

MONONGAHELA CONNECTING RAILROAD COMPANY,  
HOT METAL BRIDGE  
Crossing the Monongahela River at mile post 3.1  
Pittsburgh  
Allegheny County  
Pennsylvania

HAER No. PA-277-C

HAER  
PA  
2-PITBU  
65C-1

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD  
National Park Service  
Northeast Region  
U.S. Custom House  
200 Chestnut Street  
Philadelphia, PA 19106

HAER  
PA  
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HISTORIC AMERICAN ENGINEERING RECORD

MONONGAHELA CONNECTING RAILROAD COMPANY,  
HOT METAL BRIDGE HAER No. PA-277-C

Location: Crossing the Monongahela River at mile post 3.1,  
Pittsburgh, Allegheny County, Pennsylvania  
  
USGS, Pittsburgh East Quadrangle, Universal Transverse  
Mercator Coordinates 17.588150.4475609

Date of Construction: Circa 1900

Engineer: Structural Department of J & L Limited

Architect: Unknown

Present Owner: Monongahela Connecting Railroad Company

Present Use: Out of service since May 1979

Significance: Formerly enabled the hauling of molten iron from J & L  
Blast Furnaces on the north side over the bridge to the  
Open Hearth Furnaces on the south side of the  
Monongahela River

Project Information: LTV Steel Corporation has demolished its steel-producing  
facilities in its South Side plant. As a result, the Mon Con  
has applied to the Interstate Commerce Commission for  
and received permission to abandon its rail lines and  
facilities on the South Side. The bridge will be sold to  
LTV for use as a utility bridge. It currently carries, along  
with the Main Bridge, approximately 20 utility lines of  
various types.

Richard L. McCombs  
Vice President - Operations  
Monongahela Connecting Railroad Company  
3600 Second Avenue  
Pittsburgh, Pennsylvania

MONONGAHELA CONNECTING RAILROAD COMPANY, HOT METAL BRIDGE

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(Page 2)

The Hot Metal Bridge crosses the Monongahela River at Mile Post 3.1 in the City of Pittsburgh, Pennsylvania. It formerly provided access to the South Side Open Hearth Furnaces of LTV Steel (formerly Jones & Laughlin Steel Corporation) for hot metal (iron) produced in the North Side Blast Furnaces. The bridge has not been used for rail traffic since May, 1979 when LTV Steel replaced its open hearth furnaces with electric arc furnaces, idling both the blast furnaces and open hearth furnaces. The blast furnaces were demolished in the mid 1980's. Demolition of the electric arc furnaces was completed in June, 1993 along with the south end connection to the Hot Metal Bridge.

The Hot Metal Bridge is built on piers common to the Main Bridge and immediately down river from it. The span lengths and description follows:

<u>Span Number</u>	<u>Length</u>	<u>Type</u>
Skew	129'-2"	Pratt-through truss
1	154'-0"	Pratt-through truss
2	132'-0"	Pratt-through truss
3	321'-4"	Pratt-through truss
4	195'-9"	Pratt-through truss
5	135'-0"	Pratt-through truss
6	102'-0"	Pratt-deck truss
Total Length		

The spans are numbered from North to South and are on an ascending grade of 1.5% in the same direction. Truss members are pin connected. Expansion was originally provided by roller nests, however, these rollers were replaced with bronze slide plates in the early 1950's.

The Mon Con was chartered in 1885 as a subsidiary of Jones & Laughlin Steel Corporation. The original bridge between the north and south side plants was built in 1887. It is presumed that originally the molten iron was transported across this bridge. The present Hot Metal Bridge was begun in 1899, per Board of Director minutes of June 5, 1899 authorizing company engineer E. K. Morse to proceed with plans to widen the existing piers. The bridge itself was designed by the Structural Department of Jones & Laughlin Limited; fabrication and erection by Edgemore Bridge Works of Edge Moor, Delaware. This information is from the original drawings which are dated in the later part of 1899. Board of Director minutes of February 12, 1901 note that the Hot Metal Bridge was completed at a cost of \$441,882. Steel used in the bridge was "soft open hearth steel" or "Bessemer Steel" per the drawings. The Hot Metal Bridge, as it currently stands, is essentially the same structure that was originally constructed, except for some modification that are listed below.

There have been a number of repair jobs done to the bridge during its lifetime. The most significant projects are as follows:

- a. Bridge inspections performed in 1950 indicated that the original roller nests which provided for expansion were frozen. An engineering/contracting firm -- Carl J. Jacobsen Engineers and Contractors, designed and installed bronze slide plates that year.
- b. Jones & Laughlin Steel Corporation began a program in 1960 to improve steel production. One of the areas was to replace the fleet of 80 ton submarine ladles with 165 ton ladles. This required considerable work on the Hot Metal Bridge in order for the Mon Con to handle the heavier and longer submarine ladles. The first phase was to reduce the dead load. This was accomplished by removing the heavy fire brick trough that made up the deck system and replacing it with a light steel plate covered with granulated slag. This was necessary to prevent any hot metal splashing into the river. This work was done under traffic by company forces. The second phase was to strengthen the top chord truss members. This was done by drilling holes in the web of the truss members and bolting with high tensile bolts through reinforcing plates. Over 7,000 bolts were placed. The work was designed by Structural Associates of Pittsburgh and erected by company forces.

The bridge has not been used for rail traffic since 1979. LTV Steel uses a portion of the bridge to support utility lines. The bridge will be sold to LTV for use as a utility bridge.