

Statement of Heritage Significance

Sherwood Forest (“Hungry Hollow”) Bridge R.M. of Sherwood No. 159



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Cover Photo: The Sherwood Forest (“Hungry Hollow”) Bridge looking north across Wascana Creek (R. Herrington; September 27, 2007).

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STATEMENT OF SIGNIFICANCE

The Sherwood Forest (“Hungry Hollow”) Bridge is located about 8km north of the Village of Grand Coulee in the Rural Municipality of Sherwood No. 159. It crosses Wascana Creek next to the Sherwood Forest Country Club. The bridge, which was completed in August 1920, is an earth-filled, reinforced concrete, single-span structure on concrete abutments.

HERITAGE VALUE

The heritage value of the bridge lies in its status as possibly the longest constructed and one of the few remaining reinforced concrete, closed spandrel (earth-filled) arch bridges still in existence in Saskatchewan. This type of arch bridge was heralded as a viable alternative design to the standard steel truss on concrete abutments commonly in use at the time. The cost of this type of structure was competitive and had the added advantages of low maintenance costs as well as a more aesthetically-pleasing structure. Unfortunately, the requirement of a firm foundation resulted in only about fifteen of this type of bridge actually being constructed in the province between 1917 and 1922. In spite of this, the design did demonstrate the value of reinforced concrete in bridge engineering in Saskatchewan and was a precursor to the reinforced concrete “bowstring” or “rainbow” arch structures which became prevalent throughout southern Saskatchewan in the 1920s and 1930s. Designed and constructed by Saskatchewan Highways and Transportation, the structure remains largely unchanged and has been in continual use by vehicles since its completion in 1920.

CHARACTER-DEFINING ELEMENTS

The heritage value of the Sherwood Forest Bridge resides in the following character-defining element:

- those elements which reflect its status as one of the few remaining bridges of its type still in existence in Saskatchewan, including the reinforced concrete arches and parapet, and its location on its original site.

ADDITIONAL INFORMATION

A. Historical Significance

The Sherwood Forest Bridge, over Wascana Creek is located about 8km north of the Village of Grand Coulee in the Rural Municipality of Sherwood No. 159.¹ Also known as the “Hungry Hollow” Bridge, this bridge replaced an old timber structure near Sidmar² which was constructed in about 1904 with five, 20-foot spans on piles.³ The Sherwood Forest Bridge is an 80-foot (24.4m) reinforced concrete earth-filled arch structure, which is also referred to as a “closed-spandrel arch” bridge.

The reinforced concrete earth-filled bridge was relatively uncommon in Saskatchewan. The Saskatchewan Department of Highways designed and constructed Saskatchewan’s first reinforced concrete closed spandrel (earth-filled) arch bridge over the Little Whitesand River near Yorkton in 1917 “as an alternative design to [the] standard construction of a steel truss on concrete abutments.”⁴ This was a 50-foot span. In early 1918, a second one of this type, with a 72-foot span, was completed across the Qu’Appelle River near Fairy Hill on the main highway north from Regina. Both structures replaced old timber bent bridges. A third 64-foot span was constructed later in 1918 over the Arm River near Craik.⁵ According to a 1927 paper,⁶ there were only fifteen relatively short-span, earth-filled reinforced concrete arch bridges constructed in Saskatchewan between 1917 and 1922.⁷ This bridge design was replaced by the reinforced concrete “bowstring” or “suspended floor” arch design, which became popular throughout the 1920s and 1930s.

The cost of this type of structure at the time was similar to a steel bridge on concrete piers with the added advantage that, in theory, there would be no future significant maintenance costs. In addition, these bridges were considered to be more aesthetically pleasing. Since the design of these bridges varies with the specific site, standardized plans could not be prepared for this type of structure.

While the bridge type gave useful service over the years, “foundation conditions [in southern Saskatchewan] mitigate against the use of this type of arch.” A lack of rock at or near the surface means that “the great mass of concrete in the haunches of this type of bridge bring (sic) the cost of this type above that of types equally serviceable”⁸

Several small (generally 20 feet or less in span) reinforced concrete parabolic arch structures were constructed throughout the province from 1912 to the early 1920s. Hydraulically these perform much like large culverts although technically they may be considered as earth-filled reinforced concrete arch bridges.

Only a few of Saskatchewan’s earth-filled arch bridges still exist and most of these have been abandoned since they no longer meet current highway standards. The Sherwood Forest Bridge is an exception since it is still in active daily use.

While the first use of the term “Hungry Hollow” is unknown, the name was in common use before the 1920s.⁹ Despite being downstream from Regina’s sewerage treatment outfall,¹⁰ this scenic and secluded area has been a popular picnic and recreation site for more than a century.¹¹ The campground has existed since the early 1960s.

B. Engineering Significance

The use of concrete for bridge superstructures was generally adopted in a cautious manner by Canadian engineers. Perhaps not surprisingly, Ontario led the way with this new technology. The first reinforced concrete arch bridge in Ontario was constructed in 1906 and spans the Aux Sables River at Massey.¹² This 92-foot span still exists and appears to be an earth-filled structure. Barber and Young¹³ constructed the 80-foot Middle Road Bridge at Etobicoke in 1909. This was the first reinforced concrete parabolic bowstring truss¹⁴ bridge in Canada. After this success, reinforced concrete bridges, especially those on municipal roads, became widely used throughout Canada.

Several concrete spans of up to 30 feet had been constructed in Manitoba by 1915.¹⁵

In spite of the construction of the open-spandrel reinforced arch University Bridge in Saskatoon in 1916, reinforced concrete generally was slow to arrive in Saskatchewan. It has been suggested that this reflected the “lack of a durable alkali-resistant cement” and that “before the 1920s, practically all important bridges were built in steel.”¹⁶

The earth-filled arch bridges built in Saskatchewan varied in span from forty-five to eighty feet. The 80-foot (24.4m) Sherwood Forest Bridge is believed to be the largest of this type constructed in this province.¹⁷ The concrete parapet, while of simple design, adds interest to the structure.

The construction contract was awarded to Parsons and Kenward of Regina in June, 1920 at an estimated cost of \$6 000.¹⁸ Construction was completed in August of that year.

The reinforced concrete closed spandrel (earth-filled) arch bridge was designed as a viable alternative to the standard steel truss on concrete abutments commonly in use in Saskatchewan at the time. The cost of this type of structure was competitive and had the added advantages of low maintenance costs and a more aesthetically-pleasing structure. Unfortunately, the requirement of a firm foundation limited the number of these bridges actually constructed. In spite of this, however, the design did demonstrate the value of reinforced concrete in bridge engineering in Saskatchewan and was a precursor to the reinforced concrete “bowstring” or “rainbow” arch structures which became prevalent throughout southern Saskatchewan in the 1920s and 1930s.

The Sherwood Forest Bridge was inspected in 1966 and 1988, and again in 2001. In July 2003, the province investigated replacing this aging structure with four large culverts but the \$500 000 cost was too high; replacing this structure with another bridge would still be expensive at about half this cost. In spite of deterioration of the parapet and a significant

structural sag at mid-point, the bridge continues to be used without any load restrictions.¹⁹

¹ In SW 11-18-21-W2.

² Two standard 40' concrete beam spans were constructed at the Sidmar crossing in 1921.

³ Saskatchewan Highways and Transportation, Bridge Services Branch, Bridgefile 212-18-11.

⁴ Annual Report of the Department of Highways for 1917-18, p.7.

⁵ Annual Report of the Department of Highways for 1918-19, p.36.

⁶ "Bridges in Saskatchewan", A.P. Linton, *The Western Municipal News*, 1927, p.320 (specific date unknown).

⁷ The author has identified 10 of the 15 bridges; in Adam Linton's 1927 paper, he may have included several small parabolic bridges in his total of 15. The Spadina Crescent Bridge in Saskatoon, built in 1930, may be the last one constructed in this province.

⁸ "Bridges in Saskatchewan", A.P. Linton, *The Western Municipal News*, 1927, p.320 (specific date unknown).

⁹ Personal Communication with Rita Bistretzan, long-time local area resident and previous owners of the campground, November 27, 2007. Mr. Rod Brown, a long-time local Sherwood Forest area resident and former RM Councilor, indicated to the author on January 2, 2008 that the real origin of 'Hungry Hollow' has been lost over time although his family folk lore suggests this might relate to raising hungry pigs in the area.

¹⁰ The quality of the water in Wascana Creek has improved considerably over time with improvements to Regina's sewerage treatment plant. Personal Communication with Mr. Rod Brown, January 8, 2008.

¹¹ Geographic Names of Saskatchewan, Bill Barry, 2005, People Places Publishing Ltd., p.387. Mr. Rod Brown recalls his father talking about going to dances in the 1920s and 1930s in a dance hall in the valley bottom but nothing remains of this structure.

¹² Discovering Heritage Bridges on Ontario's Roads, David J. Cuming, 1983, The Boston Mills Press, p.44.

¹³ Frank Barber would design and supervise the construction of over 500 bridges throughout southern Ontario.

¹⁴ This truss bridge is quite similar to the bridge over Wascana Creek in southeast Regina near the Wascana Golf & Country Club.

¹⁵ "Bridge Building", C.R. Young, *The Engineering Journal*, Vol. 20, June 1937, p.490.

¹⁶ Building Canada: A History of Public Works, Norman R. Ball, Senior Editor, 1988, University of Toronto Press.

¹⁷ Plans for this bridge are dated March 12, 1920.

¹⁸ The contract was advertised in the *Regina Morning Leader* from March 31 to April 3, 1920 and in the *Saskatoon Phoenix* from April 30 to May 13, 1920.

¹⁹ Personal Communication with Mr. David Altwasser, P.Eng., Saskatchewan Highways and Transportation, Bridge Services. Mr. Rod Brown, a long-time local Sherwood Forest area resident and former RM Councilor, believes that the Sherwood Forest Bridge is only suitable as a 'secondary weight' bridge, which implies a maximum load of 35 tons rather than the original 39 tons rating. According to Mr. Brown, the bridge is too narrow for large agricultural equipment.