

UNI-33-7.97

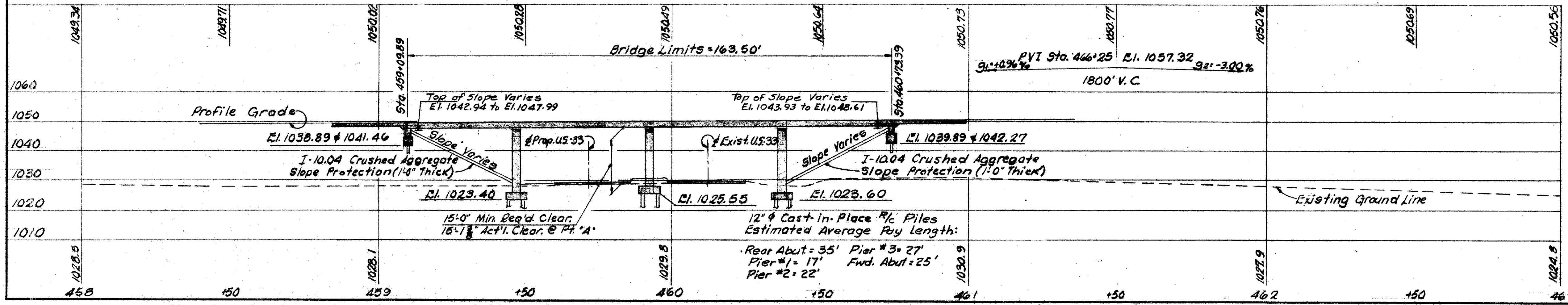
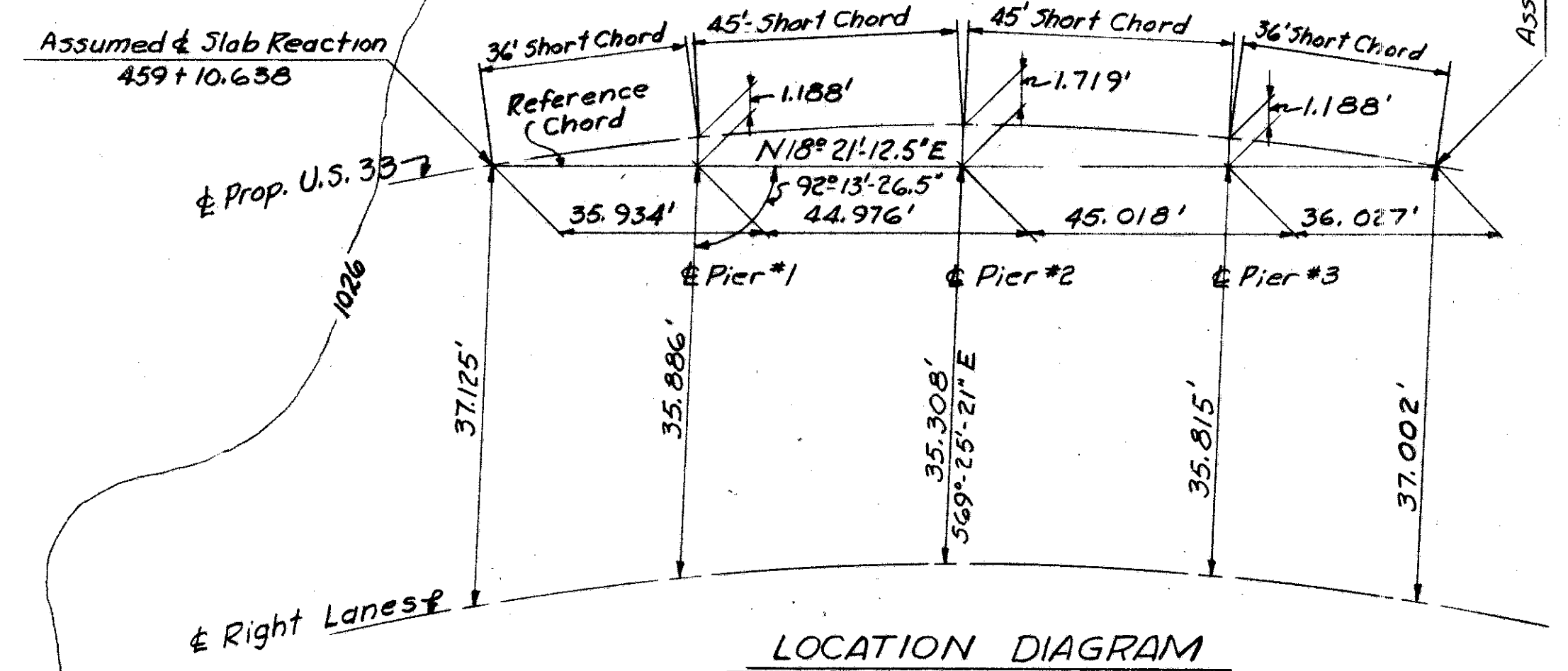
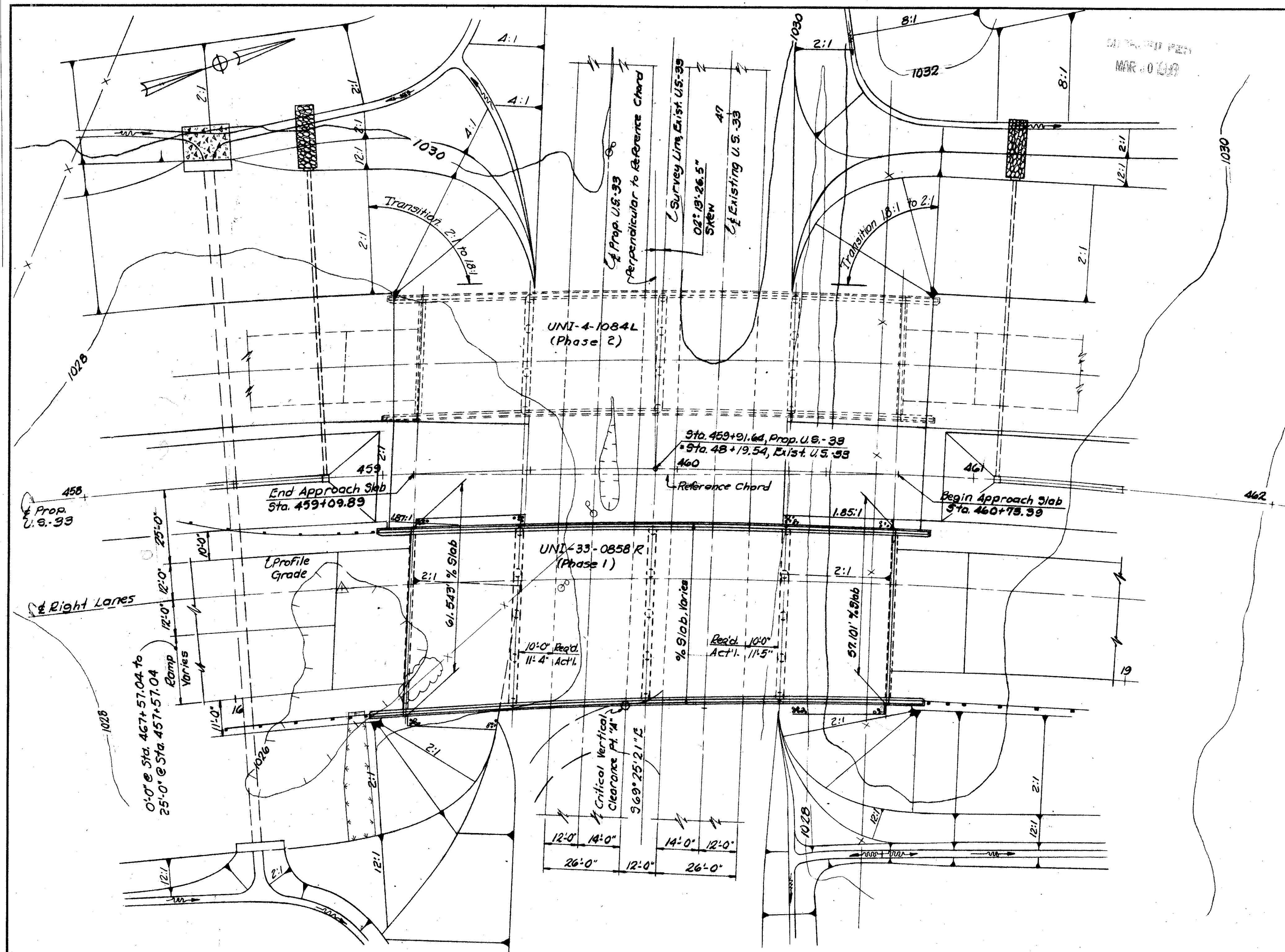
CURVE DATA PROP. U.S.-33

R.I. Sta. 464+70.96
 $\Delta = 61^{\circ} 47' 15''$
 $Dc = 3^{\circ} 00' 00''$
 $R = 1909.86'$
 $Ls = 400'$
 $Os = 6^{\circ} 00' 00''$
 $Lc = 1659.58'$
 $Ts = 1344.76'$
 $Es = 319.84'$
 $P = 3.49'$
 $K = 199.93'$
 T.S. Sta. 451+26.20
 S.C. Sta. 455+26.20
 C.S. Sta. 471+85.78
 S.T. Sta. 475+85.78

PROPOSED BRIDGE DATA

TYPE: Continuous Concrete Slab Bridge
 with Concrete Substructure
 SPANS: 36'-0", 45'-0", 45'-0", 36'-0"
 LOAD FREQUENCY: CF2000 (57)
 ROADWAY: Varies
 SKEW: $02^{\circ} 13' 26.5''$ Lt. Fwd.
 WEARING SURFACE: 1" Monolithic Concrete
 APPROACH SLABS: AS-1-54 Special (25' Long)
 ALIGNMENT: 3'00" Curve Right
 RAILING: Concrete Parapet with Aluminum Railing and Posts
 Super-elevation: 1" per foot

1980 A.D.T. = 9740



BENCH MARK
 R.R. Spike West Side 24" Maple
 335' Rt. of Sta. 460+60, El. 1025.682

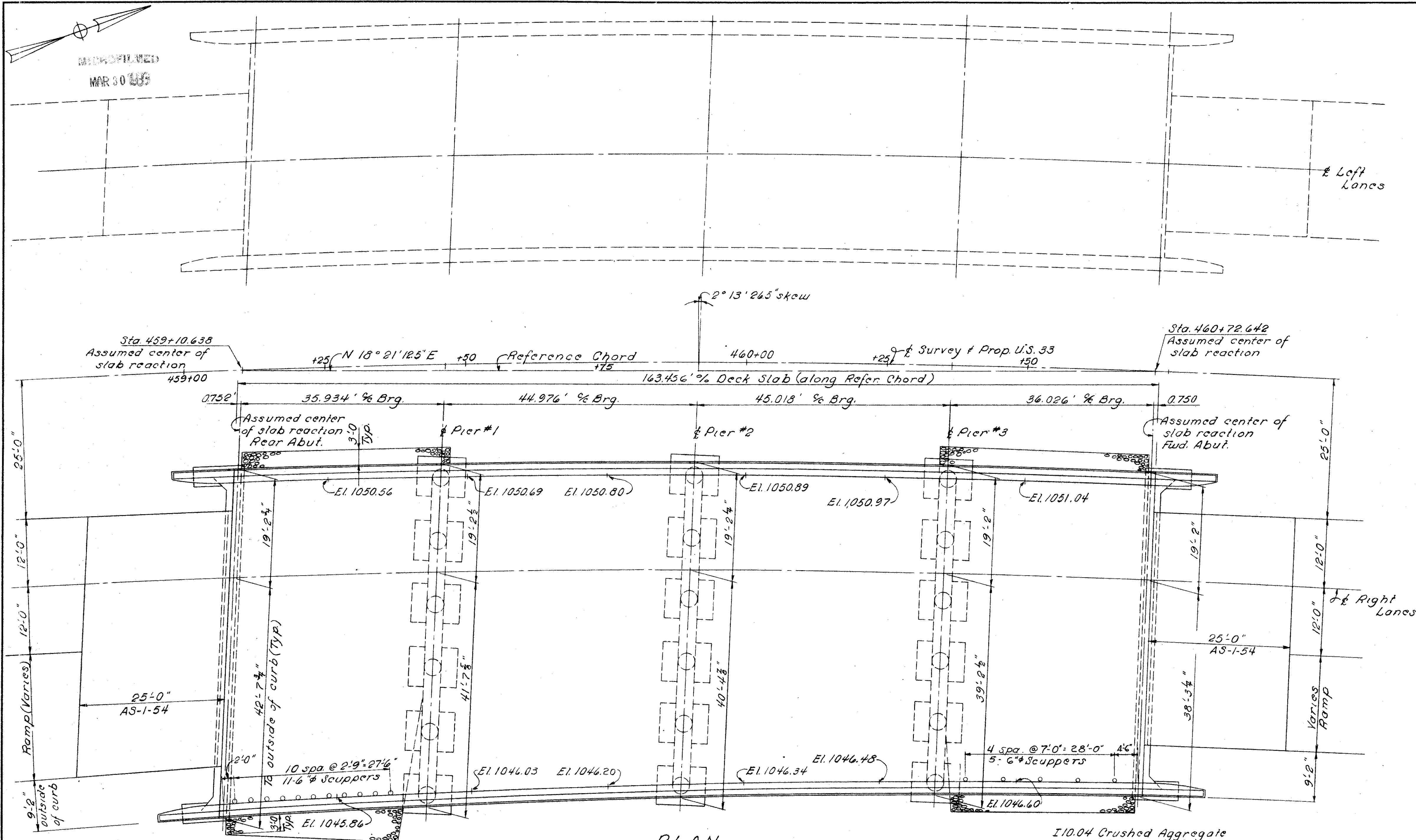
BARRETT ASSOCIATED ENGINEERS, LIMITED
 1500 W. FIRST AVE. COLUMBUS 12, OHIO
SITE PLAN
BRIDGE No. UNI-33-0858 R
OVER EXISTING U.S.-33
 UNION COUNTY
 Sta. 459+09.89 to Sta. 460+73.39

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	JWK		HM			
	RHB					

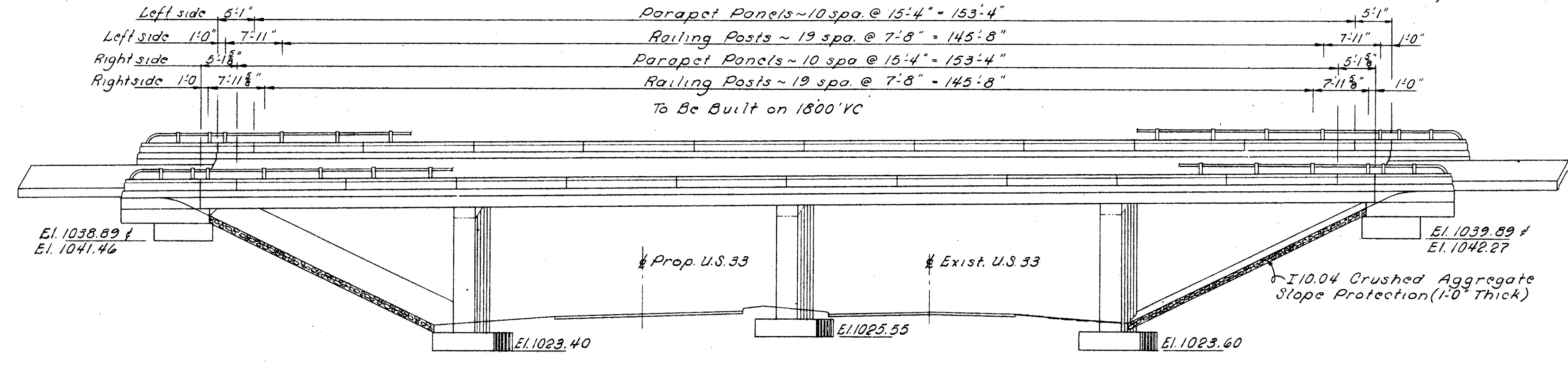
FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

471

UNI-33-7.97



PLAN



ELEVATION
Piles not shown

BARRETT ASSOCIATED ENGINEERS, LIMITED
1500 W. FIRST AVE. COLUMBUS 12, OHIO

GENERAL PLAN

BRIDGE N° UNI-33-0858 R
OVER EXISTING U.S. 33
Union County

Sta. 459+09.89 to Sta. 460+73.39

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
DM	KFB		HM			

MICROFILMED
MAR 30 1989

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

472

UNI-33-7.97

GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWINGS AR-1-57 REVISED 4-2-62 AND AS-1-54 REVISED 7-5-62.

REFERENCE SHALL BE MADE TO SUPPLEMENTAL SPECIFICATION S-101 DATED 7-12-62.

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO THE REQUIREMENTS OF "DESIGN SPECIFICATIONS FOR HIGHWAY STRUCTURES" OF THE STATE OF OHIO, DEPARTMENT OF HIGHWAYS, DATED 9-1-57, TOGETHER WITH CURRENT REVISIONS THEREOF.

DESIGN LOADING - CF 2000 (57)

CONCRETE CLASS C - BASIC UNIT STRESS 1,333 P.S.I.
CONCRETE CLASS E - BASIC UNIT STRESS 1,133 P.S.I.
REINFORCING STEEL - ASTM A15, A16, A160, DEFORMED, INTERMEDIATE OR HARD GRADE. BASIC UNIT STRESS 29,000 P.S.I. EXCEPT, SPIRAL REINFORCEMENT MAY BE PLAIN, STRUCTURAL GRADE WITH BASIC UNIT STRESS OF 18,000 P.S.I.

PROCEDURE: THE EMBANKMENT SHALL BE PLACED AND COMPACTED UP TO THE FINISHED SPILL-THRU SLOPE AND TO THE LEVEL OF THE SUBGRADE FOR A DISTANCE OF 200 FEET BACK OF THE ABUTMENTS, AFTER WHICH EXCAVATION SHALL BE MADE FOR THE ABUTMENTS AND FOR THE PIERS THAT ARE SET IN THE FILL AREA AND THE PILES DRIVEN.

EXCAVATION QUANTITY INCLUDES THE REMOVAL OF FILL MATERIAL REQUIRED FOR CONSTRUCTION OF THE ABUTMENTS AND PIERS.

PILES SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 35 TONS PER PILE FOR THE ABUTMENTS AND PIERS.

CAMBER OF 1/800 OF THE SPAN SHALL BE PROVIDED IN EACH SPAN (IN ADDITION TO ANY REQUIRED FOR CONFORMANCE WITH THE PROFILE OF THE HIGHWAY) TO ALLOW FOR DEAD LOAD DEFLECTION. THIS IS THE AMOUNT OF CAMBER REQUIRED BEFORE FALSEWORK IS RELEASED. TO OBTAIN THIS, PROPER ALLOWANCE SHALL BE MADE FOR THE DEFLECTION OF FALSEWORK MEMBERS.

~~SURFACE FINISH OF CONCRETE, THE REQUIREMENTS OF SEC. S-1-22, RUBBED FINISH, SHALL APPLY TO THE FOLLOWING EXPOSED CONCRETE SURFACES:-~~

- ~~A. THE ENTIRE SUPERSTRUCTURE EXCEPT THE TOP AND BOTTOM SURFACES OF THE ROADWAYS.~~
- ~~B. THE ENTIRE SURFACE OF PIERS AND ABUTMENTS EXCEPT THE FRONT FACE OF ABUTMENTS.~~

MACHINE FINISH: AT THE CONTRACTOR'S OPTION, THE CONCRETE DECK MAY BE FINISHED BY THE USE OF A FINISHING MACHINE.

UTILITY LINES: ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE OWNER. THE CONTRACTOR AND OWNER ARE REQUESTED TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WILL BE HELD TO A MINIMUM.

MAINTENANCE AND PROTECTION OF TRAFFIC: TWO LANES OF TRAFFIC WITH A MINIMUM HORIZONTAL WIDTH OF 27'-0" SHALL BE MAINTAINED ON EXISTING U.S. 33 AT ALL TIMES. THE CONTRACTOR SHALL SAFEGUARD THE TRAVELING PUBLIC BY PROVIDING PLATFORMS, NETS OR OTHER SUITABLE PROTECTION ABOVE THE TRAVELED LANES. A MINIMUM VERTICAL CLEARANCE OF 12' - 9" SHALL BE PROVIDED AT ALL TIMES.

ESTIMATED QUANTITIES

ITEM	QUANT.	UNIT	DESCRIPTION	SUPER.	ABUTS.	PIERS	GEN.	As	Built.
E-2	468	Cu.Yds.	Unclassified Excavation		168	300			
S-1	635	Cu.Yds.	Class "C" Concrete, Superstructure and Pier Caps	606		29			
S-1	88	Cu.Yds.	Class "C" Concrete, Pier Columns			88			
S-1	95	Cu.Yds.	Class "E" Concrete, Abutments		95				
S-1	99	Cu.Yds.	Class "E" Concrete, Pier Footings			99			
S-3	2	Sq.Yds.	Type "B" Waterproofing		2				
S-4	191,690	Lbs.	Reinforcing Steel	142,115	9,710	39,856			
S-14	369.77	Lin.Ft.	Railing (Conc. Parapet w/ Type "A" Aluminum Railing and Supports)	327.10	42.67				
S-16	Lump Sum	Lump Sum	First Test Pile				Lump Sum		
S-18	2640	Lin.Ft.	12" ϕ Cast-in-Place Reinforced Concrete Piles		790	1850		2640	2,379
S-29	12	Cu.Yds.	Porous Backfill			12			
S-29	16	Each	Scuppers, 6" ϕ Wrought Iron or Cast Iron Pipe	16					
S-25			Bridge Lighting (See Sheet No. 444)						
I-10	570	Sq.Yds.	Crushed Aggregate Slope Protection (1:0" Thick)				570		
S-101	635	Each	Water-Reducing, Set-Retarding Admixture	606		29			

BARRETT ASSOCIATED ENGINEERS, LIMITED
1500 W. FIRST AVE. COLUMBUS 12, OHIO

GENERAL NOTES and
ESTIMATED QUANTITIES
BRIDGE No UNI-33-0858 R
OVER EXISTING US-33
UNION COUNTY
STA. 459+09.89 to STA. 460+73.39

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	JWK		HM			

As-Built. Revised 32-70 G.F.J.

REINFORCING STEEL LIST

ABUTMENTS					
MARK	NO.	LENGTH	SHR	WEIGHT	BENDING DIAGRAM
A1001	8	29'-10"	Str.	1027	
A1002	8	27'-7"	Str.	950	
A801	8	31'-0"	Str.	662	
A802	8	29'-0"	Str.	619	
A803	2	10'-1"	Str.	54	
A804	2	9'-3"	Str.	49	
A805	4	9'-6"	Str.	101	
A501	88	5'-8"	Bnt.	520	
A502	176	6'-7"	Bnt.	1208	
A503	8	31'-0"	Str.	259	
A504	4	29'-10"	Str.	124	
A505	2	25'-0"	Str.	52	
A506	14	8'-3"	Str.	120	
A507	14	6'-3"	Str.	91	
A508	22	7'-6"	Bnt.	172	
A509	12	9'-1"	Bnt.	114	
A510	19	9'-9"	Bnt.	193	
A511	20	11'-1"	Bnt.	231	
A512	9	12'-3"	Bnt.	115	
A513	11	8'-7"	Bnt.	98	
A514	10	12'-9"	Bnt.	133	
A515	4	22'-9"	Str.	95	
A516	8	29'-0"	Str.	242	
A517	4	27'-8"	Str.	115	
A518	2	20'-8"	Str.	43	
A519	5	6'-0"	Str.	31	
A520	5	5'-6"	Str.	29	
A521	10	5'-9"	Str.	60	

WINGWALLS					
MARK	NO.	LENGTH	SHR	WEIGHT	BENDING DIAGRAM
W801	8	7'-5"	Str.	158	
W802	8	8'-6"	Str.	182	
W501	16	5'-8"	Bnt.	95	
W502	36	7'-1"	Bnt.	266	
W503	4	7'-5"	Str.	31	
W504	32	10'-5"	Str.	348	
W505	28	4'-8"	Str.	136	
W506	32	5'-11"	Bnt.	198	
W507	8	10'-4"	Str.	86	
W508	4	8'-6"	Str.	35	
W509	12	5'-10"	Str.	73	
W510	16	3'-3"	Str.	54	
W511	16	2'-9"	Str.	46	
W512	28	7'-1"	Str.	206	
W513	32	5'-0"	Bnt.	167	
W514	16	4'-2"	Bnt.	70	
W515	8	3'-10"	Bnt.	33	
W516	8	3'-4"	Bnt.	28	

PIERS					
MARK	NO.	LENGTH	SHR	WEIGHT	BENDING DIAGRAM
F1101	8	6'-11"	Bnt.	294	
F1001	136	6'-6"	Bnt.	3804	
F801	120	10'-4"	Bnt.	3311	
F701	54	9'-10"	Bnt.	1,085	
F702	120	8'-4"	Bnt.	2,044	
F601	54	8'-0"	Bnt.	649	
P1101	4	21'-6"	Bnt.	457	
P1102	4	17'-6"	Str.	372	
P1001	4	28'-2"	Bnt.	485	
P1002	4	23'-4"	Bnt.	402	
P1003	8	24'-0"	Str.	826	
P1004	16	23'-3"	Str.	1,601	
P1005	20	22'-4"	Str.	1,922	
P1006	24	21'-5"	Str.	2,212	
P1007	16	20'-3"	Str.	1,394	
P1008	12	19'-4"	Str.	998	
P1009	4	26'-3"	Bnt.	452	
P1010	8	18'-5"	Str.	634	
P1011	8	20'-7"	Str.	709	
P1012	4	19'-8"	Str.	339	
P1013	4	23'-8"	Bnt.	407	
P1014	4	28'-4"	Bnt.	488	
P901	12	9'-0"	Bnt.	367	
P902	7	44'-6"	Str.	1,059	
P903	3	25'-2"	Str.	257	
P904	5	24'-2"	Str.	411	
P905	3	36'-7"	Str.	373	
P906	2	35'-7"	Str.	242	
P907	7	43'-3"	Str.	1,029	
P908	3	24'-9"	Str.	252	
P909	2	23'-9"	Str.	161	
P910	3	35'-10"	Str.	365	
P911	2	34'-10"	Str.	237	
P912	7	42'-1"	Str.	1,002	
P913	21	18'-9"	Str.	1,339	
P914	2	23'-2"	Str.	158	
P915	3	35'-1"	Str.	358	
P916	2	34'-1"	Str.	232	
P501	75	8'-11"	Bnt.	698	
P502	4	29'-1"	Str.	121	
P503	4	28'-5"	Str.	119	
P504	4	27'-10"	Str.	116	

SUPERSTRUCTURE						
MARK	NO.	LENGTH	SHR	WEIGHT	BENDING DIAGRAM	
S1101	156	29'-8"	Str.	24,589		
S1102	79	14'-1"	Str.	5,911		
S1103	77	9'-6"	Str.	3,886		
S1001	232	43'-2"	Str.	43,098		
S1002	54	29'-11"	Bnt.	6,952		
S1003	54	26'-3"	Bnt.	6,100		
S1004	55	26'-0"	Str.	6,153		
S1005	53	19'-10"	Str.	4,523		
S1006	30	24'-9"	Str.	3,195		
S901	161	18'-8"	Str.	6,148		
S902	24	44'-0"	Str.	2,158		
S903	25	42'-9"	Str.	2,185		
S904	16	41'-6"	Str.	1,357		
S905	18	45'-0"	Str.	1,656		
S906	16	44'-6"	Str.	1,455		
S907	20	43'-3"	Str.	1,768		
S908	24	42'-0"	Str.	2,060		
S909	18	41'-0"	Str.	1,508		
S601	53	23'-5"	Str.	1,864		
S602	53	19'-8"	Str.	1,566		
S603	94	18'-8"	Str.	2,636		
S604	10	44'-9"	Str.	672		
S605	11	44'-3"	Str.	731		
S606	13	43'-9"	Str.	854		
S607	13	43'-0"	Str.	840		
S608	13	42'-6"	Str.	830		
S609	13	41'-10"	Str.	817		
S610	11	41'-3"	Str.	682		
S611	10	40'-7"	Str.	610		
S501	12	23'-5"	Str.	293		
S502	12	25'-10"	Str.	323		
S503	187	6'-0"	Bnt.	1,170		
S504	187	6'-4"	Bnt.	1,235		
S505	187	2'-4"	Bnt.	455		
S506	187	2'-10"	Bnt.	553		
S507	236	5'-3"	Bnt.	1,292		

REPLACEMENT BARS					
MARK	NO.	LENGTH	SHR	WEIGHT	
RE1101	2	7'-6"	Str.		
RE1001	5	7'-2"	Str.		
RE901	1	6'-10"	Str.		
RE801	1	6'-6"	Str.		
RE701	2	6'-2"	Str.		
RE601	1	5'-11"	Str.		
RE501	1	5'-7"	Str.		

MARK	NO.	LENGTH	CORE DIA.	PITCH	NO. TURNS	WEIGHT
SP401	2	21'-4 1/2"	32"	4 1/2"	60	778
SP402	1	20'-3"	32"	4 1/2"	57	369
SP403	2	19'-6"	32"	4 1/2"	55	712
SP404	2	18'-4 1/2"	32"	4 1/2"	52	674
SP405	2	17'-7 1/2"	32"	4 1/2"	50	648
SP406	2	16'-6"	32"	4 1/2"	47	608
SP407	1	15'-9"	32"	4 1/2"	45	291
SP408	1	14'-7 1/2"	32"	4 1/2"	42	271
SP409	1	20'-7 1/2"	32"	4 1/2"	58	376
SP410	1	19'-10 1/2"	32"	4 1/2"	56	363
SP411	1	18'-9"	32"	4 1/2"	53	343
SP412	1	18'-0"	32"	4 1/2"	51	330
SP413	1	16'-10 1/2"	32"	4 1/2"	48	311

RAILING BARS					
MARK	NO.	LENGTH	SHR	WEIGHT	
R501	16	4'-8"	Str.		
R502	80	15'-0"	Str.		
R503	16	10'-4"	Str.		

BAR SIZE IS INDICATED IN THE BAR MARK. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR ARE USED, INDICATE THE BAR SIZE NUMBER. FOR EXAMPLE, A700 IS A NO. 7 SIZE BAR AND A1014 IS A NO. 10 SIZE.

SPIRAL REINFORCING BARS: THE "LENGTH" SHOWN IN THE STEEL LIST FOR THE SPIRAL BARS IS THE DISTANCE FROM THE TOP OF THE FOOTING TO THE BOTTOM OF THE PIER CAP. THE "NO. OF TURNS" SHOWN IS THE "LENGTH" DIVIDED BY THE PITCH, PLUS 3 TURNS (TOTAL NUMBER OF CLOSED COILS), EXPRESSED AS THE NEAREST WHOLE NUMBER. SPIRAL REINFORCING BARS SHALL NOT HAVE DEFORMATIONS BUT SHALL IN OTHER RESPECTS CONFORM TO ITEM S-4. 1 1/2 CLOSED COILS SHALL BE PROVIDED AT THE ENDS OF EACH SPIRAL UNIT. FOUR STEEL CHANNEL, TEE OR ANGLE SPACERS, WEIGHING APPROXIMATELY 0.68 LB. PER LIN. FT. OF SPACER, SHALL BE PROVIDED FOR EACH SPIRAL UNIT. THEY SHALL BE EQUALLY SPACED ALONG THE PERIPHERY OF THE COIL. THE NUMBER OF POUNDS OF THESE SPACERS, BASED ON 0.68 LB. PER LIN. FT., WILL BE PAID FOR AS REINFORCING STEEL AND IS INCLUDED IN THE TABULATED QUANTITY OF SPIRAL BARS.

RAILING BARS R501, R502 and R503 included with railing for payment

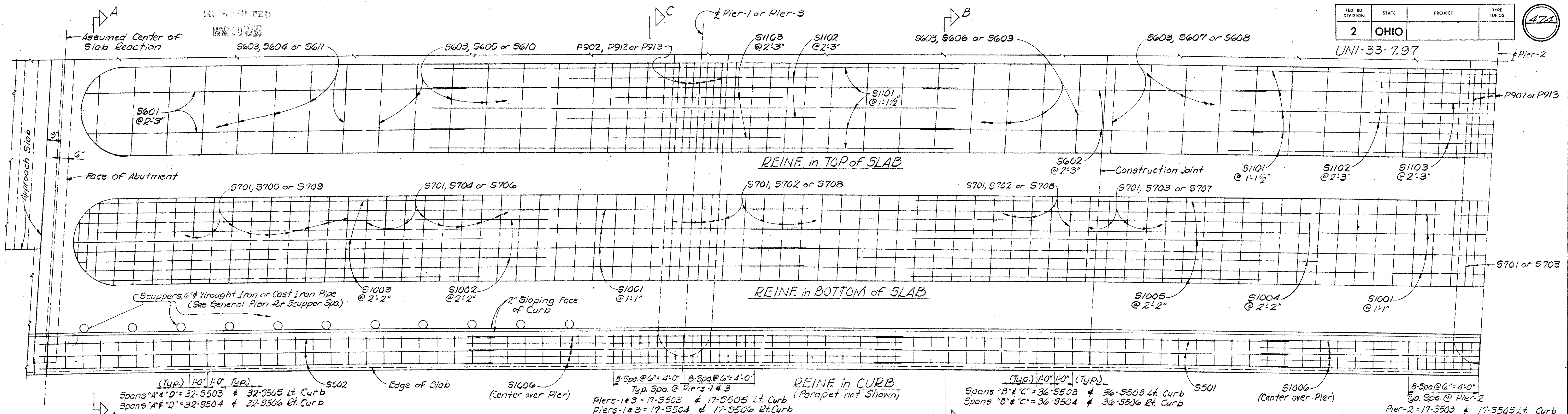
BARRETT ASSOCIATED ENGINEERS, LIMITED
1500 W. FIRST AVE. COLUMBUS 12, OHIO

REINFORCING STEEL LIST
BRIDGE NO UNI-33-0858 R
OVER EXISTING US-33
UNION COUNTY

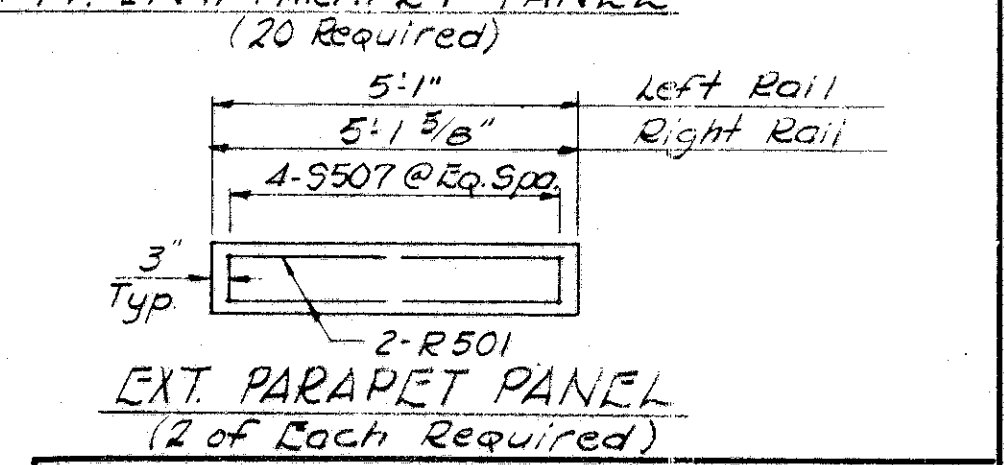
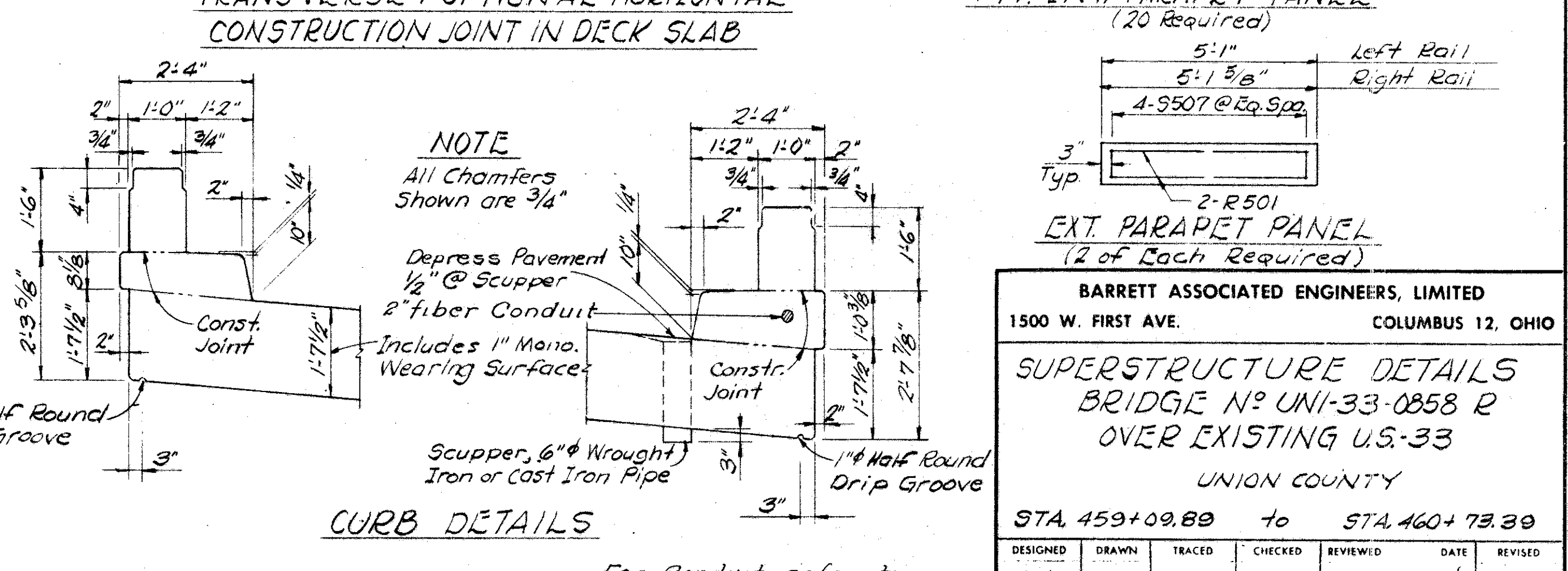
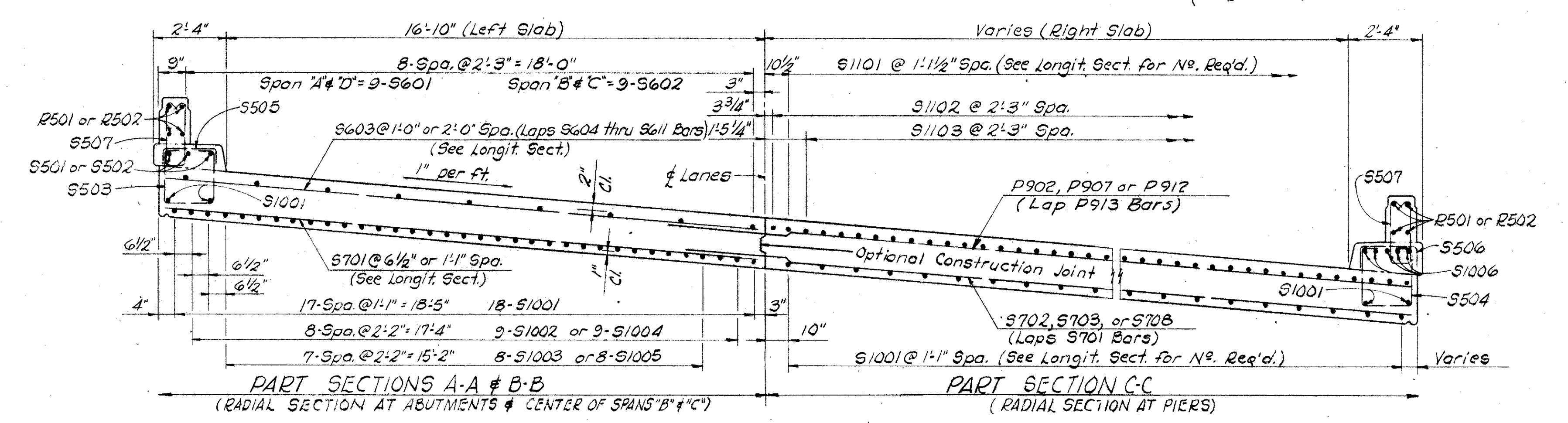
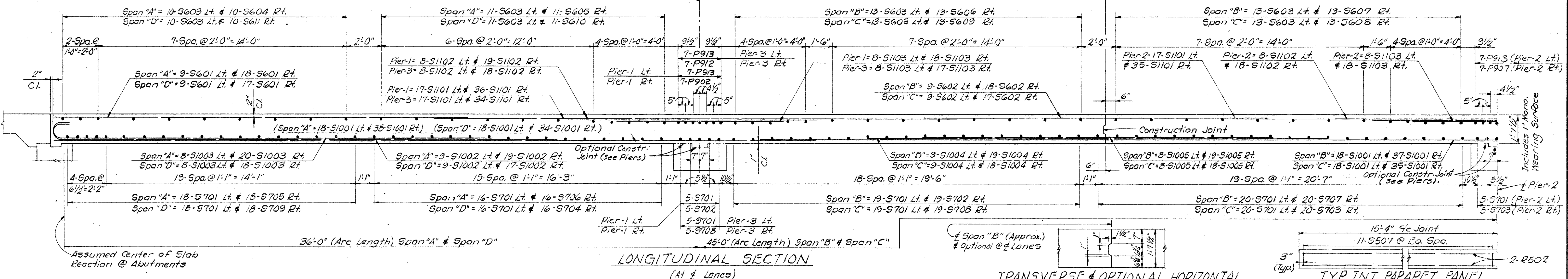
STA 459+09.89 to STA 460+73.39

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
	JWK		HM			

UNI-33-7.97



NOTE
 Left denotes 19'-0" Width of Slab Left of \pm Lanes
 Right denotes Variable Width of Slab Right of \pm Lanes



BARRETT ASSOCIATED ENGINEERS, LIMITED
 1500 W. FIRST AVE. COLUMBUS 12, OHIO

SUPERSTRUCTURE DETAILS
 BRIDGE NO UNI-33-0858 R
 OVER EXISTING U.S. 33
 UNION COUNTY

STA. 459+09.89 to STA. 460+79.89

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
HM	JWK		HM			

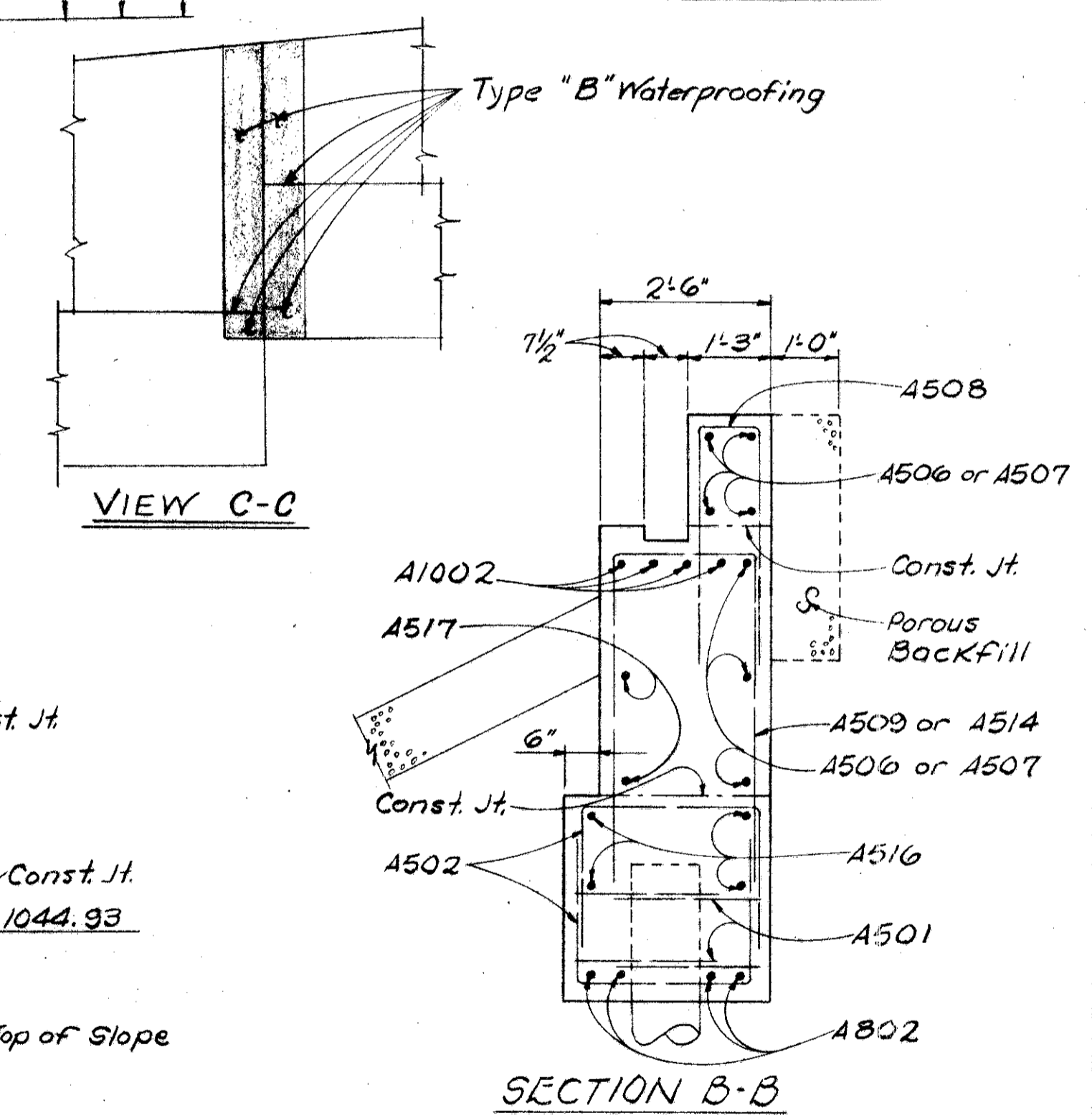
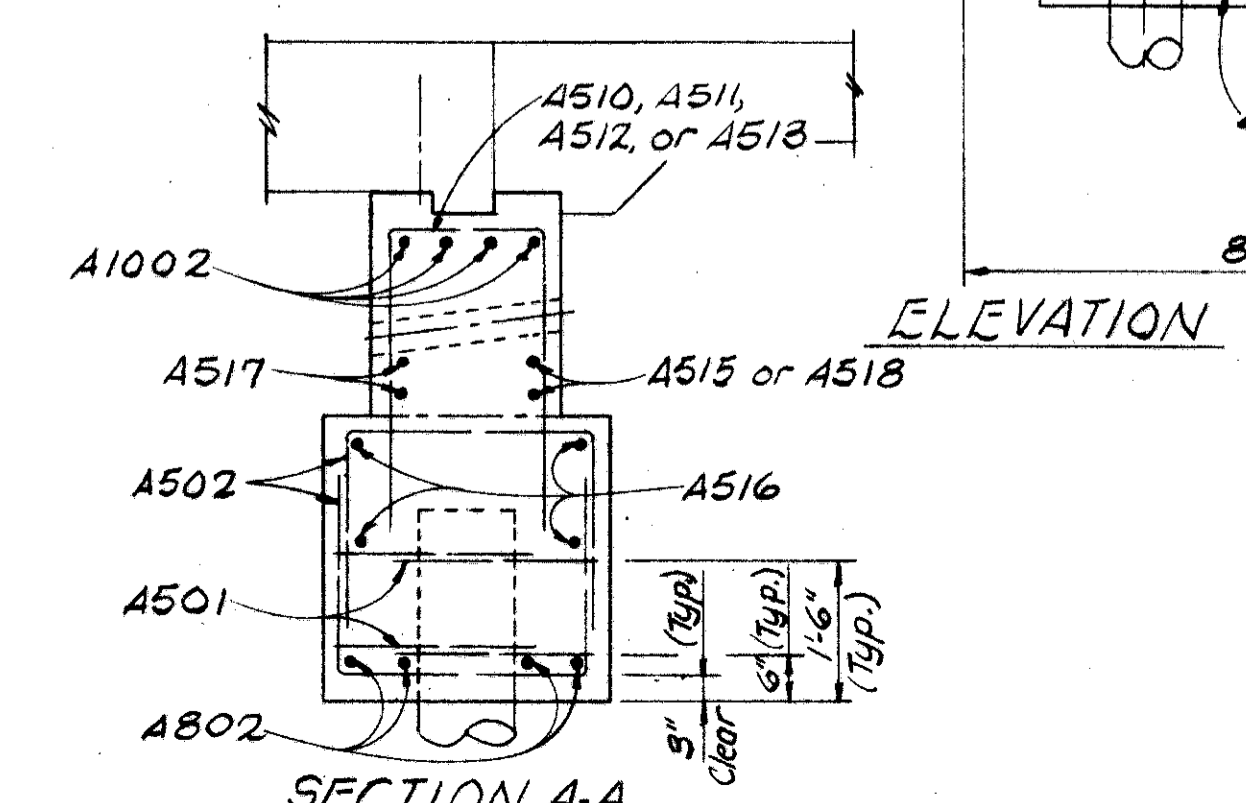
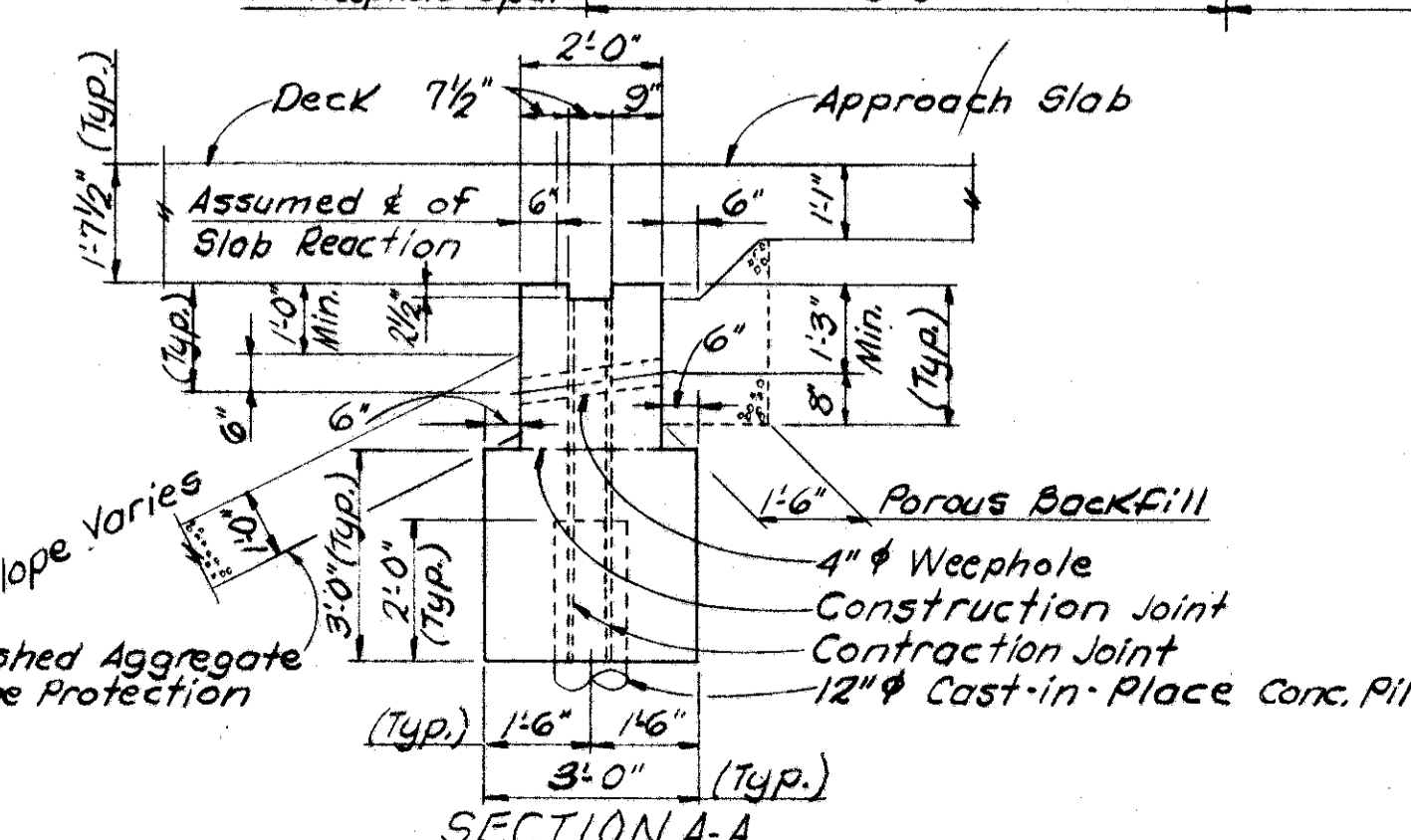
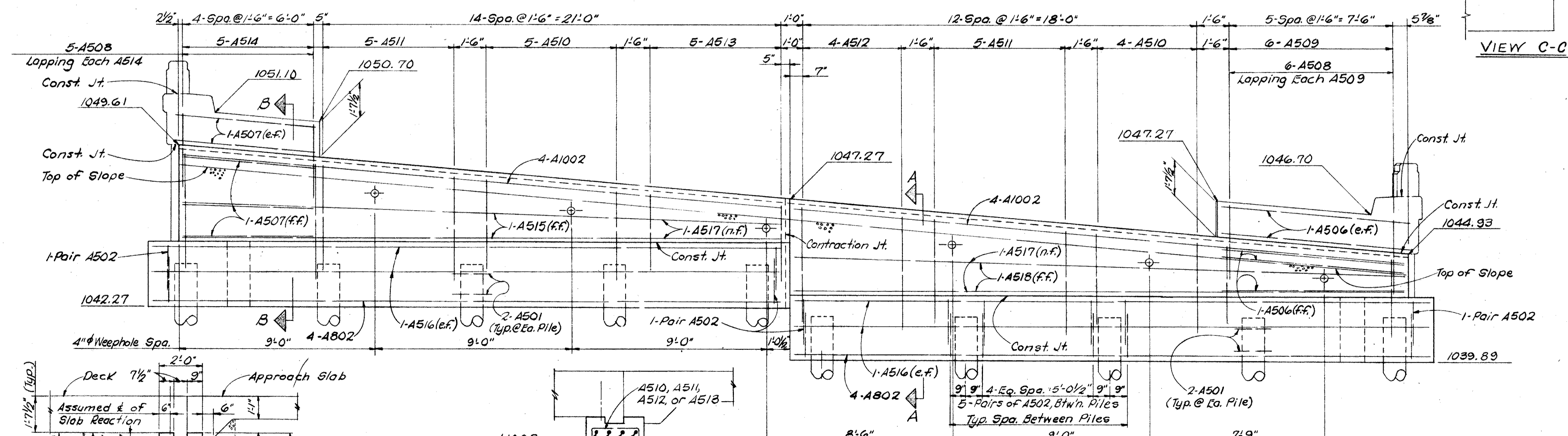
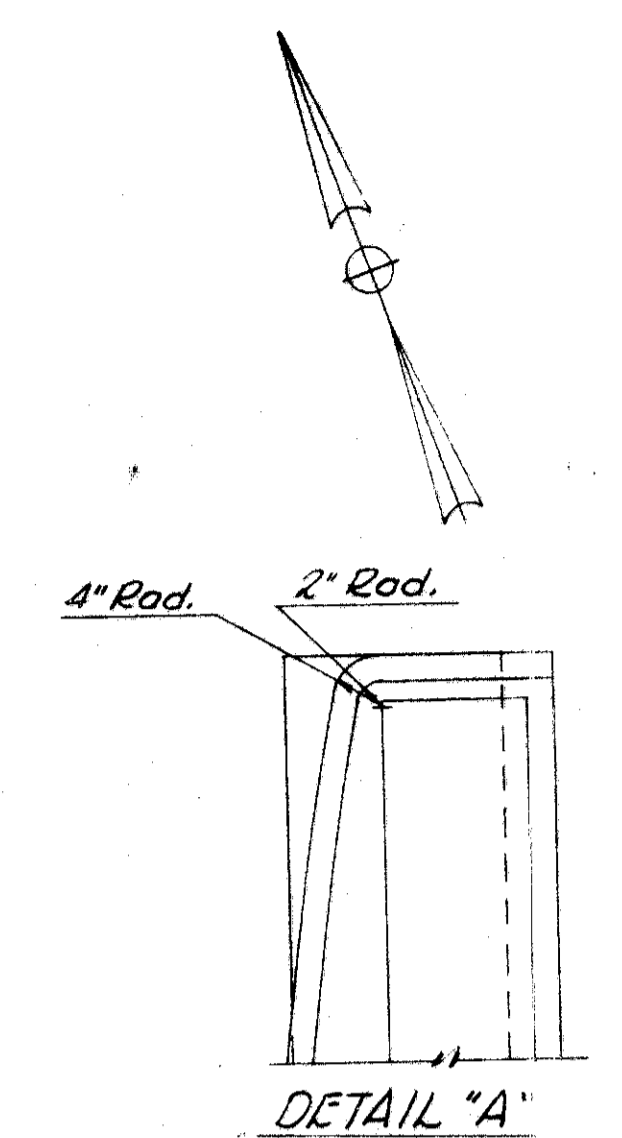
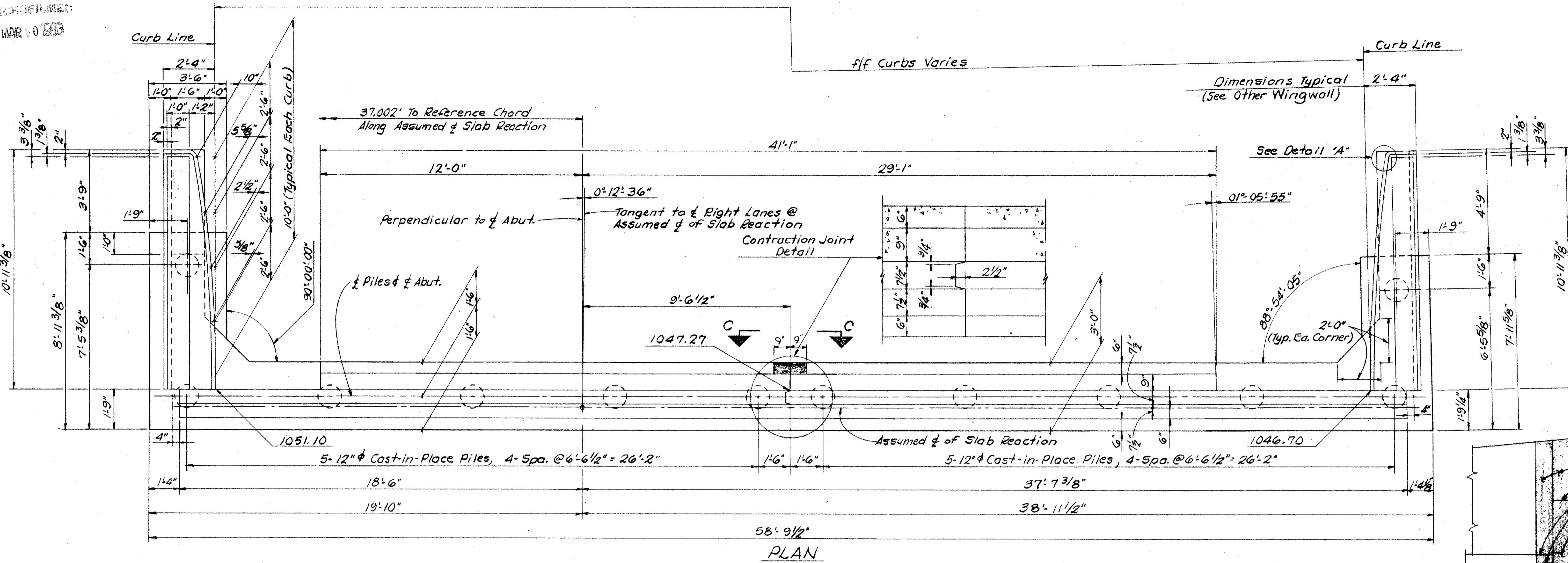
For Conduit, refer to Roadway Drwg. Sheet 444

MICROFILMED
MAR 30 1989

FED. RD. DIVISION	STATE	PROJECT	TYPE FUNDS
2	OHIO		

475

UNI-33-7.97



LEGEND

(n.f.) denotes Near Face
(f.f.) denotes Far Face
(e.f.) denotes Each Face

NOTE

POROUS BACKFILL shall extend upward to the Approach Slab and to the surface of the shoulders, and outward to the wingwalls. Excavation therefor in excess of that required for construction of the abutment, shall be considered as paid for in the bid price per cubic yard paid for Porous Backfill.

For Conduit, Refer to Roadway Drawing 444.

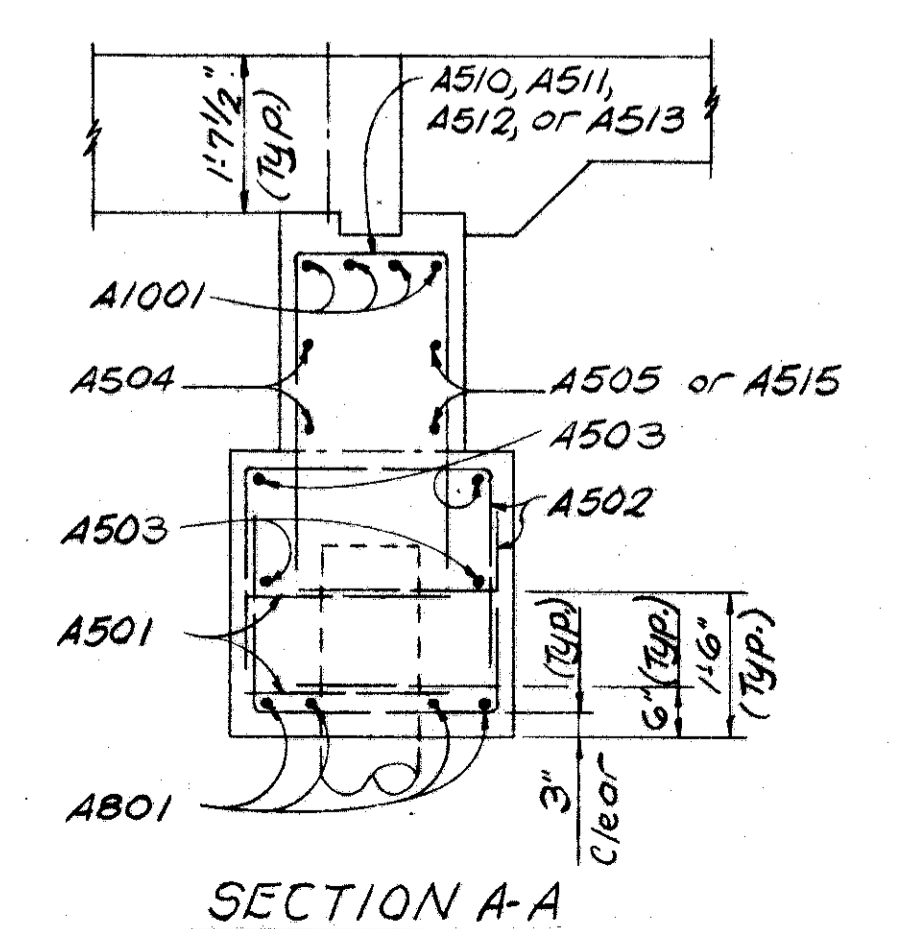
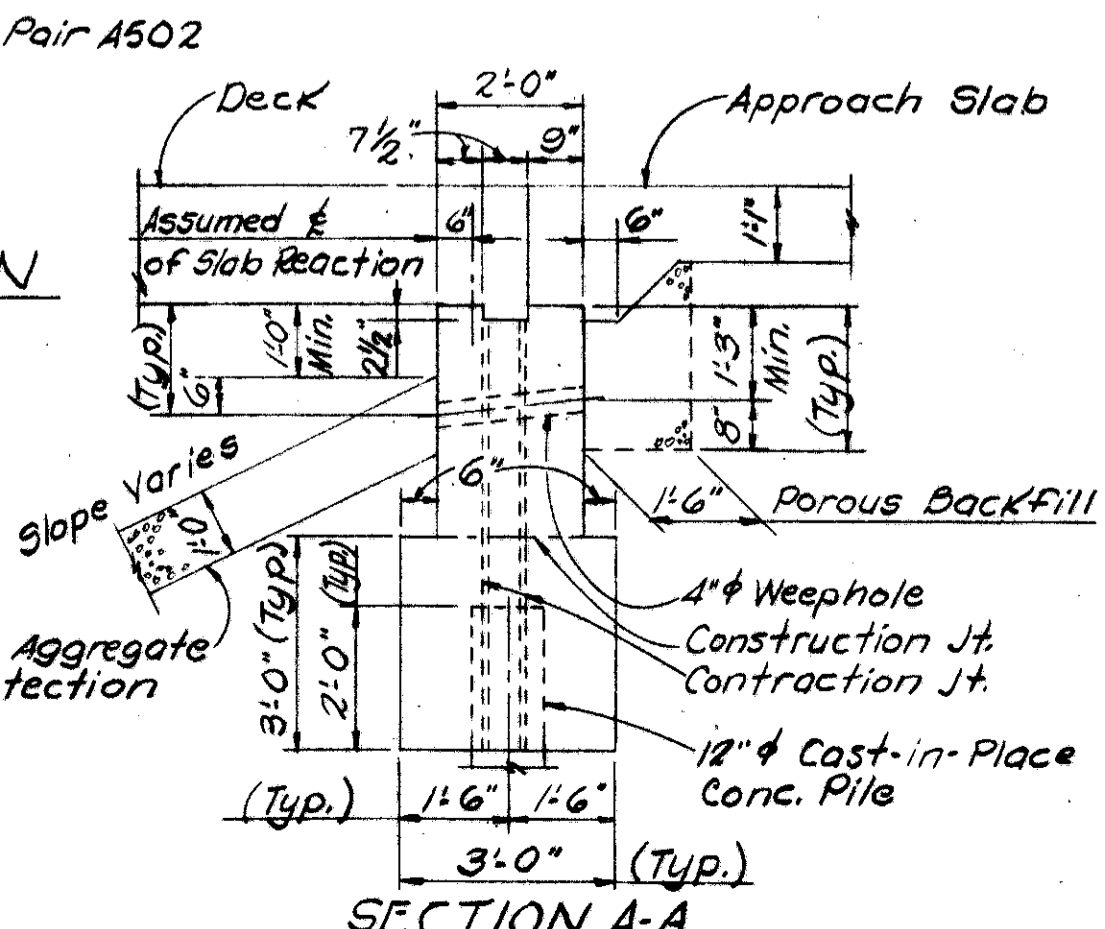
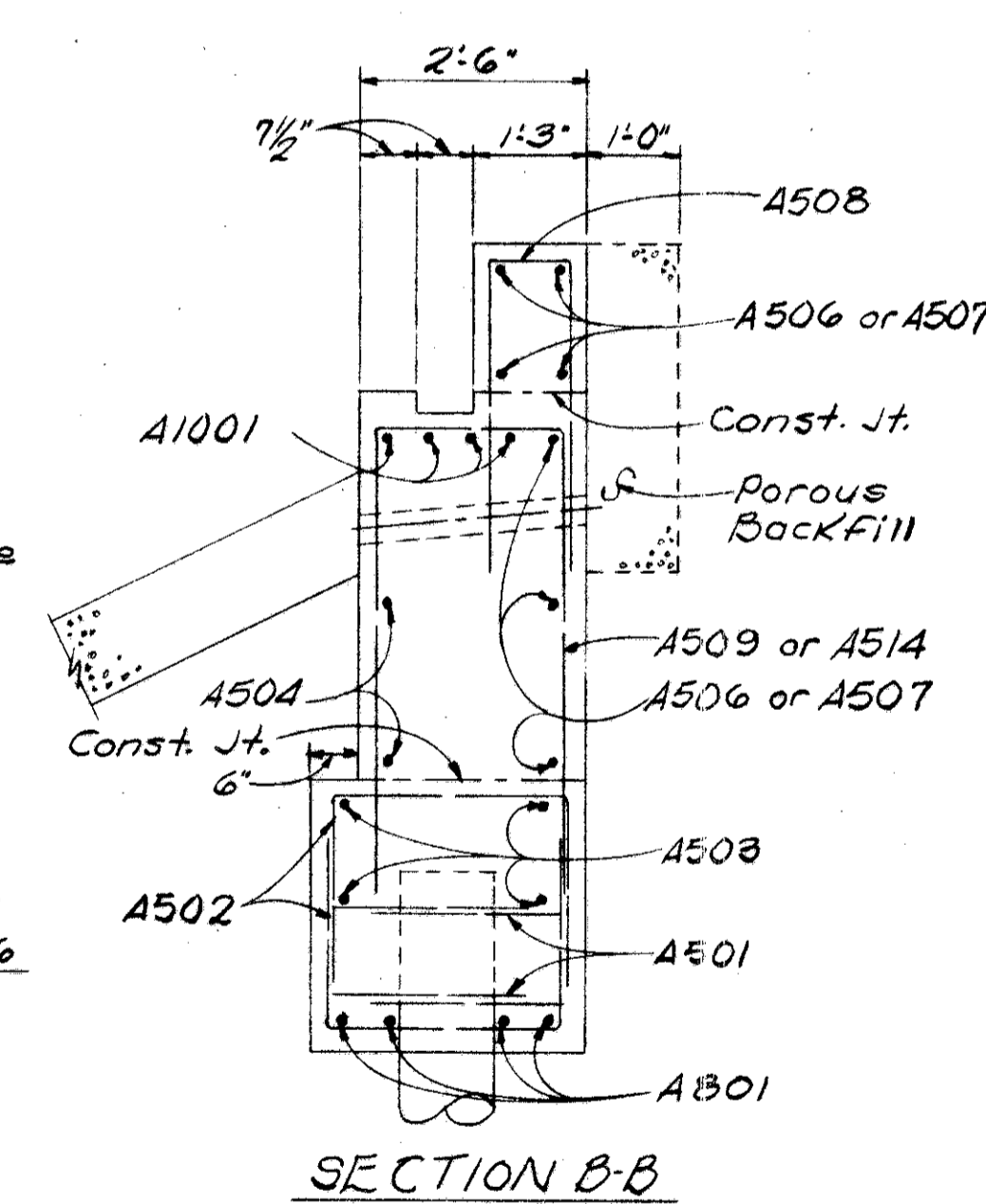
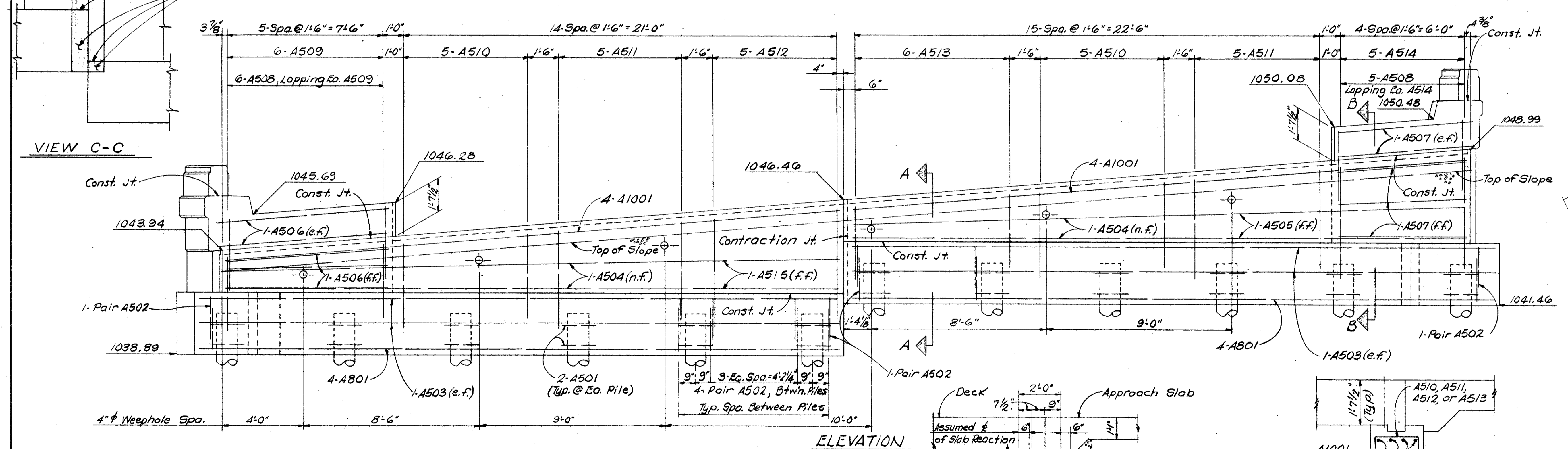
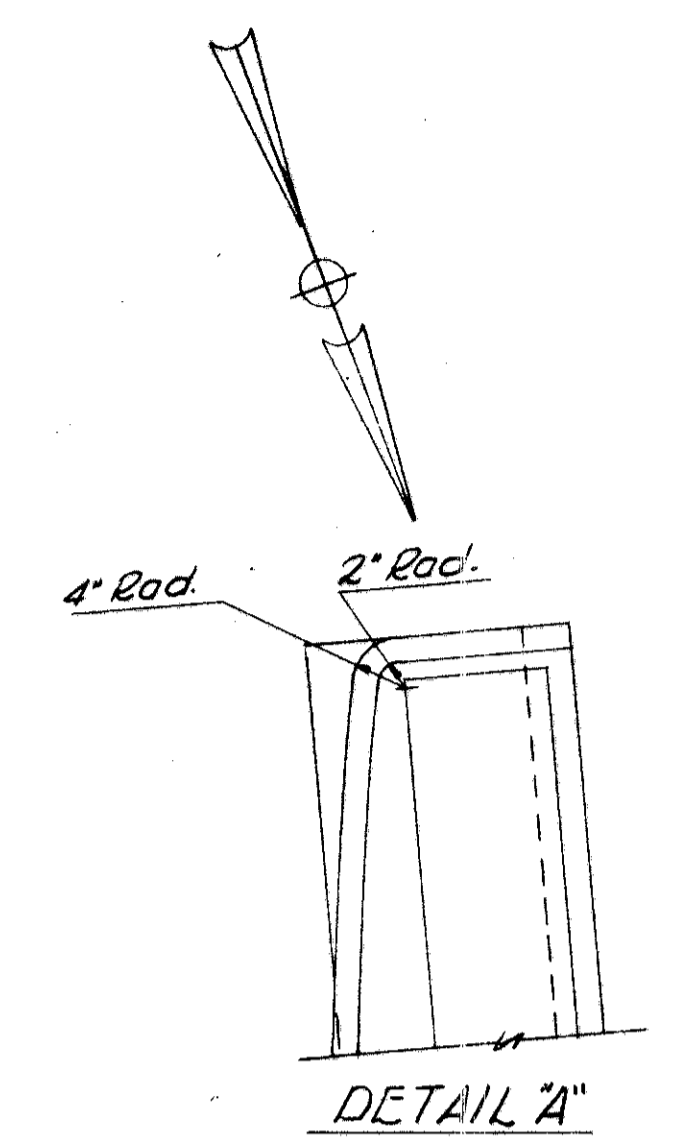
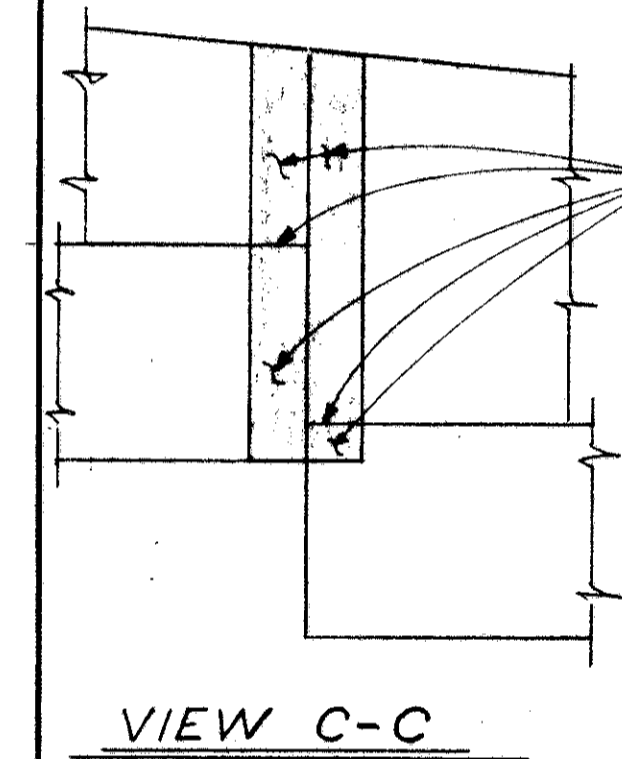
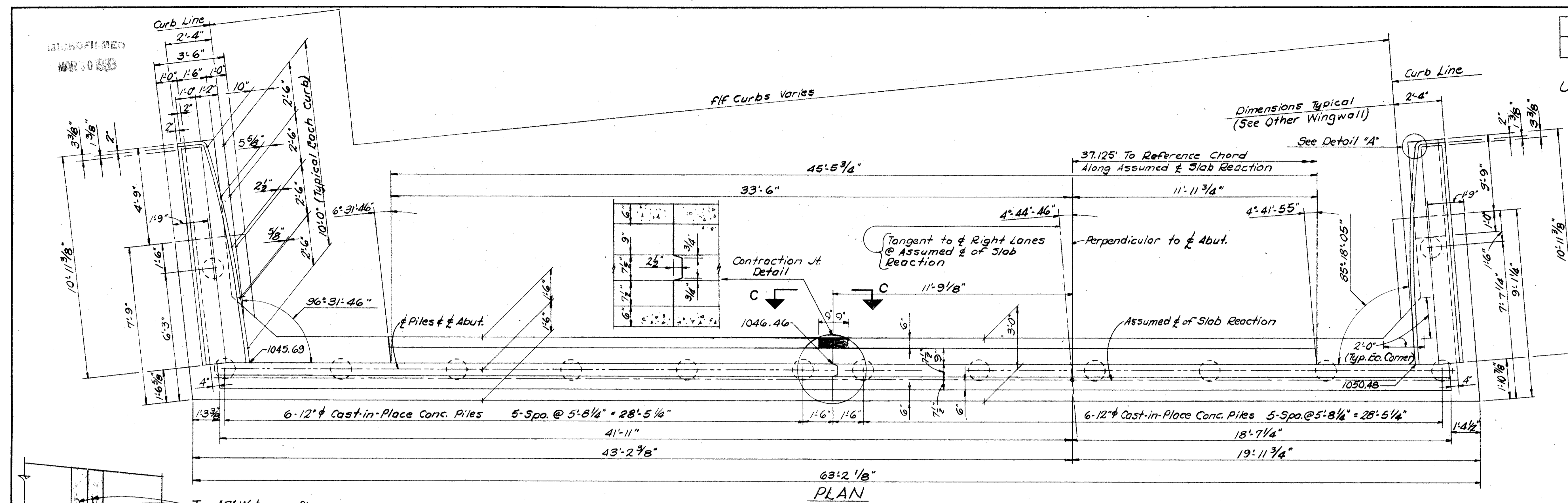
BARRETT ASSOCIATED ENGINEERS, LIMITED
1500 W. FIRST AVE. COLUMBUS 12, OHIO

**FORWARD ABUTMENT DETAILS
BRIDGE No UNI-33-0858 R
OVER EXISTING US-33
UNION COUNTY**

STA. 459+09.89 to STA. 460+73.39

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
HM	JWK		HM			

UNI-33-7.97



LEGEND
 (n.f.) denotes Near Face
 (f.f.) denotes Far Face
 (e.f.) denotes Each Face

NOTE
 POROUS BACKFILL shall extend upward to the Approach Slab and to the surface of the shoulders, and outward to the wingwalls. Excavation therefor, in excess of that required for construction of the Abutment, shall be considered as paid for in the bid price per cubic yard paid for Porous Backfill.

For Conduit, Refer to Roadway Drawing 444.

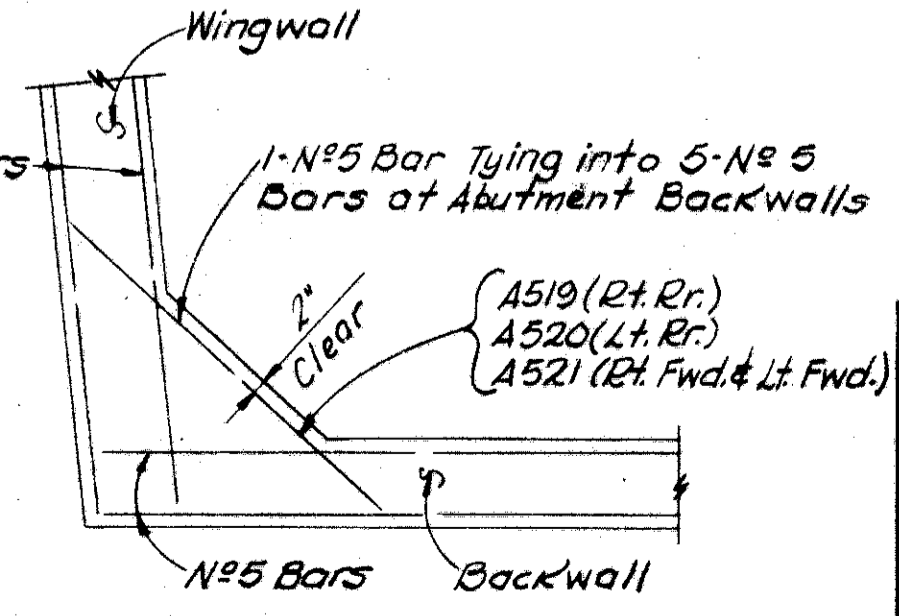
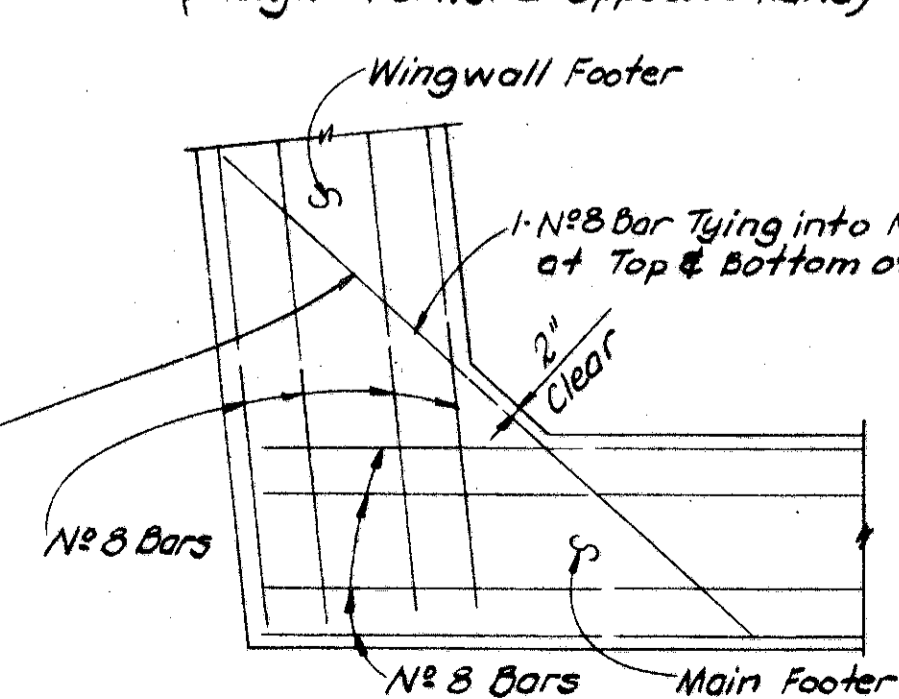
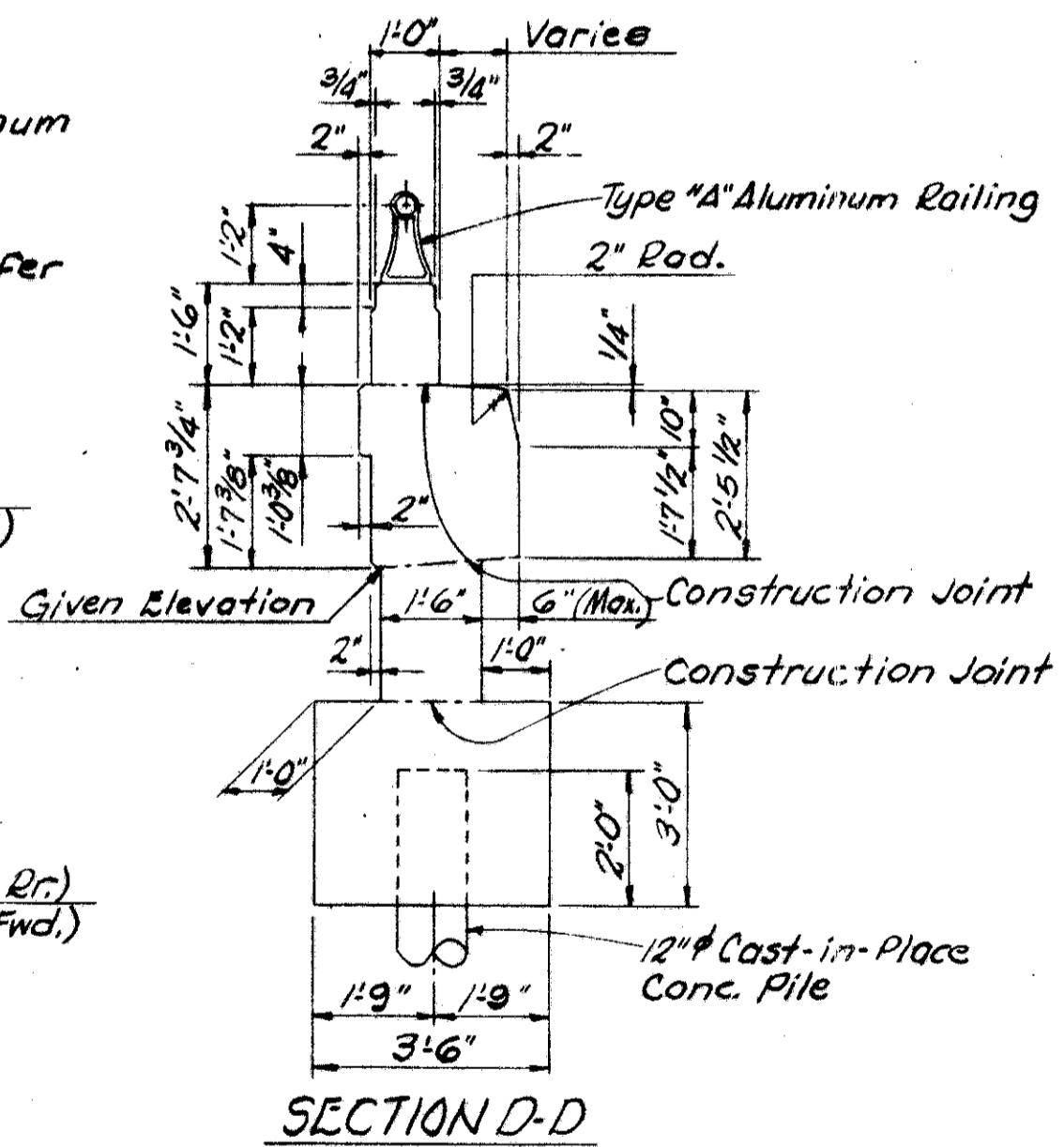
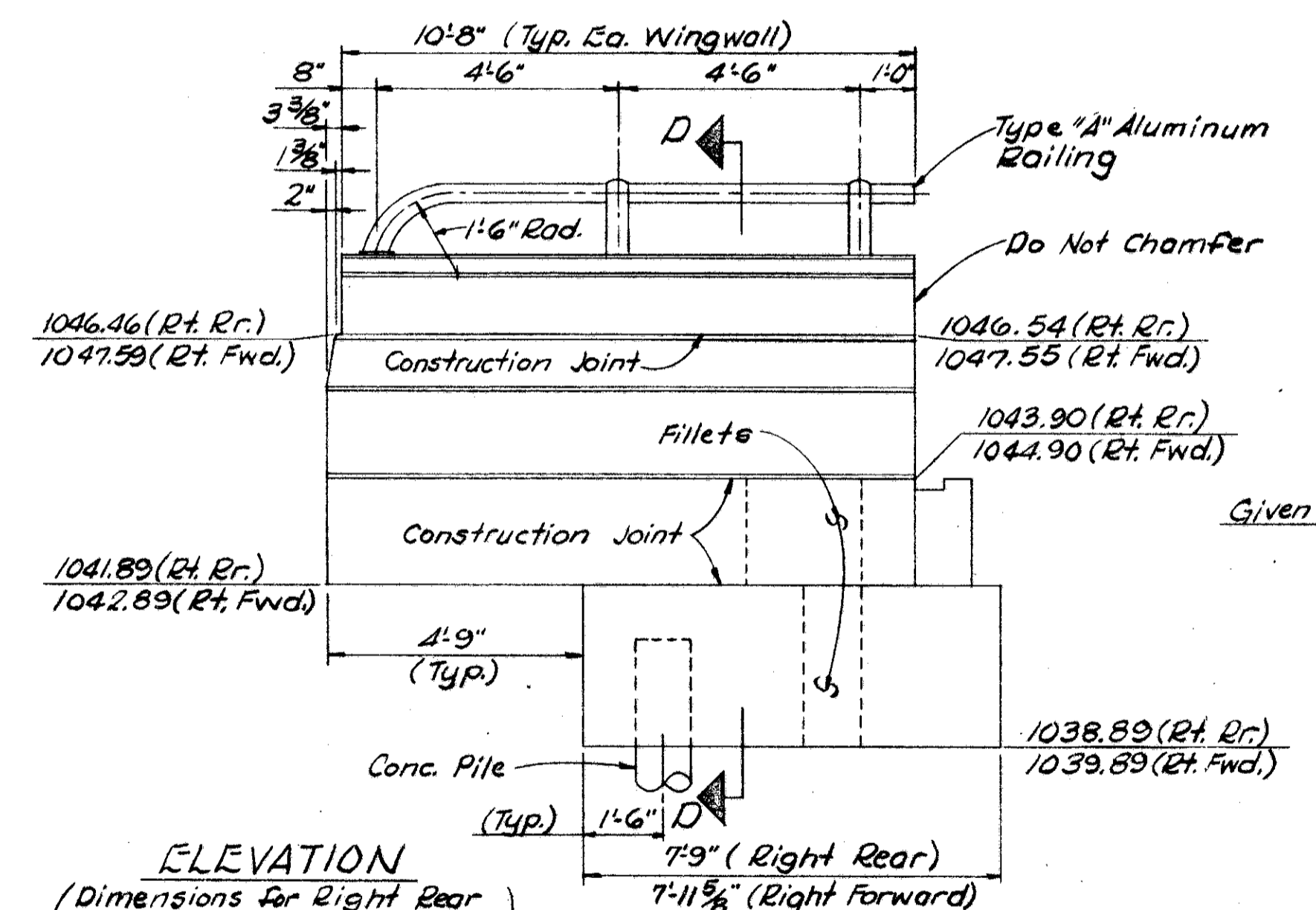
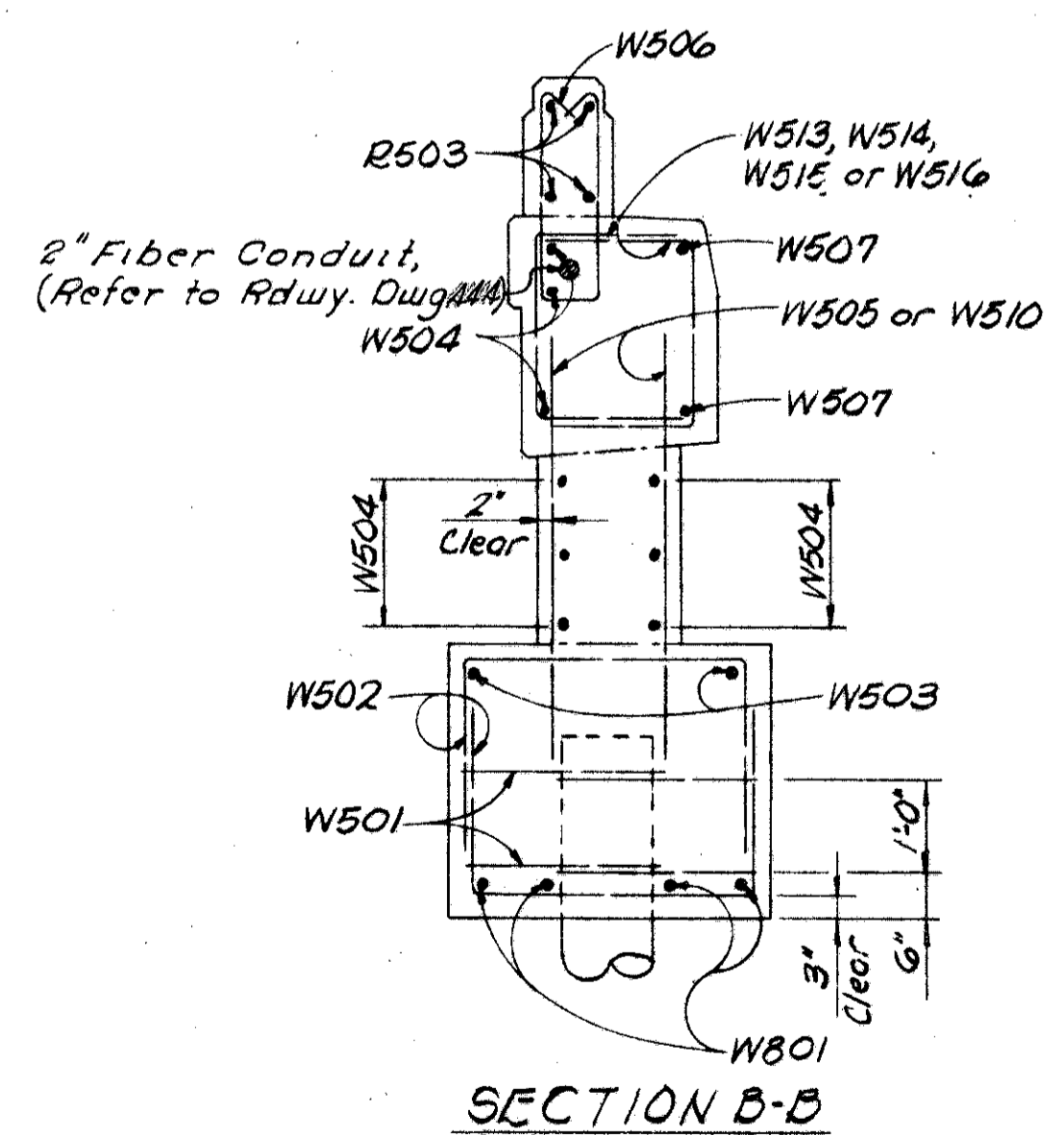
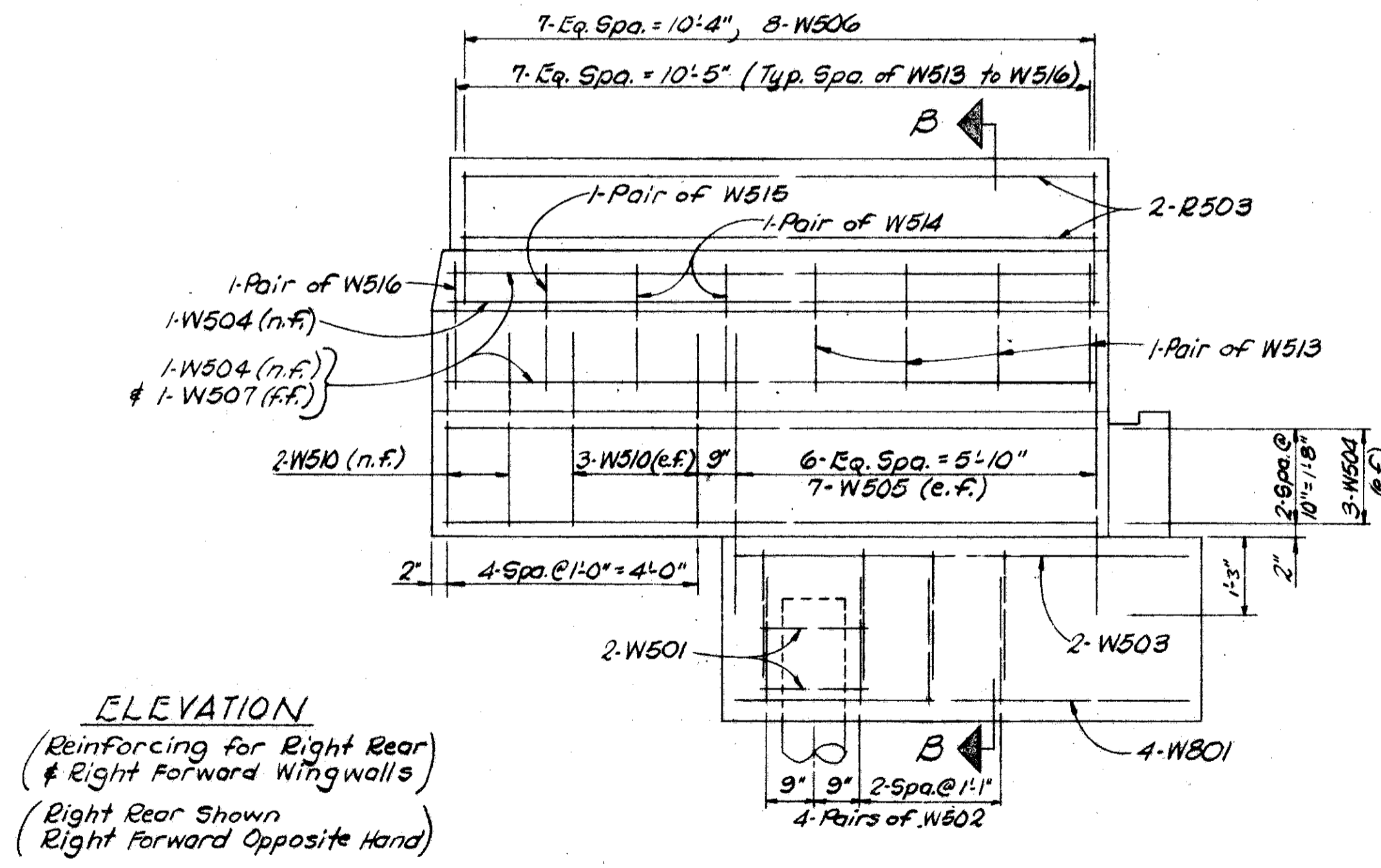
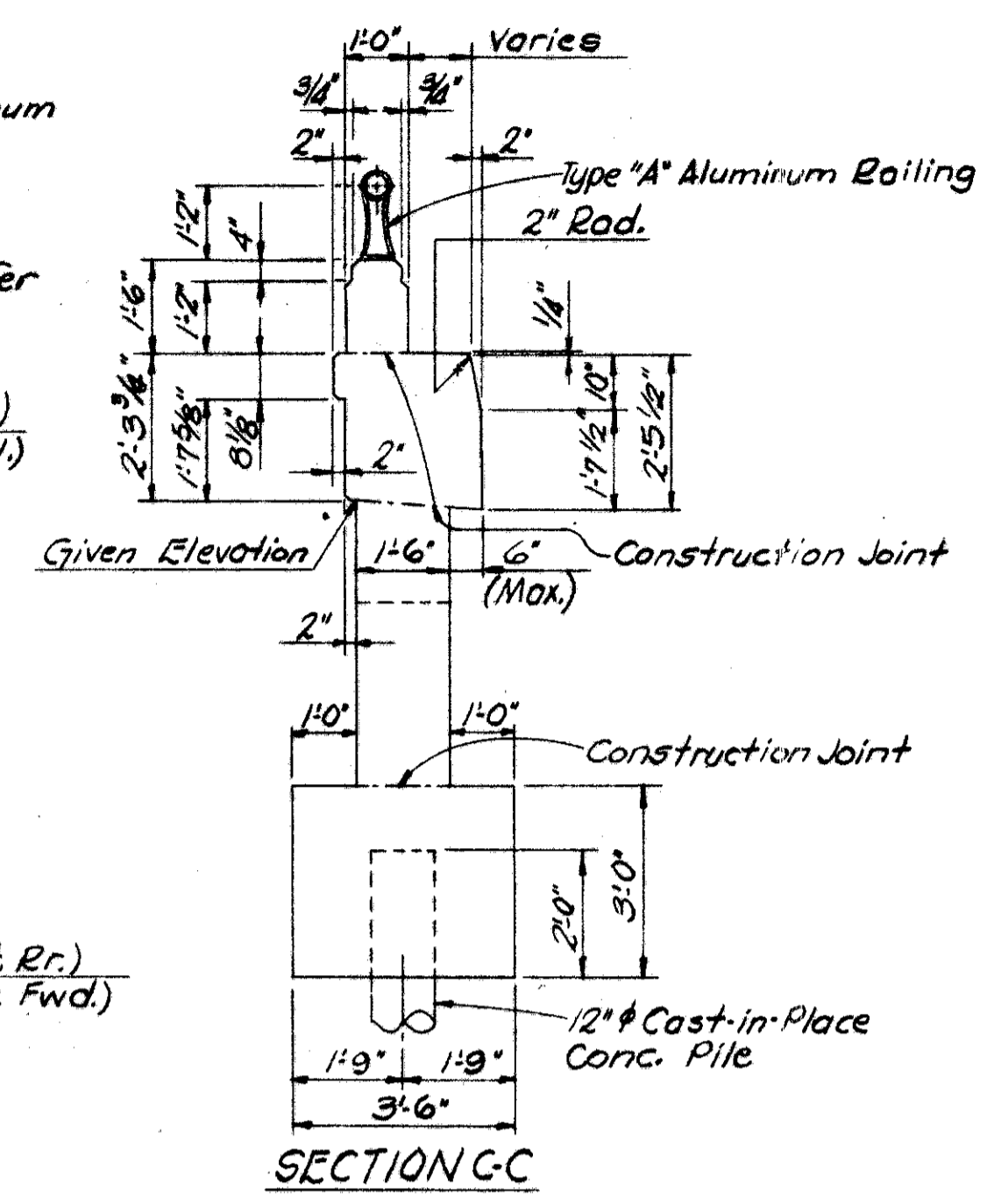
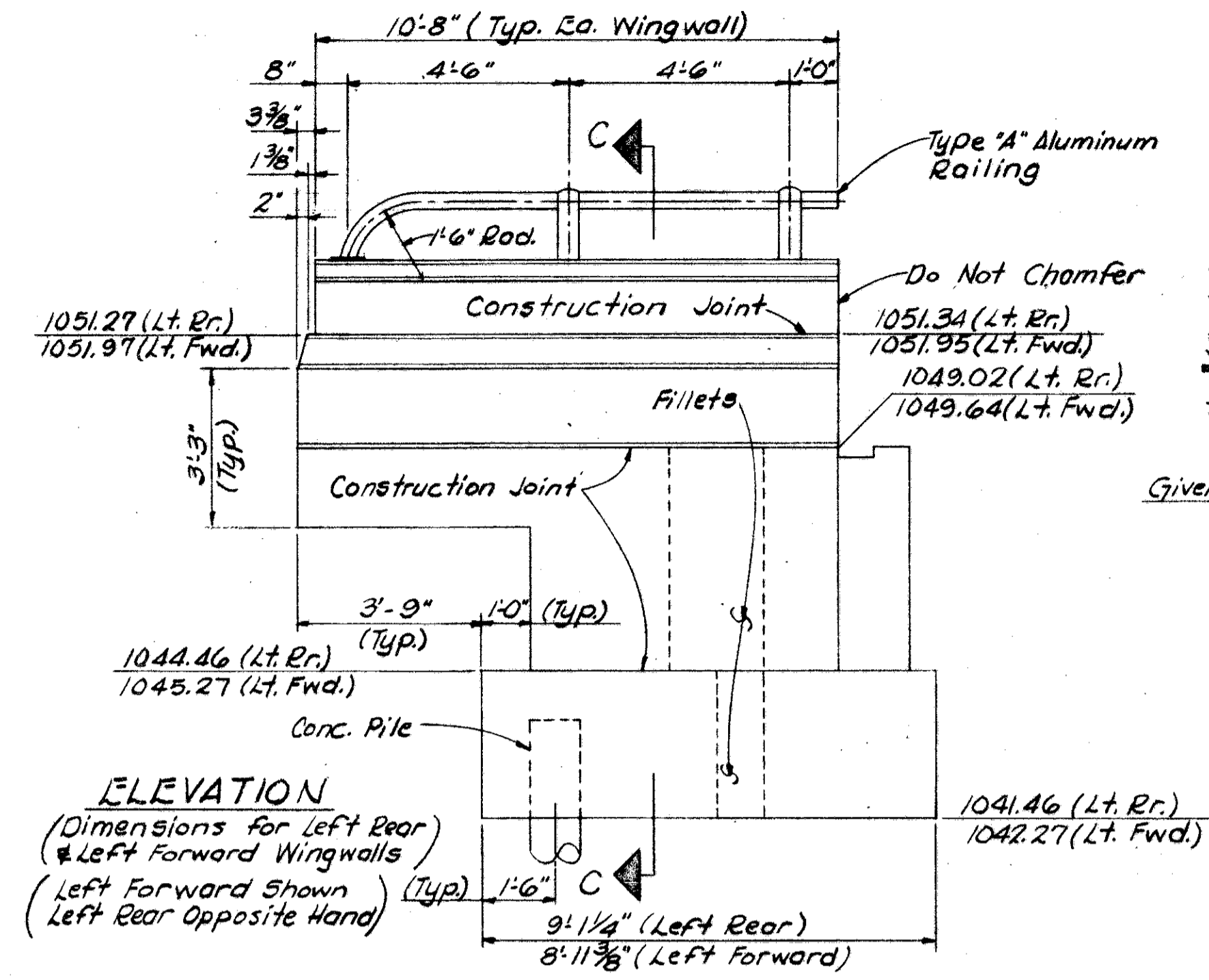
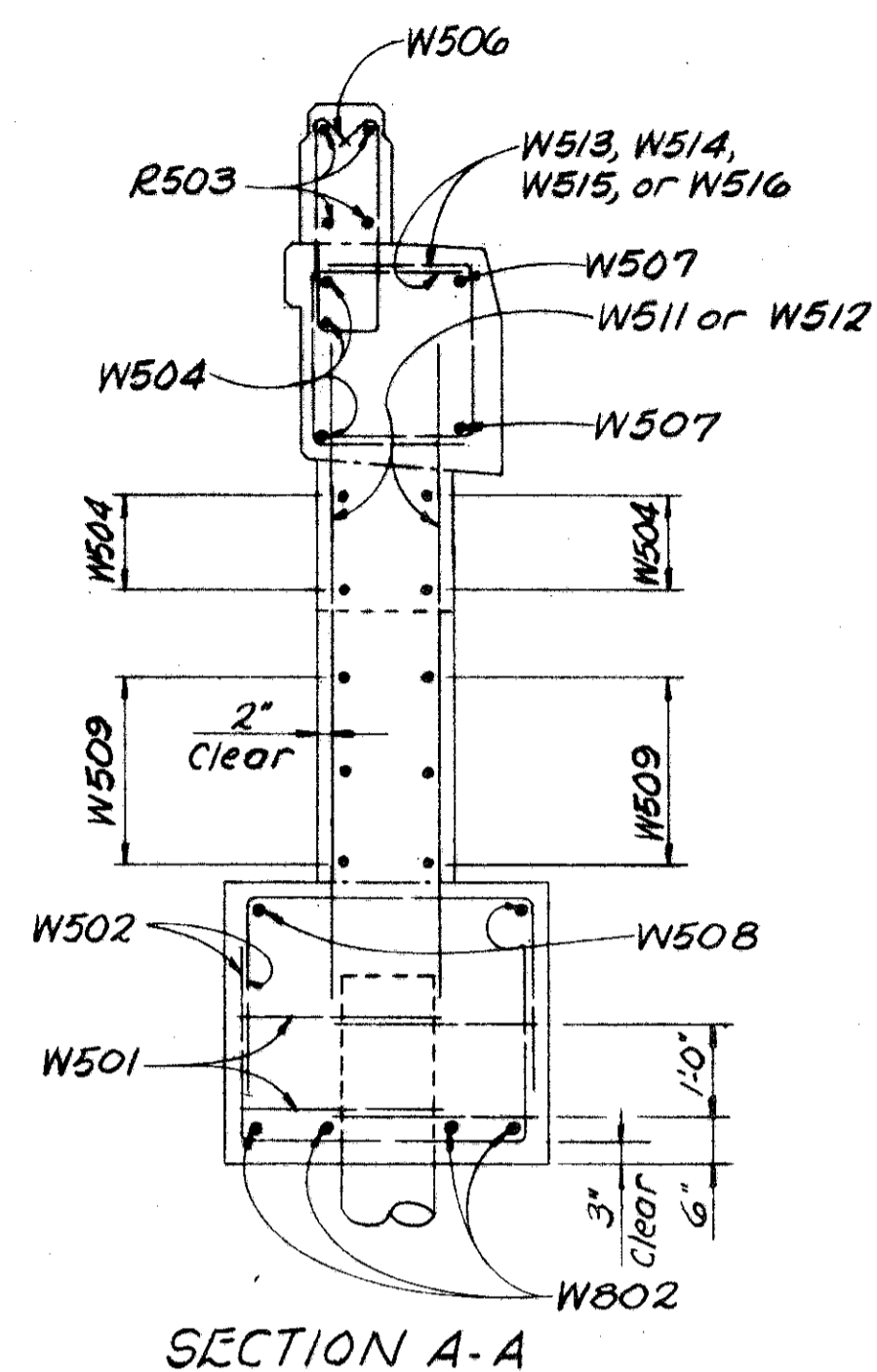
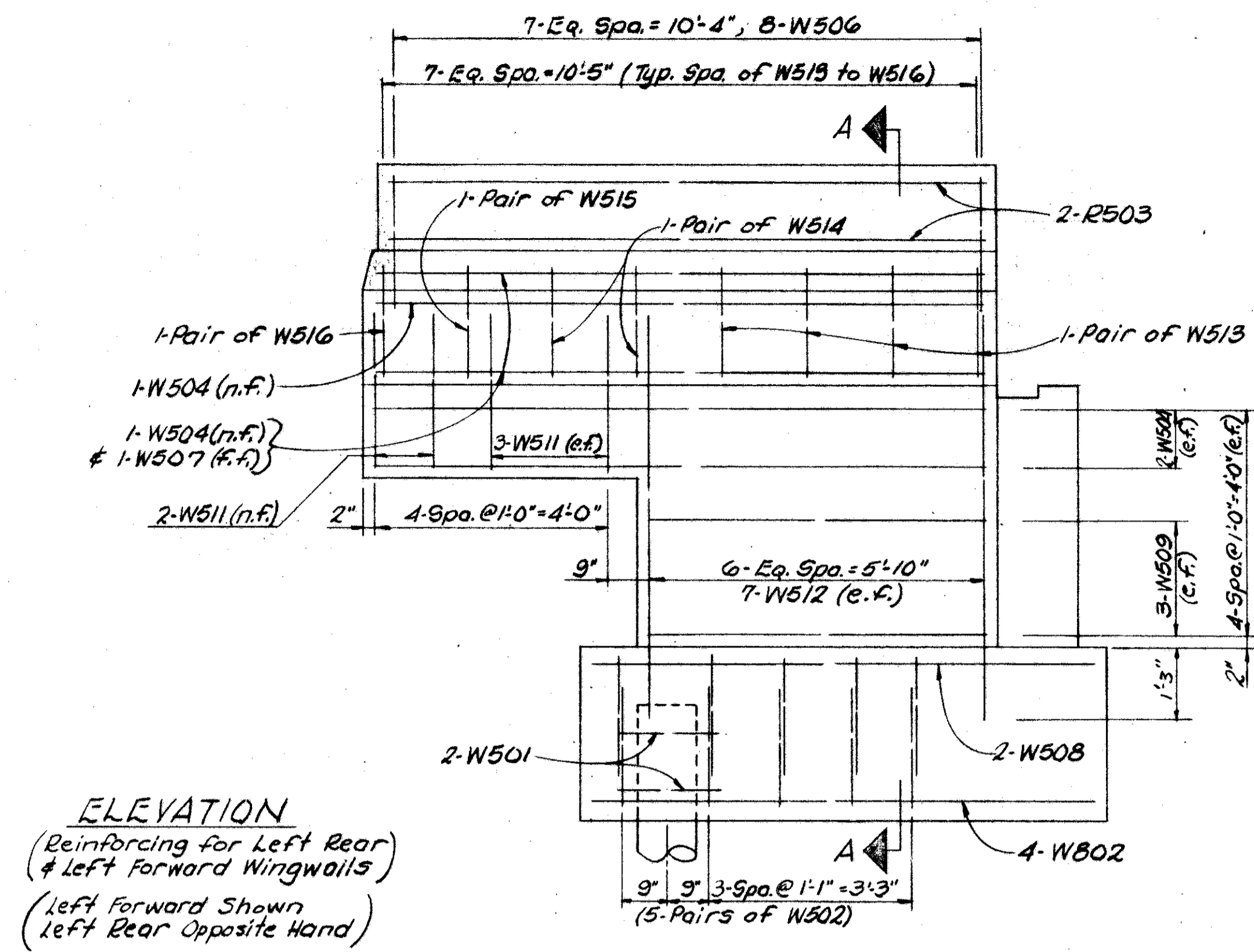
BARRETT ASSOCIATED ENGINEERS, LIMITED
 1500 W. FIRST AVE. COLUMBUS 12, OHIO

REAR ABUTMENT DETAILS
 BRIDGE NO UNI-33-0858 R
 OVER EXISTING U.S. 33
 UNION COUNTY

STA. 459+09.89 to STA. 460+73.39

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
HM	JWK		HM			

UNI-33-7.97



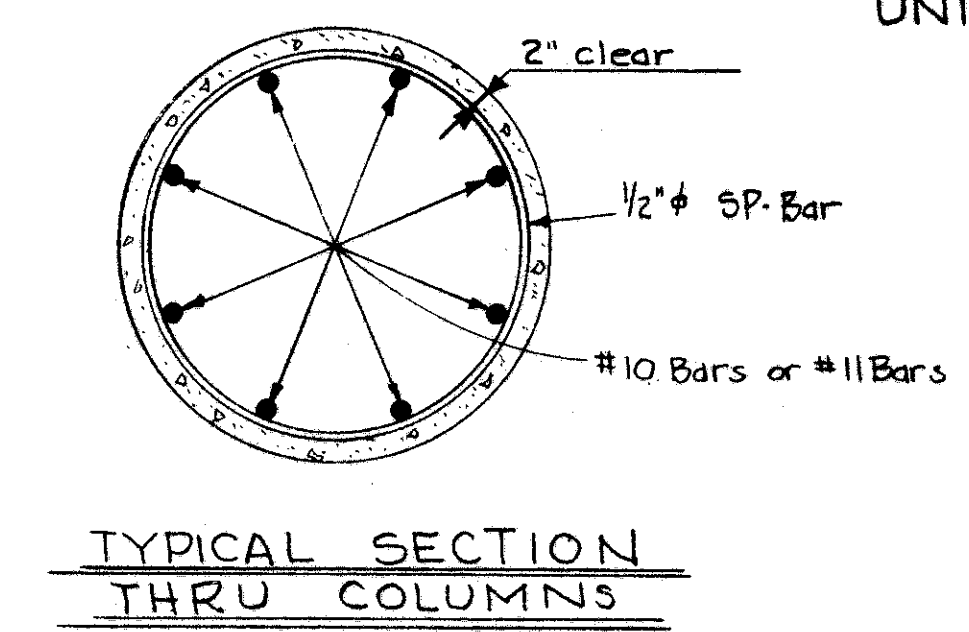
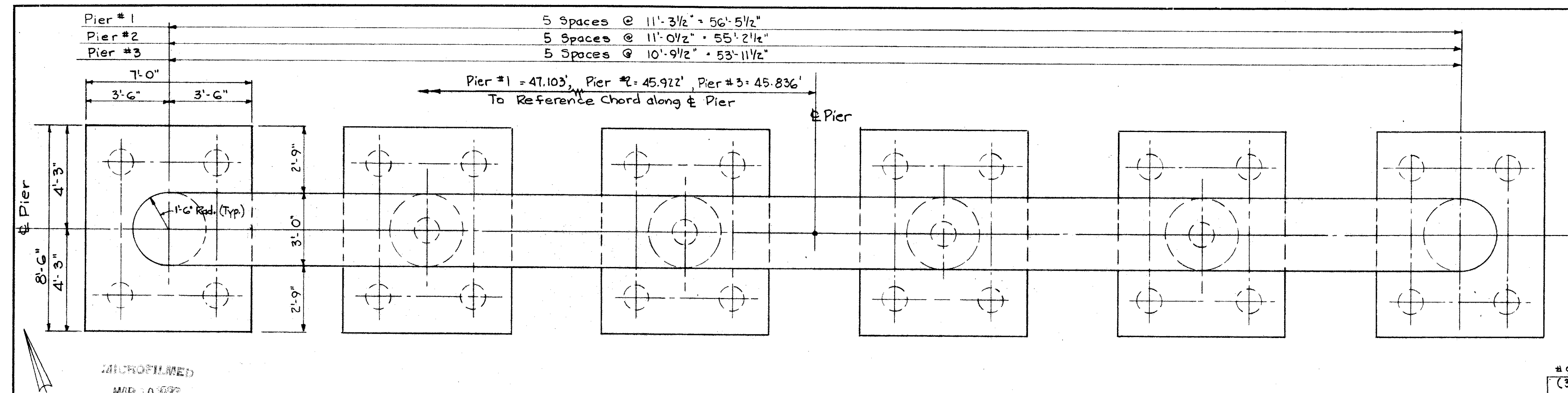
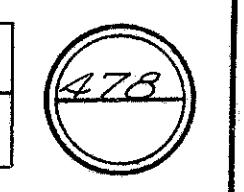
LEGEND
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1500 W. FIRST AVE. COLUMBUS 12, OHIO

FORWARD AND REAR WINGWALL DETAILS
BRIDGE N° UNI-33-0858 R
OVER EXISTING US-33

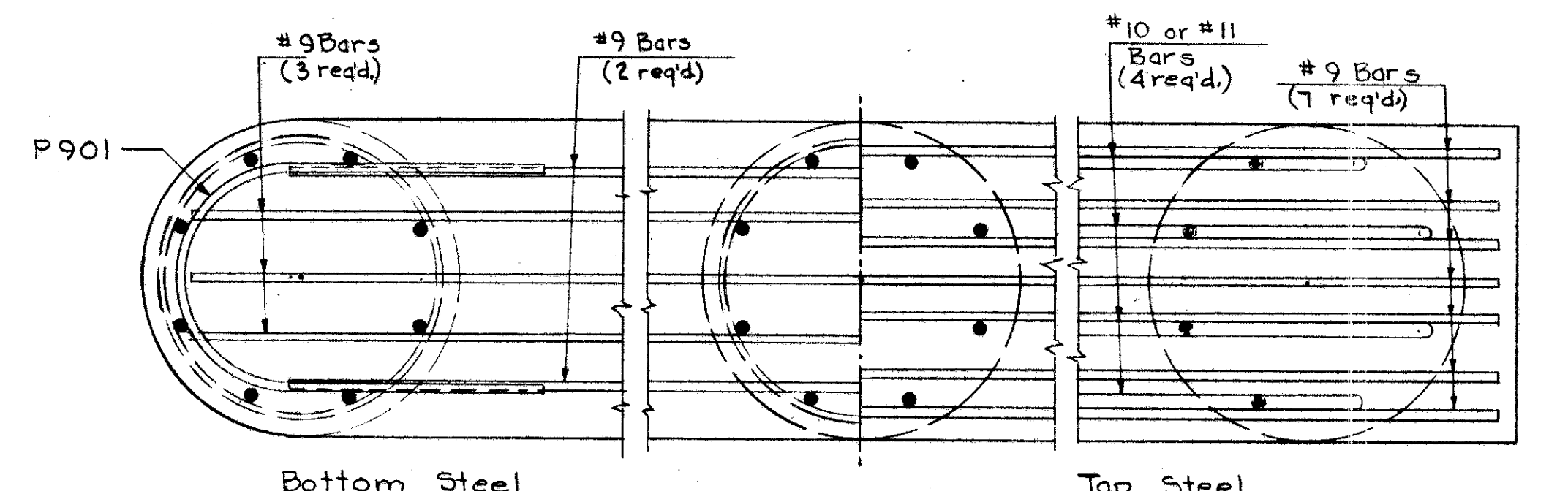
UNION COUNTY
STA. 459+09.89 to STA. 460+73.39

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
HM	JWK		HM			

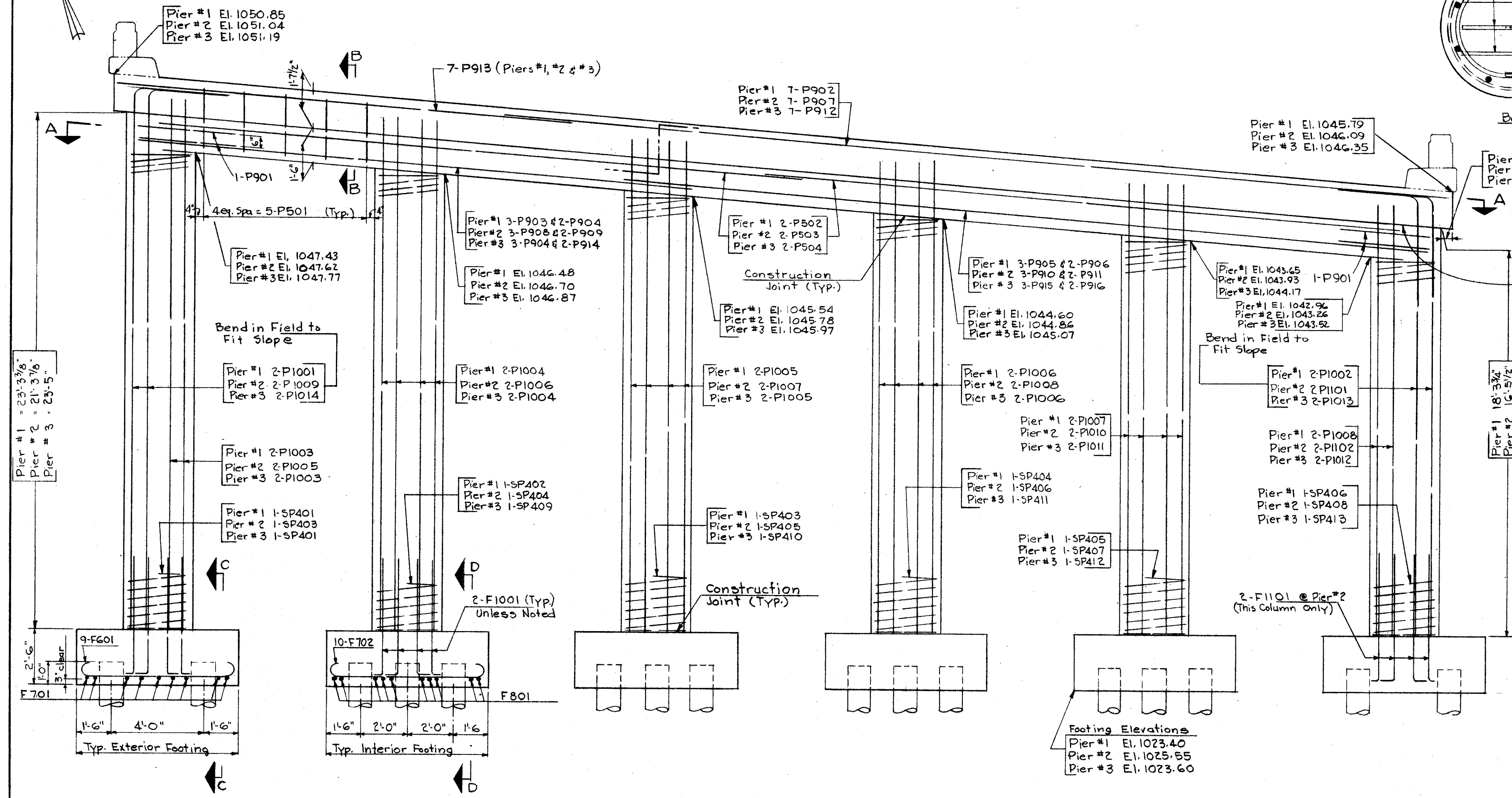


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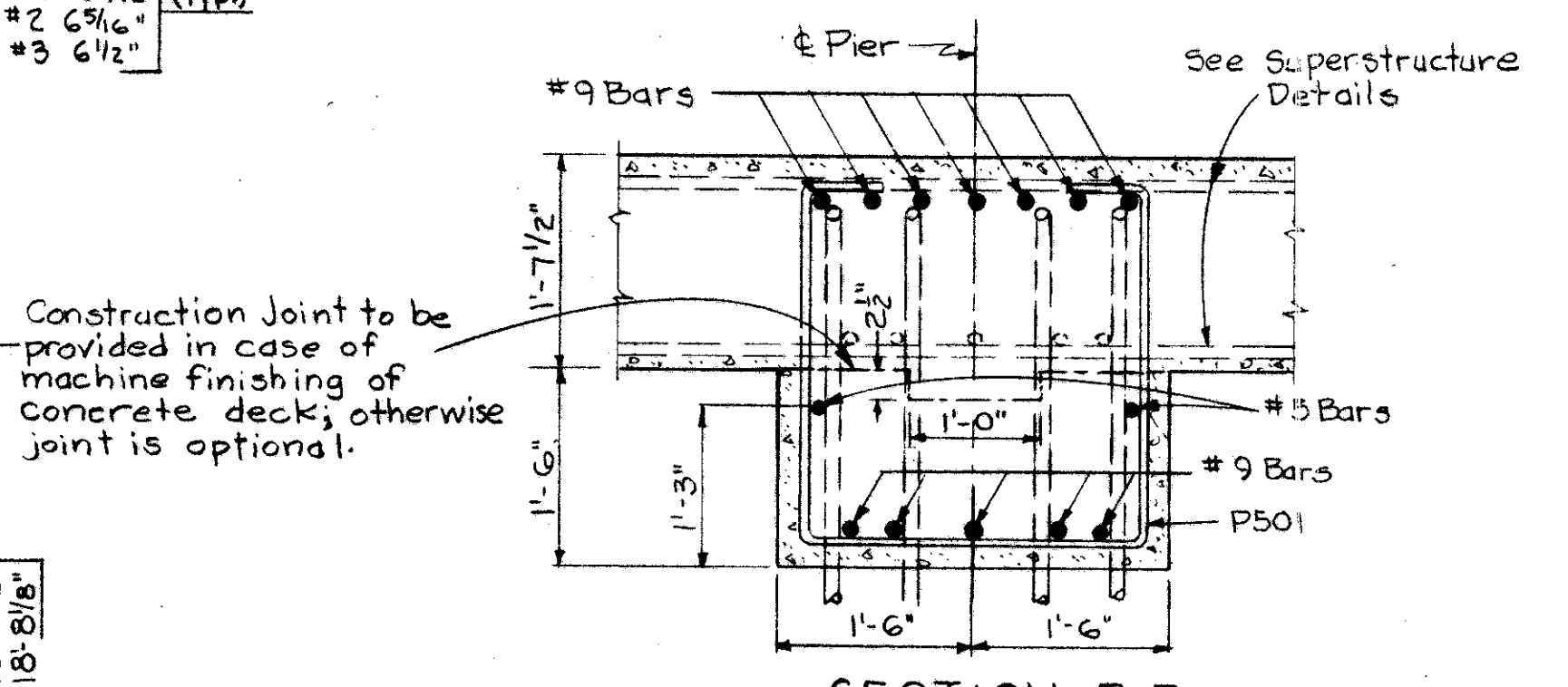
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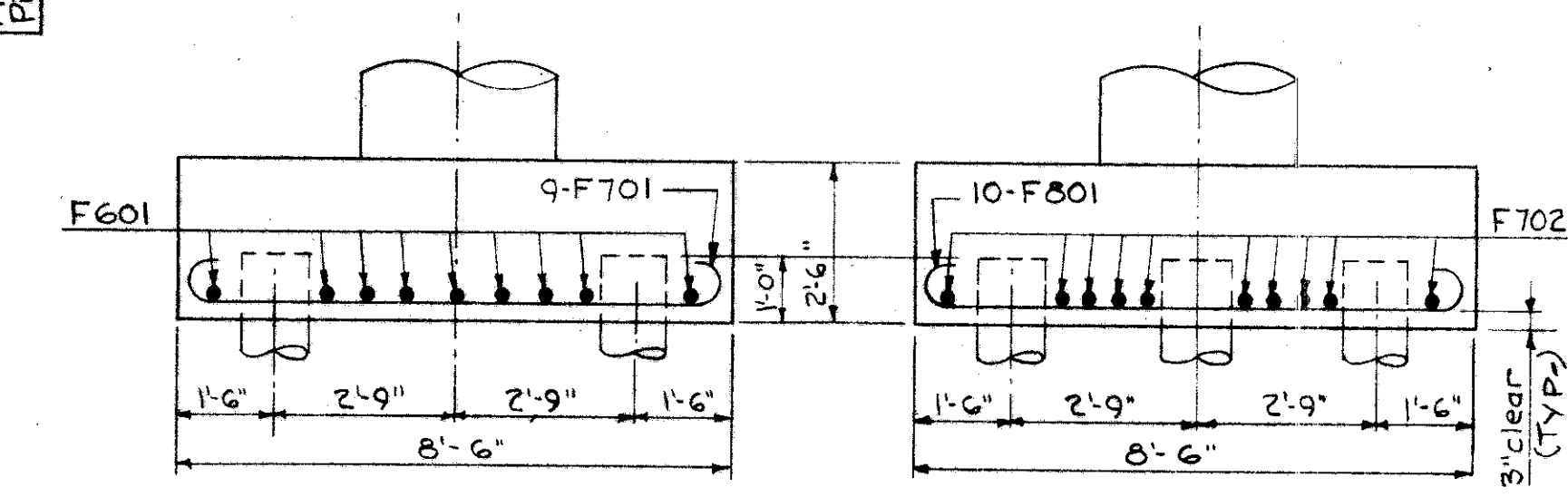
SECTION A-A



ELEVATION



SECTION B-B



SECTION C-C
(Typ. Exterior Footing)

SECTION D-D
(Typ. Interior Footing)

Footings Elevations
Pier #1 El. 1023.40
Pier #2 El. 1023.55
Pier #3 El. 1023.60

BARRETT ASSOCIATED ENGINEERS, LIMITED
1500 W. FIRST AVE. COLUMBUS 12, OHIO

PIER DETAILS
BRIDGE No UNI-33-0858 R
OVER EXISTING U.S. 33
UNION COUNTY

Sta. 459+08.89 to Sta. 460+73.39

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
HM	R.H.B.		HM			