D. M. & N. Ry.

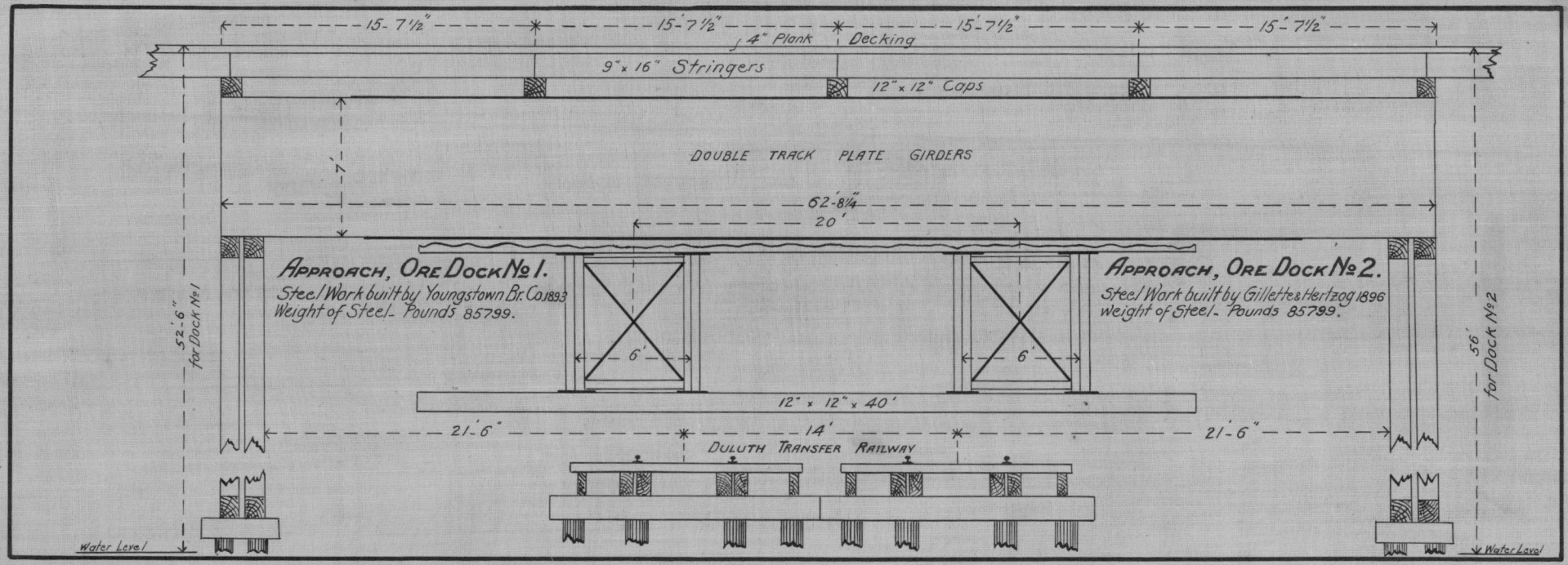
STEEL BRIDGES

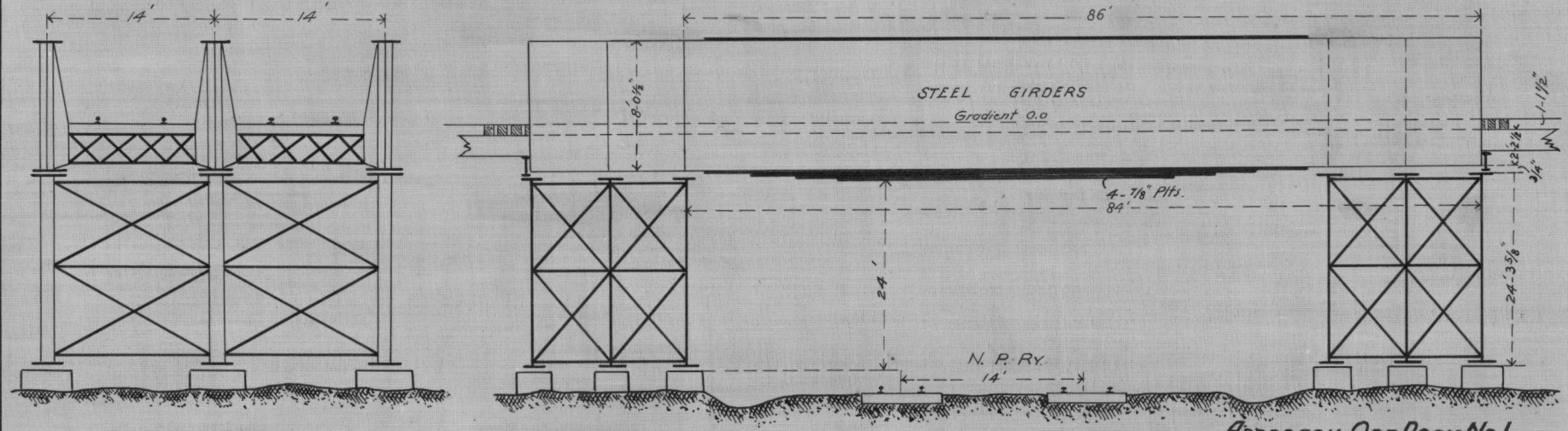
Approved _____
First Vice President

1904

Approved _____
Chief Engineer.

149-129

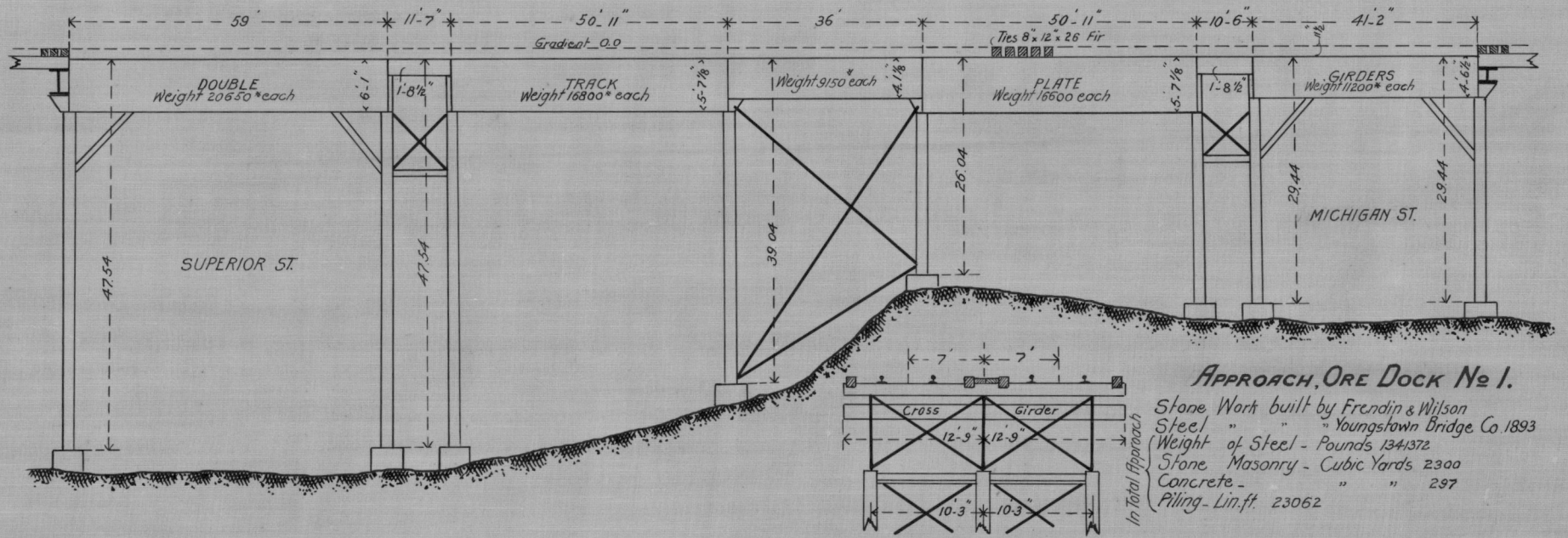

15- 7½"
15- 7½"
15- 7½"
15- 7½"
4" Plank Decking
9" x 16" Stringers
12" x 12" Caps
DOUBLE TRACK PLATE GIRDERS
7'
62-8¼"
20'
APPROACH, ORE DOCK No 1.
Steel Work built by Youngstown Br. Co 1893
Weight of Steel - Pounds 85799.
APPROACH, ORE DOCK No 2.
Steel Work built by Gillette & Hertzog 1896
Weight of Steel - Pounds 85799.
6'
6'
12" x 12" x 40'
52'-6" for Dock No 1
56' for Dock No 2
21'-6"
14'
21'-6"
DULUTH TRANSFER RAILWAY
Water Level
Water Level



APPROACH, ORE DOCK No 1.

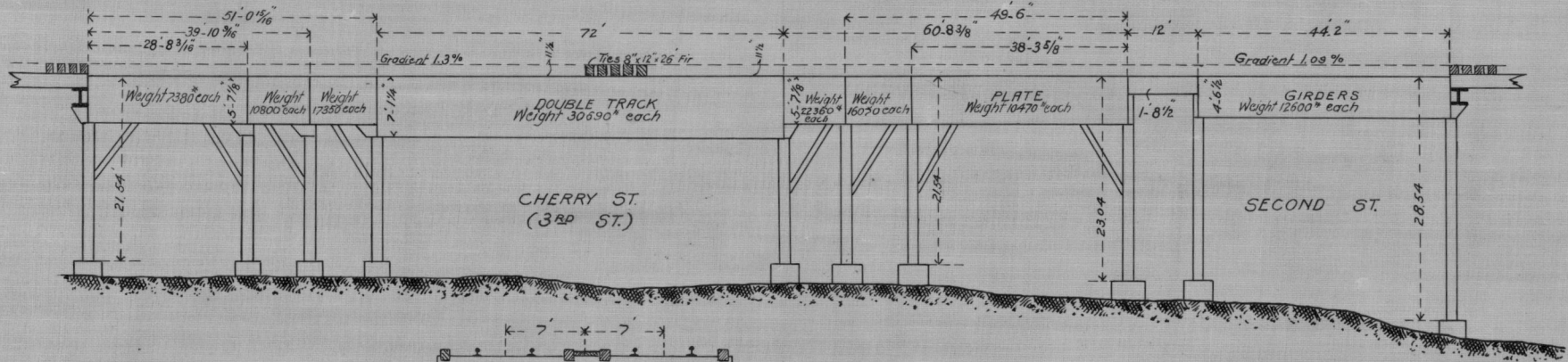
Stone Work in small Piers built by Frendin & Wilson
Steel " built by Youngstown Bridge Co. 1893
Weight of Steel - Pounds 229200
Stone Masonry - Cubic Yards 2300
Concrete " " " 297
Piling - Lin. ft. 23062

In Bot. Approach



Approach, Ore Dock No 1.

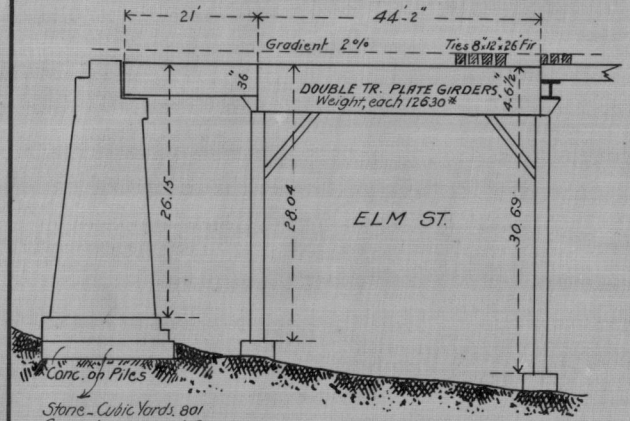
Stone Work built by Frendin & Wilson
Steel " " " Youngstown Bridge Co. 1893
Weight of Steel - Pounds 1341372
Stone Masonry - Cubic Yards 2300
Concrete - " " 297
Piling - Lin. ft. 23062

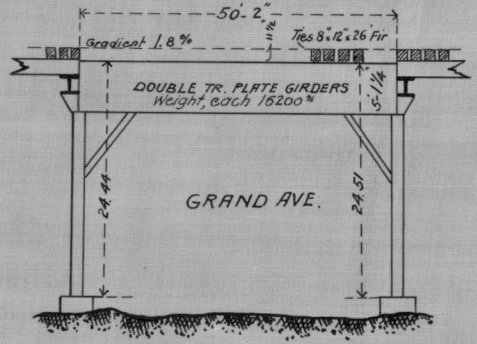


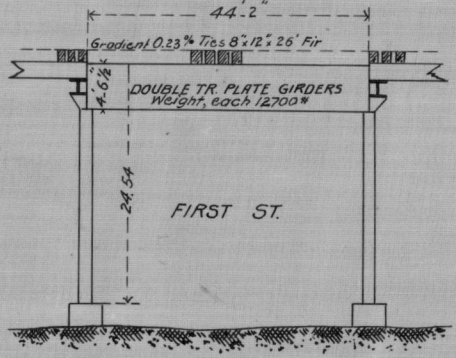
APPROACH. ORE DOCK No 1.

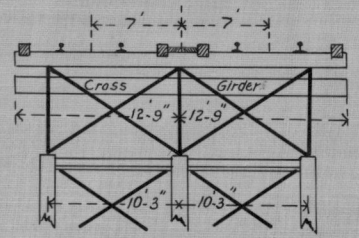
In Total Approach

Stone Work built by Frendin & Wilson
Steel " Youngstown Bridge Co. 1893
Weight of Steel - Pounds 1341372
Stone Masonry - Cubic Yards. 2300
Concrete - " " 297
Piling - Lin. ft. 23062





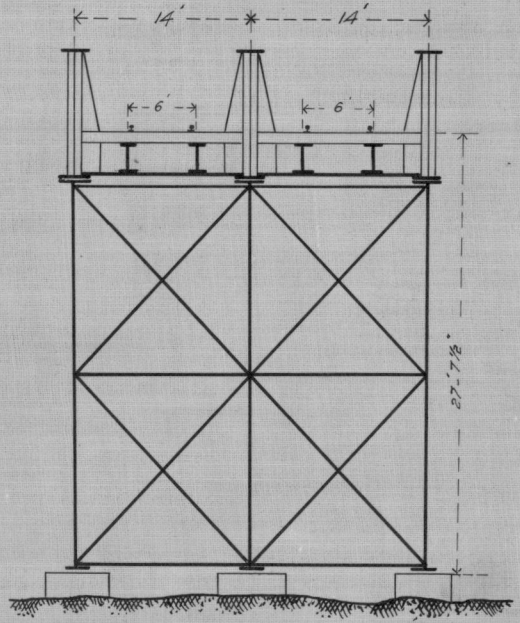


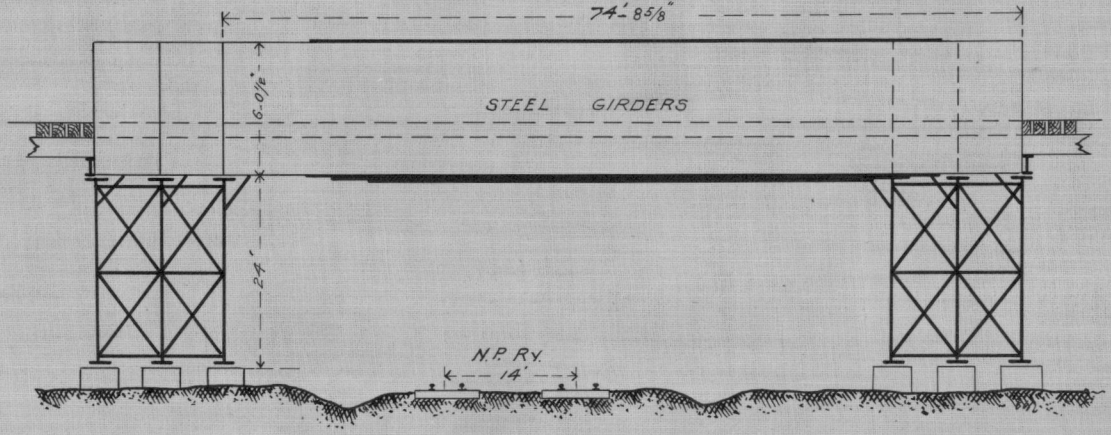


APPROACH, ORE DOCK No 1.

Stone Work in small Piers built by Frendin & Wilson
Steel " built by Youngstown Bridge Co. 1893

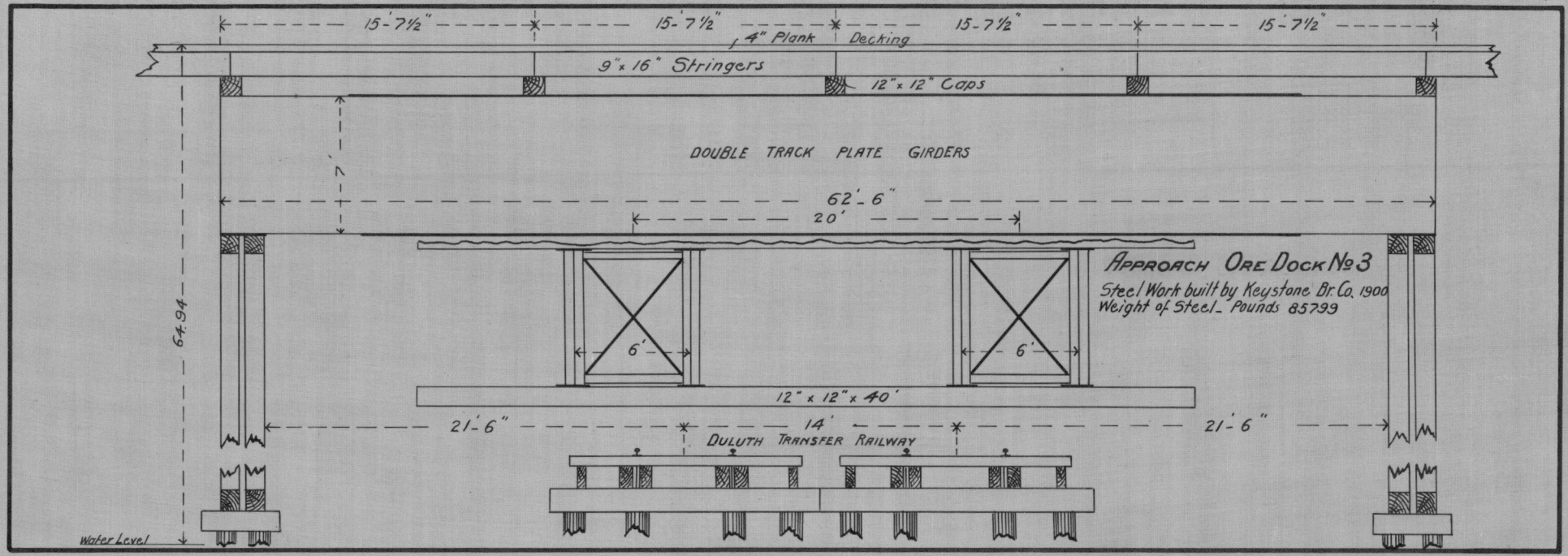
In Total Approach
- Weight of Steel - Pounds 1341372
- Stone Masonry - Cubic Yards 2300
- Concrete - " " 297
- Piling - Lin ft. 23062 "

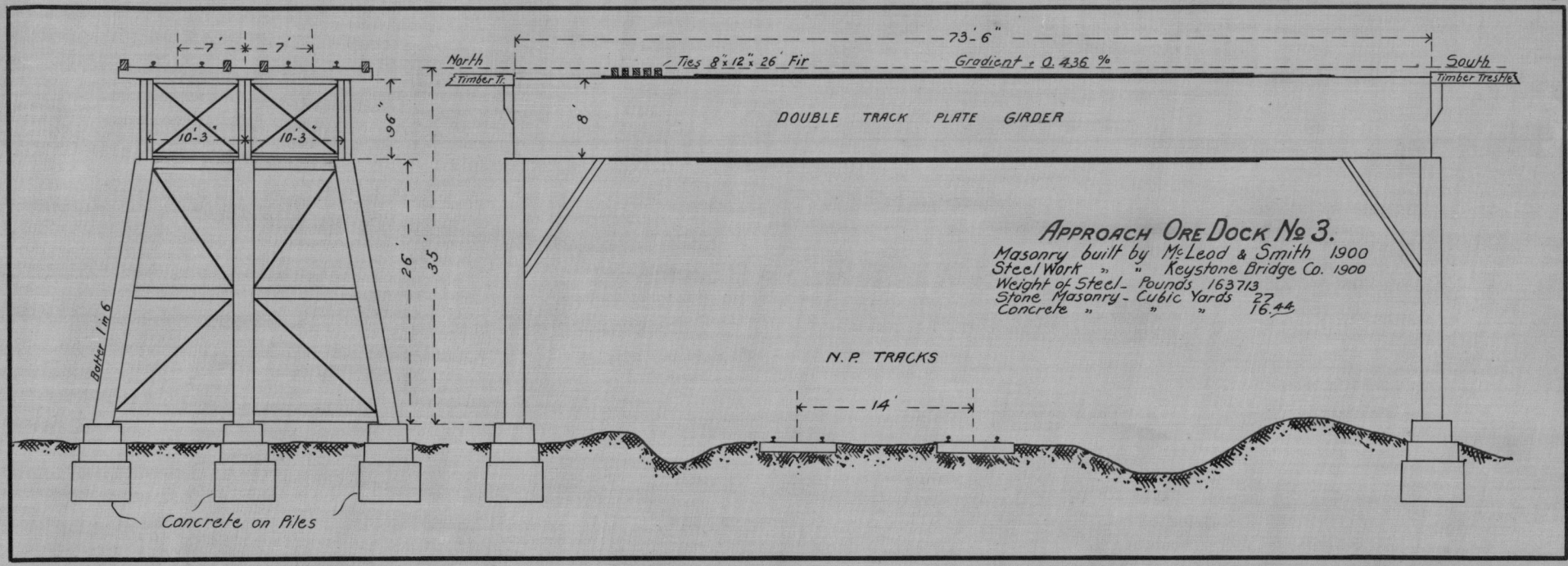


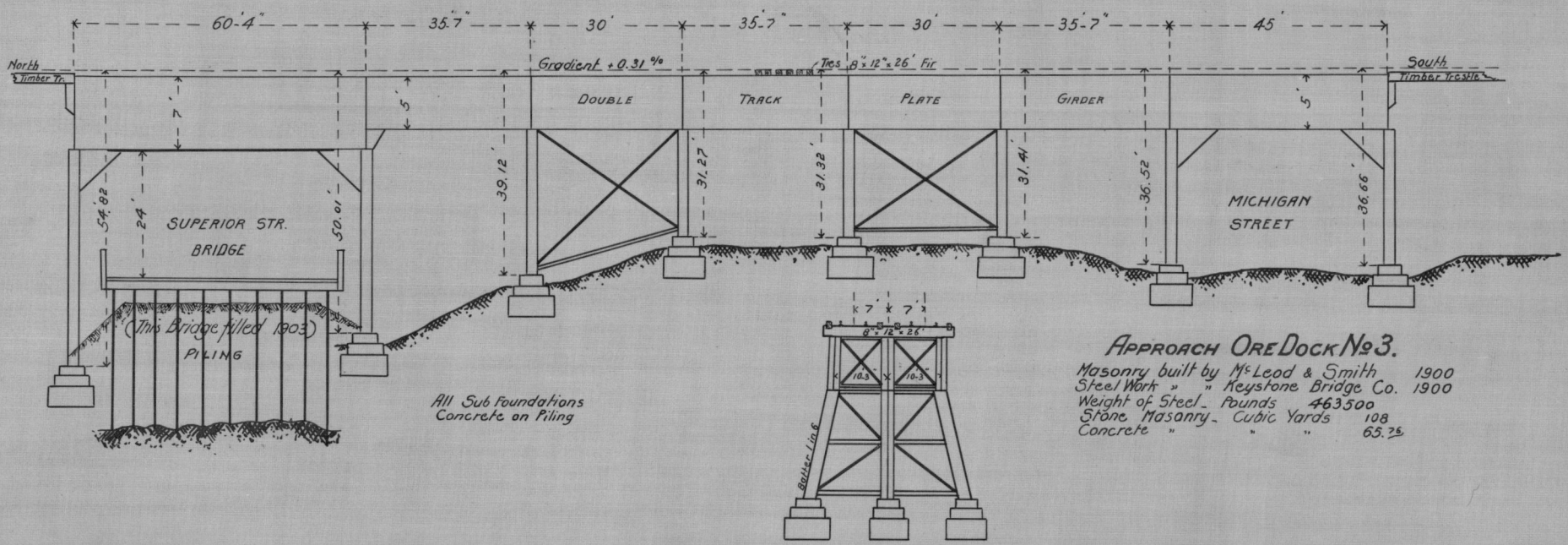


APPROACH, ORE DOCK No 2.

Stone Work built by Alex. Song 1895.
Steel " " Gillette & Herzog 1895
Weight of Steel - Pounds. 150019
Stone Masonry - Cubic Yards 26 27
Concrete - " " 10 29
Piling - Lin. ft. 1176

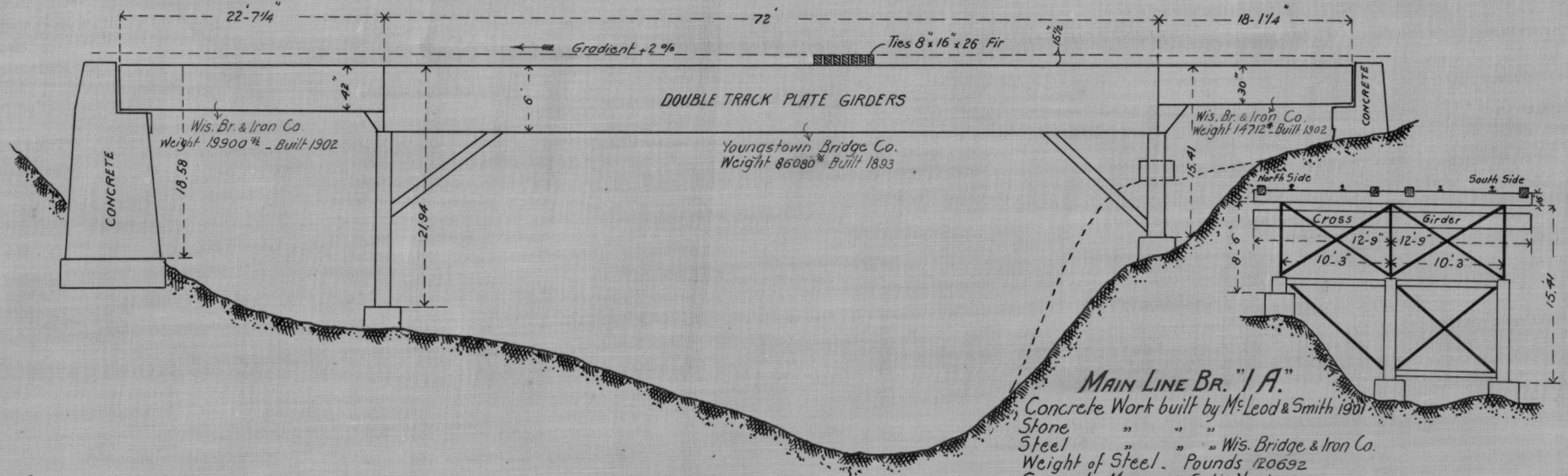

15'-7½"
15'-7½"
15'-7½"
15'-7½"
4" Plank Decking
9" x 16" Stringers
12" x 12" Caps
DOUBLE TRACK PLATE GIRDERS
7'
62'-6"
20'
64.94
6'
6'
12" x 12" x 40'
21'-6"
14'
21'-6"
DULUTH TRANSFER RAILWAY
Water Level
APPROACH ORE DOCK No 3
Steel Work built by Keystone Br. Co. 1900
Weight of Steel_ Pounds 85799


7'
7'
10'-3"
10'-3"
36"
26'
35'
Batter 1 in 6
Concrete on Piles
North
Timber Tr.
Ties 8"x12"x 26' Fir
Gradient = 0.436 %
73'-6"
South
Timber Trestle
8'
DOUBLE TRACK PLATE GIRDER
N.P. TRACKS
14'
APPROACH ORE DOCK No 3.
Masonry built by McLeod & Smith 1900
Steel Work " " Keystone Bridge Co. 1900
Weight of Steel - Pounds 163713
Stone Masonry - Cubic Yards 27
Concrete " " " 16.44



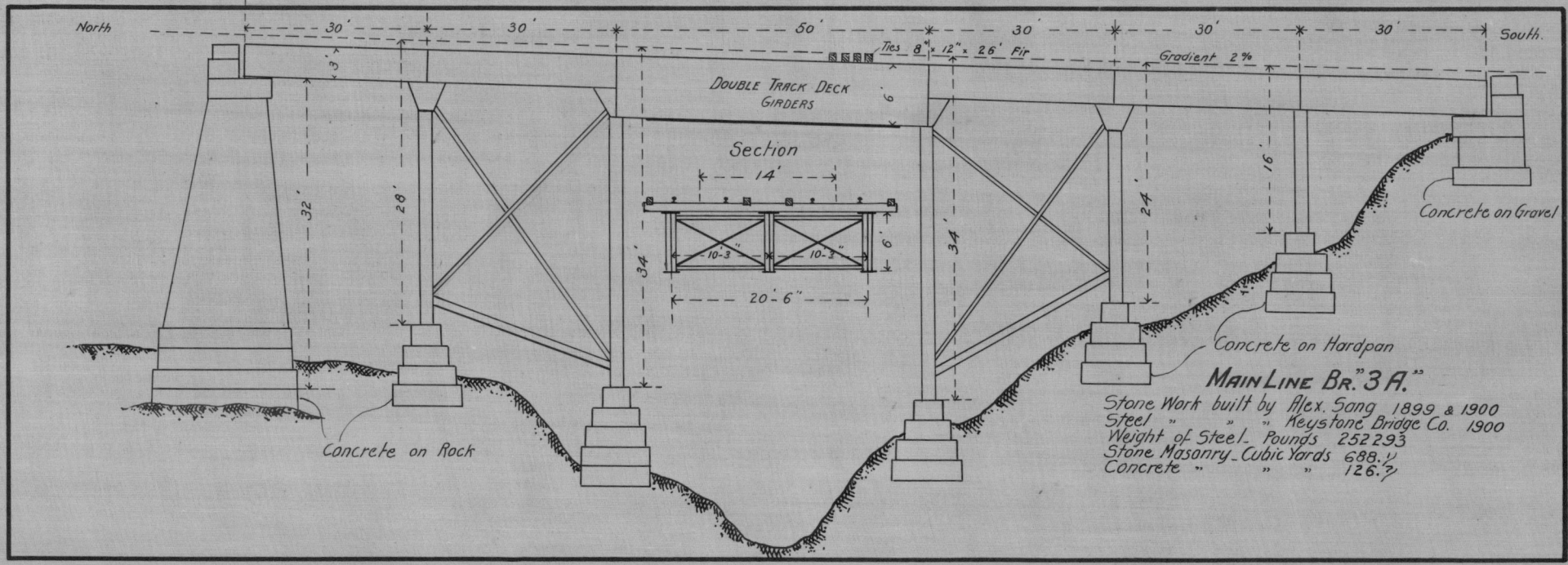
Approach Ore Dock No. 3.

Masonry built by	Mc Leod & Smith	1900
Steel Work "	" Keystone Bridge Co.	1900
Weight of Steel	Pounds	463500
Stone Masonry	Cubic Yards	108
Concrete "	" "	65.75



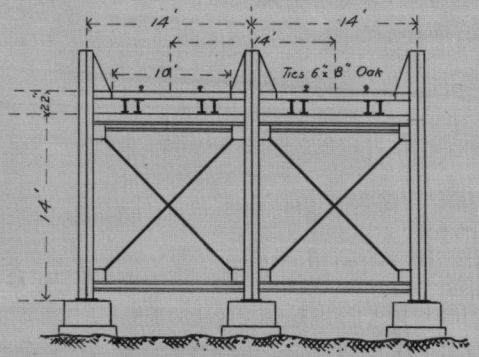
MAIN LINE BR. "1 A."

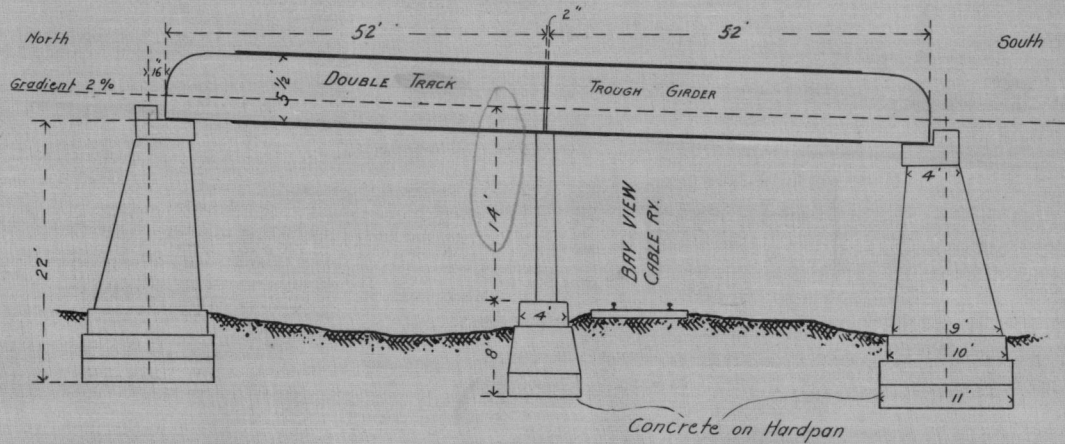
Concrete Work built by McLeod & Smith 1901
Stone " " "
Steel " " " Wis. Bridge & Iron Co.
Weight of Steel - Pounds 120692
Concrete Masonry - Cubic Yards 260
Stone " " " 7.12
Piling none, Rock Foundation



MAIN LINE BR. "3 A."

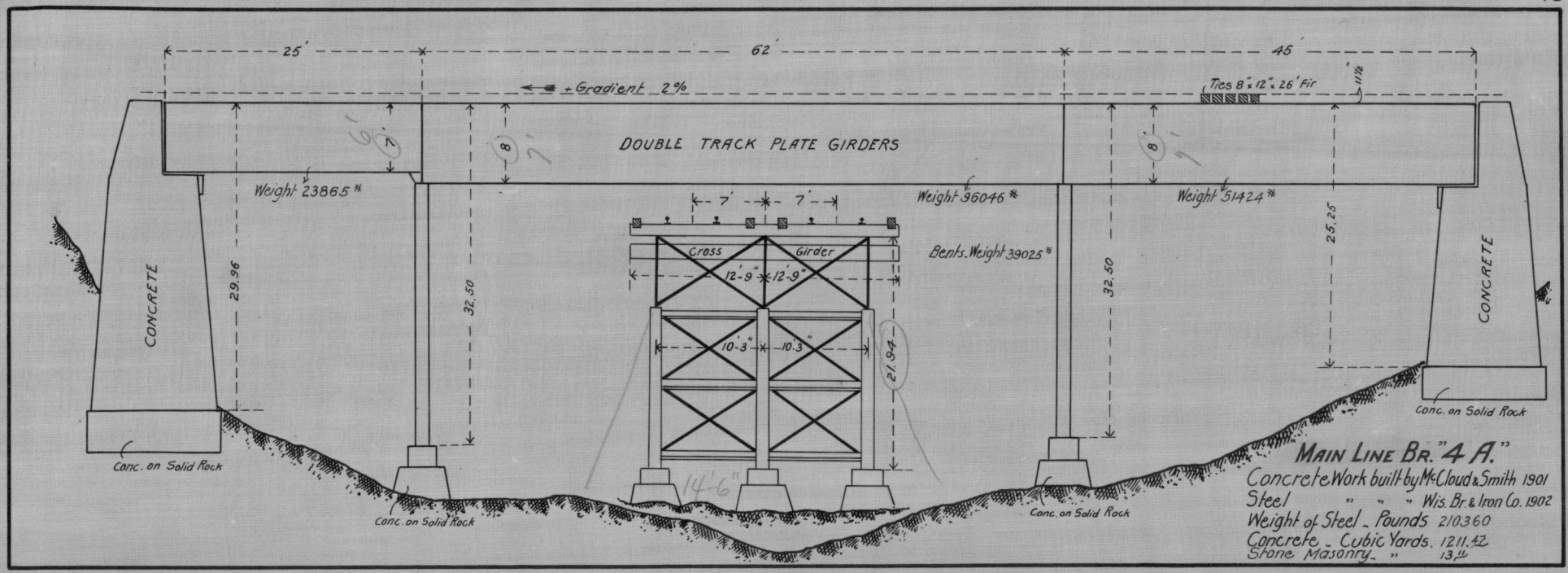
Stone Work built by Alex. Sang 1899 & 1900
Steel " " " Keystone Bridge Co. 1900
Weight of Steel - Pounds 252293
Stone Masonry - Cubic Yards 688.11
Concrete " " " 126.7





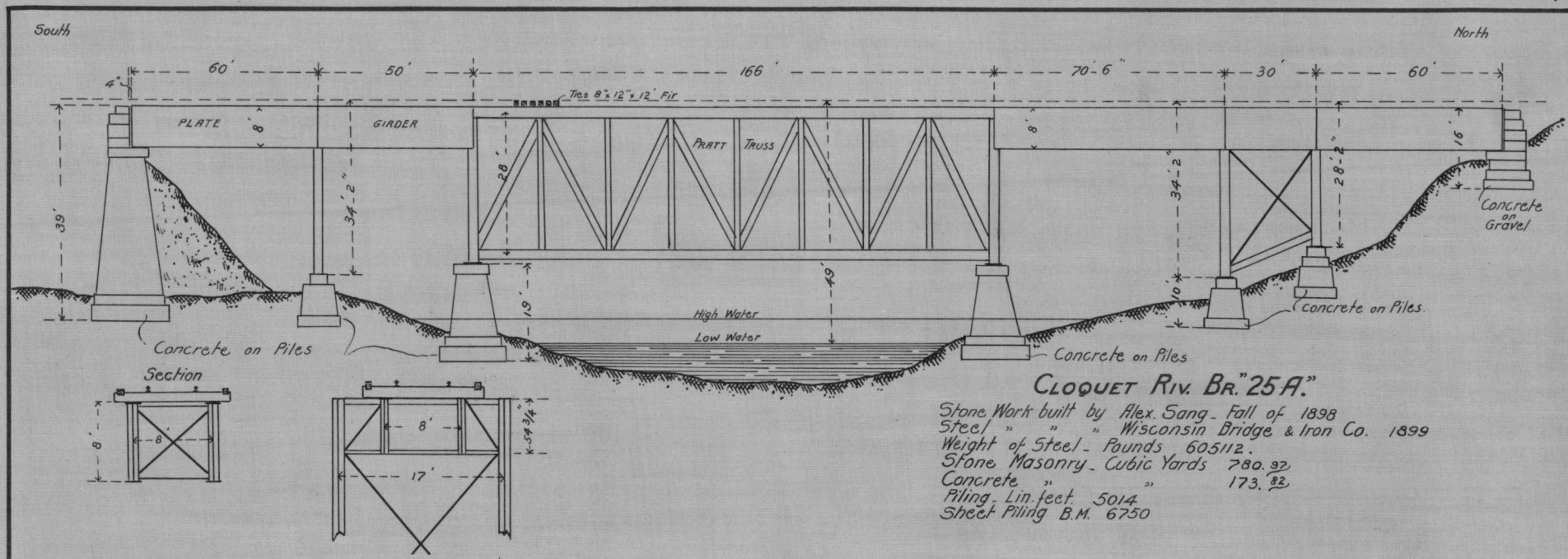
MAIN LINE BR. "3 B."

Stone Work built by McLeod, Campbell & Smith 1898
Steel " " " Wisconsin Bridge & Iron Co. 1898
Weight of Steel_ Pounds 192350
Stone Masonry_ Cubic Yards 831.60
Concrete " " 124.78



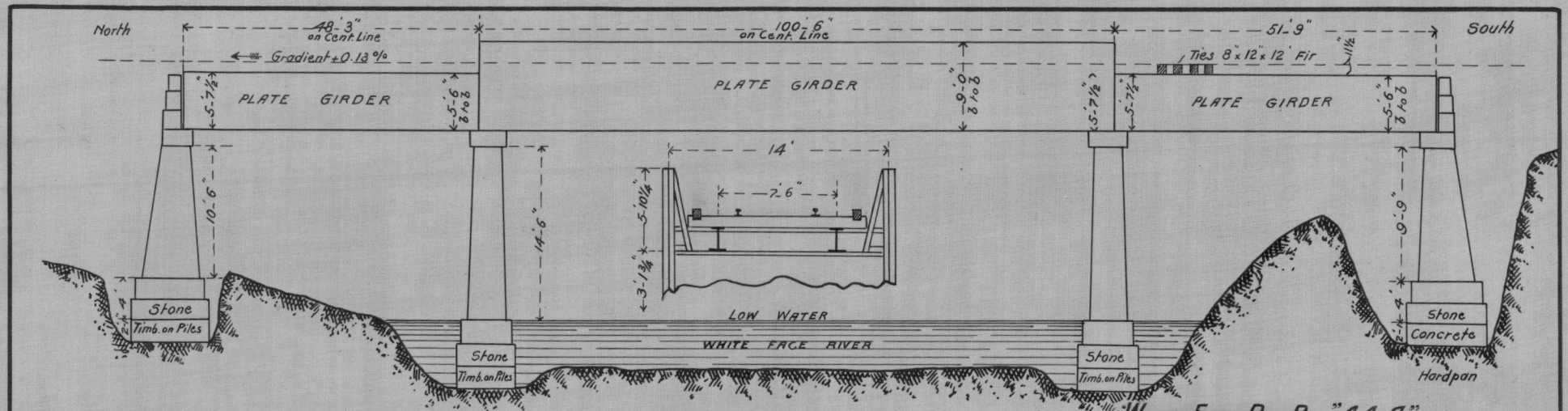
MAIN LINE BR. "4 A."

Concrete Work built by McCloud & Smith 1901
Steel " " " Wis. Br. & Iron Co. 1902
Weight of Steel - Pounds 210360
Concrete - Cubic Yards. 1211.42
Stone Masonry - " 13.11



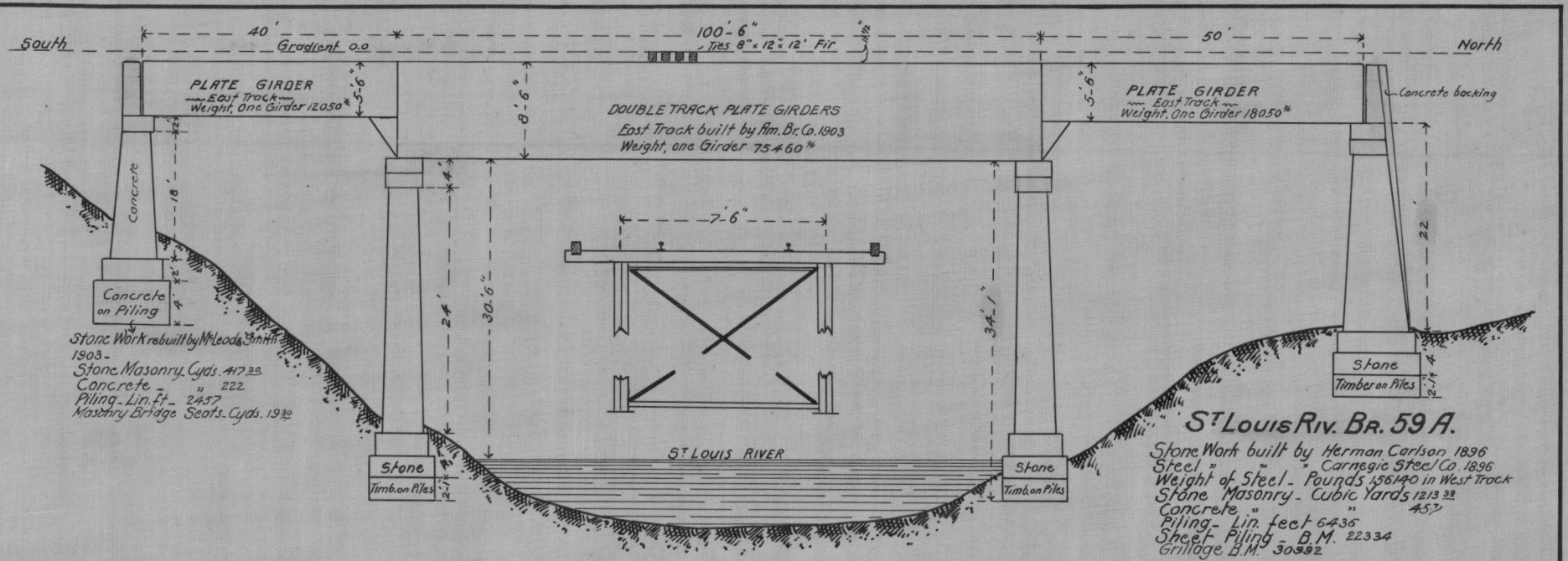
CLOQUET RIV. BR. "25A."

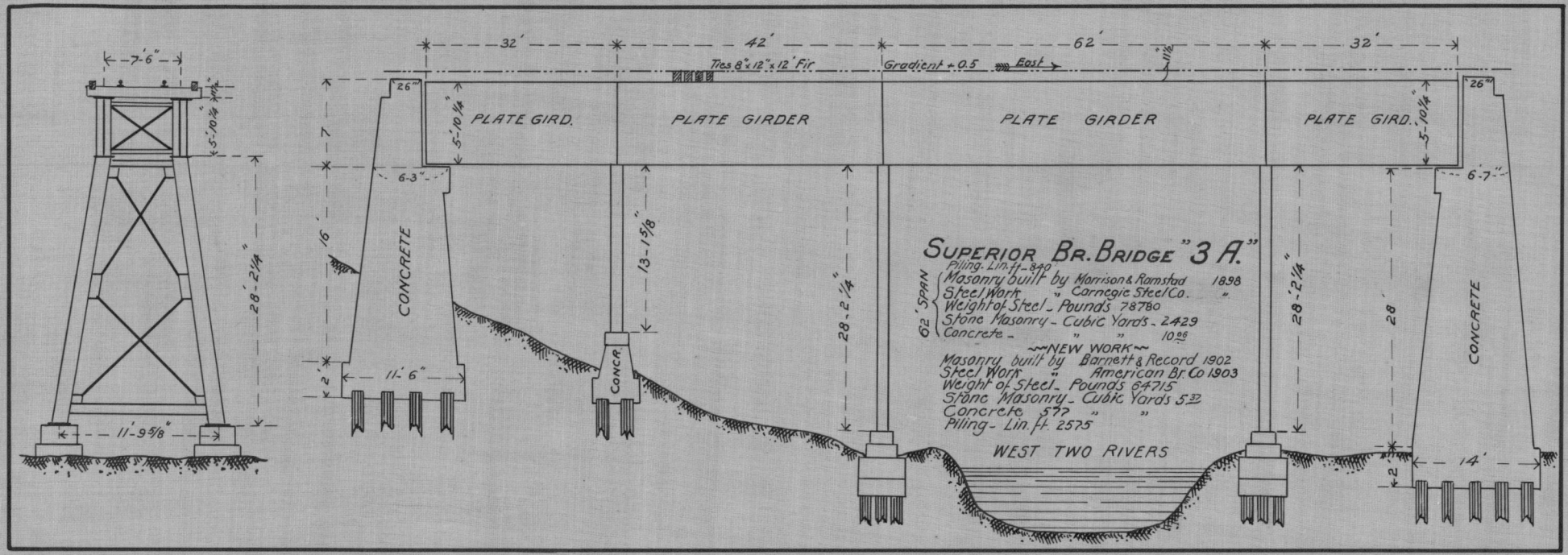
Stone Work built by Alex. Sang - Fall of 1898
Steel " " " Wisconsin Bridge & Iron Co. 1899
Weight of Steel - Pounds 605112.
Stone Masonry - Cubic Yards 780.97
Concrete " " 173.82
Piling - Lin. feet 5014
Sheet Piling B.M. 6750

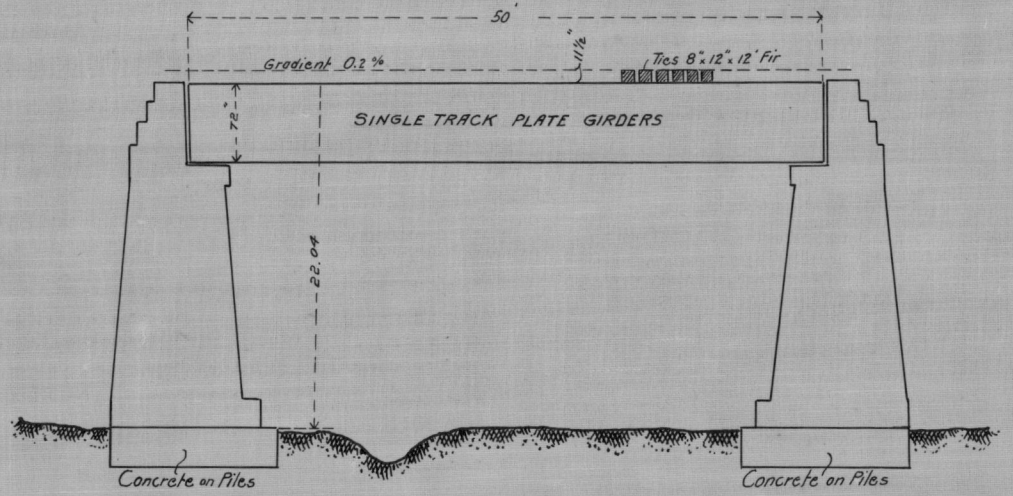


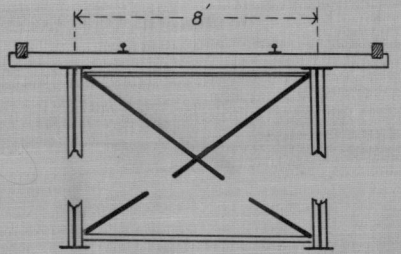
"WHITE FACE RIV. BR. "44 A."

Stone Work built by Waterworth & Fee 1898
Steel " " " Carnegie Steel Co. "
Weight of Steel - Pounds 211815
Stone Masonry - Cubic Yards 856
Piling - Lin. feet 3654
Sheet Piling B.M.
Grillage B.M. 23738
Concrete - Cubic Yards 121


South
North
40'
Gradient 0.0
100'-6"
Ties 8" x 12" x 12' Fir
50'
PLATE GIRDER
East Track
Weight, One Girder 120.50 #
5'-6"
8'-6"
DOUBLE TRACK PLATE GIRDERS
East Track built by Am. Br. Co. 1903
Weight, one Girder 75460 #
PLATE GIRDER
East Track
Weight, One Girder 18050 #
Concrete backing
Concrete
18'
Concrete on Piling
Stone Work rebuilt by McLeod & Smith 1903 -
Stone Masonry Cyds. 417.20
Concrete " 222
Piling - Lin. Ft. - 2457
Masonry Bridge Seats - Cyds. 198
7'-6"
24'
30'6"
34'1"
22'
Stone
Timb. on Piles
ST LOUIS RIVER
Stone
Timber on Piles
ST LOUIS RIV. BR. 59 A.
Stone Work built by Herman Carlson 1896
Steel " " " Carnegie Steel Co. 1896
Weight of Steel - Pounds 456140 in West Track
Stone Masonry - Cubic Yards 1213.38
Concrete " " 45.7
Piling - Lin. feet 6436
Sheet Piling - B.M. 22334
Grillage B.M. 30392

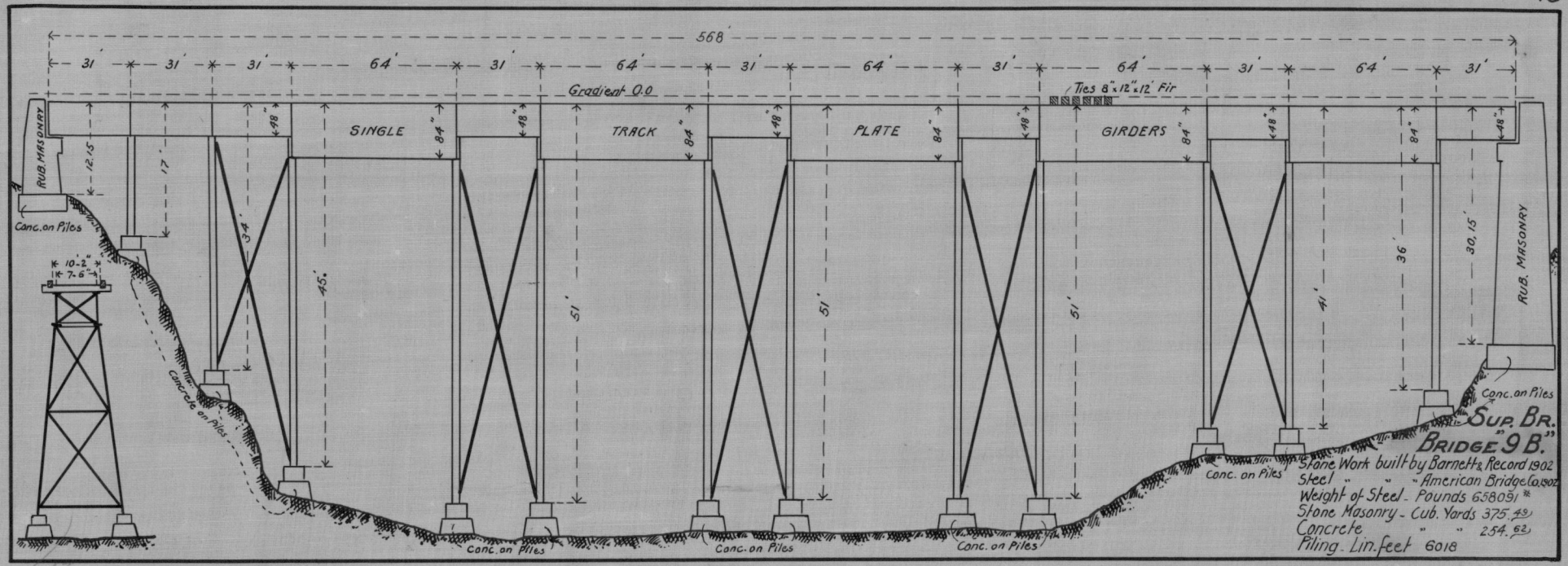

7'-6"
5'-10¼"
28'-2¼"
11'-9⅝"
32'
42'
62'
32'
Ties 8"x12"x12' Fir
Gradient + 0.5
East
26"
5'-10¼"
PLATE GIRD.
PLATE GIRDER
PLATE GIRDER
PLATE GIRD.
5'-10¼"
26"
7
16'
6-3"
CONCRETE
2'
11'-6"
13-1⅝"
CONCR
28'-2¼"
28'-2¼"
6'-7"
28'
CONCRETE
14'
2'
SUPERIOR BR. BRIDGE "3 A."
62' SPAN
Piling. Lin. ft. 840
Masonry built by Morrison & Ramstad 1898
Steel Work " Carnegie Steel Co. "
Weight of Steel " Pounds 78780
Stone Masonry - Cubic Yards - 2429
Concrete - " " 10[00]
~~NEW WORK~~
Masonry built by Barnett & Record 1902
Steel Work " American Br. Co 1903
Weight of Steel - Pounds 64715
Stone Masonry - Cubic Yards 5[32]
Concrete 577 " "
Piling - Lin. ft. 2575
WEST TWO RIVERS



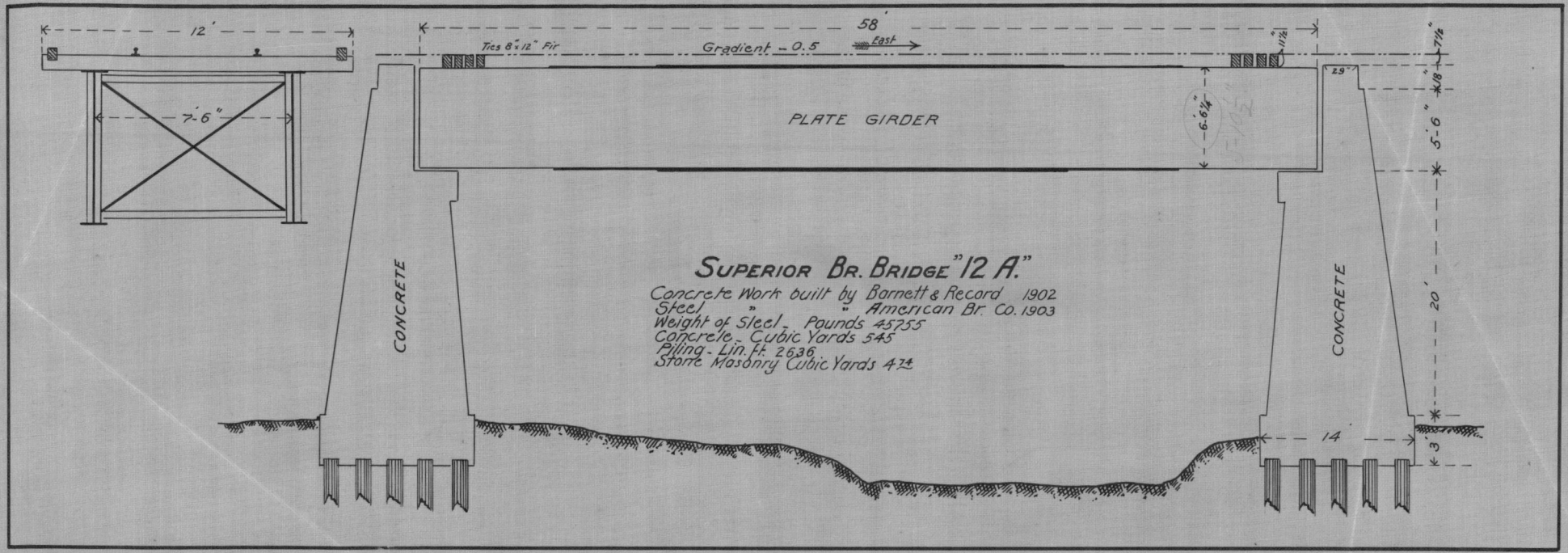


SUPERIOR BR. BRIDGE "7A."

Stone Work built by McLeod & Smith 1901
Steel " " " Wisconsin Br. & Iron Comp. 1902
Weight of Steel - Pounds 37499
Stone Masonry - Cubic Yards 500 ±
Piling Lin. feet 4256
Concrete - Cubic Yards 142


568'
31' 31' 31' 64' 31' 64' 31' 64' 31' 64' 31' 64' 31'
Gradient 0.0
Ties 8"x12"x12' Fir
RUB. MASONRY
12.5'
17'
34'
48"
84"
SINGLE TRACK PLATE GIRDERS
45'
51'
51'
51'
41'
36'
30.15'
RUB. MASONRY
Conc. on Piles
10'-2"
7'-6"
Concrete on Piles
Conc. on Piles
Conc. on Piles
Conc. on Piles
Conc. on Piles
Conc. on Piles
SUP. BR.
BRIDGE "9 B."
Stone Work built by Barnett & Record 1902
Steel " " American Bridge Co. 1902
Weight of Steel - Pounds 658051
Stone Masonry - Cub. Yards 375.43
Concrete " " 254.62
Piling. Lin. feet 6018

22 1-0 13/16"


12'
7'-6"
58'
Ties 8"x12" Fir
Gradient – 0.5
East
PLATE GIRDER
6'-6¼"
11½"
2.9"
18"
7½"
5'-6"
20'
3'
14'
CONCRETE
CONCRETE
SUPERIOR BR. BRIDGE "12 A."
Concrete Work built by Barnett & Record 1902
Steel " " American Br. Co. 1903
Weight of Steel - Pounds 45755
Concrete - Cubic Yards 545
Piling - Lin. ft. 2636
Stone Masonry Cubic Yards 47¼