

B.M. ELEV. 866.05 (M.S.L. 1929 ADJ.)
 LOCATION: SPIKE IN POWER POLE
 STA 10+89 46' RT.

DESIGN DATA

1992 & INTERIM A.A.S.H.T.O. DESIGN SPECIFICATIONS
 LOAD FACTOR DESIGN METHOD ~ HS25 LOADING
 INCLUDES 17 PSF DEAD LOAD ALLOWANCE FOR
 FUTURE WEARING COURSE MODIFICATIONS.
 MAXIMUM ALLOWABLE DESIGN STRESSES:
 REINFORCED CONCRETE:
 f_c = 4000 PSI n = 8
 f_y = 60000 PSI REINFORCEMENT
 PRESTRESSED CONCRETE:
 f_c = 7000 PSI n = 6
 f_s = 270000 PSI STRANDS
 OPERATING RATING HS 43
 DECK AREA = 4196 S.F. A.D.T.=11881 PROJ. 2015

LIST OF SHEETS

NO.	TITLE
1	GENERAL PLAN & ELEVATION
2	BRIDGE LAYOUT
3	ABUTMENT DETAILS
4-6	ABUTMENT REINFORCEMENT
7-8	SUPERSTRUCTURE DETAILS
9	PRESTRESSED CONCRETE BEAM DETAILS
10	CONCRETE RAILING, TYPE J
11	5 FT. WIRE FENCE, DESIGN S-1
12-13	EXPANSION JOINT DEVICE DETAILS
14-18	DETAILS
19	BRIDGE SURVEY
20	BRIDGE SURVEY ~ PLAN & PROFILE

APPROVED: *[Signature]*
 COUNTY ENGINEER
 ANOKA COUNTY

DATE: 1/26/95
 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.

22237 *Ronald Roman*
 REG. NO.
 DATE: 1/23/95

PLANS PREPARED BY:
 ERICKSON ENGINEERING
 3340 REPUBLIC AVENUE
 ST. LOUIS PARK, MN 55426

C.S.A.H. 9 ANOKA COUNTY
 MINNESOTA DEPARTMENT
 OF TRANSPORTATION

BRIDGE NO. 02536

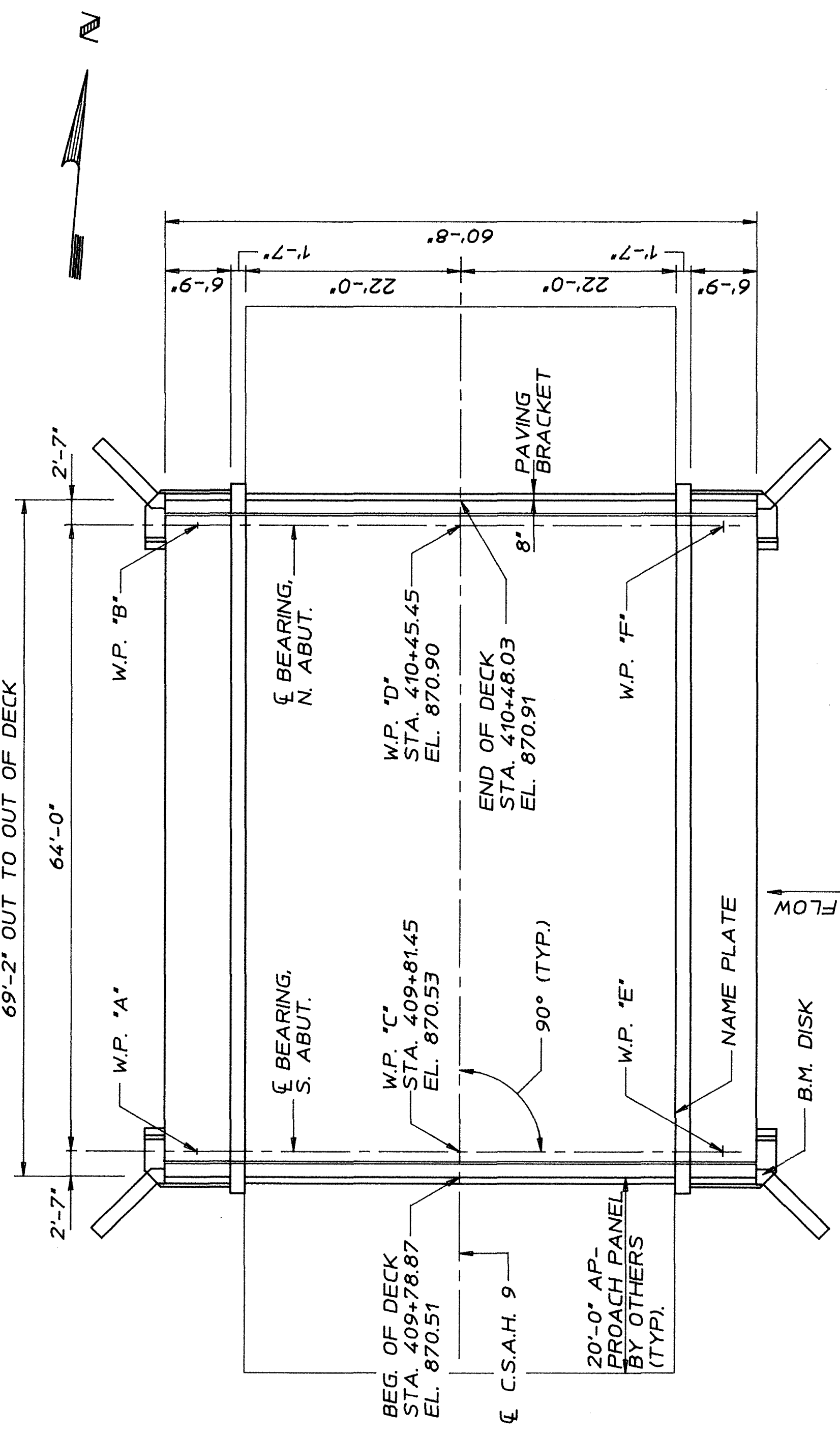
LOCATED ON C.S.A.H. 9, 6 MILES SOUTH OF
 OF ST. FRANCIS, MN OVER CEDAR CREEK.
 1 - 64 FT. PRESTR. CONCRETE BEAM SPAN
 44 FT. RDWAY W/2 6' SDWKS.
 SPAN IDENTIFICATION NO. 501

GENERAL PLAN & ELEVATION

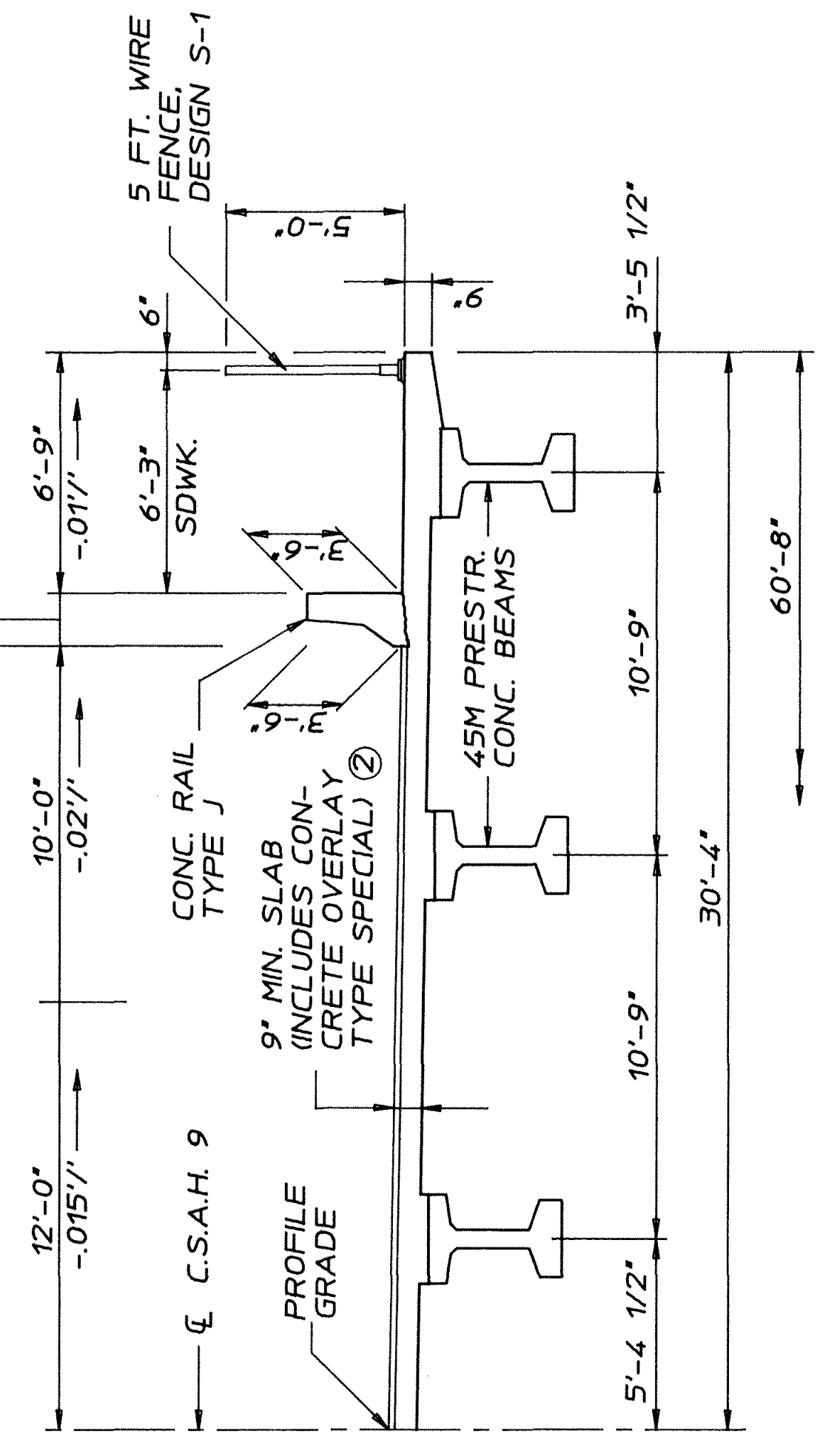
SEC. 33 TWP. 33N R 24W
 TOWNSHIP: OAK GROVE
 COUNTY: ANOKA
 APPROVED: *[Signature]*
 STATE BRIDGE ENGINEER
 5-18-95
 S.P. 02-609-04 SHEETS 02536
 WNU DAD
 SHEET 1 OF 20

CONSTRUCTION NOTES

THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION
 "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AS AMENDED BY THE
 MAY 2, 1994 SUPPLEMENTAL SPECIFICATIONS SHALL GOVERN.
 THE FIRST DIGIT OR THE FIRST TWO DIGITS OF EACH BAR MARK
 INDICATE THE BAR SIZE. BARS MARKED WITH THE SUFFIX 'E' SHALL BE
 EPOXY COATED.
 ALL RIPRAP SHALL BE PLACED BEFORE ANY OTHER WORK IS COMMENCED,
 INCLUDING APPROACH GRADING, PILE DRIVING, AND ABUTMENT EXCAVATION.
 INITIAL RIPRAP PLACEMENT SHALL BE MADE ONLY IN THE AREAS OF THE
 ABUTMENTS THAT WOULD NOT DIRECTLY INTERFERE WITH ABUTMENT FORMING
 ALL ADDITIONAL RIPRAP REQUIRED MAY BE PLACED WHEN ABUTMENT WORK IS
 COMPLETED.
 SEE ABUTMENT AND SURVEY SHEETS FOR NOTES ON PLACEMENT OF FILL.
 BRIDGE SEAT REINFORCEMENT SHALL BE CAREFULLY PLACED TO AVOID
 INTERFERENCE WITH DRILLING HOLES FOR ANCHOR RODS. THE SUPER-
 STRUCTURE BEAMS SHALL BE PLACED IN THEIR FINAL POSITION PRIOR TO
 DRILLING HOLES FOR ANCHOR RODS.



PLAN
 SCALE: 1"=10'-0"



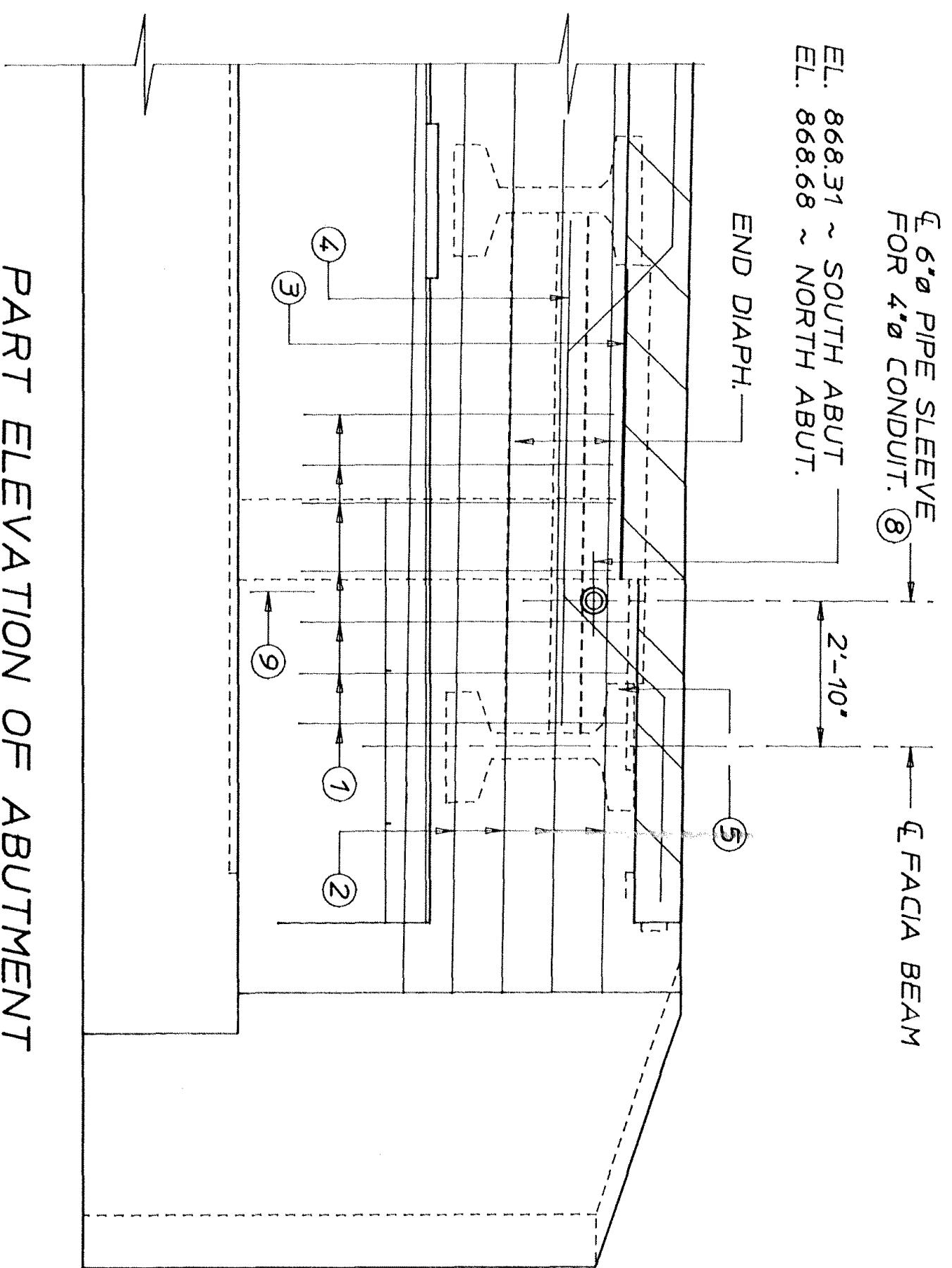
HALF TRANSVERSE SECTION THRU DECK
 SCALE: 1/4"=1'-0"

OVERLAY MAY CONSIST
 OF 2" LOW SLUMP OR
 1 1/2" LATEX MODIFIED.

① STA. 4+10+12.50

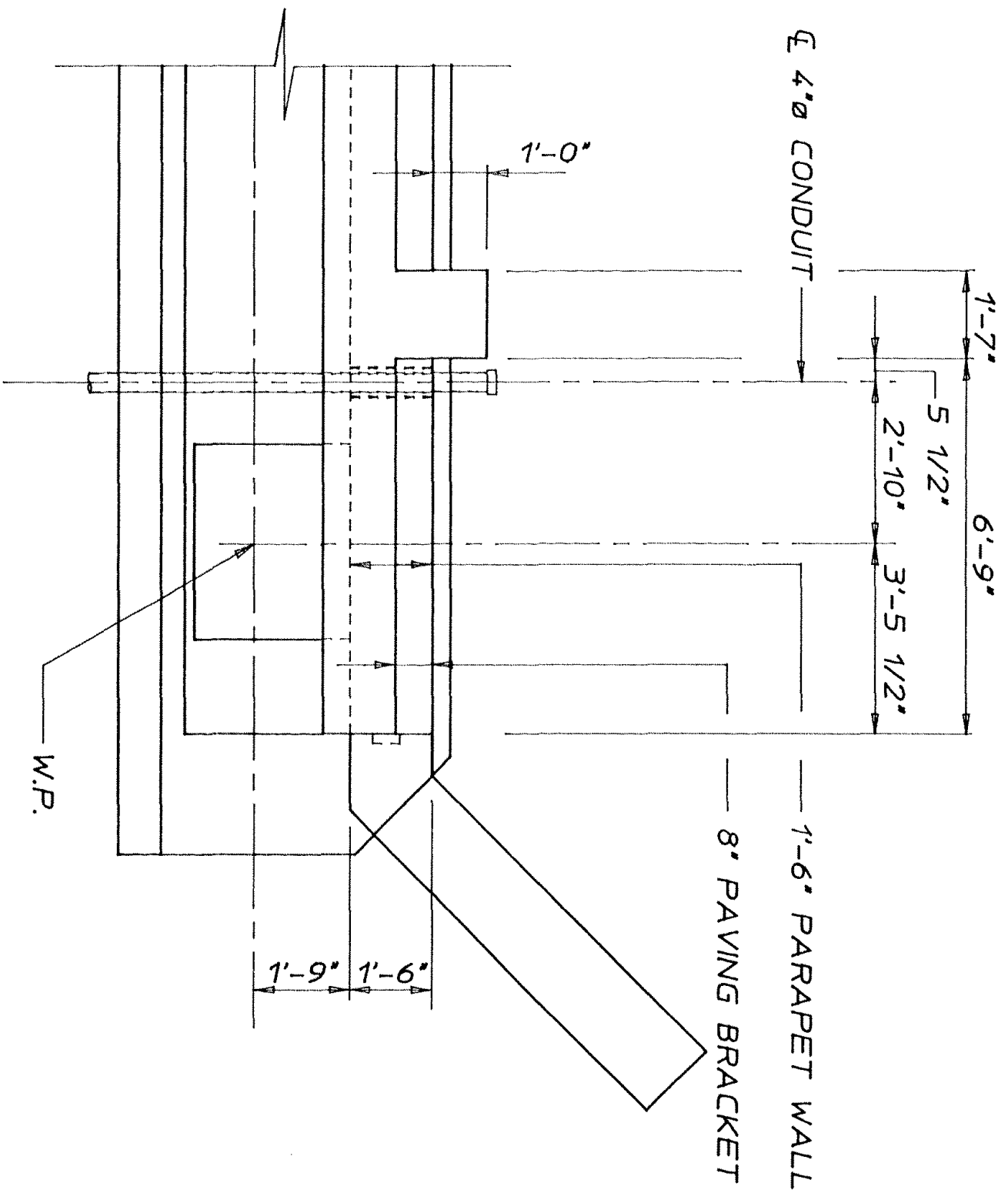
SCHEDULE OF QUANTITIES FOR THE ENTIRE BRIDGE

ITEM NO.	DESCRIPTION	UNIT	QUANTITY	PRICE	TOTAL	REMARKS
2401.501	STRUCTURE CONCRETE (3Y43)	CU.YD.	118	(P)	4196	
2401.502	PRESTR. CONCRETE BEAMS 45M	LIN. FT.	392	(P)	4804	
2401.503	CONCRETE OVERLAY TYPE SPECIAL	SQ. FT.	46820	(P)	3100	
2401.504	REINFORCEMENT BARS (EPOXY COATED)	POUND	46820	(P)	2402.595	
2401.505	CONCRETE OVERLAY TYPE SPECIAL	SQ. FT.	4804	(P)	2402.595	
2401.506	REINFORCEMENT BARS (EPOXY COATED)	POUND	46820	(P)	2557.501	
2401.507	GROUTED RIPRAP AVG. 1'-6" THICK	CU. YD.	115	(P)	2557.501	
2401.508	CONCRETE PILING DRIVEN	LIN. FT.	1960	(P)	2557.501	
2401.509	CONCRETE TEST PILES, 100 FT. LONG	EACH	2	(P)	2557.501	
2401.510	CONCRETE TEST PILES, 80 FT. LONG	EACH	2	(P)	2557.501	
2401.511	CONCRETE TEST PILES, 12" DIA.	EACH	2	(P)	2557.501	
2401.512	CONCRETE TEST PILES, 12" DIA.	EACH	2	(P)	2557.501	
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2401.623	CONCRETE TEST P					

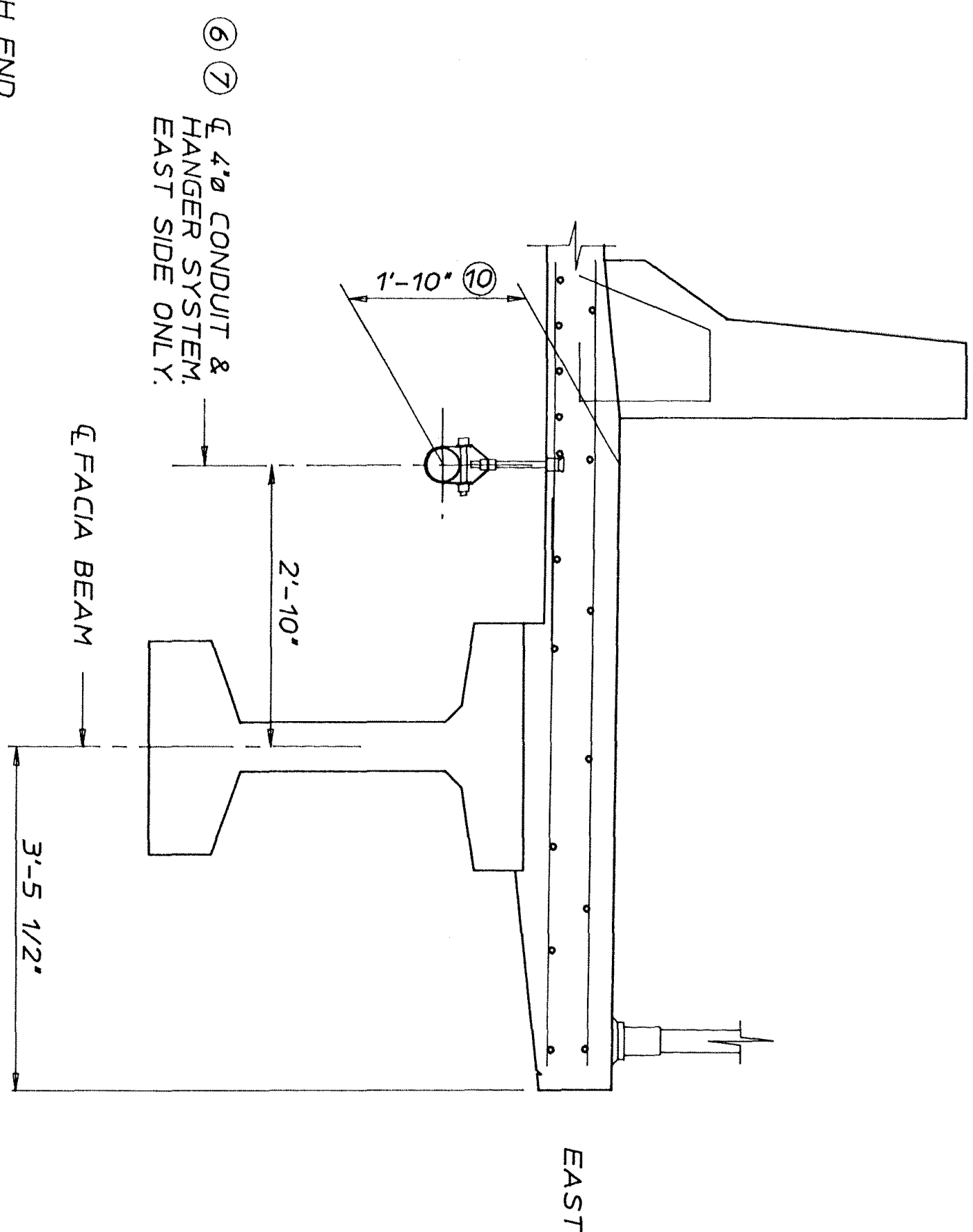


PART ELEVATION OF ABUTMENT AND END DIAPHRAGM
SCALE: 3/8" = 1'-0"

- ① A511E
- ② A510E B.F. & A518E F.F.
- ③ 2-SD403E @ END DIAPH.
- ④ 2-SD704E @ END DIAPH.
- ⑤ SD605E @ END DIAPH.
- ⑥ SD407E SPACING MAY BE INCREASED 2" TO CLEAR PIPE SLEEVE.

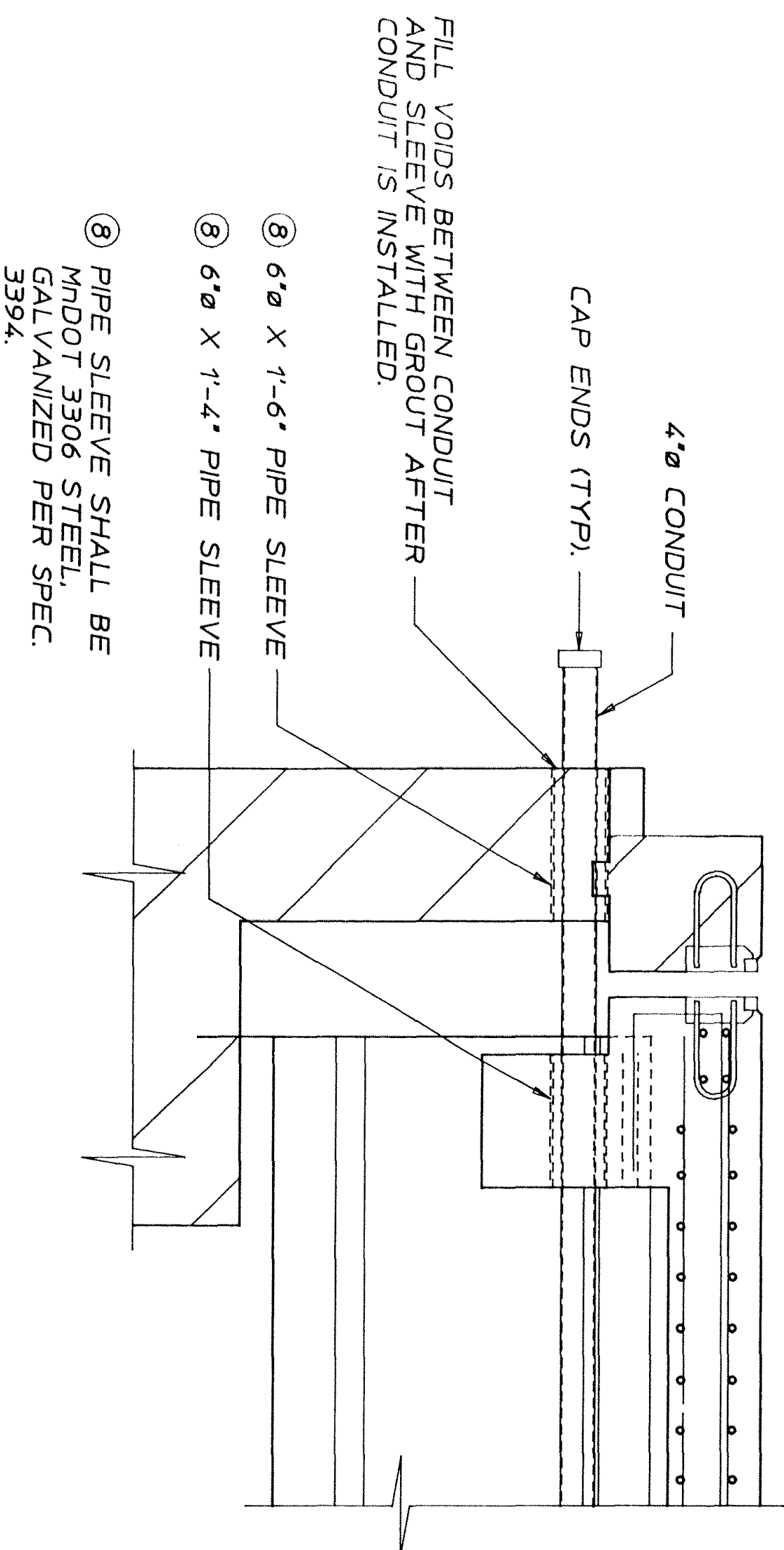


PART PLAN OF ABUTMENT
SCALE: 3/8" = 1'-0"



PART SECTION THRU DECK
SCALE: 3/4" = 1'-0"

- ⑥ 72" - 4" FIBERGLASS CONDUIT WITH END CAPS, INSERTS, HANGERS, EXPANSION FITTINGS AND 2-6" X 1'-4" AND 2-6" X 1'-6" SLEEVES ~ BY BRIDGE CONTRACTOR. INCLUDED IN ITEM "CONDUIT SYSTEM (TELEPHONE)".
- ⑦ APPROVED HANGER SHALL BE USED. INSTALLATION OF INSERTS, HANGER, CONDUIT, AND EXPANSION FITTING SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.



LONGITUDINAL SECTION AT ABUTMENT
SCALE: 3/4" = 1'-0"

⑩ APPROXIMATE DIMENSION SHOWN IS AT ABUTMENTS. ADJUST AS NECESSARY AT OTHER HANGERS TO ACCOUNT FOR CAMBER IN BEAM TO CLEAR INTERMEDIATE DIAPHRAGM. INTERMEDIATE DIAPHRAGM IN EAST BAY MUST BE STEEL. (DETAIL B403).

ITEM NO.	QUANTITY
2545.509	1
CONDUIT SYSTEM (TELEPHONE)	LUMP SUM

APPROVED: _____

DATE: 4/23/96

CERTIFIED BY: *Ronald E. Bowers*
PROFESSIONAL ENGINEER
COUNTY ENGINEER
ANOKA COUNTY

REG. NO. 22737 1996

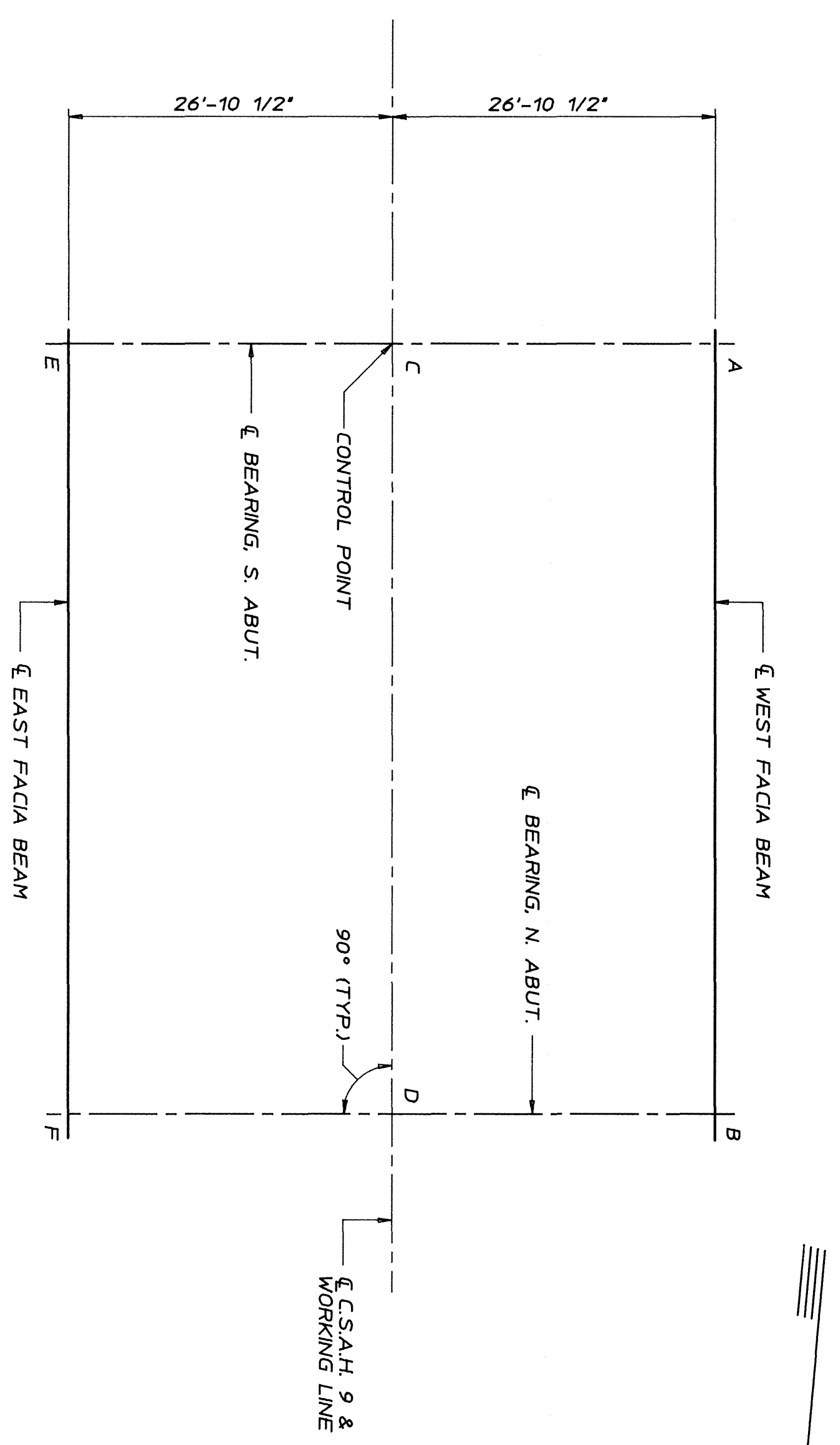
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 02536
UTILITY DETAILS

APPROVED: _____

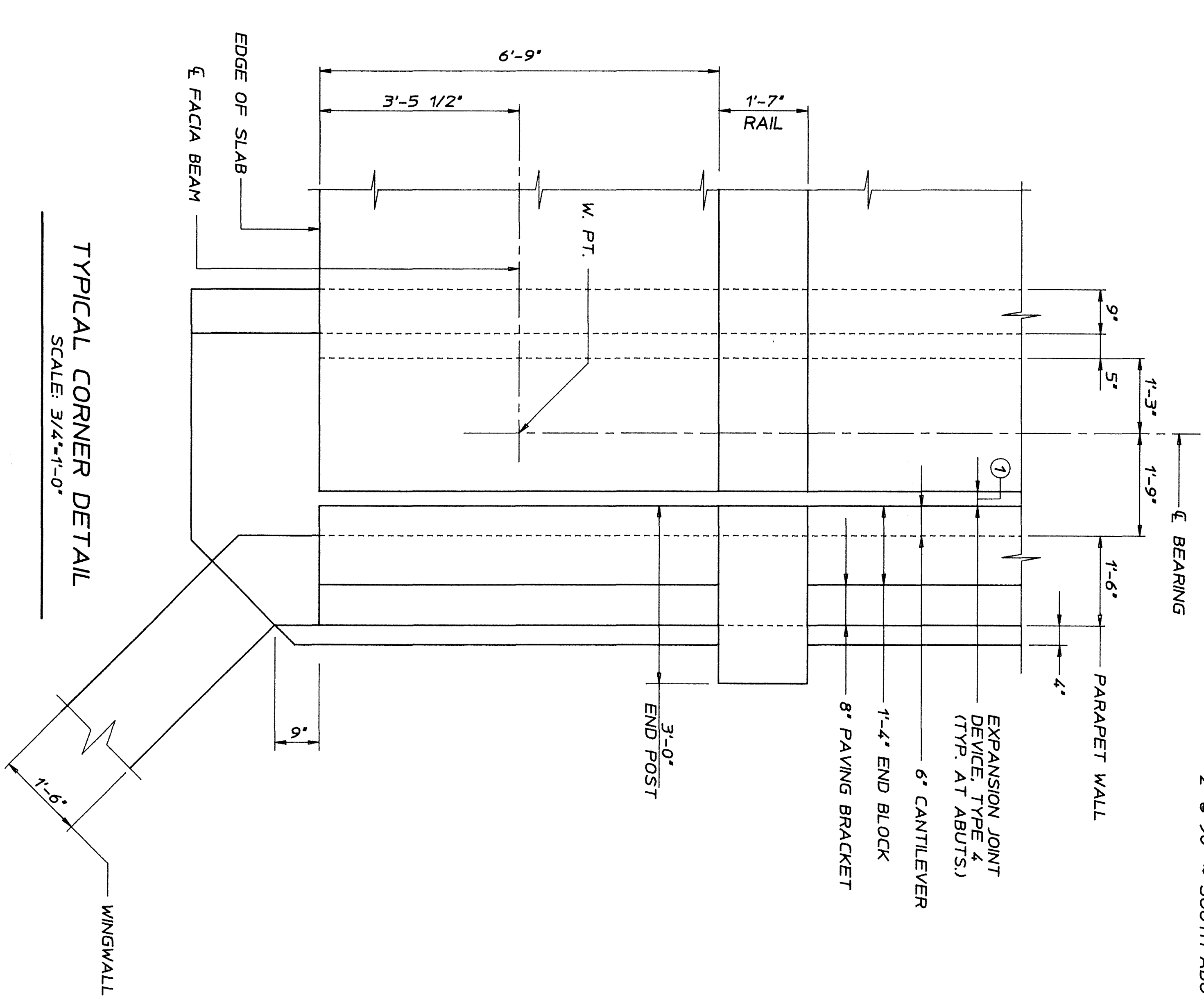
S.P. 02-609-04
SHEET 1A OF 1 SHEETS

DES. RAB	DRW. WNU	02536
CHK. DAD	CHK. RAB	



LAYOUT SHOWING WORKING POINTS
SCALE: 1/8" = 1'-0"

DIMENSIONS BETWEEN WORKING POINTS						ELEVATIONS					
POINT	STATION	A	B	C	D	E	F	TOP OF SLAB	SLAB TO BRIDGE SEAT	BRIDGE SEAT	POINT
A	409+81.45		64.00	26.88	69.41	83.58	83.58	870.11	4.91	865.20	A
B	410+45.45			69.41	26.88	83.58	83.58	870.48	5.02	865.46	B
C	409+81.45				64.00	26.88	69.41	870.53			C
D	410+45.45					69.41	69.41	870.90			D
E	409+81.45						64.00	870.11	4.91	865.20	E
F	410+45.45							870.48	5.02	865.46	F



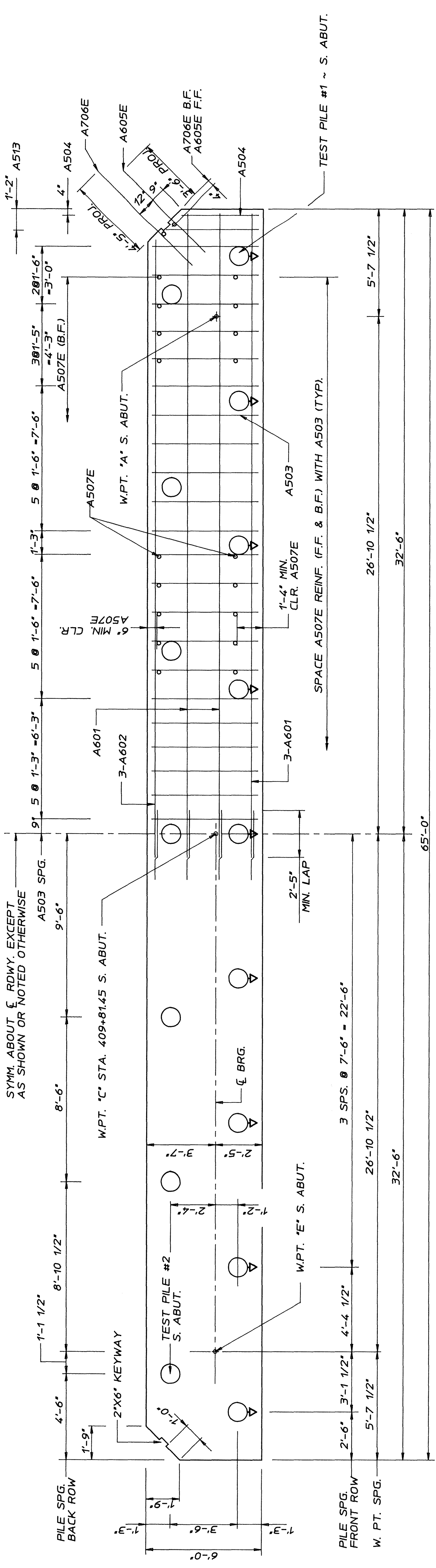
TYPICAL CORNER DETAIL
SCALE: 3/4" = 1'-0"

① 1 3/4" @ 90° ~ NORTH ABUT.
2" @ 90° ~ SOUTH ABUT.

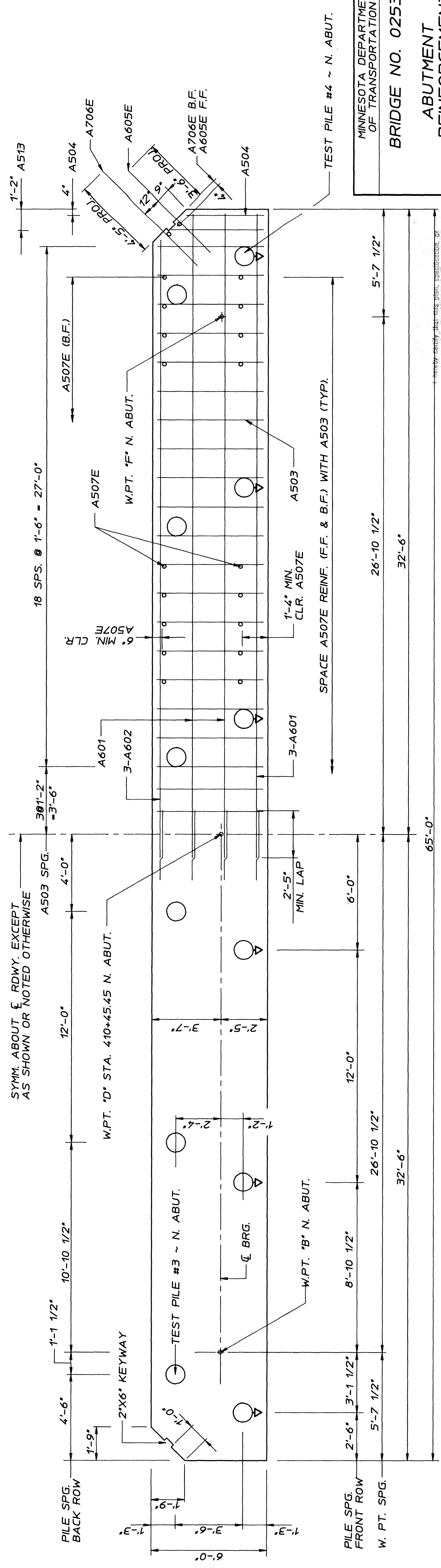
TOP OF SLAB TO BRIDGE SEAT			
SLAB THICKNESS	S. ABUT.	N. ABUT.	POINT
9"	2 3/8"	2 3/8"	A
BEAM	3'-9"	3'-9"	B
BEARING HEIGHT	2 1/2"	3 7/8"	C
TOTAL	4'-10 7/8"	5'-0 1/4"	D

I hereby certify that this plan, specification, or report 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.
Ronald Bemis
Date: 1/23/75 Reg. No. 22797

MINNESOTA DEPARTMENT OF TRANSPORTATION
BRIDGE NO. 02536
BRIDGE LAYOUT
APPROVED: 5-18-95
S.R. 02-609-04 SHEET 2 OF 20 SHEETS 02536 WNU DAD



SOUTH ABUTMENT FOOTING PLAN
SCALE: 3/8" = 1'-0"

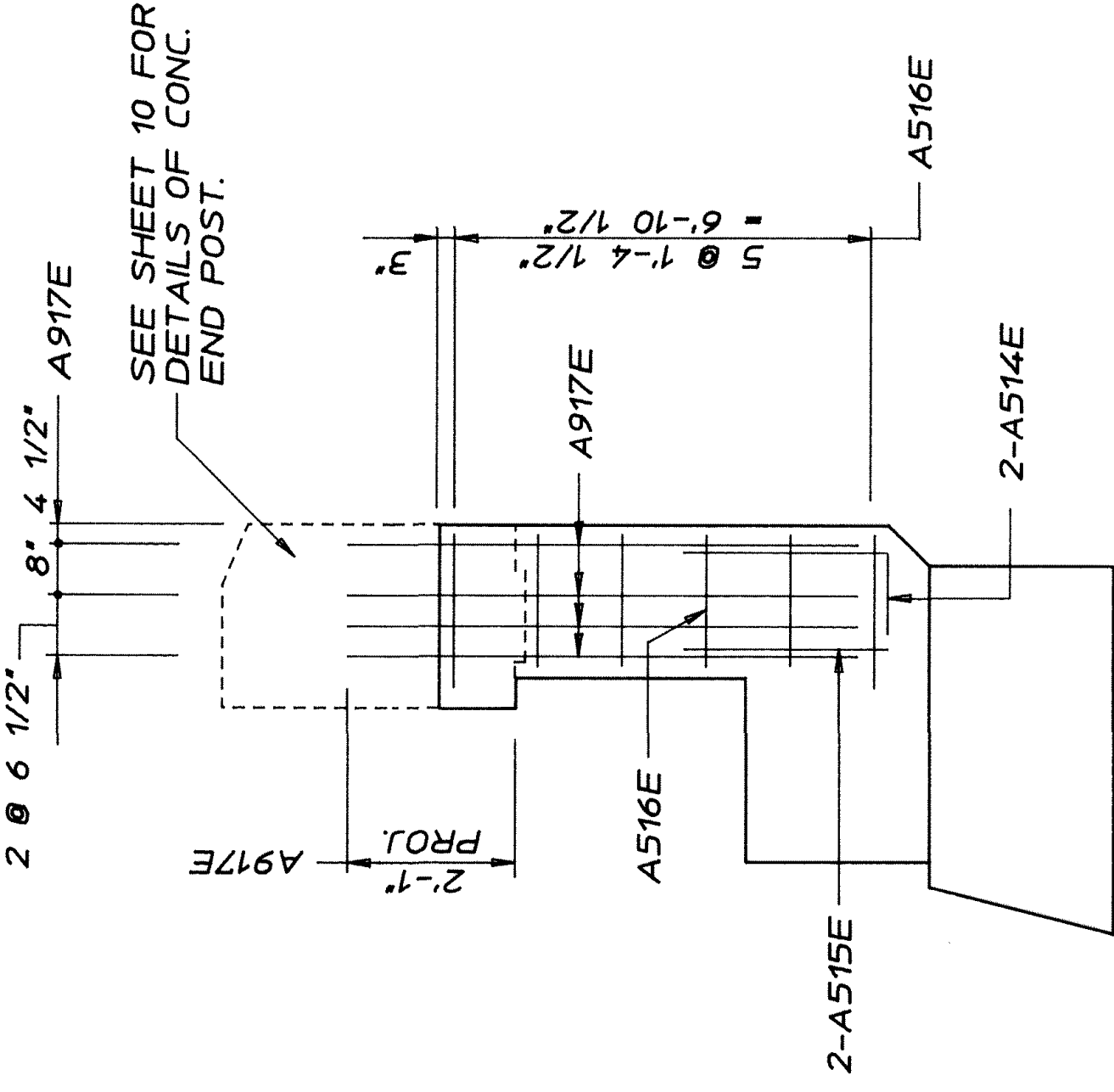


NORTH ABUTMENT FOOTING PLAN
SCALE: 3/8" = 1'-0"

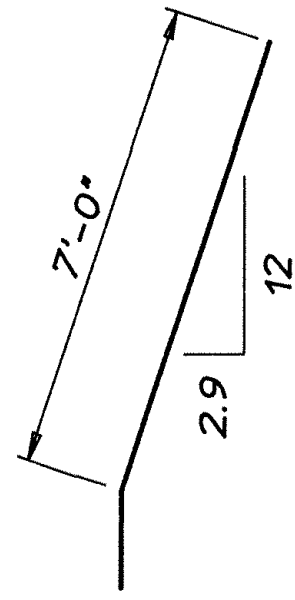
MINNESOTA DEPARTMENT OF TRANSPORTATION
BRIDGE NO. 02536
ABUTMENT REINFORCEMENT
APPROVED: 5-18-95
SP 02-609-04
SHEET 4 OF 20 SHEETS

Report made by this office in accordance with report 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.
Ronald Benyon
Date: 1/23/95
Reg. No. 22737

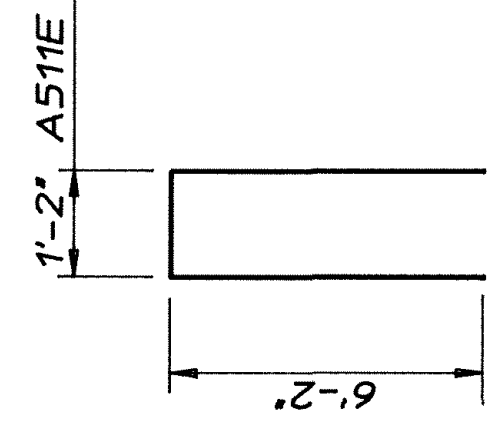
WNU
DAD
02536



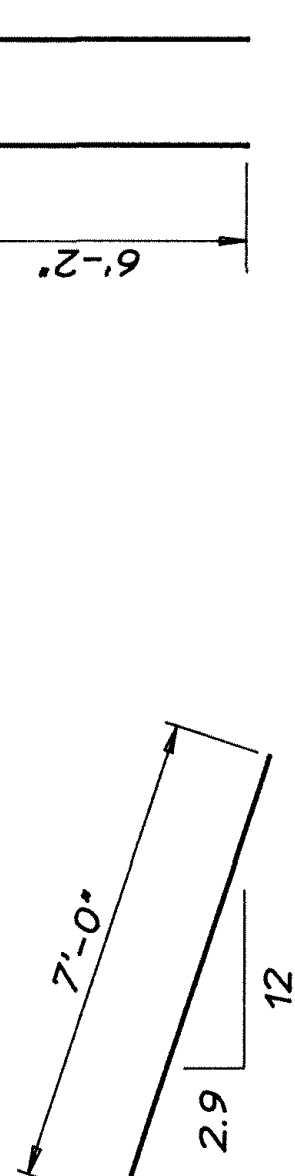
SECTION A-A
SCALE: 3/8" = 1'-0"



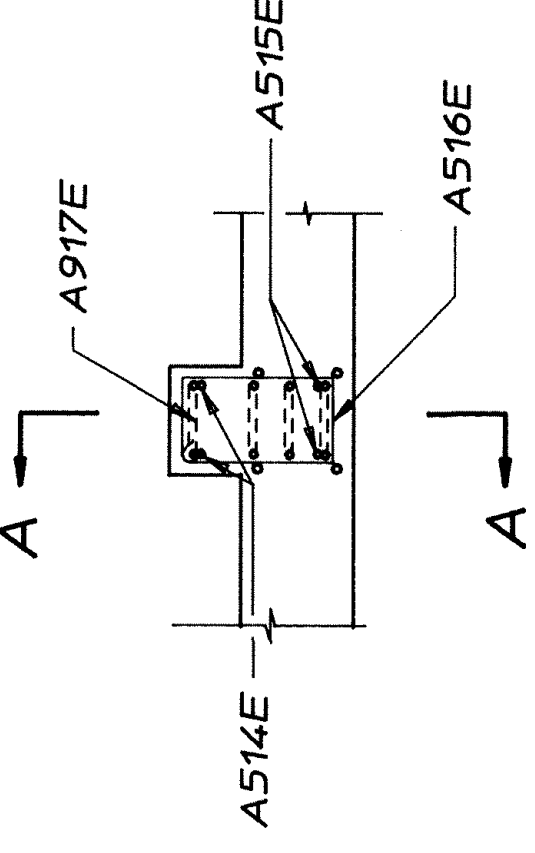
SECTION B-B
SCALE: 3/8" = 1'-0"



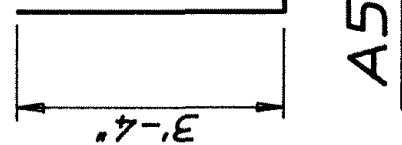
SECTION A-A
SCALE: 3/8" = 1'-0"



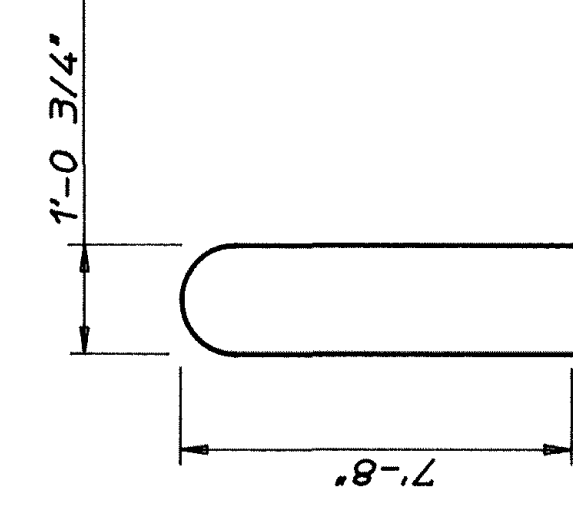
SECTION B-B
SCALE: 3/8" = 1'-0"



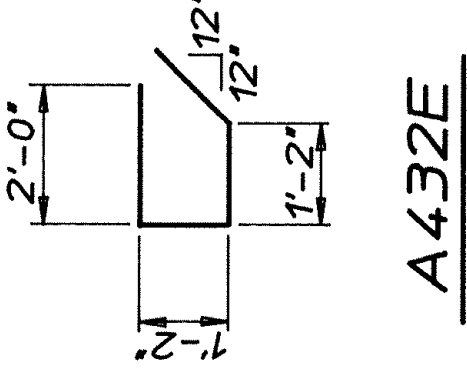
END POST SUPPORT
BLOCK DETAIL
SCALE: 3/8" = 1'-0"



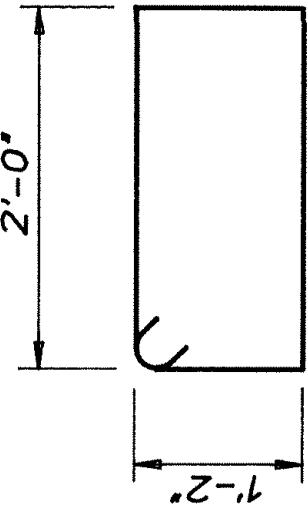
SECTION A-A
SCALE: 3/8" = 1'-0"



SECTION B-B
SCALE: 3/8" = 1'-0"



SECTION A-A
SCALE: 3/8" = 1'-0"



SECTION B-B
SCALE: 3/8" = 1'-0"

COMPUTED PILE LOADS ~ TONS PER PILE	
NO. ABUT. ISO. ABUT.	TONS PER PILE
48.3	DEAD LOAD + OVERTURNING
11.5	LIVE LOAD
59.8	TOTAL

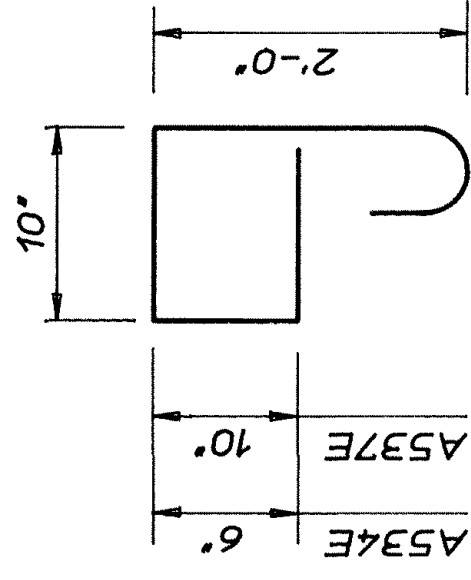
* INCLUDES 20 TON NEGATIVE SOIL LOAD.

PILE NOTES:

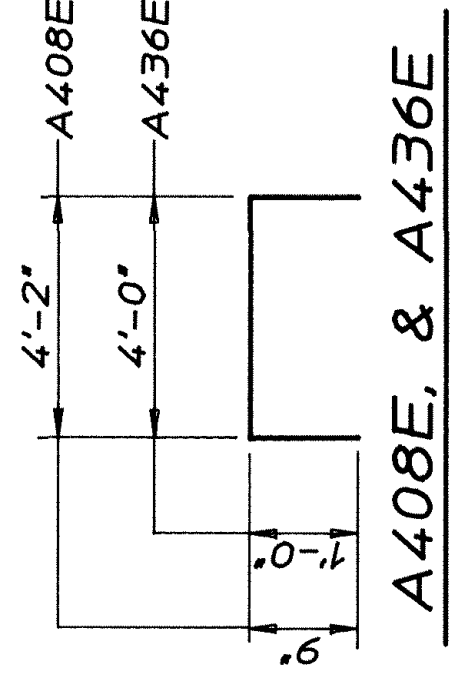
- 14 - C.I.P. CONC. PILES, EST. LGTH 90'- SOUTH ABUT.
- 2 - C.I.P. CONC. TEST PILES 100' LONG - SOUTH ABUT.
- 10 - C.I.P. CONC. PILES, EST. LGTH 70' - NORTH ABUT.
- 2 - C.I.P. CONC. TEST PILES 80' LONG - NORTH ABUT.
- 28 - C.I.P. CONC. PILES REQ'D FOR 2 ABUTMENTS.

ALL PILES ARE TO HAVE A NOMINAL DIAMETER OF 12".
SEE DETAIL B201 FOR SPLICES.
PILES MARKED THUS δ ARE TO BE BATTERED 3" PER FOOT IN DIRECTION SHOWN.
PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.
SEE SHEET 20 FOR TEST PILE LOCATIONS.

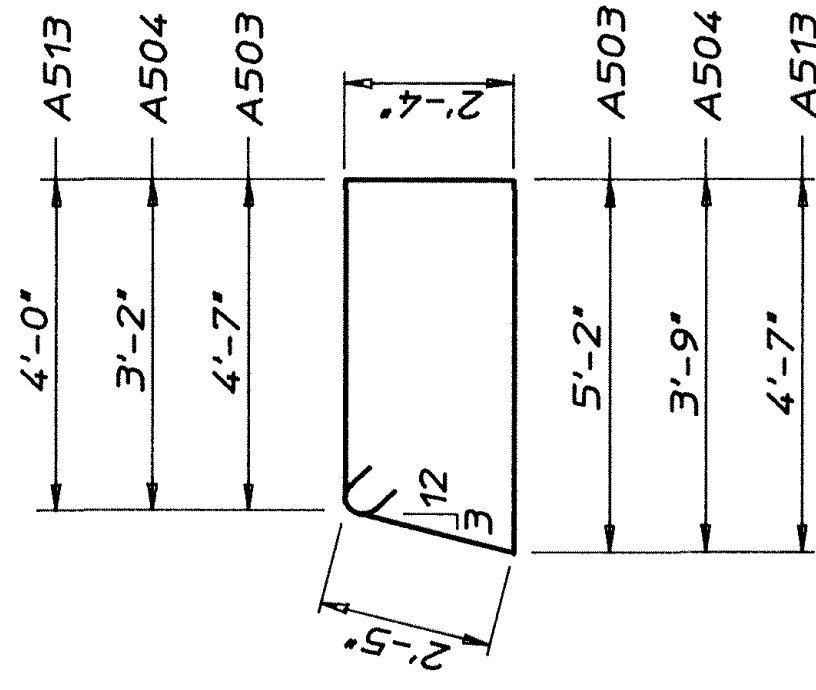
ABUTMENT NOTE:
BACKFILL BEHIND ABUTMENTS SHALL BE GRANULAR BORROW, INCLUDED IN PRICE BID FOR STRUCTURE EXCAVATION (SEE SHEET 20 FOR PLACEMENT LIMITS). APPROX. QUANTITY OF GRANULAR BORROW - 650 CU. YDS.



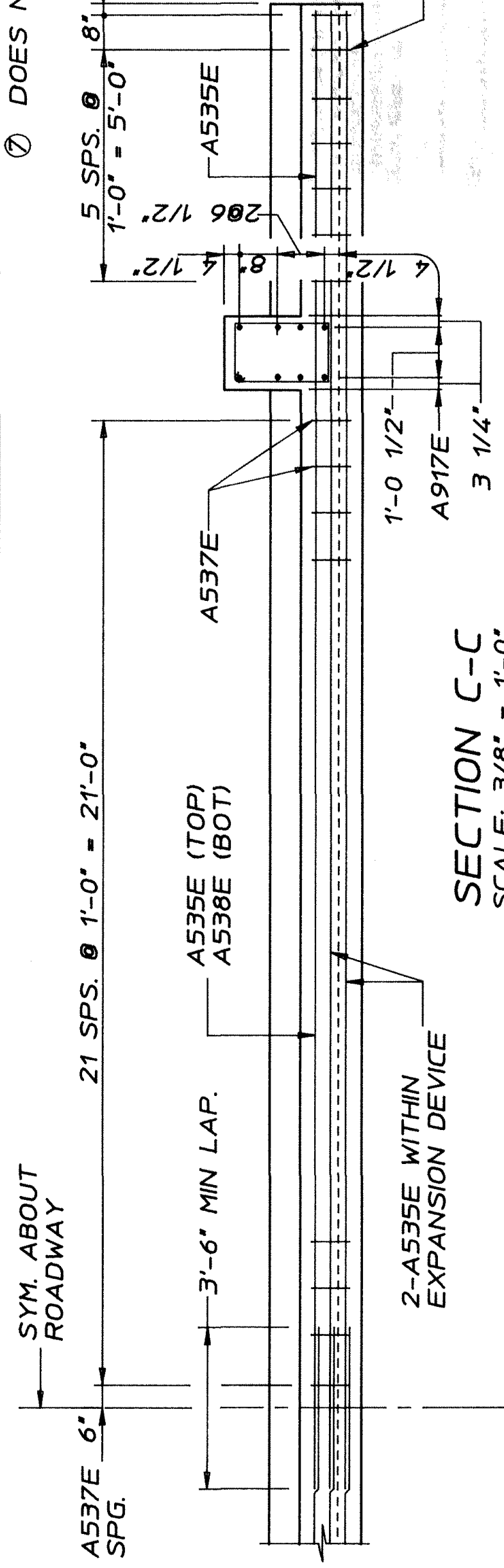
SECTION A-A
SCALE: 3/8" = 1'-0"



SECTION B-B
SCALE: 3/8" = 1'-0"



SECTION C-C
SCALE: 3/8" = 1'-0"



SECTION C-C
SCALE: 3/8" = 1'-0"

BILL OF REINFORCEMENT ~ 2 ABUTMENTS			
BAR	NO.	LENGTH	SHAPE
A601	20	33'-6"	STRT.
A602	12	31'-11"	STRT.
A503	87	15'-5"	BENT
A504	4	12'-7"	BENT
A605E	16	5'-3"	STRT.
A706E	16	6'-8"	STRT.
A507E	166	5'-0"	STRT.
A408E	60	5'-8"	BENT
A509E	24	30'-1"	STRT.
A510E	28	32'-6"	STRT.
A511E	124	13'-6"	BENT
A513	4	14'-3"	BENT
A514E	8	4'-8"	BENT
A515E	8	3'-4"	STRT.
A516E	24	7'-3"	BENT
A917E	16	16'-0"	BENT
A518E	16	31'-7"	STRT.
A519E	8	7'-10"	STRT.
A520E	4	30'-1"	STRT.
A521E	14	19'-3"	STRT.
A622E	14	19'-3"	STRT.
A523E	8	7'-7"	STRT.
A624E	4	7'-7"	STRT.
A525E	12	6'-10"	STRT.
A626E	12	6'-10"	STRT.
A527E	12	10'-2"	BENT
A628E	24	8'-6"	STRT.
A529E	12	9'-4"	BENT
A530E	4	7'-9"	BENT
A631E	4	5'-4"	STRT.
A432E	4	5'-10"	BENT
A533E	8	7'-5"	BENT
A534E	28	4'-8"	BENT
A535E	20	31'-11"	STRT.
A436E	72	6'-0"	BENT
A537E	88	5'-0"	BENT
A538E	2	46'-10"	STRT

- ① CUT 2 FROM 1. ⑤ 44 BARS S. ABUT. & 43 BARS N. ABUT.
- ② 2'-5" MIN LAP ⑥ 84 BARS S. ABUT. & 82 BARS N. ABUT.
- ③ 3'-6" MIN LAP

SUMMARY OF QUANTITIES ~ 2 ABUTMENTS	
STRUCTURE CONCRETE (1A43)	82 CU. YD.
STRUCTURE CONCRETE (3Y43)	108 CU. YD.
REINFORCEMENT BARS	3100 POUND
REINFORCEMENT BARS, EPOXY COATED	10070 POUND
STRUCTURE EXCAVATION	1 LUMP SUM
B.M. DISK	1
C.I.P. CONC. TEST PILES, 80 FT. LONG, 12"	2 EACH
C.I.P. CONC. PILING DRIVEN, 12"	1960 LIN. FT.
C.I.P. CONC. PILING DELIVERED, 12"	1960 LIN. FT.
C.I.P. CONC. TEST PILES, 100 FT. LONG, 12"	2 EACH

⑤ COUNTY WILL FURNISH DISK PAYMENT FOR PLACING IS TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

⑥ SEE SPECIAL PROVISIONS.

⑦ DOES NOT INCLUDE TEST PILES.

I hereby certify that this plan, specification, or report 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.
Ronald Benner
Date: 1/23/95 Reg. No. 22737

MINNESOTA DEPARTMENT OF TRANSPORTATION
BRIDGE NO. 02536
ABUTMENT REINFORCEMENT
APPROVED: 5-18-95
S.P. 02-609-04
SHEET 6 OF 20 SHEETS

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02536

BILL OF REINFORCEMENT ~ SUPERSTRUCTURE				
BAR	NO.	LENGTH	SHAPE	LOCATION
S601E	238	37'-5"	STRT.	SLAB ~ TRANSV.
S602E	119	26'-4"	STRT.	SLAB ~ TRANSV.
S603E	119	37'-0"	STRT.	SLAB ~ TRANSV.
S404E	123	23'-0"	STRT.	SLAB ~ LONG.
S505E	172	34'-7"	STRT.	SLAB ~ LONG
S606E	70	7'-11"	BENT	SLAB ~ TIE @ END DIAPH.
S507E	8	31'-5"	STRT.	SLAB ~ TRANSV.
S508E	4	26'-0"	STRT.	SLAB ~ TRANSV.
S509E	4	36'-9"	STRT.	SLAB ~ TRANSV.

- ① 2 BARS PER LINE WITH 2'-5" MINIMUM LAP.
- ② S602E WITH S603E ~ 3'-1" MINIMUM LAP.
- ③ 3 BARS PER LINE WITH 1'-7" MINIMUM LAP.
- ④ 2 BARS PER LINE WITH 3'-3" MINIMUM LAP.
- ⑤ 2 BARS PER LINE WITH 2'-6" MINIMUM LAP.
- ⑥ S508E WITH S509E ~ 2'-6" MINIMUM LAP.

SUMMARY OF QUANTITIES ~ SUPERSTRUCTURE			
STRUCTURE CONCRETE (3Y43)	10 CU. YD.		
BRIDGE SLAB CONCRETE (3Y36)	4196 SQ. FT.		
TYPE J RAILING CONCRETE (3Y46)	145 LIN. FT.		
REINFORCEMENT BARS, EPOXY COATED	36750 POUND		
PRESTRESSED CONCRETE BEAMS, TYPE 45M-66	6 EACH		
PRESTRESSED CONCRETE BEAMS, 45M	392 LIN. FT.		
DIAPH. FOR TYPE 45M PRESTR. CONC. BEAMS	54 LIN. FT.		
CONCRETE OVERLAY, TYPE SPECIAL	4804 SQ. FT.		
WIRE FENCE, DESIGN S-1	145 LIN. FT.		
NAME PLATE (SEE DETAIL B103)	1		
BEARING ASSEMBLY	12 EACH		
EXP. CURVED PLATE BRG. ASSEMBLY, TYPE 1	6 EACH		
EXPANSION JOINT DEVICE, TYPE 4	115 LIN. FT.		
CORK ~ 1"x11" (RAILING)	15 LIN. FT.		
EXP. CURVED PLATE BRG. ASSEMBLY, TYPE 2	2 EACH		
FIXED CURVED PLATE BRG. ASSEMBLY, TYPE 3	4 EACH		

- ⑤ INCLUDES RAILING AND END DIAPHRAGM QUANTITIES.
- ⑥ SEE SPECIAL PROVISIONS.
- ⑦ APPROX. VOLUME = 104 CU YDS. BASED ON AN AVERAGE STOOOL HEIGHT OF 1 3/4".
- ⑧ INCLUDED IN PRICE BID FOR OTHER ITEMS.
- ⑨ PAYMENT FOR BEARINGS INCLUDED IN ITEM BEARING ASSEMBLIES PER EACH. SEE SPECIAL PROVISIONS.
- ⑩ PAYMENT FOR BEAMS INCLUDED IN ITEM PRESTRESSED CONCRETE BEAMS 45M PER LINEAR FOOT.
- ⑪ APPROX. VOLUME = 20 CU. YDS.
- ⑫ END DIAPHRAGM CONCRETE
- ⑬ INCLUDES WEIGHT OF END DIAPHRAGM REINFORCEMENT.
- ⑭ APPROX. VOLUME = 30 CU. YDS. BASED ON 2". INCLUDES QUANTITY ON OVERLAY FOR APPROACH PANELS.

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 02536

SUPERSTRUCTURE DETAILS

APPROVED: 5-18-95

S.P. 02-609-04

WNU

02536

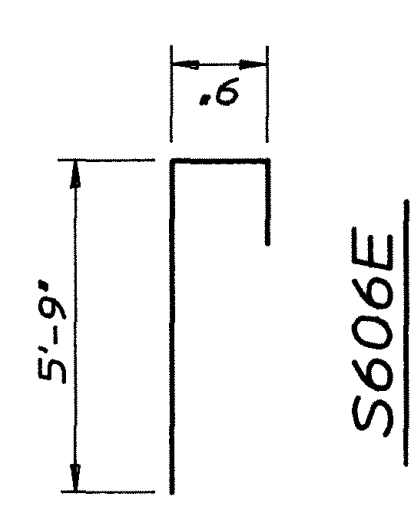
SHEET 7 OF 20 SHEETS

DAD

I hereby certify that this plan, specification, or report 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.

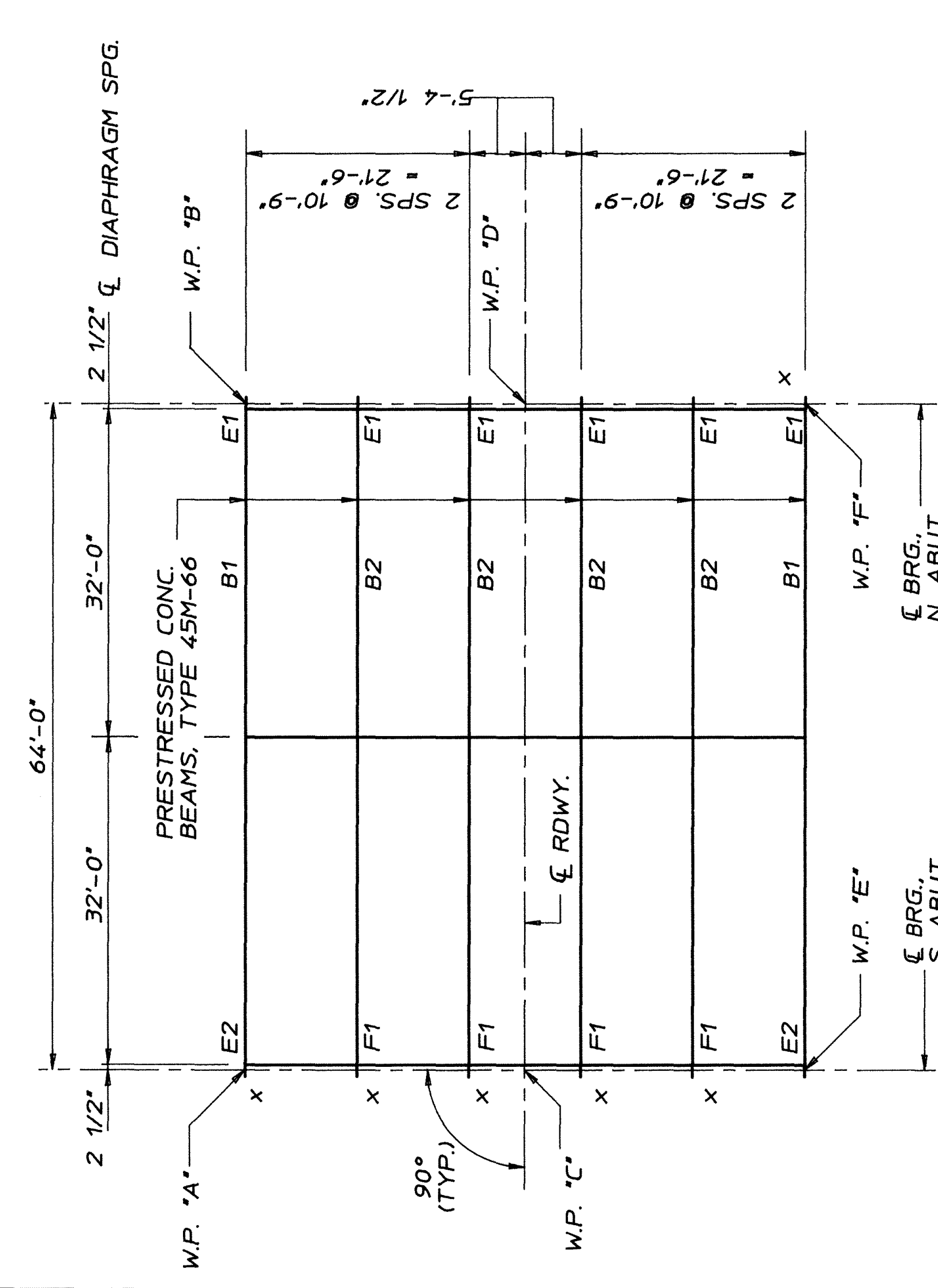
Randy Beaman

Date 1/23/95 Reg. No. 22737

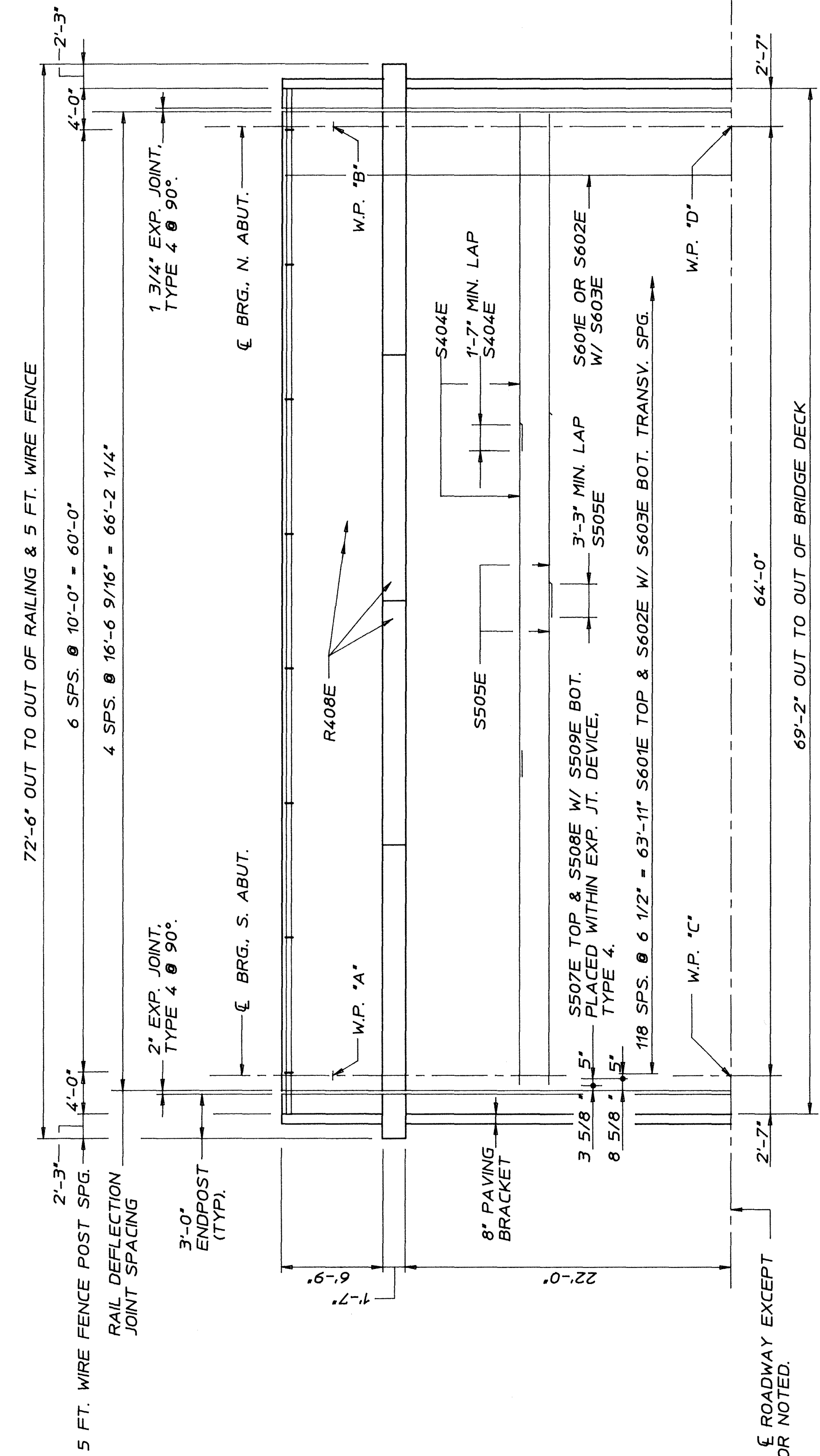


NOTE:
SEE DETAIL B814 FOR END DIAPHRAGM DETAILS & REINF. BAR LIST.
SEE DETAIL B813 OR B403 FOR INTERMEDIATE DIAPHRAGM DETAILS.

NOTE:
E1 - EXPANSION CURVED PLATE BEARING ASSEMBLY, TYPE 1. SEE DETAIL B311.
E2 - EXPANSION CURVED PLATE BEARING ASSEMBLY, TYPE 2. SEE DETAIL B311
F1 - FIXED CURVED PLATE BEARING ASSEMBLY, TYPE 3. SEE DETAIL B310



FRAMING PLAN
SCALE: 3/32" = 1'-0"



PART DECK PLAN
SCALE: 3/16" = 1'-0"

SYM ABOUT CL ROADWAY EXCEPT AS SHOWN OR NOTED.

Girder Section Data	
Wt./ft.	672 lbs.
Cross sec. area at Q of span = 624 in.²	
C. G. (from bottom) = 22.34	
I = 167,048 in.⁴	
S _x = 7,476 in.³	
1/2" dia. 270k strand wt./ft. = 525 lb.	
1/2" dia. 270k strand area = 1.531 sq. in.	

ALL REINFORCING STEEL TO BE EPOXY COATED.

Bar	Wt.
G301	1.00 lb.
G402	5.34 lb.
G403	2.17 lb.
G505	5.56 lb.
G706	
G507	2.61 lb.

I hereby certify that this plan, specification, or report 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.
 Ronald Bayless
 Date 1/23/95 Reg. No. 22747

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 with in 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.

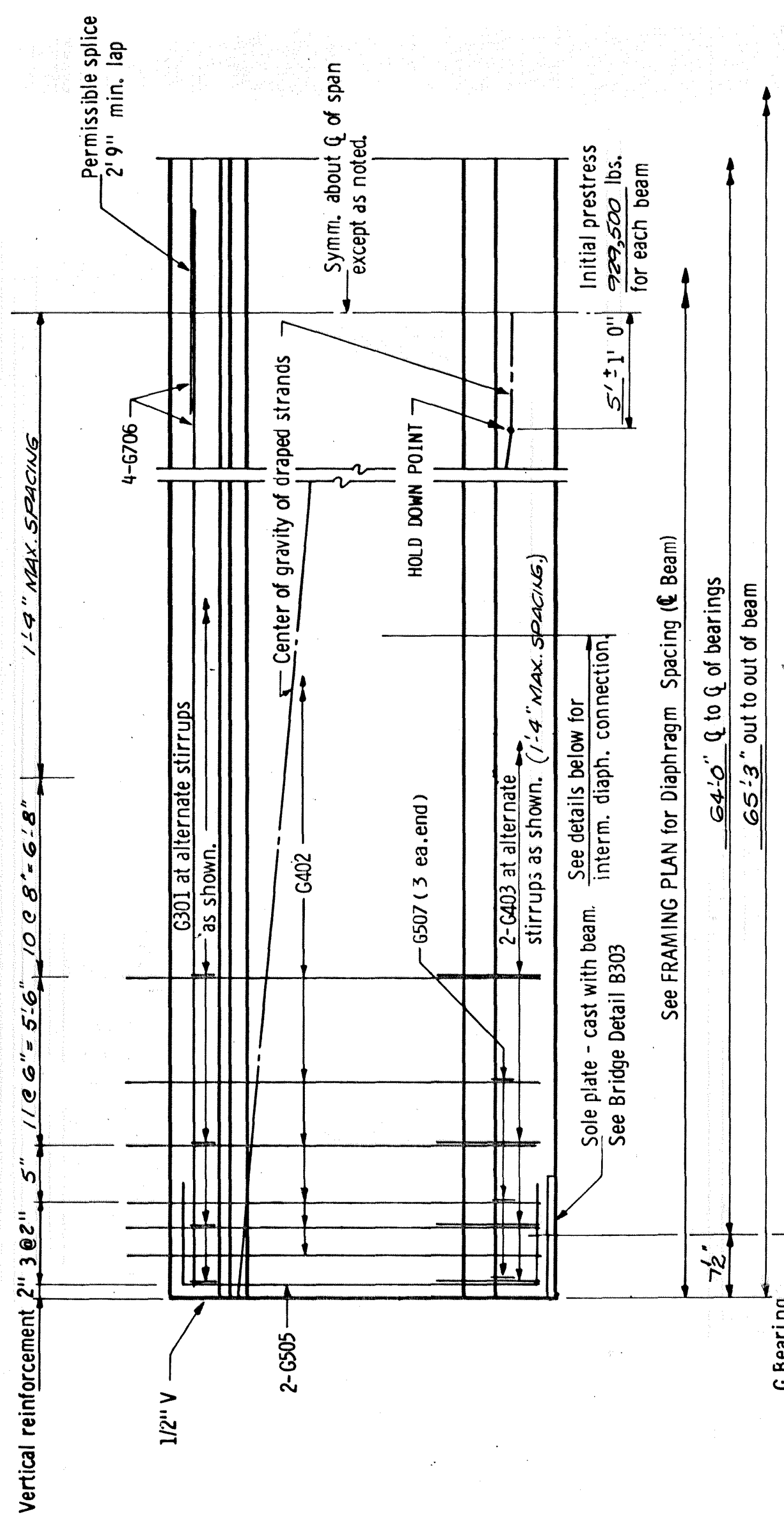
Each beam shall be marked, showing bridge number, casting date, and individual identification letters and numbers. Markings shall be made on the face of the beam, near the end, so located that they will be exposed after the end diaphragms have been cast. Facia beams shall be marked on an inside face. All markings shall be stencilled 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 22.0 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.

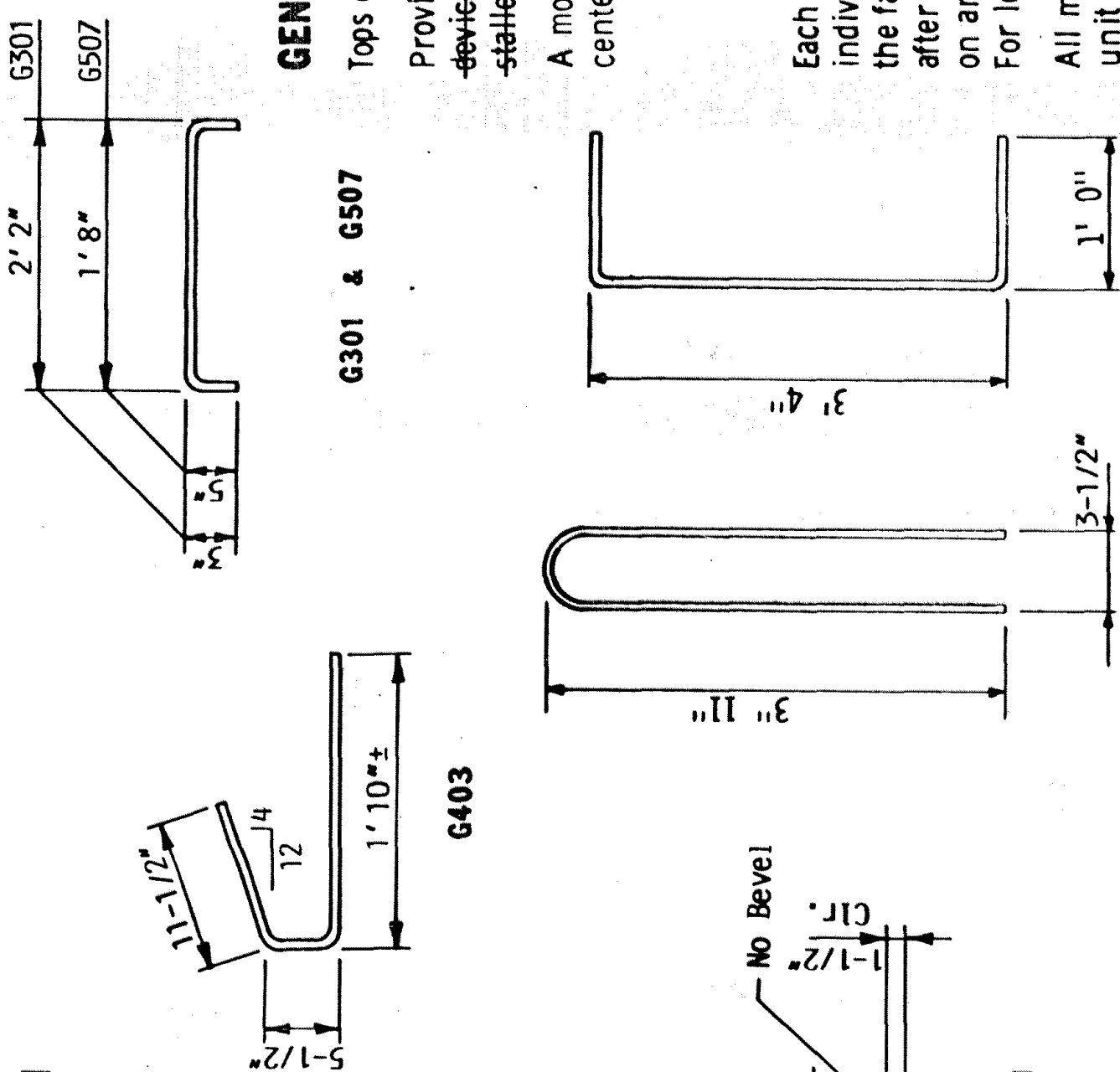
MINIMUM CONCRETE STRENGTH - P.S.I.		
Required min. Concrete Strength	5000	7000
	① f'ci	② f'c

- Minimum concrete strength at time of prestress transfer.
- Minimum concrete strength when curing can be discontinued and beam transported and installed.

APPROVED: May 27, 1986
 FIG. 5-397.514
 Bridge No. 02536
 SHEET No. 9 of 20 Sheets

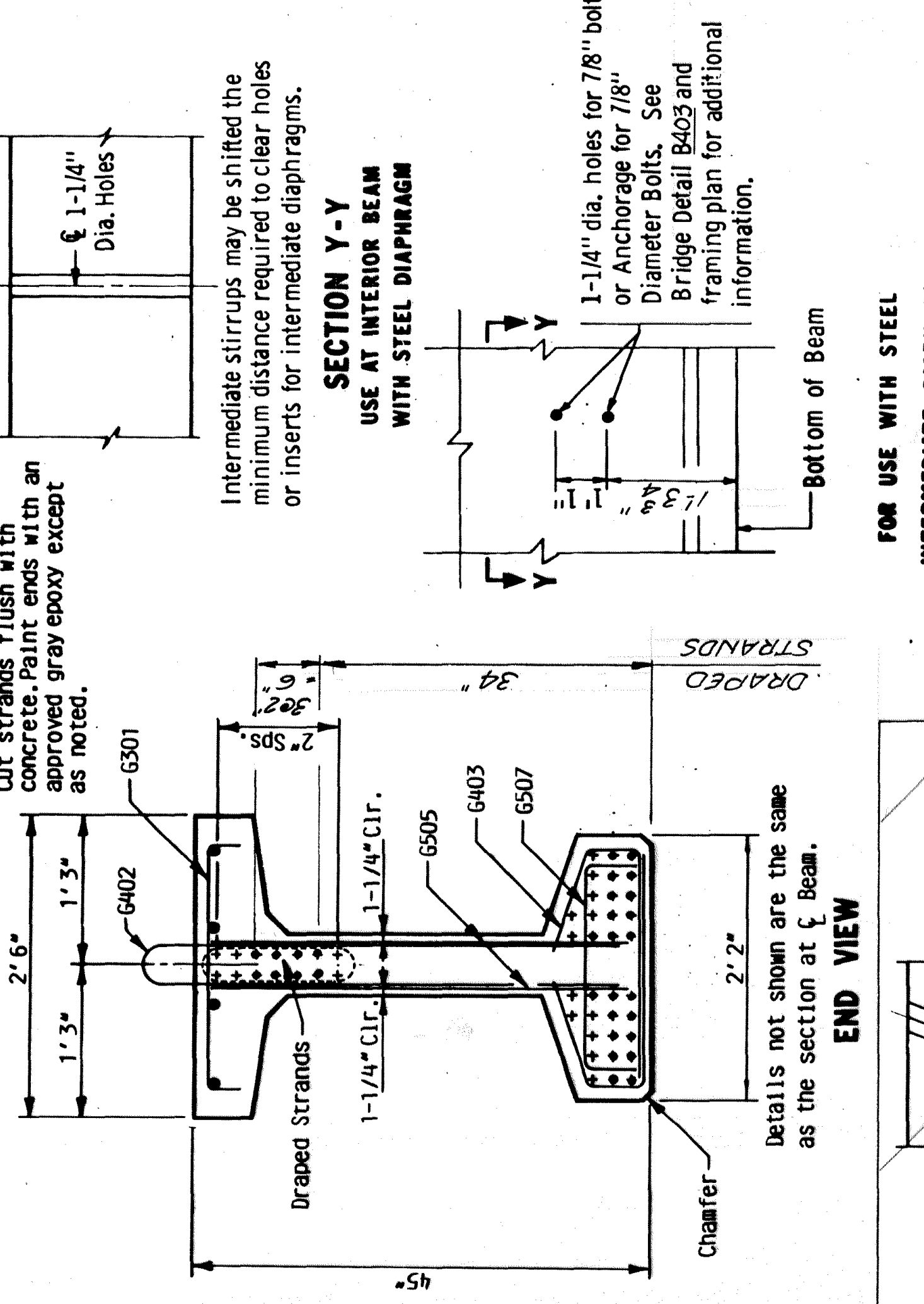


HALF ELEVATION

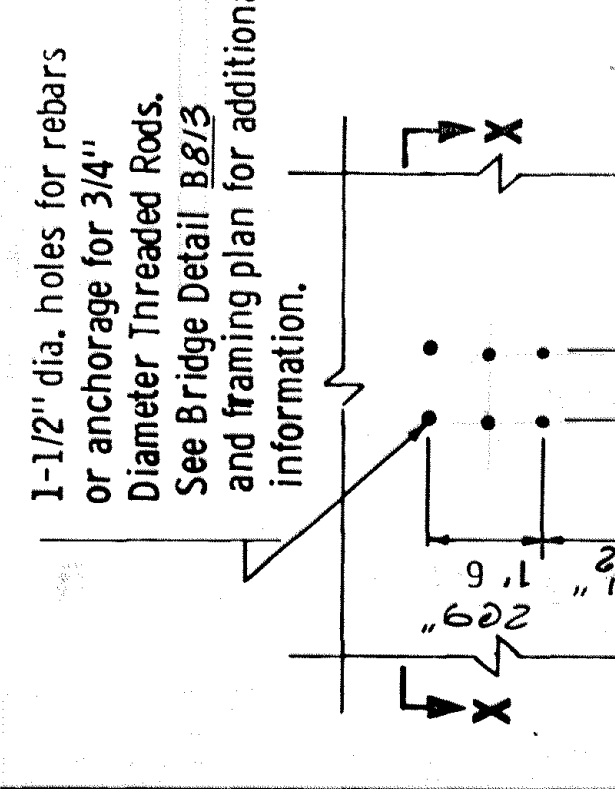


Y DISTANCES (IN INCHES)			
NO.	Q SPAN	END	
Straight strands	22	3.27	
Draped strands	8	6.00	37.0
Total strands	30	4.00	

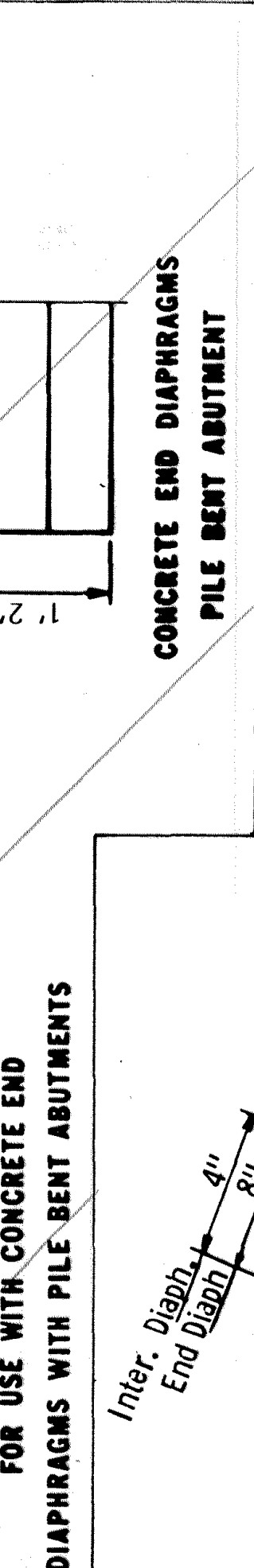
Y = distance of Center of Gravity of strands from bottom of beam. All strands spaced 2" c-c, horizontally and vertically except as noted.
 All strands 1/2" dia. 270 kip, ultimate strength. LOW RELAXATION.
 A tolerance of ± 2" will be permitted in this dimension.



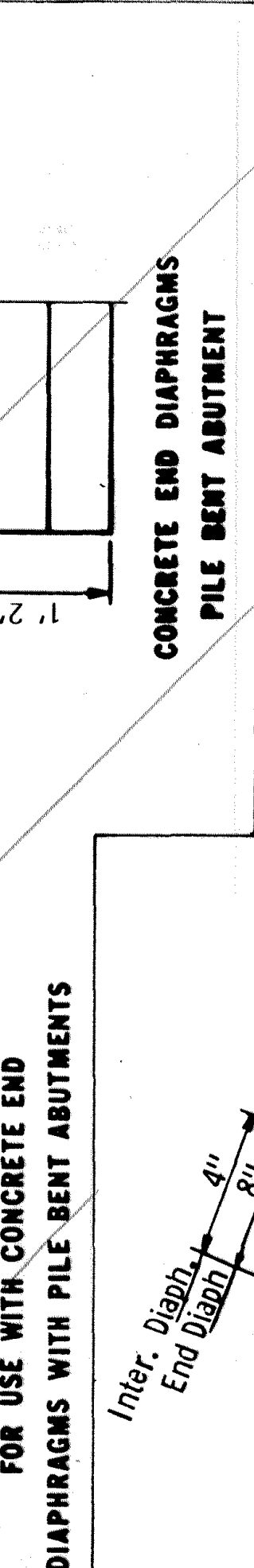
FOR USE WITH STEEL INTERMEDIATE DIAPHRAGM



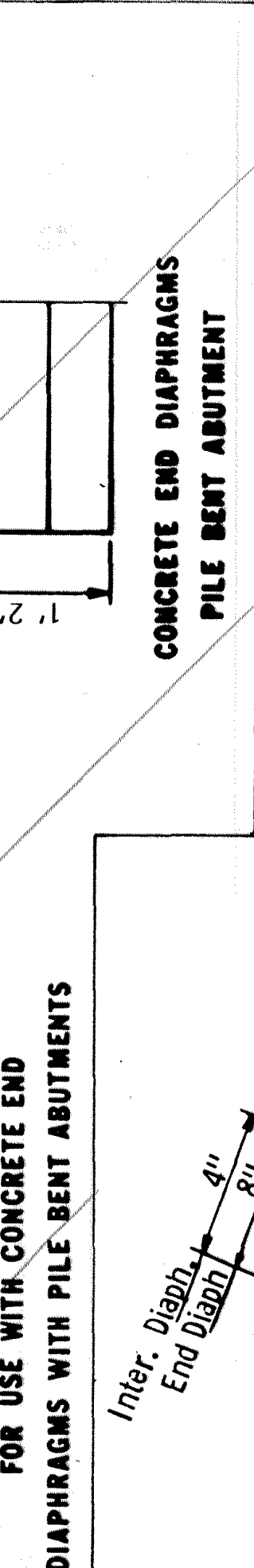
SECTION Y-Y FOR USE WITH CONCRETE END DIAPHRAGMS WITH PILE-BENT ABUTMENTS



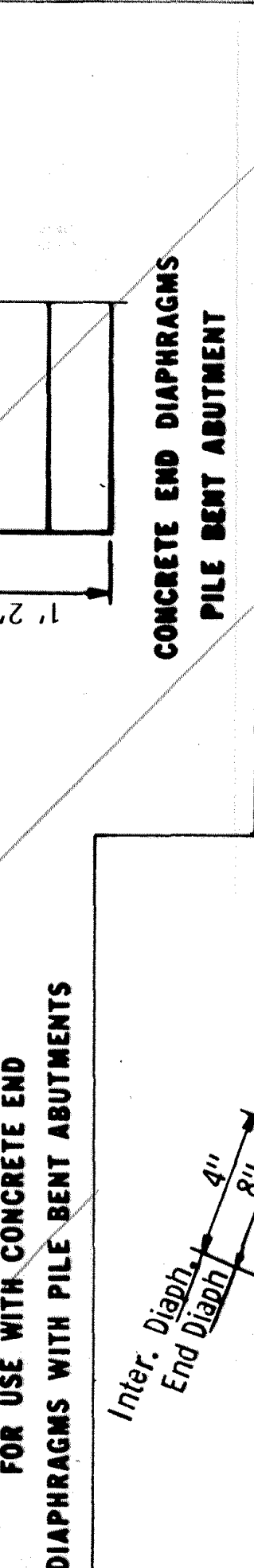
SECTION X-X USE AT FACIA BEAM AND INTERIOR BEAM WITH STAGGERED DIAPHRAGMS



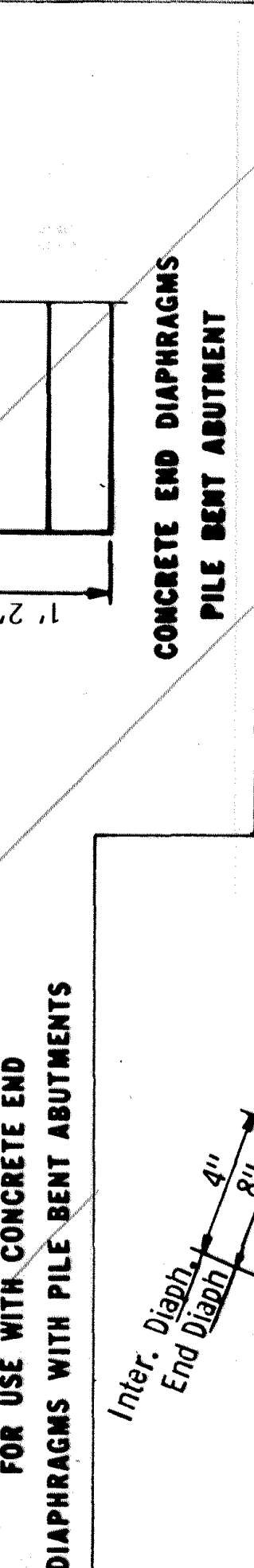
SECTION Z-Z



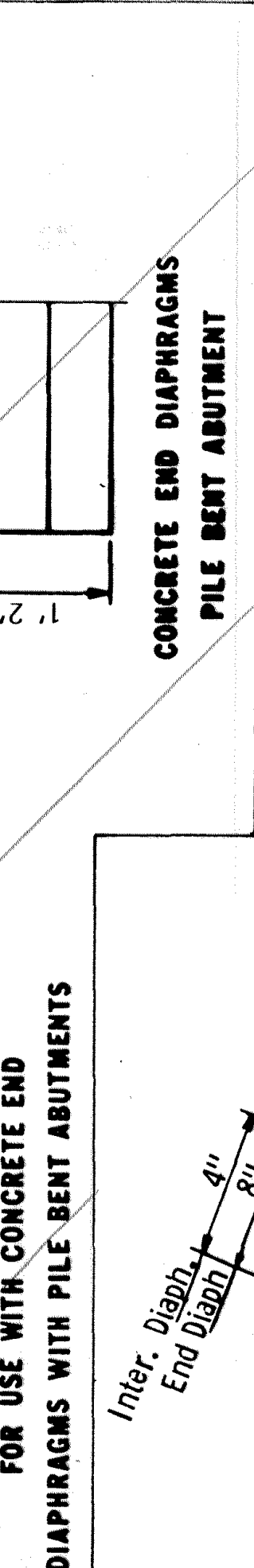
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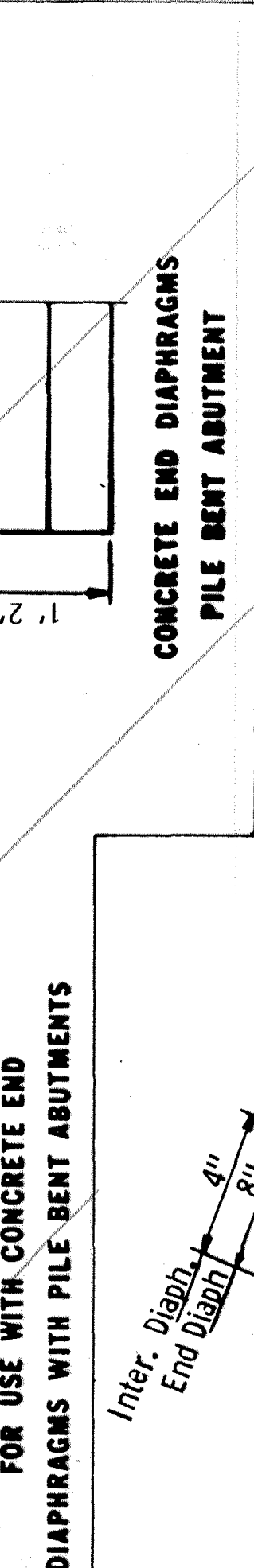
SECTION X-X USE AT INTERIOR BEAM WITH CONTINUOUS CONCRETE DIAPHRAGM



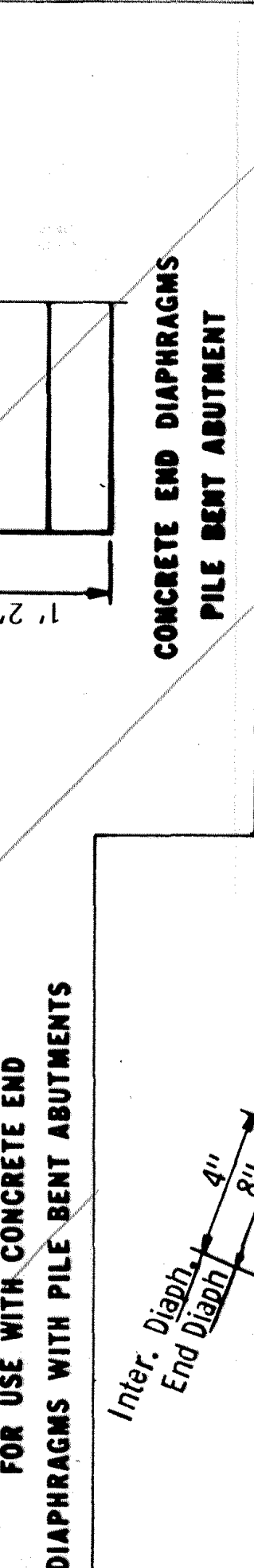
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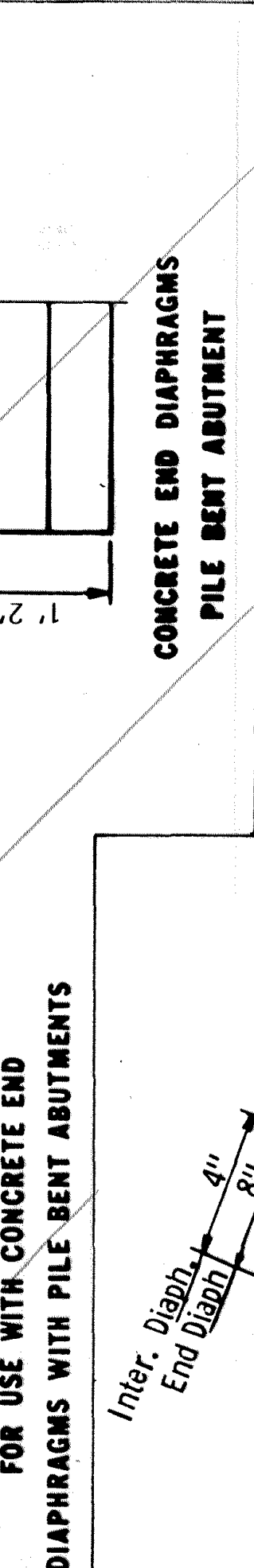
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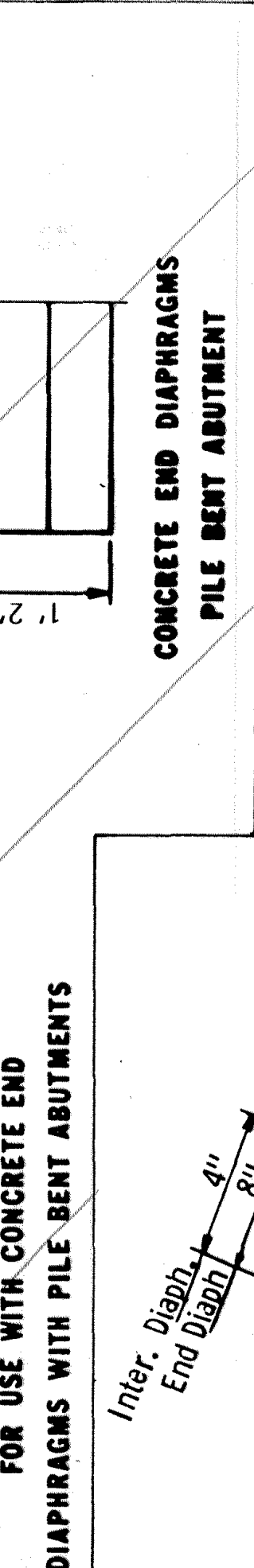
SECTION Z-Z



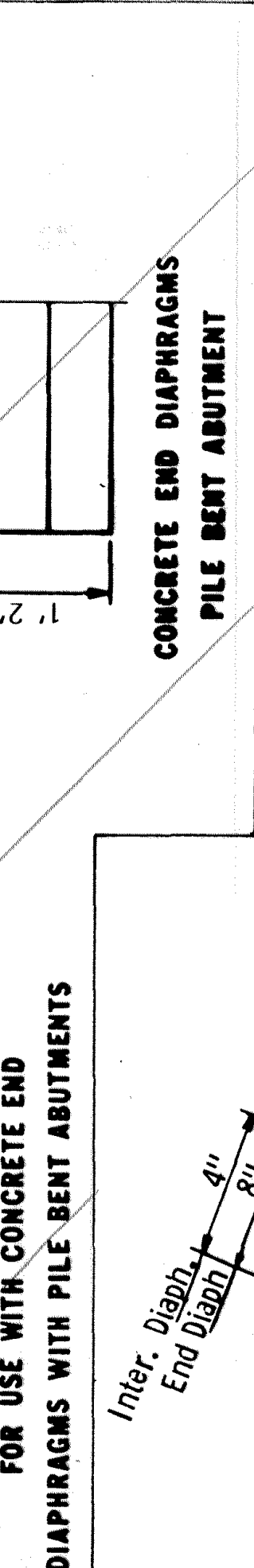
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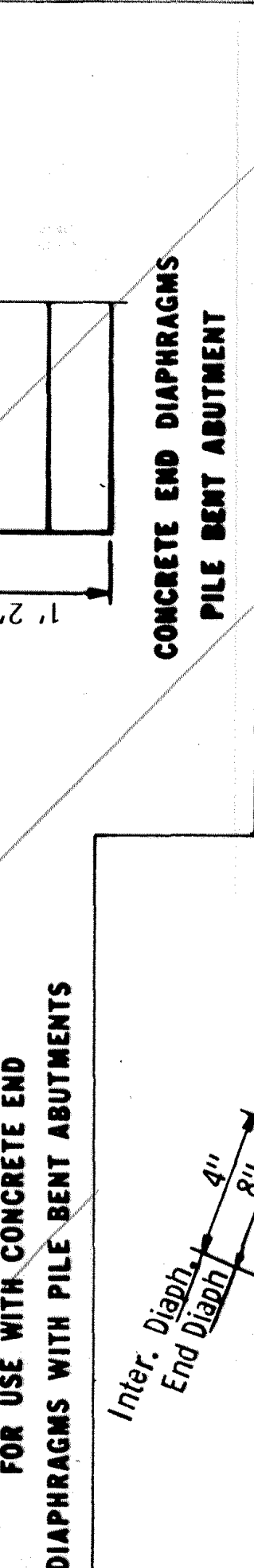
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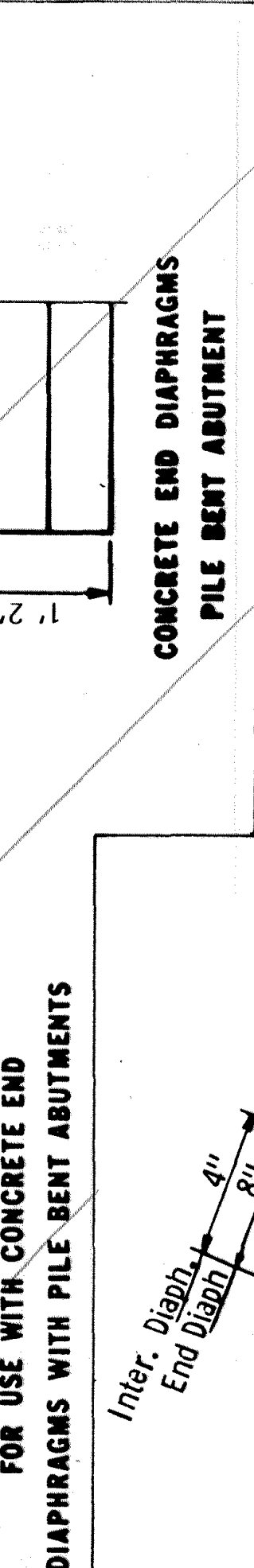
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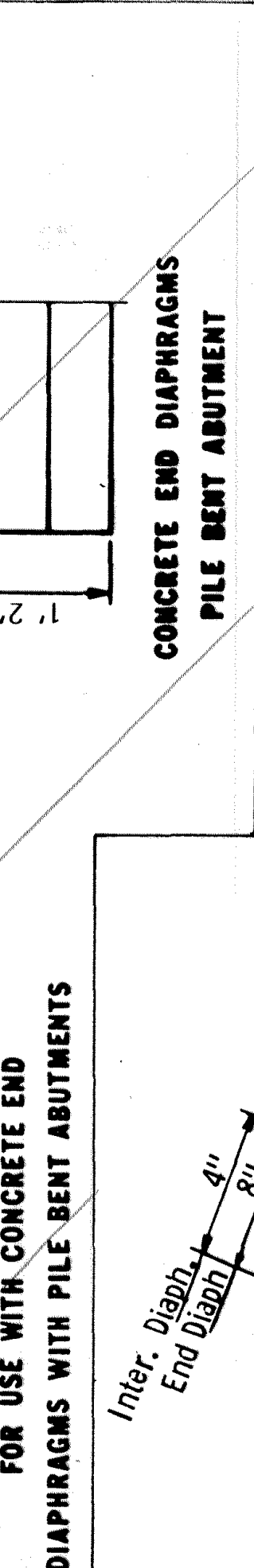
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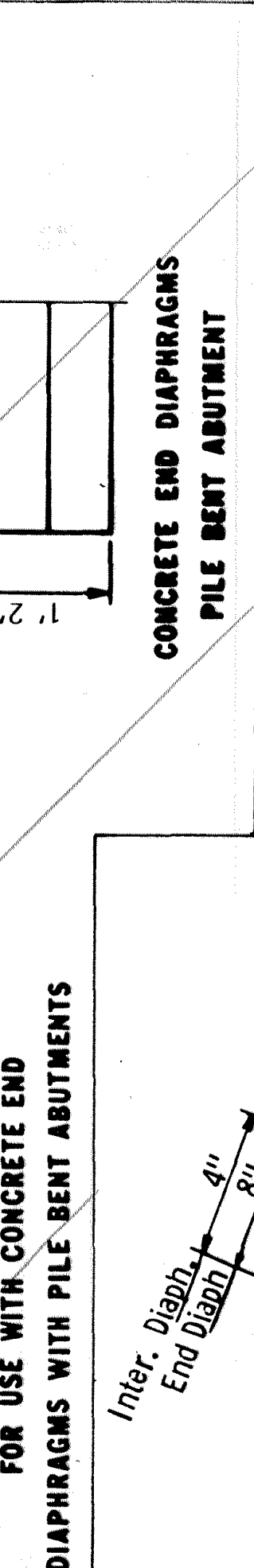
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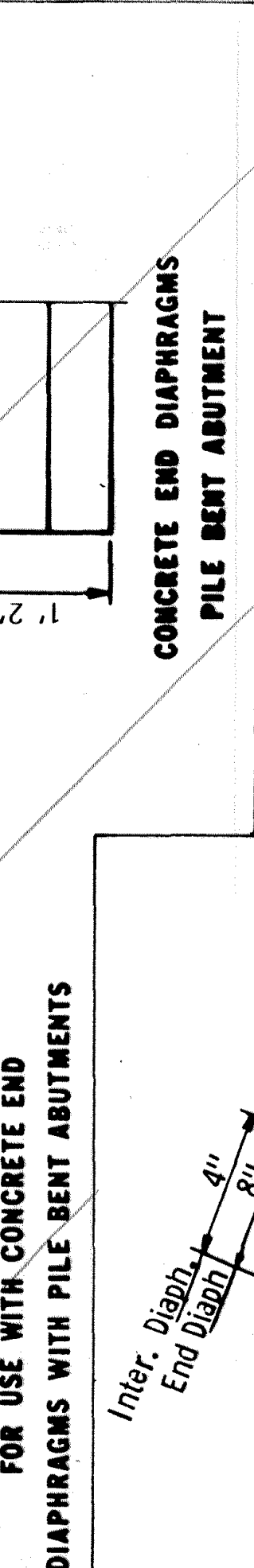
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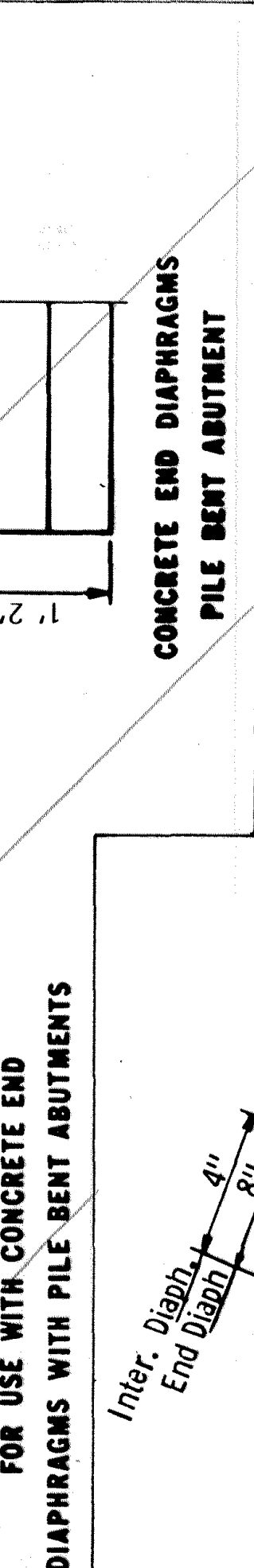
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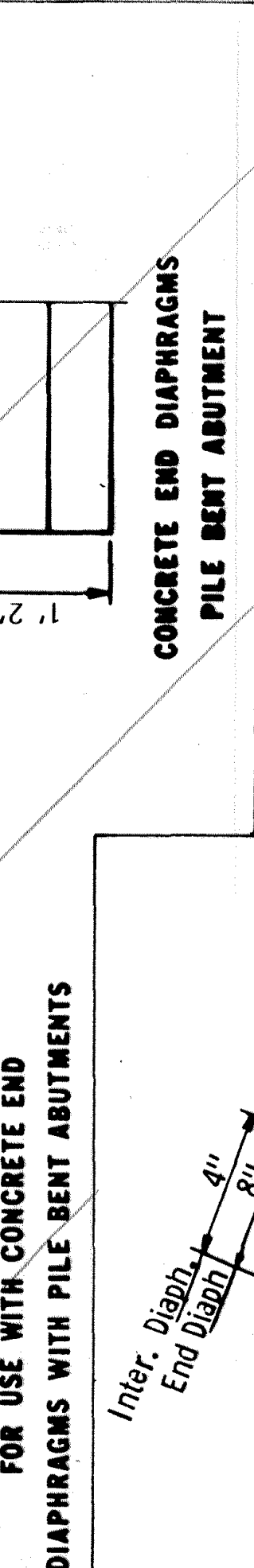
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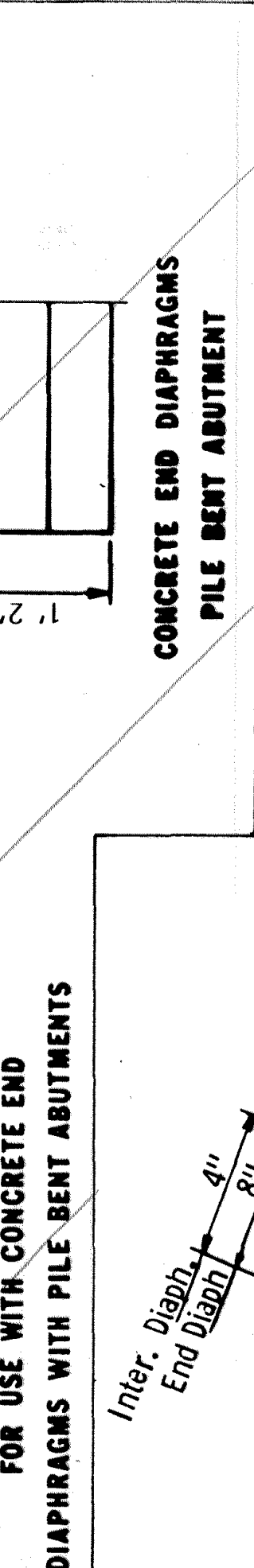
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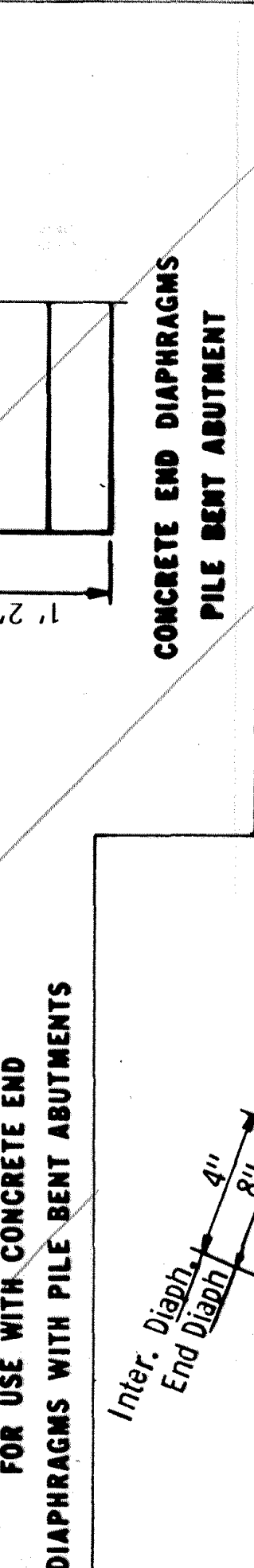
SECTION Z-Z



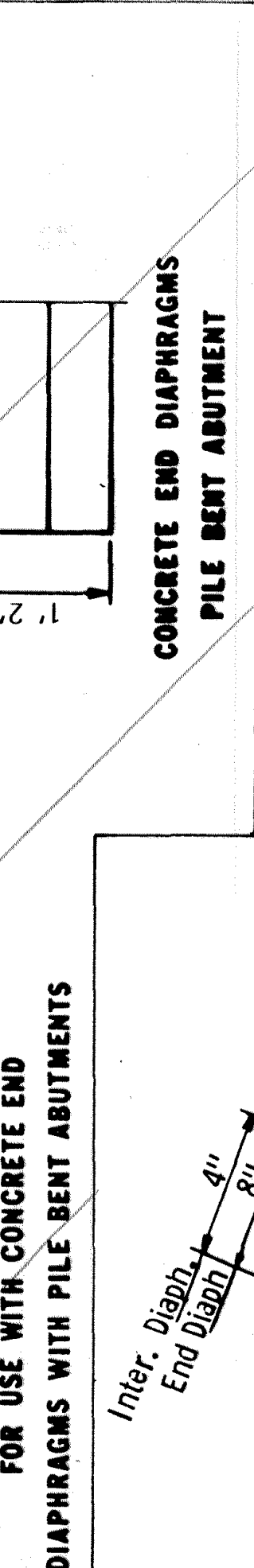
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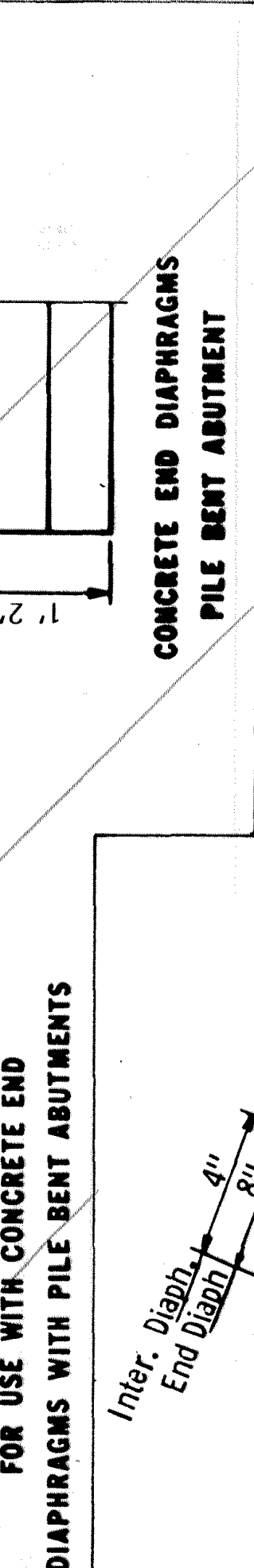
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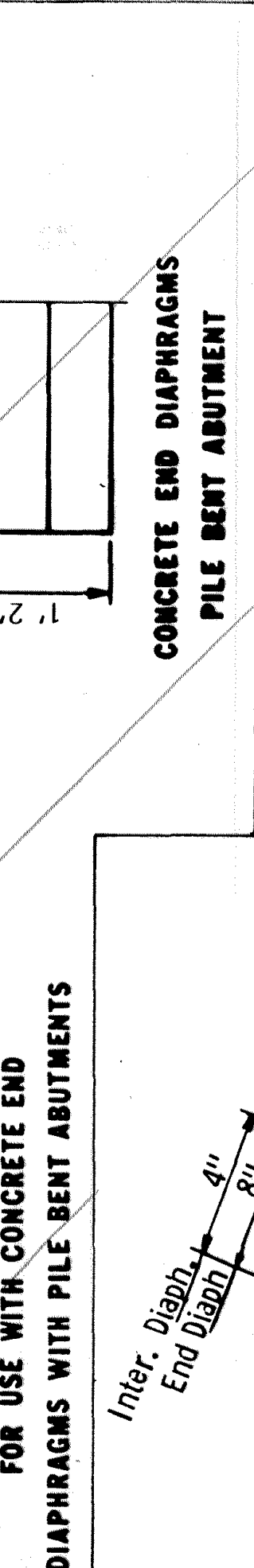
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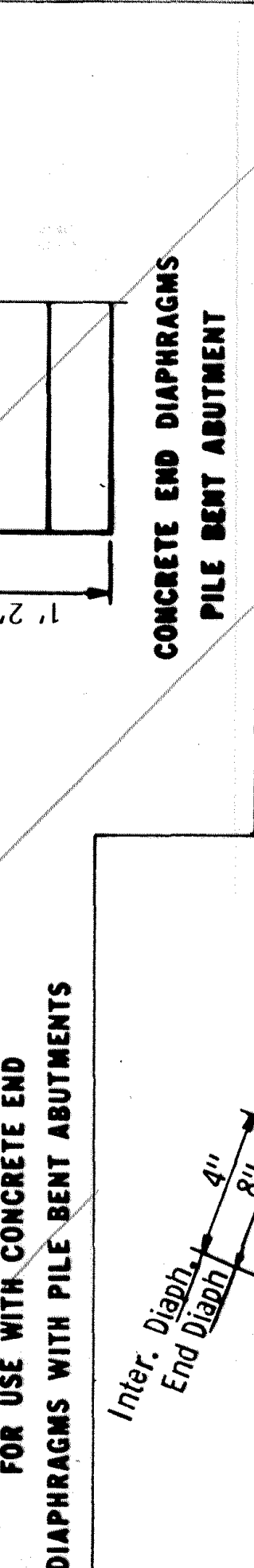
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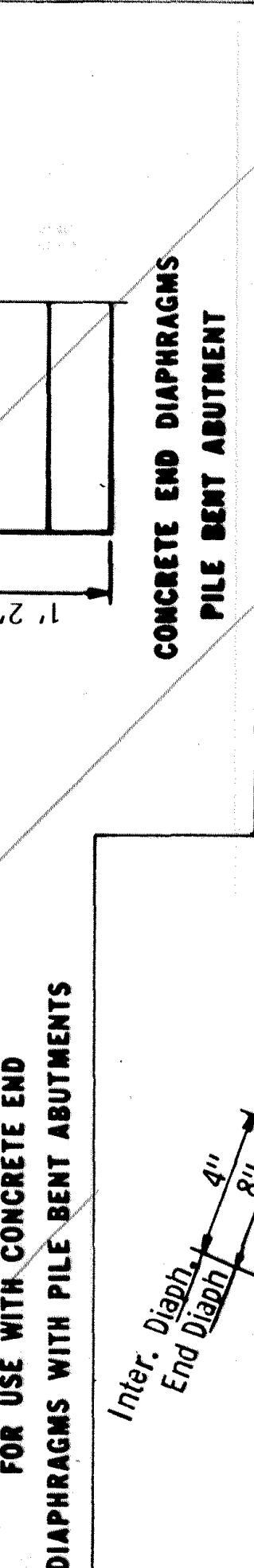
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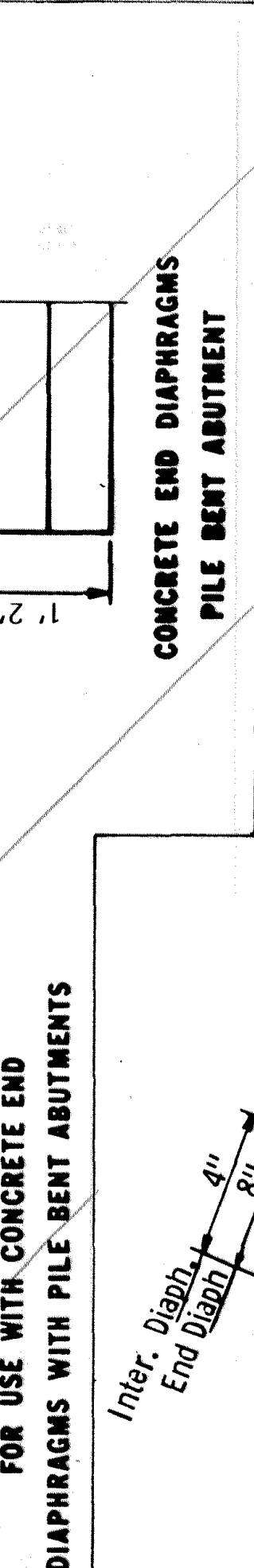
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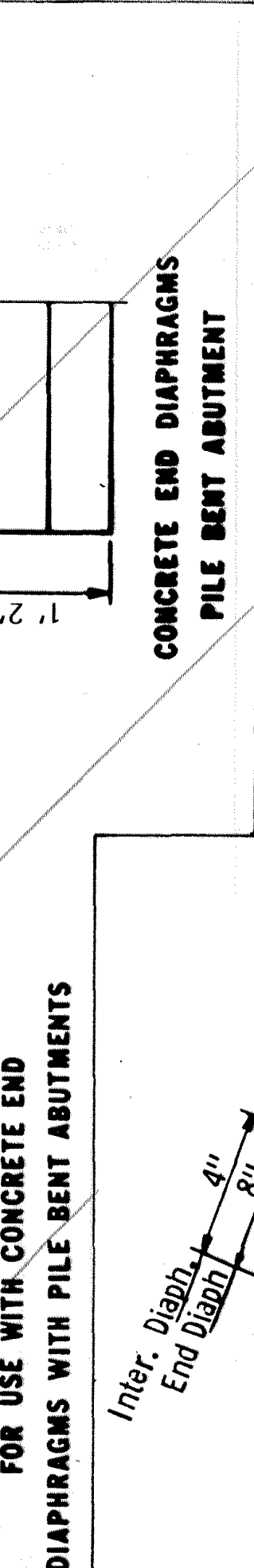
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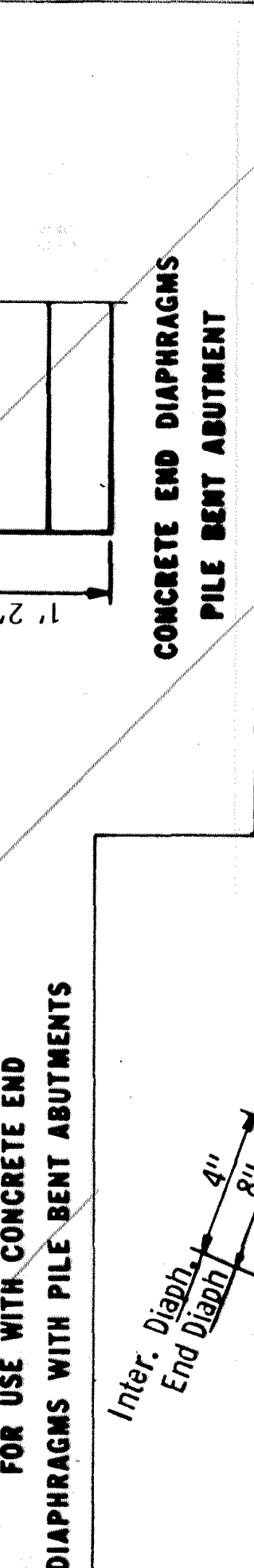
SECTION Y-Y FOR USE WITH CONCRETE END DIAPHRAGMS WITH PILE-BENT ABUTMENTS



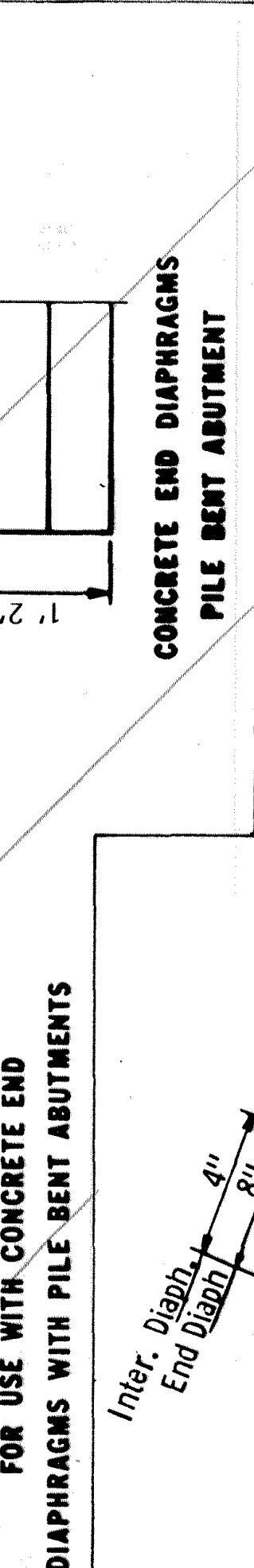
SECTION X-X USE AT FACIA BEAM AND INTERIOR BEAM WITH STAGGERED DIAPHRAGMS



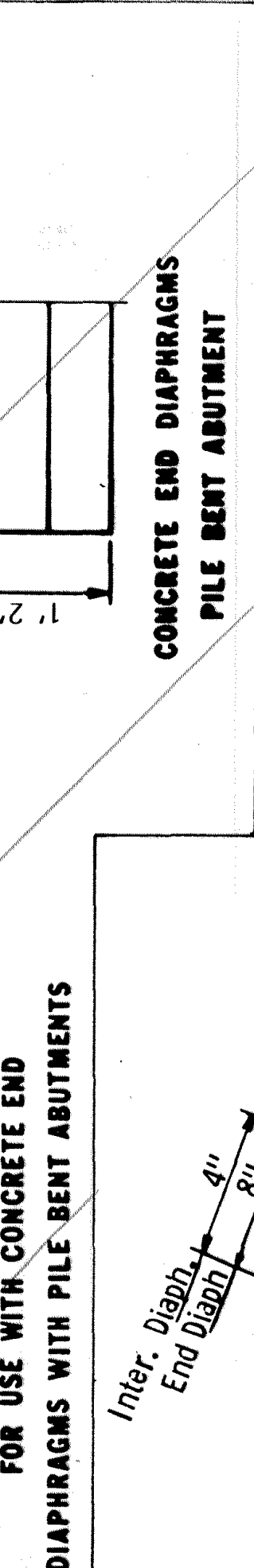
SECTION Z-Z



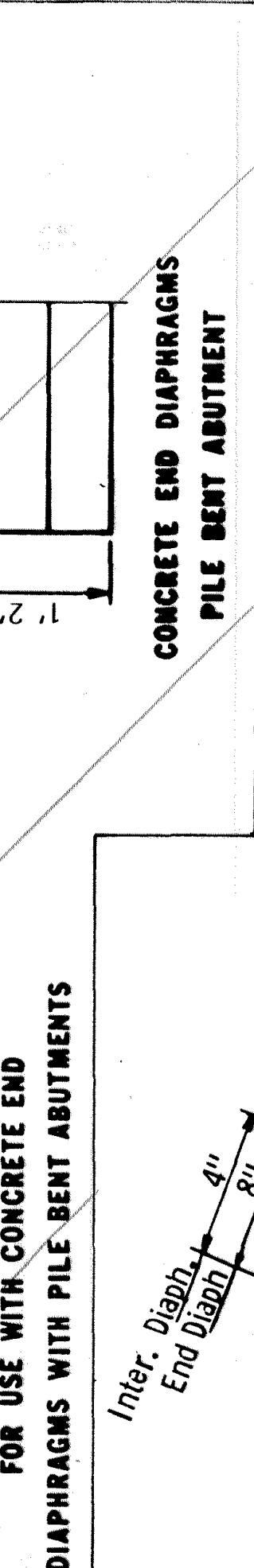
SECTION Y-Y FOR USE WITH STEEL INTERMEDIATE DIAPHRAGM



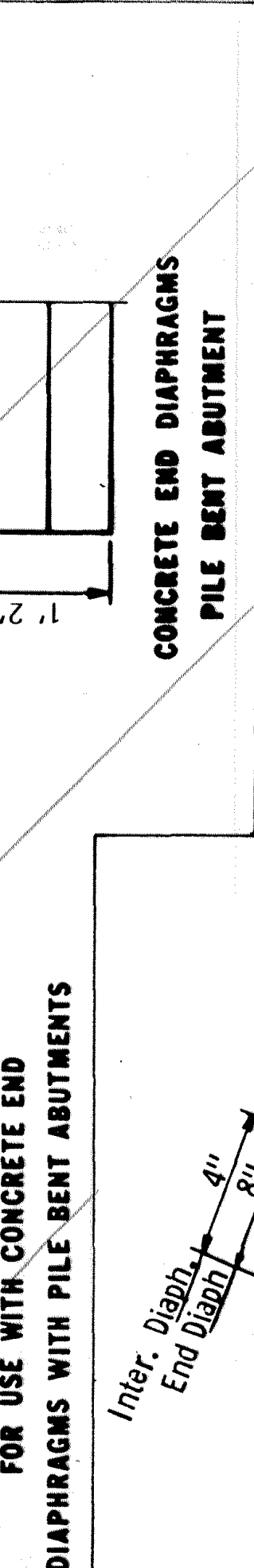
SECTION X-X USE AT INTERIOR BEAM WITH CONTINUOUS CONCRETE DIAPHRAGM



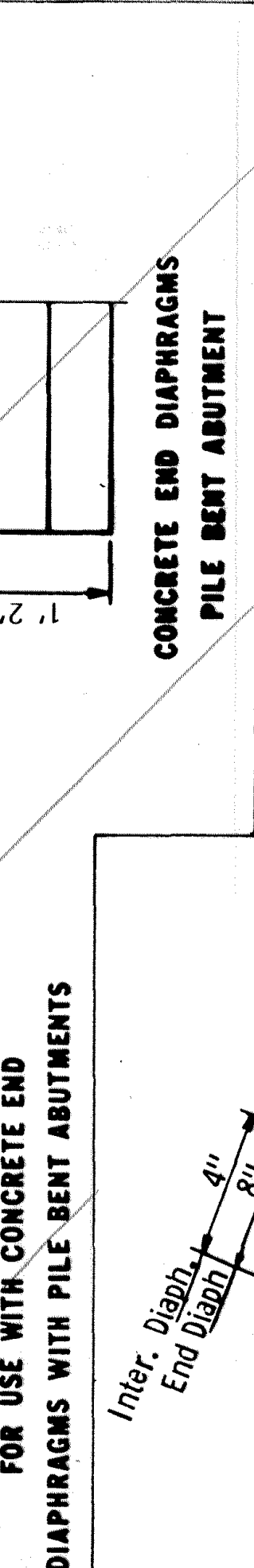
SECTION Y-Y FOR USE WITH CONCRETE END DIAPHRAGMS WITH PILE-BENT ABUTMENTS



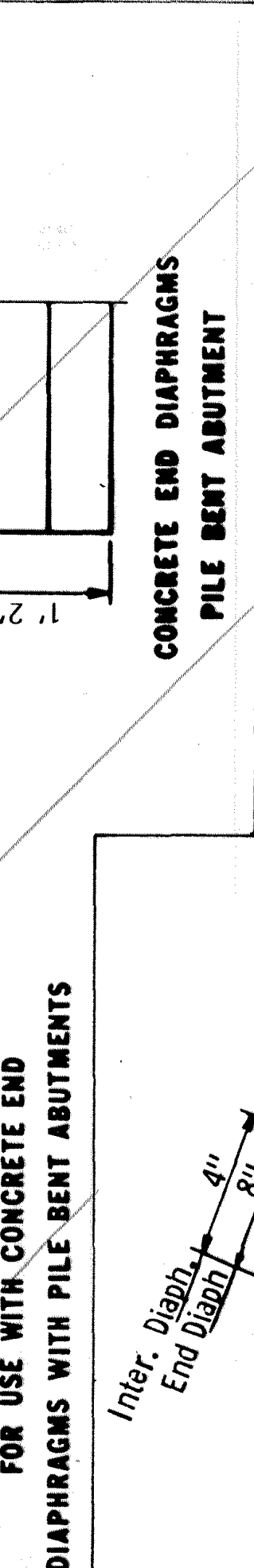
SECTION X-X USE AT FACIA BEAM AND INTERIOR BEAM WITH STAGGERED DIAPHRAGMS



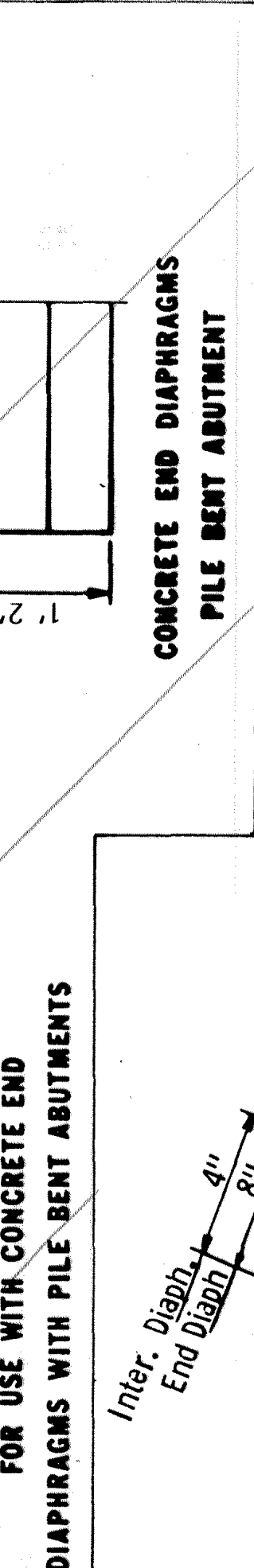
SECTION Z-Z



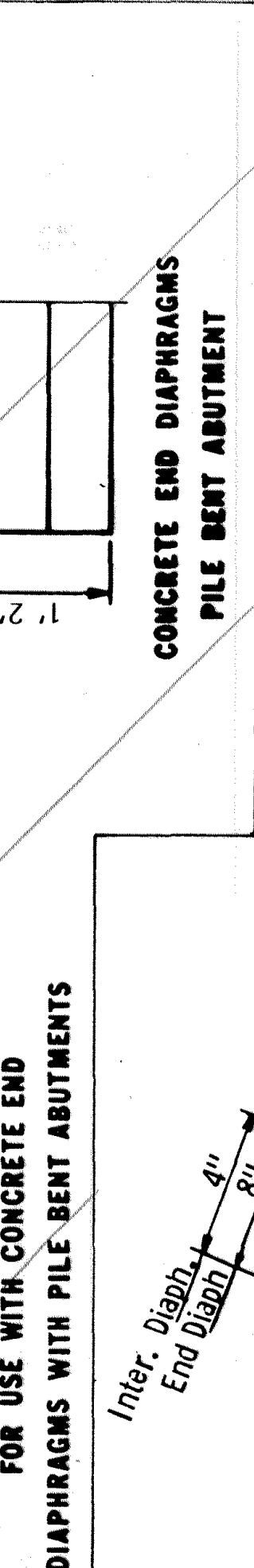
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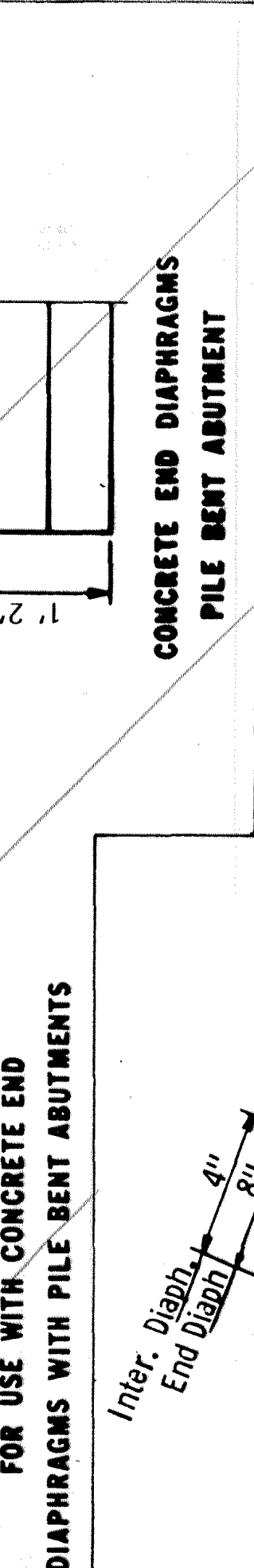
SECTION X-X USE AT INTERIOR BEAM WITH CONTINUOUS CONCRETE DIAPHRAGM



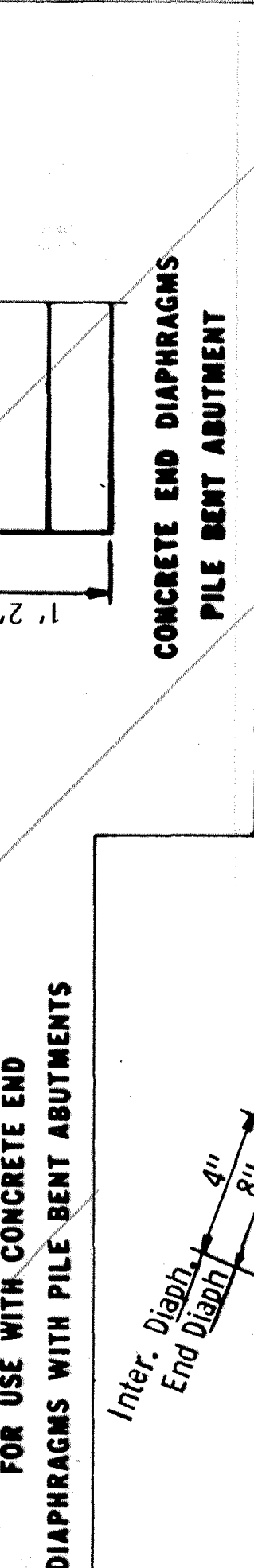
SECTION Y-Y FOR USE WITH CONCRETE END DIAPHRAGMS WITH PILE-BENT ABUTMENTS



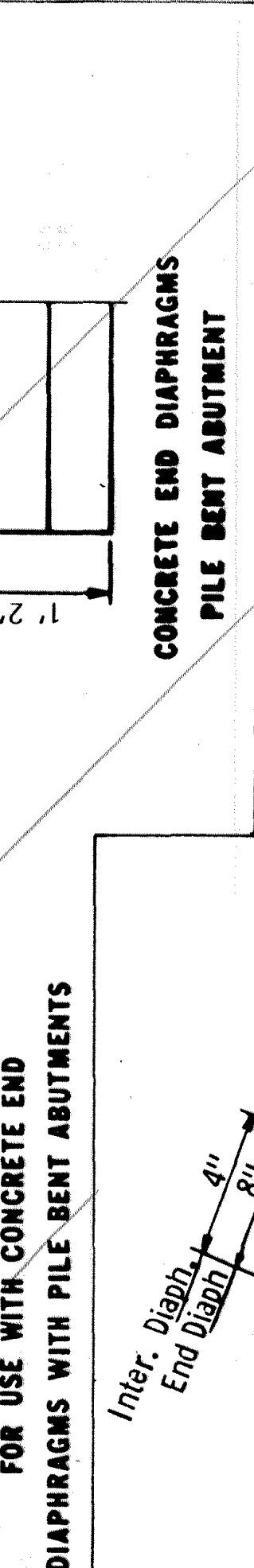
SECTION X-X USE AT FACIA BEAM AND INTERIOR BEAM WITH STAGGERED DIAPHRAGMS



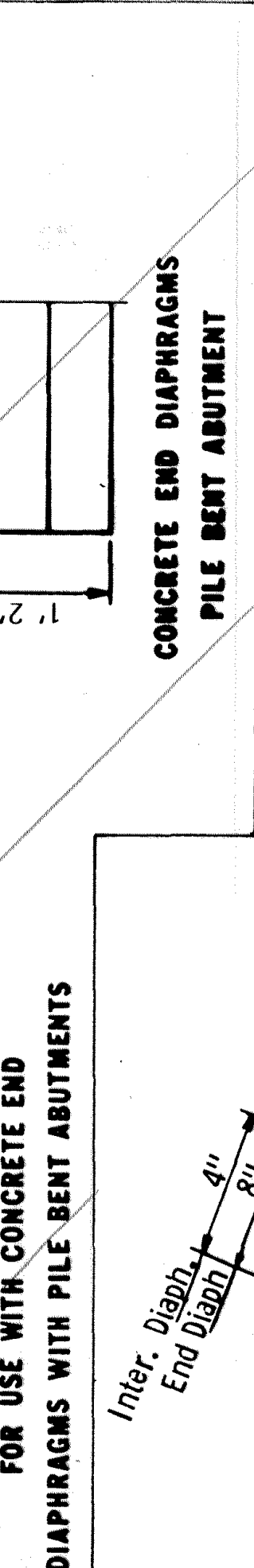
SECTION Z-Z



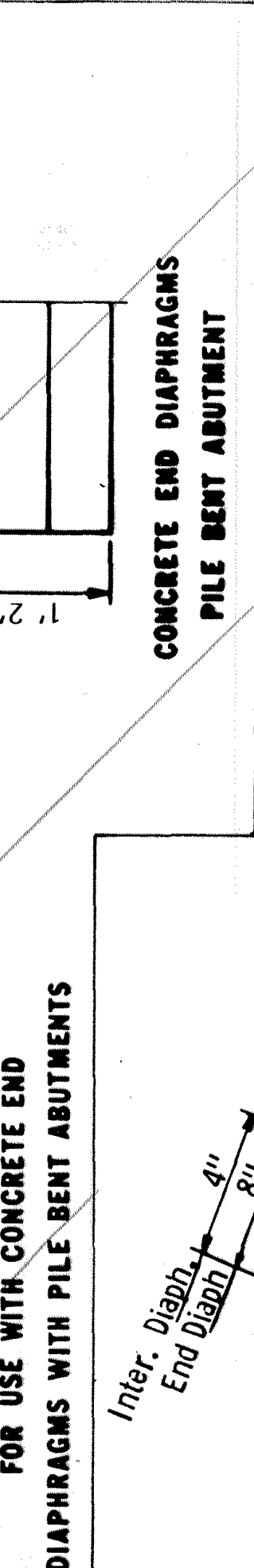
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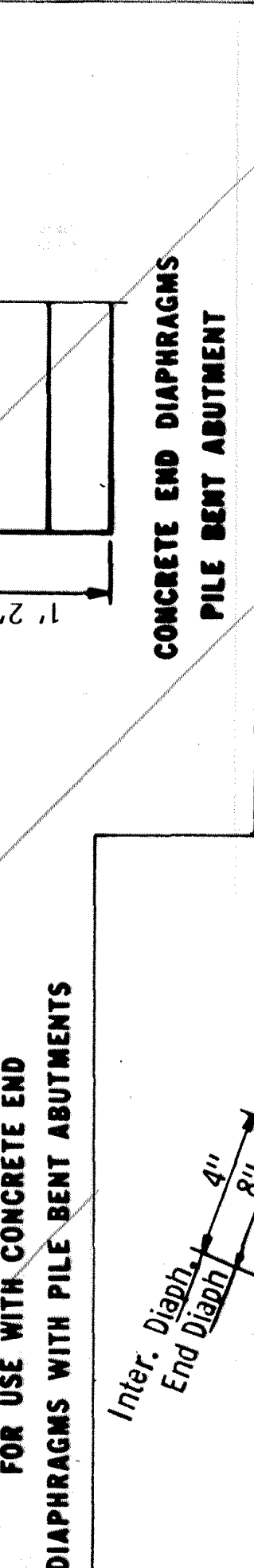
SECTION X-X USE AT INTERIOR BEAM WITH CONTINUOUS CONCRETE DIAPHRAGM



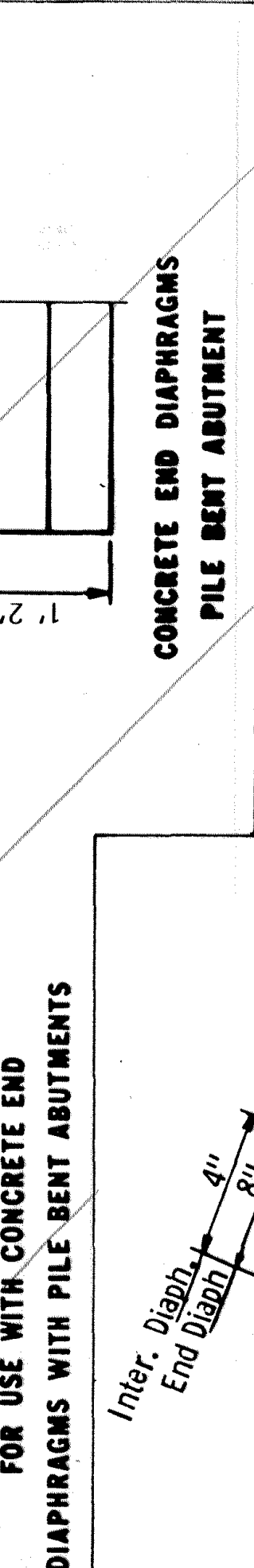
SECTION Y-Y FOR USE WITH CONCRETE END DIAPHRAGMS WITH PILE-BENT ABUTMENTS



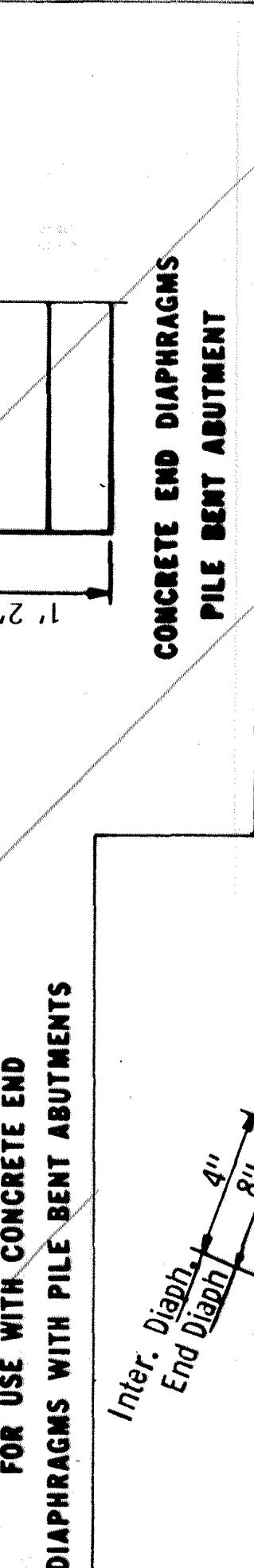
SECTION X-X USE AT FACIA BEAM AND INTERIOR BEAM WITH STAGGERED DIAPHRAGMS



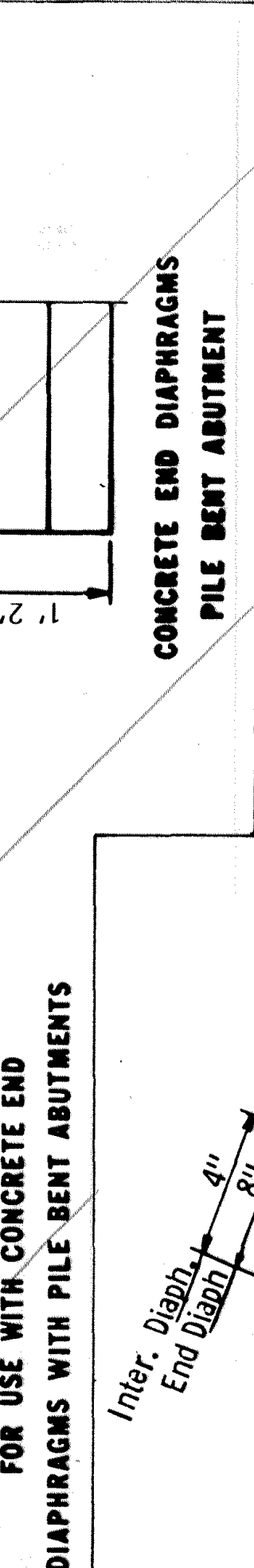
SECTION Z-Z



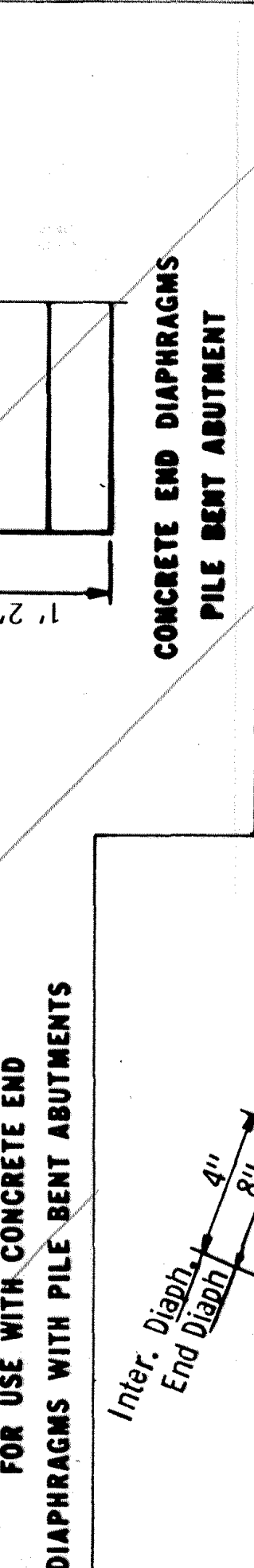
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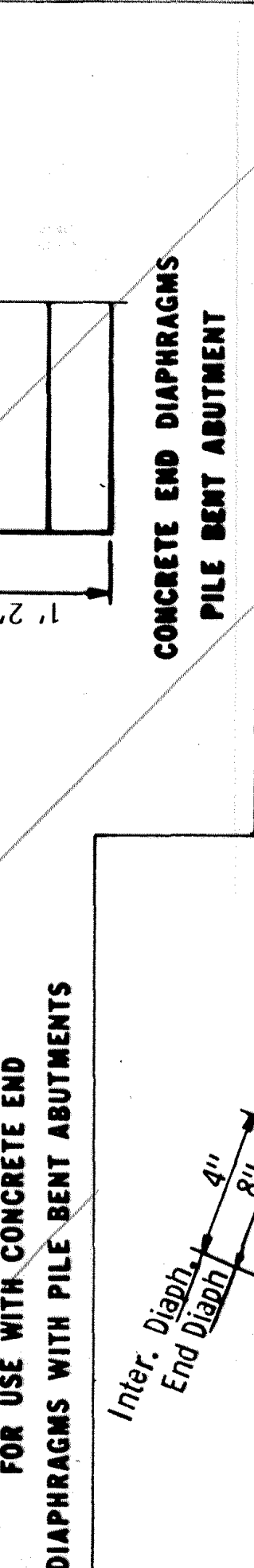
SECTION X-X USE AT INTERIOR BEAM WITH CONTINUOUS CONCRETE DIAPHRAGM



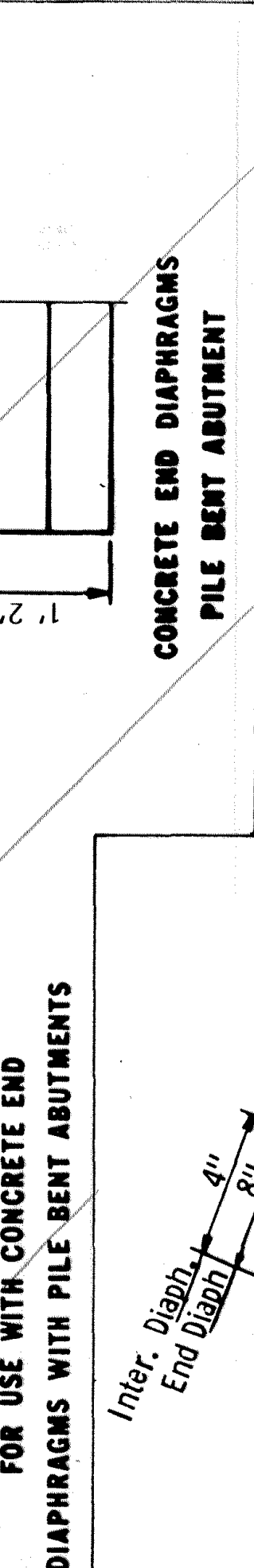
SECTION Y-Y FOR USE WITH CONCRETE END DIAPHRAGMS WITH PILE-BENT ABUTMENTS



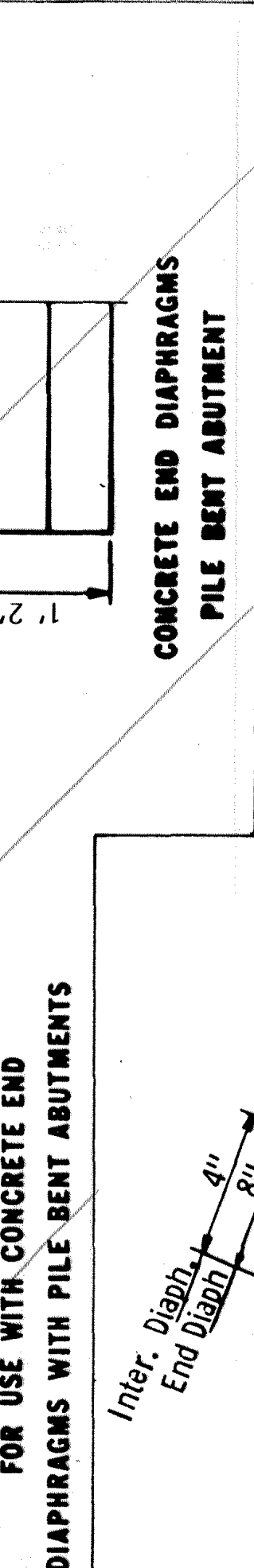
SECTION X-X USE AT FACIA BEAM AND INTERIOR BEAM WITH STAGGERED DIAPHRAGMS



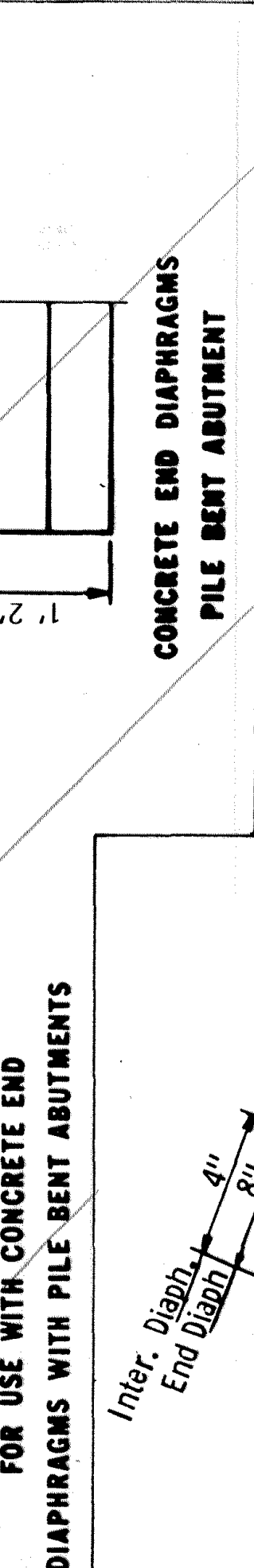
SECTION Z-Z



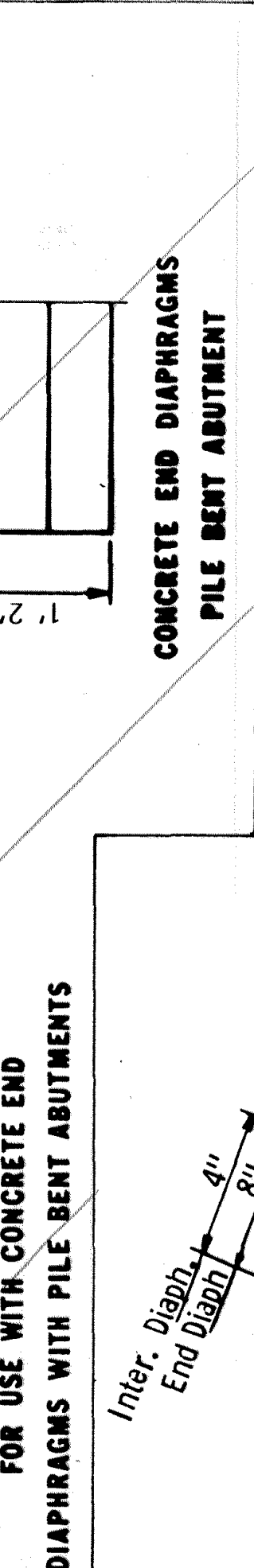
SECTION Y-Y FOR USE WITH STEEL INTERMEDIATE DIAPHRAGM



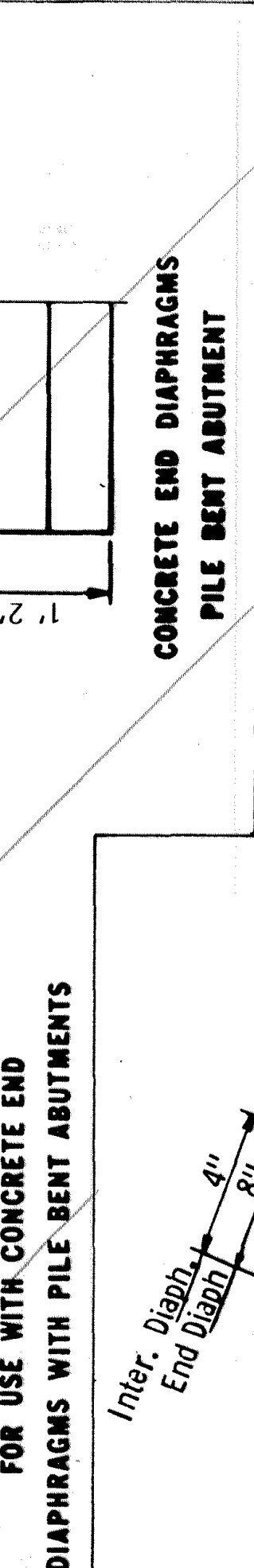
SECTION X-X USE AT INTERIOR BEAM WITH CONTINUOUS CONCRETE DIAPHRAGM



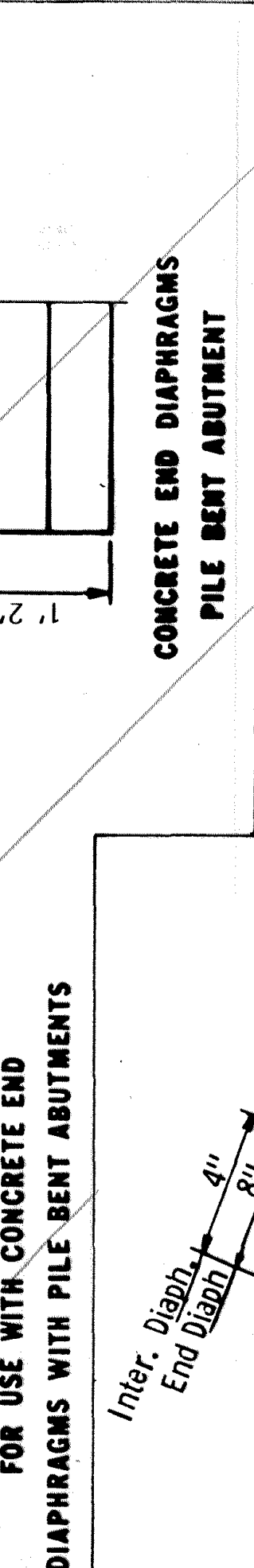
SECTION Y-Y FOR USE WITH CONCRETE END DIAPHRAGMS WITH PILE-BENT ABUTMENTS



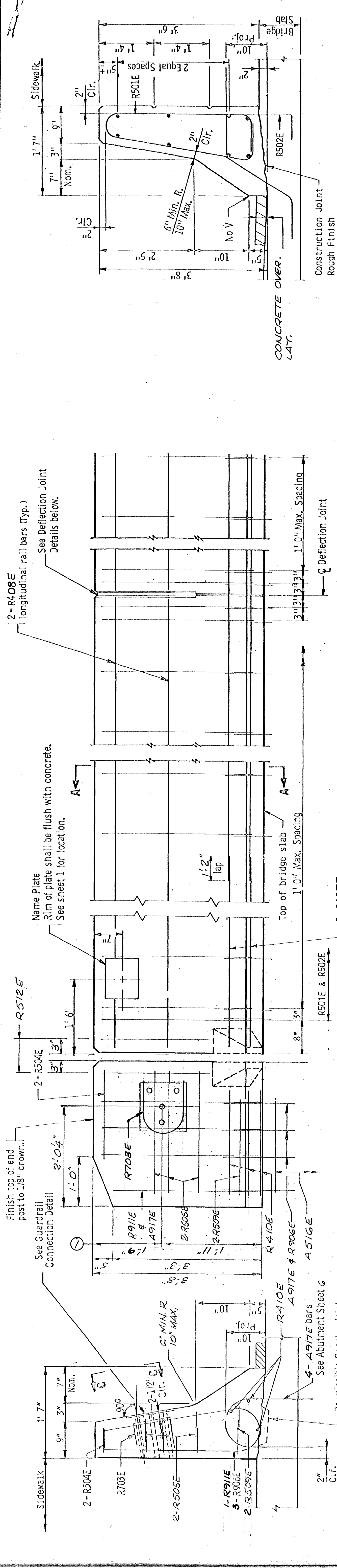
SECTION X-X USE AT FACIA BEAM AND INTERIOR BEAM WITH STAGGERED DIAPHRAGMS



SECTION Z-Z



SECTION Y-Y FOR USE WITH STEEL INTERMEDIATE DIAPHRAGM</



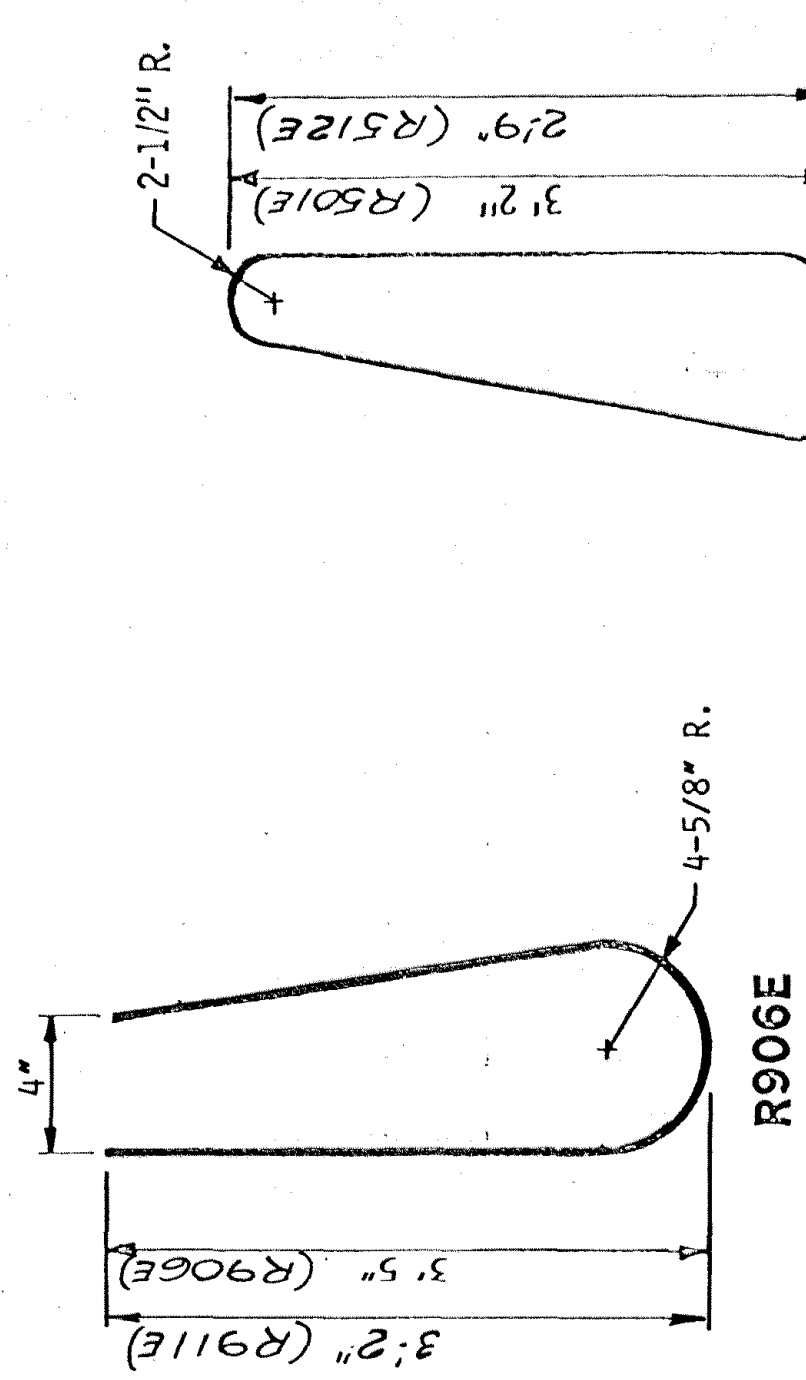
SECTION A-A

BAR NO.	LENGTH	SHAPE	LOCATION
R501E	7'-10"	Bent	Rail Vertical
R502E	5'-7"	Bent	Rail Vertical
R703E	4'-2"	Bent	End Post
R304E	8'-2"	Bent	End Post
R305E	2'-7"	Bent	End Post
R306E	2'-10"	Bent	End Post
R407E	7'-3"	Bent	End Post
R408E	1'-6"	Str.	Rail Long.
R509E	3'-2"	Str.	Rail Long.
R510E	3'-2"	Str.	Rail Long.
R511E	2'-12"	START	END POST
R512E	4'-5"	BENT	"
R513E	7'-0"	BENT	"

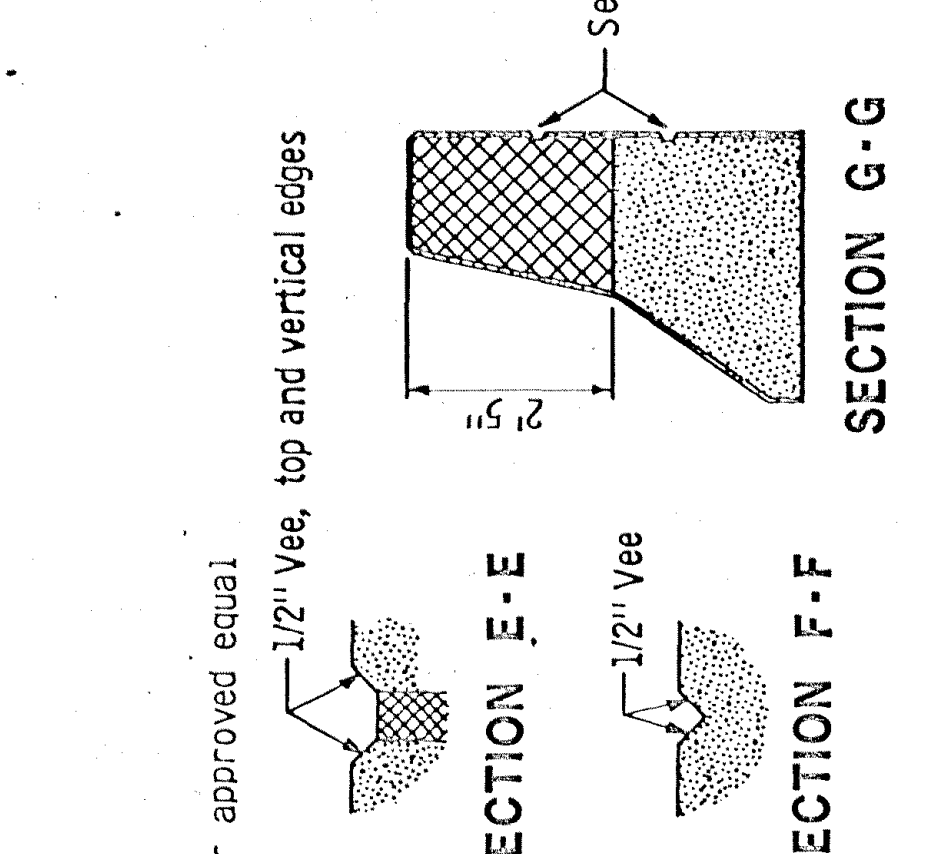
GENERAL NOTES:
 Conc. Railing = 560 lbs./ft.
 Conc. Railing = .138 cu. yds./ft.
 Rail and end post to be Concrete Mix No. 3746
 Guardrail connection to be Structural Steel, Spec. 3306
 Finish all edges of rail and end post with 1/2" vee except where otherwise noted.
 See superstructure sheet for joint spacing.
 Maximum spacing of concrete deflection joints shall be 20' 0"
 Guardrail connection to be included in price bid for other items.
 Rail quantities are included in summary of quantities for superstructure.
 Length of railing concrete to be measured for payment between outside faces of end posts.
 Bars marked with the suffix "E" shall be epoxy coated in accordance with Spec. 3301.

DEFLECTION JOINT

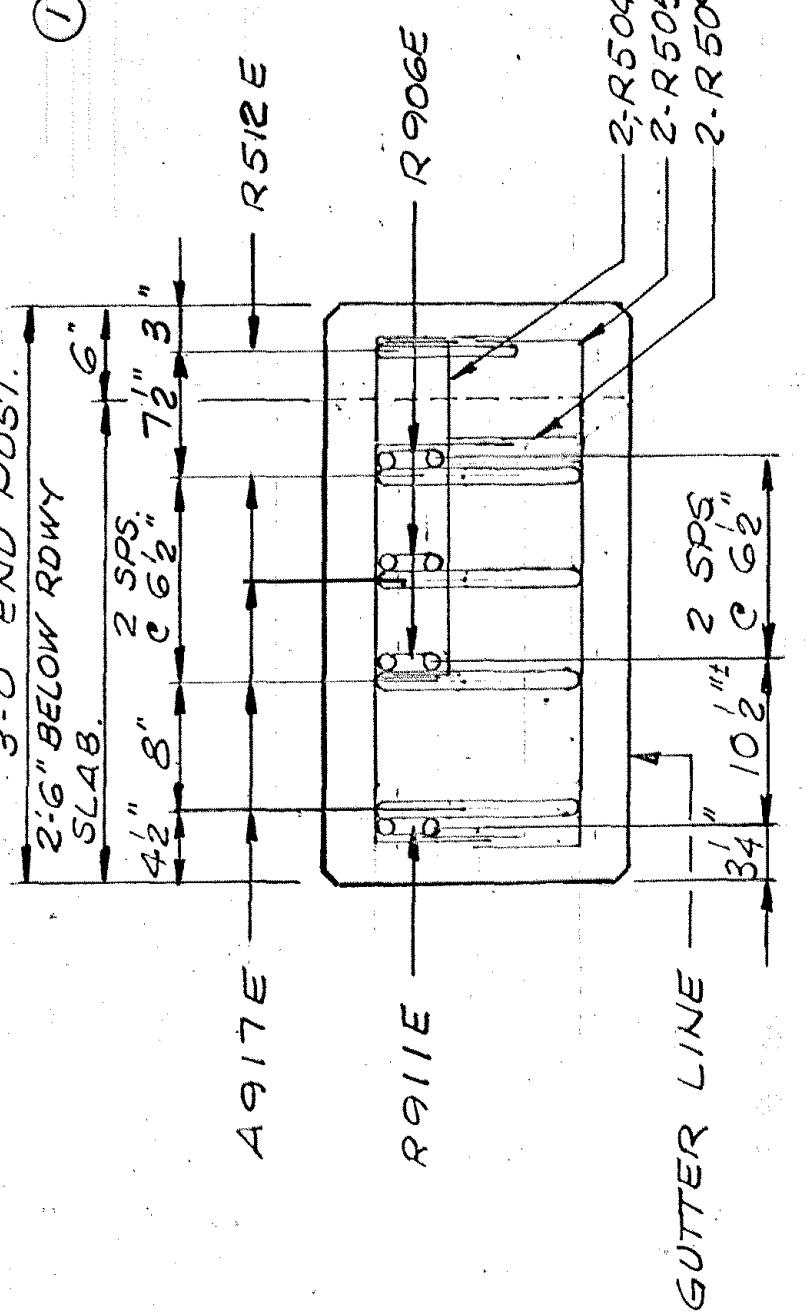
INSIDE ELEVATION OF RAILING
 (WEARING COURSE NOT SHOWN)



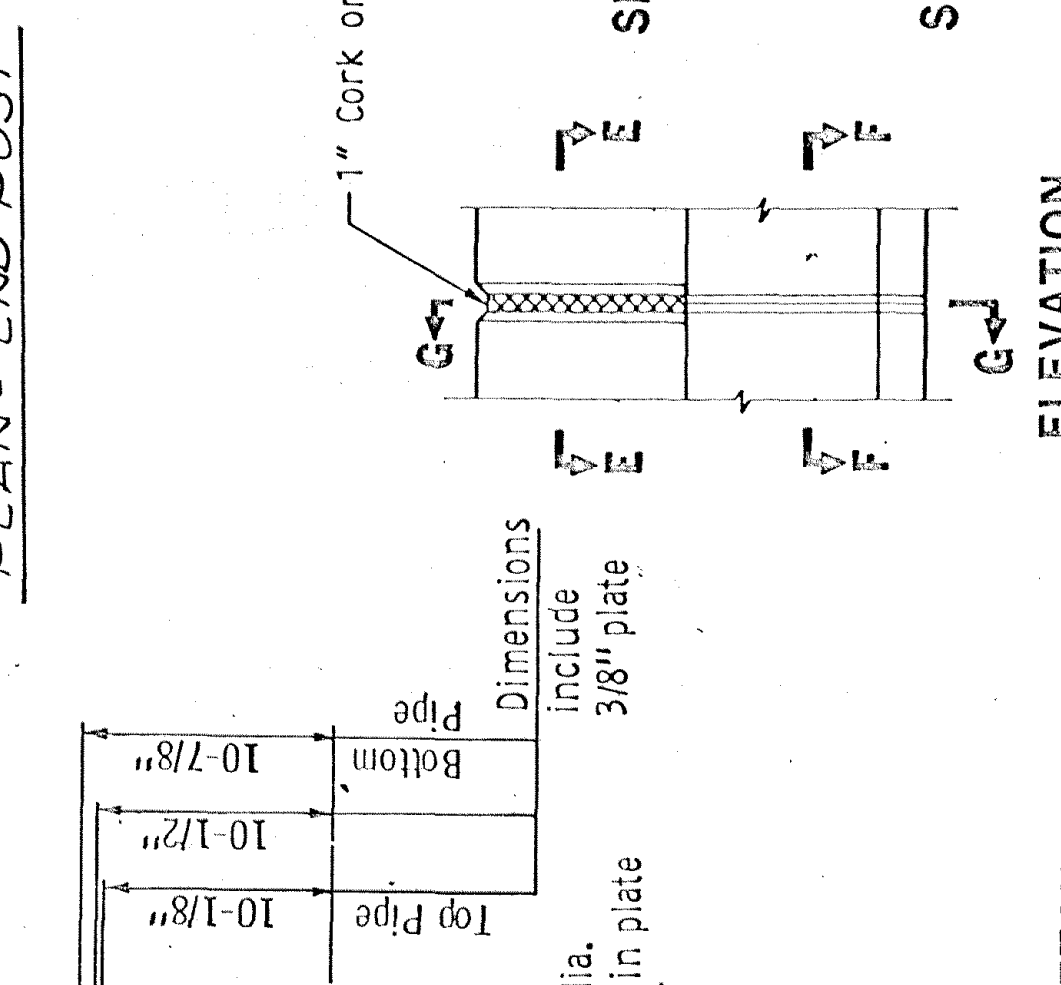
RAIL RUSTICATION



VERTICAL END POST
 (EXPANSION DEVICE NOT SHOWN)



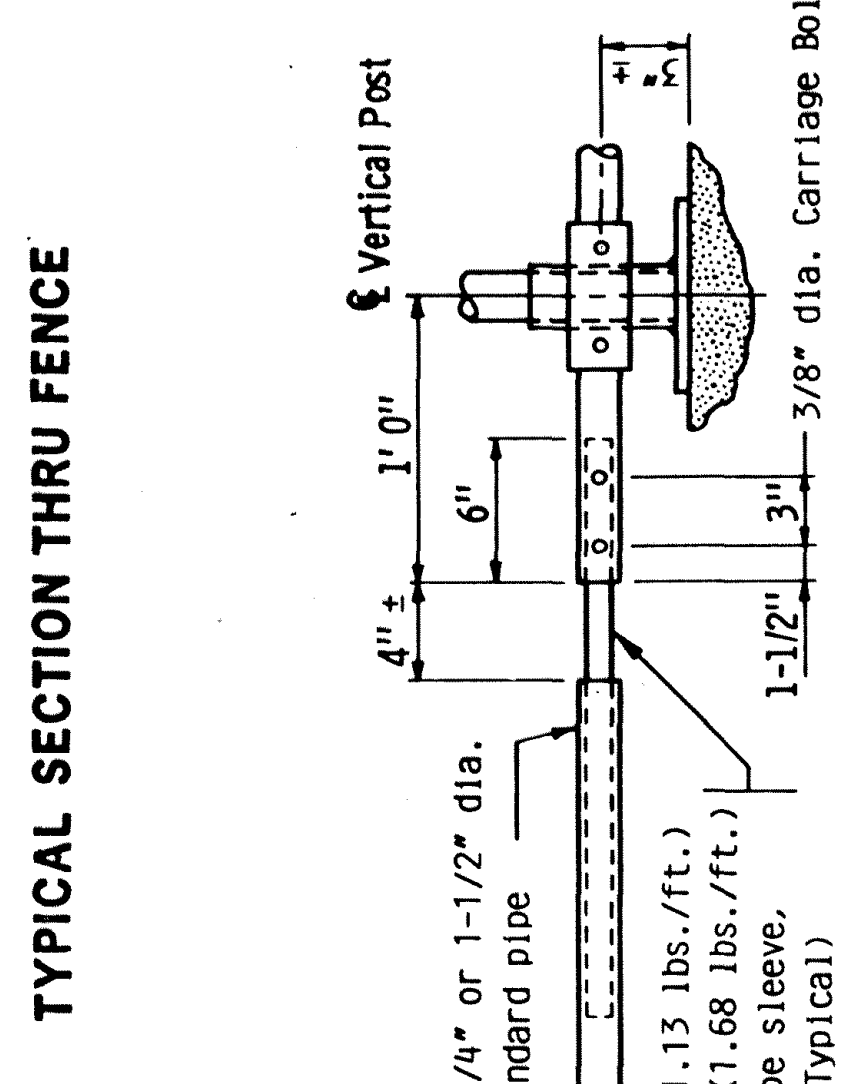
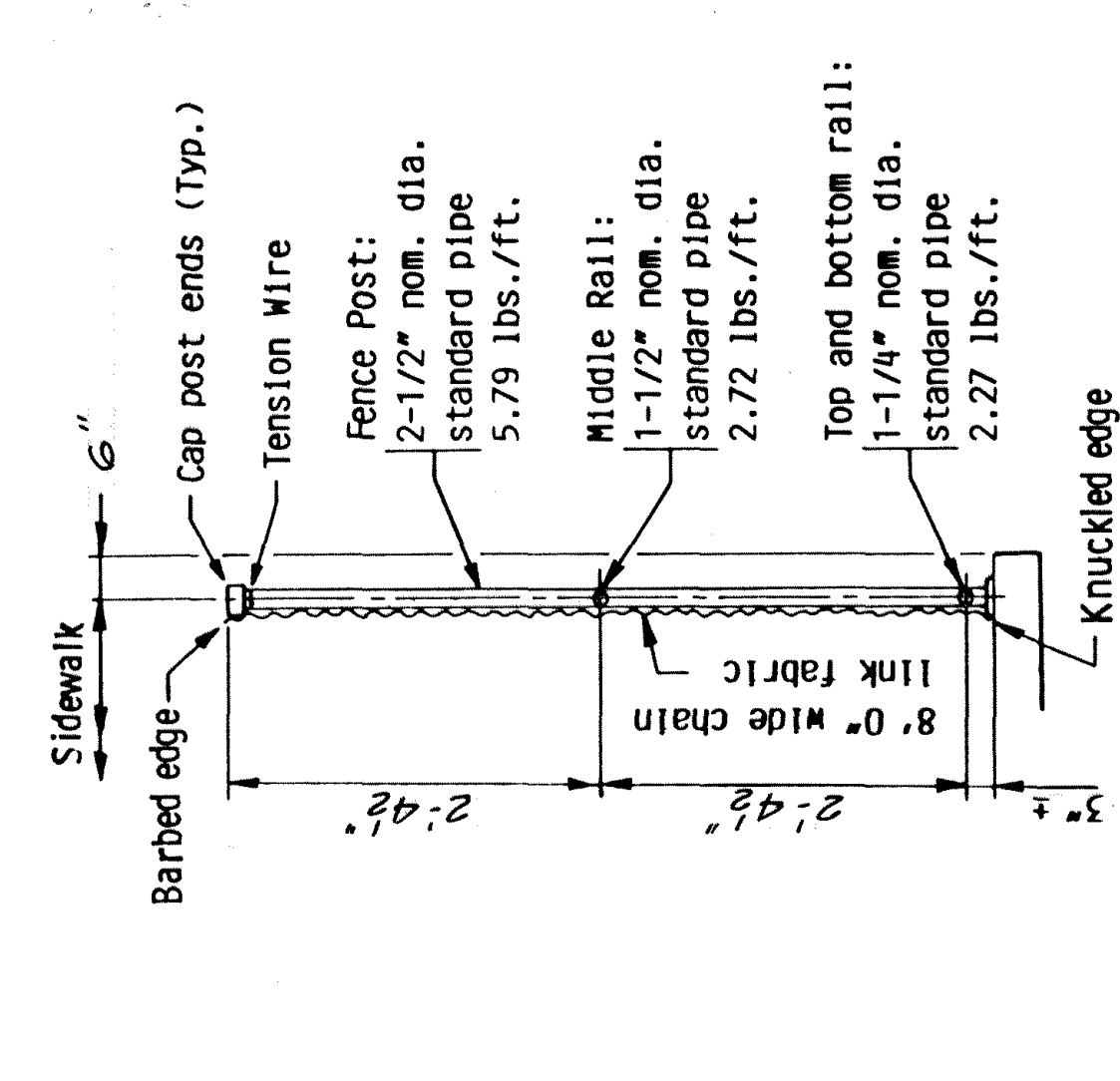
PLAN - END POST



GUARDRAIL CONNECTION DETAIL
 Galvanize after fabrication per Spec. 3394
 Estimated Weight = 24 lbs.

DEFLECTION JOINT DETAILS

I hereby certify that this plan, specification, or report 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.
Ronald Benson
 Date: 1/23/95 Reg. No. 22737



GENERAL NOTES:
For alternate to Type 1 anchorages, see Detail No. B905, Type A End Posts.
For post spacing, location, type of anchorages & other details, see sheet no. Z

Maximum spacing for 2-1/2" standard pipe posts = 10' 0". Post spacings of 10' 0" are desired for efficient use of standard pipe lengths.

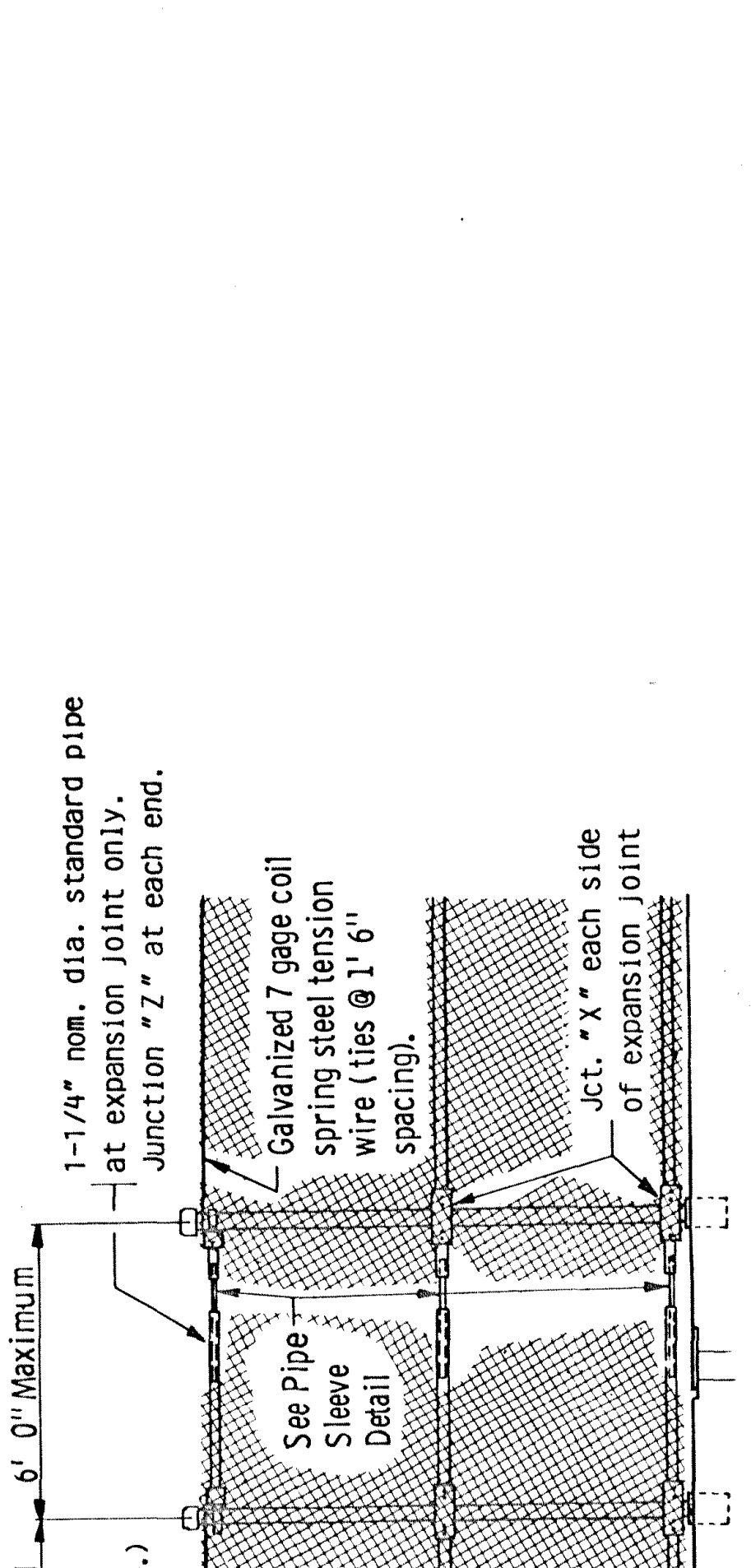
Fence posts and anchorages shall be set vertical, unless otherwise noted.

See special provisions for requirements not included on this sheet and for basis of payment.

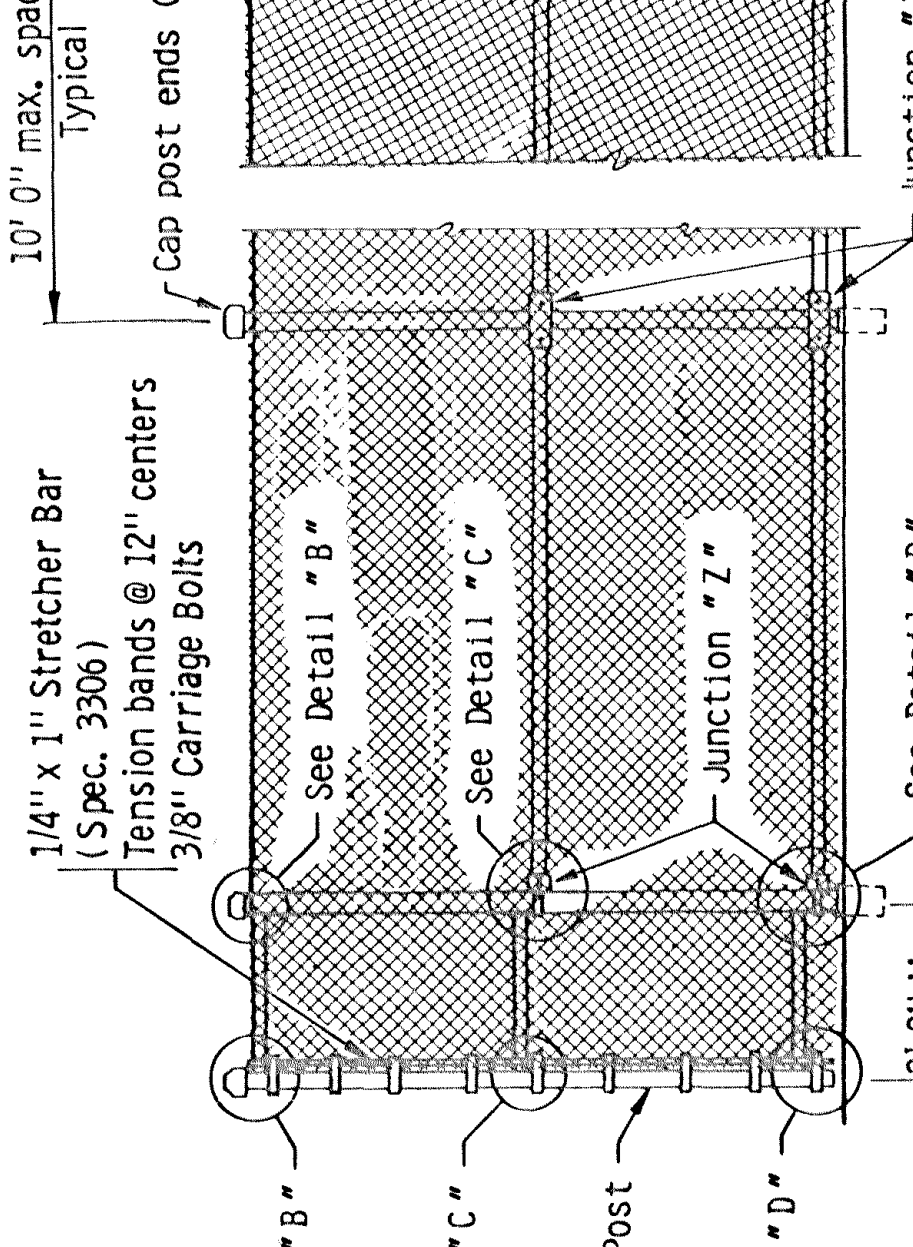
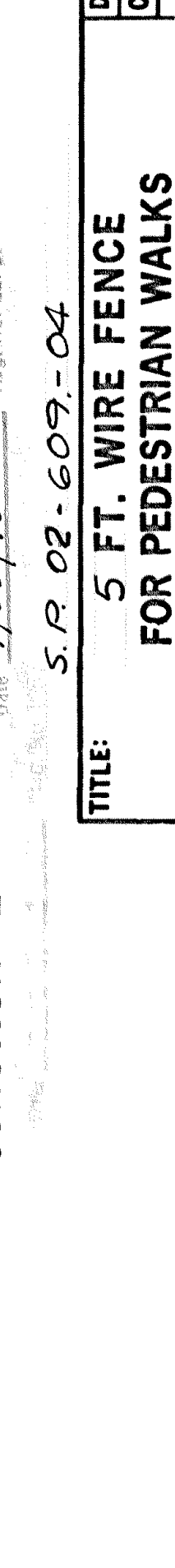
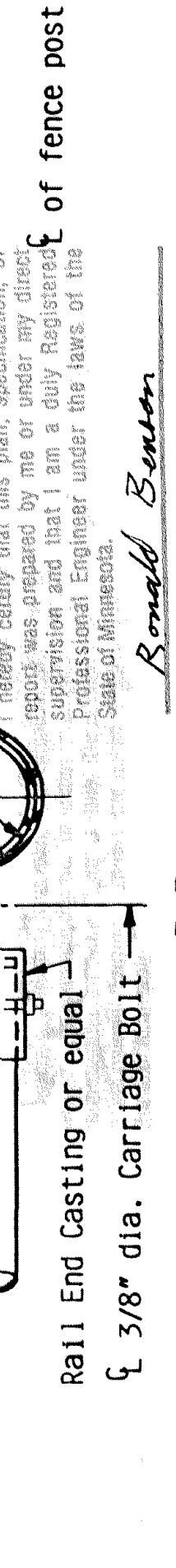
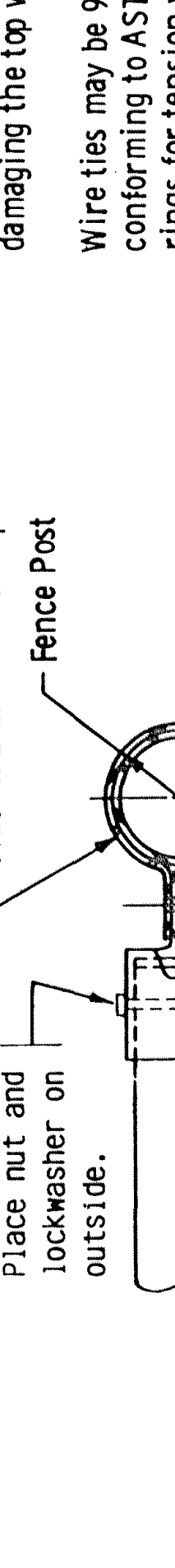
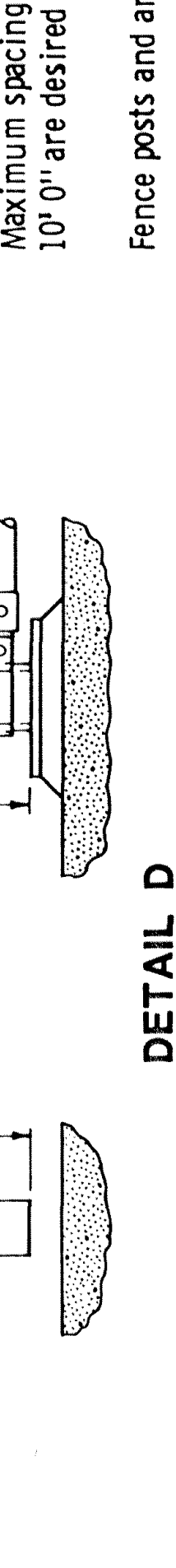
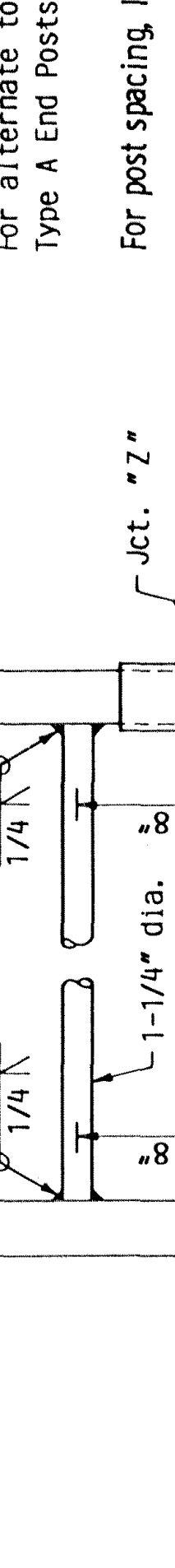
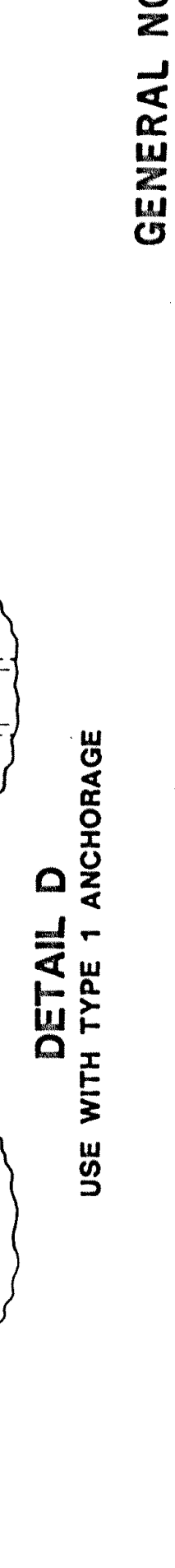
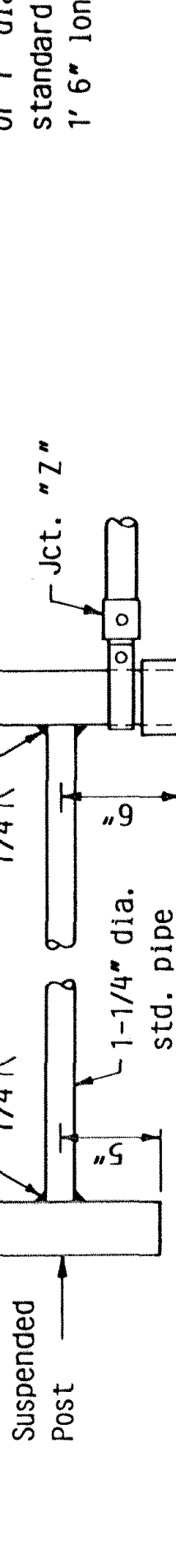
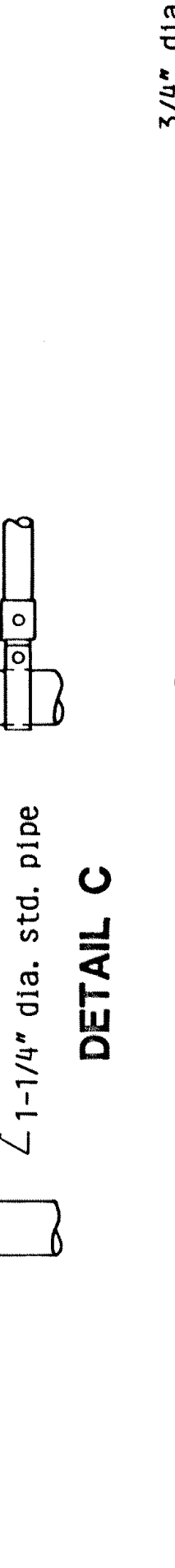
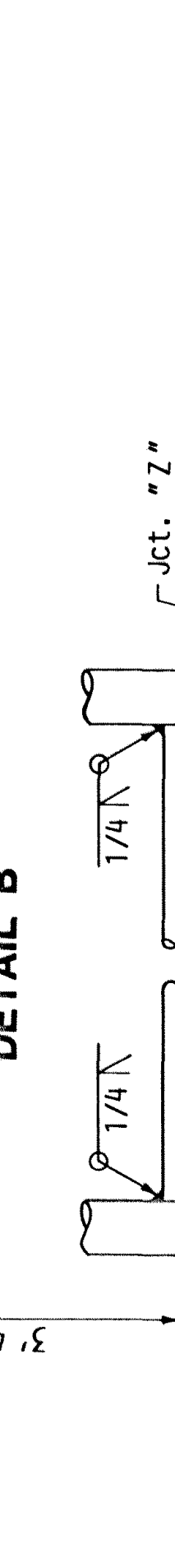
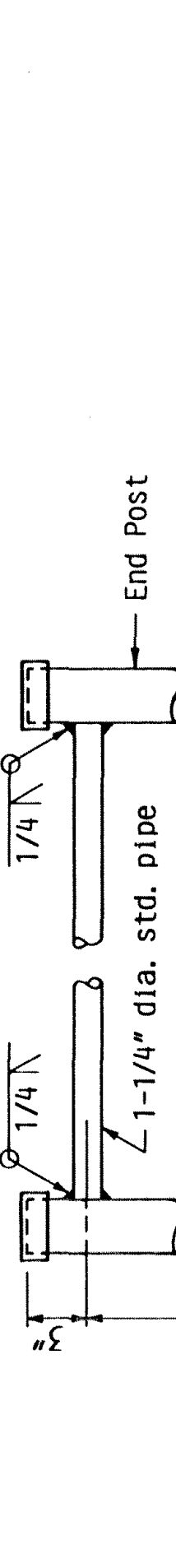
All posts shall have a means to securely hold the top tension wire in position and allow for the removal and replacement of a post without damaging the top wire.

Wire ties may be 9 gage galvanized steel or 0.179" minimum aluminum alloy conforming to ASTM B211, Alloy 1100-H18. Use 12-1/2 gage galvanized hog rings for tension wire ties.

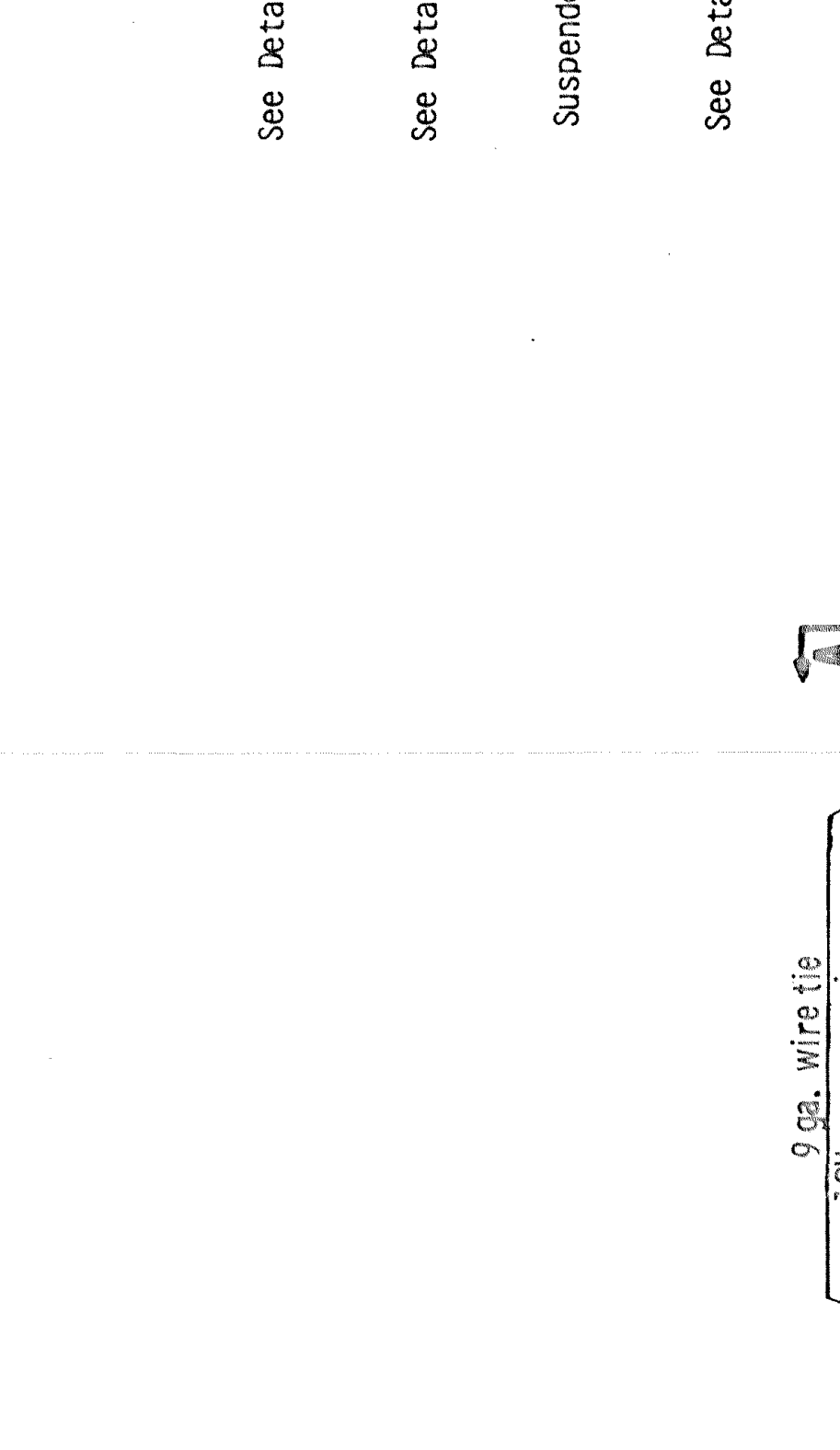
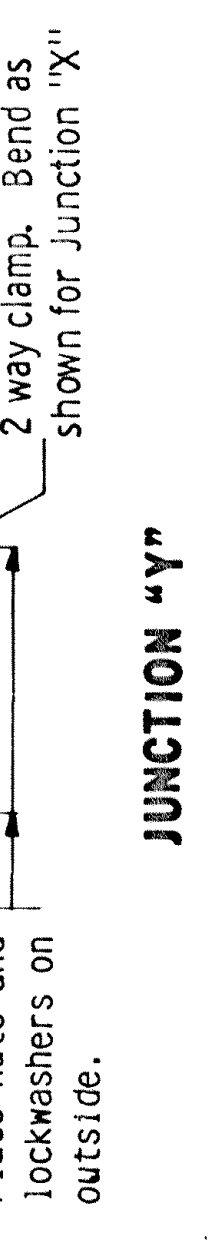
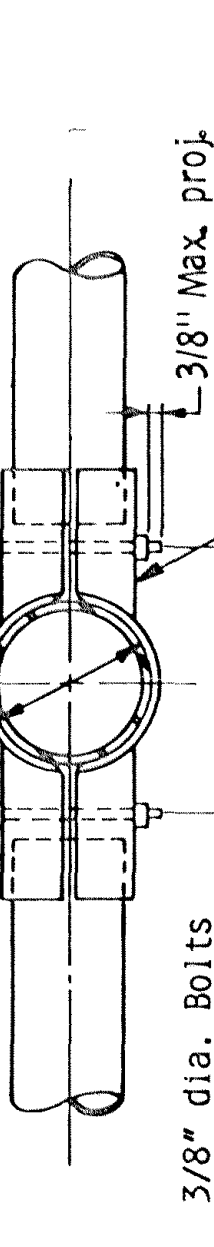
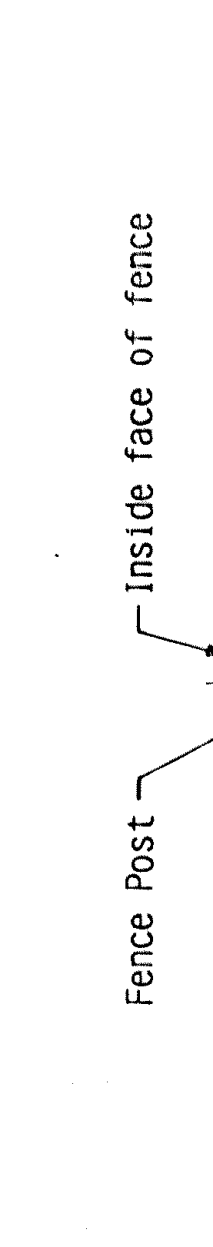
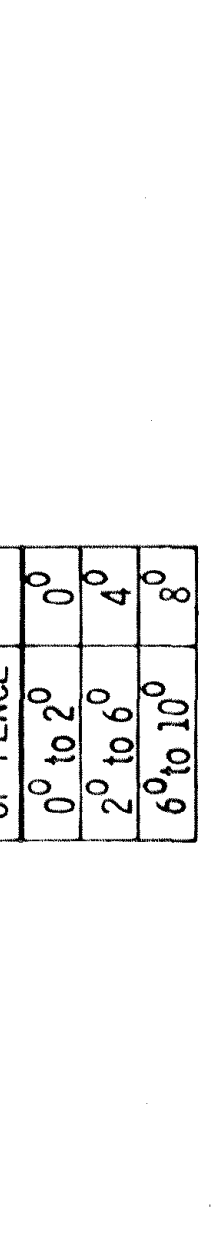
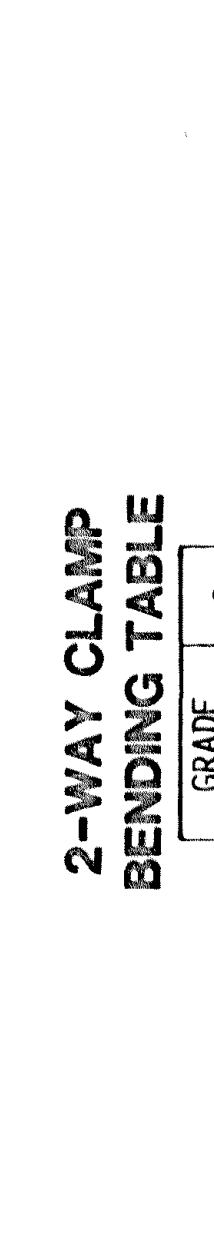
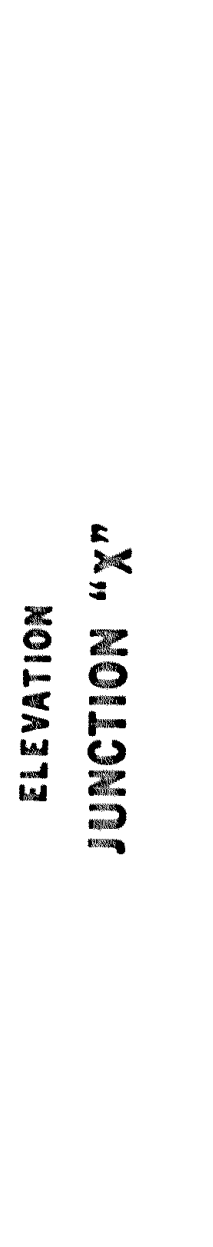
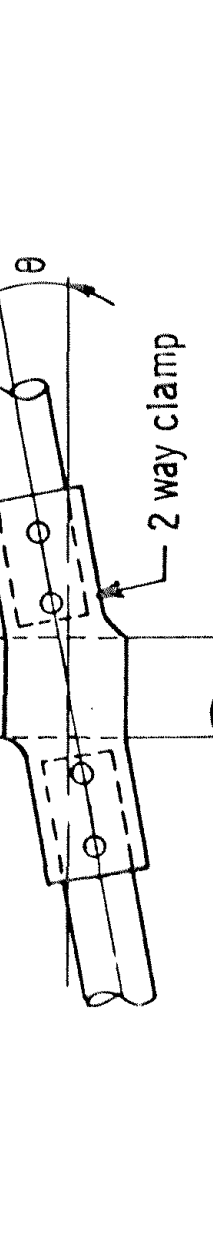
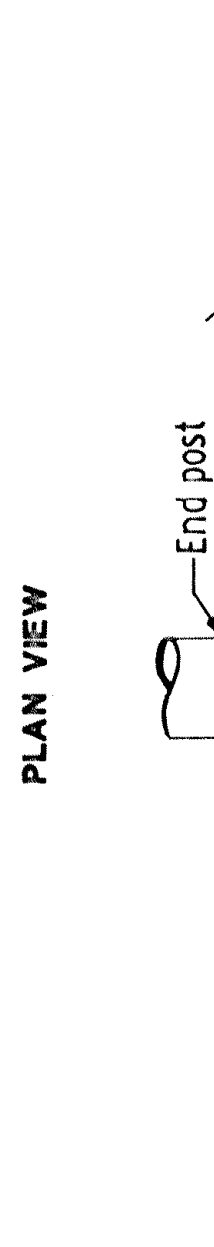
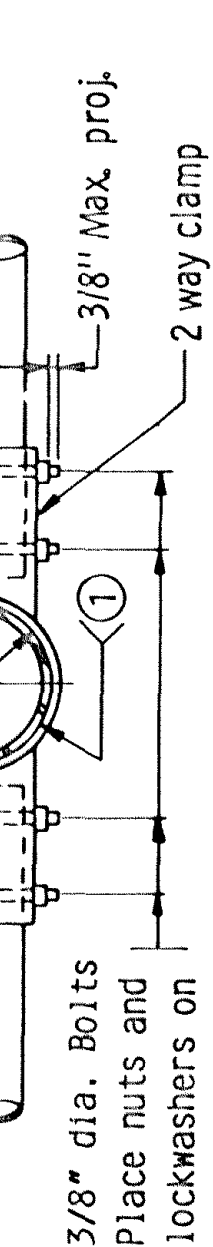
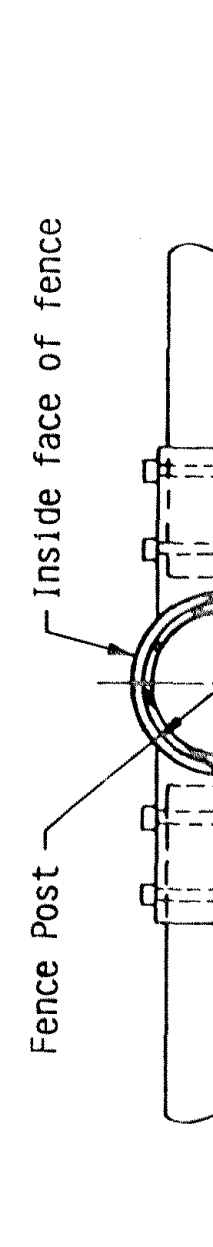
Clearance of fence post anchorage to be a minimum of 6" from joints.



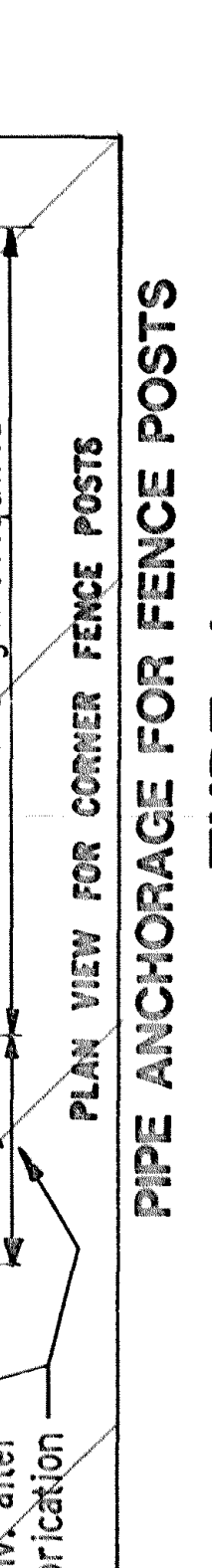
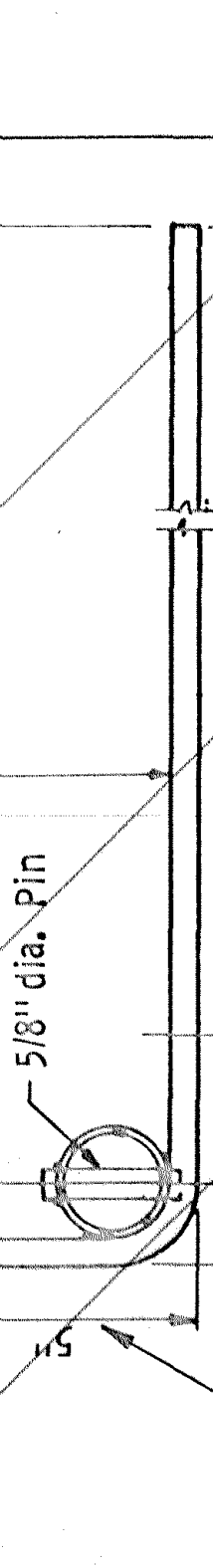
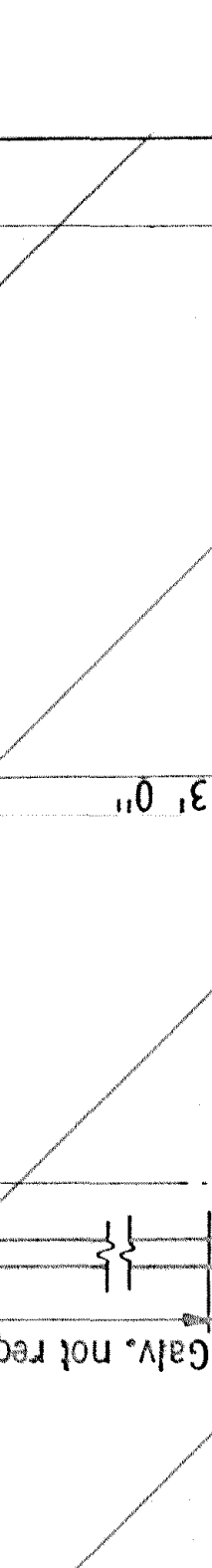
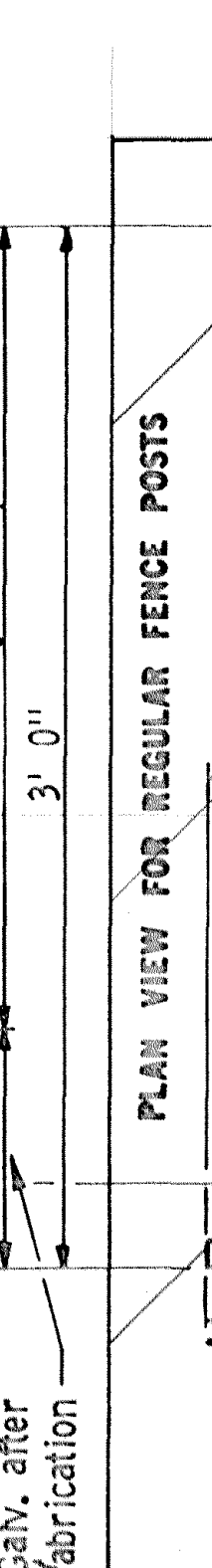
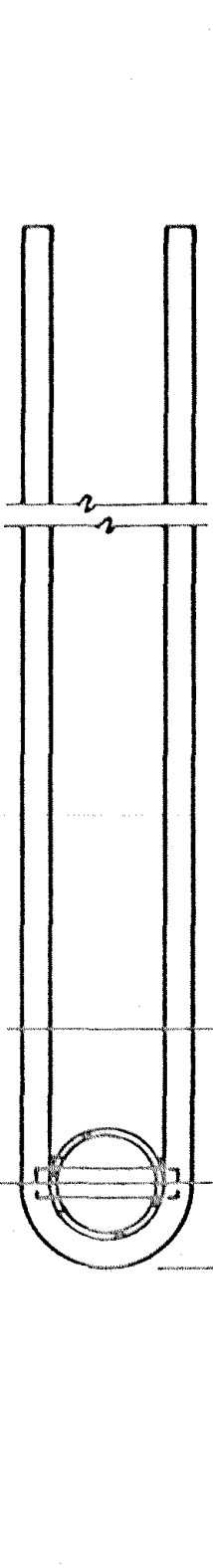
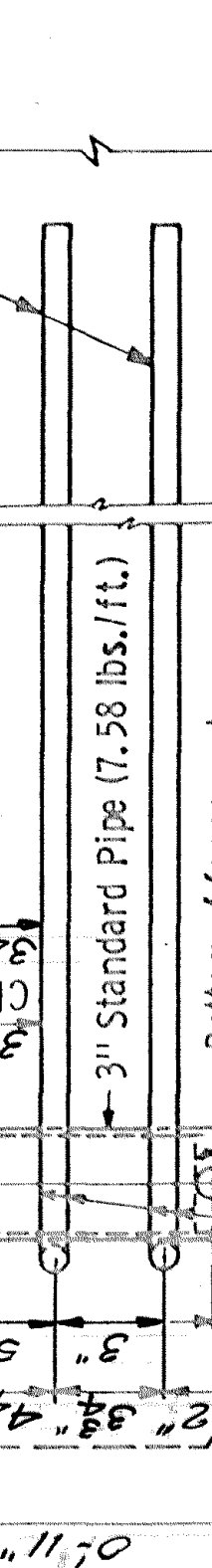
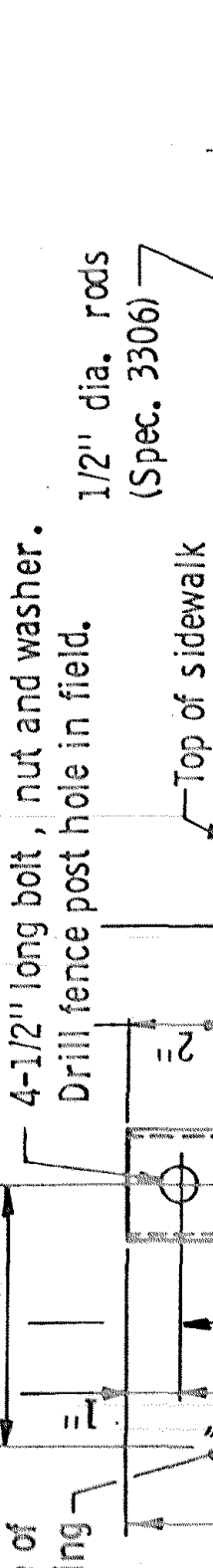
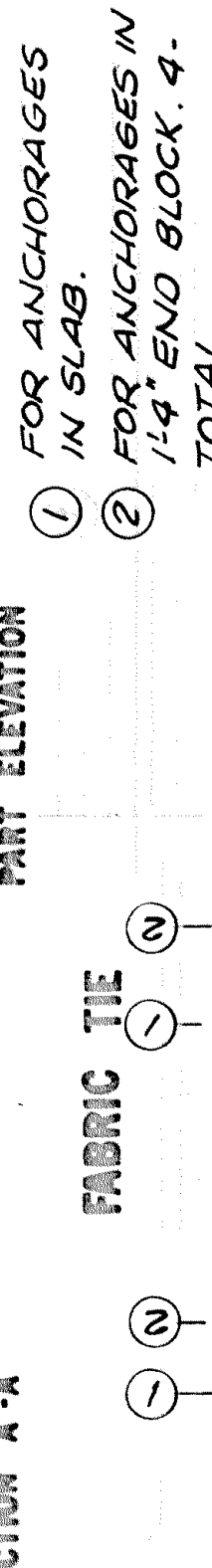
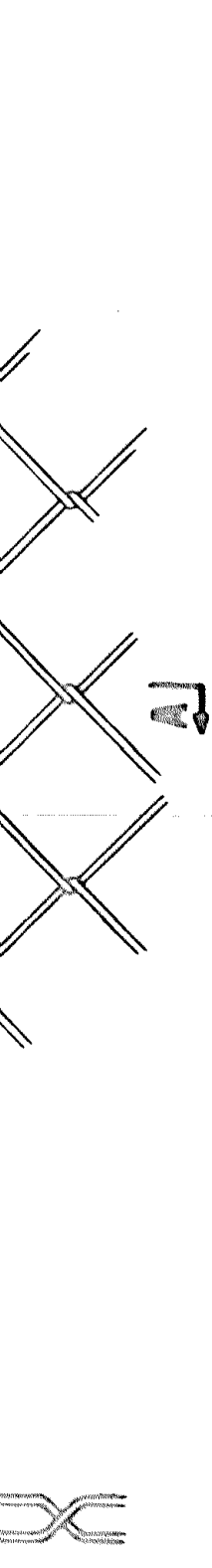
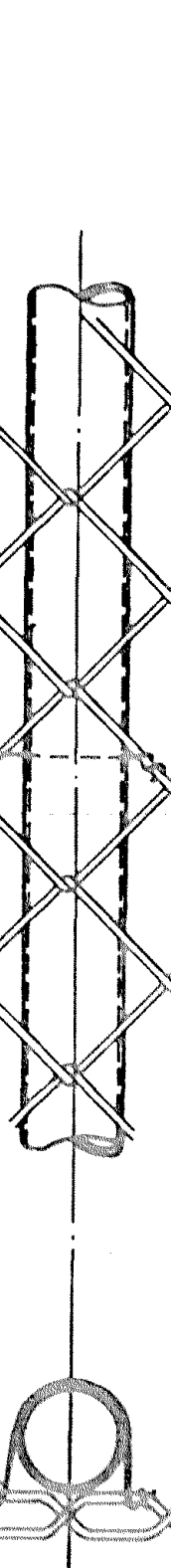
PART ELEVATION

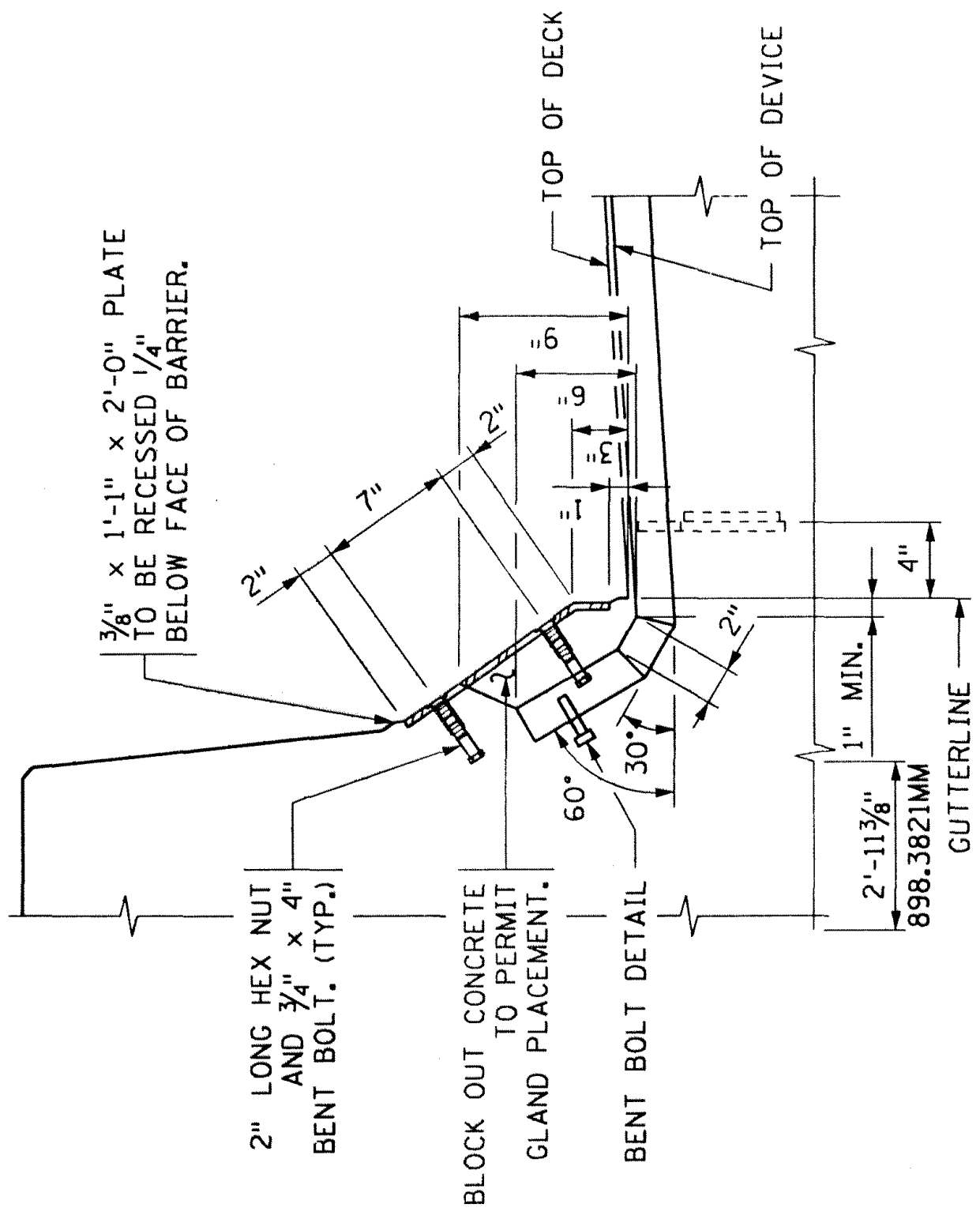


JUNCTION "X"

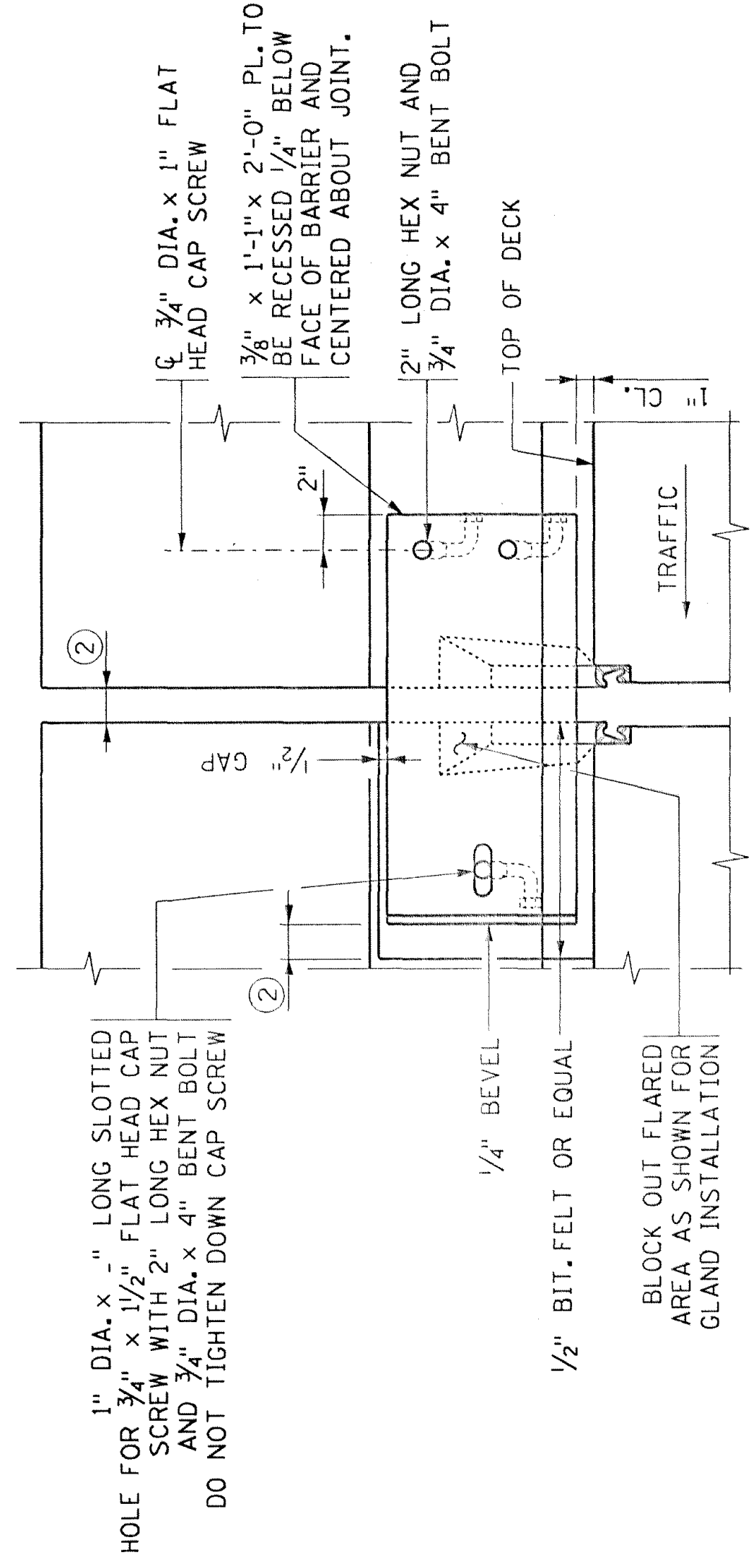


PART ELEVATION

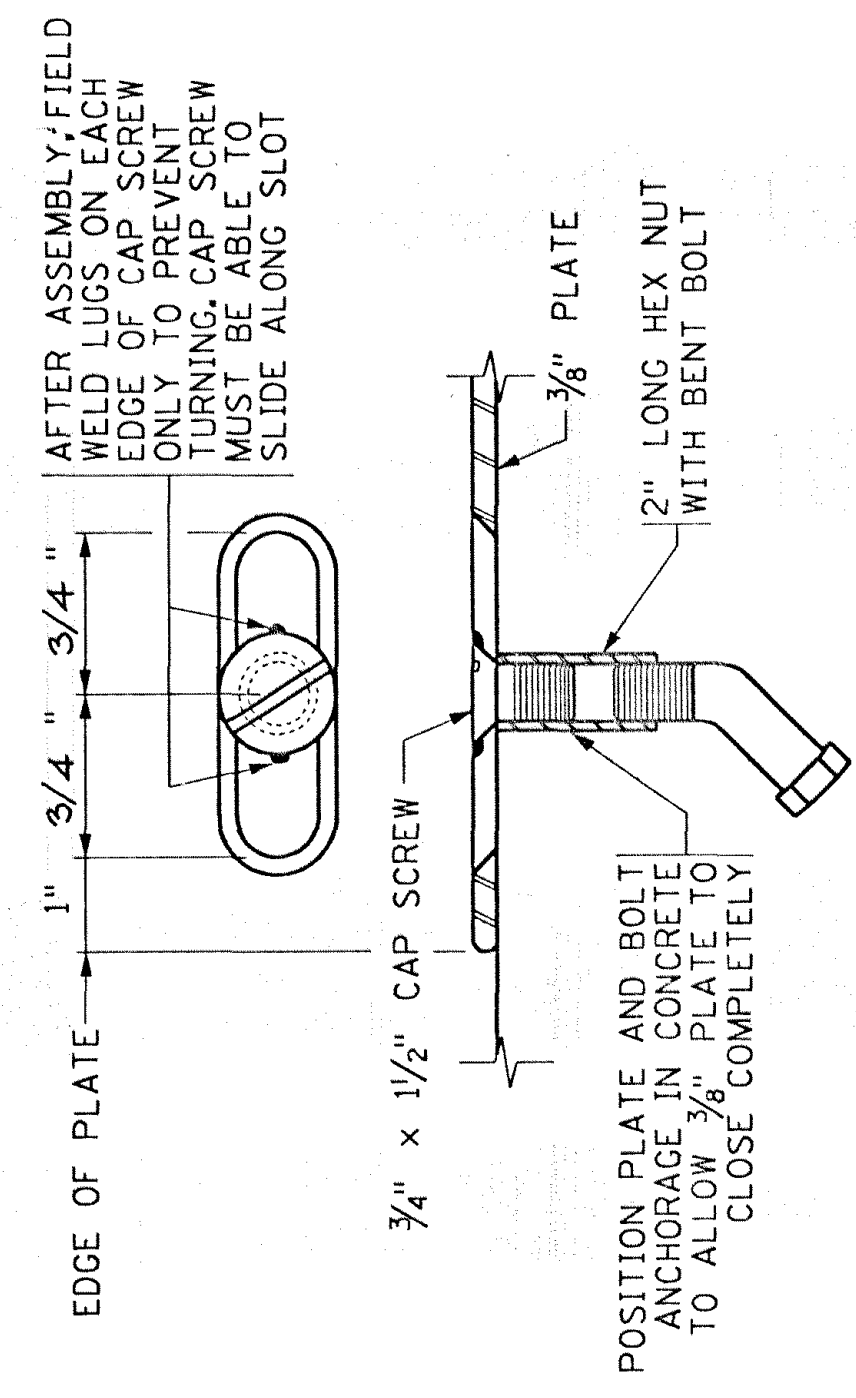




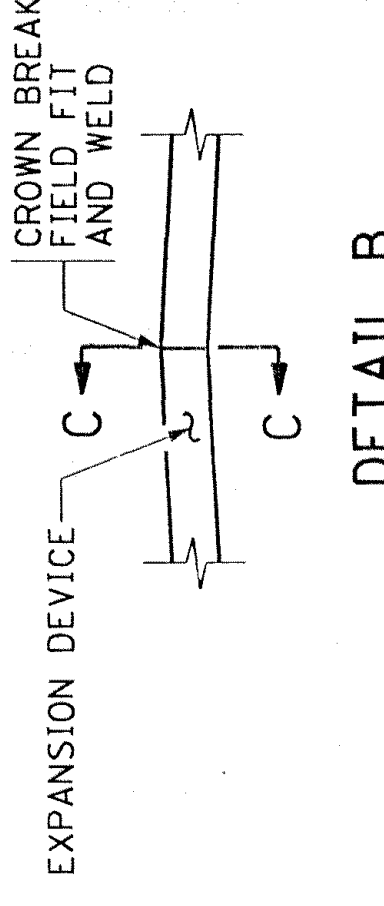
SECTION THROUGH RAILING
(TYPE J RAILING)



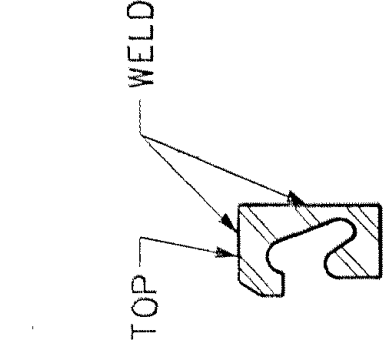
RAILING ELEVATION



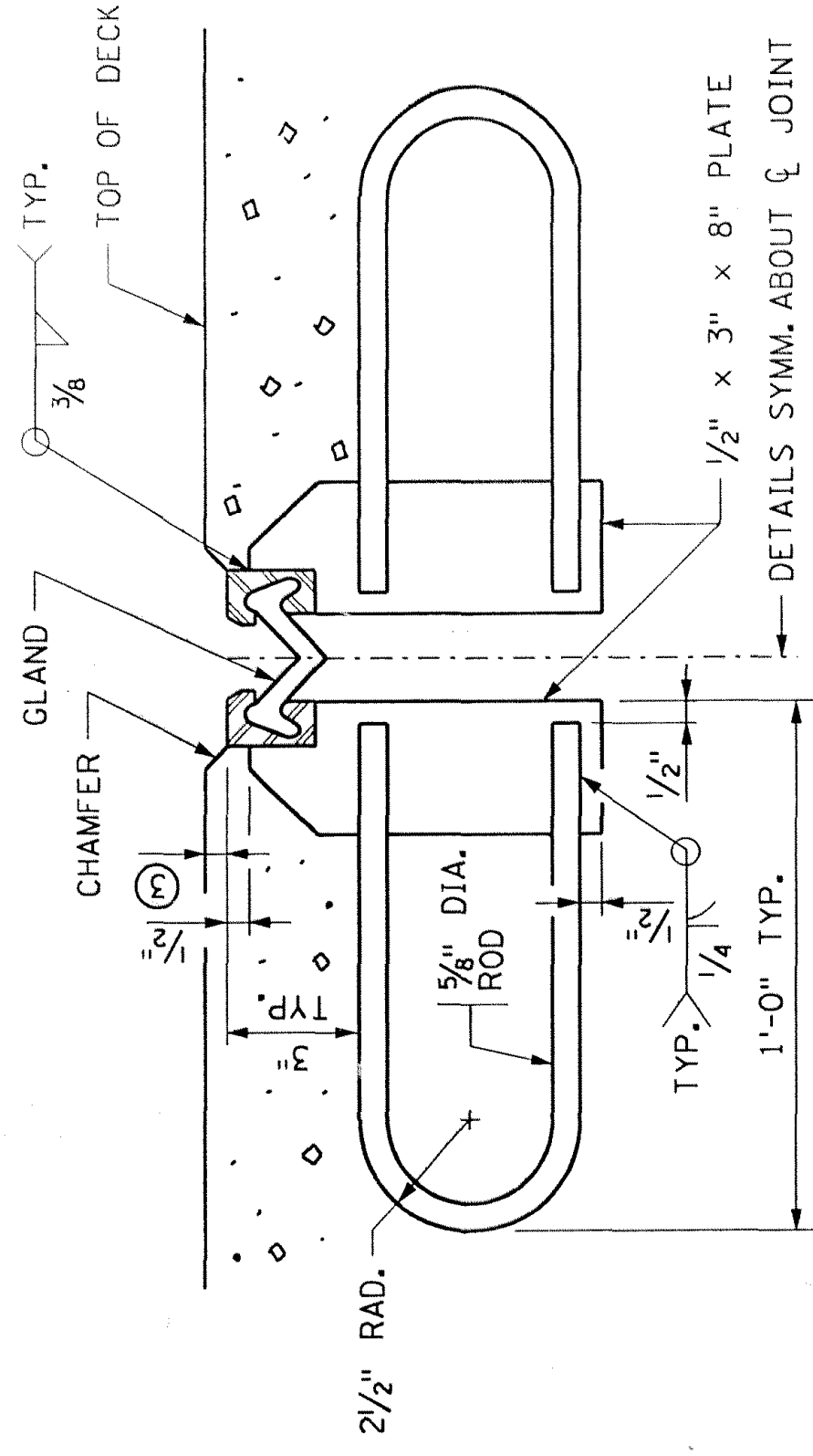
DETAIL "A"



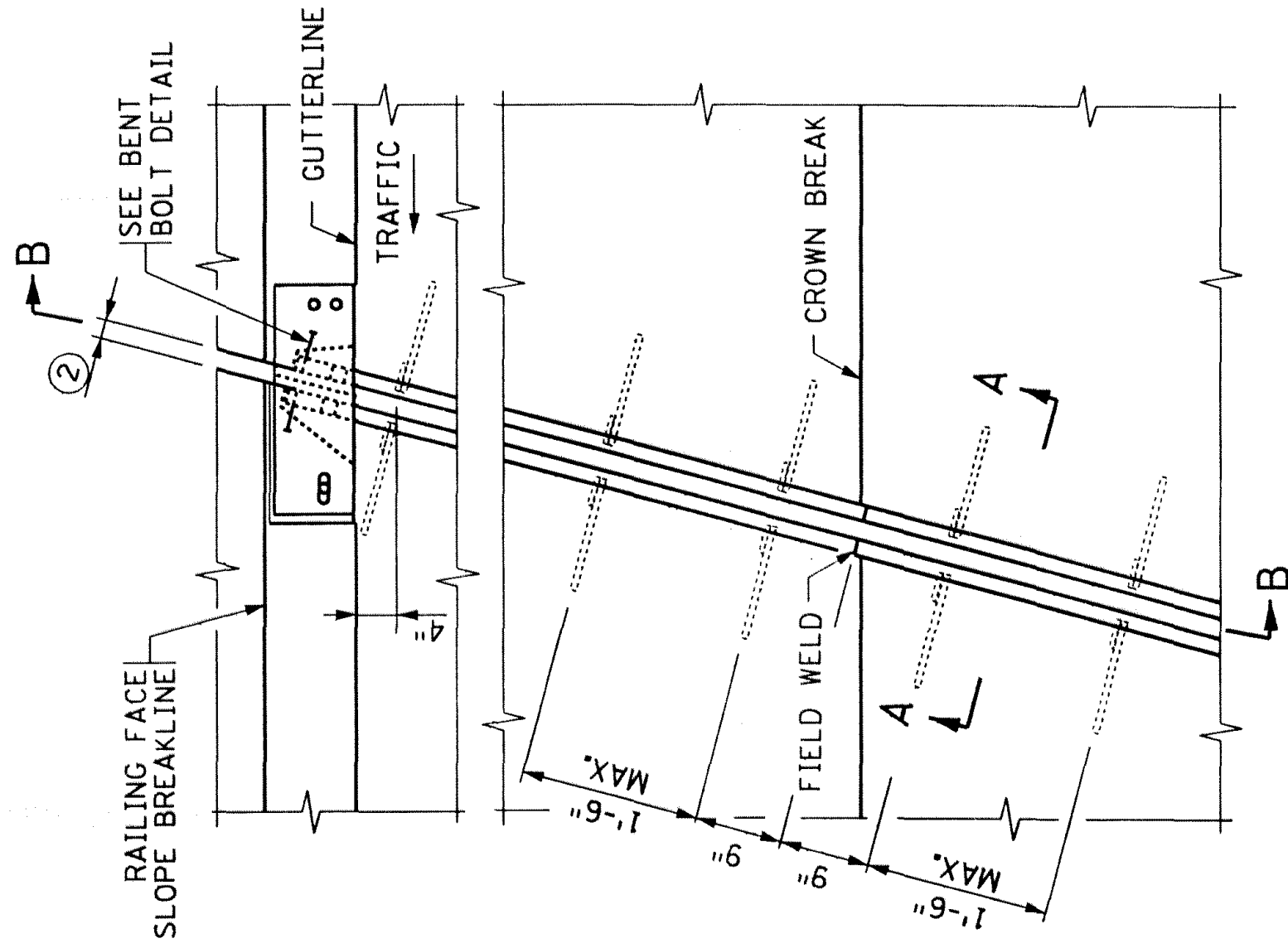
DETAIL B



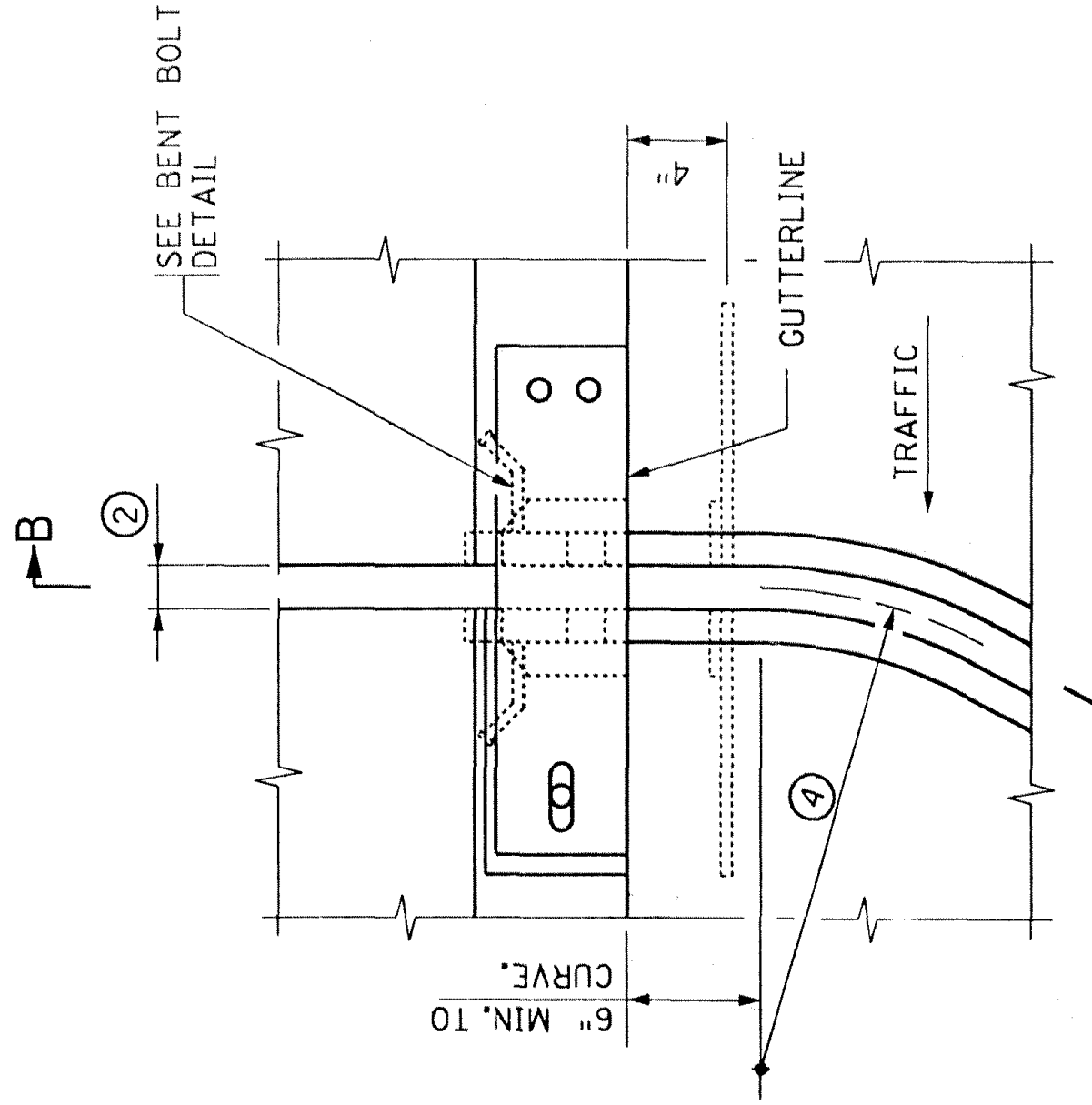
SECTION C-C



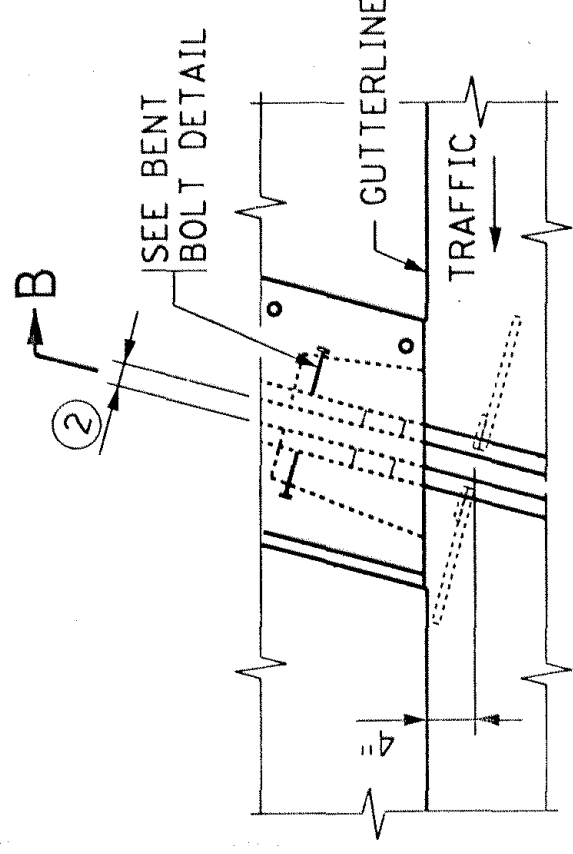
SECTION A-A



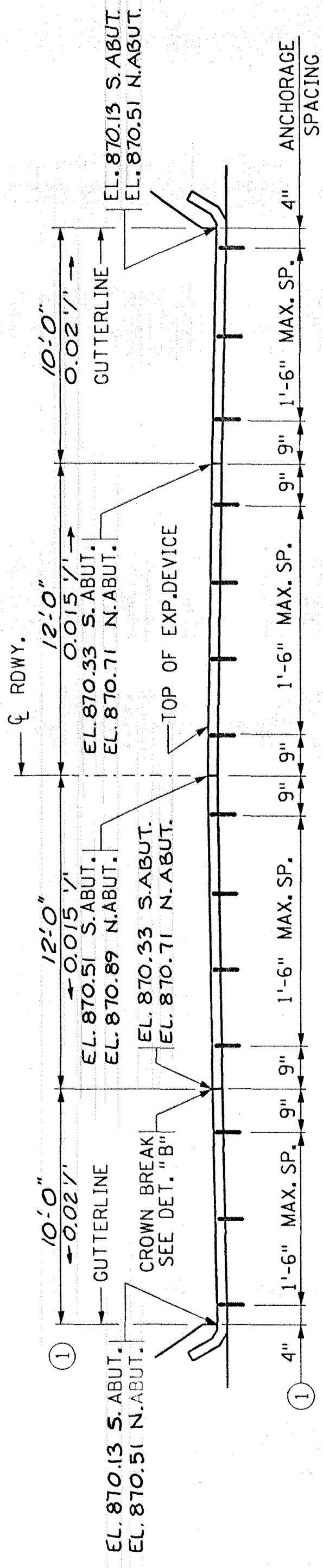
PLAN VIEW OF EXP. DEVICE
(WITH STRAIGHT DEVICE)



PLAN VIEW OF EXP. DEVICE
(WITH CURVED DEVICE ALTERNATE)

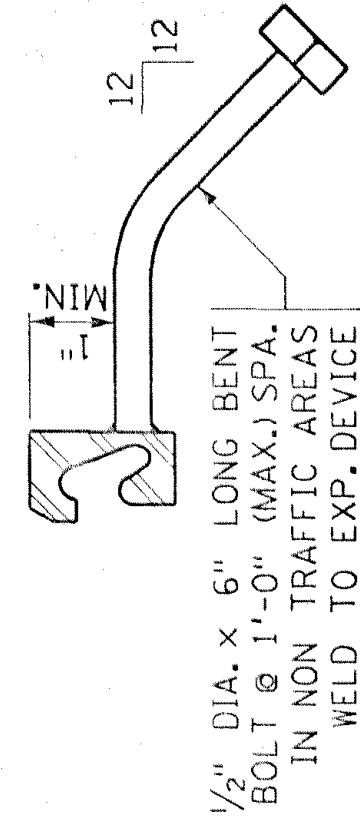


PLAN VIEW OF EXP. DEVICE
(MEDIAN OR SIDEWALK ALTERNATE)



SECTION B-B ~ ALONG C/L JOINT

(ELEVATIONS SHOWN ARE 1/8" BELOW TOP OF SLAB @ C/L)
~~ELEVATIONS SHOWN ARE 1/2" BELOW TOP OF SLAB @ C/L~~



BENT BOLT DETAIL

NOTES

1 GALVANIZE STRUCTURAL STEEL AFTER FABRICATION AS PER SPEC. 3394.

2 JOINTS IN ROADWAY PLATE OR EXTRUSION SHALL BE LOCATED AT BREAKS IN TRANSVERSE PROFILE AND AS OTHERWISE REQUIRED. JOINTS SHALL BE CLOSE FIT AND WELDED. REPAIR AFTER WELDING AS PER SPEC. 2471.3L.

3 STRUCTURAL STEEL SHALL COMPLY WITH SPEC. 3306, SPEC. 3307, OR SPEC. 3309.

4 EXPANSION DEVICE SHALL BE STRAIGHTENED TO A TOLERANCE OF 1/8" IN 10 FEET.

5 CAP SCREWS SHALL BE COUNTERSUNK 1/16" BELOW TOP OF PLATE.

6 LENGTH OF PAYMENT FOR DEVICE IS FROM GUTTERLINE TO GUTTERLINE.

7 1) DIMENSIONS ARE ALONG CENTERLINE OF JOINT.

8 2) AT 45°; 1/2" AT 90° - N. ABUT. - S. ABUT.

9 3) 1/8" (1/4" MAX.)

10 ~~1/2" MAX. WHEN SLOPE/FLOW FINGERS ARE USED.~~

11 4) SEE SUPERSTRUCTURE DETAILS FOR RADIUS.

I hereby certify that this plan, specification, or report 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.
Ronald Benson
Date: 1/23/95 Reg. No. 22737

APPROVED: MODIFIED FIG. 5-397.627

DES: CHG DR: CHG APPROVED: 5-18-95

TITLE: WATERPROOF EXPANSION DEVICE (WITH TYPE J BARRIER)

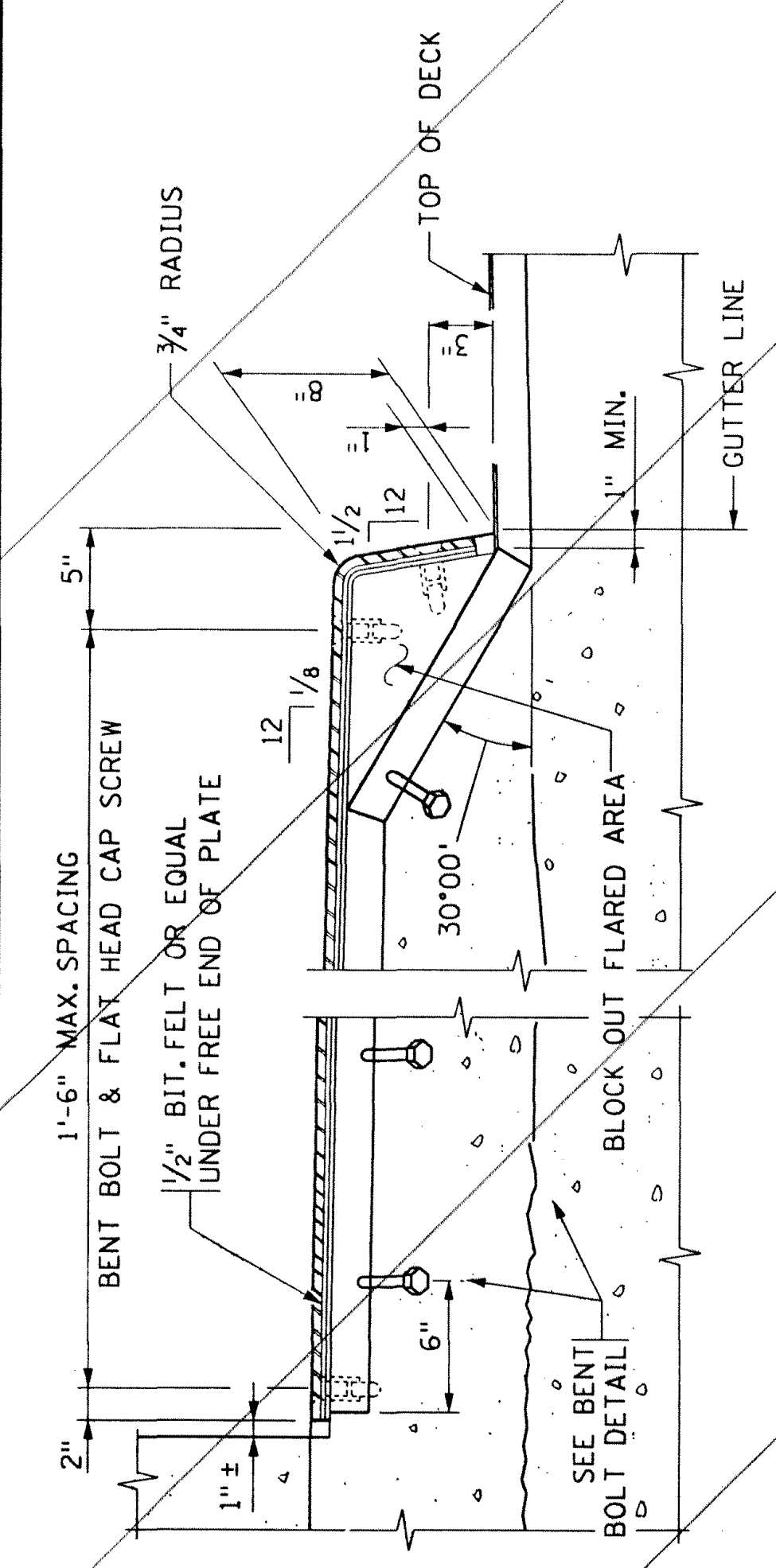
Sheet No. 12 of 20 Sheets

PLAN VIEW OF EXP. DEVICE (WITH STRAIGHT DEVICE)

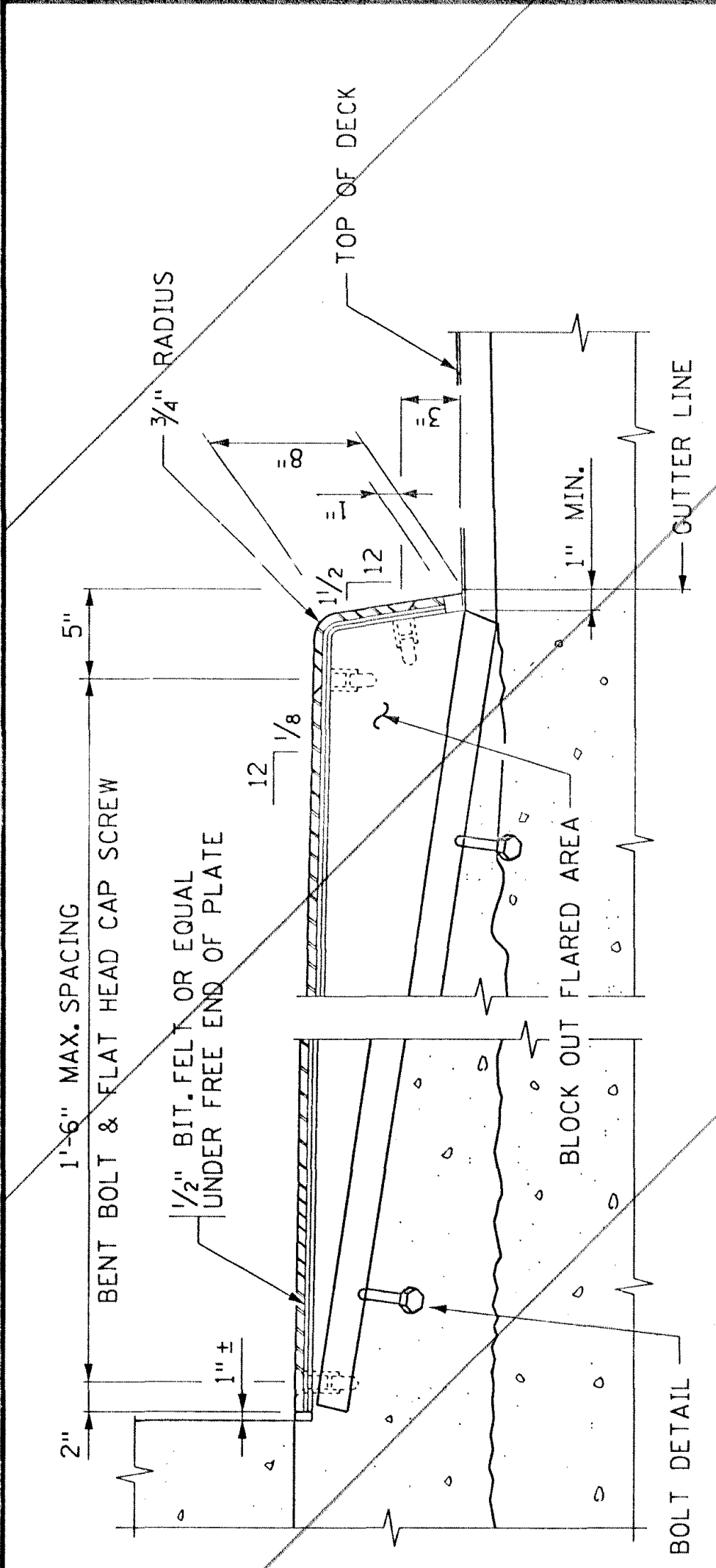
Sheet No. 12 of 20 Sheets

Bridge No. 02536

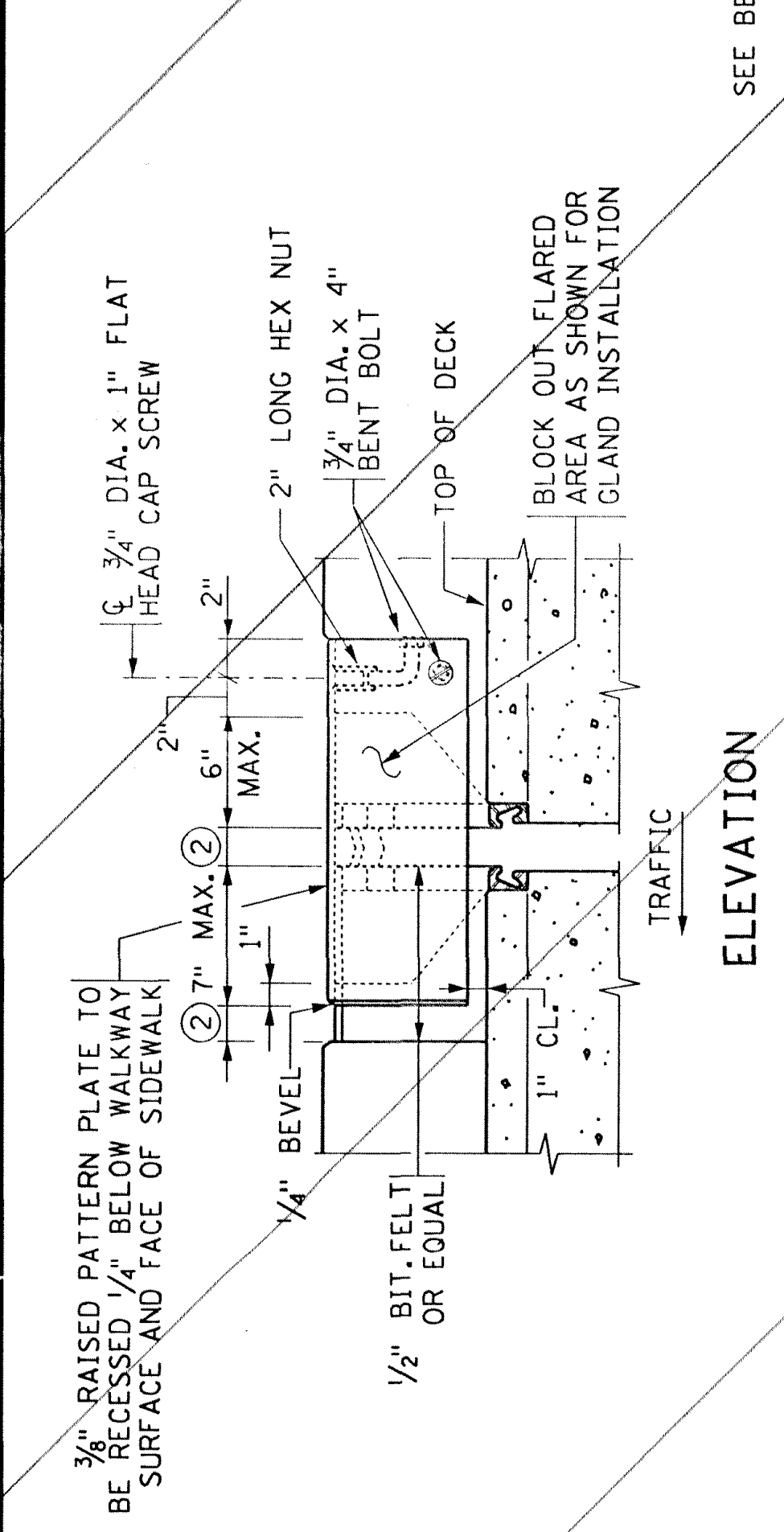
S.P. 02-609-04



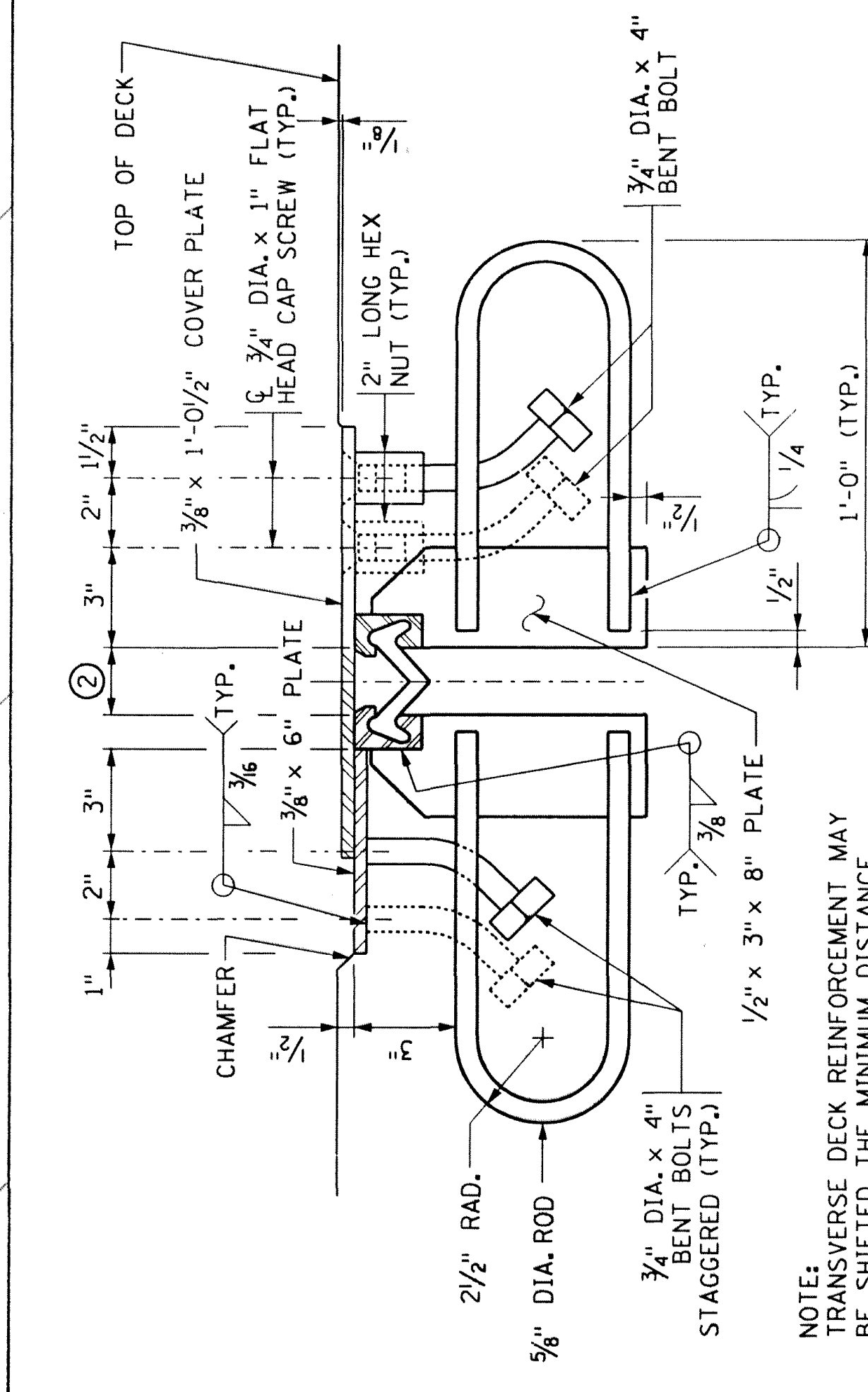
SECTION THRU SIDEWALK - OPTION 1



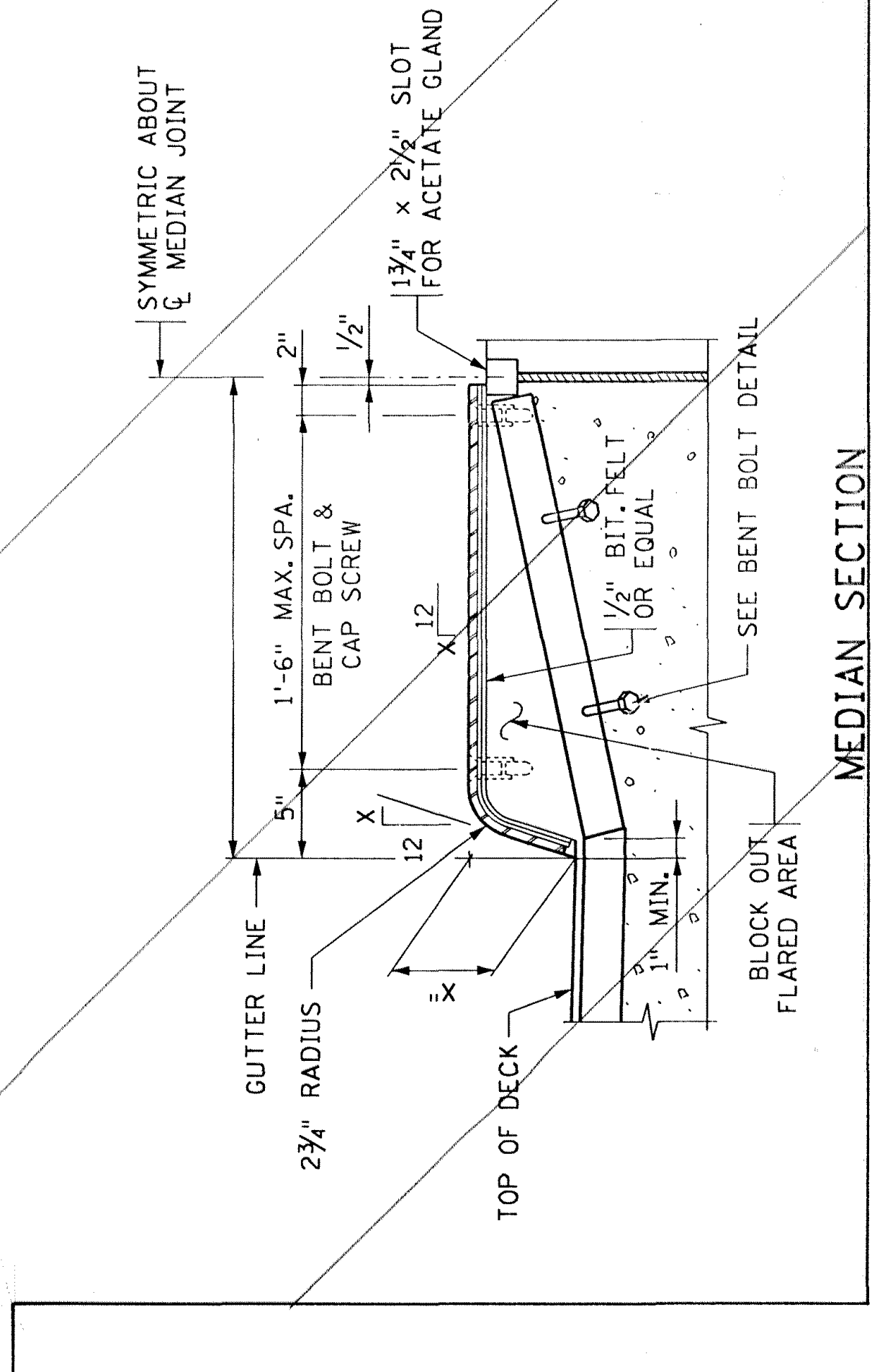
SECTION THRU SIDEWALK - OPTION 2



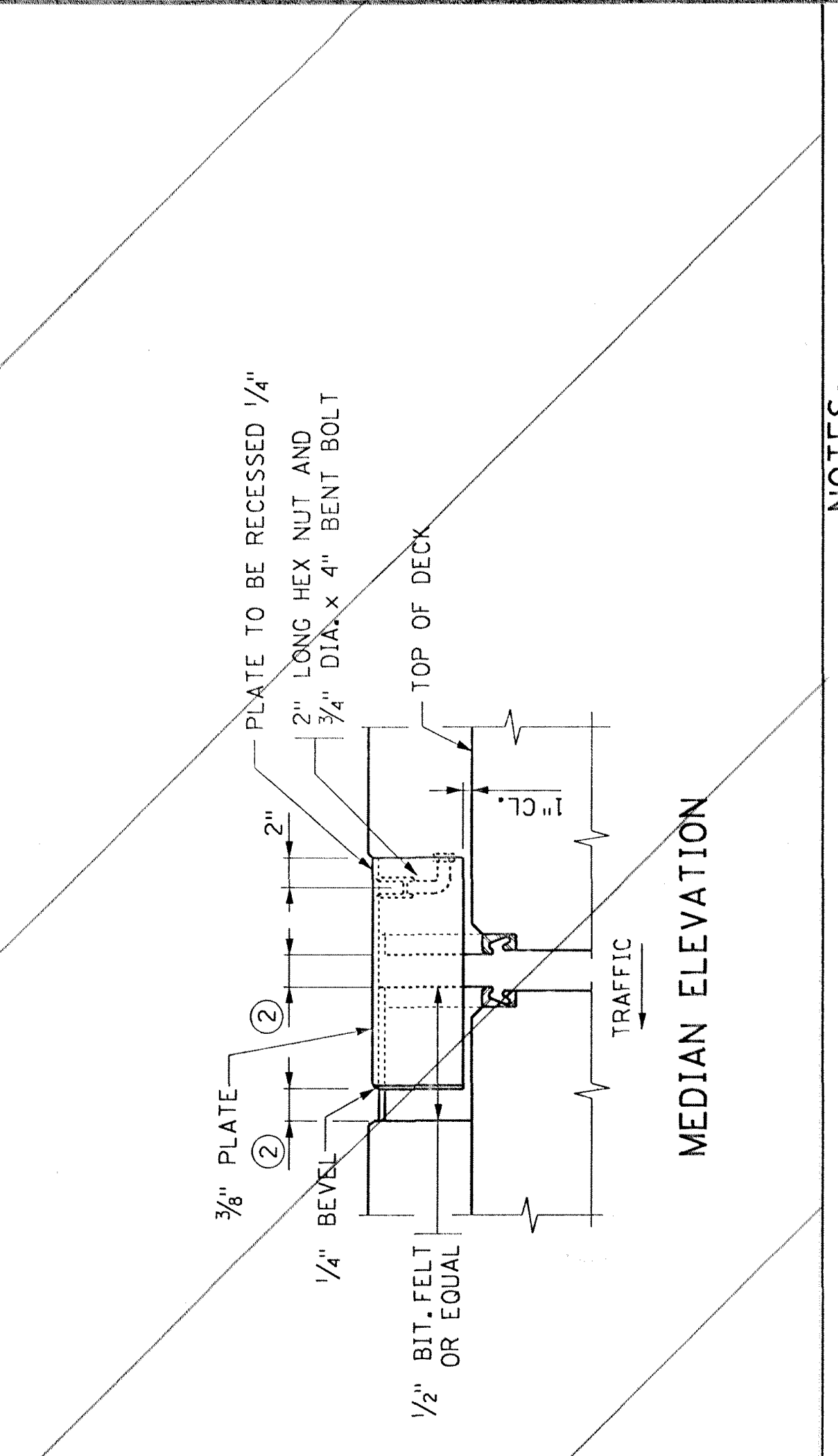
ELEVATION SIDEWALK DETAILS



NOTE:
TRANSVERSE DECK REINFORCEMENT MAY BE SHIFTED THE MINIMUM DISTANCE REQUIRED FOR EXPANSION DEVICE PLACEMENT
ALL PLATES INCLUDED IN PRICE BIDD FOR EXPANSION DEVICE, TYPE 4.



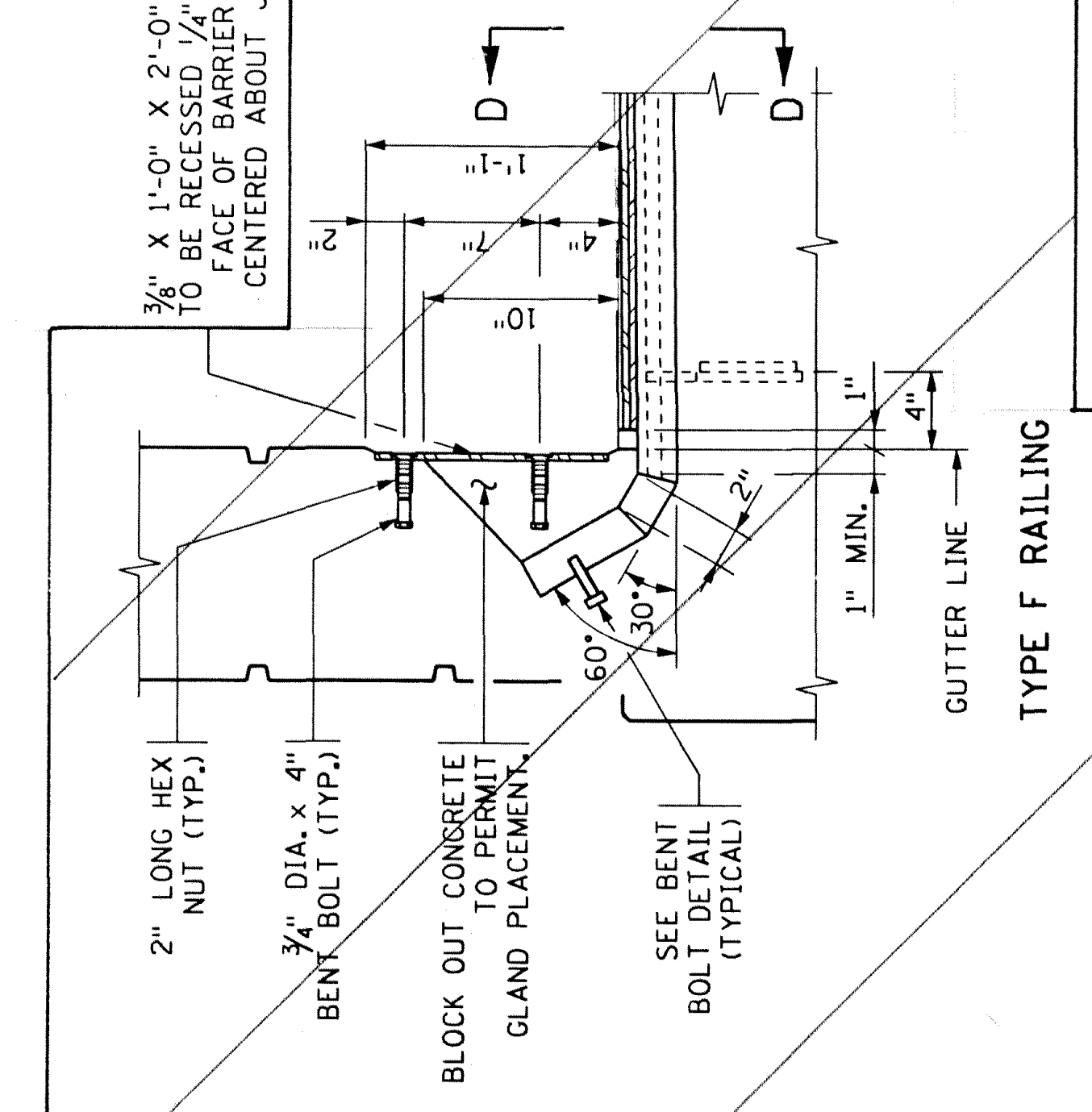
MEDIAN SECTION



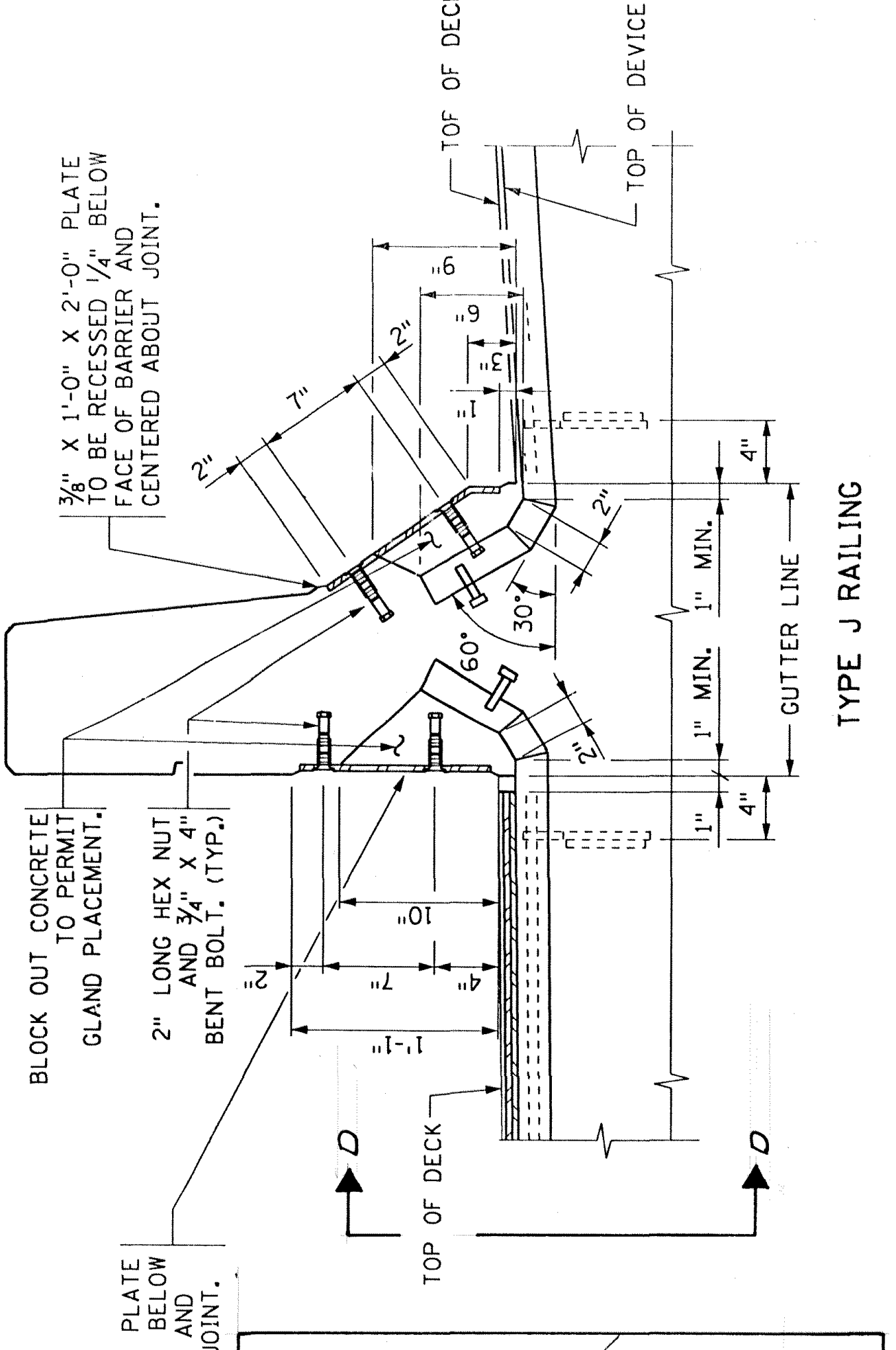
MEDIAN ELEVATION

NOTES:

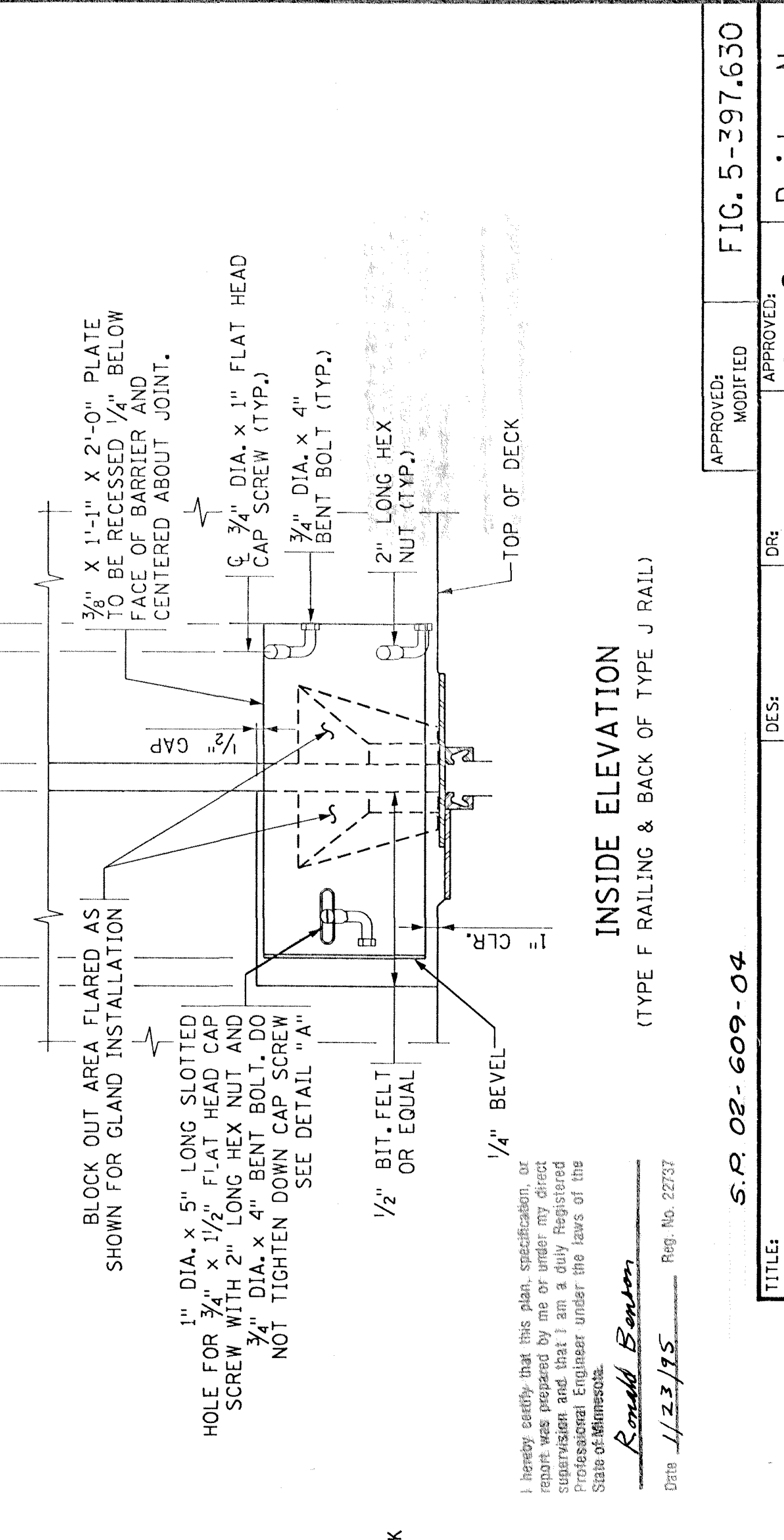
SEE DETAIL 5-397.627 FOR ADDITIONAL DETAILS AND NOTES.



TYPE F RAILING



TYPE J RAILING



INSIDE ELEVATION
(TYPE F RAILING & BACK OF TYPE J RAIL)

I, hereby certify that this plan, specification, or report 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.

Ronald Benten
Date 1/23/15 Reg. No. 22737

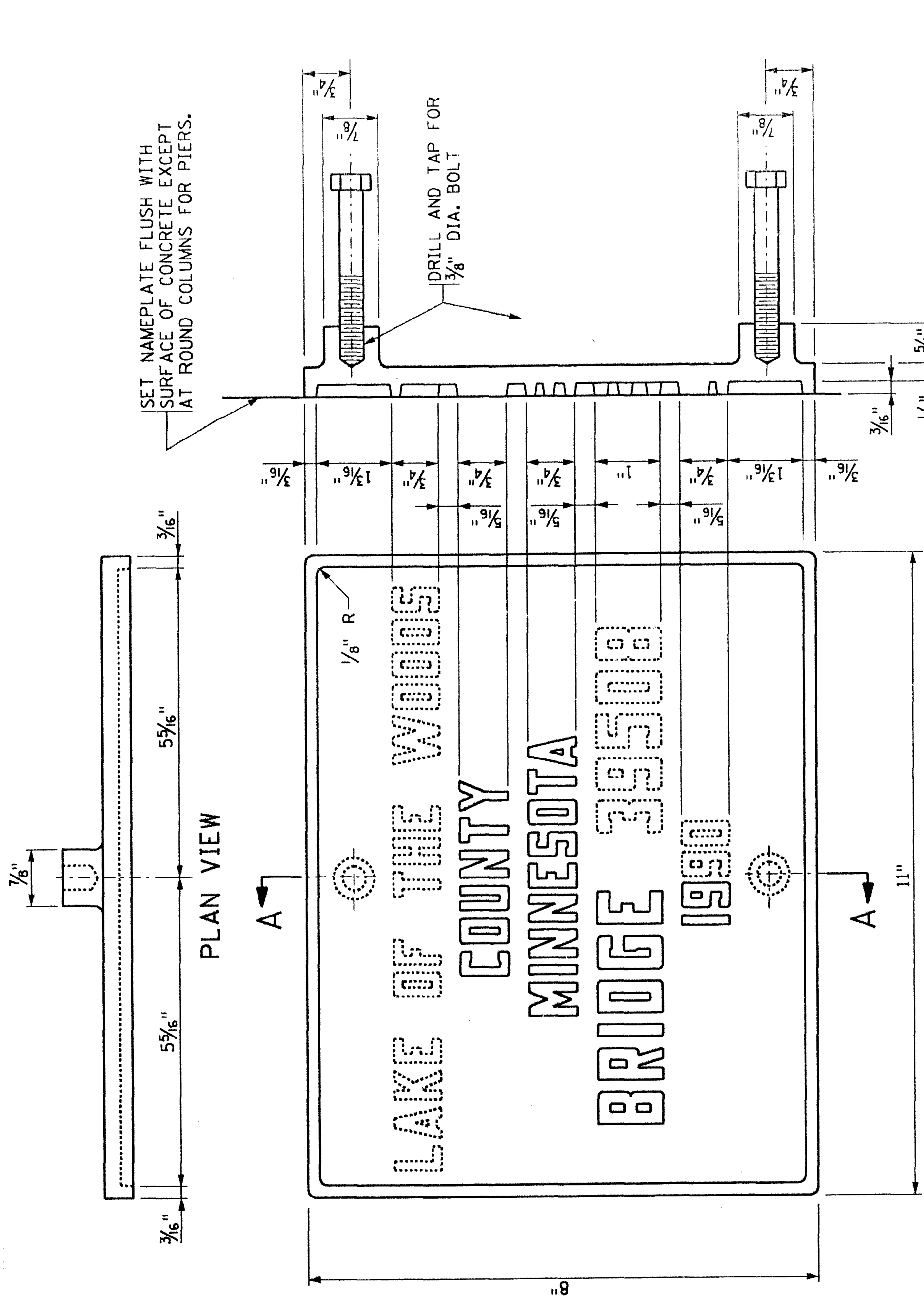
APPROVED: MODIFIED: FIG. 5-397.630

TITLE: WATERPROOF EXPANSION DEVICE (WITH RAISED MEDIAN OR SIDEWALK)
DES: DR: CCHK: 5-18-95
Sheet No. 13 of 20 Sheets

S.P. 02-609-04

SECTION THROUGH RAILINGS - INTEGRAL SIDEWALK

Bridge No. 02536



SECTION A-A

ELEVATION

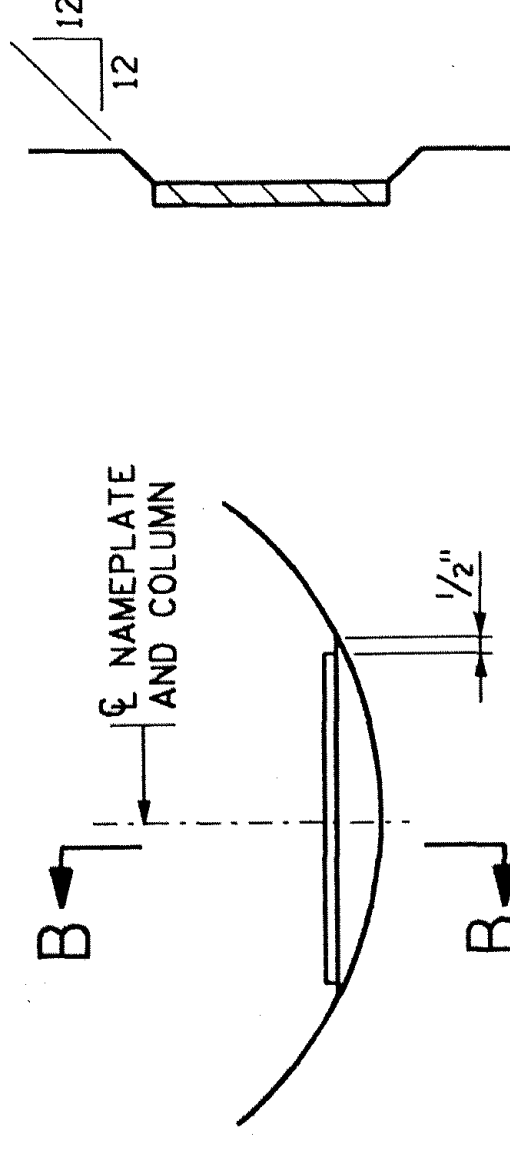
THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION. DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

COUNTY ANOKA
 BRIDGE 02536
 YEAR 1995

ABCDEFGHIJKLMNOPQRSTUVWXYZ
 1234567890

LETTERS AND NUMBERS FOR NAMEPLATE

NOTES:
 NO SHOP DRAWING REQUIRED.
 MATERIAL SHALL COMPLY WITH SPEC. 3327.
 LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.
 DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".
 HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.
 TOP SURFACE OF LETTERS, NUMBERS AND FRAME SHALL BE BURNISHED.
 FURNISH 2 STEEL BOLTS 3/8" DIA. 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.



SECTION B-B

NAMEPLATE PLACEMENT
 (ROUND CONCRETE PIER COLUMNS)

APPROVED: SEPT. 8, 1992

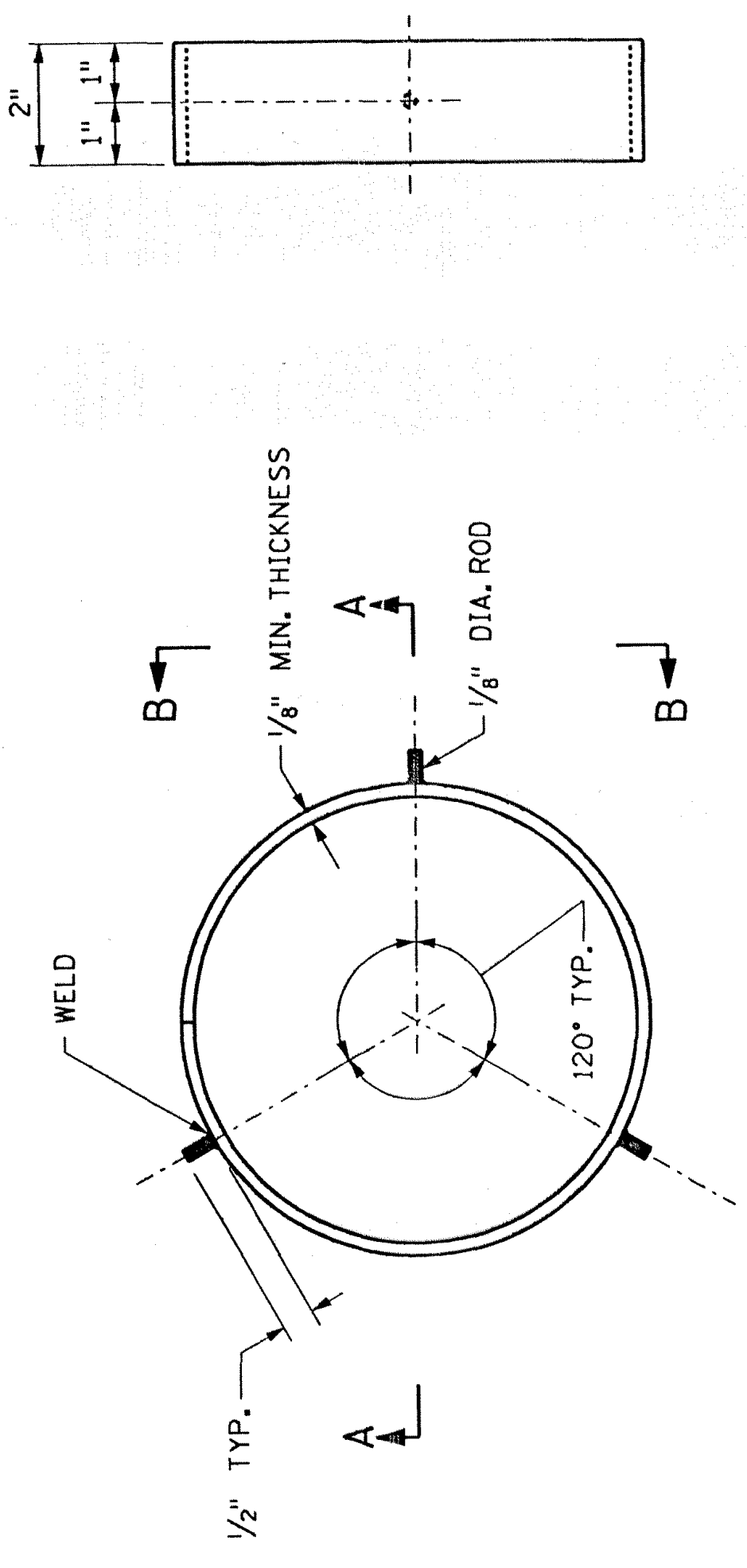
STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION

OFFICE of
 BRIDGES and STRUCTURES

DATE: _____
 DR: _____
 CHG: _____

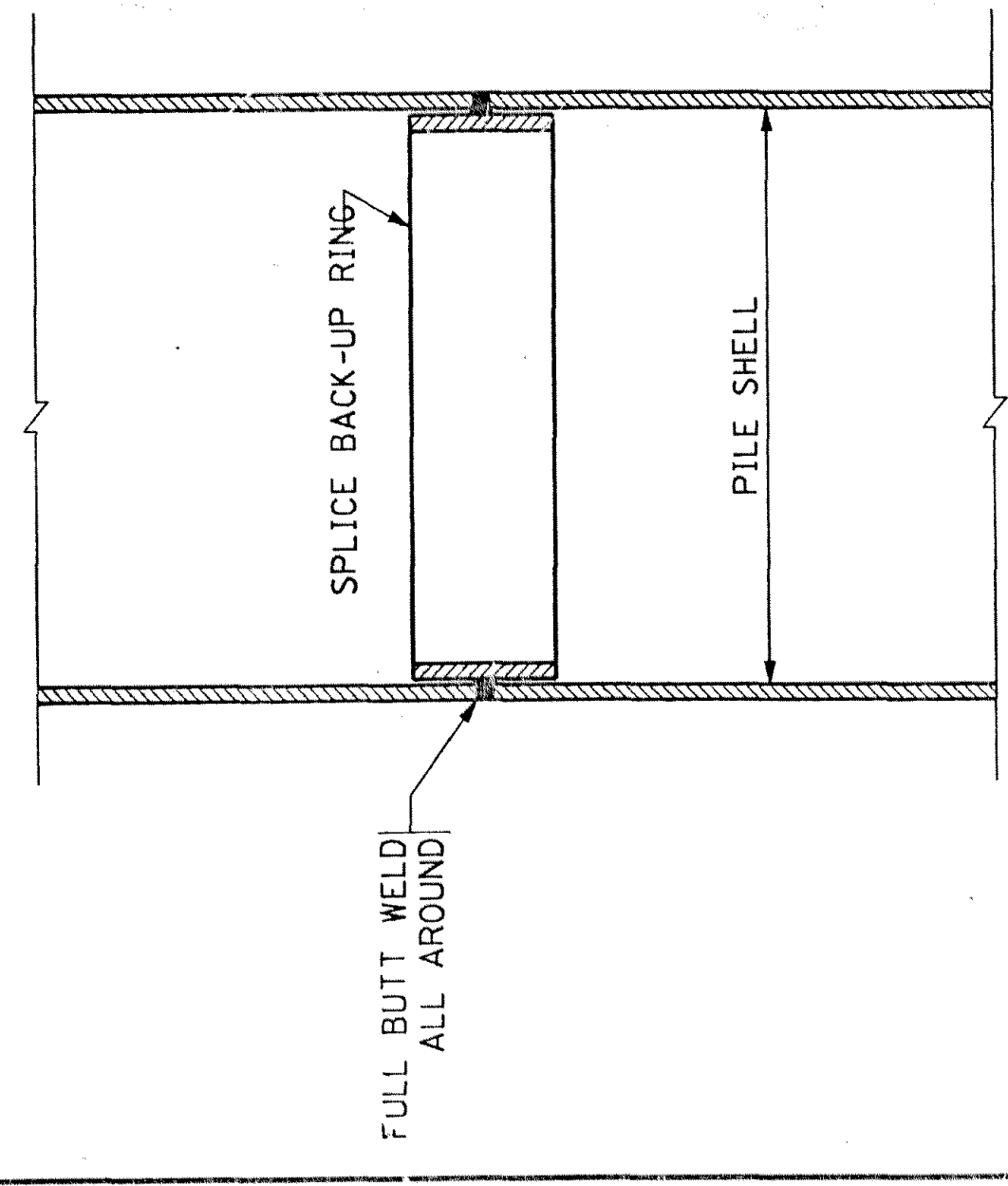
BRIDGE NAMEPLATE
 COUNTY BRIDGES

DETAIL NO. **B103**



PLAN VIEW SPLICE
 (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 ELECTRODE 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 IF THEY HAVE 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.

I hereby certify that this plan, specification, or report 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.

Ronald Benson
 DATE: 1/23/95 Reg. No. 22737

APPROVED: SEPT. 8, 1992

STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION

OFFICE of
 BRIDGES and STRUCTURES

DATE: _____
 DR: _____
 CHG: _____

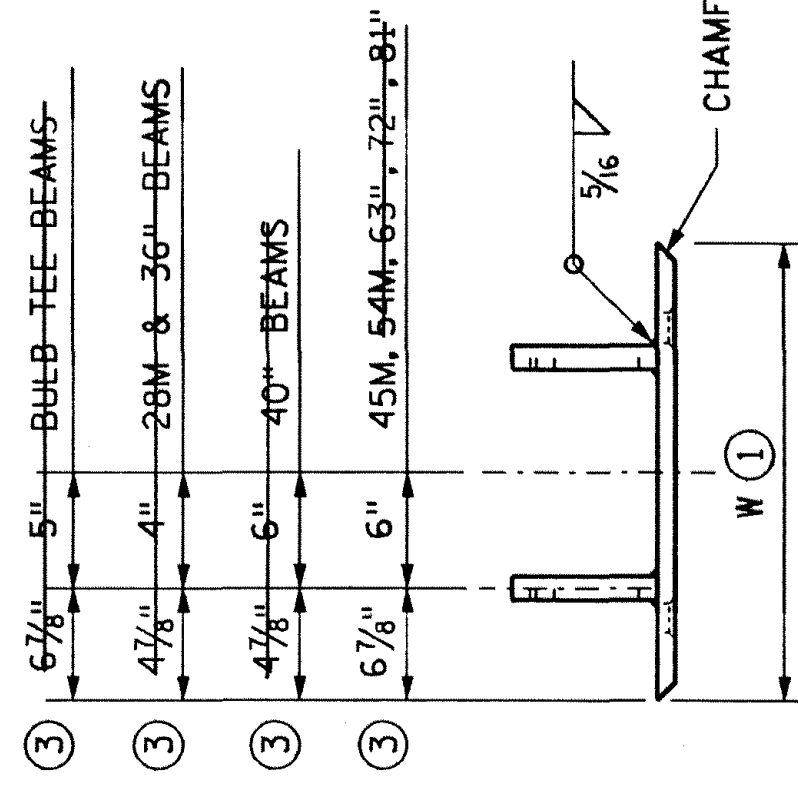
PILE SPLICE
 CAST-IN-PLACE CONCRETE PILES

DETAIL NO. **B201**

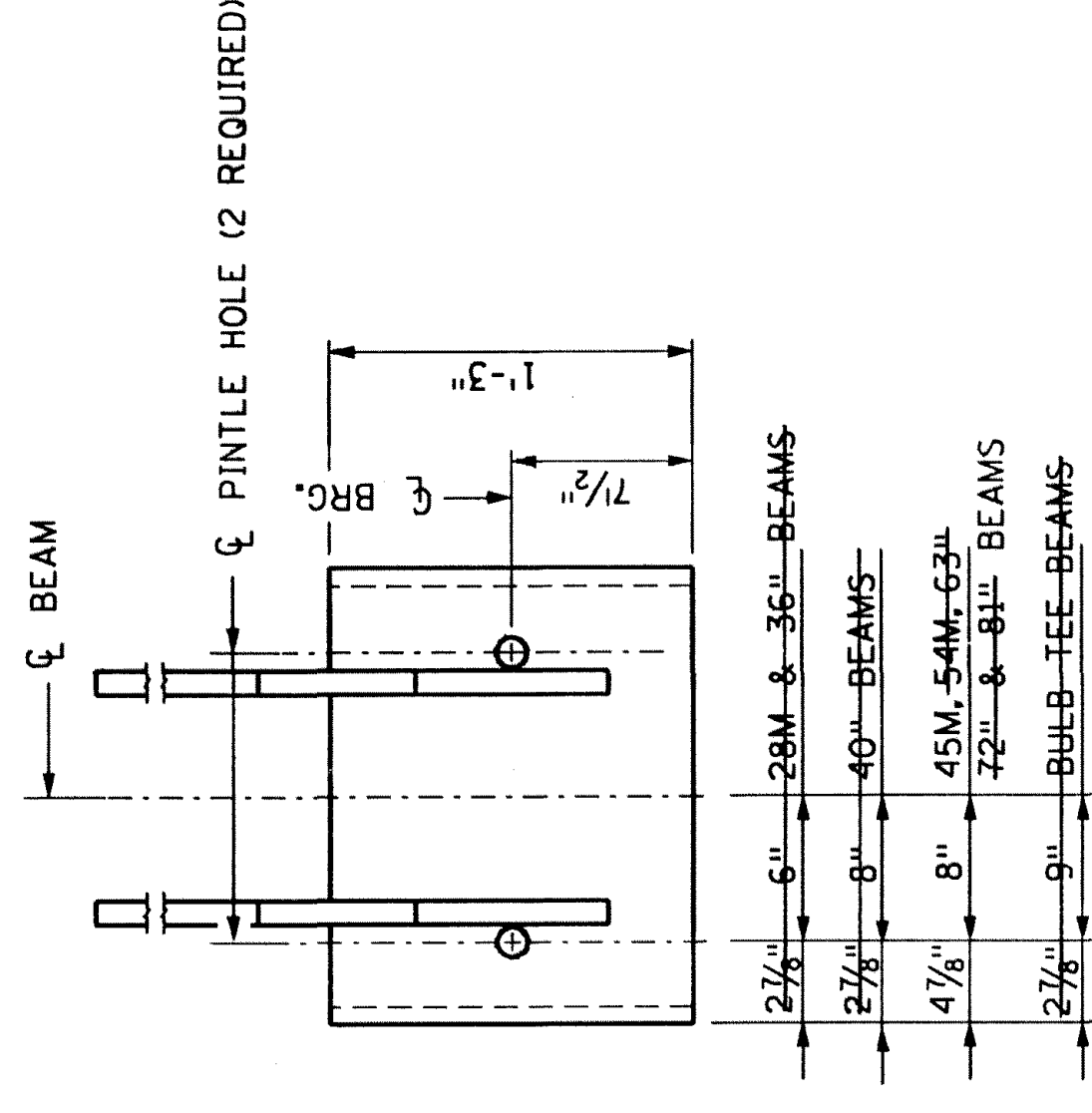
TITLE:
MISC. BRIDGE DETAILS

DRWN: CAD
 CHK: DAD
 S.P. 02-609-04
 APPROVED: 5-18-95
 SHEET 14 OF 20 SHEETS

BRIDGE NO.
02536

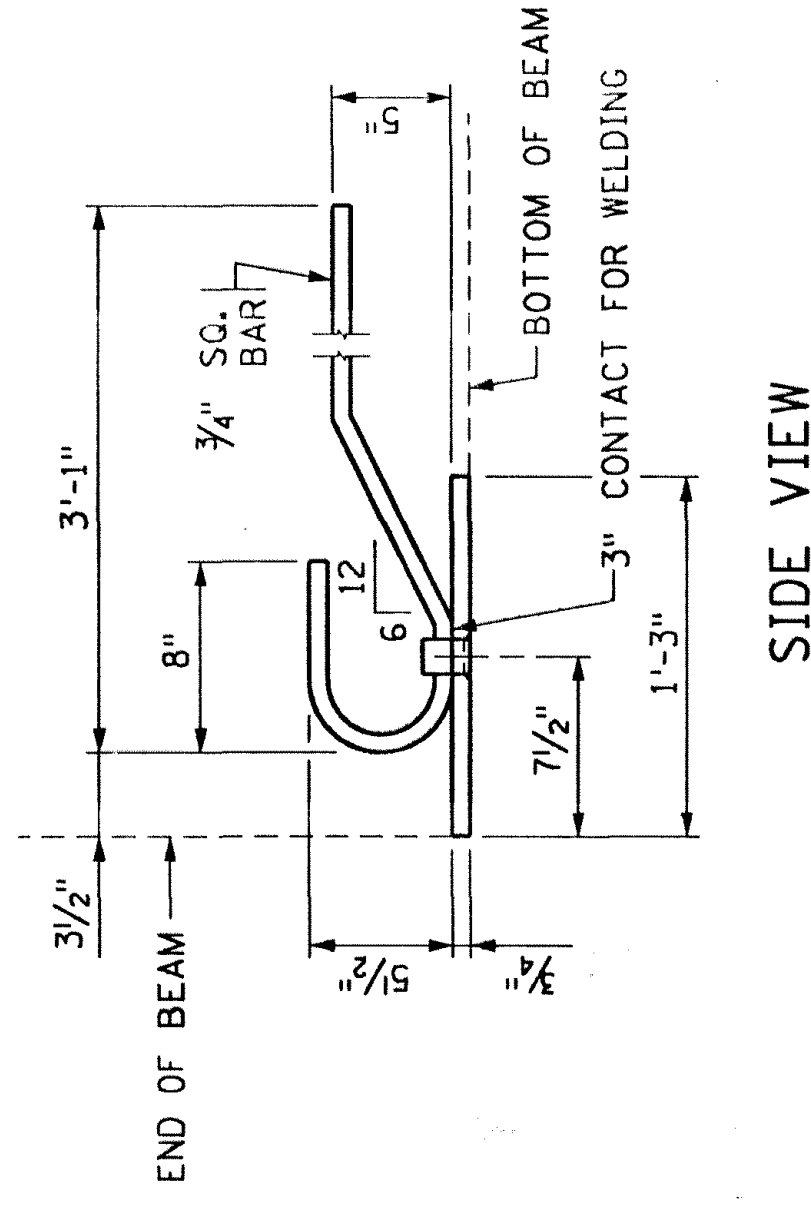


FRONT VIEW

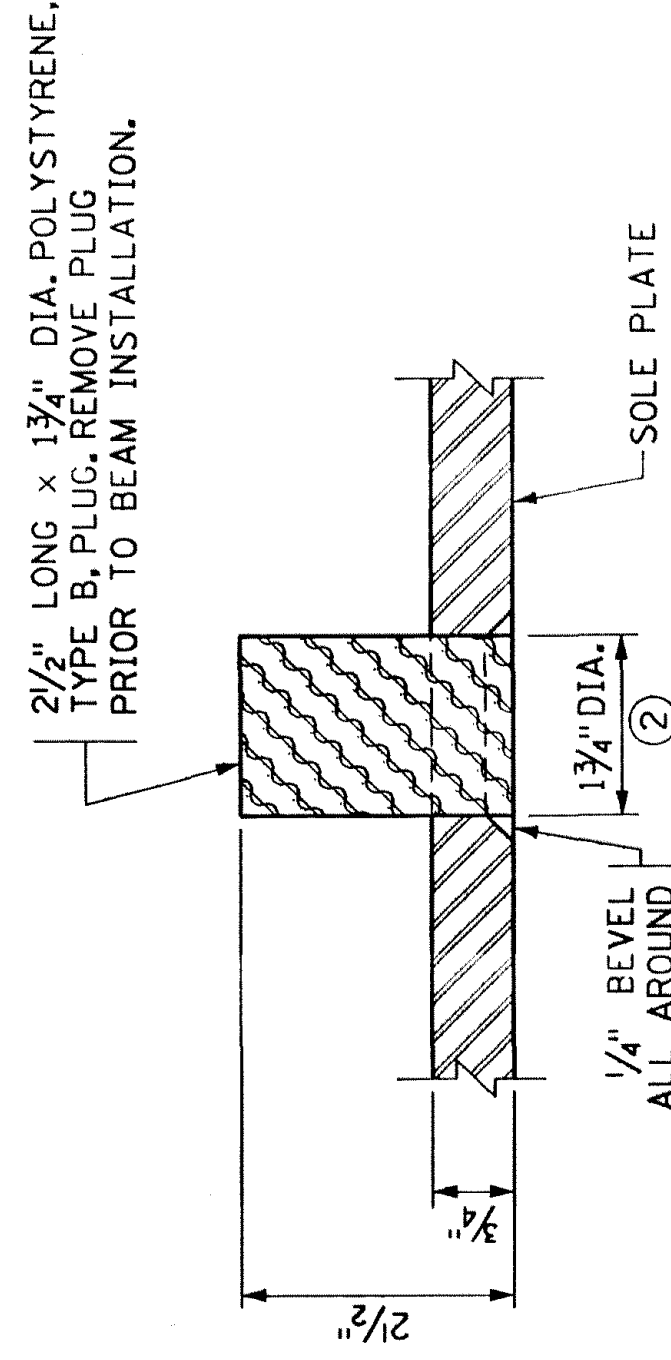


TOP VIEW

BEAM SIZE	W VALUE
28M-36"	1'-5 3/4"
40"	1'-9 3/4"
45M-54M-63"-63"-72"-81"	2'-1 3/4"
BULB-TEES	1'-11 3/4"



SIDE VIEW



PINTLE HOLE DETAIL

NOTES:

- MATERIAL TO BE STRUCTURAL STEEL PER SPEC. 3306.
- SOLE PLATE FOR BEARING ASSEMBLY TO BE HOT DIPPED GALVANIZED 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.
- DIMENSION "W" TO BE THE WIDTH AT THE BOTTOM FLANGE OF THE BEAM MINUS 1/4".
- FOR 1/2" DIA. PINTLES.
- THESE DIMENSIONS MAY BE MODIFIED TO CLEAR PRESTRESSED STRANDS, HOWEVER, CHANGES MUST BE APPROVED BY THE ENGINEER.

APPROVED: SEPT. 8, 1992

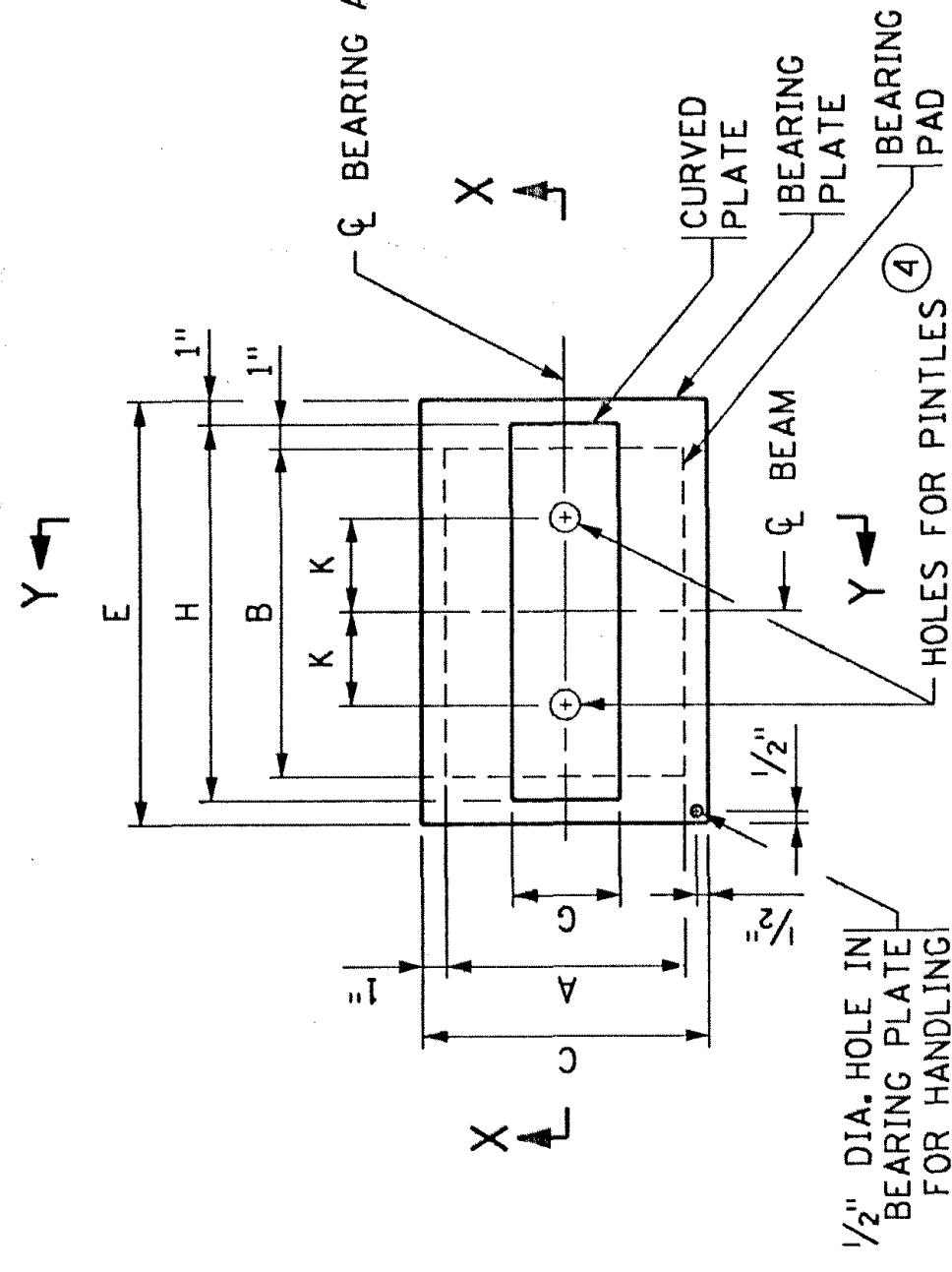
OFFICE OF BRIDGES and STRUCTURES

STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION

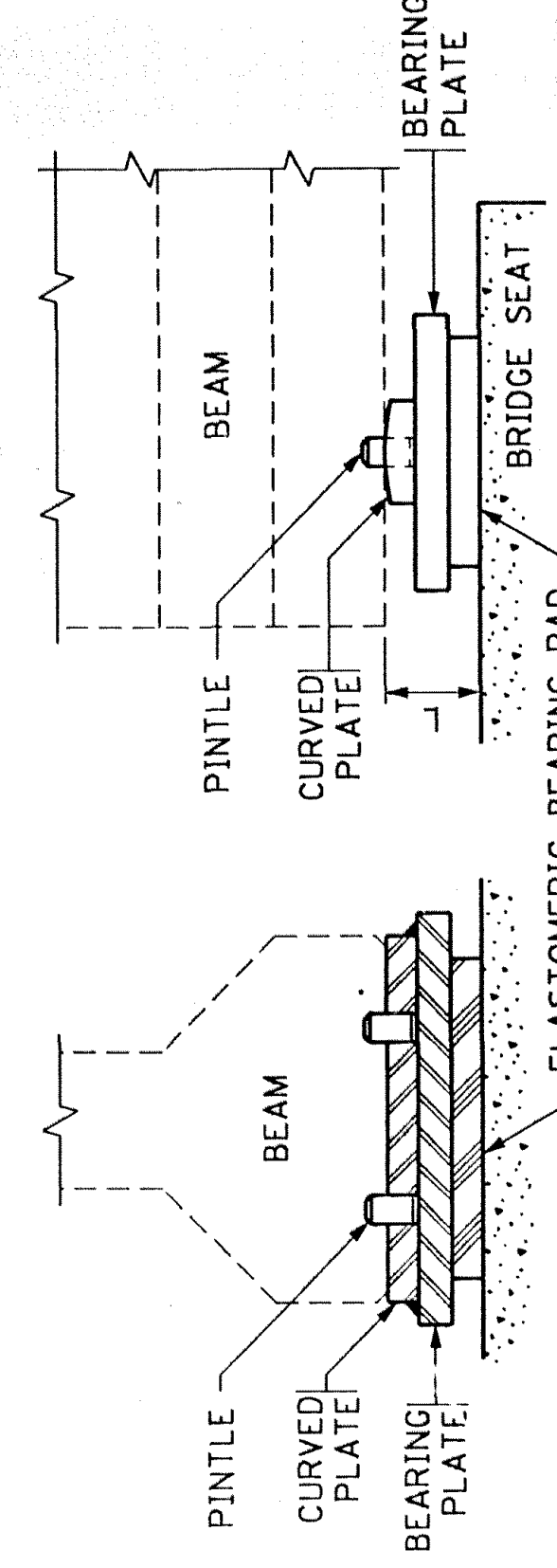
SOLE PLATE
PRESTRESSED CONCRETE BEAMS
(FOR BEARINGS WITH PINTLES)

REVISION 11/19/92 K/LW

DETAIL NO. B303

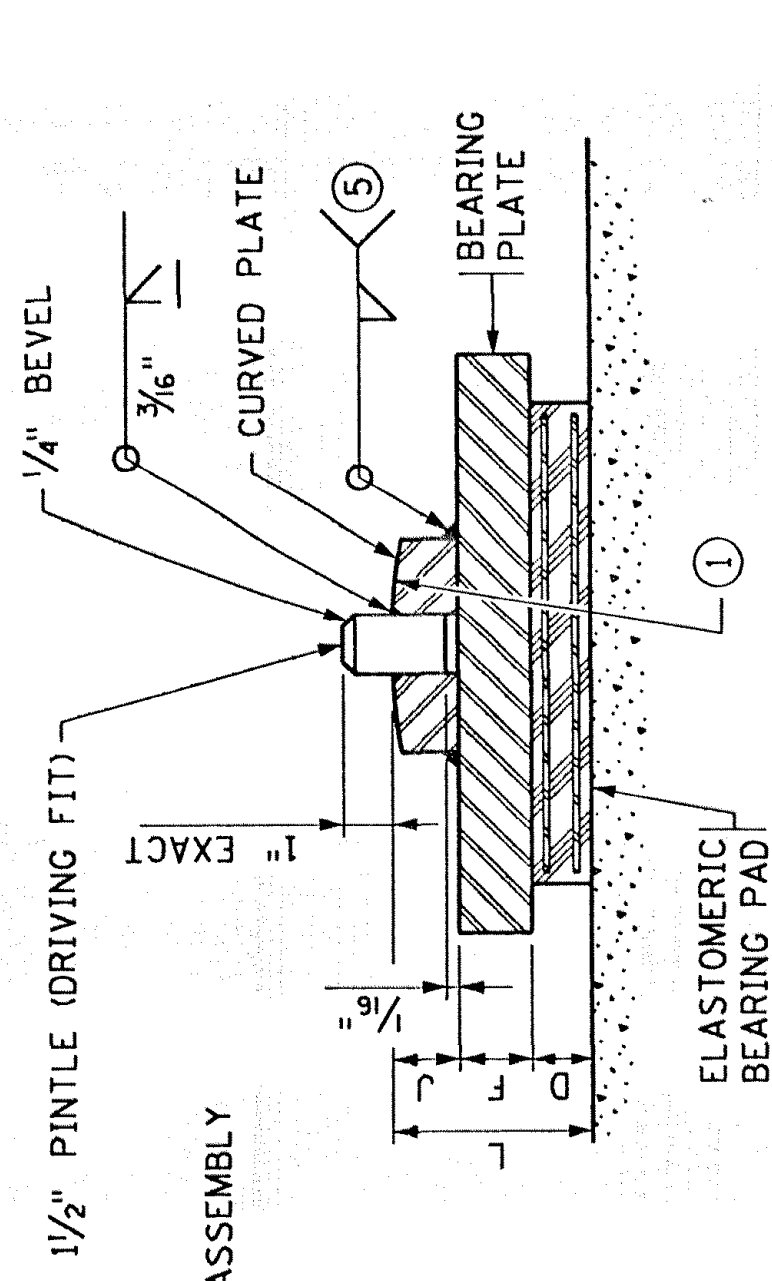


PLAN

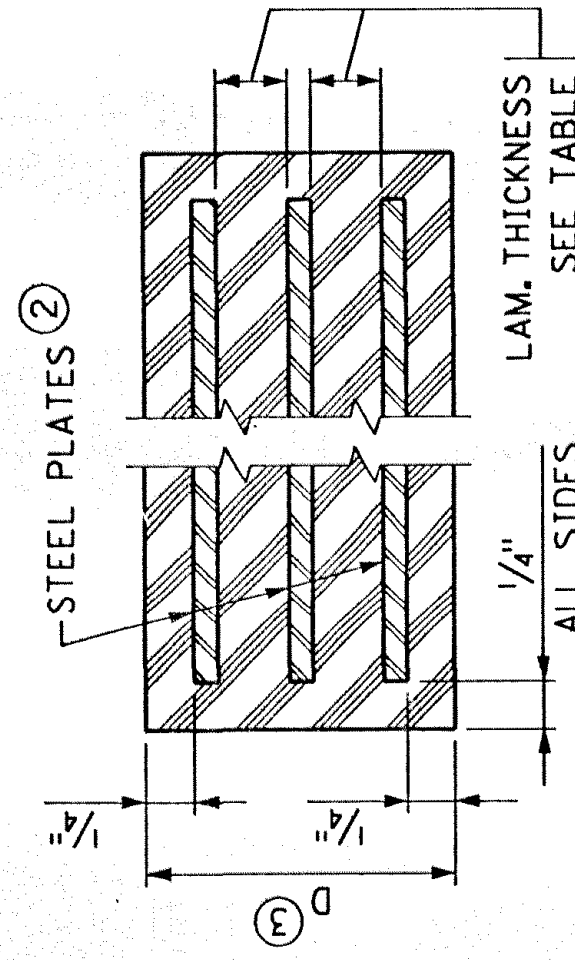


SECTION X-X

END ELEVATION



SECTION Y-Y
(ENLARGED BEARING ASSEMBLY)



SECTION THRU BEARING PAD

TABLE

ASSEMBLY TYPE	LOCATION	BEAM SIZE		BEARING PAD SIZE		STEEL PLATES NO. THICK.	LAMINATES NO. THICK.	SHAPE FACTOR	BEARING PLATE SIZE		CURVED PLATE SIZE		PINTLE DIA.	PINTLE DISTANCE HEIGHT	ASSY. HEIGHT
		A	B	C	E				F	G	H	J			
1	N. ABUT.	45M	10" 24"	12" 28"	12" 28"	3 1/8"	2 1/2"	7.1	12" 28"	1" 26"	4 1/2" 26"	1" 26"	1 1/2"	8"	3 1/2"
2	S. ABUT.	45M	10" 24"	12" 28"	12" 28"	3 1/8"	2 1/2"	7.1	12" 28"	1" 26"	4 1/2" 26"	1" 26"	1 1/2"	8"	2 1/2"

I hereby certify that this plan, specification, or report 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.

Ronald B. Swan

Date: 1/23/95 Reg. No. 22737

- THE RADIUS OF THE CURVED PLATE SHALL BE 1'-0" MINIMUM AND 1'-6" MAXIMUM, FINISH TO 250 MICRO. THE FINISHED THICKNESS OF THE PLATE MAY BE 1/16" LESS THAN SHOWN.

- DO NOT GALVANIZE THESE PLATES.
- THE TOTAL THICKNESS SHOWN INCLUDES THE STEEL PLATES.
- 2 PINTLES, 1/2" DIA. FOR TOTAL LOADS TO 390 KIPS.
- FOR BEARING AND CURVED PLATE THICKNESSES UP TO 1/2" USE 3/16" FILLET WELDS FOR THICKNESSES OVER 1/2" TO 2/4" USE 3/8" FILLET WELDS FOR THICKNESSES OVER 2/4" USE 1/2" FILLET WELDS. USE MINIMUM PREHEAT OF 300°F.
- SEE DETAIL B303 FOR PINTLE DISTANCE K.

APPROVED: AUGUST 4, 1992

OFFICE OF BRIDGES and STRUCTURES

STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION
CURVED PLATE BEARING ASSEMBLY
PRESTRESSED CONCRETE BEAMS
(EXPANSION)

DATE: DR: CHK:

DETAIL NO. B311

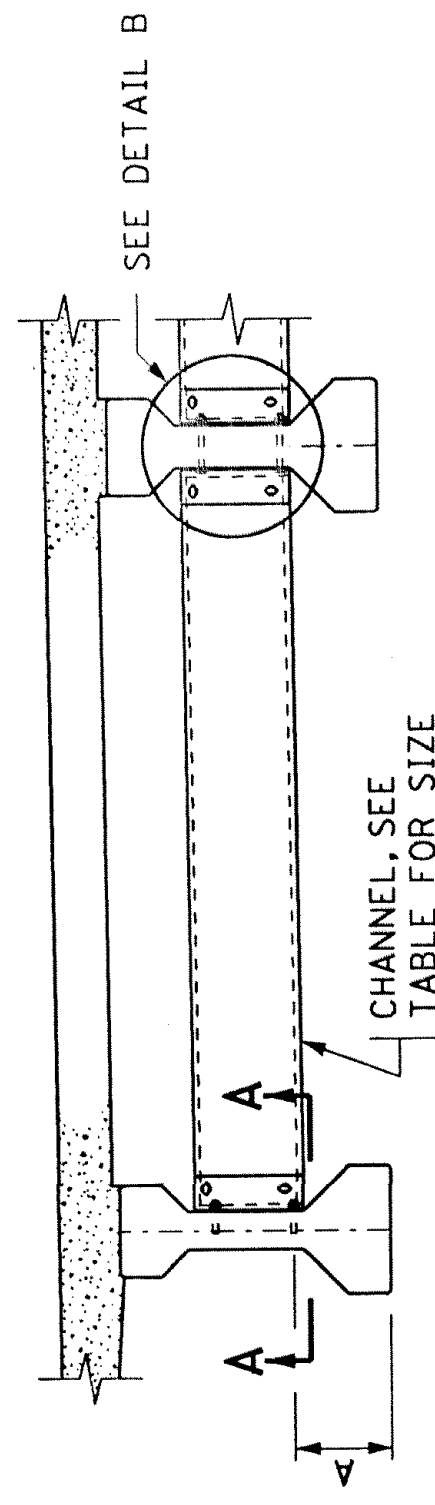
TITLE: MISC. BRIDGE DETAILS

BRIDGE NO. 02536
SHEET 15 OF 20 SHEETS

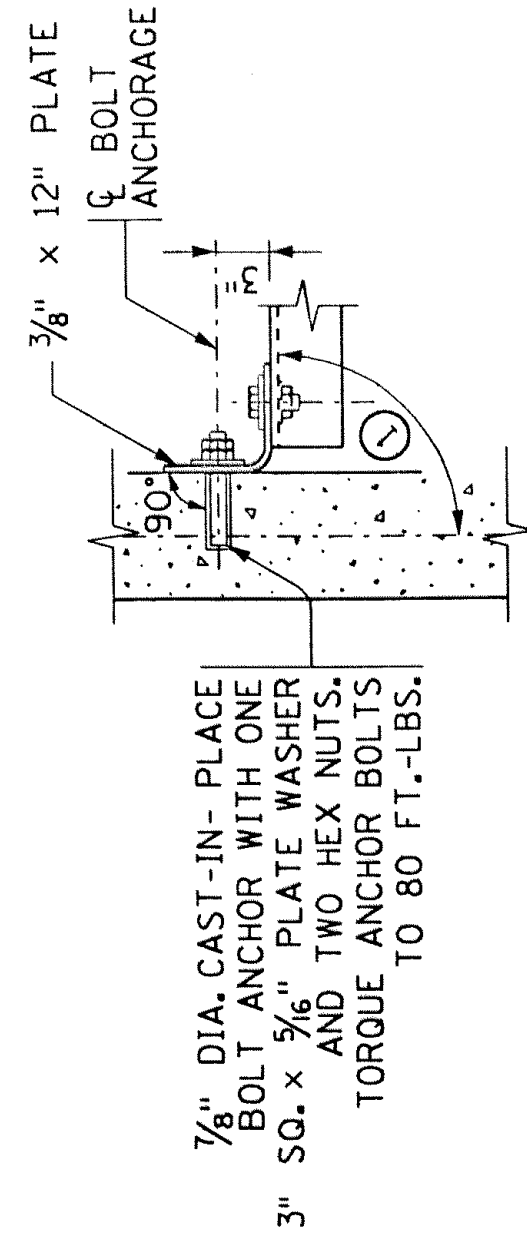
APPROVED: 5-18-95
CHK: S.P. 02-609-04

TABLE

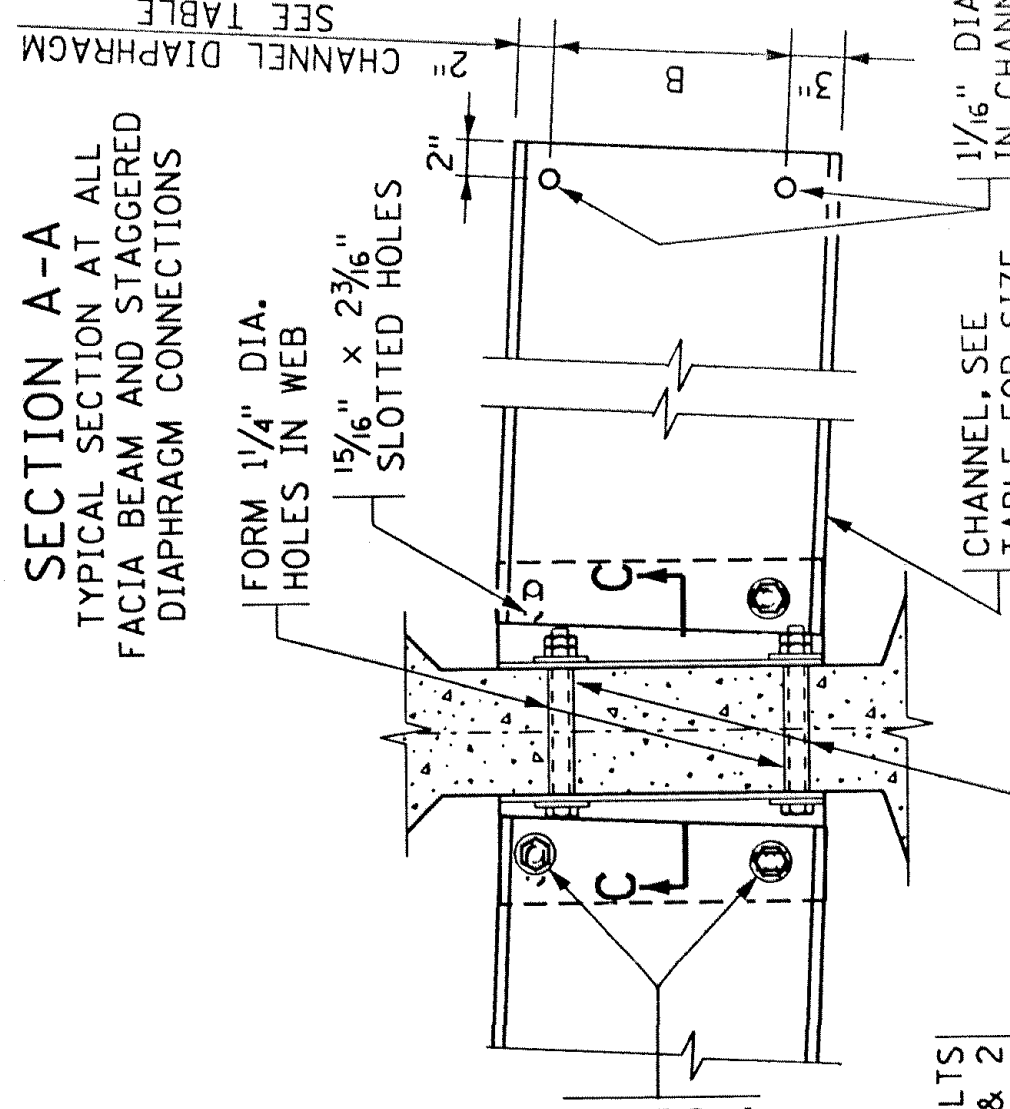
BULB HEIGHT	A	B	C	CHANNEL SIZE
28M	1'-0"	5"	10"	C10x15.3
30"	1'-2"	7"	11'-0"	C12x20.7
36"	1'-3"	7"	11'-0"	C12x20.7
40"	1'-5"	7"	11'-0"	C12x20.7
45M	1'-3 3/4"	1'-1"	1'-6"	MC18x42.7



PART TRANSVERSE SECTION AT DIAPHRAGM



SECTION A-A
TYPICAL SECTION AT ALL
FACIA BEAM AND STAGGERED
DIAPHRAGM CONNECTIONS



SECTION B-B

SECTION C-C
TYPICAL SECTION AT CONTINUOUS
INTERIOR DIAPHRAGMS

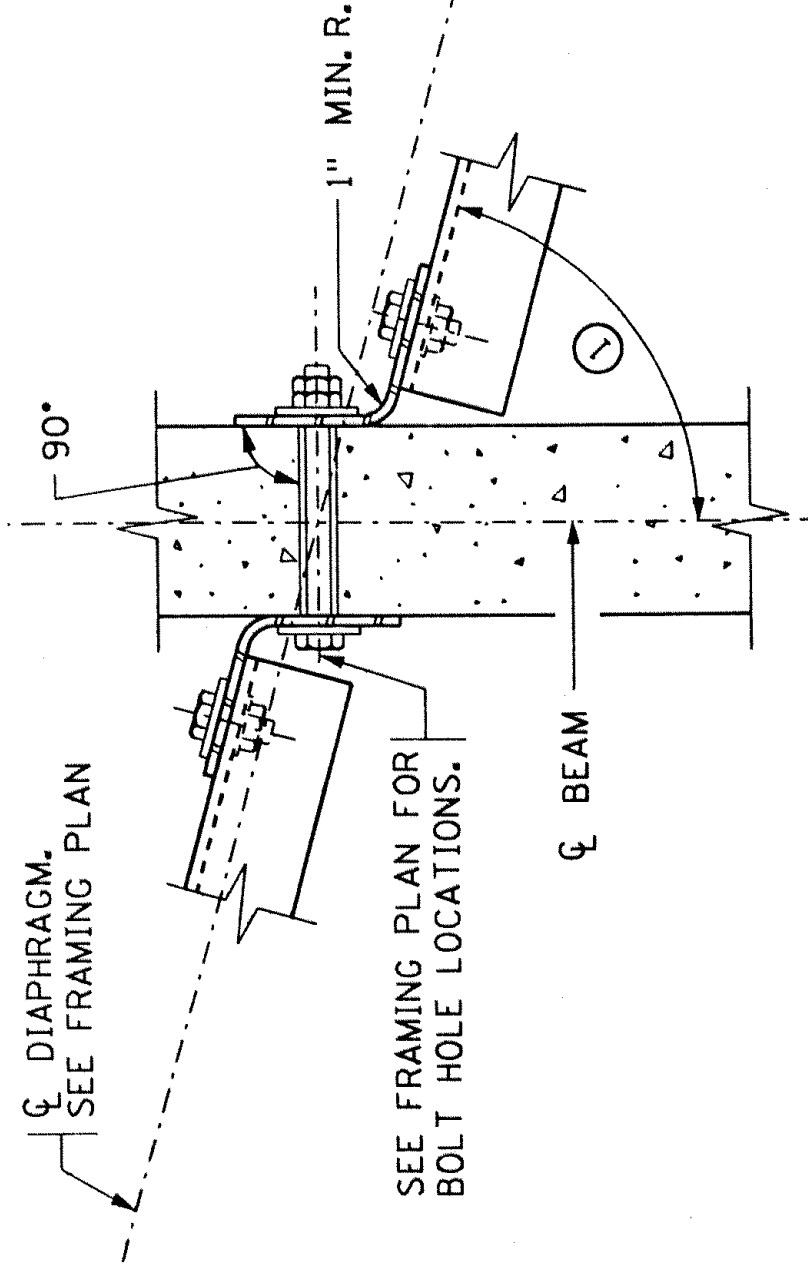
- FOR SKEW ANGLES UNDER 20°, USE 90° LESS THE SKEW ANGLE. FOR SKEW ANGLES OVER 20°, USE 90°.
- AS AN ALTERNATIVE TO THE 7/8" BOLT CONNECTION THE CONTRACTOR MAY SUBMIT DETAILS OF A CAST-IN-PLACE ANCHORAGE TO THE ENGINEER FOR APPROVAL.

GENERAL NOTES:

SEE SPEC. 2405.3M FOR INSTALLATION
THE LEG OF THE 12" PLATE SHALL BE SHOP BENT TO CONFORM TO THE DIAPHRAGM. A 3/8" x 6" x 6" ANGLE MAY BE USED FOR DIAPHRAGMS PERPENDICULAR TO BEAMS. FOR BOLT LENGTHS GREATER THAN 9", USE HIGH STRENGTH BOLTS PER SPEC. SAE GRADE 5 OR BETTER.
ALL STRUCTURAL STEEL SHOWN ON THIS DETAIL, INCLUDING BOLTS AND WASHERS, SHALL BE INCLUDED IN THE PAYMENT FOR DIAPHRAGMS FOR PRESTRESSED BEAMS. DIAPHRAGMS OVER THE PIERS ARE CONSIDERED TO BE INTERMEDIATE IF THE SLAB IS CONTINUOUS.

SECTION C-C

TYPICAL SECTION AT CONTINUOUS
INTERIOR DIAPHRAGMS



APPROVED: AUGUST 4, 1992

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

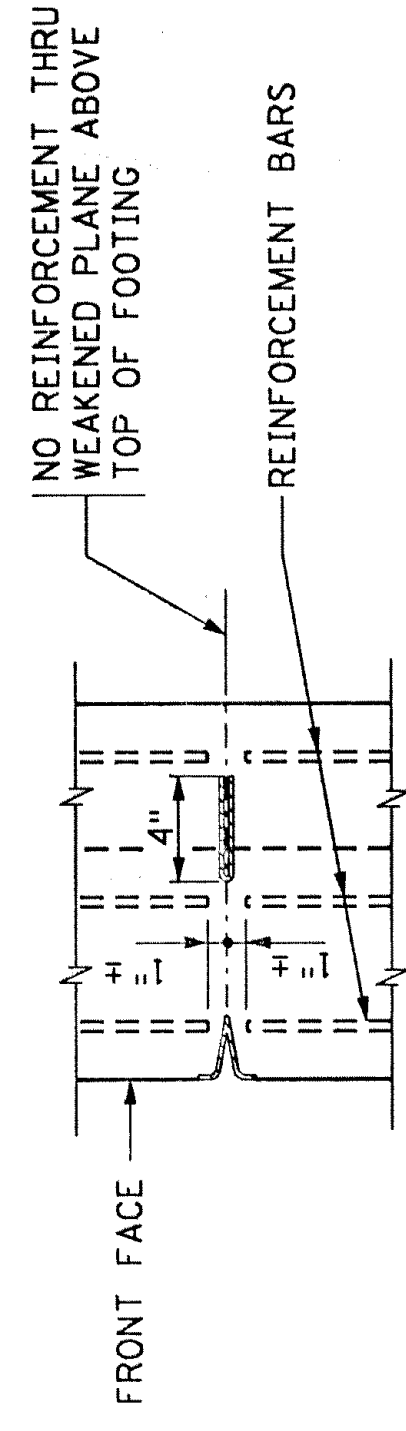
STEEL INTERMEDIATE DIAPHRAGM
(FOR 28M - 45M PRESTRESSED CONC. BEAM SPANS
AND 30" BULB TEE BEAMS)

OFFICE OF
BRIDGES AND STRUCTURES

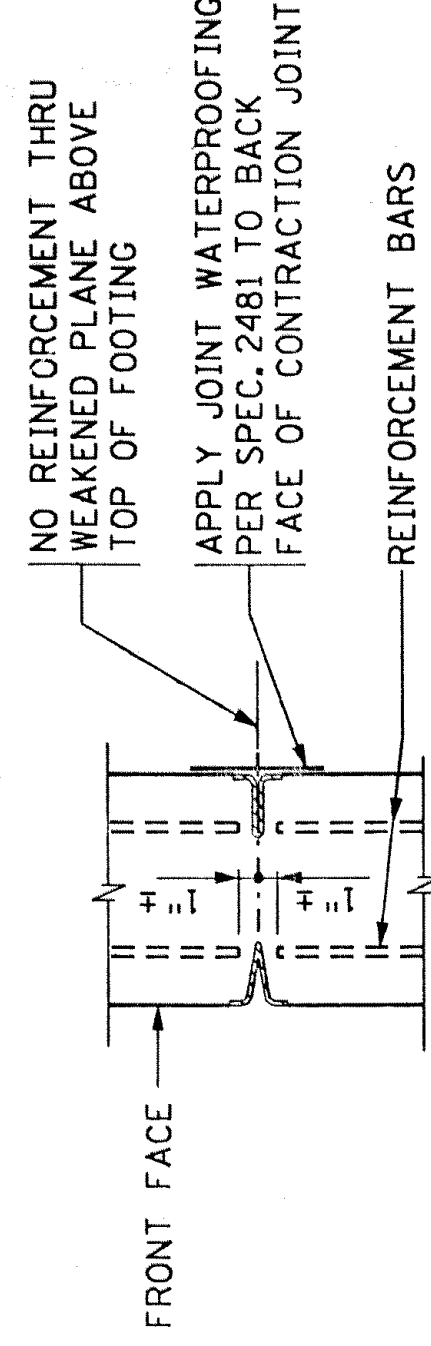
APPROVED: AUGUST 4, 1992

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

B403

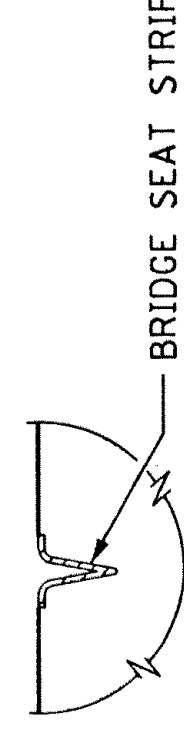


SECTION A-A

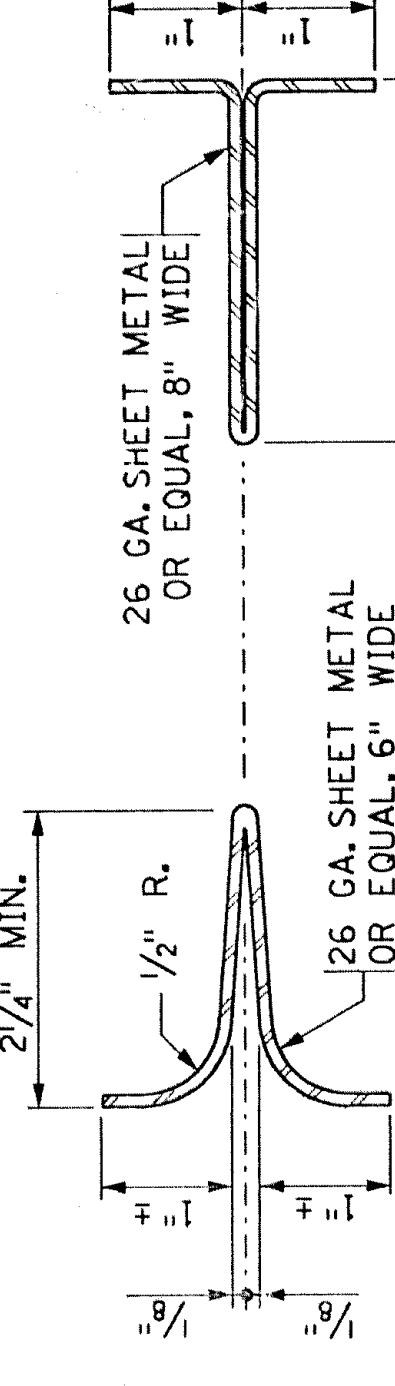


SECTION B-B

SEAL ACROSS BRIDGE SEAT
AND 1" UP FACE OF ABUTMENT
WITH CONCRETE JOINT SEALER
PER SPEC. 3723.

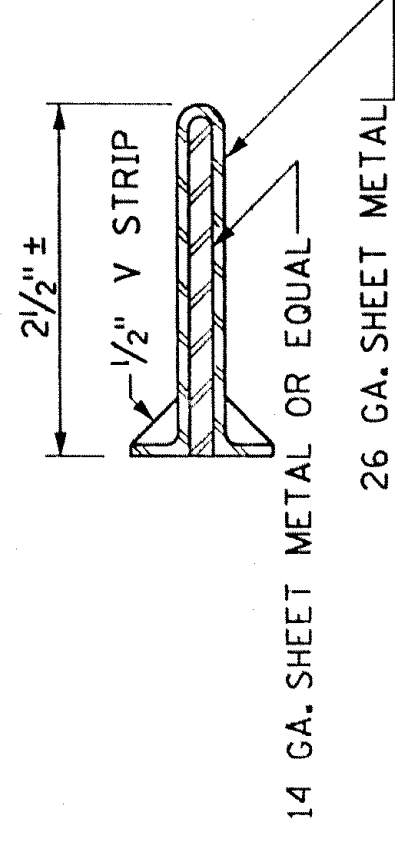


SECTION C-C



BRIDGE SEAT
AND FRONT STRIP

BACK STRIP

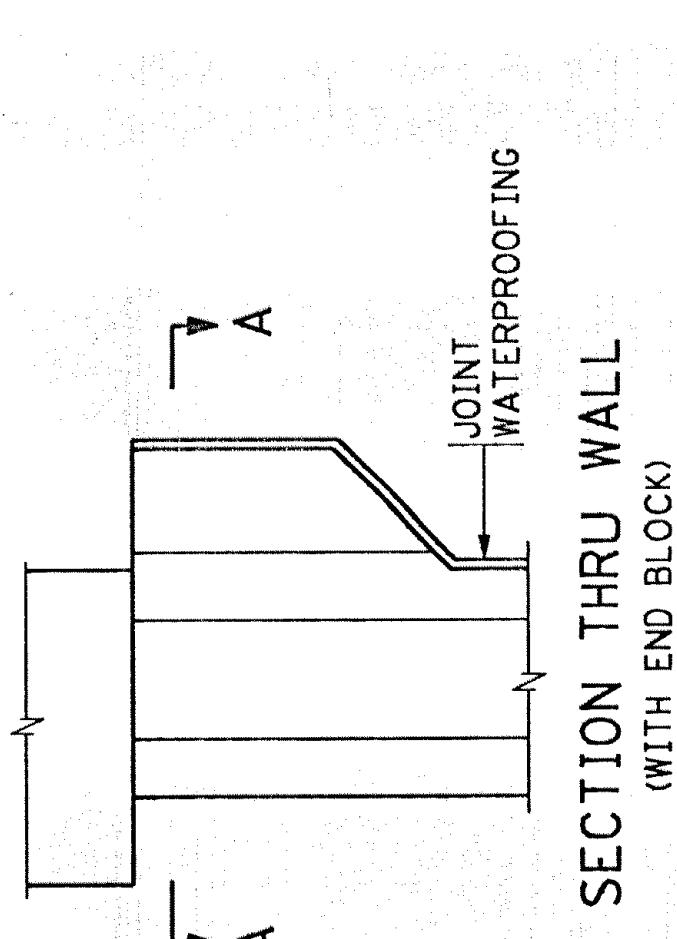


ALTERNATE BRIDGE SEAT
AND FRONT STRIP

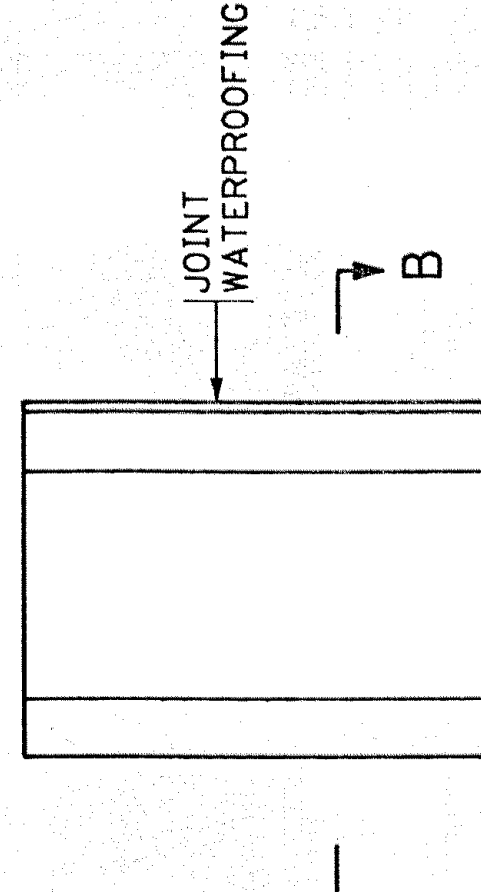
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.

Ronald B. Cooper

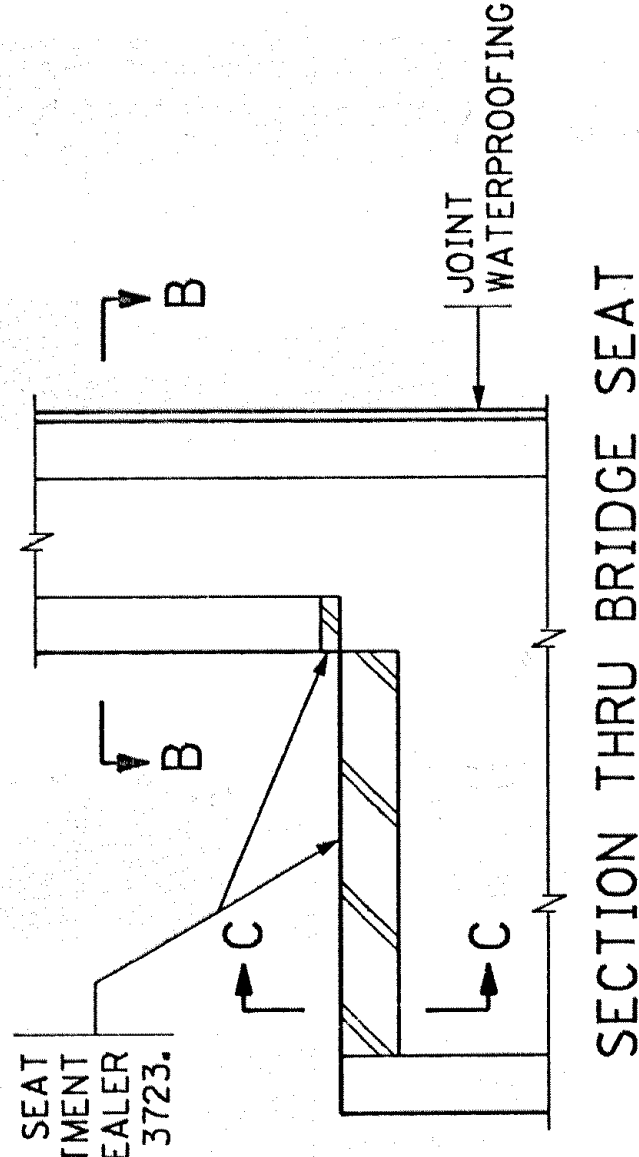
Date: 11/23/15 Reg. No. 22737



SECTION THRU WALL
(WITH END BLOCK)



SECTION THRU WALL
(WITHOUT END BLOCK)



SECTION THRU BRIDGE SEAT
PART SECTION
THRU ABUTMENT AT JOINT

NOTES:
THE METHODS AND MATERIALS INDICATED ON THIS SHEET SHALL BE CONSIDERED AS SUGGESTED ONLY. VARIATIONS WILL BE PERMITTED, SUBJECT TO APPROVAL BY THE ENGINEER, BUT MUST PROVIDE DUMMY JOINTS OF A DEPTH SHOWN, AND A WIDTH GREATER THAN 3/4". THE SEPARATION OF THE HORIZONTAL REINFORCEMENT BARS SHALL NOT BE LESS THAN 1/2" NOR MORE THAN 3", CENTERED AS SHOWN, REGARDLESS OF THE PROCEDURE USED FOR FORMING THE DUMMY JOINT.
IF THE FRONT AND BRIDGE SEAT STRIPS ARE GALVANIZED METAL, THEY SHALL BE SECURELY FASTENED TO THE FORMS SO THAT THEY WILL BE REMOVED WITH THE FORMS. IF SUITABLE PLASTIC OR OTHER DURABLE MATERIAL, SATISFACTORY TO THE ENGINEER, IS USED, THE MATERIAL MAY BE LEFT IN PLACE.

THE BACK STRIP MAY BE GALVANIZED METAL, A SUITABLE PLASTIC, OR OTHER DURABLE MATERIAL SATISFACTORY TO THE ENGINEER. THE BACK STRIP SHALL REMAIN IN PLACE AFTER THE FORMS ARE REMOVED.

THE COST OF FORMING THE JOINT SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS.

APPROVED: AUGUST 4, 1992

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

OFFICE OF
BRIDGES AND STRUCTURES

DATE: _____

DATE: _____

CHK: _____

CHK: _____

DETAIL NO. _____

DETAIL NO. _____

DETAIL NO. _____

DETAIL NO. _____

B801

B801

B801

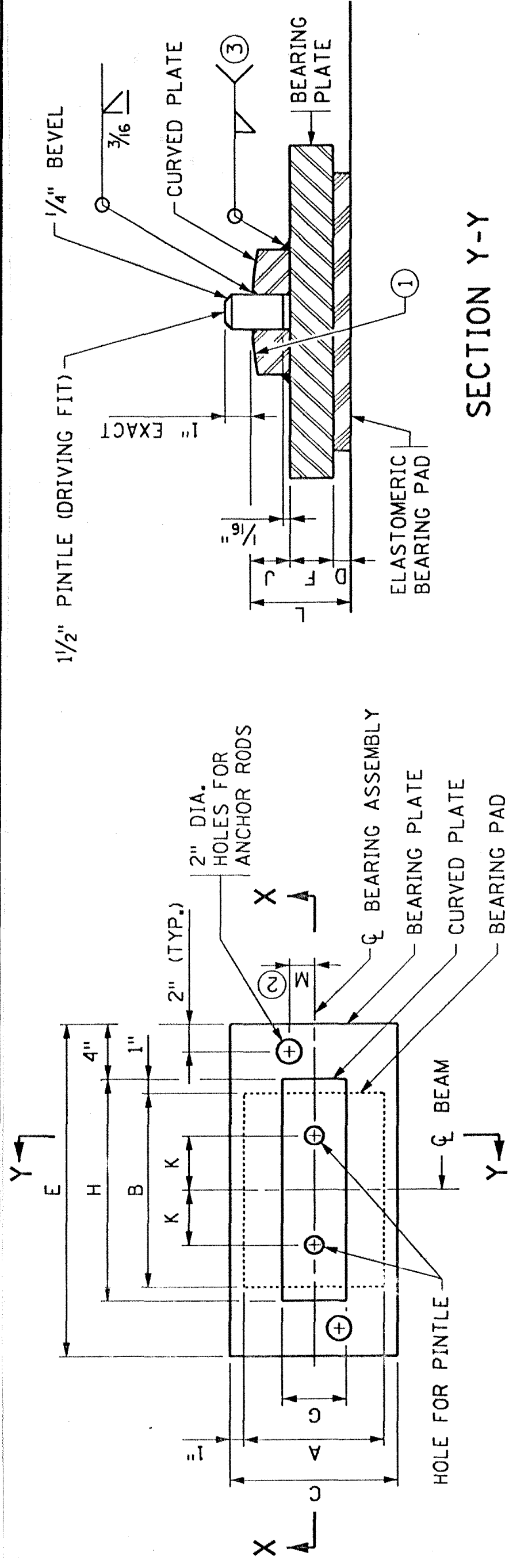
B801

TITLE: MISC. BRIDGE DETAILS

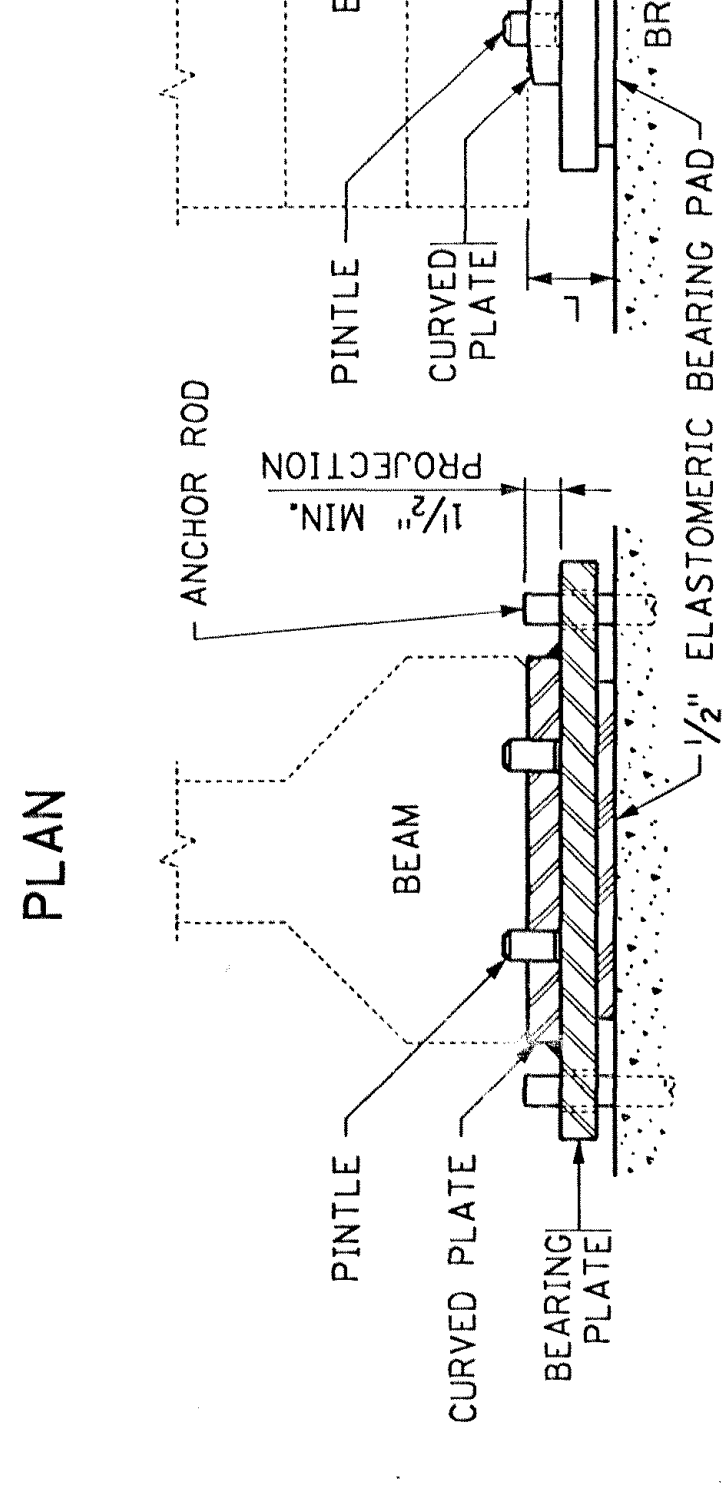
DRWN: CAD
CHK: DAD
APPROVED: 5-18-95

S.P. 02-609-04
SHEET 16 OF 20 SHEETS

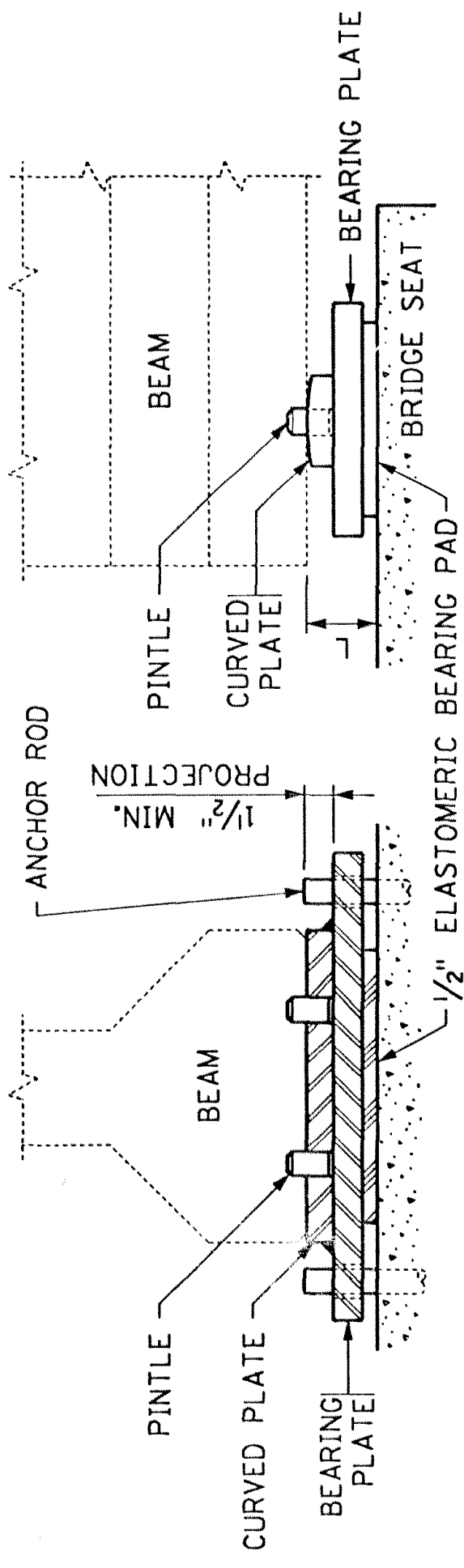
BRIDGE NO. 02536



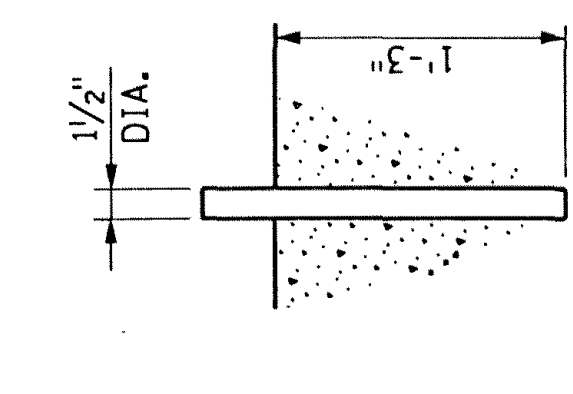
SECTION Y-Y



SECTION X-X



END ELEVATION
(ANCHOR RODS NOT SHOWN)



ANCHOR ROD
DETAIL

TABLE

ASSEMBLY TYPE	LOCATION	BEARING PAD SIZE			SHAPE FACTOR	BEARING PLATE SIZE			CURVED PLATE SIZE			PINTLE DIA.	PINTLE DISTANCE K (4)	ANCHOR ROD OFFSET M (2)	ASSY. HEIGHT L	
		A	B	D		C	E	F	G	H	J					
3	S. ABUT.	45M	10"	24"	1/2"	7.1	12"	34"	1"	4 1/2"	26"	1"	1 1/2"	8"	0"	22"

NOTES:
 ELASTOMERIC MATERIALS & PAD CONSTRUCTION SHALL COMPLY WITH SPEC. 3741.
 ALL STEEL PLATES SHALL COMPLY WITH SPEC. 3306
 ALL PLATES SHALL BE FLAT AFTER FABRICATION AND GALVANIZING. WELDING DISTORTION OF BEARING PLATES SHALL BE STRAIGHTENED TO WITHIN 1/16" OF FLATNESS BY MECHANICAL MEANS WITHOUT DAMAGE TO THE ZINC COATING.
 PINTLES SHALL COMPLY WITH SPEC. 3309.
 GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER SPEC. 3394, EXCEPT AS NOTED.
 PAYMENT FOR BEARING ASSEMBLY SHALL INCLUDE ALL MATERIAL ON THIS DETAIL.

- 1 THE RADIUS OF THE CURVED PLATE SHALL BE 1'-4" MINIMUM AND 2'-0" MAXIMUM. FINISH TO 250 MICRO. THE FINISHED THICKNESS OF THE PLATE MAY BE 1/16" LESS THAN SHOWN.
- 2 OFFSET MAY BE OPPOSITE OF THAT SHOWN. SEE ANCHOR ROD LAYOUT FOR DETAILS.
- 3 WELDING PER SPEC. 2471.
- 4 SEE DETAIL B303 FOR PINTLE DISTANCE K.

DESIGN DATA:
 MAXIMUM HORIZONTAL LOAD IS 70 KIPS FOR 1/2" PINTLES.

APPROVED: JANUARY 12, 1993
 OFFICE of
 BRIDGES and STRUCTURES

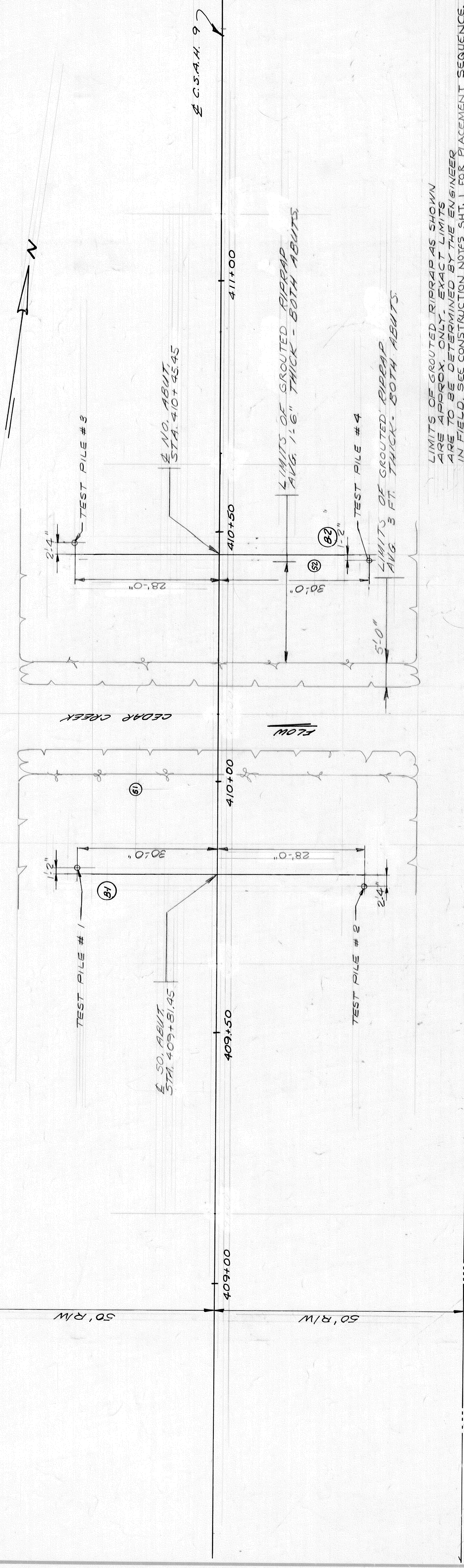
STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION
CURVED PLATE BEARING ASSEMBLY
 PRESTRESSED CONCRETE BEAMS
 (FIXED)

REVISION
 4/12/94 NKL
 DETAIL NO.
B310

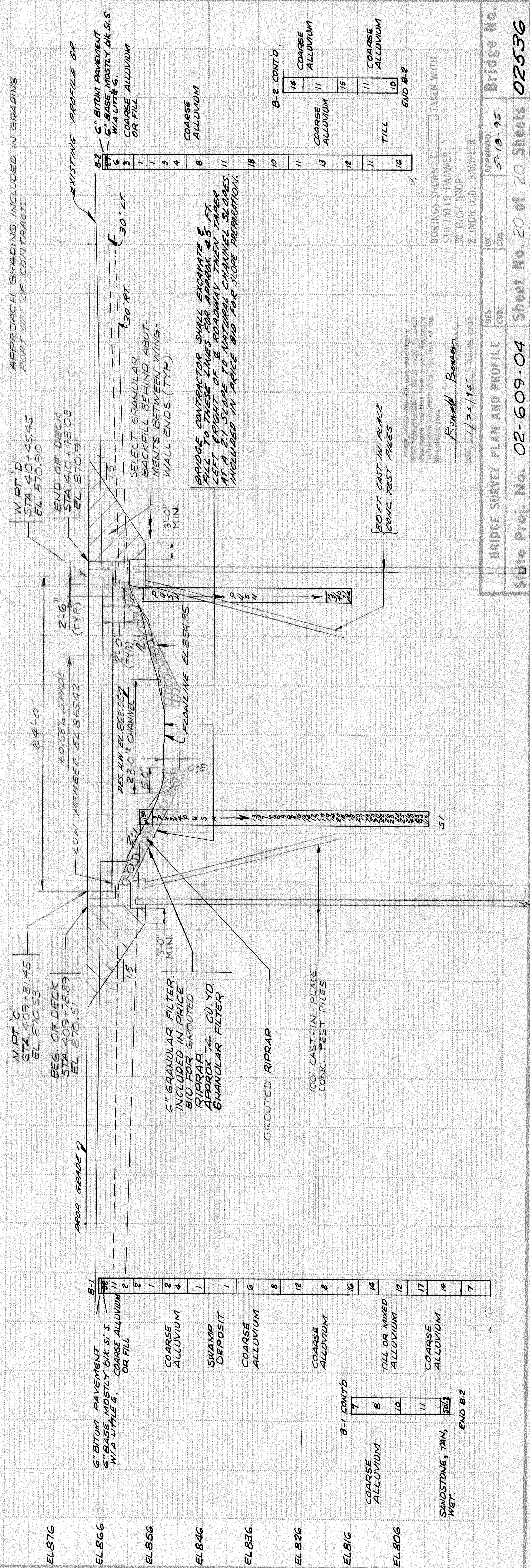
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Ronald Benson
 Date: 1/23/95 Reg. No. 22737

TITLE:
MISC. BRIDGE DETAILS

BRIDGE NO.
02536
 SHEET 18 OF 20 SHEETS



LIMITS OF GROUDED RIPRAP AS SHOWN ARE APPROX ONLY EXACT LIMITS ARE TO BE DETERMINED BY THE ENGINEER IN FIELD. SEE CONSTRUCTION NOTES SHT. 1 FOR PLACEMENT SEQUENCE.



EL876	6" BITUM PAVEMENT 6" BASE, MOSTLY BK ST S W/ A LITTLE G. COARSE ALLUVIUM OR FILL	B-1	11
EL866	COARSE ALLUVIUM	2	8
EL856	COARSE ALLUVIUM	1	4
EL846	SWAMP DEPOSIT	1	1
EL836	COARSE ALLUVIUM	6	8
EL826	COARSE ALLUVIUM	12	8
EL816	COARSE ALLUVIUM	16	8
EL806	TILL OR MIXED ALLUVIUM	14	12
	COARSE ALLUVIUM	17	14
	SANDSTONE, TAN, WET.	14	7

B-2	6" BITUM PAVEMENT 6" BASE, MOSTLY BK ST S OR FILL	6	3
1	COARSE ALLUVIUM	1	1
2	COARSE ALLUVIUM	1	1
3	COARSE ALLUVIUM	1	1
4	COARSE ALLUVIUM	1	1
8	COARSE ALLUVIUM	8	11
11	COARSE ALLUVIUM	11	18
18	COARSE ALLUVIUM	18	10
10	COARSE ALLUVIUM	10	11
11	COARSE ALLUVIUM	11	13
13	COARSE ALLUVIUM	13	12
12	TILL	12	11
11	TILL	11	10
10	END B-2	10	END B-2

APPROACH GRADING INCLUDED IN GRADING PORTION OF CONTRACT.

W.P.T. "D" STA 410+45.45 EL 870.90

END OF DECK STA 410+48.03 EL 870.91

30' LT

150' RT

SELECT GRANULAR BACKFILL BEHIND ABUTMENTS BETWEEN WING WALL ENDS (TYP)

BRIDGE CONTRACTOR SHALL EXCAVATE & FILL TO THESE LINES FOR APPROX 45 FT LEFT & RIGHT OF ROADWAY THEN TAPER AT A 2% SLOPE TO NATURAL CHANNEL SLOPES. INCLUDED IN PRICE BID FOR SLOPE PREPARATION.

80 FT CAST-IN-PLACE CONC. TEST PILES

W.P.T. "C" STA 409+81.45 EL 870.53

BEG. OF DECK STA 409+28.89 EL 870.51

64'0" 7.0:58% GRADE

DES. HW. EL 862.057

23.0" CHANNEL

FRONTLINE ELLIPSES

3'-0" MIN.

6" GRANULAR FILTER INCLUDED IN PRICE BID FOR GROUDED RIPRAP APPROX 74 CU. YD GRANULAR FILTER

GROUDED RIPRAP

100' CAST-IN-PLACE CONC. TEST PILES

TEST PILE # 1

TEST PILE # 2

TEST PILE # 3

TEST PILE # 4

NO. ABUT STA 410+45.45

LIMITS OF GROUDED RIPRAP AVG. 1.6" THICK - BOTH ABUTS

LIMITS OF GROUDED RIPRAP AVG. 3 FT. THICK - BOTH ABUTS

CEAR CREEK

FLOW

50' R/W

50' R/W

DESIGNED BY: Ronald Bennett

DATE: 1/23/95

BORINGS SHOWN [] TAKEN WITH STD 140 LB HAMMER 30 INCH DROP 2 INCH O.D. SAMPLER