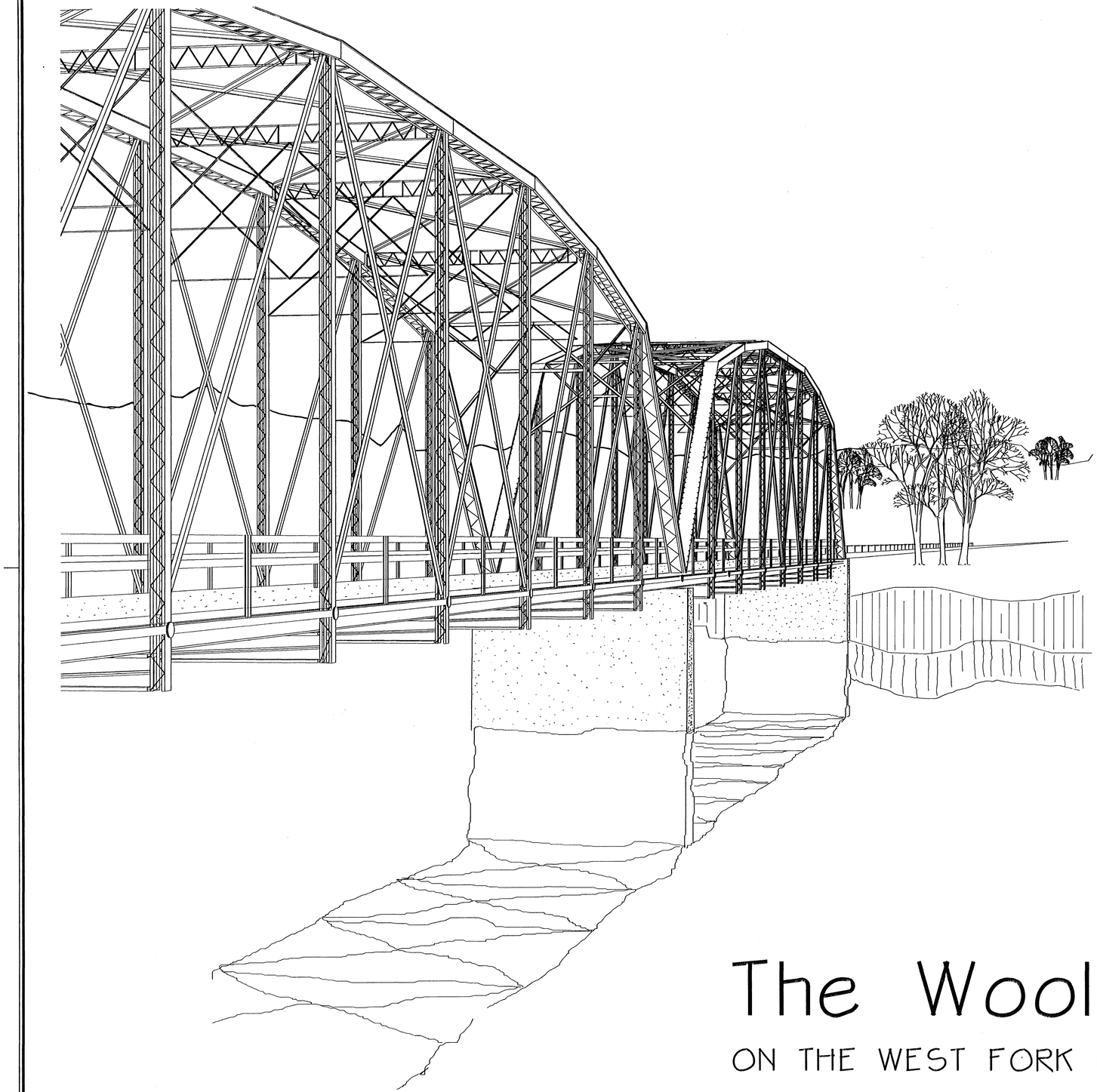
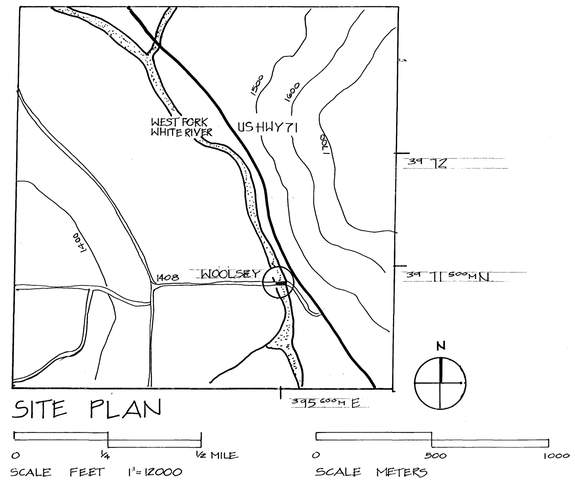


The Woolsey bridge that crosses the West fork of the White river in Washington County, Arkansas, was built in 1947. This bridge is a steel drive through Parker Truss type bridge. The dimensions of the Woolsey bridge are 301'0" x 16'0" and has only one lane. It has two arches on each side with each spanning 150'6" in length. The driving surface of the bridge is a four inch (4") concrete slab on a wire mesh and fabric base. There are I-Beams running in two directions supporting the slab of the bridge, which are 6-10" x 41/2" x 3/8" at 2'2" on center, spanning the length of the bridge and supporting the slab. Spanning the width of the bridge and supporting the I-Beams is 1-18" x 6" x 1/2" typical at each panel. Each panel is 18'10" in length for a total of sixteen panels. There are three concrete piers that support the bridge, one at each end and one at the mid-span of the structure. At the west pier there is a pinned connection as opposed to the east pier, which used a rocker connection. In the mid-span pier both a rocker and a pinned connection are used. The structure height from top of the slab to the water is approximately 13'0", the height from the top of the slab to the highest point on the is 26'-10".
In the mid-thirties there became an awakening to streamline bridges, by using shallower trusses. This was achieved in two ways. The first being a change from cast iron to steel which reduced the amount of material required, since less material was needed this also lowered the cost of the bridge. With the use of less materials this decreased the loads on the bridge. The second way was by using elements of a plate, two C-channels, and a shallow ribbon of steel. This ribbon of steel acts as a stiffener between the C-channels and the plate. The method used on the Woolsey bridge solved several problems in the construction. All parts of the bridge could be hot rolled then punched or drilled at a steel plant, then shipped to the site. This method of fabricating the parts and shipping them to the site for assembly proved to be more cost effective. Because of the mountain area this allowed the parts to be shipped in with a great deal of ease. With the tight building constrictions of the area cranes could not be used, instead pulleys, block and tackles were used to hoist the elements of the bridge in place. Since all elements had to be assembled on site hot rivets were used to connect the structure.
All drawings, field notes, photographs and sketches were done by Kenneth King and Matthew Swiam, under the supervision of Professor Elam Denham at the University of Arkansas in the Spring semester 1994.



SITE PLAN

0 ¼ ½ MILE
SCALE FEET 1"=12000

0 500 1000
SCALE METERS

The Woolsey Bridge

ON THE WEST FORK OF THE WHITE RIVER

DELINEATED BY: MATTHEW SWAIM, KEN KING

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NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

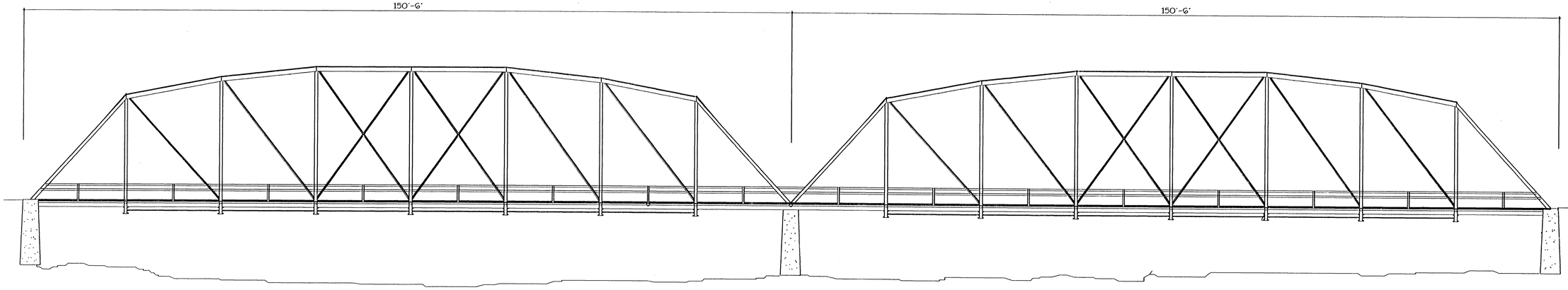
WOOLSEY BRIDGE
WEST FORK OF WHITE RIVER WOOLSEY WASHINGTON COUNTY ARKANSAS

HISTORIC AMERICAN ENGINEERING RECORD
AR-63

SHEET 1 or 5

17203

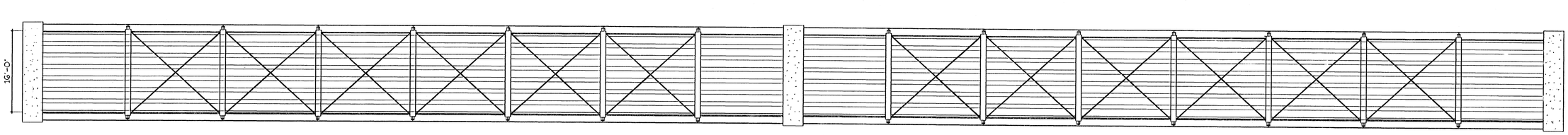
TRIM LINE



NORTH ELEVATION

0 5 10 20 30 40 50
SCALE FEET 1"=10'-0

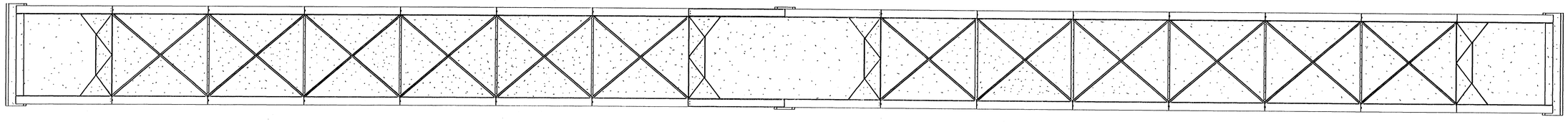
0 1 2 3 4 5 10 15
SCALE METERS 1:120



REFLECTED PLAN

0 5 10 20 30 40 50
SCALE FEET 1"=10'-0

0 1 2 3 4 5 10 15
SCALE METERS 1:120



N

PLAN

0 5 10 20 30 40 50
SCALE FEET 1"=10'-0

0 1 2 3 4 5 10 15
SCALE METERS 1:120

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WOOLSEY BRIDGE
WEST FORK OF THE WHITE RIVER WOOLSEY WASHINGTON COUNTY ARKANSAS

IF REPRODUCED, PLEASE CREDIT: HISTORIC AMERICAN ENGINEERING RECORD, NATIONAL PARK SERVICE, NAME OF DELINEATOR, DATE OF THE DRAWING

HISTORIC AMERICAN ENGINEERING RECORD
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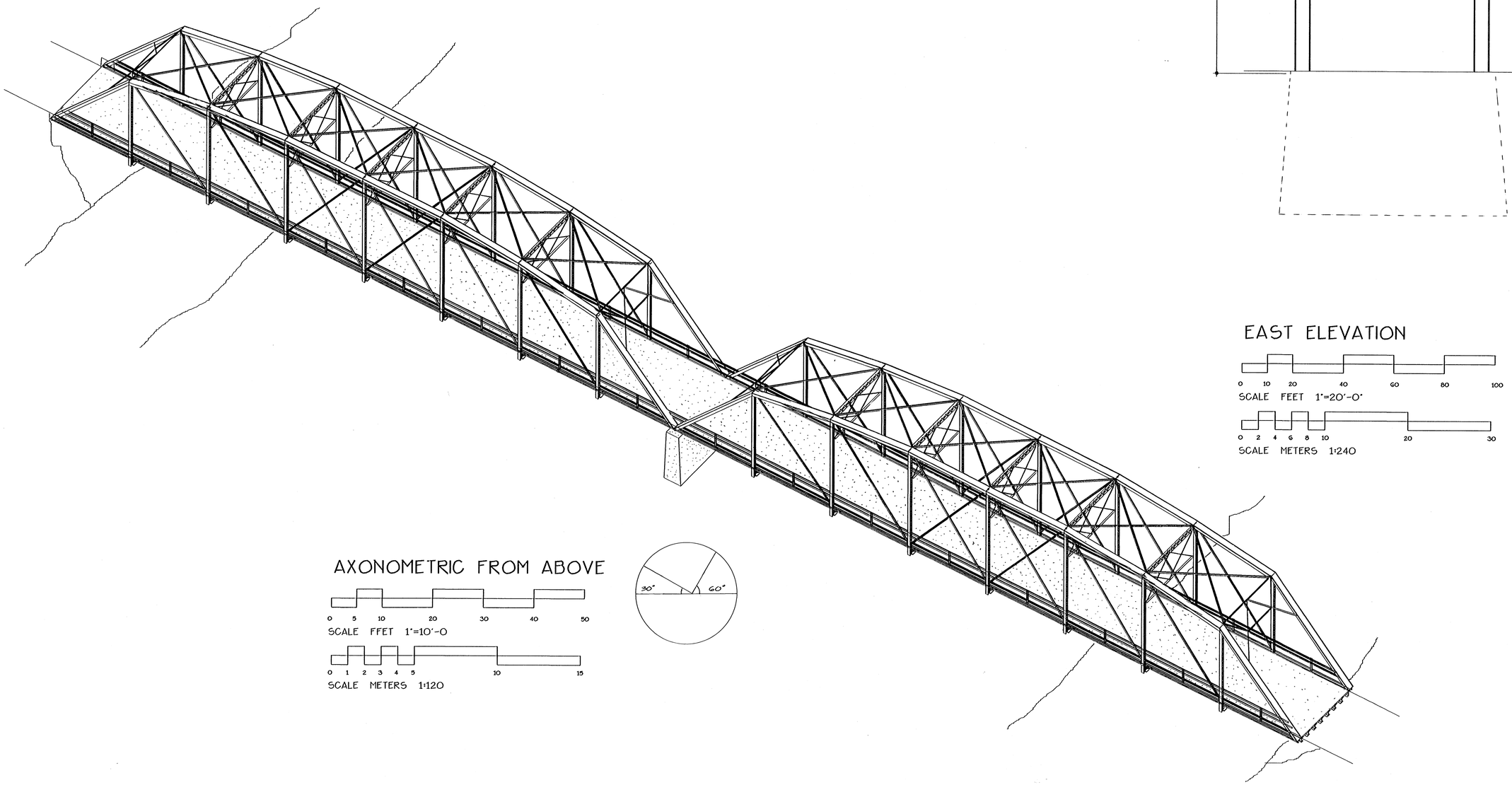
SHEET
2 OF 5

17753

TRIM LINE

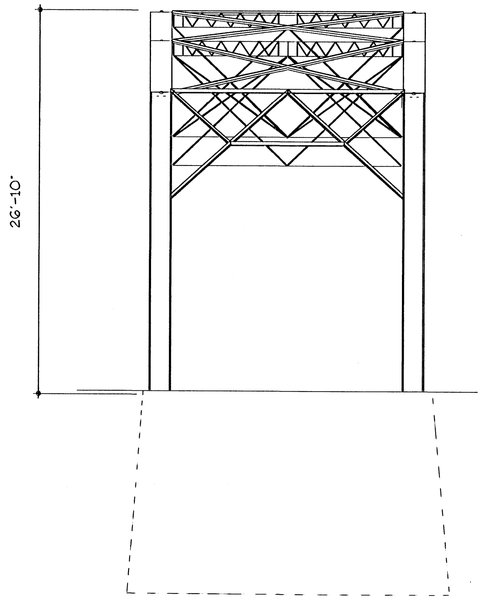
TRIM LINE



AXONOMETRIC FROM ABOVE

0 5 10 20 30 40 50
SCALE FFET 1"=10'-0

0 1 2 3 4 5 10 15
SCALE METERS 1:120



EAST ELEVATION

0 10 20 40 60 80 100
SCALE FEET 1"=20'-0"

0 2 4 6 8 10 20 30
SCALE METERS 1:240

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WOOLSEY BRIDGE
WASHINGTON COUNTY ARKANSAS
WEST FORK OF THE WHITE RIVER WOOLSEY

SHEET 3 OF 5

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TRIM LINE

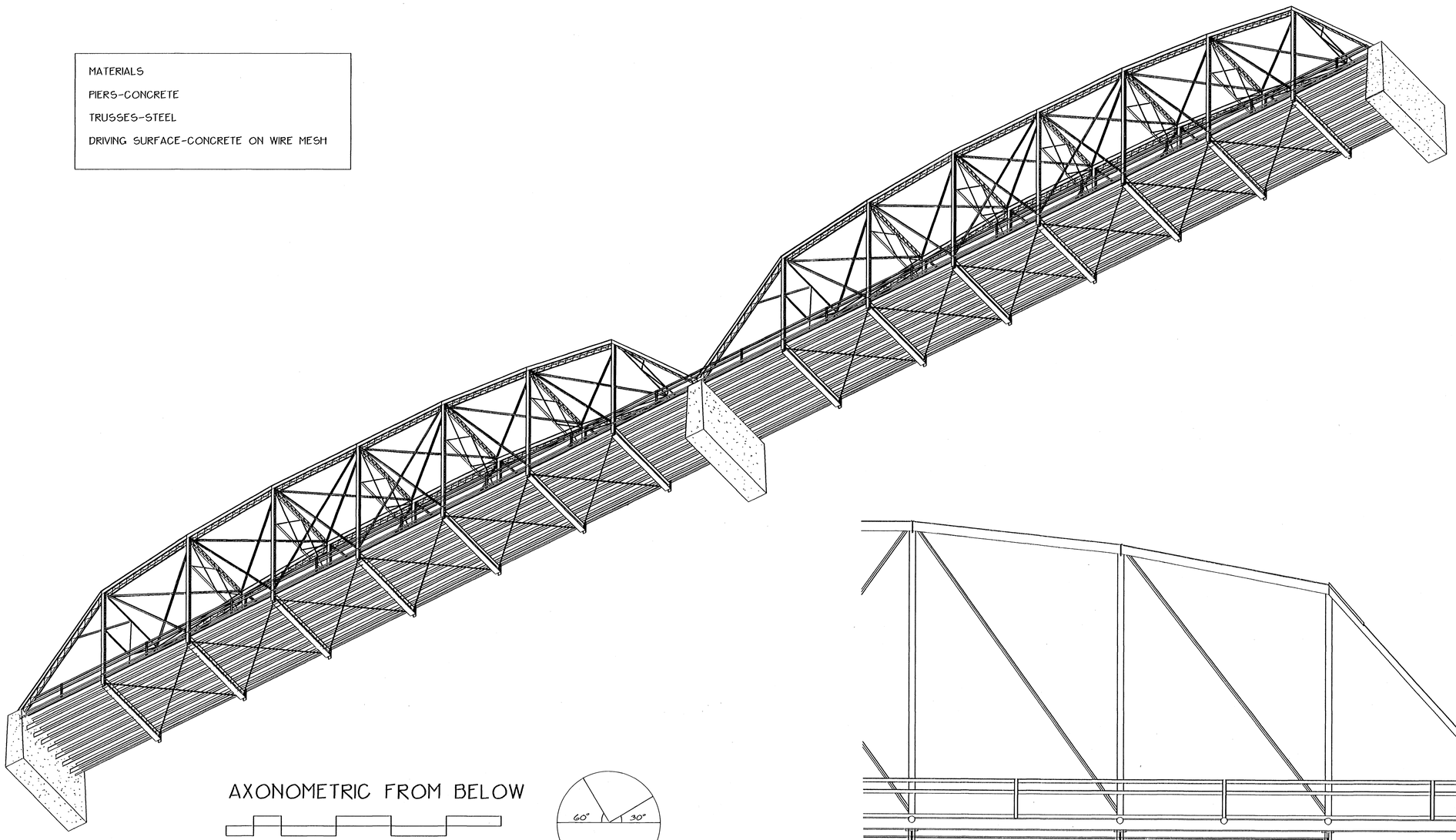
TRIM LINE

MATERIALS

PIERS-CONCRETE

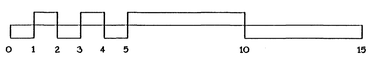
TRUSSES-STEEL

DRIVING SURFACE-CONCRETE ON WIRE MESH



AXONOMETRIC FROM BELOW

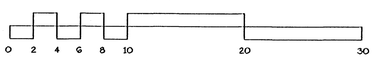
SCALE FEET 1"=10'-0



SCALE METERS 1:120

ENLARGED ELEVATION

SCALE FEET 1"=20'-0



SCALE METERS 1:240

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WOOLSEY BRIDGE

WEST FORK OF THE WHITE RIVER WOOLSEY WASHINGTON COUNTY ARKANSAS

SHEET 4 OF 5

HISTORIC AMERICAN ENGINEERING RECORD AR-63

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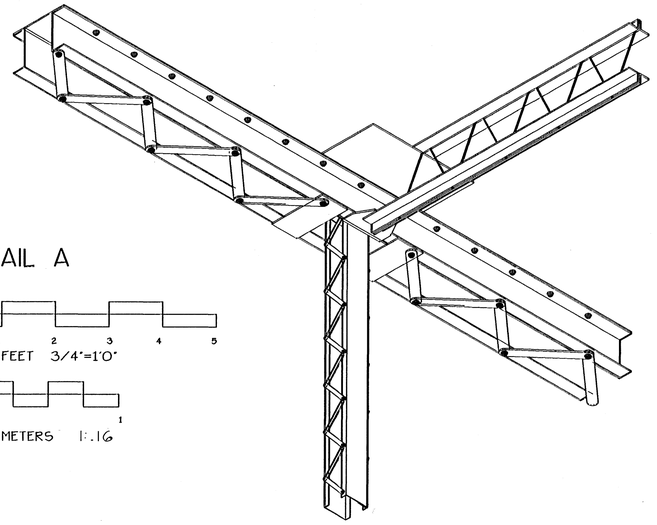
TRIM LINE

TRIM LINE



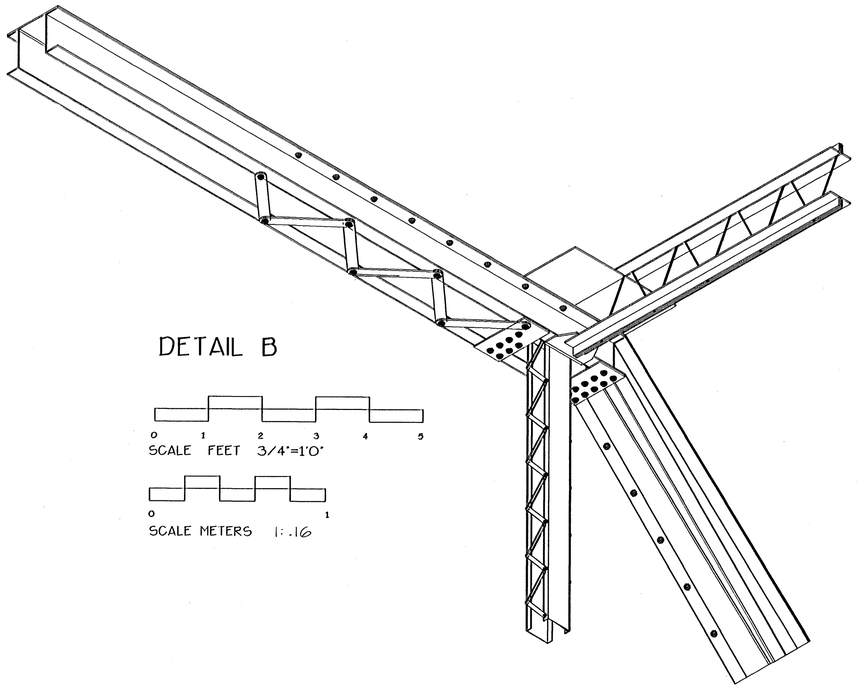
DETAIL A

0 1 2 3 4 5

SCALE FEET 3/4"=1'0"

0 1

SCALE METERS 1:.16



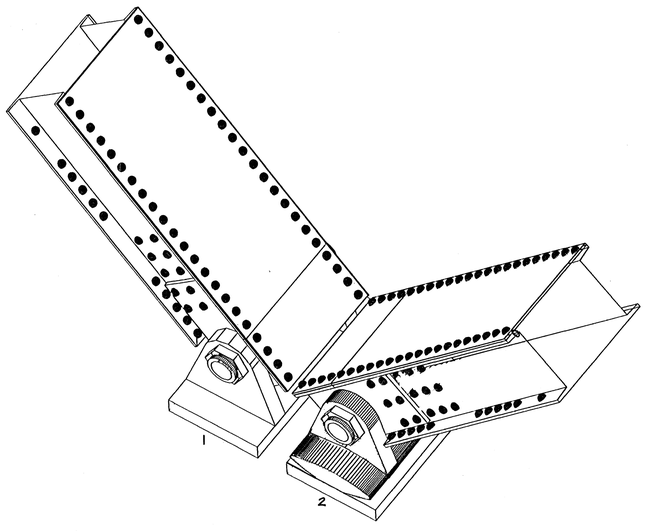
DETAIL B

0 1 2 3 4 5

SCALE FEET 3/4"=1'0"

0 1

SCALE METERS 1:.16



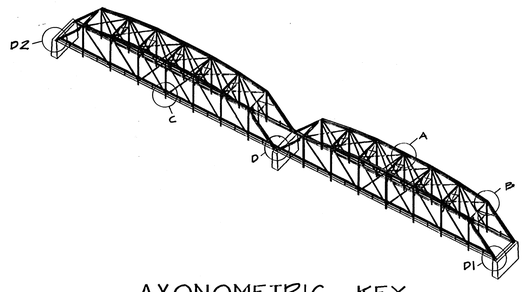
DETAIL D

0 1 2 3

SCALE FEET 1 1/2"=1'0"

0 1

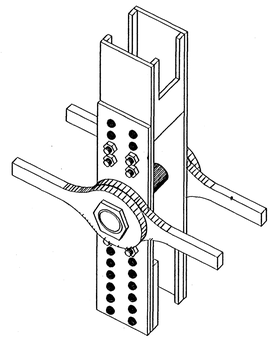
SCALE METERS 1:.08



AXONOMETRIC KEY

NO SCALE

THE USE OF DETAILS SUCH AS, PINNED JOINTS, ROCKER JOINTS AND PINNED EYE HOOKS ALLOW THE BRIDGE TO TRANSFER LOADS SO THAT THE STEEL DOES NOT REACH ITS YEILD POINT. THESE JOINTS HELP THE BRIDGE TO MOVE AND ADJUST AS LOADS ARE APPLIED AND REMOVED. ALLOWING THE BRIDGE TO MOVE IN THIS MANNER PLACES THE STEEL IN TENSION, WHICH PLACES THE STEEL AT ITS HIGHEST STRENGTH.



DETAIL C

0 1 2 3

SCALE FEET 1 1/2"=1'0"

0 1

SCALE METERS 1:.08

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WOOLSEY BRIDGE

WEST FORK OF THE WHITE RIVER WOOLSEY WASHINGTON COUNTY ARKANSAS

SHEET 5 OF 5

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TRIM LINE