

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: Reinforced-concrete bridge

Materials (enter categories from instructions)

foundation _____

walls _____

roof _____

other reinforced concrete

Describe present and historic physical appearance.

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BRIDGE NO. L-2316

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7. DESCRIPTION

Bridge No. L-2316 is located in central Kanaranzi Township, southeast of Luverne, Rock County, Minnesota. Rock County marks the southwestern corner of the state, bordering on South Dakota along the west and Iowa along the south. The bridge carries gravel-surfaced Township Route 89 over a minor unnamed stream that is a tributary to the Rock River. The location is on the line between sections 7 and 8, township 101N, range 44W. The environment is rural pasture land like most of this prairie county, which provides some of the best farm land in Minnesota.¹

Aligned on a north-south axis, Bridge No. L-2316 is a single-span, reinforced-concrete, filled-spandrel, barrel-vaulted, low-rise, arch bridge, with U-type abutments. Overall structure length is 36.8 feet and the span length is 33.8 feet. The out-out deck width is 18.1 feet, carrying a 16.3-foot roadway and no sidewalks. The vertical clearance above the water is approximately 5 feet.

The bridge floor is arched to follow the line of the span's arch curve, and a concrete coping is continuous across the floor line and abutment sidewalls. The railings are arched slabs that follow the floor line across the span only; there is no railing on the wing walls. Each railing terminates in a cylindrical concrete post, and railing and post carry a continuous, flat coping. A cast molding follows the underside of each coping.

Unlike many similar reinforced-concrete arch bridges in Rock county, Bridge No. L-2316 has no inscription in the concrete railing or elsewhere.

Stylistically, the bridge exhibits Classical Revival elements, including the coping, molding, and end posts. These particular features are found on all bridges identified as being constructed by P.N. Gillham.

The bridge has not been altered and the vulnerable (to road graders and snowplows) end posts have not been damaged.

1. See "Area Description" in "Historic Resources of Rock County," unpublished typescript in Minnesota State Historic Preservation Office, undated.

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:

nationally statewide locally

Applicable National Register Criteria A B C D

Criteria Considerations (Exceptions) A B C D E F G

Areas of Significance (enter categories from instructions)

Engineering

Period of Significance

ca. 1906

Significant Dates

1906

Cultural Affiliation

N/A

Significant Person

N/A

Architect/Builder

Builder: Gillham, Perley N.

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

See continuation sheet

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8. SIGNIFICANCE

Bridge No. L-2316, spanning a minor unnamed tributary to the Rock River in Kanaranzi Township, Rock County, Minnesota, is significant in the area of engineering under Criterion C in the context of "Minnesota Reinforced-Concrete Highway Bridges, 1900-1945." It is an excellent, unaltered, example of a regional, vernacular variation on the small, rural, early reinforced-concrete vehicular bridge, particularly that variety of reinforced-concrete arch bridge built by, or attributed to, Perley N. Gillham of Luverne, Rock County, Minnesota. This is a very large collection of similarly designed, aesthetically outstanding, early reinforced-concrete bridges, located almost entirely within a single county. This particular bridge, with its flowing, curving lines, is one of the most elegant of the Gillham bridges, thanks almost entirely to the fine proportioning of the low-rise-arch engineering, since there is virtually no ornament. Gillham's other bridges are equally competent designs, but, with their straight floor lines, more static.

This bridge is one of at least 12 strikingly similar bridges in Rock County and one in neighboring Nobles County that have the identification "P.N. Gillham" scribed in the concrete.¹ There are at least 16 additional bridges in the county that do not bear Gillham's name (although one bears a date) and have design elements so similar to the confirmed Gillham bridges as to allow attribution to him.² Confirmed dates (as indicated on the bridge itself) of Gillham bridges range from 1908 to 1913; attributed bridges have unconfirmed dates ranging from 1901 to 1920.

Bridge L-2316 does not have the builder or the date marked in the concrete. The date of c1906 has been attributed by the county highway engineer, but has not been confirmed.³ However, with its arched floor and railings, it is stylistically identical (although slightly longer) to Bridge L-2214 in nearby Martin Township. Bridge L-2214 is inscribed with the name of the builder, "P.N. Gillham," and the construction date, "1911" (see Supplemental Structure Inventory form, MNDOT file for Bridge L-2214).⁴ Unfortunately, Bridge L-2214 has been severely damaged by plows and roadgraders.

The Gillham reinforced-concrete arch bridges share the following characteristics, with minor variations: low-rise, single-span, elliptical arch, usually 20- to 30-foot span, with a scribed line in the arch-ring edge; filled spandrel; barrel arch; wing-wall abutments, almost U-type, with continuous coping; distinctive slab railing, over arch only, with cylindrical end posts and continuous coping; distinctive, decorative, concrete molding found along the lower edge of all coping; names and dates related to construction are scribed or pressed into the top surface of the railing coping. Variations include: bridge floors may be arched over the span arch or may be straight; railings and copings may also be arched or straight; end posts may be centered on the railing slab or flush with the inside of the slab; end posts may terminate at the floor coping or may continue below, marking the abutment line. Most of these characteristics, particularly the railing, coping, and molding details, have not been observed in other Minnesota bridges.

Despite a considerable amount of research in state and county sources, very little has been discovered about Gillham and his bridges. Perley N. Gillham arrived in Luverne, the

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county seat, in 1875, following his brother Edwin, who had come to the community in 1868 as a stage driver. Edwin was born in Illinois in 1845; the birth date and location for Perley is not known. He first appears in the county commissioners' records for plastering work in 1875,⁵ and periodically is mentioned in connection with various contracting work. His name is first associated with a bridge, but only for repairs, in 1883.⁶ In 1887 he was appointed superintendent of construction for the new county courthouse,⁷ and in 1900 was awarded the contract for construction of a new county jail.⁸ From the 1890s onward, the name appears regularly for miscellaneous county work, including building, bridge, and road contracts. Unfortunately, the county commissioners' minutes rarely discuss bridge work in any detail, and usually do not mention the bridge type or the contractor's name. A 1934 county history referred to Gillham as "our first contractor and builder," noting that "many of the prominent buildings of the city at the present time were built by him."⁹ Even his date of death is a mystery. Newspaper records suggest that he was alive in Luverne at least as late as 1933 or 1934, but state records have located no death certificate for Gillham between 1930 and 1950.¹⁰

Where did such an obscure plasterer and general builder and contractor, living and working in what is among the state's most remote counties even today, learn to design and build reinforced-concrete arch bridges during the earliest years of reinforced-concrete bridge construction? Other early Minnesota reinforced-concrete arch bridges, such as those built around 1900-05 for the Twin Cities Rapid Transit Company, are clearly different from Gillham's designs. The only hint of an outside influence on Gillham is found in the Fritz von Emperger-designed small, Melan-arch concrete bridge, which was built near Rock Rapids, Iowa, in 1894. Rock Rapids is only a mile south of the Minnesota state line, and less than three miles due south from Luverne. The only published photograph shows a bridge whose proportions are almost identical to Gillham's designs, and even the reported dimensions (either 30- or 36-foot span, depending on the source; it may be a 36-foot structure with a 30-foot clear span; and a low rise of 6.5 feet) are similar to Gillham's. Unlike Rock County bridges, the Iowa bridge has a pipe railing and no abutment walls. Adding to the possible connection is the reported name of the contractor, Minneapolis bridge builder William S. Hewett, who would become significant for his pioneering work in reinforced concrete. One source states that Hewett "had a blanket contract for building all county bridges in two or three counties in Iowa for the year 1894. It is known that, at the time, William was the agent and a joint proprietor with his uncle Seth in S.M. Hewett & Company, bridge builders. Seth M. Hewett had started out as lumberman and wooden-bridge builder in Hamburg, Iowa (due south of Rock Rapids, but at the Missouri line), and in the 1880s appears in the Rock County commissioners' minutes for bridge work. In fact, Hewett received the 1884 contract to replace the same Ash Creek bridge that Gillham had repaired a year earlier, suggesting that there were opportunities for Gillham to meet the Hewetts and, perhaps, establish a relationship that later led to an exchange of information about reinforced-concrete and the Iowa bridge."¹¹

While very intriguing and suggestive, the evidence that P.N. Gillham's bridges are vernacular descendants of America's first Melan-type bridge remains circumstantial and awaits further research. Nevertheless, it is clear that P.N. Gillham's reinforced-concrete arch bridges constitute a substantial and significant body of vernacular work.

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Bridge L-2316 is a excellent, unaltered, and exceptionally elegant example of Gillham's bridges.

1. Bridges having "P.N. Gillham" inscribed in concrete on bridge: Rock County: L-2162, L-2199, L-2212, L-2214, L-2215, L-2266, L-2263, L-2273, L-2318, L-2350, L-4646; Nobles County: L-3454. There may be additional examples among those not surveyed during 1987-88 project.
2. Bridges without Gillham's name on bridge, but attributed to Gillham because of engineering and stylistic similarities (all in Rock County): L-2166, L-2182, L-2197, L-2198, L-2201, L-2208, L-2209, L-2210, L-2240, L-2241, L-2246, L-2250, L-2264, L-2292, L-2315, L-2316. There may be additional examples among those not surveyed during 1987-88 project.
3. See Supplemental Structure Inventory Sheet in File for Bridge L-2316, Minnesota Department of Transportation, St. Paul.
4. See Supplemental Structure Inventory Sheet in File for Bridge L-2314, Minnesota Department of Transportation, St. Paul.
5. Rock County Commissioners Minutes, October 16, 1875.
6. See Rock County Commissioners Minutes, March 20, 1883, regarding Ash Creek Bridge.
7. Rock County Commissioners Minutes, August 23, 1887.
8. Rock County Commissioners Minutes, May 4, 1900.
9. E.A. Brown, "Early History of Luverne," Rock County Herald, March 23, 1934.
10. E.A. Brown's 1934 history of Luverne suggests that Gillham was alive at that time; Gillham's last noted listing on the county property tax rolls was for 1932, as printed in the Rock County Herald. Death certificate records were checked at the Minnesota Department of Health, Section of Vital Statistics Registration, Minneapolis.
11. The Rock Rapids, Iowa, bridge project is recounted, and a photograph included, in William Mueser, "The Development of Reinforced Concrete Bridge Construction," in The Cornell Civil Engineer, 33 (May 1925): 162-63. The Hewetts' background is discussed in Fredric L. Quivik, "Montana's Minneapolis Bridge Builders," IA: The Journal of the Society for Industrial Archeology 10 (1984): 35-54. On the possibility that Gillham and Hewett met in the 1880s, see statements on the Ash Creek bridge in the Rock County Commissioners Minutes for March 29, 1883, and December 26, 1884.

9. Major Bibliographical References

Brown, E.A. "Early History of Luverne." Rock County Herald, March 23, 1934.

"Historic Resources of Rock County." Unpublished typescript in Minnesota State Historic Preservation Office, undated.

Mueser, William. "The Development of Reinforced Concrete Bridge Construction." The Cornell Civil Engineer 33 (May 1925): 162-63.

Quivik, Fredric L. "Montana's Minneapolis Bridge Builders." IA: The Journal of the Society for Industrial Archeology 10 (1984): 35-54.

Rock County Commissioners Minutes. Rock County Courthouse, Luverne, Minnesota. 1875, 1883, 1884, 1887, 1900.

See continuation sheet

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

Specify repository: _____

10. Geographical Data

Acreage of property less than one acre

UTM References

A 14 729990 4826580
 Zone Easting Northing

C _____

B _____
 Zone Easting Northing

D _____

See continuation sheet

UTMs are re-typed on a continuation sheet

Verbal Boundary Description

The nominated property defines a rectangle measuring 40 feet north-south by 20 feet east-west, the vertices of which coincide with the outside corners of the bridge structure.

See continuation sheet

Boundary Justification

Based on dimensions for overall structure length and overall deck width as determined by the Minnesota Department of Transportation and reported on the Structure Inventory Sheet for Bridge L-2316, the boundaries are designed to enclose the total bridge superstructure, total substructure, and all other integral abutment and approach elements.

See continuation sheet

11. Form Prepared By

name/title Dr. Robert M. Frame III, Historical Consultant

organization _____ date August 15, 1988

street & number 202 McBoal Street telephone 612-227-9531

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UTM References

A Zone: 15

Easting: 729990

Northing: 4826580