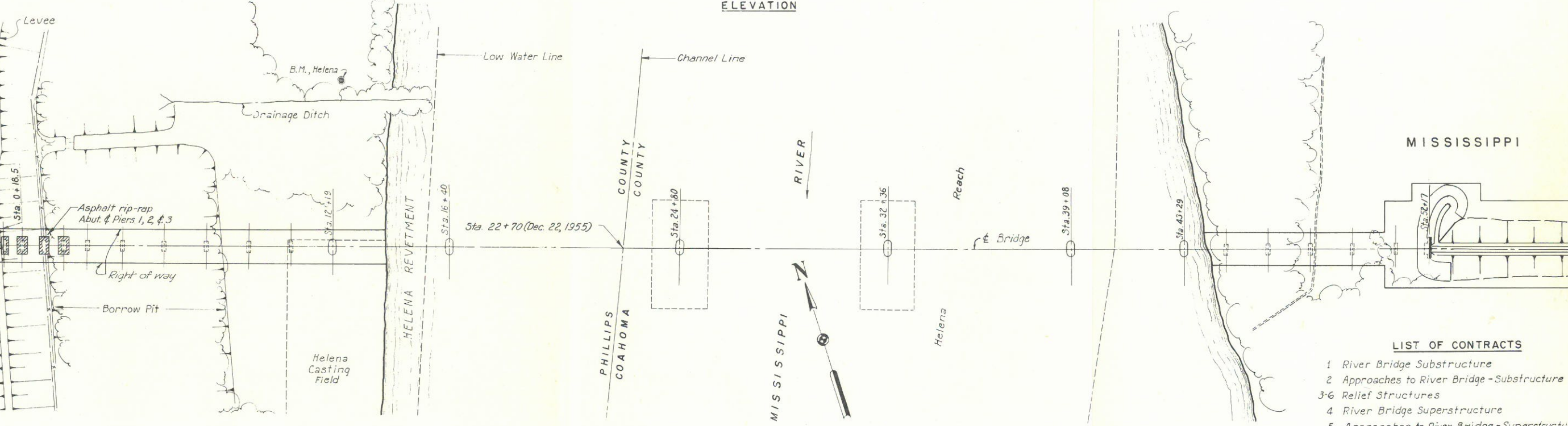
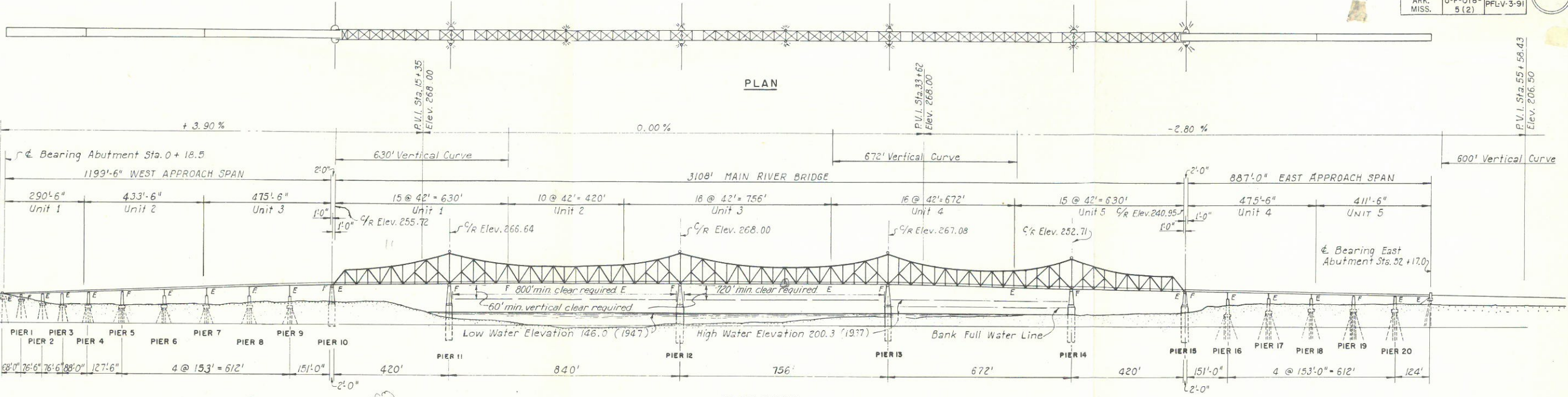


- LIST OF CONTRACTS**
- 1 River Bridge Substructure
 - 2 Approaches to River Bridge - Substructure
 - 3-6 Relief Structures
 - 4 River Bridge Superstructure
 - 5 Approaches to River Bridge - Superstructure
 - 7 Embankment and Paving
 - 8 Toll Collection Facilities, Utilities and Lighting

ARKANSAS STATE HIGHWAY COMMISSION
MISSISSIPPI STATE HIGHWAY DEPARTMENT
MISSISSIPPI RIVER BRIDGE
NEAR HELENA, ARKANSAS

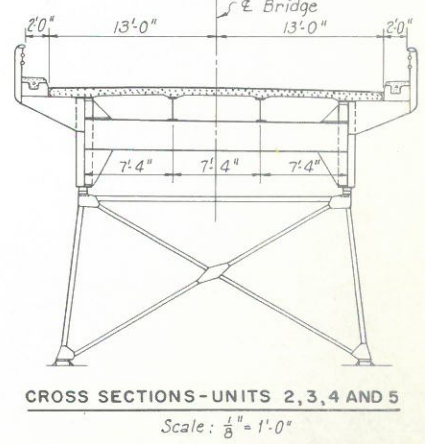
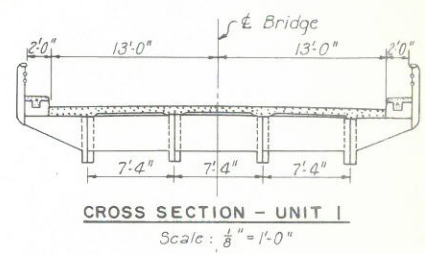
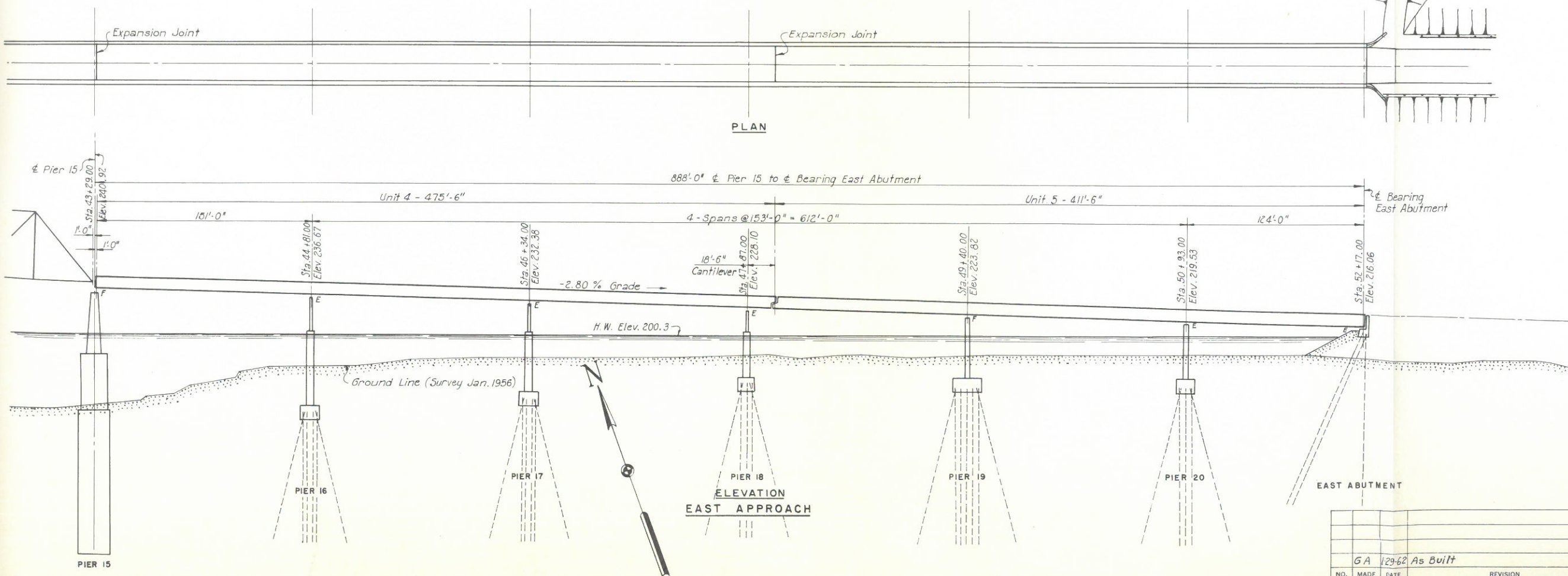
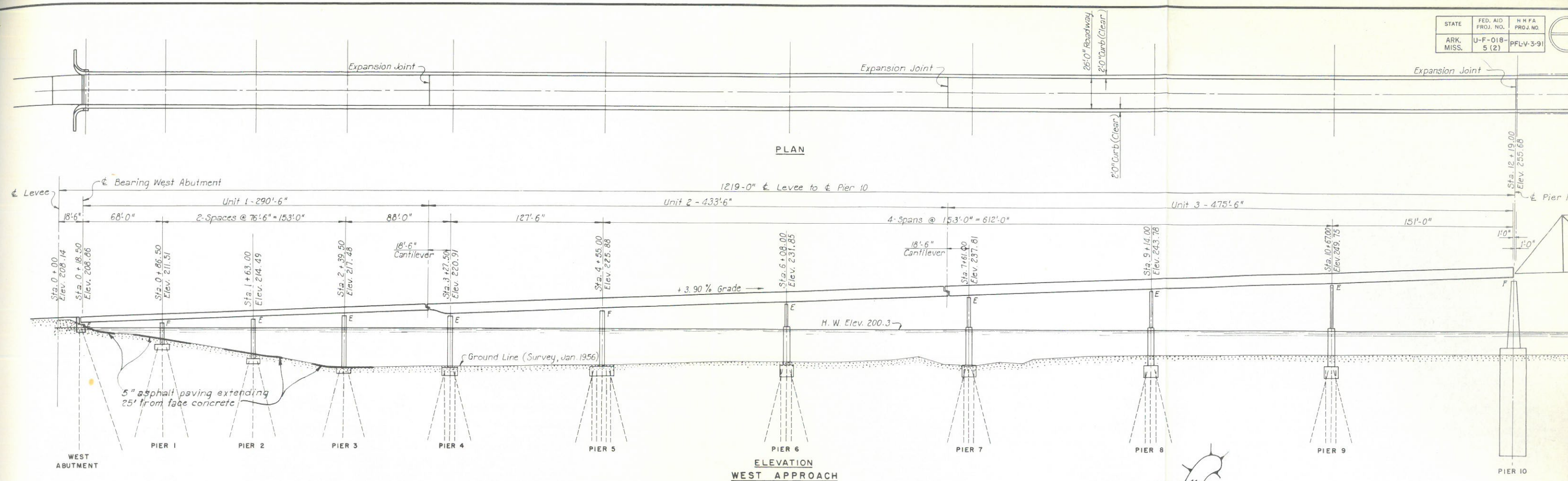
GENERAL PLAN AND ELEVATION

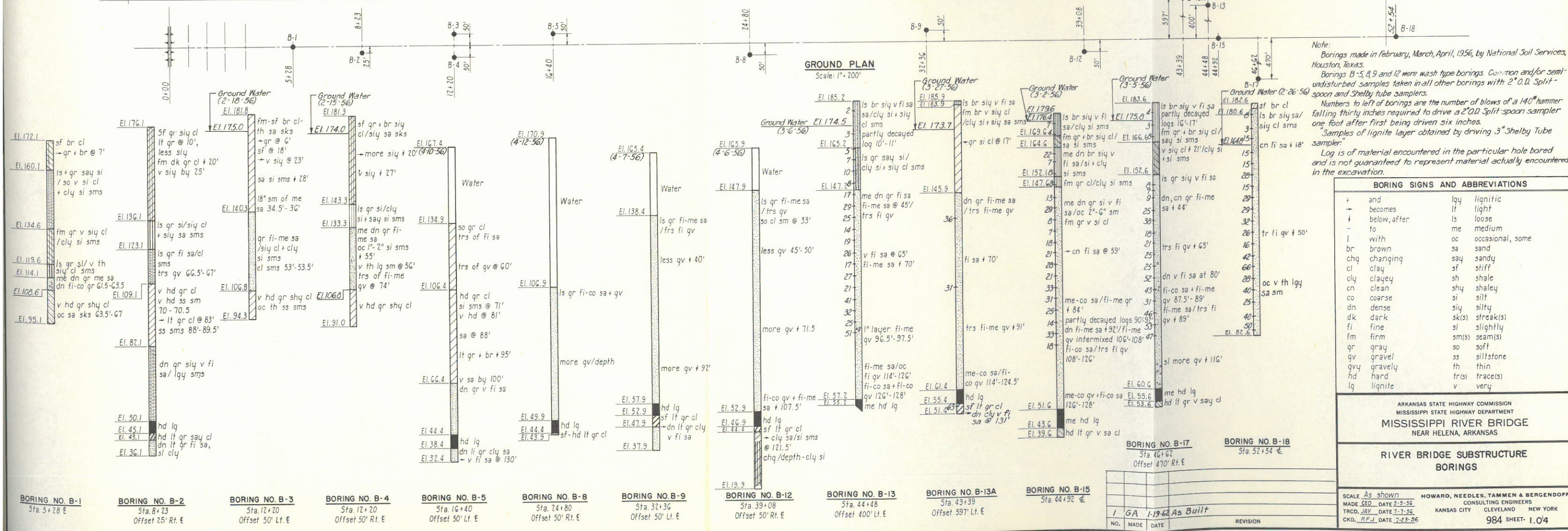
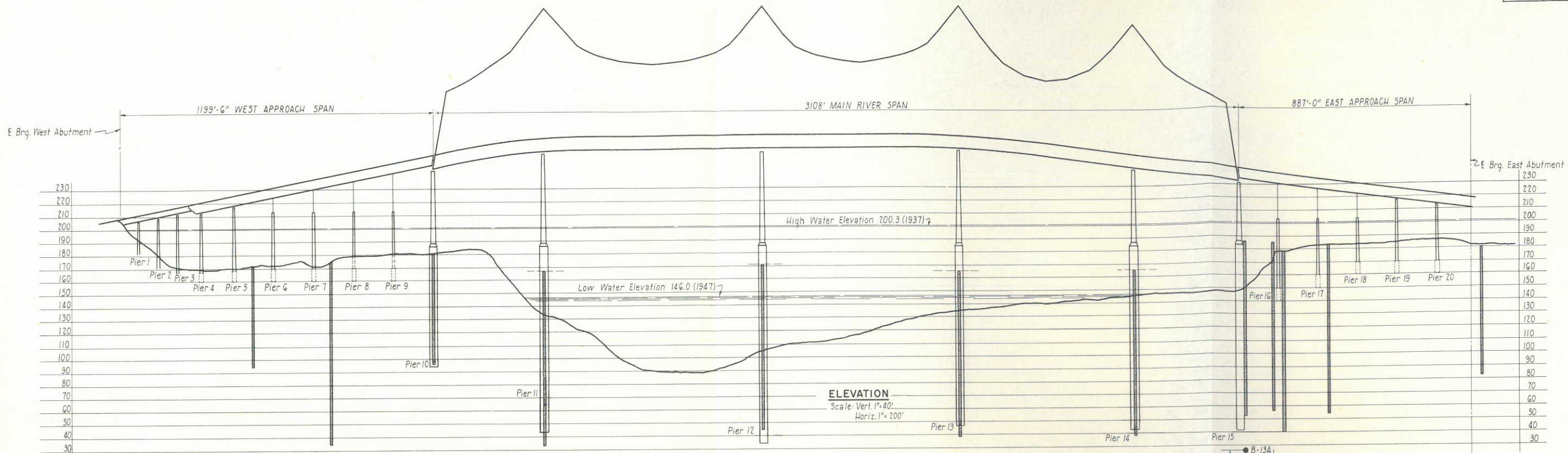
SCALE 1"=200'
MADE E.F.C. DATE 3-8-56
TRCD. A.H. DATE 6-25-56
CKD. G.R. DATE 9-6-56

HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK

984 SHEET- 1.02

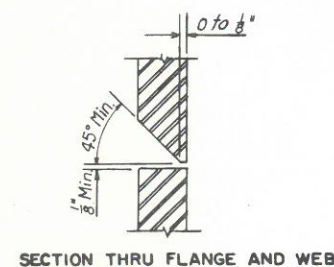
1. Design specifications: A.A.S.H.O. 1953 with tentative revisions of 1954 and 1955. Live load to be H20-S16-44. Dead load has a provision for 15 lb. per sq. ft. future wearing surface.
2. Unless otherwise shown, all dimensions are measured at 60° F.
3. Electrical ground wires are provided at piers with fixed shoes. These grounds shall be securely brazed or bolted to the superstructure steel work so that all spans are thoroughly grounded.
4. Bench marks are referred to mean sea level, and are based on U.S. Coast and Geodetic Survey, 1929 general adjustment.
5. Bench mark Helena - U.S. Engineers B.M. marked 182+00 at River mile 658.3 in lower edge of open field, 180 feet back from top bank of river Elev. 181.09.
6. T.B.M. 1 - Spike in revetment asphalt 3 feet north of & Station 14+30. Metal tag on spike stamped "R-188 D-200" Elev. 178.92.
7. B.M. Igimus (CE) 135.3 feet south of Sta. 50+00. Located 0.2 miles below Y. and M.V. R.R. incline opposite Helena, Arkansas. 500 feet back of top bank (1952) in open field. Pipe and tile stamped "B.M. Igimus 1933"; 40 feet D.S. of D.S. fork of cultivated field; in small timber 65 feet back of 40" Pecan. Elev. 188.02.
8. All concrete in pier bases and shafts shall have a minimum strength 3000 psi at 28 days. See Specifications.
9. Reinforcing steel shall be spliced as shown or as approved by the Engineer. Lap all bars 30 diameters at splices. All bars must be placed 3" clear from the face of concrete. Bends shall conform to A.C.I. standards. Reinforcing steel to be billet steel (intermediate or hard grade) or rail steel, with a design tensile stress of 20,000 p.s.i. One grade or type of reinforcing steel shall be used exclusively in any one structural component, caisson, shaft, etc. All bar sizes are designated on the plans by number; the first digit of the bar mark, (in the case of 3 digits, and first 2 digits in the case of 4), indicates the size of the bar.
10. All welding shall conform to the American Welding Society Specifications for welded Highway and Railroad Bridges.
11. Elevations of ground surface and of various sub-surface strata shown on this and accompanying drawings are based on the best information presently available but must be considered as approximate only. See the Specifications.
12. All steel not otherwise shown shall be carbon structural steel A.S.T.M. A7-55T. Manganese steel is modified A242. On sheets with both carbon and manganese steel specified, each is identified by the letters "C" for carbon structural steel and "A" for manganese steel. See the specifications.
13. Carbon steel pins are to be A235-54 T (Class I) or Class A108-54T steel, or as provided in A.A.S.H.O. revisions T1 (55).
14. Unless otherwise noted, all rivets shall be 3/8" diameter.
15. Rivet spacing shall conform to the requirements of the design specifications.
16. All surfaces which will be inaccessible after erection shall be field painted or metallized in shop.
17. Light-weight aggregate shall be used in roadway slab and safety walks for truss spans, making a finished concrete weighing less than 105 #/cu. ft. It shall have a finished strength of 3000 p.s.i. at 28 days. See Specifications.







Spirals - #2 Annealed wire @ 6" pitch with 3 close turns at each end. Cost of reinforcing shall be included in bid price for piles.



Scale: $1\frac{1}{2} = 1'-0"$

(Use Type "A" anchor bolts at Piers 1-6 and 16-20)



Scale: $1\frac{1}{2} = 1'-0''$

(Use Type "B" anchor bolts at abutments only)



Diagram of a rectangular pier cross-section. The pier is symmetrical about the bridge centerline. The total width is 12'-8 3/4" (156 3/4"). The total height is 2'-6" (30"). The pier is divided into four quadrants by a vertical centerline and a horizontal centerline. The horizontal centerline is labeled "Symmetrical about the Bridge Centerline". The vertical centerline is labeled "f Pier". The dimensions are as follows:

- Top width: 4" (left), 1'-4" (left), 1'-4" (right), 4" (right)
- Bottom width: 3'-4" (left), 4" (left), 4" (right), 3'-4" (right)
- Left height: 2'-6" (total), 4" (top), 1'-4" (middle), 4" (bottom)
- Right height: 2'-6" (total), 4" (top), 1'-4" (middle), 4" (bottom)

 The pier is labeled "Pier 18" at the top.

PIERS 6 TO 9 AND 16 TO 18

ANCHOR BOLT PLACEMENT

No scale

General Notes:

Choice of Piles

Piles will be specified on the plans as 12 BP53 Steel Foundation Piles or Cast-in-Place Concrete Piles. Where Cast-in-Place piles are specified the Contractor shall have the option of using any type shown on this sheet.

Reinforcement

Reinforcing bars shall be deformed bars of
billet steel (intermediate or hard grade) or
rail steel.

Concrete

All concrete for Cast-in-Place piles shall be Class 30.

Cast-in-place Shells :

A. *Pile shells shall be of sufficient strength and thickness to withstand all stresses they will encounter in handling and driving and to resist earth pressure after being driven and before being filled with concrete.*

B. Pile shells shall meet the following material requirements.

- (1) Fluted steel shells and steel collar - SAE 1010 classification for open hearth steel.
- (2) Spiral welded steel - A.S.T.M. Designation A 252, Grade 2 Electric Fusion - Welded Spiral Seam Steel Pipe.
- (3) Seamless steel pipe - A.S.T.M. A 252, Grade 2, Welded and Seamless Steel Pipe Piles.
- (4) Corrugated Steel Shell - SAE 1000 classification for open hearth steel.

C. The Contractor shall maintain on the job, at all times prior to and during the filling of the shells, a light suitable for their inspection.

D. Improperly driven, broken or otherwise defective shells shall be removed and replaced or otherwise corrected to the satisfaction of the Engineer.

Steel Piles

Steel pile material shall meet the requirements of A.S.T.M. A7-53T.

Pile Points

All cast-in-place pile shells shall be equipped with a steel driving point of ½ inch minimum thickness. Driving Points shall be mill welded to the pile shell. Driving points shall be hot pressed steel meeting the requirements of A.S.T.M. Designation A 235, Class C1 for forged steel, A.S.T.M. Designation A 27, Grade 65-35 for cast steel, or A.S.T.M. Designation A 7 for structural steel.

Steel H Piles shall have a square cut end; no driving point is required.

Splices

Splice details for cast-in-place piles shall be made in accordance with manufacturer's recommendations, subject to the approval of the Engineer.

Splice details for steel piles shall be in accordance with the details shown on this sheet.

Driving Formula

Piles shall be driven to the minimum capacities specified on this sheet. Capacities shall be determined by the driving formula stipulated in the specifications.

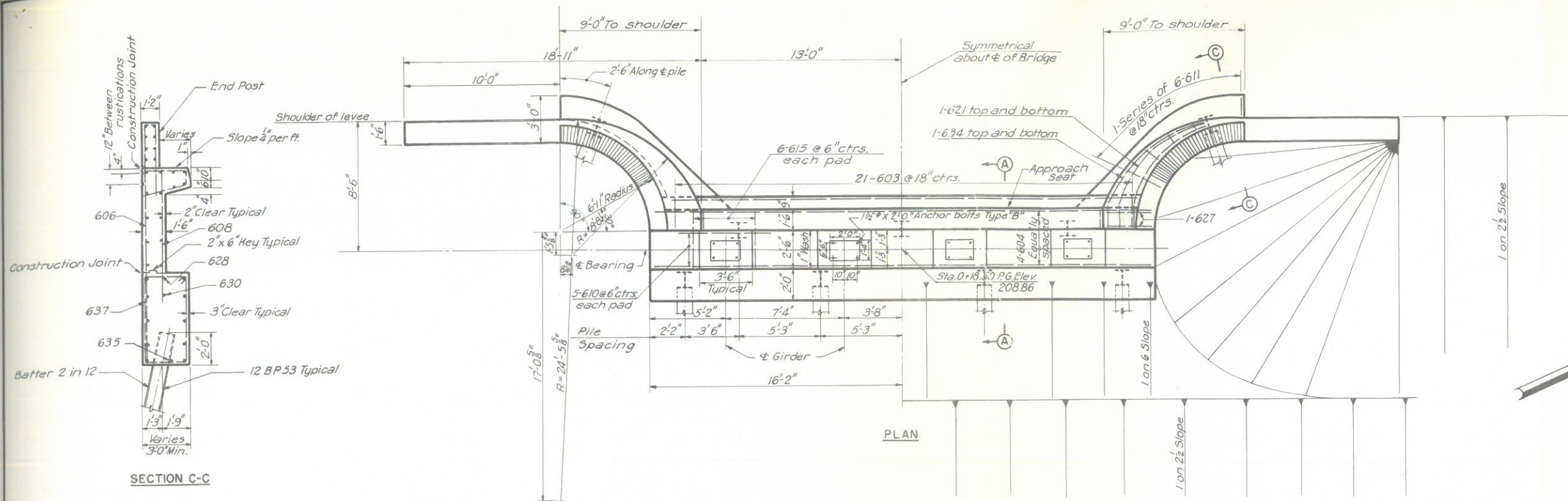
Mill Test Report

Notarized mill test reports shall be furnished by the Contractor for all steel piles and cast-in-place pile shells.

ARKANSAS STATE HIGHWAY COMMISSION
MISSISSIPPI STATE HIGHWAY DEPARTMENT
MISSISSIPPI RIVER BRIDGE
NEAR HELENA, ARKANSAS

APPROACHES TO RIVER BRIDGE PILE AND ANCHOR BOLT DETAILS

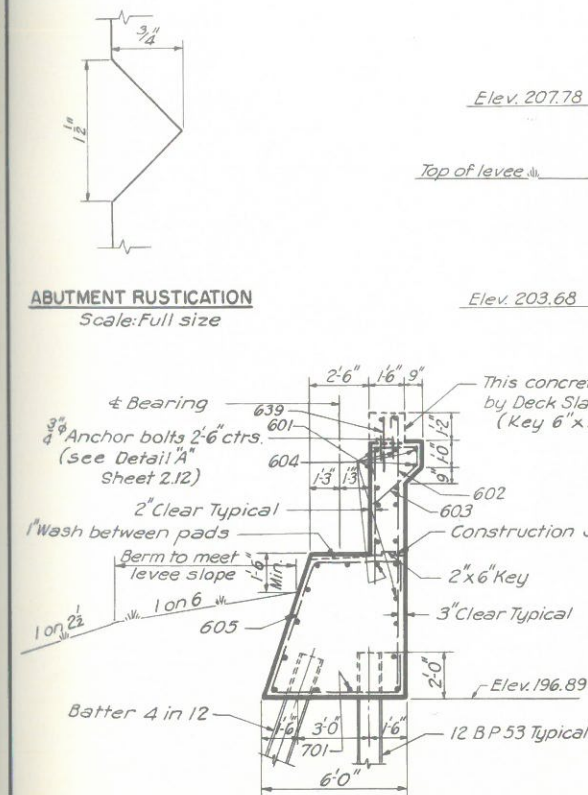
SCALE None HOWARD, NEEDLES, TAMMEN & BERGENDOFF
MADE T.P. DATE 6-21-56 CONSULTING ENGINEERS
TRCD A.H. DATE 9-24-56 KANSAS CITY CLEVELAND NEW YORK
CKD G.A. DATE 10-17-56 984 SHEET 206



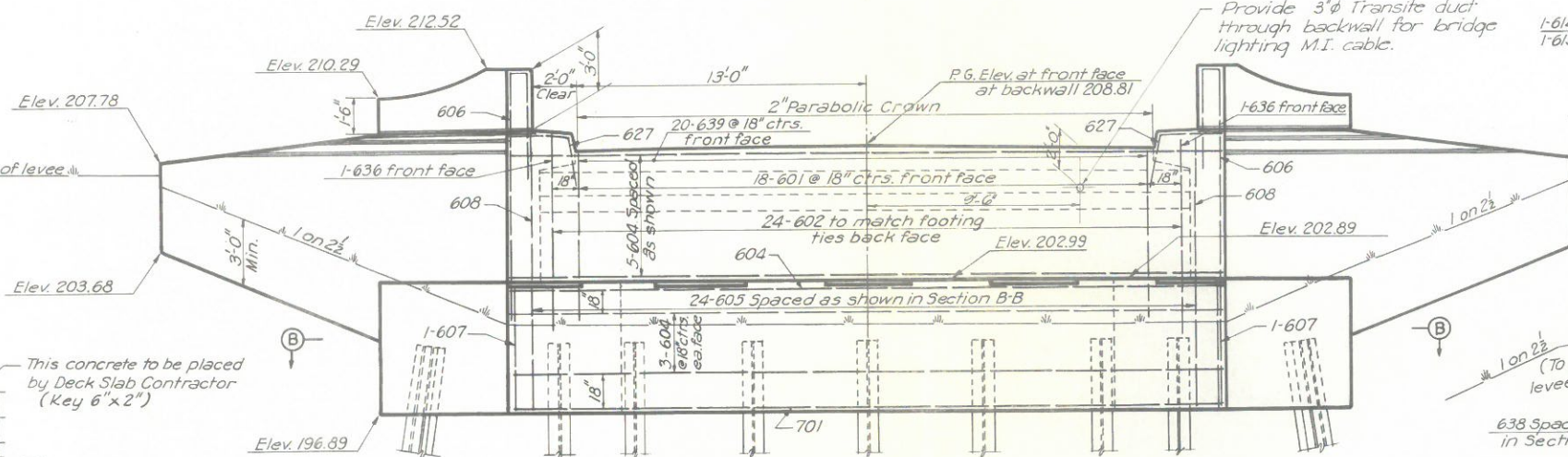
PLAN

Item	Type of Load	Load
1	Dead Load	477 ^K
2	Live Load	120 ^K
3	Bending	316 ^{K'}
4	DL+LL (Item 1+2)	697 ^K
5	Pile load DL+LL+Bending	37 tons max. 25 tons min.

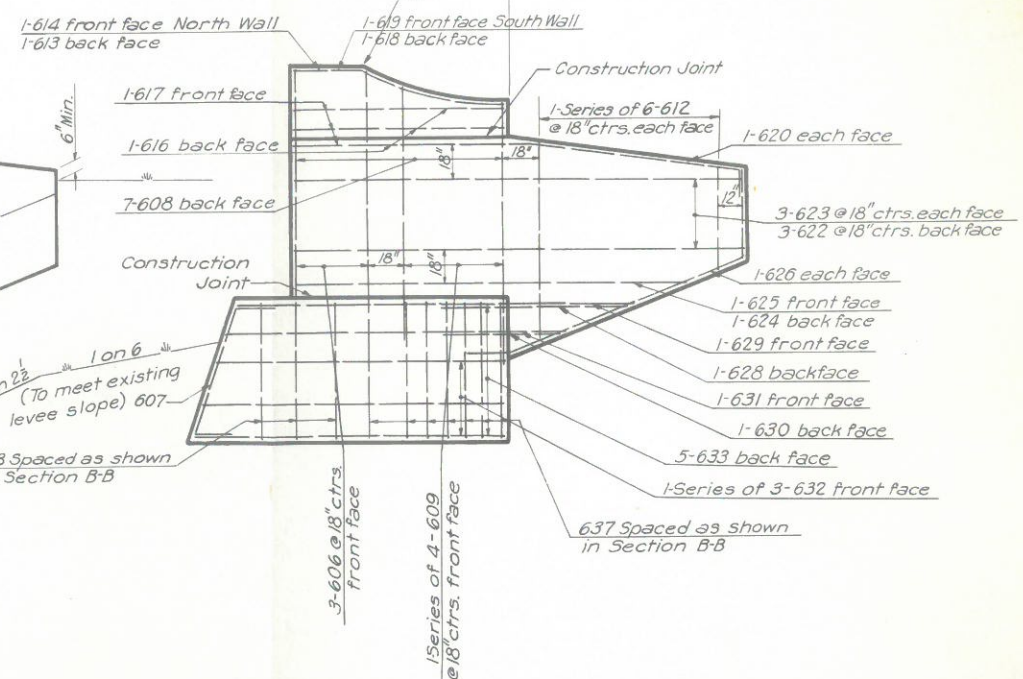
SECTION C-C



SECTION A-A



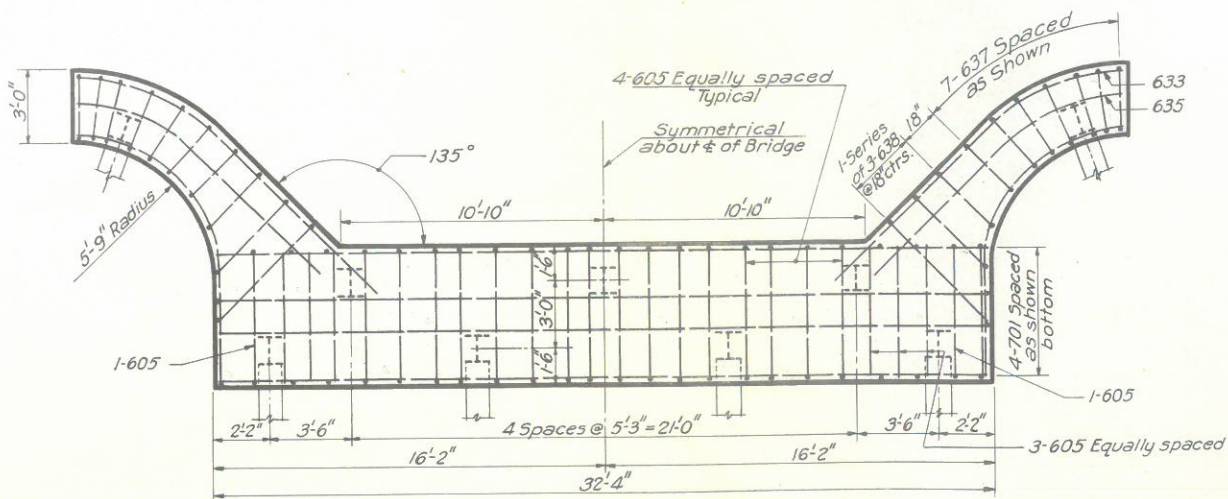
FRONT ELEVATION



DEVELOPED WINGWALL AND END POST ELEVATION

Vertical reinforcing bars spaced along front face of wall.
North wall shown - South wall similar and opposite hand except as noted.

Note:
For details of anchor bolts see Sheet 2.06.
Piles are 12 BP 53.
See note Sheet 2.06.
For reinforcement schedule see Sheet 2.13.



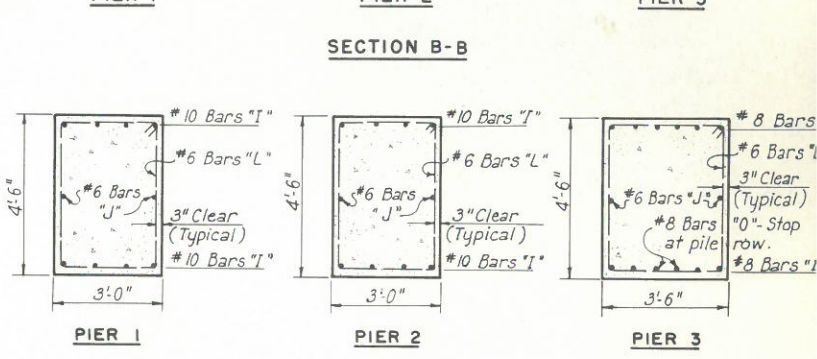
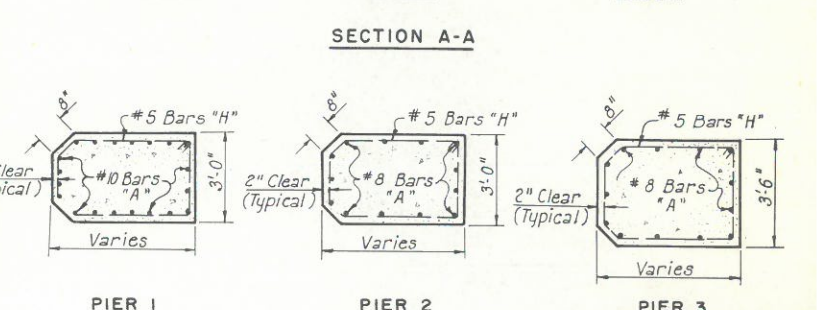
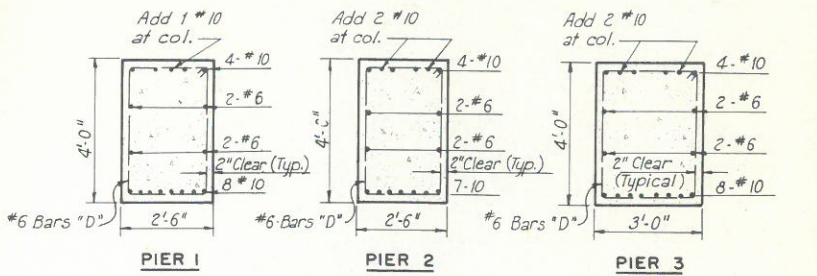
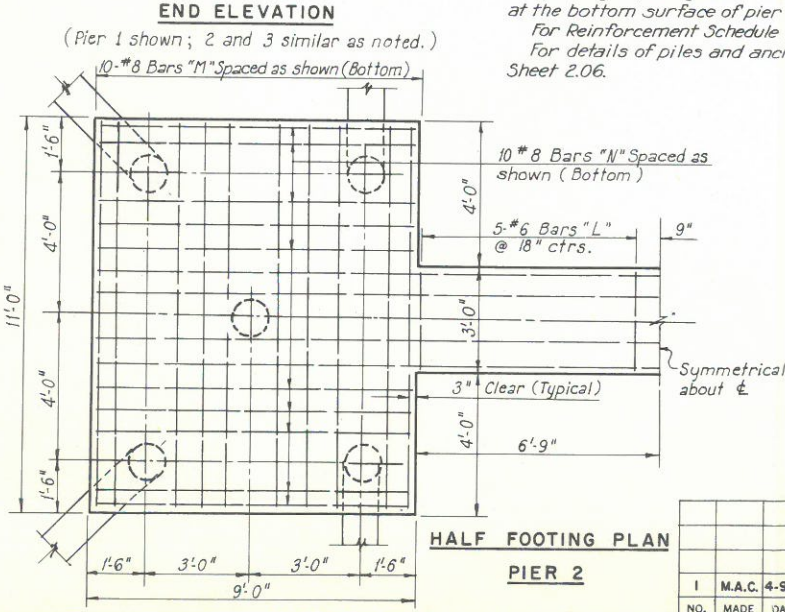
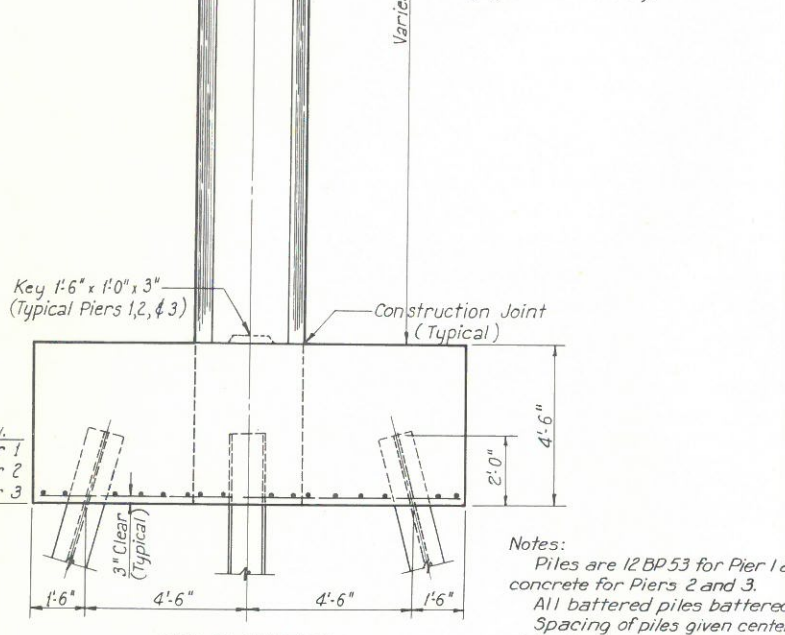
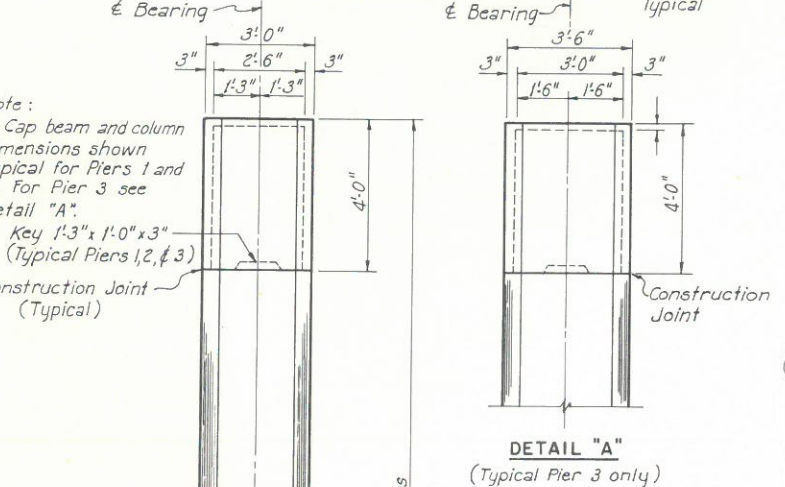
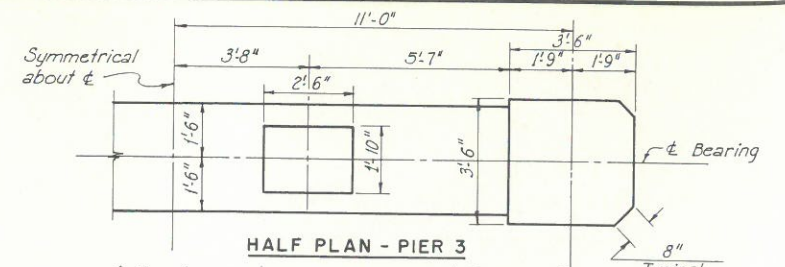
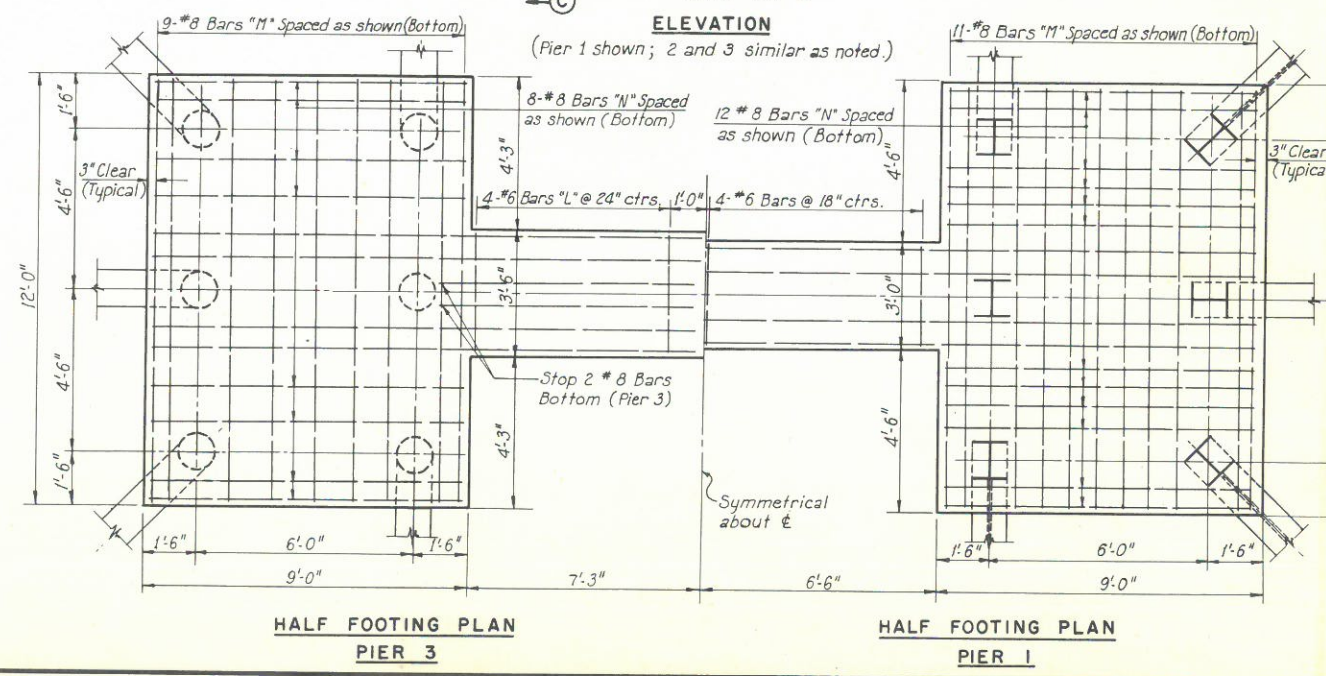
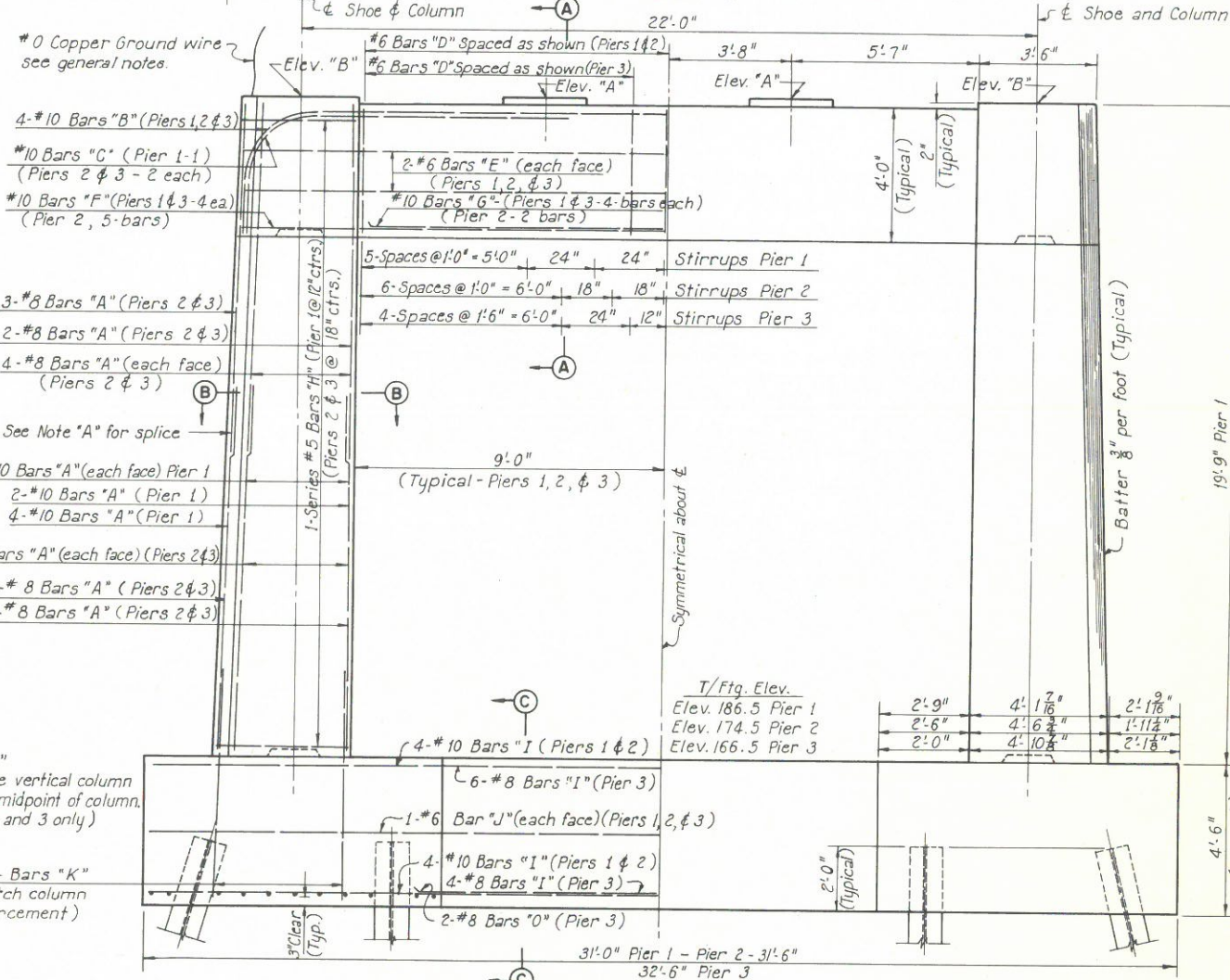
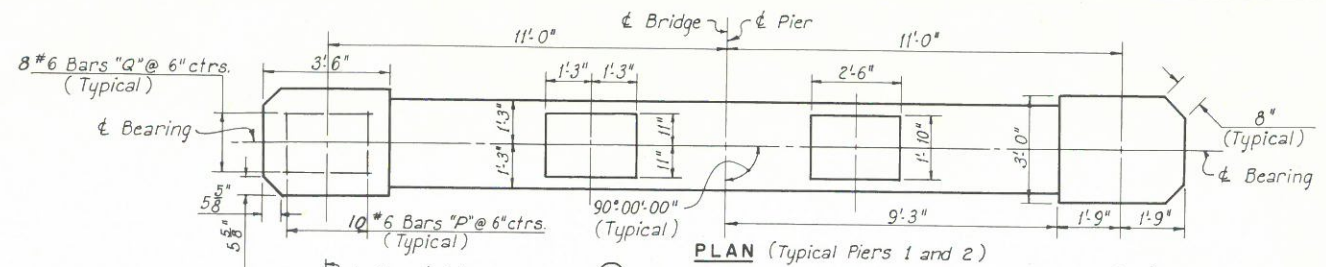
SECTION B-B

ARKANSAS STATE HIGHWAY COMMISSION
MISSISSIPPI STATE HIGHWAY DEPARTMENT
MISSISSIPPI RIVER BRIDGE
NEAR HELENA, ARKANSAS

APPROACHES TO RIVER BRIDGE
WEST ABUTMENT

SCALE 1/4" = 1'-0"
MADE 2.7.62 DATE 6-23-62
TRCD. C.T.H. DATE 8-8-56
CKD. G.R.C. DATE 7-26-56
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
984 SHEET-2.07

NO.	MADE	DATE	REVISION
1	M.A.C.	4-9-62	"AS BUILT"



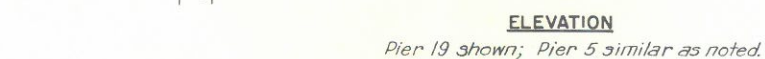
TOP/MASONRY ELEVATION		
	ELEV. "A"	ELEV. "B"
PIER 1	206.37	206.25
PIER 2	208.59	208.49
PIER 3	211.58	211.46

Pier Loads and Pile Loadings			
Type of Load		Pier Load	
Item		1	2 3
1 Dead Load (Including Buoyancy and Overburden)		678K	682K 824K
2 Live Load		214K	214K 214K
3 Transverse 30% Wind; Direct Load		28K	36K 28K
	Bending mon. @ El. 182, 170 or 162	674K	1132K 1390K
4 DL + LL (Item 1 + 2)		892K	896K 1038K
5 DL + LL + 30% Wind; Direct Load		920K	932K 1066K
	Bending mon.	674K	1132K 1390K
6 Pile Loads; DL + LL		38 tons	47 tons 45 tons
	DL + LL + 30% Wind	40 tons max 50 tons max 48 tons max	
		36 tons min 44 tons min 42 tons min	

Note: Drawing not to scale: Follow dimensions.



FOOTING PLAN



FOOTING PLAN



Notes:
Piles for Piers 4 and 5 are Cast-in-Place concrete.
Piles for Piers 19 and 20 are 12 BP 53.
All battered piles battered 3" in 12".
Spacing given for piles is to the center lines
of the piles at the bottom surface of pier footings.
For reinforcement schedule see sheet 2.13.
For Ground wire details see general notes.
For details of piles and anchor bolts see
sheet 2.06.

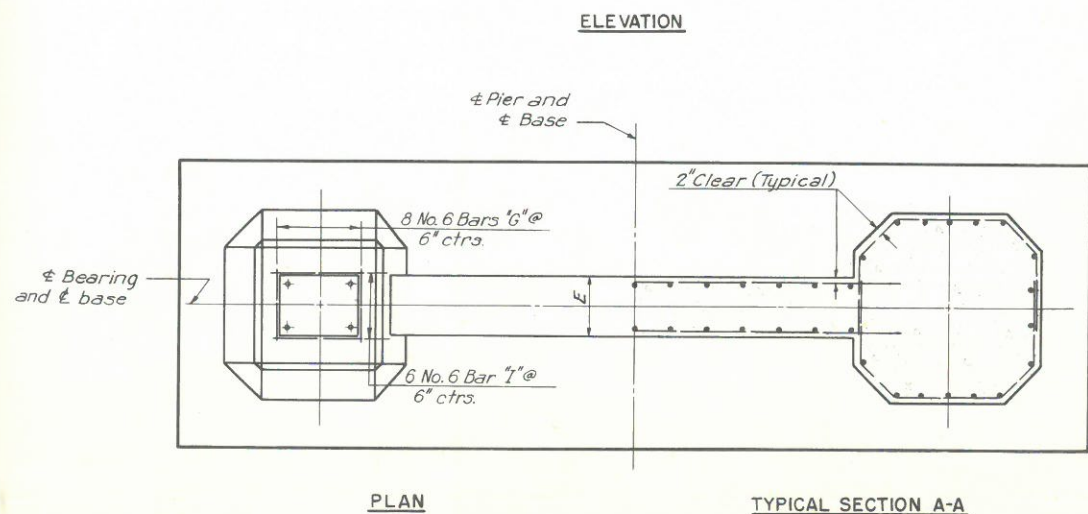
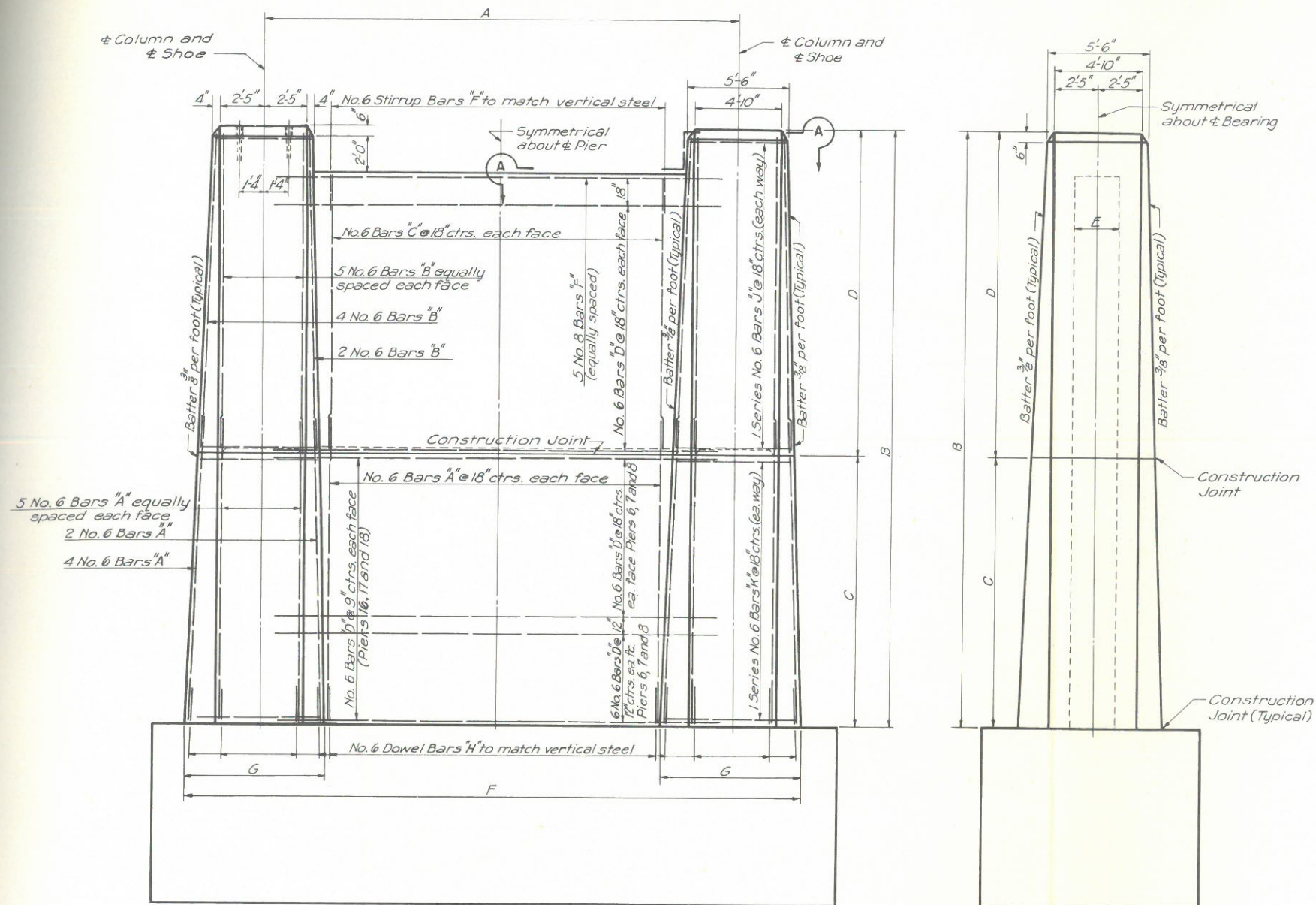


g not to scale: Follow

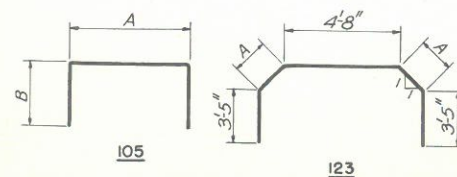
APPROACHES TO RIVER BRIDGE
PIERS 4, 5, 19 AND 20

SCALE $\frac{3}{16}'' = 1'-0''$ HOWARD, NEEDLES, TAMMEN & BERGENDORF
MADE G.R.C. DATE 6-15-56 CONSULTING ENGINEERS
TRCD. G.U.K. DATE 7-18-56 KANSAS CITY CLEVELAND NEW YORK
CKD. R.F.J. DATE 7-12-56 984 SHEET-2.09

SCALE: $\frac{3}{16}'' = 1'-0''$ HOWARD, NEEDLES, TAMMEN & BERGENDO
MADE GRC DATE 6-15-56 CONSULTING ENGINEERS
TRCD, G.K.K. DATE 7-18-56 KANSAS CITY CLEVELAND NEW YORK
CKD, R.F.J. DATE 7-12-56 984 SHEET-2.09



Notes:
For details of anchor bolts see Sheet 2.06
For details of footings see Sheet 2.11



REINFORCEMENT SCHEDULE																									
PIER 6						PIER 7						PIER 8						PIER 9							
BAR	NO.	MARK	LENGTH	TYPE	DIMENSION	NO.	MARK	LENGTH	TYPE	DIMENSION	NO.	MARK	LENGTH	TYPE	DIMENSION	NO.	MARK	LENGTH	TYPE	DIMENSION	BAR				
					A	B				A	B				A	B				A	B				
A	58	604	17'-0"	Str.			60	604	17'-0"	Str.		64	604	17'-0"	Str.		64	604	17'-0"	Str.		A			
B	32	616	18'-0"	Str.			32	616	18'-0"	Str.		32	616	18'-0"	Str.		32	616	18'-0"	Str.		B			
C	26	601	15'-6"	Str.			28	601	15'-6"	Str.		32	601	15'-6"	Str.		32	601	15'-6"	Str.		C			
D	46	607	24'-9"	Str.			46	608	26'-6"	Str.		46	609	28'-9"	Str.		46	610	29'-3"	Str.		D			
E	5	801	24'-9"	Str.			5	802	26'-6"	Str.		5	803	28'-9"	Str.		5	804	29'-3"	Str.		E			
F	13	613	6'-2"	105	2'-2"	2'-0"	14	613	6'-2"	105	2'-2"	2'-0"	16	613	6'-2"	105	2'-2"	2'-0"	16	613	6'-2"	105	2'-2"	2'-0"	F
G	16	615	4'-8"	105	2'-8"	1'-0"	16	615	4'-8"	105	2'-8"	1'-0"	16	615	4'-8"	105	2'-8"	1'-0"	16	615	4'-8"	105	2'-8"	1'-0"	G
H	58	619	4'-0"	Str.			60	619	4'-0"	Str.		64	619	4'-0"	Str.		64	619	4'-0"	Str.		H			
I	12	620	5'-8"	105	3'-8"	1'-0"	12	620	5'-8"	105	3'-8"	1'-0"	12	620	5'-8"	105	3'-8"	1'-0"	12	620	5'-8"	105	3'-8"	1'-0"	I
J	4 Ser. 13	621	12'-2" 13'-8"	123	1'-1" 1'-9"		4 Ser. 13	621	12'-2" 13'-8"	123	1'-1" 1'-9"	4 Ser. 13	621	12'-2" 13'-8"	123	1'-1" 1'-9"	4 Ser. 13	621	12'-2" 13'-8"	123	1'-1" 1'-9"	J			
K	4 Ser. 11	622	13'-0" 13'-0"	123	1'-2" 1'-9"		4 Ser. 11	622	13'-0" 13'-0"	123	1'-2" 1'-9"	4 Ser. 11	622	13'-0" 13'-0"	123	1'-2" 1'-9"	4 Ser. 11	622	13'-0" 13'-0"	123	1'-2" 1'-9"	K			

REINFORCEMENT SCHEDULE																						
PIER 16						PIER 17						PIER 18										
BAR	NO.	MARK	LENGTH	TYPE	DIMENSION	NO.	MARK	LENGTH	TYPE	DIMENSION	NO.	MARK	LENGTH	TYPE	DIMENSION	NO.	MARK	LENGTH	TYPE	DIMENSION	BAR	
					A	B				A	B									A	B	
A	60	605	27'-0"	Str.			58	606	22'-0"	Str.			58	604	17'-0"	Str.						A
B	32	617	28'-0"	Str.			32	618	23'-0"	Str.			32	616	18'-0"	Str.						B
C	28	602	25'-6"	Str.			26	603	20'-6"	Str.			26	601	15'-6"	Str.						C
D	102	612	26'-0"	Str.			80	607	24'-9"	Str.			60	611	23'-9"	Str.						D
E	5	805	26'-0"	Str.			5	801	24'-9"	Str.			5	806	23'-9"	Str.						E
F	14	614	6'-8"	105	2'-8"	2'-0"	13	627	6'-5"	105	2'-5"	2'-0"	13	613	6'-2"	105	2'-2"	2'-0"				F
G	16	615	4'-8"	105	2'-8"	1'-0"	16	615	4'-8"	105	2'-8"	1'-0"	16	615	4'-8"	105	2'-8"	1'-0"				G
H	60	619	4'-0"	Str.			58	619	4'-0"	Str.			58	619	4'-0"	Str.						H
I	12	620	5'-8"	105	3'-8"	1'-0"	12	620	5'-8"	105	3'-8"	1'-0"	12	620	5'-8"	105	3'-8"	1'-0"				I
J	4	623	12'-2" 14'-6"	123	1'-6"		4	625	12'-2" 14'-2"	123	1'-4"		4	621	12'-2" 13'-8"	123	1'-1"					J
K	4	624	14'-8" 16'-10"	123	1'-8" 2'-8"		4	626	14'-4" 16'-0"	123	1'-5" 2'-3"		4	622	13'-0" 15'-0"	123	1'-2" 1'-9"					K

Note:
Series bars to vary by an equal increment.

TABLE OF DIMENSIONS AND ELEVATIONS								
DIMENSIONS	PIER 6	PIER 7	PIER 8	PIER 9	PIER 16	PIER 17	PIER 18	
A	26'-3 3/8"	27'-9 7/8"	29'-3 3/8"	30'-8 3/8"	27'-5 1/8"	26'-4 1/8"	25'-4 3/8"	
B	33'-3 3/8"	33'-3 3/8"	33'-3 3/8"	33'-3 3/8"	53'-3 3/8"	43'-3 3/8"	33'-3 3/8"	
C	15'-0"	15'-0"	15'-0"	15'-0"	25'-0"	20'-0"	15'-0"	
D	18'-3 3/8"	18'-3 3/8"	18'-3 3/8"	18'-3 3/8"	28'-3 3/8"	23'-3 3/8"	18'-3 3/8"	
E	2'-6"	2'-6"	2'-6"	2'-6"	3'-0"	2'-9"	2'-6"	
F	33'-9 1/8"	35'-4 1/8"	36'-9 3/8"	38'-3 3/8"	36'-3 3/8"	34'-7 1/8"	32'-0 3/8"	
G	7'-6 3/8"	7'-6 3/8"	7'-6 3/8"	7'-6 3/8"	8'-9 3/8"	8'-2 1/8"	7'-6 3/8"	
Bottom Footing	160.0	160.0	160.0	160.0	140.0	150.0	160.0	
Top Footing	170.0	170.0	170.0	170.0	150.0	160.0	170.0	
Construction Joint	185.0	185.0	185.0	185.0	175.0	180.0	185.0	
Top Pier	203.30	203.30	203.30	203.30	203.3	203.30	203.30	

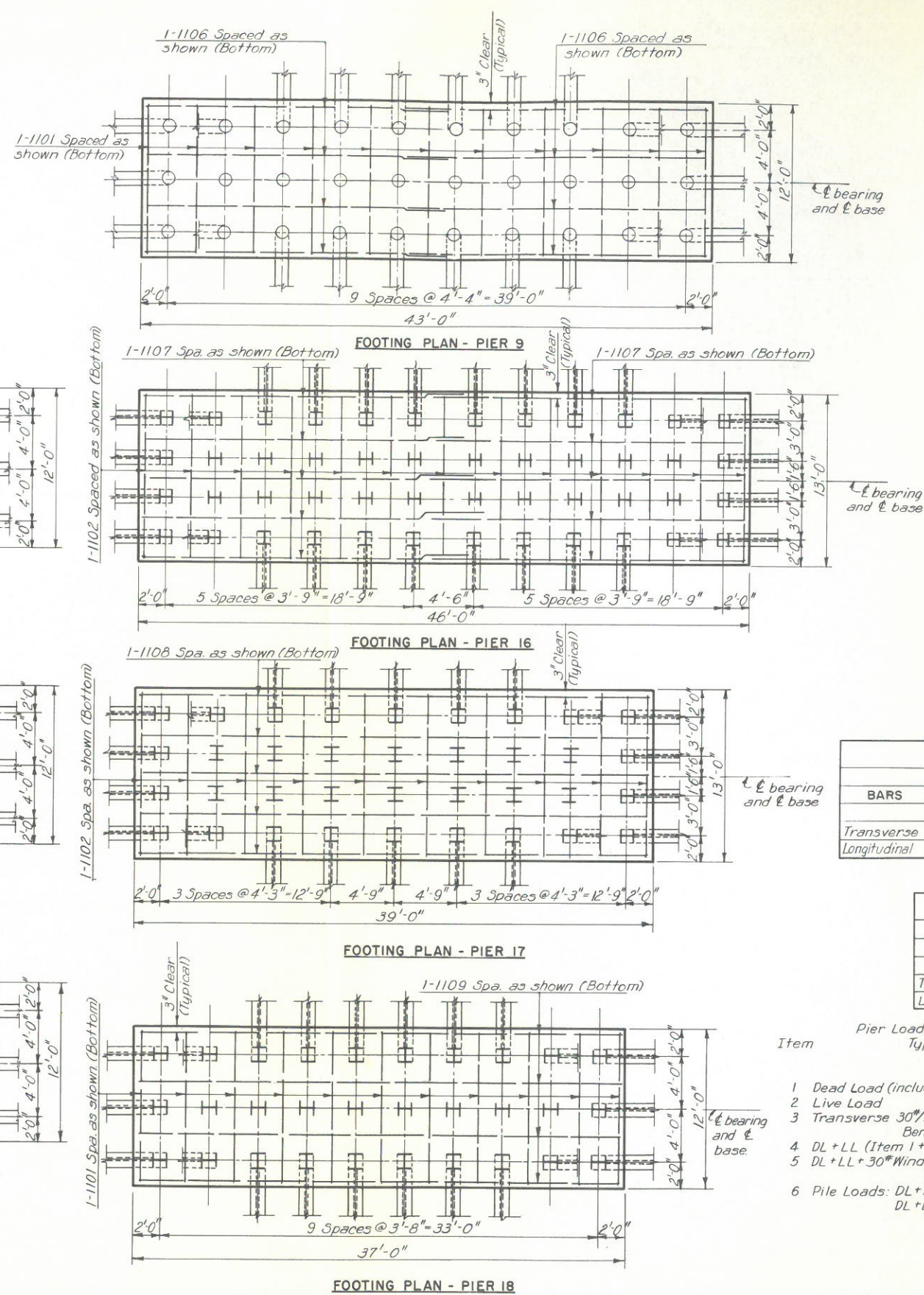
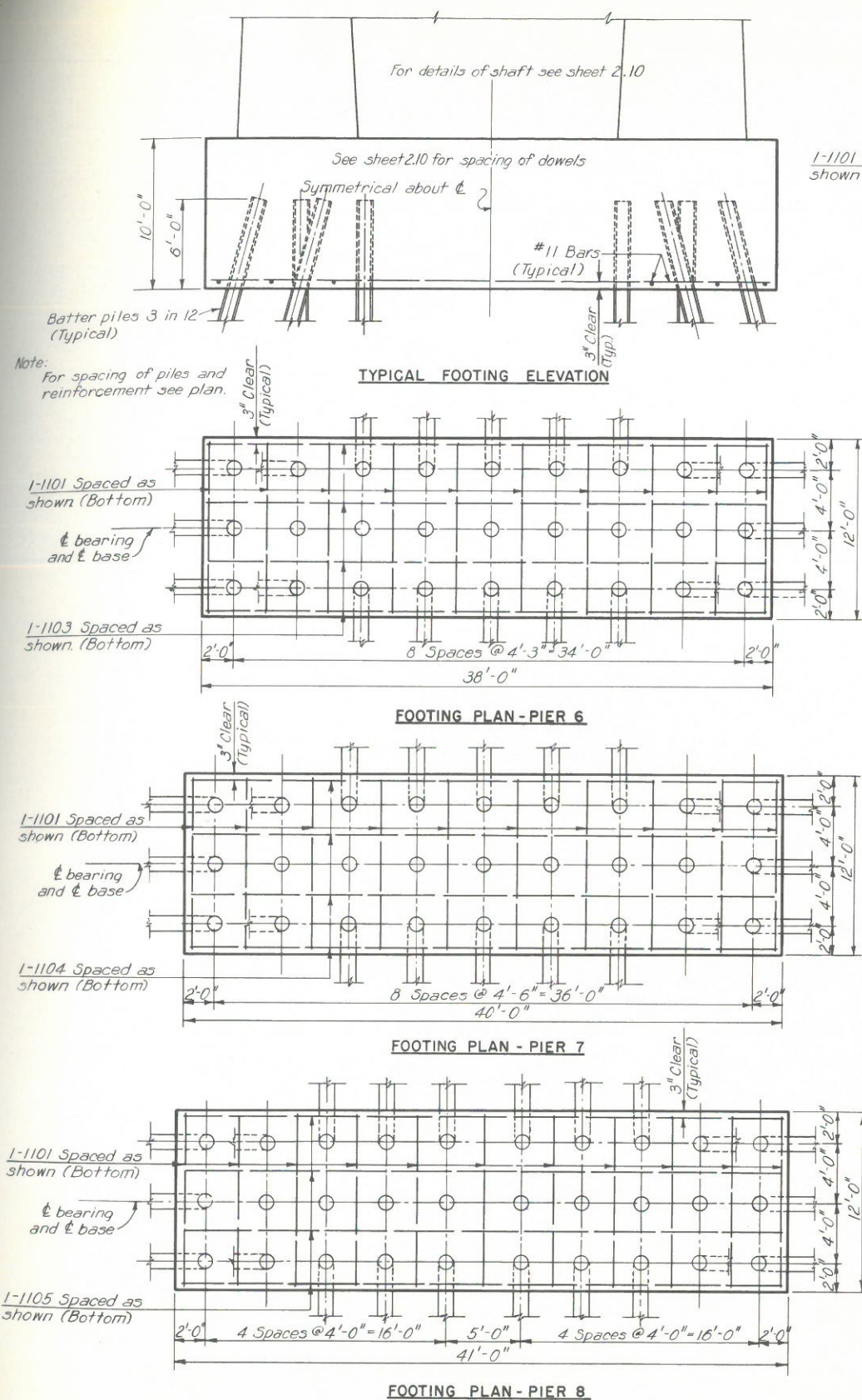
Note:
Drawing not to scale. Follow dimensions.

ARKANSAS STATE HIGHWAY COMMISSION
MISSISSIPPI STATE HIGHWAY DEPARTMENT
MISSISSIPPI RIVER BRIDGE
NEAR HELENA, ARKANSAS

APPROACHES TO RIVER BRIDGE
PIERS 6 TO 9 AND 16 TO 18

SCALE 1/4" = 1'-0"
MADE 6 R.C. DATE 5-15-56
TRCD. C.T.H. DATE 7-24-56
CKD. R.F.V. DATE 7-13-56
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
984 SHEET 2.10

NO.	MADE	DATE	REVISION
1	M.A.C.	4-9-62	



FOOTING ELEVATIONS		
AT	BOTTOM OF FOOTING	TOP OF FOOTING
Pier 6	160.0	170.0
Pier 7	160.0	170.0
Pier 8	160.0	170.0
Pier 9	160.0	170.0
Pier 16	140.0	150.0
Pier 17	150.0	160.0
Pier 18	160.0	170.0

Notes:

Piles for Piers 6 to 9 inclusive are Cast-in-Place concrete.

Piles for Piers 16 to 18 inclusive are 12 BP53.

Spacing given for piles is to the center lines of piles at bottom surface of Pier footings.

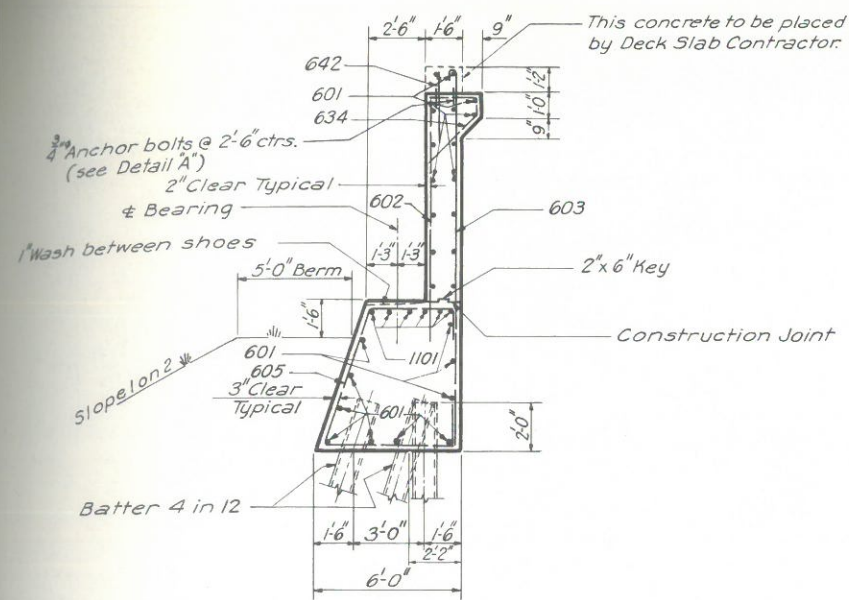
All battered piles to be battered 3 in 12.

REINFORCEMENT SCHEDULE												
WEST APPROACH PIER FOOTINGS												
BARS	PIER 6				PIER 7				PIER 8			
	NO.	MARK	LENGTH	TYPE	NO.	MARK	LENGTH	TYPE	NO.	MARK	LENGTH	TYPE
Transverse	10	1101	11'-6"	Str.	10	1101	11'-6"	Str.	11	1101	11'-6"	Str.
Longitudinal	4	1103	37'-6"	Str.	4	1104	39'-6"	Str.	4	1105	40'-6"	Str.

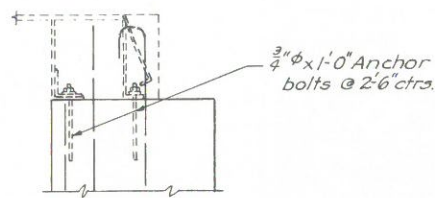
REINFORCEMENT SCHEDULE												
EAST APPROACH PIER FOOTINGS												
BARS	PIER 16				PIER 17				PIER 18			
	NO.	MARK	LENGTH	TYPE	NO.	MARK	LENGTH	TYPE	NO.	MARK	LENGTH	TYPE
Transverse	13	1102	12'-6"	Str.	10	1102	12'-6"	Str.	11	1101	11'-6"	Str.
Longitudinal	10	1107	24'-6"	Str.	5	1108	38'-6"	Str.	4	1109	36'-6"	Str.

Pier Loads and Pile Loadings		Type of Load		6	7	8	9	16	17	18
1	Dead Load (including Buoyancy and Overburden)			2107 ^K	2318 ^K	2374 ^K	2581 ^K	4186 ^K	3160 ^K	2430 ^K
2	Live Load			273	242 ^K	290 ^K	296 ^K	296 ^K	290 ^K	242 ^K
3	Transverse 30% Wind; Direct Load									
	Bending mon. @ El. 140, 150 or 160			2330 ^K	2560 ^K	2760 ^K	3280 ^K	3140 ^K	2670 ^K	2330 ^K
4	DL + LL (Item 1 + 2)			2380 ^K	2560 ^K	2664 ^K	2877 ^K	4482 ^K	3450 ^K	2672 ^K
5	DL + LL + 30% Wind; Direct Load			2380 ^K	2560 ^K	2664 ^K	2877 ^K	4482 ^K	3450 ^K	2672 ^K
	Bending mon.			2330 ^K	2560 ^K	2760 ^K	3280 ^K	3140 ^K	2670 ^K	2330 ^K
6	Pile Loads: DL + LL			44 tons	48 tons	45 tons	48 tons	47 tons	48 tons	45 tons
	DL + LL + 30% Wind			50 tons max. 54 tons min.	51 tons max. 55 tons min.	51 tons max. 55 tons min.	51 tons max. 55 tons min.	51 tons max. 55 tons min.	51 tons max. 55 tons min.	51 tons max. 55 tons min.
				38 tons min. 42 tons min.	39 tons min. 41 tons min.	41 tons min. 43 tons min.	43 tons min. 45 tons min.	43 tons min. 45 tons min.	43 tons min. 45 tons min.	39 tons min.

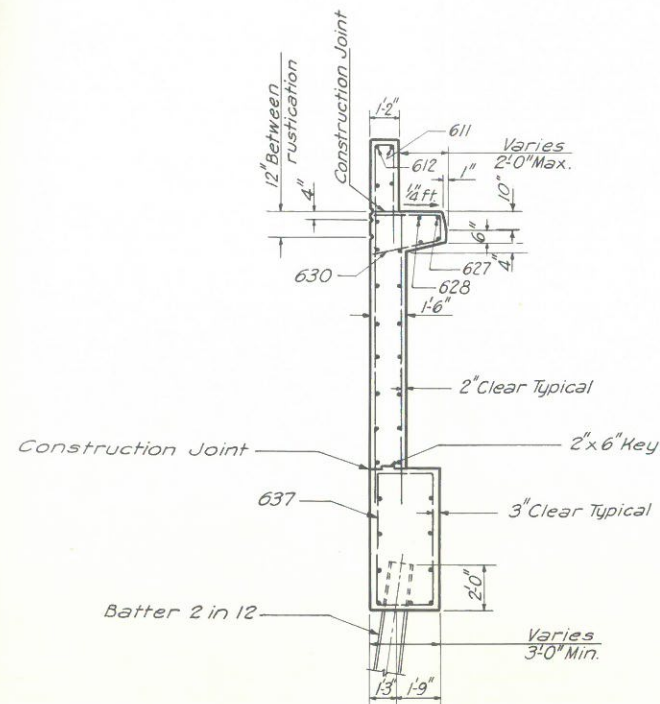
NO.	MADE	DATE	REVISION
1	M.A.C.	4-9-62	



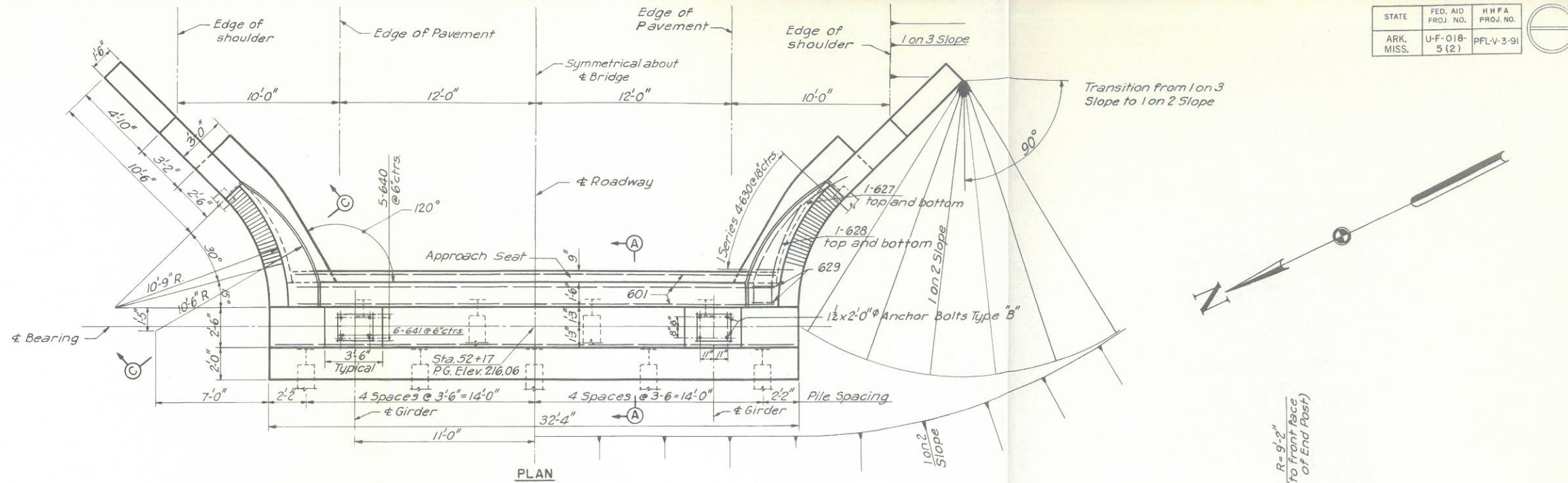
SECTION A-A



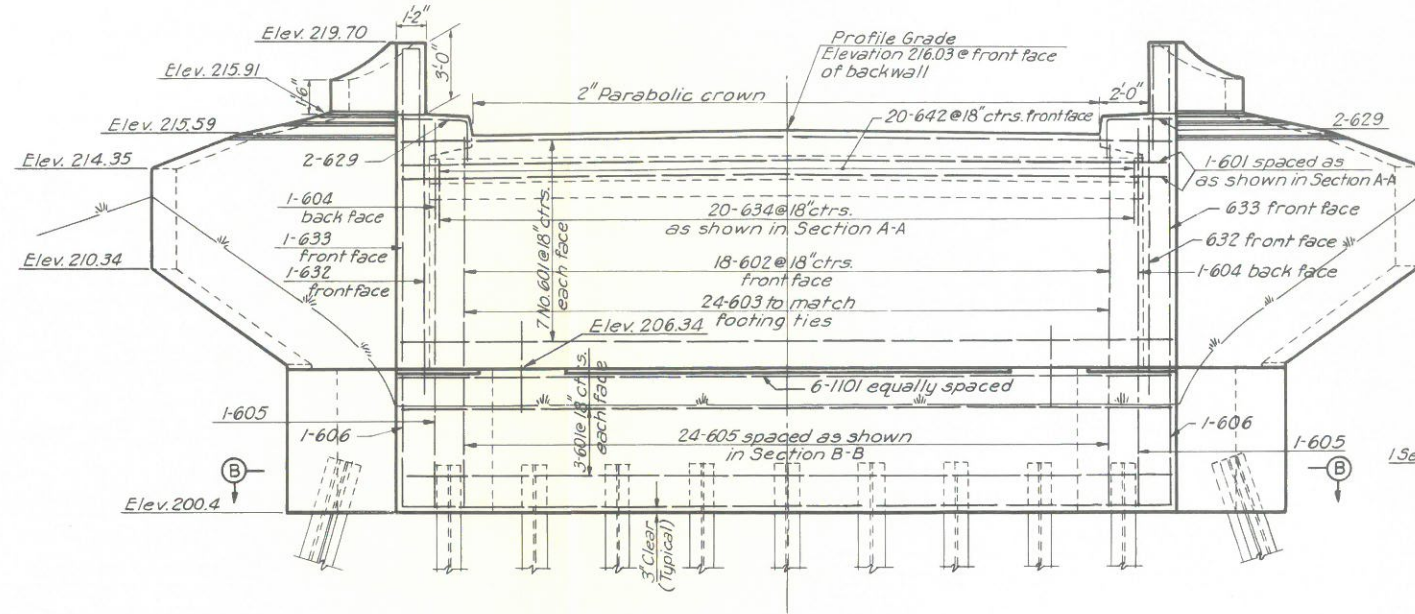
DETAIL "A"
Scale: 3/4" = 1'-0"



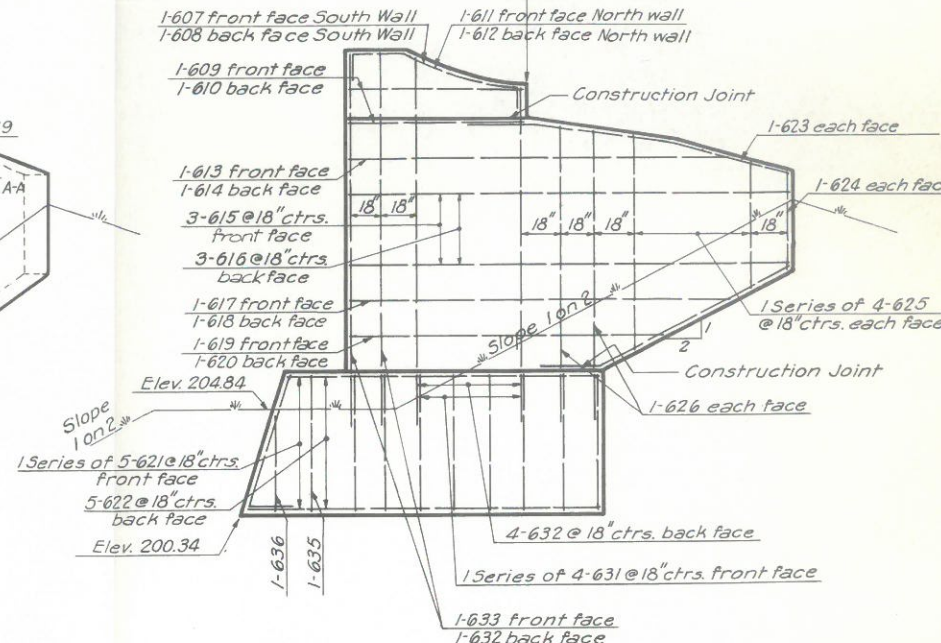
SECTION C-C



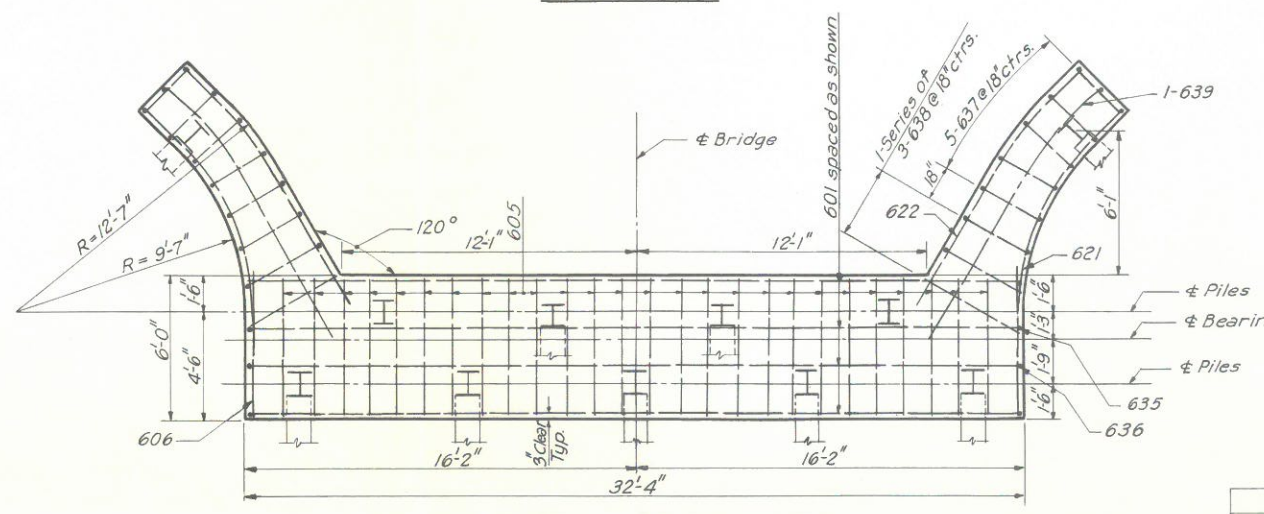
PLAN



FRONT ELEVATION



DEVELOPED ELEVATION



SECTION B-B

Total Loading and Pile Loads		
Item	Type of Load	Loads
1	Dead Load	621K
2	Live Load	166K
3	Bending	275K
4	DL+LL (Item 1 + 2)	781K
5	Pile Load DL+LL+ Bending	38 tons max. 29 tons min.

Note:
For reinforcement schedule see Sheet 2.13.
For details at rustication joint see Sheet 2.07.
For details of anchor bolts see Sheet 2.06.
Piles are 12 BP 53.
See Note 2 Sheet 2.06.

ARKANSAS STATE HIGHWAY COMMISSION
MISSISSIPPI STATE HIGHWAY DEPARTMENT
MISSISSIPPI RIVER BRIDGE
NEAR HELENA, ARKANSAS

APPROACHES TO RIVER BRIDGE
EAST ABUTMENT

SCALE 1/4" = 1'-0"
MADE 8.21.56 DATE 6-27-56
TRD. C.T.H. DATE 7-27-56
CKD. G.E.C. DATE 8-2-56
HOWARD, NEEDLES, TAMMEN & BERGENDOFF
CONSULTING ENGINEERS
KANSAS CITY CLEVELAND NEW YORK
984 SHEET 2.12

NO.	MADE	DATE	REVISION
1.	M.A.C. 3-26-62	"AS BUILT"	

WEST ABUTMENT							
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS			
				A	B	C	D
601	18	7'-9"	Str.				
602	24	11'-6"	101	11'-4"			
603	21	5'-3"	133	1'-11"	0'-8"	2'-8"	12'-0"
604	22	32'-0"	Str.				
605	24	18'-10"	123	3'-6"	5'-10"	5'-6"	2'-0"
606	6	17'-4"	134	11'-6"	0'-10"	5'-0"	
607	2	9'-10"	124	2'-0"		5'-10"	
608	14	9'-6"	Str.				
609	2-Ser. of 4	14'-11" to 16'-4"	134	3'-3" to 4'-0"	0'-10"	11'-6" to 10'-0"	
610	20	4'-6"	105	2'-6"	1'-0"		
611	2-Ser. of 6	3'-6" to 6'-8"	133	1'-2" to 2'-9"	1'-0"	1'-4" to 2'-11"	2'-0"
612	4-Ser. of 6	8'-3" to 4'-3"	Str.				
613	1	13'-11"	125	6'-9"	3'-4"	7'-0"	13'-0"
614	1	11'-10"	125	5'-11"	2'-10"	6'-3"	13'-0"
615	24	4'-0"	105	2'-0"	1'-0"		
616	6	10'-3"	127	10'-3"	6'-9"		
617	6	9'-0"	127	9'-0"	5'-11"		
618	1	13'-11"	126	6'-9"	3'-4"	7'-0"	13'-0"
619	1	11'-10"	126	5'-11"	2'-10"	6'-3"	13'-0"
620	4	13'-10"	135	2'-0"	9'-10"	2'-0"	
621	4	13'-6"	128	12'-3"	1'-3"	8'-0"	
622	6	20'-0"	128	10'-3"	9'-9"	5'-11"	
623	6	18'-9"	128	9'-0"	9'-9"	6'-9"	
624	2	17'-3"	128	7'-0"	10'-3"	6'-9"	
625	2	16'-0"	128	7'-0"	9'-0"	5'-11"	
626	4	16'-3"	135	3'-9"	10'-6"	2'-0"	
627	4	5'-6"	104				
628	2	7'-0"	Str.				
629	2	16'-3"	129	2'-3"	9'-0"	5'-0"	5'-11"
630	2	4'-0"	Str.				
631	2	14'-0"	129	3'-0"	9'-0"	2'-0"	5'-11"
632	2-Ser. of 3	11'-6" to 12'-9"	128	3'-0" to 4'-3"	8'-6"	5'-11"	
633	10	14'-8"	128	8'-0"	6'-8"	8'-6"	
634	4	14'-9"	128	7'-3"	13'-6"	8'-7"	
635	2	12'-8"	128	7'-0"	5'-11"	7'-6"	
636	2	8'-9"	Str.				
637	14	16'-6"	109	5'-6"	2'-6"		
638	2-Ser. of 3	17'-6" to 20'-0"	109	5'-6"	3'-0" to 5'-3"		
639	20	3'-0"	Str.				
701	4	32'-0"	Str.				

EAST ABUTMENT							
MARK	NUMBER	LENGTH	TYPE	DIMENSIONS			
				A	B	C	D
601	26	31'-9"	Str.				
602	18	11'-6"	Str.				
603	24	15'-3"	101	15'-0"			
604	2	16'-0"	Str.				
605	26	18'-10"	123	3'-6"	5'-10"	5'-6"	2'-0"
606	2	9'-10"	124	2'-0"	5'-10"		
607	1	10'-6"	125	9'-9"	2'-6"	5'-3"	9'-0"
608	1	10'-11"	125	10'-7"	2'-7"	5'-7"	9'-0"
609	4	7'-4"	127	7'-4"	9'-9"		
610	4	8'-1"	127	8'-1"	10'-7"		
611	1	10'-6"	126	9'-9"	2'-6"	5'-3"	9'-0"
612	1	10'-11"	126	10'-7"	2'-7"	5'-7"	9'-0"
613	2	15'-8"	128	7'-5"	8'-3"	9'-9"	
614	2	16'-3"	128	8'-0"	8'-3"	10'-7"	
615	6	17'-9"	128	7'-5"	10'-4"	9'-9"	
616	6	18'-4"	128	8'-0"	10'-4"	10'-7"	
617	2	16'-1"	128	7'-5"	8'-8"	9'-9"	
618	2	16'-8"	128	8'-0"	8'-8"	10'-7"	
619	2	13'-1"	128	7'-5"	5'-8"	9'-9"	
620	2	13'-8"	128	8'-0"	5'-8"	10'-7"	
621	2-Ser. of 5	12'-3" to 14'-3"	129	2'-3" to 4'-3"	7'-9"	2'-3"	9'-10"
622	10	13'-6"	129	2'-3"	3'-3"	8'-0"	12'-4"
623	4	13'-2"	130	5'-0"	6'-2"	2'-0"	
624	4	16'-0"	131	4'-0"	9'-0"		
625	4-Ser. of 4	5'-3" to 8'-9"	Str.				
626	8	12'-0"	Str.				
627	4	11'-6"	132	1'-6"	10'-0"	10'-3"	
628	4	8'-3"	127	8'-3"	11'-3"		
629	4	5'-6"	104				
630	2-Ser. of 4	3'-6" to 6'-7"	133	1'-2" to 2'-10"	1'-0"	1'-4" to 2'-9"	2
631	2-Ser. of 4	18'-11" to 21'-7"	134	3'-6" to 5'-9"	0'-10"	13'-9" to 15'-0"	
632	12	12'-3"	Str.				
633	4	20'-7"	134	4'-9"	0'-10"	15'-0"	
634	20	5'-3"	133	1'-11"	0'-8"	2'-8"	12
635	2	5'-6"	Str.				
636	2	3'-3"	Str.				
637	10	16'-6"	109	5'-6"	2'-6"		
638	2-Ser. of 3	17'-0" to 19'-6"	109	5'-6"	2'-9" to 4'-0"		
639	4	13'-1"	128	2'-3"	2'-10"	8'-0"	10'-10"
640	10	4'-6"	105	2'-6"	1'-0"		
641	12	4'-0"	105	2'-0"	1'-0"		
642	20	3'-0"	Str.				
1101	6	31'-9"	Str.				

REINFORCEMENT SCHEDULE																									
PIER 4						PIER 20						PIER 19						PIER 5							
BAR	NO	MARK	LENGTH	TYPE	DIMENSIONS		NO	MARK	LENGTH	TYPE	DIMENSIONS		NO	MARK	LENGTH	TYPE	DIMENSIONS		NO	MARK	LENGTH	TYPE	DIMENSIONS		BAR
					A	B					A	B					A	B					A	B	
A	58	601	23'-9"	Str.			56	611	21'-9"	Str.			42	1103	23'-9"	Str.			42	1108	25'-9"	Str.			A
B	32	602	21'-9"	Str.			32	612	19'-3"	Str.			24	601	23'-6"	Str.			24	619	25'-6"	Str.			B
C	56	603	20'-6"	Str.			52	603	20'-6"	Str.			42	#11	21'-3"	Str.			42	#11	23'-3"	Str.			C
D	5	801	20'-6"	Str.			5	801	20'-6"	Str.			24	618	18'-9"	Str.			24	602	21'-0"	Str.			D
E	26	604	19'-3"	Str.			24	613	17'-0"	Str.			56	603	20'-6"	Str.			62	603	20'-6"	Str.			E
F	13	605	6'-5"	105	2'-5"	2'-0"	12	605	6'-5"	105	2'-5"	2'-0"	5	801	20'-6"	Str.			5	801	20'-6"	Str.			F
G	10	606	5'-0"	105	3'-0"	1'-0"	10	614	5'-0"	105	3'-0"	1'-0"	10	622	4'-5"	105	2'-5"	1'-0"	10	622	4'-5"	105	2'-5"	1'-0"	G
H	14	607	4'-0"	105	2'-0"	1'-0"	14	607	4'-0"	105	2'-0"	1'-0"	12	614	4'-9"	105	2'-9"	1'-0"	12	614	4'-9"	105	2'-9"	1'-0"	H
I	4-Ser. of 15	608	12'-2" to 14'-0"	139	4" to 1'-3"		4-Ser. of 14	615	12'-2" to 13'-10"	139	4" to 1'-2"		4-Ser. of 15	608	12'-2" to 14'-2"	139	4" to 1'-4"		4-Ser. of 15	608	12'-4" to 14'-2"	139	4" to 1'-4"		I
J	4-Ser. of 15	609	14'-3" to 16'-0"	139	1'-4" to 2'-3"		4-Ser. of 14	616	14'-2" to 15'-6"	139	1'-4" to 2'-0"		4-Ser. of 15	609	14'-4" to 15'-10"	139	1'-5" to 2'-2"		4-Ser. of 15	609	14'-4" to 16'-4"	139	1'-5" to 2'-5"		J
K	32	610	4'-0"	Str.			56	610	4'-0"	Str.			12	605	6'-5"	105	2'-5"	2'-0"	12	605	6'-5"	105	2'-5"	2'-0"	K
L	4	1101	37'-6"	Str.			4	1101	37'-6"	Str.			24	610	4'-0"	Str.			24	610	4'-0"	Str.			L
M	18	1001	12'-6"	Str.			11	1102	12'-6"	Str.			19	1104	19'-6"	Str.			19	1104	19'-6"	Str.			M
													6	1105	38'-6"	Str.			6	1105	38'-6"	Str.			N
													8	1106	13'-3"	Str.			8	1109	17'-6"	Str.			O
													50	1107	7'-0"	Str.			50	1107	7'-0"	Str.			P
												</													

REINFORCEMENT SCHEDULE																						
PIER 1							PIER 2							PIER 3								
BAR	NO	MARK	LENGTH	TYPE	DIMENSIONS			NO	MARK	LENGTH	TYPE	DIMENSIONS			NO	MARK	LENGTH	TYPE	DIMENSIONS			BAR
					A	B	C					A	B	C					A	B	C	
A	40	1001	19'-6"	Str.				52	803	18'-0"	Str.				52	807	23'-6"	Str.				A
B	4	1008	30'-6"	136				4	1008	30'-6"	136				4	1008	30'-6"	136				B
C	2	1009	12'-8"	137				4	1009	12'-8"	137				4	1009	12'-8"	137				C
D	15	605	12'-2"	109	2'-2"	3'-8"		17	605	12'-2"	109	2'-2"	3'-8"		12	607	14'-2"	109	3'-2"	3'-8"		D
E	4	601	25'-3"	Str.				4	601	25'-3"	Str.				4	601	25'-3"	Str.				E
F	4	1002	25'-6"	Str.				5	1002	25'-6"	Str.				4	1002	25'-6"	Str.				F
G	4	1003	18'-3"	Str.				2	1003	18'-3"	Str.				4	1003	18'-3"	Str.				G
H	2-Ser. of 20	501	11'-7" to 12'-9"	138	2'-9" to 3'-4"	2'-8"	1'-11"	2-Ser. of 20	502	11'-7" to 13'-9"	138	2'-9" to 3'-10"	2'-8"	1'-11"	2-Ser. of 20	503	12'-7" to 15'-5"	138	2'-9" to 3'-4"	3'-2"	2'-5"	H
I	8	1004	30'-6"	Str.				8	1013	31'-3"	Str.				10	808	32'-3"	Str.				I
J	2	602	30'-6"	Str.				2	603	31'-3"	Str.				2	608	32'-3"	Str.				J
K	40	1005	7'-6"	Str.				26	804	6'-9"	Str.				26	804	6'-9"	Str.				K
L	8	604	14'-2"	109	2'-8"	4'-2"		10	604	14'-2"	109	2'-8"	4'-2"		8	609	15'-2"	109	3'-2"	4'-2"		L
M	22	801	11'-6"	Str.				20	805	10'-6"	Str.				18	801	11'-6"	Str.				M
N	24	802	8'-6"	Str.				20	802	8'-6"	Str.				16	802	8'-6"	Str.				N
O															2	809	16'-0"	Str.				O
P	20	611	3'-6"	105	1'-6"	1'-0"		20	611	3'-6"	105	1'-6"	1'-0"		20	611	3'-6"	105	1'-6"	1'-0"		P
Q	16	612	4'-0"	105	2'-0"	1'-0"		16	612	4'-0"	105	2'-0"	1'-0"		16	612	4'-0"	105	2'-0"	1'-0"		Q