

SMITH BRIDGE

HAER No. ME-8

Spans the Meduxnekeag River on a local road known  
as Lowery Road 0.3 miles south of the Littleton  
town line  
Houlton  
Aroostook County  
Maine

HAER  
ME  
2-HOUL,  
1-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

REDUCED COPIES OF MEASURED DRAWINGS

HISTORIC AMERICAN ENGINEERING RECORD  
National Park Service  
Northeast Region  
Philadelphia Support Office  
200 Chestnut Street  
Philadelphia, Pennsylvania 19106

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Houlton  
Aroostook County, Maine

UTM: 19.592270.5114640  
Quad: Houlton North, Maine, 1:24,000

**Date of Construction:** 1910

**Engineer:** Hardy S. Ferguson

**Present Owner:** Town of Houlton  
Houlton, Maine

**Present Use:** Vacant

**Significance:** Constructed in 1910 by the Town of Houlton at a cost of \$6,310.07, the Smith Bridge is a riveted steel, two-span Warren pony truss with an overall length of 173 feet. It is the second oldest and longest structure of the type known to exist in the State. The structure is significant as an example of early twentieth century bridge building technology in Maine, and as an unaltered representative of a class of steel trusses which have virtually disappeared from the State's highways.

**Project Information:** The Smith Bridge is scheduled to be replaced in 1993. Having been closed to vehicular traffic for a number of years, the bridge and road now represent an important point of access to property recently acquired by the Houlton Band of Maliseets. Since it is substantially deteriorated and therefore structurally incapable of carrying the projected traffic, the bridge will be recorded on-site, prior to its demolition and the erection of a new structure adjacent to this location.

Kirk F. Mohney  
Maine Historic Preservation Commission  
55 Capitol Street, Station #65  
Augusta, Maine 04333-0065

Narrative Report:

The Smith Bridge is a two-span, Warren pony truss with riveted connections. Its five-panel trusses, each span of which is 86 feet 6 inches in length and 17 feet in width, rest on concrete abutments and a center pier. Wooden planking forms the deck and an iron lattice is employed as a hand rail. The bridge is located on Lowery Road in the northern part of the Town of Houlton where it spans the Meduxnekeag River.

During the late nineteenth and well into the first quarter of the twentieth century, light steel truss bridges such as the Smith Bridge were commonly erected in rural areas of the State. Such structures, whose elements were fabricated off-site and then easily erected in the field, were relatively inexpensive replacement for old timber and stone bridges and ideally suited for new crossings to accommodate the increasing amount of highway traffic. Of the myriad designs which bridge engineers developed in the nineteenth century, one of the two most widely used was the Warren. Initially patented in 1848 by British engineers James Warren and Willoughby Monzoni, the design employs a series of equilateral triangles connecting top and bottom chords. Occasionally, as seen in the Smith Bridge, vertical members are inserted in the triangles. The term pony truss distinguishes this type of bridge from that of a thru truss by the absence of overhead bracing.

Although the precise number of pony trusses built in Maine may be impossible to determine, a 1924 State survey of the existing bridges indicates the wide use of metal trusses for highway purposes. Despite their once large numbers, however, such structures - particularly those dating to the nineteenth and early twentieth century - are now quite rare. In fact, with the single exception of an 1895 steel king post truss recently removed for restoration in St. Albans, no examples of nineteenth century metal highway bridges are known to exist in Maine. Of the twentieth century pony trusses, the earliest is a short, single span structure in Brownfield erected in 1902. Only four others, including the Smith Bridge, were built before 1930. The thirteen pony trusses erected in the 1930s typically employ much larger structural members in response to the loads they were expected to carry. Additionally, all but four were built after the severe 1936 flood, an example of a type of natural disaster which has been responsible for the destruction of many of the State's early bridges.

The Smith Bridge appears to have been the first permanent structure erected at this site. An 1877 atlas of Aroostook County and an 1894-5 State atlas indicate the presence of Lowery Road, but also clearly show that it did not extend to the river. Prior to the time of construction, however, a crossing in the immediate vicinity was known as Smith Ford. Upon completion, Smith Bridge became the first bridge to span the Meduxnekeag River above Houlton. Documentary sources pertaining to this bridge in particular or Houlton's pattern of development in general, do not indicate what factors prompted the town to erect this structure at this time. However, it seems very likely that its appearance is closely tied to the rapidly expanding production of potatoes; an agricultural commodity which came to dominate Houlton's - and Aroostook County's - economy prior to World War I. To underscore this pattern, one needs only to realize that in 1890 the acreage in potatoes was 16,641; in 1900 it had risen to 41,953; and by 1910 it stood at 75,738. One source points out that some farmers were annually doubling

their potato acreage during this period (Day, p. 134). The importance of agriculture to the Aroostook County economy necessitated the development of transportation facilities which allowed farmers to move their crops (in this case heavy barrels of potatoes) efficiently to marketing and shipping points. Additionally, the increased tax revenues generated from this prosperity made it possible for commercial centers like Houlton to invest in its infrastructure; thus accounting for the type of improvements represented by Smith Bridge.

In addition to its significance as an important crossing point in the local transportation network, its design and construction represented modern twentieth century bridge engineering. This fact is particularly evident when compared to the action which the Town of Littleton took in 1911 to erect a bridge at the Watson Settlement crossing, upriver from Smith Bridge. In this case a traditional wooden covered bridge with a Howe Truss was erected rather than a steel structure.

The Annual Report of the Town of Houlton for the year ending March 1, 1910, states that work on a bridge at Smith Ford was suspended until the greater than expected cost could be discussed at town meeting. It was reported in the following year's report that plans for the bridge were made to conform to a new location and the "Contract was carried out in good faith with the result that at this place is one of the best built bridges in this town or vicinity." The report also notes that H. S. Ferguson was paid \$196.12 for services and plans and that H. L. Smith and Frank Lowery were given a \$5,800 contract to erect the bridge. Hardy S. Ferguson's name appears as the engineer at a number of turn-of-the-century industrial facilities in Maine, but his precise design role in this undertaking is unknown, and little else has been uncovered about his career. Likewise, little has been learned about Smith and Lowery although it is curious that the bridge is named Smith and is located on Lowery Road.

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