United States Department of the Interior  
National Park Service  

National Register of Historic Places  
Inventory—Nomination Form  

See instructions in How to Complete National Register Forms  
Type all entries—complete applicable sections  

1. Name  
historic Elgin Cedar Creek Bridge  
and/or common Elgin Cedar Creek Bridge  

2. Location  
street & number 1.5 miles east of Elgin on FAS 96  
city, town Elgin  
state Kansas  

3. Classification  
Category: site  
Ownership: public  
Status: occupied  
Present Use: agriculture  
N/A  

4. Owner of Property  
name Chautauqua County  
street & number Courthouse  
city, town Sedan  
state Kansas  

5. Location of Legal Description  
courthouse, registry of deeds, etc. Register of Deeds  
street & number Chautauqua County Courthouse  
city, town Sedan  
state Kansas  

6. Representation in Existing Surveys  
Inventory of Marsh Arch Bridges—Kansas Department of Transportation  
has this property been determined eligible? yes x no  
date 1980  
depository for survey records Kansas State Historical Society  
city, town Topeka  
state Kansas
7. Description

Condition
— excellent
— deteriorated
— good
— ruins
— fair
— unexposed

Check one
— unaltered
— altered

Check one
— original site
— moved
— date

Describe the present and original (if known) physical appearance

The Cedar Creek Bridge on FAS 96 1.5 miles east of Elgin is a single span reinforced concrete "rainbow arch" (also called a "Marsh arch"). It is 82 feet long with a 30 foot approach deck on each end. The 20 foot wide roadway has been resurfaced periodically but this has not significantly compromised the bridge's integrity. Marsh's plans allowed for whatever filling material, between the bridge deck curbs, that locality might desire.

The bridge's piers and abutments rest on a bed of solid rock approximately 31 feet below grade. The low water elevation is approximately 25 feet below grade and the arches rise 17 feet from grade.

The best description of a rainbow arch is contained in James Marsh's 1911 application. The bridge consists of "... two abutments (which could be piers), a pair of arches disposed between and springing from the abutments, the floor carried by and between the arches and reaching from one abutment to the other where it alines with the parapets or rails along opposite sides of the floor line." The original patents called for slideable wear plates to be moulded into the concrete where the bridge floor came into contact with the beams and abutments. This is of importance as one of the main benefits of this design was to allow for the expansion and contraction of the reinforced concrete bridge under varying conditions of temperature and moisture.

There were two basic rainbow arch designs, fixed and tied. The original patent application describes the fixed type in which case the arch flowed below the bridge deck and was "fixed" directly into the abutment. This massive abutment (or pier) resisted both the horizontal and the vertical thrust of the arch. In a tied design such as that of the Cedar Creek Bridge, the arch did not flow below the deck line and was not fixed directly into the abutment. It was secured atop the abutment or pier by the use of steel rocker or expansion rocker bearings. Vertical thrust was resisted by the pier and bearing, while horizontal thrust was resisted by the addition of a lower chord.
8. Significance

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Statement of Significance (in one paragraph)

The Cedar Creek "rainbow arch" (or "Marsh arch") bridge east of Elgin retains its integrity of location, design, setting, materials, feeling, and association. It is associated with the life of James B. Marsh, pioneer in steel and concrete bridge construction. The bridge embodies the distinctive characteristics of a type and method of construction that is no longer used, and, as such, may yield information important to the history of engineering. Although 72 rainbow arches are known to exist in Kansas the ever-changing needs of modern transportation have made them an endangered species. The Cedar Creek bridge, due to its location, has a good chance for survival.

James Barney Marsh was born in 1856 at North Lake, Wisconsin. He went to Iowa at the age of 18 to enter preparatory school at Fredericksburg. Marsh graduated in 1882 from Iowa State College of Agriculture and Mechanical Arts in Ames, with a B.M.E. degree. In March of 1883 he began his professional career in the Des Moines office of the King Bridge Company of Cleveland, Ohio. With King, Marsh was involved in the design, sales and actual erection of metal bridges. While he continued to work with the King Company, he also became head of the Northern Agency for the Kansas City Bridge and Iron Company. In this capacity, he both designed and superintended the actual construction work done by the company. By March of 1889, Marsh had become general western agent and contracting engineer for the King Bridge Company and was placed in charge of the general western office in Des Moines. In the spring of 1896, he formed his own company, the Marsh Bridge Company, and was its sole proprietor. In private practice as a contracting engineer, Marsh was able to more fully develop his own designs. He also constructed the designs he developed, usually using steel as a medium. At the turn of the century, Marsh initiated the use of both concrete and steel in his bridge design. In April of 1904, the Marsh Bridge Company was incorporated with Marsh as president and chief engineer. In 1909, the company was reorganized as the Marsh Engineering Company.

It was not until the introduction of the "rainbow arch" by Marsh, that Kansas made widespread use of reinforced concrete spans for major stream crossings. Marsh canvassed the midwest, selling his arches in direct competition with the steel trusses at that time.

According to the Elgin Journal on June 2, 1927 the county commissioners opened and awarded the contract for the Cedar Creek bridge on May 27, 1927. The contract was let to the Marsh Engineering Company of Topeka at a bid of $14,476.38. The new rainbow arch was to replace a bridge that had washed out on the first of October, 1926. Since that time people had been forced to use an exceedingly dangerous ford crossing. On April 28, 1927 the Journal reported the story of Mr. R. H. Fuller whose car stalled mid-stream and was washed away by the rapidly rising waters.

See Continuation Sheet.
Significance

"The big cement mixer, the grade tools, and the first load of form timber" arrived on site on May 9, 1927, according to the Journal. In September, hard times befell the workers. The September 1, 1927 Elgin Journal reported:

"In addition to being hindered often by rain, the big flood of a few weeks ago washed away all the false wood work scaffolding, etc., but fortunately for the boys of the construction gang, most of the timbers were found and brought back and rebuilt and the men were getting in good work again when the flood last Saturday morning came and made another clean sweep of the woodwork. . . ."

On October 20, 1927, work was progressing nicely and the bridge was nearing completion. By November 11, 1927 the floor had been laid and much of the concrete column work was done. The Journal wrote that it would still be two to three weeks before work could be completed, but, "Oh boy, she will be a beauty when that day comes."

The Cedar Creek bridge was reported open to traffic on December 15, 1927.

9. Bibliography


"It Will be a Fine Bridge," Elgin Journal, June 2, 1927, p. 1, c. 3.


"We Have a Bridge," Elgin Journal, December 8, 1927, p. 1, c. 3.


9. Bibliography continued

Plans and Files. Design Department, Kansas Department of Transportation, Topeka, Kansas Microfilm Roll #8, frame 423+. 
9. Major Bibliographical References

See Continuation Sheet, Item Number 9.

10. Geographical Data

Acreage of nominated property __.5________________

Quadrangle name Elgin ____________________________

Quadrangle scale 1:24,000 __________________________

UMT References

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Verbal boundary description and justification
That property on and over which the bridge is built 1.5 miles east of Elgin, Kansas S13, T35S, 10E. Includes bridge superstructure plus supporting piers and abutments.

List all states and counties for properties overlapping state or county boundaries

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11. Form Prepared By

name/title Larry Jochims, Research Historian and Michael Snell

organization Kansas State Historical Society
date

street & number 10th and Jackson Streets

telephone (913) 296-2973

city or town Topeka

state Kansas

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

[ ] national  [X] state  [ ] local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

State Historic Preservation Officer signature

title

date

For NPS use only

[ ] I hereby certify that this property is included in the National Register
date

Keeper of the National Register

Attest:
date

Chief of Registration