parcel are the bridge's superstructure, substructure, approach spans and floor system.

Boundary Justification

(Explain why the boundaries were selected)

The nominated structure includes the bridge's superstructure, substructure, floor system, any approach spans and the property on which they rest. These boundaries encompass, but do not exceed, all of the property that has been historically associated with the bridge.

11. Form Prepared By

name/title Clayton B. Fraser
 organization Fraserdesign date 31 August 1994
 street & number 1269 Cleveland Avenue telephone 303-669-7969
 city or town Loveland state Colorado zip code 80537

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets**Maps**A **USGS map** (7½ or 15 minute series) indicating the property's locationA **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/title Marshall County
 street & number 1 East Main Street telephone 515-754-6343
 city or town Marshalltown state Iowa zip code 50158

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 Minerva Creek Bridge Marshall County; Iowa

Before 1908, Marshall County contracted with an array of bridge builders for a variety of bridge types, ranging from simple timber pile structures to long-span, iron or steel trusses. In 1908, the county began dealing exclusively with Des Moines contractor N.M. Stark for substantial concrete bridges. Stark built concrete girders and slabs for the county, and for longer-span crossings he built concrete arches. For the arches he used a patented design by Indianapolis engineer Daniel Luten. Luten's arch featured a filled spandrel configuration with a distinctive horseshoe-shaped profile. As a licensee for Luten, Stark built numerous Luten arches throughout the state, but Marshall County remained one of his better customers in the early 1910s. In April 1910, after soliciting competitive bids, the Marshall County Board of Supervisors awarded a construction contract to Stark for six concrete bridges. Designed from Luten's standards by county engineer W.W. Morehouse, these similarly detailed filled spandrel arches were distributed throughout the county. They ranged in span length from 30 feet to 60 feet and collectively cost \$14,090.00 to build. Stark completed all six structures by the end of the year. This single-span bridge over Minerva Creek in Liberty Township, designated as Bridge Number 217, was the longest of the six and cost \$2550.00. It featured a cambered deck and solid concrete parapet walls with incised panels. Since its construction in 1910, the Minerva Creek Bridge has carried local traffic in essentially unaltered condition.

Marshall County was following a statewide trend in its exclusive dealings with Stark. By 1910 N.M. Stark and Company had become one of the most prolific bridge contractors in the state. Nathaniel M. Stark was an Iowa success story. Born in Indianola, Iowa, on May 18, 1863, he soon moved to Des Moines with his parents. Stark later received a degree in engineering from the State Agricultural College (now Iowa State University) and then worked for six months with the Elkhorn Railroad in Nebraska. In 1888 Stark became a field agent for the King Iron Bridge and Manufacturing Company of Cleveland. He worked for another Des Moines engineer James Marsh representing the immense bridge fabricator in projects throughout Nebraska, Wyoming and Idaho. Stark joined with another former King representative, Lynn J. Tuttle, in forming N.M. Stark and Company in 1894. Among the firm's most notable early commissions were the Fort Dodge Viaduct (since replaced), for which Stark served as consulting engineer, and the Southwest Fifth Street Bridge over the Raccoon River in Des Moines. According to one biographer, Stark was especially proud of the Squaw Creek Bridge (1908), a three-span concrete arch bridge that he built in Ames - "one of the most beautiful and substantial of the kind in the state and will long stand as a monument to his ability."

By 1910 Stark had built hundreds of highway bridges throughout the Midwest. He erected all types of timber, steel and concrete structures, but his forte was clearly the concrete arch. Stark functioned as a licensee for Indianapolis engineer Daniel Luten, designing and building Luten's patented filled spandrel concrete arches under a royalty payment agreement. By far the most prominent licensee in the state, Stark extensively promoted Luten's trademark elliptical arch, bidding frequently for county bridge contracts. His marketing was so skillful, in fact, that he served as the exclusive bridge contractor for several Iowa counties - including Marshall - in the early 1900s. And Stark's promotion of the Luten arch was so extensive that

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National Park Service**

**National Register of Historic Places
Continuation Sheet**

Section Number 8 Page 2 Minerva Creek Bridge Marshall County; Iowa

he was exceeded by only the state highway commission itself in the advancement of concrete for highway bridge use.

Marshall County's almost exclusive dealings with Stark were to end in 1913, however, when the state legislature passed the Brockway-Balkema Act. The new legislation codified bridge contracting procedures and standardized bridge design under the aegis of the reorganized Iowa State Highway Commission (ISHC). One of the primary intents of the Brockway Act was to eliminate collusion and bid-rigging by bridge contractors. Naturally enough, the state's bridge industry - led by N.M. Stark - strongly opposed its passage and even managed to defeat it at its first legislative session in 1911. After the act was passed in 1913, the highway commission responded in kind by attacking Stark and the Luten patent at every opportunity. When the Squaw Creek Bridge in Ames collapsed after heavy flooding in June 1918, for instance, the commission criticized Stark's construction practices in its newsletter:

The [Squaw Creek] bridge had been built in 1908 and was of the Luten patent type of construction with concrete floor in the stream bed. This floor had broken up and disintegrated and the reinforcing of the pavement had also rusted badly. The bridge was built by the N.M. Stark Co. of Des Moines, over the protest of the engineers from the Engineering Department of the Iowa State College and of the State Highway Commission which, at the time, had no authority to enforce standards or supervision of construction but were in the position of giving advice only when advice was asked. The claim of the engineers was that the bridge was not of good design, that reinforcing metal was insufficient, improperly placed and over-stressed and that the concrete was also stressed beyond the point of safety according to the best standards in bridge design. The bridge was built at a cost of \$6,500.00, a saving of some \$1,500 over bids on a concrete arch design submitted by the Commission engineers.

Eventually, Luten's patent rights were overturned in federal court and Stark himself was indicted for bid rigging. The constant criticism by the highway commission, invalidation of the Luten patent, regulated bidding procedures and increased competition from a newly emerging group of in-state bridge contractors all combined to take their toll on N.M. Stark. He never built another bridge in Marshall County after 1913; eventually he quit submitting bids at the lettings. Although Stark continued to build bridges into the 1920s, business dwindled until he was eventually forced to cease operations.

Built by one of Iowa's most prominent and controversial bridge contractors during the heyday of his career, the Minerva Creek Bridge represents a period in Iowa transportation development in which the counties depended upon bridge companies for both design and construction, and the bridge companies in turn preyed upon the counties' vulnerability. N.M. Stark built numerous Luten arches in Iowa between 1905 and 1913, but relatively few remain in place today. The Minerva Creek Bridge is distinguished among these survivors for its long span and well-preserved condition. It is today a noteworthy, transportation-related resource.

**United States Department of the Interior
National Park Service**

**National Register of Historic Places
Continuation Sheet**

Section Number 9 Page 3 **Minerva Creek Bridge** Marshall County; Iowa

Iowa Department of Transportation, Structure Inventory and Appraisal: Structure No. 244550.

Proceedings of the Marshall County Board of Supervisors, 16 April 1910, located at the Marshall County Courthouse, Marshalltown IA.

Original bridge contract, dated 16 April 1910, located at Marshall County Courthouse, Marshalltown IA.

Field inspection by Clayton Fraser, 12 September 1988.