

# STATE OF OHIO DEPARTMENT OF HIGHWAYS

I-70-2(7)G1

FED. RD. DIVISION	STATE	PROJECT	1 277
2	OHIO	I-70-2(7)G1	

**CLARK COUNTY**  
**CLA-70-20.84**

## CLA-70-20.84 CLARK COUNTY HARMONY TOWNSHIP VILLAGE OF VIENNA

**CONVENTIONAL SIGNS**

COUNTY LINE	-----
TOWNSHIP LINE	-----
SECTION LINE	-----
CORPORATION LINE	-----
PROPERTY LINE	-----
FENCE LINE	-----
CENTER LINE	-----
POLE LINE	-----
RAILROAD	-----
HEDGE	-----
DRAIN PIPE (NEW)	-----
DRAIN PIPE (OLD)	-----
GUARD RAIL (NEW)	-----
GUARD RAIL (OLD)	-----
TREES & STUMPS TO BE REMOVED	-----
R/W WITH LIMITED ACCESS	-----
EXISTING RIGHT OF WAY	-----
WORK LIMITS	-----
R/W WITHOUT LIMITED ACCESS	-----

**LINE DATA**

BEGIN WORK STATION	1104+08.00
BEGIN PROJECT STATION	1104+77.59
END PROJECT STATION	1331+75.00
END WORK STATION	1333+15.00

Add for Existing U.S.R. 40 STA. 1008+53 TO STA. 1032+00 = 2347.00 Lin. Ft.  
 Add for Bowman Road (Co. Rd. #365) STA. 22+25 TO STA. 38+75 = 1650.00 Lin. Ft.  
 Add for Buena Vista Road (Co. Rd. #92) STA. 14+00 TO STA. 24+00 = 1000.00 Lin. Ft.  
 Add for S.R. 54 STA. 288+00 TO STA. 313+00 = 2500.00 Lin. Ft.  
 NET LENGTH OF PROJECT 22,697.41 LIN. FT. or 4.298 MILES  
 NET LENGTH OF WORK 30,404.00 LIN. FT. or 5.758 MILES

Sheet No. 213 revised 8-2-68 EBL  
 Sheet Nos. 220 & 221 revised 8-2-68 EBL  
 Sheet No. 231 revised 8-13-68 EBL  
 Sheet No. 231 revised 11-6-68 EBL  
 Sheet No. 250 rev. 11-19-68

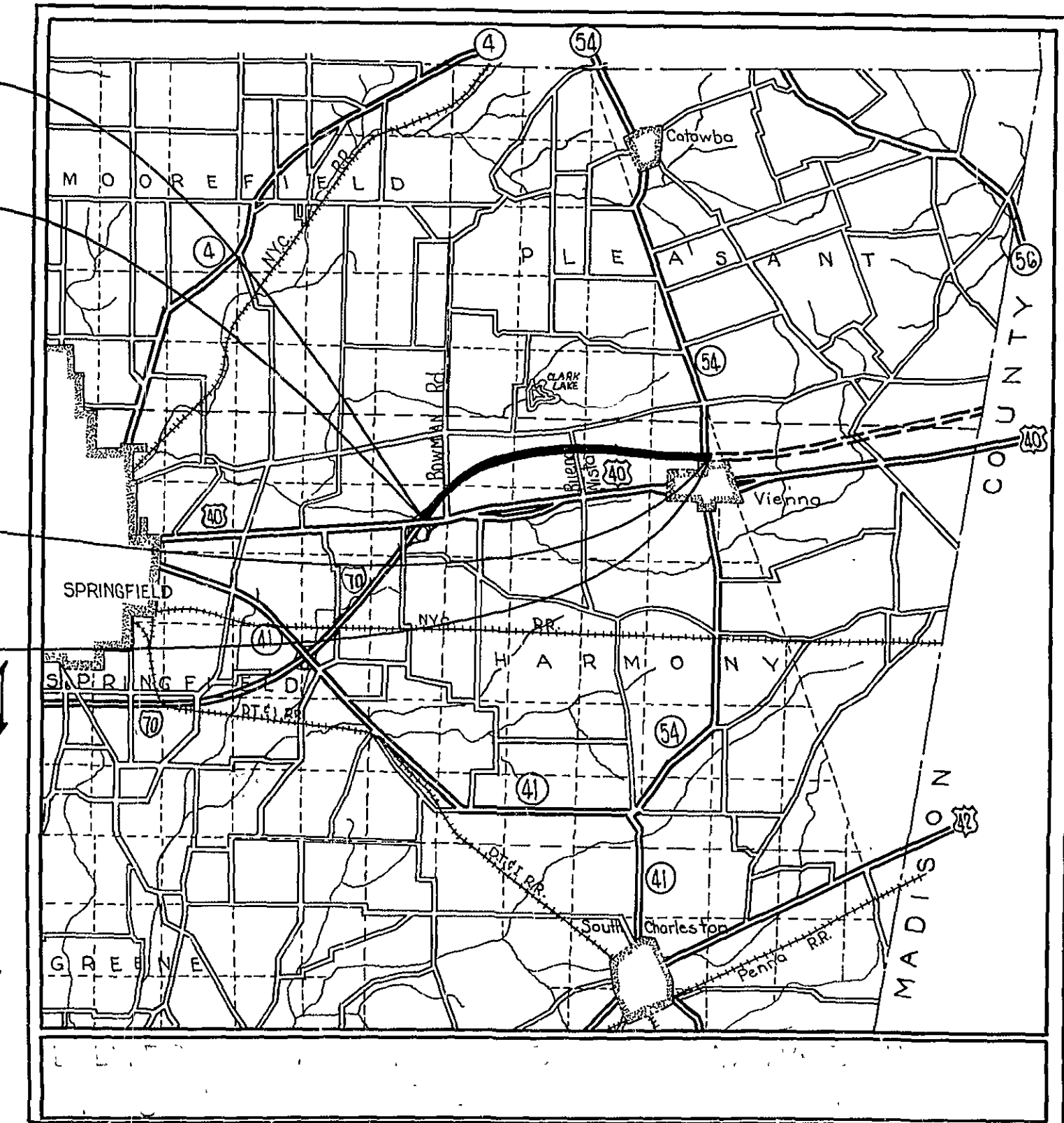
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\* Including 255A

BEGIN PROJECT  
STA. 1104+77.59  
SLM 20.84

END PROJECT  
STA. 1331+75  
SLM 25.14



**LOCATION MAP**

IMPROVED UNDER SEPARATE CONTRACT  
 PORTION TO BE IMPROVED  
 STATE HIGHWAYS  
 OTHER ROADS  
 DETOUR (See Sht. 10)

**SCALES**

PLAN -----  
 PROFILE HORIZONTAL -----  
 PROFILE VERTICAL -----  
 CROSS SECTIONS -----

**SUPPLEMENTAL SPECIFICATIONS**

N <sup>o</sup>	DATE	N <sup>o</sup>	DATE
801	1-1-67	832	5-25-67
808	1-13-67	831	5-25-67
811	1-1-67	806	3-1-68
815	1-1-67		
816	8-6-65		
825	12-12-67		
1001	3-21-66		
828	1-1-67		

\* LIMITED ACCESS \*  
 THIS IMPROVEMENT IS ESPECIALLY DESIGNED FOR THROUGH TRAFFIC AND HAS BEEN DECLARED A LIMITED ACCESS HIGHWAY OR FREEWAY BY ACTION OF THE DIRECTOR OF HIGHWAYS IN ACCORDANCE WITH THE PROVISIONS OF SEC. 5511.02 OF THE REVISED CODE OF OHIO.

1975  
 THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF HIGHWAYS, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

THE RIGHT OF WAY NECESSARY FOR THIS IMPROVEMENT WILL BE PROVIDED BY THE STATE OF OHIO.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING OF THE HIGHWAY TO TRAFFIC AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE SET FORTH ON THE PLANS AND ESTIMATES.

- APPROVED DATE 7-6-67 Oscar M. Lewis DIVISION DEPUTY DIRECTOR
- APPROVED DATE 4-5-68 C. H. Allwater ENGINEER OF BRIDGES
- APPROVED DATE 4-5-68 R. E. Gattler ENGINEER OF LOCATION & DESIGN
- APPROVED DATE 4-8-68 R. E. Shultz DEPUTY DIRECTOR OF DESIGN & CONSTRUCTION
- APPROVED DATE 4-15-68 T. H. Board DEPUTY DIRECTOR OF RIGHT OF WAY
- APPROVED DATE 4-15-68 Thomas M. Major DEPUTY DIRECTOR OF PLANNING & PROGRAMMING
- APPROVED DATE 4-15-68 E. W. Wilcox FIRST ASSISTANT DIRECTOR
- APPROVED DATE 4-15-68 P. S. Macklin DIRECTOR OF HIGHWAYS

STANDARD DRAWINGS		STANDARD DRAWINGS	
N <sup>o</sup>	DATE	N <sup>o</sup>	DATE
BP-1	6-1-65	GR-1	1-1-67
BP-2	1-17-68	GR-2B	2-15-68
BP-3	1-10-67	GR-5B	6-1-65
BP-4	1-10-67	GR-C	6-1-65
BP-5	6-1-65	HL-3	11-1-65
BP-6	6-1-65	HW-E	6-1-65
BP-7	1-1-66	HL-4	1-1-66
FACT-1	9-15-67	CB-2A&B	6-1-65
FACT-2	6-1-65	CB-4	6-1-65
MC-1	10-1-67	F-5	2-20-68
HL-1	11-1-65	CB-6	6-1-65
MC-3	5-1-66	F-6	10-1-66
MC-4	6-1-65	F-1	6-1-65
HL-2	11-1-65	F-2	6-1-65
MC-6	6-1-65	F-3	2-20-68
MC-7	3-1-66	L-1	6-1-65

**DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
BUREAU OF PUBLIC ROADS**

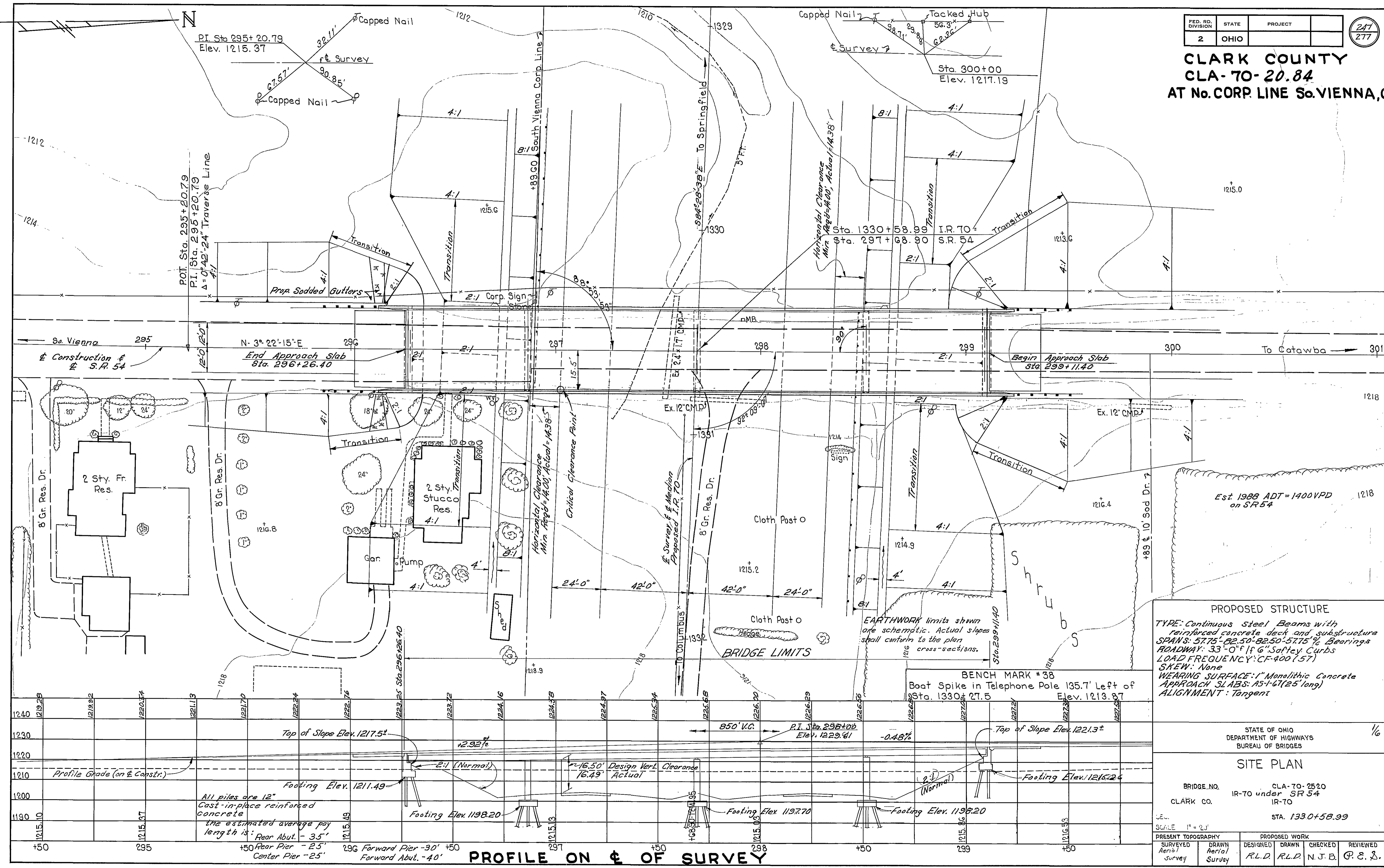
APPROVED \_\_\_\_\_ DATE \_\_\_\_\_

DIVISION ENGINEER \_\_\_\_\_ DATE \_\_\_\_\_

FILE NUMBER	CLARK COUNTY	CLA-70-20.84
DATE OF LETTING	_____	
CONTRACT N <sup>o</sup>	_____	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		247 277

**CLARK COUNTY**  
**CLA-70-20.84**  
**AT No. CORP. LINE So. VIENNA, O.**



Approach Pavement: Type T-35, 24" thick, with 5 and 10' beams

**PROPOSED STRUCTURE**  
 TYPE: Continuous Steel Beams with reinforced concrete deck and substructure  
 SPANS: 57.75'-82.50'-82.50'-57.75' % Bearings  
 ROADWAY: 33'-0" f 6" Safety Curbs  
 LOAD FREQUENCY: CF-400 (57)  
 SKEW: None  
 WEARING SURFACE: 1" Monolithic Concrete  
 APPROACH SLABS: A5-1-67(25' long)  
 ALIGNMENT: Tangent

**BENCH MARK #38**  
 Boat Spike in Telephone Pole 135.7' Left of Sta. 1330+27.5 Elev. 1213.87

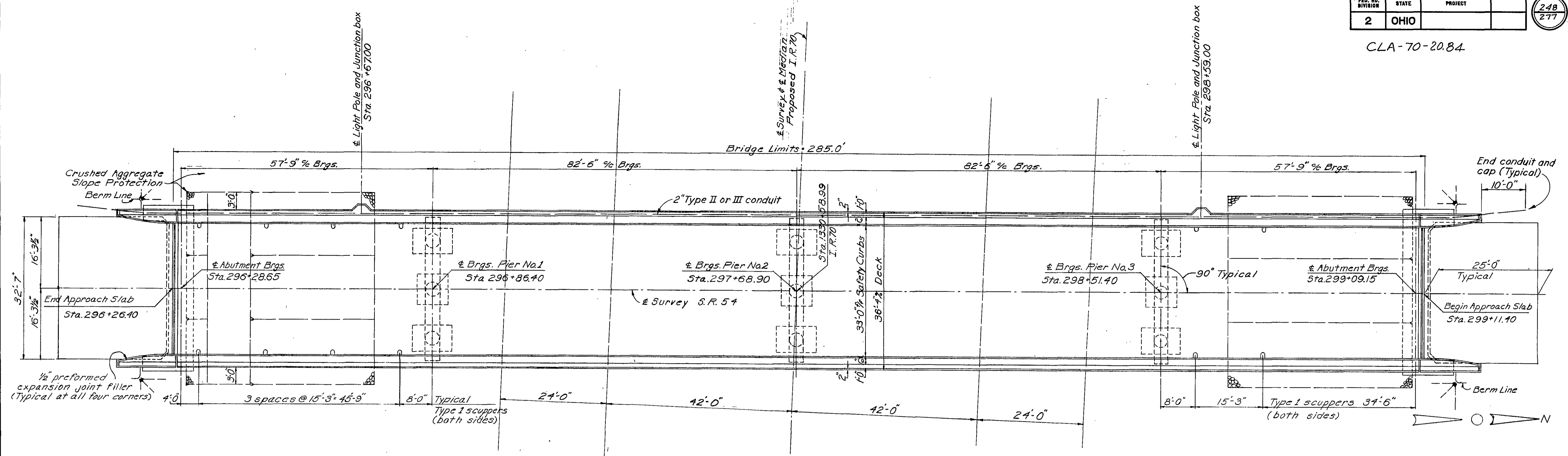
STATE OF OHIO  
 DEPARTMENT OF HIGHWAYS  
 BUREAU OF BRIDGES

**SITE PLAN**  
 BRIDGE NO. CLARK CO. IR-70 under SR 54  
 STA. 1330+58.99

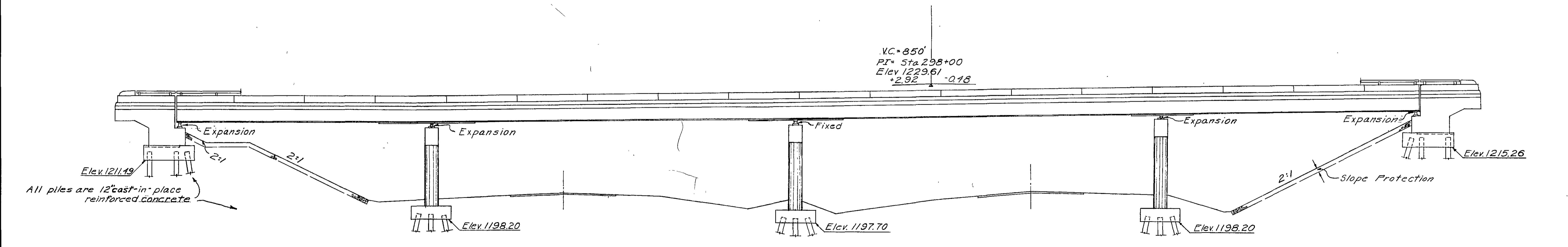
PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED Aerial Survey	DRAWN Aerial Survey	DESIGNED R.L.D.	DRAWN R.L.D.	CHECKED N.J.B.	REVIEWED P.E.S.

**PROFILE ON & OF SURVEY**

CLA-70-20.84



PLAN



ELEVATION

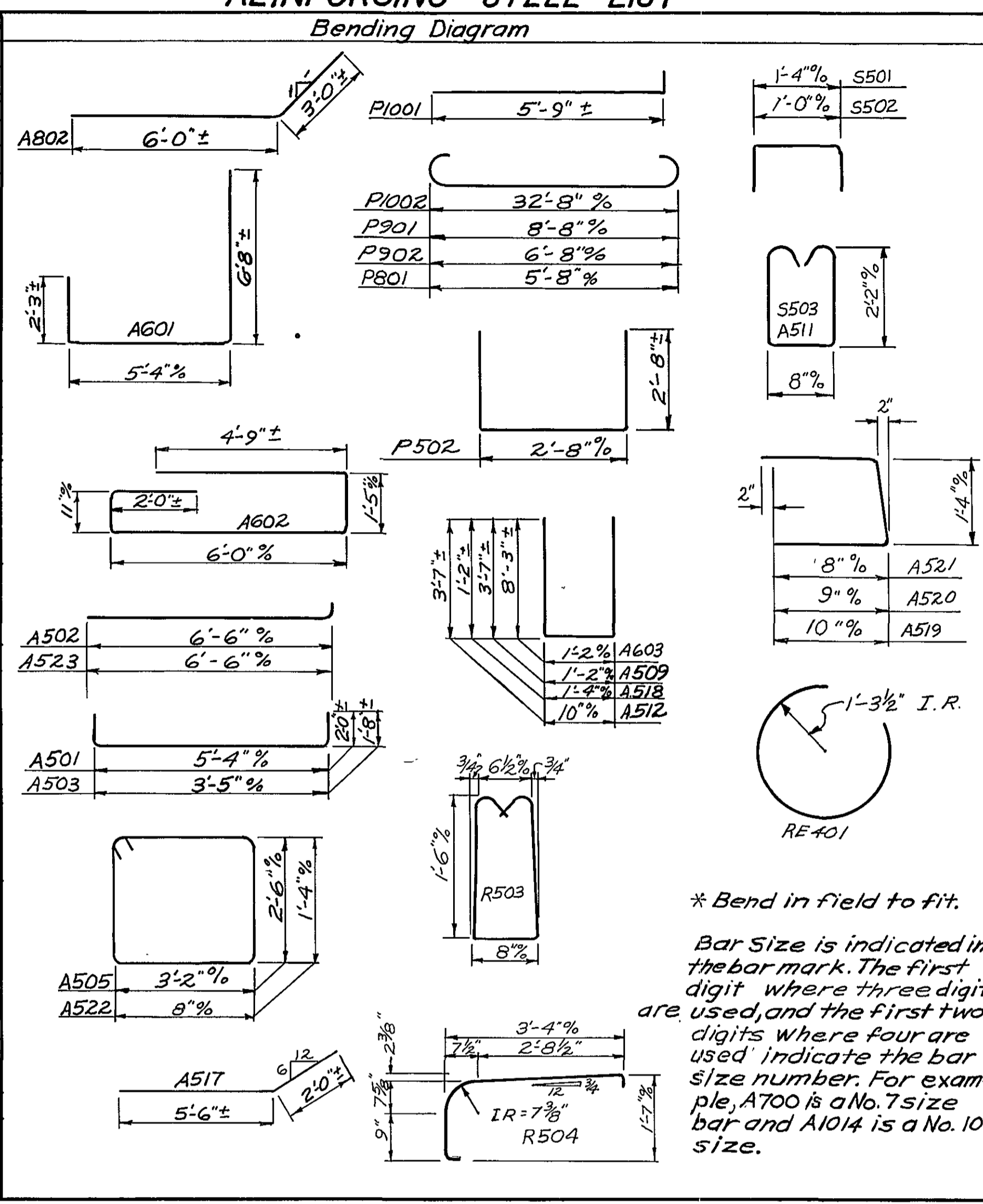
STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						
GENERAL PLAN & ELEVATION BRIDGE NO. CLA-70-2520 I.R.-70 under S.R. 54						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
C.R.G.	C.R.G.		MPB	BFG		

CLA-70-20.84

249  
277

### REINFORCING STEEL LIST

Mark	No.	Length	Weight	Shp
<b>Abutments</b>				
A801	14	37'-4"	1396	S
A802	8	9'-0"	192	B
A803	16	11'-0"	470	S
A601	48	13'-11"	1003	B
A602	62	14'-5"	1343	B
A603	20	17'-4"	521	B
A501	64	9'-1"	606	B
A502	56	7'-0"	409	B
A503	56	6'-6"	380	B
A504	28	35'-4"	1032	S
A505	28	11'-9"	343	B
A506	24	8'-2"	204	S
A507	8	7'-4"	61	S
A508	36	13'-8"	513	S
A509	16	8'-1"	135	B
A510	40	5'-1"	212	S
A511	44	5'-7"	256	B
A512	4	7'-9"	32	B
A517	8	7'-6"	63	B
A518	28	3'-5"	100	B
A519	12	2'-9"	34	B
A520	8	2'-7"	22	B
A521	8	2'-5"	20	B
A522	4	4'-5"	18	B
A523	24	7'-0"	175	B
<b>Piers</b>				
P1001	72	6'-10"	2117	B
P1002	18	35'-6"	2750	B
P1003	24	17'-1"	1764	S
P1004	15	32'-8"	2109	S
P1005	24	18'-8"	1928	S
P1006	24	19'-3"	1988	S
P901	54	11'-2"	2050	B
P902	54	9'-2"	1683	B
P903	24	10'-3"	836	S
P801	96	7'-10"	2008	B
P501	6	32'-8"	204	S
P502	192	7'-9"	1552	B



Mark	No.	Length	Weight	Shp
<b>Superstructure</b>				
S701	376	35'-8"	27411	S
S702	8	8'-11"	146	B
S601	376	35'-8"	20143	S
S602	504	36'-11"	27946	S
S603	72	33'-0"	3,569	S
S501	752	2'-4"	1830	B
S502	376	2'-0"	784	B
S503	376	5'-7"	2190	B
S504	8	2'-10"	24	S
<b>Railing</b>				
R501	128	15'-8"		S
R502	16	12'-7"		S
R503	12	4'-2"		B
R504	8	5'-4"		B
R505	16	13'-4"		S
<b>Replacement Bars</b>				
RE1001	1	8'-2"		S
RE901	1	7'-10"		S
RE801	1	7'-6"		S
RE701	2	7'-2"		S
RE601	3	6'-11"		S
RE501	1	6'-7"		S
RE401	1	6'-3"		B

Mark	No.	Core Dia	Length	% of Spacers	Pitch	No. of Turns	Weight
SP401	3	32"	13'-11"	12	4 1/2"	40	775
SP402	3	32"	15'-6"	12	4 1/2"	45	871
SP403	3	32"	16'-1"	12	4 1/2"	46	892

**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 509. 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.

### GENERAL NOTES

REFERENCE shall be made to Standard Drawings BR-1-65 sheet 1 revised 11-24-65; CSB-4-63 sheets 1 and 4 dated 12-30-63; RB-1-55 revised 2-2-59 and SD-1-65 sheets 1, 2 and 3 dated 11-8-65. Reference shall also be made to Supplemental Specifications 808 dated 1-13-67, 811 dated 1-1-67, 825 dated 12-19-67, 828 dated 1-1-67, and 832 & 931 both dated 5-25-67.

**DESIGN DATA:**  
 Design Loading - CF 400(5T)  
 Concrete Class C - basic unit stress 1,333 psi.  
 Concrete Class E - basic unit stress 1,133 psi.  
 Structural steel - ASTM A36 - basic unit stress 20,000 psi.

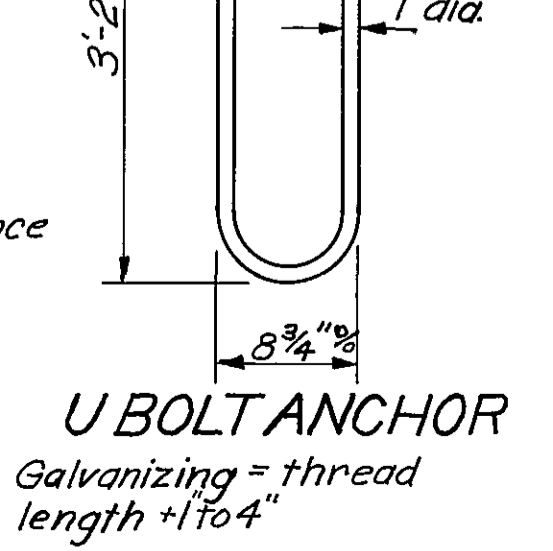
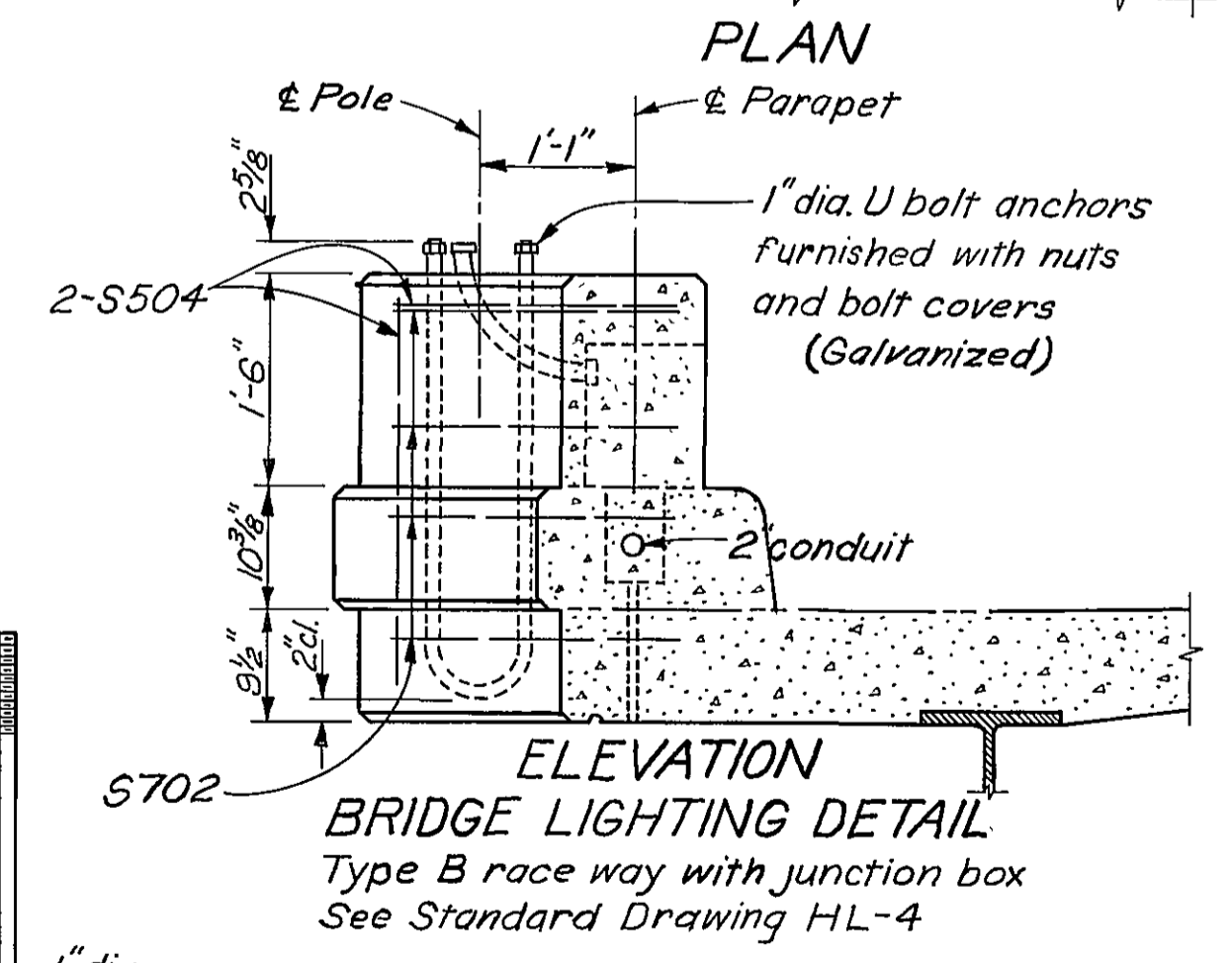
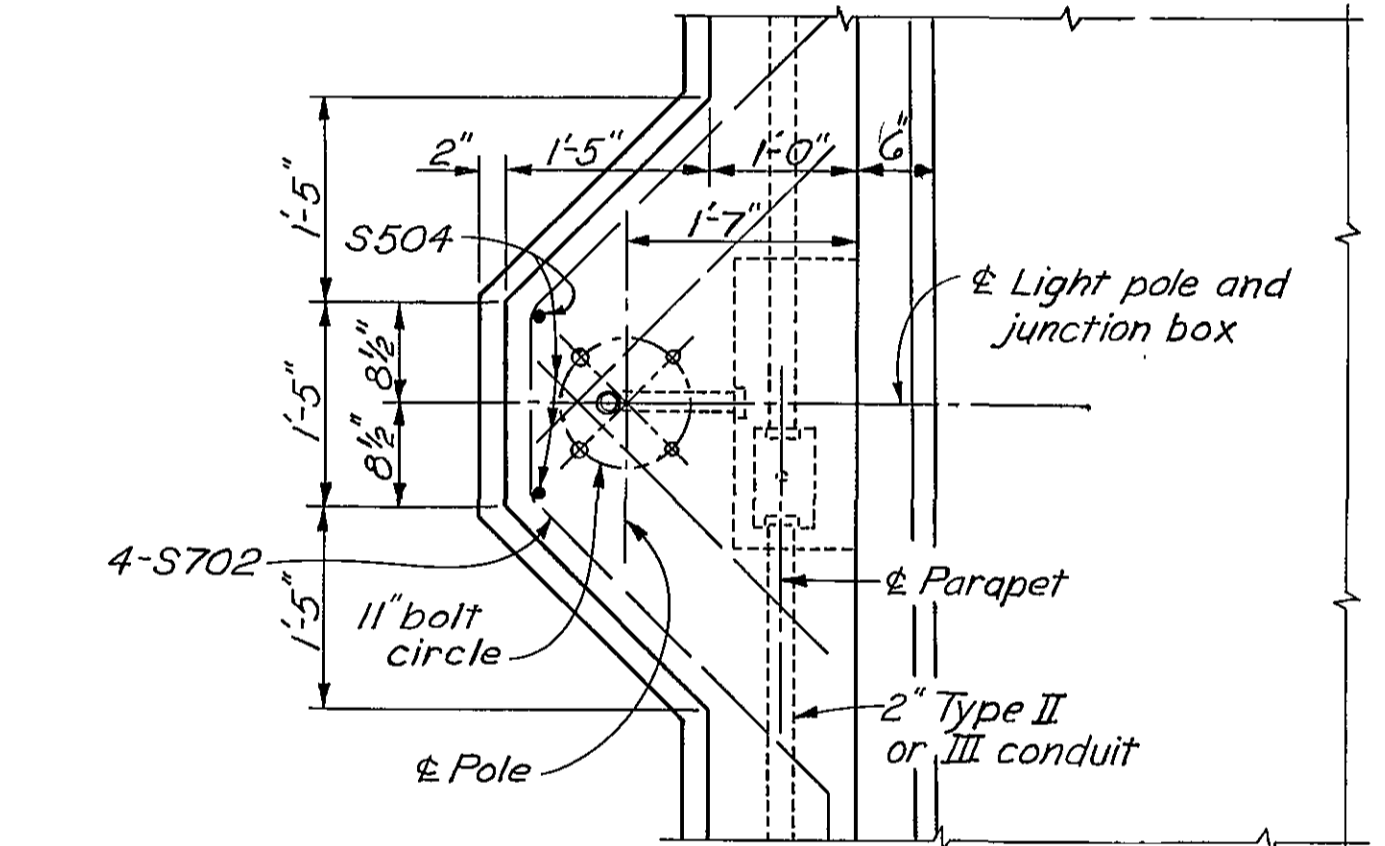
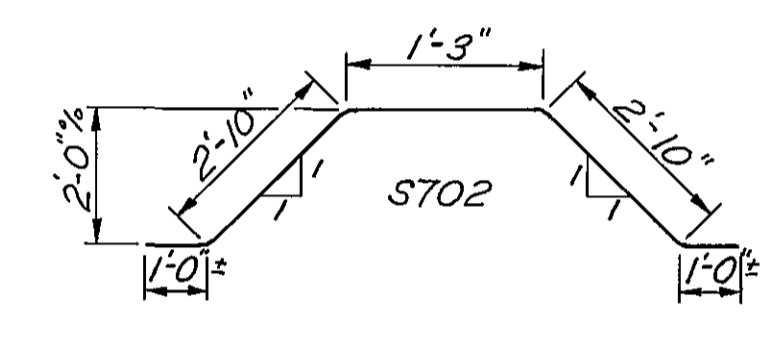
Reinforcing Steel - ASTM A15, A16, A160, Deformed, Intermediate or Hard Grade. Basic unit stress 20,000 psi. Except, spiral reinforcement may be plain, structural grade with basic unit stress of 18,000 psi.

REFERENCE: The embankment at the forward abutment shall be placed and compacted up to elevation 1221.3 after which excavation shall be made for the abutment and the piles driven.

EXCAVATION QUANTITY at the forward abutment includes the removal of fill material required for construction of the abutment.

PILES shall be driven to a minimum bearing capacity of 40 tons per pile for the abutments and 35 tons per pile for the piers.

MACHINE FINISH: The concrete bridge deck shall be finished by the use of a finishing machine.



### GENERAL NOTES CONTINUED

WELDS on secondary stress carrying members are shown thus: S

WELDED ATTACHMENTS: No attachments shall be made by welding to the top flanges of the beams within a distance of 7'-6" on either side of the pier bearings. Welding for attachments to the top flanges at other points on the spans shall be kept at least 2" from edge of flange.

PAINTING of structural steel shall be in accordance with Supplemental Specification 832.

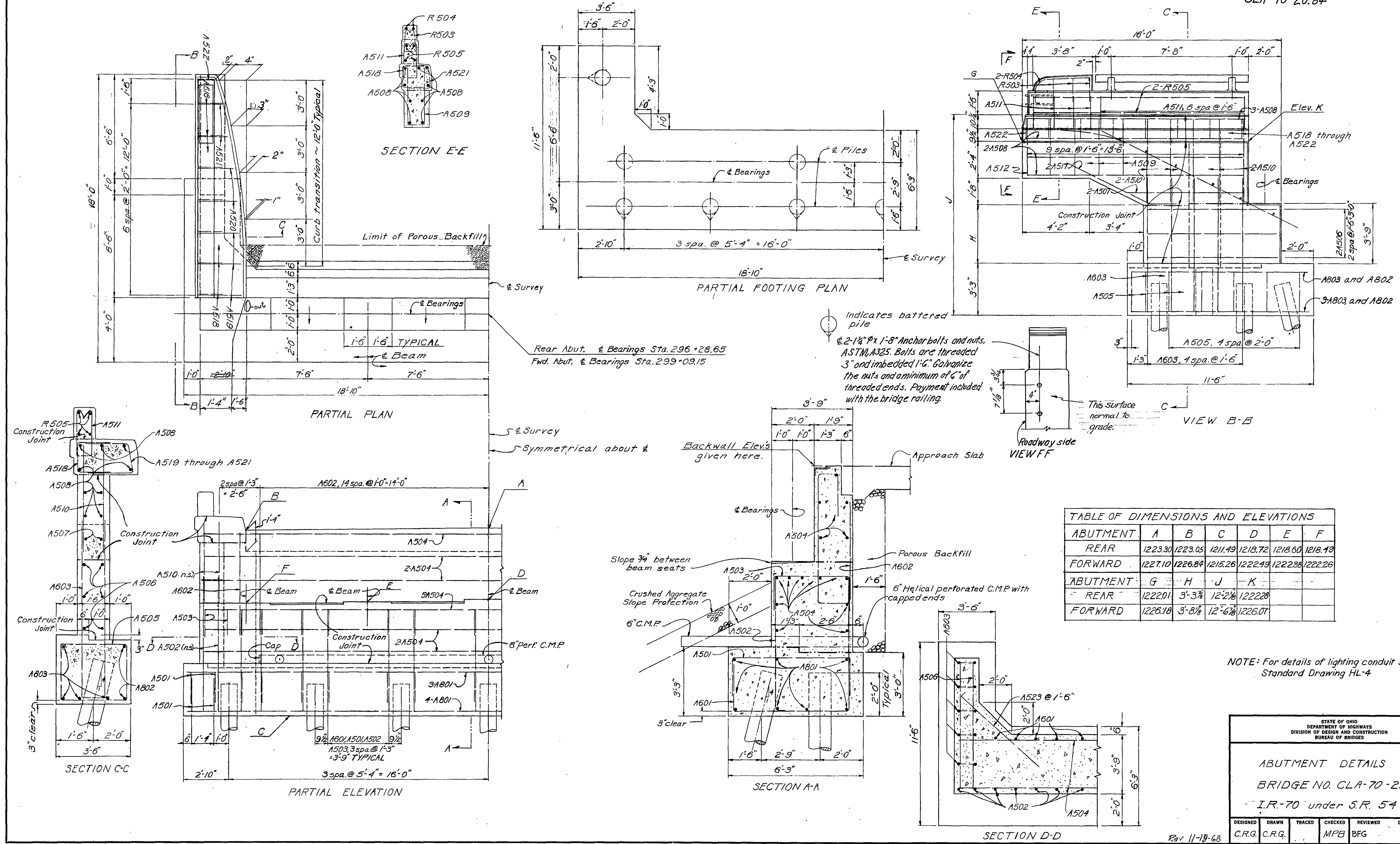
### ESTIMATED QUANTITIES

Item	Total	Unit	Description	Super.	Piers	Abuts.	Genl.	As Built
503	287	Cu. Yds.	Unclassified excavation		157	130		
505	Lump	Sum	First test pile				Lump	
507	2260	Lin. Ft.	12" Cast-in-place reinforced concrete piles		1280	980		
509	116940	Lbs.	Reinforcing steel	83,873	23,527	9,540		
511	298	Cu. Yds.	Class C concrete, superstructure	298				
511	142	Cu. Yds.	Class E concrete, abutments			142		
511	53	Cu. Yds.	Class E concrete, pier footings		53			
511	81	Cu. Yds.	Class C concrete, pier columns and caps		81			
513	297,500	Lbs.	Structural steel	297,500				
517	619.67	Lin. Ft.	Railing (Type 1)	565		54.67		
518	25	Cu. Yds.	Porous backfill			25		
518	12	Each	Scuppers including supports	12				
518	60	Lin. Ft.	6" perforated, helical CMP including specials 707.06			60		
518	50	Lin. Ft.	6" non-perforated helical CMP 707.06			50		
601	420	Sq. Yds.	Crushed aggregate slope protection				420	
808	298	Units	Water-reducing, set-retarding admixture	298				
825	1212	Sq. Yds.	Concrete surface treatment	1176		36		
828	60	Lin. Ft.	Joint sealer			60		
832	297,500	Lbs.	Field painting of structural steel	297,500				
625			See Sheet 236 For Lighting Summary					

STATE OF OHIO  
 DEPARTMENT OF HIGHWAYS  
 DIVISION OF DESIGN AND CONSTRUCTION  
 BUREAU OF BRIDGES

REINFORCING STEEL LIST,  
 NOTES, & ESTIMATED QUANTITIES  
 BRIDGE NO. CLA-70-2520  
 I.R.-70 under S.R. 54

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
CRG	CRG	JVA	MPB	BFG	6-20-66	
			11-23-66			



Rear Abut. & Bearings Sta. 296+28.65  
Fwd. Abut. & Bearings Sta. 299+09.15

Indicates battered pile  
@ 2-1/4" Ø x 1-8" Anchor bolts and nuts, ASTM A325. Bolts are threaded 3" and imbedded 1'-6". Galvanize the nuts and a minimum of 6" of threaded ends. Payment included with the bridge railing.

TABLE OF DIMENSIONS AND ELEVATIONS						
ABUTMENT	A	B	C	D	E	F
REAR	1223.30	1223.05	1211.49	1218.72	1218.60	1218.19
FORWARD	1227.10	1226.84	1215.26	1222.49	1222.38	1222.26
ABUTMENT	G	H	J	K		
REAR	1222.01	3'-3 3/8"	12'-2 1/8"	1222.28		
FORWARD	1226.18	3'-8 1/8"	12'-6 7/8"	1226.01		

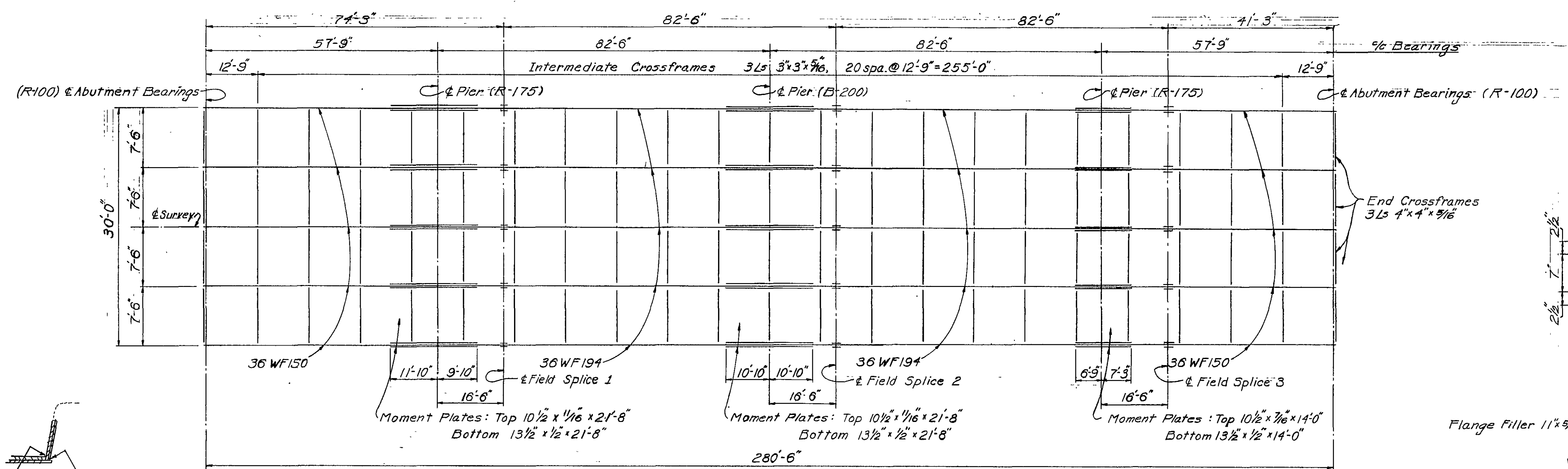
NOTE: For details of lighting conduit see Standard Drawing HL-4

STATE OF OHIO DEPARTMENT OF HIGHWAYS DIVISION OF DESIGN AND CONSTRUCTION BUREAU OF BRIDGES						
ABUTMENT DETAILS BRIDGE NO. CLA-70-2520 I.R.-70 under S.R. 54						
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
C.R.G.	C.R.G.		MPB	BFG		

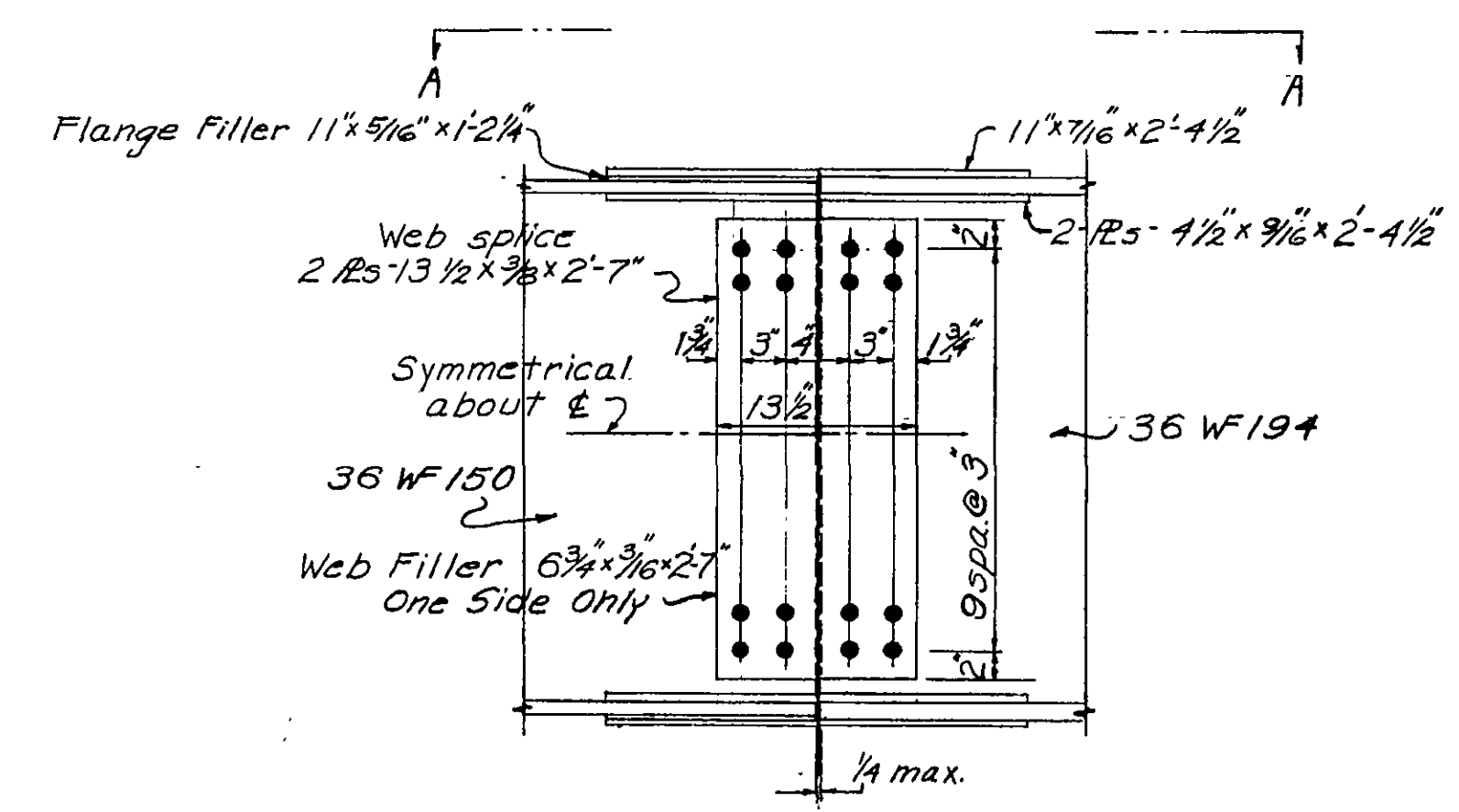
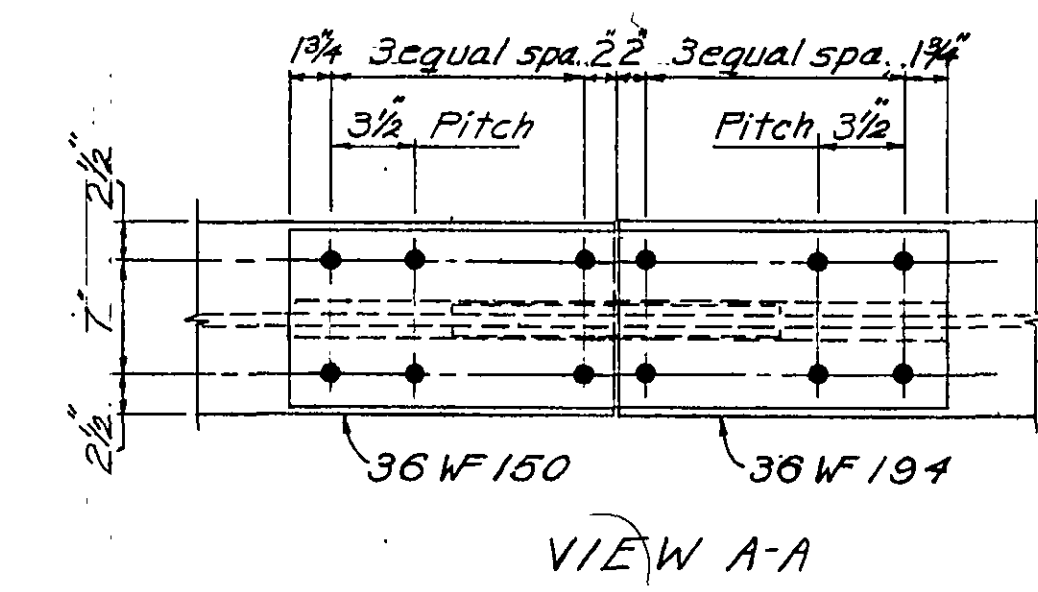
Rev 11-19-68



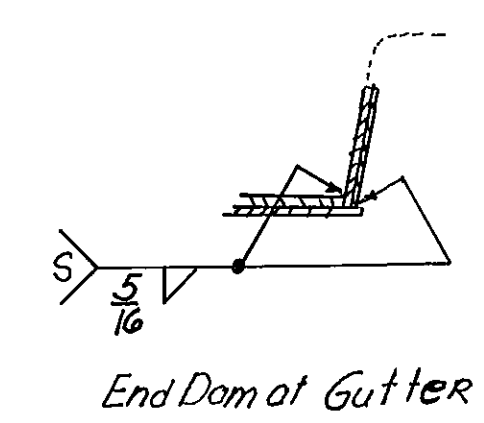
CLA-70-20.84



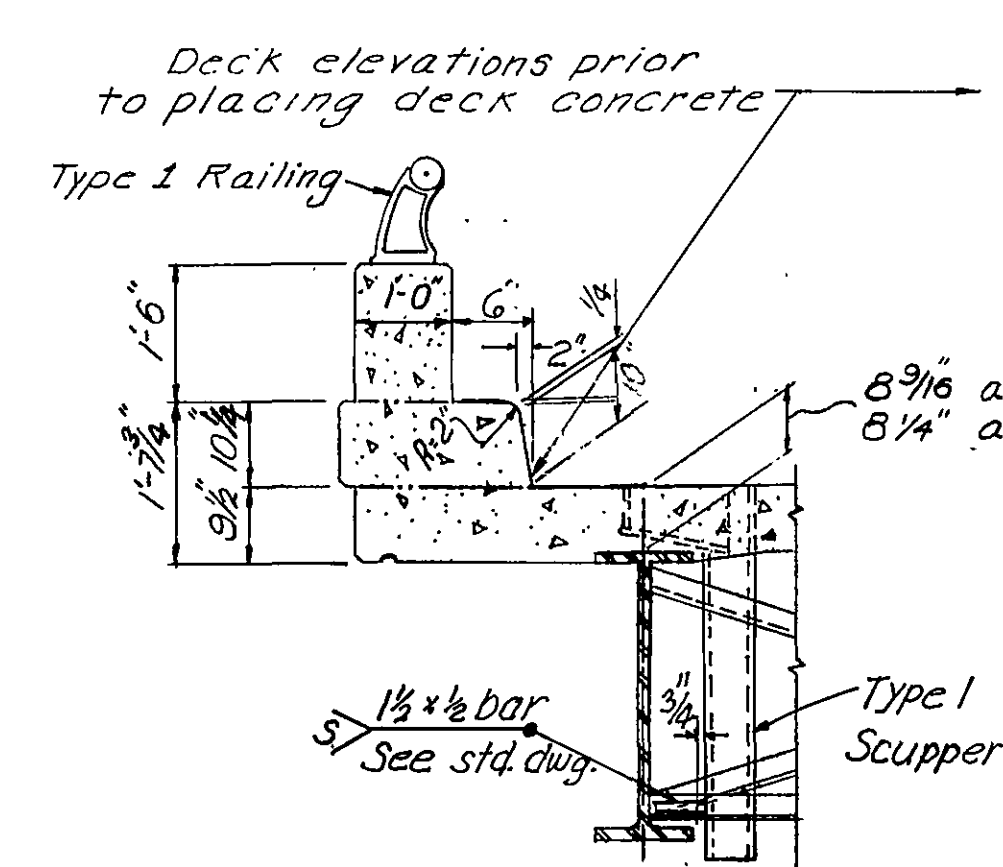
PLAN OF STEEL FRAMING



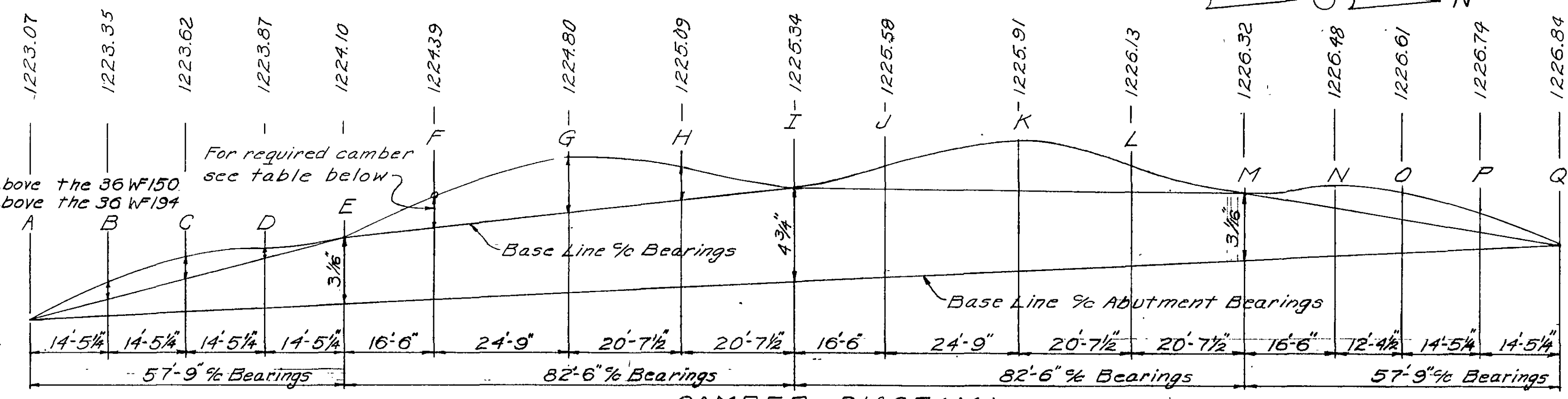
FIELD SPLICE 1 & 3  
For Field Splice 2 and additional notes and details see SD-1-65 sheet 3



End Dam at Gutter



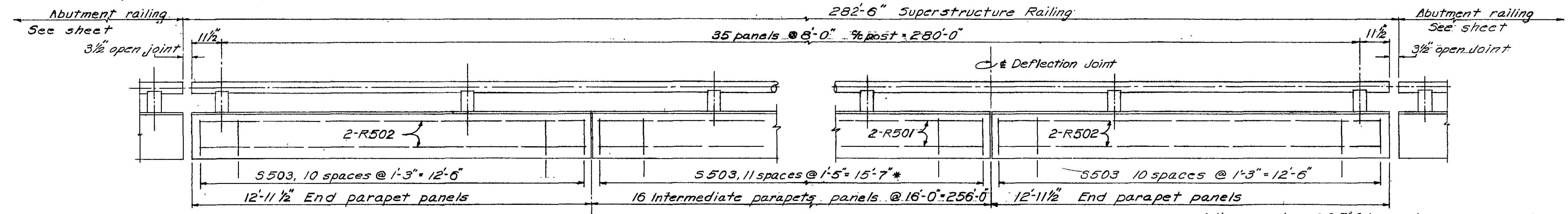
DECK SECTION



CAMBER DIAGRAM

DEFLECTION AND CAMBER DATA												
Location	B	C	D	F	G	H	J	K	L	N	O	P
Deflection due to wt. of steel	1/16"	1/16"	—	1/16"	1/8"	1/16"	1/16"	1/8"	1/8"	—	1/16"	1/16"
Deflection due to remaining dead load	3/16"	1/4"	1/16"	1/4"	9/16"	5/16"	3/16"	9/16"	5/16"	1/16"	1/4"	3/16"
Convexity required for vertical curve	1/8"	3/16"	1/8"	1/4"	7/16"	5/16"	1/4"	7/16"	3/16"	3/16"	3/16"	1/8"
Sum of deflection and convexity equals required shop camber	3/8"	1/2"	3/16"	9/16"	1 1/8"	1 1/16"	1/2"	1 1/8"	3/4"	1/4"	1/2"	3/8"

NOTE: For additional superstructure details refer to the following Standard Drawings:  
CSB-4-63 sheets 1 & 4 (Bulb angle gutter not required)  
RB-1-55  
SD-1-65 sheets 1, 2, & 3  
BR-65 sheet 1



PART RAILING ELEVATION. (Grade not shown)

\* Adjust spacing of S503 bars where necessary to clear junction boxes

STATE OF OHIO  
DEPARTMENT OF HIGHWAYS  
DIVISION OF DESIGN AND CONSTRUCTION  
BUREAU OF BRIDGES

**SUPERSTRUCTURE DETAILS**

BRIDGE NO. CLA-70-2520

I.R. 70 under S.R. 54

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
C.R.G.	C.R.G.		MPB	BFG		