

Fed. Proj. No.

DESIGN DATA

1977 AND INTERIM AASHTO DESIGN SPECIFICATIONS
LOAD FACTOR DESIGN METHOD (HS20 LOADING)
INCLUDES 17 PSF DEAD LOAD ALLOWANCE FOR
FUTURE WEARING COURSE MODIFICATIONS.
MAXIMUM ALLOWABLE DESIGN STRESSES: (NEW CONST.)
REINFORCED CONCRETE
F_c = 4000 PSI N=8
F_y = 60,000 PSI REINFORCEMENT
PRESTRESSED CONCRETE
F_c = 5000 PSI N=6
F_s = 270,000 PSI (270 K STRANDS)
DECK AREA = 2484 SQ. FT.
PROJECTED ADT 7000 FOR 2002

LIST OF SHEETS

NO	DESCRIPTION
1	GENERAL PLAN & ELEVATION
2	BRIDGE LAYOUT
3	ABUTMENT GEOMETRICS
4	" " DETAILS
5	ABUTMENT REINFORCEMENT
6	" " DETAILS
7	SUPERSTRUCTURE DETAILS
8	" " "
9	36" PRESTRESSED CONCRETE BEAM
10	PIPE & CONC. (TYPE J) RAILING
11	CONCRETE & PARAPET & PIPE RAILING
12	BRIDGE APPROACH PANEL
13-15	DETAILS
16	BRIDGE SURVEY
17	BRIDGE SURVEY PLAN & PROFILE
18-19	EXISTING BRIDGE PLANS

CONSTRUCTION NOTES

SPECIFICATIONS REFERENCE: THE MN/DOT "STANDARD SPECIFICATIONS FOR CONSTRUCTION," 1983 EDITION SHALL GOVERN.

THE FIRST DIGIT OR THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR SIZE.

THE BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED.

CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN FIELD PRIOR TO CONSTRUCTION.

PREPARED BY
SHORT ELLIOTT HENDRICKSON, INC.
ST. PAUL, MINNESOTA • CHIPPewa FALLS, WISC.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNED *[Signature]*
DATE 5/27/82 REG NO. 8476

B.M. ELEV. 876.75 (M.S.L. 1929 ADJ.)
MARK ON EAST WALL CO. BR. NO. 4513

MINNESOTA
DEPARTMENT OF TRANSPORTATION

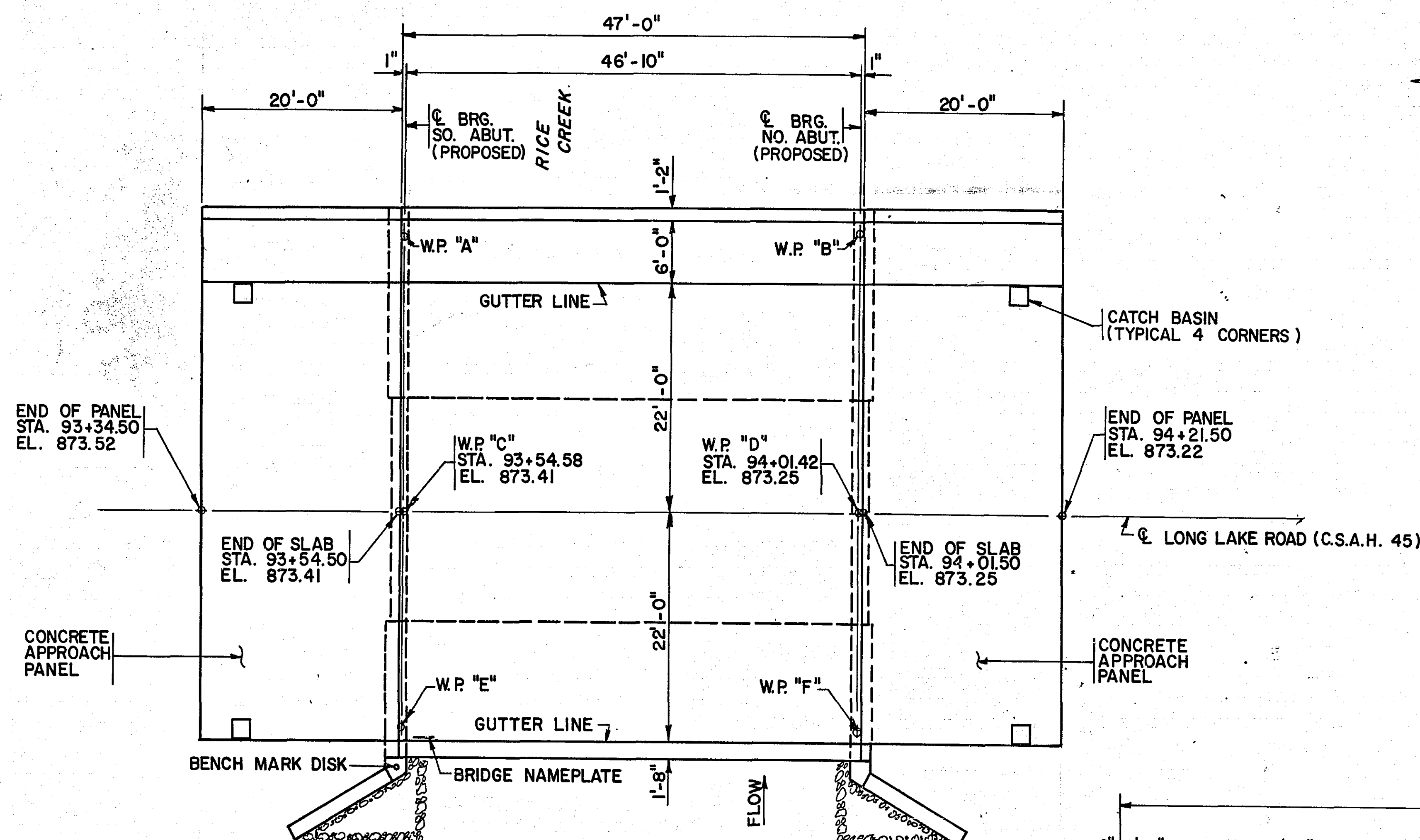
Bridge No. 62540

C.S.A.H. 45 (LONG LAKE ROAD) OVER
RICE CREEK IN NEW BRIGHTON
1-46'-10" PRESTRESSED BEAM SPAN
44'-0" ROADWAY 6'-0" SIDEWALK
IDENTIFICATION NO. 501

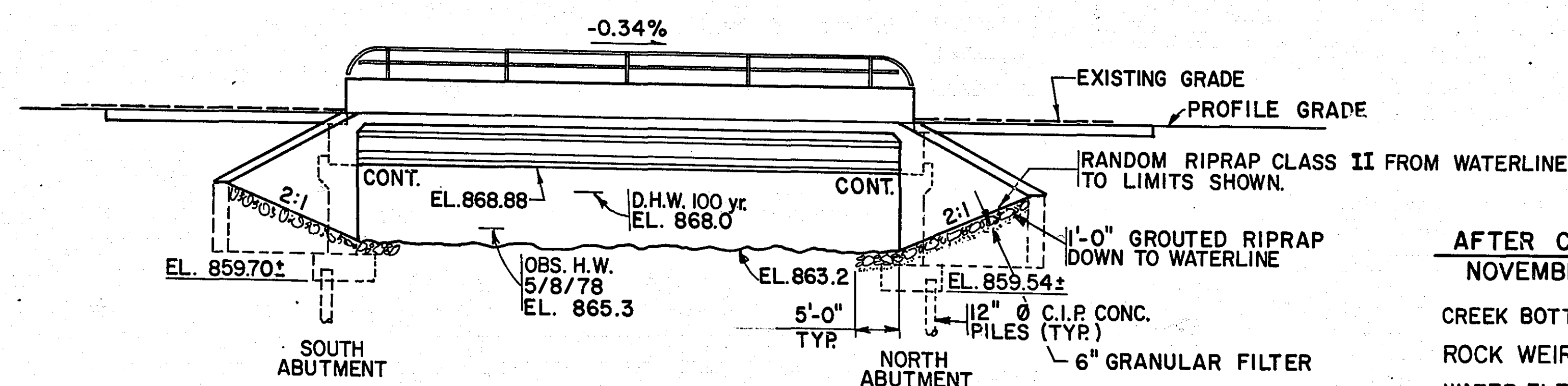
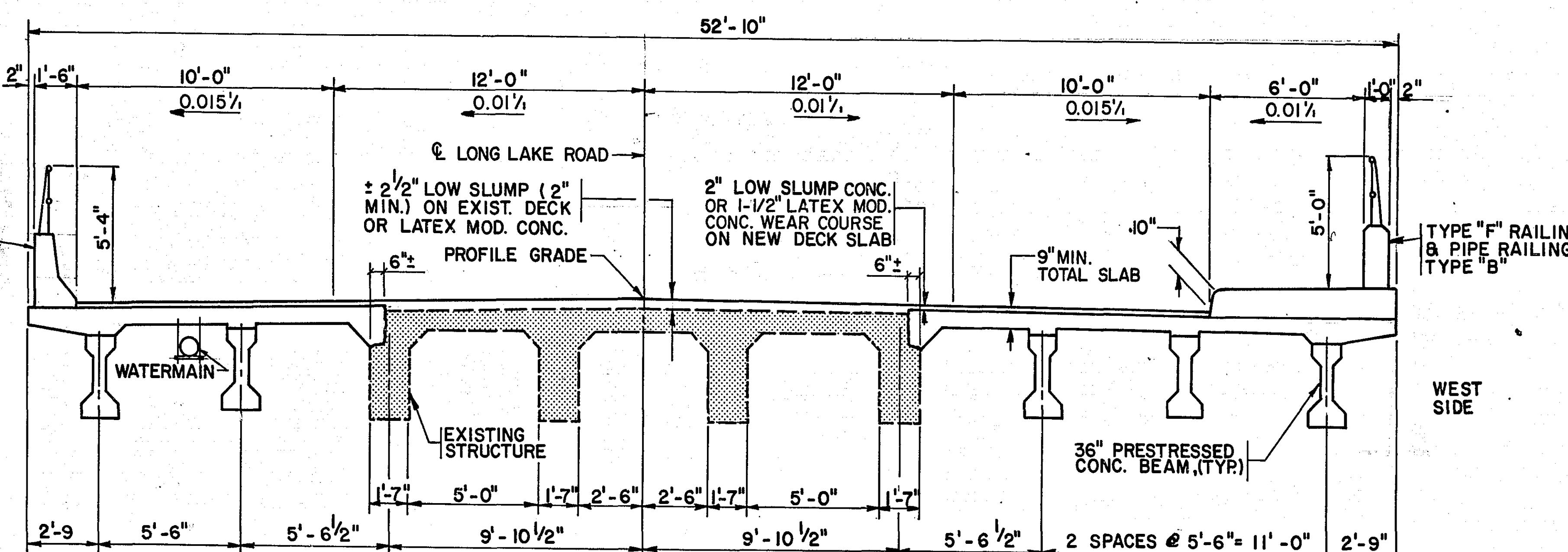
GENERAL PLAN AND ELEVATION

SEC. 18 T. 30 N. R. 23 W.
NEW BRIGHTON TOWNSHIP RAMSEY COUNTY
APPROVED: 4-3-84
[Signature]
BRIDGE ENGINEER

DES. J.P. DR. J.P.
CHK. B.J. CHK. B.J. 62540



NOTE: REMOVAL OF EXISTING BITUMINOUS OVERLAY FROM THE BRIDGE DECK WILL BE CONSIDERED INCIDENTAL TO THE JOB FOR WHICH NO DIRECT COMPENSATION WILL BE MADE.



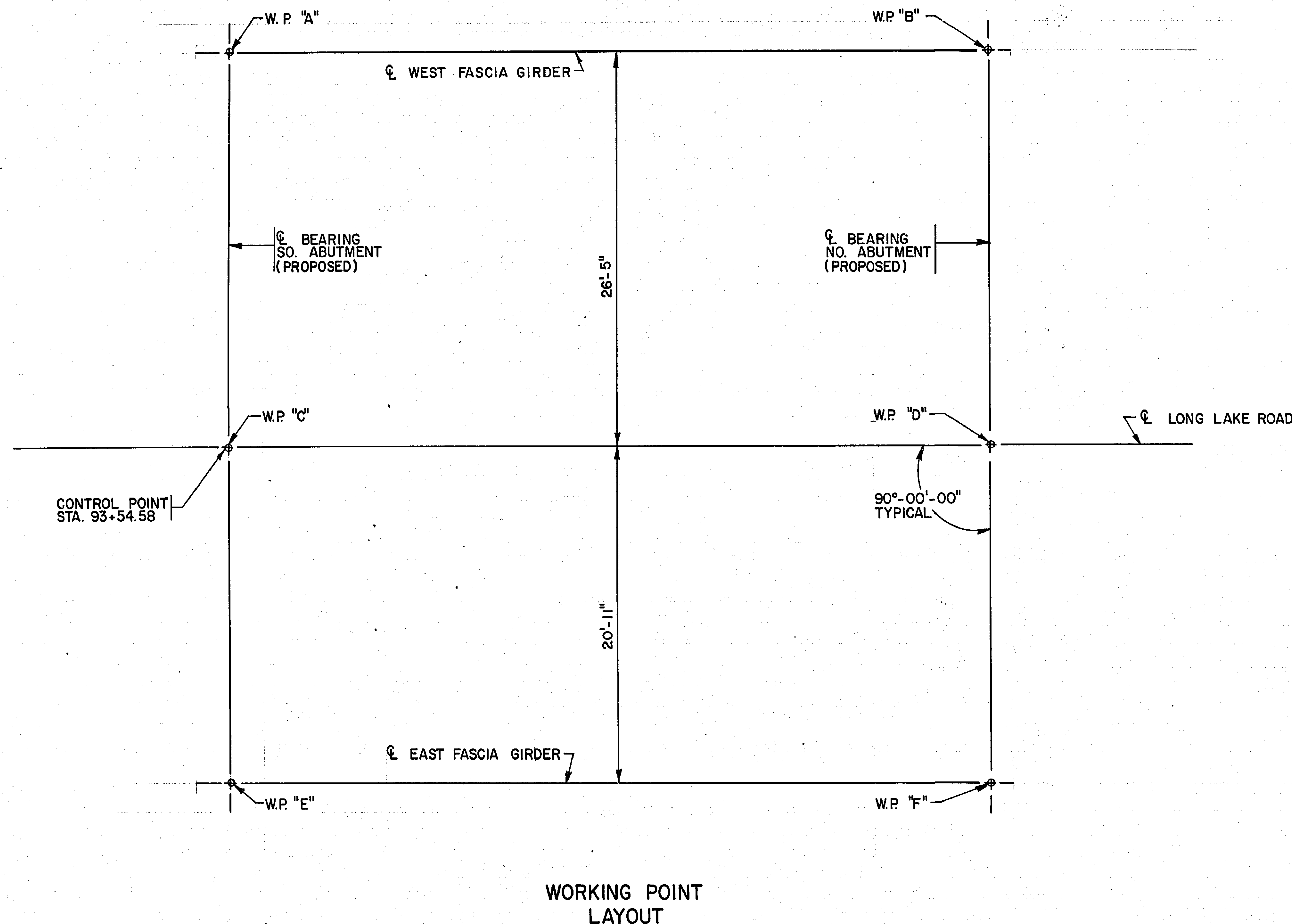
AFTER CONSTRUCTION NOVEMBER 5, 1984

CREEK BOTTOM 863.49
ROCK WEIR 865.30
WATER ELEVATION 865.50

SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE

ITEM NO.	0301.601	0401.601	2404.501	2401.512	2401.515	2401.513	2401.513	0401.612	2021.501	2401.501	2401.501	2401.541	2401.541	2402.585	2402.590	2405.501	2405.511	0433.601	2433.507	2452.507	2452.508
ITEM	BRIDGE APPROACH PANELS	STRUCTURE EXCAVATION	CONCRETE OVERLAY TYPE SPECIAL	BRIDGE SLAB CONCRETE (3X33)	SIDEWALK CONCRETE (3X46)	TYPE "J" RAILING CONCRETE (3X46)	TYPE "F" RAILING CONCRETE (3X46)	SPECIAL SURFACE FINISH (INPLACE)	MOBILIZATION	STRUCTURE CONCRETE (1A43)	STRUCTURE CONCRETE (3Y43)	REINFORCEMENT BARS	REINFORCEMENT BARS (EPOXY COATED)	PIPE RAILING TYPE "B"	ELASTOMERIC BEARING PADS, TYPE 1	PRESTRESSED CONCRETE BEAMS TYPE 36-48	DIAPHRAGMS FOR TYPE 36 PRESTRESSED BEAMS	SCARIFY BRIDGE DECK	REMOVE CONCRETE	CAST-IN-PLACE CONC. PILING DELIVERED, 12"	CAST-IN-PLACE CONC. PILING DRIVEN, 12"
UNIT	LUMP SUM	LUMP SUM	SQ. FT.	SQ. FT.	SQ. FT.	LIN. FT.	LIN. FT.	SQ. FT.	LUMP SUM	CU. YD.	CU. YD.	POUND	POUND	LIN. FT.	EACH	EACH	LIN. FT.	SQ. FT.	LUMP SUM	LIN. FT.	LIN. FT.
QUANTITY	1	1	2068 (P)	1528 (P)	337 (P)	47 (P)	87 (P)	350	1	20 (P)	63 (P)	9750 (P)	5830 (P)	134 (P)	10	5	28 (P)	960 (P)	1	600	600

Area No. Job No. Design Group State Proj. No. 62-645-01 Sheet No. 1 of 19 Sheets



TOP OF ROADWAY TO BRIDGE SEAT				
	S. ABUT.	N. ABUT.	S. ABUT. FASC. (N. ABUT. FASC.)	
SLAB THICKNESS	9"	9"	9"	9"
STOOL HEIGHT	1 1/2"	1 1/2"	4 3/8"	4 1/4"
BEAM HEIGHT	36"	36"	36"	36"
BEARING PAD	1"	1"	1"	1"
TOTAL INCHES	47 1/2"	47 1/2"	50 3/8"	50 1/4"
TOTAL FEET	3.96	3.96	4.20	4.19

* TOP OF SIDEWALK

POINT	STATION	DIMENSIONS				BETWEEN				WORKING				POINTS				ELEVATIONS			POINT					
		A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U		V	W	TOP OF RDWY.	TOP OF RDWY. TO BR. SEAT	BRIDGE SEAT
A	93+54.58																						874.01 *	5.05	868.96	A
B	94+01.42	46.83																					873.85 *	5.04	868.81	B
C	93+54.58	26.42	53.77																				873.41	4.37 ①	869.04	C
D	94+01.42	53.77	26.42	46.83																			873.25	4.37 ①	868.88	D
E	93+54.58	47.34	66.59	20.92	51.29																		873.16	4.20	868.96	E
F	94+01.42	66.59	47.34	51.29	20.92	46.83																	873.00	4.19	868.81	F
G																										G
H																										H
J																										J
K																										K
L																										L
M																										M
N																										N
P																										P
Q																										Q
R																										R
S																										S
T																										T
U																										U
V																										V
W																										W

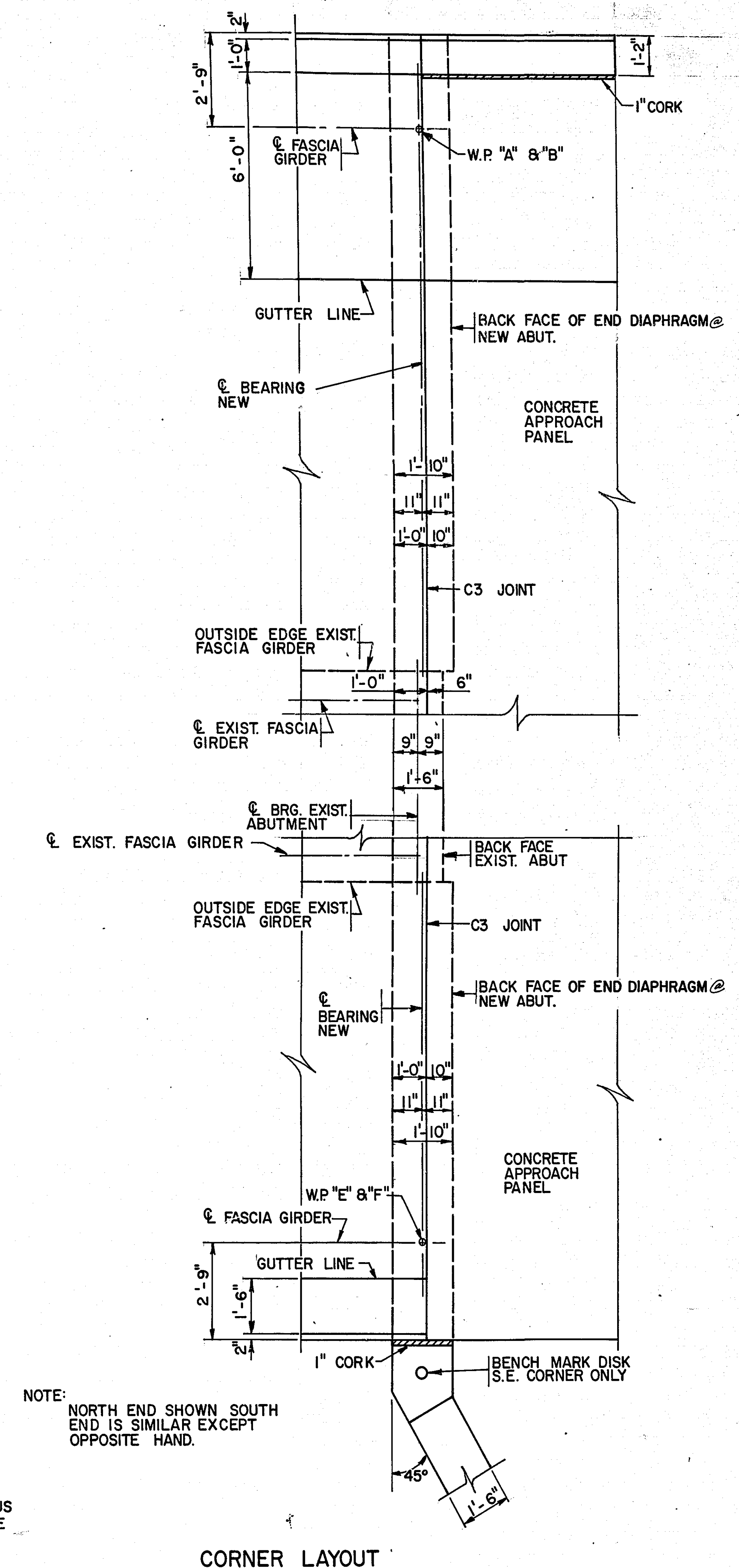
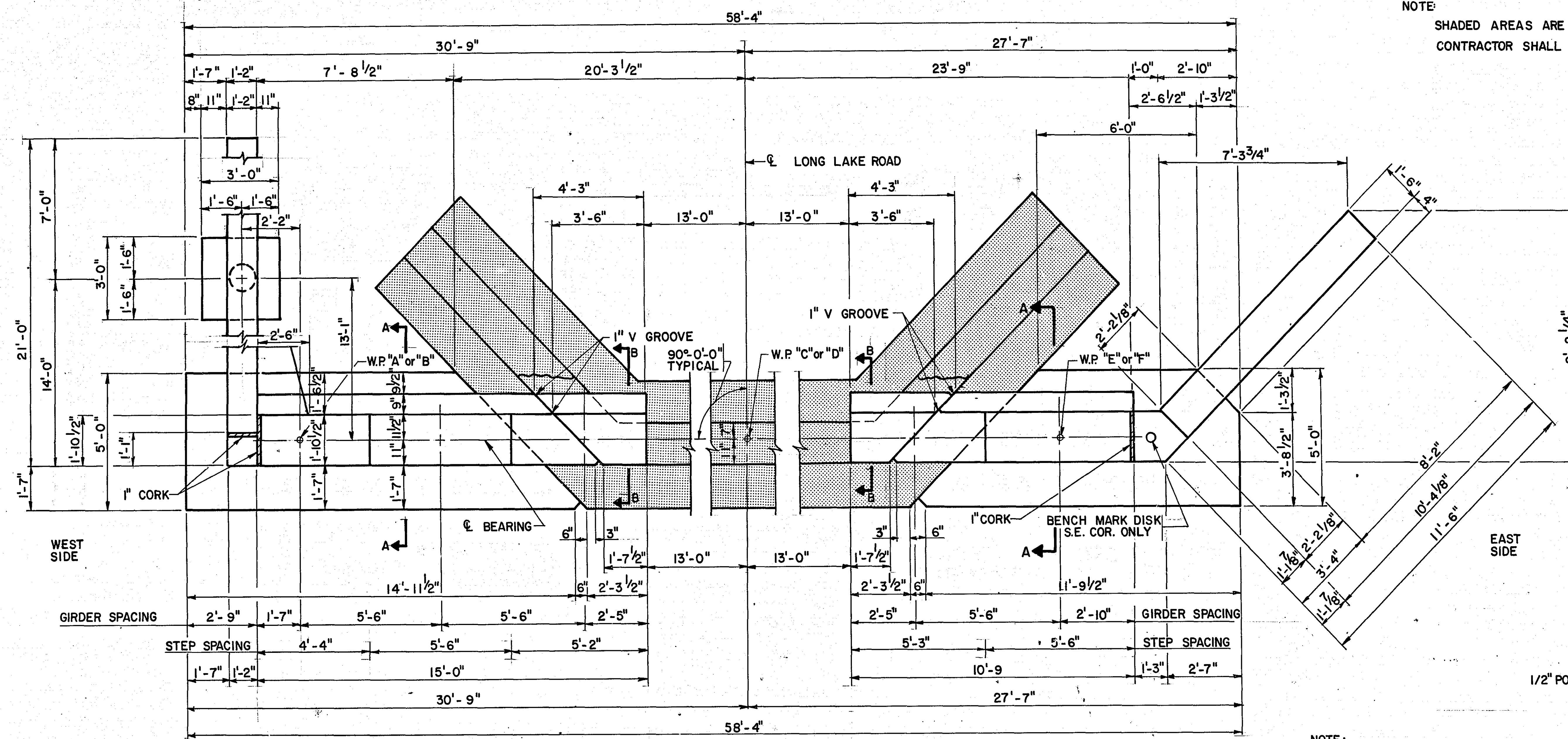


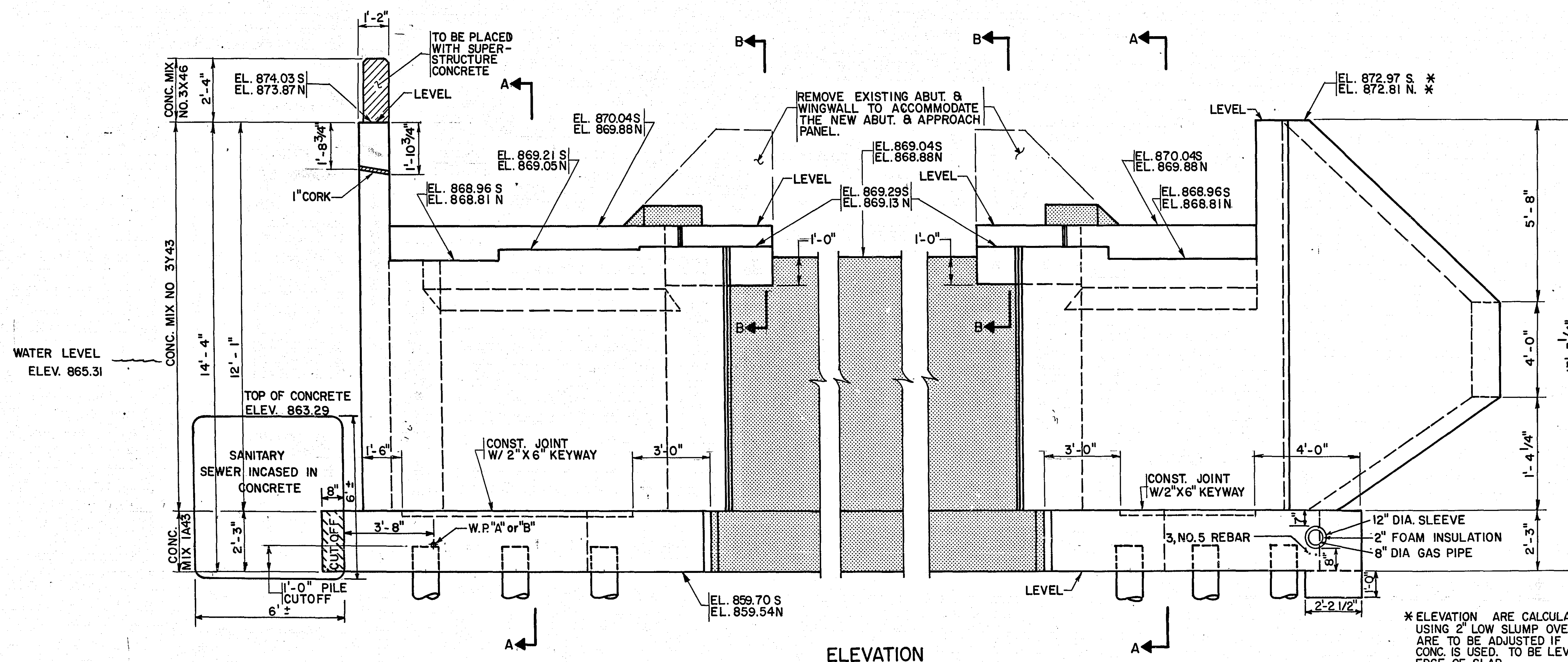
Fig. 5-397.001
Revised: January 23, 1978

TITLE: BRIDGE LAYOUT	DES: J.P.		DR: J.P.	APPROVED: 4-2-84	Bridge No. 62540
	CHK: B.J.		CHK: B.J.		
	Sheet No. 2 of 19 Sheets				



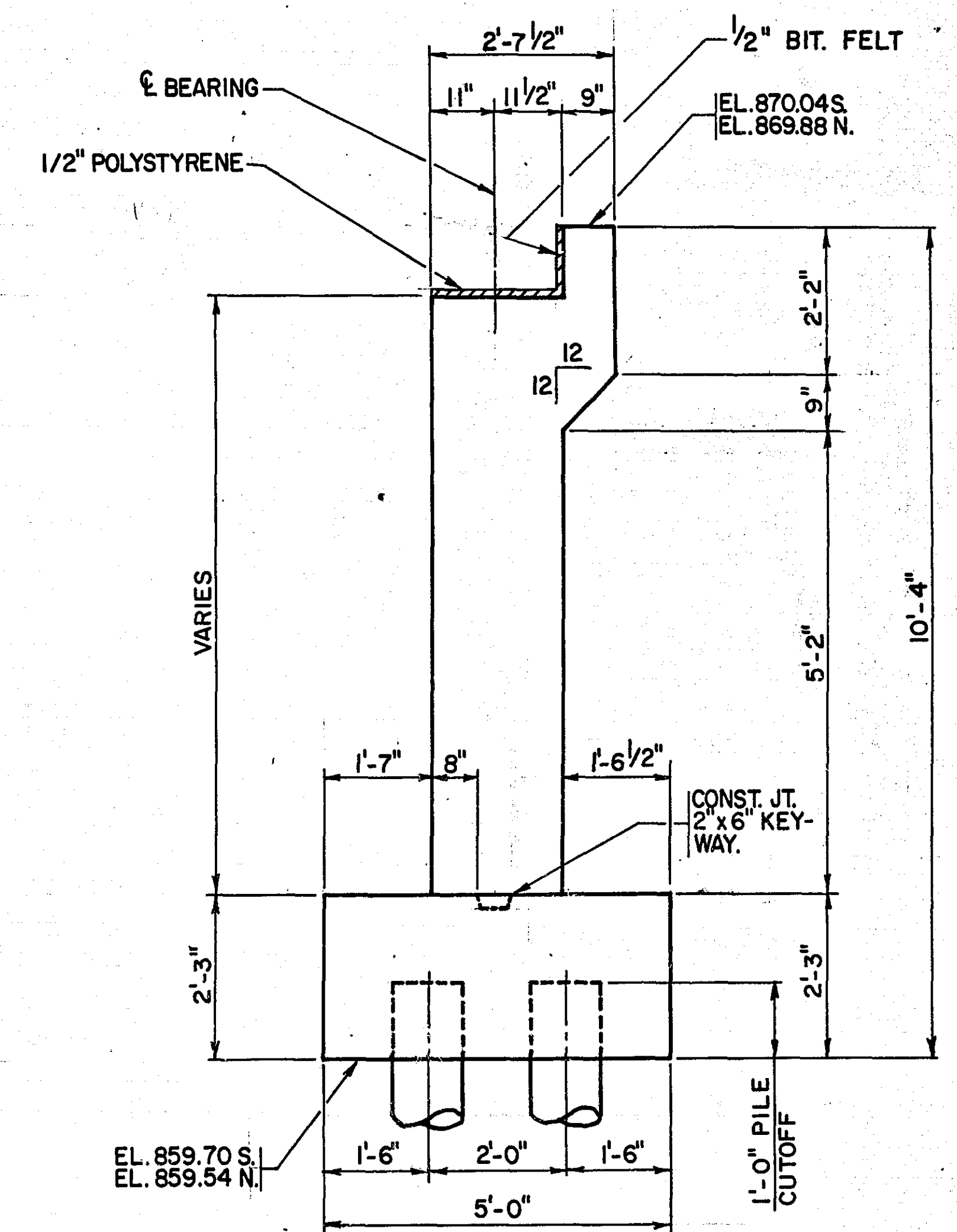
PLAN

NOTE:
SEE SHEET 4
FOR SECTION B-B



ELEVATION

* ELEVATION ARE CALCULATED
USING 2" LOW SLUMP OVERLAY AND
ARE TO BE ADJUSTED IF LATEX
CONC. IS USED. TO BE LEVEL WITH
EDGE OF SLAB.



SECTION A-A

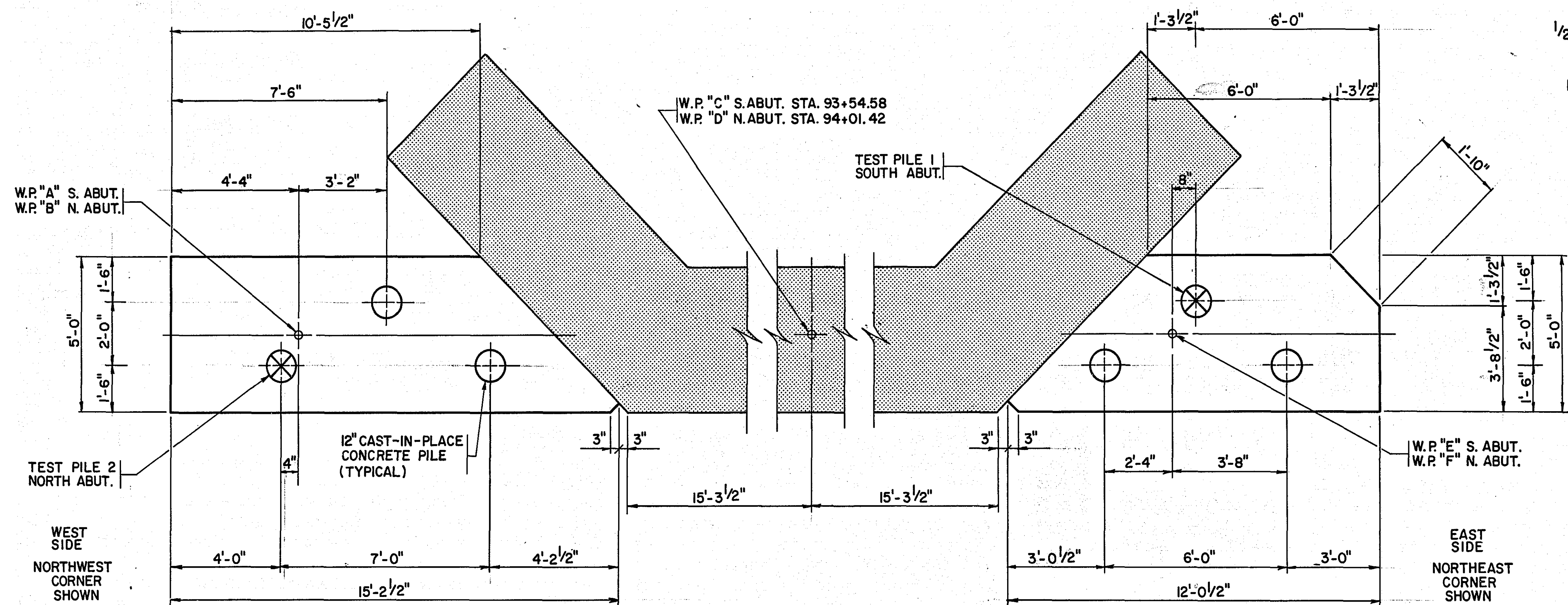
S.P. 62-645-01

BRIDGE NO. 62540
ABUTMENT
GEOMETRICS

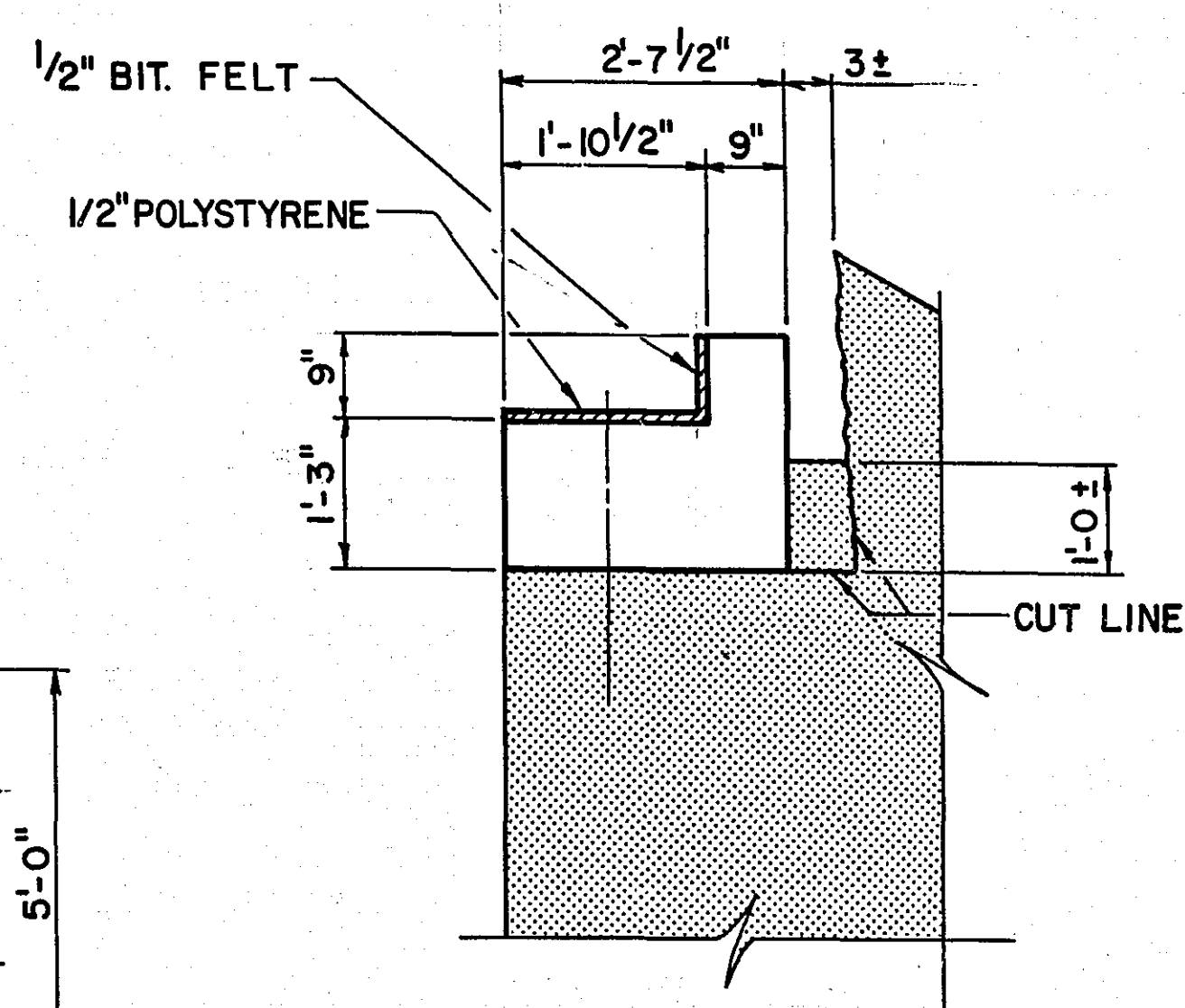
DES. JJ		
CHK. BJ		
DR. JP		
CHK. BJ		
62540		
Sheet No. 3 of 19 Sheets		

ASBUILT PLAN
CONFORMING TO
CONST. RECORDS

DONE BY:
DATE:



FOOTING PLAN



SECTION B-B

SUMMARY OF QUANTITIES - 2 ABUTMENTS

CONCRETE MIX NO. 3Y43	56 CU. YD.
CONCRETE MIX NO. 1A43	20 CU. YD.
JOINT FILLER (SEE SCHEDULE SHEET NO. 8.)	
CAST-IN-PLACE CONC. PILING DELIVERED	600 LIN. FT.
CAST-IN-PLACE CONC. PILING DRIVEN	600 LIN. FT.
CAST-IN-PLACE CONC. TEST PILE, 70' LONG	2 EACH
REINFORCEMENT BARS	5590 POUND
BENCH MARK DISK	1 EACH

- INCLUDED IN PRICE BID FOR OTHER ITEMS.
- COUNTY WILL FURNISH DISK. PAYMENT FOR PLACEMENT TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS. SEE STATE STD. PLATE NO. 9301 FOR PLACEMENT
- DOES NOT INCLUDE TEST PILES

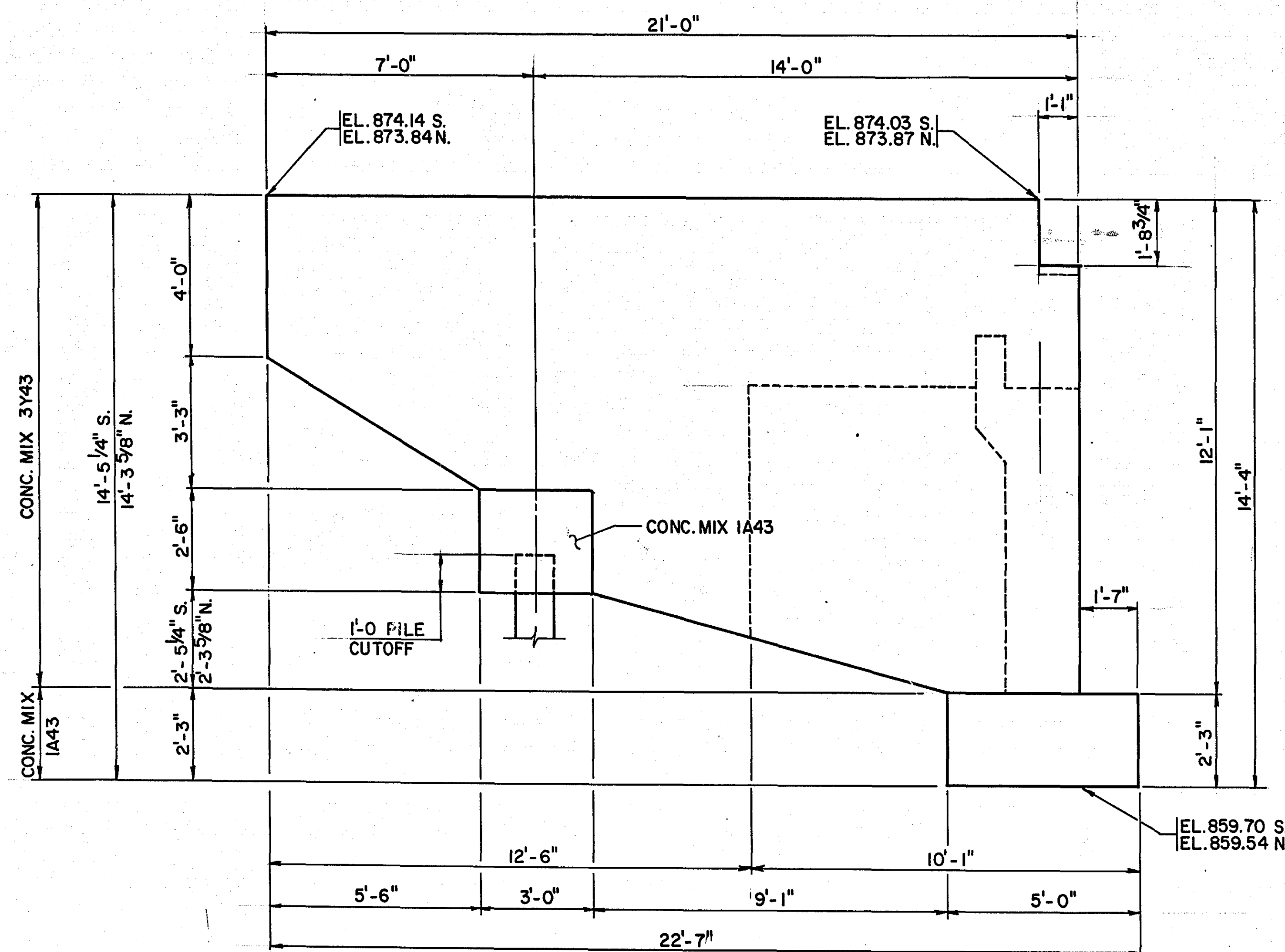
PILE NOTES

- CAST-IN-PLACE CONCRETE TEST PILES 70' LONG.
- CAST-IN-PLACE CONCRETE PILES EST. LENGTH 60'
- CAST-IN-PLACE CONC. PILES REQ'D. FOR 2 ABUTMENTS

PILE SPACING SHOWN IS AT THE BOTTOM OF FOOTING
PILE TO HAVE A NOMINAL DIAMETER OF 12 INCHES

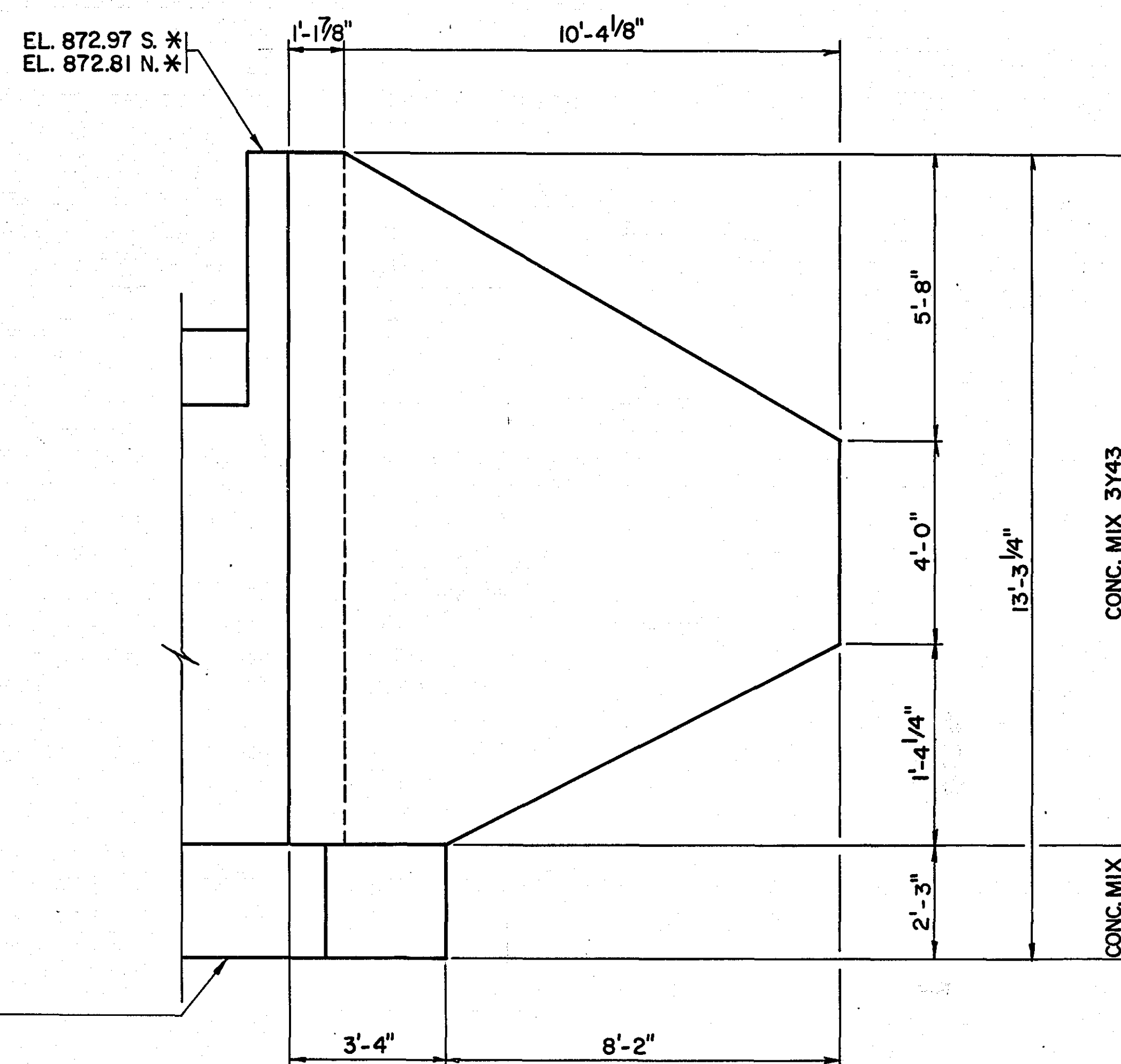
COMPUTED PILE LOADS TONS/PILE

	E. SIDE ABUTMENT	W. SIDE ABUTMENT	W. WING FOOTING
LIVE LOAD	9.6	9.6	0
DEAD LOAD + EARTH PRESSURE	25.0	37.7	21
DESIGN LOAD	34.6	47.3	21



WEST WING WALL ELEVATION

* SEE NOTE SHEET 4



EAST WING WALL ELEVATION

S.P. 62-645-01

BRIDGE NO. 62540
ABUTMENT
GEOMETRICS
DETAILS

App'd 4-8-84

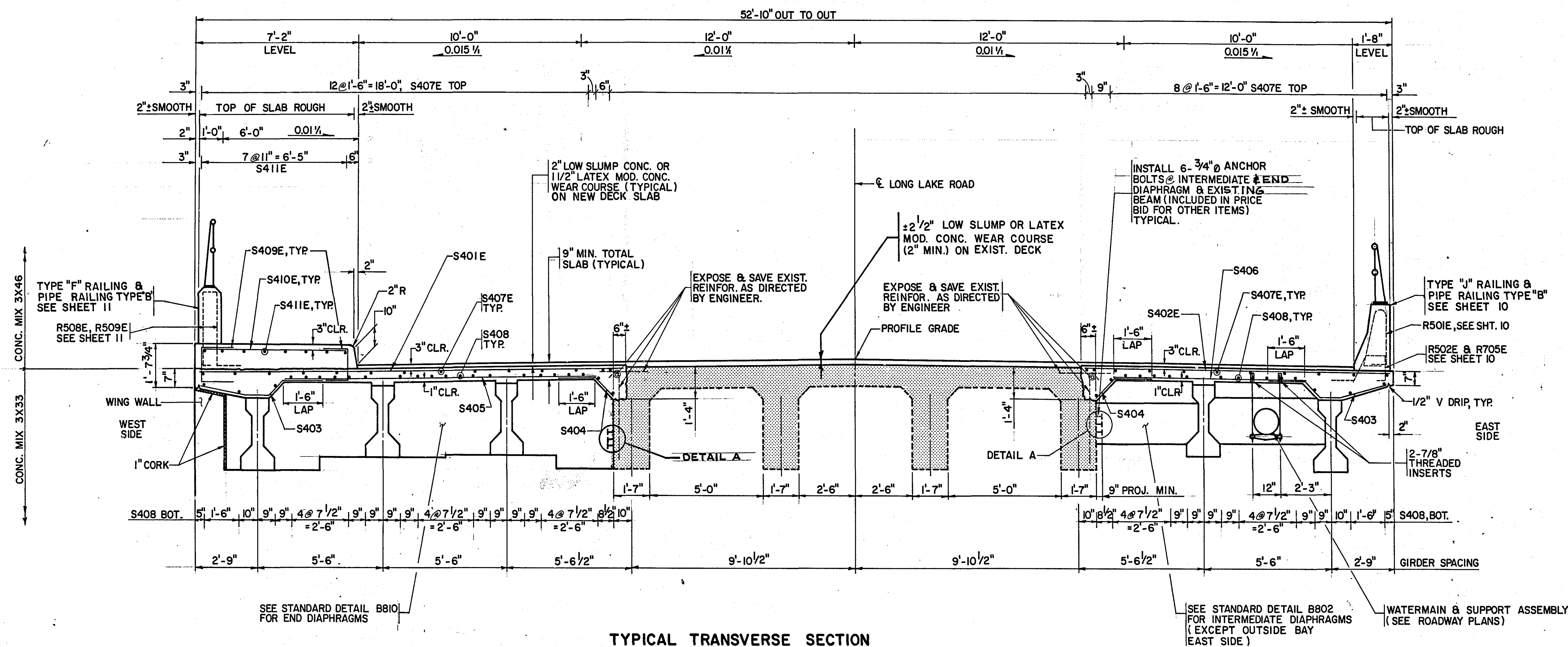
DES. J.J.	DR. D.F.	62540
CHK. B.J.	CHK. J.R.	

Sheet No. 4 of 19 Sheets

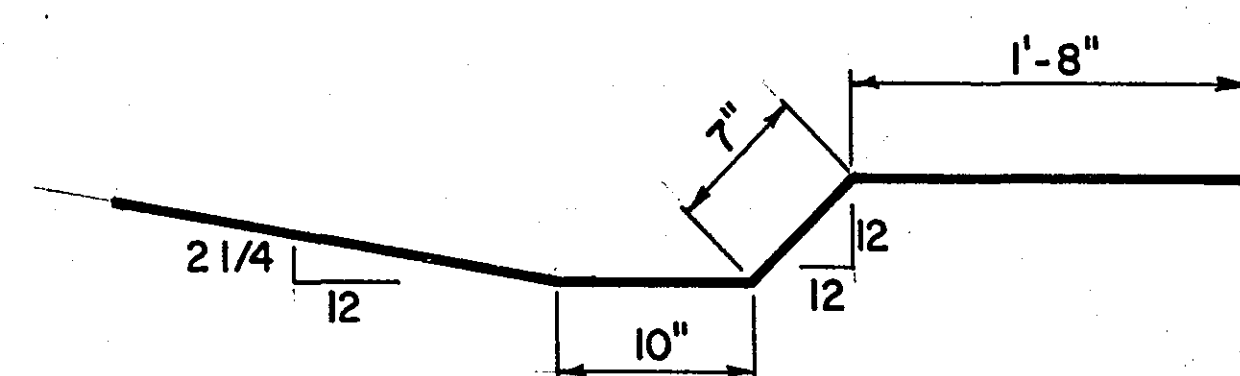
27-107

BILL OF REINFORCEMENT

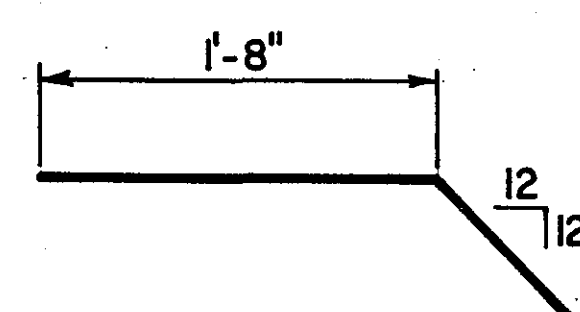
BAR	NO.	LENGTH	SHAPE	LOCATION
S401E	94	18'-8"	STRT.	SLAB TRANS
S402E	94	13'-2"	"	"
S403	188	5'-1"	BENT	"
S404	188	2'-6"	"	"
S405	94	14'-1"	STRT.	"
S406	94	8'-8"	"	"
S407E	26	46'-8"	STRT.	SLAB LONG.
S408	39	46'-8"	"	"
S409E	64	5'-3"	BENT	SWDK. TIE
S410E	32	6'-6"	STRT.	SDWK. TRANS
S411E	8	46'-8"	"	SDWK. LONG.
S412	38	9'-7"	BENT	END DIAPH.
S413	6	16'-10"	STRT.	"
S414	6	12'-8"	"	"
S415	2	5'-0"	"	"
S416	2	3'-11"	"	"
S417	2	6'-6"	"	"
S418	4	8'-6"	"	"
S419	20	4'-1"	BENT	"
S420	16	4'-0"	STRT.	"
S421	4	4'-6"	"	"
S422	4	3'-4"	"	"
S423	10	1'-6"	"	"
S424	10	3'-10"	"	"



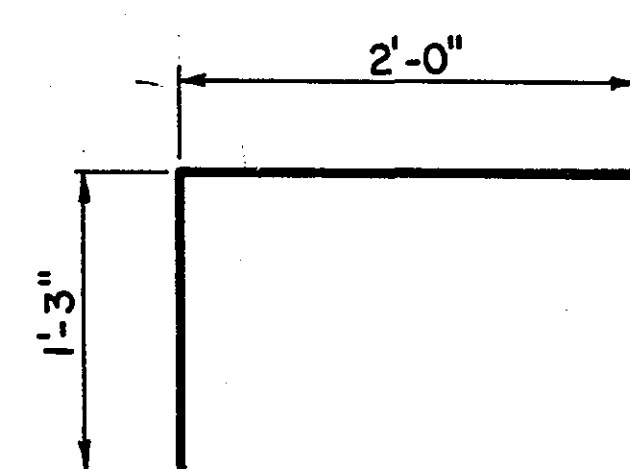
TYPICAL TRANSVERSE SECTION



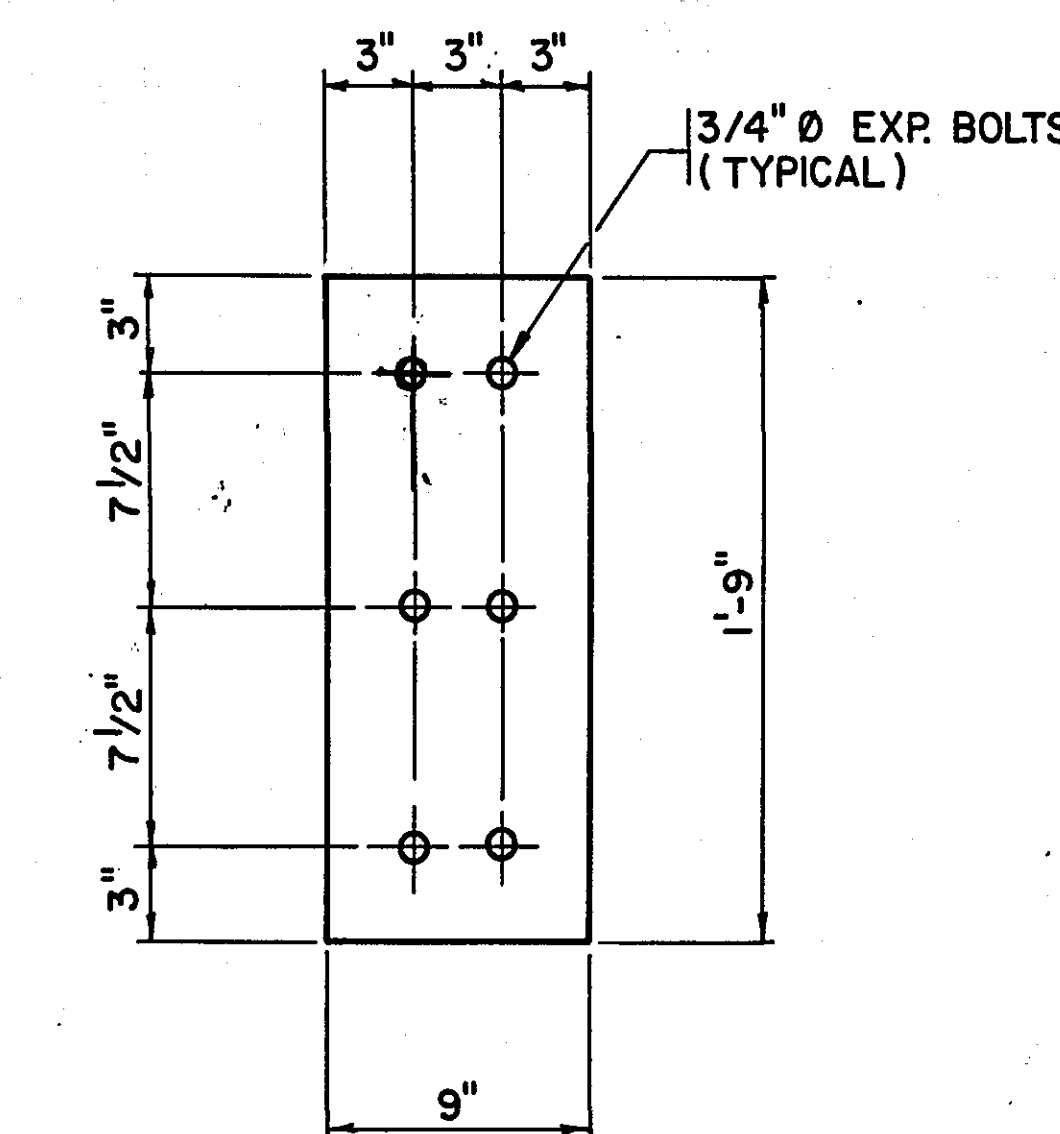
S403



S404



S409E



DETAIL A
(TYPICAL BOLT PATTERN)

S.P. 62-645-01

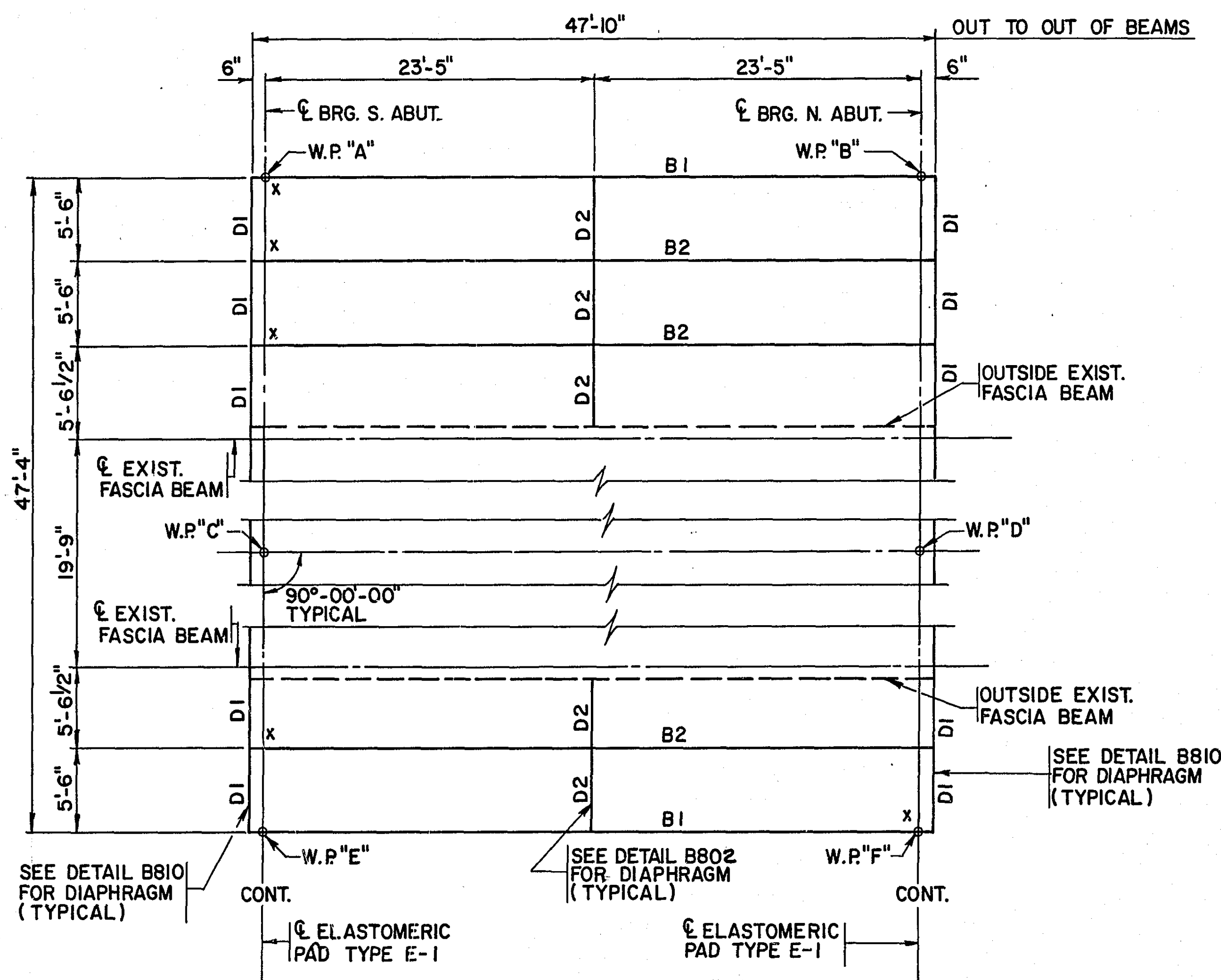
BRIDGE NO. 62540
SUPERSTRUCTURE
DETAILS

APPENDIX 2-34

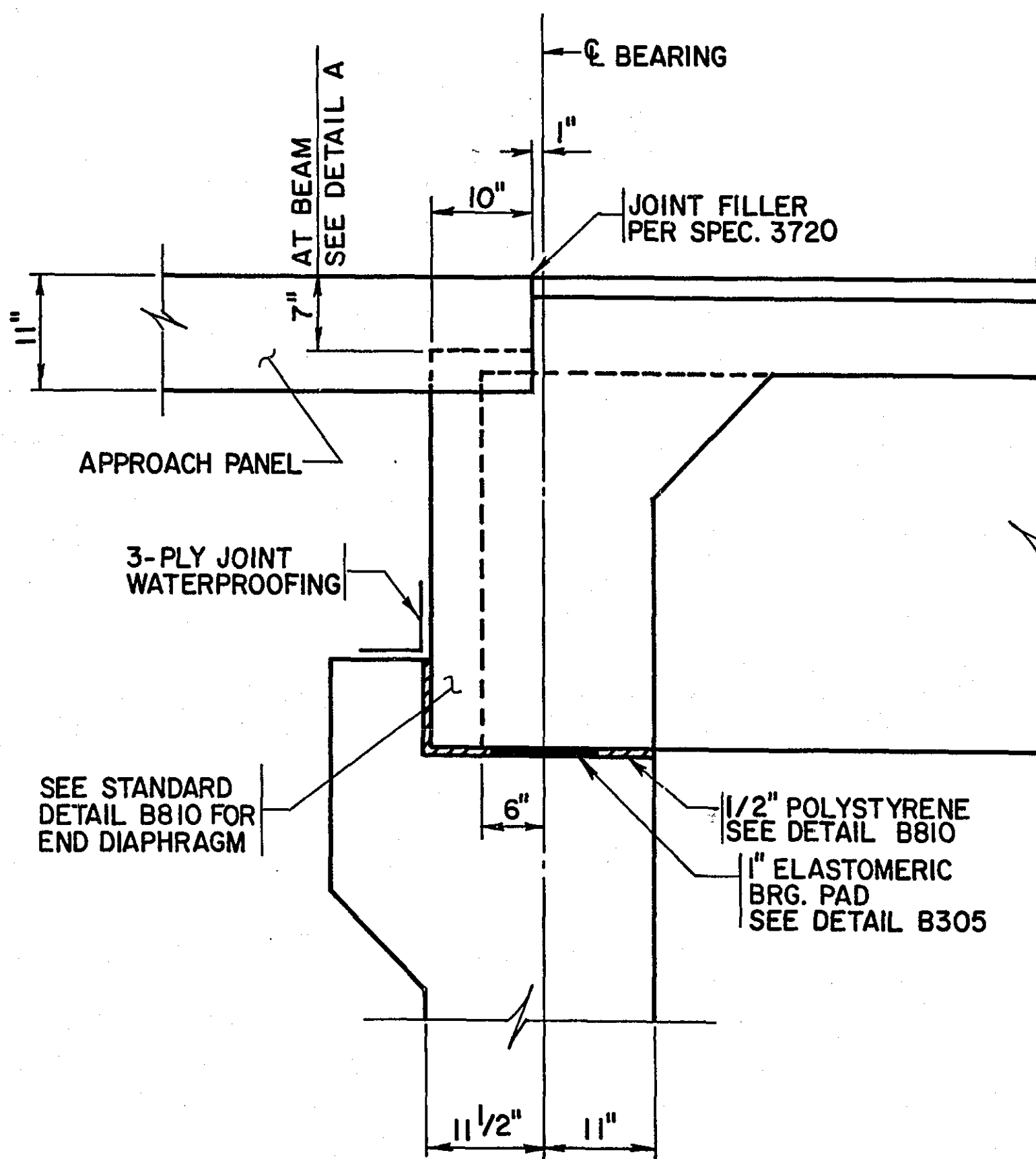
DES. J.P. DR. D.F. 62540
CHK. B.J. CHK. J.P.

Sheet No. 7 of 19 Sheets

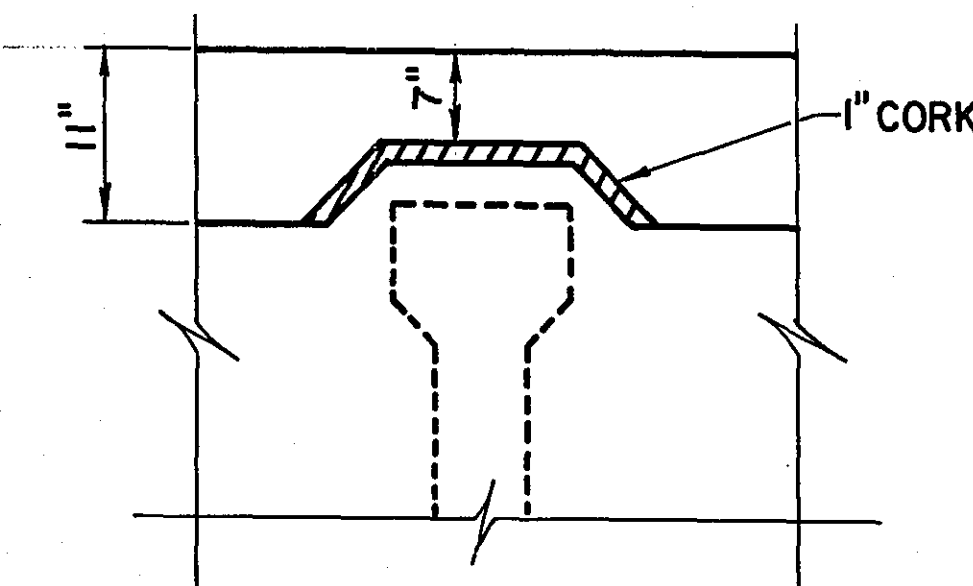
27-107



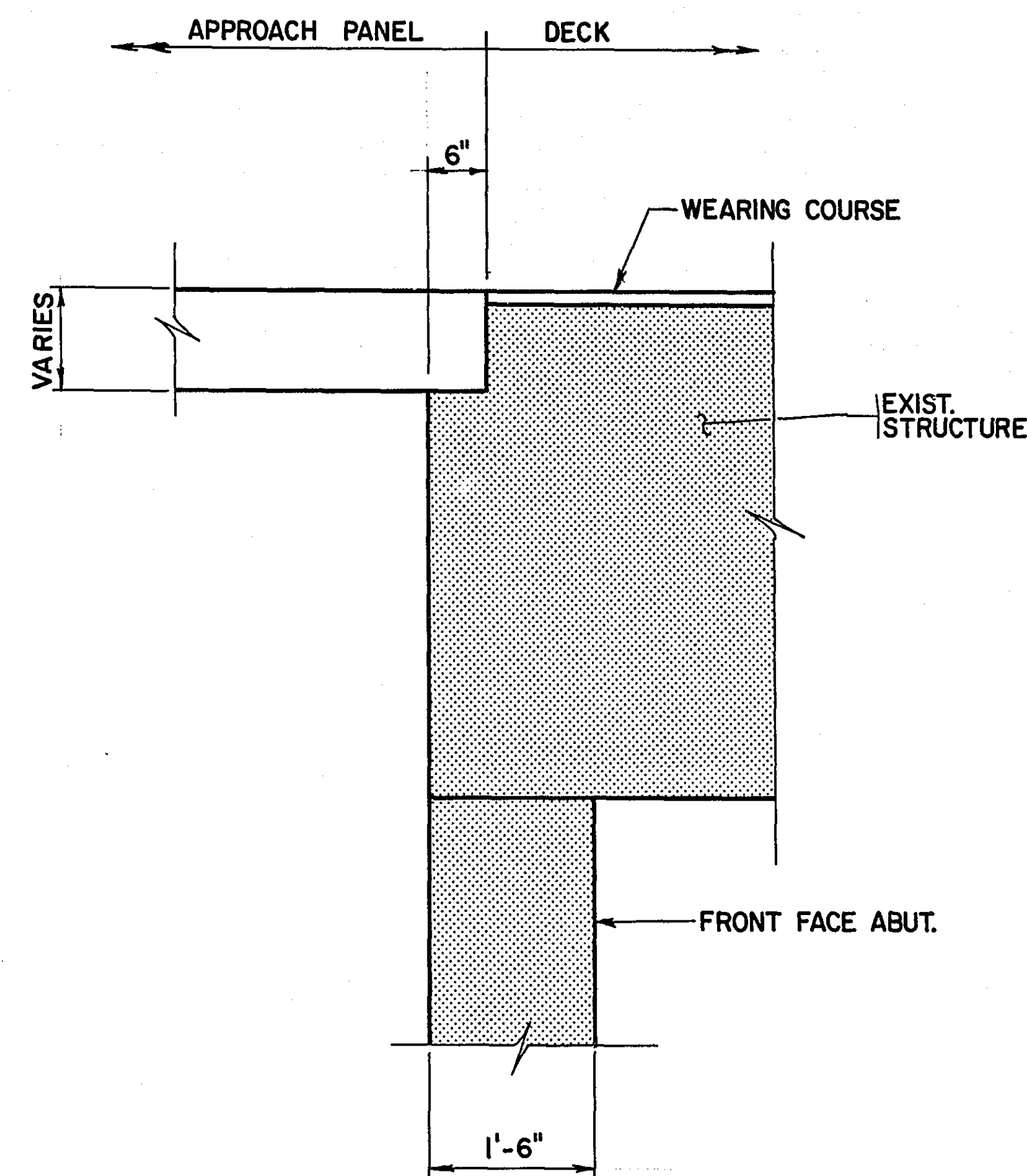
FRAMING PLAN



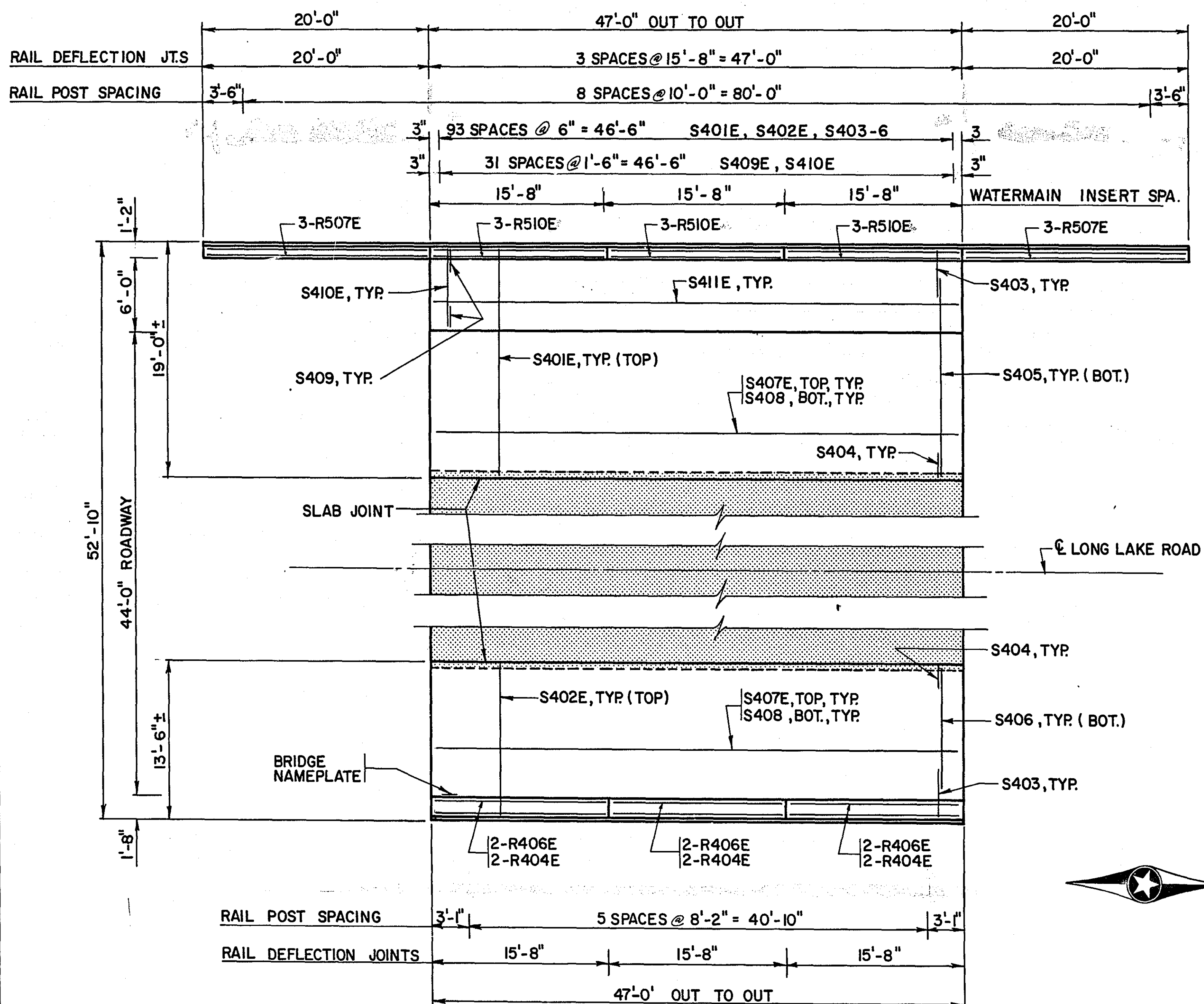
SECTION THRU ABUTMENTS
(NEW)



DETAIL "A"
END DIAPHRAGM &
APPROACH PANEL @
BEAMS



SECTION THRU EXISTING ABUTMENT



DECK PLAN

SUMMARY OF QUANTITIES FOR SUPER		
③	BRIDGE SLAB CONCRETE, MIX NO. 3X33	1528 SQ. FT.
③	CONC. OVERLAY MIX NO. SPECIAL	2068 SQ. FT.
④	SIDEWALK CONC. MIX NO. 3X46	337 SQ. FT.
	TYPE "J" RAILING CONC. MIX NO. 3X46	47 LIN. FT.
	TYPE CONC. PARAPET, CONC. MIX NO.	87 LIN. FT.
	REINFORCEMENT BARS	4160 POUND
①	REINFORCEMENT BARS (EPOXY COATED)	5830 POUND
	PIPE RAILING	134 LIN. FT.
	ELASTOMERIC BEARING PADS, TYPE E-1	10 EACH
	PRESTRESSED CONC. BEAMS, TYPE 36-48	5 EACH
	DIAPHRAGMS FOR TYPE 36-48 PRESTRESSED BEAMS	28 LIN. FT.
②	JOINT FILLER (SEE SCHEDULE THIS SHEET)	
②	BRIDGE NAMEPLATE	1 EACH
②	3-PLY JOINT WATERPROOFING	65 LIN. FT.
	REMOVE OLD CONC.	1 LUMP SUM
⑦	WATERMAIN PROVISIONS	1 LUMP SUM
⑥	CONC. MIX NO. 3Y43	7 CU. YD.

- ① INCLUDES SIDEWALK & RAIL BARS
- ② INCLUDED IN PRICE BID FOR OTHER ITEMS.
- ③ APPROXIMATELY 32 CU. YD. WITH 2" LOW SLUMP WEARING COURSE OR 35 CU. YD. WITH 1 1/2" LATEX WEARING COURSE
- ④ APPROXIMATELY 14 CU. YD. WITH 2" LOW SLUMP OR 13 CU. YD. WITH 1 1/2" LATEX WEARING COURSE
- ⑤ CUT TO FIT
- ⑥ INCLUDES END DIAPHRAGM CONC.
- ⑦ INCLUDES 4-THREADED INSERTS, FURNISHING AND INSTALLING TWO 1/4" DIAMETER 8 GAUGE GALVANIZED STEEL PIPE SLEEVES 1'-10" LONG IN ABUT. DIAPHRAGMS, FURNISHING AND INSTALLING ONE 1/4" DIAMETER 8 GAUGE GALVANIZED STEEL PIPE SLEEVE 9' LONG IN INTERMEDIATE DIAPHRAGM.

LIST OF PREFORMED CORK JOINT FILLER		
2 - 1" x 20'-0" x 1'-0"	APPROACH PANEL	
2 - 1" x 1'-2" x 1'-0"	WINGWALL	
2 - 1" x 1'-10 1/2" x 4'-3"	"	
2 - 1" x 1'-10 1/2" x 5'-1"	"	
10 - 1" x 2'-0" x 10"	BEAM @ END DIAPHRAGMS	
2 - 1" x 1'-7" x 11"	RAILING	
5 - 1" x 1'-0" x 2'-4"	"	
2 - 1" x 1'-2" x 1'-11"	WING WALL	

LIST OF POLYSTYRENE		
2 - 1/2" x 1'-10" x 9"	ABUT. SEAT	
2 - 1/2" x 1'-10" x 1'-6"	"	
8 - 1/2" x 1'-10" x 4'-0"	"	
24 - 1/2" x 1'-10" x 3"	ABUT SEAT @ BEAMS & STEPS	
2 - 1/2" x 1'-10" x 6"	ABUT. SEAT	
2 - 1/2" x 3" x 1'-10"	"	

LIST OF BIT. FELT		
4 - 1/2" x 9" x 5'-3"	ABUT. SHEAR BLOCK	
2 - 1/2" x 10" x 5'-6"	"	
2 - 1/2" x 1'-1" x 5'-6"	"	
2 - 1/2" x 1'-1" x 4'-4"	"	

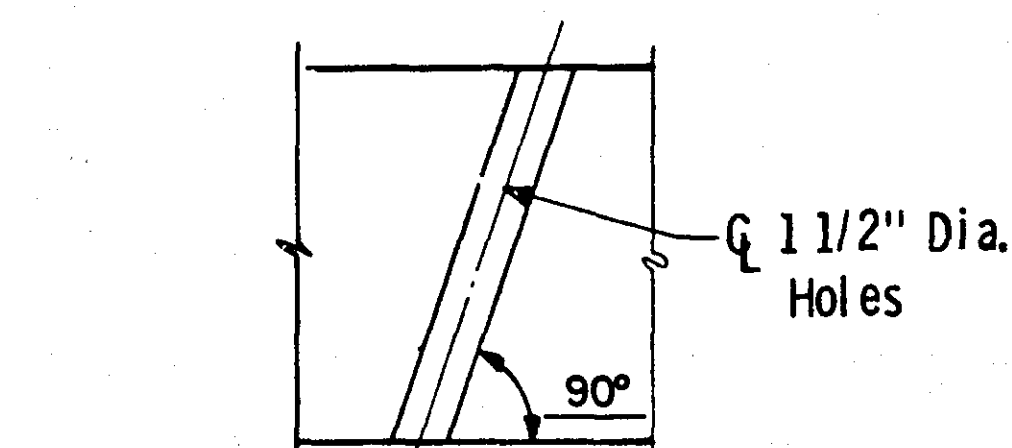
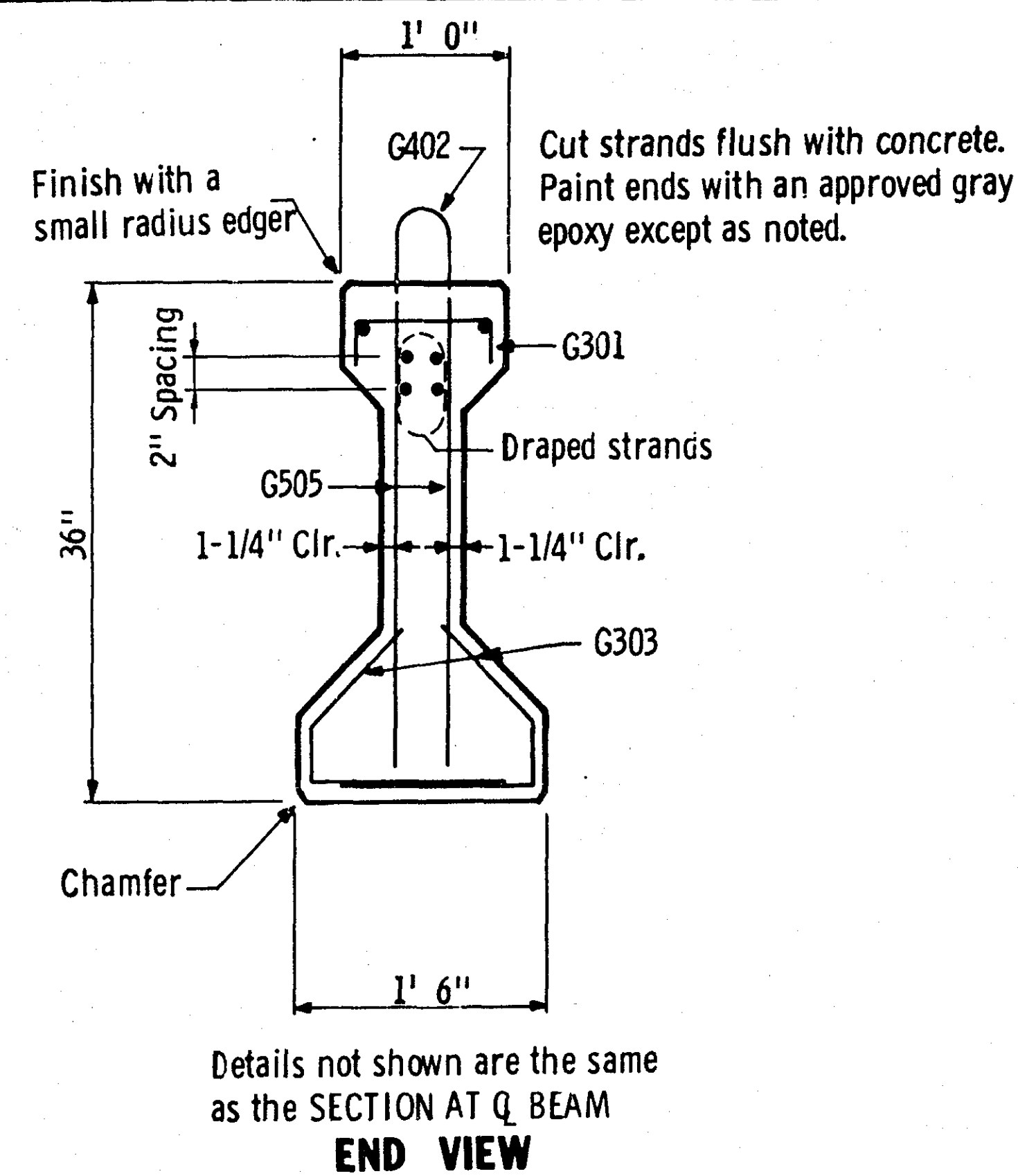
S.P. 62-645-01

BRIDGE NO. 62540
SUPERSTRUCTURE
DETAILS

APP'D. 4-3-64

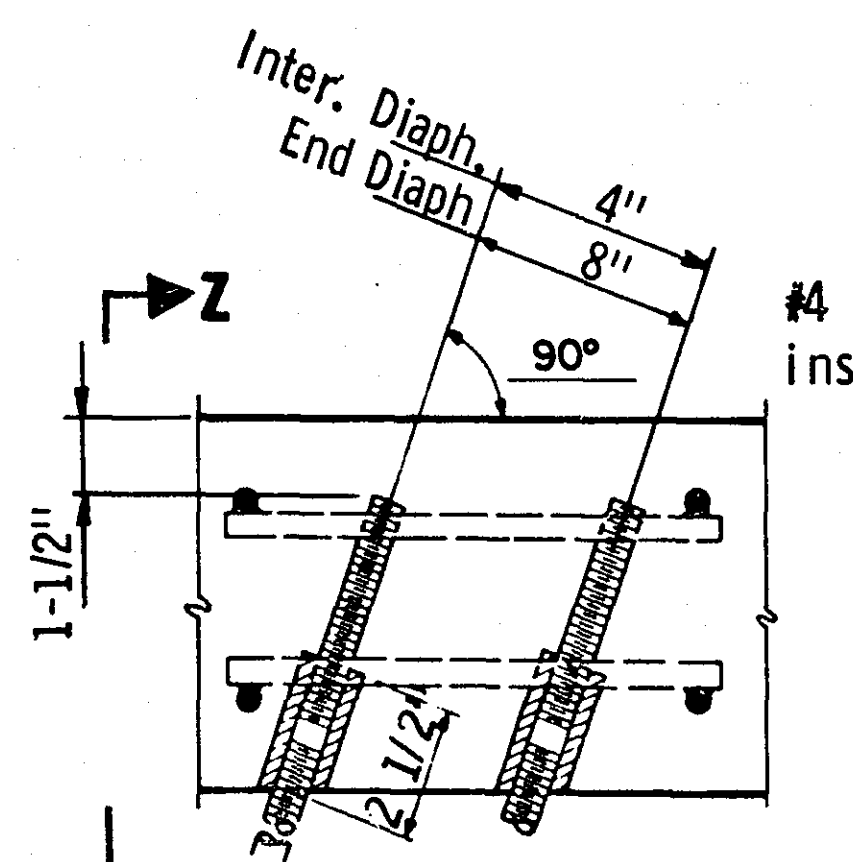
DES. J.P.	DR. + D.F.	62540
CHK. B.J.	CHK. J.P.	

Sheet No. 8 of 19 Sheets

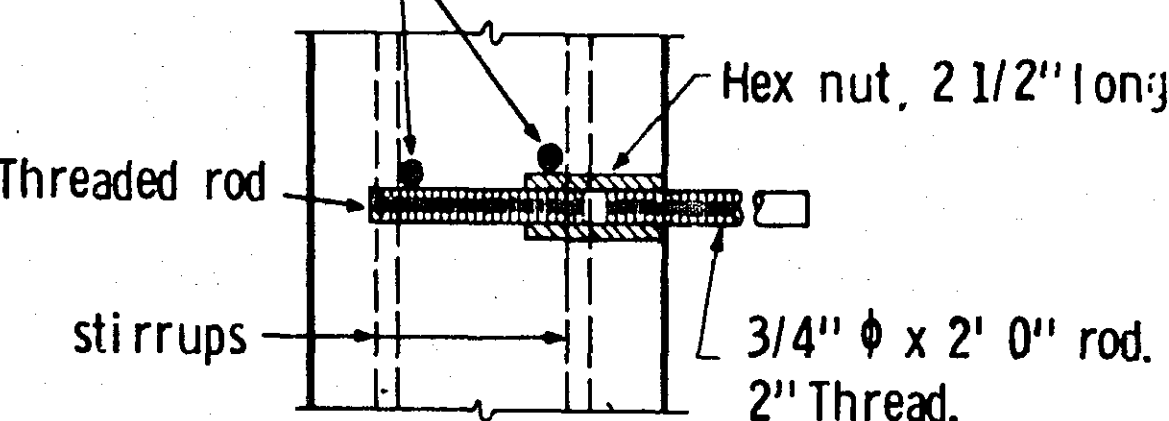


See FRAMING PLAN for skew direction. Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.

SECTION Y-Y
FOR USE WITH CONCRETE END DIAPHRAGMS WITH PILE BENT ABUTMENTS

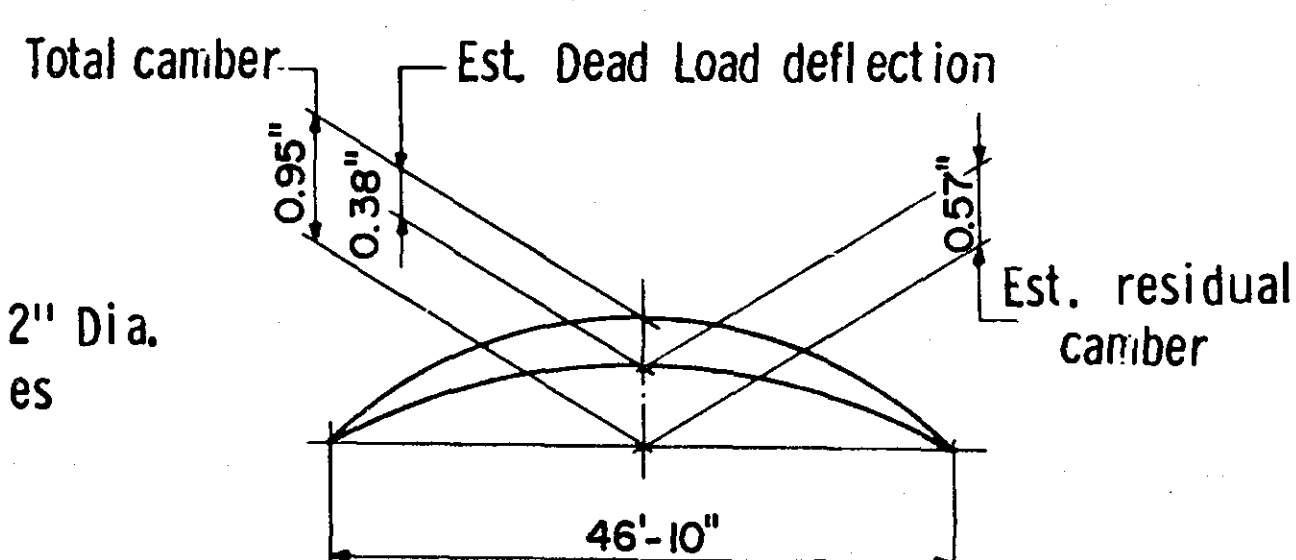


USE AT FASCIA BEAM AND INTERIOR BEAM WITH STAGGERED DIAPHRAGMS



Nuts and rods per Spec. 3306. No paint

SECTION Z-Z



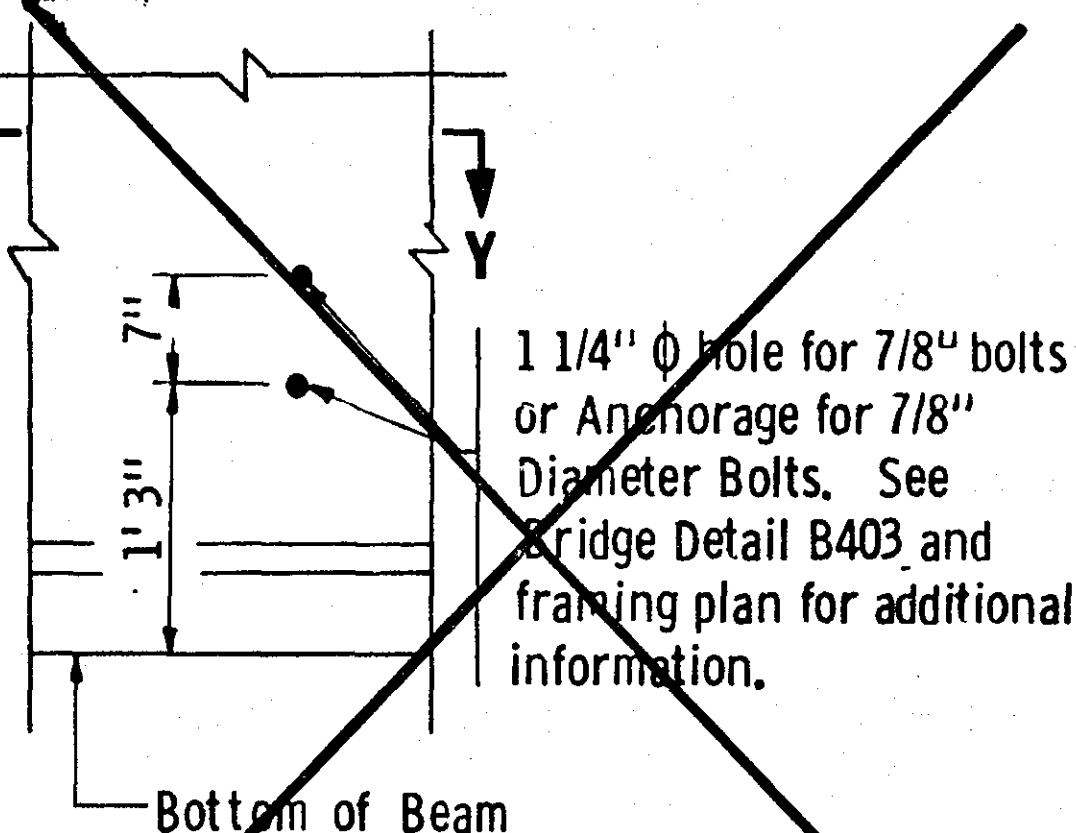
Deflections shown are for weight of slab, wearing course, railing, sidewalk, and diaphragms only. Engineer will take elevations at top of beams after erection and will allow for deflections shown to enable contractor to build forms to correct grade and specified slab thickness.

SECTION X-X
USE AT INTERIOR BEAM WITH CONTINUOUS CONCRETE DIAPHRAGM

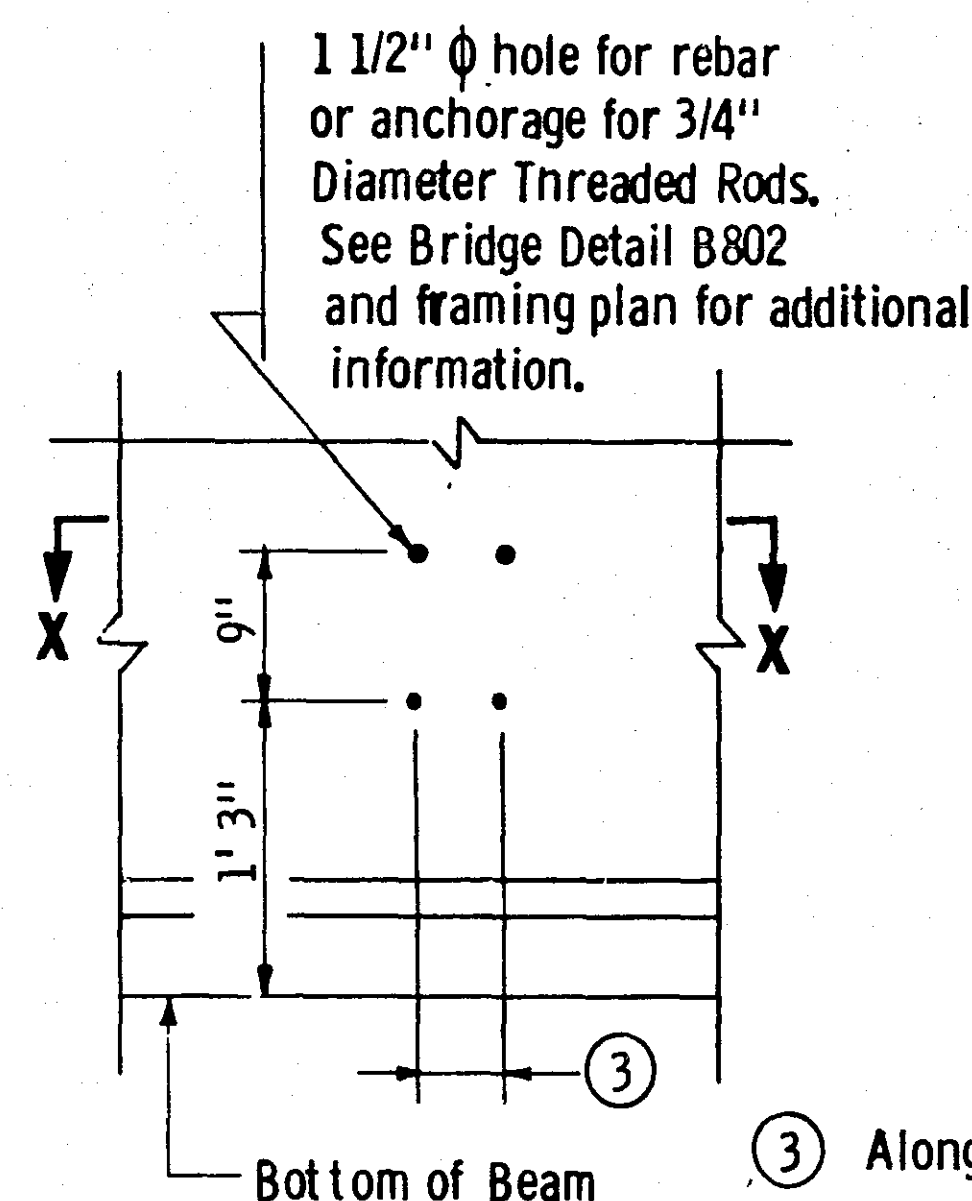
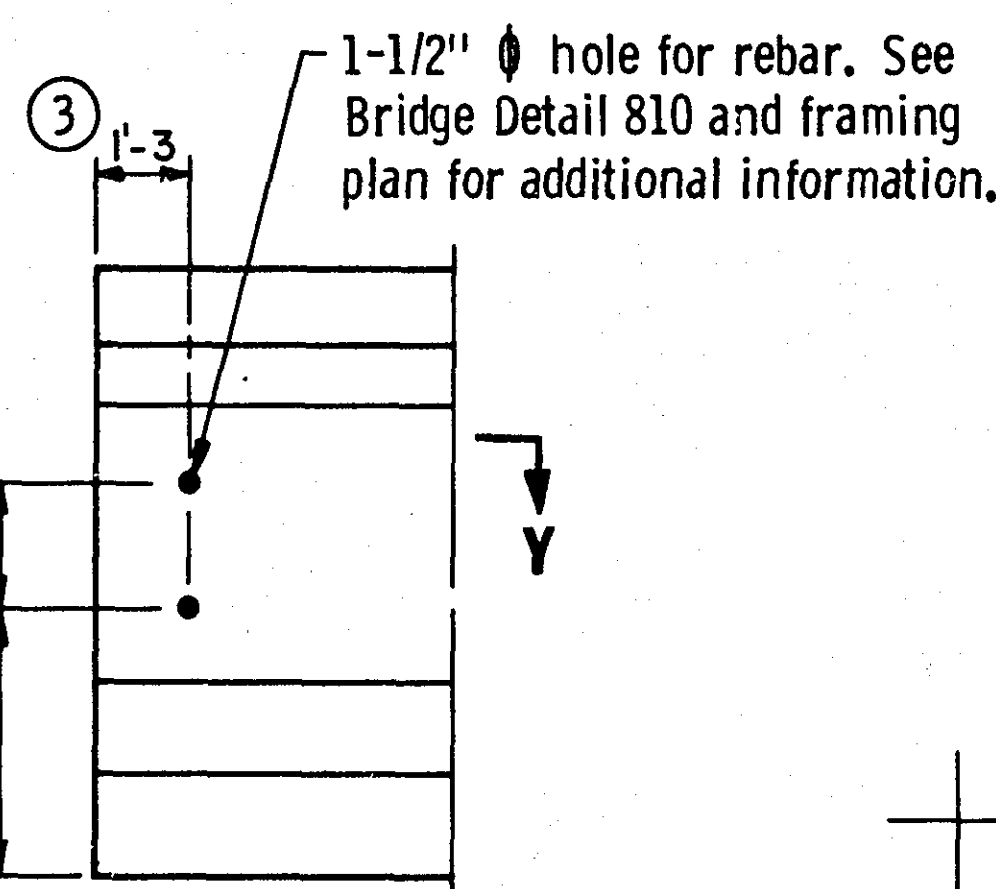
CAMBER DIAGRAM

Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.

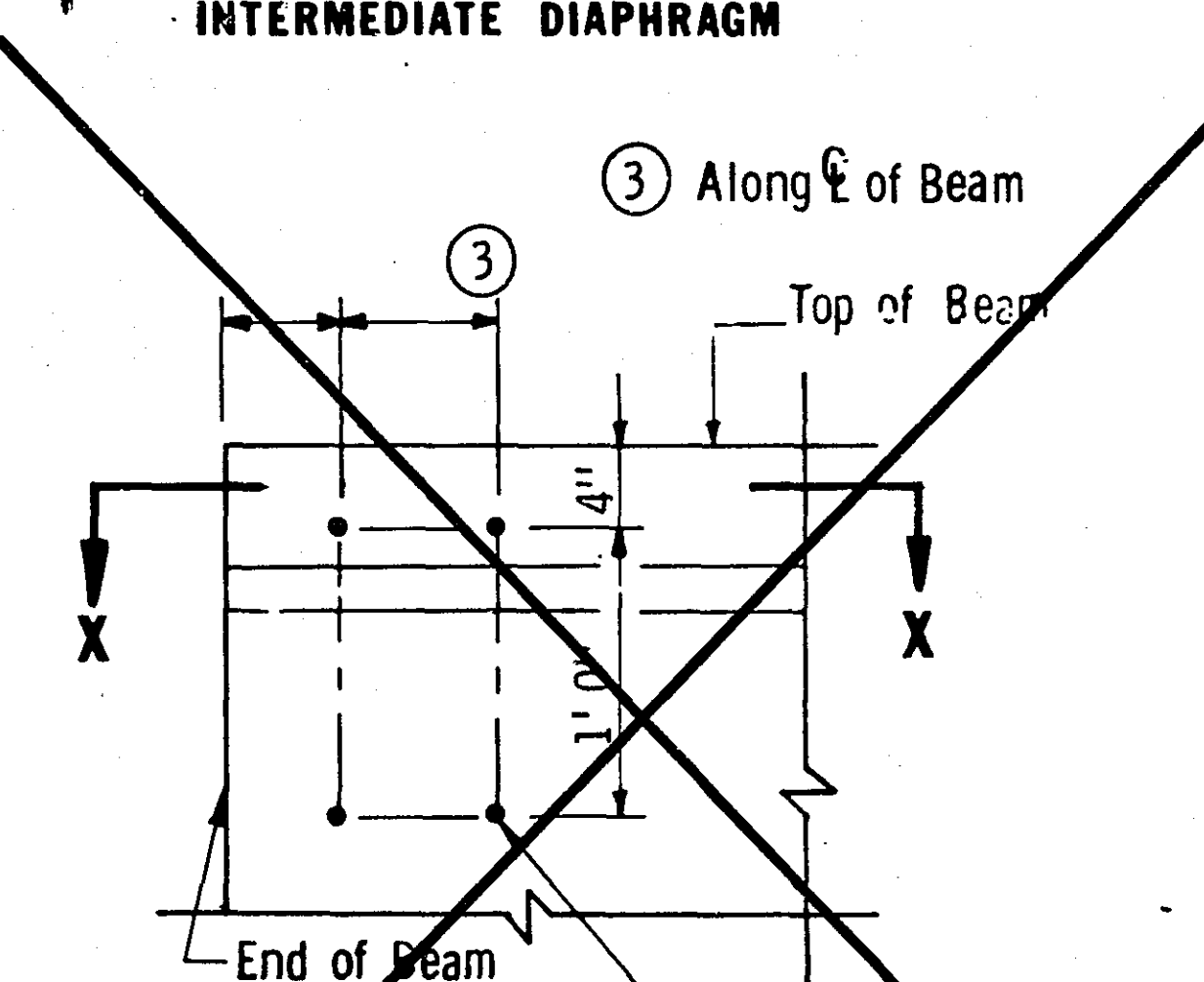
SECTION Y-Y
USE AT INTERIOR BEAM WITH STEEL DIAPHRAGM



FOR USE WITH STEEL INTERMEDIATE DIAPHRAGM

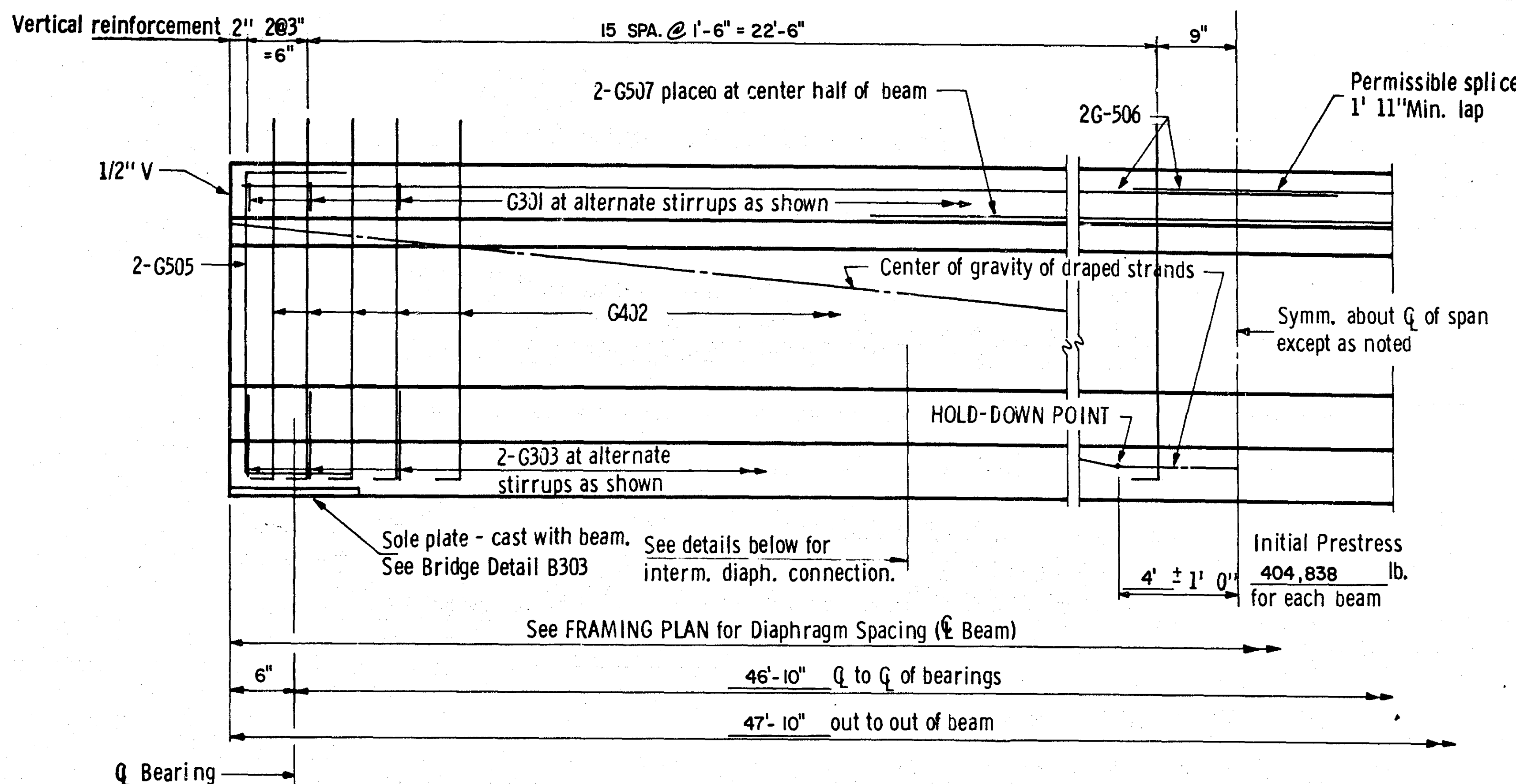


FOR USE WITH CONCRETE INTERMEDIATE DIAPHRAGM

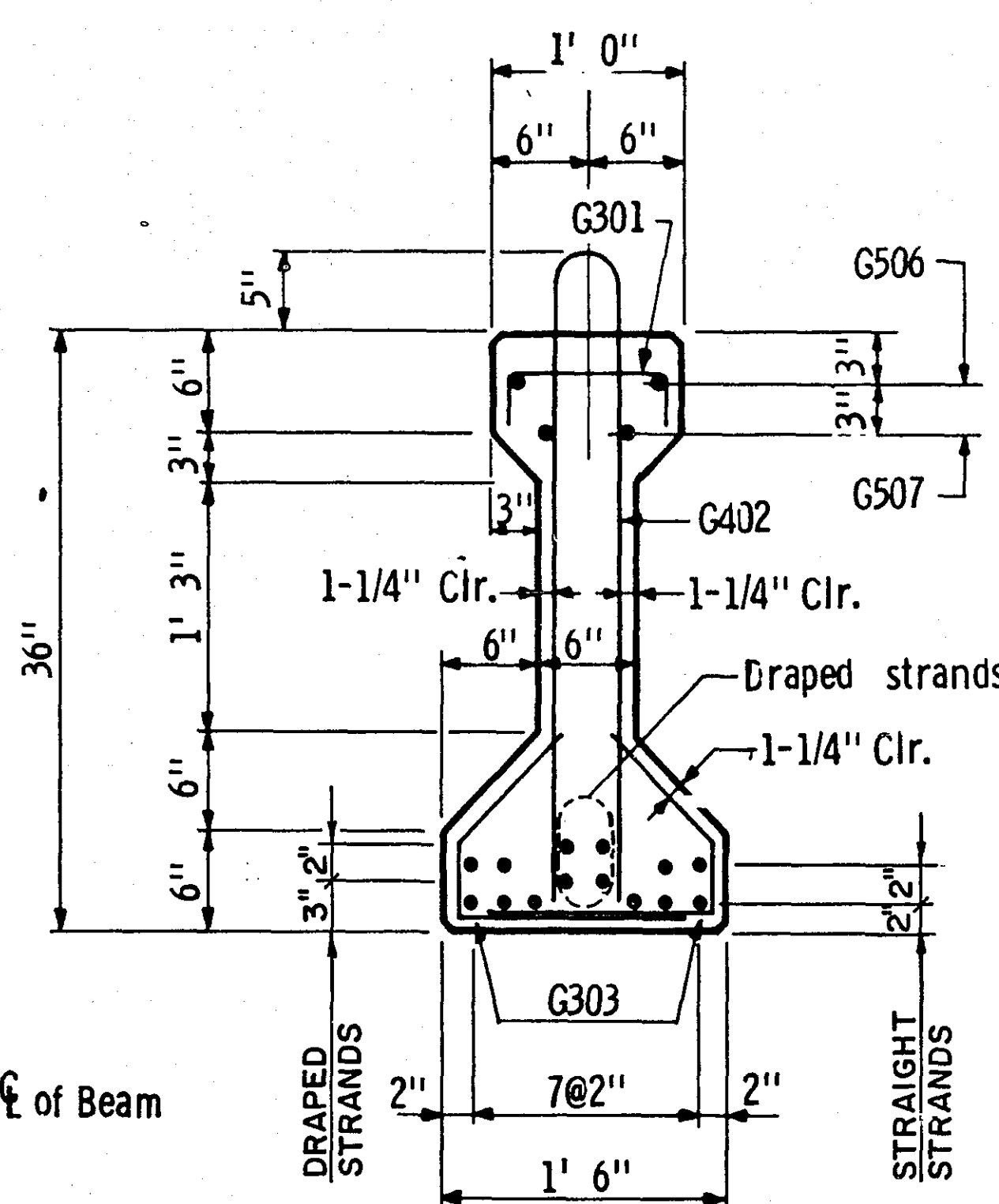


CONCRETE END DIAPHRAGMS PARAPET ABUTMENT

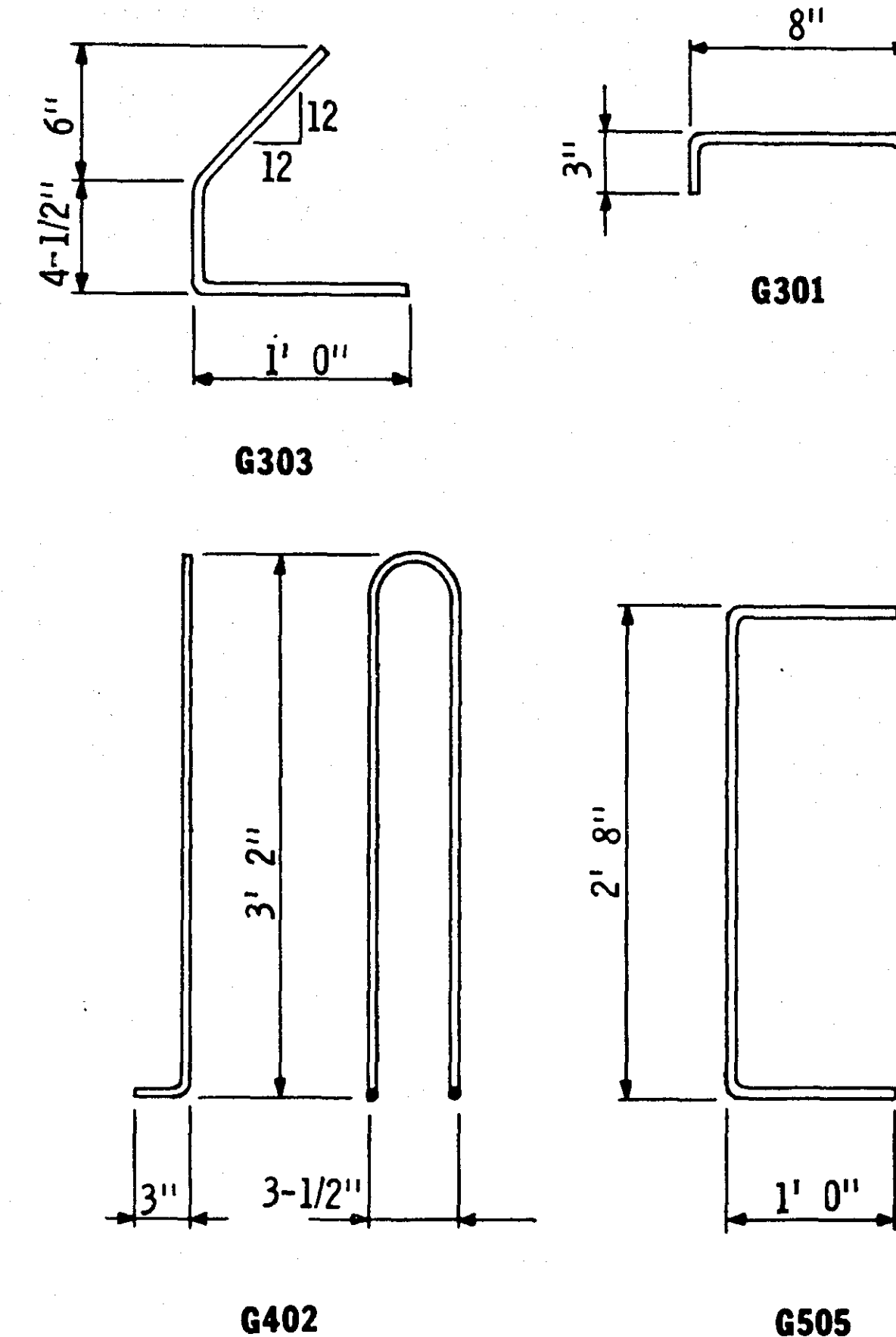
1 1/2" ϕ holes for rebars or Anchorage for 3/4" Diameter Threaded Rods. See Bridge Detail B803 for additional information.



HALF ELEVATION



SECTION AT Q BEAM



First digit of bar mark indicates bar size. All bar dimensions are out-to-out.

Y DISTANCES (IN INCHES)			
	NO.	Q SPAN	END
Straight strands	10	2.80	
Draped strands	4	4.00	30.00
Total strands	14	3.14	

Y = distance of Center of Gravity of strands from bottom of beam. All strands spaced 2" c-c, horizontally and vertically except as noted.

All strands 1/2" ϕ 270 kip, ultimate strength.

A tolerance of $\pm 2"$ will be permitted in this dimension.

S.P. 62-645-01

TITLE:
36" PRESTRESSED CONCRETE BEAM (PRETENSIONED) TYPE 36-48

DES: B.J.
CHK: D.P.

DR: J.P.
CHK: D.P.

APPROVED:
4-3-84

Bridge No.
62540

Sheet No. 9 of 19 Sheets

Bar	Wt.
G 301	.44 lb.
G 402	4.68 lb.
G 303	.78 lb.
G 505	4.87 lb.
G 506	
G 507	

Girder Section Data	
Wt./ft. = 385 lbs.	
Cross sec. area at $\bar{C}$ of span = 369 in ²	
C. G. (from bottom) = 15.83 in.	
I = 50,980 in ⁴	
S _x = 3,221 in ³	
1/2" ϕ 270k strand wt./ft. = .525 lb.	
1/2" ϕ 270k strand area = .1531 sq. in.	

GENERAL NOTES:

Tops of beams shall be rough floated and broomed transversely for bond.

Provide handling hooks or devices as required by Contractor. Hooks or devices provided will be subject to approval of Engineer and shall be installed within 4' 0" of the end of beam.

A modified strand pattern or a bundled strand pattern which does not change center of gravity of strands may be submitted to the Engineer for approval.

A post-tensioned beam may be used as an alternate for the pretensioned design shown. DESIGNER will provide plans for the post-tensioned alternate on request.

Each beam shall be marked, showing bridge number, casting date, and individual identification letters and numbers. Markings shall be made on the face of the beam, near the end, so located that they will be exposed after the end diaphragms have been cast. Fascia beams shall be marked on an inside face. All markings shall be stenciled and be clearly legible. For location of beams, see framing plan.

All material and work shown or noted on this sheet shall be included in unit price bid for prestressed concrete beams. See Spec. 2405.

See framing plan for beam ends marked "X".

Approximate weight of beam 9.24 tons.

As an alternate to the diaphragm anchorages shown, the contractor may submit details of a cast-in-place anchorage to the engineer for approval. Anchorage must provide an ultimate pull out strength of 15 kips per anchorage.

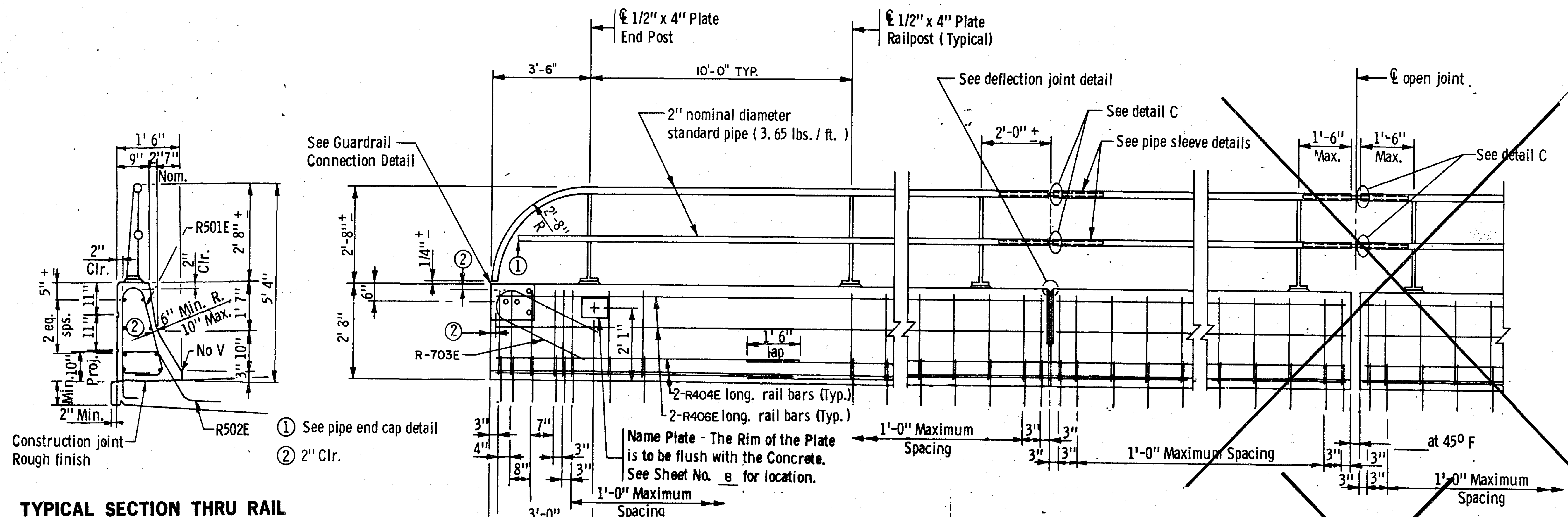
MINIMUM CONCRETE STRENGTH - P.S.I.		
	① f'ci	② f'c
Required min. Concrete Strength	4000	5000

① Minimum concrete strength at time of prestress transfer.

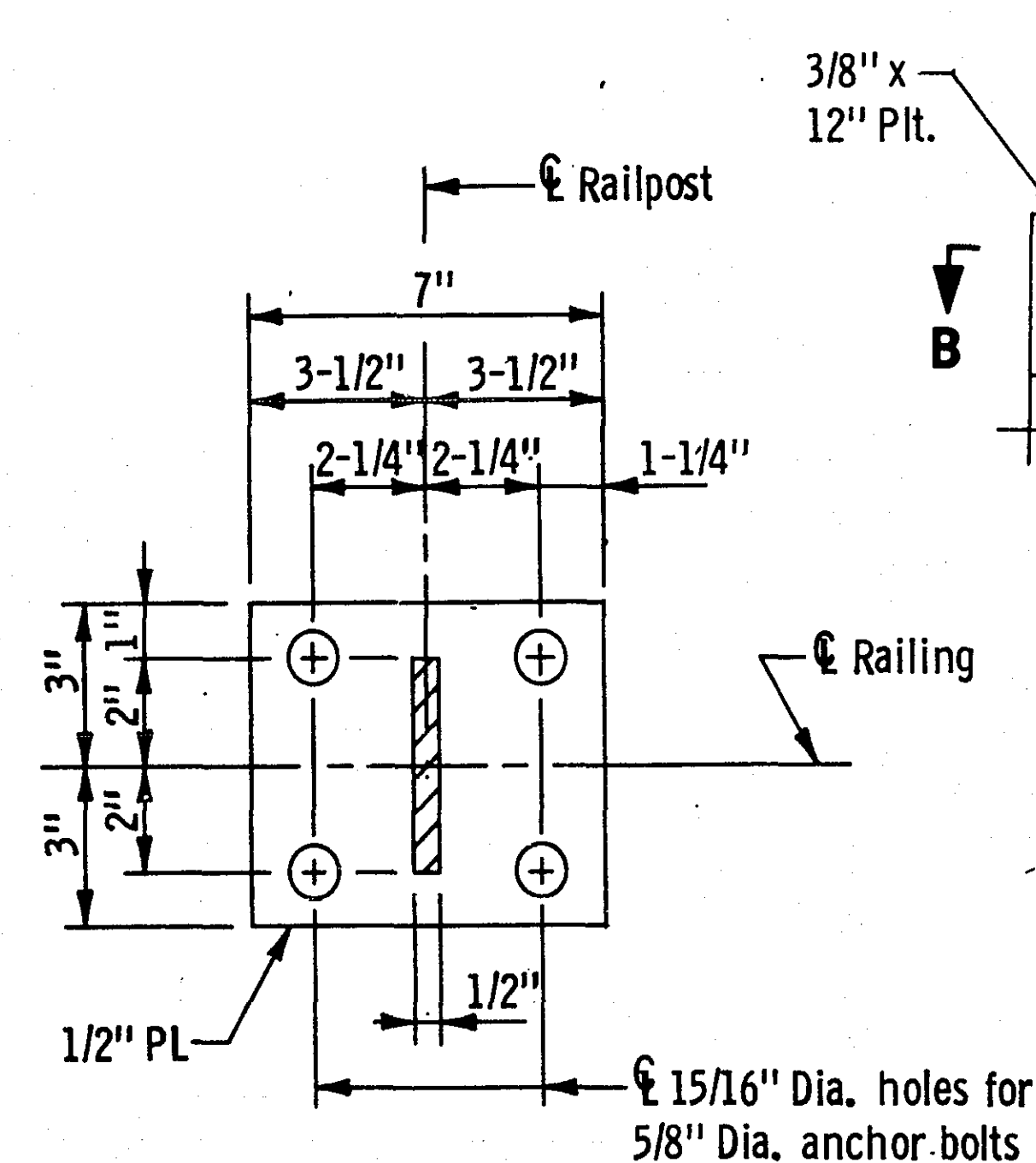
② Minimum concrete strength when curing can be discontinued and beam transported and installed.

Fig. 5-397.502

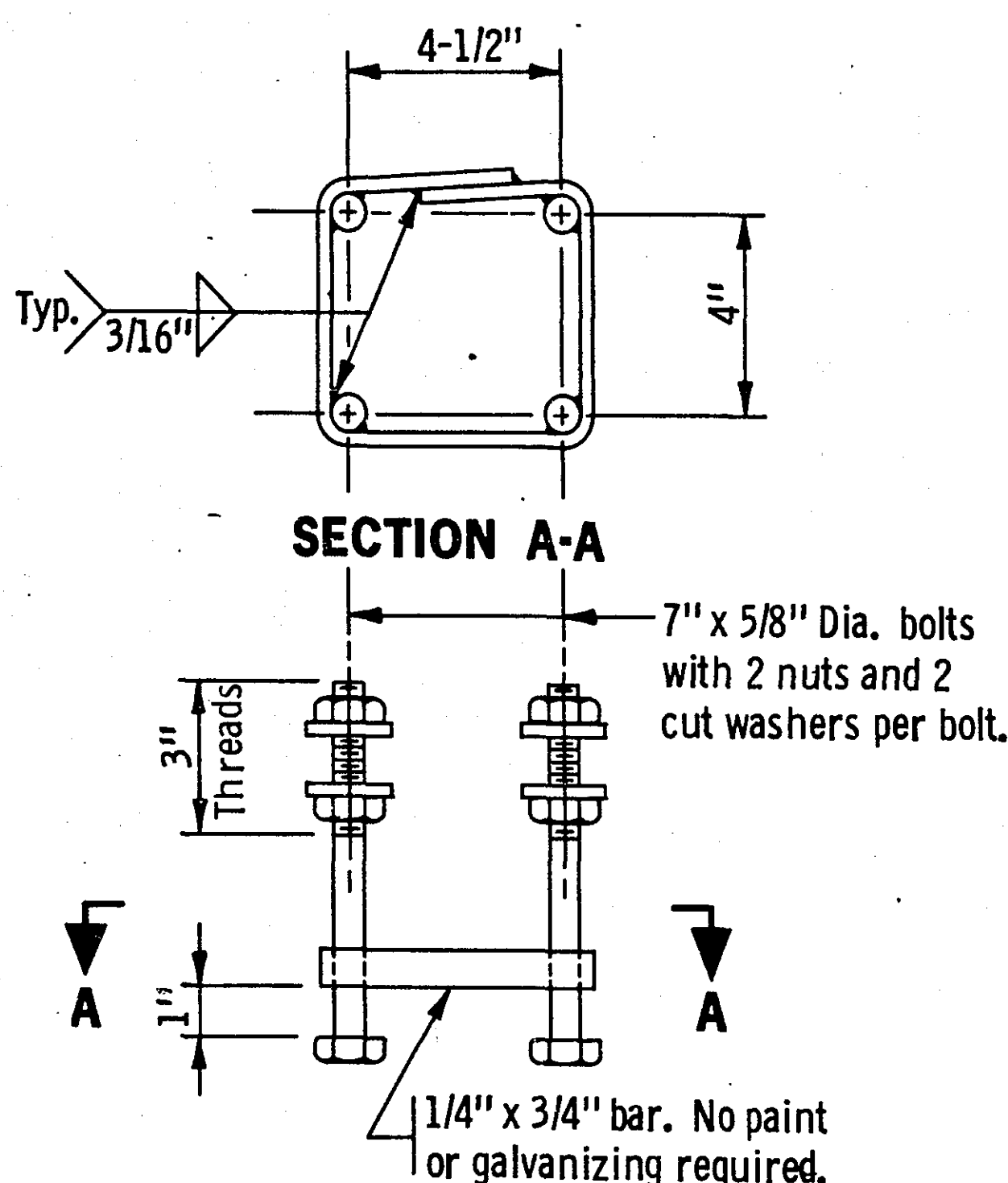
Revised December 29, 1977 Approved: May 18, 1977



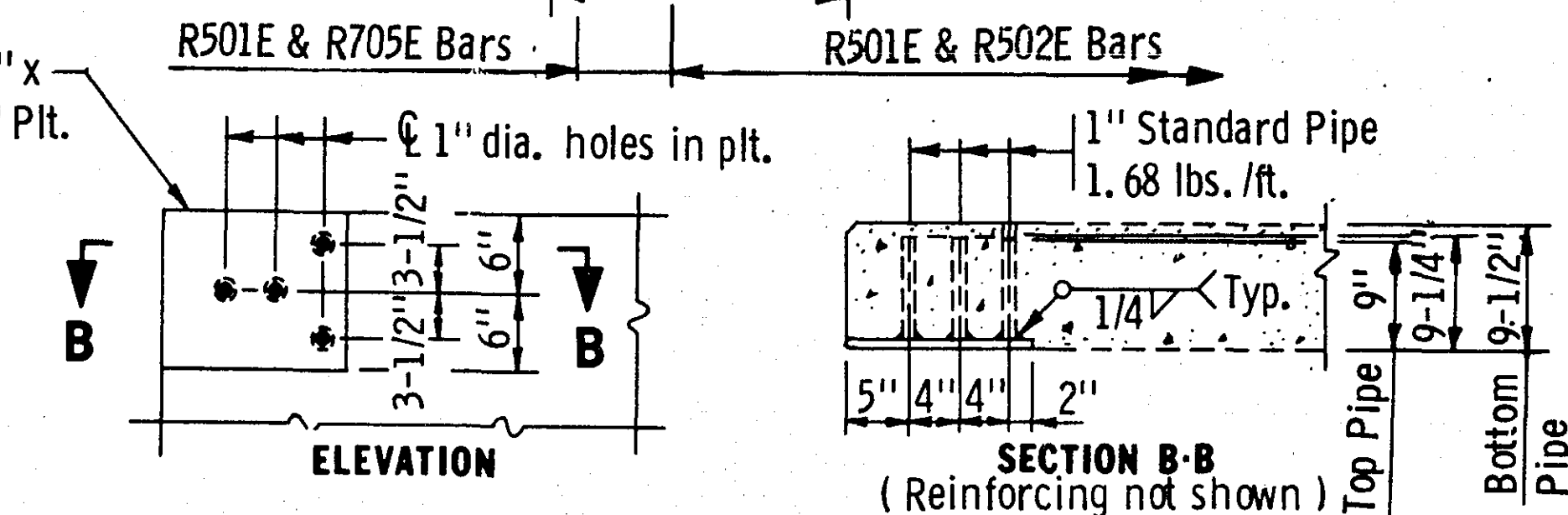
TYPICAL SECTION THRU RAIL



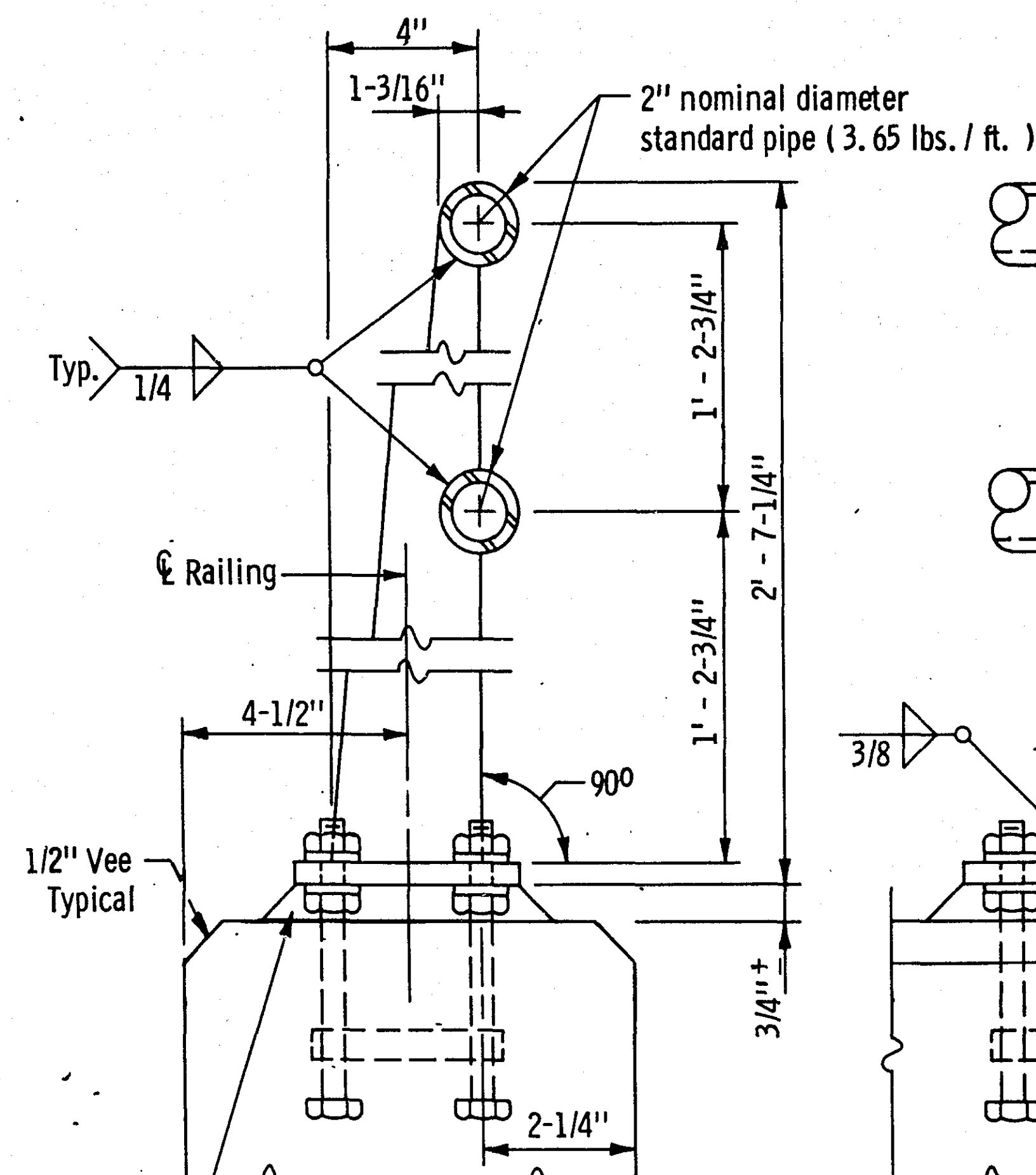
RAILPOST BASE PLATE



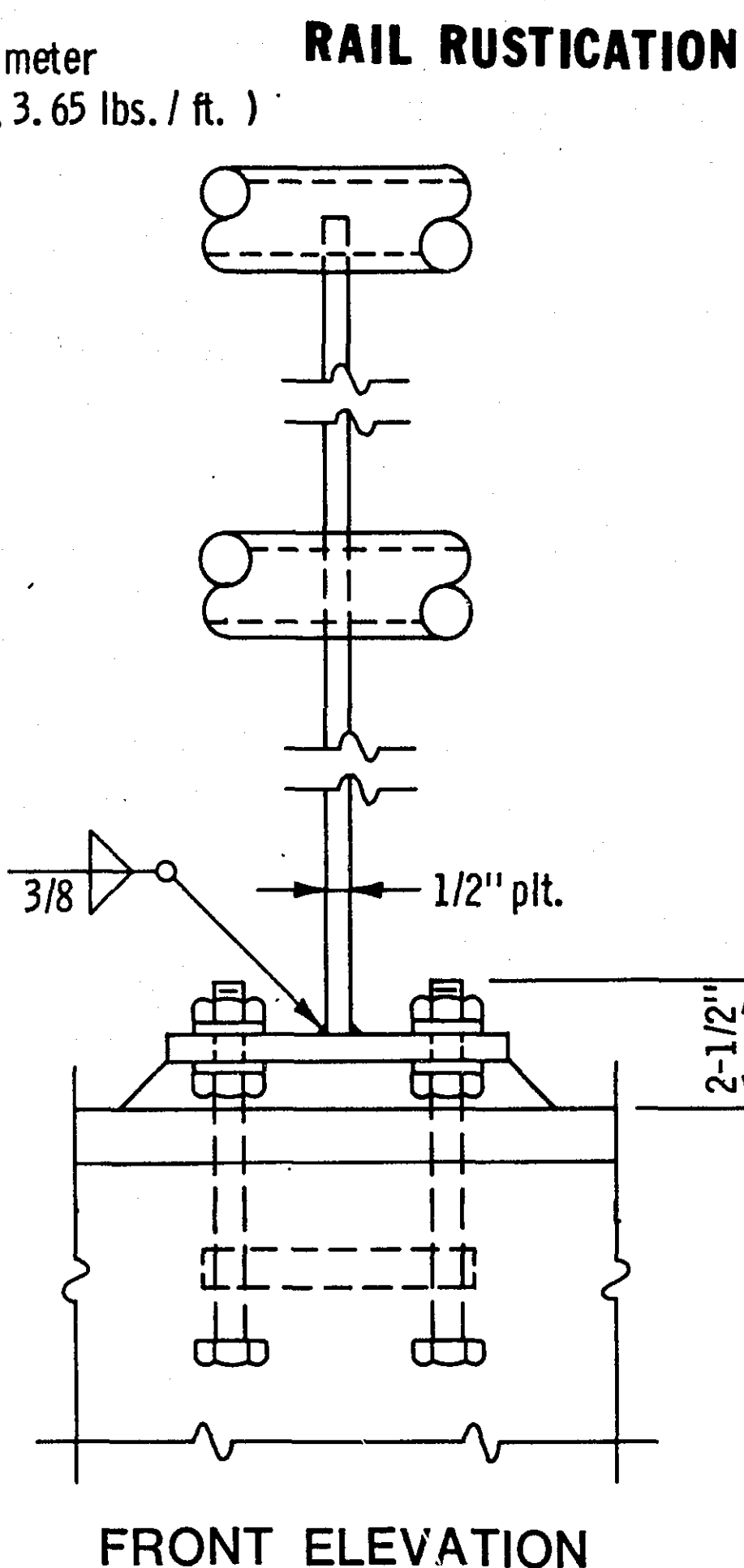
RAILPOST ANCHORAGE



GUARDRAIL CONNECTION DETAIL



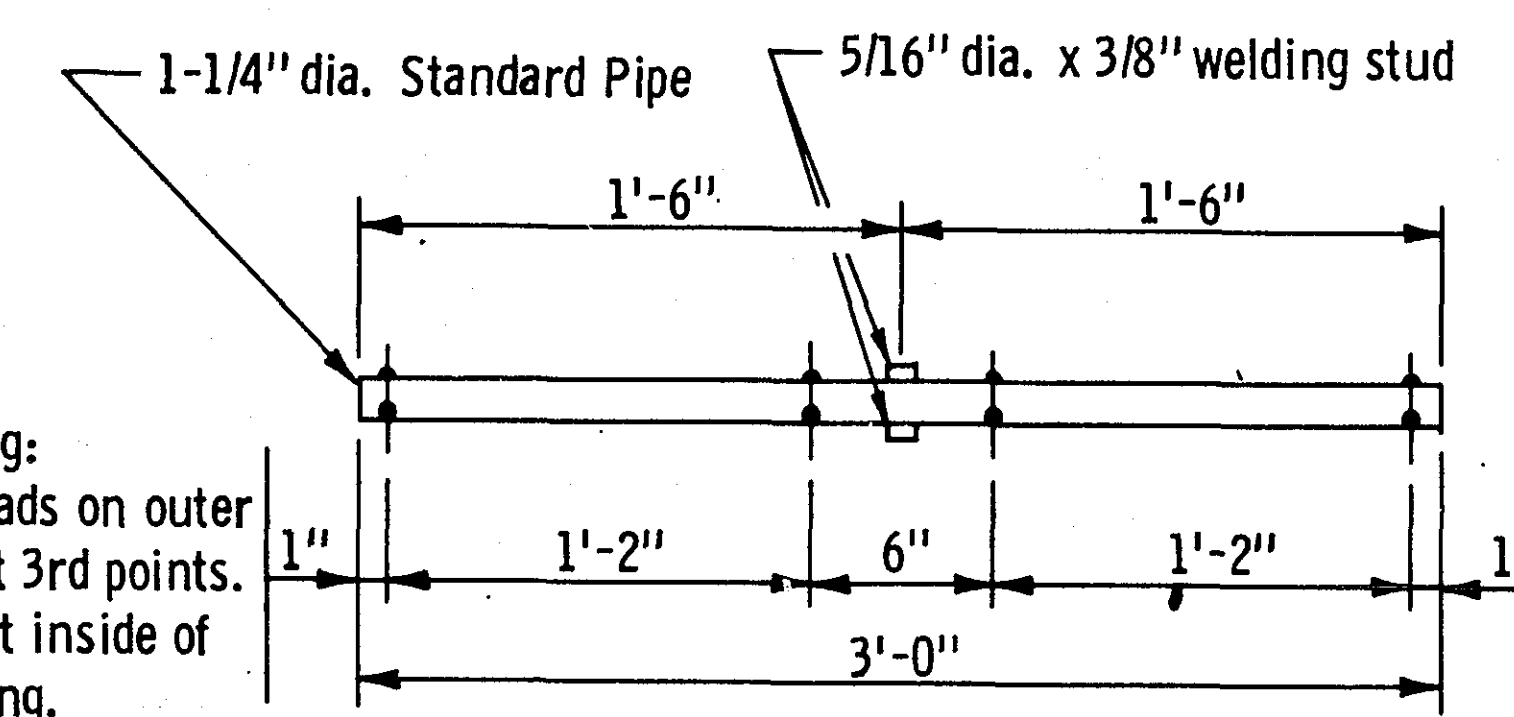
SIDE ELEVATION



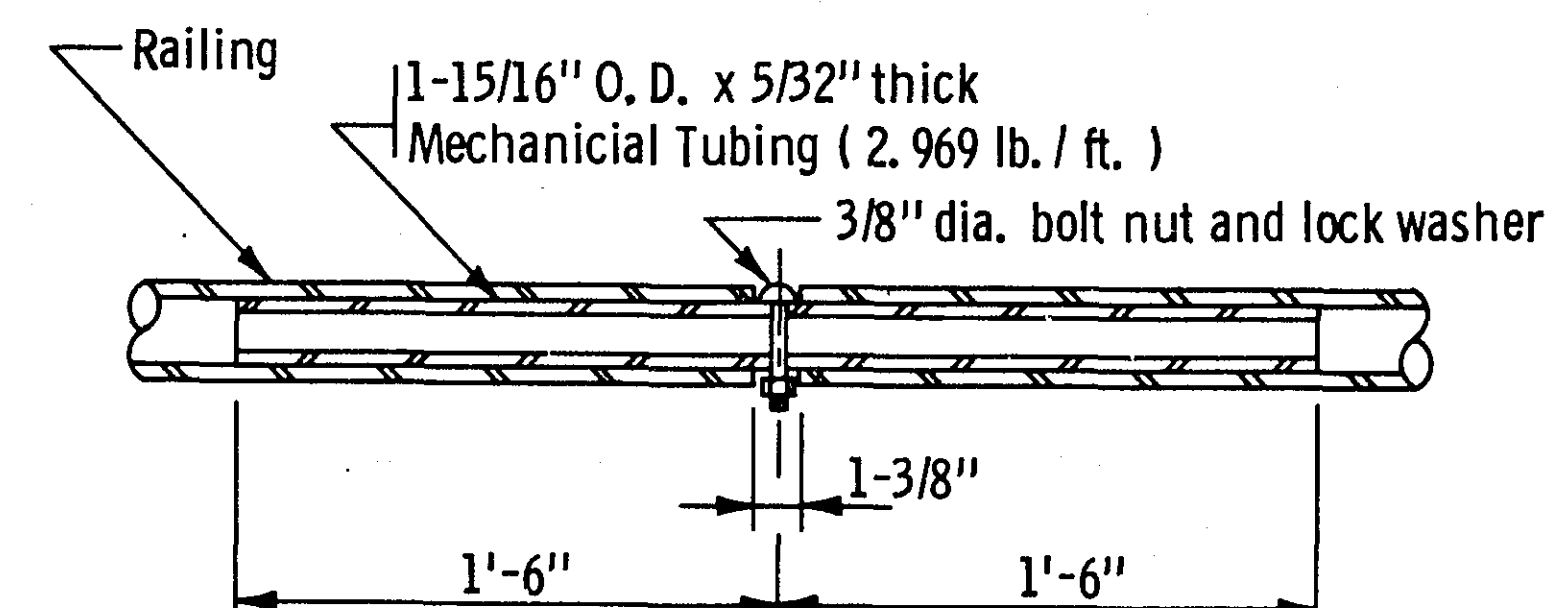
FRONT ELEVATION

DEFLECTION JOINT
INSIDE ELEVATION OF RAILING
INTEGRAL END POST

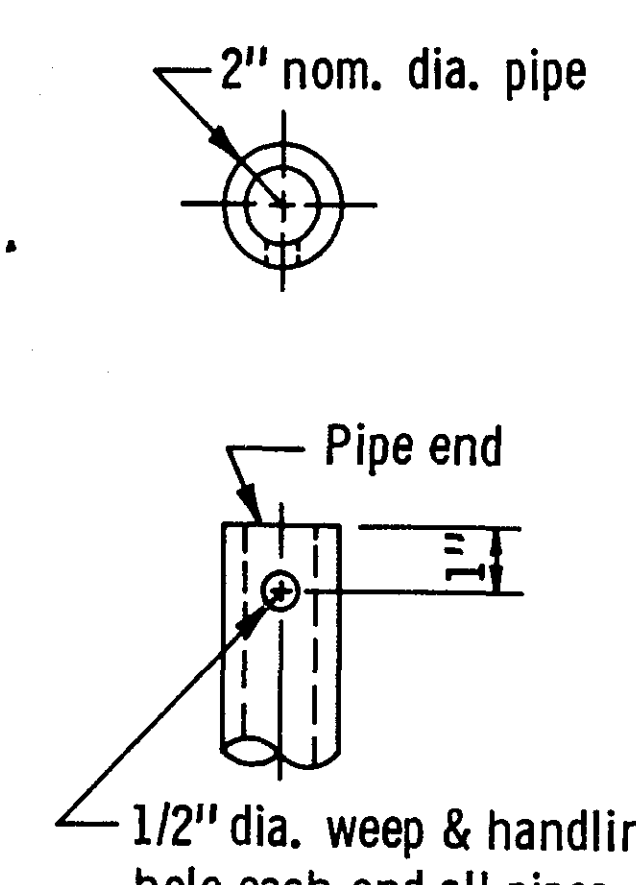
Weld bead spacing:
1/2" dia. weld beads on outer
surface of pipe at 3rd points.
Grind to freely fit inside of
ornamental railing.



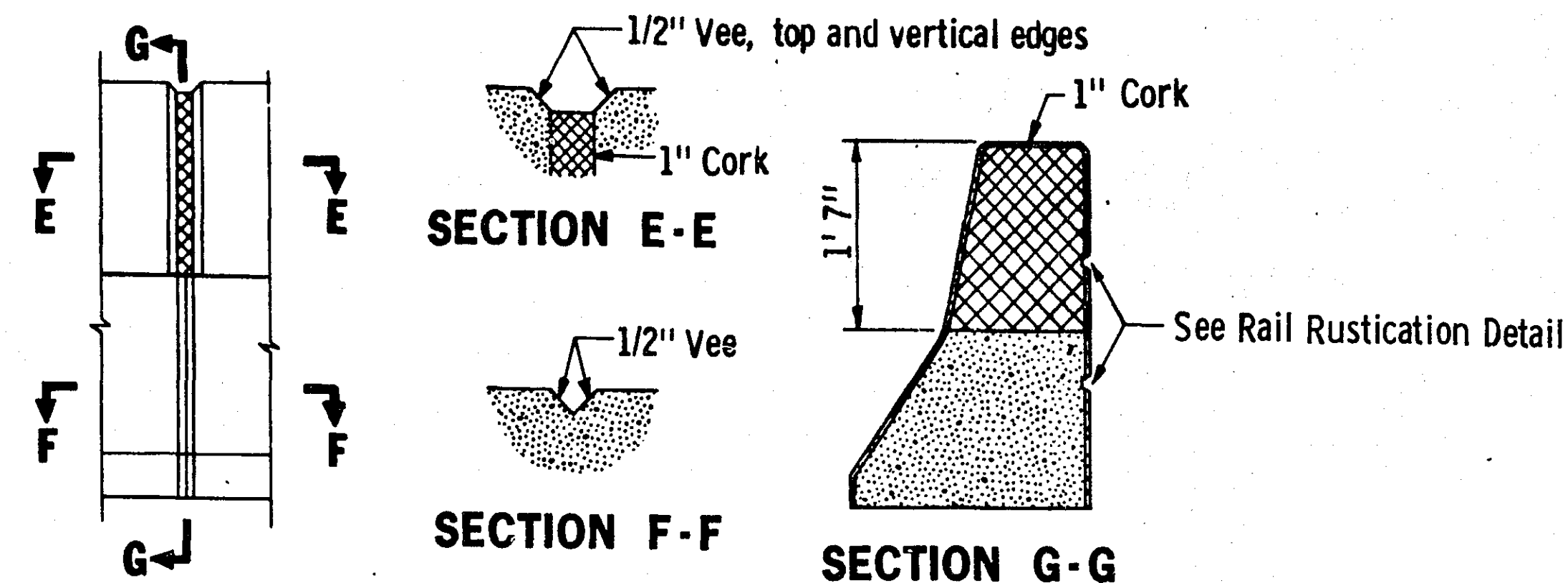
ALTERNATE PIPE SLEEVE



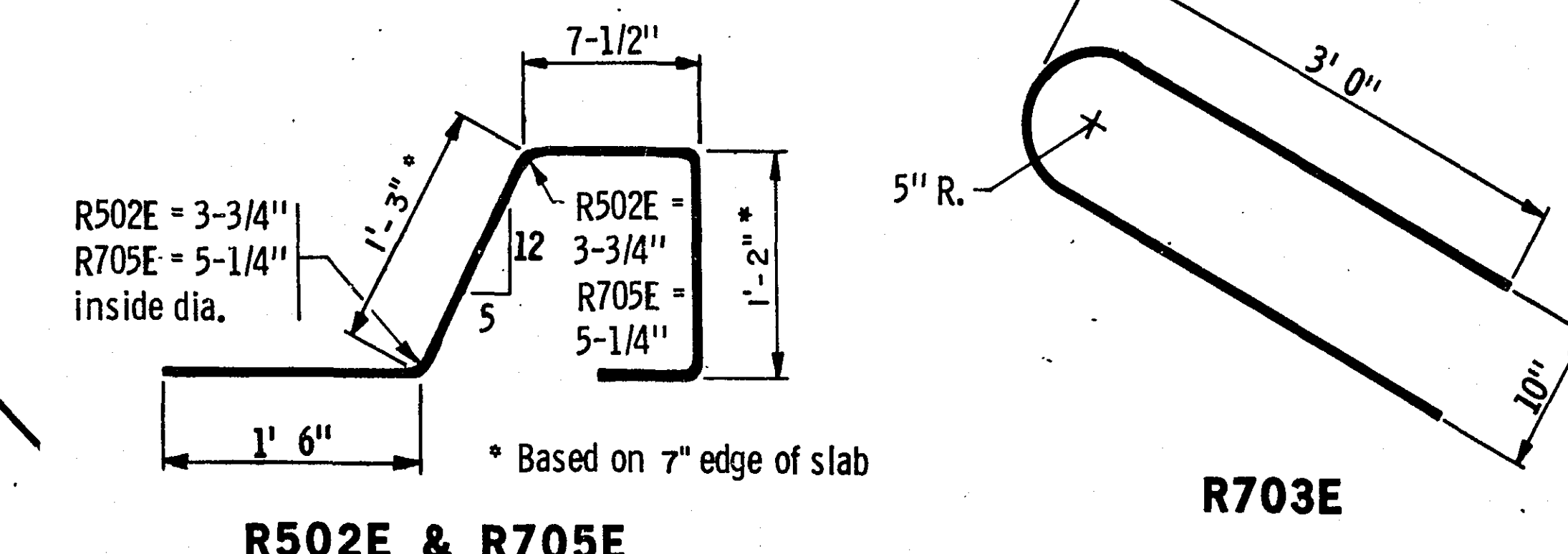
PIPE SLEEVE
PIPE SLEEVE DETAILS



DETAIL C



CONCRETE JOINT
DEFLECTION JOINT DETAILS



R502E & R705E

BAR	NO.	LENGTH	SHAPE	LOCATION
R501E	58	6' 3"	Bent	Rail Vertical
R502E	52	5'-0"	Bent	Rail Vertical
R703E	2	6' 6"	Bent	End Post
R404E	4	46'-8"	Str't	Rail Long.
R705E	6	5'-0"	Bent	End Post
R406E	12	15'-4"	Str't	Rail Long.

Concrete Railing = 405 lbs./ft.
Concrete Railing = .100 cu.yds./ft.

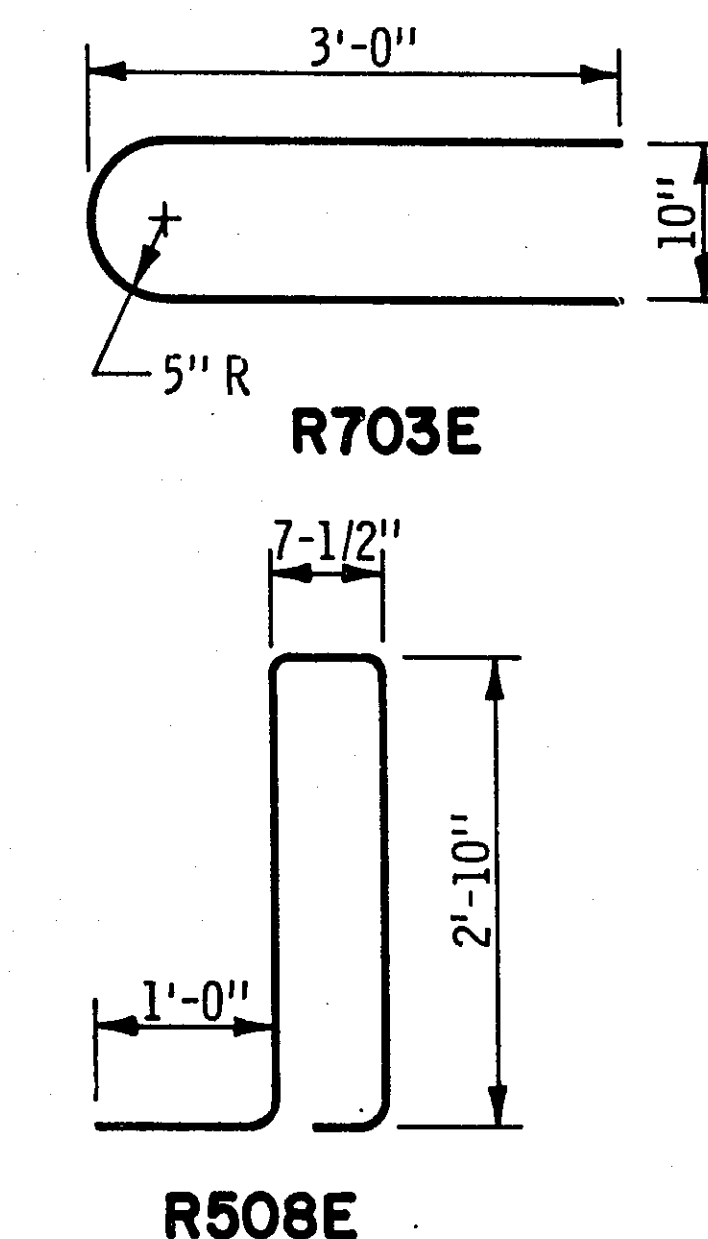
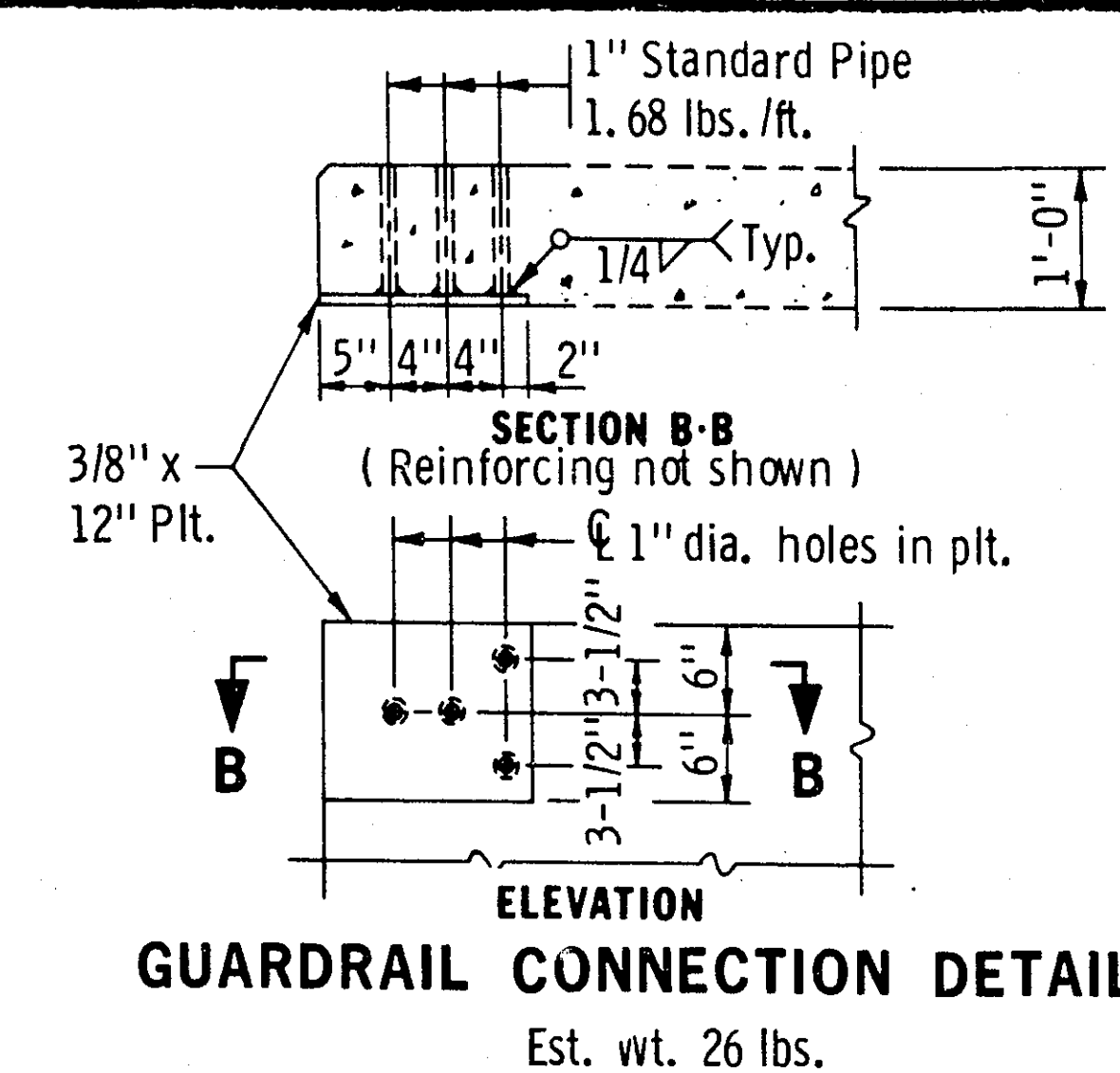
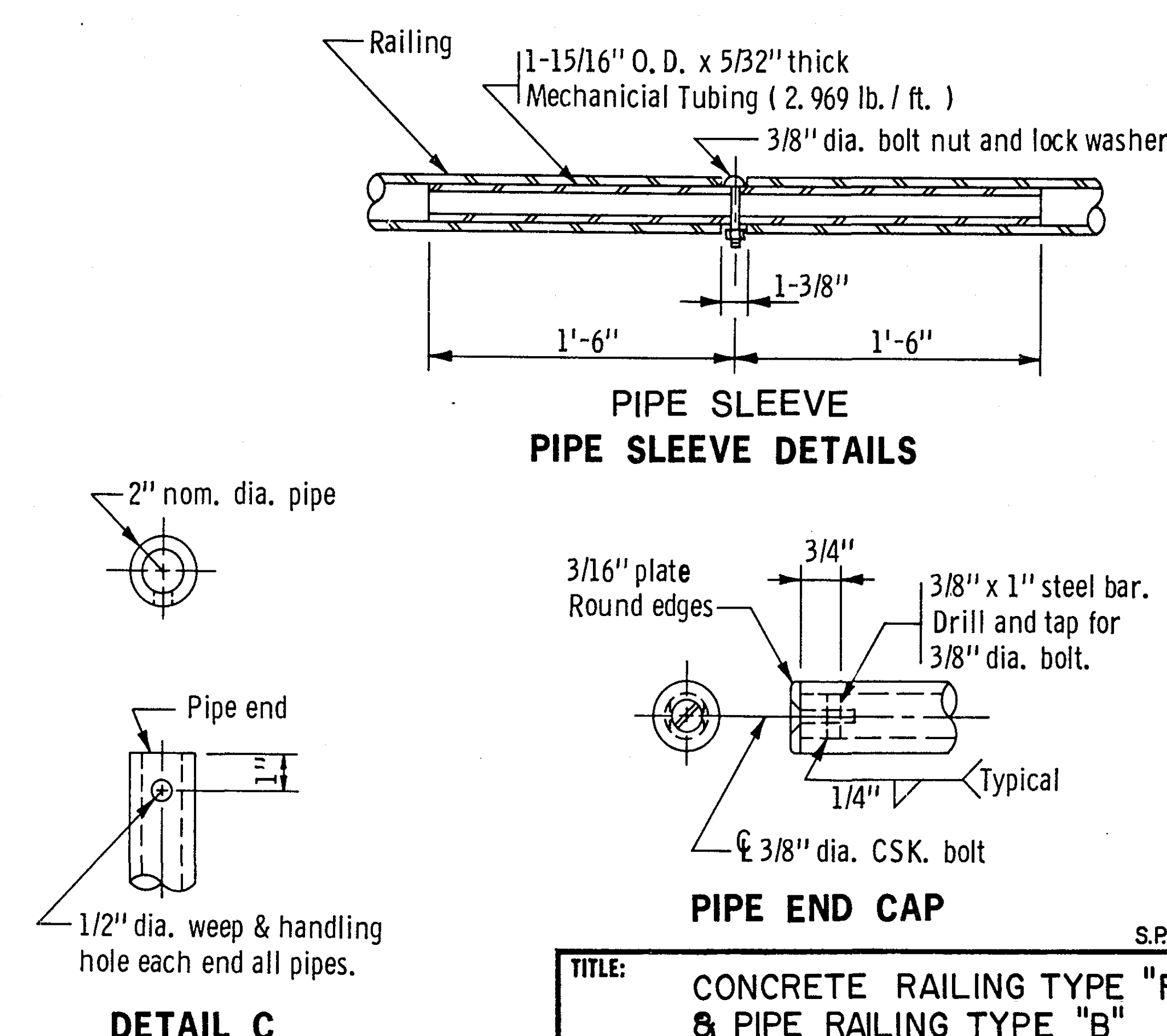
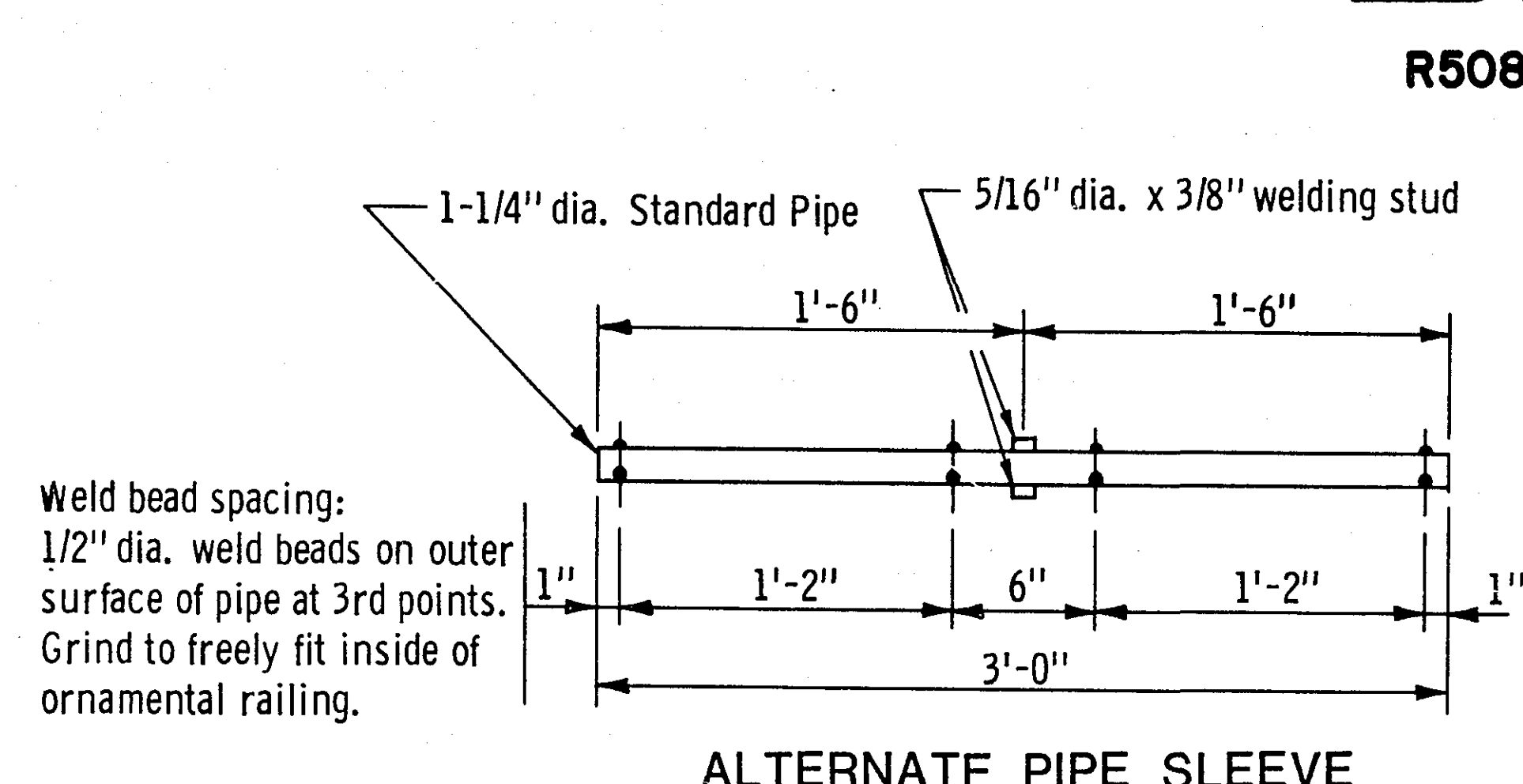
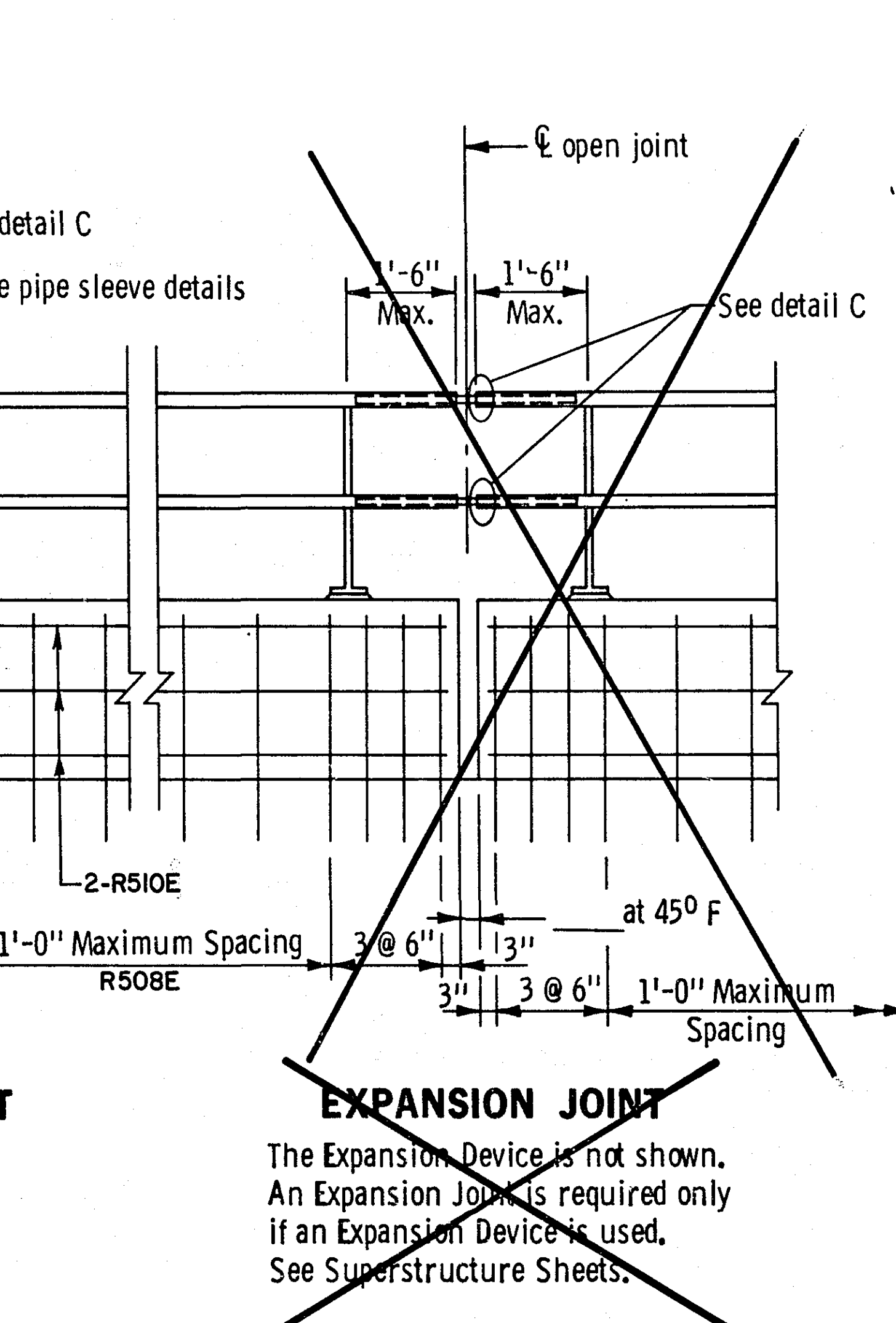
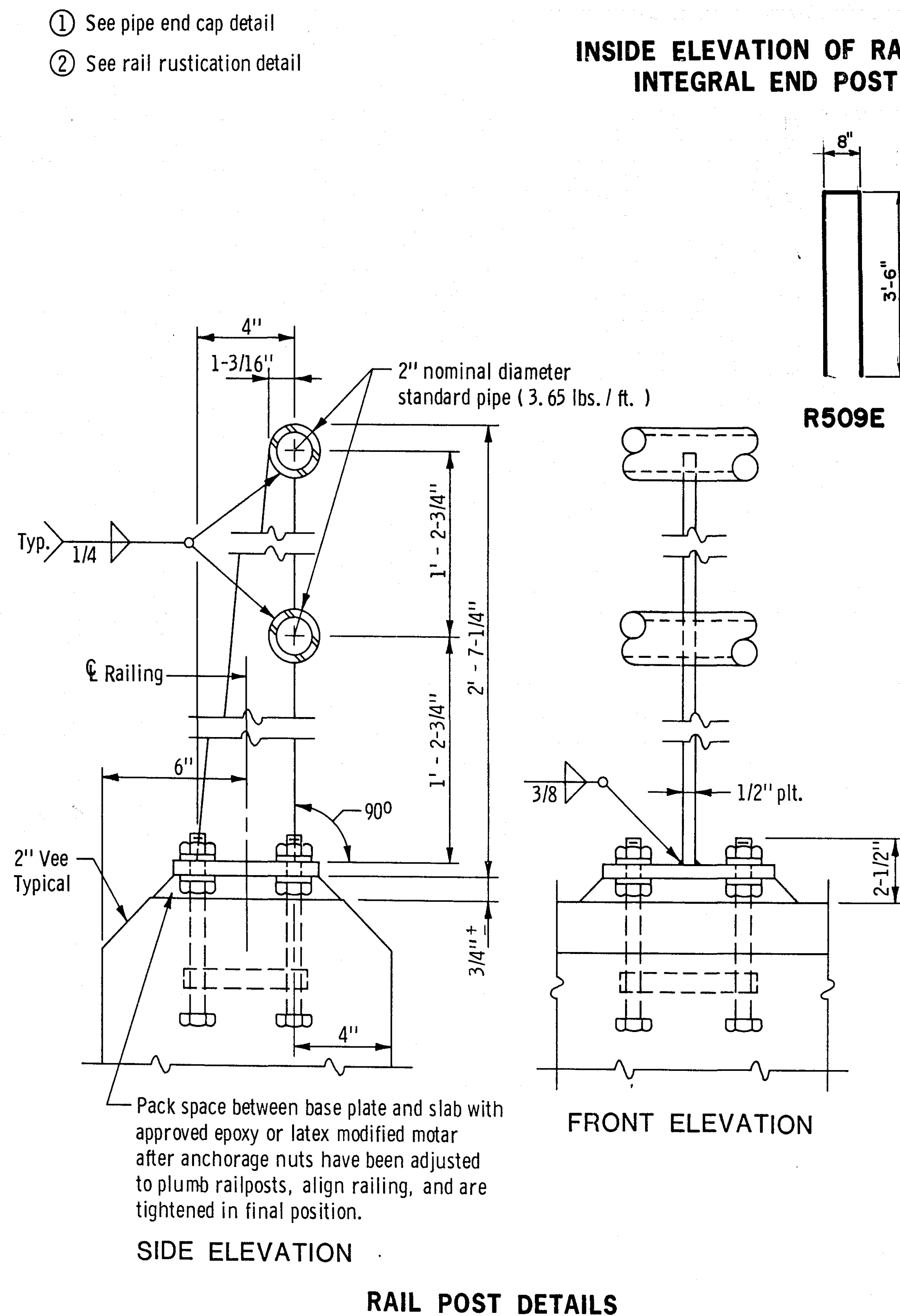
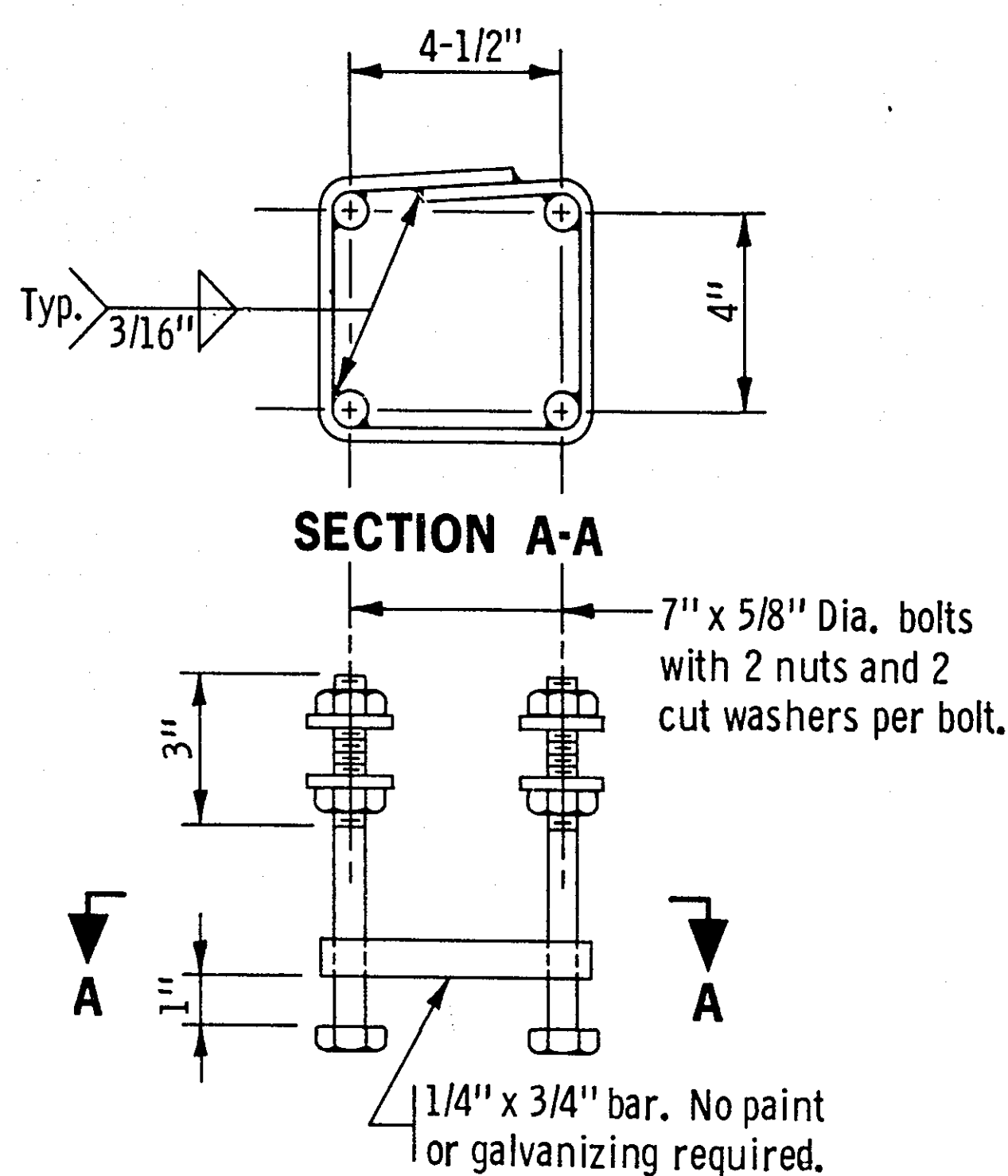
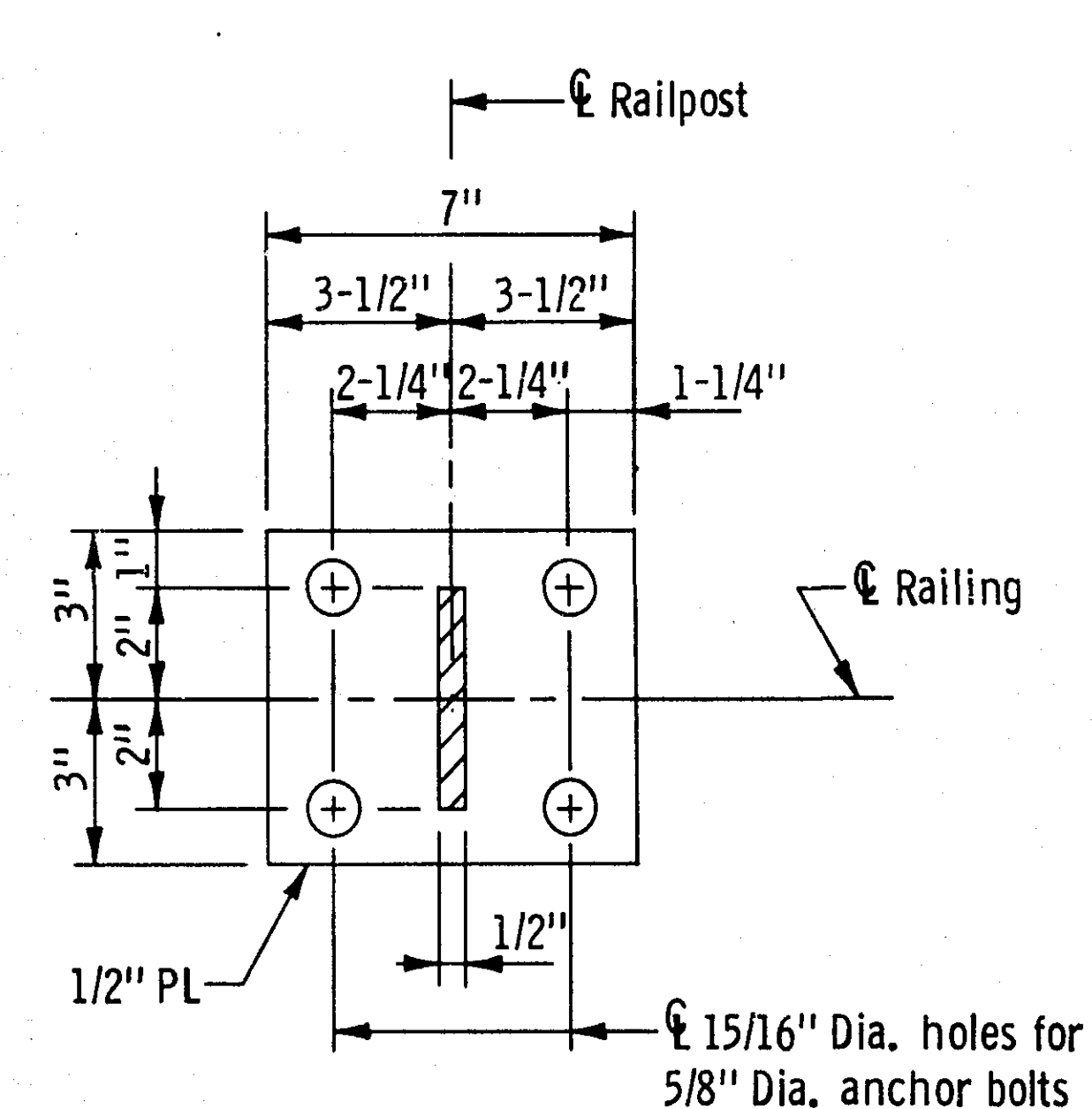
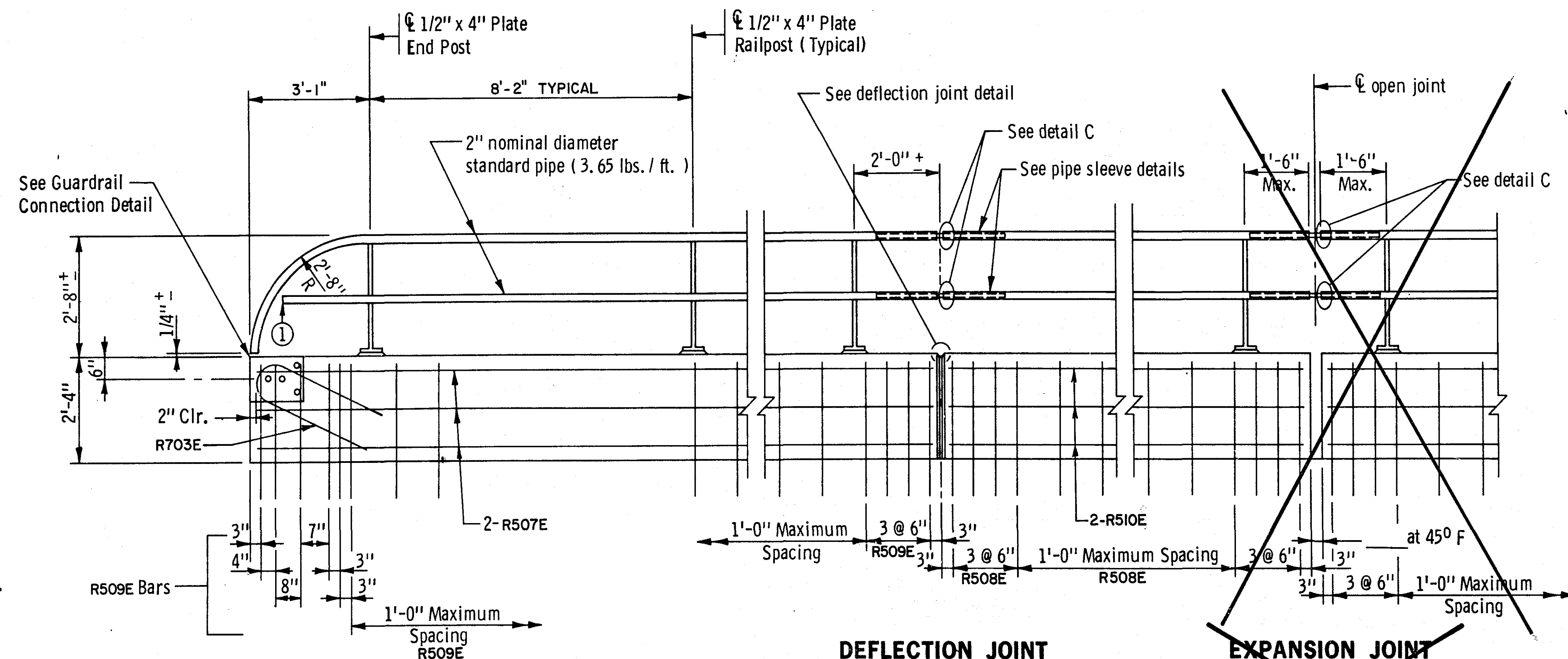
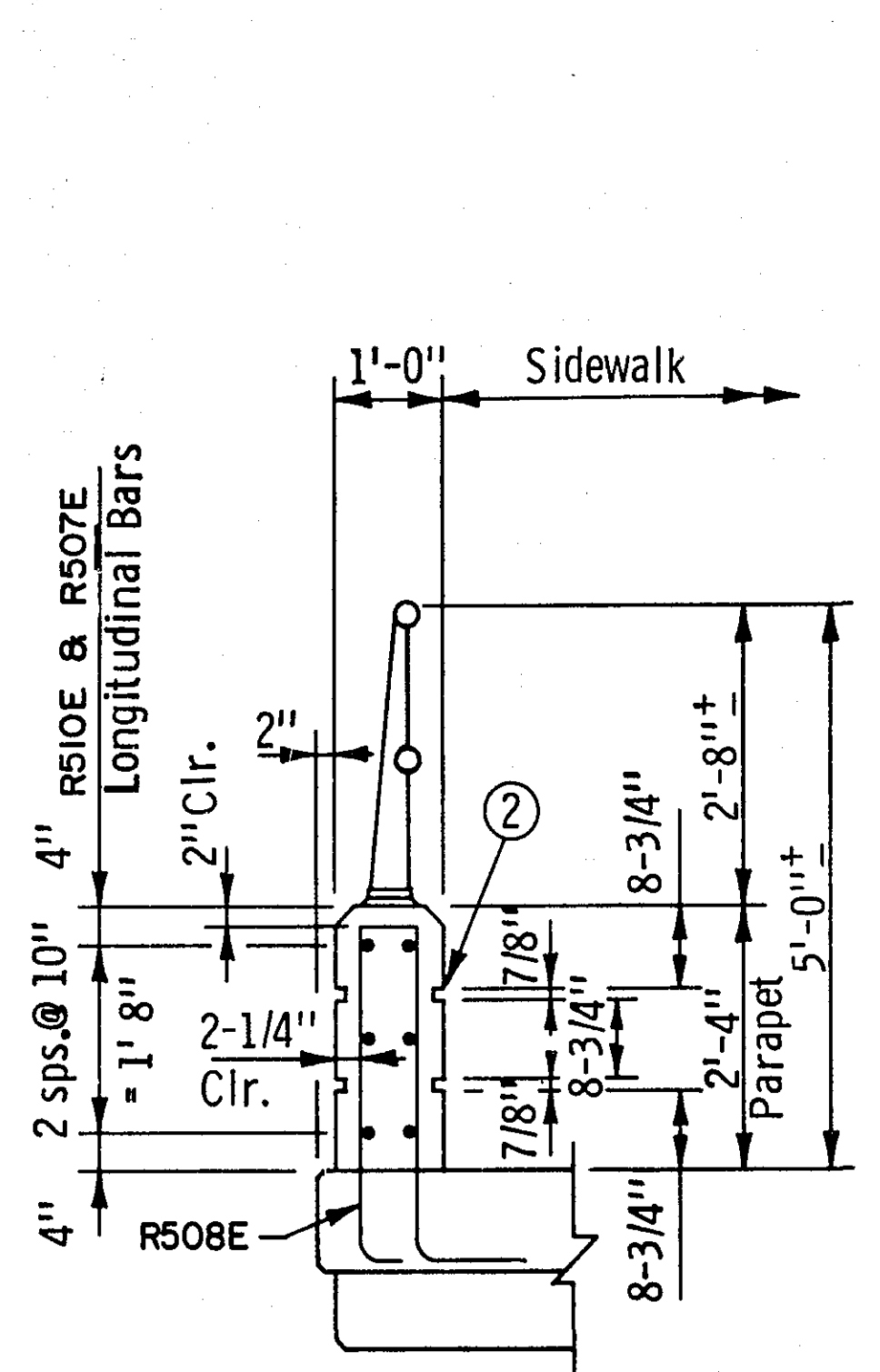
GENERAL NOTES:

- Concrete in the rail base shall be Mix No. 3X46.
- All material in the concrete base, is included in the superstructure quantities.
- The guardrail connection is included in the price bid for other items.
- Maximum spacing of deflection joints shall be 20' 0".
- Length of concrete and pipe railing for payment is measured between outside faces of concrete railing.
- Bars marked with the Suffix "E" shall be Epoxy Coated
- All railposts normal to grade.
- Anchorage shall be accurately placed to provide correct alignment of railing. Set normal to grade.
- All structural steel material shall comply with Mn/DOT 3306.
- Galvanize bolts, nuts, and washers per Mn/DOT 3392.
- Galvanize all other structural steel per Mn/DOT 3394 after fabrication.
- Price bid for pipe railing includes the railpost anchorage and all material above top of concrete railing.
- All pipe & pipe sleeves to be Mn/DOT Spec. 3362.

FIG. 5-397.158

Approved:

TITLE:	PIPE RAILING TYPE "B" & CONCRETE (TYPE J) RAILING (Bikeway Railing - Integral End Post)	DES: J.P.	DR: D.F.	APPROVED: 4-2-84	Bridge No. 62540
CHK: B.J.		CHK: J.P.			
Sheet No. 10	of 19 Sheets				

[illegible]

Concrete Base = 0.086 Cubic Yards Per Foot
Concrete Base = 350 Pounds Per Foot

GENERAL NOTES:

Concrete in the rail base shall be Mix No. 3X46.

All material in the concrete base, is included in the superstructure quantities.

The guardrail connection is included in the price bid for other items.

Maximum spacing of deflection joints shall be 20' 0"

Length of concrete and pipe railing for payment is measured between outside faces of concrete parapet.

Bars marked with the Suffix " E " shall be Epoxy Coated

All railposts normal to grade.

Anchorage shall be accurately placed to provide correct alignment of railing. Set normal to grade.

All structural steel material shall comply with Mn/DOT 3306

Galvanize bolts, nuts, and washers per Mn/DOT 3392.

Galvanize all other structural steel per Mn/DOT 3394 after fabrication.

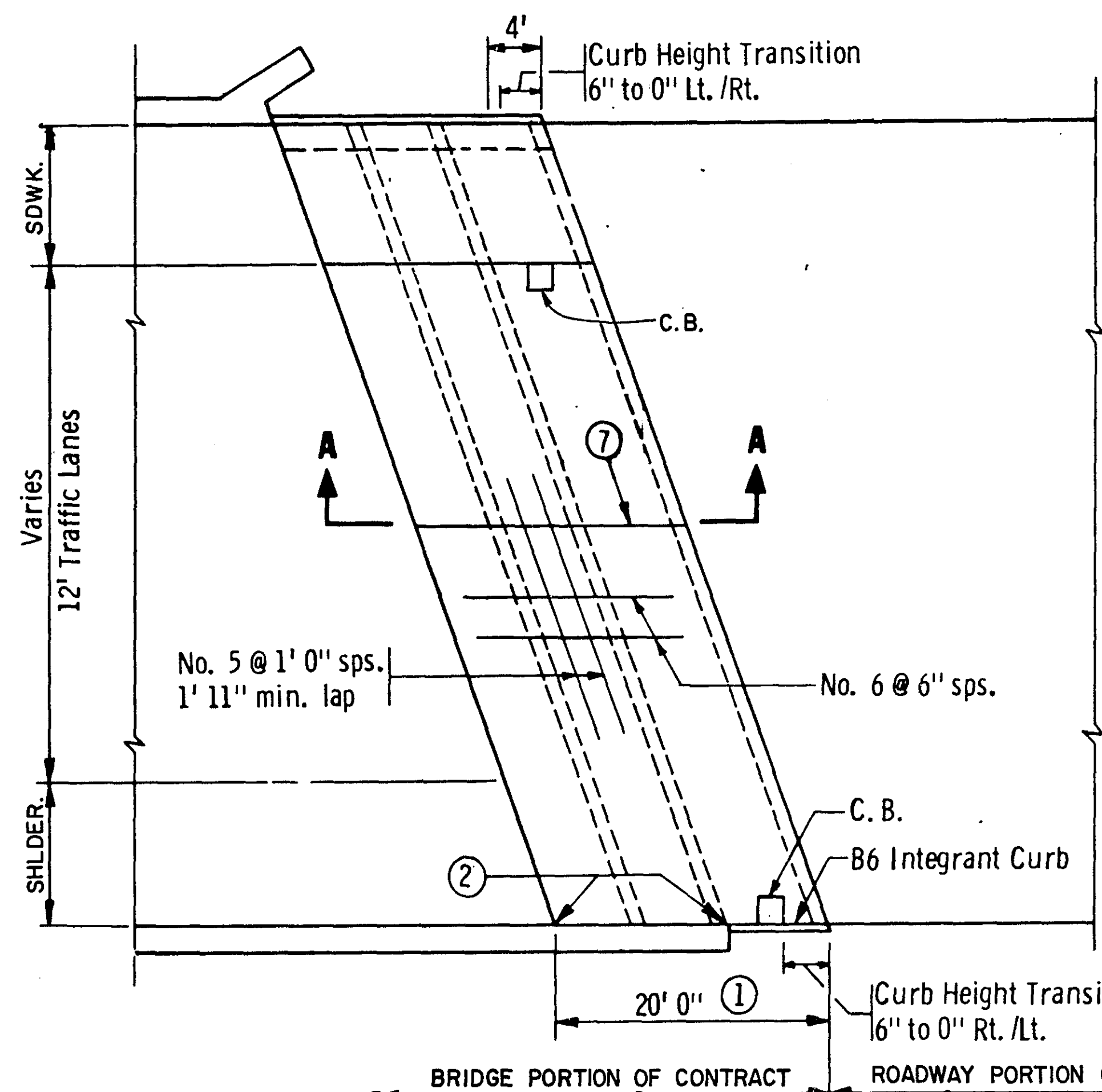
Price bid for pipe railing includes the railpost anchorage and all material above top of concrete parapet.

All pipe & pipe sleeves to be Mn/DOT Spec. 3362.

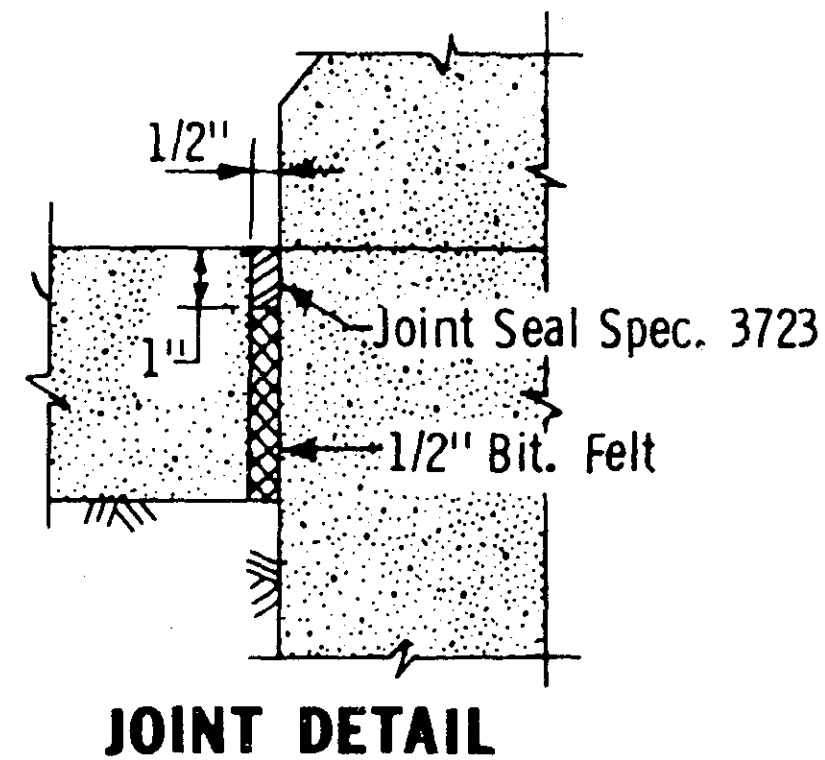
FIG. 5-397.152

Approved: May 15, 1980

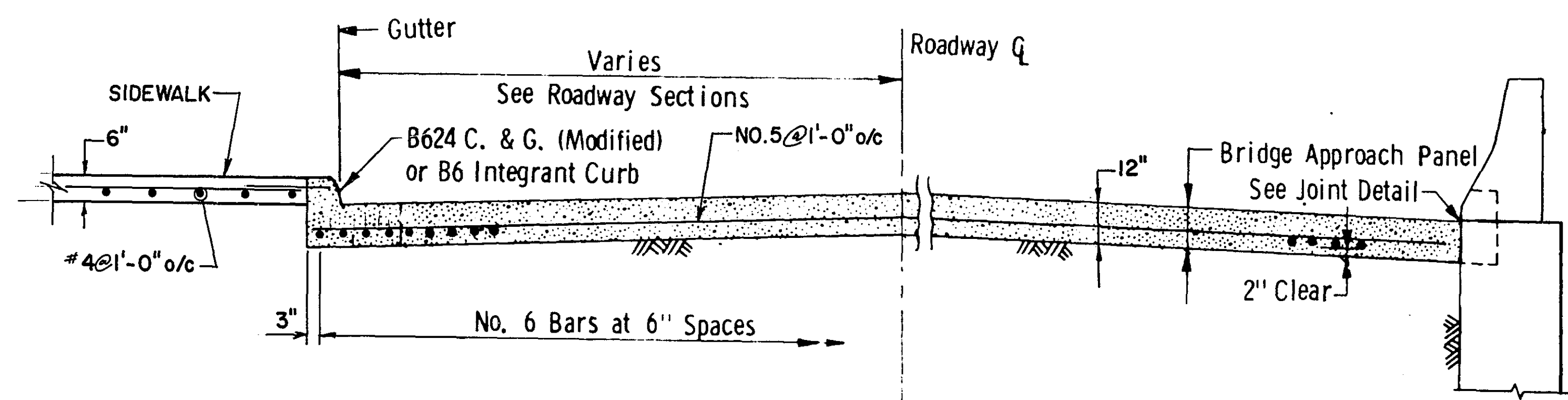
TITLE: CONCRETE RAILING TYPE "F" & PIPE RAILING TYPE "B" (Bikeway Railing - Integral End Post)	DES: J.P.	DR: D.F.	APPROVED:	Bridge No. 62540
	CHK: B.J.	CHK: J.P.	4-3-84	
Sheet No. 11 of 19 Sheets				



- ① Use No. 6 @ 6" longitudinal and No. 5 @ 1' 0" transverse reinforcement
- ② See Joint Detail



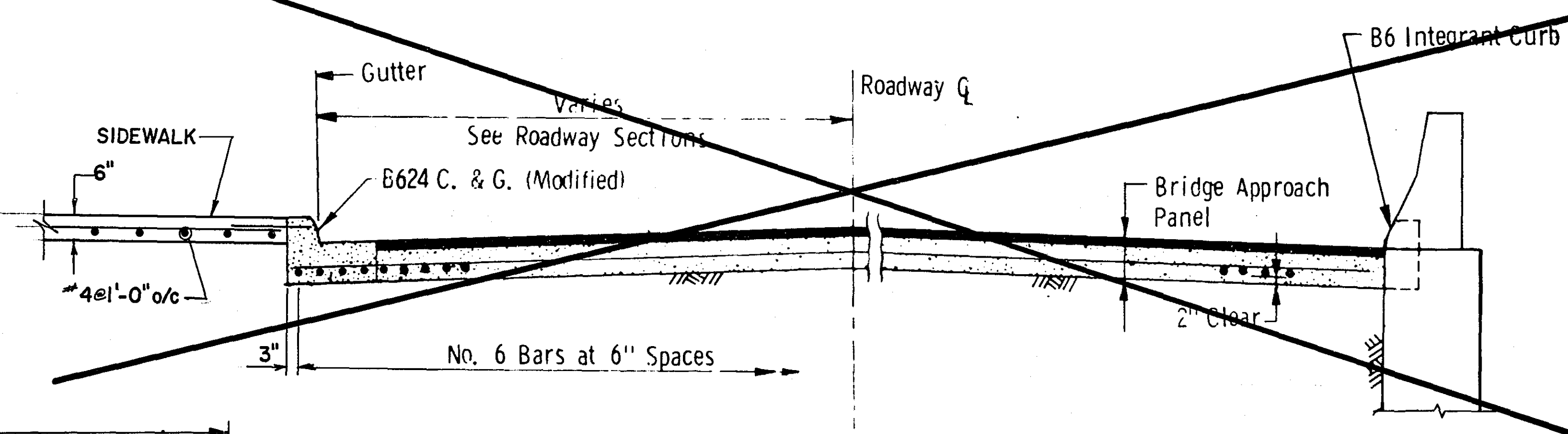
JOINT DETAIL



SECTION B-B

(See Roadway Cross Section)

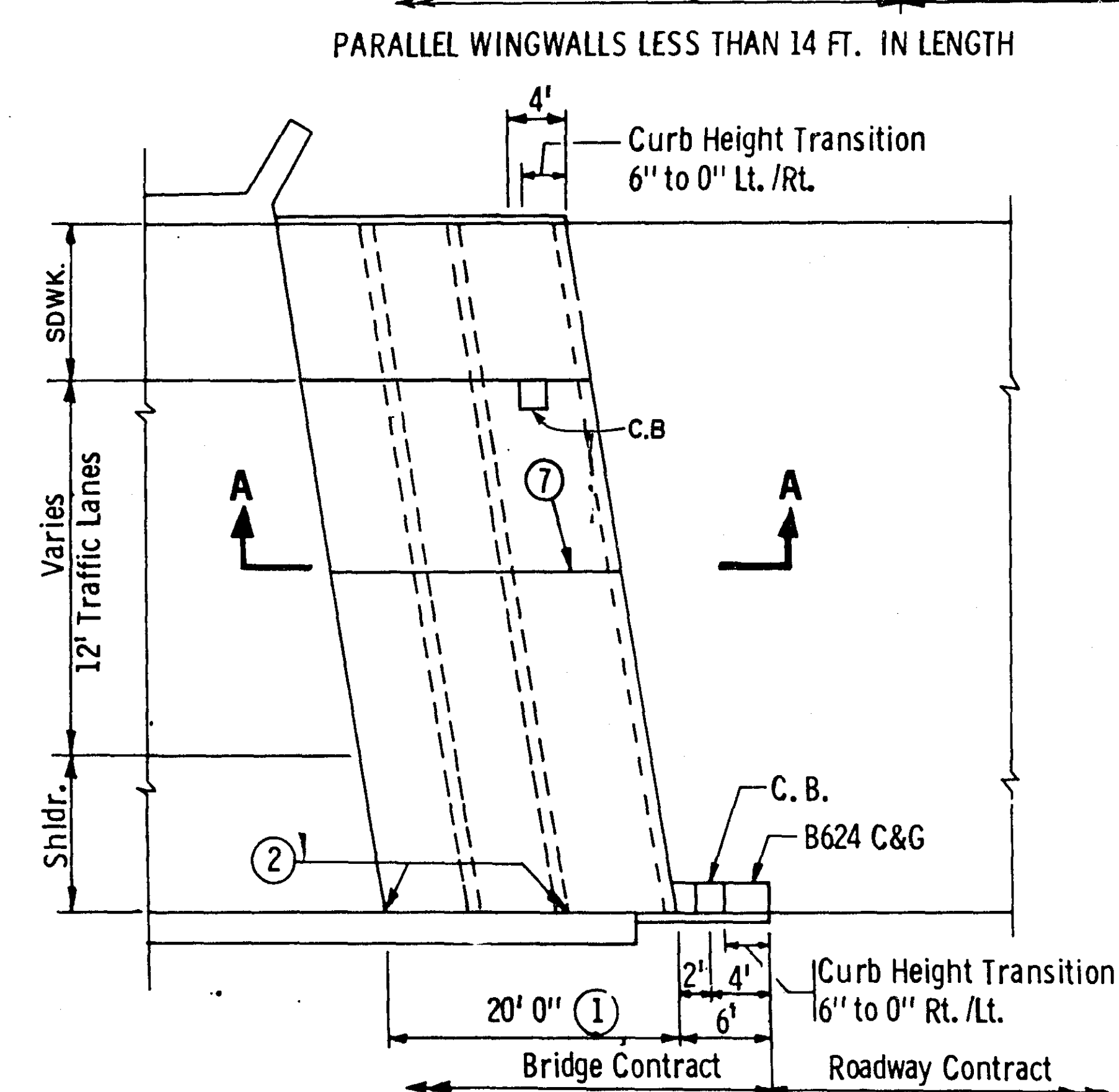
THIS SECTION TO BE USED WHEN BRIDGE SURFACE IS CONCRETE



SECTION B-B

(See Roadway Cross Section)

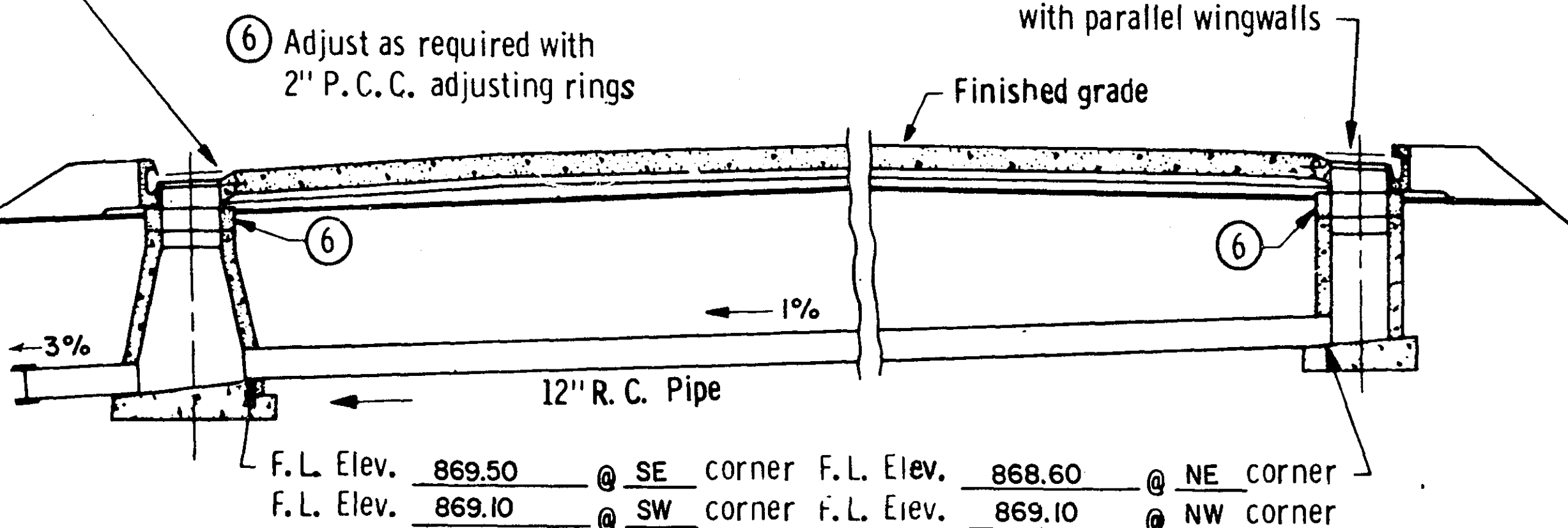
THIS SECTION TO BE USED WHEN BRIDGE SURFACE IS BITUMINOUS



**MULTI-LANE AND TWO LANE ROADWAYS
BITUMINOUS PAVEMENT**

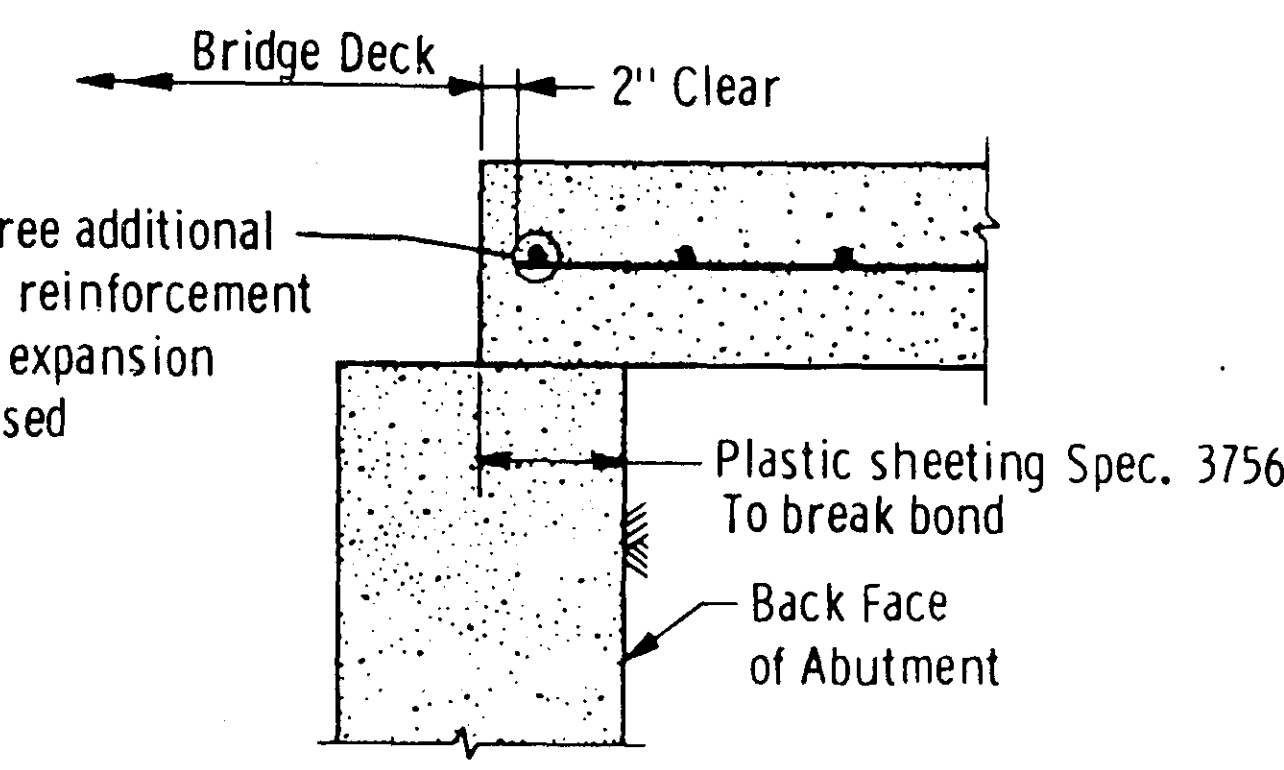
Place Joint Sealer and Bit. Felt around C.B. as per "Jt. Detail" on this sheet

- ⑥ Adjust as required with 2" P.C.C. adjusting rings

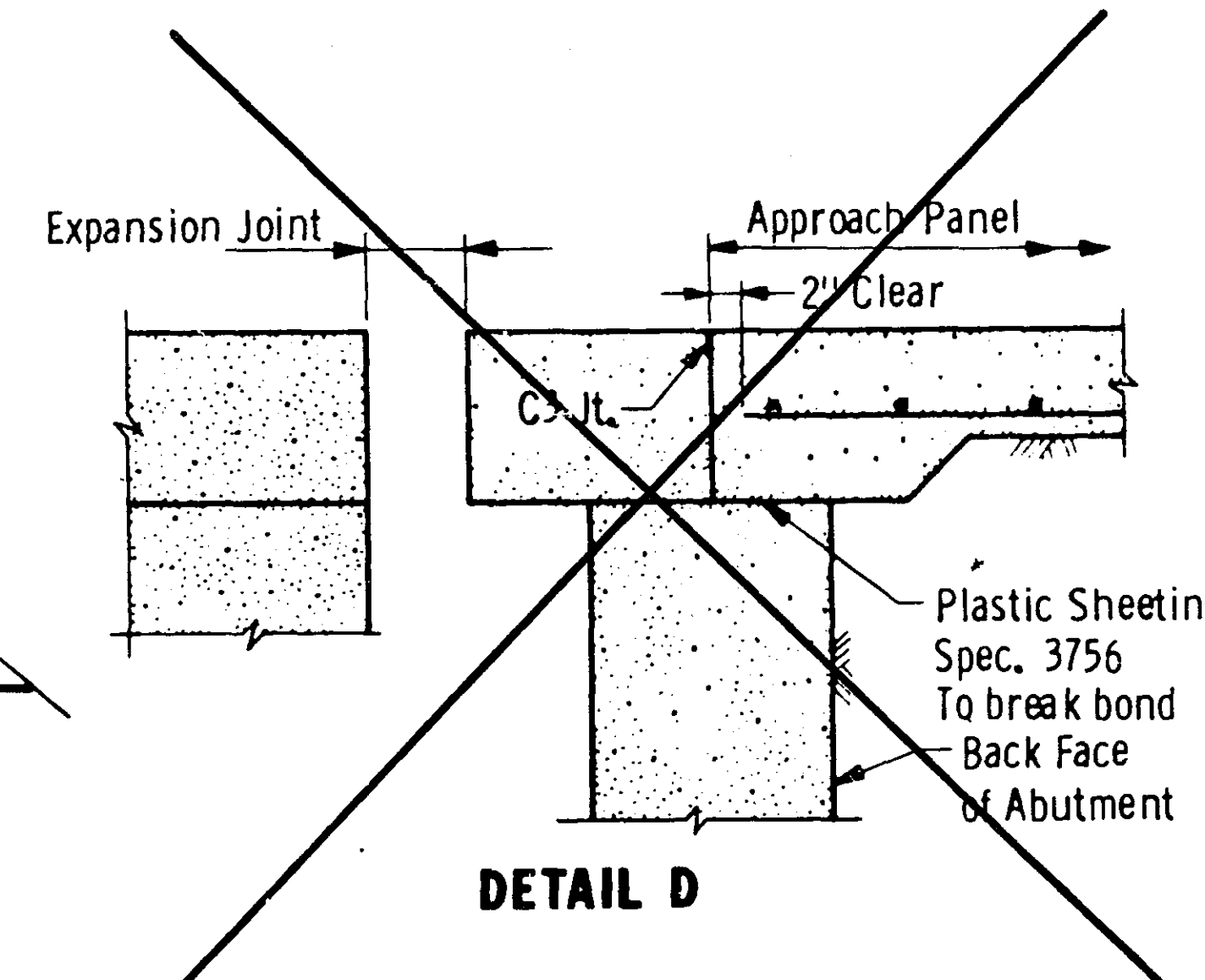


CROSS SECTION AT CATCH BASINS

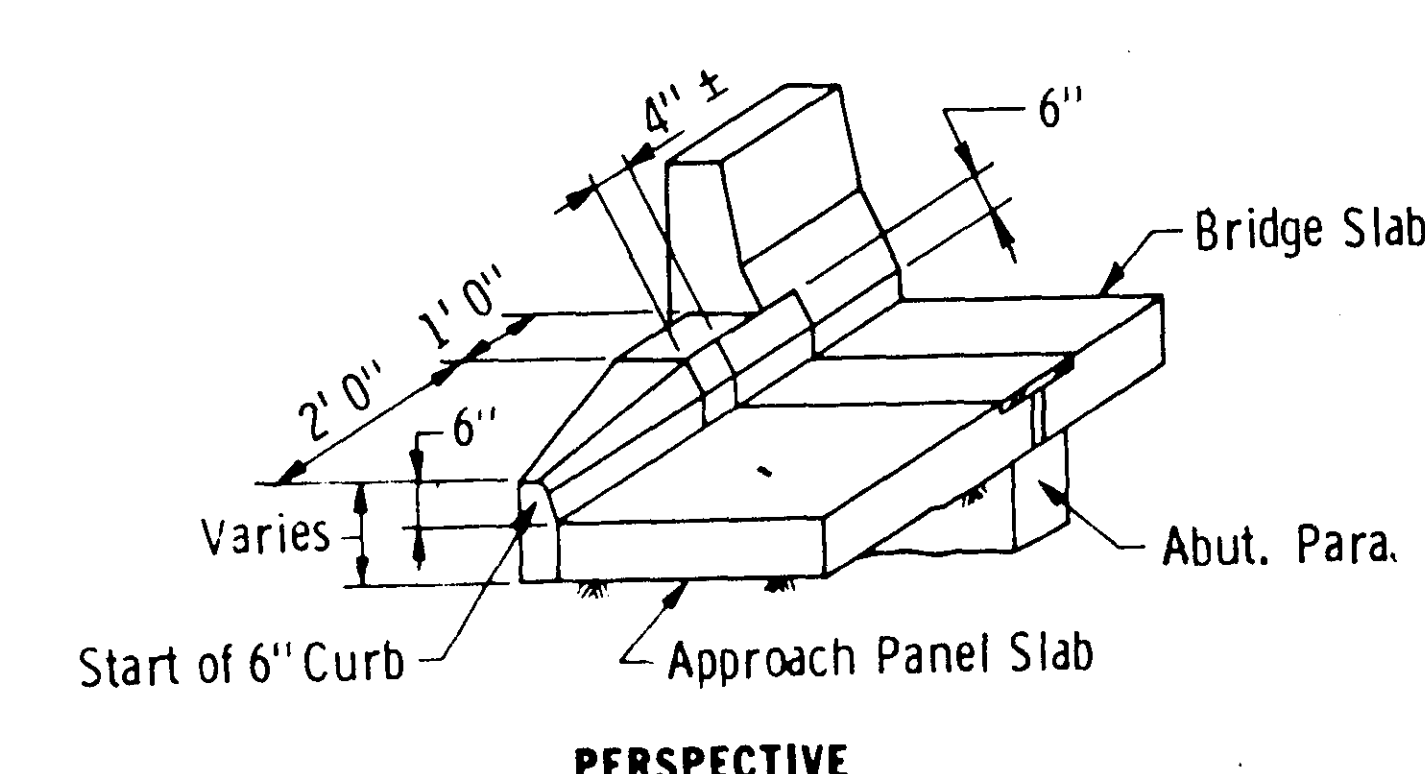
F.L. Elev. 869.50 @ SE corner F.L. Elev. 868.60 @ NE corner
F.L. Elev. 869.10 @ SW corner F.L. Elev. 869.10 @ NW corner



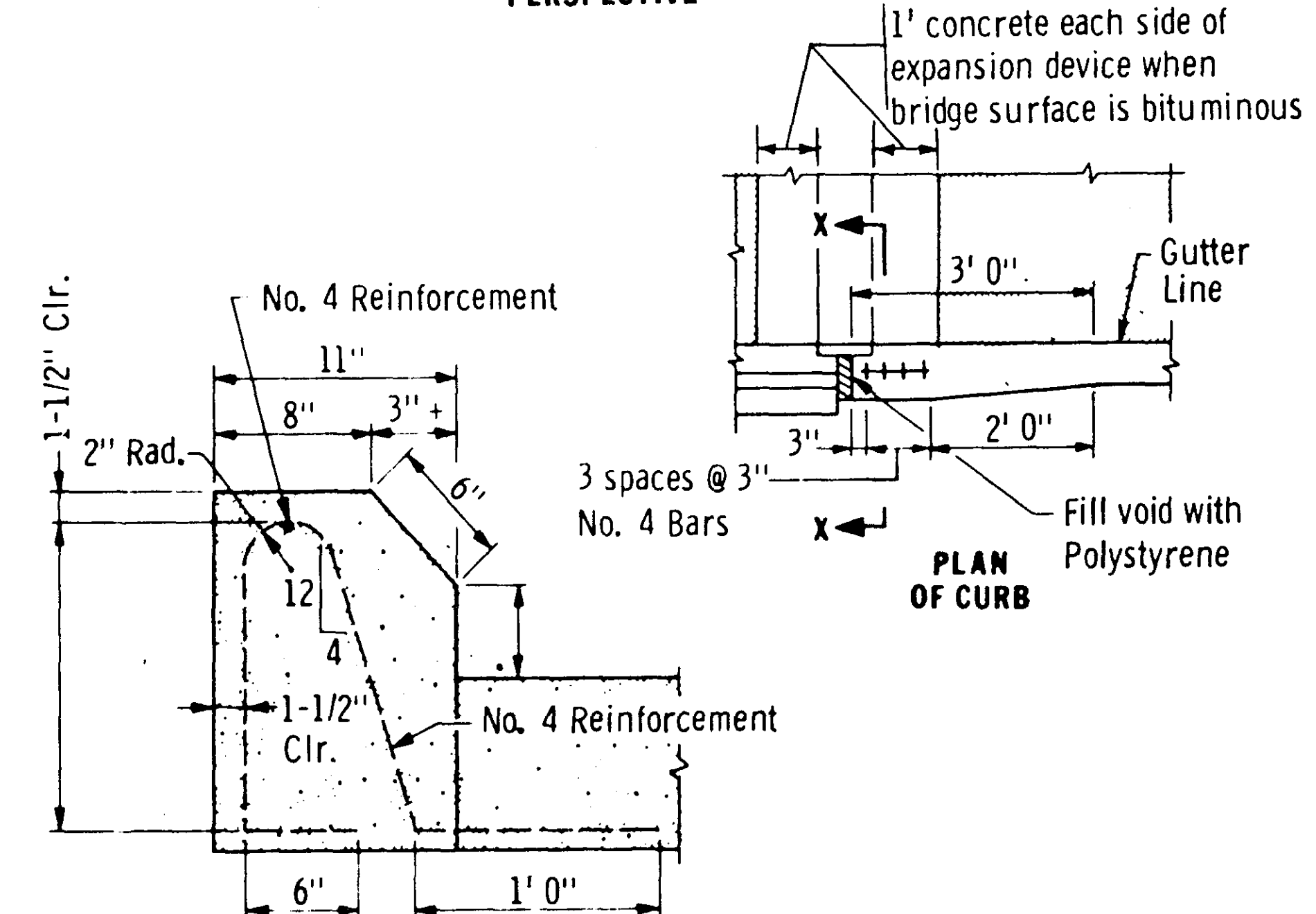
DETAIL C



DETAIL D



PERSPECTIVE



SECTION X-X

CURB TRANSITION DETAILS

FOR USE WHEN BRIDGE EXPANSION JOINT IS BETWEEN END OF APPROACH PANEL AND BRIDGE SLAB

The summary of quantities for approach panel is as shown below. Any additional minor items and slight changes of quantities required shall be furnished by the contractor with no additional compensation.

ITEM	*MANUAL REFERENCE
Sodding at Pipe Culverts	Std. Plts. 9102
Riprap at CMP Outlets	Std. Plts. 3134
Metal Apron for CM Pipe	Std. Plts. 3123
Curb and Gutter	Std. Plt. 7100
Catch Basin Details	Std. Plt. 4002
Catch Basin Details	Std. Plt. 4006
Precast Concrete Base	Std. Plt. 4011
Catch Basin Frame	Std. Plt. 4129
Catch Basin Curb Box	Std. Plt. 4160
Catch Basin Grate	Std. Plt. 4151
Catch Basin Installation	Std. Plt. 7111
Metal Pipe Flume	Std. Plt. 5000
Longitudinal Joints	Std. Plt. 1140
Integrant Curbs	Std. Plt. 7000
Contraction Joint	Std. Plt. 1120
Conc. Short Cone & Adj. Ring	Std. Plt. 4010

*Specification Ref. Std. Plts. 0001 & 0002
Reinforcement shall be lapped as per Spec. 2472.3D

③ SUMMARY OF QUANTITIES FOR BRIDGE APPROACH PANELS		
④ Concrete Mix No. 3X42	80 Cu. Yd.	
⑤ Catch Basins	4 Req'd.	
Metal Apron	NOT Req'd.	
Reinforcement Bars	7350 Lbs.	
Curb, Design B624	80 LIN. FT.	
12" R.C. Pipe Drain	88 LIN. FT.	
Sod	NOT REQ'D.	
Random Riprap Class "A"	NOT REQ'D.	

- ③ Quantities listed are for approach panels at both ends of bridge

Payment will be included in the single lump sum price for "Item 301.601 Bridge Approach Panels."

- ④ The Volume of concrete shown is based on an average slab depth of 12" plus the volume of keys and sills as dimensioned. (Concrete for Curb Design B624 is not included in this quantity.) SIDEWALK CONC. ALSO INCLUDED.

- ⑤ Includes all concrete work and all castings and appurtenances necessary to construct the catch basins as shown and noted.

- ⑦ Permissible L2KT longitudinal joint. See Standard Plan Sheet 5-297.221.

- ⑧ SEE SHEET 8 FOR ADDITIONAL DETAILS

Fig. 5-397.308

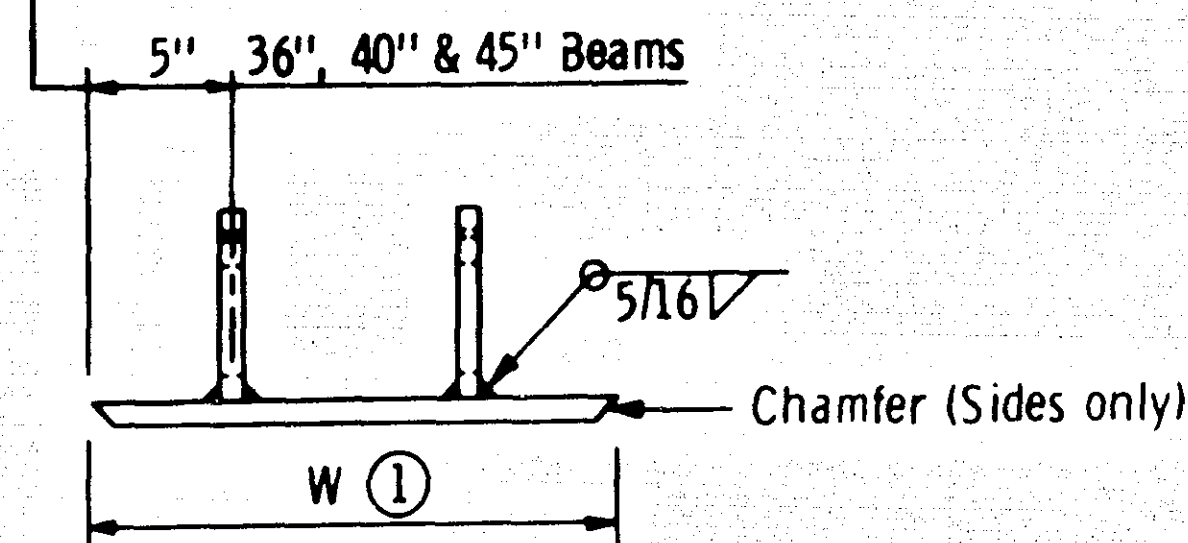
Revised Aug. 2008

TITLE: BRIDGE APPROACH PANEL ALL SKEWS (BITUMINOUS PAVEMENT)	DES: J.P. CHK: B.J.	DR: J.P. CHK: D.P.	APPROVED: 4-3-84	Bridge No. 62540
	Sheet No. 12 of 19 Sheets			

S.P. 62-645-01

28-108

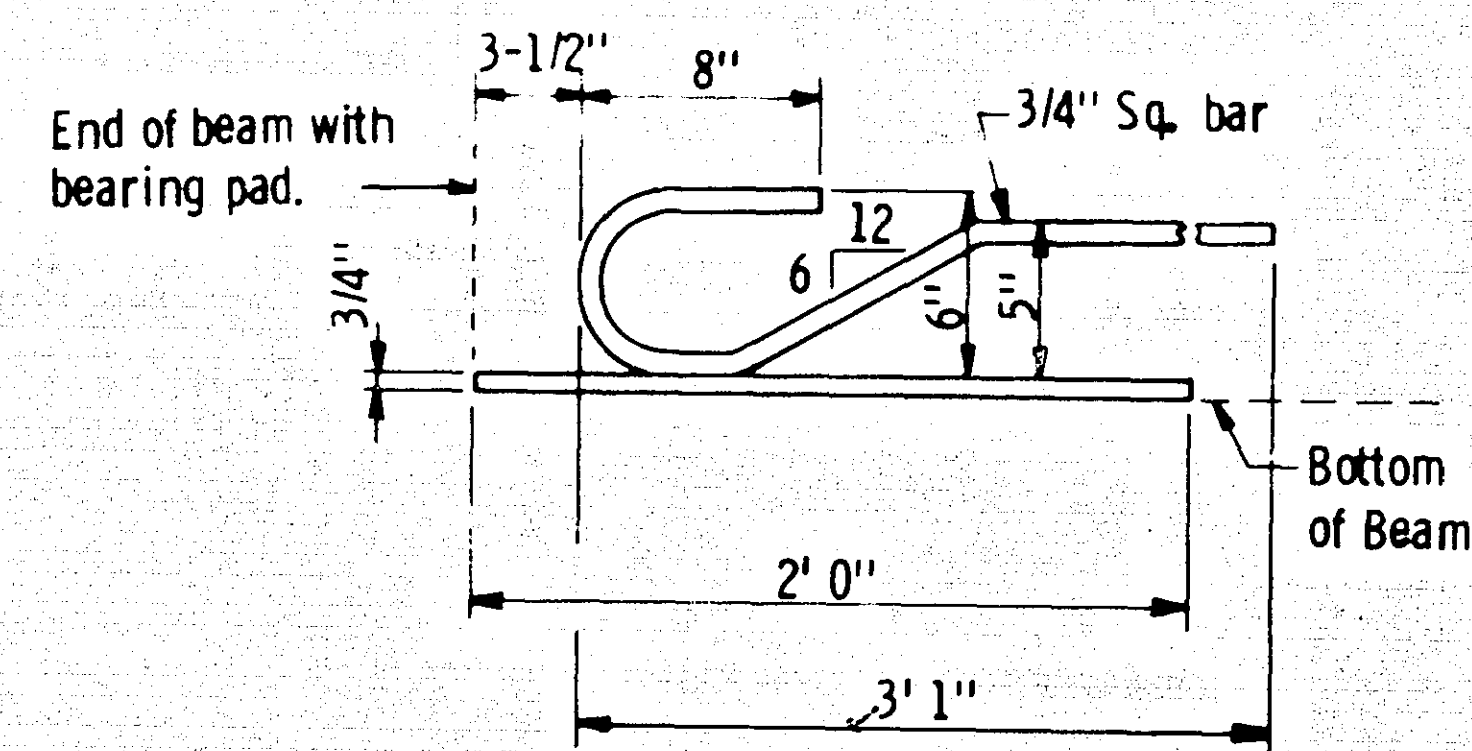
These dimensions may be modified to clear post tensioning tubes or prestressing strands. Changes must be approved by the Engineer.



FRONT VIEW

① Dimension "W" to be the width at the bottom flange of the beam - 1/4".

SOLE PLATE FOR B305 BEARING

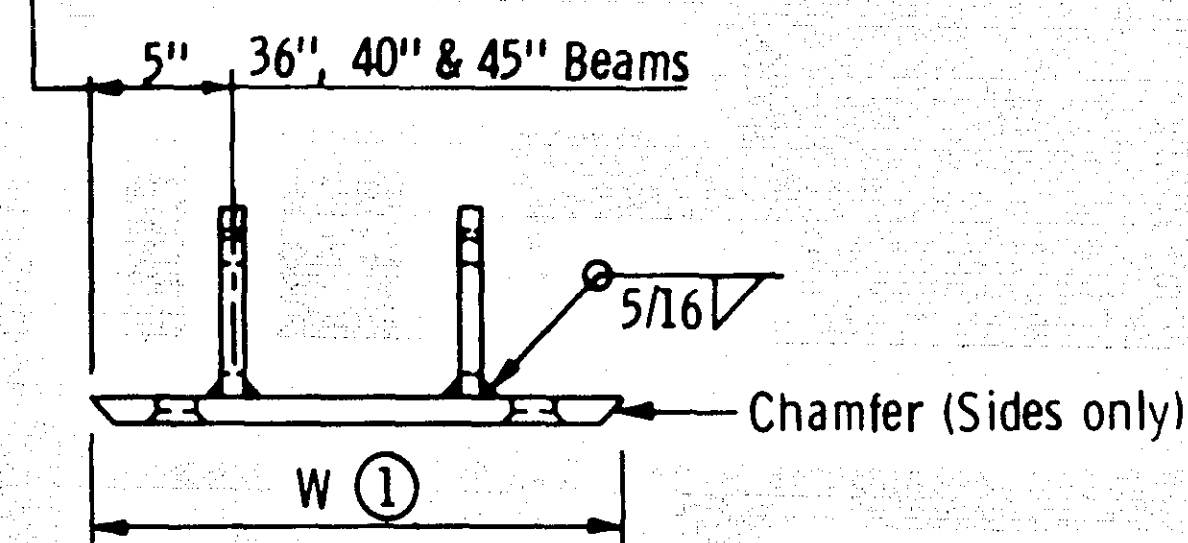


SIDE VIEW

NOTES

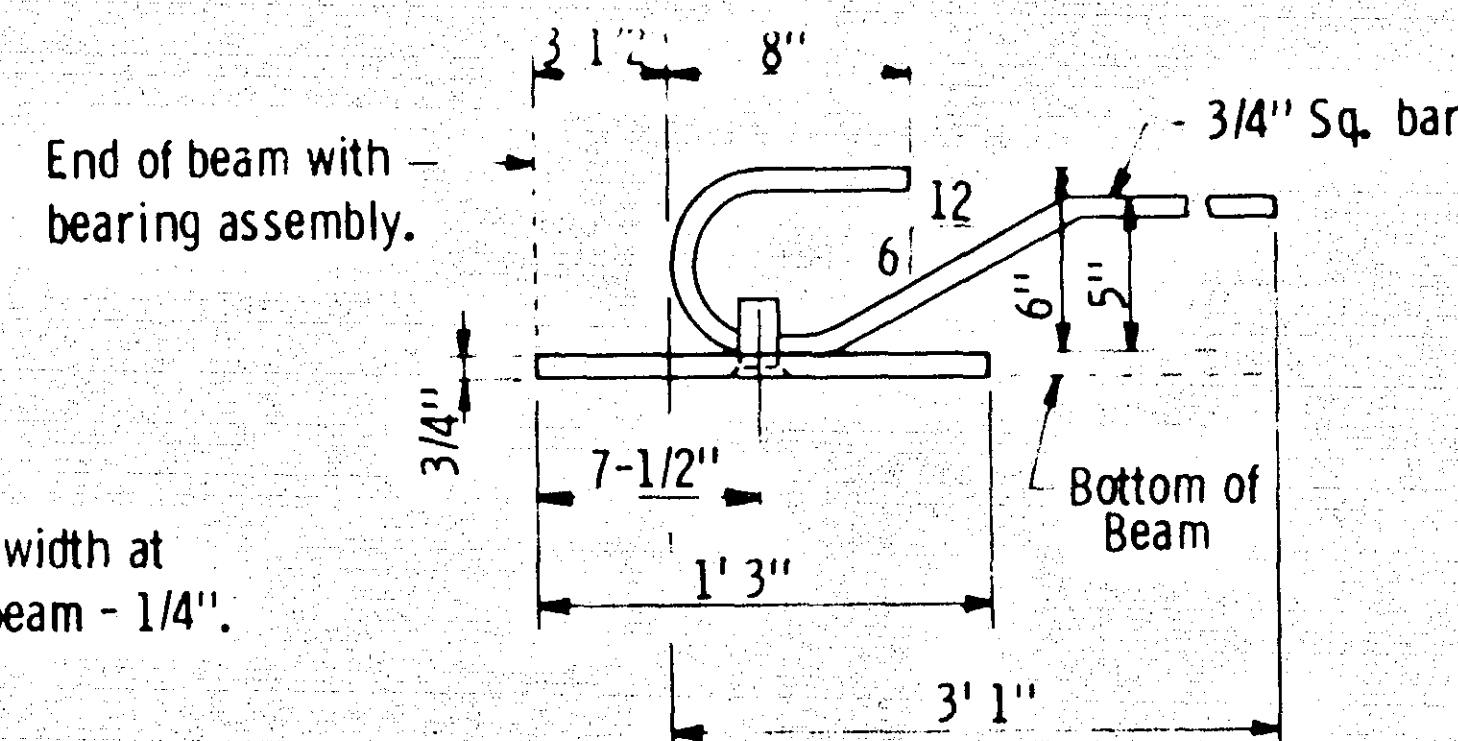
Material to be Structural Steel per Spec. 3306
Sole plate for Bearing Assembly to be hot dipped galvanized as per Spec. 3394 after fabrication.
Payment for sole plates to be included in price bid for Prestressed Concrete Beams.

These dimensions may be modified to clear post tensioning tubes or prestressing strands. Changes must be approved by the Engineer.



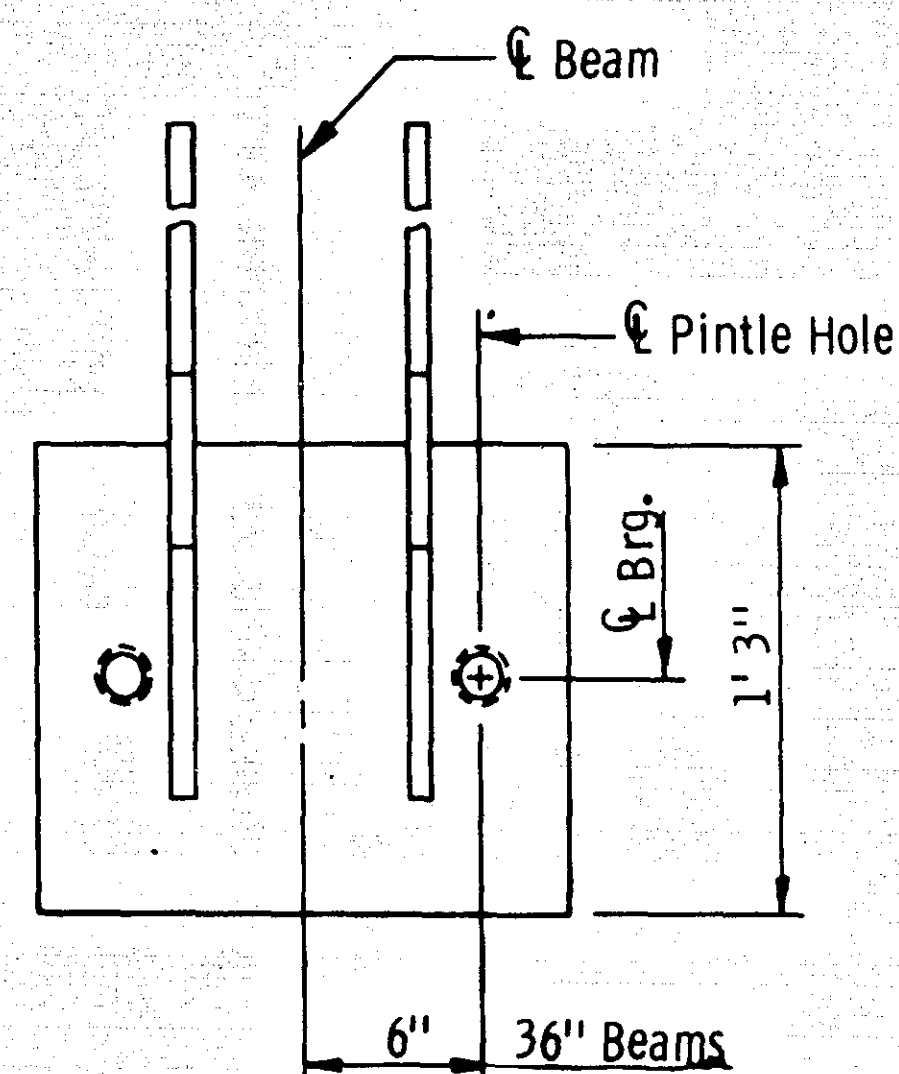
FRONT VIEW

① Dimension "W" to be the width at the bottom flange of the beam - 1/4".



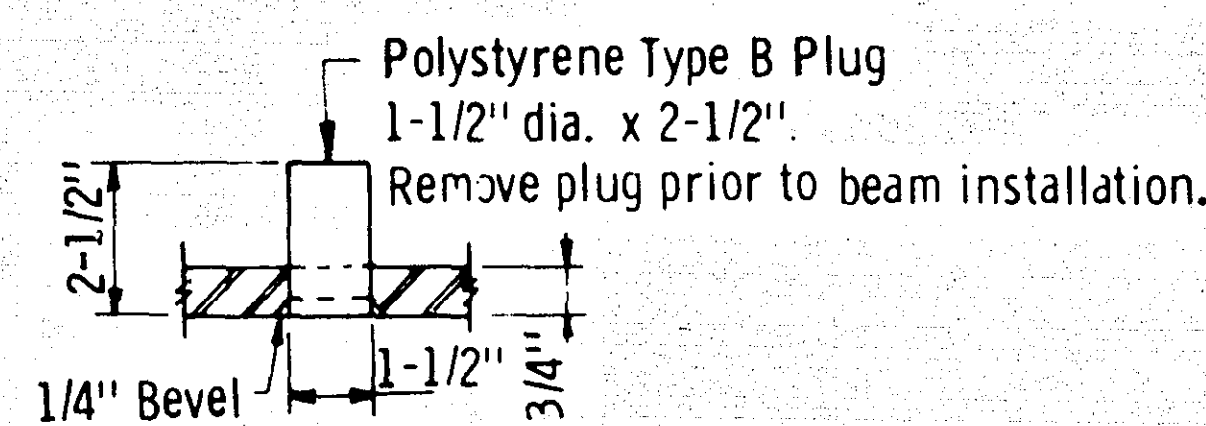
SIDE VIEW

Showing placement in beam



PLAN VIEW

SOLE PLATE FOR B302 & B304 BEARING ASSEMBLY



PINTLE HOLE DETAIL
(2 Required)

NOTES

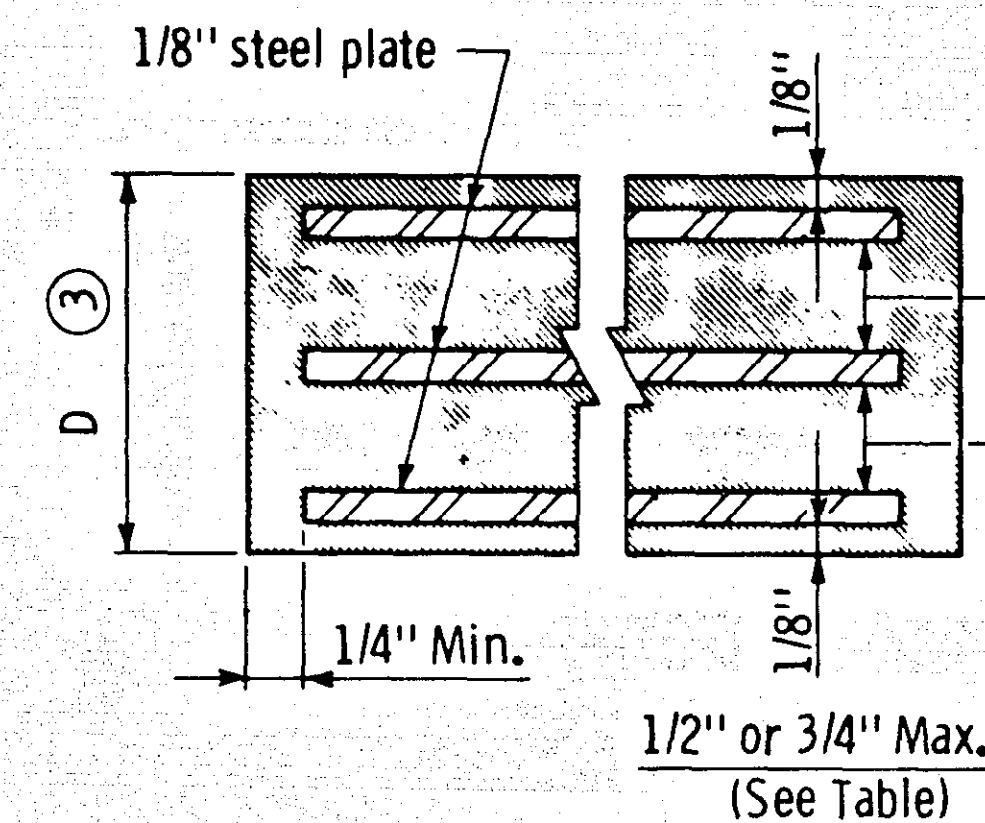
Material to be Structural Steel per Spec. 3306
Sole plate for Bearing Assembly to be hot dipped galvanized as per Spec. 3394 after fabrication. Pintle holes shall be free of zinc build up from galvanizing.
Payment for sole plates to be included in price bid for Prestressed Concrete Beams

APPROVED: April 26, 1978
Developed by: ENGINEERING STANDARDS, AND BRIDGES AND STRUCTURES
Issued by: ENGINEERING STANDARDS

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
SOLE PLATES
PRESTRESSED CONCRETE BEAMS

REVISION
Sept. 7, 1978

DETAIL NO.
B303



SECTION X-X

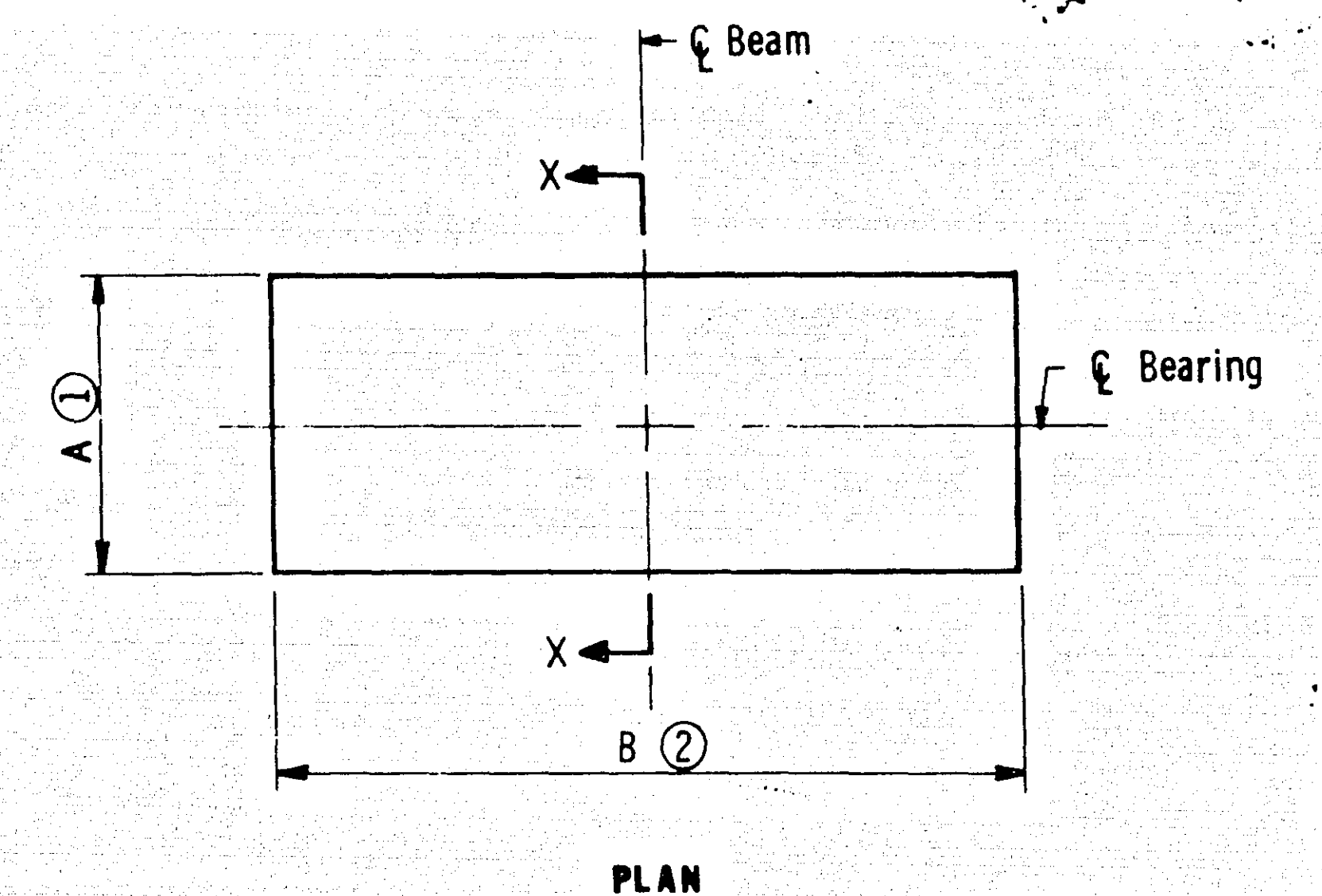
③ Total thickness including the steel plates
STEEL LAMINATE PAD DETAIL
(1-1/2" pad shown)

LAMINATE TABLE

MAXIMUM MOVEMENT	PAD THICKNESS	MAXIMUM NO. OF LAMINATES
1/2" Lam, 3/4" Lam,	D	1/2" Lam, 3/4" Lam,
1/4"	1"	1
7/16"	1-1/2"	2
5/8"	2"	3
13/16"	2-1/2"	4
1"	3"	5
1-1/4"	3-1/2"	5
1-7/16"	4"	6
1-5/8"	4-1/2"	7
1-13/16"	5"	8
2"	5-1/2"	9
2-1/4"	6"	9
2-7/16"	6-1/2"	10
2-5/8"	7"	11
2-13/16"	7-1/2"	12
3"	8"	13

ELASTOMERIC PAD TABLE

Beam Size	A	B	D	DL Min. (Kips)	DL Max. (Kips)	DL + LL Max. (Kips)	Shape Factor	Max. Lam. Thk.	Pad Type
28"	10"	14"		28	70	112	6	1/2"	
	12"			34	84	134	6		
	14"			39	98	157	7		
	16"			45	112	179	7		
	18"			50	126	202	8		
	20"			56	140	224	8		
	22"			62	154	246	9		
36"	10"	14"	1"	28	70	112	6		E-1
	12"			38	96	154	7		
	14"			45	112	179	7		
	16"			51	128	205	8		
	18"			58	144	230	8		
	20"			64	160	256	9		
	22"			70	176	282	9		
	24"			77	192	307	6	3/4"	
40" & 45"	10"	20"		40	100	160	7	1/2"	
	12"			48	120	192	8		
	14"			56	140	224	8		
	16"			64	160	256	9		
	18"			72	180	288	9		
	20"			80	200	320	7	3/4"	
	22"			88	220	352	7	3/4"	
	24"			96	240	384	7	3/4"	
54" - 81"	10"	24"		48	120	192	7	1/2"	
	12"			58	144	230	8	1/2"	
	14"			67	168	269	9	1/2"	
	16"			77	192	307	6	3/4"	
	18"			86	216	346	7		
	20"			96	240	384	7		
	22"			106	264	422	8		
	24"			115	288	461	8		
30" Bulb	10"	22"		44	110	176	7	1/2"	
	12"			53	132	211	8		
	14"			62	154	246	9		
	16"			70	176	282	9		



PLAN

① Minimum A dimension shall be 3[D - 1/8 (No. of steel plates)]
② Minimum B dimension shall be 2[D - 1/8 (No. of steel plates)]

NOTE:

For elastomeric materials and pad construction see Spec. 3741.
All bearing pads are to bear evenly on the bearing seats.

APPROVED: April 26, 1978
Developed by: ENGINEERING STANDARDS, BRIDGES AND STRUCTURES
Issued by: ENGINEERING STANDARDS

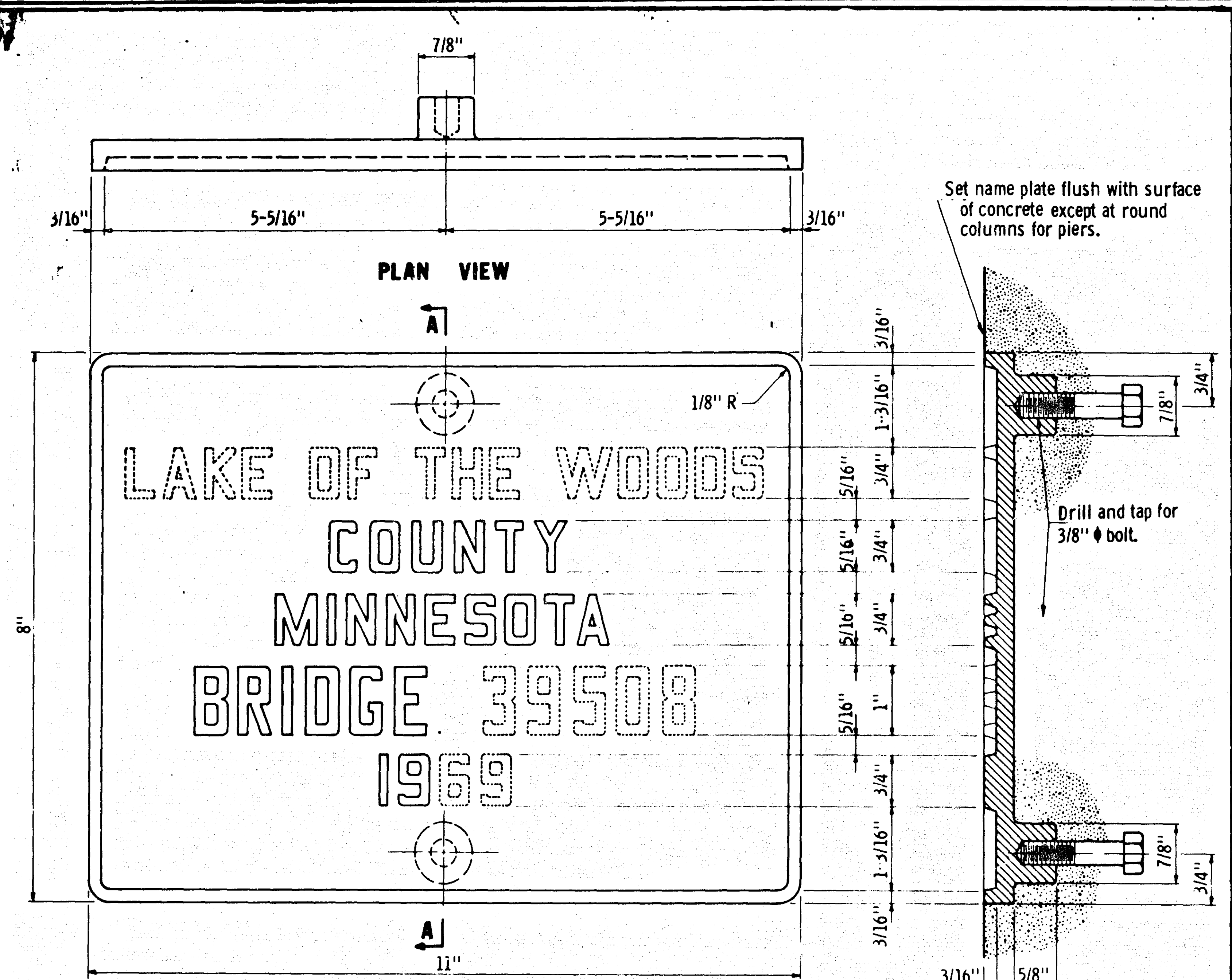
STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
ELASTOMERIC BEARING PAD
PRESTRESSED CONCRETE BEAMS
(EXPANSION)

DETAIL NO.
B305

TITLE:
DETAILS

DES: D.P. DR: J.P. APPROVED: 4-2-78
CHK: B.J. CHK: D.J.
Sheet No. 13 of 19 Sheets

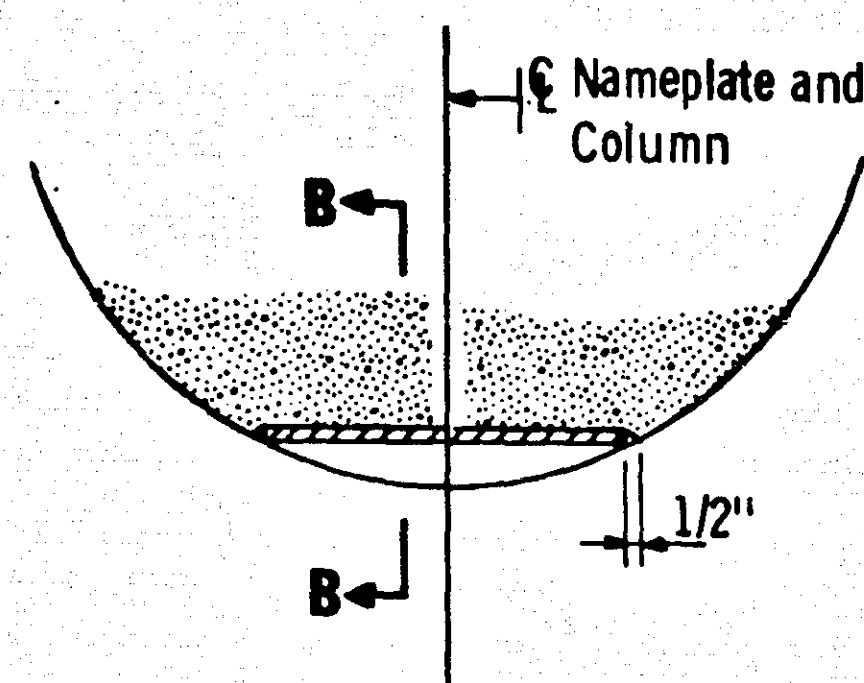
Bridge No.
62540



ELEVATION

The numbers shown above are for illustration.
Data to be shown on name plate is as follows:

BRIDGE 62540
YEAR 1984
RAMSEY COUNTY



SECTION B - B

NAMEPLATE PLACEMENT

(Round Concrete Pier Columns)

ABCDEFGHIJKLMNOPQRSTUVWXYZ

1234567890

SECTION A - A

NOTES:

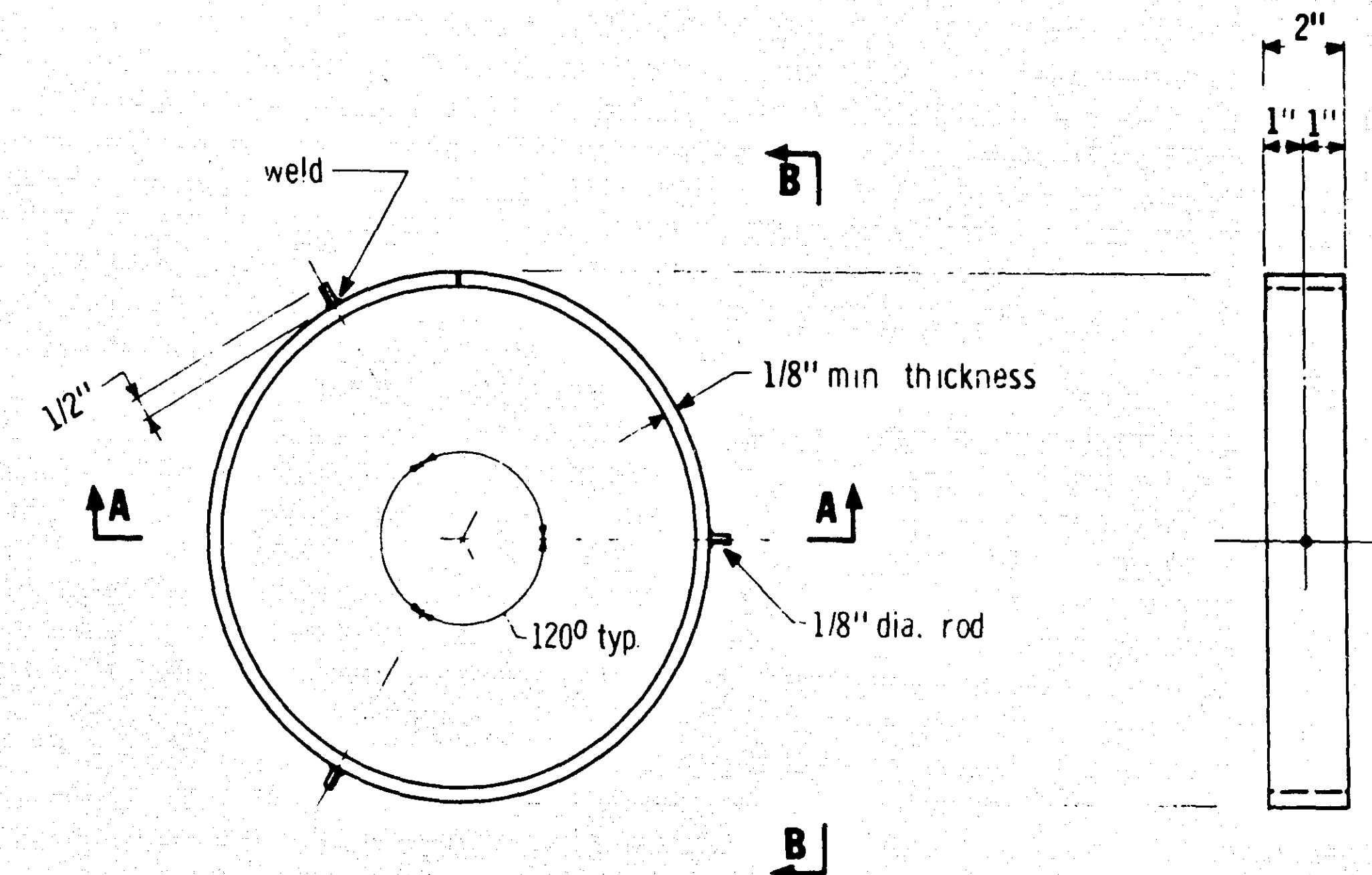
No shop drawing required.
Material shall comply with Spec. 3327.
Numbers and letters shall conform to those shown.
Draft on letters shall not be more than 3" in 12".
Horizontal spacing of letters shall produce a balanced layout in proportion to spacing shown.
Top surface of letters and frames shall be burnished.
Furnish 2 steel bolts 3/8" x 3" long with each plate.
All dimensions for 3/4" high letters and numbers shall be in direct proportion to those shown for the 1" high letters and numbers.

Specification reference: **LETTERS & NUMBERS FOR NAMEPLATES**
247L 3H, A.S.T.M. Designation: B145 - Alloy 836.

APPROVED: March 15, 1976
Developed by: OFFICE OF ENGINEERING
STANDARDS AND BRIDGE DESIGN
Issued by: OFFICE OF ENGINEERING
STANDARDS

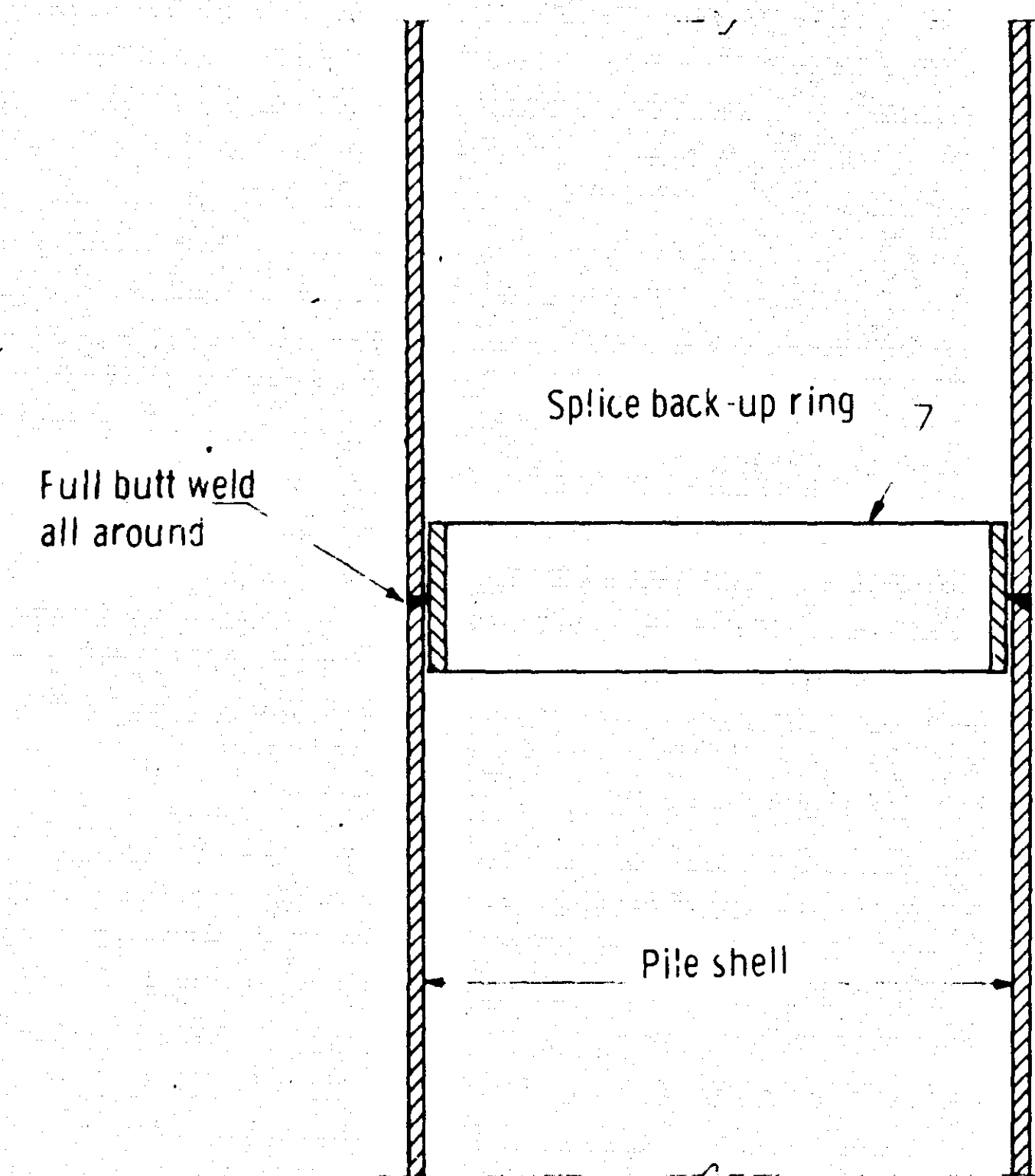
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
BRIDGE NAMEPLATE
COUNTY BRIDGES

DETAIL NO.
B103



PLAN VIEW (Pile not shown)

SECTION B - B (Pile not shown)



SECTION A - A

NOTES:

Approved commercial pile splice back-up ring may be used in lieu of the type detailed. Back-up ring shall have a tight fit.
Welding electrodes shall be A. W. S. Type E7016 or E7018 (low-hydrogen).
Low-hydrogen electrodes shall be supplied in hermetically (air-tight) sealed containers.
Low-hydrogen electrodes shall be stored in holding ovens at a temperature of not less than 250° F.
Low-hydrogen electrodes shall be placed in a holding oven for at least 8 hours, after having been exposed to the atmosphere for more than 2 hours.
Electrodes which have become wet, soiled or damaged shall not be used.
Welding shall not be done when the ambient temperature is lower than 0° F. or when the pile is wet or exposed to falling rain or snow. When the pile metal temperature is below 32° F., the pile metal in the area of the weld shall be heated to a minimum temperature of 70° F. and maintained at this temperature during welding.

APPROVED July 21, 1972
Shirley A. Smith
Engineering Standards Engineer
RESEARCH AND STANDARDS
DIVISION

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

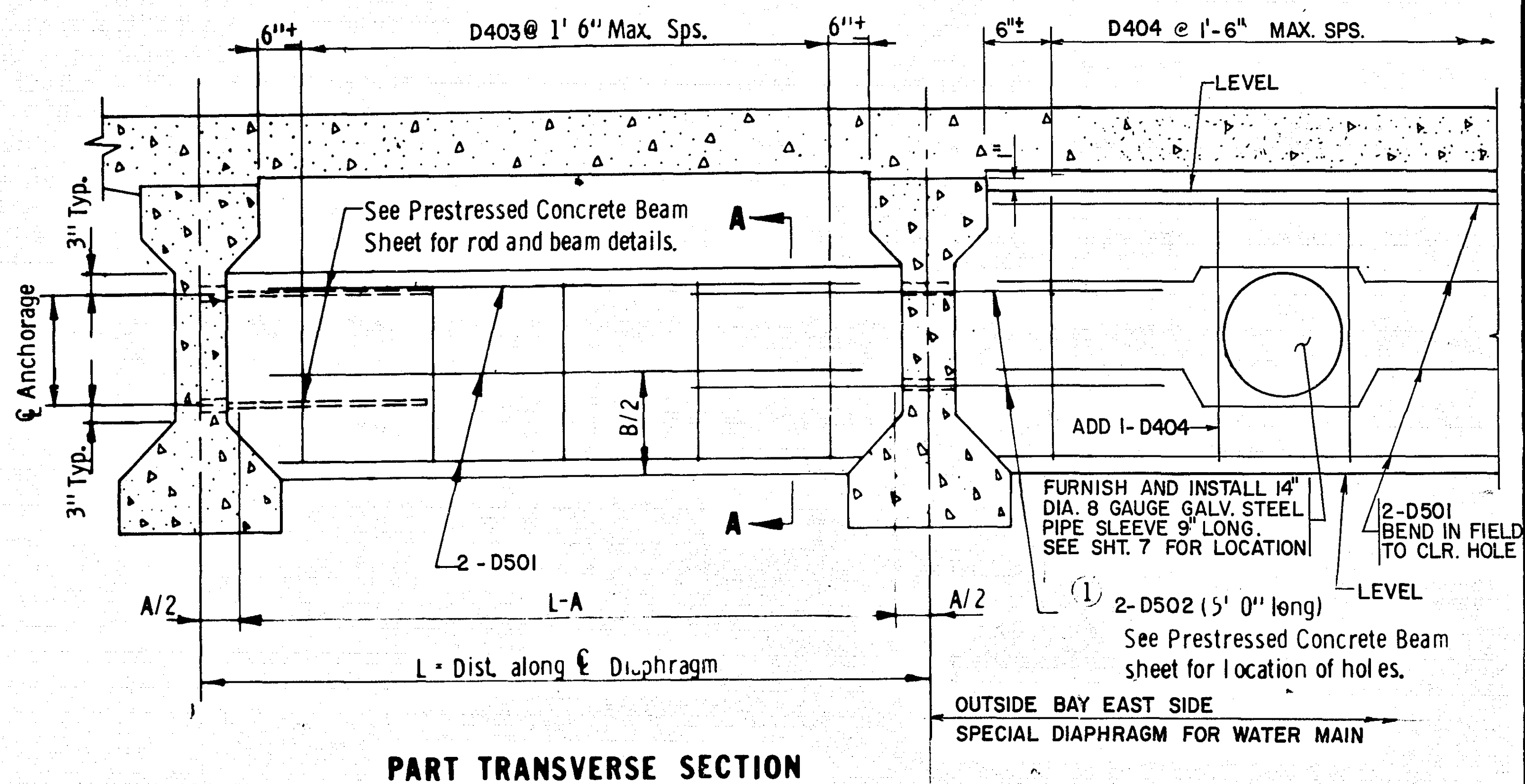
PILE SPLICE
CAST-IN-PLACE CONCRETE PILES

DETAIL NO.
B201

DETAILS

DES: J.P. DR: J.P. APPROVED: 4-3-84
CHK: B.J. CHK: D.P.
Sheet No. 14 of 19 Sheets

Bridge No.
62540



PART TRANSVERSE SECTION

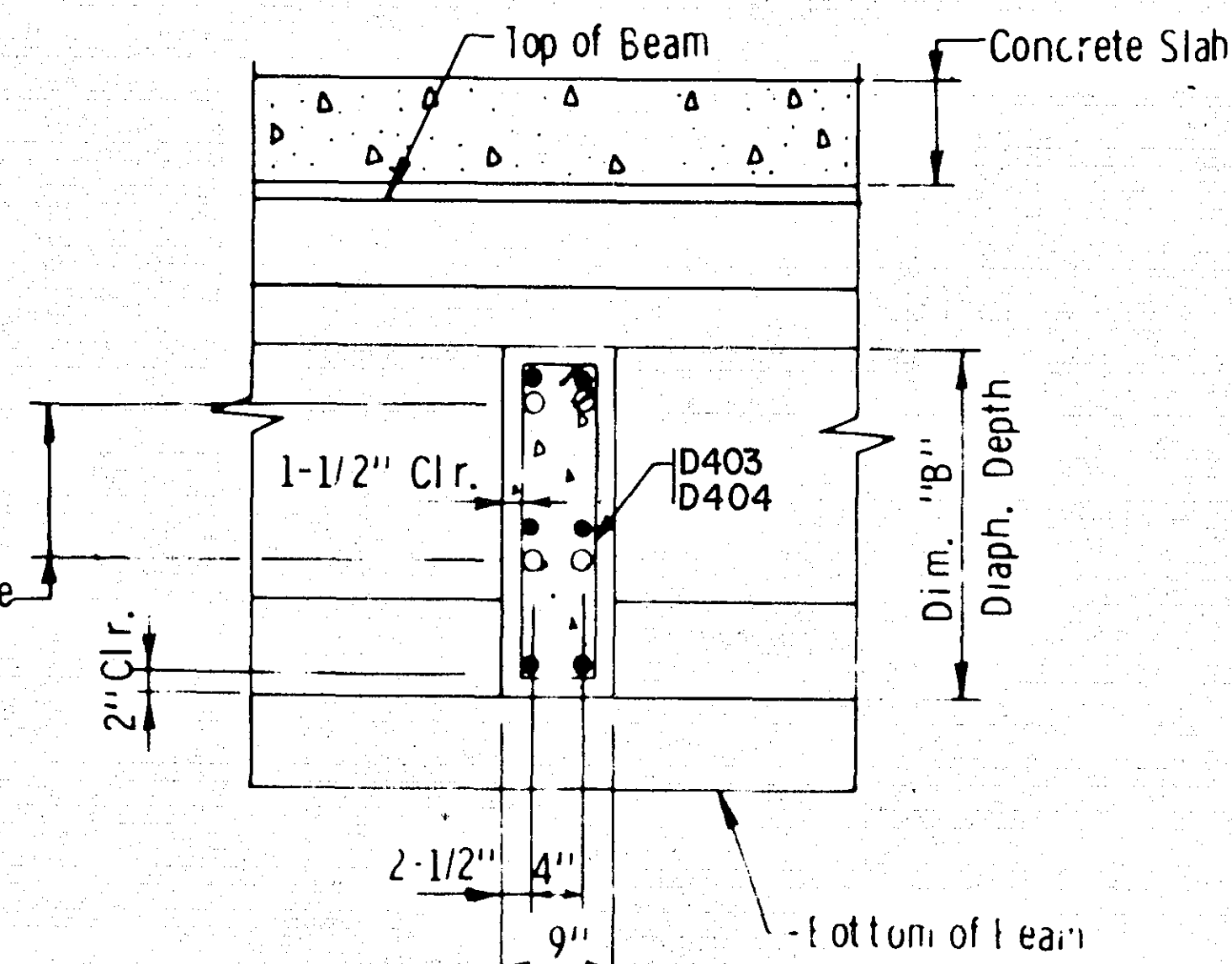
Bm. HL	Dim. "A" For comp. volume	Diaph. Dim. "B"	D403 Length
28"	7-1/2"	1'-4"	3'-9"
36"	7-3/4"	1'-9"	4'-7"
40"	8-3/4"	1'-11"	4'-11"
45"	9"	2'-2 1/2"	5'-6"
54"	10-1/2"	2'-8"	6'-5"

Concrete volume per diaphragm

$$\frac{(L - A) \times B \times .75}{27} = (\text{Cu. yd.})$$

BAR	NO.	LENGTH	SHAPE	LOCATION
D501	32	4'-0"	STRT.	DIAPH. HORIZ.
D502	12	5'-0"	STRT.	DIAPH. HORIZ.
D403	16	4'-7"	BENT	DIAPH. VERT.
D404	5	5'-11"	BENT	DIAPH. VERT.

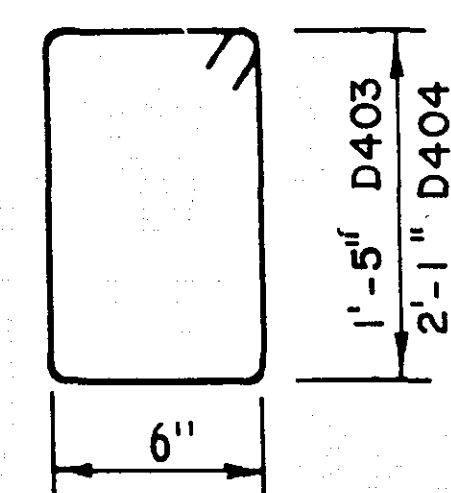
Beam Anchorage & holes thru interior beams



SECTION A-A

GENERAL NOTES

- For Diaphragms 20' and over, use threaded rods as shown on standard prestressed concrete beam sheet.
- All diaphragm concrete and reinforcement bars shown on this detail to be included in payment for diaphragms for prestressed beams. Threaded rods are included in payment for prestressed concrete beams.



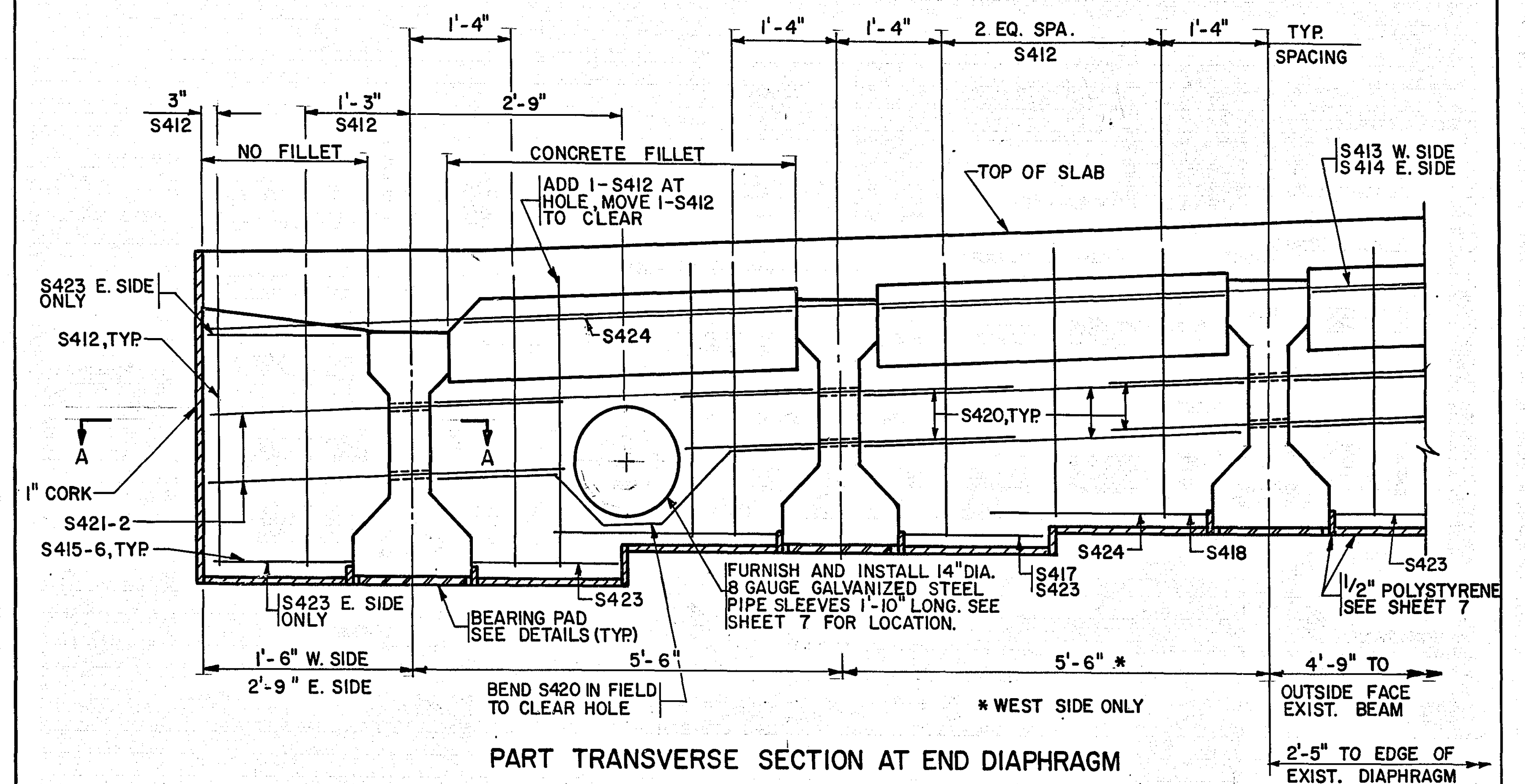
D403, D404

D2

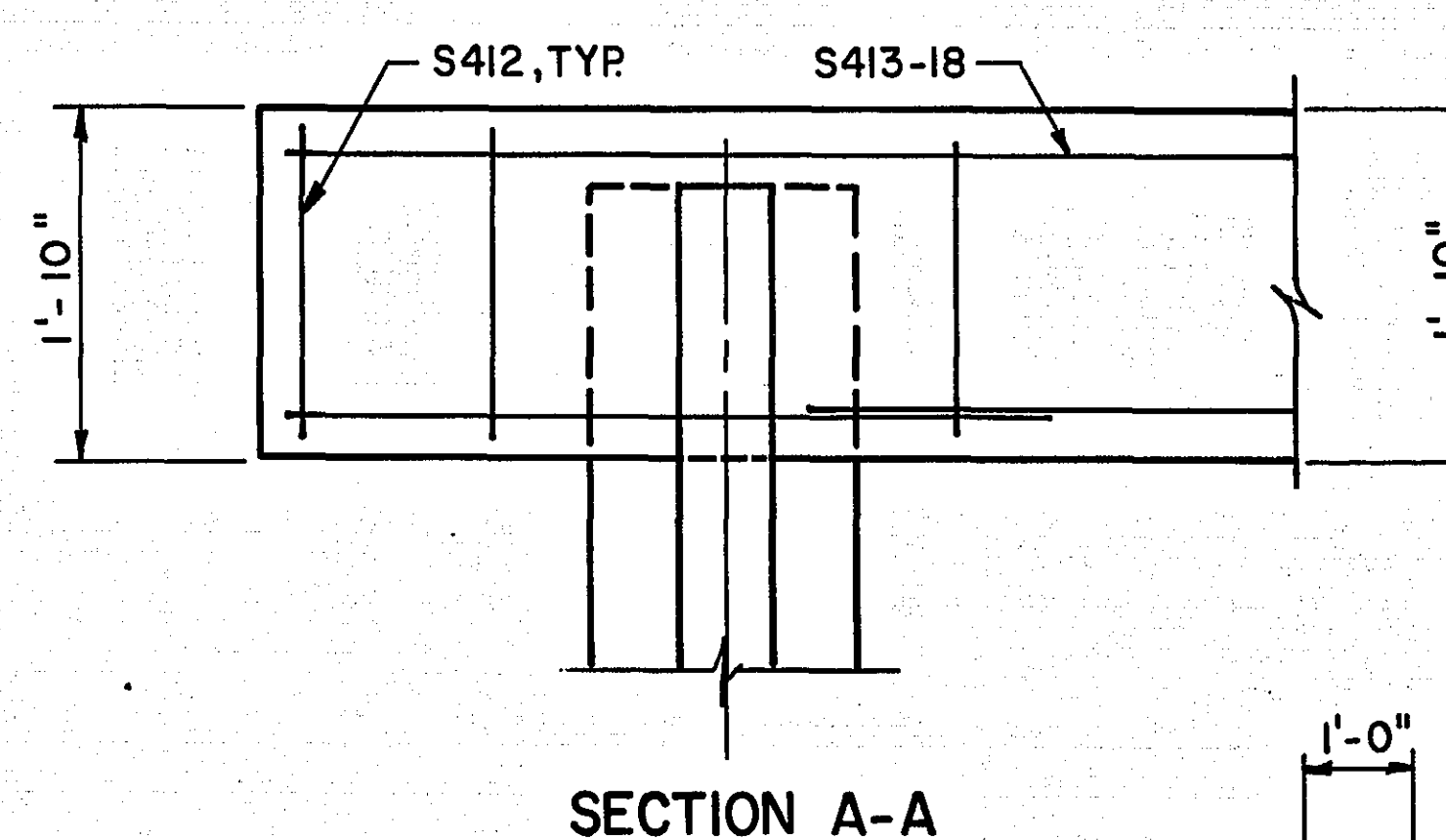
APPROVED: July 8, 1976
 Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN
 Issued by: OFFICE OF ENGINEERING STANDARDS

MINNESOTA
 DEPARTMENT OF TRANSPORTATION
CONCRETE INTERMEDIATE DIAPHRAGM
 (FOR 28" - 54" PRESTRESSED CONCRETE BEAM SPANS)

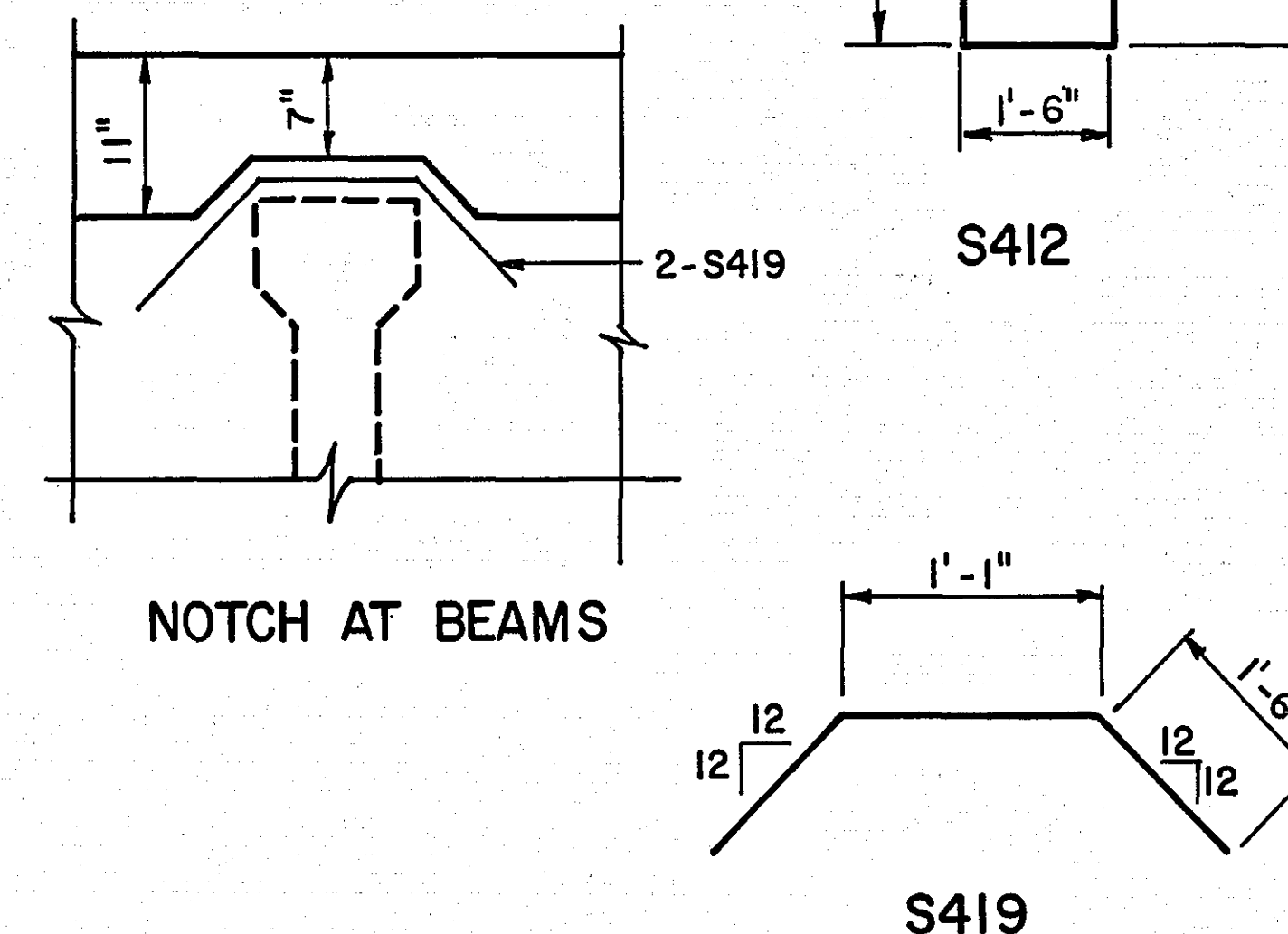
DETAIL NO.
B802



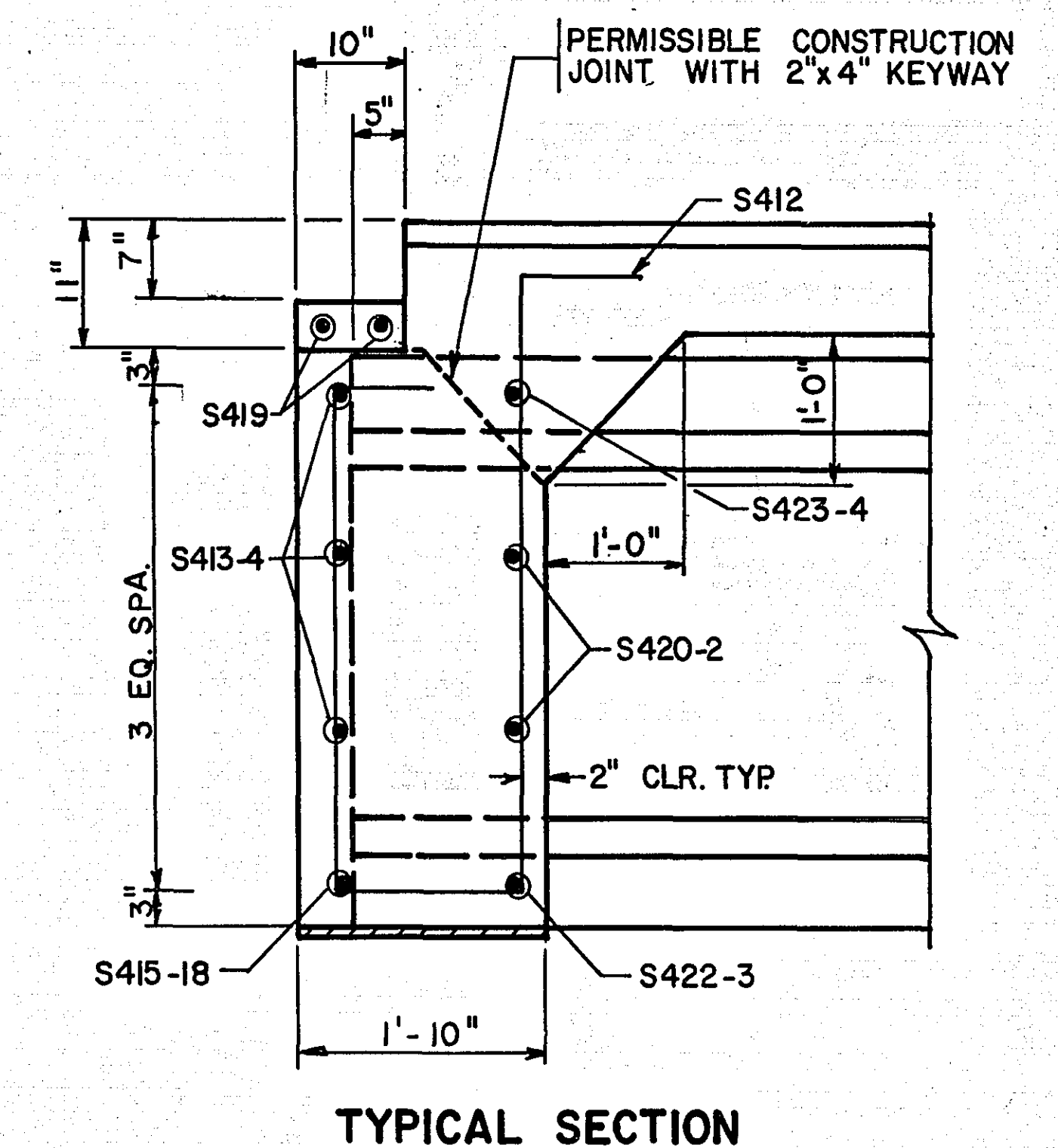
PART TRANSVERSE SECTION AT END DIAPHRAGM



SECTION A-A



NOTCH AT BEAMS



TYPICAL SECTION

ALL DIAPHRAGM BARS SHOWN ARE LISTED WITH THE SUPERSTRUCTURE REINFORCEMENT. DIAPHRAGM CONCRETE QUANTITIES ARE INCLUDED IN SUPERSTRUCTURE QUANTITIES.

D1

MODIFIED
 CONCRETE END DIAPHRAGM
 (PRESTRESSED CONC. BEAMS W/PILE BENT ABUT.)

DETAIL NO.
 B810

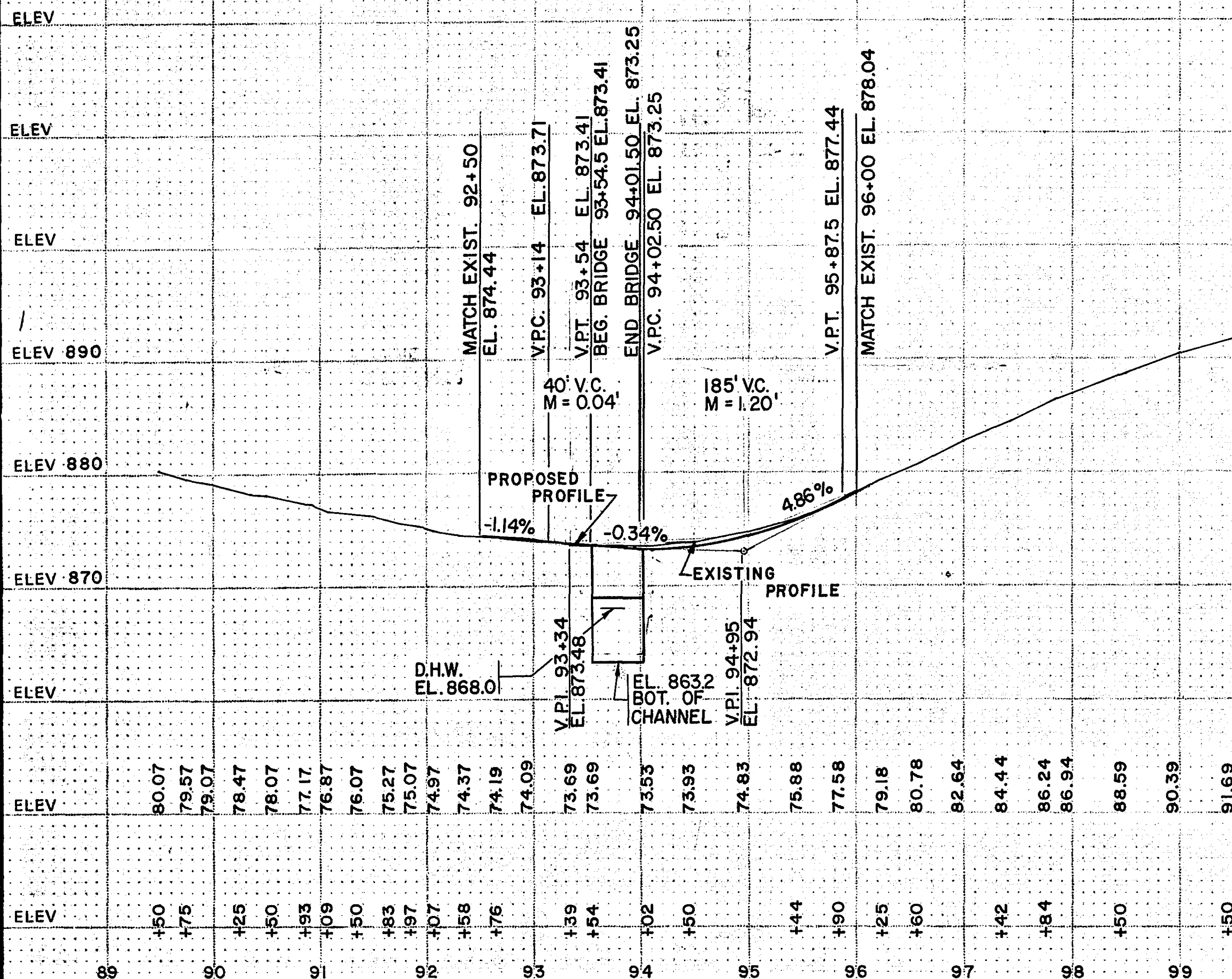
DETAILS

DES: J.P. DR: J.P. APPROVED: 4-3-84
 CHK: B.J. CHK: B.J.
 Sheet No. 15 of 19 Sheets

Bridge No.
 62540

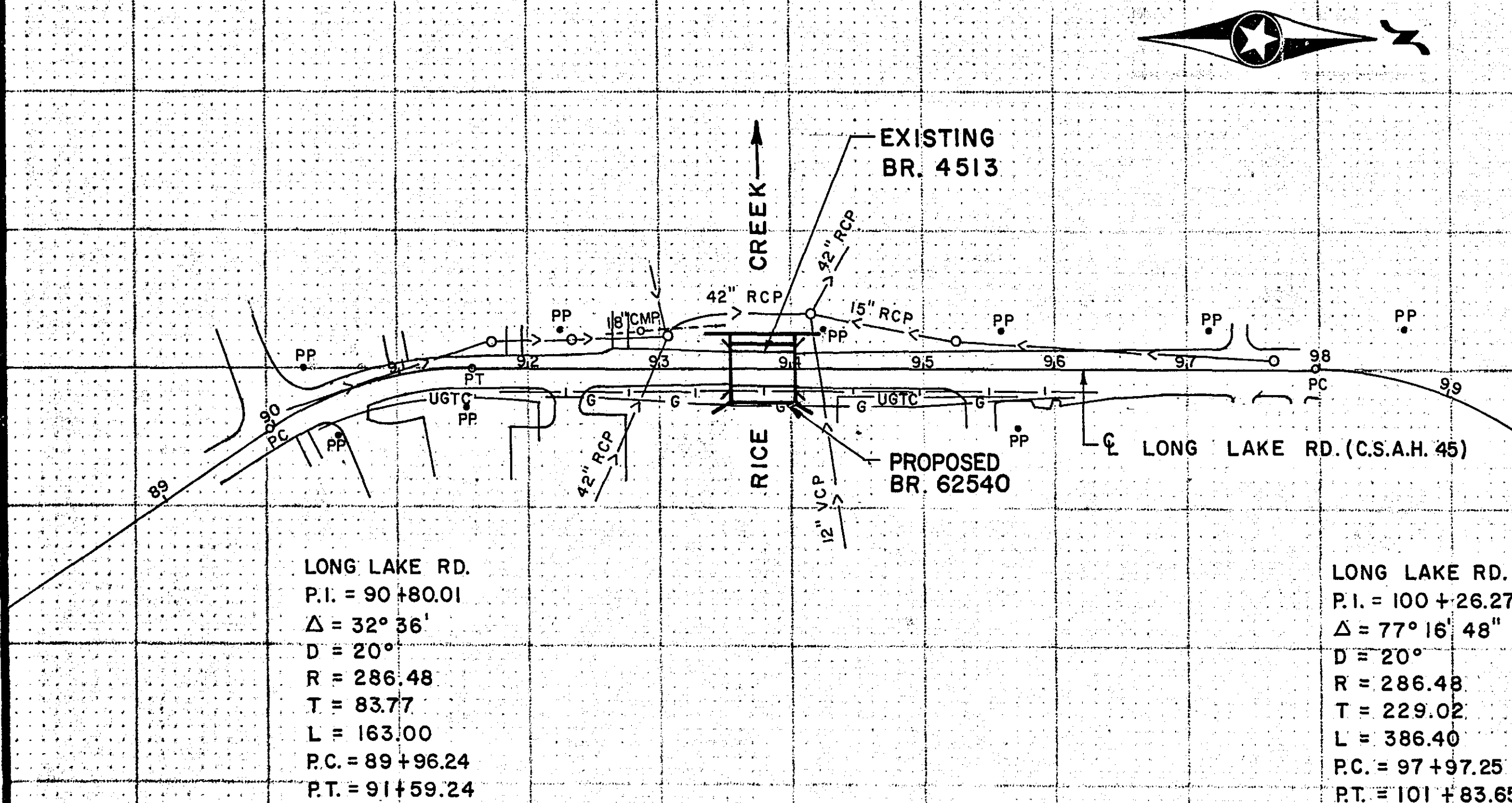
CONTRACTED PROFILE

SCALE: HOR. 1"=100' VER. 1"=10'



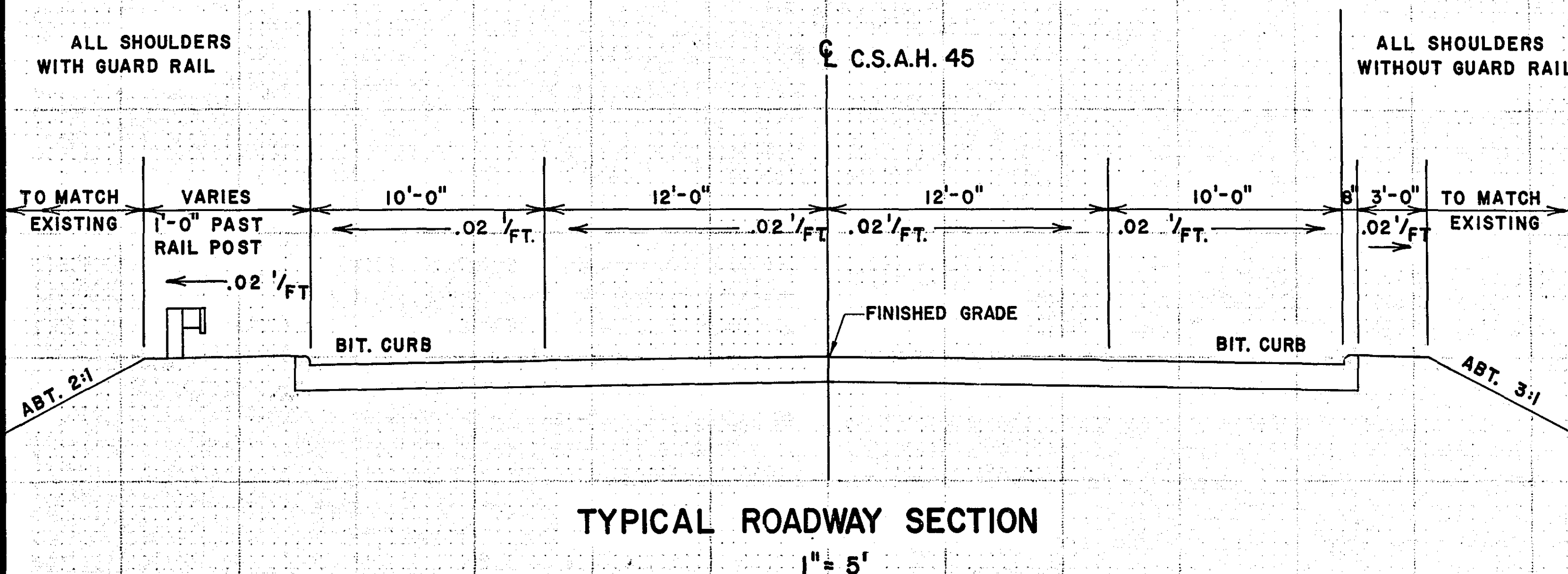
PLAT

SCALE: 1"=100'



TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN



TYPICAL ROADWAY SECTION

1"=5'

Fed. Proj. No.

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

- Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating.
- Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway): Given location, type, length, height above high water, cross-sectional area etc.
- Apparent highwater elevation: Obtained from.
- Other data: Approx. velocity of water at time of survey.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE 3-26-79

Stream or ditch designation RICE CREEK
 Drainage area 150 SQ. MI. ±
 Max. flood on record 606 cfs Design flood (100 yr. freq.) 680 C.F.S.
 Max. observed highwater elevation UNKNOWN Design highwater elevation 868.0
 Design mean velocity through structure 3.1 F.P.S.
 Low superstructure at or above elevation 868.6 (500 YR. FLOOD STAGE)
 Flowline elevation 863.2 Skew angle 0°-00'-00"
 Waterway area req'd. below elevation 868.0 = 216 Sq. Ft. at Rt. angles to channel
Rehabilitation/Widening project with no change in opening size or shape.
 In the interest of flood plain zoning the regional flood (100 yr. freq.) is 680 C.F.S.
 at stage 868.0 and mean velocity of 3.1 F.P.S. with <2 Ft. swellhead.
 The above recommendation will provide a structure of adequate waterway to pass the
 regional flood within criteria established by the Dept. of Natural Resources.

FOUNDATION ENGINEERS RECOMMENDATION

DATE

Bridge survey sheets made from:

Bench mark elevation 876.75 (M.S.L. 1929 Adj.)
 Location MARK ON EAST WALL COUNTY BRIDGE NO. 4513

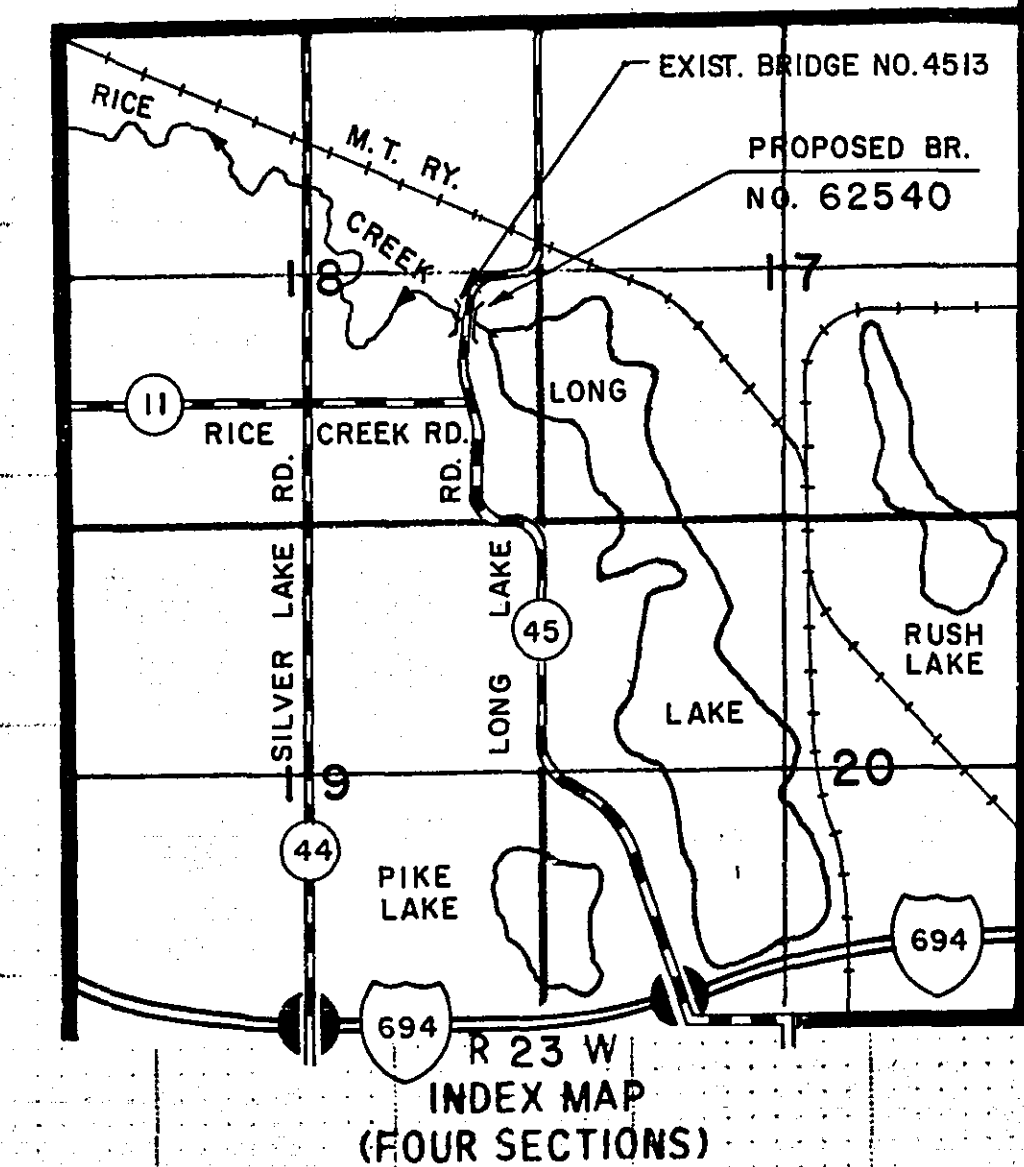
MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

AT MILE POINT ON C.S.A.H. 45
 (T.H., C.S.A.H., C.R. etc.)
 PROPOSED BRIDGE LOCATED 1.4 MILES NORTH OF
 T.H. 694
 SEC. 18 TWP. 30N R. 23W
 CITY NEW BRIGHTON COUNTY RAMSEY

BRIDGE NO. 62540

App'd. 4-3-79



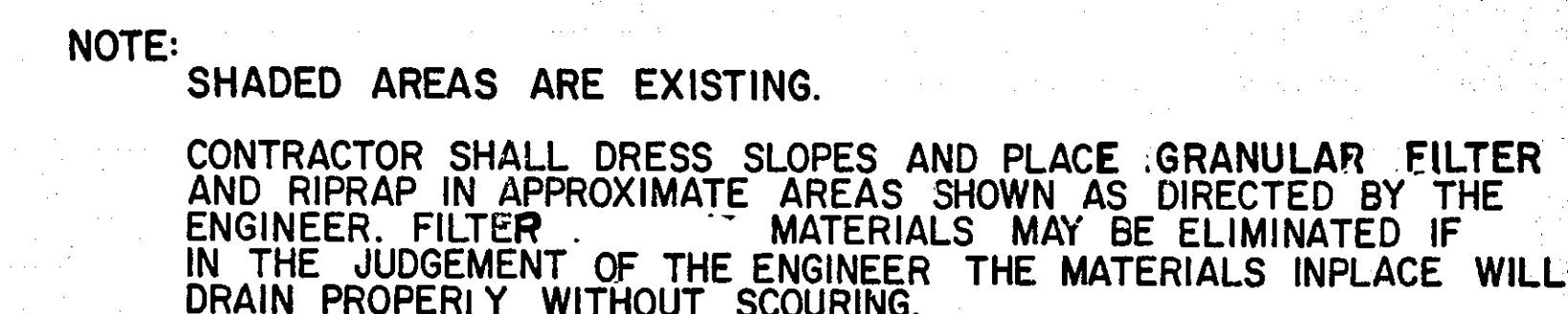
Area No.

Job No.

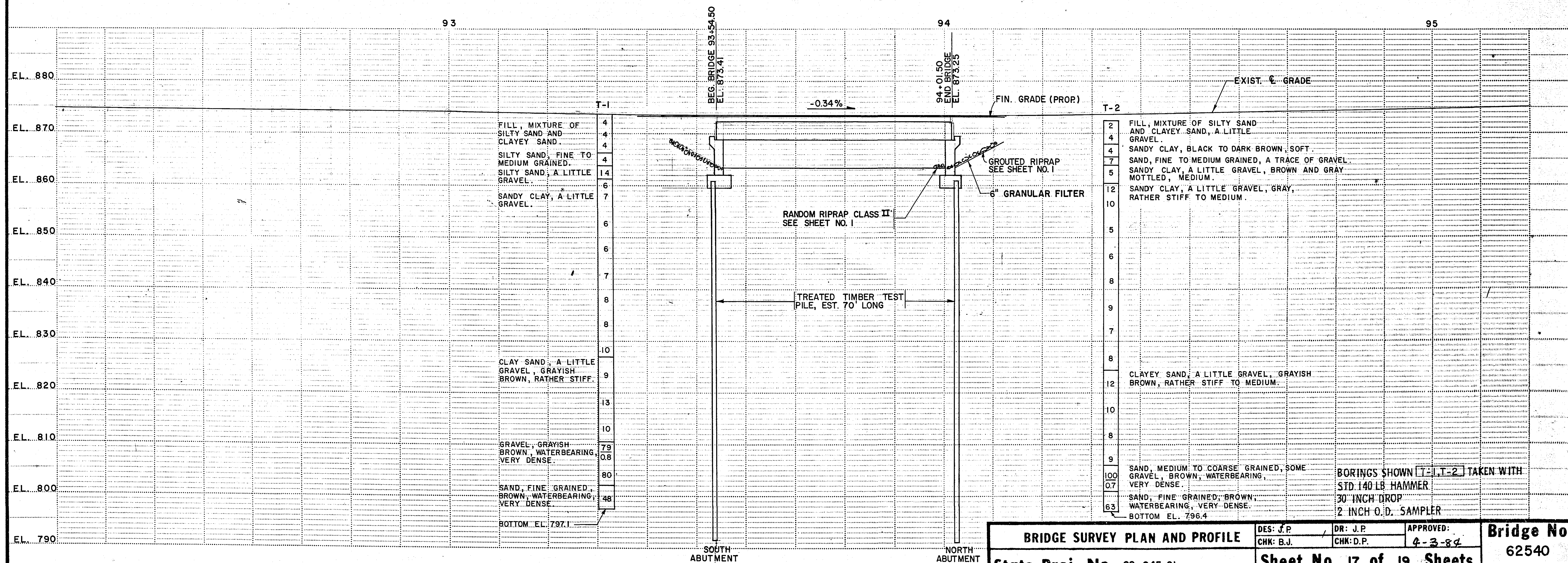
State Proj. No. 62-645-01

Sheet No. 16 of 19 Sheets

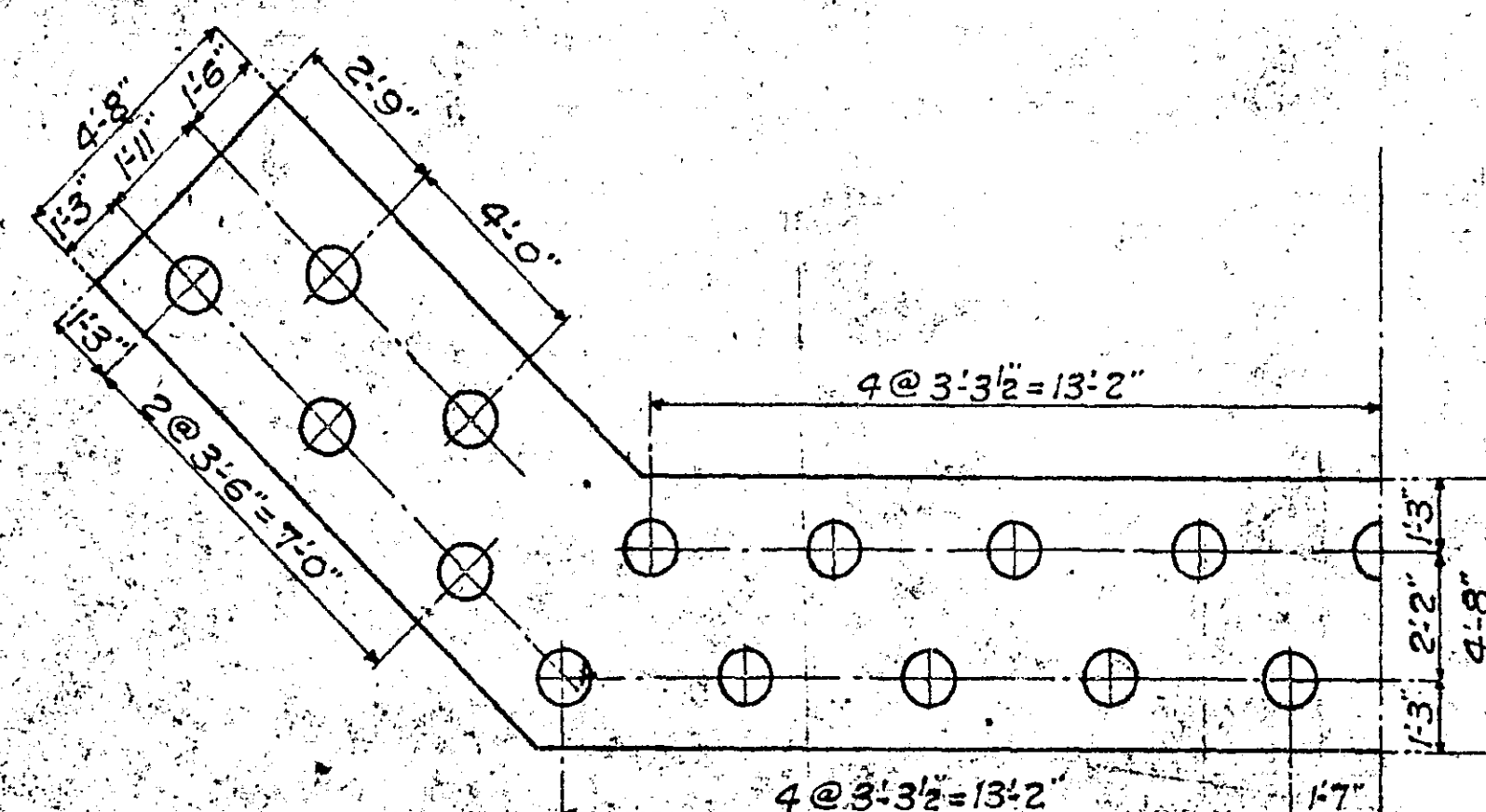
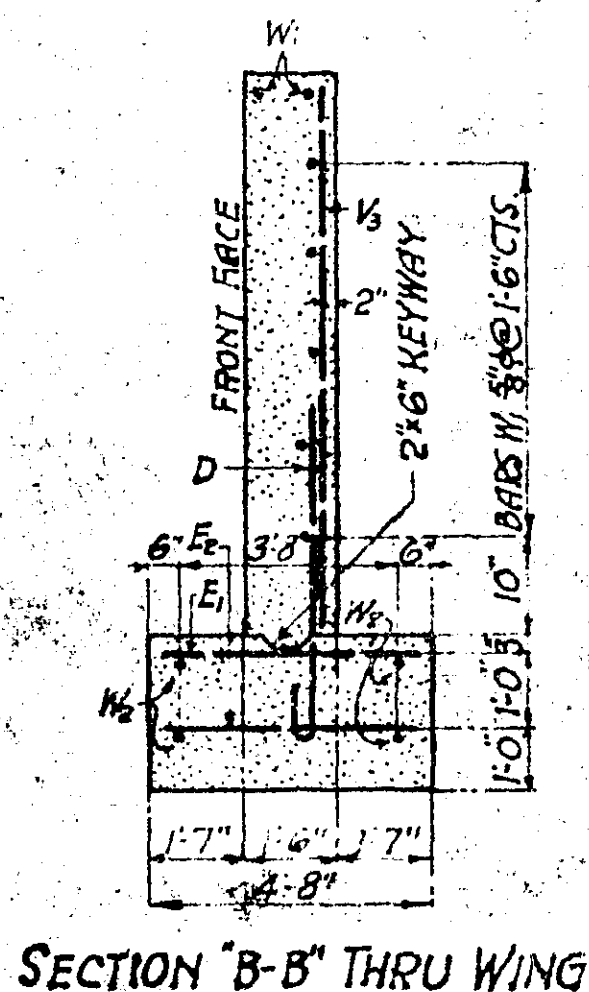
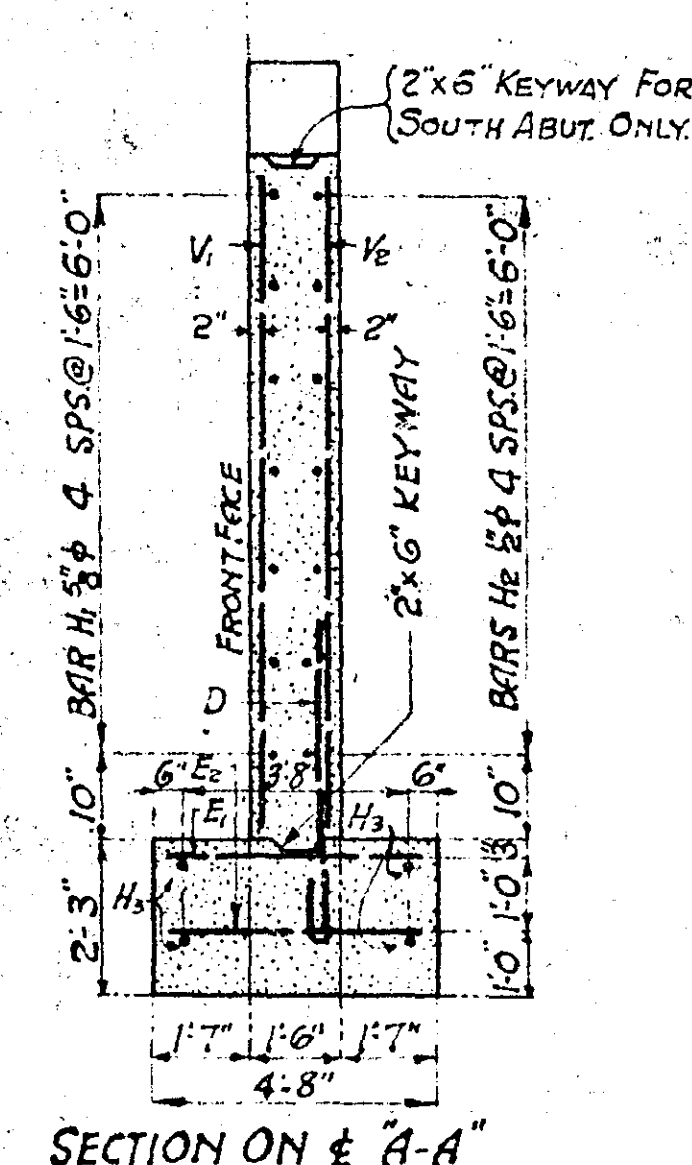
27-107



APPROACH GRADING UNDER
GRADING PORTION OF CONTRACT



B.M. ELEV. 868.91
SPIKE IN 12" OAK TREE 40 FT. LEFT OF
STA. 113+75.



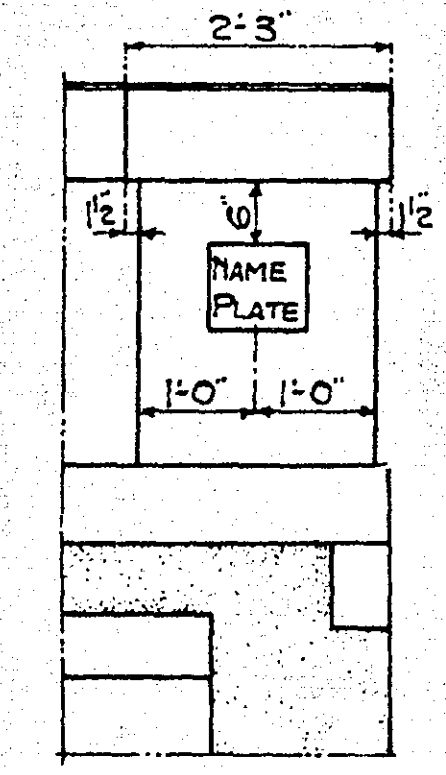
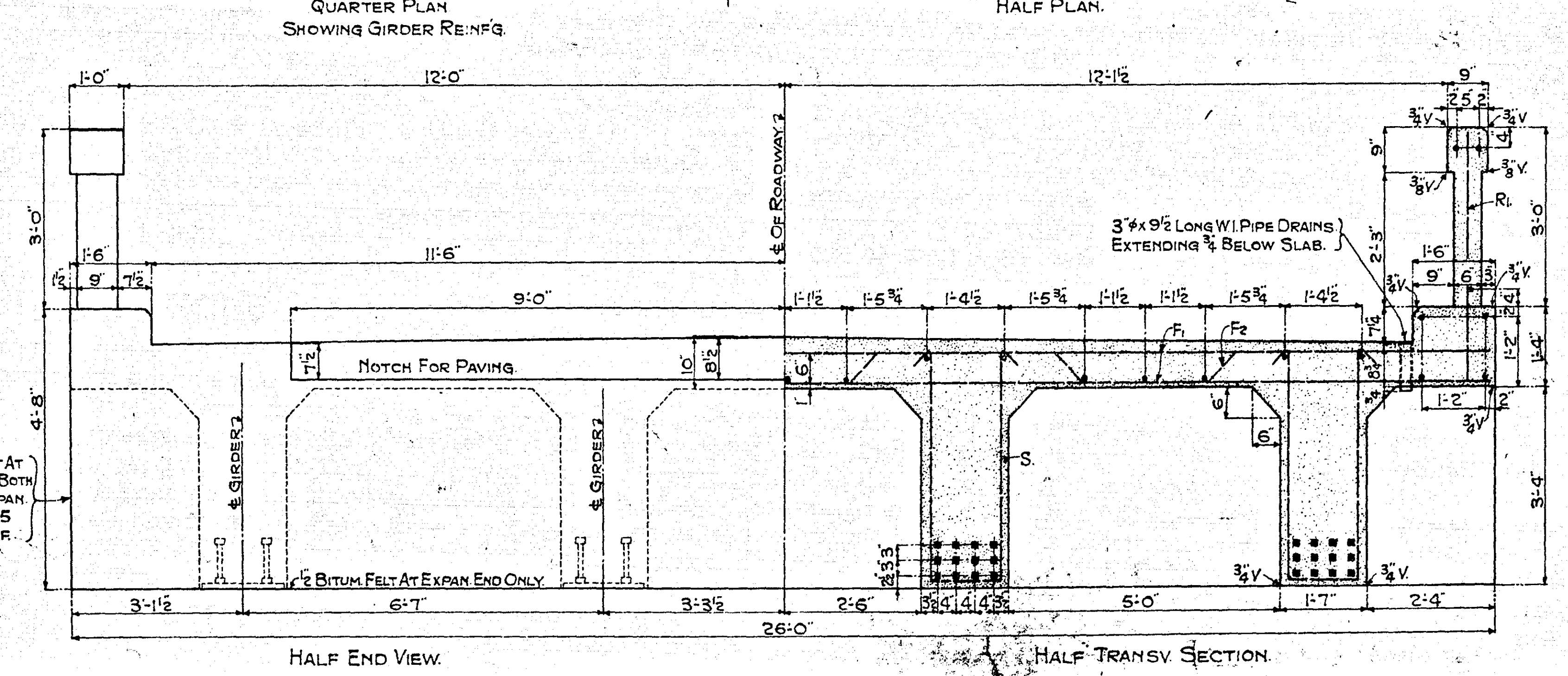
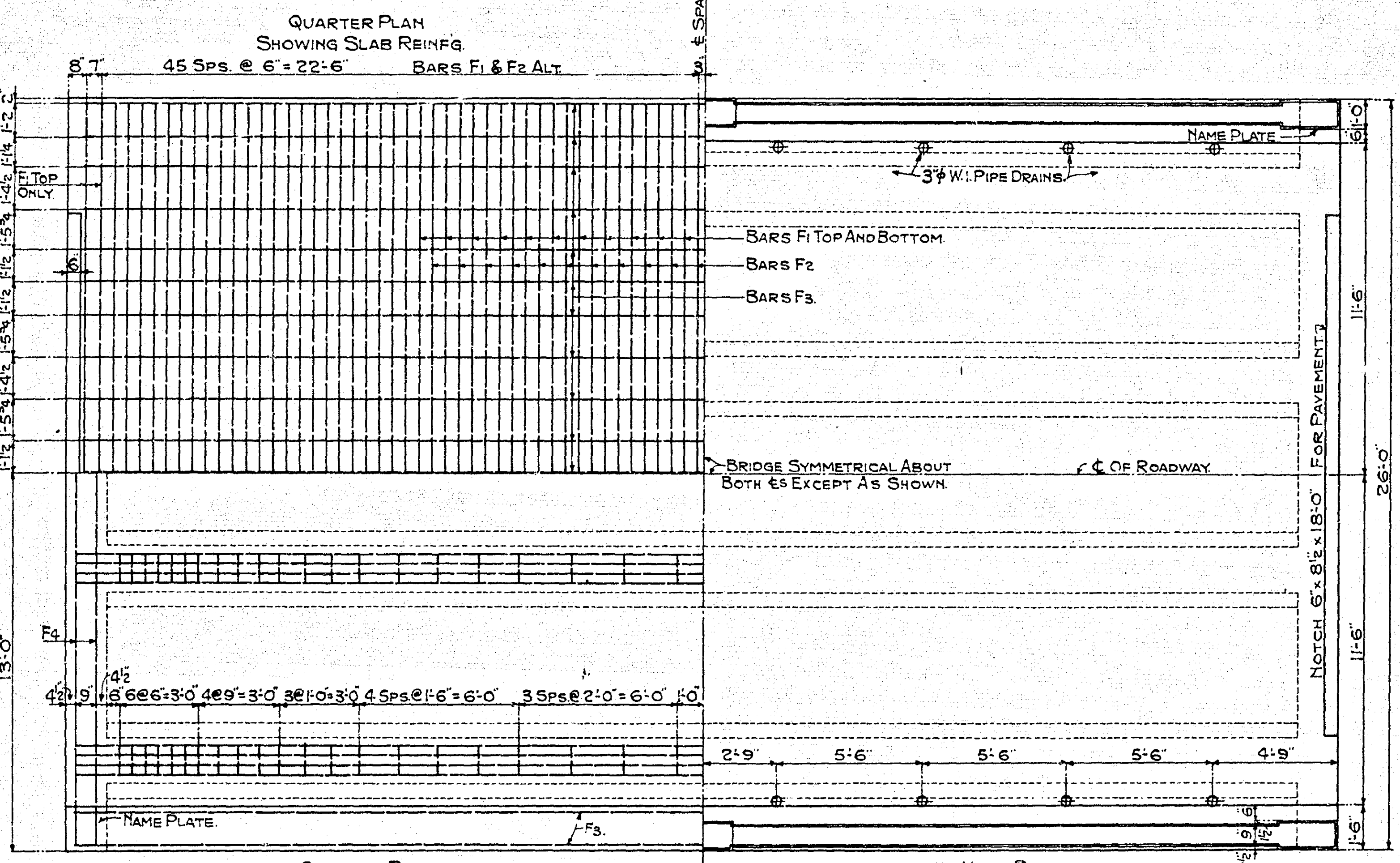
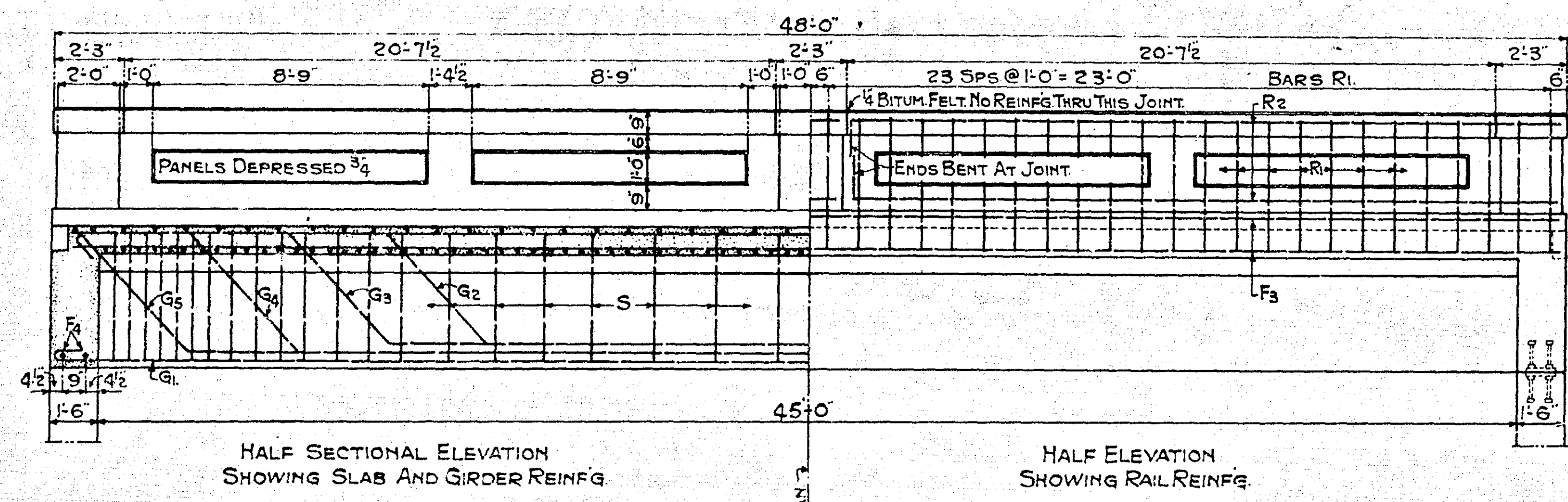
58 PILES REQUIRED FOR TWO ABUTS.
EST. LENGTH OF PILES 20 FT.
EST. MINIMUM PENETRATION 15 FT.
MINIMUM WEIGHT OF HAMMER 1600 LBS.
MINIMUM BEARING FOR ALL PILES
10 TONS EACH.

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS.
STANDARD REINFD CONCRETE ABUTMENTS.
FOR 45 FT REINFD CONCRETE DECK GIRDER 24 FT ROADWAY.
BRIDGE No. 4513
SEC. 18 T. 30. N. R. 23 W.
MOUNDS VIEW TWP. RAMSEY COUNTY
APPROVED DEC 30, 1925.

BRIDGE ENGR

SHEET 18 OF 19 SHEETS

45/3



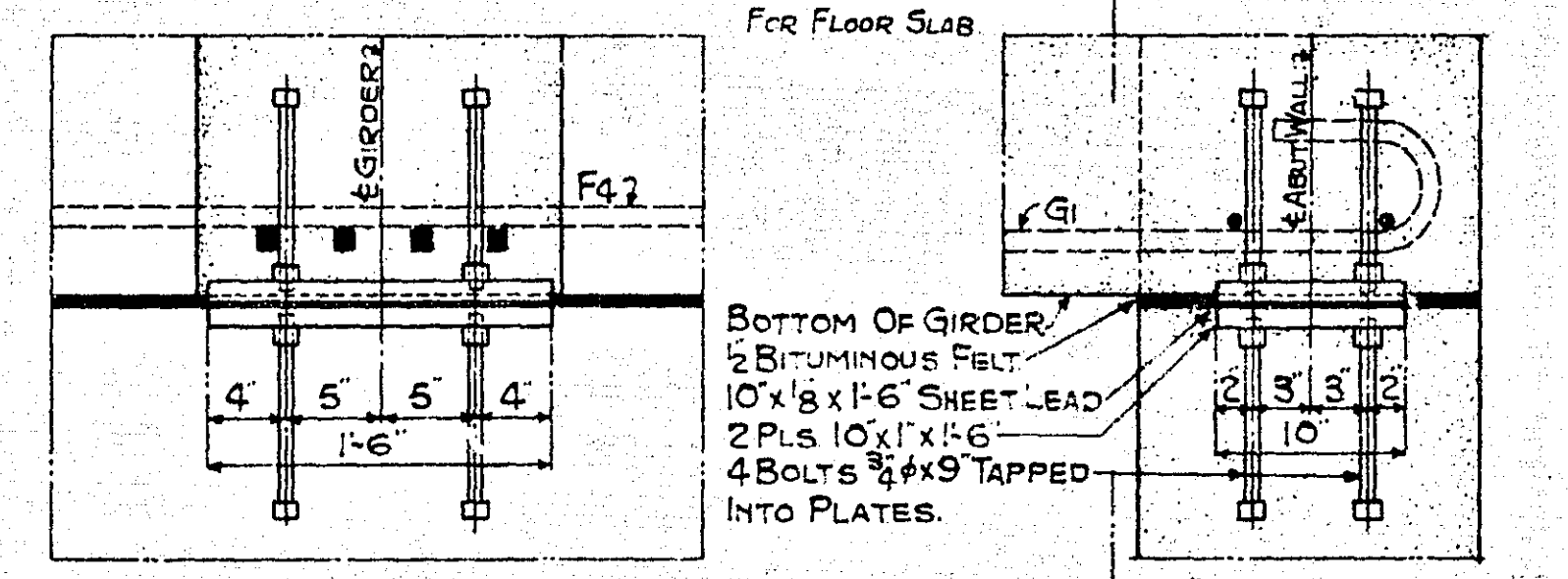
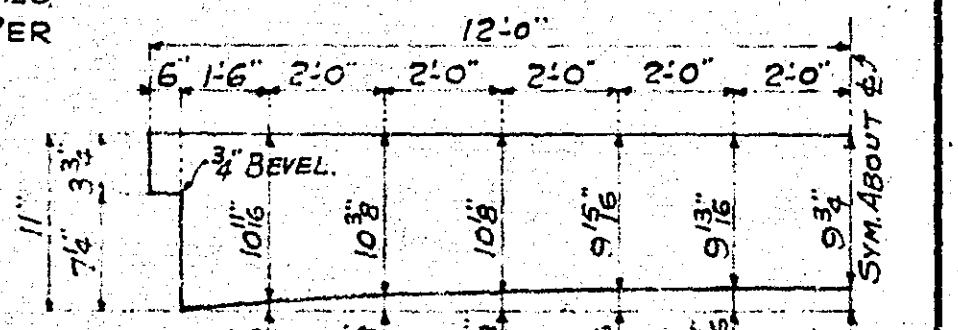
DETAIL OF END POST.
SHOWING LOCATION OF NAME PLATE

CONSTRUCTION NOTES:-
ALL REINFG BARS TO BE OF SPECIFIED LENGTH.
GIRDER FORMS TO BE BUILT WITH 2 1/4 INCHES OF CAMBER.
ALL EXPOSED EDGES OF CONCRETE TO BE BEVELED 3/4 INCH. EXCEPT AS SHOWN.
CONSTRUCTION JOINTS BETWEEN ANY TWO GIRDERS AND BETWEEN CURB AND RAILING.
CLASS 'A' CONCRETE, SCREENED MATERIALS MIXED 1:2:4, USING 5.7 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE.
TOP OF FLOOR SLAB TO BE FINISHED ACCORDING TO PAVING SPECIFICATIONS.
BARS F3 LAP 2 FT. AT SPLICES.

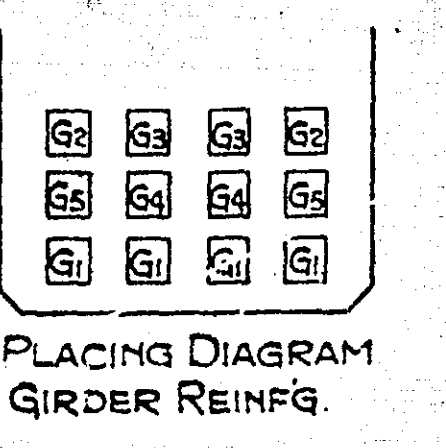
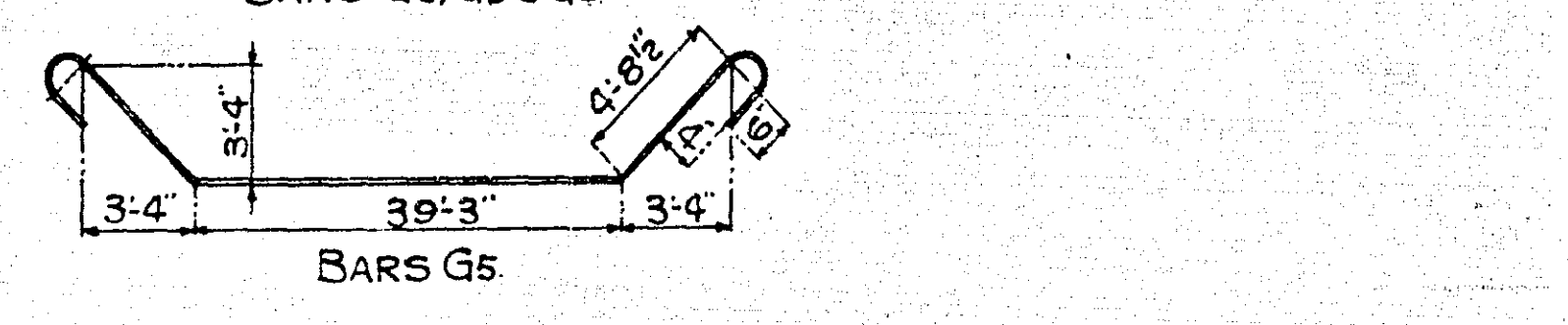
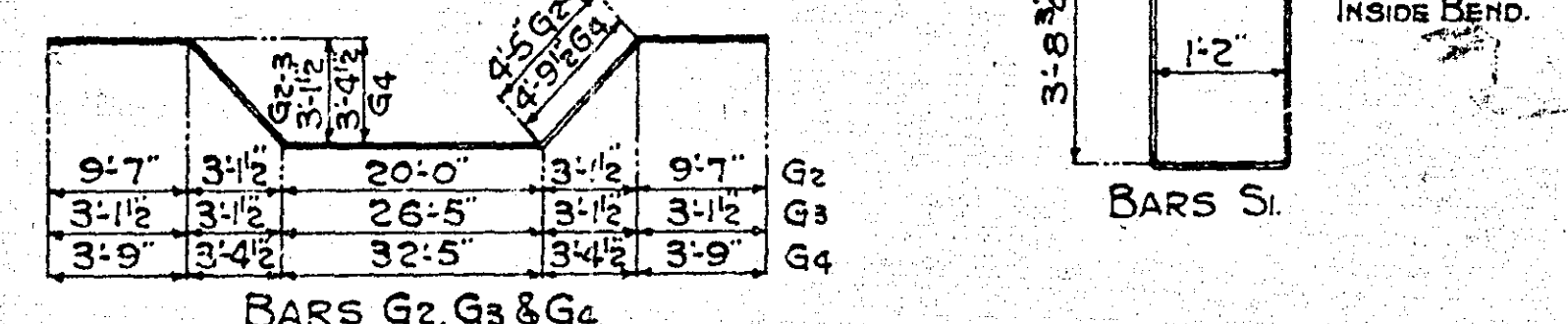
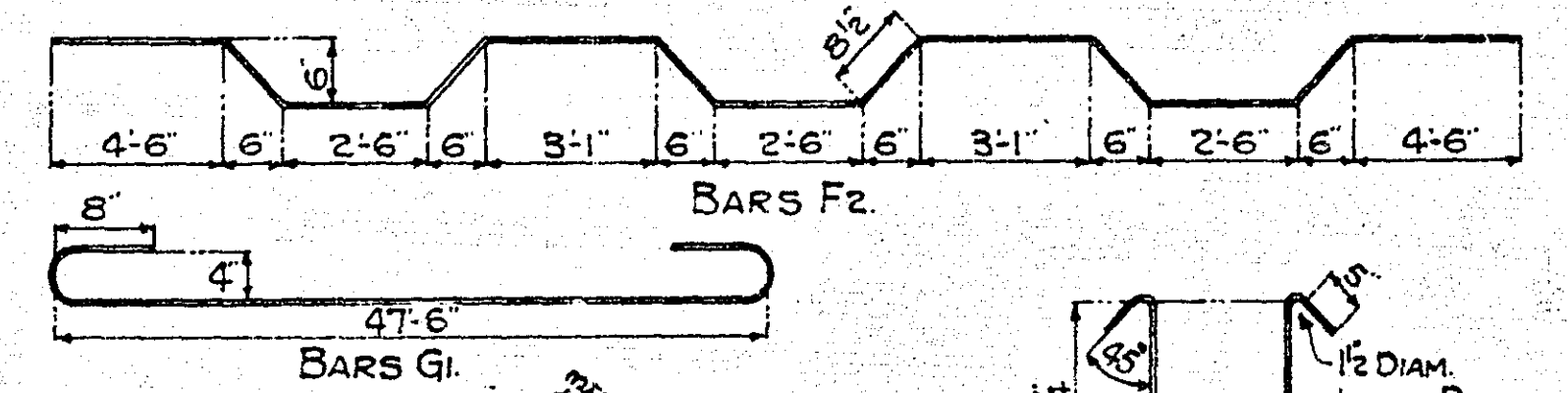
BILL OF MATERIAL FOR ONE SPAN.					
BAR NO.	SIZE	LENGTH	SHAPE	LOCATION	
G1	16	49'-6"	HOOKE	GIRDERS	
G2	8	1'-0"	BENT		
G3	8	1'-0"	"		
G4	8	1'-0"	"		
G5	8	1'-0"	"		
F1	94	25'-9"	STRT	SLAB TRANSV.	
F2	45	26'-11"	BENT		
F3	50	24'-3"	STRT	" LONGIT.	
F4	4	25'-6"	"	WEB	
R1	96	2'-0"	"	RAIL VERT.	
R2	12	2'-0"	"	HORIZ.	
S	68	9'-9"	BENT	STIRRUPS	

TOTAL REINFG STEEL FOR 1 SPAN 14,365 LBS.
TOTAL CONCRETE 91.5 CUYDS.

16 PCS. 3" W.I. PIPE 9 1/2' LONG FOR DRAINS.
2 STD. NAME PLATES 2 DATED 1926 BR. NO. 4513
8 PLATES 3/2" BOLTS 460 LBS.
4 PCS. SHEET LEAD 10' x 16' 37 LBS.
4 PCS. BITUM. FELT 18' x 12' x 4'-8"
2 " " " 9' x 4' x 3'-0"
1 " " " 18' x 12' x 26'-0"



PART ELEVATION - SECTION AT "X-X"
BEARING PLATES FOR EXPANSION END.



PLACING DIAGRAM
GIRDER REINFG.

MINNESOTA HIGHWAY DEPARTMENT.
STANDARD REINFD CONCRETE DECK GIRDER.
45 FT. CLEAR SPAN - 24 FT. ROADWAY.
BRIDGE NO. 4513.
SEC. 18 T. 30 N. R. 23 W.
MOUNDS VIEW TWP. RAMSEY COUNTY.
APPROVED: DEC. 30, 1925.

MPH OFFICE
BRIDGE ENGR.
C. M. ROSEN
COMMR. OF HIGHWAYS