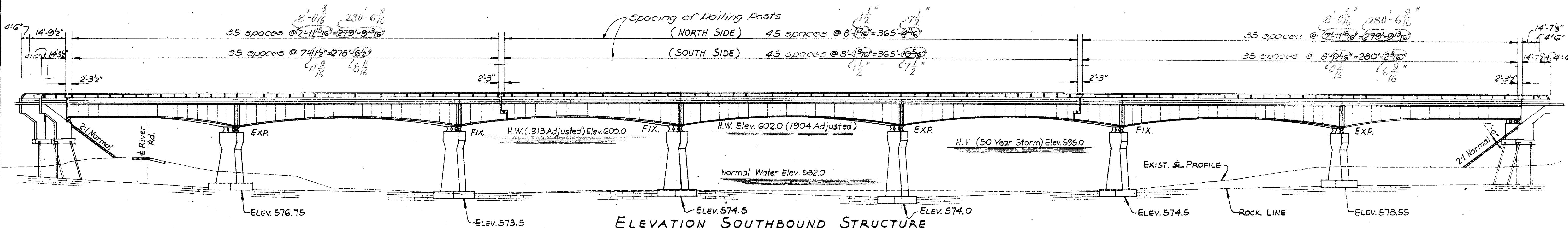


GENERAL PLAN



ELEVATION SOUTHBOUND STRUCTURE

TABLE OF QUANTITIES

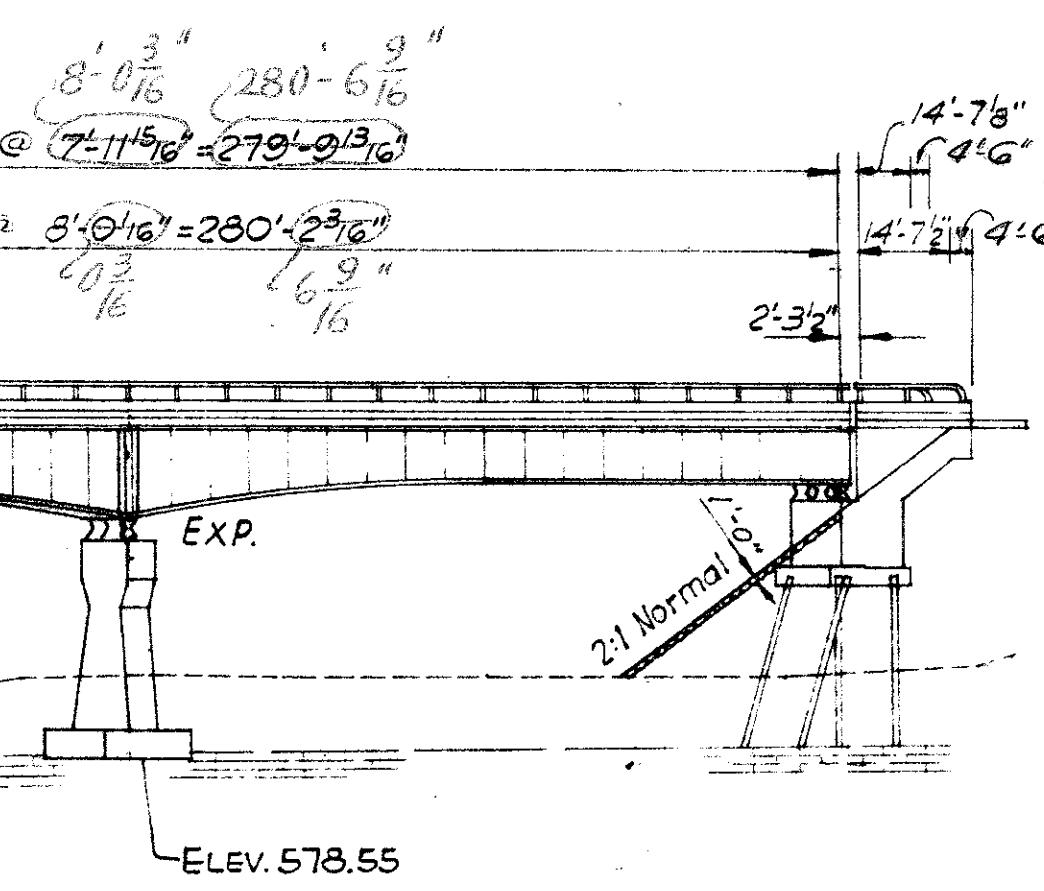
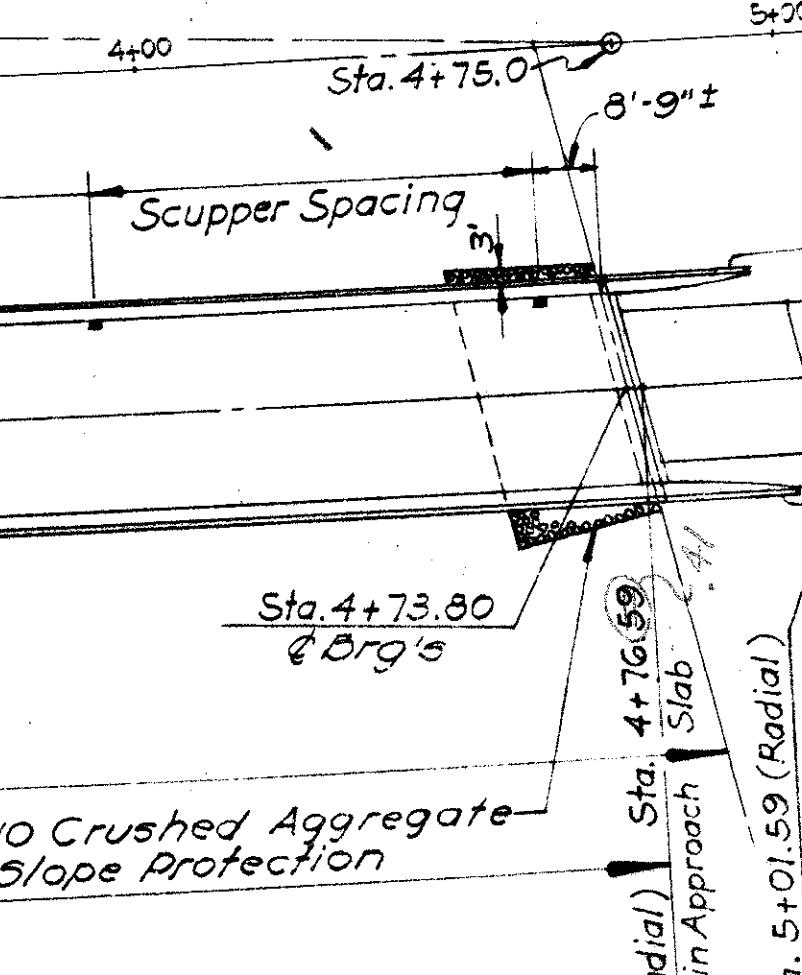
Item	Description	Unit	UNIT ④			UNIT ⑤			UNIT ⑥			SOUTHBOUND STRUCTURE TOTAL	AS BUILT	AS BUILT
			Super.	Abutm.	Piers	General	Total	Super.	Piers	General	Total			
E-8	Cofferdams, cribs, sheeting, pumping	Lump		Lump		Lump		Lump		Lump				
E-8	Unclassified excavation	Cu.Yds.	215			215				200		415		
E-2	Excavation rock	Cu.Yds.	38		63	63			35		35	136		
S-1	Class "C" concrete superstructure	Cu.Yds.	406			406	470		470	361.5		361	1,237	
S-1	Class "C" concrete piers above footing	Cu.Yds.	226			226		211		211		190	627	
S-1	Class "C" concrete abut's above footing	Cu.Yds.	86			86				75		75	161	
S-1	Class "E" concrete abut. footings	Cu.Yds.	50			50				44		44	94	
S-1	Class "E" concrete pier footings	Cu.Yds.	64			64		58		58		57	179	
Special	Water Reducing Set - Retarding Admixtur. (*)	Each	406			406	470		470	361		361	1,237	
S-4	Reinforcing steel	Cbs.	100,326	11,542	40,353	152,221	118,070	36,107	154,177	92,742	8,702	34,489	156,933	443,331
S-7	Structural steel (A-373)	Lbs.	793,800			793,800	870,500		870,500	750,000		750,000	2,7300	
S-7	High Strength Steel A-441 (Bearings)	Lbs.	20,400			20,400	24,450		24,450	20,400		20,400	65,250	
S-8	Field painting of structural steel (as per plan)	Cbs.	814,200			814,200	894,950		894,950	770,400		770,400	2,479,550	
S-14	Aluminum railing (type A*) with conc. parapet	Lin.Ft.	606			606	733		733	609		609	1,048	
S-16	First test pile	Lump												
S-18	Steel piles (10 BP 48)	Lin.Ft.	507			507			473		473		980	
S-29	Porous backfill	Cu.Yds.	25			25			21		21		46	
S-29	Scuppers	ft.	4		4	6		6	4		4		14	
I-10	Dumped Rock Fill, Type "A", Modified (2' thick)	Cu.Yds.	431			431							431	
I-10	Dumped Rock Fill, Type "A", Modified (3' thick, as per plan)	Cu.Yds.	1033			1033							1,033	
I-10	Crushed Aggregate Slope Protection (1/4" thick)	Sq.Yds.							182		182		182	
I-22	Subbase Modified (as per plan)	Cu.Yds.	948			948							948	

(*) See Proposal Note.

See note on Sheet 9.

FED. RD. DIVISION	STATE	PROJECT	10 45
2	OHIO	I-175-7(3)95	

LUC. 20-18.73
W.O. 20-0.00



	CO-ORD X	CO-ORD Y
W.Abut.	42.7363	56.7198
P-15	155.3970	62.5398
P-25	296.3187	67.4861
P-35	437.3724	69.7450
P-45	577.7194	69.2029
P-55	719.2995	66.1310
P-65	860.1936	60.4278
E.Abut.	972.8455	53.9622

NOTE: Reference Line (Chord) runs between Sta. 474+00 Lucas Co. to Sta. 4+75.0 Wood Co. & Survey & Constr. Co-ordinates refer to the intersection of the Roadway & E of Abut. or Pier Brdg's respectively. "X" distances are up station from Sta. 474+00.

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ENGINEERS
TOLEDO OHIO

GENERAL PLAN & ESTIMATED QUANTITIES

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE REVISED
W.B.D	H.C.M.	H.C.M.	W.B.D.	JMK	11-23-63
					Aug. 14-12-63
					1962

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-475-7(3)195

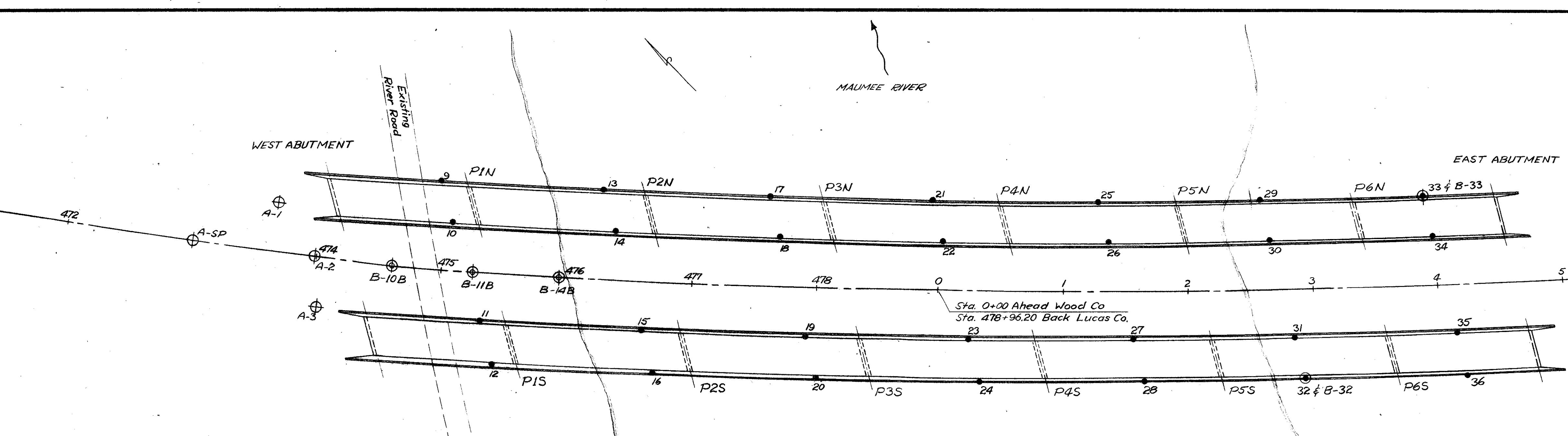
11
45

LUC-20-18.73
WOO-20-0.00

WEST ABUTMENT

MAUMEE RIVER

EAST ABUTMENT



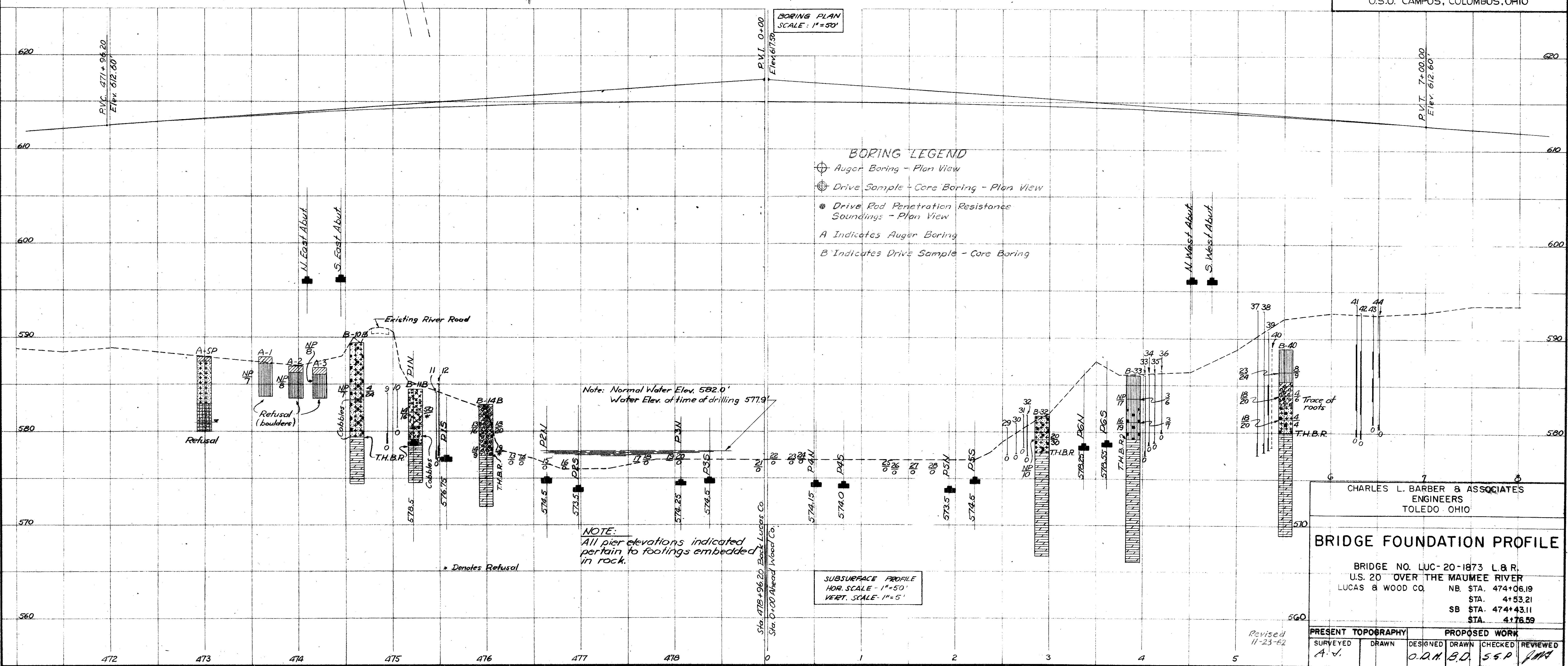
OHIO STATE HIGHWAY
TESTING LABORATORY
O.S.U. CAMPUS, COLUMBUS, OHIO

BORING PLAN
SCALE: 1"=50'

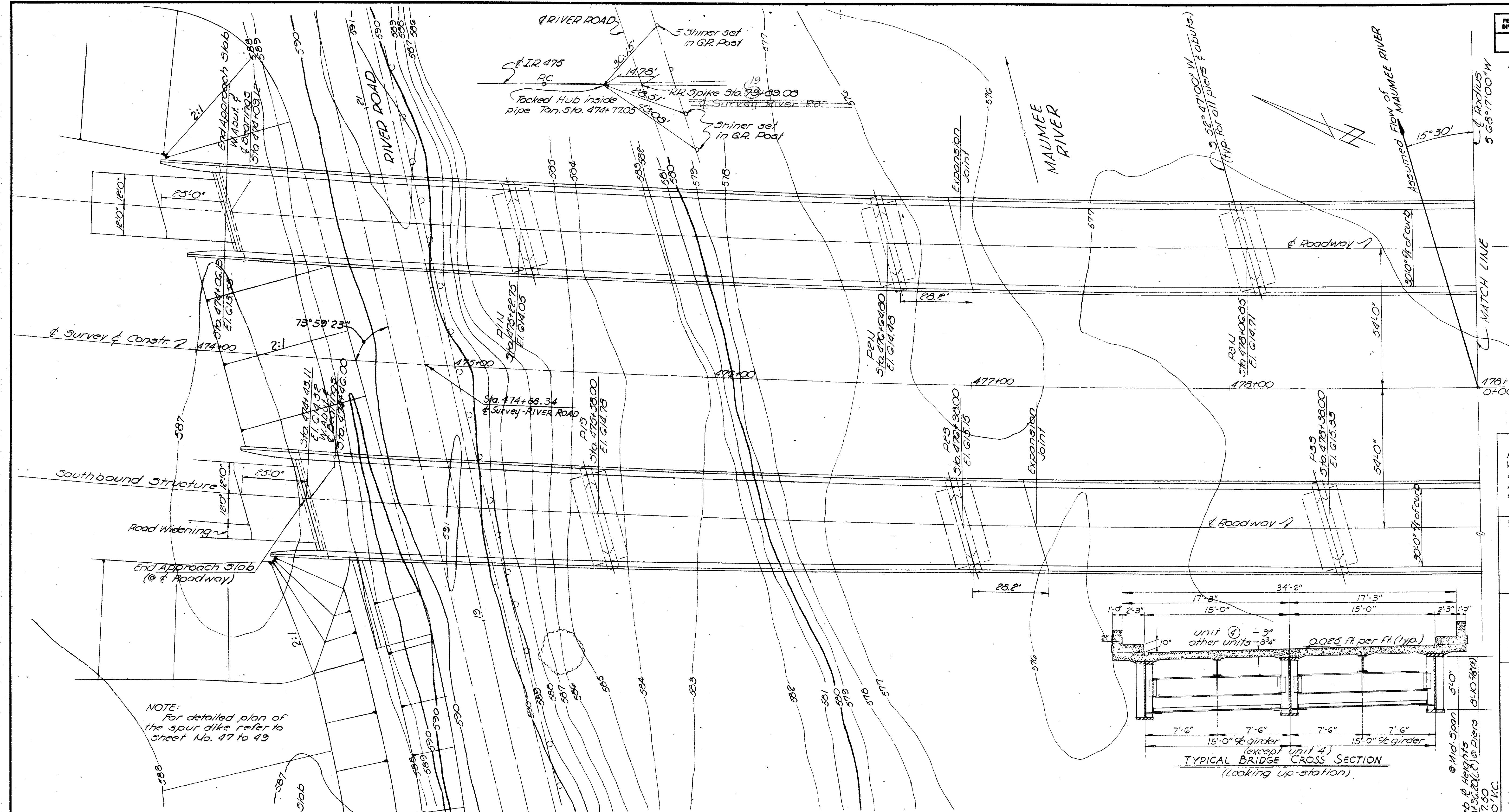
P.V.L. 0+00
Elev 617.50

BORING LEGEND

- Ⓐ Auger Boring - Plan View
- Ⓑ Drive Sample + Core Boring - Plan View
- Ⓒ Drive Rod Penetration Resistance Soundings - Plan View
- A Indicates Auger Boring
- B Indicates Drive Sample - Core Boring



FED. RD.	STATE	PROJECT
2	OHIO	1475-7(3)195

12
45LUC. 20-18.73
WOO. 20-0.00

SITE BENCH MARKS
 R.R. Spike @ base N.W. Side 24" Double Tree No. of W. RIVER RD. - 473+75, 240' Lt. (t)
 ELEV. = 590.021
 R.R. Spike - 3' High - So. Side 20" Tree, 3+65-210' Lt. (t)
 ELEV. = 589.576

DOWNTREAM BRIDGE
 Bridge No. Luc-20-1918.
 Type: Concrete Spandrel Filled Arch
 Spans: 7 @ 101'.
 Roadway: 36'-4" Curbs.
 Sidewalks: 5'-6" Walks.

UPSTREAM BRIDGE
 Bridge No. Woo.-64-0986
 Type: Steel High Truss.
 Spans: 5 @ 161'.
 Roadway: 24'-4" Curbs.

PROPOSED STRUCTURES
 Type: Two (2)-Seven Span Semi-Continuous Reinforced Concrete Deck & Substructure.
 Spans: North Structure - 112'-9 1/2", 5 @ 141'-0 1/4" - 112'-9 1/2".
 South Struct. - 112'-9 1/2", 5 @ 141'-0 1/4" - 112'-9 1/2".
 Roadway: 30'-0" ft. 2'-3" Curbs.
 Load Frequency: CF=2000
 Skew: 18° 30' 00" E/F RF
 Wearing Surface: 1" Monolithic Concrete.
 Approach Slabs: AS-1-54 (25'-0" Long).
 Alignment: Curve (0°-46° Survey & Construction).
 Curbs: 2'-3" Safety Curbs Each Side.

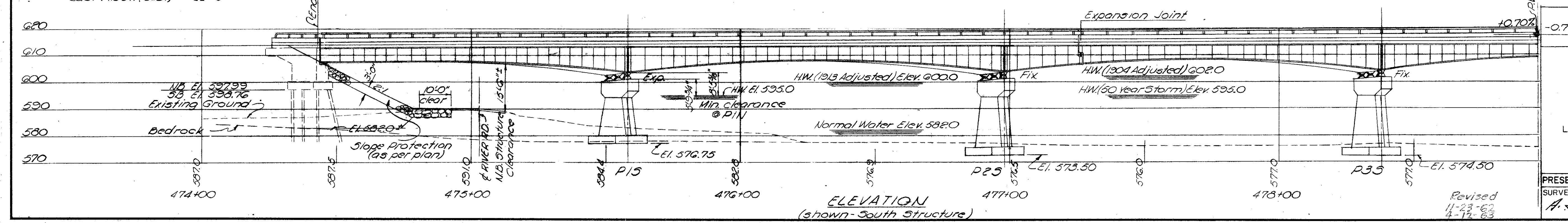
DRAINAGE AREA - 6,350 Sq. Mi.

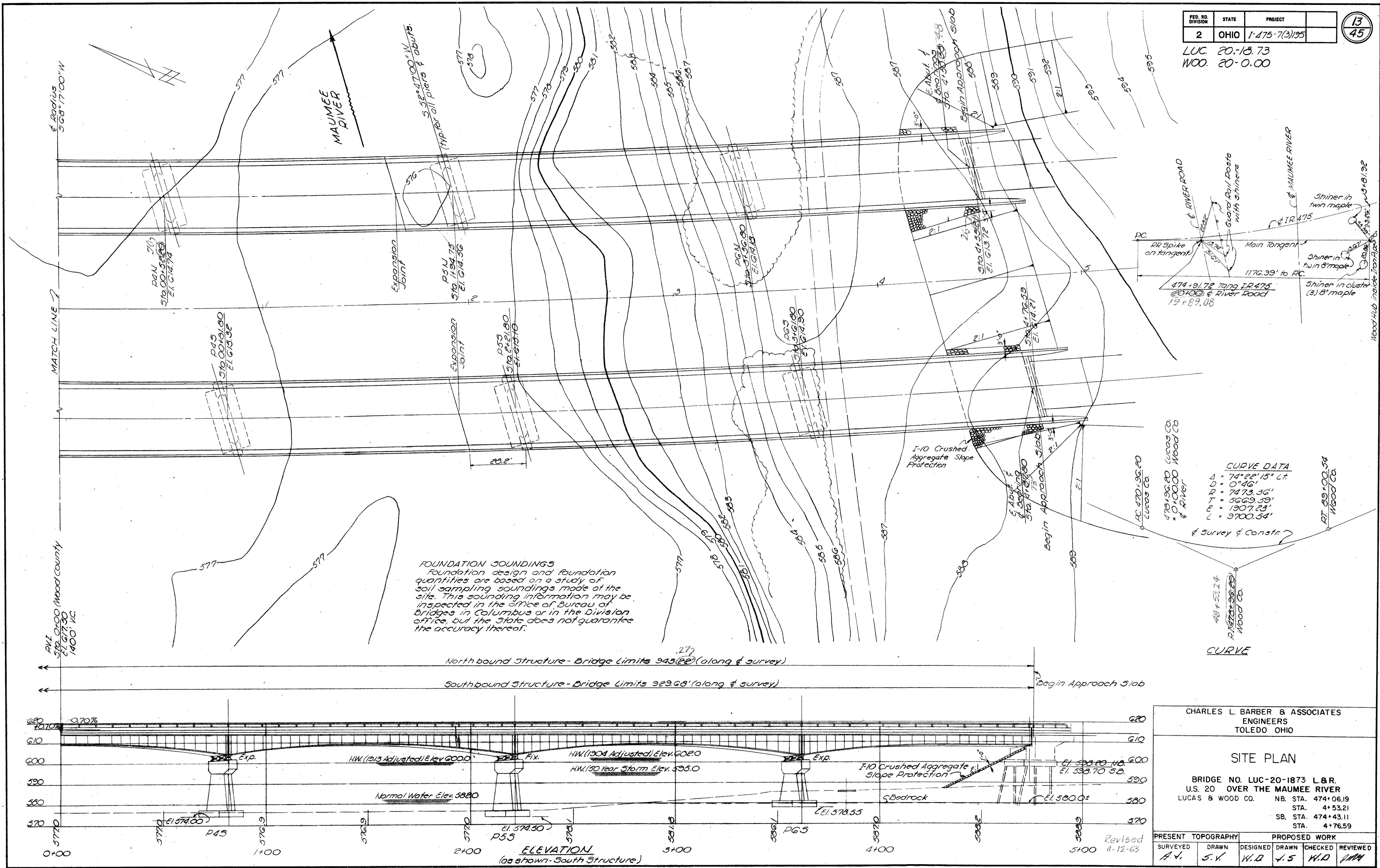
CHARLES L. BARBER & ASSOCIATES
 ENGINEERS
 TOLEDO OHIO

SITE PLAN

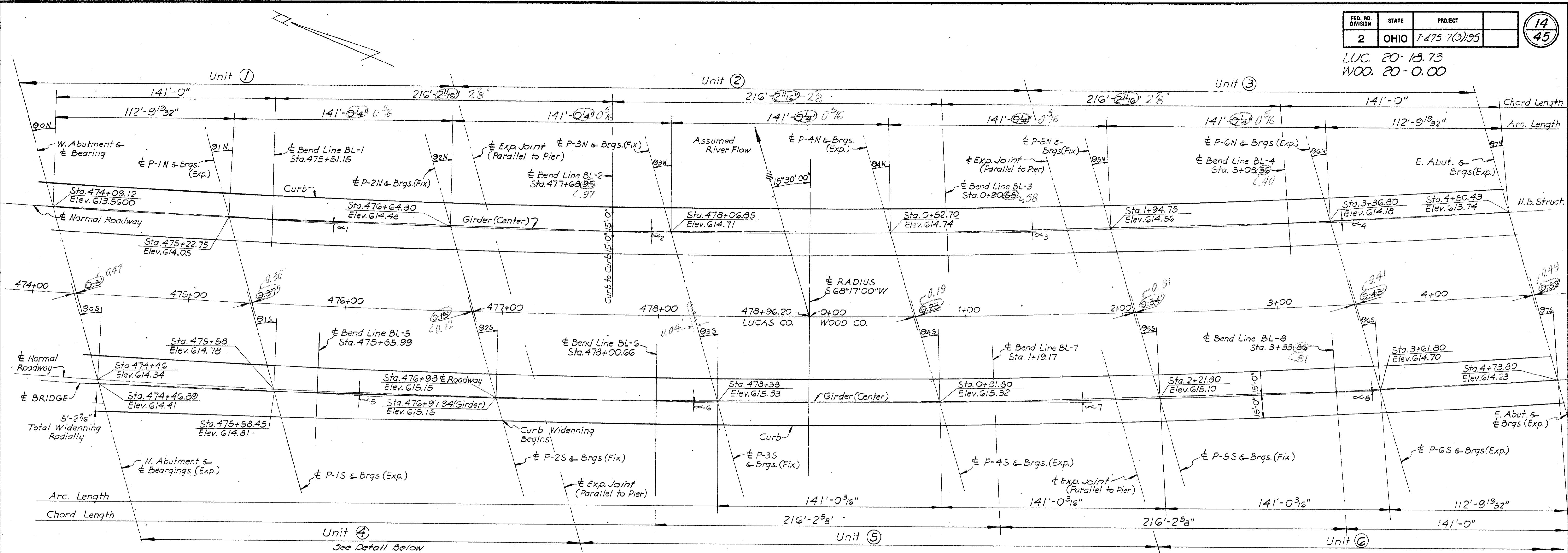
BRIDGE NO. LUC-20-1873 L.R.
 U.S. 20 OVER THE MAUMEE RIVER
 LUCAS & WOOD CO. NB. STA. 474+06.19
 STA 4+53.21
 SB. STA. 474+43.11
 STA 4+76.59

PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
A.J.	S.V.	H.D.	J.S.	H.D.	J.M.





FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-175-7(3)/95

14
45LUC. 20-18.73
WOO. 20-0.00

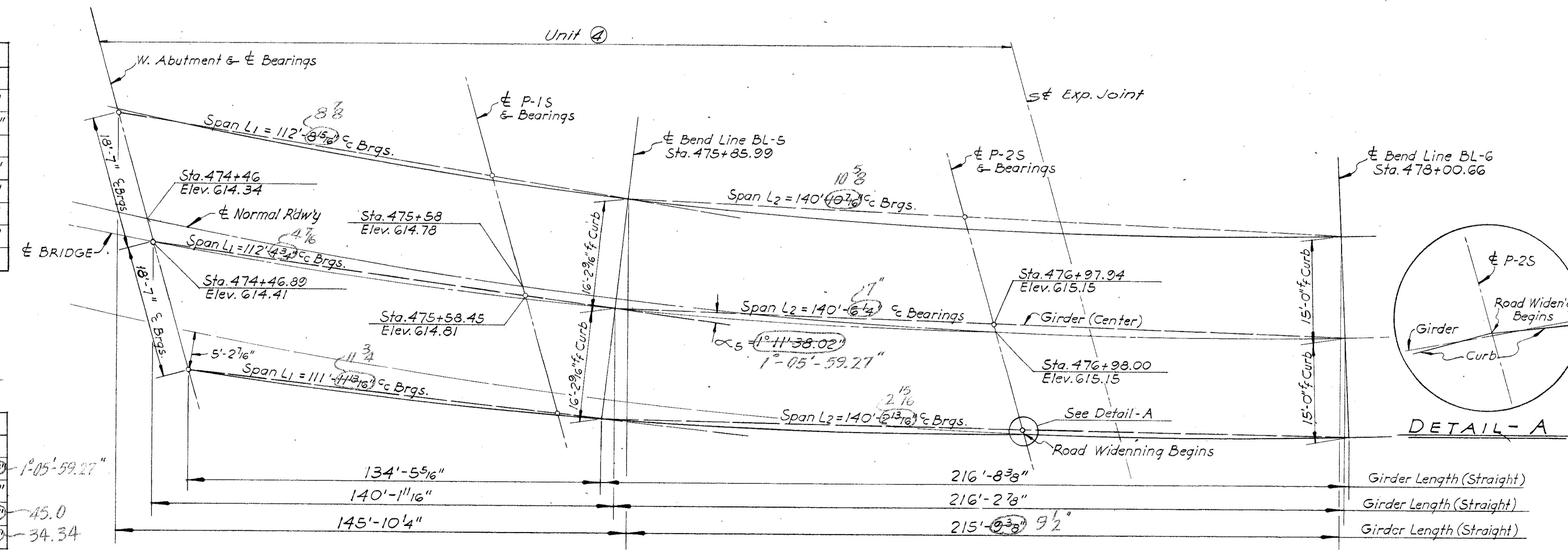
NOTE: All θ -Angles are between θ -Pier Or
Abut. brgs and Radial Line.
All bendlines are in Radial directions.
 θ Bearings of all piers & abut's are
parallel. Direction S 52°47'00"W.

N.B. STRUCTURE	S.B. STRUCTURE
MARK	ANGLE
90N	19°14'3.4"
91N	18°21'47.3"
92N	17°16'26.7"
93N	16°11'6.1"
94N	15°05'45.5"
95N	14°0'24.9"
96N	12°55'43"
97N	12°02'48.2"
90S	18°57'05.5"
91S	18°05'34.3"
92S	17°01'10.3"
93S	15°56'46.3"
94S	14°52'22.3"
95S	13°47'58.3"
96S	12°43'34.3"
97S	11°52'03.1"

NOTE: All θ -Angles are between
 θ Pier and Radial line.

θ Bend Line
 θ Girder

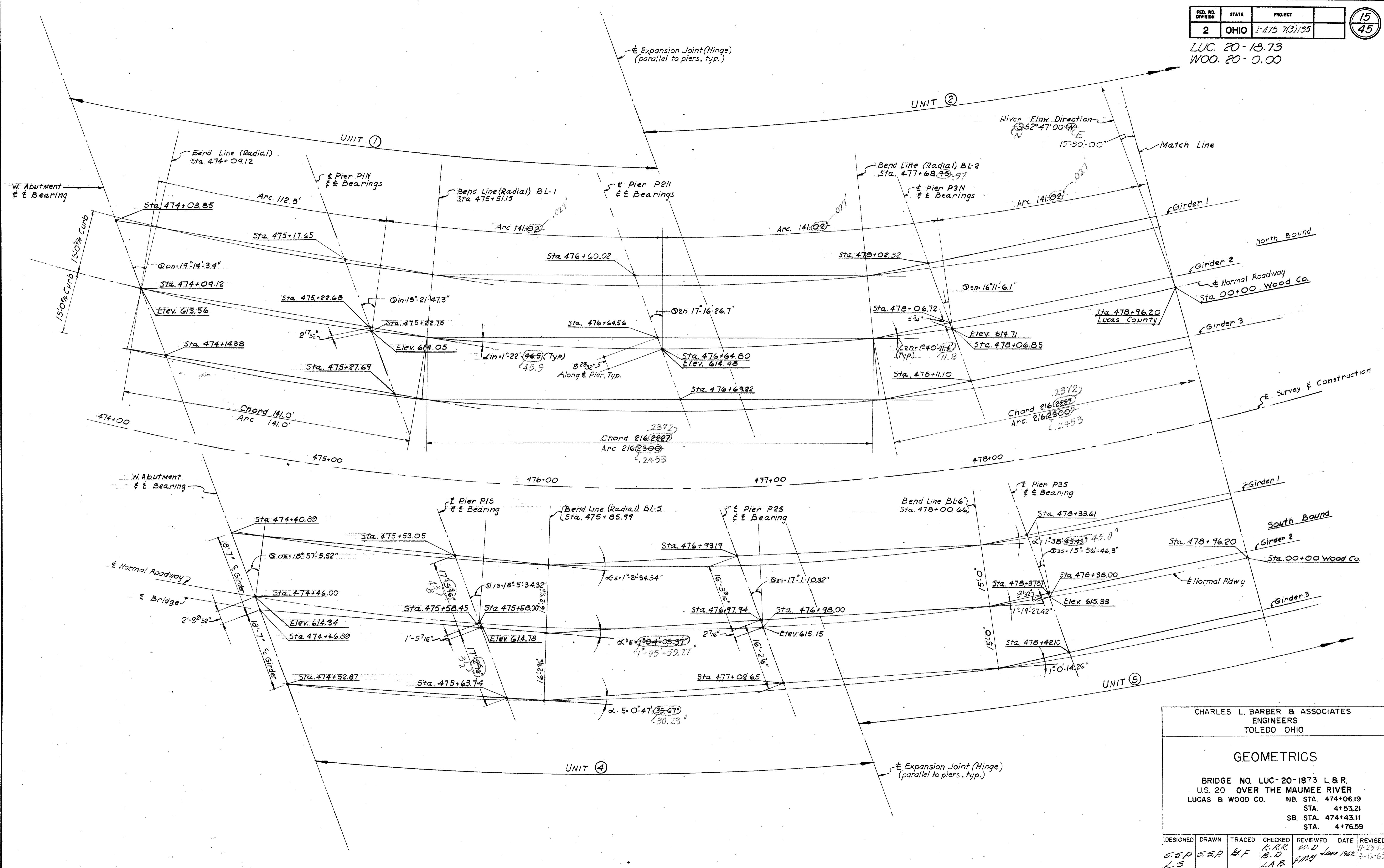
N.B. STRUCTURE	S.B. STRUCTURE
MARK	ANGLE
001	1°22'46.5"
002	1°40'11.8"
003	1°40'11.8"
004	1°22'46.5"
005	1°04'05.37"
006	1°19'27.42"
007	1°38'45.71"
008	1°21'34.55"
009	34.34



FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-475-7(3)/95	

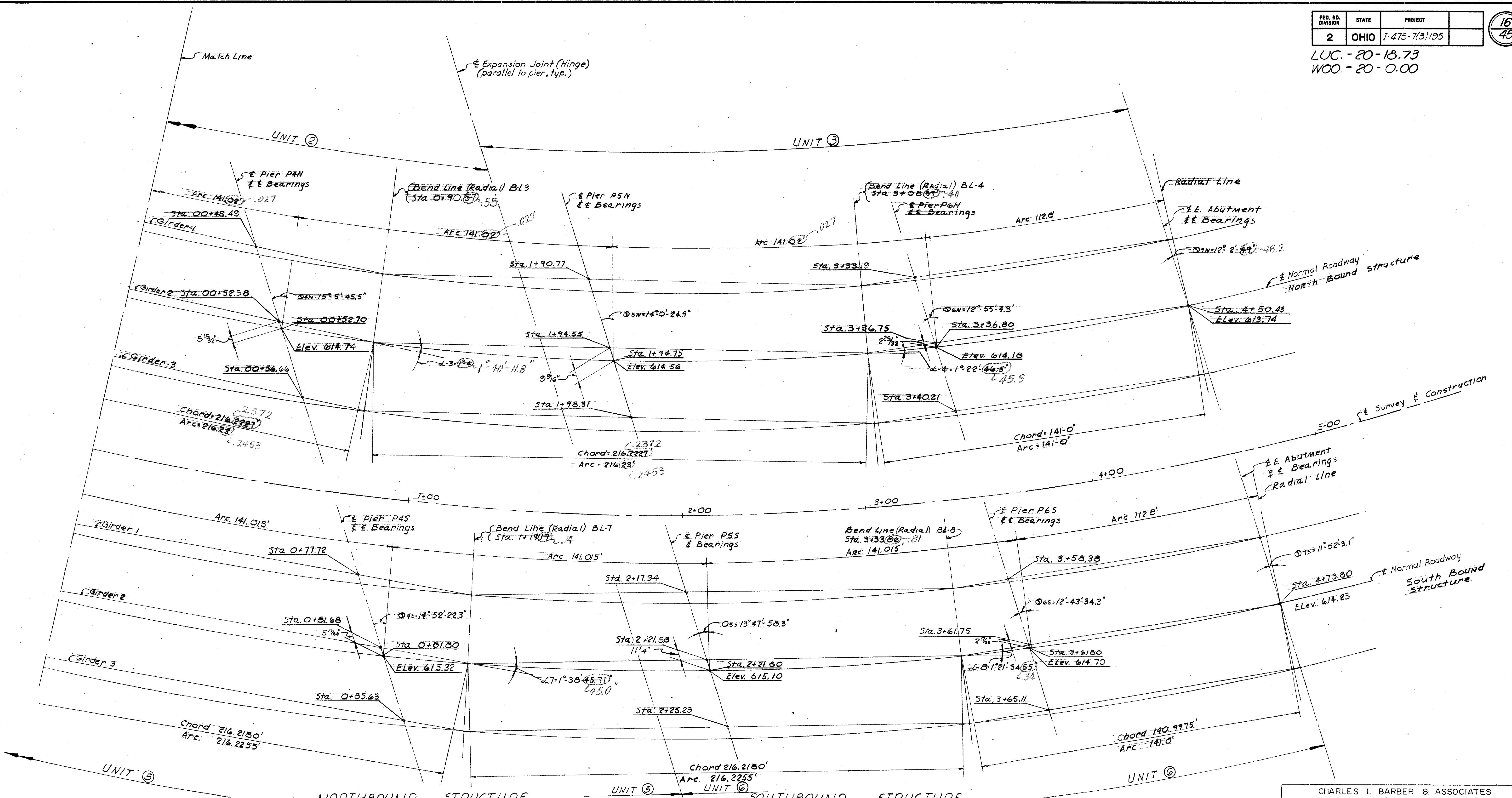
15
45

LUC. 20 - 18.73
WOO. 20 - 0.00



FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-475-7(3)195	16 45

LUC. -20-18.73
WOO. -20-0.00



NORTHBOUND STRUCTURE				
FACE OF NORTH CURB	FACE OF SOUTH CURB	FACE OF NORTH CURB	FACE OF SOUTH CURB	
Location	Sta. & Abut.brg	Elevation	Sta. & Abut.brg	Elevation
	or & pier	Top of pavt.	or & Pier	Top of pavt.
1 W. Abut.	474+03.84	G13.1G	474+14.38	G13.9G
2 P-IN	475+17.72	G13.6G	475+27.75	G14.45
3 P-2N	476+60.09	G14.10	476+69.49	G14.87
4 P.3N	478+02.45	G14.33	478+11.83	G15.09
5 P-4N	0+48.68	G14.3G	0+56.77	G15.11
6 P-SN	1+30.97	G14.19	1+38.51	G14.93
7 P-GN	3+33.33	G13.88	3+40.86	G14.55
8 E. Abut.	4+47.80	G13.38	4+53.65	G14.10

SOUTHBOUND STRUCTURE				
FACE OF NORTH CURB	FACE OF SOUTH CURB	FACE OF NORTH CURB	FACE OF SOUTH CURB	
Location	Sta. & Abut.brg	Elevation	Sta. & Abut.brg	Elevation
	or & pier	Top of pavt.	or & pier	Top of pavt.
1 W. Abut.	474+40.88	G13.94	474+52.87	G14.87
2 P-IS	475+53.12	G14.39	475+63.79	G15.24
3 P-2S	476+93.43	G14.77	477+02.53	G15.54
4 P-3S	478+33.73	G14.96	478+42.24	G15.71
5 P-4S	0+77.84	G14.94	0+85.75	G15.69
6 P-5S	8+18.13	G14.74	2+25.45	G15.47
7 P-6S	3+58.43	G14.33	3+65.16	G15.06
8 E. Abut.	4+70.66	G13.87	4+76.92	G14.39

CHARLES L BARBER & ASSOCIATES
ENGINEERS
TOLEDO OHIO

GEOMETRICS

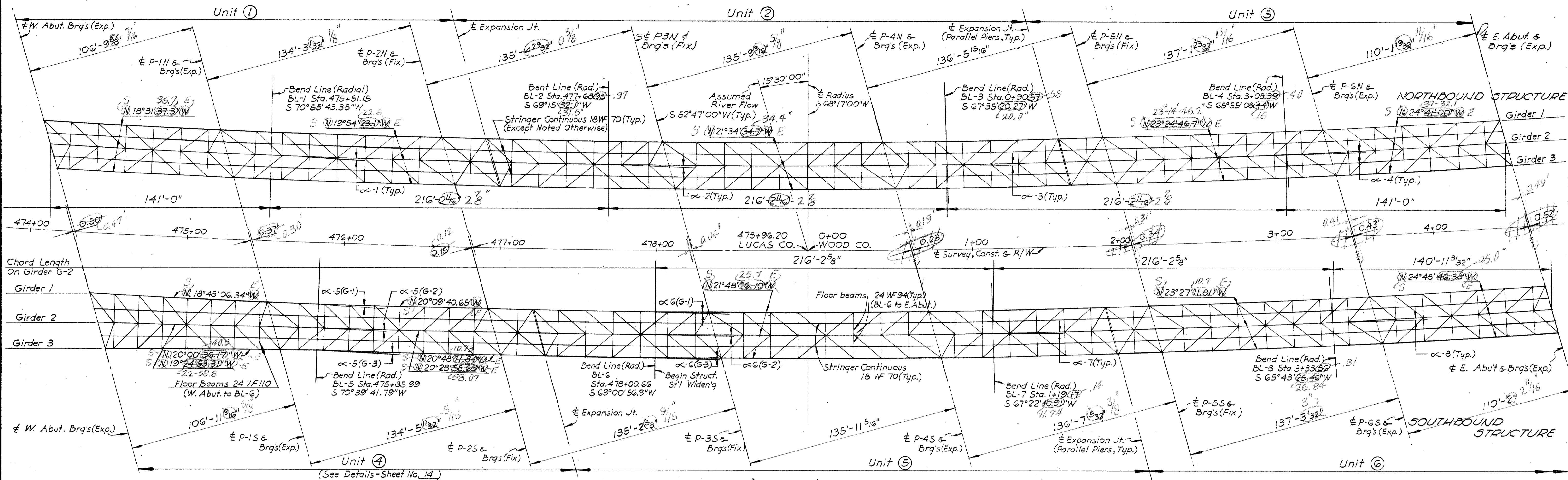
BRIDGE NO LUC-20-1873 L.R.
U.S. 20 OVER THE MAUMEE RIVER
LUCAS & WOOD CO NB. STA. 474+06.19
STA. 4+53.21
SB. STA. 474+43.11
STA. 4+76.59

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
S.G.P L.S	S.G.P	S.F	K.R.R L.A.B	W.D J.W.Y	June 1962	11-23-62 4-12-63

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-475-7(3)/95

17
45

LUC. 20-18.73
WOO. 20-0.00



NORTHBOUND STRUCTURE

GIRDER -1			GIRDER -2			GIRDER -3		
LOCATION	STATION @ E BRG'S	ELEVATION	STATION	ELEVATION	STATION	ELEVATION		
	Top Pav't	Top of Pier or Abut.	@ E BRG'S	Top Pav't	Top of Pier or Abut.	@ E BRG'S	Top Pav't	Top of Pier or Abut.
1. W. Abut.	474+03.85	613.1600	605.2358	.3190	474+09.12	613.5600	605.6355	.7198
2. P-1N	475+17.65	613.6500	600.8178		475+22.68	614.0500	601.2117	475+27.69
3. P-2N	476+60.02	614.4100	601.2554		476+64.56	614.4600	601.6419	476+69.22
4. P-3N	478+02.32	614.3200	601.4902	.5081	478+06.72	614.7000	601.8697	478+11.10
5. P-4N	0+48.49	614.3500	601.5223	.5401	0+52.58	614.7300	601.8952	.9131
6. P-5N	1+90.77	614.1700	601.3518		1+94.55	614.5400	601.7198	1+98.31
7. P-6N	3+33.19	613.8200	600.9788		3+36.75	614.1800	601.3419	3+40.21
8. E. Abut.	4+47.18	613.3800	605.4476	.5312	4+50.43	613.7400	605.8084	.8917

N. B. STRUCT.

NOTATION	BEND ANGLE
1. $\alpha-1$	$1^{\circ} 22' 46.5''$
2. $\alpha-2$	$1^{\circ} 40' 44.3''$
3. $\alpha-3$	$1^{\circ} 40' 44.3''$
4. $\alpha-4$	$1^{\circ} 22' 46.5''$

NOTE: Bearings of Piers & Abutments = S 52°47'00" W.
All floor beams to be perpendicular to Girder-2.
N. B. Struct.-Girders are parallel-Normal Distance = 15.0'.
S. B. Struct.-Girders are parallel from BL-6 to E. Abut.
Normal Dist.=15.0'.

SOUTHBOUND STRUCTURE

GIRDER -1			GIRDER -2			GIRDER -3		
LOCATION	STATION @ E BRG'S	ELEVATION	STATION	ELEVATION	STATION	ELEVATION		
	Top Pav't	Top of Pier or Abut.	@ E BRG'S	Top Pav't	Top of Pier or Abut.	@ E BRG'S	Top Pav't	Top of Pier or Abut.
1. W. Abut.	474+40.89	613.9400	606.0126	.0958	474+46.89	614.4100	606.4785	.5617
2. P-1S	475+53.05	614.3800	601.5188		475+58.45	614.8100	601.9526	475+63.74
3. P-2S	476+93.19	614.7500	601.9286		476+97.94	615.1500	602.3078	477+02.65
4. P-3S	478+33.61	614.9500	602.1146	.1316	478+37.87	615.3200	602.4922	.5101
5. P-4S	0+77.72	614.9300	602.7038	.1217	0+81.68	615.3100	602.4756	.4935
6. P-5S	2+17.94	614.7200	601.8962		2+21.58	615.0800	602.2631	2+25.23
7. P-6S	3+58.38	614.3300	601.4917		3+61.75	614.6900	601.8546	3+65.11
8. E. Abut.	4+70.64	613.8700	605.0402		4+73.80	614.2300	606.3004	.3837

S. B. STRUCT.

NOTATION	BEND ANGLE
GIRDER-1	$1^{\circ} 21' 34.34''$
GIRDER-2	$1^{\circ} 04' 05.37''$
GIRDER-3	$0^{\circ} 47' 35.67''$
$\alpha-5$	$1^{\circ} 21' 34.34''$
$\alpha-6$	$1^{\circ} 38' 45.45''$
$\alpha-7$	$1^{\circ} 19' 27.42''$
$\alpha-8$	$1^{\circ} 00' 14.26''$

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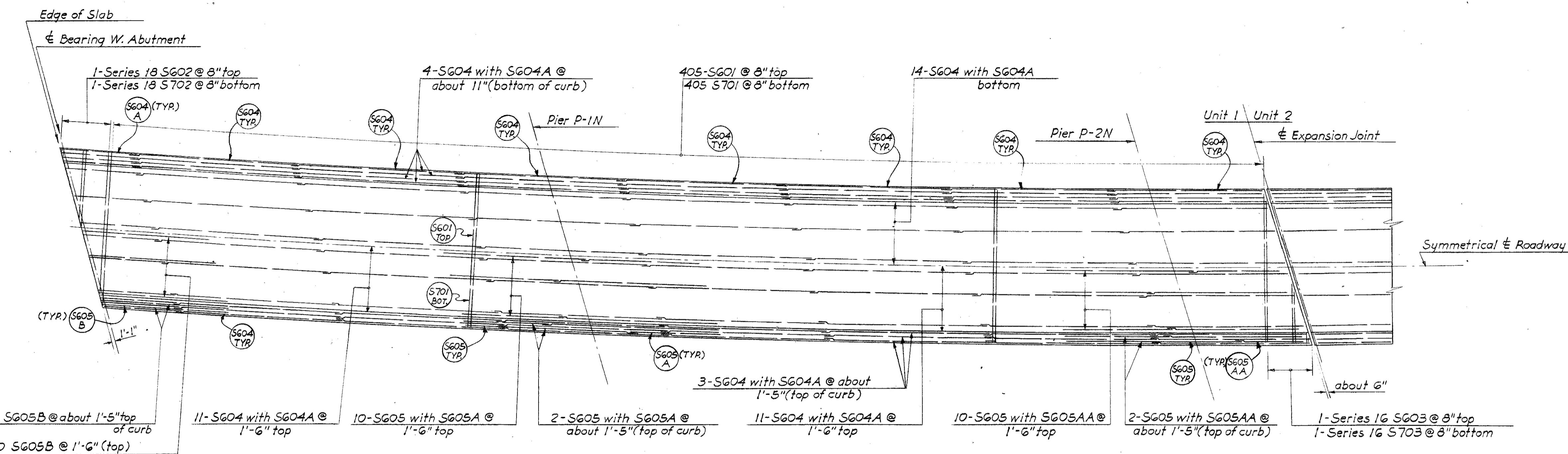
FRAMING PLAN & GEOMETRICS

BRIDGE NO. LUC-20-1873 L.R.
U.S. 20 OVER THE MAUMEE RIVER
LUCAS & WOOD CO.

NB. STA. 474+06.19
STA. 4+53.21
SB. STA. 474+43.11
STA. 4+76.59

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	REVISED
K.S. 5.5.P	S.S.P	H.M	K.R.R. B.D	W.D. July 1982 JMK	1/23/82 4-12-83 5-21-83

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-475-7(3)95

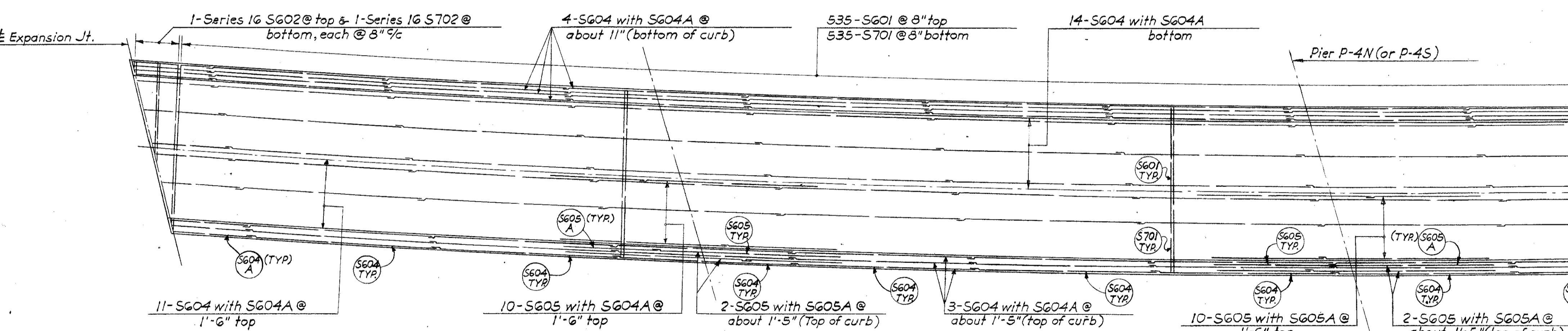
18
45LUC - 20 - 18.73
WOO - 20 - 0.00

DECK REINFORCEMENT - UNIT 1

(Applies by symmetry to Units 3 & 6)

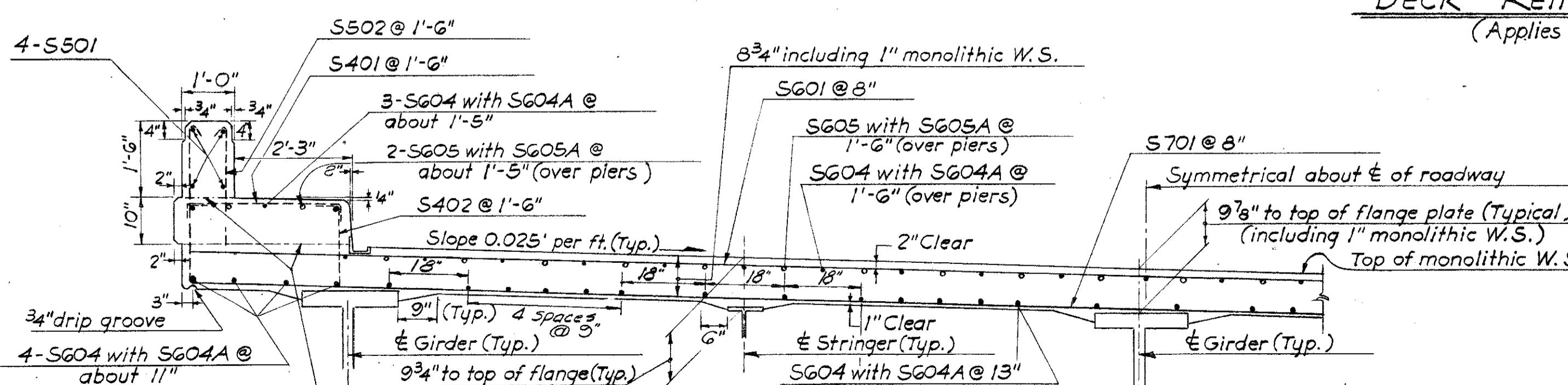
1'-7" #5 Bar
1'-11" #6 Bar

LAPS IN BARS (Typical)



Quantities are given for one unit only.

* See note in sheet no. 30.

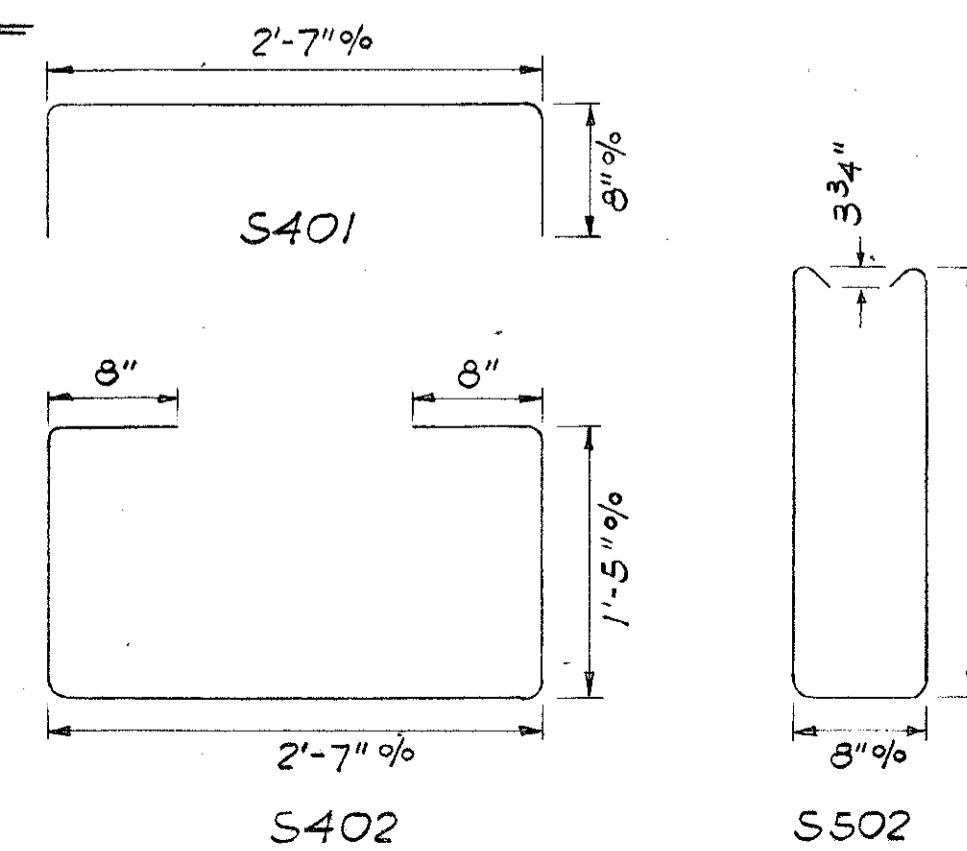


CROSS SECTION - DECK SLAB

Units 1 thru 3, 5 & 6

DECK REINFORCEMENT - UNIT 2

(Applies by symmetry to Unit 5)



NOTE: All transverse bars shall be placed radially. "top" means top of slab unless otherwise noted.

NOTES: Bars shown thus o are over piers or abutments only.

Reinforcing steel shall be adjusted as required to clear scupper.

All longitudinal bars shall be placed parallel to symmetrical E of roadway.

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ENGINEERS
TOLEDO OHIO

DECK REINFORCING UNITS 1, 2, 3, 5, 8, 6

BRIDGE NO. LUC-20-1873 L. & R.
U.S. 20 OVER THE MAUMEE RIVER
LUCAS & WOOD CO. NB. STA. 474+06.19
STA. 4+53.21
SB. STA. 474+43.11
STA. 4+76.59

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
K.RR	K.RR	H.M	S.S.P	W.D. July	July	1962

This sheet superseded
by sheet 18 A.

UC. - 20-18.73
'00. - 20-0.00

REINFORCEMENT SCHEDULE

MARK	Units 1-3 E-6				Units 2 E-5			
	No.	LENGTH	SERIES INCREM'T	WEIGHT-POUNDS	No.	LENGTH	SERIES INCREM'T	WEIGHT POUNDS
S401	378	3'-10"		967	490	3'-10"		1254
S402	378	6'-7"		1661	490	6'-7"		2154
S501	128	15'-8"			168	15'-10"		*
S501A	16	12'-8"			16	12'-9"		*
S502	378	6'-0"		2366	490	6'-0"		3066
S601	405	36'-4"		22100	535	36'-4"		29196
S602	1 SERIES 18	0'-8" to 34'-5"	23"	490	1 SERIES 16	0'-8" to 34'-2"	26"	431
S603	1 SERIES 16	0'-8" to 34'-2"	26"	431	1 SERIES 13	1'-8" to 33'-8"	32"	344
S604	441	40'-0"		26495	567	40'-0"		34065
S604A	63	15'-6"		1467	63	24'-5"		2310
S605	48	40'-0"		2884	48	40'-0"		2884
S605A	24	21'-11"		790	48	21'-11"		1580
S605AA	24	18'-11"		682				
S605B	24	30'-0"		1081				
S701	405	36'-4"		30075	535	36'-4"		39731
S702	1 SERIES 18	0'-8" to 34'-5"	23"	666	1 SERIES 16	0'-8" to 34'-2"	26"	587
S703	1 SERIES 16	0'-8" to 34'-2"	26"	587	1 SERIES 13	1'-8" to 33'-8"	32"	468
TOTAL				92,742	TOTAL			118,070

Quantities are given for one unit only.

* See note in sheet no. 30

LAPS IN BARS (*Tropical*)

DECK REINFORCEMENT - UNIT
(Applies by symmetry to Units 3 & 6)

This hand-drawn diagram illustrates a bridge's cross-section with various concrete beam sections labeled by type and location:

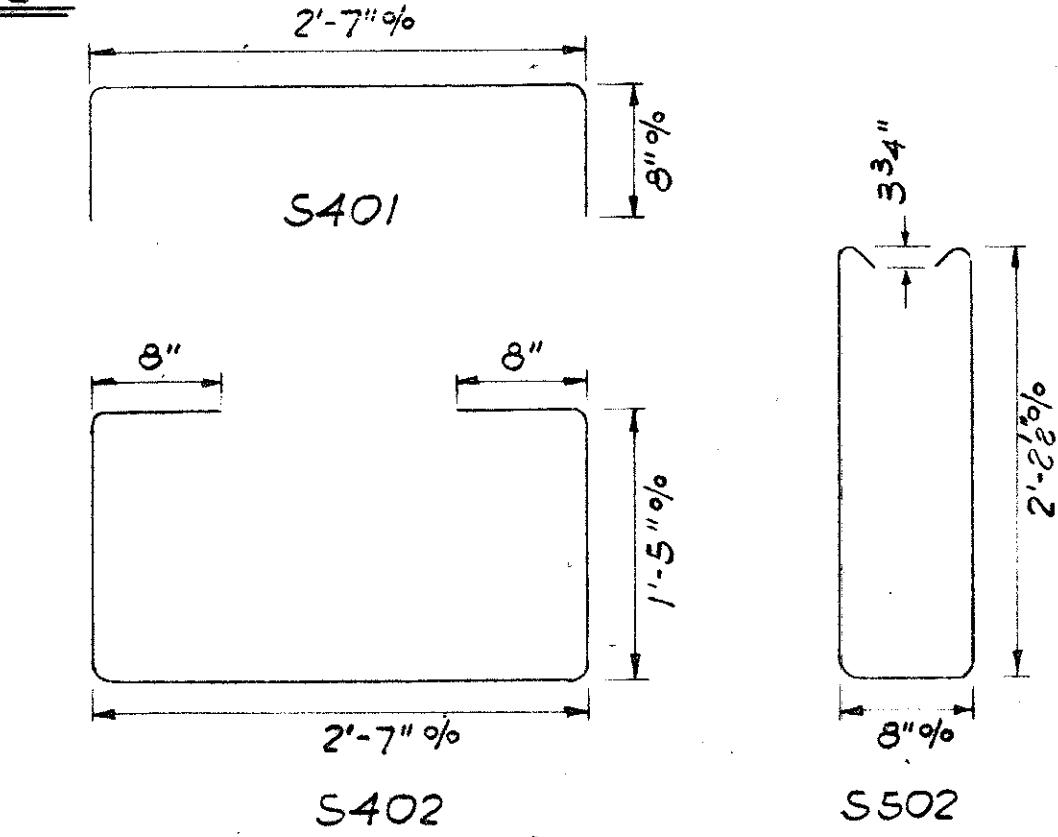
- Top Left:** 1-Series 18 S602 @ 8" top, 1-Series 18 S702 @ 8" bottom.
- Middle Left:** 2 S605B @ about 1'-5" top of curb, 10 S605B @ 1'-6" (top).
- Bottom Left:** 10 S605B @ 1'-6" (top).
- Middle Center:** 11-S604 with S604A @ 1'-6" top, 10-S605 with S605A @ 1'-6" top.
- Top Center:** 4-S604 with S604A @ about 11" (bottom of curb), 2-S605 with S605A @ about 1'-5" (top of curb).
- Middle Right:** 11-S604 with S604A @ 1'-6" top.
- Bottom Right:** 10-S605 with S605AA @ 1'-6" top.
- Far Right:** 2-S605 with S605AA @ about 1'-5" (top of curb), 1-Series 16 S603 @ 8" top, 1-Series 16 S703 @ 8" bottom.
- Expansion Joint:** Located between Unit 1 and Unit 2, indicated by a bracket and the label "Expansion Joint".
- Piers:** Pier P-1N and Pier P-2N are shown at the ends of the bridge.
- Notes:** The roadway is described as "Symmetrical & Roadway".

This technical drawing shows a cross-section of a bridge pier. The pier features a central vertical column with horizontal beams and a diagonal brace. A thick concrete curb runs along the top and bottom edges of the pier. Various concrete components are labeled with callouts and dimensions:

- Left side:** "Expansion Jt." is indicated at the top left.
- Top:** "1-Series 16 S602 @ top & 1-Series 16 S702 @ bottom, each @ 8" c/c" is labeled.
- Middle:** "4-S604 with S604A @ about 11" (bottom of curb)" is labeled.
- Bottom:** "11-S604 with S604A @ 1'-6" top" is labeled.
- Right side:** "535-S601 @ 8" top" and "535-S701 @ 8" bottom" are labeled.
- Far right:** "14-S604 with S604A bottom" and "Pier P-4N (or P-4)" are labeled.
- Labels:** Numerous labels include "S601 TYP.", "S604 TYP.", "S605 A (TYP.)", "S605 TYP.", "S701 TYP.", and "S605 TYP. (TYP.)".
- Dimensions:** Dimensions like 11", 1'-6", 8", and 1'-5" are shown throughout the drawing.

DECK REINFORCEMENT - UNIT 2

(Applies by symmetry to Unit 5)



NOTE: All transverse bars shall be placed radially - "top" means top of slab unless otherwise noted.

NOTES: Bars shown thus ° are over piers or abutments only.

rcing steel shall be adjusted as required
scupper.

*itudinal bars shall be placed parallel to
trical & of roadway.*

**LES L. BARBER & ASSOCIATES
ENGINEERS
TOLEDO OHIO**

DECK REINFORCING UNITS 123586

BRIDGE NO. LUC-20-1873 L.& R.
U.S. 20 OVER THE MAUMEE RIVER
ICAS & WOOD CO. NB. STA. 474+06.19

WOOD CO. NB. STA. 474+ 68.15
STA. 4+53.21
SB. STA. 474+ 43.11
STA. 4+76.59

STAN. 4-76-59

H.M S.S.P W.D. July
J.M.Y 1962

4-S501

S502 @ 1'-6"

S401 @ 1'-6"

3-S604 with S604A @ about 1'-5"

2-S605 with S605A @ about 1'-5" (over piers)

S402 @ 1'-6"
Slope 0.025'/ft (typ.)

3/4" drip groove

4-S604 with S604A @ about 1/1"

9 3/4" to top of flange (typ.)

45 Pcs @ 9"

6"

1" Clear

18"

18"

18"

S601 @ 8"

S605 with S605A @ 1'-6" (over piers)

S604 with S604A @ 1'-6" (over piers)

2" Clear

8 3/4" including 1" monolithic W.S.

S701 @ 8"

Symmetrical about E of roadway

Top of monolithic W.

9 7/8" to top of flange plate (typ.)

(Including 1" monolithic W.S.)

E Girder (Typ.)

E Stringer (Typ.)

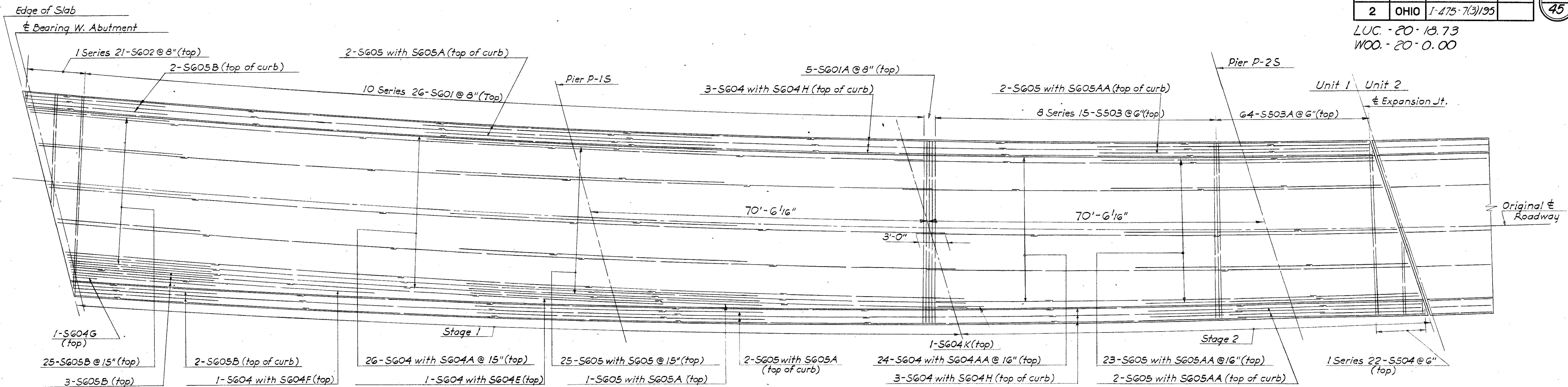
S604 with S604A @ 13"

(Applies)

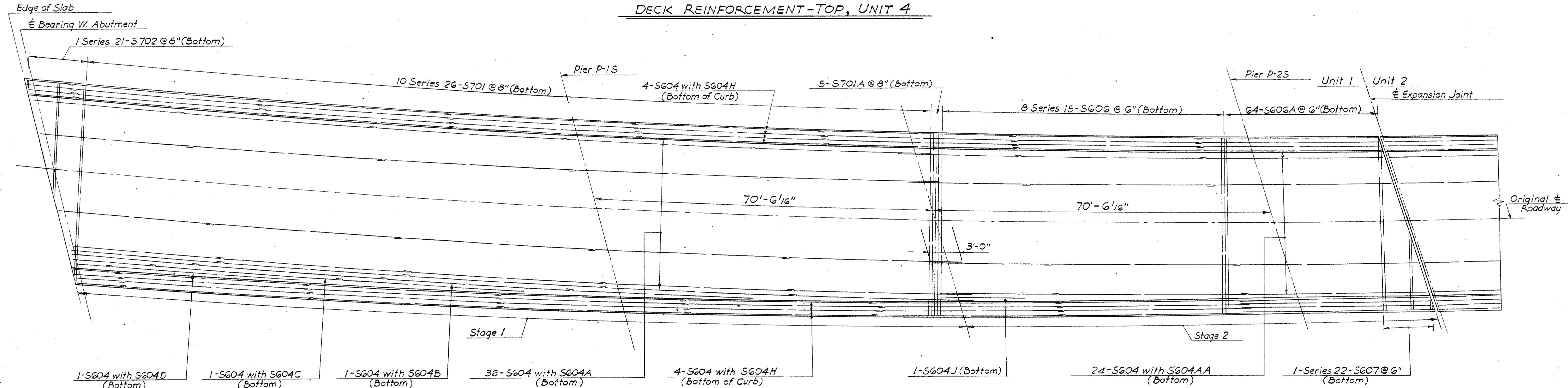
CROSS SECTION - DECK SLAB
Units 1 thru 3, 5 & 6

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	J-475-7(3)195	19 45

LUC. - 20 - 18.73
WOO. - 20 - 0.00



DECK REINFORCEMENT-TOP, UNIT 4



DECK REINFORCEMENT-BOTTOM, UNIT 4

NOTES: All longitudinal bars shall be placed parallel to original E roadway.
All transverse bars shall be placed radially.
"Top" means top of slab unless otherwise noted.
For reinforcement schedule and cross sections see sheet number 20.

CHARLES L. BARBER & ASSOCIATES
ENGINEERS
TOLEDO OHIO

DECK REINFORCING UNIT 4

BRIDGE NO. LUC-20-1873 L&R.
U.S. 20 OVER THE MAUMEE RIVER
LUCAS & WOOD CO. NB. STA. 474+06.19
STA. 4+53.21
SB. STA. 474+43.11
STA. 4+76.59

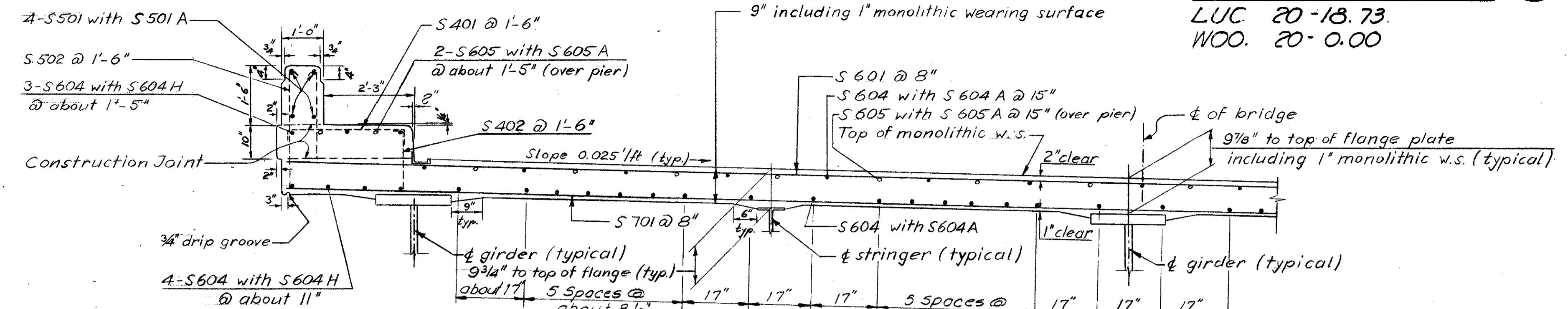
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
K.R.R.	K.R.R.	H.M.	S.S.P.	200	July 1962	1962

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	1-475-7(3)195	(20) 45

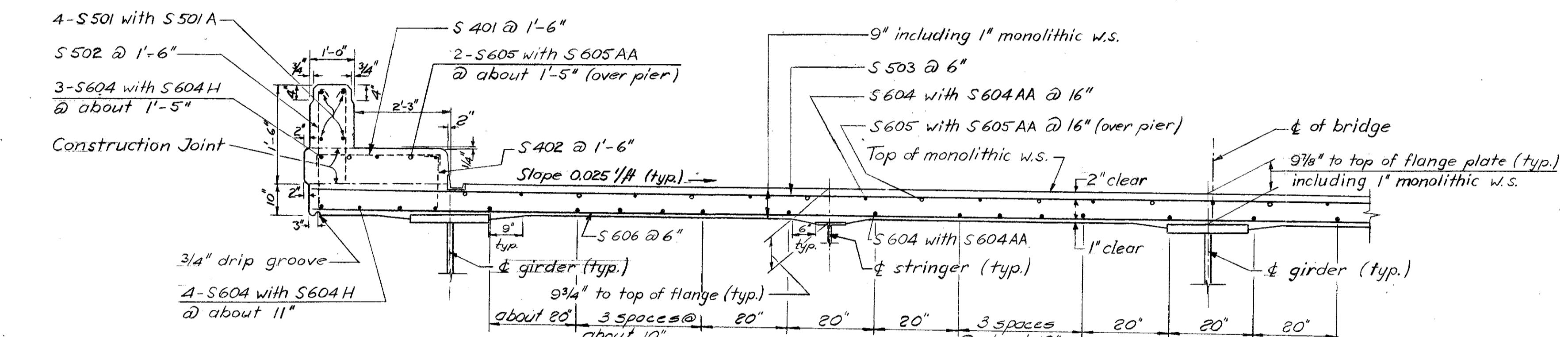
20
45LUC. 20-18.73
WOO. 20-0.00

REINFORCEMENT SCHEDULE UNIT 4							
MARK	NO.		LENGTH	SERIES INCR.	WEIGHT-PDS.	REMARKS	
	Stage1	Stage2	Stage1	Stage2	Stage1	Stage2	
S 401	244	130	3'-10"	3'-10"		625	333
S 402	244	130	6'-7"	6'-7"		1073	571
S 501	128		15'-8"			*	
S 501A	16		12'-8"			*	
S 502	244	130	6'-0"	6'-0"		1527	814
S 503	8 Series 15		36'-6" to 38'-3"	1 1/2"		4678	
S 503A	64		36'-4"			2425	
S 504	1 Series 22		0'-5" to 34'-8 1/2"	19 1/2"		405	
S 601	10 Series 26		38'-3 1/2" to 41'-5"	1 1/2"		15564	
S 601A	5		38'-2"			287	
S 602	1 Series 21		2'-2" to 41'-4"	23 1/2"		685	
S 604	436		40'-0"			26195	includes both stages
S 604A	58		34'-3"			2983	
S 604AA	48		24'-4"			1754	
S 604B	1		23'-4"			35	
S 604C	1		15'-5"			23	
S 604D	1		7'-6"			11	
S 604E	1		9'-4"			14	
S 604F	1		25'-6"			39	
S 604G	1		3'-7"			5	
S 604H	14		14'-6"			305	includes both stages
S 604J	1		17'-3"			26	
S 604K	1		9'-3"			14	
S 605	30	27	40'-0"	40'-0"		1802	1622
S 605A	30		21'-11"			988	
S 605AA	27		18'-11"			768	
S 605B	32		30'-0"			1442	
S 606	8 Series 15		36'-6" to 38'-3"	1 1/2"		6736	
S 606A	64		36'-4"			3492	
S 607	1 Series 22		0'-5" to 34'-8 1/2"	19 1/2"		583	
S 701	10 Series 26		38'-3 1/2" to 41'-5"	1 1/2"		21180	
S 701A	5		38'-2"			390	
S 702	1 Series 21		2'-2" to 41'-4"	23 1/2"		932	
		Total	100,326				

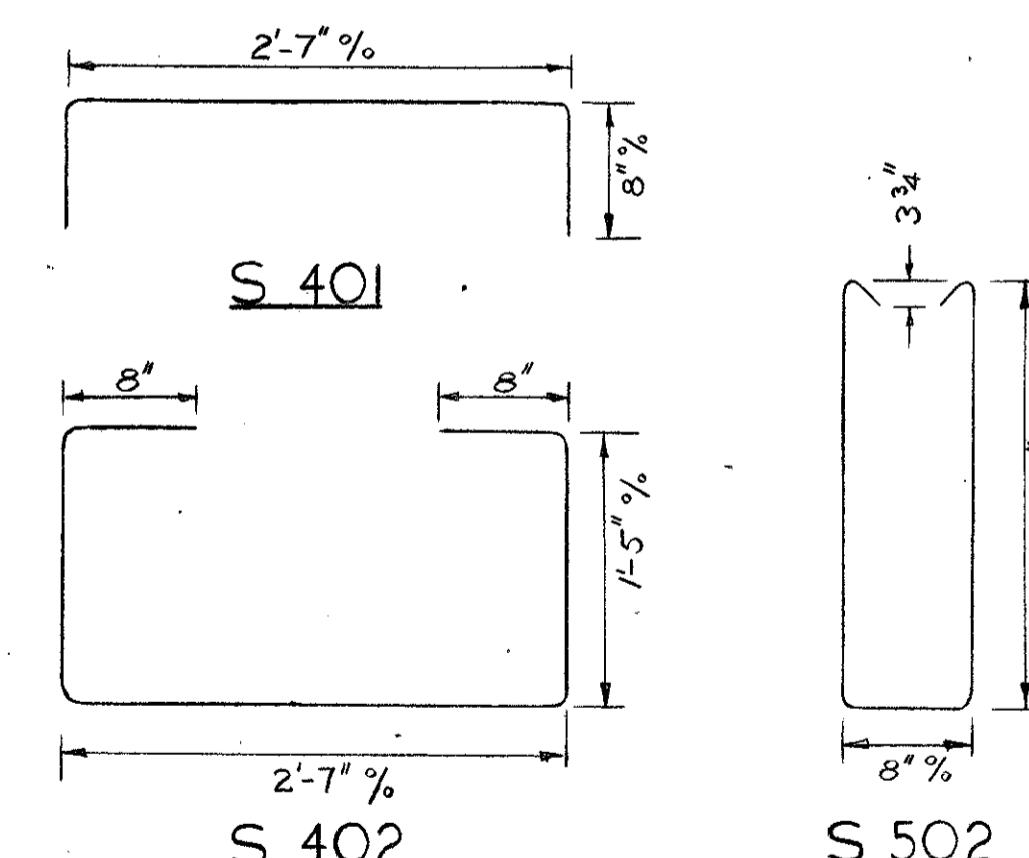
* See note in sheet no. 30.



CROSS SECTION DECK SLAB (Typical)
STAGE 1 UNIT 4



CROSS SECTION DECK SLAB (Typical)
STAGE 2 UNIT 4



LAPS IN BARS (TYPICAL)

Notes:
Bars shown thus o are over piers or abutments only.
Reinforcing steel shall be adjusted as required to clear scuppers & bolts & Gir. Splices.
For reinforcement plan see sheet no. 19

This sheet superseded by 20A.

CHARLES L. BARBER & ASSOCIATES
ENGINEERS
TOLEDO OHIO

DECK REINFORCING UNIT 4

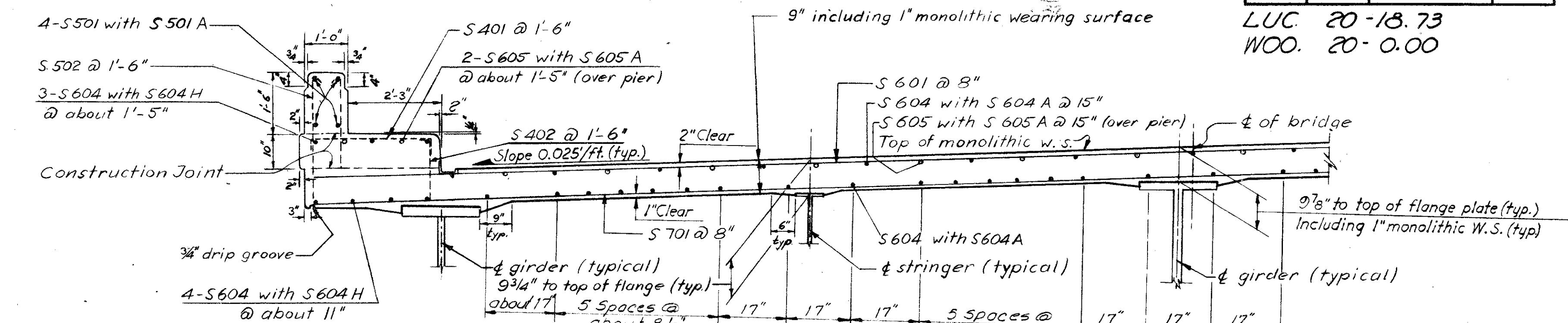
BRIDGE NO. LUC-20-1873 L. & R.
U.S. 20 OVER THE MAUMEE RIVER
LUCAS & WOOD CO. NB. STA. 474+06.19
STA. 4+53.21
SB. STA. 474+43.11
STA. 4+76.59

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
K.R.R.	K.R.R.	B.D.	S.S.P.	W.D. July 1962	11-23-62	

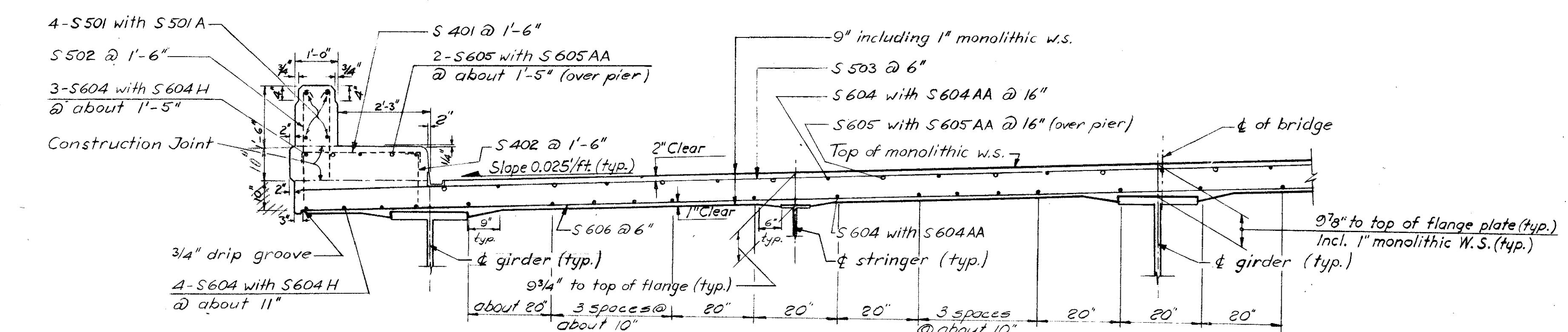
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20
45LUC. 20-18.73
WOO. 20-0.00

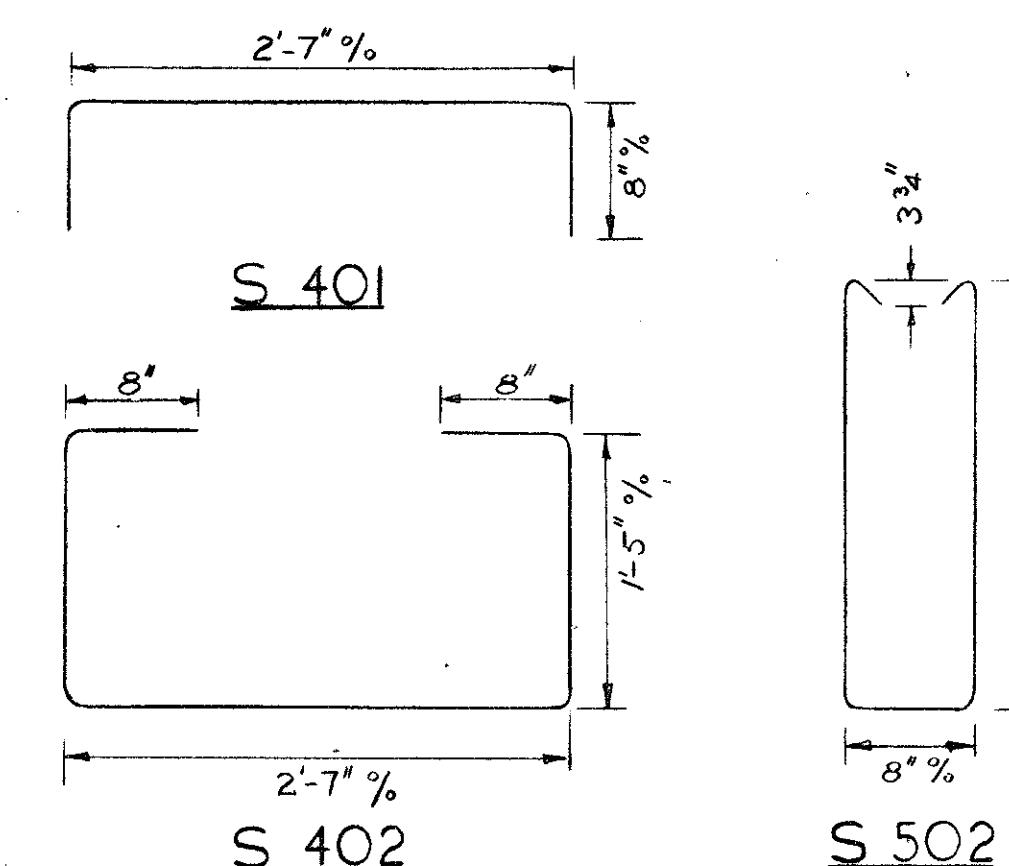
REINFORCEMENT SCHEDULE UNIT 4						
MARK	NO.	LENGTH	SERIES INCR.	WEIGHT-PDS.	REMARKS	
	Stage1	Stage2	Stage1	Stage2	Stage1	Stage2
S 401	244	130	3'-10"	3'-10"		625 333
S 402	244	130	6'-7"	6'-7"		1073 571
S 501	128		15'-8"		*	
S 501A	16		12'-8"		*	
S 502	244	130	6'-0"	6'-0"		1527 814
S 503	8 Series 15		36'-6" to 38'-3"	1 1/2"		4678
S 503A	64		36'-4"			2425
S 504	1 Series 22		0'-5" to 34'-8 1/2"	19 1/2"		405
S 601	10 Series 26		38'-3 1/2" to 41'-5"	1 1/2"		15564
S 601A	5		38'-2"			287
S 602	1 Series 21		2'-2" to 41'-4"	23 1/2"		685
S 604	436		40'-0"		26195	includes both stages
S 604A	58		34'-3"		2983	
S 604AA	48		24'-4"		1754	
S 604B	1		23'-4"		35	
S 604C	1		15'-5"		23	
S 604D	1		7'-6"		11	
S 604E	1		9'-4"		14	
S 604F	1		25'-6"		39	
S 604G	1		3'-7"		5	
S 604H	14		14'-6"		305	includes both stages
S 604J	1		17'-3"		26	
S 604K	1		9'-3"		14	
S 605	30	27	40'-0"	40'-0"	1802 1622	
S 605A	30		21'-11"		988	
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S 605B	32		30'-0"		1442	
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S 606A	64		36'-4"		3492	
S 607	1 Series 22		0'-5" to 34'-8 1/2"	19 1/2"	583	
S 701	10 Series 26		38'-3 1/2" to 41'-5"	1 1/2"	21180	
S 701A	5		38'-2"		390	
S 702	1 Series 21		2'-2" to 41'-4"	23 1/2"	932	
		Total		100,326		



CROSS SECTION DECK SLAB (Typical)
STAGE 1 UNIT 4



CROSS SECTION DECK SLAB (Typical)
STAGE 2 UNIT 4



LAPS IN BARS (TYPICAL)

Notes:
Bars shown thus are over piers or abutments only.
Reinforcing steel shall be adjusted as required to clear scuppers & bolts @ Gir. Splices.
For reinforcement plan see sheet no. 19

CHARLES L. BARBER & ASSOCIATES
ENGINEERS
TOLEDO OHIO

DECK REINFORCING
UNIT 4

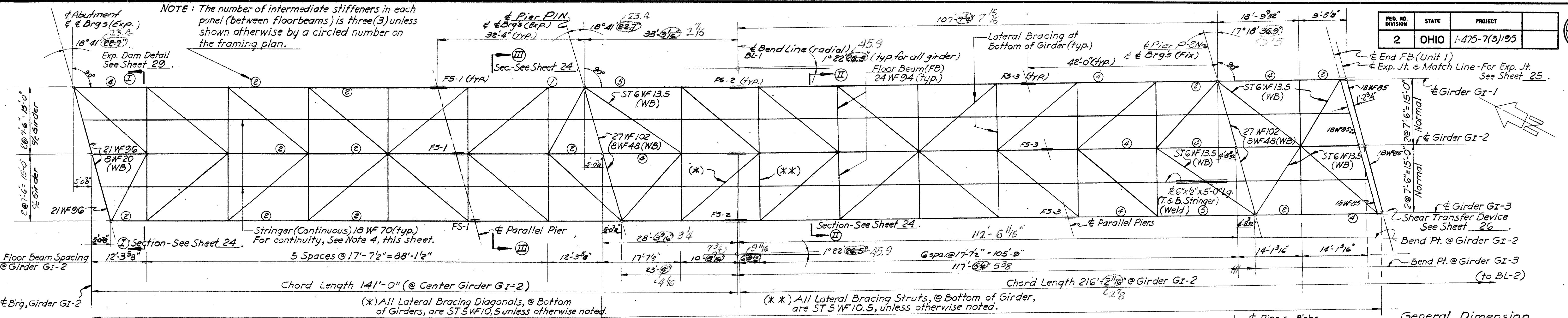
BRIDGE NO. LUC-20-1873 L & R.
U.S. 20 OVER THE MAUMEE RIVER
LUCAS & WOOD CO. NB. STA. 474+06.19
STA. 4+53.21
SB. STA. 474+43.11
STA. 4+76.59

This sheet supersedes
Sheet 20. Added 11-23-62

REVISED DATE 11/12/62

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
K.R.P.	K.R.P.	B.D.	S.S.P.	W.D.	July 1962	4-12-63

NOTE : The number of intermediate stiffeners in each panel (between floorbeams) is three(3) unless shown otherwise by a circled number on the framing plan.



PLAN

<img alt="Hand-drawn technical diagram of a bridge girder cross-section and longitudinal elevation. The diagram shows a girder with various dimensions, stiffeners, and supports. Labels include: Top Girder Dimensions, Pier & Brdg's, Cover Plate Thickness-typ.-Top & Bottom, Typical Field Splices, FS-1 & FS-3, Bend Pt. & Field Splices, Girder GI-1, Girder GI-2, Girder GI-3, Expansion Joint, Tension Flange @ Top of Girders, Compression Flange @ Top of Girder, F.B. Designation, Rocker Ro, Rocker Rj, Longitudinal Stiffener, Web Plate, Splice Details, Shear Transfer Device(typ.), Total Length of Girder GI-1, Total Length of Girder GI-2, and various plate thicknesses like 1/8", 3/16", 1/4", 5/16", 7/16", 1/2", 9/16", 5/8", 11/16", 13/16", 15/16", 17/16", 19/16", 21/16", 23/16", 25/16", 27/16", 29/16", 31/16", 33/16", 35/16", 37/16", 39/16", 41/16", 43/16", 45/16", 47/16", 49/16", 51/16", 53/16", 55/16", 57/16", 59/16", 61/16", 63/16", 65/16", 67/16", 69/16", 71/16", 73/16", 75/16", 77/16", 79/16", 81/16", 83/16", 85/16", 87/16", 89/16", 91/16", 93/16", 95/16", 97/16", 99/16", 101/16", 103/16", 105/16", 107/16", 109/16", 111/16", 113/16", 115/16", 117/16", 119/16", 121/16", 123/16", 125/16", 127/16", 129/16", 131/16", 133/16", 135/16", 137/16", 139/16", 141/16", 143/16", 145/16", 147/16", 149/16", 151/16", 153/16", 155/16", 157/16", 159/16", 161/16", 163/16", 165/16", 167/16", 169/16", 171/16", 173/16", 175/16", 177/16", 179/16", 181/16", 183/16", 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ELEVATION GI-2

MISCELLANEOUS NOTES

- The Framing Plan for Unit 3 & Unit 6 are similar to the framing layout for Unit 1, this drawing. Refer to Sheets No. 14 thru No. 17 for variance in geometrics.
 - Field Splices (designated FS) Sheet: 27. If additional shop splices are necessary, their location and detail shall be submitted to the Director for approval prior to ordering the material.
 - Where shown on the Framing Plans at locations designated as Bend Line (BL), the girders change directions at the centerline of the field splice. Specially cut and bent splice plates will be required at these points.
 - For continuity of stringer (18WF 70), place rigid splices (See Detail K, Sheet 27) at a distance of about one-third ('3) of the panel length from floor beams.
 - Rocker & Bolster Details, See Sheet 28.
 - Typical Bevel & Welding Details for flanges and web plates - See Sheet 29.
 - All girder field splices and connections shall be made with 1" ϕ high-strength bolts. They shall be placed with the heads on the outside face of the exterior girders and on the bottom of girder flanges. (typ.)

Floor Beam Designation		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	FS-1	FS-2	FS-3	17Q	
Girder GI-1	Ht. Web (inches)	Theo. 60	60	60	61 3/64	67 3/64	80 1/8	98 43/64	106 19/32	82 3/64	69 5/64	61 4/64	60 13/64	60 25/32	75 3/16	91 31/32	106 19/32	86 3/16	78 5/16	74 1/16	73 23/64	67 53/64	77 2 1/64	
	Used	60	60	60	61 1/16	67 9/16	80 1/8	98 11/16	106 5/8	82 1/16	69 1/16	61 9/16	60 9/16	64 13/16	75 3/16	91 5/16	106 5/8	86 3/16	78 5/16	74 1/16	73 3/8	67 13/16	77 5/16	
	"n"		4	3	2	2	3	3	1	5	3	3	3	3	3	3	4	2	4	2				
Girder GI-2	Ht. Web (inches)	Theo. 60	60	60	60 9/32	65 5/64	75 5/64	92 45/64	106 19/32	86 6 3/64	72 5/64	63 1/32	60	62 6 3/64	71 3/16	86 6 3/64	106 19/32	90 47/64	78 23/64	74 1/16	77 13/64	67 13/16	77 19/64	
	Used	60	60	60	60 5/16	65 1/16	75 7/8	92 11/16	106 5/8	86 6 1/2	72	63	60	63	72	87	106 5/8	90 3/4	78 3/16	74 1/16	77 1/16	67 13/16	77 5/16	
	"n"		3	3	2	2	3	3	2	4	3	3	3	3	3	3	4	4	3	3				
Girder GI-3	Ht. Web (inches)	Theo. 60	60	60	60	60	63 3/32	72 1/64	87 1/4	106 19/32	92 13/32	75 17/32	64 7/8	60 7/32	61 13/32	68	82 15/32	106 19/32	96 1/32	78 9/16	74 1/16	81 29/64	67 13/16	77 5/16
	Used	60	60	60	60	60	63 1/8	72 3/16	87 1/4	106 5/8	92 7/16	75 4/8	64 7/8	60 1/4	61 5/8	68	82 7/16	106 5/8	96 1/16	78 5/16	74 1/16	81 7/16	67 13/16	77 5/16
	"n"		2	3	2	2	3	3	3	3	3	3	3	3	3	3	4	5	2	4				

NOTE: n = number of intermediate stiffeners in panel between floor beams

CHARLES L. BARBER & ASSOCIATES
ENGINEERS
TOLEDO OHIO

FRAMING PLAN UNITS 1,3 8 6

BRIDGE NO. LUC-20-1873 L.8 R.
S. 20 OVER THE MAUMEE RIVER
S & WOOD CO. NB. STA. 474⁺ 06.19

11. Lateral Bracing:
All lateral bracing (diagonals & struts) shall be connected to 5/8" gusset plate by 4-1" ϕ High-Strength Bolts, except as otherwise noted at the piers. Gusset plate (5/8") shall be bent where necessary.

4. For continuity of stringer (I8WF70), place rigid splices (See Detail K, Sheet 27) at a distance of about one-third ('3) of the panel length from floor beams.

5. Rocker & Bolster Details, See Sheet 28.

6. Typical Bevel & Welding Details for flanges and web plates - See Sheet 29.

7. All girder field splices and connections shall be made with 1" ϕ high-strength bolts. They shall be placed with the heads on the outside face of the exterior girders and on the bottom of girder flanges. (typ.)

8. All girders are parallel between bend points (designated BL).

9. Floor Beams are perpendicular to all girders between Bent Lines (BL).

10. The high-strength bolts shall be included for payment in Item S-7.

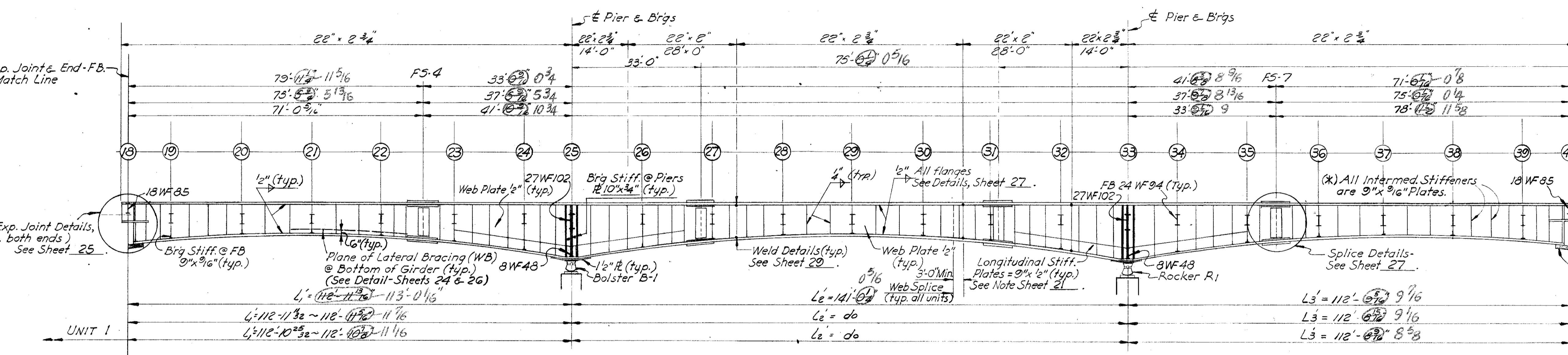
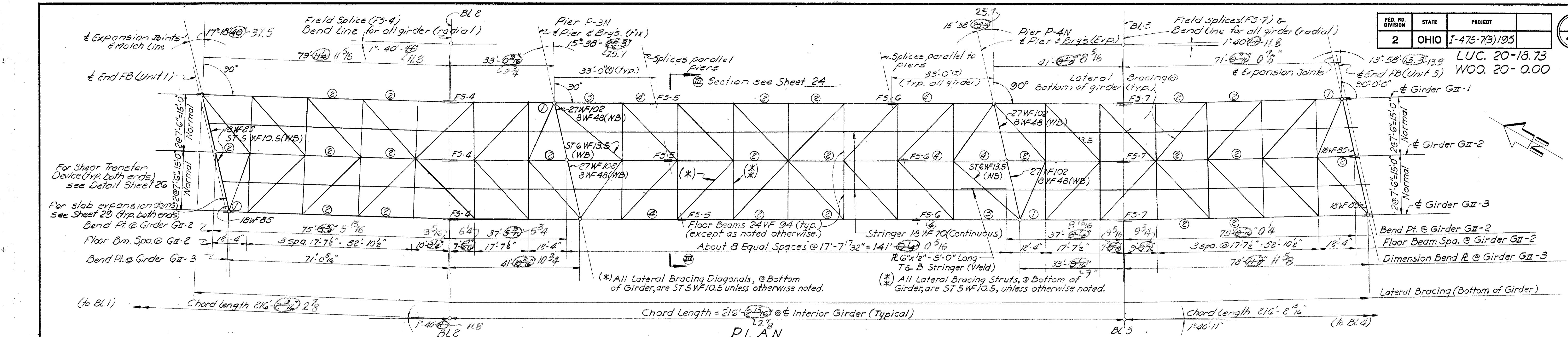
12. All intermediate stiffeners shall be used in pairs in all exteriors & interior girders. They shall be welded to the Web Plate. They shall be fitted to both flanges in nearest contact possible so that applied shop paint will fill & close remaining openings.

13. Bearing Stiffeners shall be grooved and fully butt-welded to compression flange of the girder and fitted in nearest contact, without welding, at the opposite flange.

14. Longitudinal Stiffener - 9"x 1/2" plates (typ.) shall be placed on both sides of the interior girder and on the inside of the exterior girder. Stiffeners shall be placed at 1/5 the web height, measured from the toe of the compression flange. Longitudinal Stiffeners shall be welded to the Web and Transverse Stiffeners and shall follow the curve of the haunch.

15. Members designated in plan with (WB) apply to lateral system @ bottom of girder.

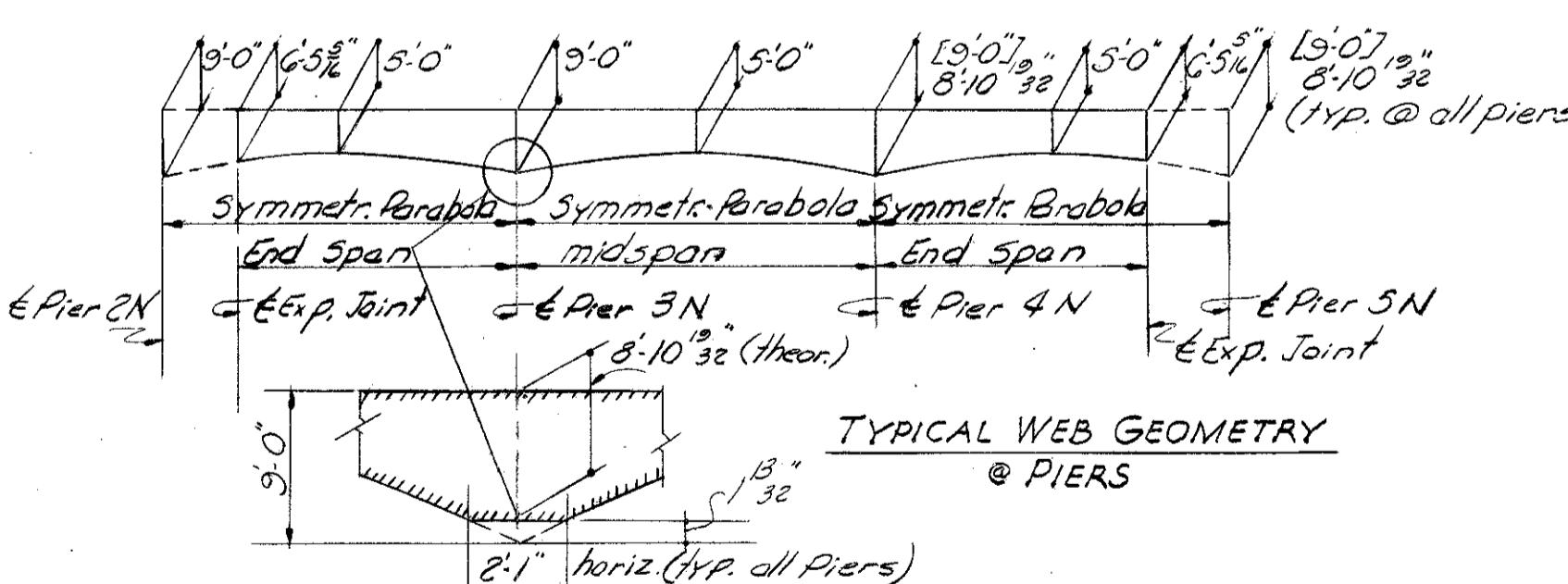
16. Deflection & Camber Diagram - See Sheet 29.



NOTES:

1. The framing plan for UNIT 5 is similar to the framing layout for UNIT 2, this drawing.
Refer to Sheets No. 14 thru No. 17 for slight variance in geometrics.
2. For additional notes refer to Miscellaneous Notes on Sheet No. 21.
3. Members designated in plan with (WB) apply to Lateral System @ bottom of Girder.
4. For bevel and weld details of Girder, refer to Sheet No. 27.

ELEVATION
Girder GII-2



		GIRDER WEB HEIGHTS																											
Floor Beam Designation		18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	F54	F55	F56	F57	
Girder GII-1	Ht. Web (inches)	Theo.	77 ⁵ / ₆₄	62 ³ / ₈	61 ⁵ / ₆₄	61 ⁷ / ₁₆	67 ⁵ / ₆₄	79 ² / ₃₂	98 ¹ / ₁₆	83 ³ / ₈	69 ³ / ₁₆	62 ¹¹ / ₃₂	60 ⁴³ / ₆₄	65 ⁷ / ₆₄	75 ¹⁷ / ₃₂	91 ⁶ / ₆₄	88 ⁵ / ₈	73 ¹ / ₄	64 ¹ / ₁₆	60 ⁴⁷ / ₆₄	63	71 ⁵ / ₃₂	77 ²⁵ / ₃₂	74 ³ / ₃₂	74 ⁵ / ₆₄	74 ⁵ / ₆₄	68 ¹ / ₁₆		
	Used		77 ¹³ / ₁₆	62 ³ / ₈	61 ¹ / ₁₆	61 ⁷ / ₁₆	67 ¹³ / ₁₆	79 ⁷ / ₈	98 ¹ / ₁₆	106 ⁵⁸	83 ³ / ₈	69 ¹³ / ₁₆	62 ³ / ₈	60 ¹¹ / ₁₆	65 ¹⁸	75 ¹²	91 ⁵ / ₁₆	106 ⁵⁸	88 ⁵ / ₈	73 ¹ / ₄	64 ¹ / ₁₆	60 ³ / ₁₄	63	71 ⁷ / ₁₆	77 ³ / ₄	74 ¹⁰	74 ¹¹ / ₁₆	74 ¹¹ / ₁₆	68 ¹ / ₁₆
	n		3	3	2	2	3	3	1	5	4	3	2	2	3	4	3	3	3	3	2	2	3	1					
Girder GII-2	Ht. Web (inches)	Theo.	77 ⁵ / ₆₄	69 ³ / ₁₆	61 ³ / ₆₄	60 ⁴⁹ / ₆₄	65 ⁷ / ₃₂	71 ¹⁷ / ₃₂	93 ³ / ₁₆	87 ¹ / ₂	72 ¹ / ₂	68 ¹ / ₂	60 ¹ / ₂	63 ¹ / ₂	72 ¹ / ₂	87 ¹ / ₂		93 ¹ / ₆₄	76 ²³ / ₆₄	65 ³⁷ / ₆₄	60 ⁴⁹ / ₆₄	60 ² / ₃₂	69 ⁵ / ₃₂	77 ⁴⁹ / ₆₄	71 ¹ / ₁₆	74 ⁵ / ₆₄	74 ⁵ / ₆₄	70 ⁵⁵ / ₆₄	
	Used		77 ¹³ / ₁₆	69 ³ / ₁₆	62	60 ³ / ₄	65 ⁹ / ₁₆	71 ¹ / ₂	93 ³ / ₁₆	106 ⁵⁸	87 ¹ / ₂	72 ¹ / ₂	68 ¹ / ₂	60 ¹ / ₂	63 ¹ / ₂	72 ¹ / ₂	87 ¹ / ₂	106 ⁵⁸	93 ³ / ₁₆	76 ³ / ₈	65 ⁹ / ₁₆	60 ³ / ₁₄	60 ⁵ / ₈	69 ¹⁸	77 ³ / ₄	71 ¹ / ₁₆	74 ⁷ / ₁₆	74 ¹¹ / ₁₆	70 ⁷ / ₁₆
	n		2	3	2	2	3	3	2	3	3	3	2	2	3	4	4	2	3	3	2	2	3	2					
Girder GII-3	Ht. Web (inches)	Theo.	77 ⁵ / ₆₄	71 ³ / ₃₂	64 ¹ / ₃₂	60 ³⁵ / ₆₄	63 ⁴⁹ / ₆₄	75 ¹ / ₈	85 ¹³ / ₃₂		91 ⁶ / ₆₄	75 ¹⁷ / ₃₂	65 ⁷ / ₆₄	60 ⁴³ / ₆₄	62 ¹¹ / ₃₂	69 ³ / ₁₆	83 ³ / ₈		93 ¹ / ₁₆	79 ¹³ / ₁₆	67 ²⁵ / ₆₄	61 ¹⁹ / ₆₄	61 ¹³ / ₆₄	67 ⁹ / ₆₄	77 ⁴⁹ / ₆₄	68 ²⁷ / ₆₄	74 ⁹ / ₆₄	74 ⁵ / ₆₄	73 ⁷ / ₁₆
	Used		78 ¹ / ₁₆	71 ¹ / ₁₆	63 ⁵ / ₁₆	60 ¹ / ₂	63 ³ / ₁₆	73 ¹ / ₄	88 ⁵ / ₈	106 ⁵⁸	91 ¹⁵ / ₆₄	75 ¹²	65 ¹⁸	60 ¹¹ / ₁₆	62 ³ / ₈	69 ¹³ / ₁₆	83 ³ / ₈	106 ⁵⁸	98 ¹ / ₁₆	79 ¹³ / ₁₆	67 ³ / ₈	61 ⁵ / ₁₆	61 ³ / ₁₆	67 ¹⁸	77 ³ / ₄	68 ⁷ / ₁₆	74 ¹¹ / ₁₆	74 ¹¹ / ₁₆	73 ⁷ / ₁₆
	n		1	3	2	2	3	3	3	3	4	3	2	2	3	4	5	1	3	3	2	2	3	3					

NOTE: n = number of intermediate stiffeners in panel between floor beams.

CHARLES L BARBER & ASSOCIATES
ENGINEERS
TOLEDO OHIO

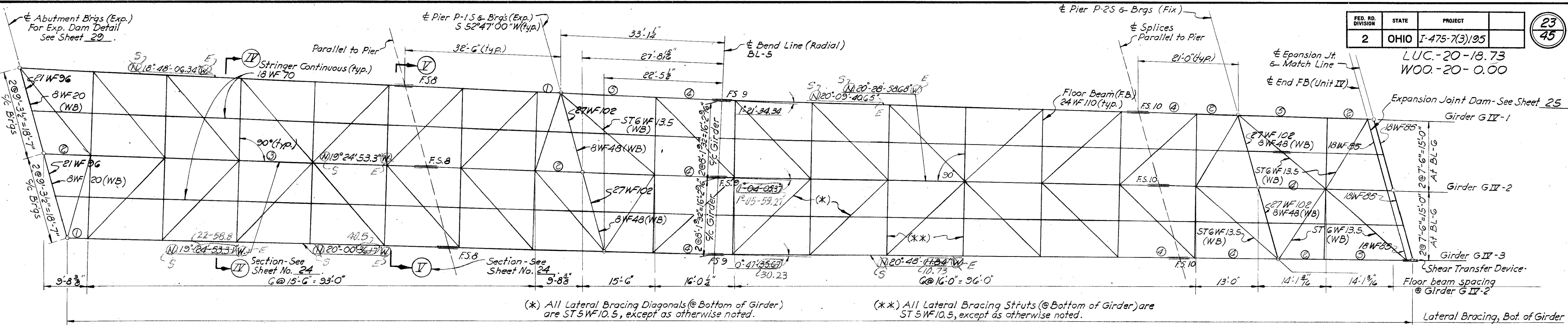
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U.S. 20 OVER THE MAUMEE RIVER
LUCAS & WOOD CO. NB. STA. 474+06.19
 STA. 4+53.21
 SB. STA. 474+43.11
 STA. 4+76.59

FED. NO. STATE PROJECT
2 OHIO I-175-7(3)195

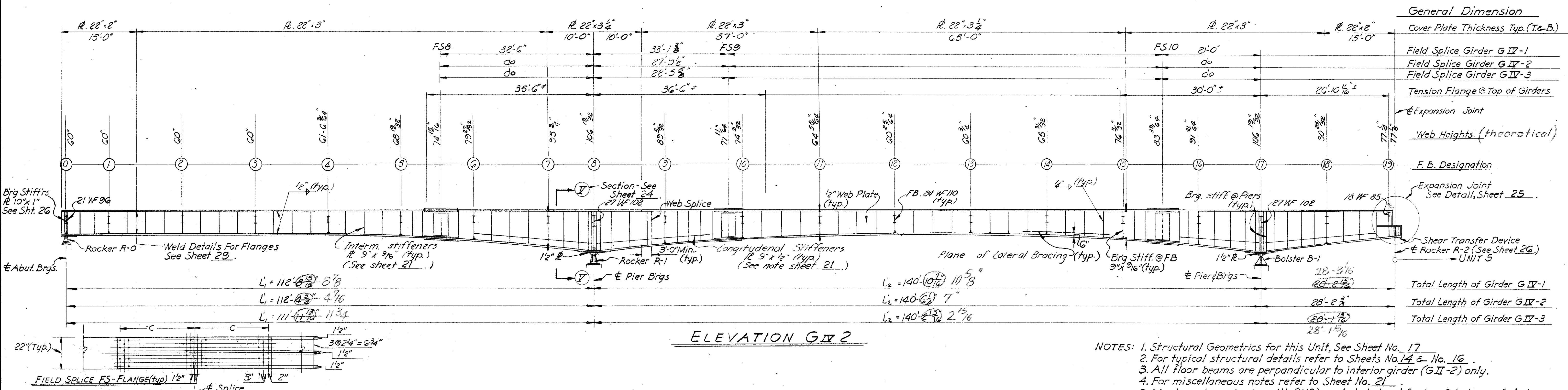
23
45

LUC. -20-18.73

WOO. -20-0.00



PLAN



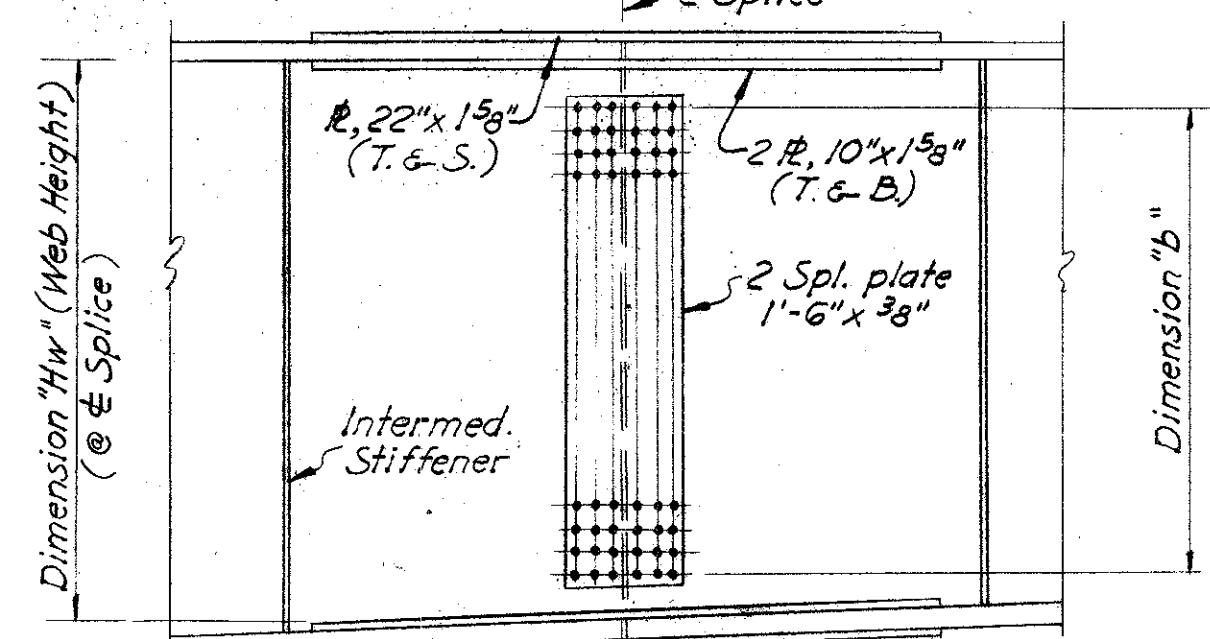
NOTES: 1. Structural Geometrics for this Unit, See Sheet No. 17
2. For typical structural details refer to Sheets No. 14 & No. 16.
3. All floor beams are perpendicular to interior girder (G II-2) only.
4. For miscellaneous notes refer to Sheet No. 21.
5. Members shown in plan with (WB) apply to Lateral System @ bottom of girder.
6. For bevel and weld details of girder, refer to Sheet No. 29.

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ENGINEERS
TOLEDO OHIO

FRAMING PLAN UNIT-4

BRIDGE NO LUC-20-1873 L.8.R.
U.S. 20 OVER THE MAUMEE RIVER
LUCAS & WOOD CO. NB. STA. 474+06.19
STA. 4+53.21
SB. STA. 474+43.11
STA. 4+76.59

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
S.S.P. W.B.D.	W.B.D.	H.C.M.	W.B.D.	W.B.D.	1/23/62 4-12-63 Aug. 1962



FIELD SPLICES (FS)

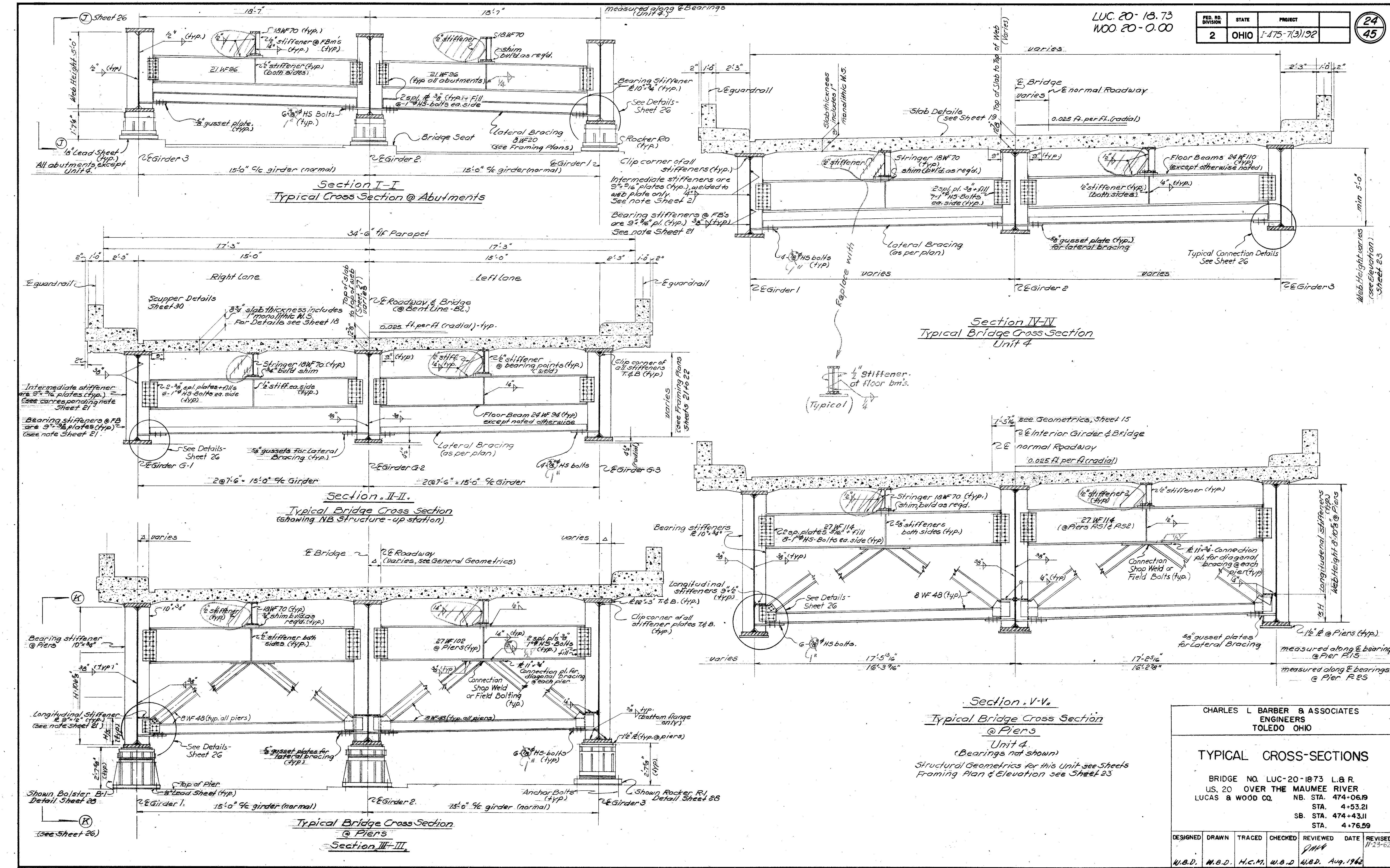
Table for Splices			Splice material for		Bolts
Splices	Girder	Hw	b	n	c
FS 8	0/1	70 3/8"	17 Sp. @ 3 1/2" 30 18-54	52	10 22 1/8" 28 10 1/8" 2R 3/8
FS 9 (Bend)	G IV-1	73 1/2"	14 Sp. @ 4 1/2" G 3" 30 15-45	38	"
	G IV-2	77 3/8"	18 Sp. @ 5" G 5" 30 14-42	48	"
	G IV-3	82 3/8"	16 Sp. @ 4 1/2" G 3" 30 17-51	52	"
FS 10	0/1	83 1/2"	18 Sp. @ 4" G 3" 30 19-57	52	"

NOTES: 1. Hw = Web Height @ Splice Plate.
2. b = Spacing of bolts in Web Splice.
3. n = Total number of bolts in Web Splice (each side).
4. c = Total number of bolts in Flange Splice (each side).

Refer also to Note No. 3, Sheet 21.
for splices at Bend Points.
Details also on Sheet 27.

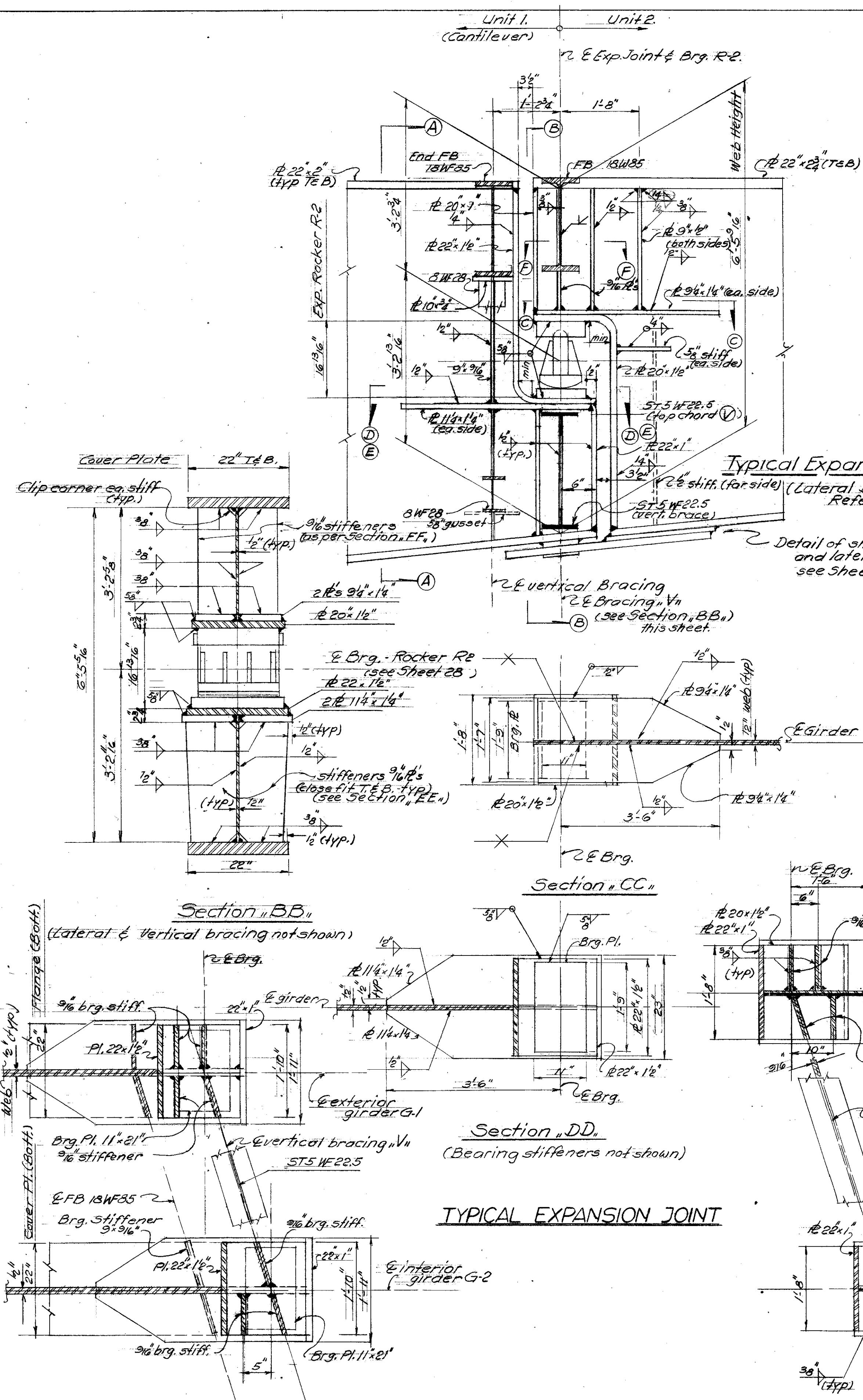
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LUC. 20-18.73
WOO. 20-0.00

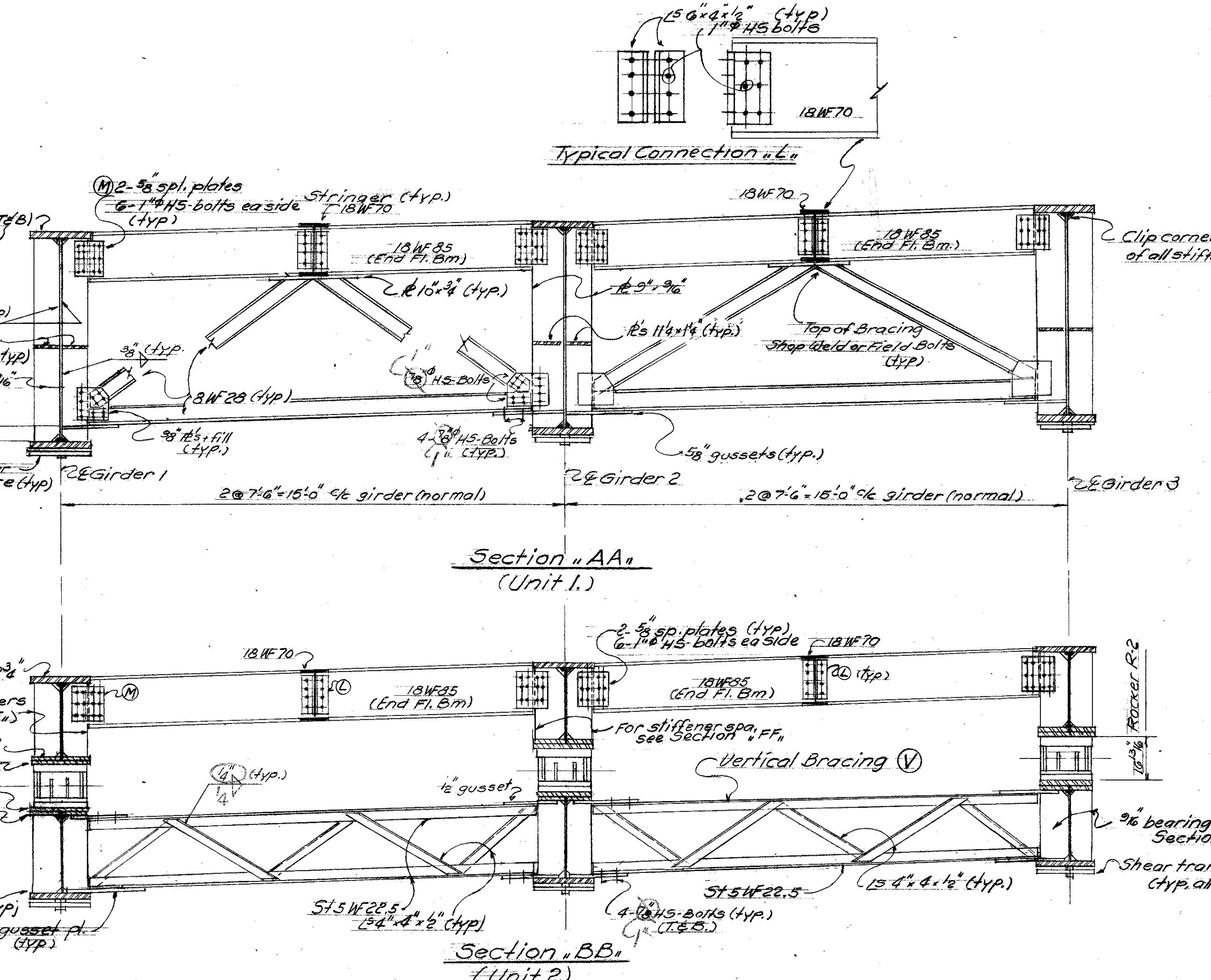


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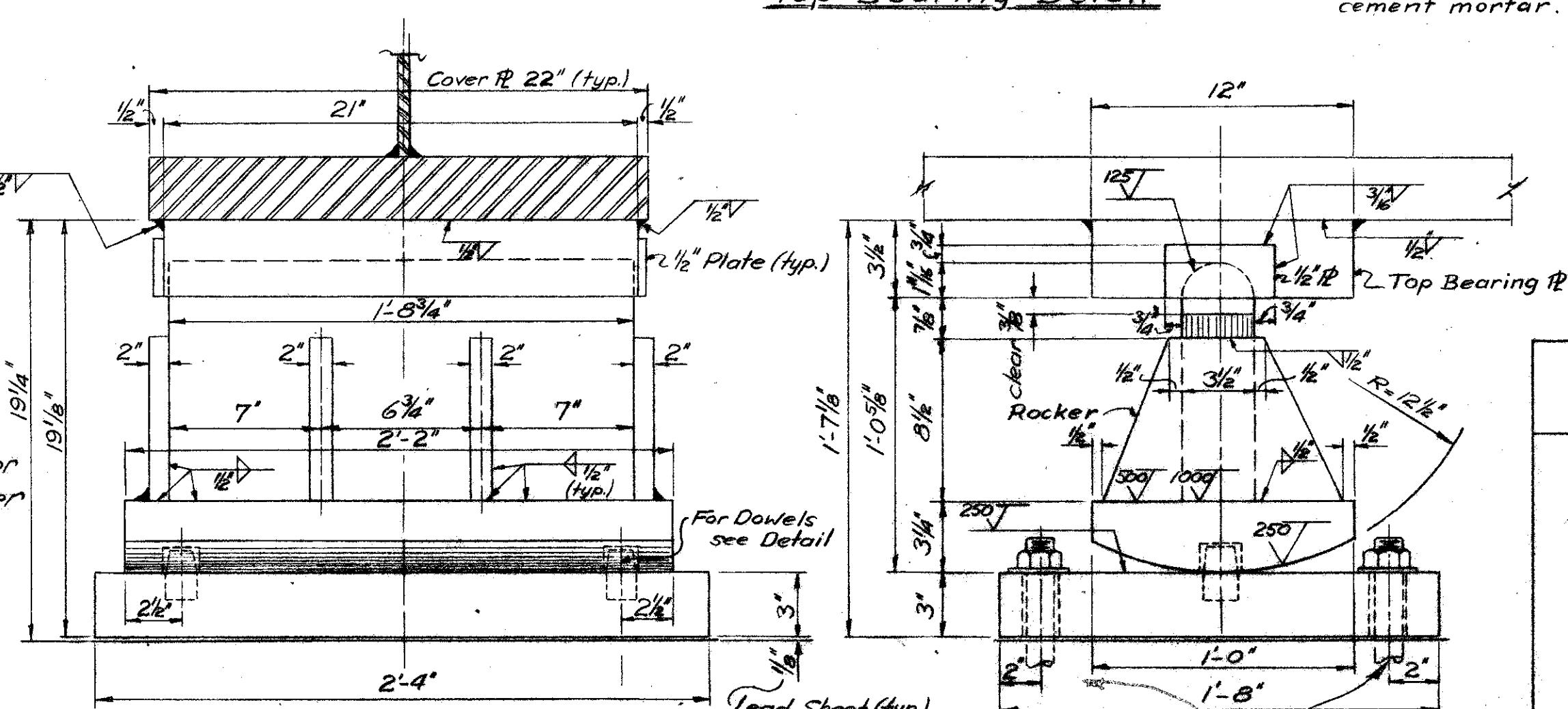
UC. 20-18.73
100. 20-0.00



SECTION "FF"
(showing bearing stiffeners above brg
(pt's 9 $\frac{1}{4}$ " x 1 $\frac{1}{4}$ " not shown)



Top Bearing Detail



Typical Rocker R-O (Structural Steel) (For Abutments only)

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ENGINEERS
TOLEDO OHIO**

EXPANSION JOINT DETAILS

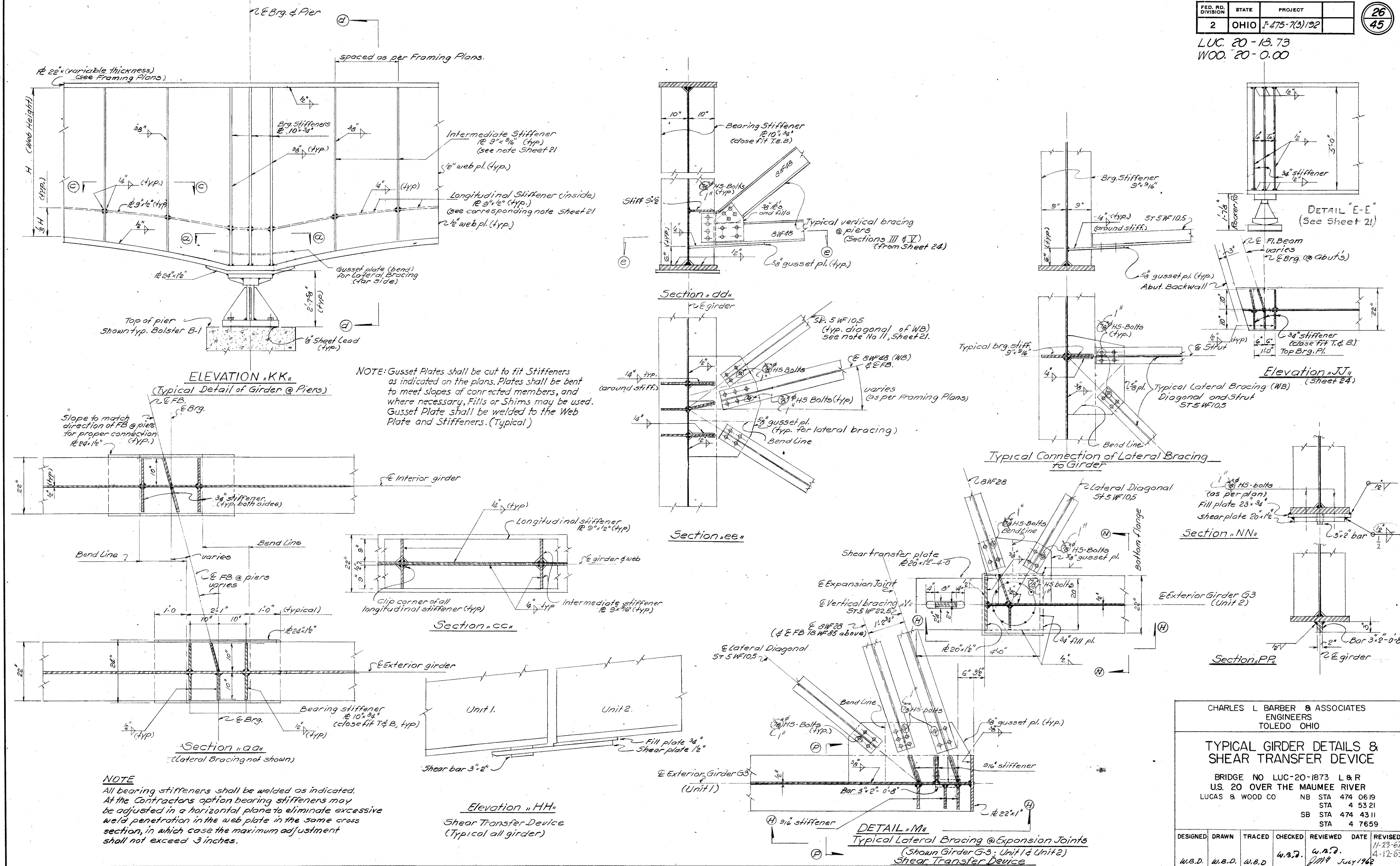
BRIDGE NO LUC-20-1873 L.S.R.
U.S. 20 OVER THE MAUMEE RIVER
LUCAS & WOOD CO. NB. STA. 474+06.5
STA. 4+53.2
SB. STA. 474+43.11
STA. 4+76.5

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
W.B.D.	W.B.D.	W.B.D.	W.B.D.	W.B.D.	JMT	Aug. 1962

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	F-475-7(3)192	

26
45

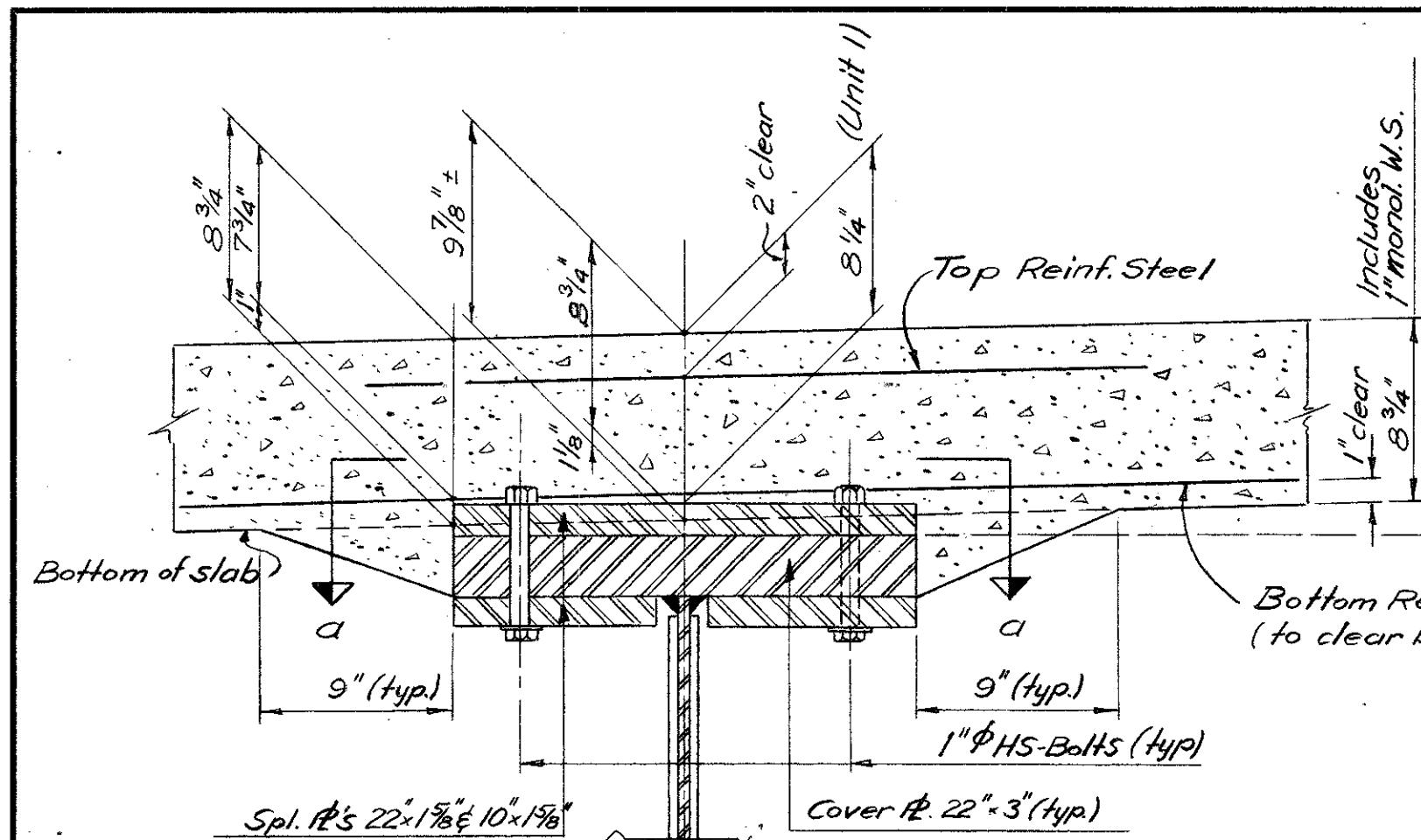
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WOO. 20 - 0.00



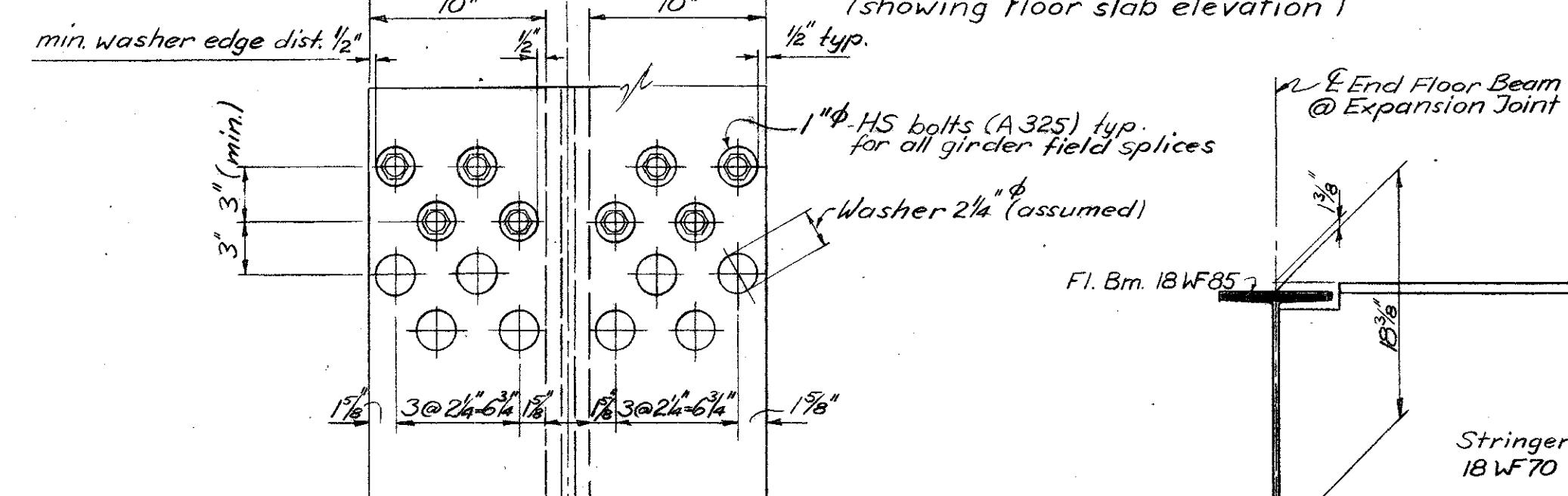
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DIVISION STATE
2 OHIO I-475-73/95

27
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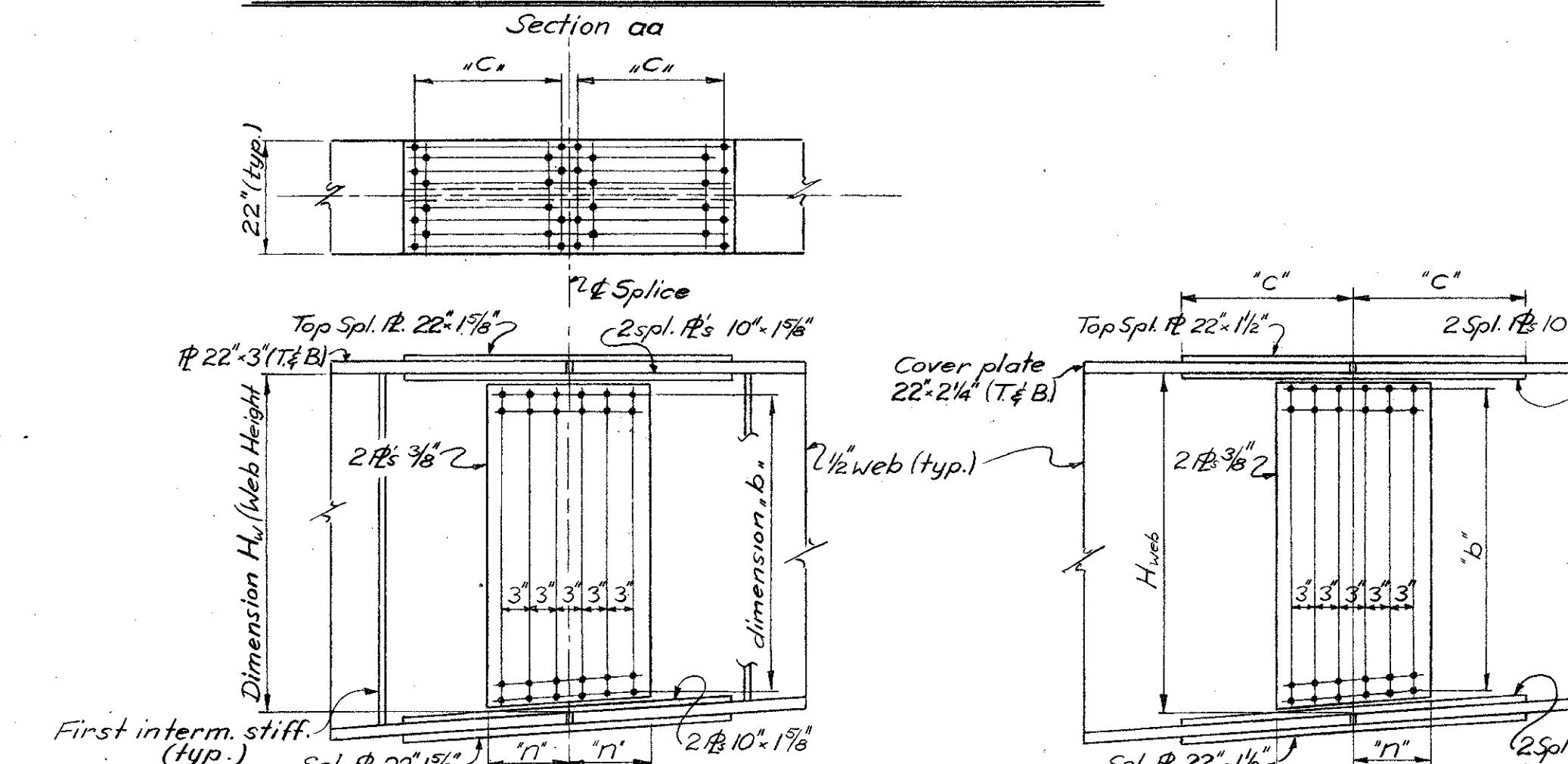
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TYP. SECTION AT SPLICES (UNIT 1)



PROPOSED BOLTING OF FLANGE SPLICE



FIELD SPLICE FS-3

(Unit 1)

Section aa

Section bb

Section cc

Section dd

Section ee

Section ff

Section gg

Section hh

Section ii

Section jj

Section kk

Section ll

Section mm

Section nn

Section oo

Section pp

Section qq

Section rr

Section ss

Section tt

Section uu

Section vv

Section ww

Section xx

Section yy

Section zz

Section aa'

Section bb'

Section cc'

Section dd'

Section ee'

Section ff'

Section gg'

Section hh'

Section ii'

Section jj'

Section kk'

Section ll'

Section mm'

Section nn'

Section oo'

Section pp'

Section qq'

Section rr'

Section uu'

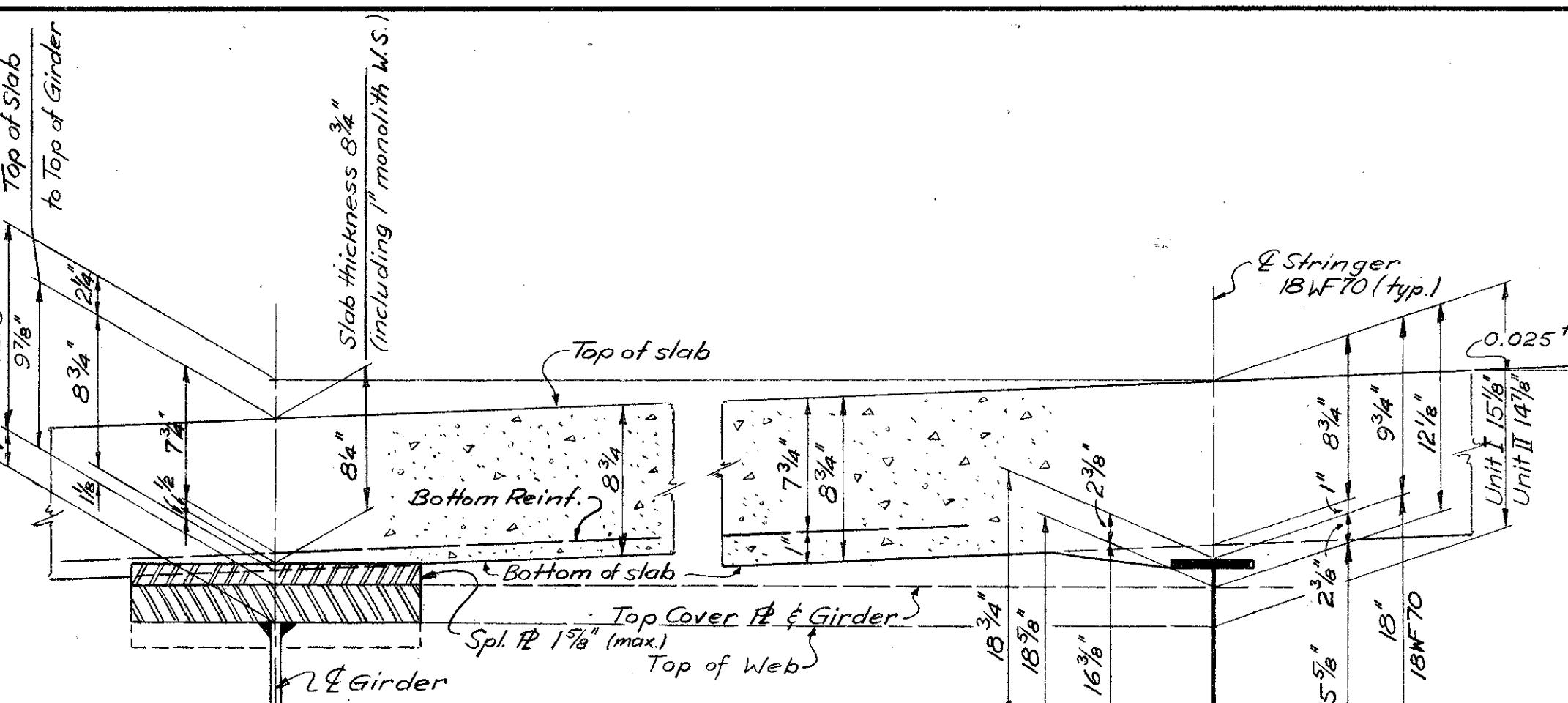
Section vv'

Section ww'

Section xx'

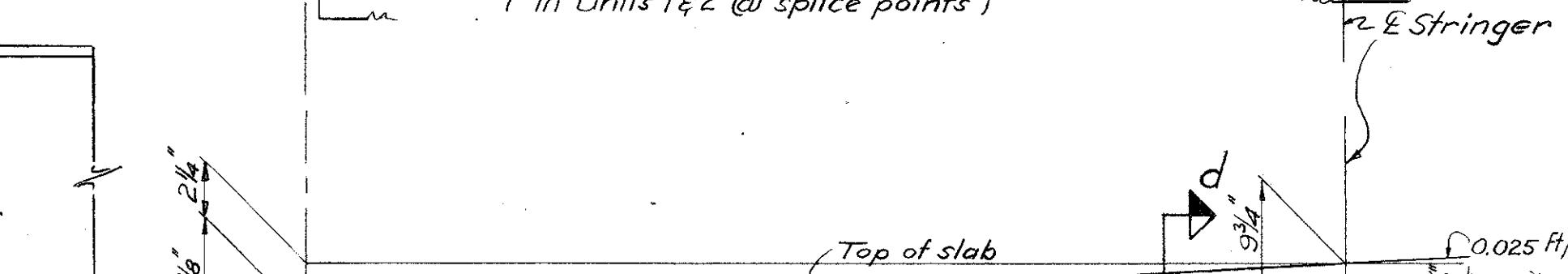
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Section zz'



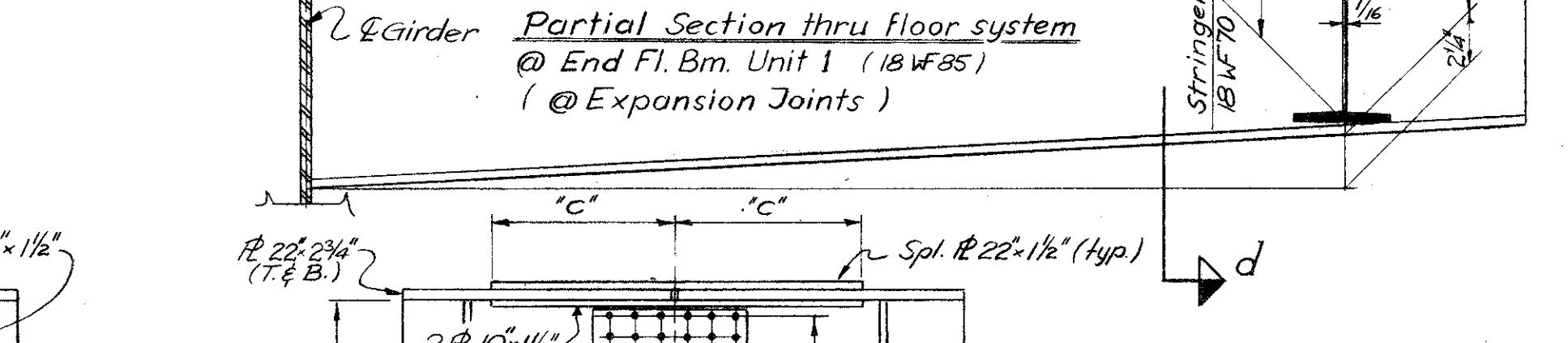
TYPICAL SECTION THRU SLAB & FLOOR SYSTEM

(in Units 1&2 @ splice points)



DETAIL "D"

Partial Section thru floor system
at End Fl. Bm. Unit 1 (18WF85)
(@ Expansion Joints)



Section dd'

Section ee'

Section ff'

Section gg'

Section hh'

Section ii'

Section jj'

Section kk'

Section ll'

Section mm'

Section nn'

Section oo'

Section pp'

Section qq'

Section rr'

Section uu'

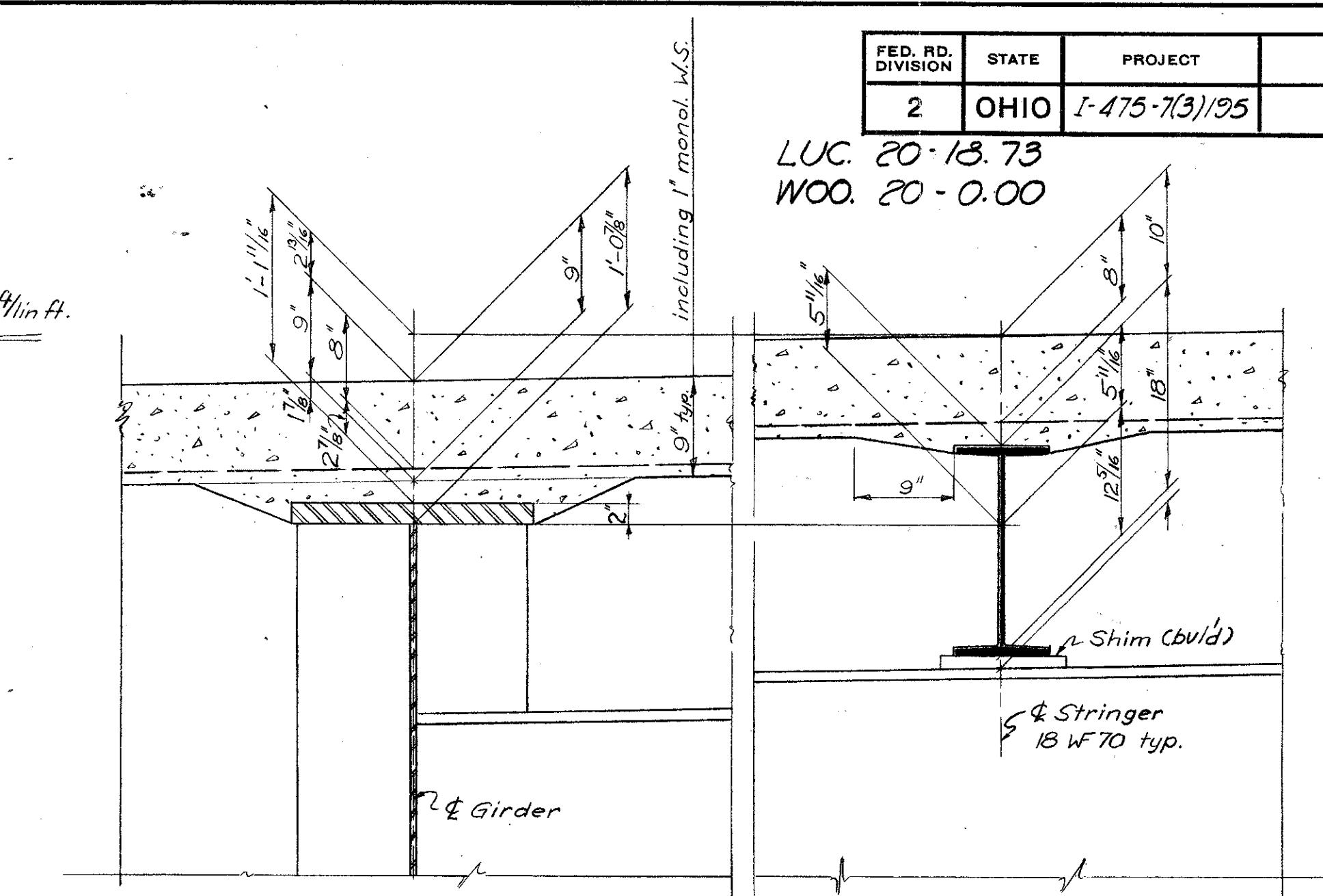
Section vv'

Section ww'

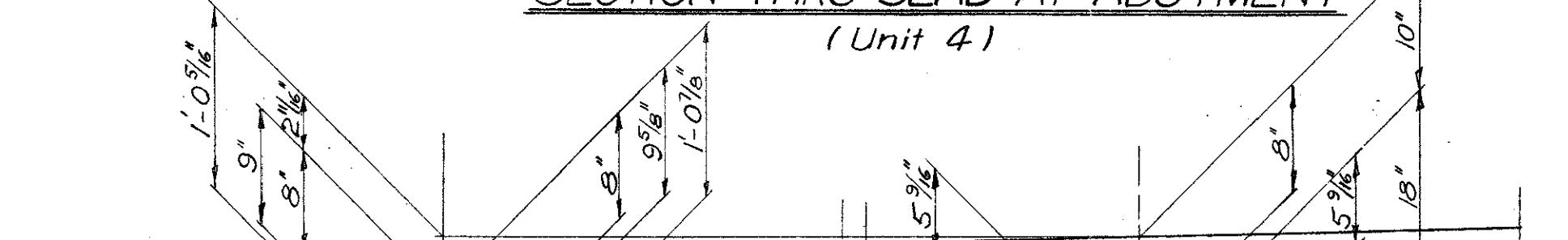
Section xx'

Section yy'

Section zz'



SECTION THRU SLAB AT ABUTMENT



SECTION THRU SLAB AT PIER PIERS

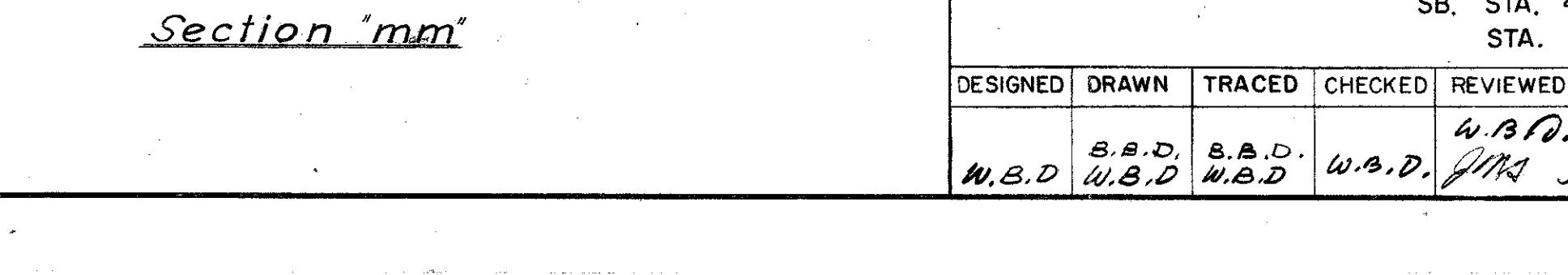
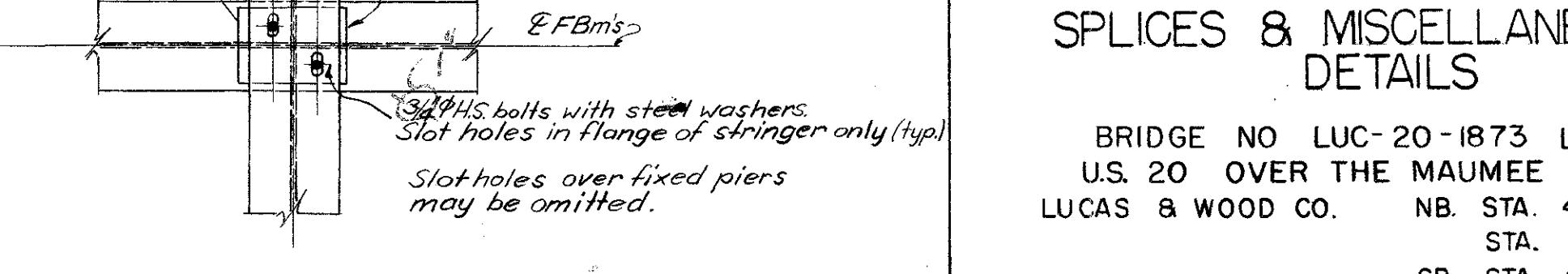
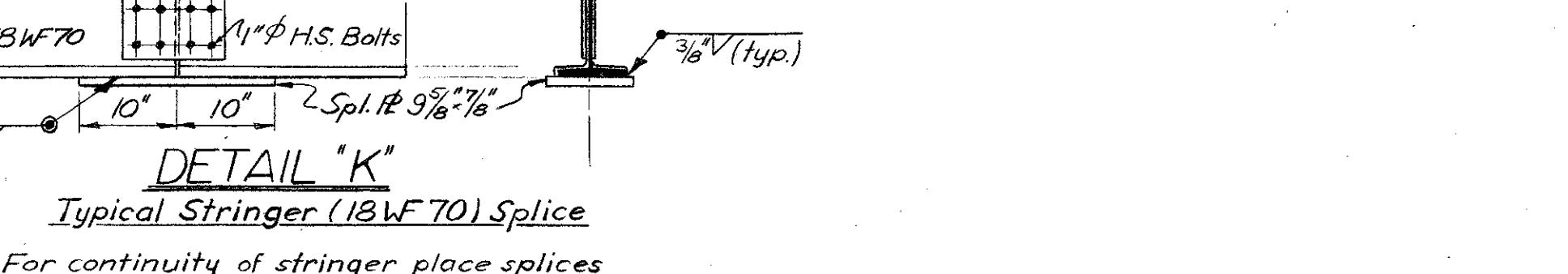
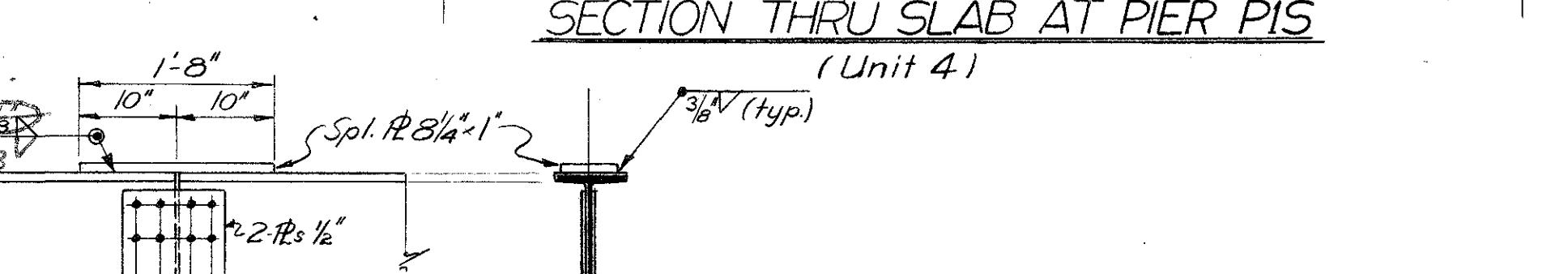
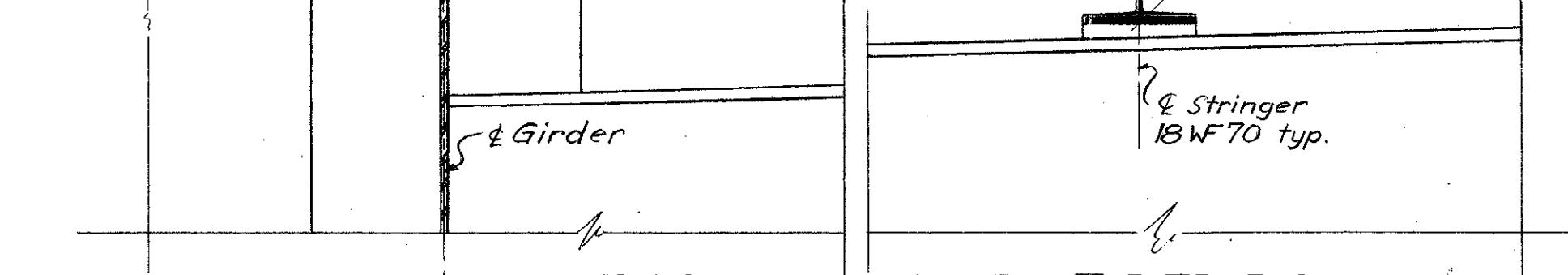
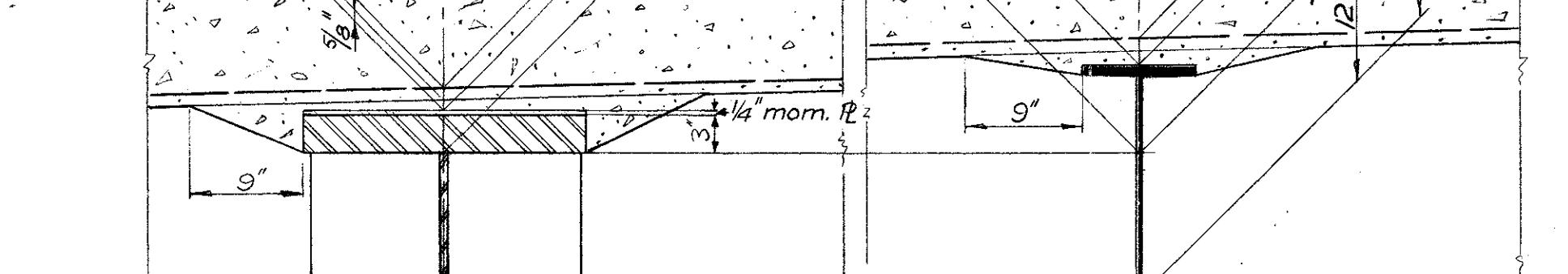
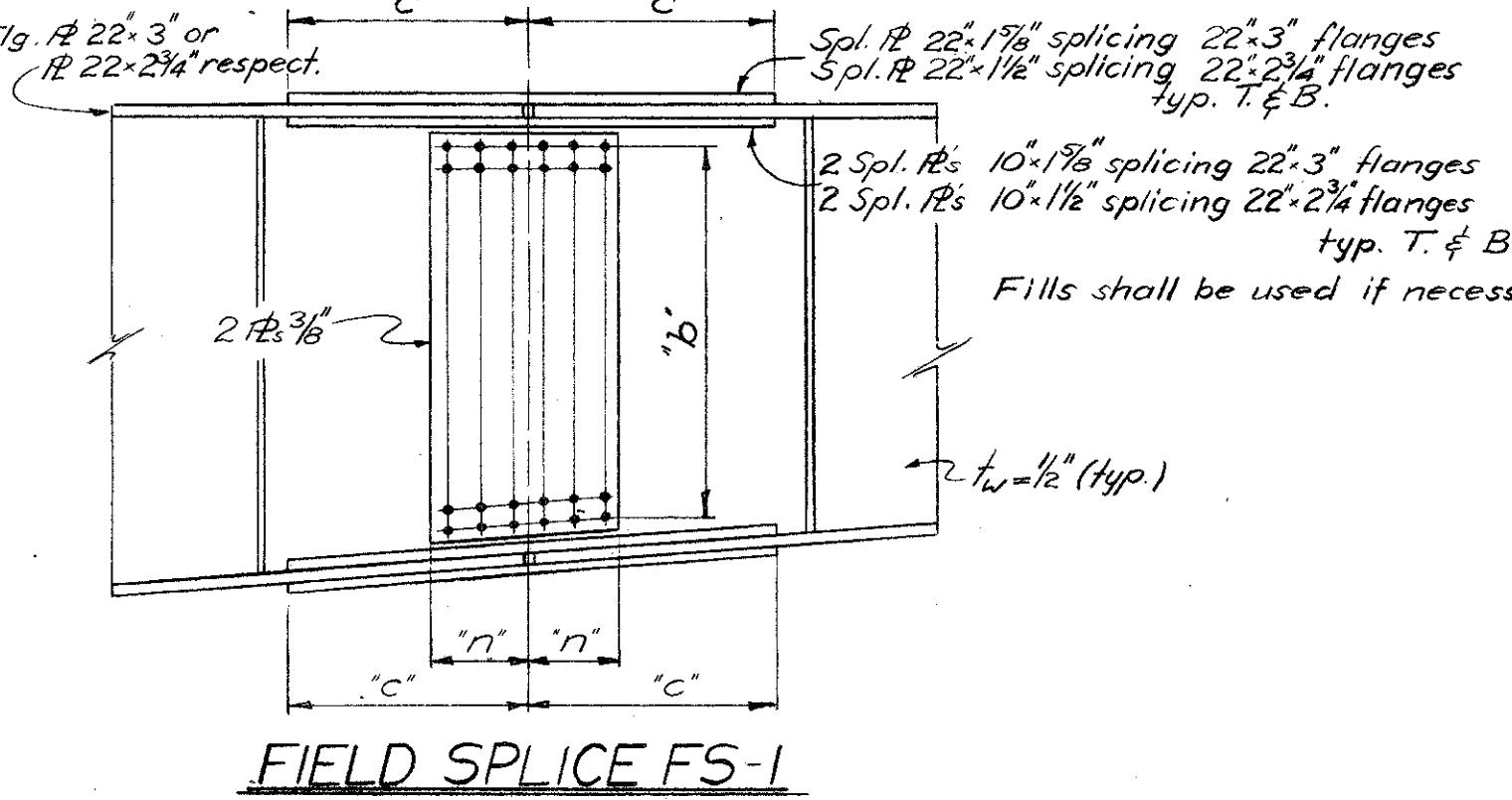


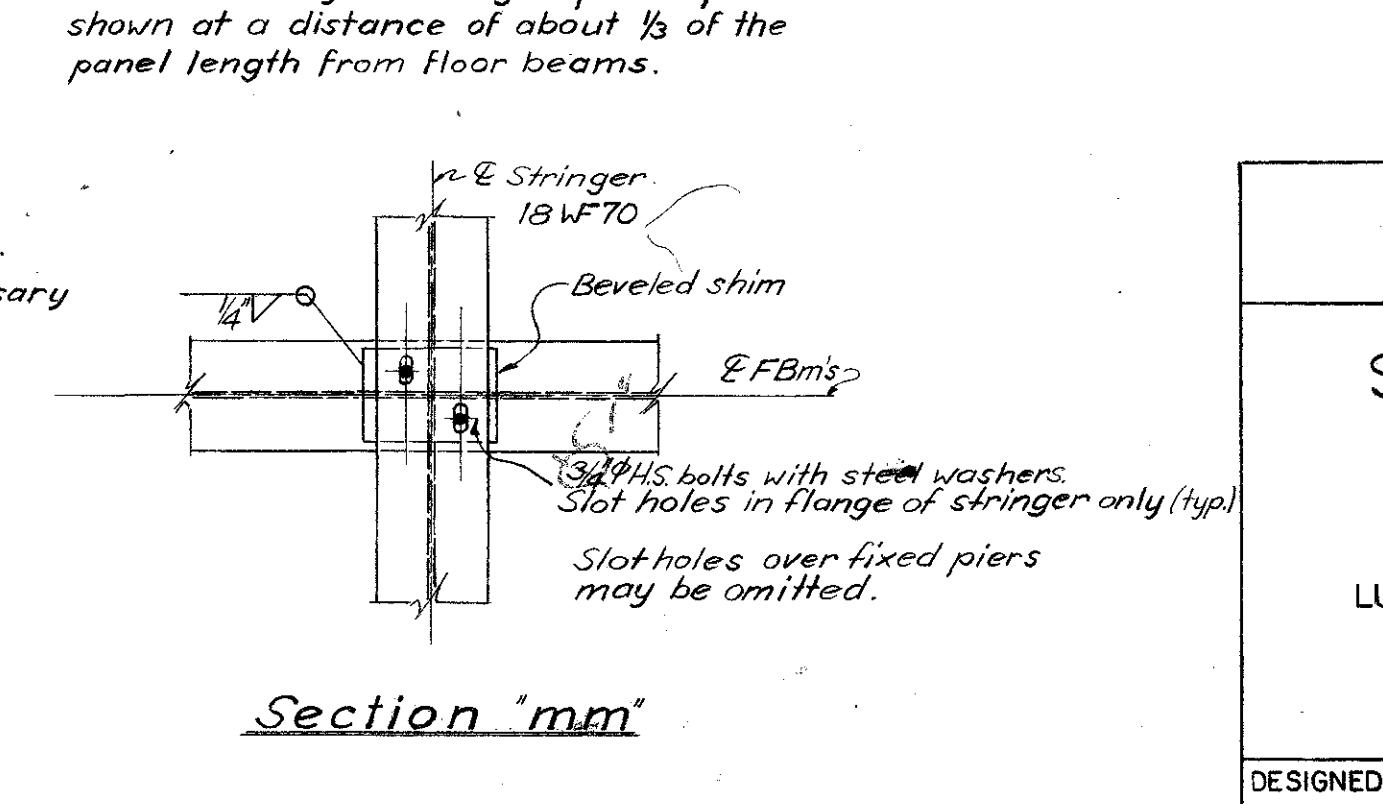
Table for Splices (Unit 1&2)							Splice Material for Cover Plates				
Unit	Splices	Girder	H_w	t_w	b	n	c	Splice Material for Cover Plates	Web #	Bolts	NOTES
Unit 1	FS-1	all	74 1/2"	1/2"	15 spa@4 1/2"=63 1/2"	3x16=48	48	see Detail "C"	2 T 3/8"		H_w - Web Height@Splice #s b - spacing of bolts in web n - total number of bolts in web splice (each side). c - total number of bolts in flange splice (each side).
	FS-2	Gr-1	73 3/8"	1/2"	16 spa@4"=64"	3x17=57	52	1#22x1/2"=2 1/2" 10" 1/2"	"	"	
	Gr-2	77 1/16"	1/2"	16 spa@4 1/2"=70"	3x17=57	52	(T & B)	"	"		
	Gr-3	81 7/16"	1/2"	16 spa@4 1/2"=72"	3x17=57	52	"	2 T 3/8"	1/2"		
	FS-3	all	67 7/16"	1/2"	16 spa@3 3/4"=60"	3x17=57	52	1#22x1/2"=2 1/2" 10" 1/2"	2 T 3/8"		
	FS-4	Gr-1	74 1/8"	1/2"	15 spa@4 1/2"=67 1/2"	3x16=48	44	1#22x1/2"=2 1/2" 10" 1/2"	"	"	All bolts used in splices are 1/2" High Strength Bolts with nuts and washers according to Specification ASTM A325
		Gr-2	71 7/16"	1/2"	15 spa@4 1/2"=67 1/2"	3x16=48	44	(T & B)	"	"	
		Gr-3	68 7/16"	1/2"	15 spa@4 1/2"=67 1/2"	3x16=48	44	"	"	"	
Unit 2	FS-5	all	74 1/8"	1/2"	15 spa@4 1/2"=67 1/2"	3x16=48	44	"	"	"	
	FS-6	Gr-1	68 1/2"	1/2"	15 spa@4 1/2"=67 1/2"	3x16=48	44	"	"	"	
	Gr-2	70 7/8"	1/2"	15 spa@4 1/2"=67 1/2"	3x16=48	44	"	"	"		
	Gr-3	73 3/8"	1/2"	15 spa@4 1/2"=67 1/2"	3x16=48	44	"	"	"		

All bolts used in splices are
1/2" High Strength Bolts
with nuts and washers according
to Specification ASTM A325



FIELD SPLICE FS-1

Detail "C"
(Unit 1)



Section "mm"

CHARLES L BARBER & ASSOCIATES
ENGINEERS
TOLEDO OHIO

SPLICES & MISCELLANEOUS DETAILS

BRIDGE NO LUC-20-1873 L & R
U.S. 20 OVER THE MAUMEE RIVER
LUCAS & WOOD CO. NB. STA. 474+06.19
STA. 4+53.21
SB. STA. 474+43.11
STA. 4+76.59

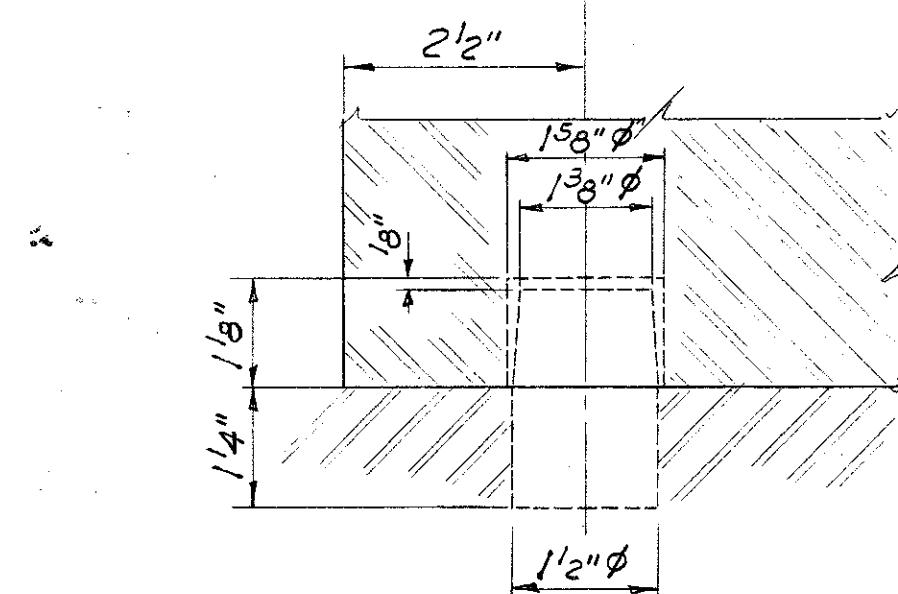
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
M.B.D.	S.B.D.	S.B.D.	W.B.D.	J.M.	July 1962	11-23-62

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	J-475-7(3)95

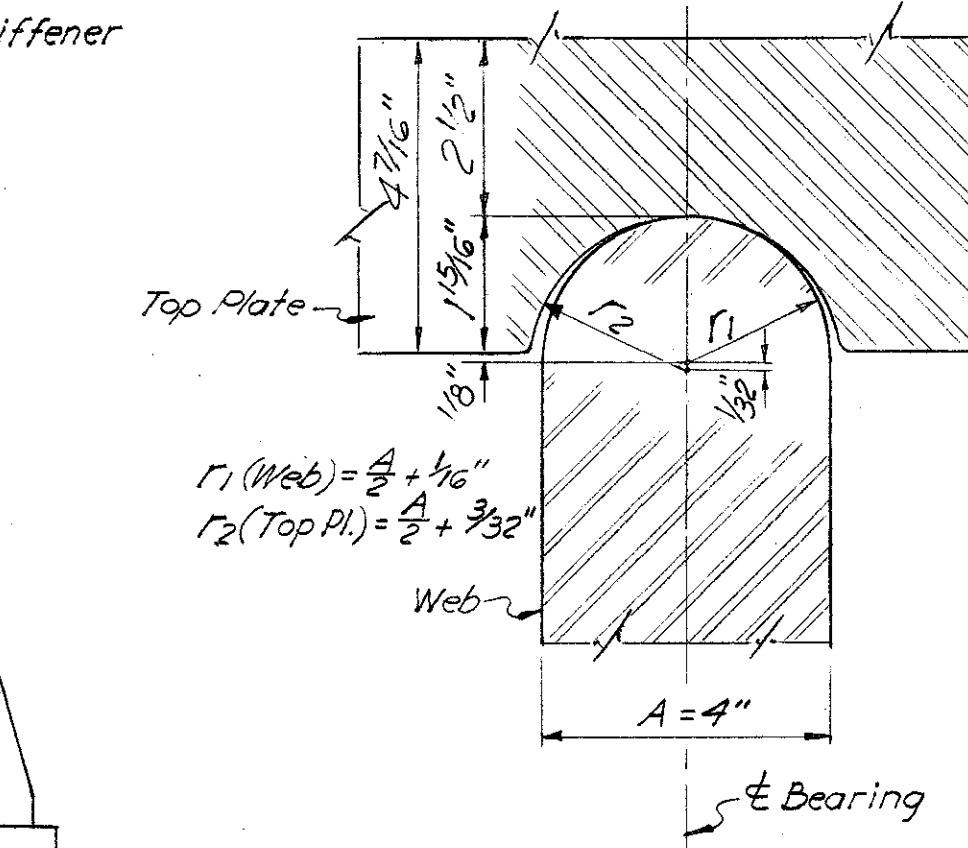
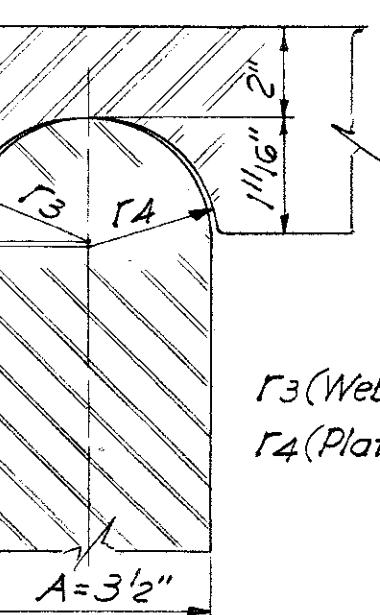
28
45LUC. 20-18.73
WOO. 20-0.00

ALTERNATE NOTE.
THE CONTRACTOR, AT HIS OPTION, MAY
SUBMIT AN ALTERNATE DESIGN FOR THE BEARINGS
ON THIS SHEET, TO THE DIRECTOR OF HIGHWAYS, FOR BEARINGS
CONSISTING OF CASTINGS OF MATERIAL CONFORMING TO
ASTM A-148, GRADE 90-60, SPECIFICATIONS. HOWEVER
THE DETAILS AND DIMENSIONS, IN GENERAL, SHALL CONFORM TO
THOSE SHOWN ON THIS SHEET.

UPON APPROVAL, THE ALTERNATE DESIGNED BEARINGS
MAY BE SUBSTITUTED FOR THE WELDED BEARINGS (ASTM
A-441) AT NO ADDITIONAL COST TO THE STATE.

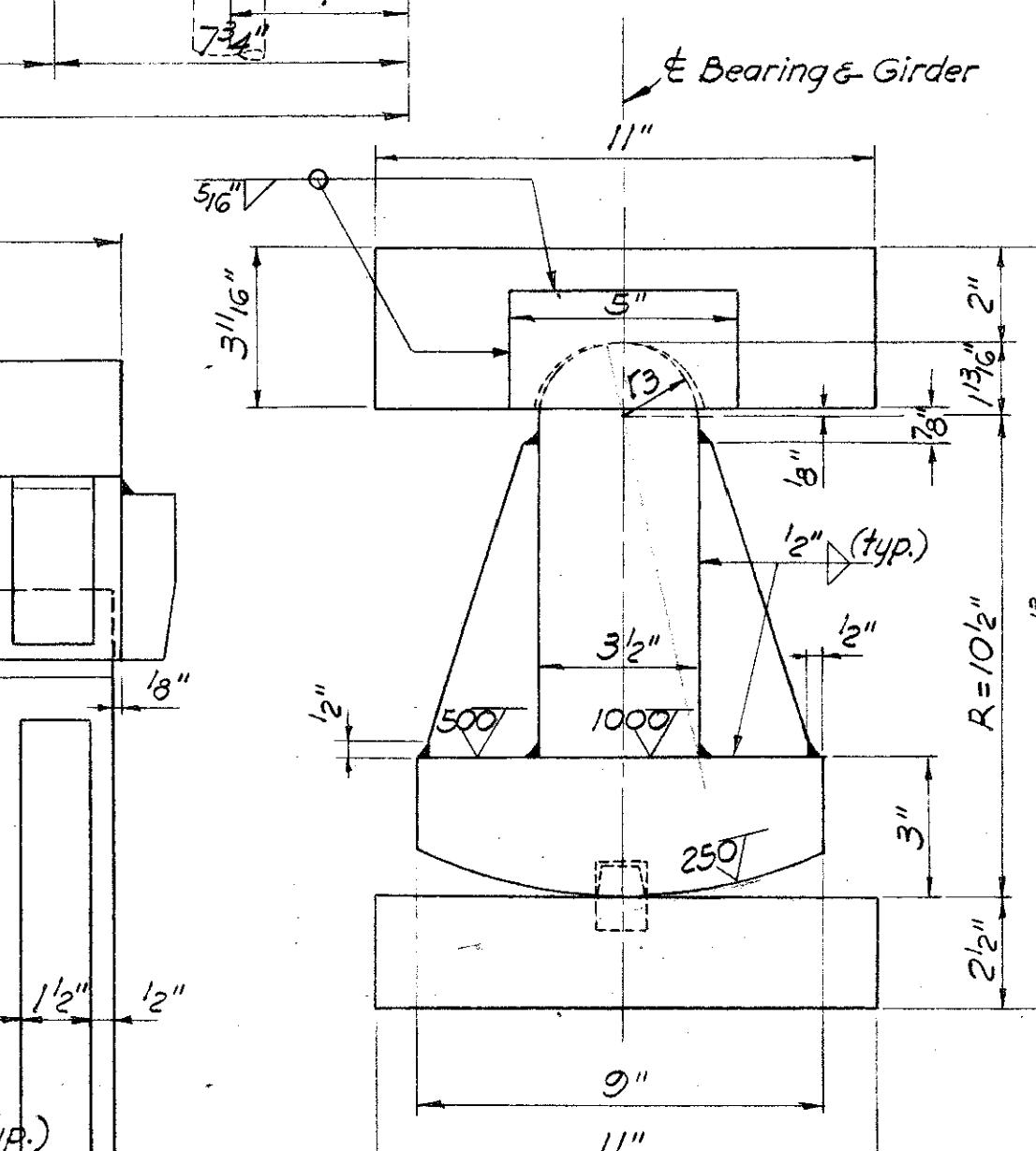


DOWEL DETAIL

TOP BEARING DETAILS
(Typ. for Bolster & Rocker)

$$r_3(\text{Web}) = \frac{A}{2} + \frac{1}{16}$$

$$r_4(\text{Plate}) = \frac{A}{2} + \frac{3}{32}$$

TYPICAL WELDED BOLSTER B-1
(STEEL: ASTM-A-441)ROCKER R-2 @ EXPANSION JOINTS
(STEEL ASTM-A-441)

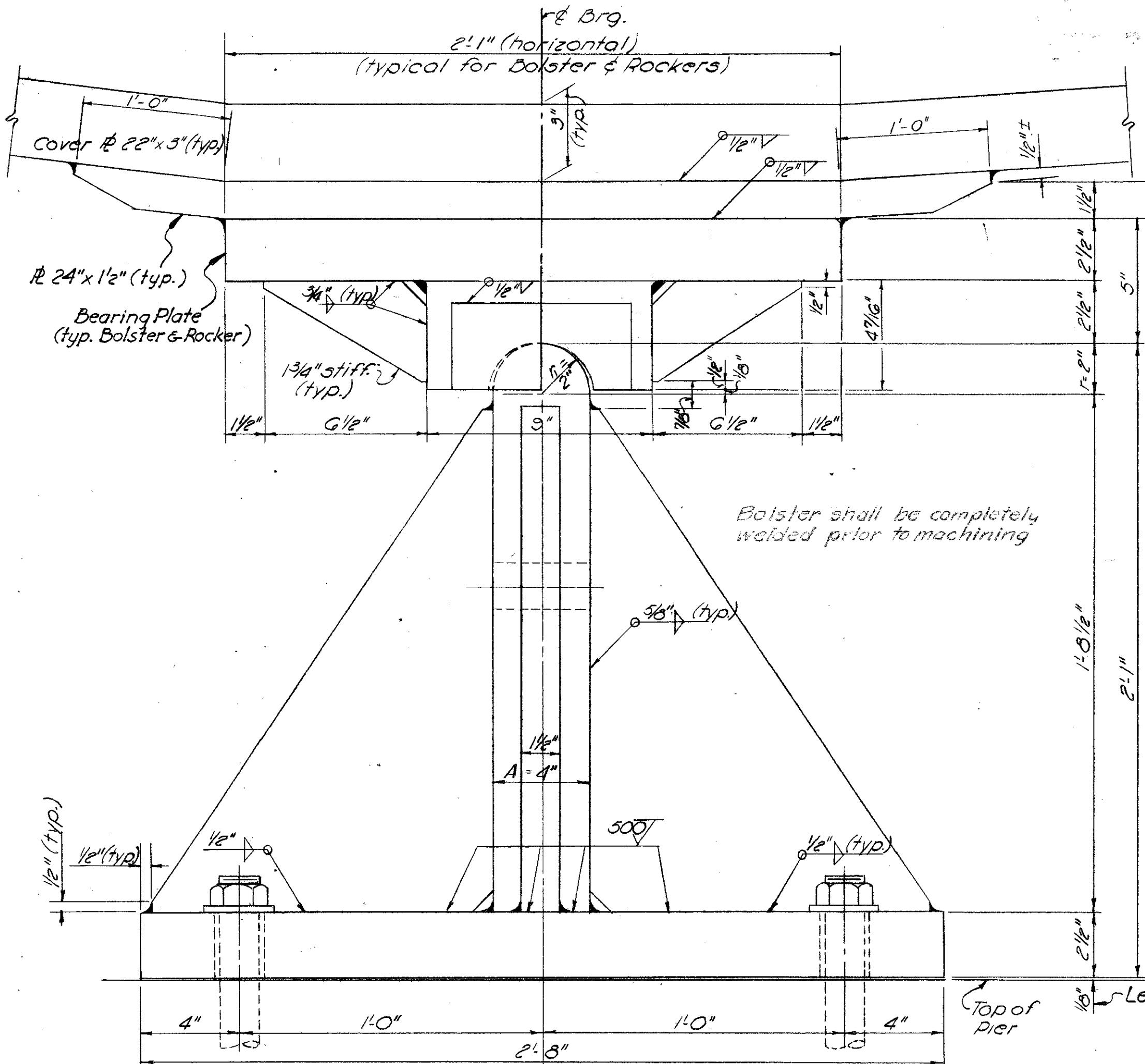
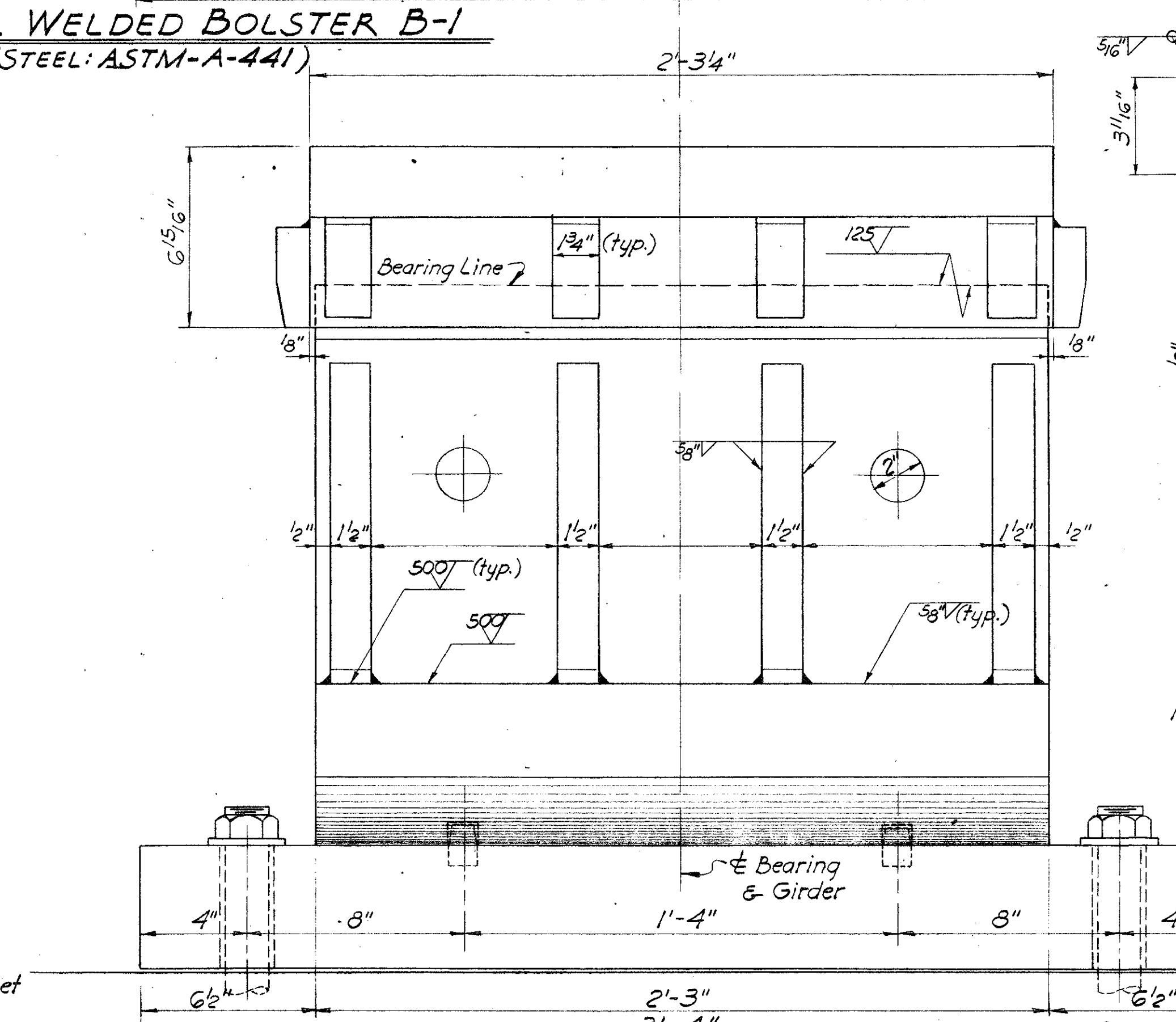
CHARLES L BARBER & ASSOCIATES
ENGINEERS
TOLEDO OHIO

ROCKER & BOLSTER
DETAILS

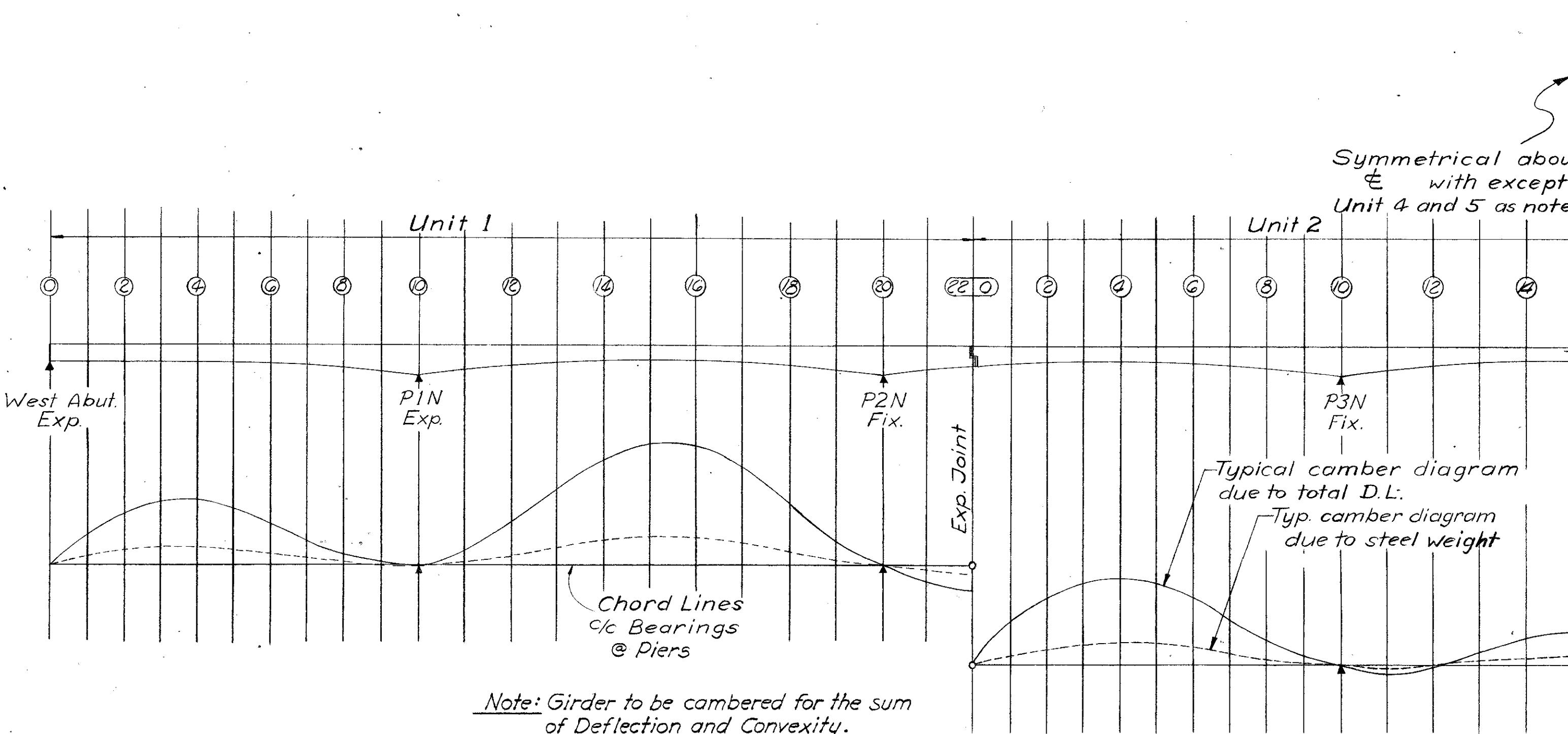
BRIDGE NO LUC-20-1873 L&R
U.S. 20 OVER THE MAUMEE RIVER
LUCAS & WOOD CO NB STA 474 0619
STA 4 5321

SB STA 474 4311
STA 4 7659

- NOTES: 1. Rockers shall be placed, that when the bridge is completed, the rocker will stand in a vertical position at 60°F.
2. All anchor bolts are 1/2"φ wedge bolts with steel washers, set 1'-3" into concrete, clearing with special care top reinforcing steel at all piers.
3. All welds shall be Class "A" welds.
4. Plates over 4" in thickness shall be heat-treated in accordance with the procedures relating to Heat Treatment of Metals (ASTM-Designation E-44)-to provide a minimum yielding point of 42,000 psi.

TYPICAL WELDED BOLSTER B-1
(STEEL: ASTM-A-441)TYPICAL WELDED ROCKER R-1
(STEEL: ASTM-A-441)

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE
W.B.D.	B.B.D.	B.B.D.	4.3.7.	W.B.D.	Aug 1962



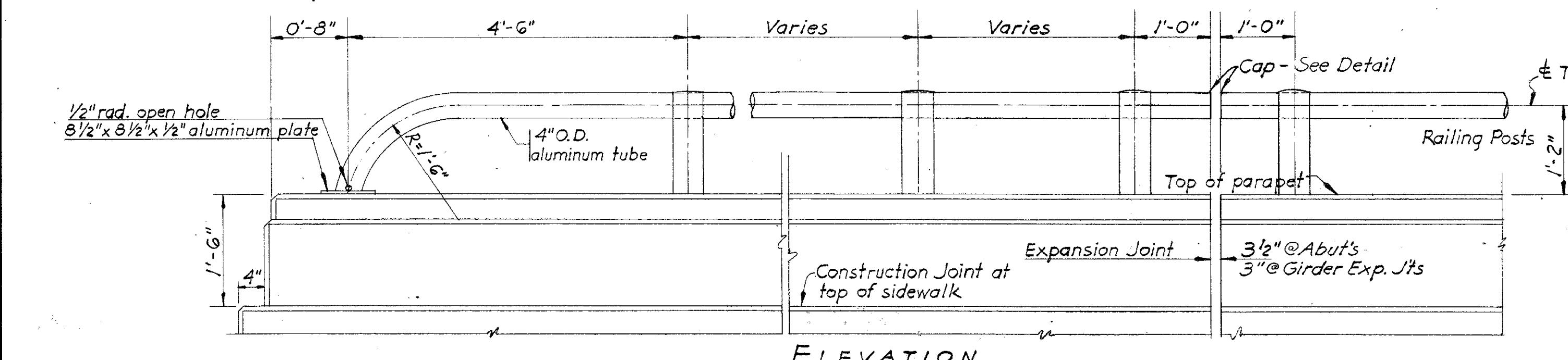
		UNITS 1, 3 AND 6 (For All Girders)																					
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
Deflection due to steel weight	0	1/16	3/16	3/16	3/16	1/8	1/16	1/16	0	0	1/16	9/16	4/16	5/16	5/16	1/4	1/16	0	-1/16	0	-1/16	0	
Deflection due to concrete	0	1/4	3/8	1/2	1/2	7/16	5/16	3/16	1/16	0	0	1/8	5/16	5/16	15/16	15/16	1/16	3/4	1/2	1/16	0	-1/16	-3/8
Deflection due to total D.L.	0	9/16	9/16	11/16	14/16	5/8	7/16	1/4	1/8	0	0	3/16	7/16	13/16	11/16	11/16	1/4	1/4	1/16	0	-3/16	-9/16	0
Convexity req'd for vert curve	0	1/16	1/16	1/8	1/8	1/8	1/16	1/16	0	0	3/16	5/16	5/16	3/16	3/16	1/4	1/4	3/16	1/16	0	1/8	3/16	0
Sum of deflection & convexity	0	1/8	9/8	13/16	13/16	9/4	9/16	9/16	1/16	0	3/8	9/4	1/8	13/8	13/16	1/2	1/4	13/16	1/4	0	-1/16	-1/4	0

		UNIT 2 AND PART OF UNIT 5 (For All Girders)																						
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
Deflection due to steel weight	0	1/8	9/16	1/4	1/4	3/16	1/8	1/8	1/16	0	-1/16	0	1/16	1/16	1/16	1/16	0	-1/16	0	1/16	1/16	1/8	0	
Deflection due to concrete	0	1/4	7/16	5/8	5/8	1/2	3/8	3/16	1/16	0	-1/16	0	1/16	1/4	1/4	1/16	0	-1/16	0	1/16	3/16	5/8	1/4	0
Deflection due to total D.L.	0	3/8	5/8	13/16	7/8	9/8	11/16	1/8	1/4	0	-1/8	0	1/8	5/16	3/8	1/8	0	-1/8	0	1/8	1/4	1/8	3/8	0
Convexity req'd for vert curve	3/16	1/4	9/16	1/4	1/8	3/8	3/8	1/8	1/4	0	1/16	1/8	3/16	3/16	3/16	1/4	1/16	1/8	1/16	0	1/8	3/8	1/4	0
Sum of deflection & convexity	0	3/16	9/8	13/16	1/8	1/4	1/16	1/8	1/4	0	-1/16	1/8	3/16	9/16	1/8	1/16	0	-1/16	0	1/8	1/4	1/8	9/8	0

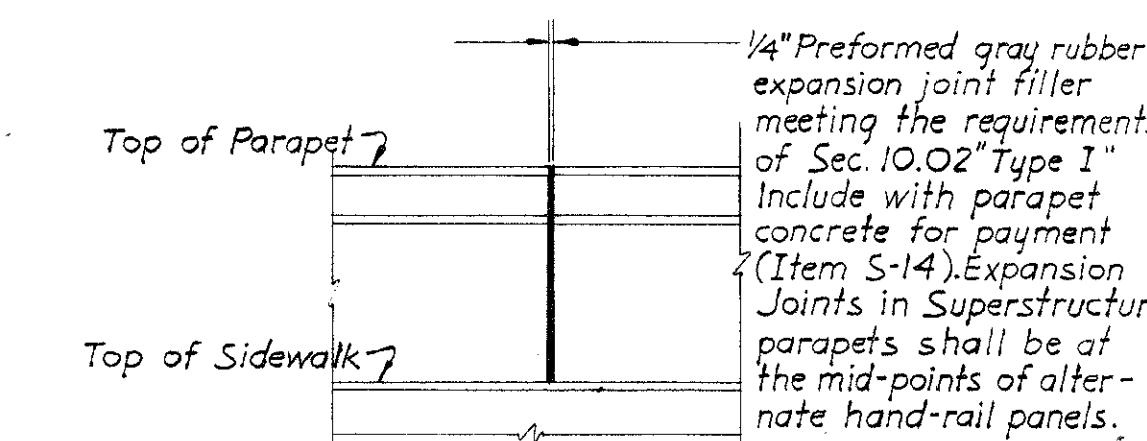
		UNIT 4																								
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				
Exterior Girder GI-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
Deflection due to steel weight	0	1/16	1/8	1/4	3/16	1/8	1/8	0	0	0	0	0	1/8	4/16	5/16	3/16	1/4	1/16	0	-1/16	0	1/16	1/16	0		
Deflection due to concrete	0	1/4	3/8	1/2	9/16	1/8	3/8	3/16	1/16	0	0	0	3/16	7/16	11/16	1	1/16	1/16	1	9/16	0	-1/16	-1/2	0		
Deflection due to total D.L.	0	9/16	9/16	13/16	11/16	1/2	9/16	1/16	0	0	0	0	3/16	9/16	13/16	13/16	1/16	1/16	0	-9/16	0	1/16	9/16	0		
Convexity req'd for vert curve	0	1/16	1/4	1/8	1/8	1/8	1/16	1/16	0	0	1/16	1/8	4/16	3/8	3/8	1/16	1/16	1/8	0	1/16	3/16	1/8	0			
Sum of deflection & convexity	0	9/8	9/8	13/16	13/16	9/4	9/16	9/16	1/16	0	3/8	13/16	1/16	13/16	1/16	1/16	1/2	1/4	1/16	0	-9/16	1/4	0			
Interior Girder GI-2	0	1/8	1/4	1/4	3/16	1/8	1/8	0	0	0	0	0	1/8	4/16	3/8	1/16	1/16	1/8	1/16	0	-1/16	0	1/16	1/16	0	
Deflection due to steel weight	0	1/8	1/8	1/4	1/4	3/16	1/8	1/8	0	0	0	0	0	1/8	4/16	3/8	1/16	1/16	1/8	1/16	0	-1/16	0	1/16	1/16	0
Deflection due to concrete	0	1/4	1/2	9/16	5/8	5/8	3/8	3/16	1/16	0	0	0	3/16	7/16	13/16	13/16	1/16	1/16	0	-9/16	0	1/16	5/8	1/4	0	
Deflection due to total D.L.	0	3/8	5/8	13/16	7/8	9/8	11/16	1/2	5/16	0	0	0	3/16	1/16	1/16	1/16	0	-3/8	-1/16	0	3/8	1/16	1/16	0		
Convexity req'd for vert curve	0	1/16	1/4	1/8	1/8	1/8	1/16	1/16	0	0	1/16	1/8	4/16	3/8	3/8	1/16	1/16	1/8	0	1/16	3/16	1/8	0			
Sum of deflection & convexity	0	1/16	11/16	13/16	9/8	9/16	11/16	1/2	1/16	0	3/8	13/16	1/16	13/16	1/16	1/16	1/2	1/4	1/16	0	-9/16	1/4	0			
Exterior Girder GI-3	0	1/8	1/4	1/4	3/16	1/8	1/8	0	0	0	0	0	1/8	4/16	3/8	1/16	1/16	1/8	1/16	0	-1/16	0	1/16	1/16	0	
Deflection due to steel weight	0	1/16	1/8	1/4	1/4	3/16	1/8	1/8	0	0	0	0	0	1/8	4/16	3/8	1/16	1/16	1/8	1/16	0	-1/16	0	1/16	1/16	0
Deflection due to concrete	0	1/4	1/2	9/16	5/8	5/8																				

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-475-7(3)195	30 45

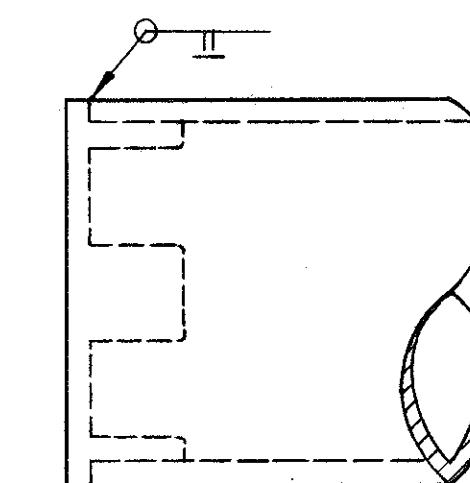
LUC - 20-18.73
WOO - 20-0.00



ELEVATION

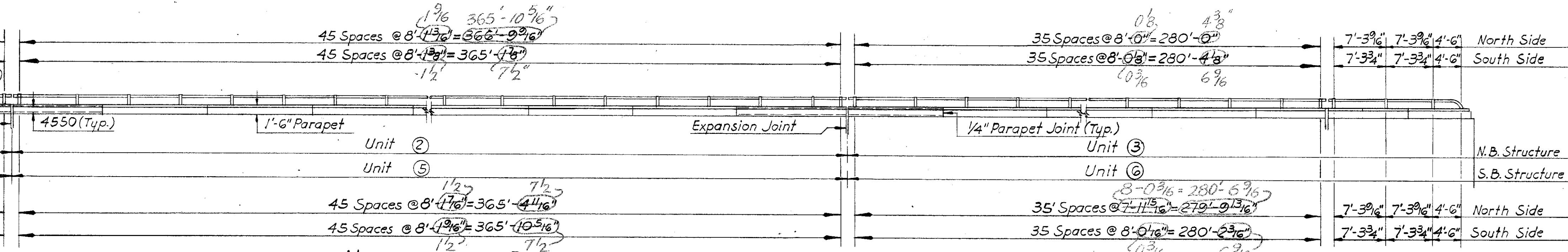
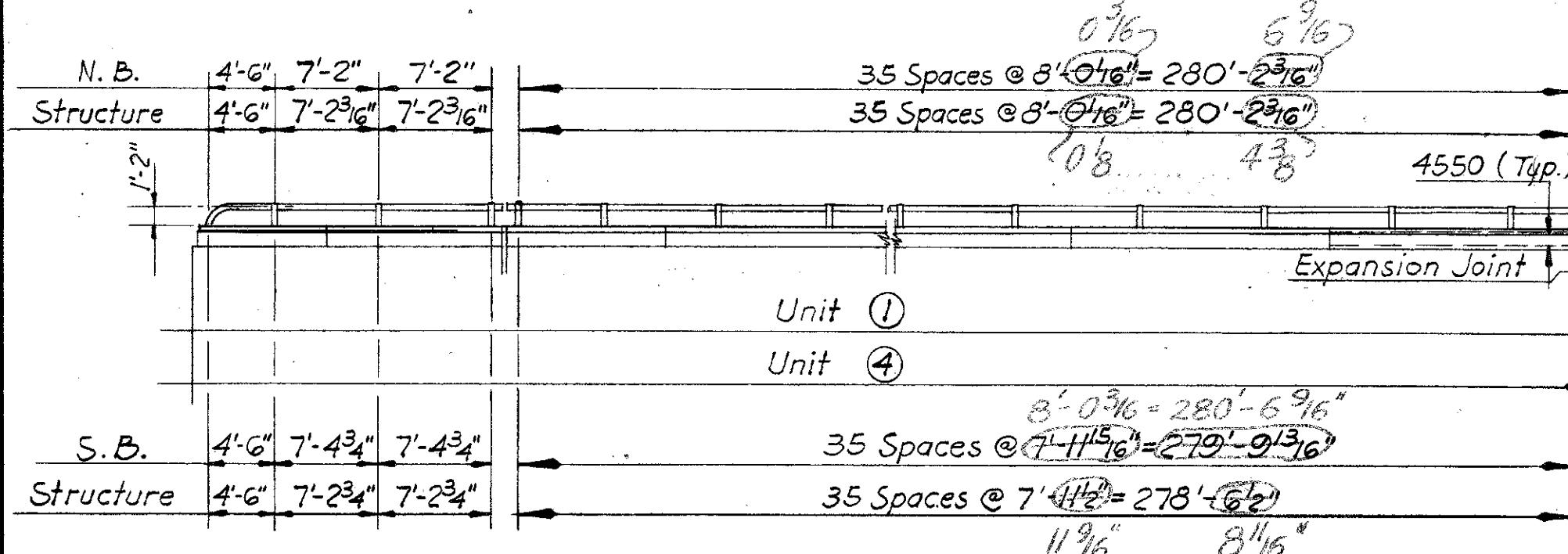


PARAPET JOINT DETAIL



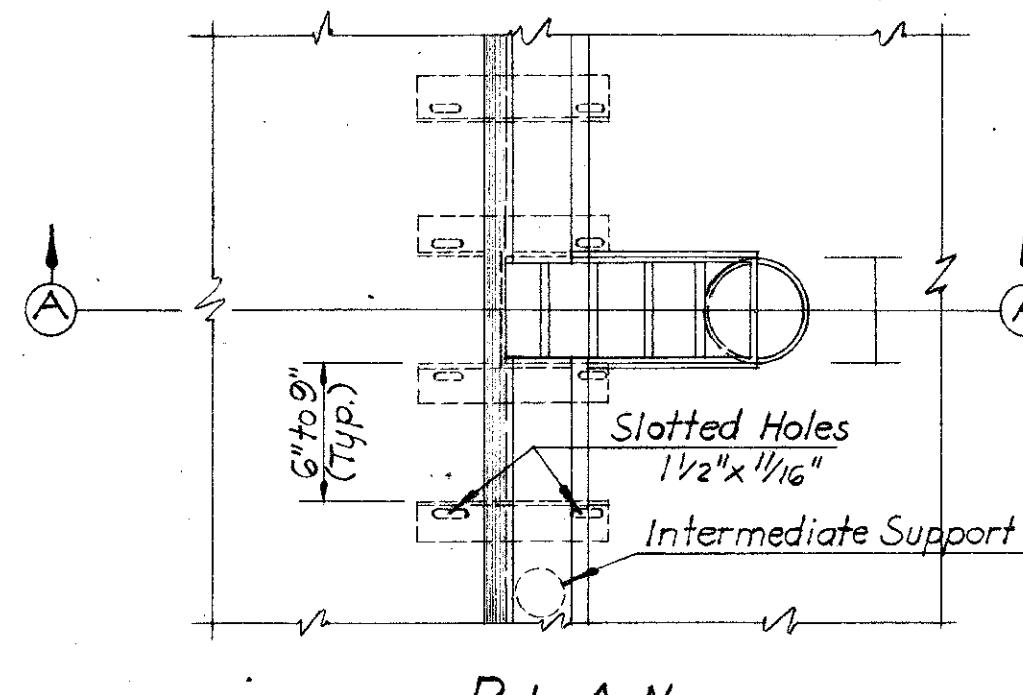
Aluminum tube, 4" O.D. x 3/16" wall or 3 1/2" O.D. x 3/16" wall.
Caps shall be cast to fit the nominal inside and outside diameters of the tube.

RAIL CAP DETAIL

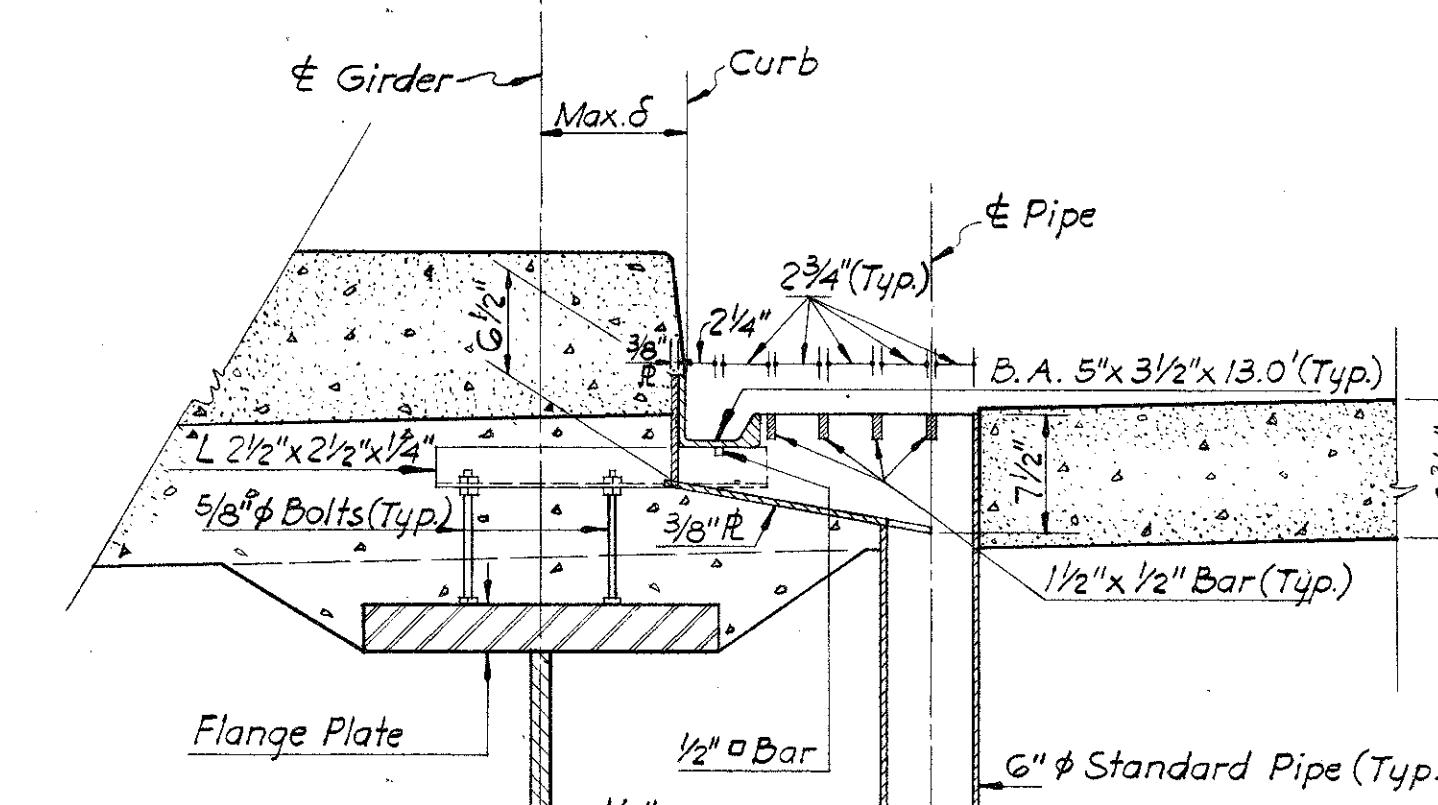


HANDRAIL DETAIL

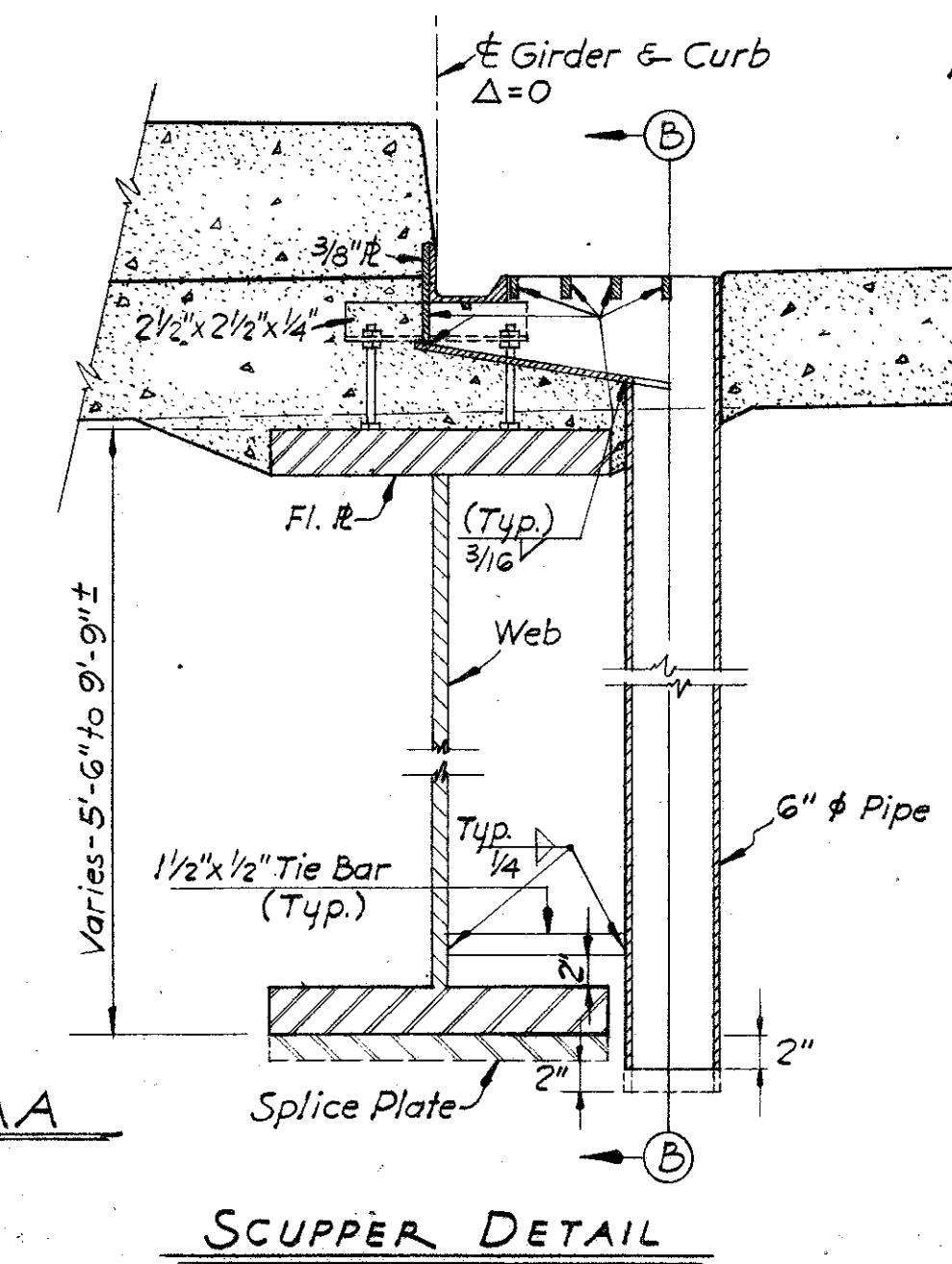
NOTES:



PLAN

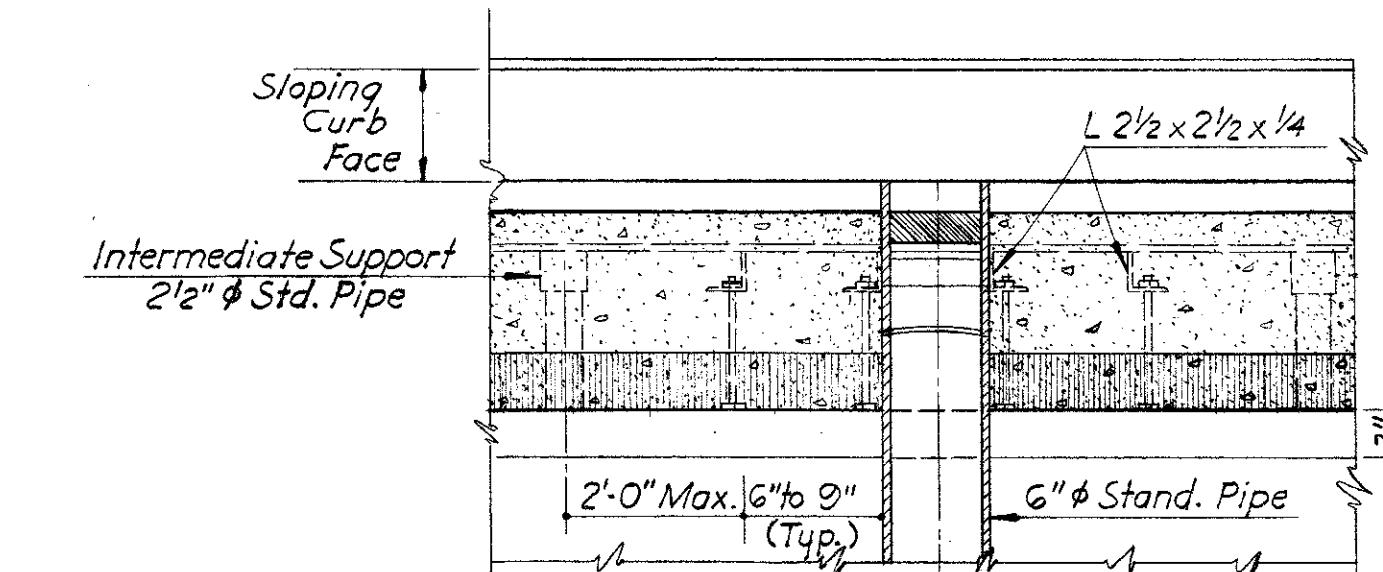


SECTION A-A

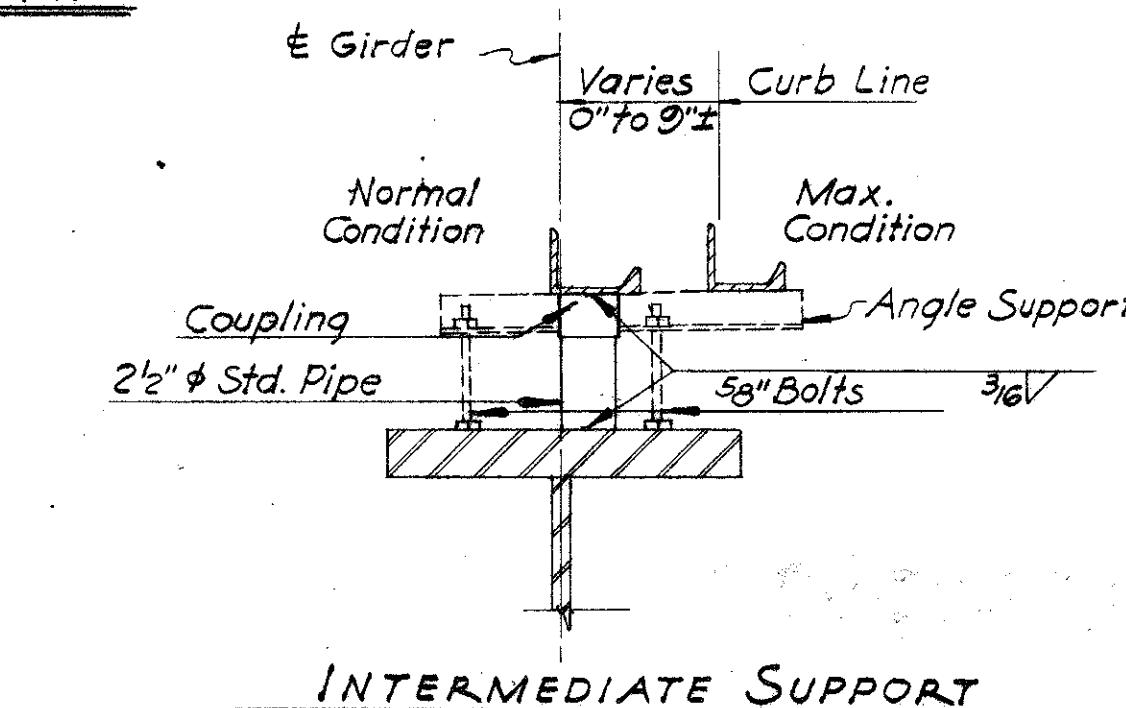


NOTES: Gutter shall be placed and accurately adjusted for alignment and grade with allowance for dead load deflection prior to placing concrete. Scupper shall clear all crossframes by a min. of 6". Intermediate angle supports are to be spaced at not more than 4'-0".

Gutter support angle 2 1/2" x 2 1/2" x 1/4" will vary in length in accordance with the curb offset with respect to the grade.



SECTIONAL ELEV. BB



INTERMEDIATE SUPPORT

NOTES: Payment for Concrete Parapet, including longitudinal reinforcing steel, shall be included in Item S-14, Aluminum Handrail (including parapets). All other reinforcing steel in parapet shall be included in Item S-4 for payment.

All handrail shall be Type "A". For details of Type "A" handrail and other handrail notes, See Ohio Standard Drawing AR-1-57, Revised.

Payment for scuppers, gutters, downspouts, couplings and angle supports shall be made at the contract unit price bid for Item S-29, Scuppers, as per plan.

CHARLES L. BARBER & ASSOCIATES
ENGINEERS
TOLEDO OHIO

HANDRAIL & SCUPPER DETAILS

BRIDGE NO. LUC-20-1873 L&R.
U.S. 20 OVER THE MAUMEE RIVER
LUCAS & WOOD CO. NB. STA. 474+06.19
STA. 4+53.21
SB. STA. 474+43.11
STA. 4+76.59

DESIGNED S.E.P.	DRAWN H.M.	TRACED H.M.	CHECKED S.E.P.	REVIEWED W.H. P.M.	DATE Aug 1962	REVISED 4-12-63
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FED. RD.	STATE	PROJECT
2	OHIO	I-475-73/95

31
45LUC - 20-18.73
WOO - 20-0.00

Battered Piles shall be battered 1 in 4.

NOTES: All piles shall be 10BP42.

All piles shall battered 1 in 4.

Pile spacings are given along bottom of footing.

Reinforcement steel shall clear the face of concrete by 2" unless otherwise noted.

Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.
Maximum pile load 32.5 tons per pile.

S denotes South Wing Wall.

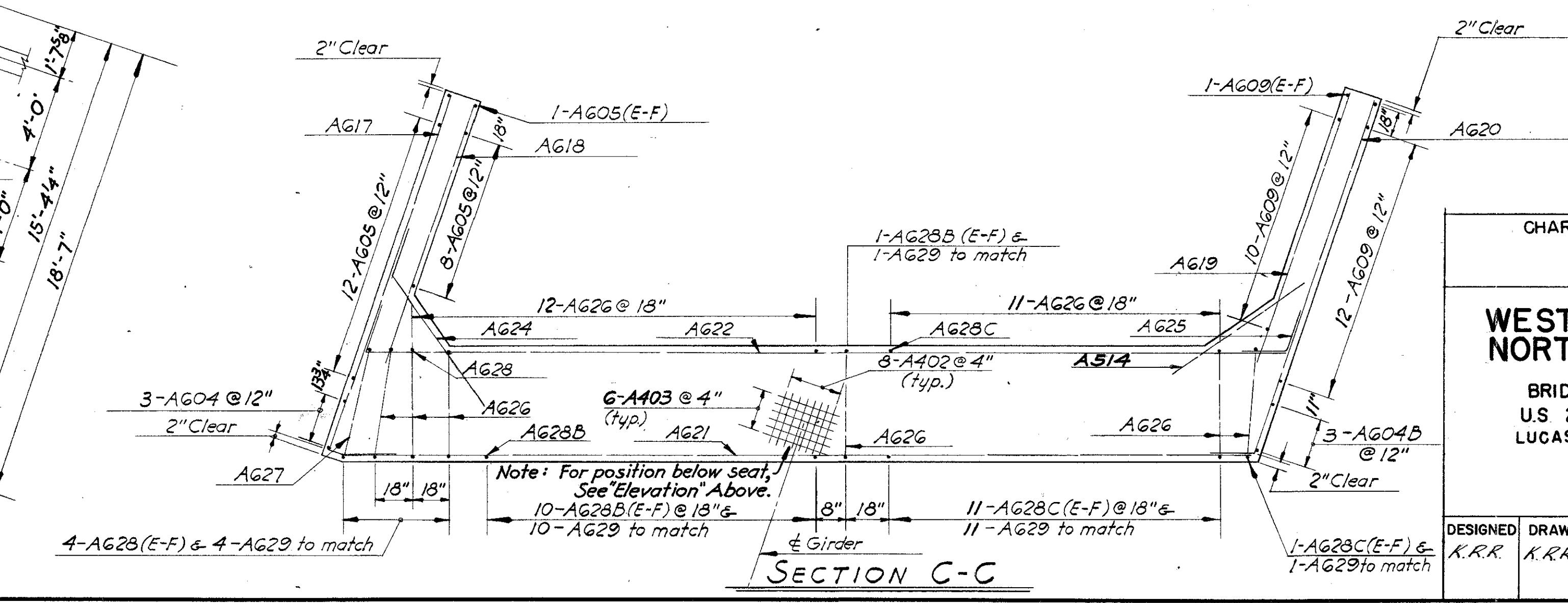
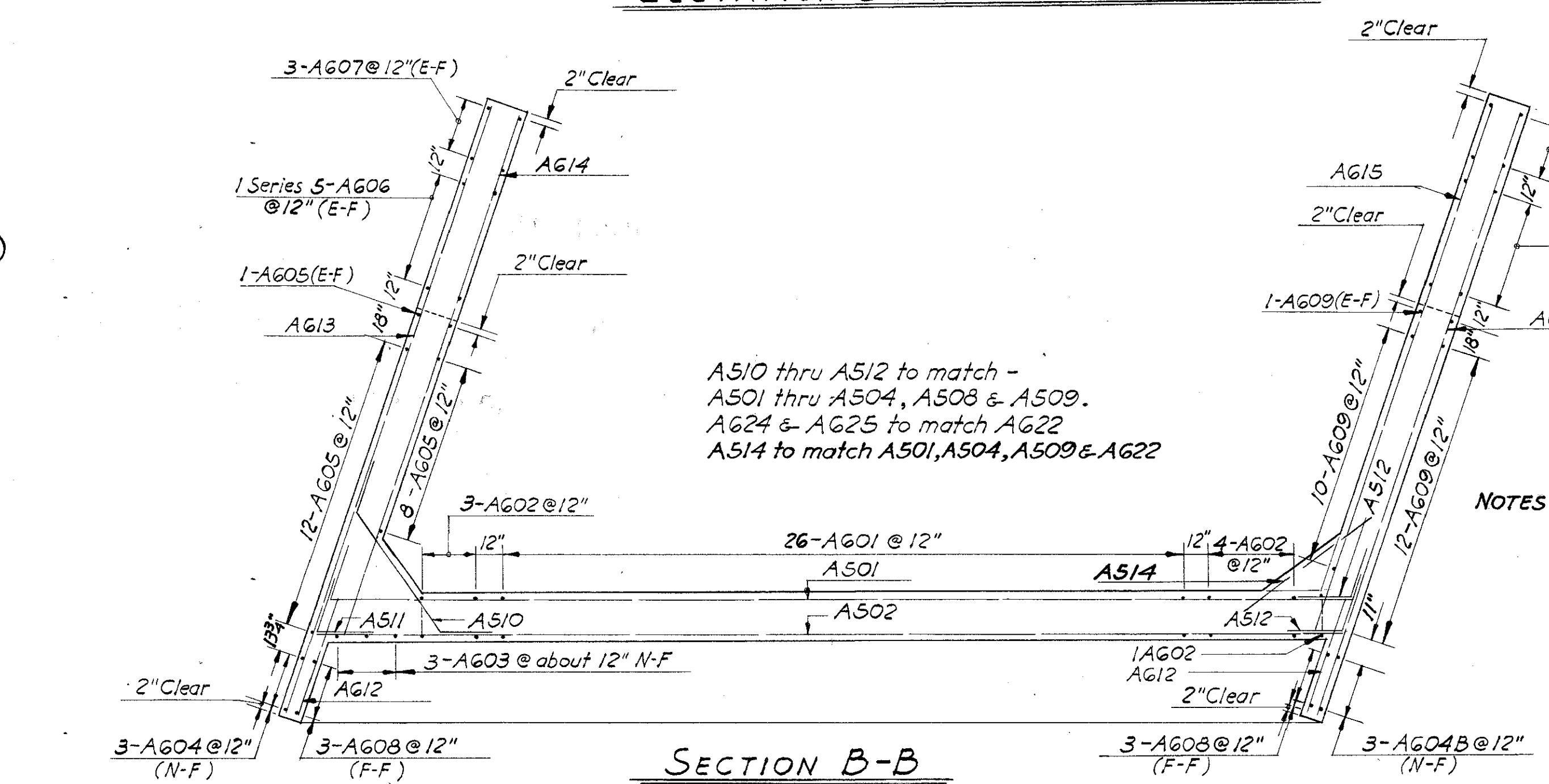
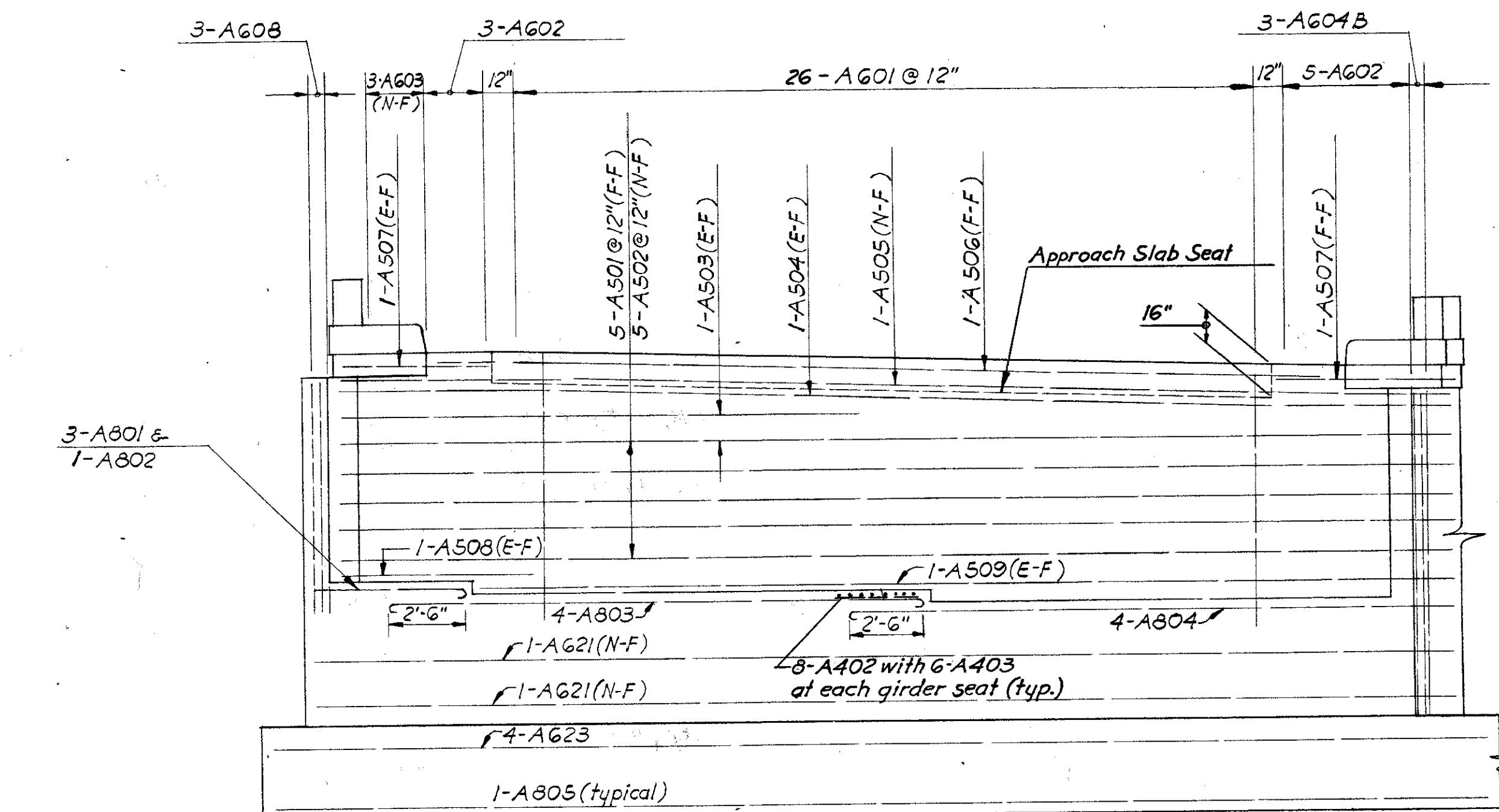
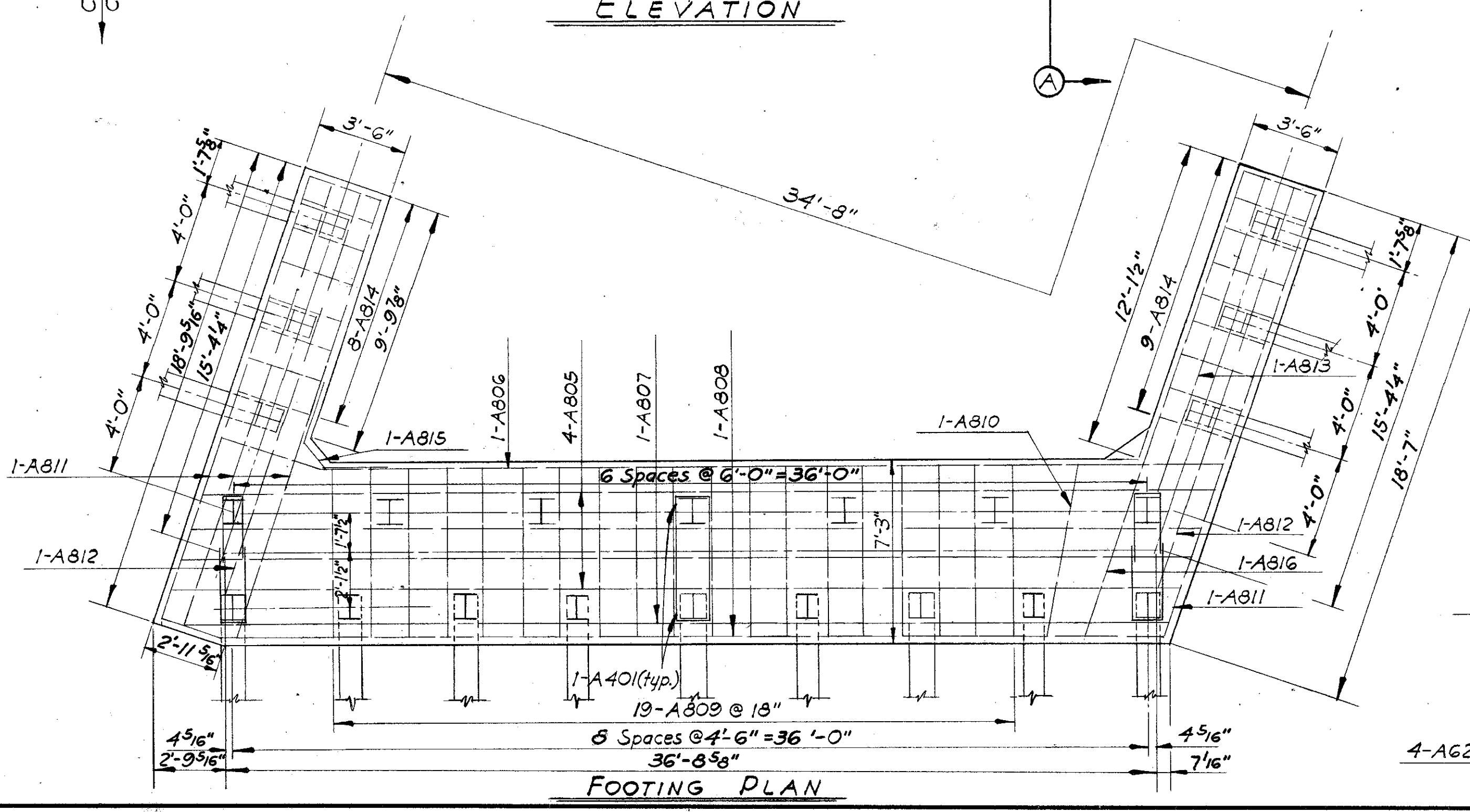
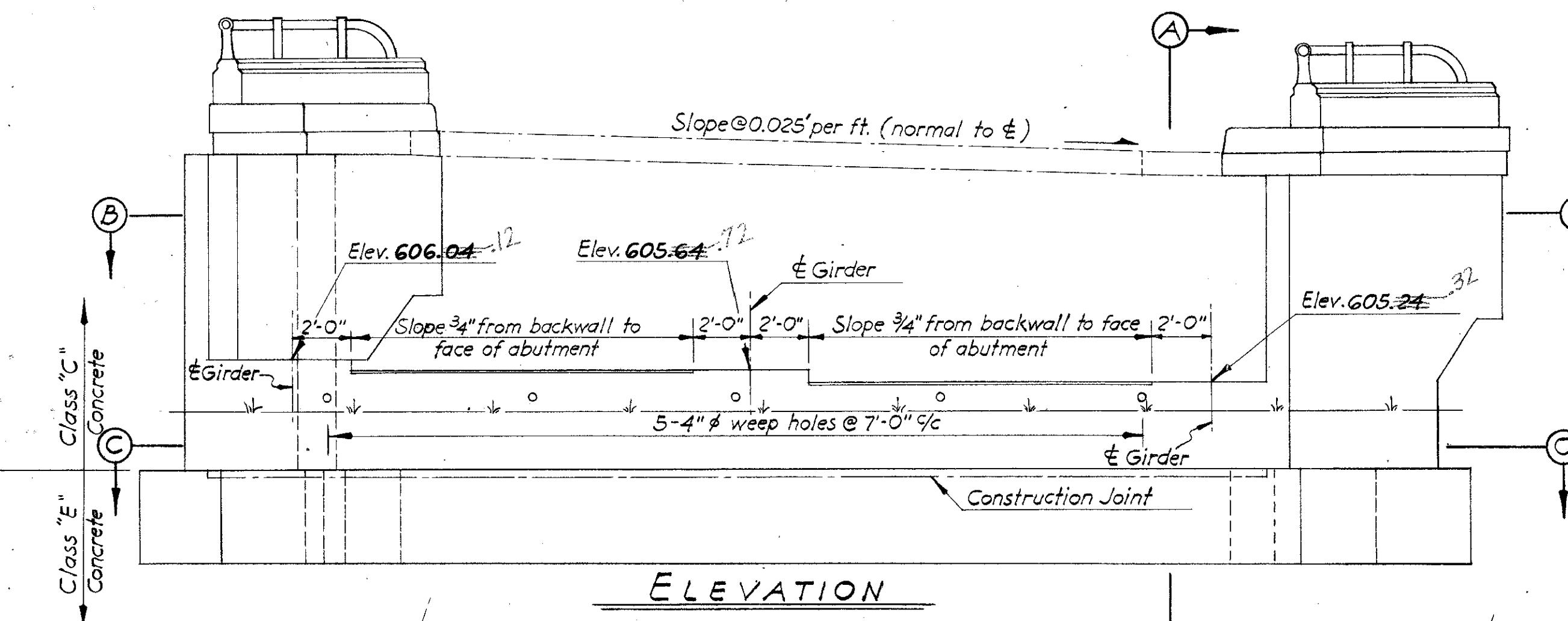
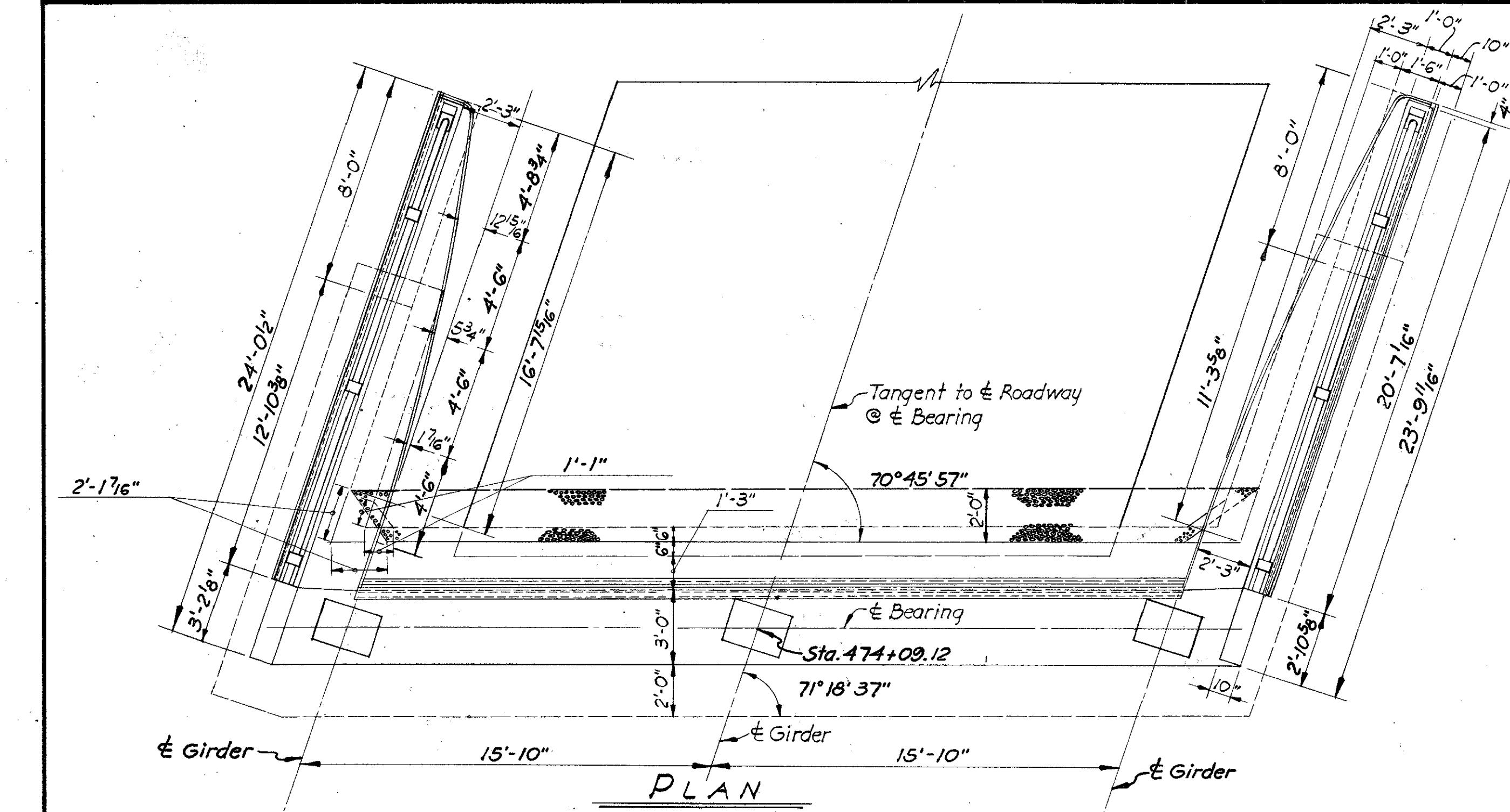
N denotes North Wing Wall.

E-F denotes Each Face.

N-F denotes Near Face.

F-F denotes Far Face.

For other details and reinforcement schedule See Sheet No. 32.



CHARLES L. BARBER & ASSOCIATES
ENGINEERS
TOLEDO, OHIO

WEST ABUTMENT DETAILS NORTHBOUND STRUCTURE

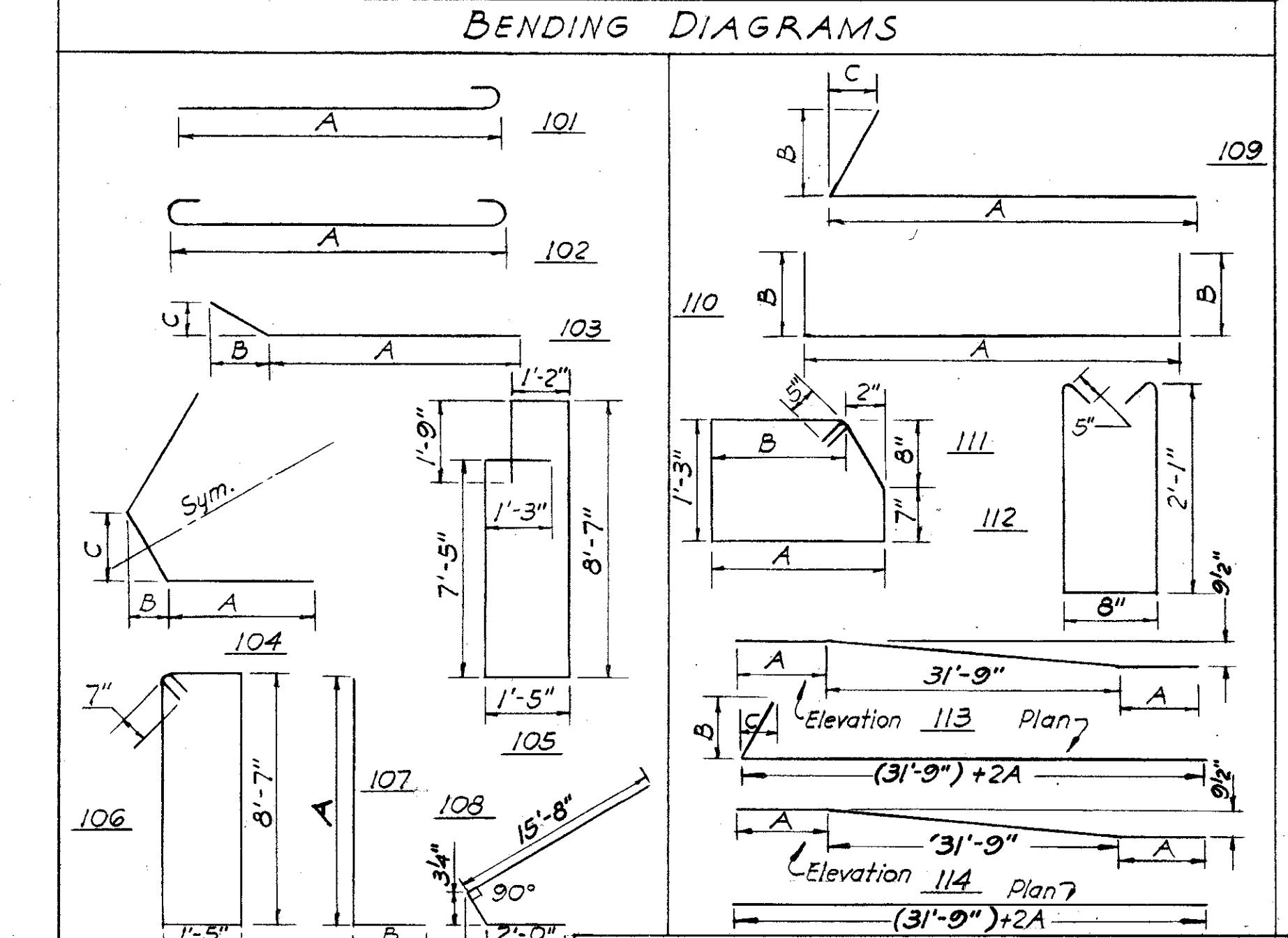
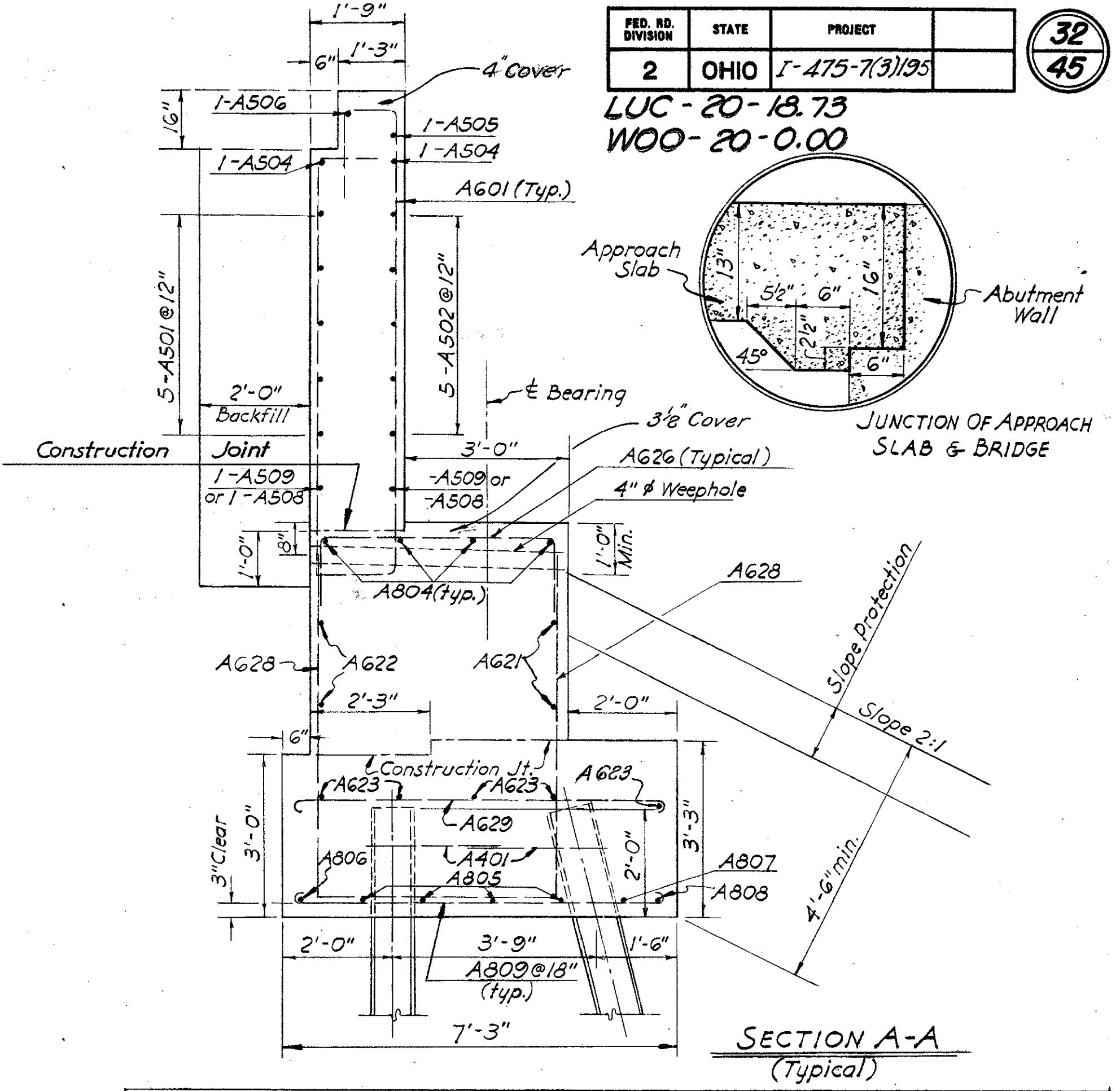
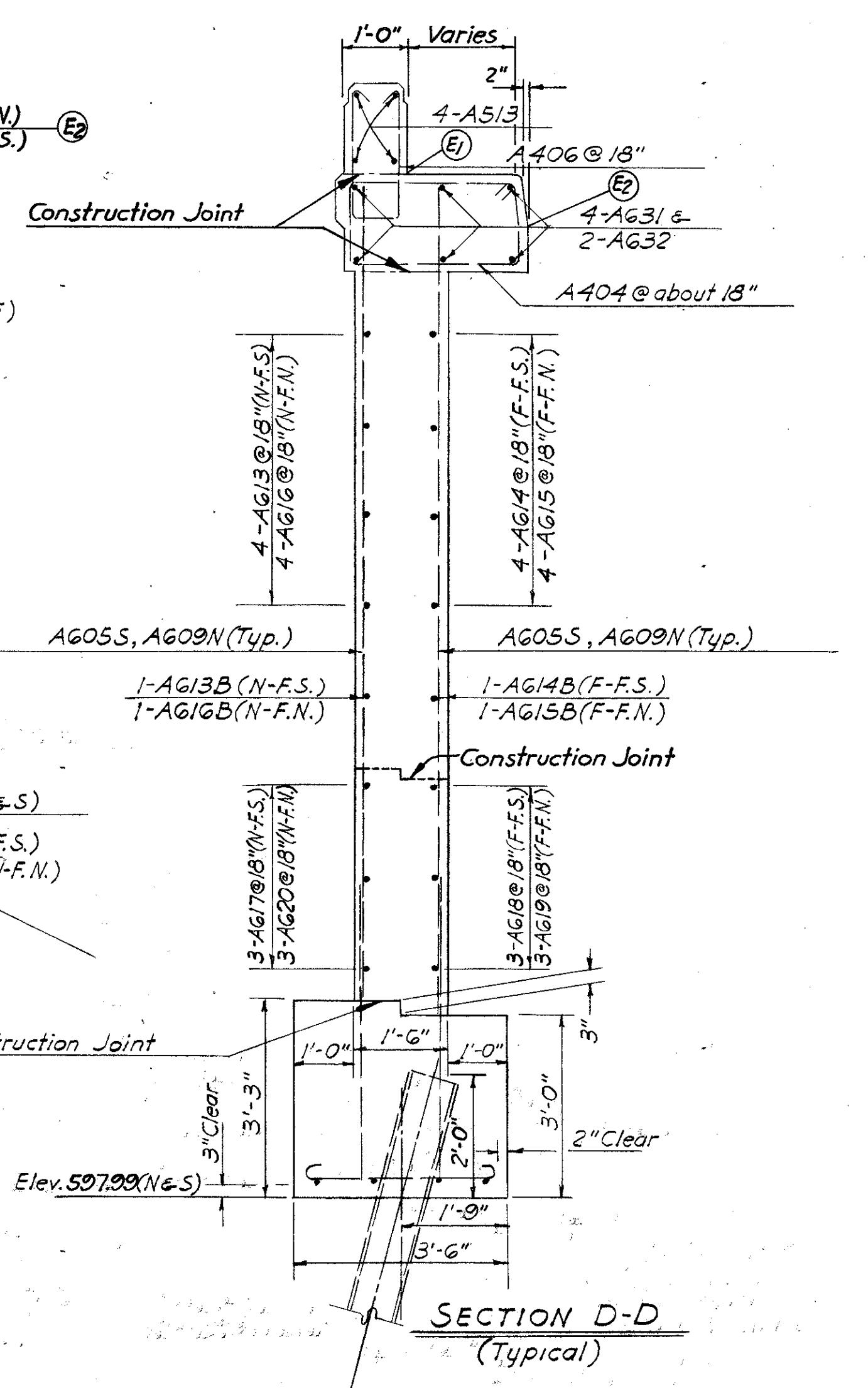
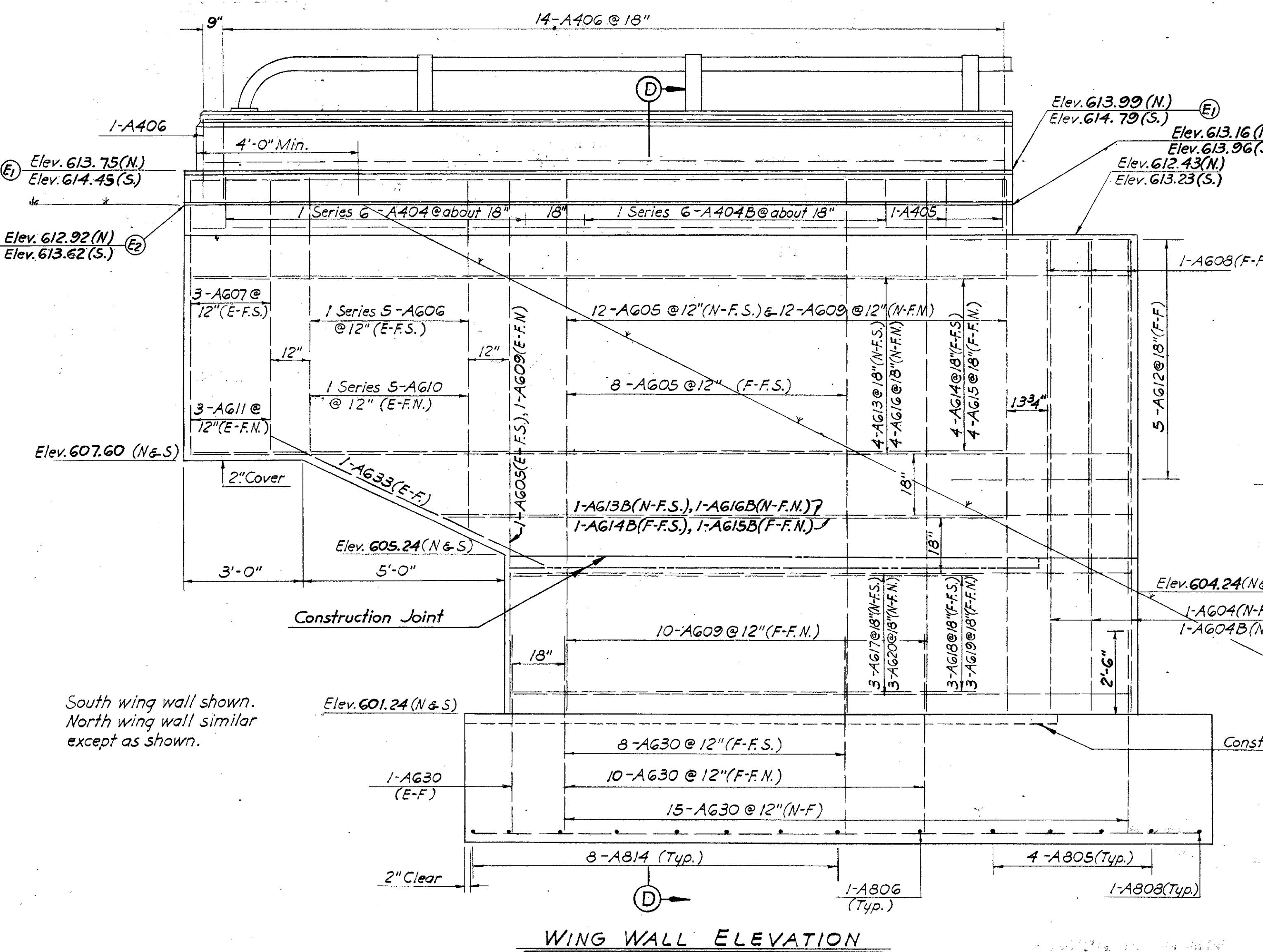
BRIDGE NO. LUC-20-1873 L.R.
U.S. 20 OVER THE MAUMEE RIVER
LUCAS & WOOD CO.-NB. STA. 474+06.19
STA. 4+53.21
SB. STA. 474+43.11
STA. 4+76.59

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
K.R.R.	K.R.R.	H.M.	K.R.R. S.S.P.	WLD JMG	July 1963	4-12-63 5-21-63

REINFORCEMENT SCHEDULE																										
MARK	NUMBER	LENGTH	TYPE	DIMENSION			SER. INC.	WEIGHT POUNDS	MARK	NUMBER	LENGTH	TYPE	DIMENSION			SER. INC.	WEIGHT POUNDS	MARK	NUMBER	LENGTH	TYPE	DIMENSION			SER. INC.	WEIGHT POUNDS
				A	B	C							A	B	C						A	B	C			
A401	6	6'-4"	110	10 1/4"	2' 9"		25	A514	9	6'-0"	Str.		56	A615B	1	14'-9"	Str.		22	A632	4	15'-6"	Str.		94	
A402	24	2'-4"	Str.				37	A513B	8	11'-10"	Str.		*	A616	4	23'-5"	Str.		141	A633	2	7'-6"	Str.		23	
A403	18	3'-0"	Str.				36	A601	26	21'-7"	105		843	A616B	1	17'-3"	Str.		26							
A404	25er.6	6'-0" to 7'-11"	111	1'-6"-10" 2'-5"	1'-4"-10" 2'-3"		56	A602	8	21'-2"	106		254	A617	3	18'-6"	108		83	A601	3	6'-4"	101	5'-3"	51	
A404B	25er.6	8'-9" to 9'-10"	111	2'-6"-2" to 2'-11"	2'-4"-2" to 2'-9"		2"	A603	3	10'-7"	107	8'-7" 2'-0"	48	A618	3	11'-5"	Str.		52	A602	1	5'-8"	101	4'-7"	15	
A405	4	9'-0"	111	2'-11"	2'-9"		24	A604	3	11'-10"	Str.		53	A619	3	11'-9"	Str.		53	A603	4	20'-6"	102	18'-4"	219	
A406	30	5'-8"	112				114	A604B	3	11'-0"	Str.		50	A620	3	17'-5"	103	15'-5" 8" 1'-10 1/2"	79	A604	4	20'-8"	101	19'-7"	221	
A513	8	6'-7"	Str.				*	A605	22	13'-4"	Str.		441	A621	2	37'-3"	Str.		112	A605	4	39'-9"	Str.		425	
A501	5	39'-10"	109	37'-10"	1'-10 1/2"	8"	208	A606	25er.5	7'-0" to 8'-10"	Str.		55	A622	2	39'-6"	109	37'-6" 1'-10 1/2" 8"	119	A606	1	39'-6"	103	35'-2" 4'-1" 1'-5"	105	
A502	5	37'-10"	Str.				197	A607	6	6'-10"	Str.		62	A623	5	37'-6"	Str.		282	A607	1	39'-5"	Str.		105	
A503	2	20'-0"	109	18'-0"	1'-10 1/2"	8"	42	A608	6	9'-2"	Str.		83	A624	2	9'-0"	103	7'-0" 1'-1/2" 1'-7"	27	A608	1	39'-8"	103	36'-11" 2'-7 1/4" 11"	106	
A504	2	39'-11"	113	2'-10 1/4"	1'-10 1/2"	8"	83	A609	24	12'-7"	Str.		453	A625	2	4'-0"	103	2'-0" 8" 1'-10 1/2"	12	A609	19	9'-1"	102	6'-11"	461	
A505	1	37'-11"	114	2'-10 1/2"			40	A610	25er.5	6'-2 1/2" to 8'-0 1/2"	Str.		55	A626	26	10'-11"	110	6'-11" 2'-0"	426	A610	1	9'-3"	102	7'-1"	25	
A506	1	29'-5"	Str.				31	A611	6	6'-1"	Str.		68	A628	8	8'-3"	107	7'-3" 1'-0"	100	A612	2	16'-8"	Str.		89	
A507	4	6'-3"	Str.				25	A612	10	4'-6"	Str.		142	A628B	22	7'-11"	107	6'-11" 1'-0"	262	A613	1	13'-9"	Str.		36	
A508	2	9'-1"	109	7'-1"	1'-10 1/2"	8"	19	A613	4	23'-8"	Str.		26	A628C	24	7'-6"	107	6'-6" 1'-0"	272	A614	17	5'-4"	102	3'-2"	242	
A509	2	32'-6"	Str.				68	A613B	1	17'-6"	Str.		123	A629	27	8'-3"	108	6'-11"	333	A615	1	6'-4"	104	2'-6" 9 1/2" 1'-1 1/2"	17	
A510	8	9'-10"	104	2'-0"	3'-6" 4'-9"		88	A614	4	20'-5"	Str.		21	A630	50	6'-1"	107	5'-5" 8"	457	A616	1	19'-10"	Str.		52	
A511	5	4'-0"	109	2'-0"	1'-10 1/2"	8"	21	A614B	1	14'-3"	Str.		21	A630	50	6'-1"	107	5'-5" 8"	457	A616	1	19'-10"	Str.		52	
A512	16	4'-0"	103	2'-0"	8"	1'-10 1/2"	67	A615	4	20'-11"	Str.		126	A631	8	20'-6"	Str.		246	TOTAL					9865	

* Horizontal reinforcement in the concrete parapet will be included with the railing for payment. (Item S-14)

NOTE: Quantities given are for one abutment.



WEST ABUTMENT DETAILS NORTHBOUND STRUCTURE

BRIDGE NO. LUC-20-1873 L.&R.
U.S. 20 OVER THE MAUMEE RIVER
LUCAS & WOOD CO.-NB. STA. 474+06.19
STA. 4+53.21
SB. STA. 474+43.11
STA. 4+76.59

For other details &
notes See Sheet No. 31

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
K.R.R.	K.R.R.	K.R.R.	K.R.R.	J.M.G.	July 1982	S.S.P.

FED. RD. DIVISION	STATE	PROJECT
2	OHIO	I-175-7(3)/95

33

45

LUC. - 20-1873
WOO. - 20-0.00

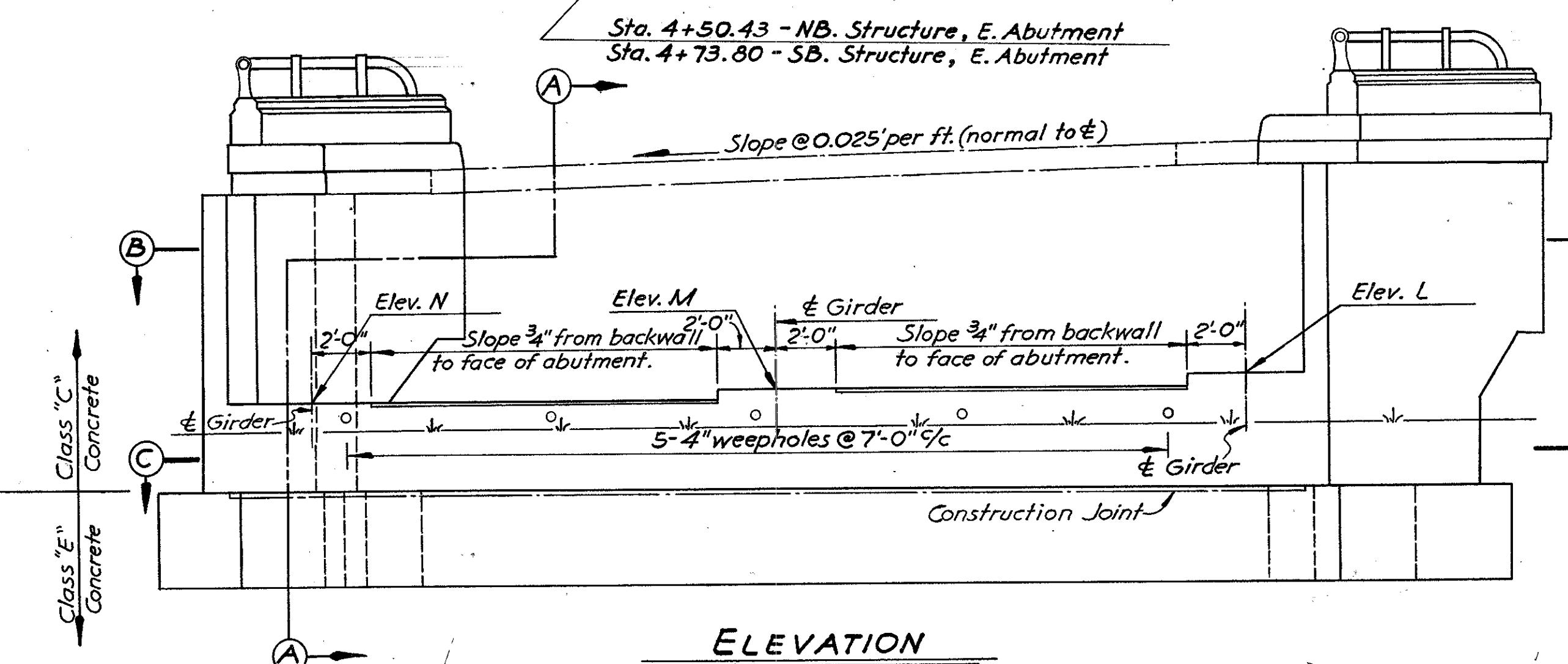
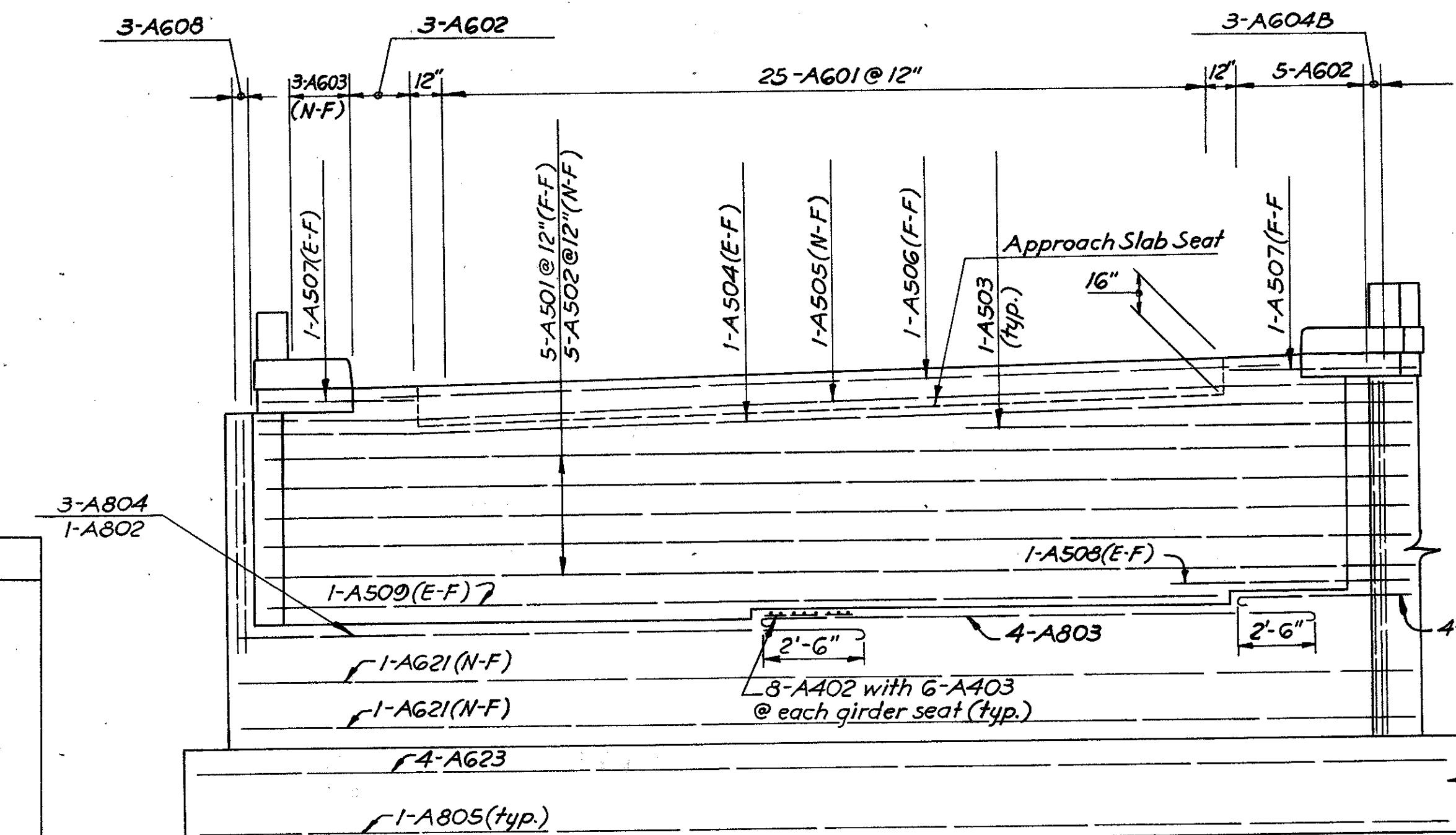
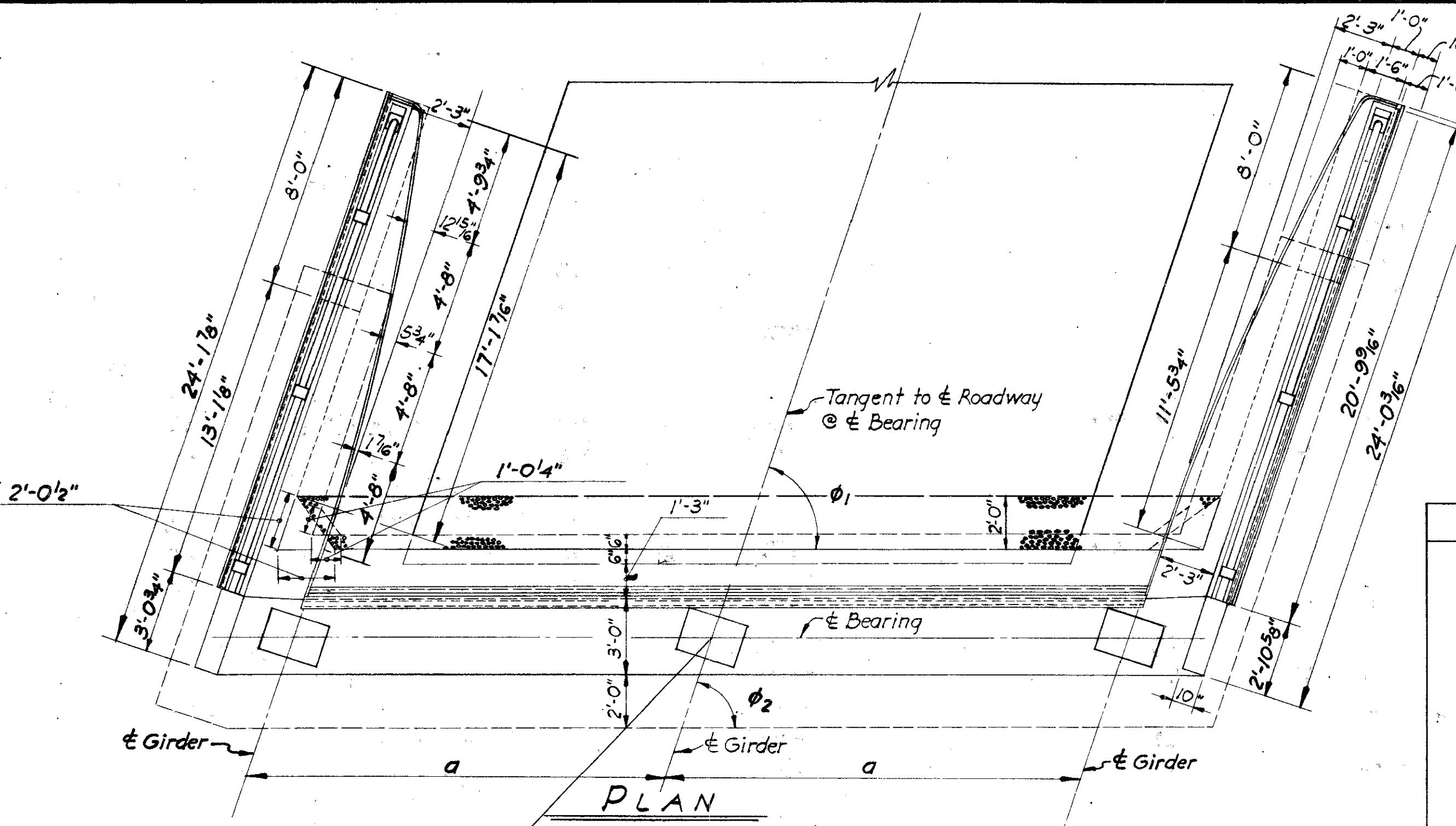
Battered Piles shall be battered 1 in 4

NOTES: All piles shall be 10BP42.
(All piles shall be battered 1 in 4)
Pile spacings are given along bottom of footing.
Reinforcement steel shall clear the face of concrete by 2" unless otherwise noted.

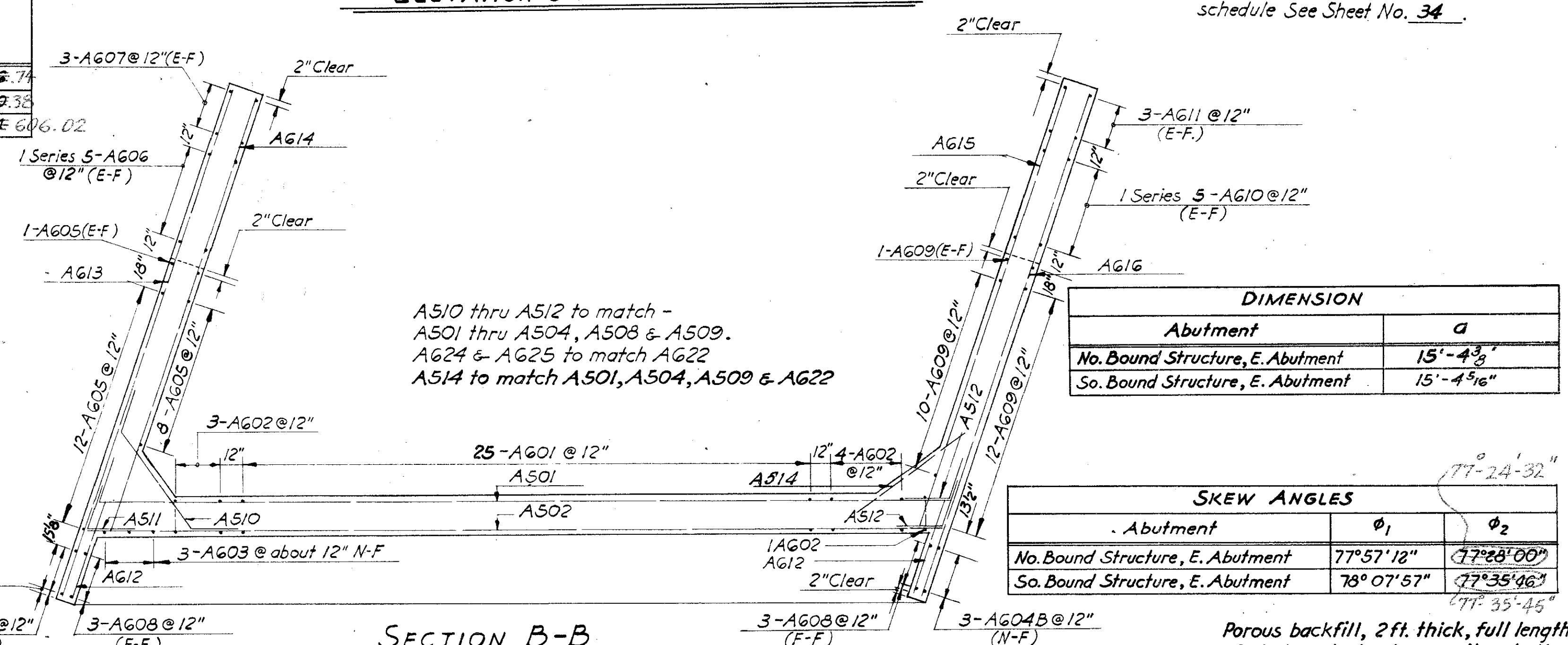
Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.
Maximum pile load 32.5 tons per pile.

S denotes South Wing Wall.
N denotes North Wing Wall.
E-F denotes Each Face.
N-F denotes Near Face.
F-F denotes Far Face.

For other details and reinforcement schedule See Sheet No. 34



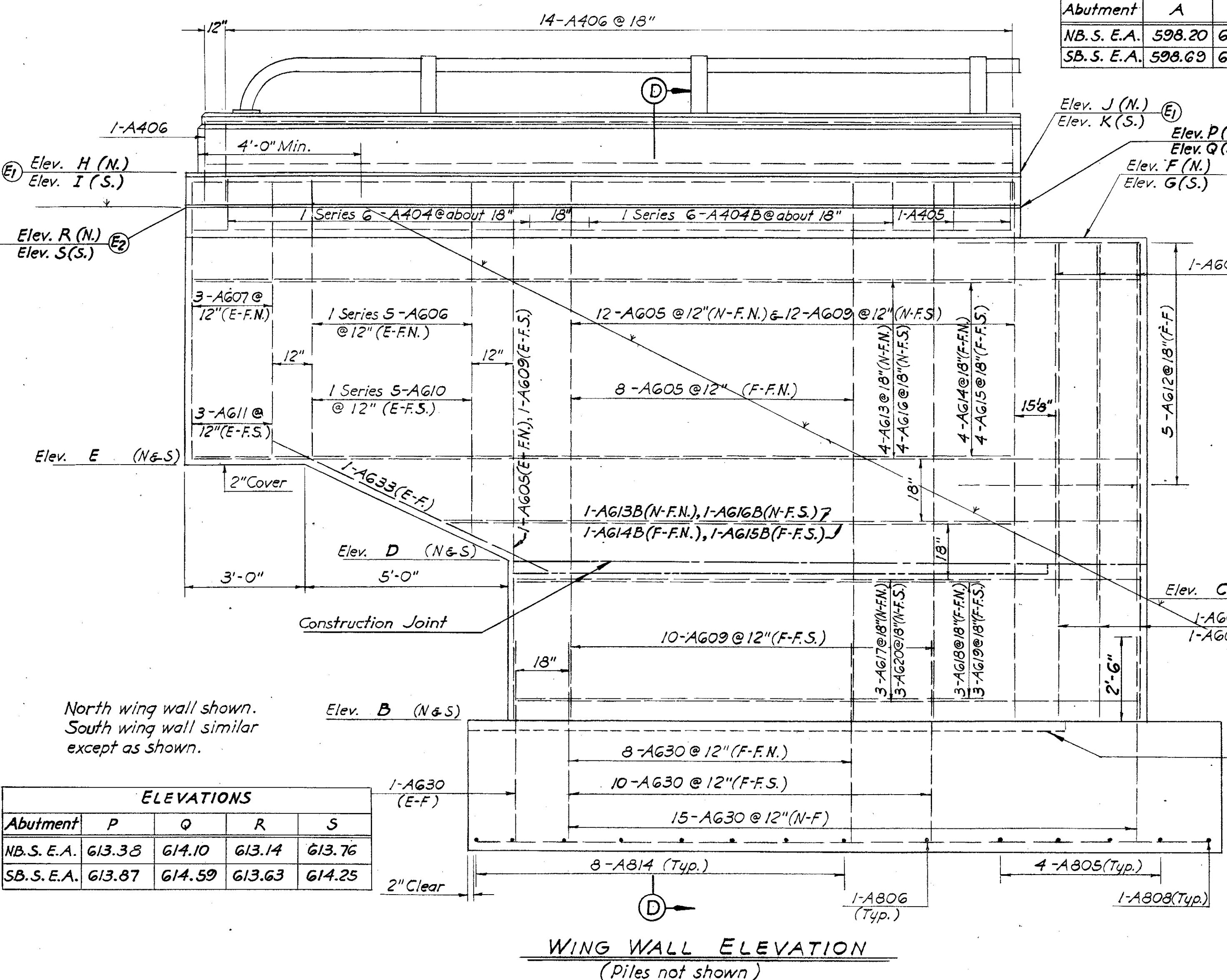
ELEVATIONS	
No. Bound Structure	So. Bound Structure
E. Abutment	E. Abutment
L 606.77.25	606.66.74
M 605.87.89	606.36.38
N 605.45.53	605.94.606.02



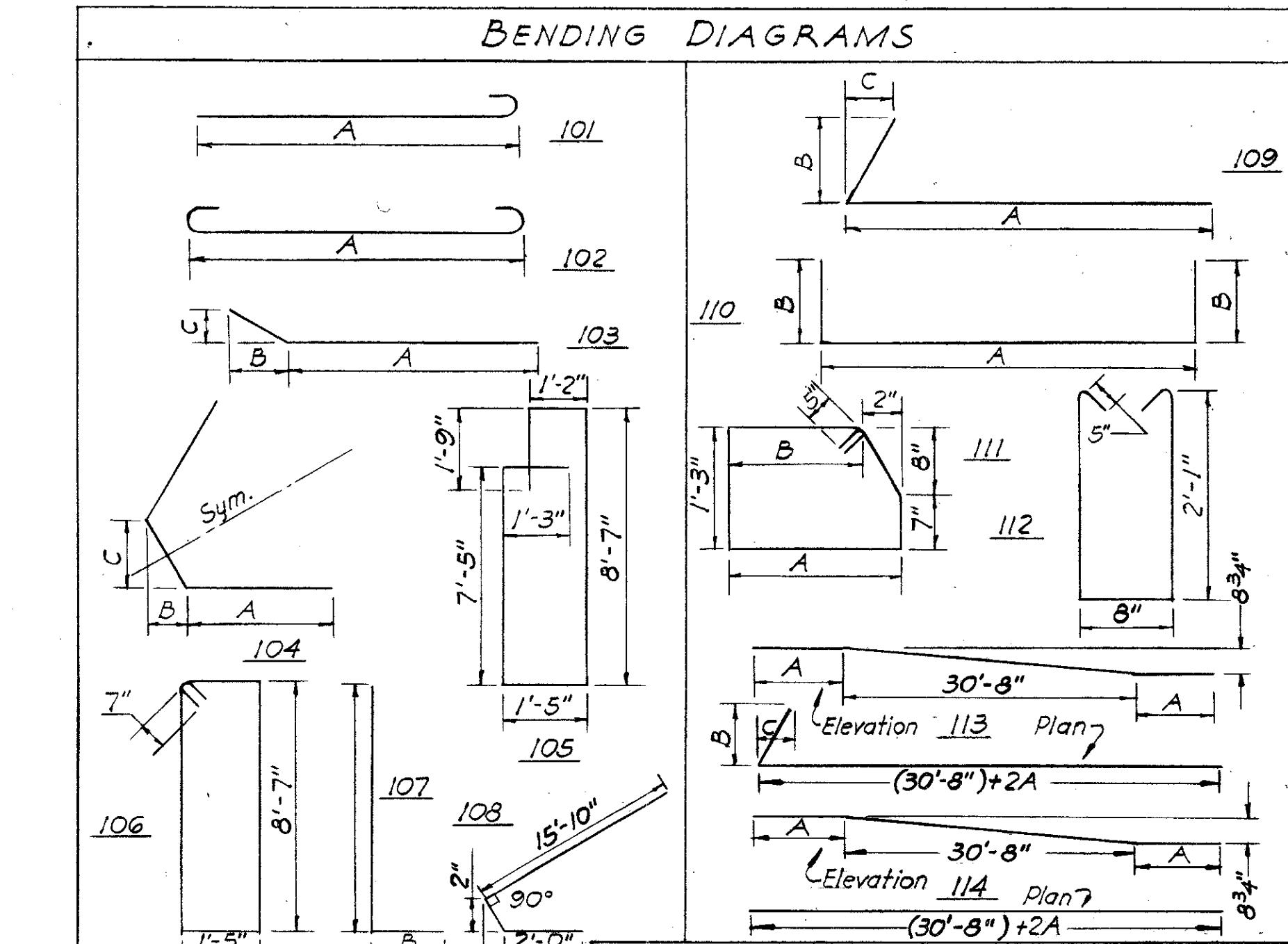
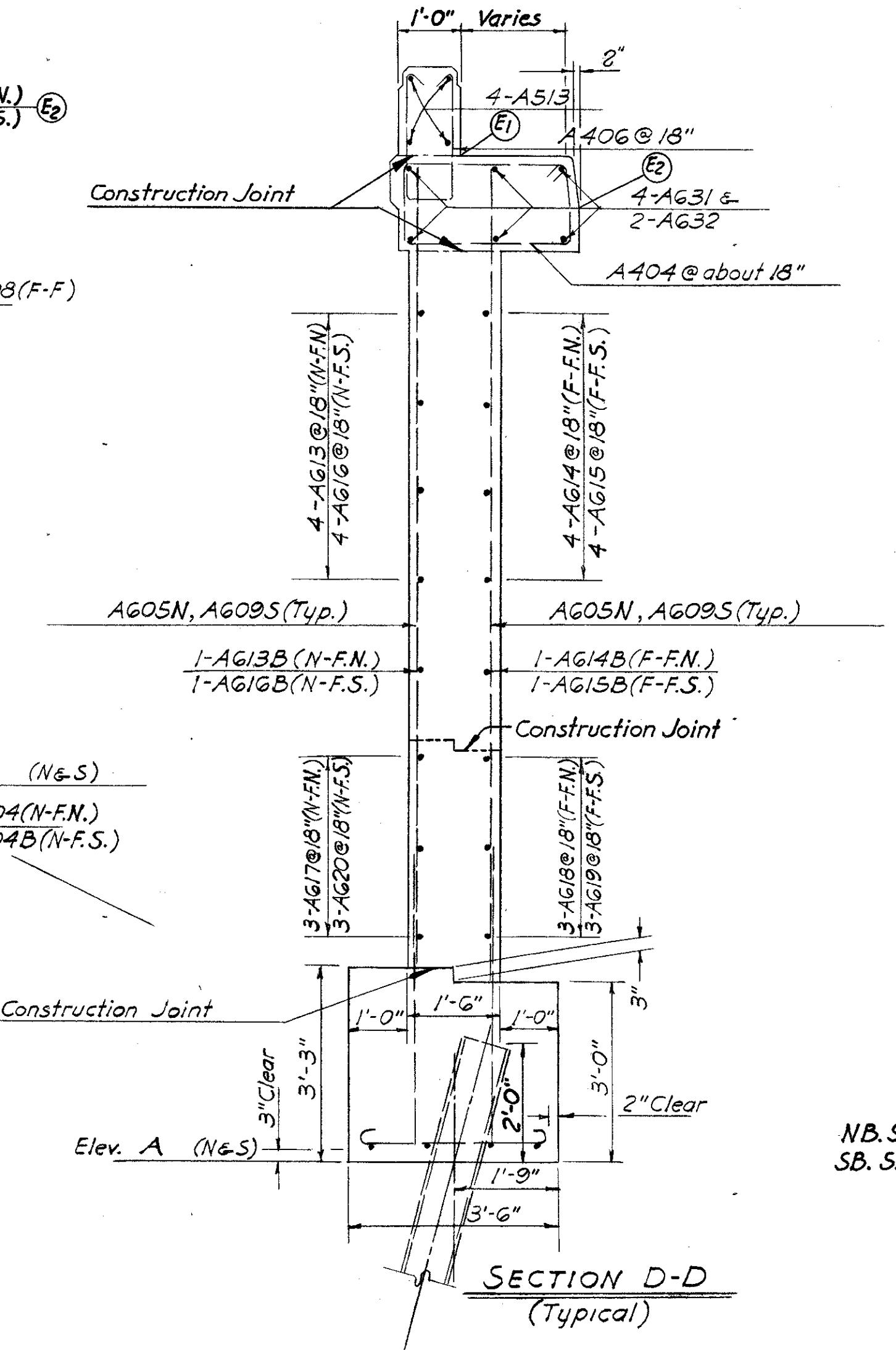
REINFORCEMENT SCHEDULE																							
MARK	NUMBER	LENGTH	TYPE	DIMENSION			SER. INC.	WEIGHT POUNDS	MARK	NUMBER	LENGTH	TYPE	DIMENSION			SER. INC.	WEIGHT POUNDS	MARK	NUMBER	LENGTH	TYPE		
				A	B	C							A	B	C								
A401	6	6'-4"	110	10'9"	2'-9"		85	A514	10	6'-0"	Str.		63	A615B	1	14'-9"	Str.		22	A632	4	15'-6"	Str.
A402	24	2'-4"	Str.				37	A513B	8	12'-0"	Str.		*	A616	4	23'-8"	Str.		142	A633	2	7'-6"	Str.
A403	18	3'-0"	Str.				36	A601	25	21'-7"	105		810	A616B	1	17'-7"	Str.		26				
A404	25	6'-0" to 7'-11"	111	1'-6"-10' 2'-5"	1'-4"-10' 2'-3"		56	A602	8	21'-2"	106		254	A617	3	18'-8"	108		84	A601	4	5'-10"	101
A404B	25	6'-0" to 7'-11"	111	2'-6"-10' to 2'-11"	2'-4"-10' to 2'-9"		2"	A603	3	10'-7"	107	8'-7" 2'-0"	48	A618	3	11'-7"	Str.		52	A602	1	19'-5"	101
A405	4	9'-0"	111	2'-11"	2'-9"		24	A604B	3	11'-9"	Str.		53	A619	3	11'-10"	Str.		53	A603	4	20'-0"	102
A406	30	5'-8"	112				114	A604	3	11'-0"	Str.		50	A620	3	17'-7"	103	5'-11" 2'	79	A604	3	20'-1"	101
A501	5	38'-6"	109	36'-6"	1'-11" 2"	5"	201	A610	23	5'-6"-10' 8'-5"	Str.		53	A622	2	38'-4"	1'-11" 5"		108	A605	4	38'-6"	Str.
A502	5	36'-6"	Str.				190	A611	6	6'-5"	Str.		58	A623	5	36'-4"	Str.		273	A607	1	38'-7"	Str.
A503	2	20'-0"	109	18'-0"	1'-11" 5"		42	A608	6	9'-2"	Str.		83	A624	2	9'-0"	103	7'-0" 1'-8" 1'-7"	27	A608	1	38'-8"	103
A504	2	38'-7"	113	2'-10"	1'-11" 5"		80	A609	24	13'-4"	Str.		481	A625	2	4'-0"	103	2'-0" 5" 1'-11"	12	A609	19	9'-1"	102
A505	1	36'-7"	114	2'-10"			38	A606	23	5'-9"-10' 7'-8"	Str.		53	A626	25	10'-1"	110	6'-1" 2'-0"	410	A610	1	9'-3"	102
A506	1	28'-6"	Str.				30	A607	6	5'-8"	Str.		52	A627	1	11'-0"	110	7'-0" 2'-0"	17	A611	4	19'-2"	Str.
A507	4	6'-0"	Str.				25	A612	10	4'-6"	Str.		68	A628	8	8'-2"	107	7'-2" 1'-0"	99	A612	2	17'-4"	Str.
A508	2	6'-10"	Str.				14	A613	4	23'-10"	Str.		143	A628B	22	7'-10"	107	6'-10" 1'-0"	259	A613	1	13'-11"	Str.
A509	2	34'-5"	109	32'-5"	1'-11" 5"		72	A613B	1	17'-9"	Str.		27	A628C	22	7'-5"	107	6'-5" 1'-0"	246	A614	17	5'-4"	102
A510	8	10'-2"	104	2'-0"	3'-10" 4'-9"		85	A614	4	20'-6"	Str.		123	A629	26	8'-3"	102	6'-11"	383	A615	1	6'-5"	104
A511	5	4'-0"	109	2'-0"	1'-11" 5"		21	A614B	1	14'-5"	Str.		22	A630	50	6'-1"	107	5'-5" 8"	457	A616	1	19'-8"	Str.
A512	16	4'-0"	103	2'-0"	5"	1'-11" 5"	67	A615	4	20'-10"	Str.		125	A631	8	20'-9"	Str.		250	TOTAL			9709

* Horizontal reinforcement in the concrete parapet will be included with the railing for payment (Item 5-14).

NOTE: Quantities given are for one abutment.

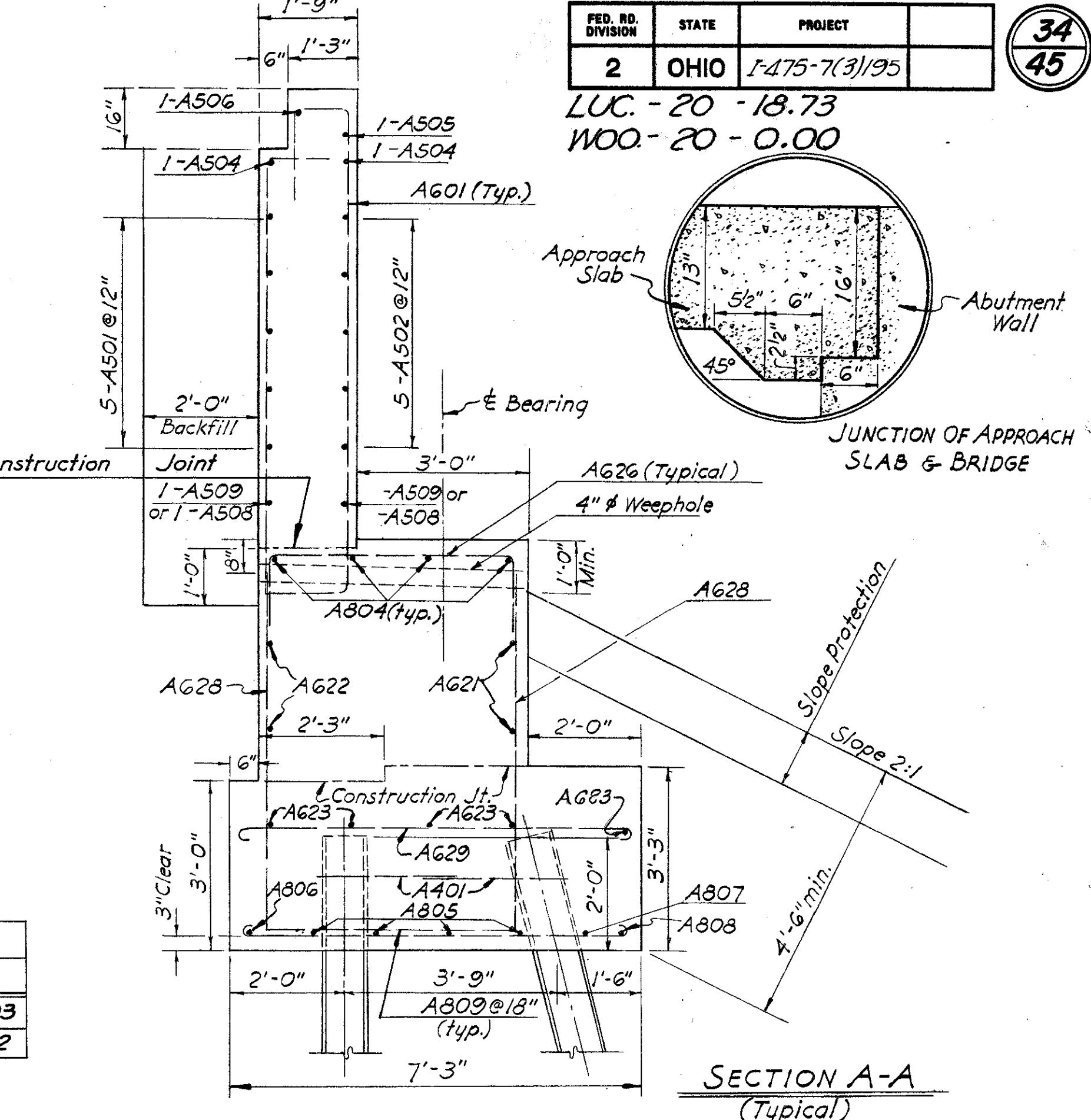


ELEVATIONS											
Abutment	A	B	C	D	E	F	G	H	I	J	K
N.B.S. E.A.	598.20	601.45	604.45	605.45	607.90	612.65	613.37	613.97	614.59	614.21	614.93
SB.S. E.A.	598.69	601.94	604.94	605.94	608.39	613.14	613.86	614.46	615.08	614.70	615.42



EAST ABUTMENT DETAILS NORTH & SOUTHBOUND STRUCTURES

BRIDGE NO. LUC-20-1873 L&R.
U.S. 20 OVER THE MAUMEE RIVER
LUCAS & WOOD CO.-NB. STA. 474+06.19
STA. 4+53.21
SB. STA. 474+43.11
STA. 4+76.59

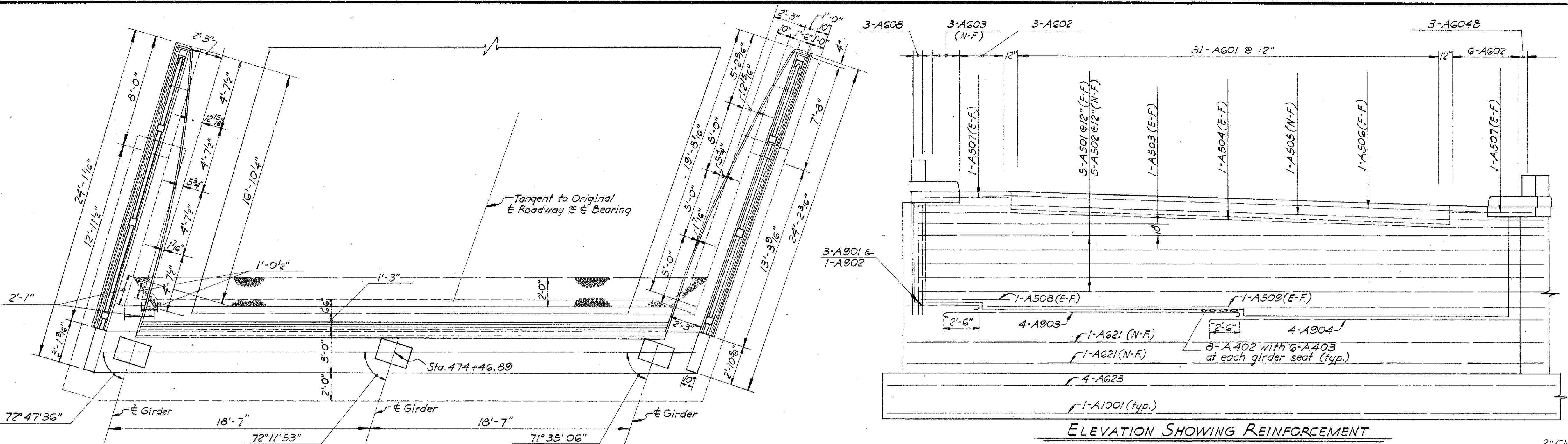


DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
K.R.R.	K.R.R.	H.M.	K.R.R. J.S.C.P.	J.M.J.	July 1982	

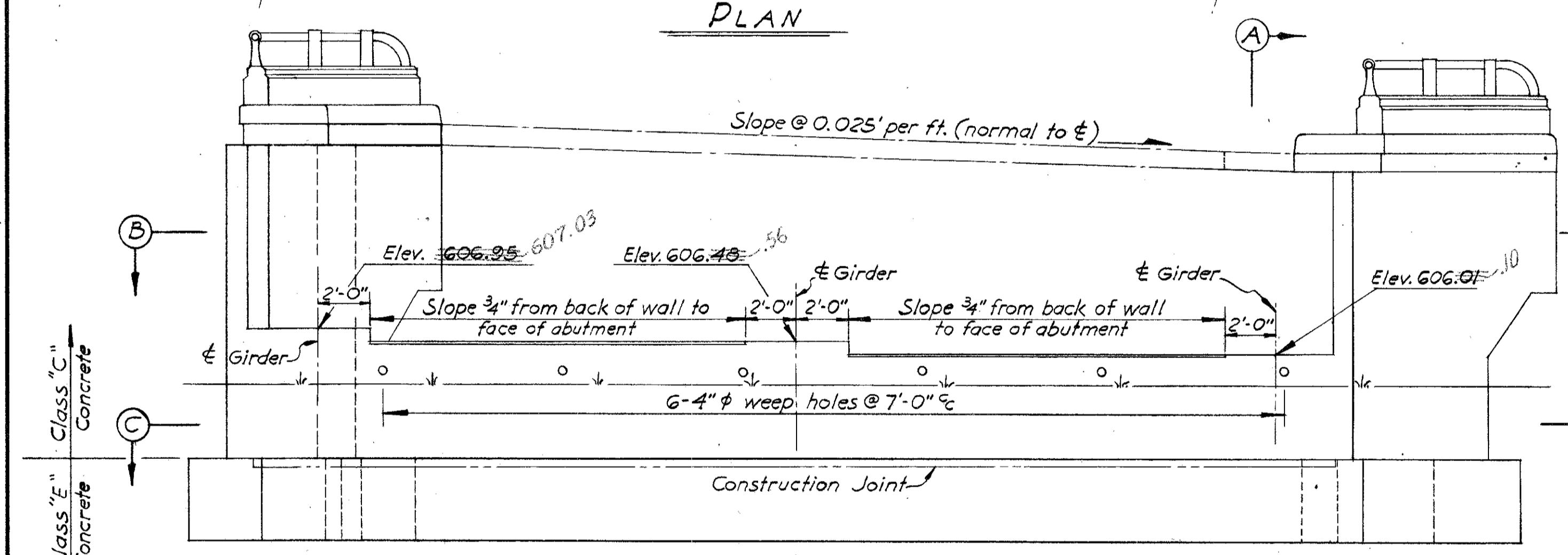
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-475-7(3)195	

35
45

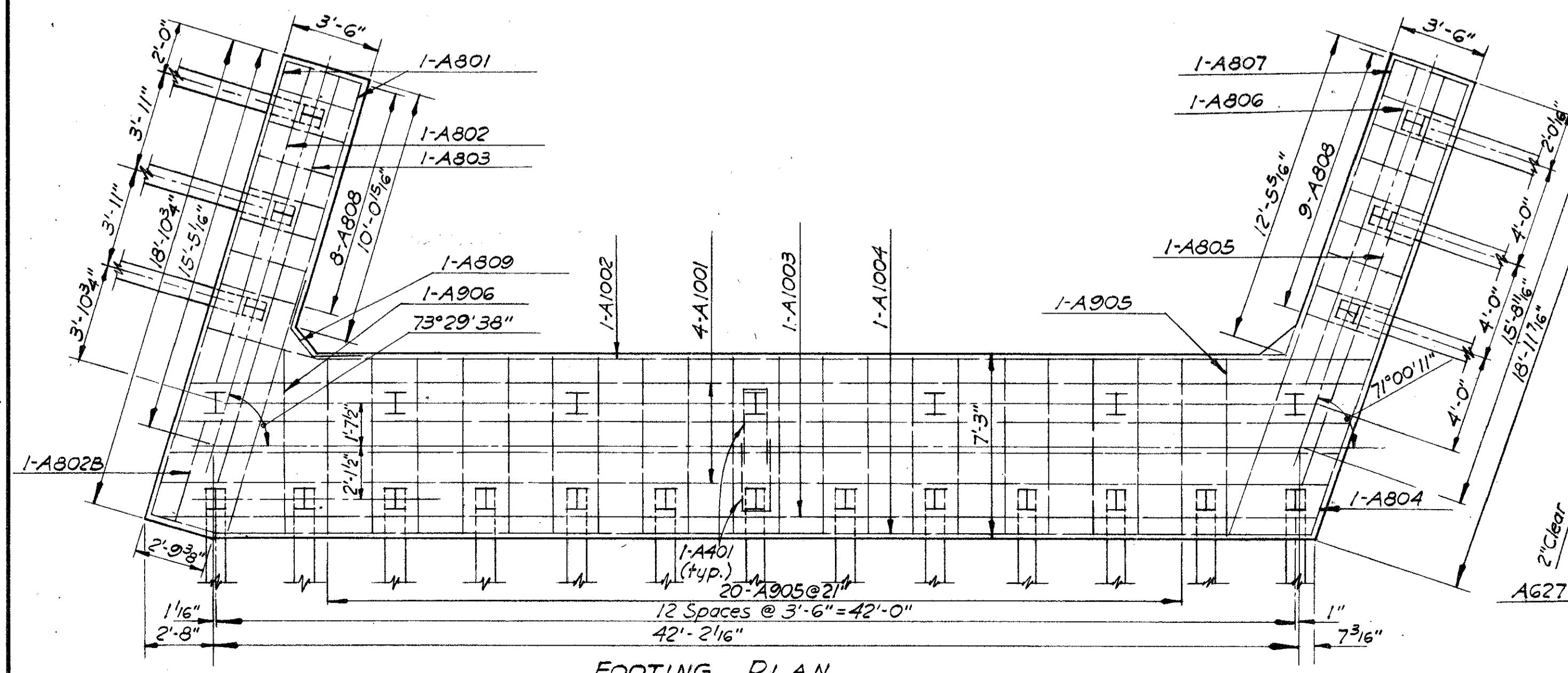
LUC. - 20-18.73
WOO. - 20-0.00



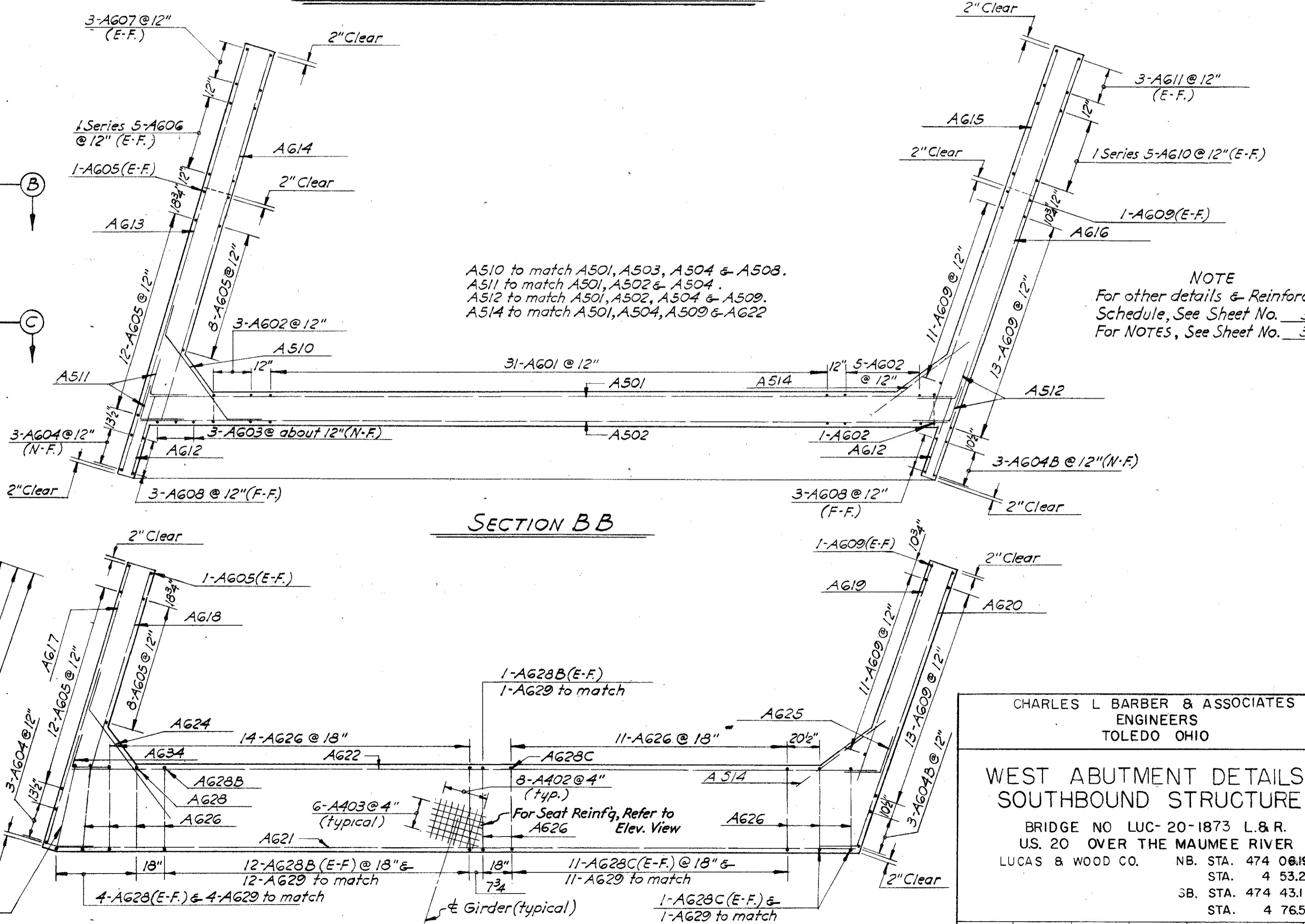
ELEVATION SHOWING REINFORCEMENT



ELEVATION



FOOTING PLA



SECTION CC

CHARLES L BARBER & ASSOCIATES
ENGINEERS
TOLEDO OHIO

WEST ABUTMENT DETAILS SOUTHBOUND STRUCTURE

BRIDGE NO LUC-20-1873 L.& R.
U.S. 20 OVER THE MAUMEE RIVER
LUCAS C. WOOD CO. NO. STA. 474 224

D. N.B. STA. 474 06.19

STA. 4 53.2

SB. STA. 474 43.I

STA. 4 76.5

CHECKED | REVIEWED | DATE |

SEARCHED **KRR** REVIEWED **W.D.** DATE **July 1973**

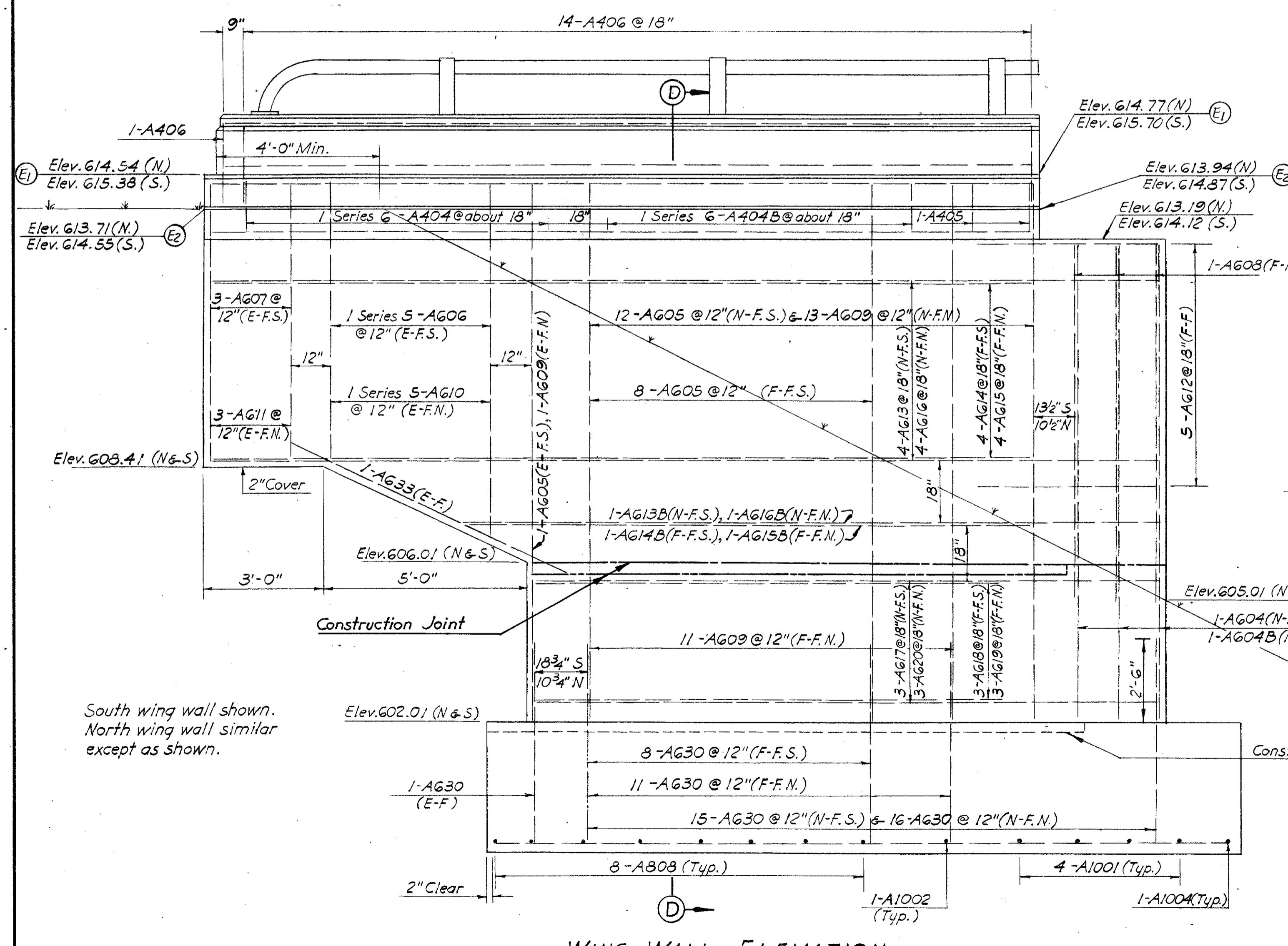
10/28/1962

ED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISE
P.	K.R.R	H.M	K.R.R S.S.P	W.D J.M.G	July 1962	5-21-6

REINFORCEMENT SCHEDULE																									
MARK	NUMBER	LENGTH	TYPE	DIMENSION			SER.	WEIGHT	MARK	NUMBER	LENGTH	TYPE	DIMENSION			SER.	WEIGHT	MARK	NUMBER	LENGTH	TYPE				
				A	B	C							A	B	C										
A401	14	6'-4"	110	104"	2'-9"		59	A514	9	6'-0"	105		56	A615B	1	14'-11"	Str.		22	A632	4	15'-6"	Str.		93
A402	24	2'-4"	Str.				37	A513B	8	12'-0"	Str.		*	A616	4	23'-10"	Str.		143	A633	2	7'-6"	Str.		23
A403	18	3'-0"	Str.				36	A601	31	21'-7"	105		1005	A616B	1	17'-8"	Str.		27	A634	2	4'-0"	109	2'-0" 1'-11" 7"	12
A404	2 Ser. 6	6'-0" to 7'-11"	111	1'-6" to 2'-5"	1'-4"-10" 2'-3"		42"	A602	9	21'-2"	106		286	A617	3	18'-4"	108		83						
A404B	2 Ser. 6	8'-2" to 9'-0"	111	2'-6" to 2'-11"	2'-4" to 2'-9"		2"	A603	3	10'-7"	107	8'-7" 2'-0"	48	A618	3	11'-5"	Str.		52	A601	2	18'-6"	Str.		99
A405	4	9'-0"	111	2'-11"	2'-9"		24	A604	3	11'-10"	Str.		53	A619	3	12'-2"	Str.		55	A602	1	12'-10"	Str.		34
A406	30	5'-8"	112				114	A604B	3	10'-1"	Str.		49	A620	3	17'-10"	103	15'-0" 7" 1'-11"	80	A603	1	16'-7"	Str.		44
A513	8	8'-8"	Str.				*	A605	22	13'-5"	Str.		443	A621	2	42'-6"	Str.		128	A604	1	18'-7"	Str.		50
A501	5	43'-4"	Str.				226	A606	2 Ser. 5	7'-0" to 8'-10"	Str.		56	A622	2	43'-4"	Str.		130	A605	1	16'-6"	Str.		44
A502	5	43'-4"	Str.				226	A607	6	7'-0"	Str.		63	A623	5	43'-4"	Str.		326	A606	1	13'-1"	Str.		35
A503	2	20'-0"	109	16'-0"	1'-11" 7"		42	A608	6	9'-8"	Str.		87	A624	2	9'-0"	103	7'-0" 1'-12" 1'-7"	27	A607	1	19'-8"	Str.		53
A504	2	43'-5"	114	2'-6"			91	A609	26	12'-6"	Str.		488	A625	2	4'-0"	103	2'-0" 7" 1'-11"	12	A608	17	5'-4"	102	3'-2"	242
A505	1	43'-5"	114	2'-6"			45	A610	2 Ser. 5	6'-26" to 8'-0"	Str.		52"	A626	29	10'-11"	110	6'-11" 2'-0"	476	A609	1	6'-3"	104	2'-6" 9" 1'-0"	17
A506	1	34'-11"	Str.				36	A611	6	6'-2"	Str.		56	A627	1	11'-0"	110	7'-0" 2'-0"	17	A608	1	4'-2"	Str.		11
A507	4	6'-1"	Str.				25	A612	10	4'-6"	Str.		68	A628	8	8'-0"	107	7'-0" 1'-0"	96						
A508	2	9'-2"	109	7'-2"	1'-11" 7"		19	A613	4	23'-9"	Str.		143	A628B	26	7'-6"	107	6'-6" 1'-0"	294	A601	3	6'-3"	101	4'-10"	62
A509	2	36'-0"	Str.				75	A613B	1	17'-7"	Str.		26	A628C	26	7'-1"	107	6'-1" 1'-0"	276	A602	1	5'-6"	101	4'-3"	19
A510	8	10'-0"	104	2'-0"	3'-7" 4'-9"		93	A614	4	20'-4"	Str.		122	A629	30	8'-3"	102	6'-11"	372	A603	4	23'-7	102	21'-1"	321
A511	12	4'-0"	109	2'-0"	1'-11" 7"		50	A614B	1	14'-2"	Str.		21	A630	54	6'-2"	107	5'-6" 8"	500	A604	4	23'-8"	101	22'-5"	322
A512	16	4'-0"	103	2'-0"	7" 1'-11"		67	A615	4	21'-1"	Str.		127	A631	8	20'-6"	Str.		246	A605	21	9'-5"	102	6'-11"	673

* Horizontal reinforcement in the concrete parapet will be included with the railing for payment (Item S-14).

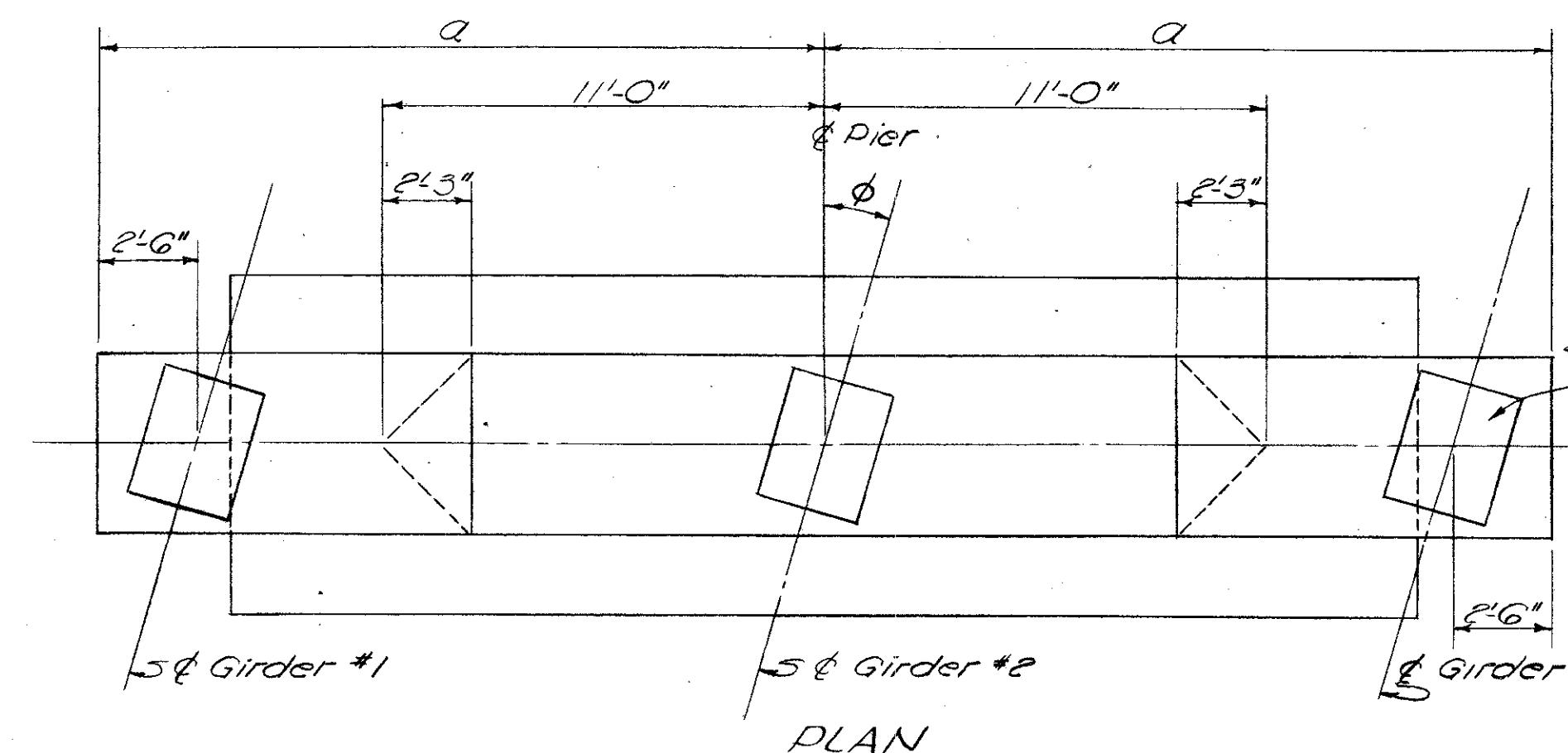
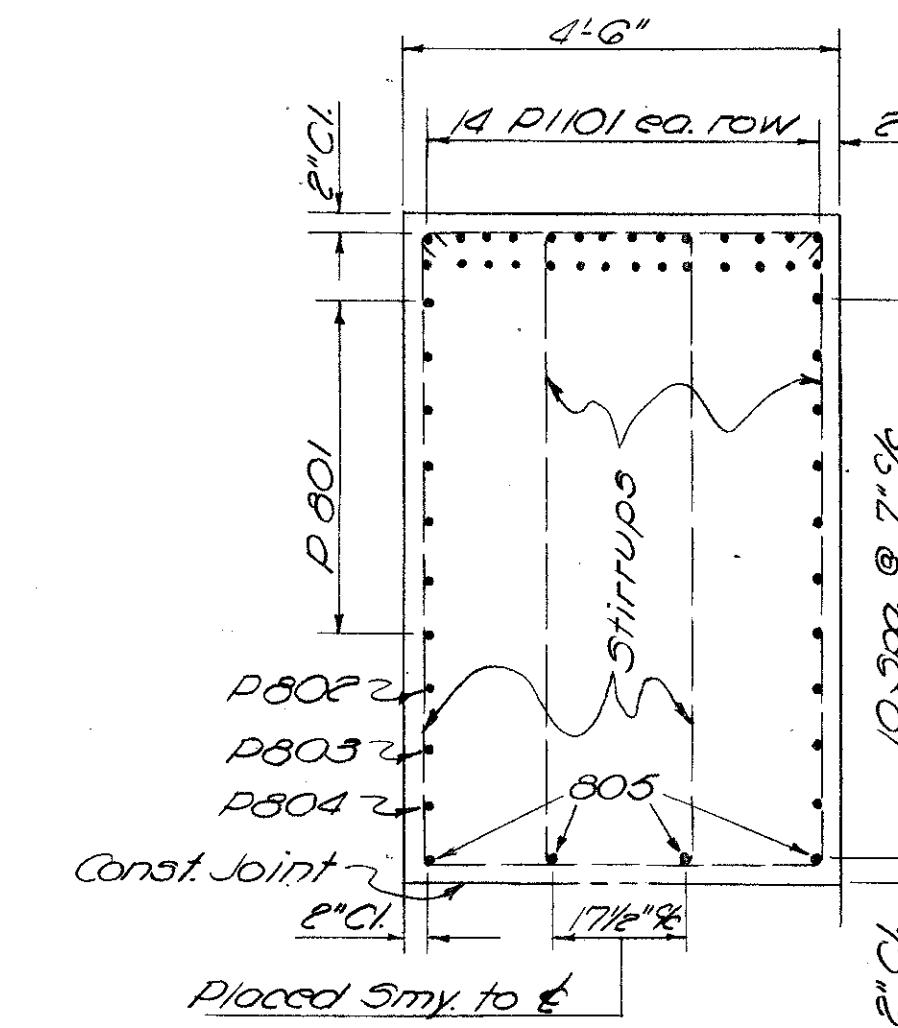
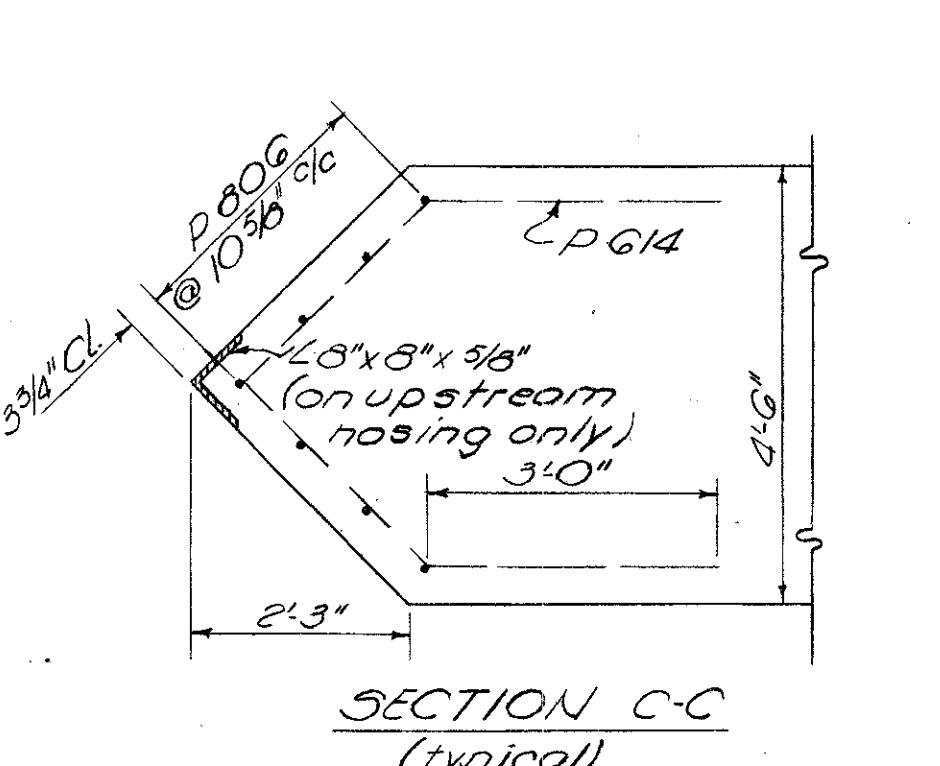
NOTE: Quantities given are for one abutment.



RD. SION	STATE	PROJECT	
2	OHIO	I-475 - 7(3)195	

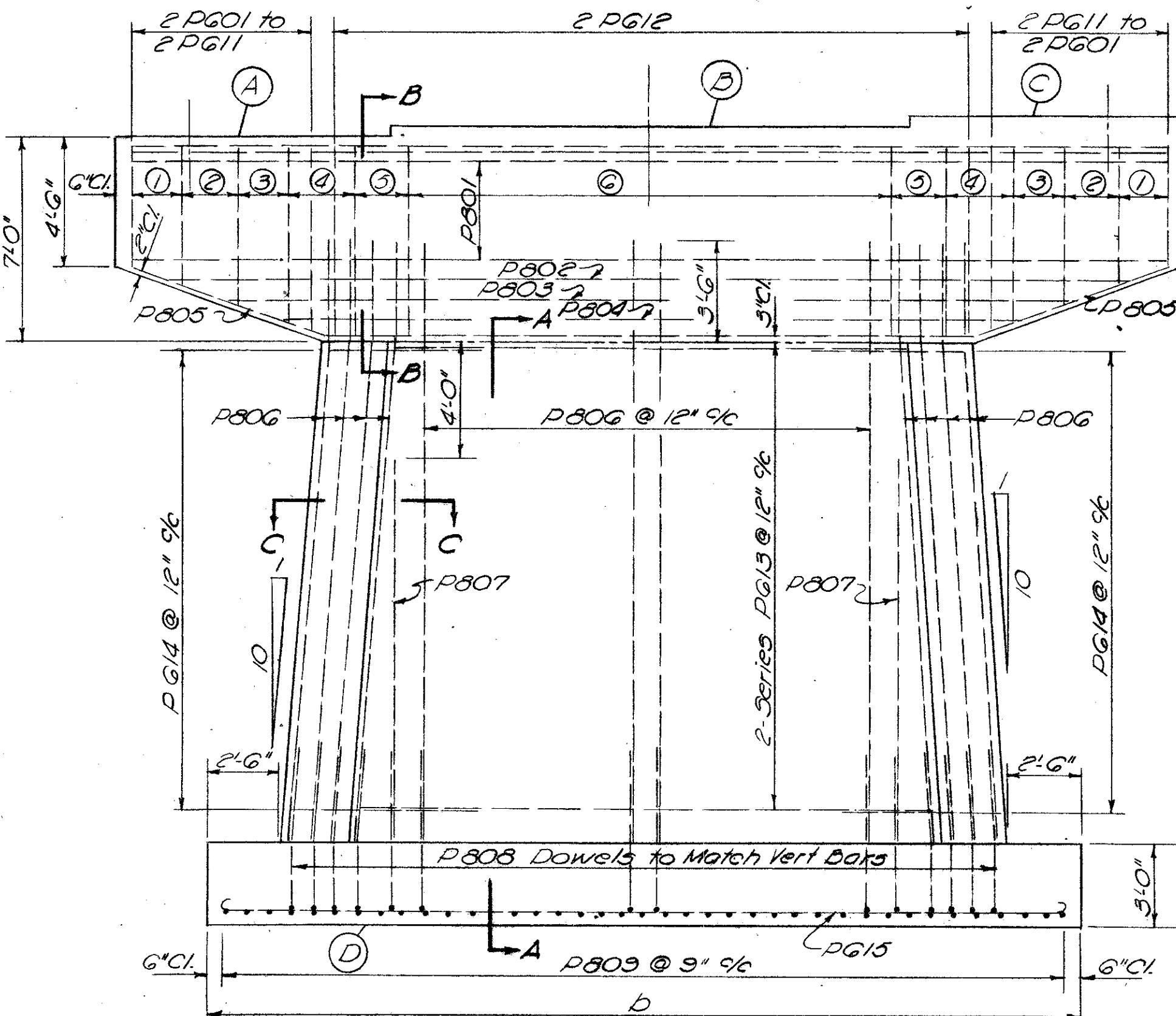
37
45

LUC - 20-18.73
WOO - 20-0.00

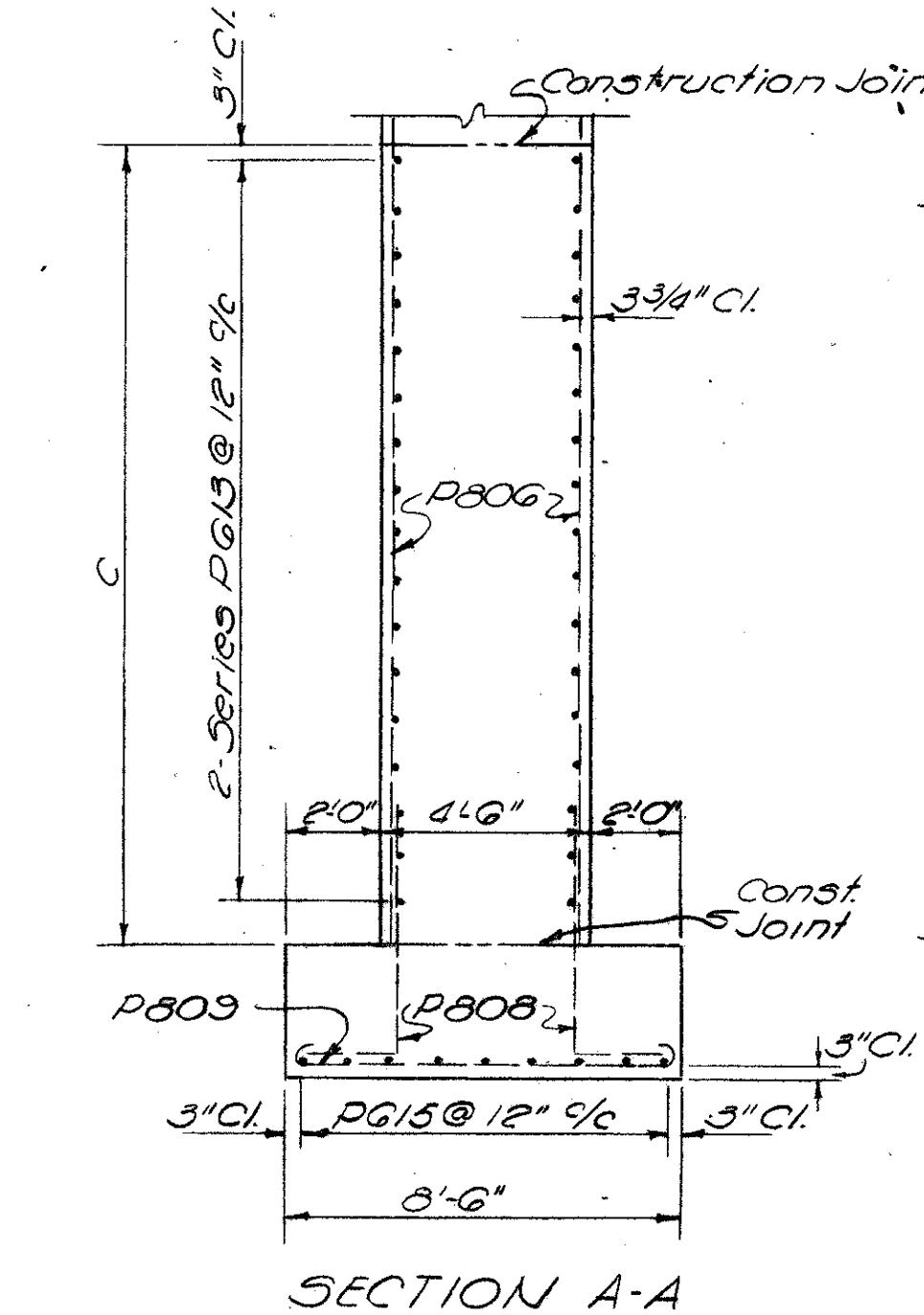


SECTION B-

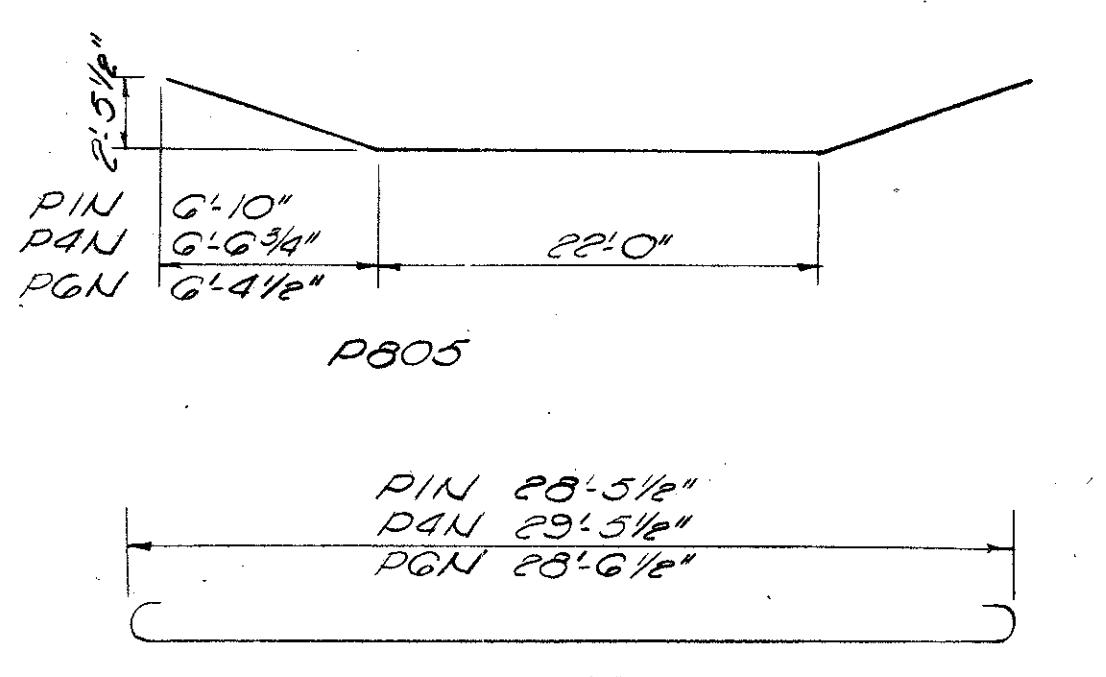
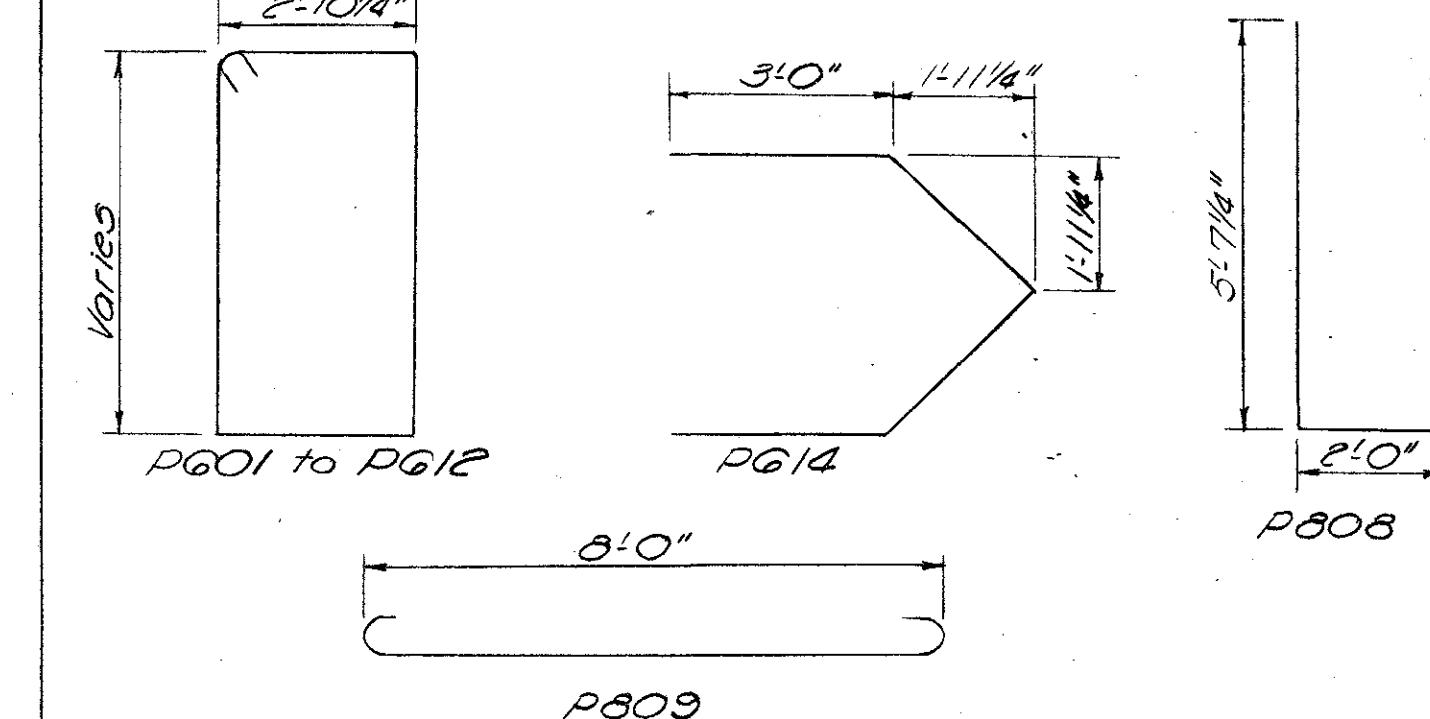
<u>STIRRUP SPACING</u>			
①	2 PG01 to 2 PG03 @ 10" c/c	(3 pair)	
②	2 PG04 to 2 PG07 @ 5½" c/c	(4 pair)	
③	2 PG08 to 2 PG10 @ 7" c/c	(3 pair)	
④	2 PG11 to 2 PG12 (2) @ 9" c/c (1pr.)	(3 pair)	
⑤	2 PG12 @ 11" c/c	(2 pair)	
⑥	2 PG12 @ 24" c/c	(8 pair)	



ELEVATION



SECTION A-



NOTES

Bar dimensions are given out to out.

Bars of a series shall vary by a constant increment.

Bars shall clear the face of concrete by 2" unless otherwise noted.

ELEVATIONS				
Pier	A	B	C	D
PIN	600.82	601.21	601.61	578.50
P4N	601.32	601.90	602.27	574.15
P6N	600.98	601.34	601.71	578.25

DIMENSIONS			
Pier	a	b	c
PIN	18'-4"	29'-5½"	12.31'
P4N	18'-0 ⁵ / ₁₆ "	30'-5½"	17.37' - .39
PGN	17'-10 ³ / ₈ "	29'-6½"	12.73'

CHARLES L. BARBER & ASSOCIATES
ENGINEERS
TOLEDO, OHIO

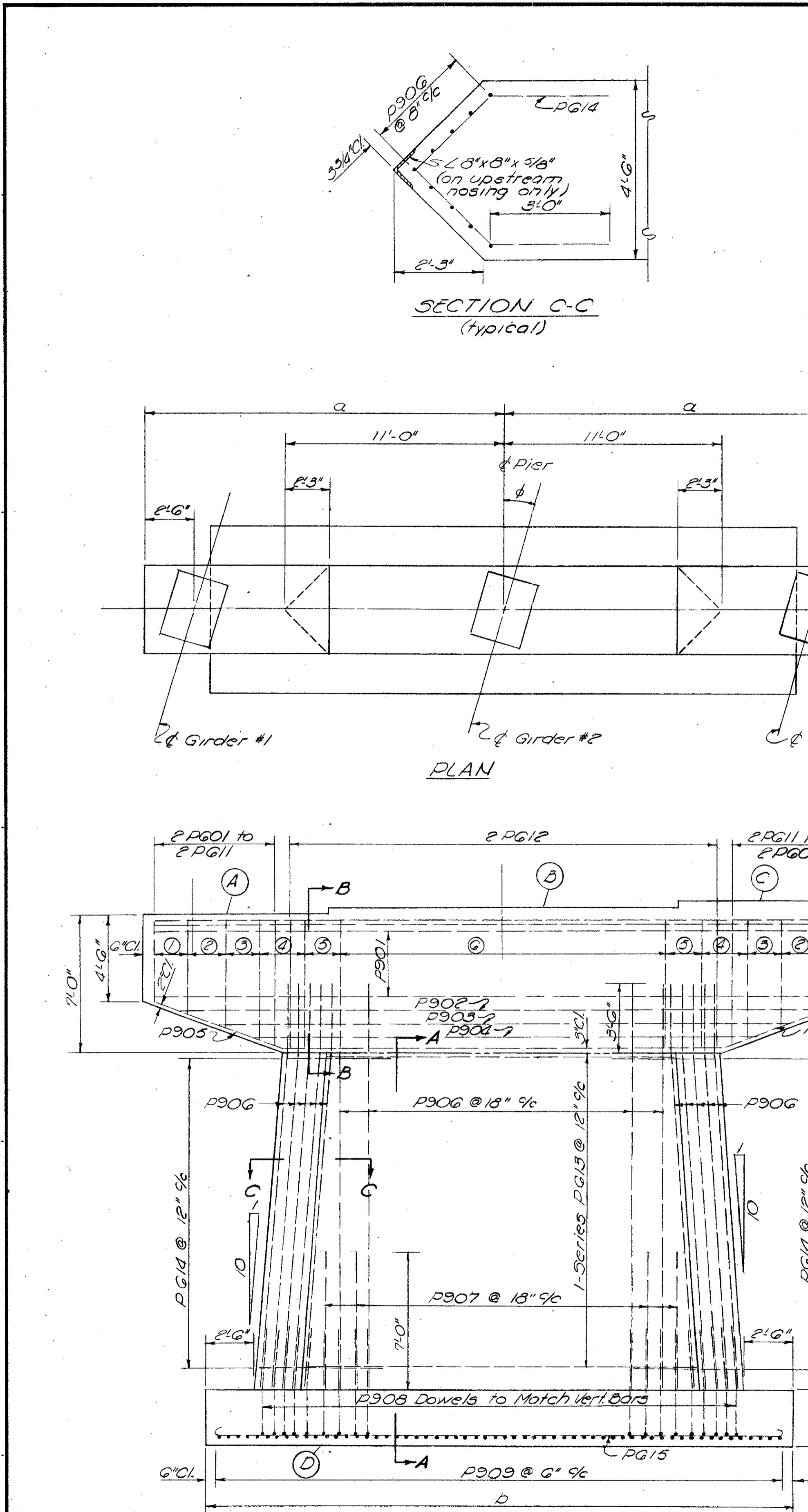
PIER DETAILS PIN, P4N & P6N

NORTHBOUND STRUCTURE
BRIDGE NO. LUC-20-1873 L&R.
U.S. 20 OVER THE MAUMEE RIVER
LUCAS C. WOOD CO. N.D. STA. 1741.0010

NORTHBOUND STRUCTURE
BRIDGE NO. LUC-20-1873 L.& R.
U.S. 20 OVER THE MAUMEE RIVER
UCAS & WOOD CO. NB. STA. 474+06.19
 STA. 4+53.21
 SB. STA. 474+43.11
 STA. 4+76.59

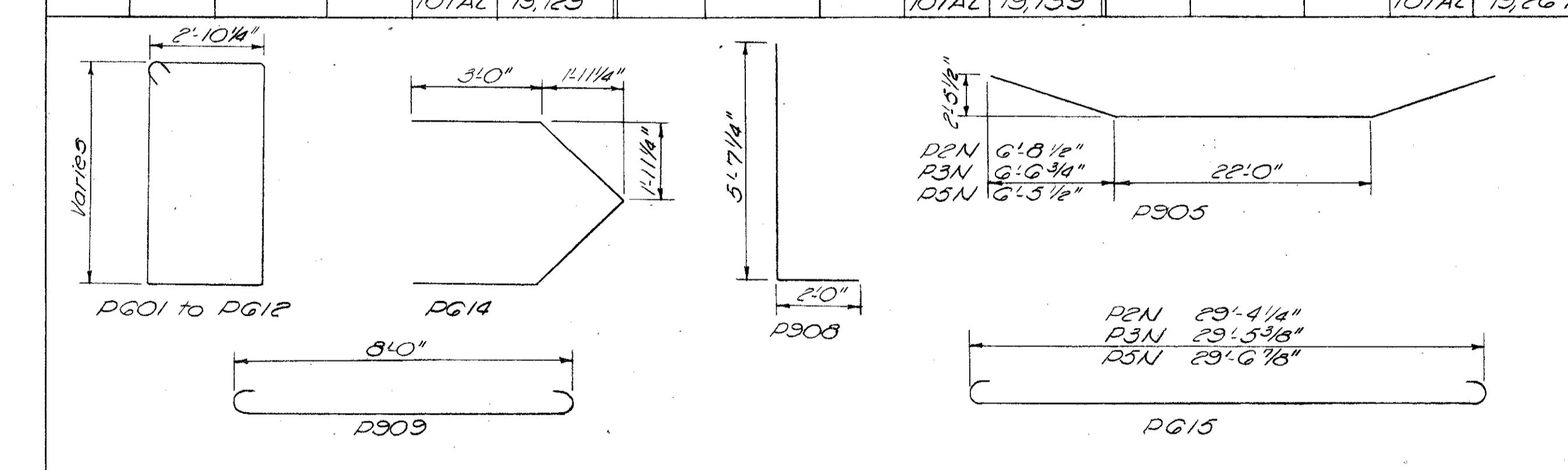
SKEW ANGLE	
P1ER	ϕ
P1N	$18^{\circ} 41' 23''$
P4N	$15^{\circ} 38' (25') - 26$
P6N	$12^{\circ} 32' 00''$
	$35^{\circ} 43' 23''$

SIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
R L.S.	L.S.	L.S.	K.R.R S.S.P	W.D J.M.H	June 1962	4-12-63 5-21-63



A hand-drawn technical sketch of a concrete column section. The top horizontal dimension is labeled "4'-6"". Below it, a horizontal line with arrows is labeled "14 P1101 eq. row". The vertical height of the column is indicated by a double-headed arrow on the left side, labeled "2'0\"/>". The sketch shows a rectangular column with vertical stirrups. A wavy line labeled "stirrups" connects the stirrup locations around the column. On the left side, there are labels for different parts: "P901" at the top, followed by "P9022", "P9032", "P9042", and "Const. Joint" near the bottom. At the very bottom, there is a label "Placed 3my to &" followed by a dimension "2'0^{1/2} 17 1/16' 9^{1/2}".

REINFORCEMENT SCHEDULE



NOTES

Bar dimensions are given out to out.

Bars of a series shall vary by a constant increment.

Bars shall clear the face of concrete by 2" unless otherwise noted.

For icebreaker angle-fixing detail see sheet no. 39.

ELEVATIONS				
Pier	A	B	C	D
P2N	601.26	601.64	602.03	574.50
P3N	601.49	601.87	602.25	574.25
P5N	601.35	601.72	602.09	573.50

DIMENSIONS			
tier	a	b	c
OPEN	18'-2 ⁹ / ₁₆ "	30'-4 ¹ / ₄ "	16.76'
CLOSED	18'-0 ¹⁵ / ₁₆ "	30'-5 ³ / ₈ "	17.24"
CLOSING	17'-0 ¹³ / ₁₆ "	30'-6 ⁷ / ₁₆ "	17.85"

11/16 CHARLES L. BARBER & ASSOCIATES
ENGINEERS
TOLEDO, OHIO

PIER DETAILS
P2N P3N & P5N

PEN, PEN & PEN
NORTHBOUND STRUCTURE
BRIDGE NO. LUC-20-1873 L&R.
U.S. 20 OVER THE MAUMEE RIVER
HEADS C. 110000.00 110.00 174.00

LUCAS & WOOD CO. N.B. STA. 474+06.19
 STA 4+53.21

STA. 4+55.21
SB. STA. 474+43.11

STA. 4 +76.59

D DRAWN TRACED CHECKED REVIEWED DATE RE

L.S. S.S. K.R.R. W.D. 4-
June 1917 E

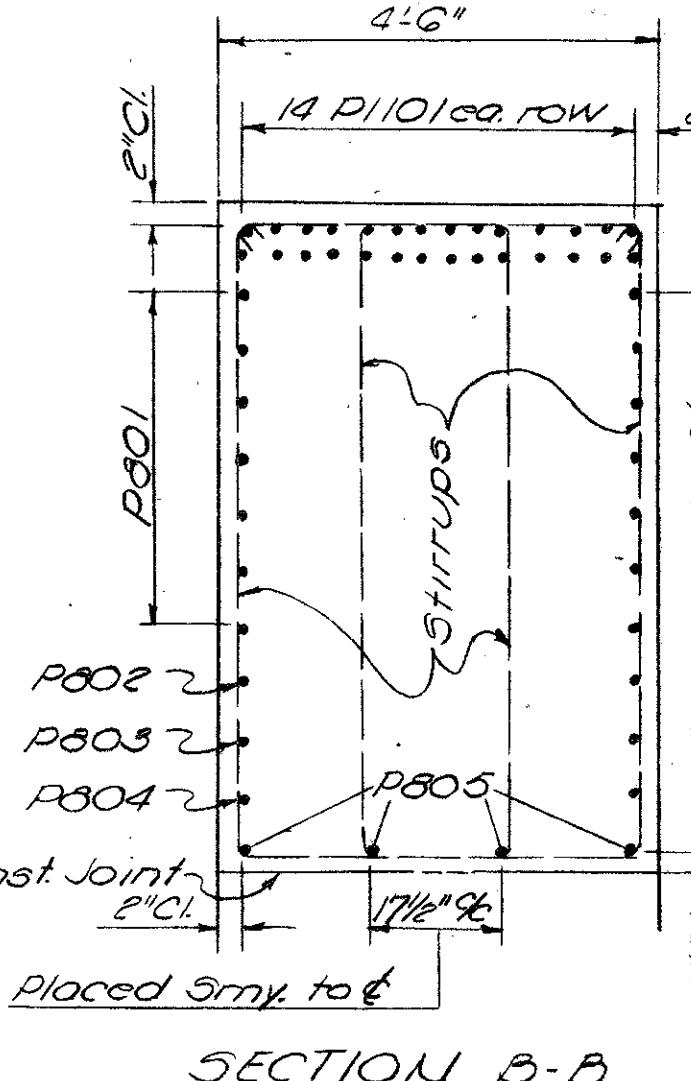
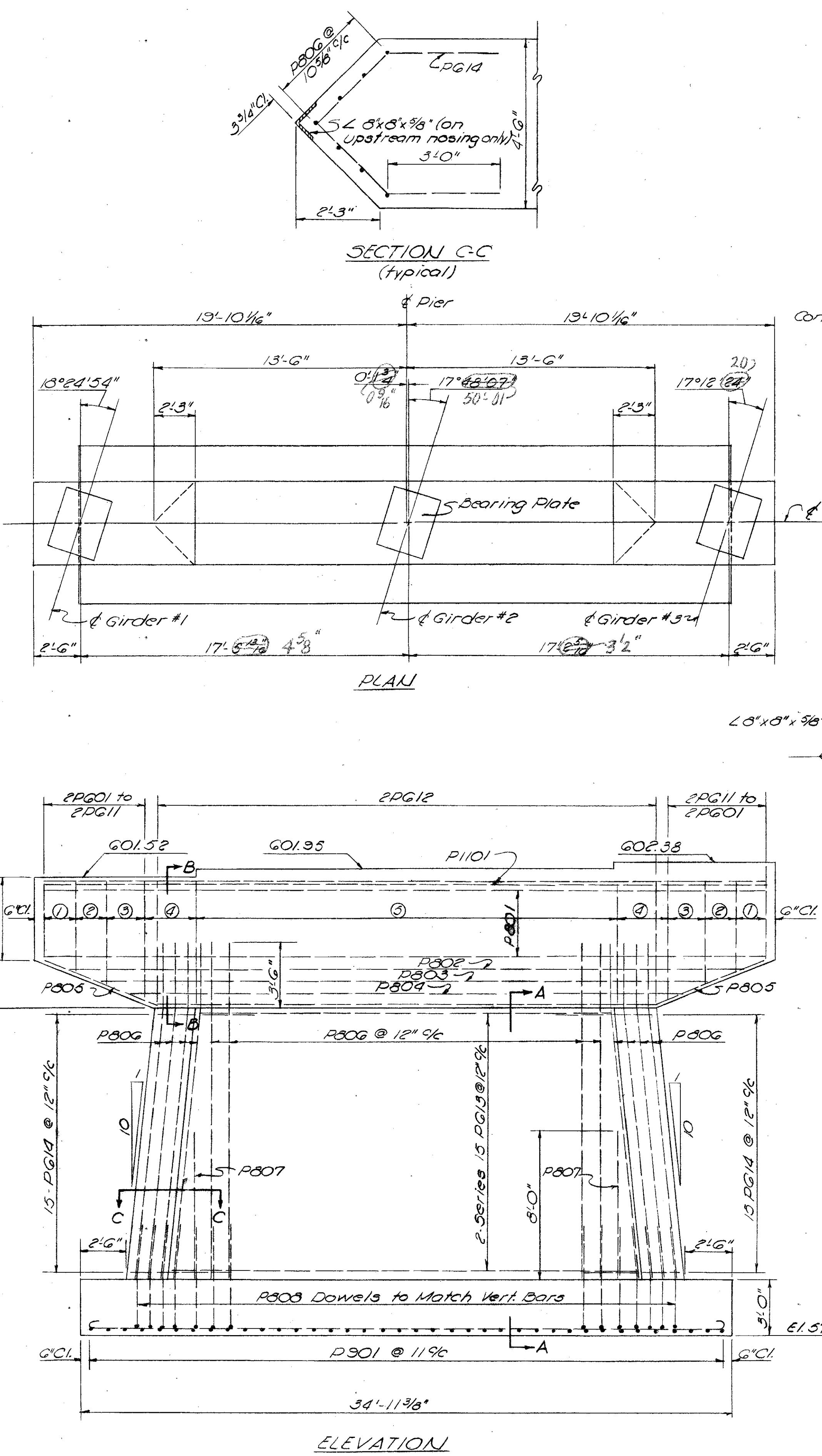
S.S.P. JUN 24 1962 5-5

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
K.R.R.	L-5	J-5	K.R.R. S.S.P.	W.D J.M.Y June 1962	4-12-63 5-21-63	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	J-175-73/195	

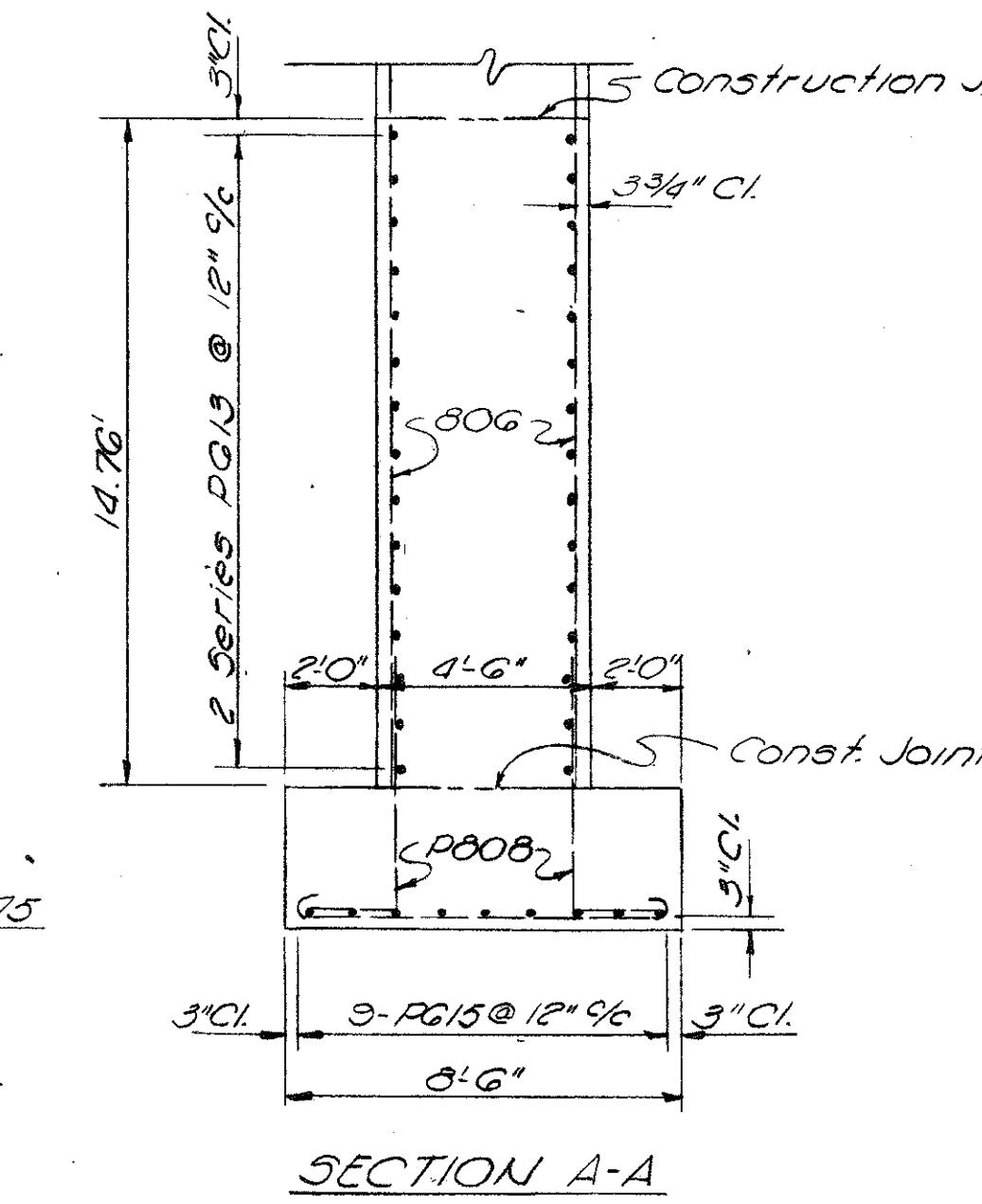
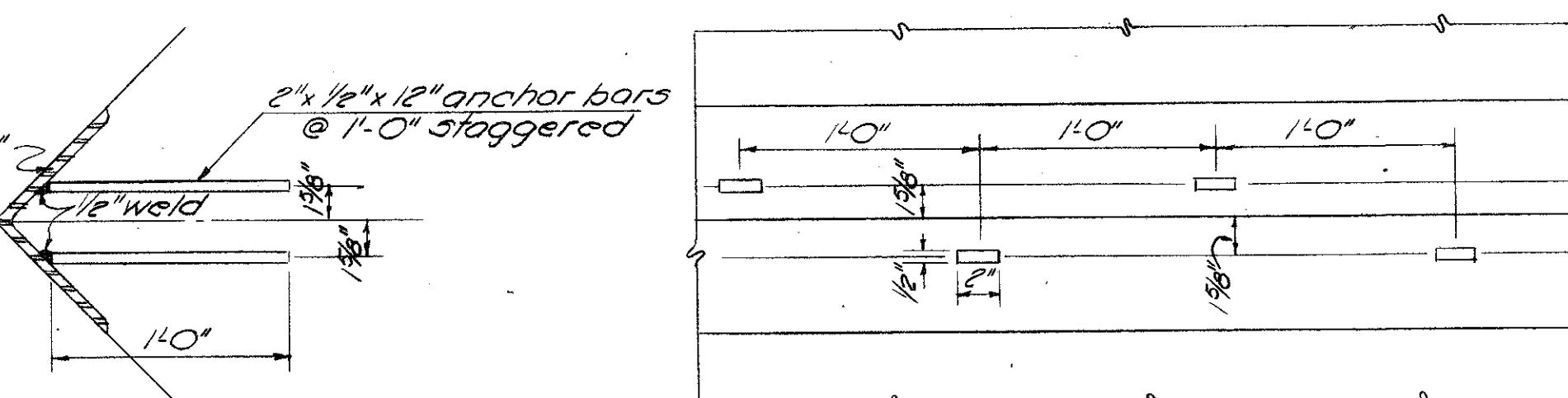
39
45

LUC. 20-18.73
WOO. 20-0.00



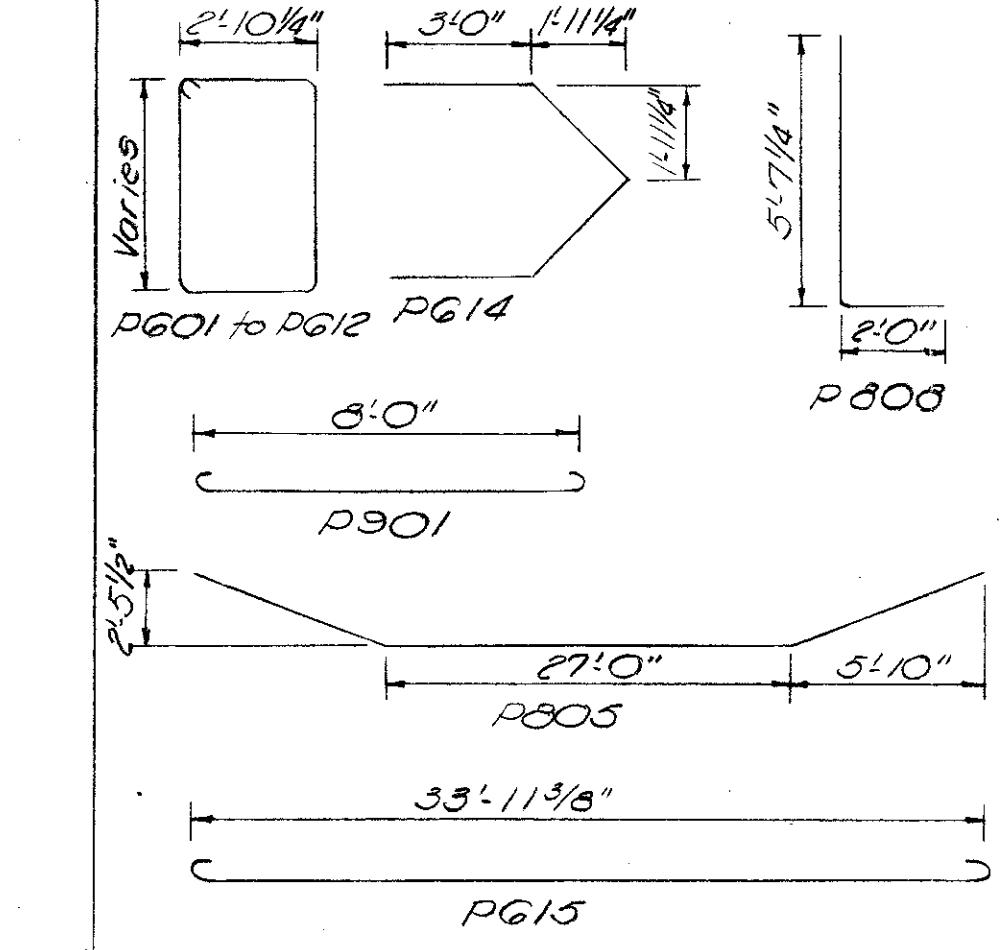
STIRRUP SPACING

- ① EPG01 to EPG03 @ 10" %c (3 pairs)
- ② EPG04 to EPG07 @ 5" %c (4 pairs)
- ③ EPG08 to EPG11 @ 6" %c (4 pairs)
- ④ EPG12 @ 8" %c (4 pairs)
- ⑤ EPG12 @ 25" %c (11 pairs)



NOTES
Bar dimensions are given out to out.
Bars of a series shall vary by a constant increment.
Bars shall clear the face of concrete by 2" unless otherwise noted.

REINFORCEMENT SCHEDULE					
MARK	NO.	LENGTH	TYPE	SERIES	WEIGHT
P1101	28	38'-8 1/4"	Str.	5	5735
P801	38	10'6"	Bent		1357
P801	14	38'-8 1/4"	Str.	1	1446
P802	2	36'-1"		1	193
P803	2	33'-1"		1	177
P804	2	30'-1"	Str.	1	161
P805	4	39'-7"	Bent		423
P806	58	18'-3"	Str.	2	2826
P807	4	8'-0"	Str.	1	85
P808	62	71'7 1/4"	Bent		1259
P601	4	15'-8 1/2"	Bent		94
P602	4	16'-4 1/2"		1	98
P603	4	17'-0 1/2"		1	102
P604	4	17'-4 1/2"		1	104
P605	4	17'-8 1/2"		1	106
P606	4	18'-0 1/2"		1	108
P607	4	18'-4 1/2"		1	110
P608	4	18'-8 1/2"		1	113
P609	4	19'-1 1/2"		1	115
P610	4	19'-6 1/2"		1	117
P611	4	19'-11 1/2"		1	120
P612	38	20'-3 1/2"	Bent		1158
P613	23 Series	22'-3 1/2"	Str.	2482	1,066
	15	25'-0 1/2"			
PG14	30	11'-6"	Bent		518
PG15	9	35'-3 3/8"	Bent		477
					TOTAL 18,088

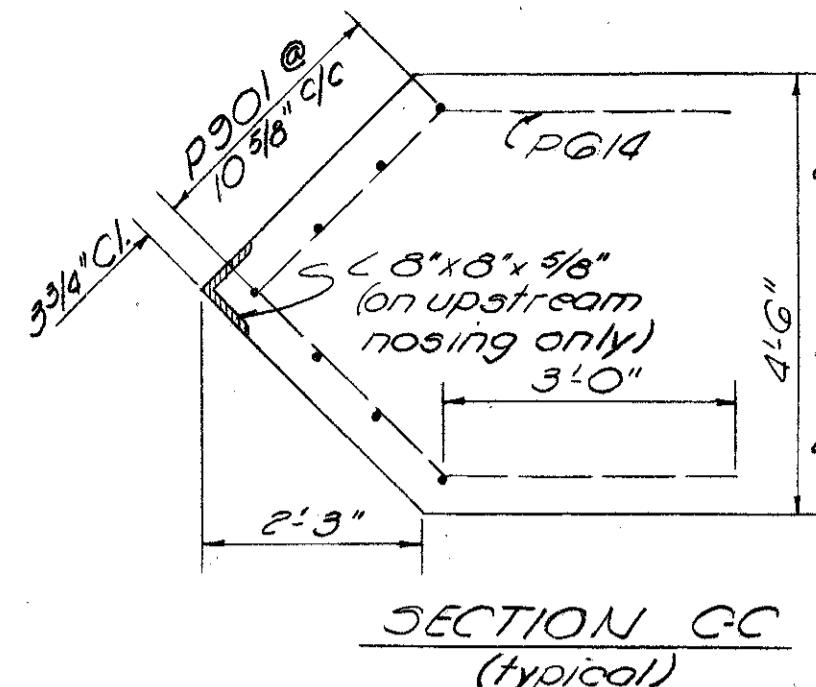


DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
XRR	L3	✓5	XRR	W.D.	June 1962	4-12-63

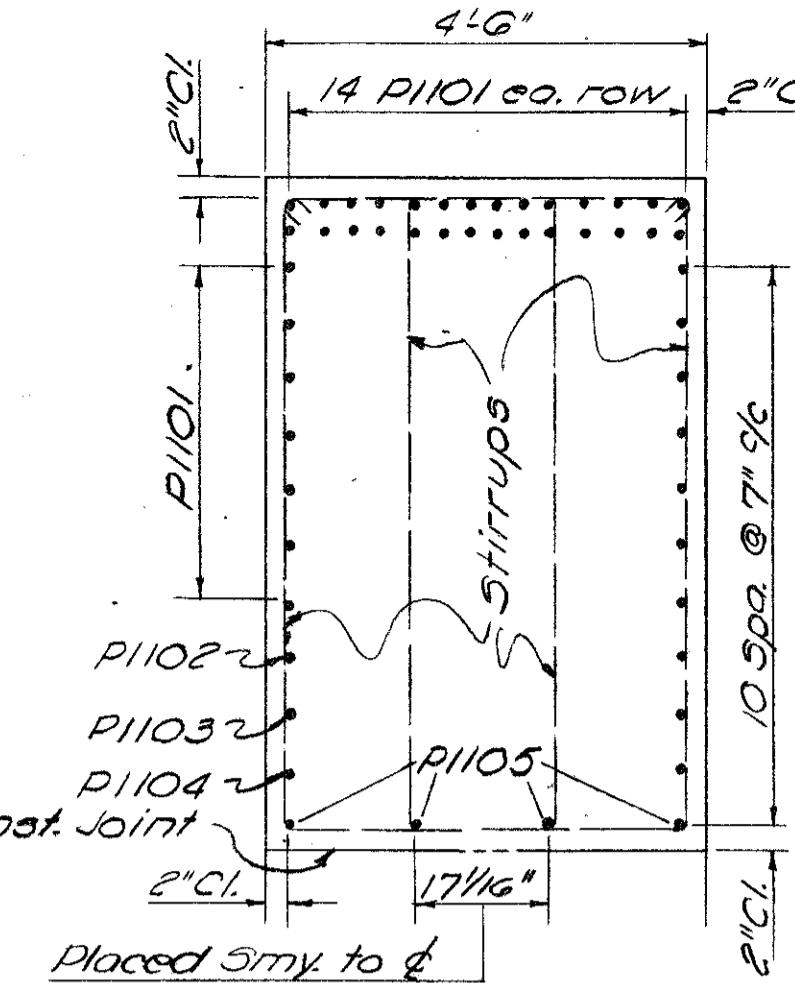
PIER DETAILS
PIS
SOUTHBOUND STRUCTURE
BRIDGE NO. LUC-20-1873 L.B.R.
U.S. 20 OVER THE MAUMEE RIVER
LUCAS & WOOD CO. NB. STA. 474+06.19
STA. 4+53.21
SB. STA. 474+43.11
STA. 4+76.59

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	I-475-7(3)195	

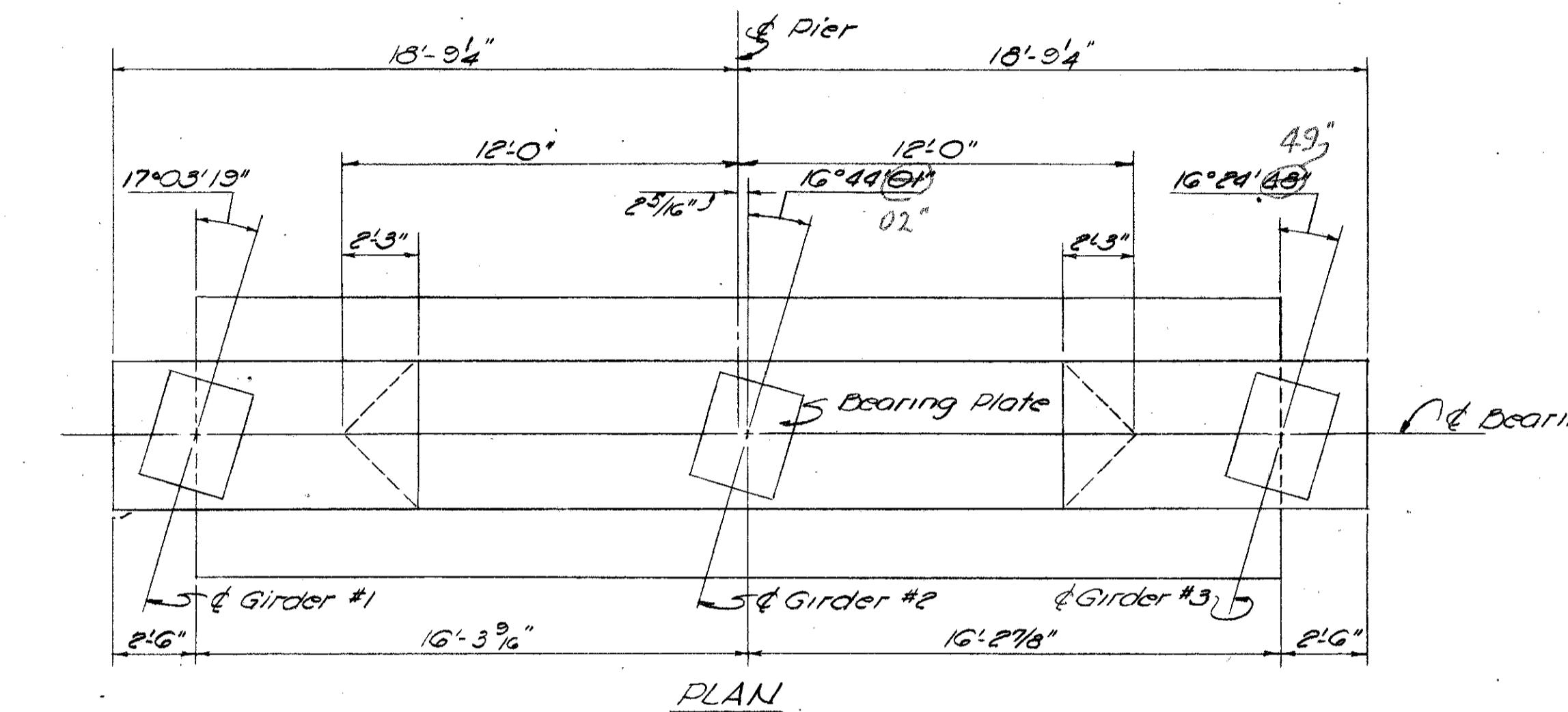
LUC. 20-18.73
NOO. 20-0.00



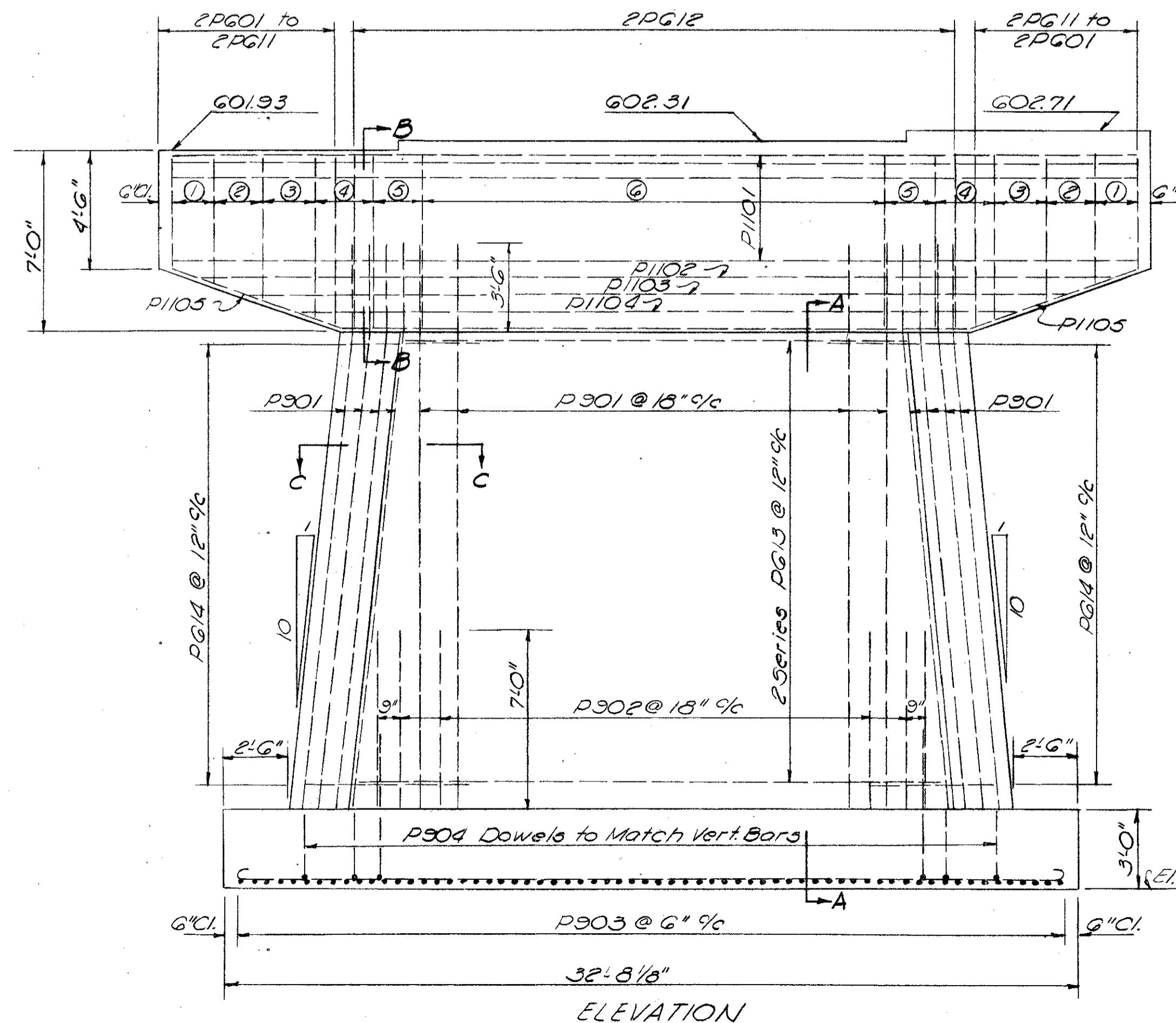
SECTION C
(typical)



SECTION B-E



PLA

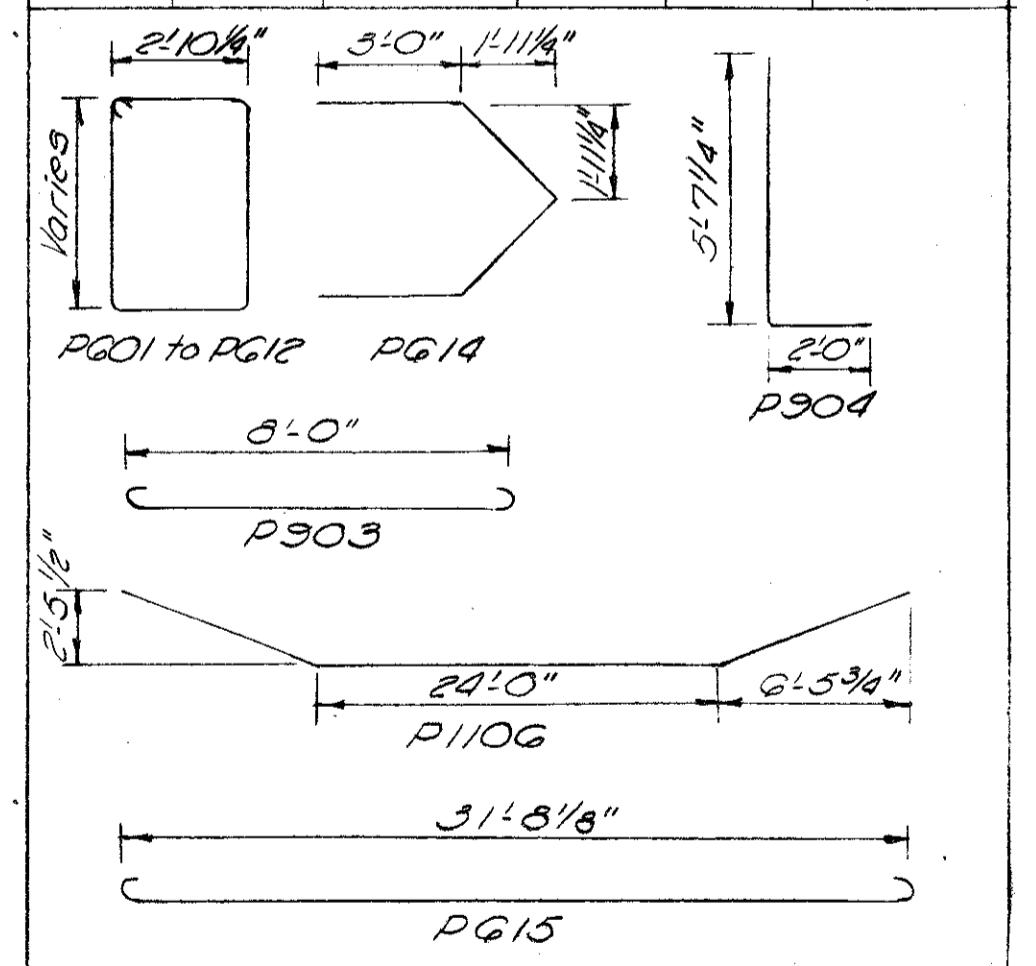


ELEVATION

REINFORCEMENT SCHEDULE

MARK	NO.	LENGTH	TYPE	SERIES INCRE.	WEIGHT
P1101	42	36'-11 3/8"	Str.		8,245
P1102	2	34'-0"		↑	361
P1103	2	30'-8"		↓	326
P1104	2	27'-4"	Str.		290
P1105	4	37'-9"	Bent		802
P901	40	21'-10 5/8"	Str.		2,976
P902	32	7'-0"	Str.		762
P903	64	10'-6"	Bent		2,285
P904	72	7'-7 1/4"	Bent		1,862
P601	4	15'-8 1/2"	Bent		94
P602	4	16'-3 1/2"		↑	98
P603	4	16'-10 1/2"			101
P604	4	17'-2 1/2"			103
P605	4	17'-6 1/2"			105
P606	4	17'-10 1/2"			107
P607	4	18'-2 1/2"			109
P608	4	18'-7 1/2"			112
P609	4	19'-0 1/2"			114
P610	4	19'-5 1/2"			117
P611	4	20'-0 1/2"		↓	120
P612	32	20'-3 1/2"	Bent		975
P613	2.5 series	19'-3"	Str.	2 19/32	1133
	18	22'-7 3/4"			
P614	36	11'-6"	Bent		622
P615	9	33'-0"	Bent		446
				TOTAL	22,265

TAL 22,265



NOTES

Bar dimensions are given out to out.
Bars of a series shall vary by a constant incre-

Bars shall clear the face of concrete by 2" unless otherwise noted.

For icebreaker angle
fixing detail see sheet
no. 39.

CHARLES L. BARBER & ASSOCIATES
ENGINEERS
TOLEDO OHIO

PIER DETAILS
P2S

SOUTHBOUND STRUCTURE

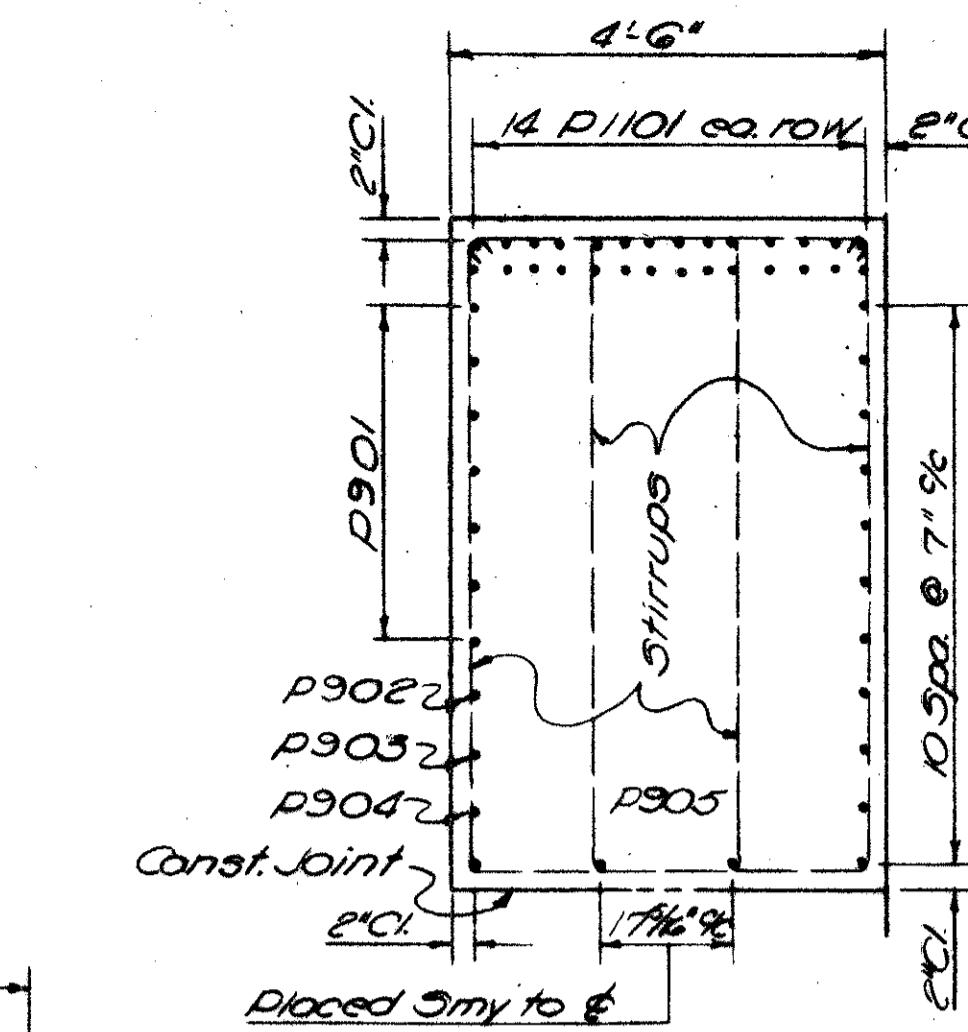
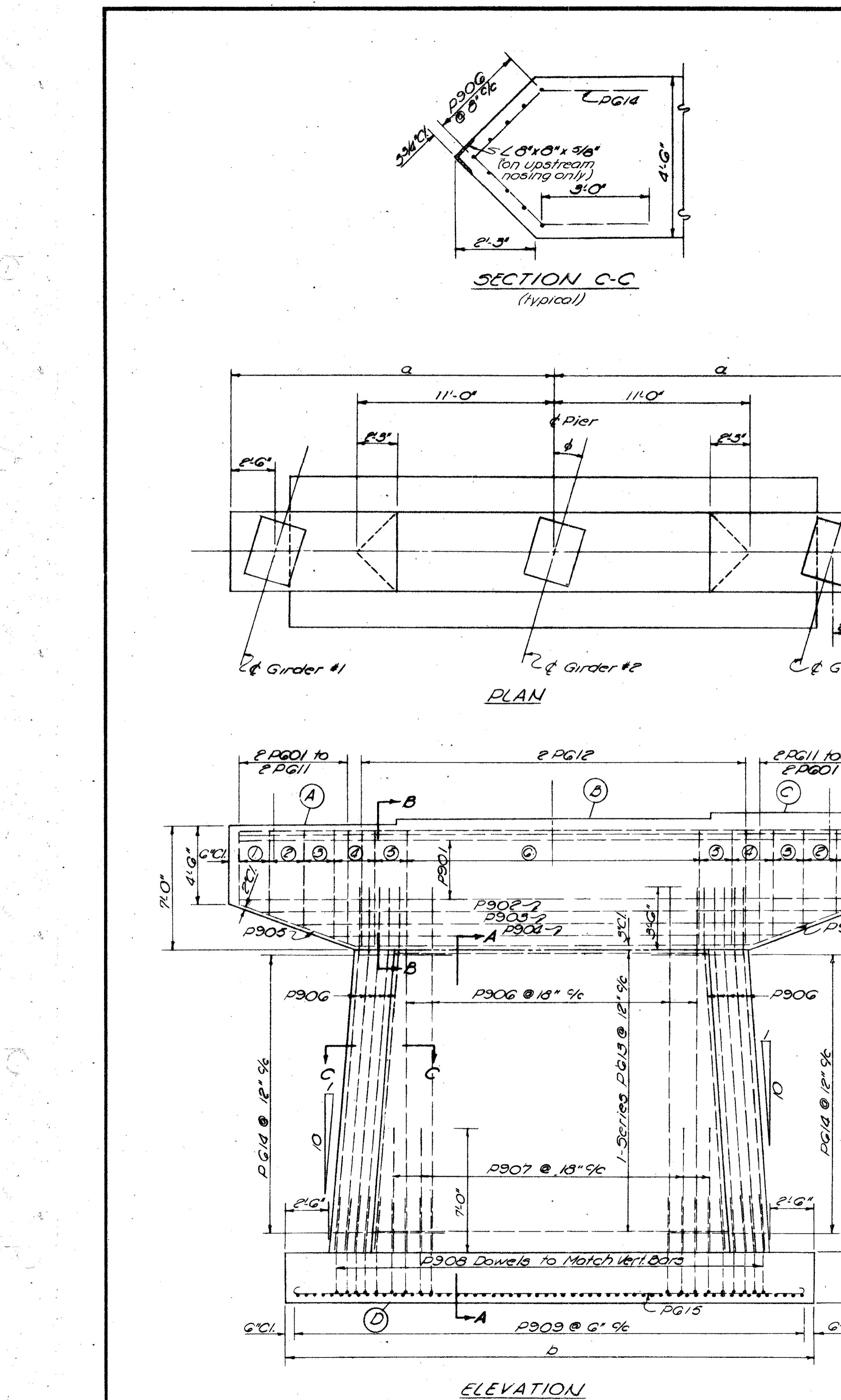
BRIDGE NO. LUC-20-1873 L.& R.
U.S. 20 OVER THE MAUMEE RIVER
LUCAS & WOOD CO. - NR. STA. 47416612

JUCAS & WOOD CO. NB. STA. 474+06.19
 STA. 4+53.21
 SB. STA. 474+43.11
 STA. 4+76.59

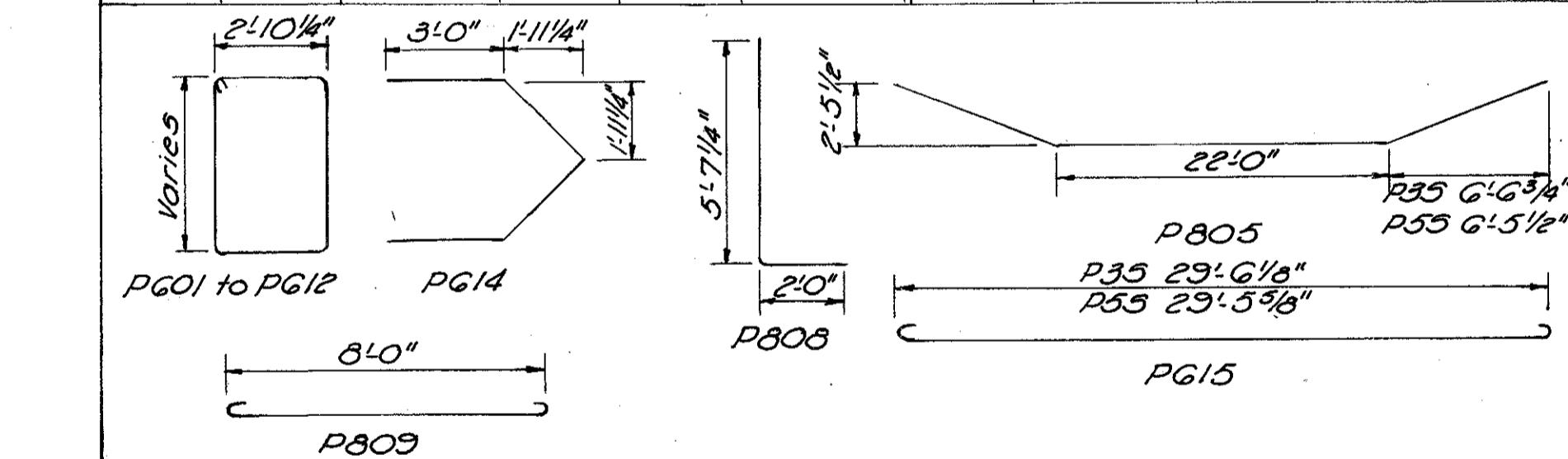
DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISE
L-5	J-5	K.R.R S.S.P	W.D J.M.H	June 1967	4-12-63

PER. NO.	DIVISION	STATE	PROJECT
2	OHIO	I-475-7(3)95	41 45

LUC. - 20-18.73
WOD. - 20-0.00



REINFORCEMENT SCHEDULE					
Pier P35				Pier P55	
MARK	NO.	LENGTH	TYPE	SERIES INCRE	WEIGHT
P1101	28	35'-11"	Str.	5,225	28
P901	14	35'-11"	Str.	1,672	14
P902	2	32'	Str.	218	2
P903	2	28'-10"	Str.	196	2
P904	2	25'-6"	Str.	173	2
P905	4	35'-11"	Bent	488	4
P906	42	21'-1"	Str.	3,011	42
P907	26	7'-0"	Str.	619	26
P908	68	7'-7 1/4"	Bent	1,758	68
P909	58	10'-6"	Bent	2,071	58
P601	4	15'-8 1/2"	Bent	94	4
P602	4	16'-3 1/2"	Str.	98	4
P603	4	16'-10 1/2"	Str.	101	4
P604	4	17'-2 1/2"	Str.	103	4
P605	4	17'-6 1/2"	Str.	105	4
P606	4	17'-10 1/2"	Str.	107	4
P607	4	18'-2 1/2"	Str.	109	4
P608	4	18'-7 1/2"	Str.	112	4
P609	4	19'-0"	Str.	114	4
P610	4	19'-5"	Str.	117	4
P611	4	19'-11 1/2"	Str.	120	4
P612	20	20'-3 1/2"	Bent	610	20
P613	23series	17'-3"	Str.	213 3/8"	963
	17	to 20'-5 1/2"	Str.	963	16
P614	34	11'-6"	Bent	587	32
P615	9	30'-10 1/2"	Bent	417	9
				TOTAL 19,188	TOTAL 19,014



ELEVATIONS			
Pier	A	B	C
P35	602.44	602.49	602.87
	601.90	602.26	574.50
P55	17'-11 1/2"	30'-6 1/8"	17.63"
	17'-11 1/2"	30'-5 5/8"	17.41"

.13 .51 .89

SKEW ANGLE	
Pier	Angle
P35	15° 24' 34"
P55	18° 45' 38"

-49°

DIMENSIONS		
Pier	a	b
P35	17'-11 1/2"	30'-6 1/8"
	17'-11 1/2"	17.63"
P55	17'-11 1/2"	30'-5 5/8"
	17'-11 1/2"	17.41"

CHARLES L. BARBER & ASSOCIATES
ENGINEERS
TOLEDO OHIO

PIER DETAILS
P3S & P5S
SOUTHBOUND STRUCTURE
BRIDGE NO. LUC-20-1873 L.&R.
U.S. 20 OVER THE MAUMEE RIVER
LUCAS & WOOD CO. NB. STA. 474+06.19
STA. 4+53.21
SB. STA. 474+43.11
STA. 4+76.59

DESIGNED DRAWN TRAC'D CHECKED REVIEWED DATE REVISED
K.R.K. L.S. J.S. K.R.K.
S.S.P. June 1968
5-21-68

