

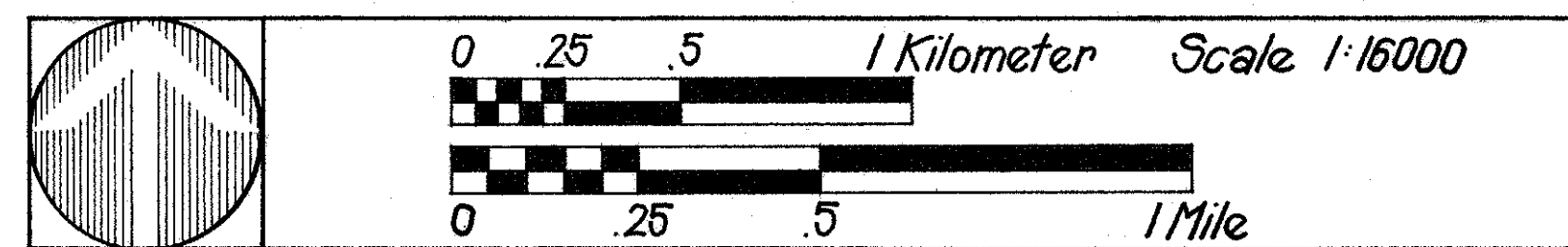
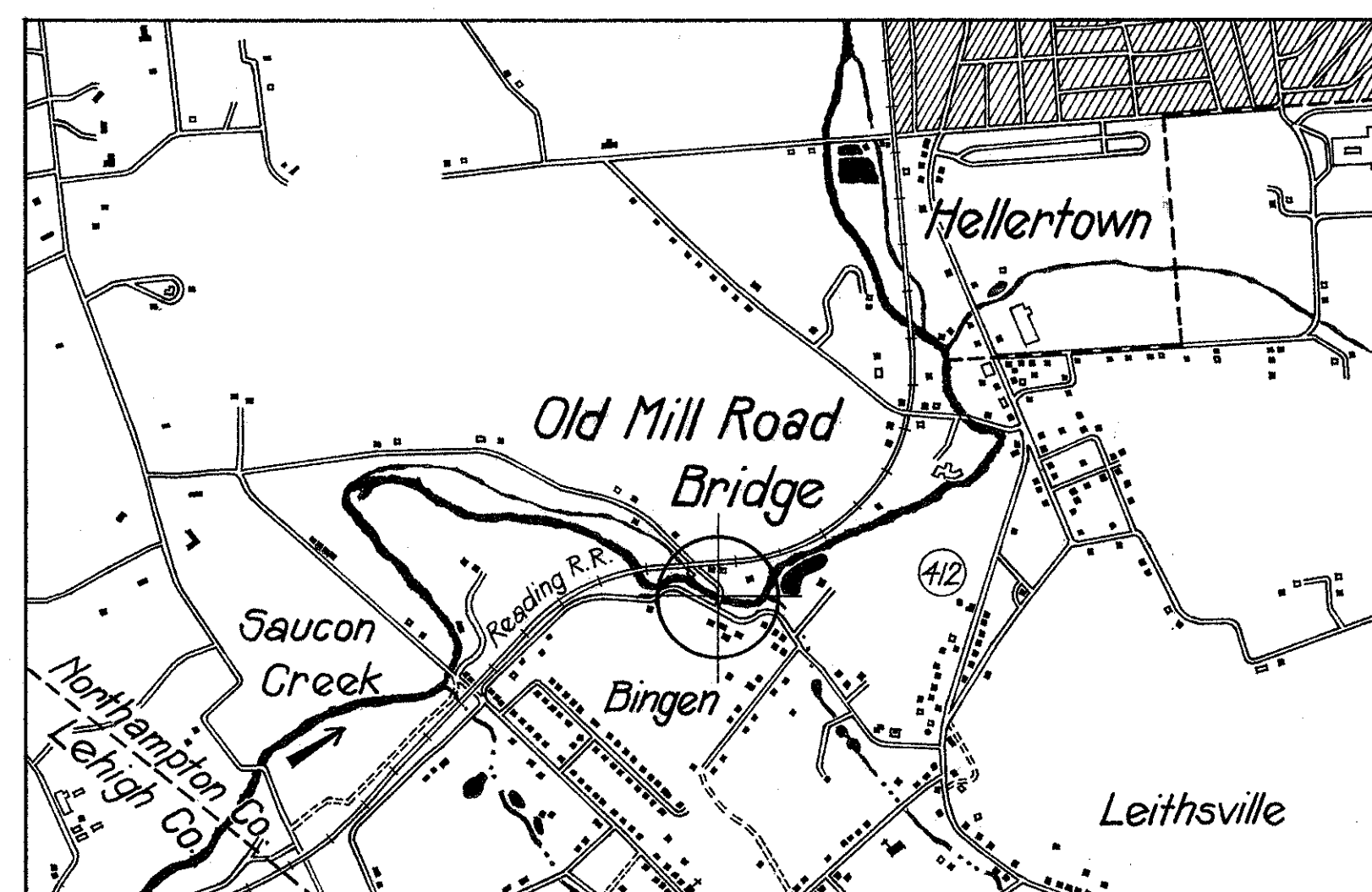
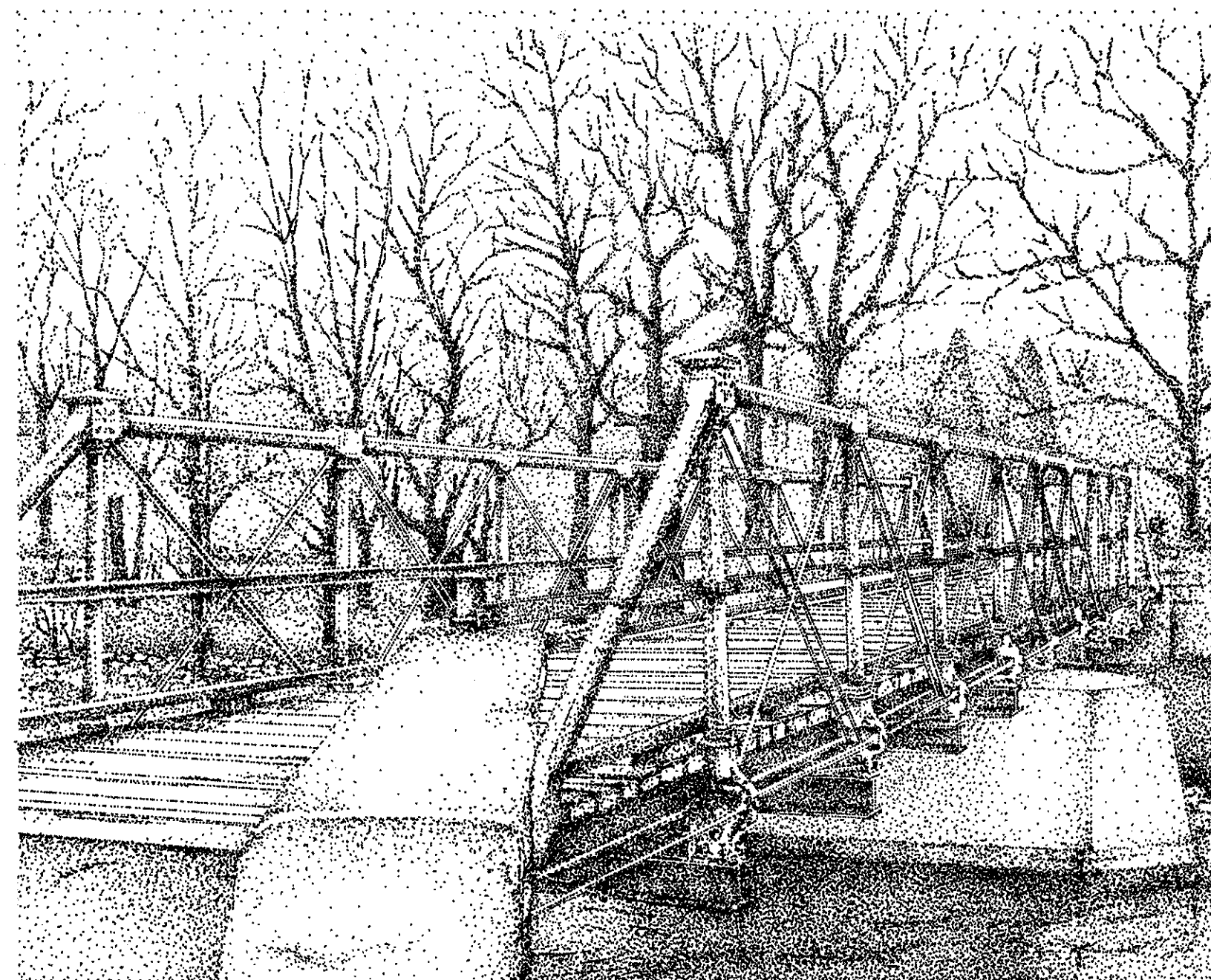
OLD MILL ROAD BRIDGE

HELLERTOWN · 1870 · PENNSYLVANIA

Old Mill Road Bridge is a pony-Pratt-truss bridge that spans Saucon Creek south of Hellertown, Pennsylvania. Charles Nathaniel Beckel fabricated it at his family's foundry on Sand Island in nearby Bethlehem. It is one of over twenty cast-and wrought-iron bridges that he built in the 1860s and 1870s. Beckel was a master foundryman who studied bridge design with the engineer Francis C. Lowthorp of Trenton, New Jersey. He employed Lowthorp's patented elements in many of his spans. On Old Mill Road Bridge the lower chord connection castings are a combination of designs that Lowthorp patented in June 1857 and March 1860.

Old Mill Road Bridge is composed of two sequential 52-foot 5-panel spans. They rest on a stationary support at a center pier and roller supports at masonry abutments. Cast-iron upper chords and vertical posts carry compressive forces and wrought-iron lower chord bars and diagonal bracing carry tensile forces. The cast-iron deck beams are integral with the lower chord connections and were formed as single elements. Although cast iron is not normally used in deck beams because of its low tensile strength, Beckel designed his beams with refinements that successfully withstood loads for over 50 years. He thickened the webs at the ends of each beam to compensate for shear and flared the lower flange from ends to center to better resist bending. Only in the 1930s were steel I-beams strapped to the bottoms of the cast beams for additional reinforcement.

In 1987 Old Mill Road Bridge was included as part of the Ehrhart's Mill Historic District on the National Register of Historic Places. It stands in a picturesque setting adjacent to the grist mill and miller's home. The bridge is no longer used for vehicular traffic.

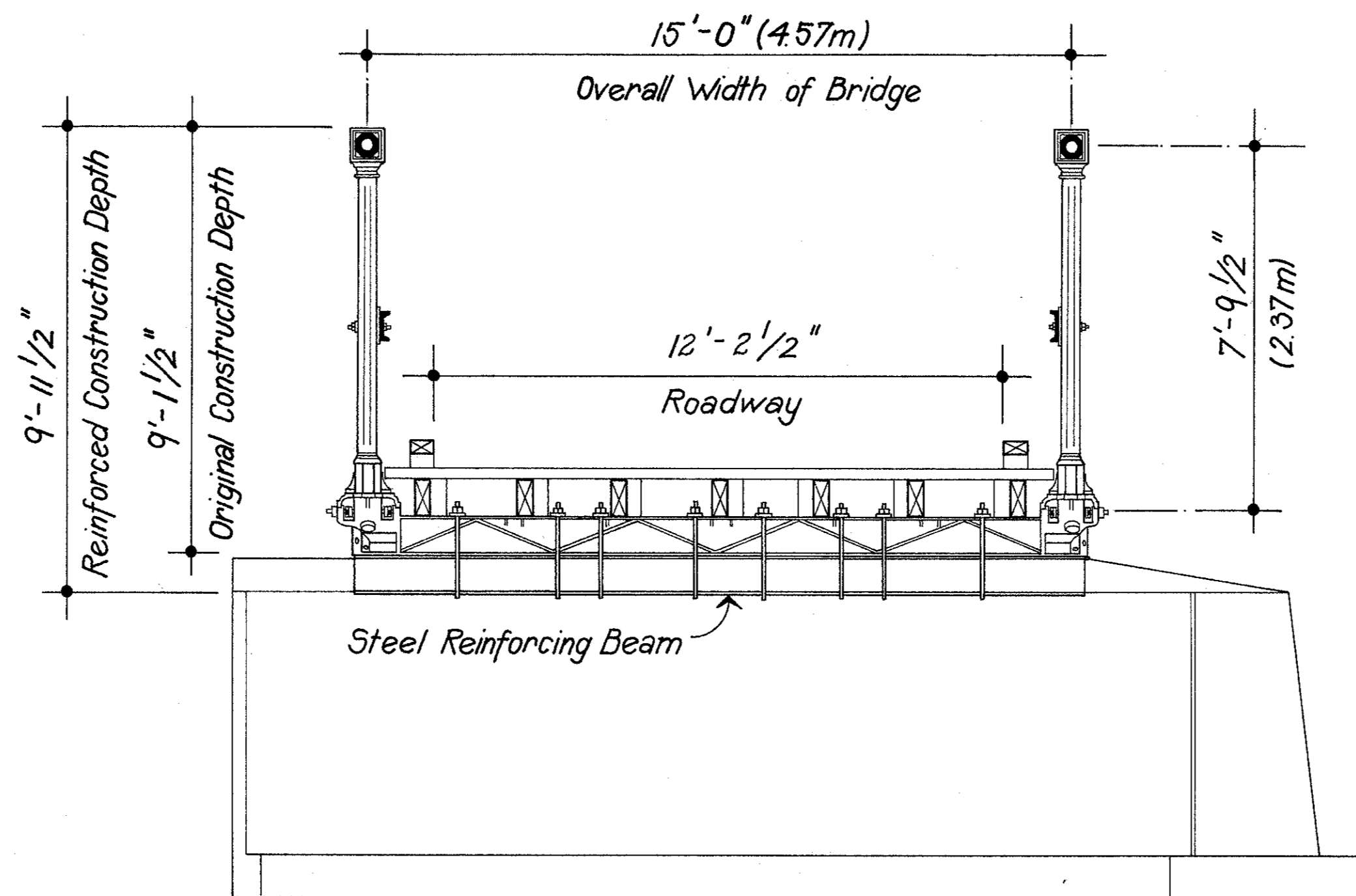


This recording project is part of the Historic American Engineering Record (HAER), National Park Service. It is a long-range program to document historically significant engineering and industrial works in the United States.

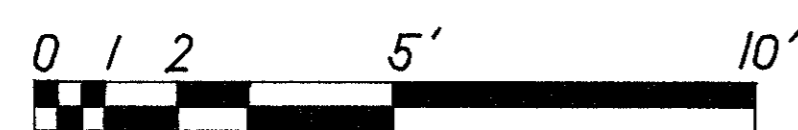
The Cast-and Wrought-Iron Bridges Recording Project was cosponsored in 1991 by the Historic American Engineering Record and the West Virginia University Institute for the History of Technology and Industrial Archaeology. Fieldwork, measured drawings, historical reports, and photographs were prepared under the general direction of Dr. Robert J. Kapsch, Chief, HABS/HAER; Eric N. DeLony, Chief and Principal Architect, HAER; Emory Kemp, Director, Institute for the History of Technology and Industrial Archaeology; and Dean Herrin, HAER Staff Historian.

The Recording Team consisted of Christine Ussler (Architecture Faculty, Lehigh University) Architect and Field Supervisor; Christine Theodoropoulos, P.E. (Architecture Faculty, California State Polytechnic University, Pomona); Wayne Chang (University of Notre Dame), Monika Korsós (Technical University of Budapest, Hungary, US/ICOMOS), Architectural Technicians; Robert W. Hadlow (Washington State University), William Chamberlin, P.E., Historians; and Joseph E. B. Elliott (Muhlenberg College), Photographer.

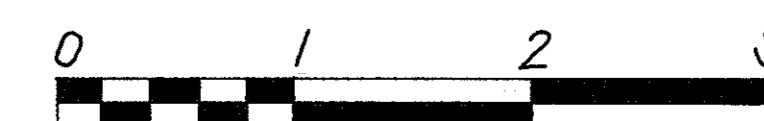
The documentation of Old Mill Road Bridge began in 1985 with field notes made by Eric DeLony, Chief, HAER, Richard K. Anderson, Jr., Architect HAER; Lori Allen (Iowa State University), Carolyn Givens (University of Kansas), Architectural Technicians. Formal Photography was done by Jet Lowe. In 1986 three sheets of drawings were begun by Coy Burney.



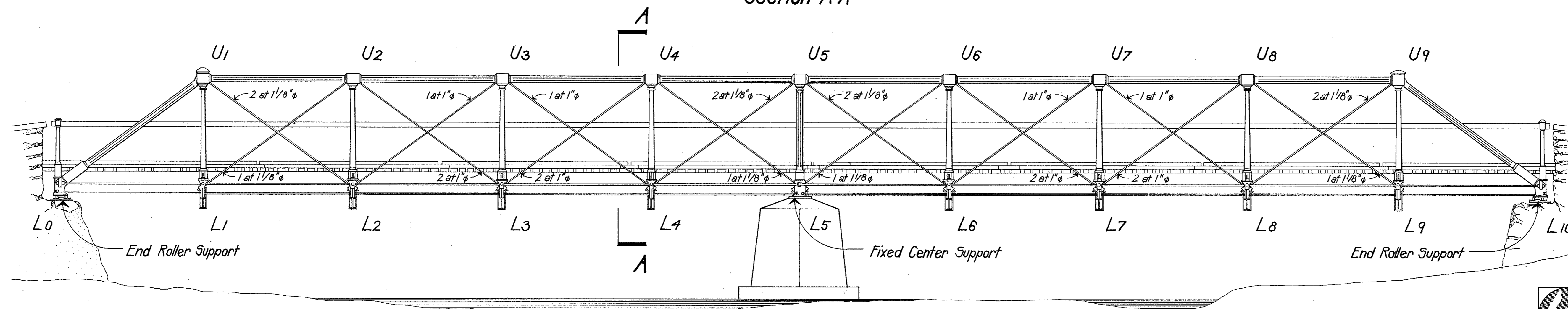
Scale 3/8" = 1'-0"



Scale in meters 1:32

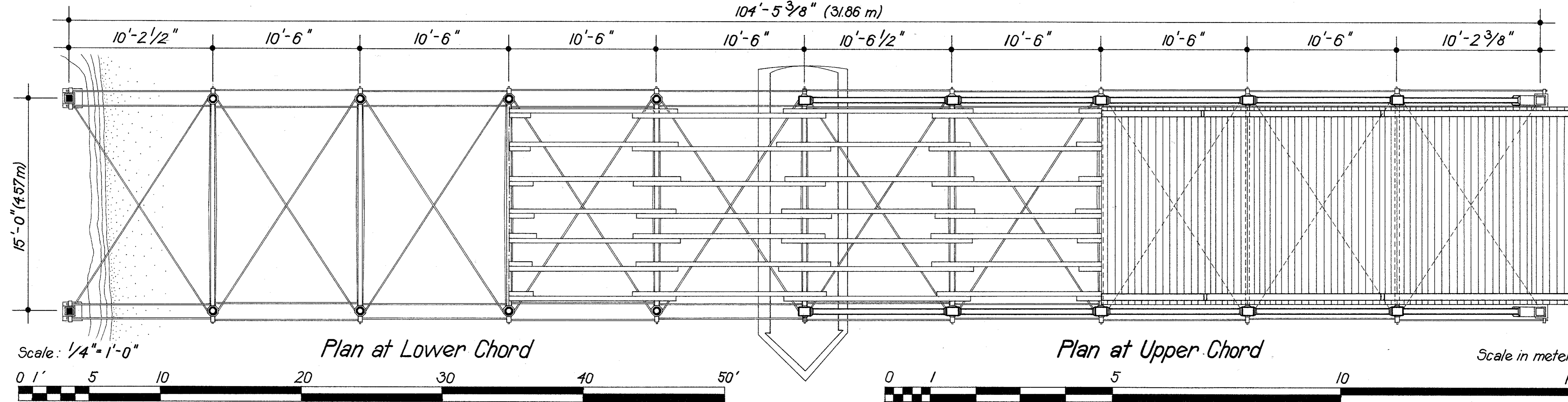


Section A-A



West Elevation

104'-5 3/8" (31.86 m)



Plan at Lower Chord

Plan at Upper Chord

Scale: 1/4" = 1'-0"



DELINEATED BY: COY BURNETT, 1986 Monika Korsos 1991.

CAST-IRON WROUGHT-IRON BRIDGES PROJECT
HISTORIC AMERICAN BUILDINGS SURVEY
HISTORIC AMERICAN ENGINEERING RECORD
UNITED STATES DEPARTMENT OF THE INTERIOR

OLD MILL ROAD BRIDGE, 1870
OLD MILL ROAD SPANNING SAUCON CREEK
NORTHAMPTON COUNTY

HELLERTOWN

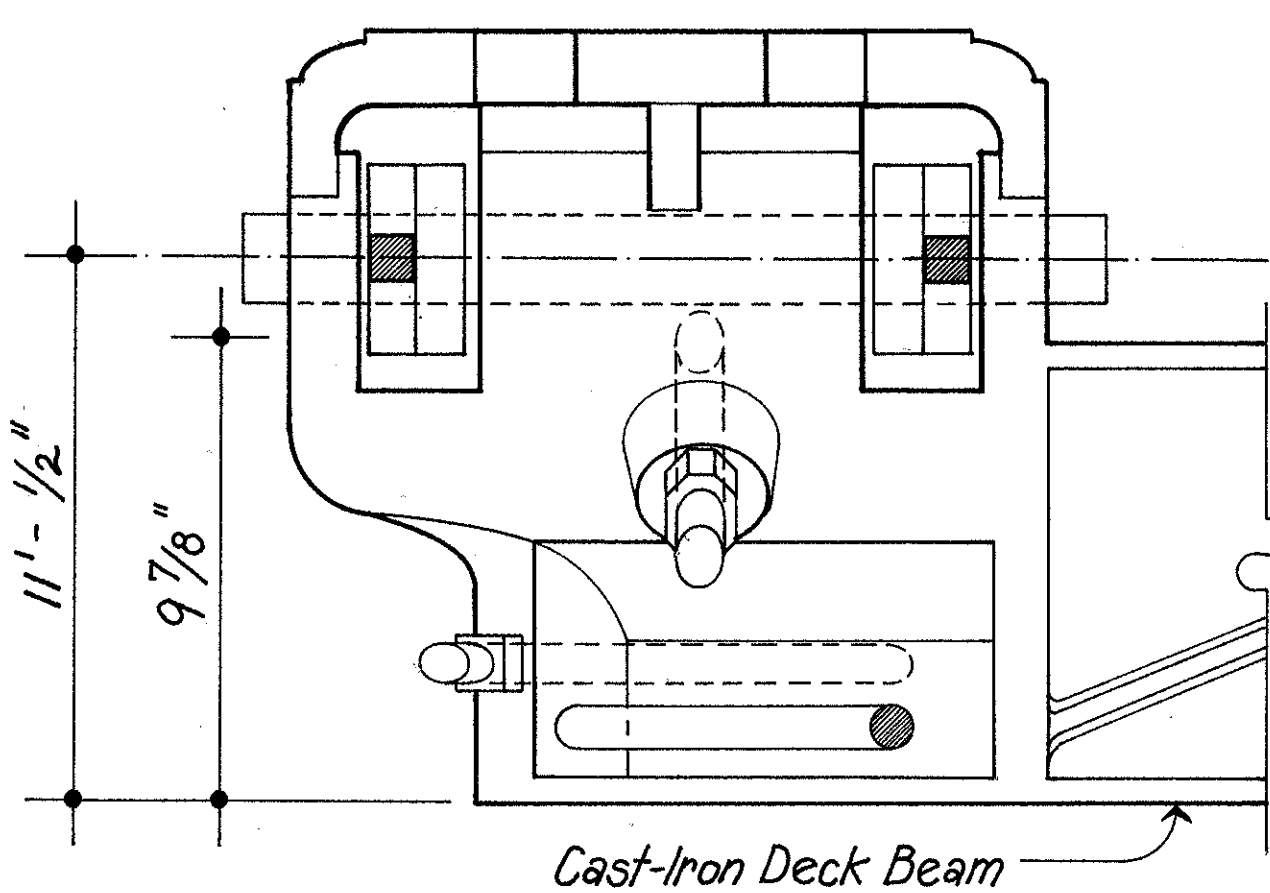
PENNSYLVANIA

SHEET 2 of 4
HISTORIC AMERICAN
ENGINEERING RECORD
PA-93

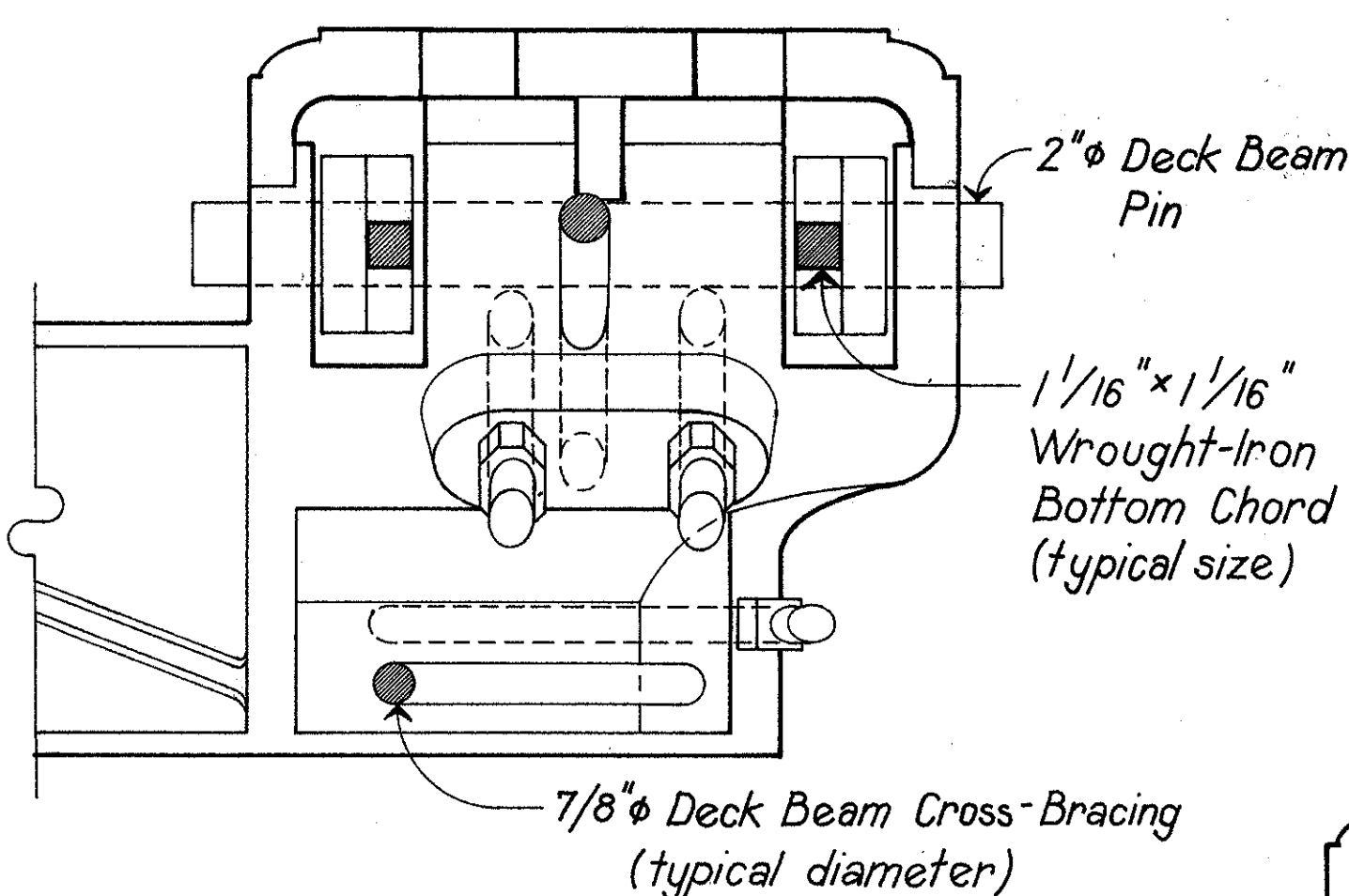
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Cast-Iron Yokes

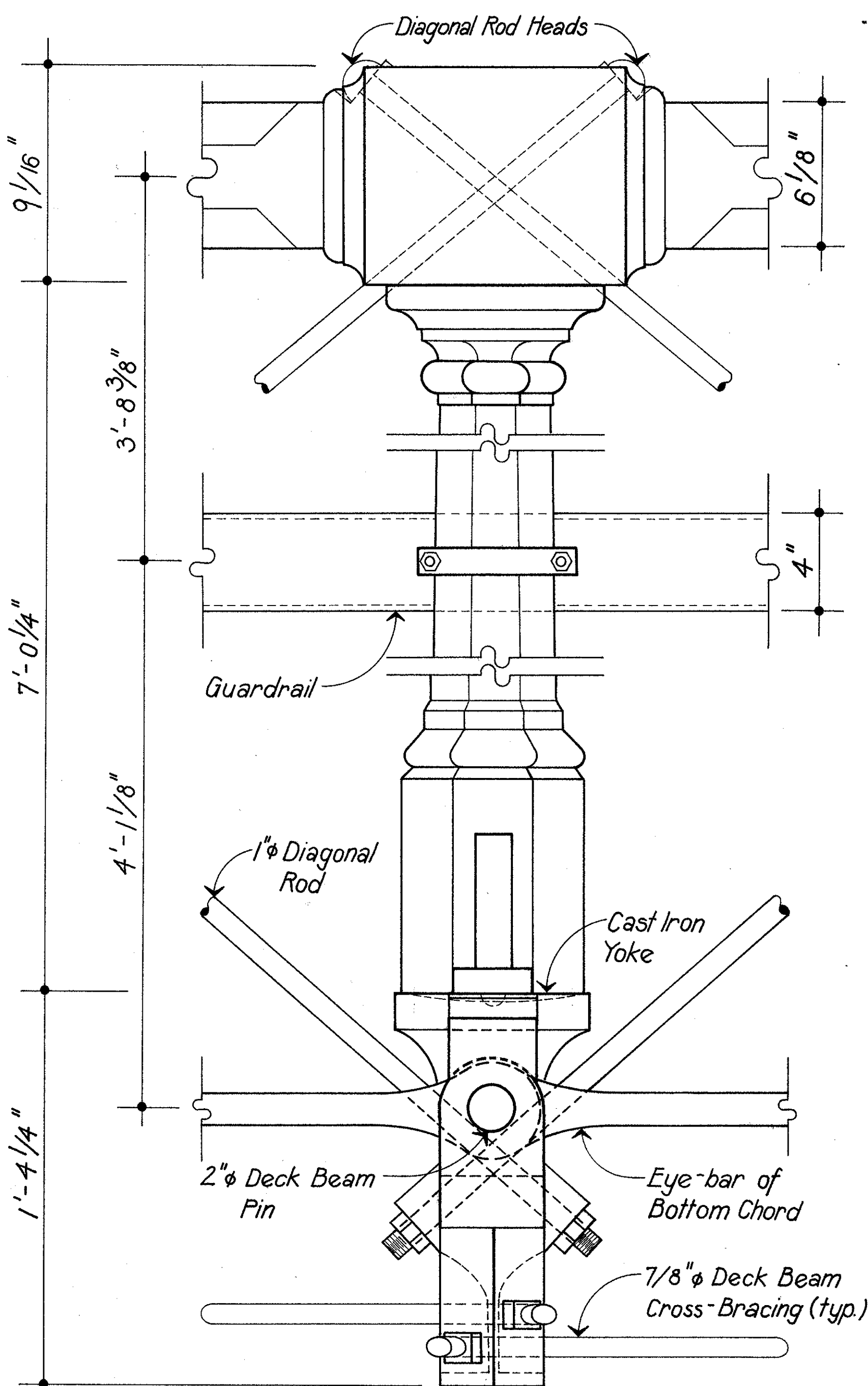
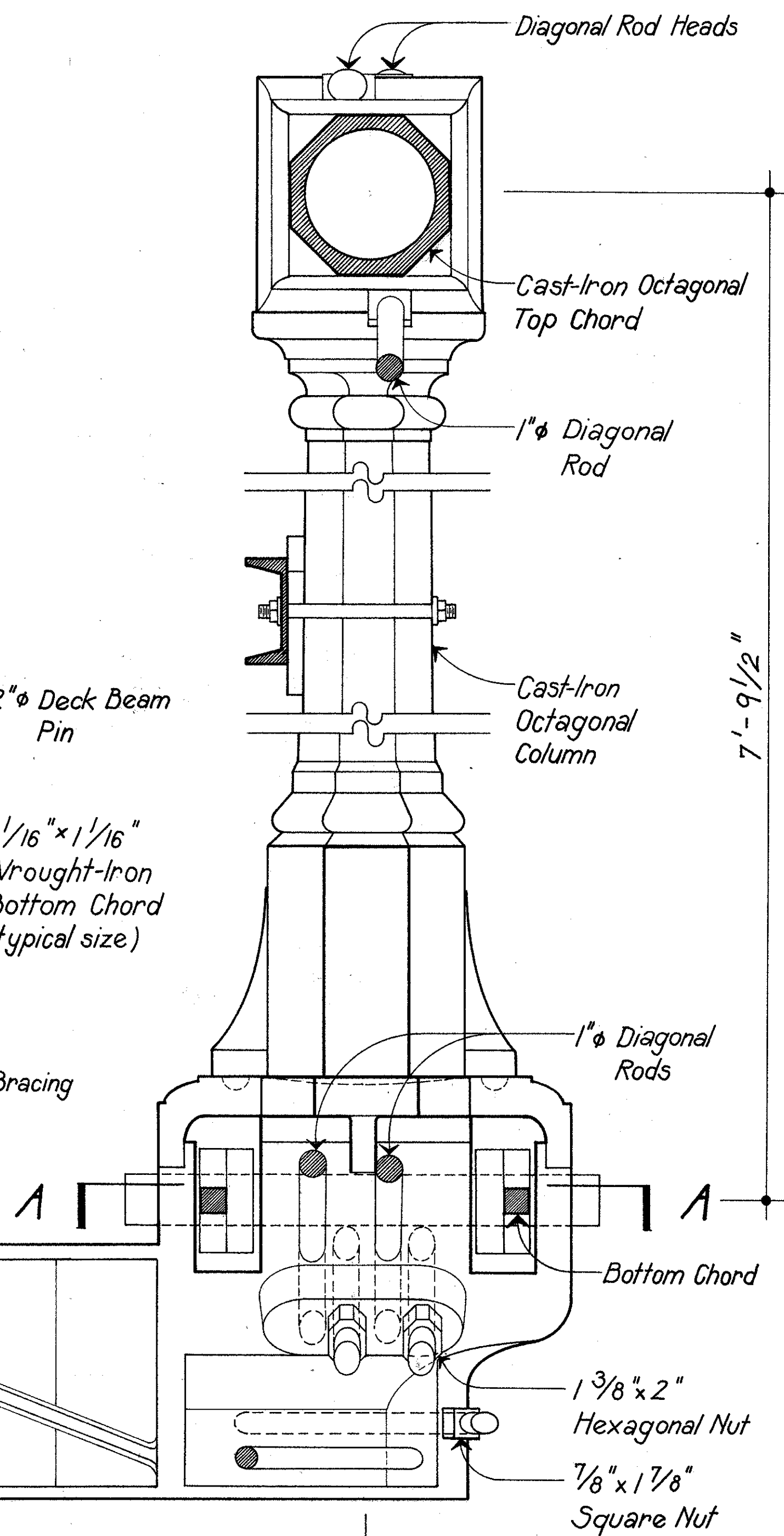
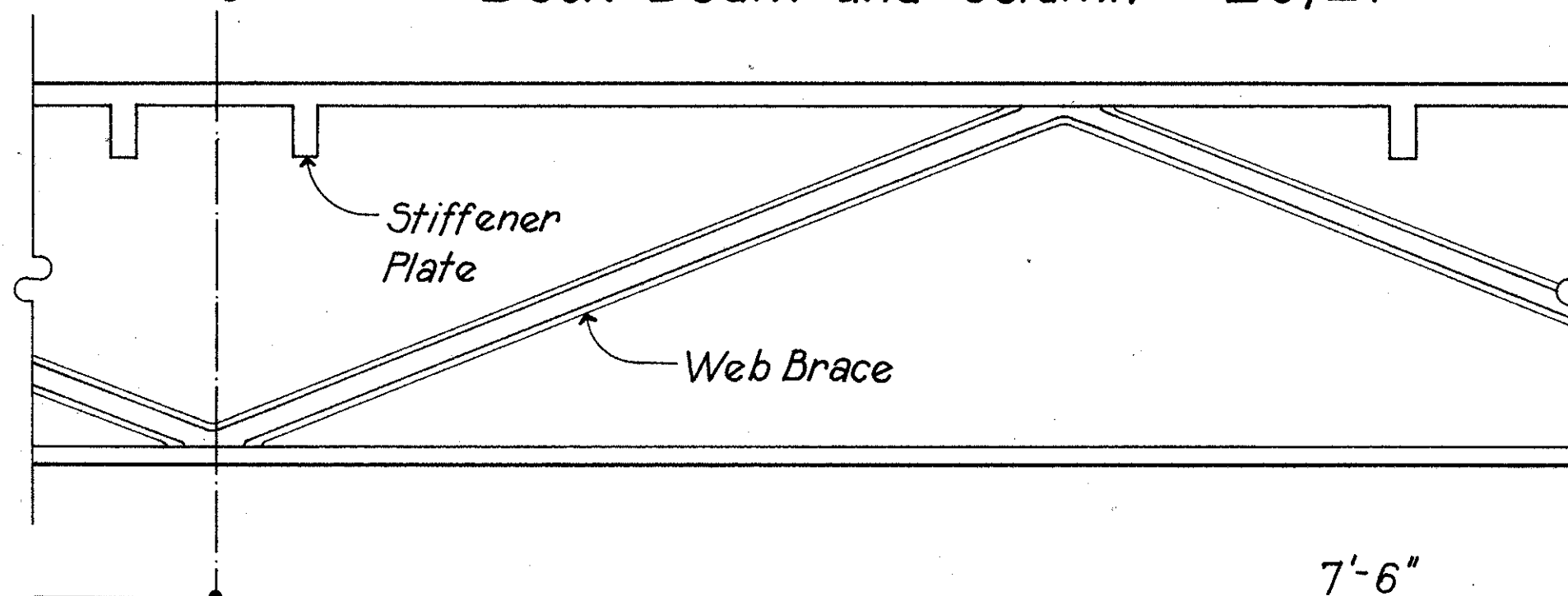
L1, L9



L2, L4, L6, L8

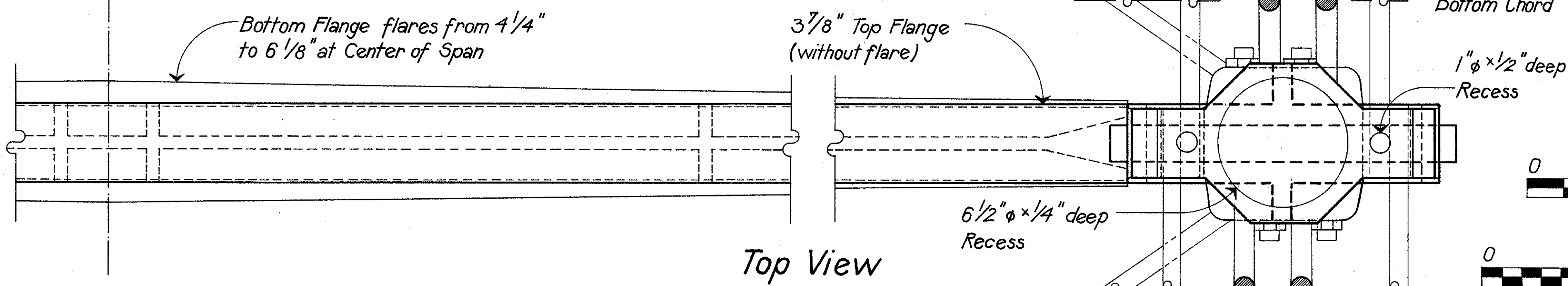


Cast-Iron Deck Beam and Column L3, L7

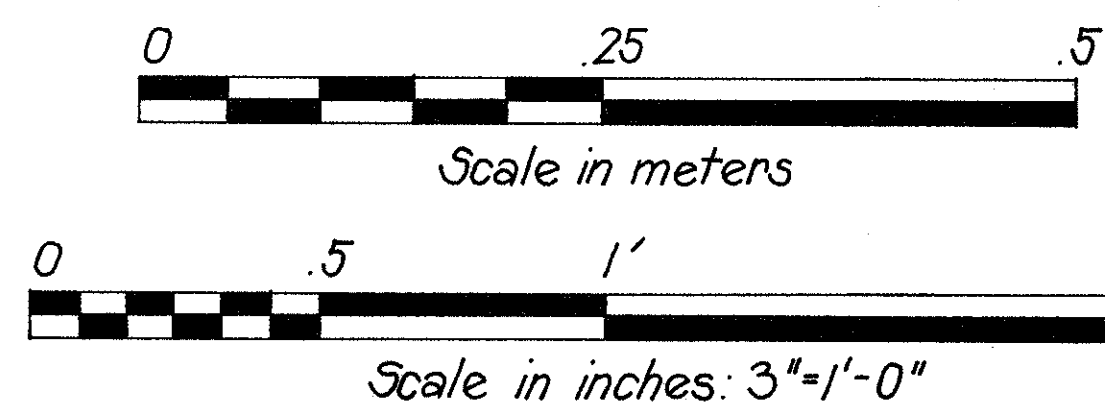


Side View

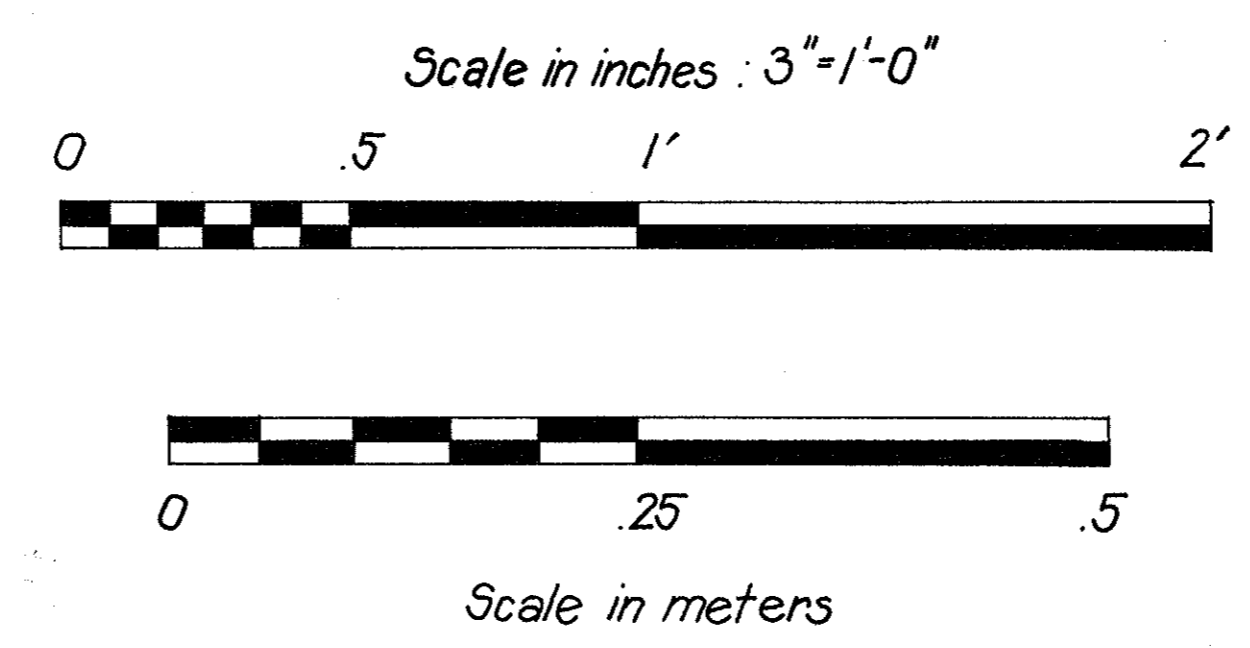
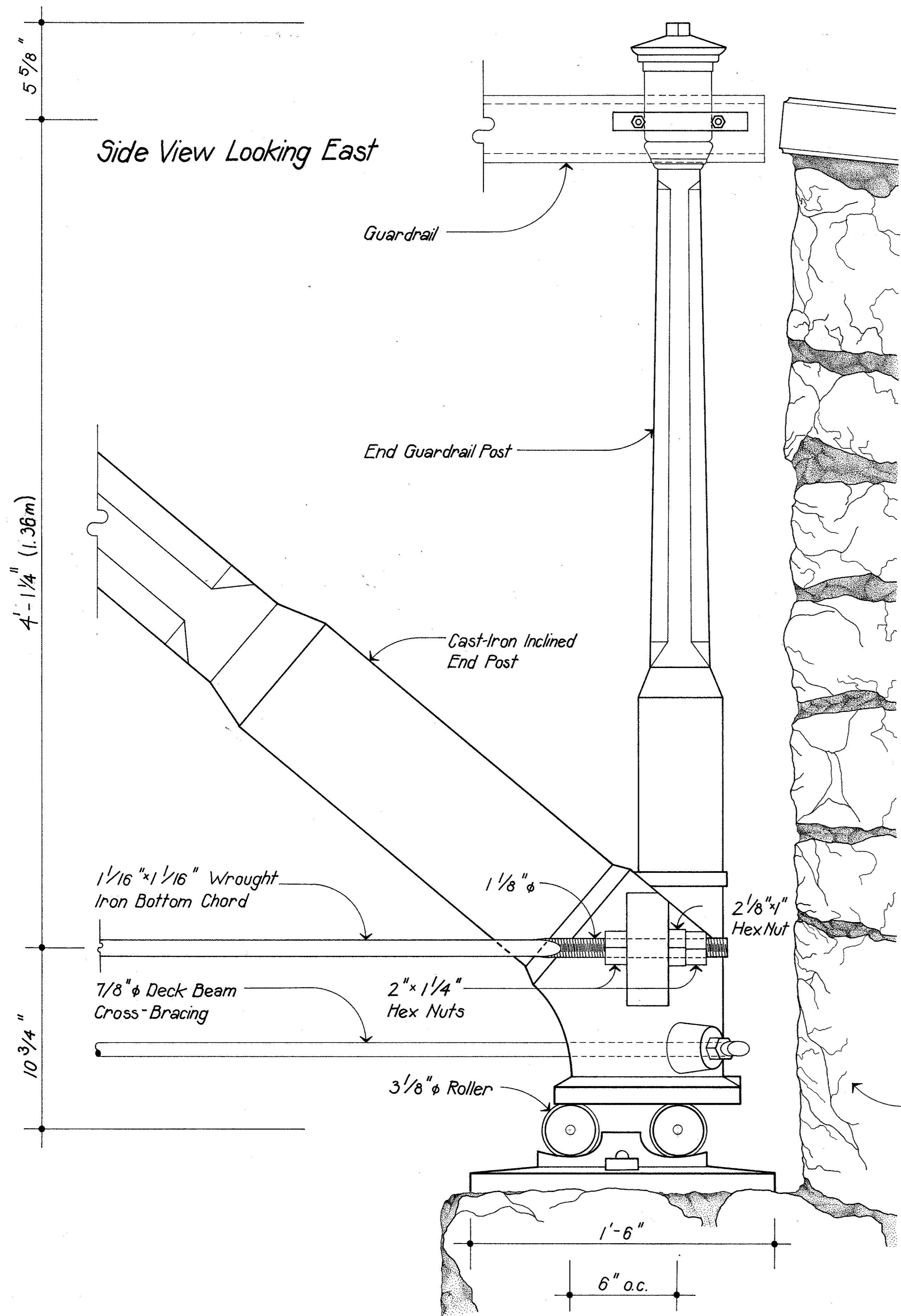
A-A Section
L3, L7



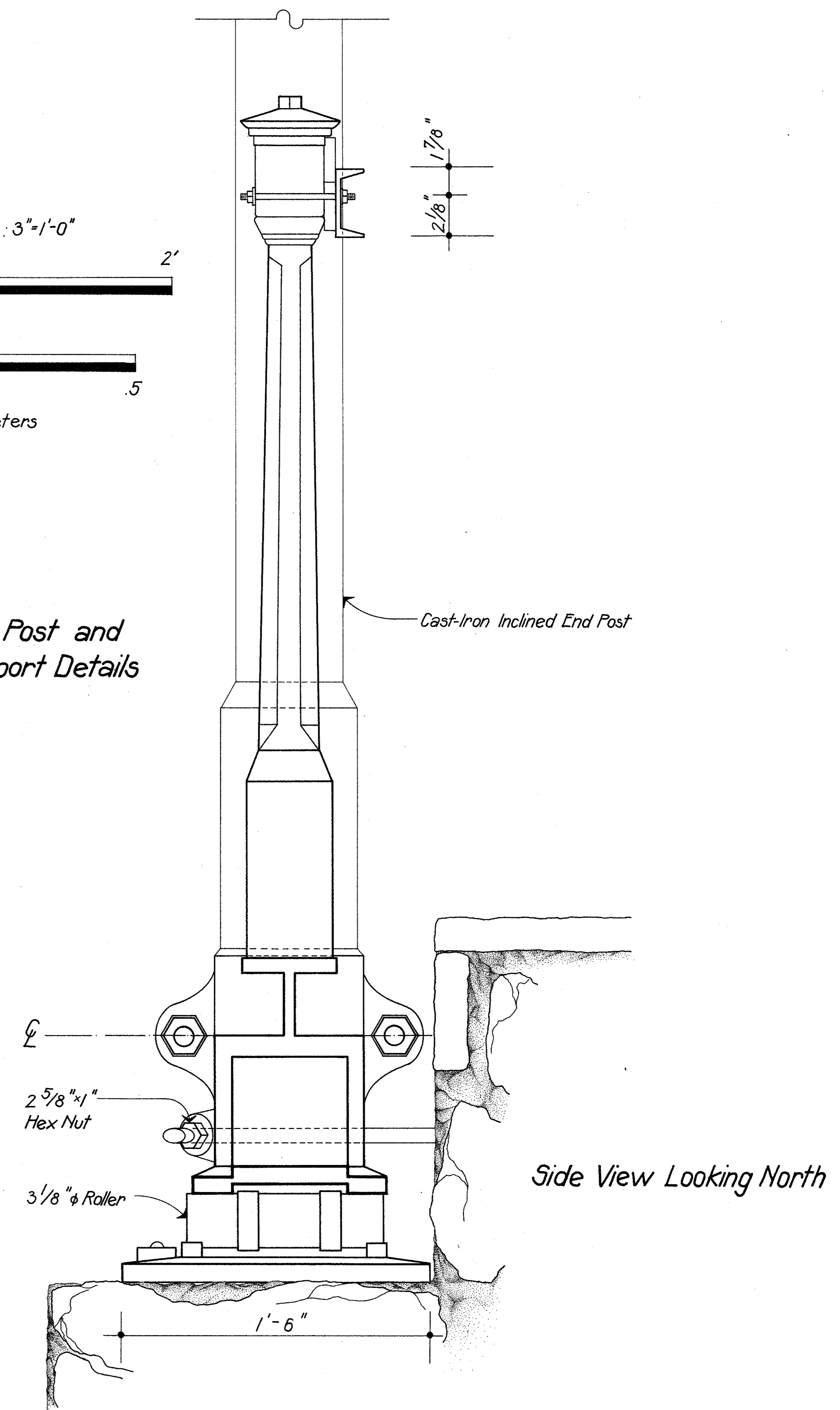
Top View



DELINATED BY: LOY PURNNEY, 1986
CAST-IRON WROUGHT-IRON BRIDGES PROJECT
HISTORIC NATIONAL LAND SERVICE RECORD
UNITED STATES DEPARTMENT OF THE INTERIOR
MONIKA KORSOS 1991.
HELLERTOWN
PENNSYLVANIA
SHEET 3 of 4
HISTORIC AMERICAN ENGINEERING RECORD
PA-93
OLD MILL ROAD BRIDGE, 1870
OLD MILL ROAD SPANNING SAUCON CREEK
NORTHAMPTON COUNTY



End Guardrail Post and End Roller Support Details



DELINEATED BY: COTY BURNET, 1986, Monika Korsós, 1991
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 HISTORIC AMERICAN BUILDINGS SURVEY
 HISTORIC AMERICAN ENGINEERING RECORD
 UNITED STATES DEPARTMENT OF THE INTERIOR
 HELLERTOWN, PENNSYLVANIA
 SHEET 4 OF 4
 HISTORIC AMERICAN ENGINEERING RECORD
 PA-93
 OLD MILL ROAD BRIDGE, 1870
 OLD MILL ROAD SPANNING SAUCON CREEK
 NORTHAMPTON COUNTY

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