

PENNSYLVANIA RAILROAD,
SOUTH BRANCH CHICAGO RIVER BRIDGE
I&M Canal National Heritage Corridor
Crossing Chicago River (South Branch),
East of Canal Street
Chicago
Cook County
Illinois

HAER No. IL-112

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
P.O. Box 37127
Washington, D.C. 20013-7127

HISTORIC AMERICAN ENGINEERING RECORD

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NOTE: Photographs taken by Jet Lowe, HAER photographer, 1987

- IL-112-1 GENERAL VIEW OF LIFT BRIDGE FROM 18TH STREET BRIDGE,
LOOKING SOUTHWEST.
- IL-112-2 VIEW OF NORTH TOWER, COUNTERWEIGHT, AND BRIDGE TENDER'S
HOUSE, FROM SOUTH SIDE OF THE RIVER LOOKING NORTH.
- IL-112-3 VIEW OF MOVEABLE SPAN IN LIFT POSITION, FROM SOUTH SIDE
OF RIVER LOOKING NORTHEAST.
- IL-112-4 GENERAL VIEW OF SOUTH TOWER AND COUNTERWEIGHT; THIS
VIEW SHOWS A FREIGHT TRAIN CROSSING THE SPAN. LOOKING
NORTH.
- IL-112-5 VIEW OF SOUTH TOWER AND COUNTERWEIGHT, LOOKING WEST.

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Location: I & M Canal National Heritage Corridor
Crossing the South Branch of the Chicago
River, east of Canal Street
Chicago, Cook County, Illinois

UTM: 16 E.447160 N.4633600
Quad: Englewood

Date of Construction: 1915

Designing Engineers: Waddell and Harrington

Builder: Pennsylvania Steel Company

Present Owner: Amtrak

Present Use: Railroad bridge

Significance: Originally built as part of the
Pennsylvania Railroad system, this
Waddell and Harrington vertical lift
span is the only one of its kind across
the Chicago River. Upon its completion
in 1915, it had the heaviest (1,500 ton)
main span of any vertical lift bridge in
the United States.

Project Information: The Illinois and Michigan Canal was
designated a National Heritage Corridor
in 1984. The following year HABS/HAER
embarked on an extensive inventory and
documentation project of the 100 mile-
long corridor. Field work for this
project was concluded in 1988. Final
editing of the documentation was
completed in 1992.

Historians: Frances Alexander, Gray Fitzsimons, and
John Nicolay, 1986; Carolyn Brucken,
1992.

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This bridge was designed for the Pennsylvania Railroad by Waddell and Harrington, a consulting engineering firm that specialized in vertical lift spans. (James A. L. Waddell held a number of patents for his vertical lift bridge design.) The Pennsylvania Steel Company of Steelton, Pennsylvania, a steel-making concern in which the Pennsylvania Railroad had heavily invested, fabricated the Chicago River span. After the two lift towers were erected, the 1,500 ton main lift span was placed in the elevated position 130' above the water. Timber falsework was used to erect the bridge in the open position. Engineers chose this approach for constructing the bridge because of the need to keep the existing center-pier swing-span in operation until the new bridge was completed. Upon its completion in 1915, the new movable bridge had the heaviest (1,500 ton) main span of any vertical lift bridge in the United States. The double-tracked bridge has a main span of 272'-10" and consists of a Pratt through truss with riveted, gusset-plate connections. The lift towers rest on concrete piers. (Towers measure 195'-0" in height.) No longer in use, though still in existence, the original bridge tender's cabin is located on the upper chord of the lift span; it has corrugated metal siding and a gable roof. The currently used bridge tenders' cabin is a two-story brick building located twenty feet southeast of the south lift tower. Amtrak now uses and maintains the bridge. Of the many moveable bridges across the Chicago River this is the only one that employs the Waddell and Harrington vertical lift span.

SOURCES:

W. J. Howard, "Erection of A Cable Lift Bridge," Engineering News, v. 70 (September 11, 1913): 500-501.

"Modern Drawbridges Attain Great Weights and Spans," Engineering News-Record, v. 80 (May 2, 1918): 860.

"Replacing A Swing Bridge With A Vertical Lift Structure," Railway Age Gazette, v. 57 (August 21, 1914): 353-354.

W. L. Smith and W. W. Priest, "The Design and Erection of the Pennsylvania Lift Bridge No. 458 Over the South Branch of the Chicago River," Journal of the Western Society of Engineers, v. 20 (May 1915): 478-500.

"Special Conditions Govern Selection of Lift Bridge and Methods of Erection," Engineering Record, v. 71 (May 15, 1915): 611-613.

"The Cable Lift Drawbridge," Engineering News, v. 72 (August 6, 1914): 291.

ADDENDUM TO:
PENNSYLVANIA RAILROAD, SOUTH BRANCH CHICAGO RIVER BRIDGE,
ILLINOIS & MICHIGAN CANAL NATIONAL HERITAGE CORRIDOR
Illinois & Michigan Canal National Heritage Corridor
Chicago Bridges Recording Project
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IL-112-1 to IL-112-5 were previously transmitted to the Library of Congress in 1992.

Jet Lowe, photographer, summer 1999.

- IL-112-6 LOOKING WEST SOUTHWEST, 18th STREET BRIDGE AT RIGHT,
PENNSYLVANIA RAILROAD BRIDGE IN MIDDLE, CHICAGO TRANSIT
AUTHORITY ORANGE LINE AT LEFT.
- IL-112-7 LOOKING WEST, PENNSYLVANIA RAILROAD BRIDGE IN MIDDLE
GROUND, CTA ORANGE LINE IN FOREGROUND, DAN RYAN
EXPRESSWAY IN BACKGROUND.
- IL-112-8 LOOKING NORTHEAST TOWARD LOOP, PENNSYLVANIA RAILROAD
BRIDGE IN BOTTOM CENTER OF FRAME.
- IL-112-9 LOOKING EAST NORTHEAST, CANAL STREET BRIDGE IN
FOREGROUND, PENNSYLVANIA RAILROAD BRIDGE IN MIDGROUND.