FORM 129 A REV. '64

MINN. Proj. No. BR-RS 7419 (1)

STATE OF MINNESOTA

DEPARTMENT OF HIGHWAYS

CONSTRUCTION PLAN FOR BRIDGE NO. 02526

County State Aid Highway No. 7

Between ANOKA And ST. FRANCIS

From A PT. 2361.40' SOUTH N.W. COR. SEC. 7 T32N R25W To A PT. 2636.48' SOUTH N.W. COR. SEC. 7 T32N R25W

Give proper reference to Sections, Township and Range

GROSS LENGTH ____ FEET ____ MILES
BRIDGES-LENGTH 275.08 FEET .052 MILES
EXCEPTIONS-LENGTH ____ FEET ____ MILES
NET LENGTH 275.08 FEET .052 MILES

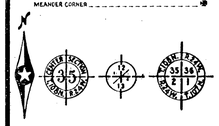
INDEX OF SHEETS

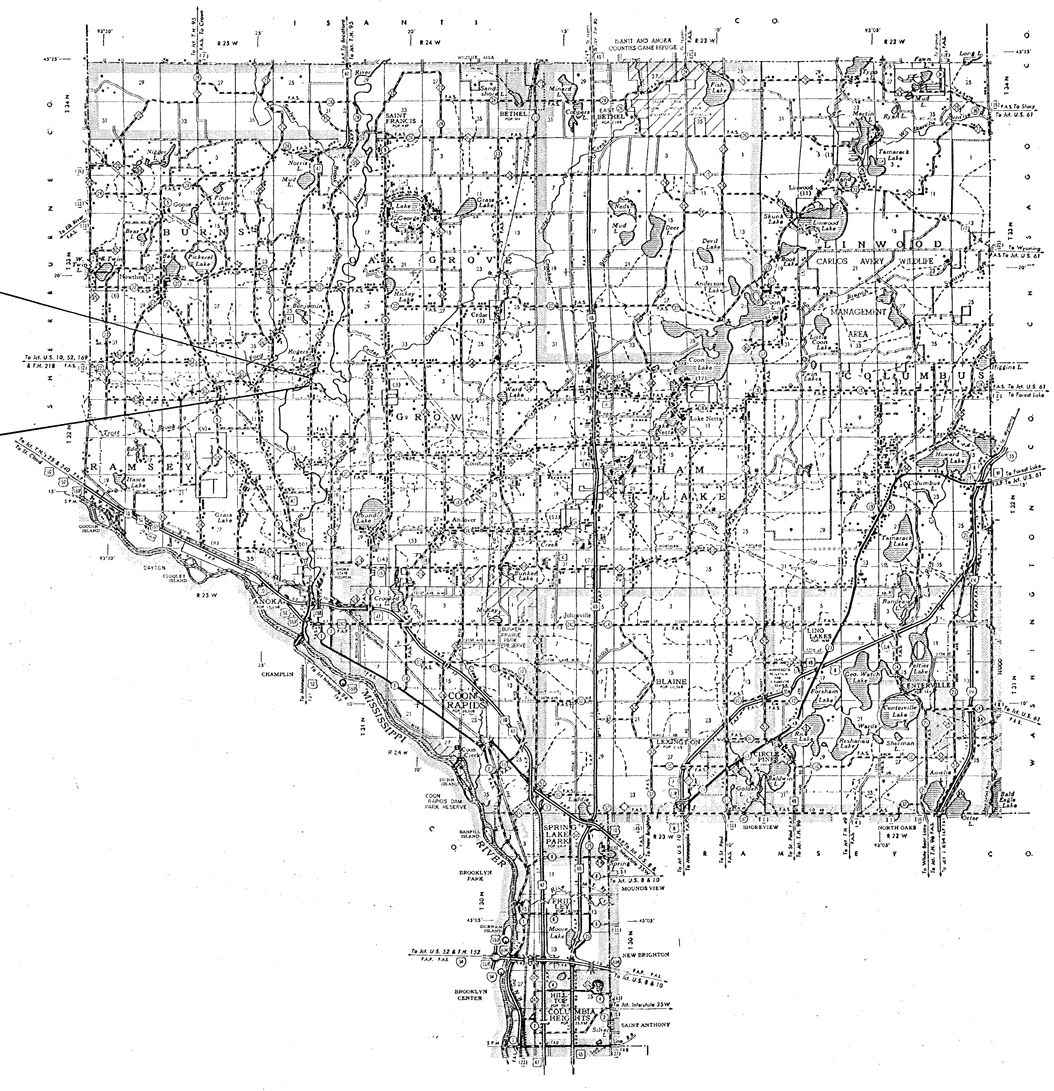
Title Sheet & Layout Map

SHT. 1 - 21 BRIDGE PLANS

CONVENTIONAL SIGNS

STATE LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
RIGHT-OF-WAY LINE
PRESENT RIGHT-OF-WAY LINE
CONTROL OF ACCESS LINE
PROPERTY LINE (Except Land Lines)
VACATED PLATTED PROPERTY
CORPORATE OR CITY LIMITS
TRUNK HIGHWAY CENTER LINE
RETAINING WALL
RAILROAD
RAILROAD RIGHT-OF-WAY LINE
RIVER OR CREEK
DRY RUN
DRAINAGE DITCH
ELECTRIC POWER LINE
TELEPHONE OR TELEGRAPH LINE
JOINT TELEPHONE AND POWER
CONDUIT
TELEPHONE CABLE-AERIAL T-AE
TELEPHONE CABLE-UNDERGROUND T-UG
POWER CABLE-UNDERGROUND P
GAS MAIN G
CULVERT
DROP INLET
GUARD RAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE C.L.
RAILROAD SNOW FENCE
STONE WALL OR FENCE
HEDGE
WATER PIPE
SEWER PIPE
DRAIN TILE
SPRINGS
MARSH
TIMBER
ORCHARD
BRUSH
NURSERY
(TIMBER)
CATCH BASIN C.B.
MANHOLE M.H.
FIRE HYDRANT
STREET LIGHT
RAILROAD CROSSING SIGN
RAILROAD CROSSING BELL
ELECTRIC WARNING SIGN
CROSSING GATE
CATTLE GUARD
OVERPASS (Highway Over)
UNDERPASS (Highway Under)
BRIDGE
BUILDING (One Story Frame)
F-FRAME C-CONCRETE
S-STONE T-TILE
B-BRICK ST-STUCCO
IRON PIPE OR ROD
MONUMENT (STONE, CONCRETE, OR METAL)
WOODEN HUB
GRAVEL PIT
SAND PIT
BORROW PIT
ROCK QUARRY
MEANDER CORNER





BM DISK TOP S.B. WINGWALL ∘ 866.908

DESIGN DESIGNATION

ADT (CURRENT YEAR) _____
ADT (FUTURE YEAR) _____
T (HEAVY COMMERCIAL)
_____ Ton Design
Design Speed _____ MPH
Design Speed not achieved at:
STA. _____ TO STA. _____ MPH _____
STA. _____ TO STA. _____ MPH _____

SPECIFICATIONS

THE "STANDARD" SPECIFICATIONS FOR HIGHWAY CONSTRUCTION", DATED JAN. 1, 1974, SHALL GOVERN.

ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH, IN THE CONSTRUCTION OF THIS PROJECT.

Paul K. Lund
COUNTY ENGINEER DATE _____

ANOKA COUNTY REG. NO. _____

RECOMMENDED FOR APPROVAL W. M. Crawford 7/24, 1975
DISTRICT ENGINEER

RECOMMENDED FOR APPROVAL R. D. Levenhagen 7/30, 1975
BRIDGE DESIGN & PLANNING ENG.

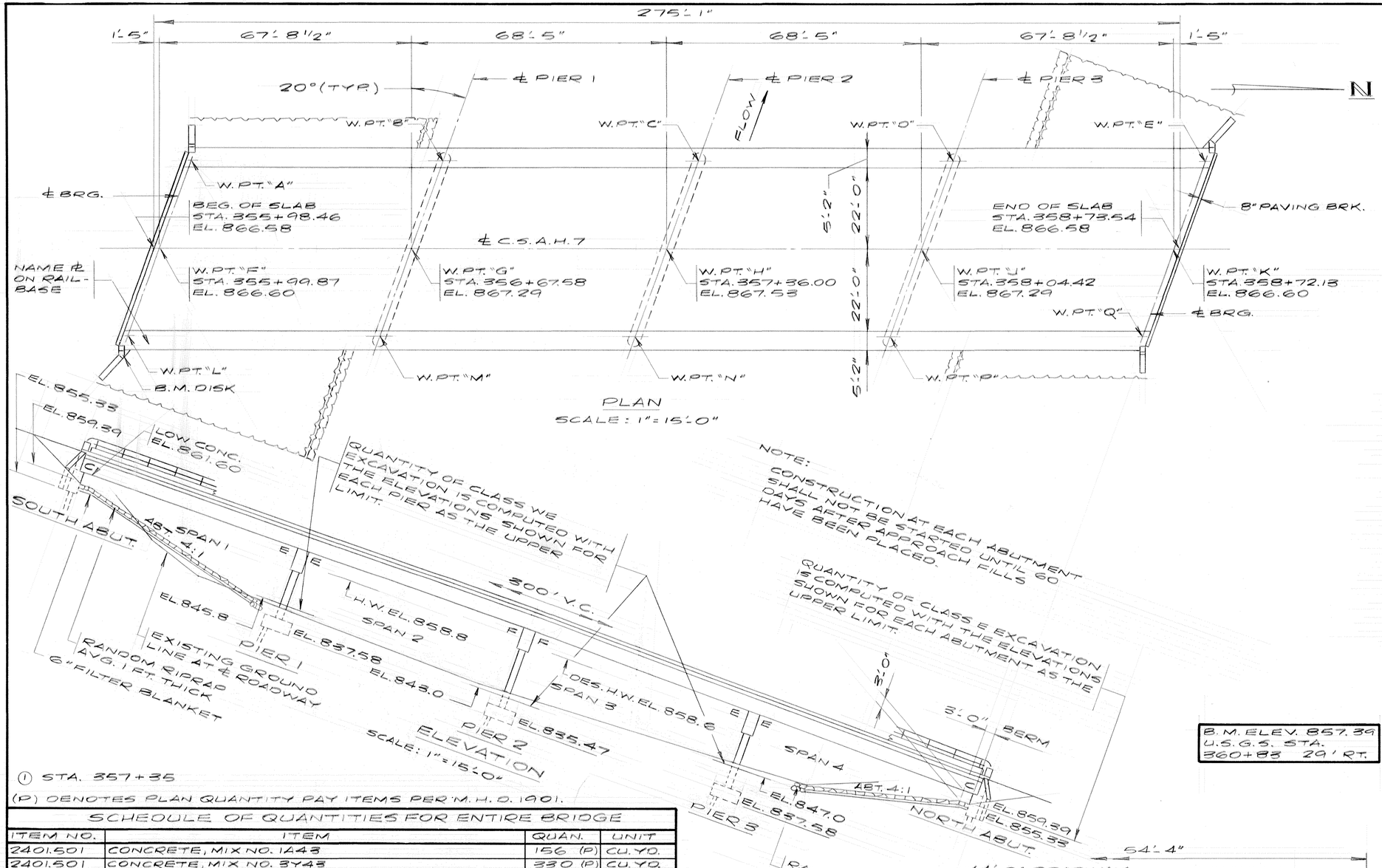
APPROVED 7/31, 1975 Stanley W. Hoag
STATE AID ENGINEER

County Proj. No. _____

State Proj. No. 02-607-10 S.A.P. _____

ANOKA County, Minnesota. Plan No. 02526

DAHMS PHOTO PRINT CO.
MINNEAPOLIS, 1, MINN.



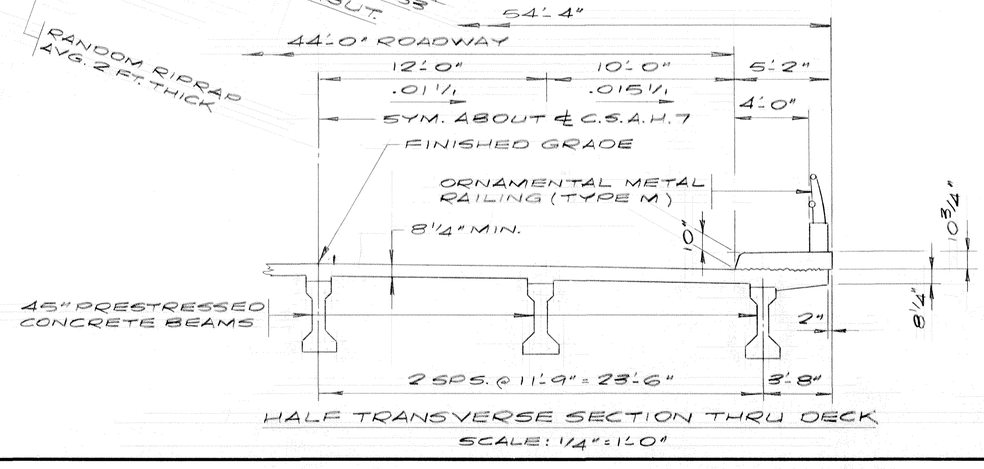
① STA. 357+35

(P) DENOTES PLAN QUANTITY PAY ITEMS PER M.H.D. 1901.

SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE

ITEM NO.	ITEM	QUAN.	UNIT
2401.501	CONCRETE, MIX NO. 1A43	156 (P)	CU.YD.
2401.501	CONCRETE, MIX NO. 3Y43	330 (P)	CU.YD.
2401.501	CONCRETE, MIX NO. 3Y46A	120 (P)	CU.YD.
2401.521	STRUCTURE EXCAVATION, CLASS E	125 (P)	CU.YD.
2401.521	STRUCTURE EXCAVATION, CLASS WE	505 (P)	CU.YD.
2401.541	REINFORCEMENT BARS	185230(P)	POUND
2402.521	STRUCTURAL STEEL, (3306)	760	POUND
2402.546	FLOOR DRAINS, TYPE I	12	EACH
2402.583	ORNAMENTAL METAL RAILING	551 (P)	LIN. FT.
2402.594	EXPANSION BEARING ASSEMBLIES, TYPE I	30	EACH
2405.501	PRESTRESSED CONCRETE GIRDERS, TYPE 45-69	20	EACH
2405.511	ELASTOMERIC BEARING PAD, TYPE I	10	EACH
2442.501	REMOVE OLD BRIDGE	1	LUMPSUM
2511.501	RANDOM RIPRAP, CLASS A	340	CU.YD.
2511.504	FILTER BLANKET, TYPE I	155	CU.YD.
2452.501	UNTREATED TIMBER PILING DELIVERED	3500	LIN.FT.
2452.502	UNTREATED TIMBER PILING DRIVEN	3300	LIN.FT.
2452.516	UNTREATED TIMBER TEST PILES, 45 FT. LONG	6	EACH
2452.507	CAST-IN-PLACE CONCRETE PILING DELIVERED	2040	LIN.FT.
2452.508	CAST-IN-PLACE CONCRETE PILING DRIVEN	2040	LIN.FT.
2452.519	CAST-IN-PLACE CONCRETE TEST PILES, 70 FT. LG.	2	EACH
2401.501	CONCRETE, MIX NO. 3Y33A	462 (P)	CU.YD.
2554.501	TRAFFIC BARRIER DESIGN B8307	300	LIN. FT
554.607	TWISTED END TREATMENT	4	EACH

B.M. ELEV. 857.39
U.S.G.S. STA.
360+88 29' RT.



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

DESIGN DATA

1973 A.A.S.H.T.O. DESIGN SPECIFICATIONS
LOAD FACTOR DESIGN METHOD
H520 LOADING
INCLUDES 30 P.S.F. D.L. ALLOWANCE FOR FUTURE WEARING COURSE
REINF. CONC: f'c = 4000 P.S.I. n=8
fy = 60000 P.S.I. REINF.
PREST. CONC: f'c = 6000 P.S.I. n=6
f's = 270000 P.S.I. (STRANDS)
STRUCT. STEEL: fy = 36000 P.S.I. (M.H.D. 3306)
DECK AREA 14946 SQ.FT.
860 PROJECTED ADT FOR 1994

CONSTRUCTION NOTES

THE MINNESOTA HIGHWAY DEPARTMENT "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" DATED JAN. 1, 1972 SHALL GOVERN AS AMENDED BY "SUPPLEMENTAL SPECIFICATIONS" DATED JAN. 1, 1974.

BRIDGE SEAT REINF. SHALL BE CAREFULLY PLACED TO AVOID INTERFERENCE WITH DRILLING HOLES FOR ANCHOR RODS. THE SUPERSTRUCTURE BEAMS SHALL BE ERECTED IN FINAL POSITION PRIOR TO DRILLING HOLES FOR AND PLACING ANCHOR RODS.

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

LIST OF SHEETS

APPROVED:
3/28/75 DATE
Paul K. Lund
COUNTY ENGINEER
ANOKA COUNTY

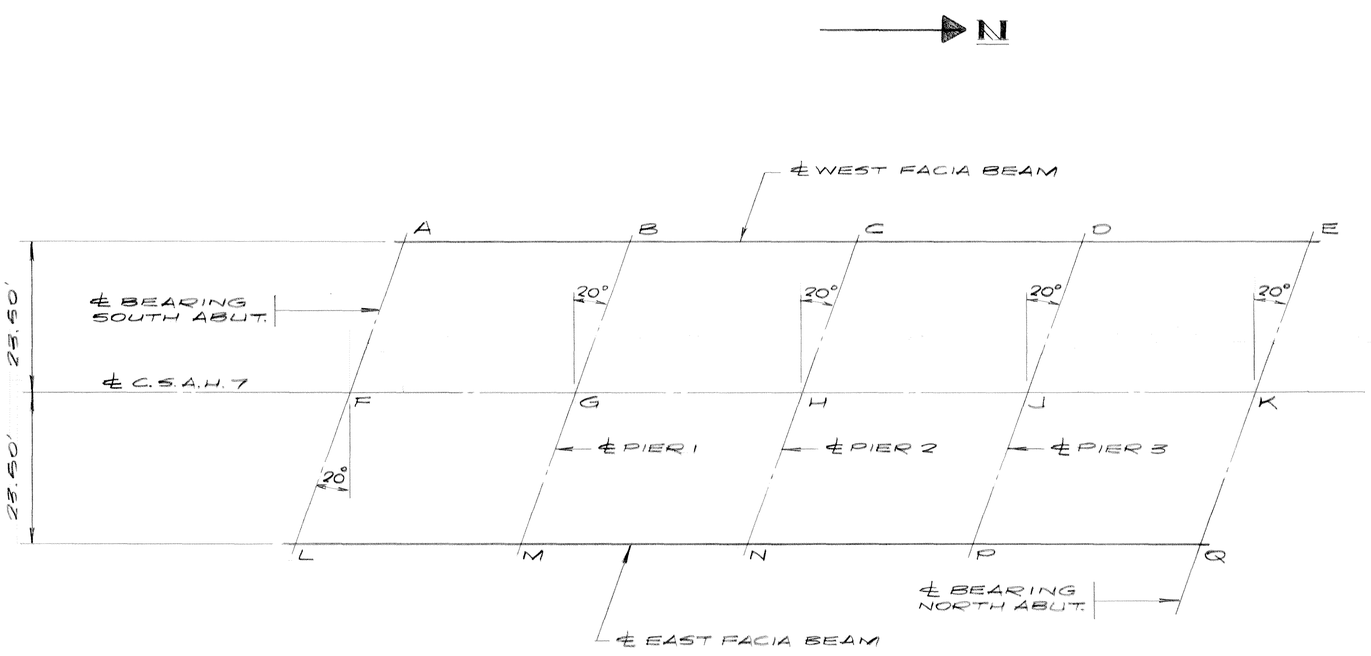
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION & THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Robert E. Erickson
DATE 3/28/75 REG. NO. 5297

PLANS PREPARED BY
ROBERT E. ERICKSON ENG'R. CO.
3340 REPUBLIC AVENUE
ST. LOUIS PARK, MINN. 55426

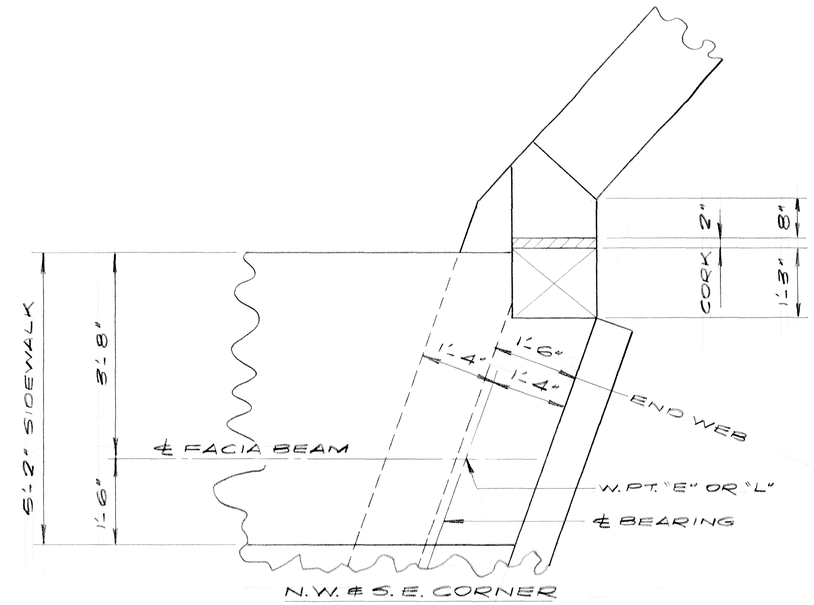
C.S.A.H.7 ANOKA COUNTY
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE NO. 02526
6.0 MI. NO. OF ANOKA ON C.S.A.H.7
OVER RUM RIVER
4-68' PRESTRESS BEAM SPANS
IDEN. NO. 501
44'-0" ROWY. 2-SIDEWALKS 4'-0"
20° SKEW
GENERAL PLAN & ELEVATION
SEC. 1&6 T32N R25W
RAMSEY & GROW TWP.
ANOKA COUNTY
APPROVED: 7-30-75
BRIDGE DESIGN & PLANNING ENG'R.

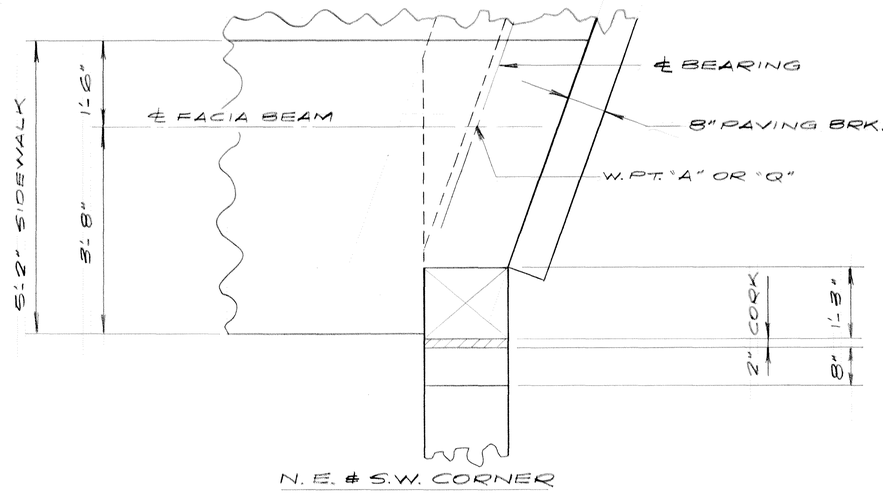
02526 GRC NJR



LAYOUT SHOWING WORKING POINTS
(NO SCALE)



N.W. & S.E. CORNER



N. E. & S.W. CORNER

DIMENSIONS BETWEEN WORKING POINTS

POINT	STATION	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
A	356+08.42															
B	356+76.13	67.71'														
C	357+44.55		68.42'													
D	358+12.97			68.42'												
E	358+80.68				67.71'											
F	355+99.87	25.01'														
G	356+67.58	63.66'	25.01'				67.71'									
H	357+36.00		64.32'	25.01'				68.42'								
J	358+04.42			64.32'	25.01'				68.42'							
K	358+72.13				63.66'	25.01'				67.71'						
L	355+91.32		96.96'	160.28'			25.01'									
M	356+59.03	69.07'		97.58'	160.96'		63.66'	25.01'				67.71'				
N	357+27.45	127.97'	69.59'		97.58'	160.28'		64.32'	25.01'				68.42'			
P	357+95.87		128.63'	69.59'		96.96'			64.32'	25.01'				68.42'		
Q	358+63.58			127.97'	69.07'					63.66'	25.01'				67.71'	

ELEVATIONS

TOP OF SLAB	SLAB TO BR. SEAT	BRIDGE SEAT	POINT
866.44	4.88	861.56	A
867.08	4.88	862.20	B
867.25	4.78	862.47	C
866.96	4.88	862.08	D
866.21	4.88	861.33	E
866.60	4.88	861.72	F
867.29	4.88	862.41	G
867.53	4.78	862.75	H
867.29	4.88	862.41	J
866.60	4.88	861.72	K
866.21	4.88	861.33	L
866.96	4.88	862.08	M
867.25	4.78	862.47	N
867.08	4.88	862.20	P
866.44	4.88	861.56	Q

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

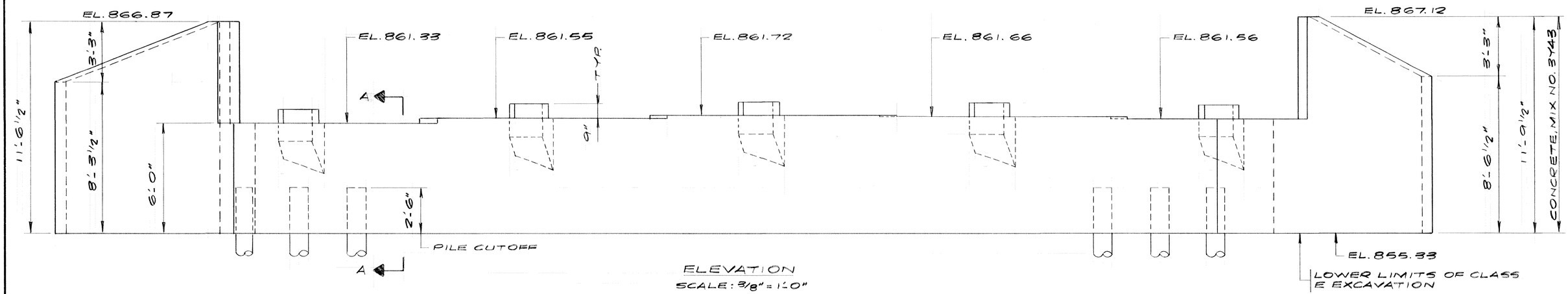
BRIDGE NO. 02526

BRIDGE LAYOUT

APPROVED: 7-30-75

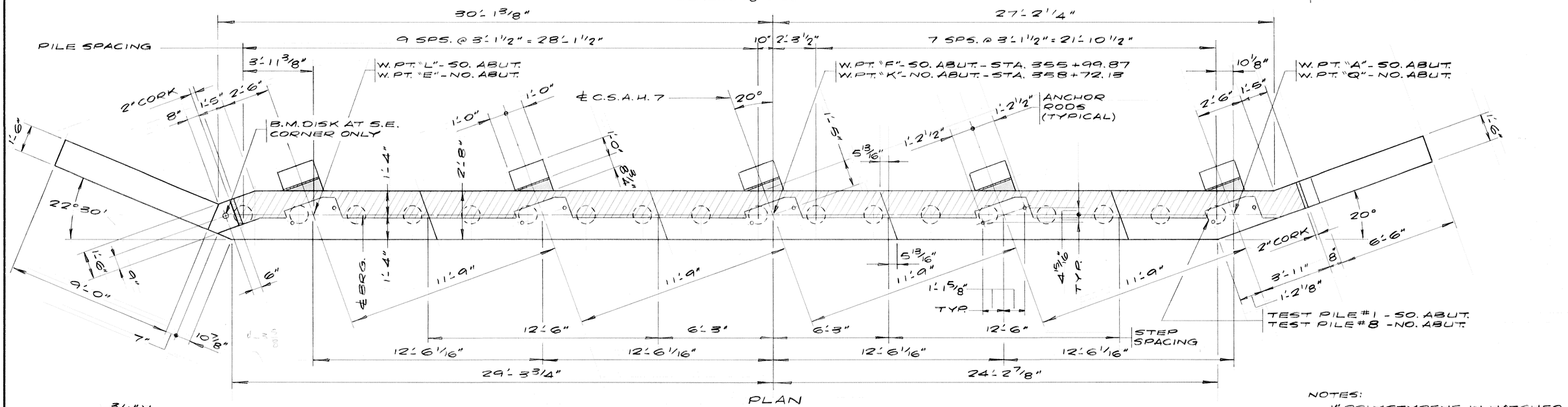
02526

GRC
NJR

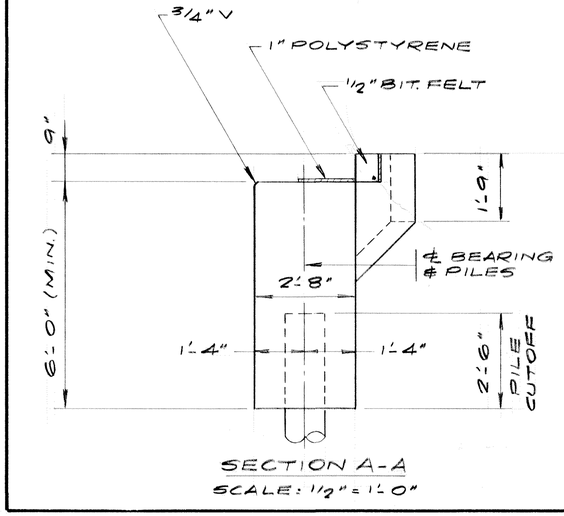


ELEVATION

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



PLAN



SECTION A-A

SCALE: 1/2" = 1'-0"

PILE NOTES

2 CAST-IN-PLACE CONC. TEST PILES 70 FT. LONG
34 " " " " " PILES EST. LENGTH 60 FT.
36 " " " " " REQ'D. FOR 2 ABUTMENTS

PILES TO HAVE A NOMINAL DIAMETER OF 12".

COMPUTED PILE LOADS (TONS PER PILE)	
DEAD LOAD	18.4
LIVE LOAD	5.2
NEG. FRICTION	20.0
TOTAL	43.6

SUMMARY OF QUANTITIES - 2 ABUTMENTS		
CONCRETE, MIX NO. 3Y43	89	CU. YD.
REINFORCEMENT BARS	6480	POUND
CLASS E EXCAVATION	125	CU. YD.
(1) B.M. DISK (SEE STD. PLATE NO. 9300)	1	
(2) CAST-IN-PLACE CONC. PILING DELIVERED	2040	LIN. FT.
CAST-IN-PLACE CONC. TEST PILES, 70 FT. LG.	2	EACH

(1) COUNTY WILL FURNISH DISK. PAYMENT FOR PLACING TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS. SEE STD. PLATE NO. 9301 FOR PLACING.

(2) DOES NOT INCLUDE TEST PILES.

NOTES:

1" POLYSTYRENE IN HATCHED AREA (UNDER END WEB). CUT OUT FOR BEARINGS.

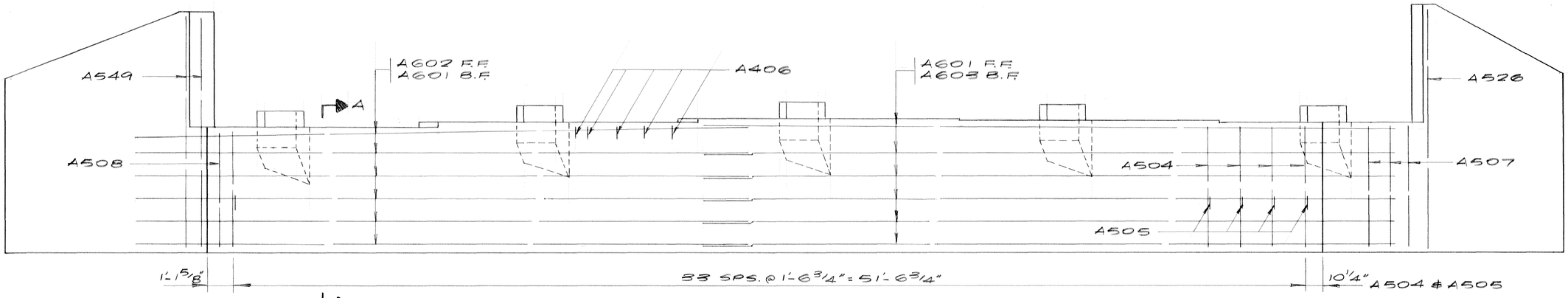
SHADED AREA OF SHEAR BLOCK TO BE POURED WITH END WEB.

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

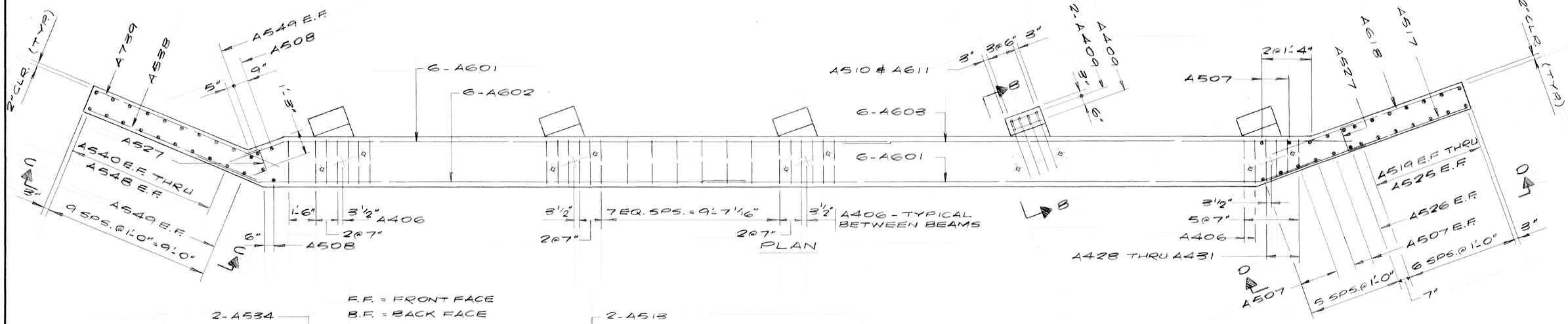
BRIDGE NO. 02526

ABUTMENT DETAILS

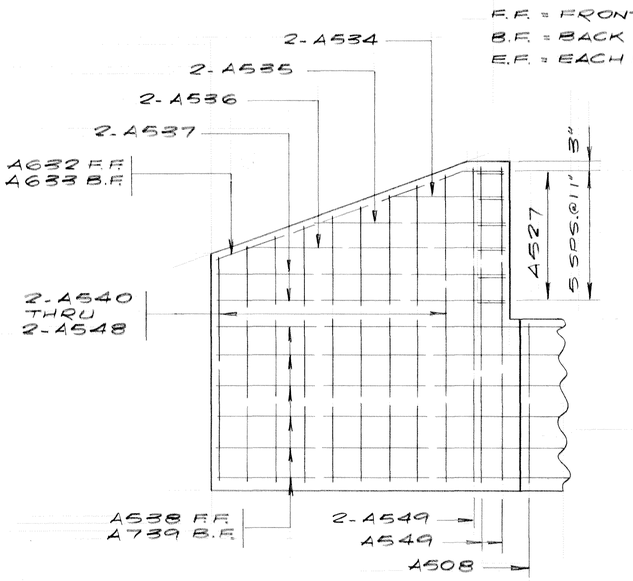
APPROVED: 7-30-75



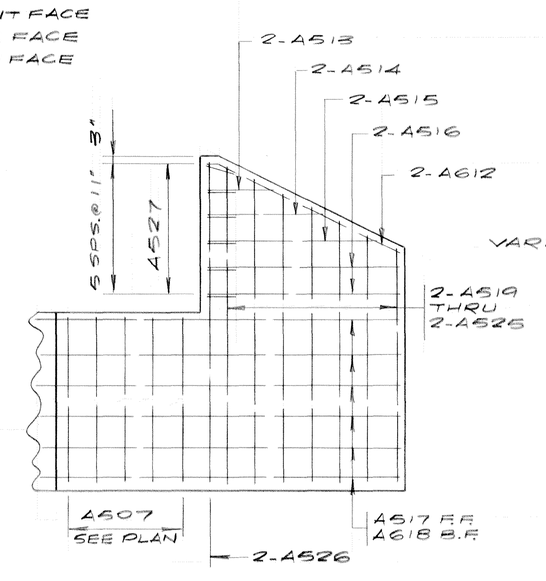
ELEVATION
SCALE: 3/8" = 1'-0"



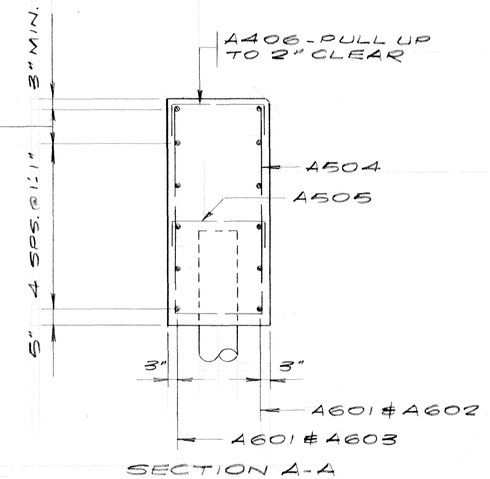
F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE



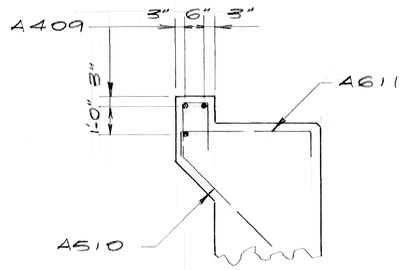
VIEW C-C
SCALE: 3/8" = 1'-0"



VIEW D-D
SCALE: 3/8" = 1'-0"



SECTION A-A
SCALE: 1/2" = 1'-0"



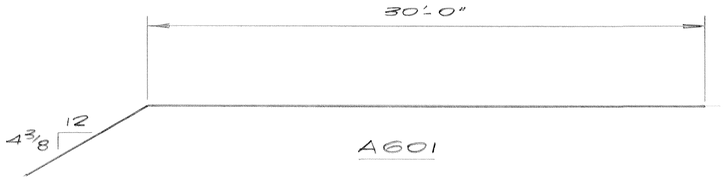
SECTION B-B
SCALE: 1 1/2" = 1'-0"

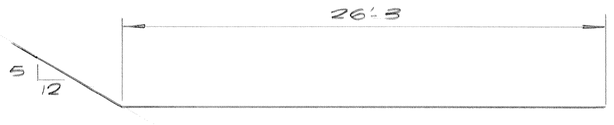
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

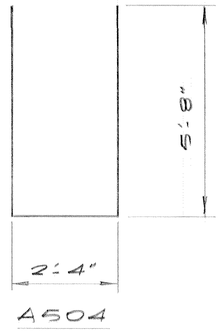
BRIDGE NO. 02526

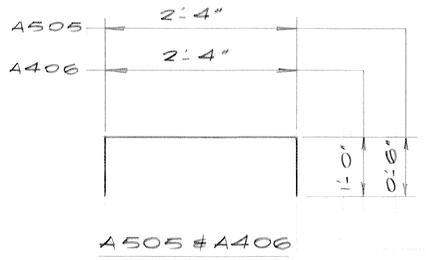
ABUTMENT REINFORCEMENT

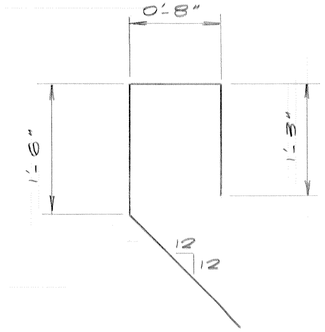
APPROVED: 7-30-75

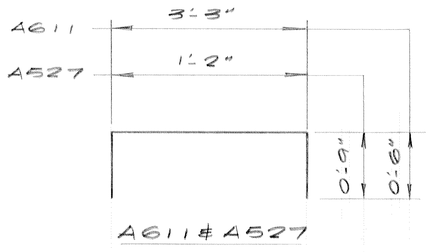


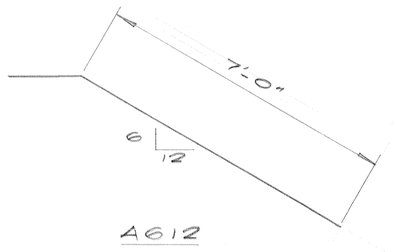


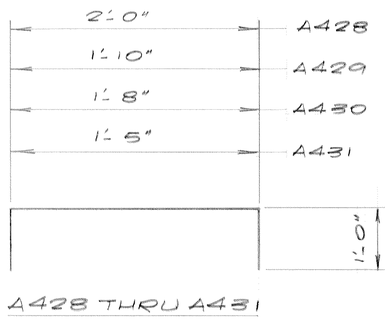


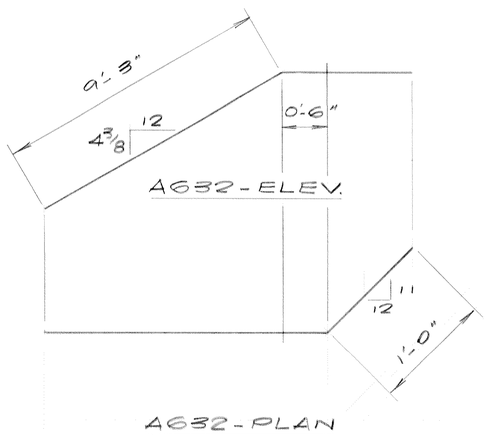


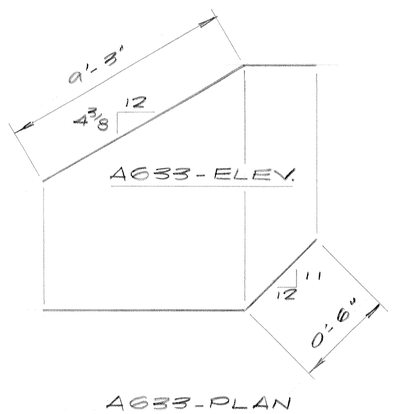












BILL OF REINF. - 2 ABUTMENTS

BAR	NO.	LEN.	SHAPE	LOCATION
A601	24	33'-3"	BENT	WALL - LONGIT.
A602	12	28'-6"	"	" "
A603	12	29'-9"	STR.	" "
A504	68	13'-8"	BENT	" STIRRUPS
A505	68	3'-4"	"	" TIES
A406	102	4'-4"	"	BR. SEAT - TIES
A507	18	5'-10"	STR.	WALL - VERT.
A508	4	5'-7"	"	" "
A409	30	1'-8"	"	SHEAR BLOCK
A510	40	7'-11"	BENT	" "
A611	40	4'-3"	"	" "
A612	4	7'-6"	"	WINGWALL
A513	4	2'-4"	STR.	"
A514	4	4'-1"	"	"
A515	4	6'-0"	"	"
A516	8	6'-9"	"	"
A517	12	11'-10"	"	"
A618	12	11'-0"	"	"
A519	4	8'-2"	"	"
A520	4	8'-8"	"	"
A521	4	9'-2"	"	"
A522	4	9'-8"	"	"
A523	4	10'-2"	"	"
A524	4	10'-8"	"	"
A525	4	11'-2"	"	"
A526	4	11'-5"	"	"
A527	24	2'-8"	BENT	"
A428	2	4'-0"	"	BR. SEAT - TIES
A429	2	3'-10"	"	" " "
A430	2	3'-8"	"	" " "
A431	2	3'-5"	"	" " "
A632	2	10'-9"	"	WINGWALL
A633	2	9'-9"	"	"
A534	4	3'-0"	STR.	"
A535	4	6'-2"	"	"
A536	4	8'-5"	"	"
A537	8	9'-5"	"	"
A538	12	10'-2"	"	"
A739	12	11'-6"	"	"
A540	4	7'-11"	"	"
A541	4	8'-4"	"	"
A542	4	8'-8"	"	"
A543	4	9'-0"	"	"
A544	4	9'-4"	"	"
A545	4	9'-8"	"	"
A546	4	10'-1"	"	"
A547	4	10'-6"	"	"
A548	4	10'-10"	"	"
A549	8	11'-2"	"	"

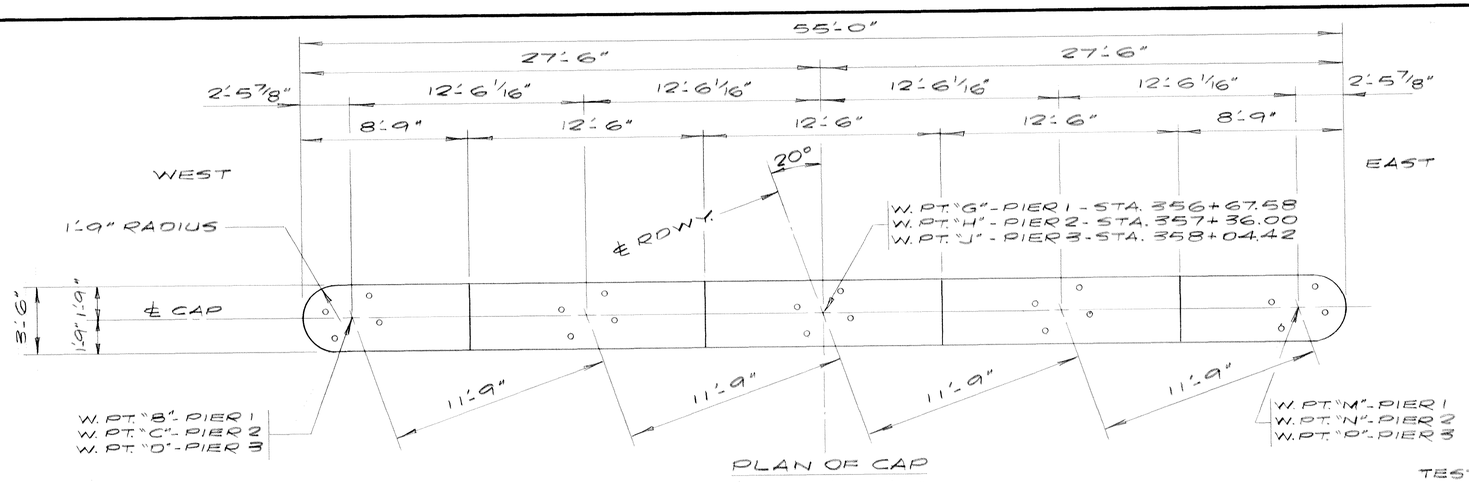
① 2'-3" MIN. LAP

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE NO. 02526

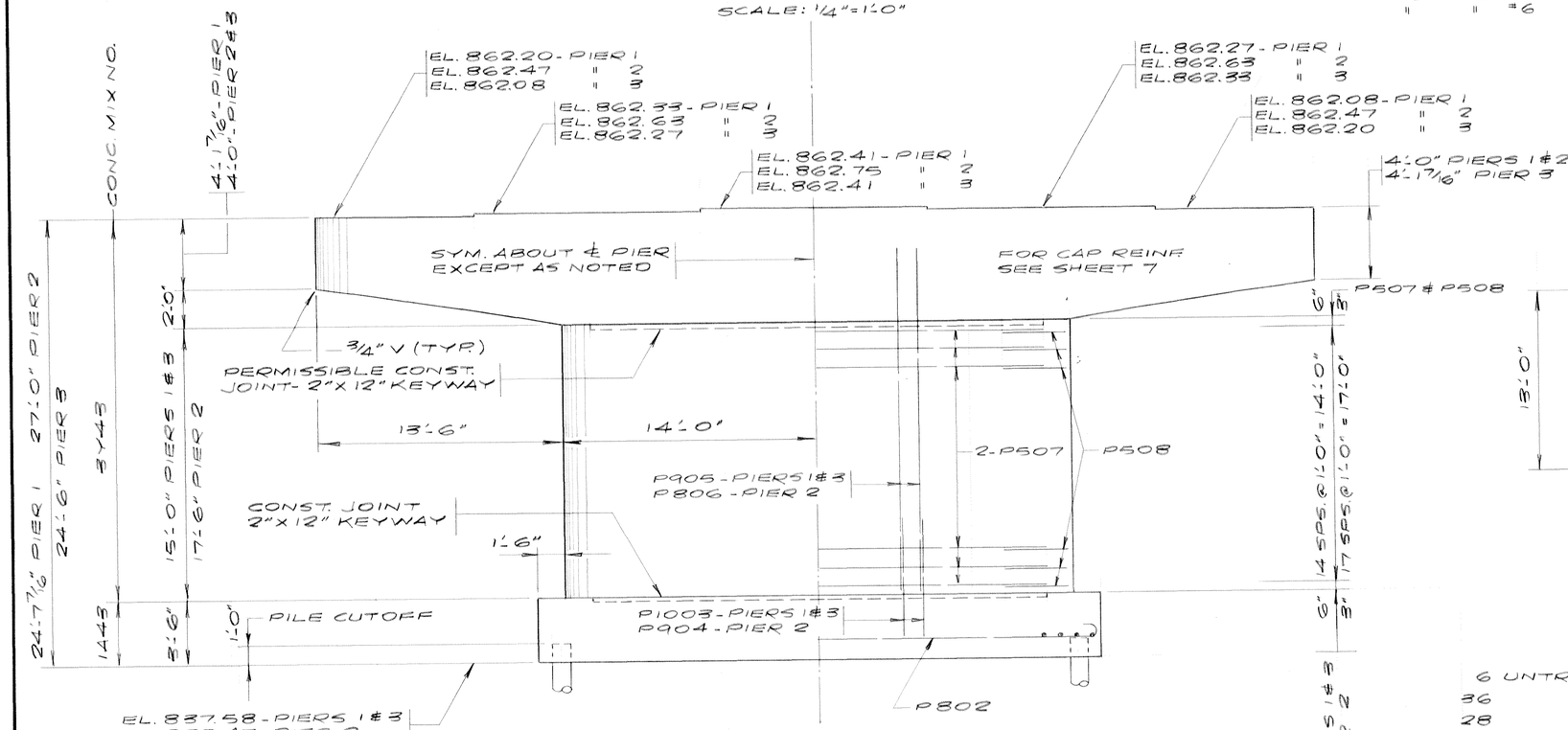
ABUTMENT
REINFORCEMENT

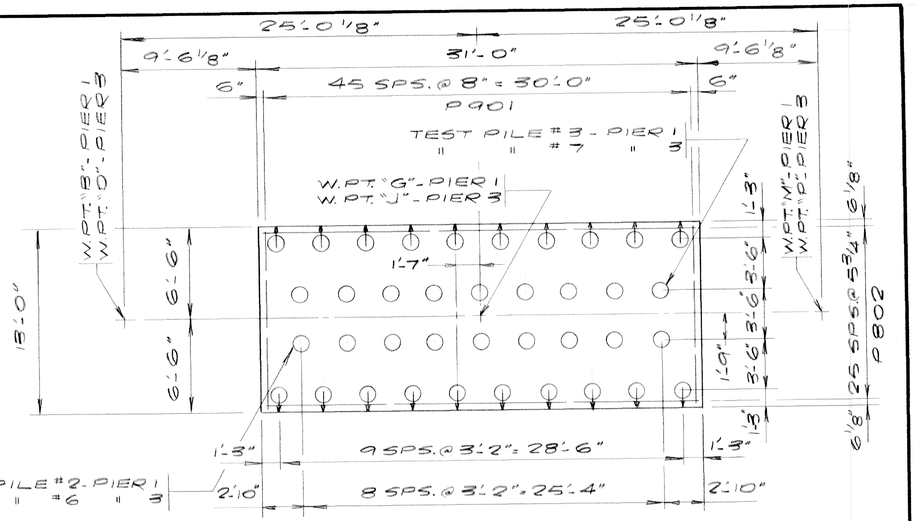
APPROVED: 7-30-75



PLAN OF CAP

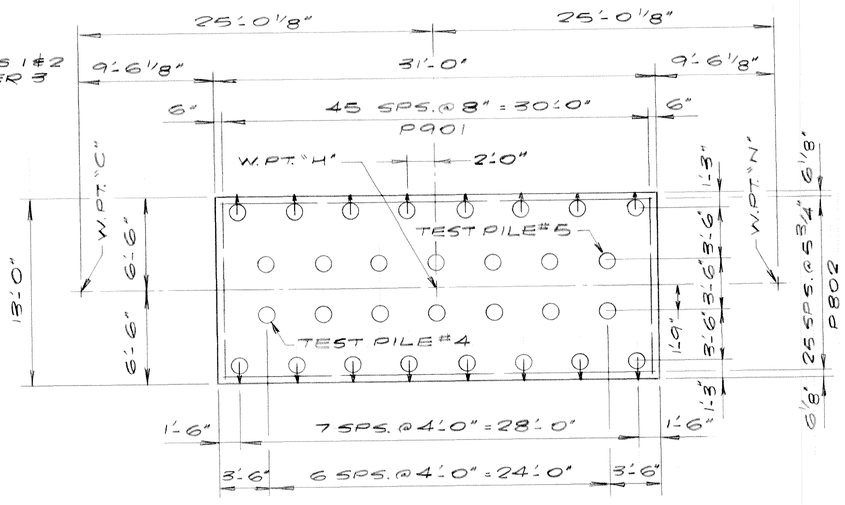
SCALE: 1/4"=1'-0"



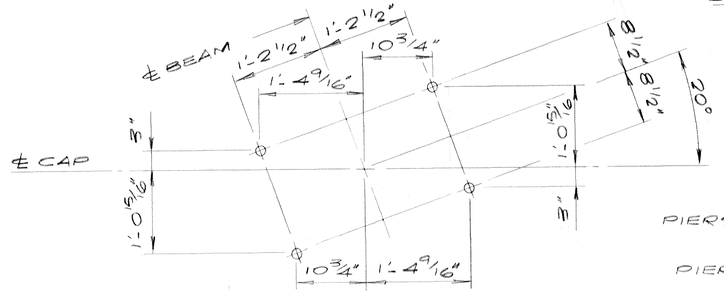


FOOTING PLAN - PIERS 1 & 3

SCALE: 3/16"=1'-0"



FOOTING PLAN - PIER 2



ANCHOR ROD LAYOUT

COMPUTED PILE LOADS (TONS PER PILE)		
	PIERS 1 & 3	PIER 2
DEAD LOAD	18.8	24.2
LIVE LOAD	3.4	3.5
OVERTURNING	12.6	7.2
TOTAL	34.8	34.9

PIERS 1 & 3: $\frac{34.8}{1.25} = 27.9$ REDUCTION PER A.A.S.H.T.O. 1.2.22

PIER 2: $\frac{34.9}{1.25} = 27.9$ " " " "

PILE NOTES

6 UNTREATED TIMBER TEST PILES 45 FT. LONG - PIERS 1, 2 & 3

36 " " PILES EST. LENGTH 35 FT. - PIER 1

28 " " " " " 35 " " 2

36 " " " " " 35 " " 3

106 " " " REQ'D. FOR PIERS 1, 2 & 3

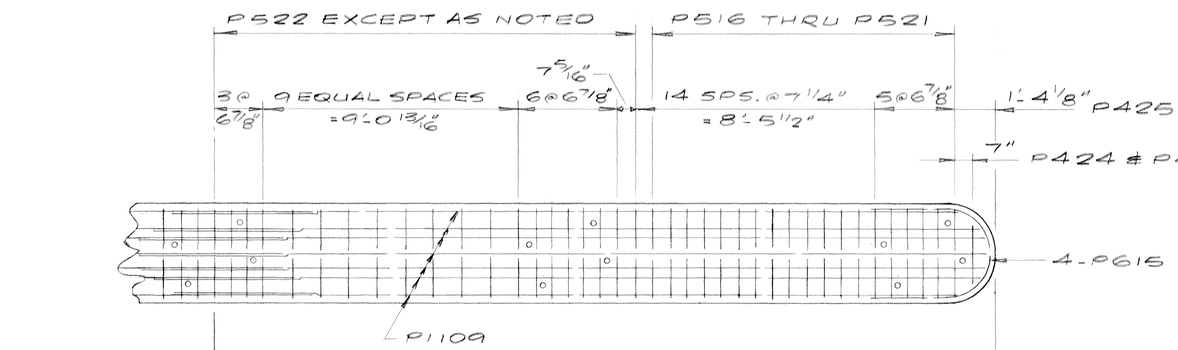
ESTIMATED PENETRATION 2 FT. LESS THAN LENGTH GIVEN.
PILES MARKED THUS ⊖→ TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.
PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

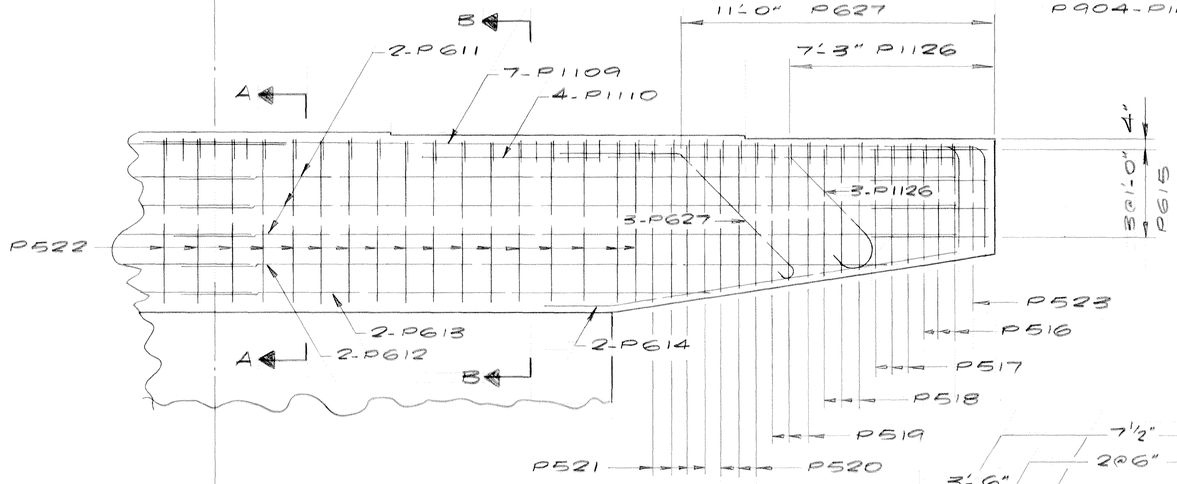
BRIDGE NO. 02526

PIER DETAILS

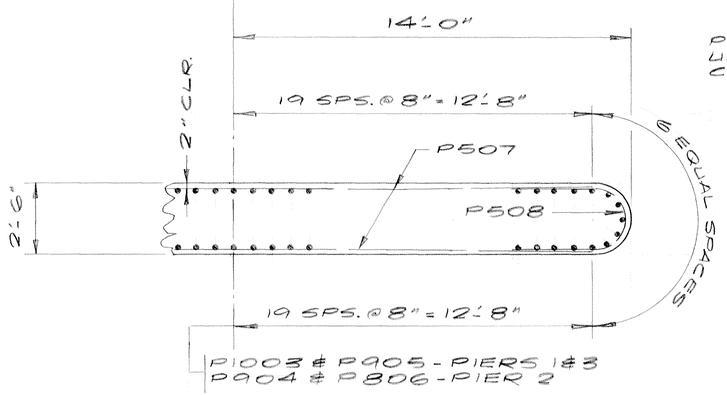
APPROVED: 7-30-75



HALF PLAN OF CAP
SCALE: 3/8"=1'-0"

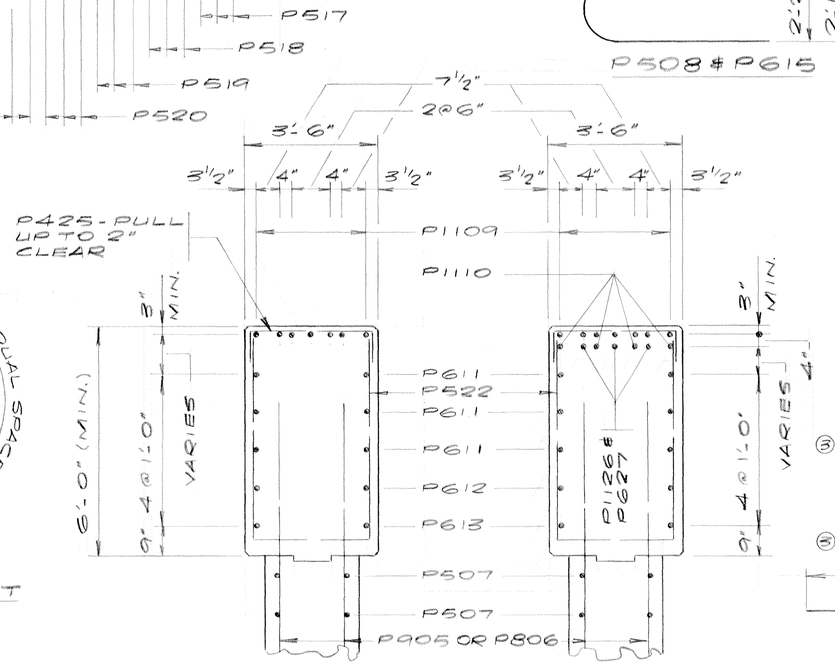


HALF ELEVATION OF CAP



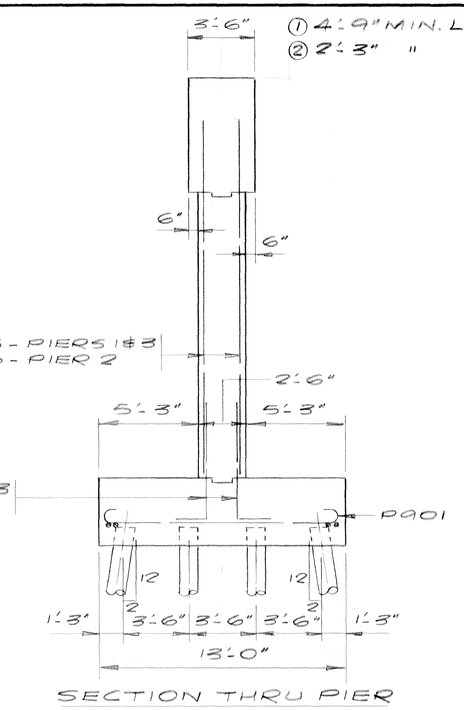
P1003 & P905 - PIERS 1&3
P904 & P806 - PIER 2

HALF SECTION THRU SHAFT



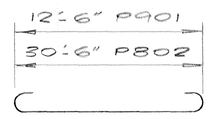
SECTION A-A
SCALE: 1/2"=1'-0"

SECTION B-B
SCALE: 1/2"=1'-0"

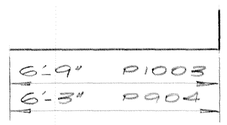


SECTION THRU PIER
SCALE: 1/4"=1'-0"

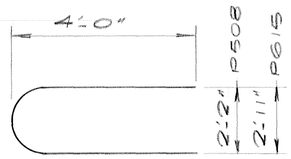
BILL OF REINFORCEMENT - 3 PIERS						
	BAR	NO. PER PIER 1 OR 3	NO. PER PIER 2	LEN.	SHAPE	LOCATION
	P901	46	46	15'-0"	BENT	FOOTING
	P802	26	26	32'-4"	"	"
	P1003	88	——	8'-7"	"	" DOWEL
	P904	——	88	7'-8"	"	"
	P905	88	——	18'-10"	STR.	SHAFT-VERT.
	P806	——	88	20'-10"	"	" "
	P507	30	36	25'-6"	"	" HORZ.
	P508	30	36	9'-3"	BENT	" ENDS
①	P1109	14	14	32'-9"	"	CAP
	P1110	8	8	19'-0"	STR.	"
②	P611	12	12	27'-3"	"	"
②	P612	4	4	24'-10"	"	"
②	P613	4	4	18'-8"	"	"
	P614	4	4	14'-6"	BENT	"
	P615	8	8	9'-8"	"	"
	P516	6	6	10'-10"	"	"
	P517	6	6	11'-4"	"	"
	P518	6	6	12'-0"	"	"
	P519	6	6	12'-6"	"	"
	P520	6	6	13'-2"	"	"
	P521	8	8	13'-10"	"	"
	P522	30	30	14'-2"	"	"
	P523	2	2	9'-4"	"	"
	P424	2	2	3'-6"	"	"
	P425	77	77	4'-8"	"	"
	P1126	6	6	19'-1"	"	"
	P627	6	6	8'-10"	"	"



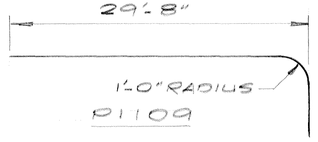
P901 & P802



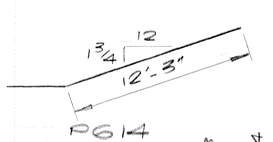
P1003 & P904



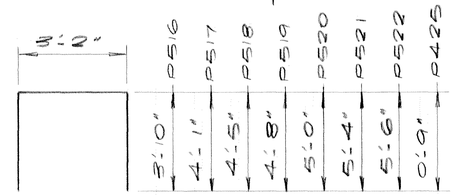
P508 & P615



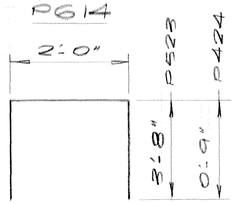
P1109



P614



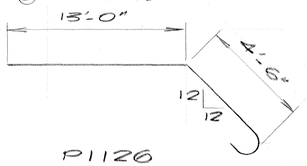
P516 THRU P522 & P425



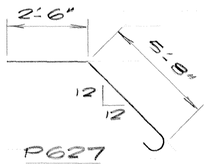
P523 & P424

SUMMARY OF QUANTITIES FOR 3 PIERS				
	PIER 1	PIER 2	PIER 3	TOTAL
CONCRETE, MIX NO. 3Y43	78	85	78	241 CU.YD.
CONCRETE, MIX NO. 1A43	52	52	52	156 CU.YD.
REINFORCEMENT BARS	20650	19170	20650	60470 LB.
CLASS WE EXCAVATION	165	150	190	505 CU.YD.
③ UNTREATED TIMBER PILING DEL.	1260	980	1260	3500 LIN.FT.
UNTREATED TIMBER TEST PILES 45'	2	2	2	6 EACH

③ DOES NOT INCLUDE TEST PILES.



P1126



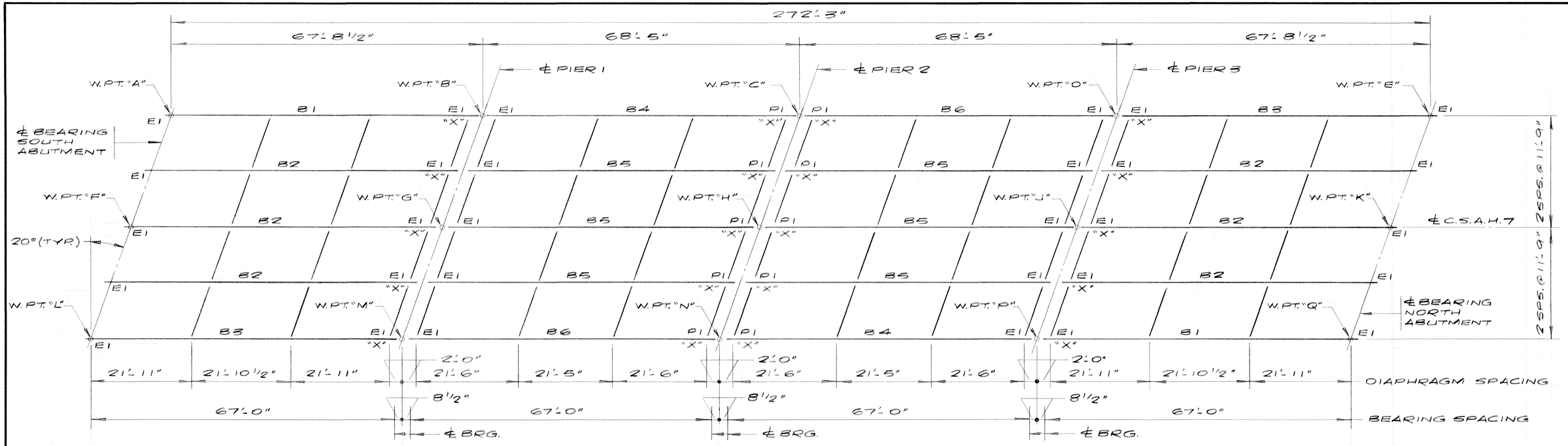
P627

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE NO. 02526

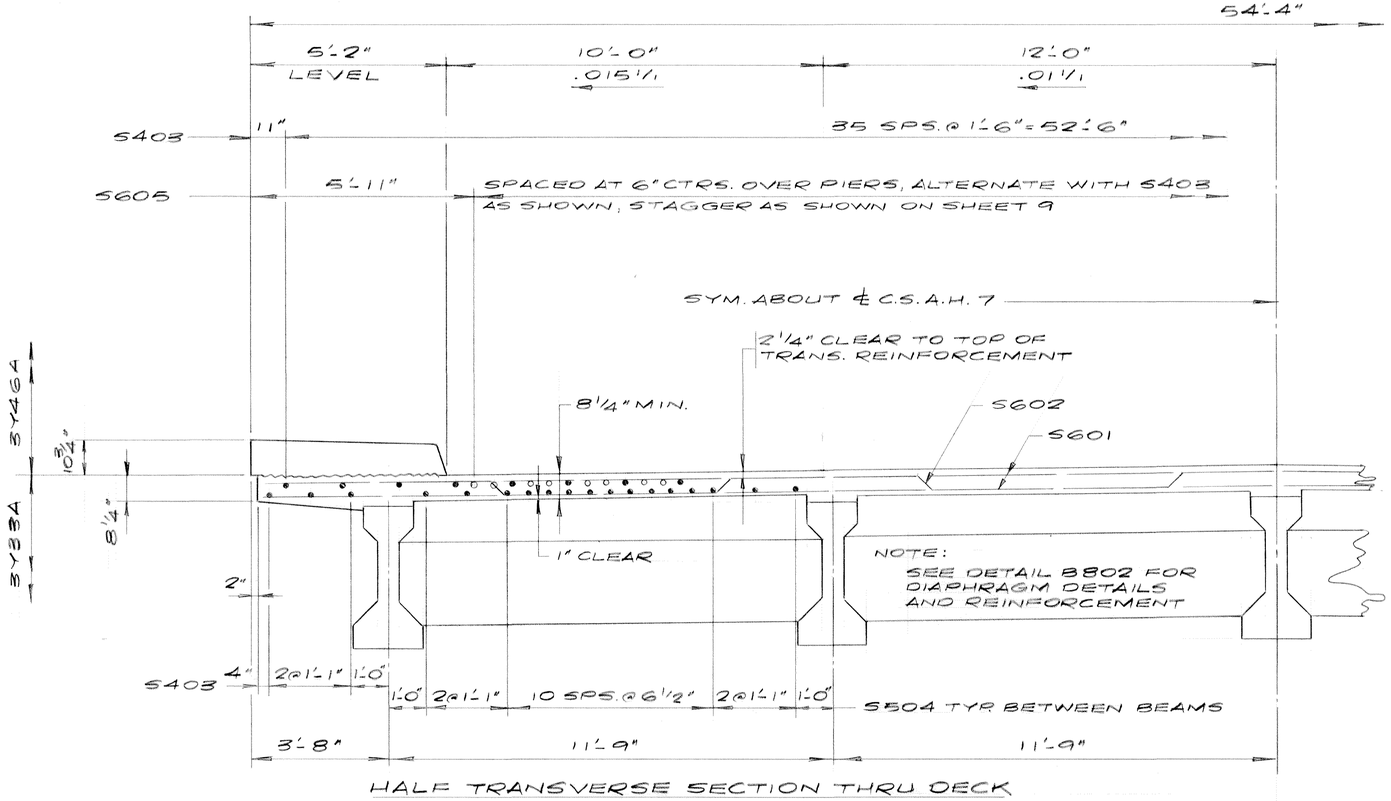
PIER REINFORCEMENT

APPROVED: 7-30-75



E1 = EXPANSION BEARING ASSEMBLIES, TYPE 1
P1 = ELASTOMERIC BEARING PAD, TYPE 1

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



HALF TRANSVERSE SECTION THRU DECK
SCALE: 1/2" = 1'-0"

① SUMMARY OF QUANTITIES - SUPERSTRUCTURE

②	CONCRETE, MIX NO. 3Y33A	462	CU.YD.
	CONCRETE, MIX NO. 3Y46A	120	CU.YD.
	REINFORCEMENT BARS	118280	POUND
	STRUCTURAL STEEL, (3306)	760	POUND
	PRESTRESSED CONC. GIRDERS, TYPE 45-69	20	EACH
	EXPANSION BEARING ASSEMBLIES, TYPE 1	30	EACH
	ELASTOMERIC BEARING PAD, TYPE 1	10	EACH
	ORNAMENTAL METAL RAILING	551	LIN.FT.
	FLOOR DRAINS, TYPE 1	12	EACH
③ ④	NAME PLATE (SEE DETAIL B103)	1	
⑤	PROTECTION ANGLE (SEE DETAIL B551)		
⑤	GUARDRAIL CONNECTION		
④	3-PLY JOINT WATERPROOFING	137	LIN.FT.

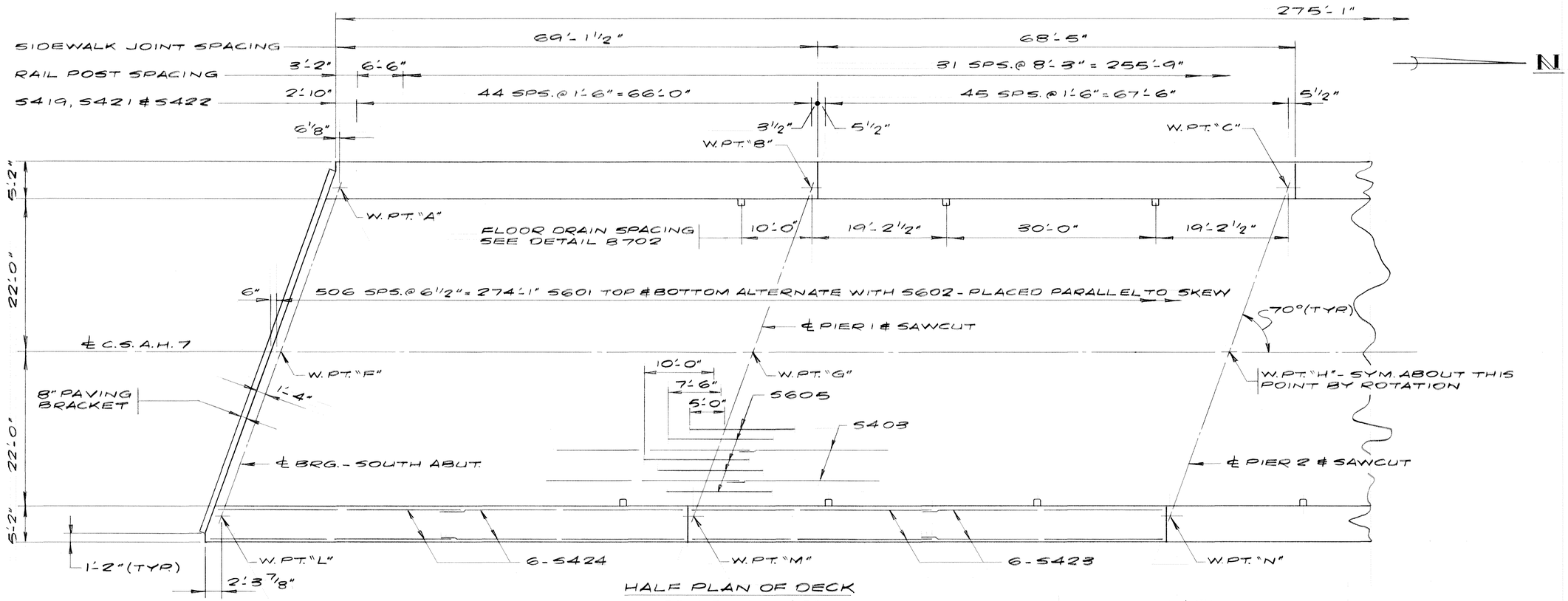
① INCLUDES RAILING QUANTITIES.
② THE VOLUME OF DECK CONCRETE FOR PAYMENT SHALL BE COMPUTED USING AVERAGE STOOL HEIGHT OF 1 5/8".
③ BRIDGE NO. 02526, DATED: 1975
④ INCLUDED IN PRICE BID FOR OTHER ITEMS.
⑤ INCLUDED IN WEIGHT OF STRUCTURAL STEEL 3306.

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

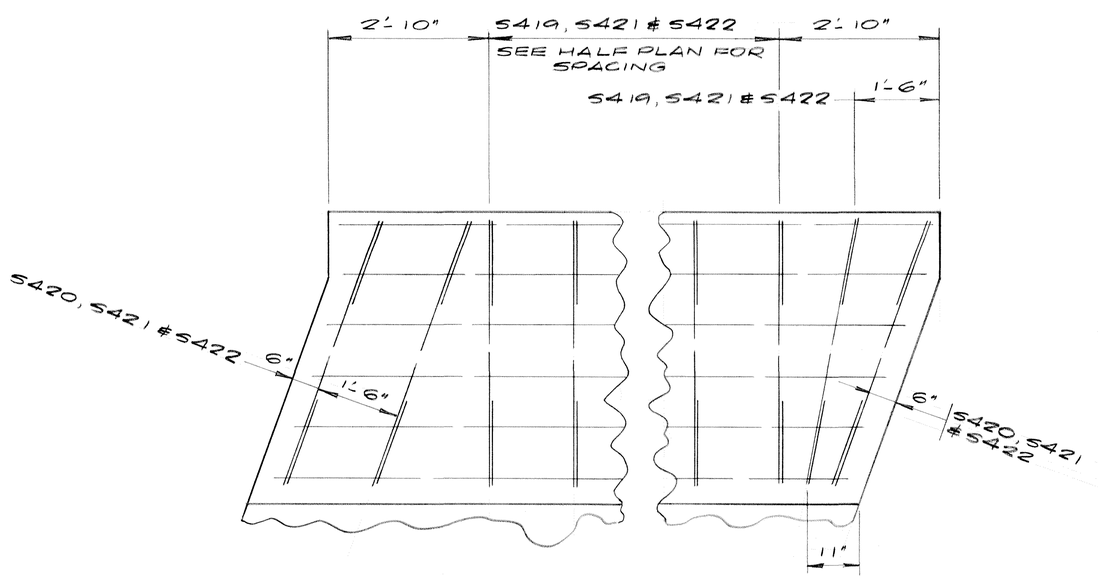
BRIDGE NO. 02526

SUPERSTRUCTURE DETAILS

APPROVED: 7-30-75

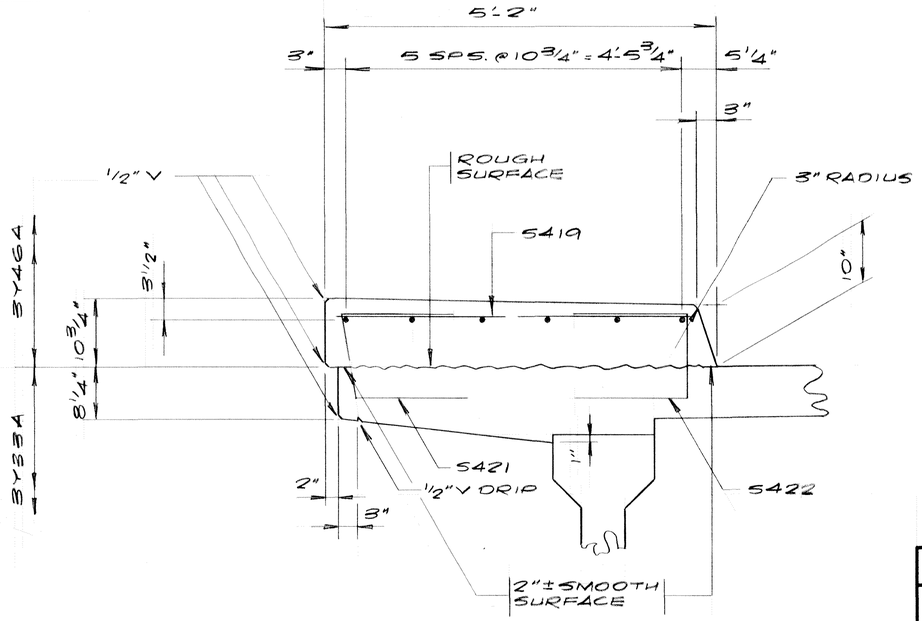


HALF PLAN OF DECK
SCALE: 1/8" = 1'-0"



S.W. & N.E. CORNER
SCALE: 3/4" = 1'-0"

S.E. & N.W. CORNER
SCALE: 3/4" = 1'-0"



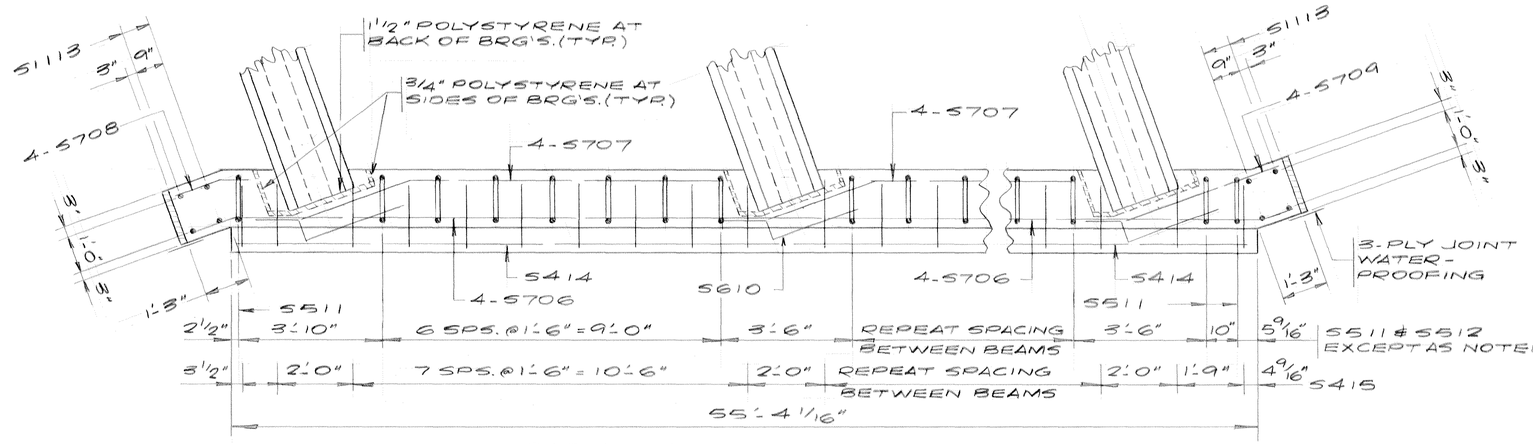
TYPICAL SECTION THRU SIDEWALK
SCALE: 1" = 1'-0"

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE NO. 02526

SUPERSTRUCTURE DETAILS

APPROVED: 7-30-75



PART PLAN OF END WEB

SCALE: ½" = 1'-0"

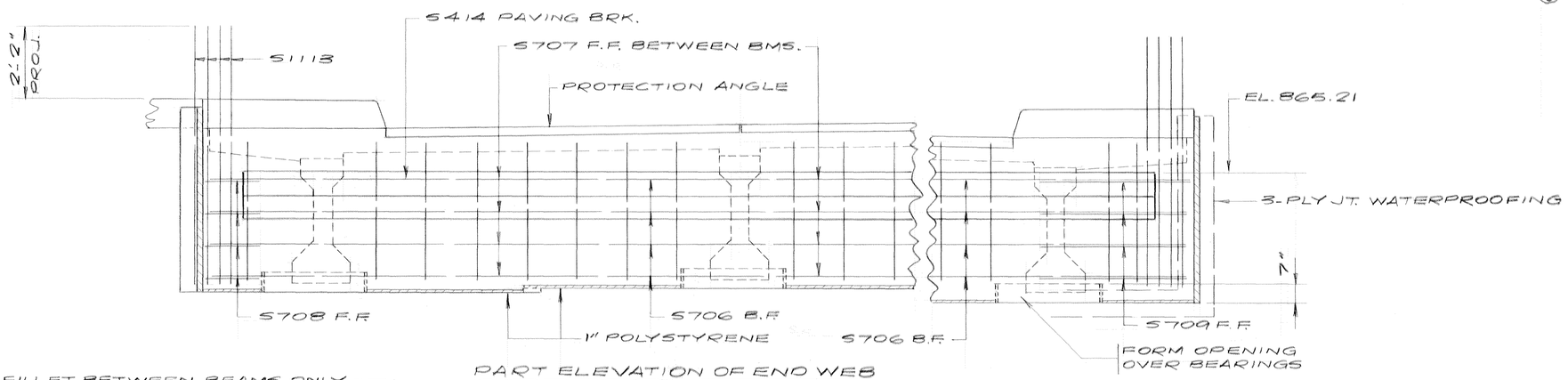
LIST OF PREFORMED CORK JOINT FILLER ②
4 PCS. 18" x 2" x 5'-7" ABUTMENT

LIST OF PREFORMED BITUM. JOINT FILLER ②
10 PCS. 9" x 1½" x 2'-0" SHEAR BLOCKS

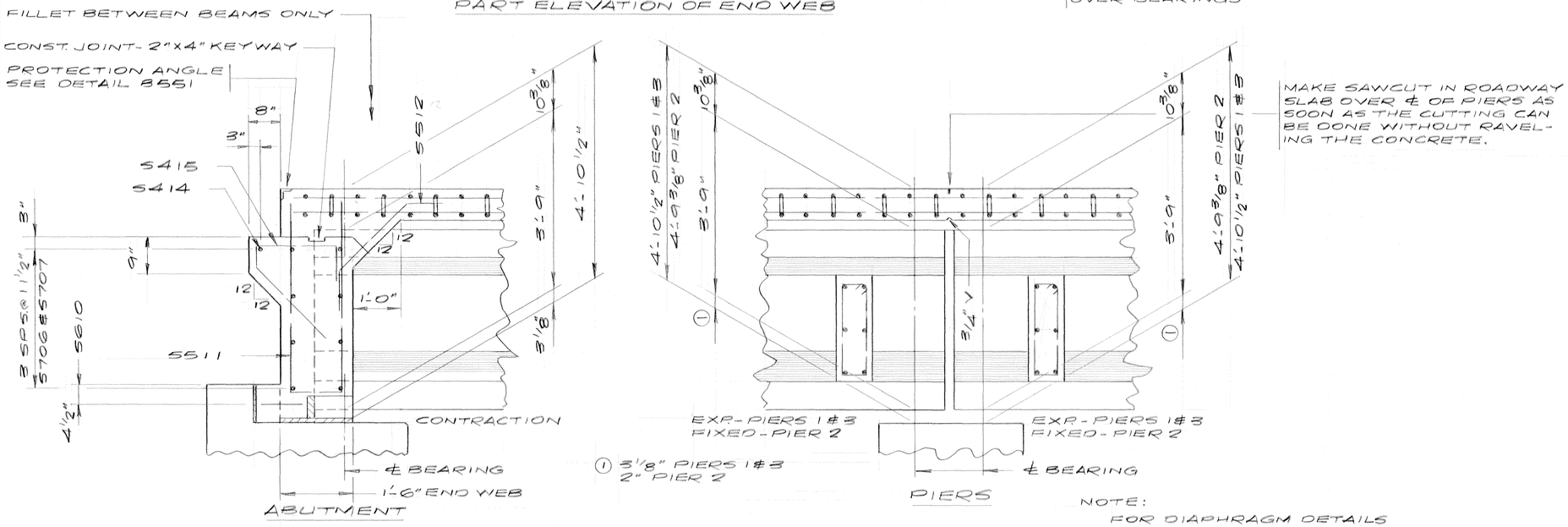
LIST OF POLYSTYRENE ② TYPE B EXCEPT AS NOTED			
③ 2 PCS. 18" x 1" x 58'-0" ABUTMENT BRIDGE SEAT			
10 PCS. 7" x 1½" x 3'-0" OPENING FOR BEARINGS			
10 PCS. 7" x ¾" x 0'-5"	"	"	"
10 PCS. 7" x ¾" x 1'-3"	"	"	"

② SEE SPECIAL PROVISIONS.

③ TYPE A



PART ELEVATION OF END WEB



PART LONGITUDINAL SECTION

SCALE: ¾" = 1'-0"

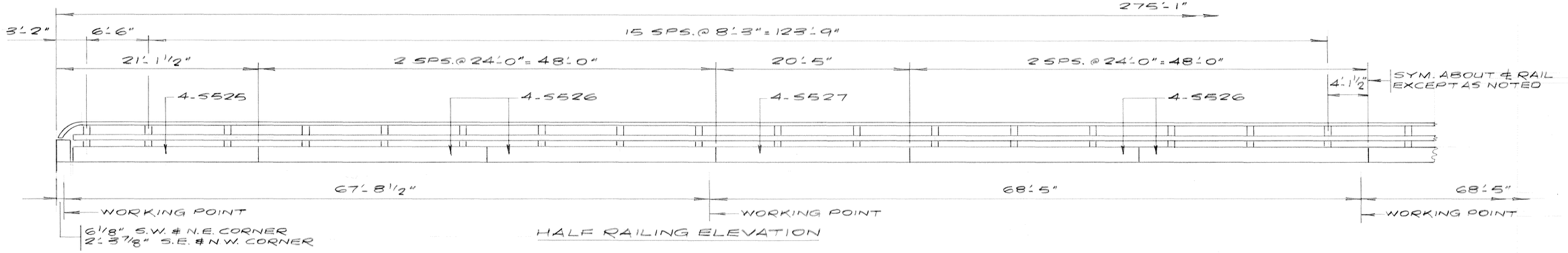
NOTE:
FOR DIAPHRAGM DETAILS AND REINFORCEMENT SEE DETAIL B802

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

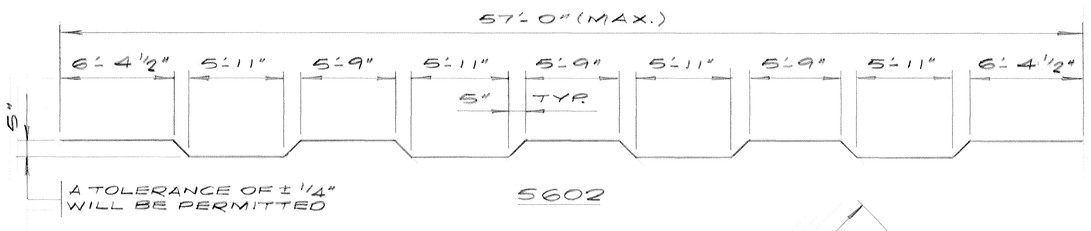
BRIDGE NO. 02526

SUPERSTRUCTURE DETAILS

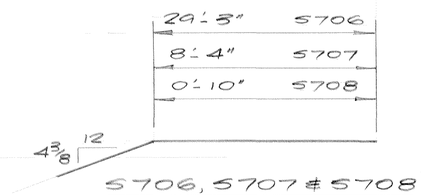
APPROVED: 7-30-75



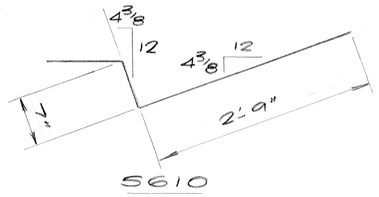
HALF RAILING ELEVATION



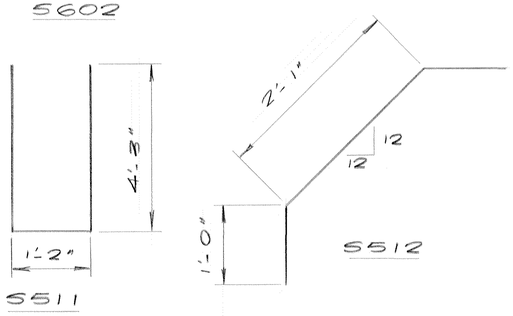
5602



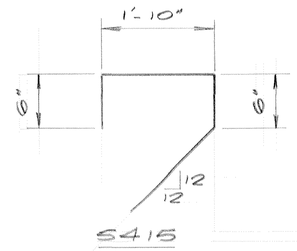
5706, 5707 & 5708



5610

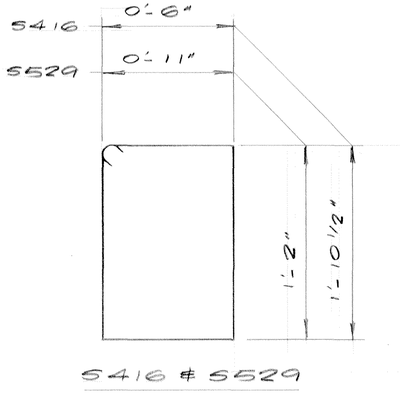


5511 5512

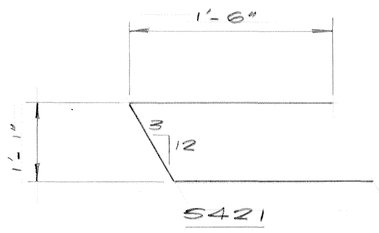


5415

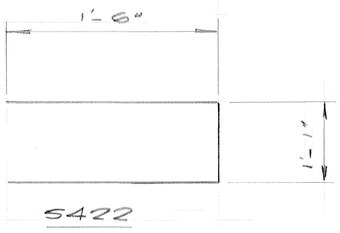
BILL OF REINF. - SUPERSTRUCTURE				
BAR	NO.	LEN.	SHAPE	LOCATION
5601	508	57'-0"	STR.	SLAB - TRANS.
5602	253	58'-5"	BENT	" "
① 5403	378	31'-11"	STR.	" LONGIT.
② 5504	480	36'-0"	"	" "
5605	174	15'-0"	"	" OVER PIERS
③ 5706	16	30'-5"	BENT	END WEB
5707	32	11'-4"	"	" "
5708	8	2'-0"	"	" "
5709	8	4'-3"	STR.	" "
5610	10	4'-6"	BENT	" "
5511	62	9'-8"	"	" "
5512	56	4'-1"	"	" "
5113	16	7'-7"	STR.	" POST-DOWELS
④ 5414	4	28'-3"	"	PAVING BRK.
5415	72	4'-6"	BENT	" "
5416	448	5'-6"	"	DIAPHRAGMS
5517	336	10'-6"	STR.	"
5518	168	5'-0"	"	"
5419	366	4'-7"	"	SIDEWALK - TRANS.
5420	6	5'-0"	"	" TIES
5421	372	4'-1"	BENT	" "
5422	372	4'-1"	"	" "
④ 5423	48	34'-10"	STR.	" LONGIT.
④ 5424	48	35'-11"	"	" "
5525	16	19'-1"	"	RAILBASE "
5526	64	23'-8"	"	"
5527	16	20'-1"	"	"
5528	776	6'-0"	BENT	TIES
5529	28	5'-1"	"	END POST "



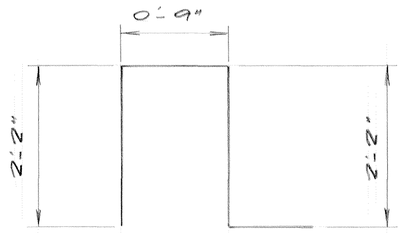
5416 & 5529



5421



5422



5528

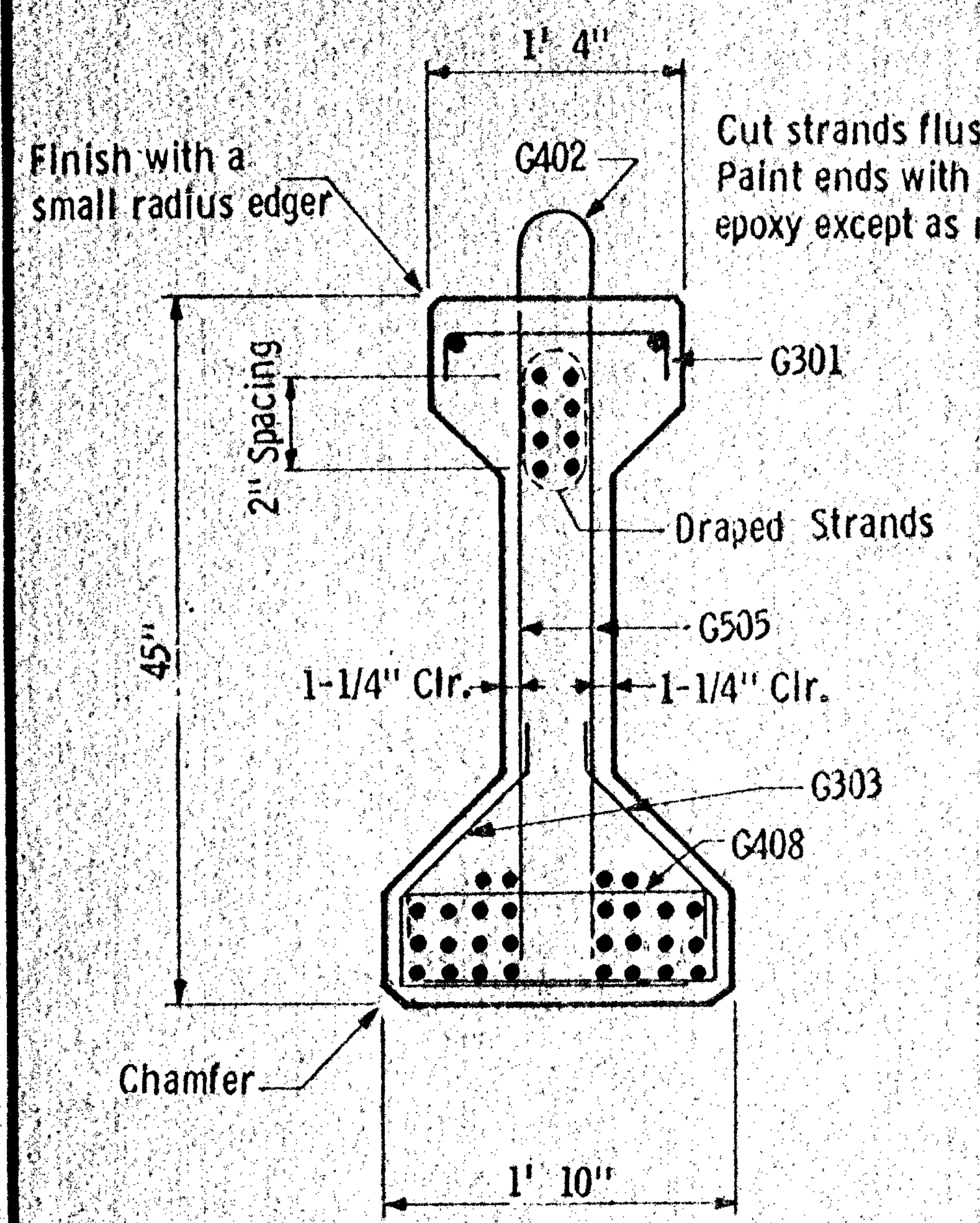
① 9 LINES, 1'-6" MIN. LAP
② 8 " 1'-11" " "
③ 2'-8" MIN. LAP
④ 1'-6" " "

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE NO. 02526

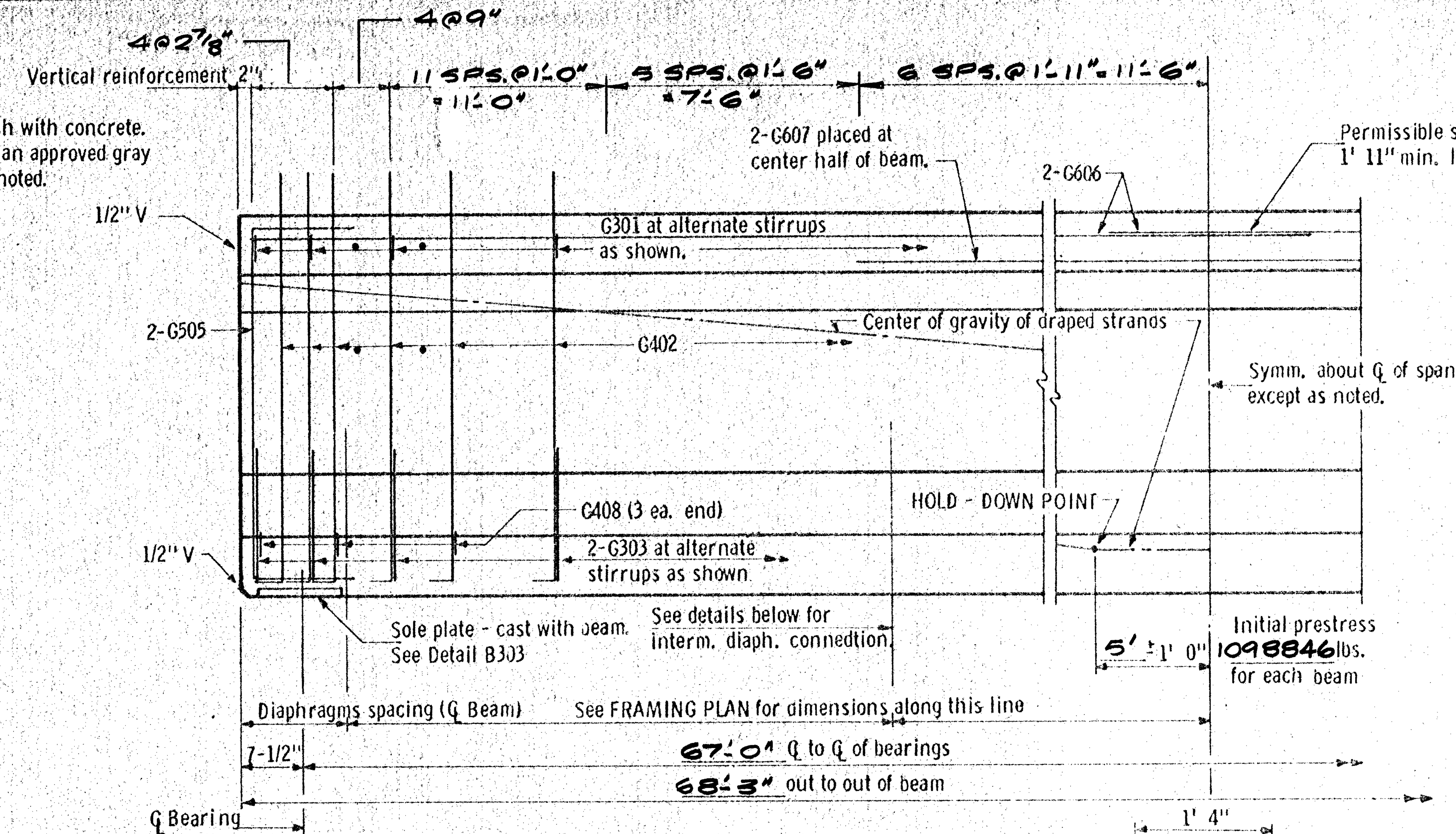
SUPERSTRUCTURE DETAILS

APPROVED: 7-30-75

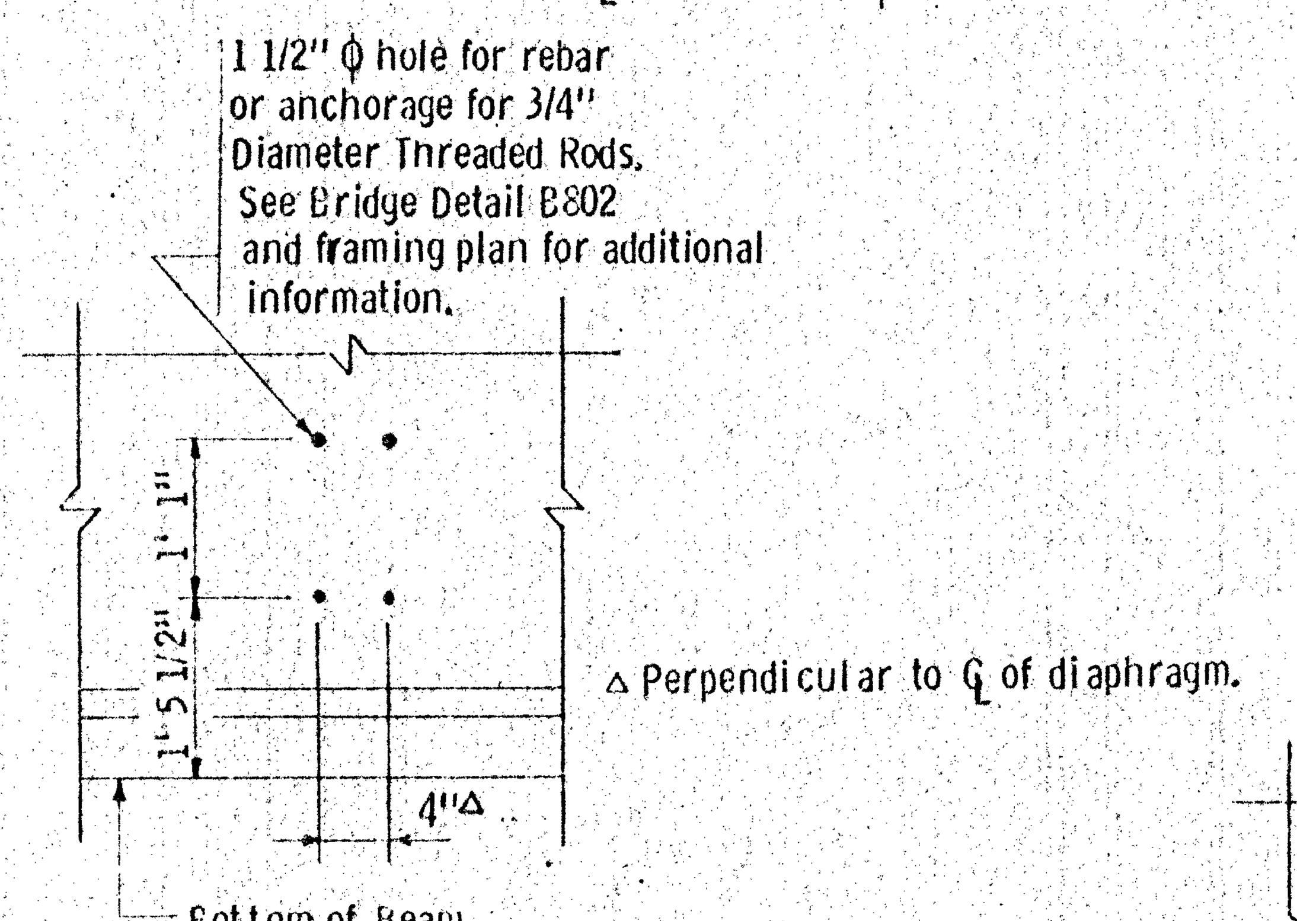


Details not shown are the same as the SECTION AT ℄ BEAM

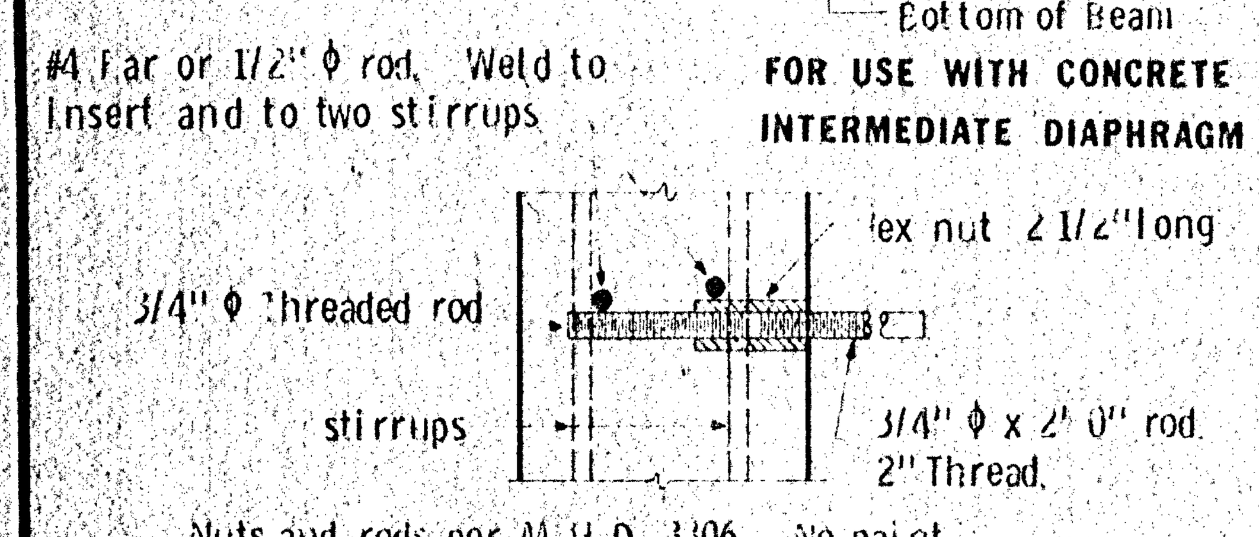
END VIEW



HALF ELEVATION

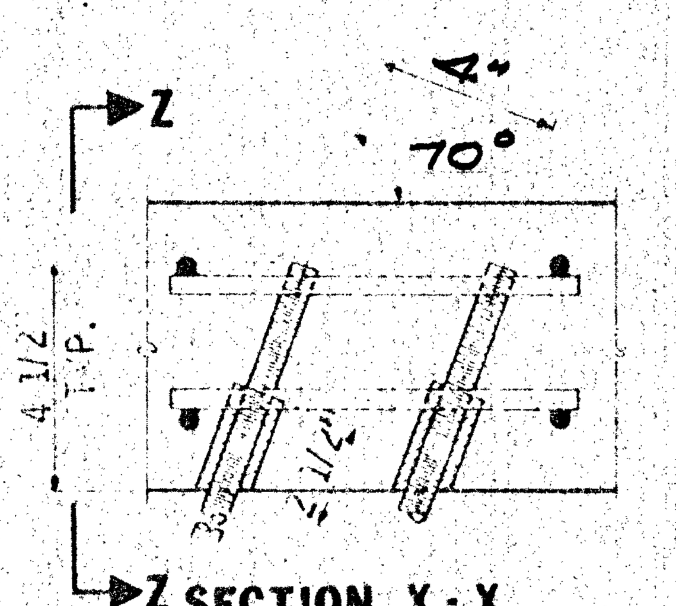


FOR USE WITH CONCRETE INTERMEDIATE DIAPHRAGM



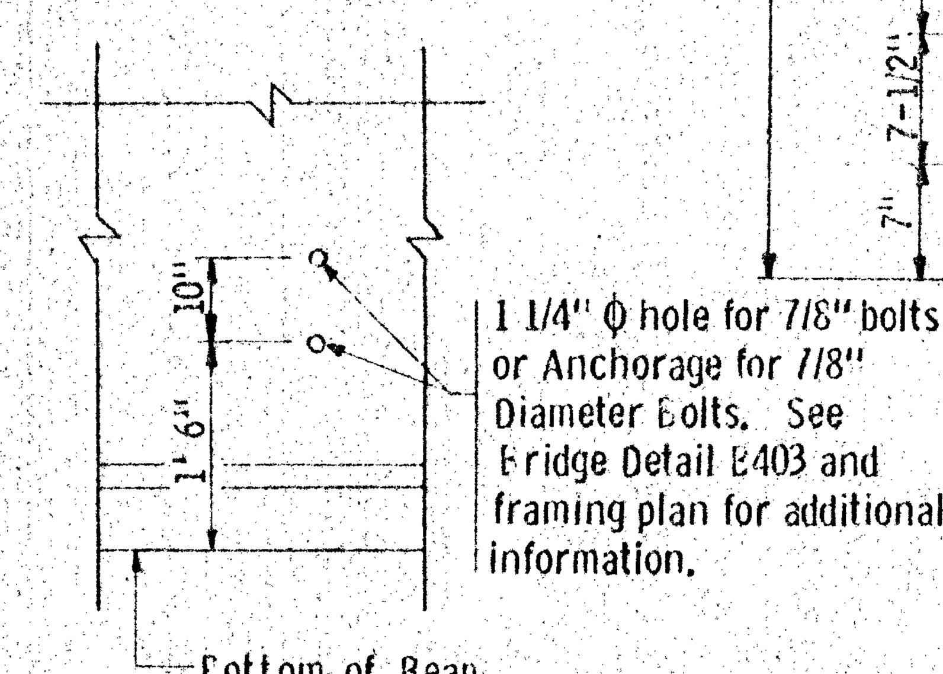
SECTION Z-Z

See FRAMING PLAN for skew direction



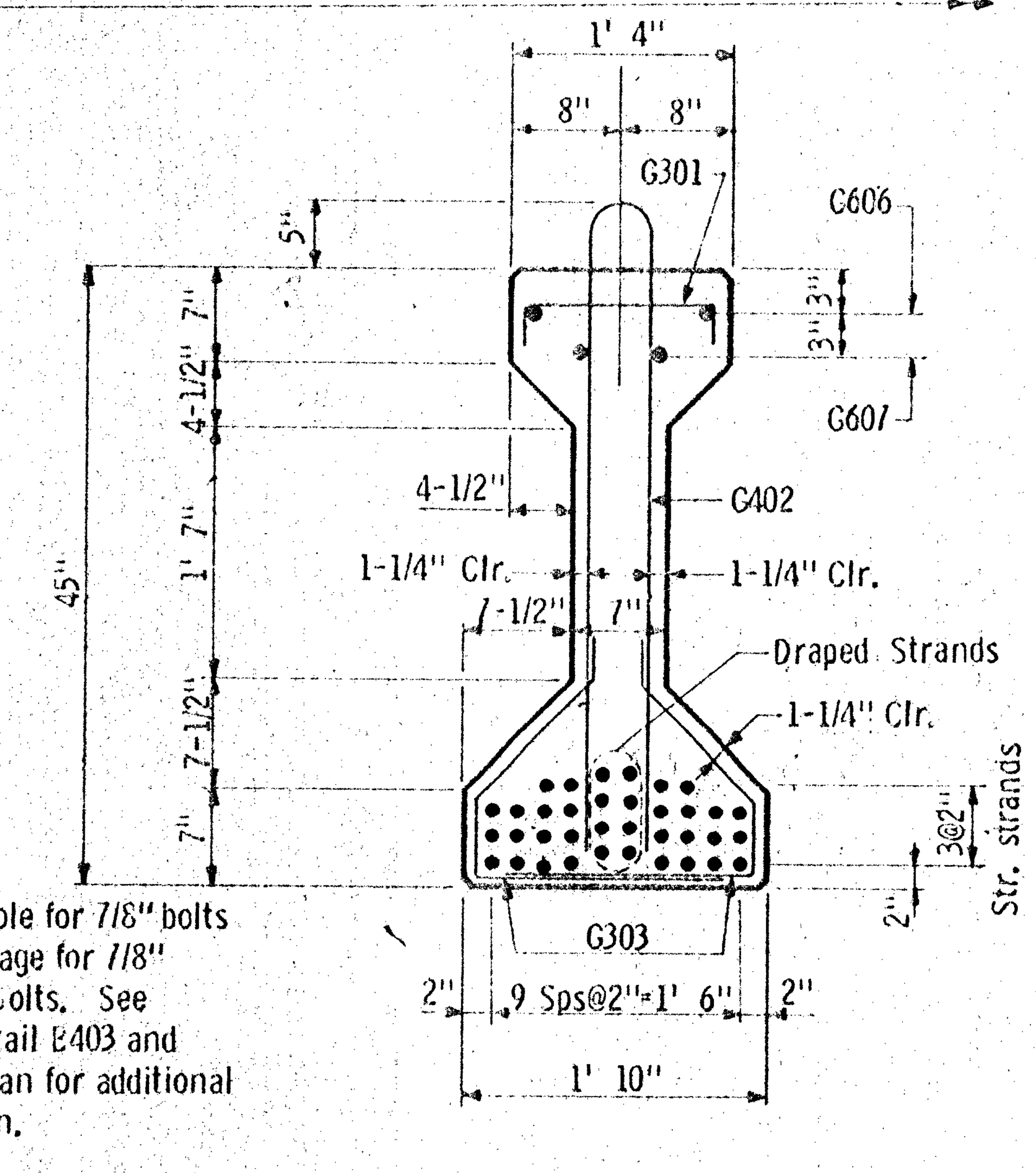
SECTION X-X

USE AT FASCIA BEAM AND INTERIOR BEAM WITH STAGGERED DIAPHRAGMS

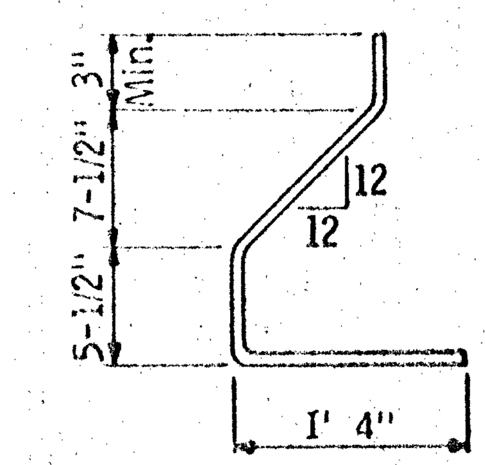


FOR USE WITH STEEL INTERMEDIATE DIAPHRAGM

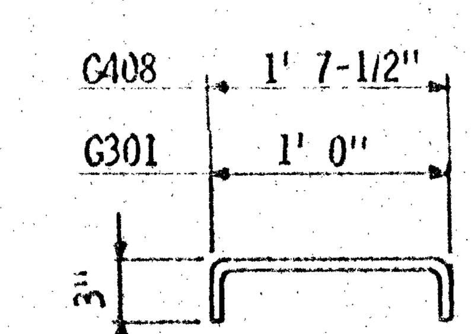
Δ Perpendicular to ℄ of diaphragm.



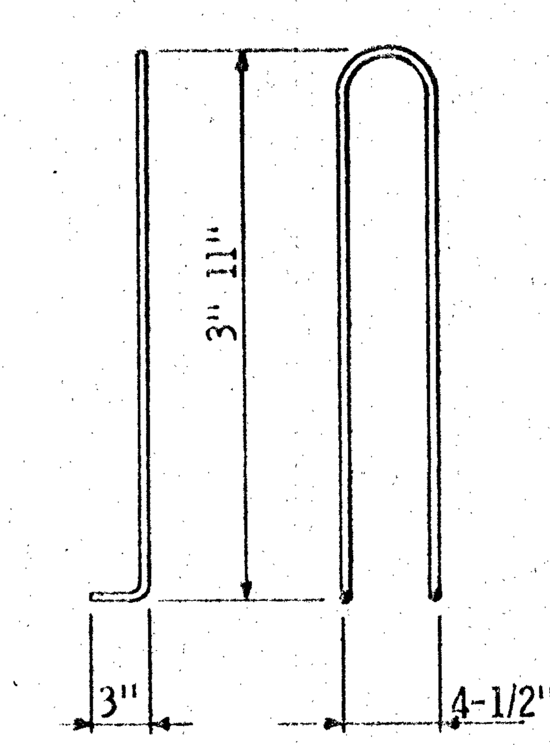
SECTION AT ℄ BEAM



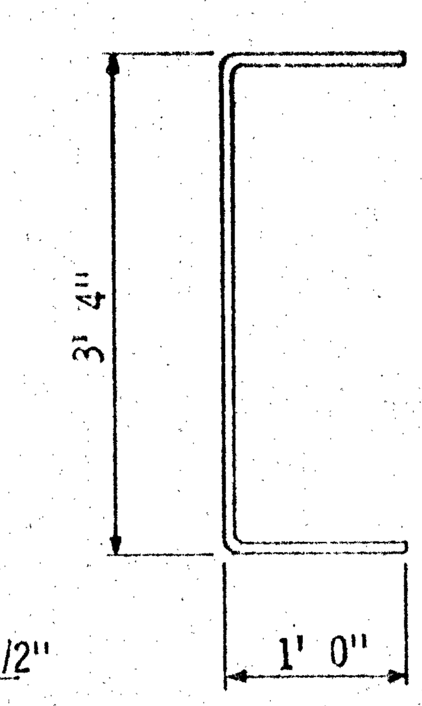
G303



G301 & G408



G402



G505

Bar	Wt.
G 301	.56 lb.
G 402	5.18 lb.
G 303	1.00 lb.
G 505	5.56 lb.
G 606	
G 607	
G 408	1.45 lb.

Girder Section Data

Wt./Ft. = 583 lbs.
Cross sec. area at ℄ of span = 560 in.^{2}
C.G. (from bottom) = 20.27 in.
I = 125,390 in.^{4}
S_B = 6,186 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 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. M.H.D. 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 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 girders. See M.H.D. 2405.

See framing plan for beam ends marked "X".

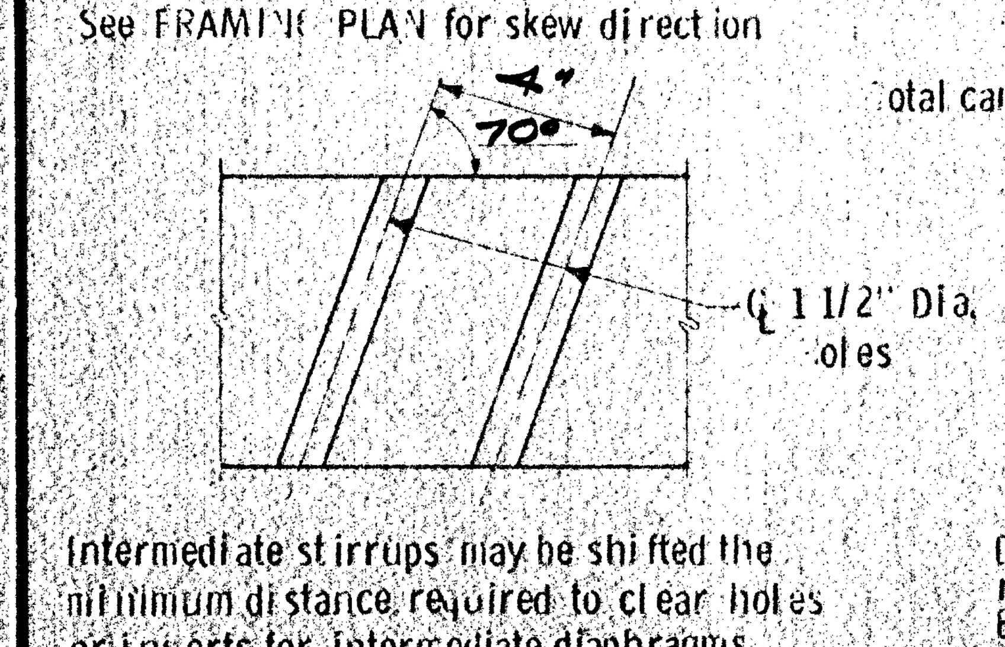
Approximate weight of beam 20 tons.

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	5957	6000

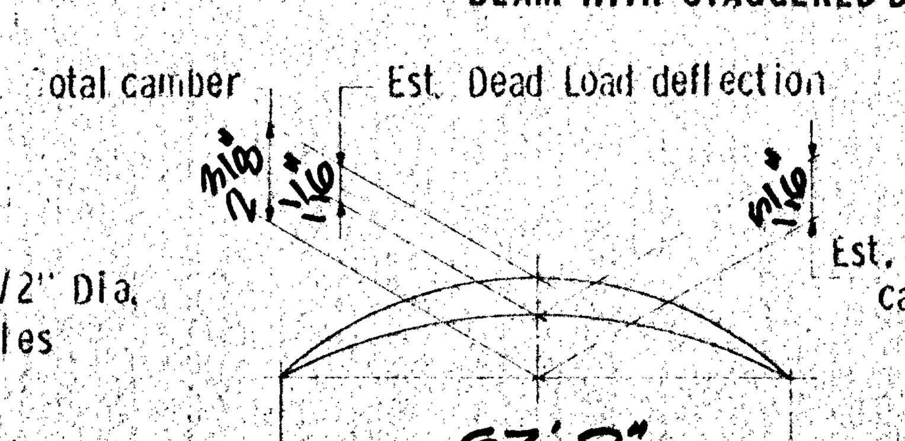
① Minimum concrete strength at time of prestress transfer.

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



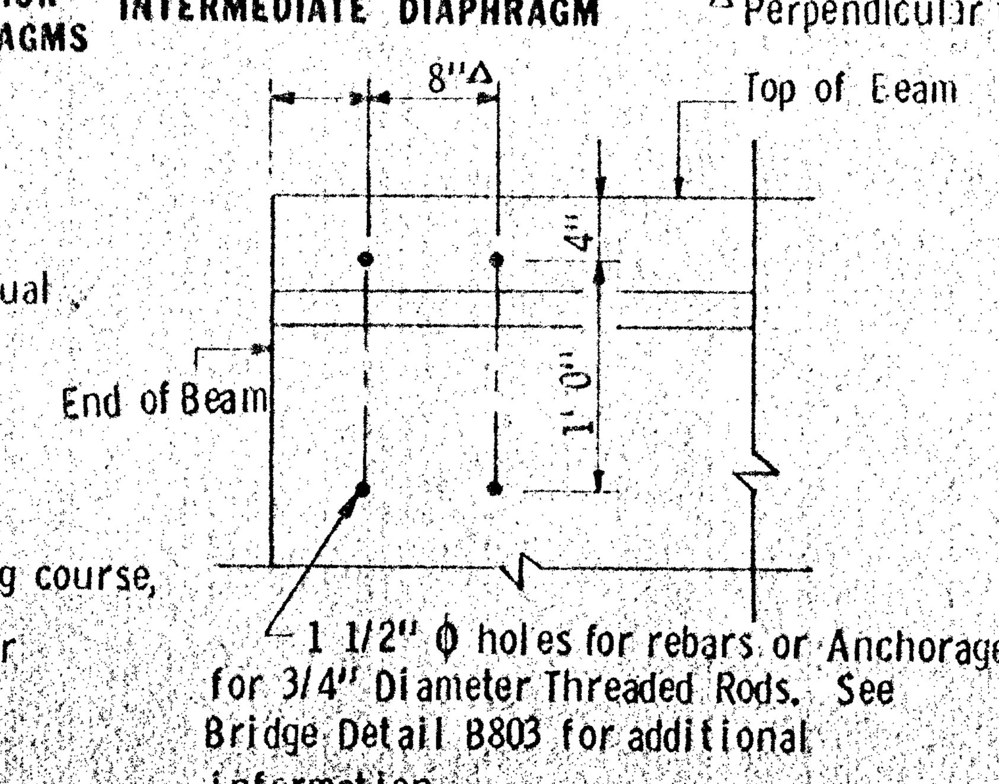
SECTION X-X

USE AT INTERIOR BEAM WITH CONTINUOUS DIAPHRAGMS



Deflections shown are for weight of slab, wearing course, railing, sidewalk, median 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.

CAMBER DIAGRAM



END DIAPHRAGMS

Y DISTANCES (IN INCHES)	NO.	℄ SPAN	END
Straight strands	28	4.57	
Draped strands	10	7.05	36.00°
Total strands	38	5.22	

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

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

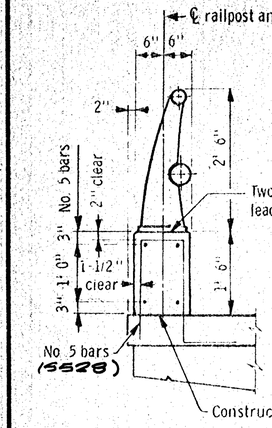
° A tolerance of ± 2" will be permitted in this dimension

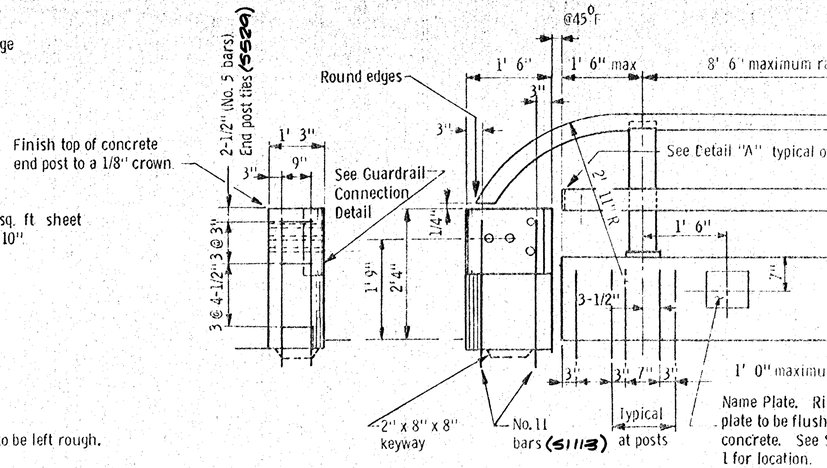
First digit of bar mark indicates bar size. All bar dimensions are out-to-out.

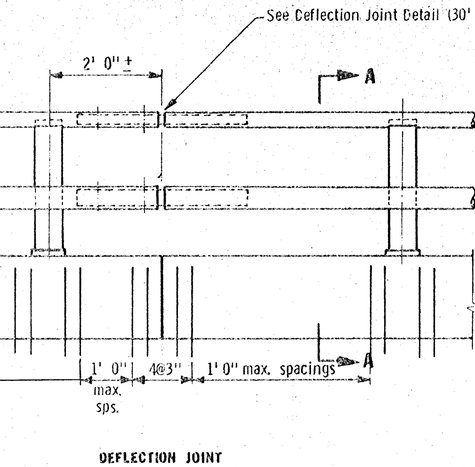
BEAMS B1 THRU B6

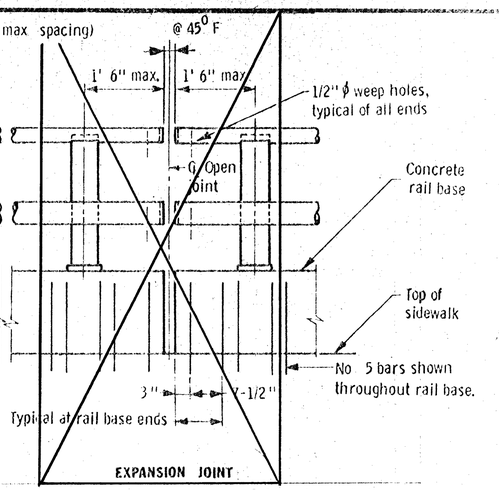
Fig. 5-397.504
Nov. 12, 1974

TITLE:	DES:	DR:	APPROVED:	Bridge No.
45" PRESTRESSED CONCRETE BEAM (PRETENSIONED) TYPE 45-69	CHK:	CHK:	7-30-75	02576
	Sheet No. 12 of 20 Sheets			







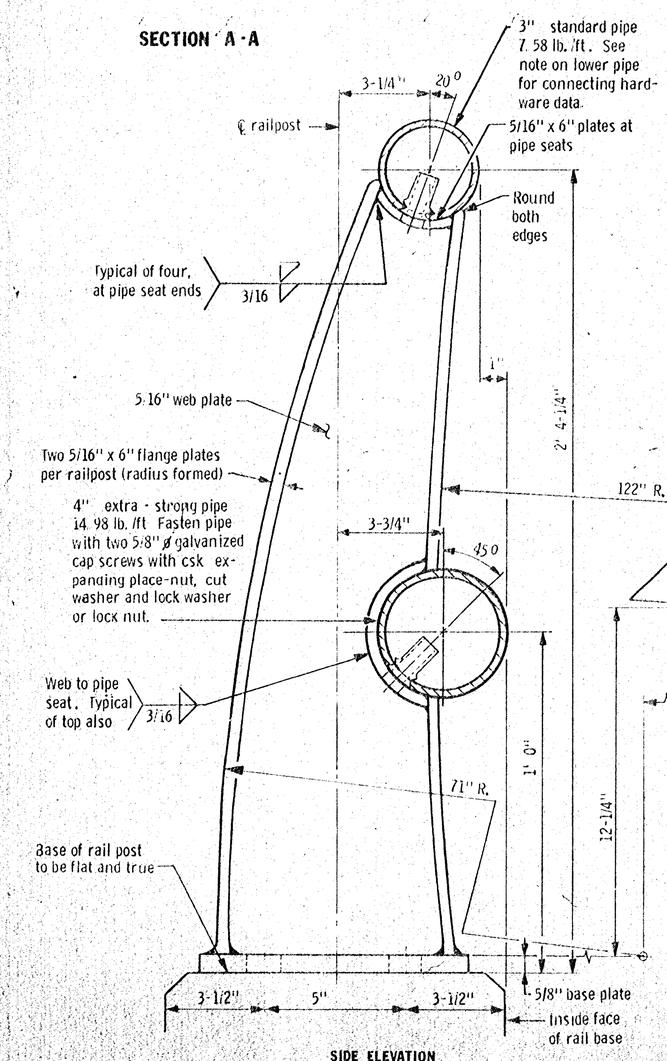


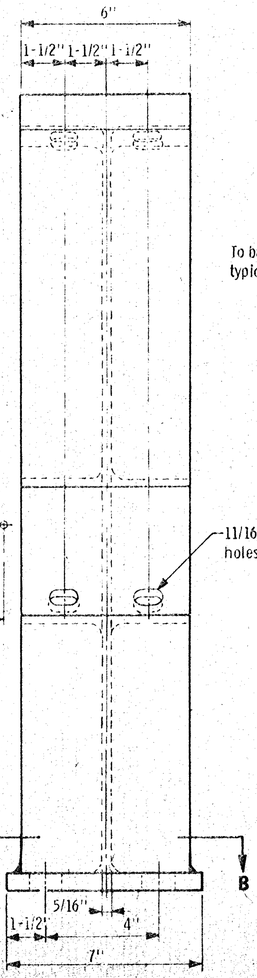
END POST VERTICAL

PART INSIDE ELEVATION

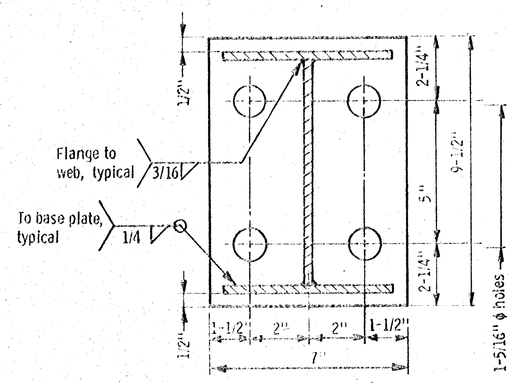
DEFLECTION JOINT

EXPANSION JOINT

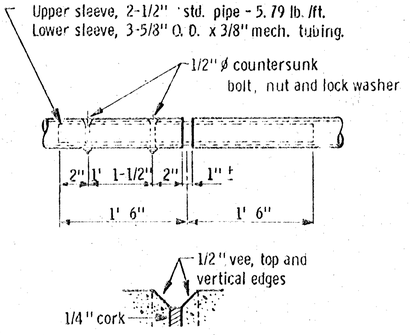




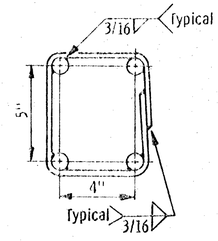
RAILPOST DETAILS

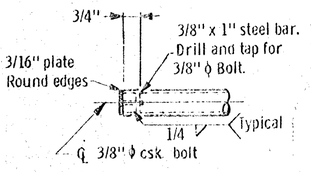


SECTION B-B

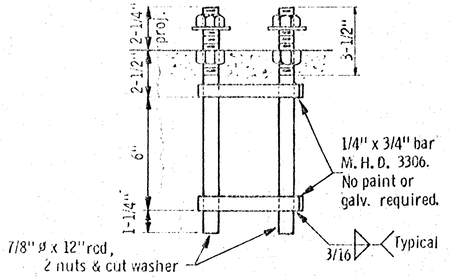


DEFLECTION JOINT DETAILS

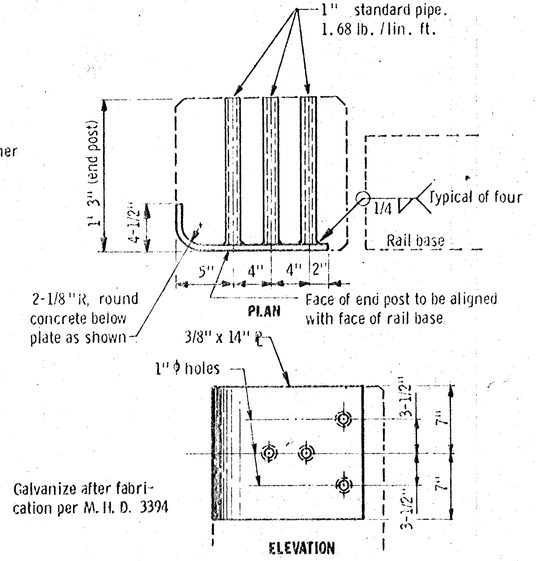




DETAIL "A"
DETAIL OF END CLOSURE



RAILPOST ANCHORAGE



GUARD RAIL CONNECTION DETAIL
Est. Wt. 35 lbs.

GENERAL NOTES

Concrete in railbase and end posts shall be mix No. 3Y46A.

For materials, galvanizing and workmanship see special provisions.

Railpost spacing is measured horizontally along top of rail base.

Place metal railposts and anchorages normal to grade.

For railpost spacing, joints in railing and reinforcement details see superstructure sheet.

Place the No. 5 end post stirrups when the No. 11 vertical bars are cast in the abutment.

Finish edges of concrete rail base and end post to a 1/2" V except where noted. Holes for expanding place nuts in rail pipe may be drilled in the field.

All material in concrete rail base and concrete end posts except railpost anchorages, is included in superstructure quantities. Guardrail connection to be included in weight of structural steel M.H.D. 3306.

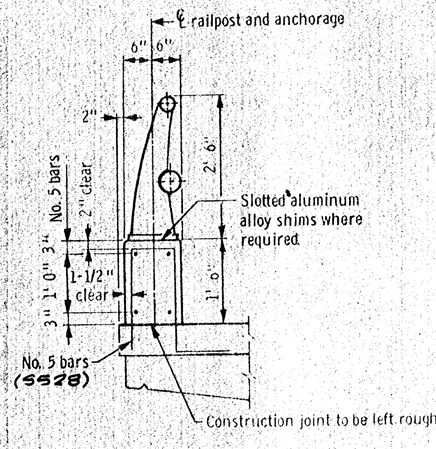
Length of railing for payment is measured between outside faces of concrete end posts.

Price bid for ornamental metal railing includes the railpost anchorage and all material above top of rail base.

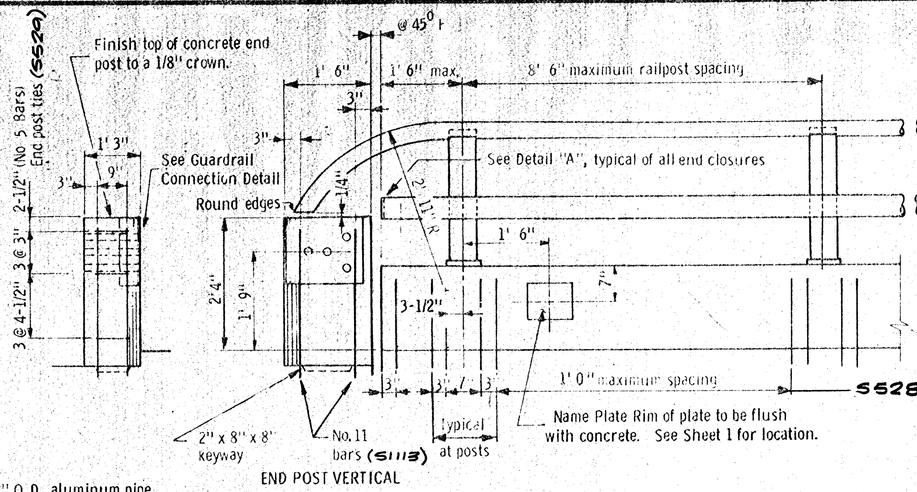
Fig. 5-397.105

August 6, 1970

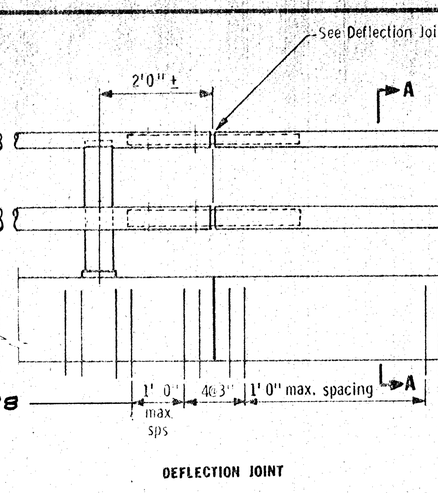
TITLE: ORNAMENTAL METAL RAILING 2 LINE STEEL (TYPE M)	DES:	DR:	APPROVED: 7-30-75	Bridge No. 02626
	CHK:	CHK:	Sheet No. 13 of 20 Sheets	



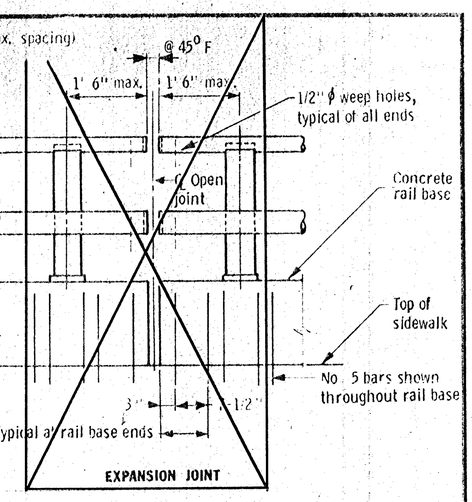
SECTION A-A



END POST VERTICAL

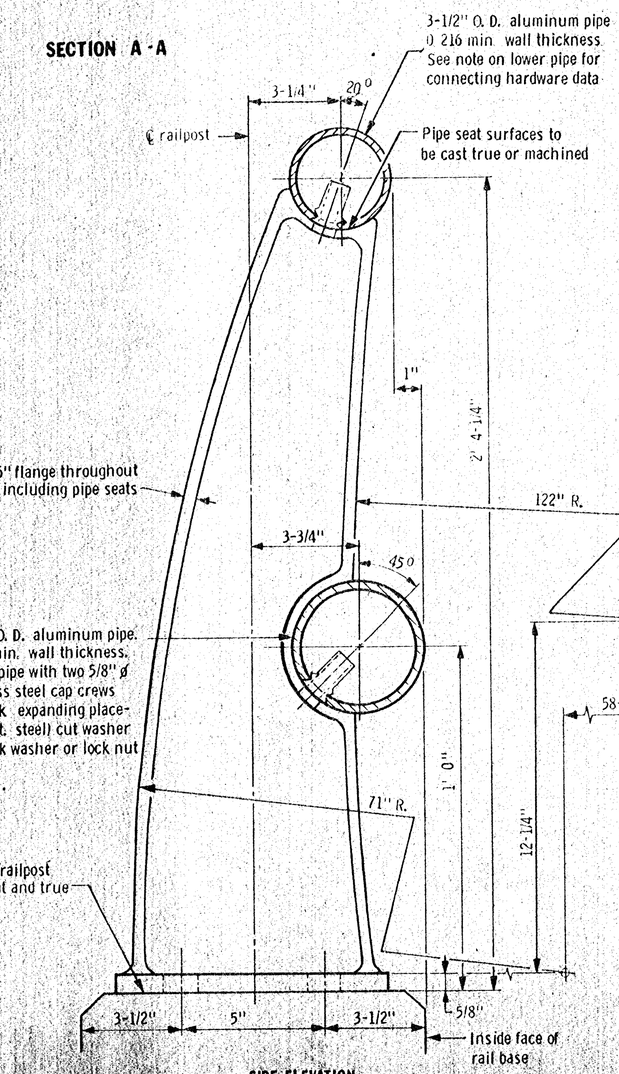


DEFLECTION JOINT

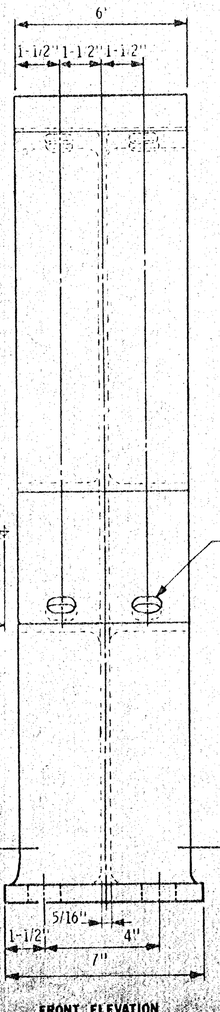


EXPANSION JOINT

PART INSIDE ELEVATION

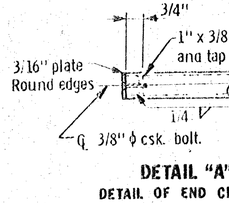


SIDE ELEVATION

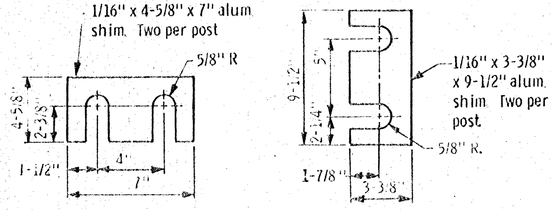


FRONT ELEVATION

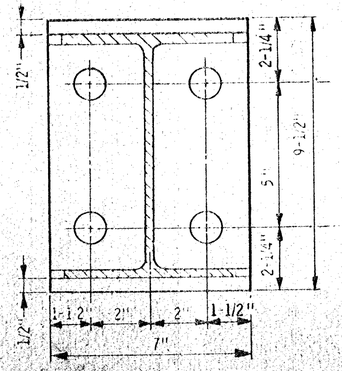
RAILPOST DETAILS



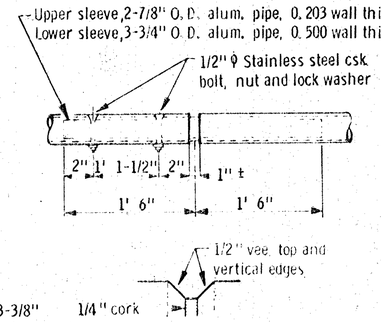
DETAIL "A"
DETAIL OF END CLOSURE



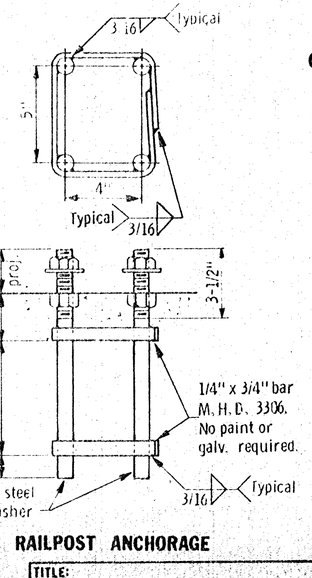
ALUMINUM SHIM DETAILS



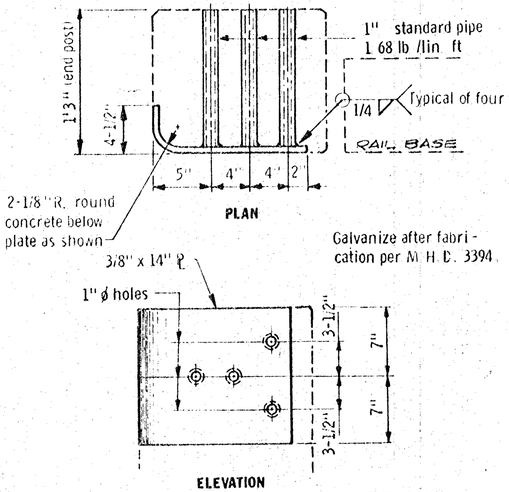
SECTION B-B



DEFLECTION JOINT DETAILS



RAILPOST ANCHORAGE



ELEVATION

GUARD RAIL CONNECTION DETAIL
Est. Wt. 35 lbs.

GENERAL NOTES:

Concrete in rail base and end posts shall be mix No. 3Y46A.

For other materials and workmanship see special provisions.

Railpost spacing is measured horizontally along top of rail base.

Place metal railposts and anchorages normal to grade.

For railpost spacing, joints in railing and reinforcement, see superstructure sheet.

Holes for expanding place nuts in rail pipe may be drilled in the field.

Finish edges of concrete rail base and end post to a 1/2" V except where noted.

All surfaces of aluminum in contact with concrete shall be given a heavy coating of an approved aluminum inpregnated caulking compound to provide complete insulation between aluminum and concrete. Synthetic rubber gaskets may be used as an alternate.

Place the No. 5 end post stirrups when the No. 11 vertical bars are cast in the abutment.

All material in concrete rail base and concrete end posts except railpost anchorages, is included in superstructure quantities. Guardrail connection to be included in weight of structural steel M.H.D. 3306.

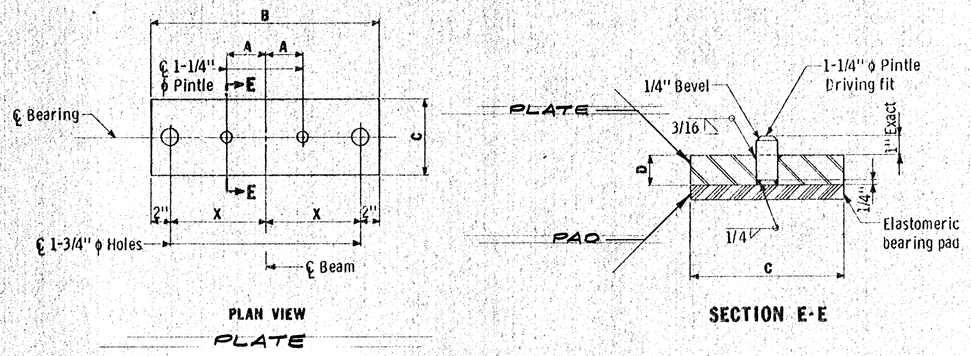
Length of railing for payment is measured between outside faces of concrete end posts.

Price bid for ornamental metal railing includes the railpost anchorage and all material above top of rail base.

Fig. 5-397.106

AUGUST 6, 1970

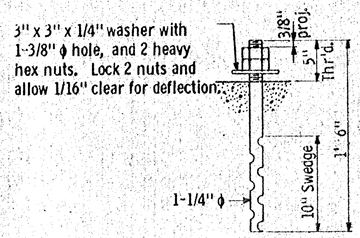
TITLE: ORNAMENTAL METAL RAILING 2 LINE ALUMINUM (TYPE M)	DES:	DR:	APPROVED: 7-30-75	Bridge No. 025526
	CHK:	CHK:	Sheet No. 14 of 21 Sheets	



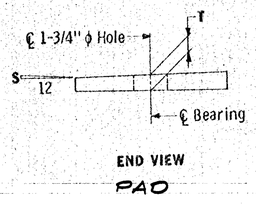
PLAN VIEW

PLATE

SECTION E-E



ANCHOR ROD DETAIL



END VIEW

PAD

BEAM	(KIPS) DL	TOTAL LOAD (KIPS)	A	B	C	D	X	S	T
28"	90	125	4"	2' 0"	8"	1-1/2"	10"		
36"	100	140	6"	2' 2"	8"	1-1/2"	11"		
40" & 45"	115	165	8"	2' 6"	8"	1-1/2"	1' 1"		
40" & 45"	130	190	8"	2' 9"	9"	1-1/2"	1'-2 1/2"	0	1 1/2"
54" & 60"	145	210	9"	2' 10"	9"	1-1/2"	1'-3"		
54" & 60"	165	240	9"	2' 10"	10"	1-3/4"	1' 3"		
54" & 60"	195	270	9"	2' 10"	12"	2"	1' 3"		

NOTES

Plates and anchor rods shall comply with M. H. D. 3306.

Pintles shall comply with M. H. D. 3314, Type II.

Galvanize anchor rods per M. H. D. 3392 and other material per M. H. D. 3394.

PAYMENT FOR ELASTOMERIC BEARING PAD, TYPE I SHALL INCLUDE ALL MATERIAL ON THIS SHEET.

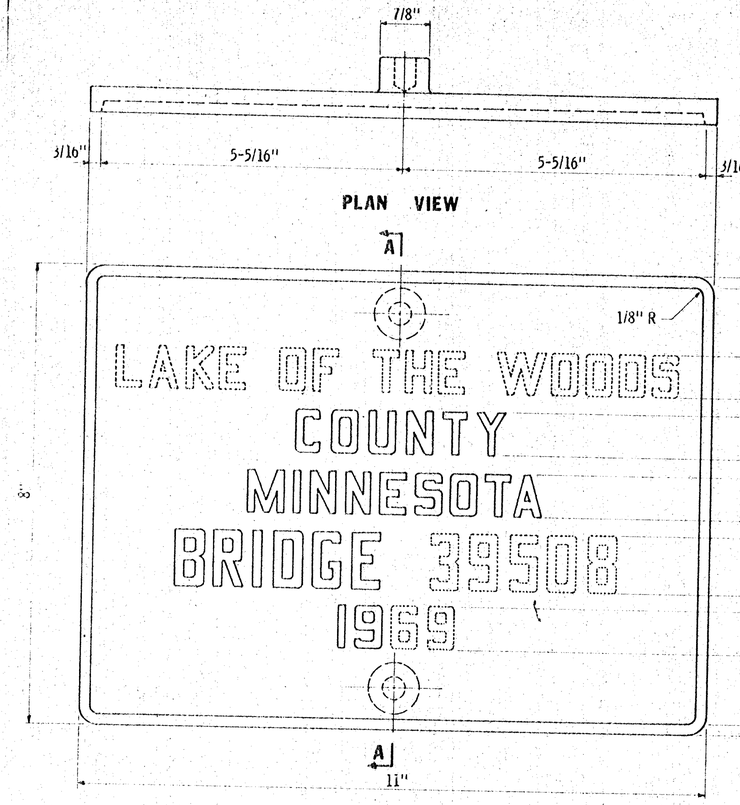
APPROVED May 26, 1972

Douglas Dippert
Engineering Standards Engineer
RESEARCH AND STANDARDS DIVISION

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

ELASTOMERIC BEARING PADS
PRESTRESSED CONCRETE BEAMS
(FIXED)

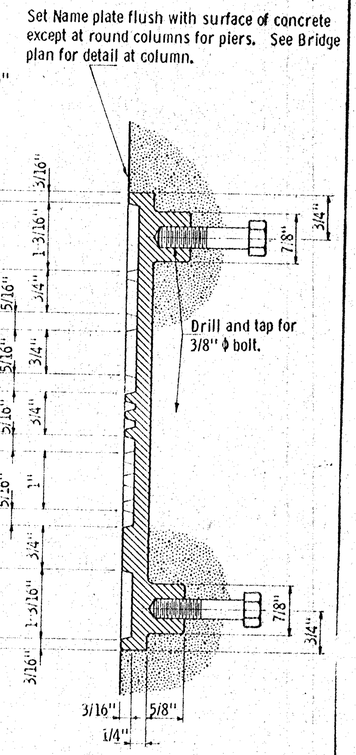
DETAIL NO. B301



ELEVATION

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

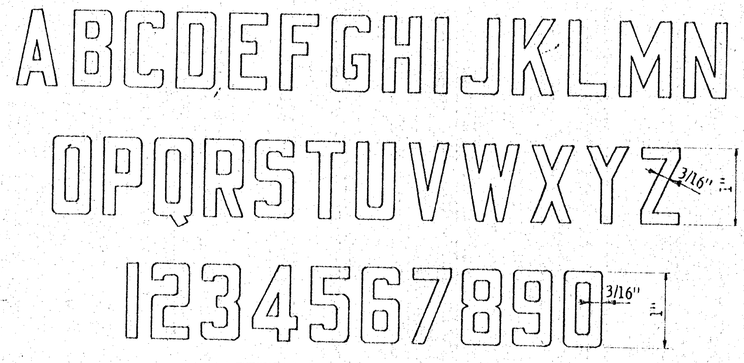
BRIDGE 02526 - ANOKA COUNTY
YEAR 1975



SECTION A - A

NOTES:

No shop drawing required.
Material shall comply with M. H. D. 3327.
Numbers and letters shall conform to those shown.
Draft on letters shall not be more than 3" in 14"
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" ϕ 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.



LETTERS FOR NAME PLATES

Specification reference:
2471 3H, A.S.T.M. Designation: B145 - Alloy 836.

APPROVED: Nov. 25, 1974

Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN

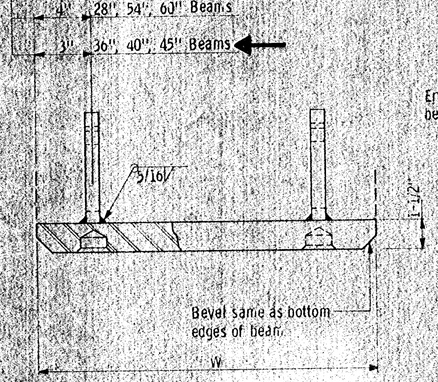
Issued by: OFFICE OF ENGINEERING STANDARDS

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE NAME PLATE
COUNTY BRIDGES

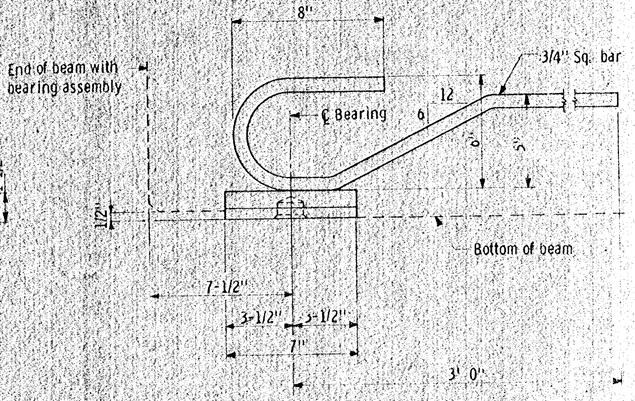
DETAIL NO. B103

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



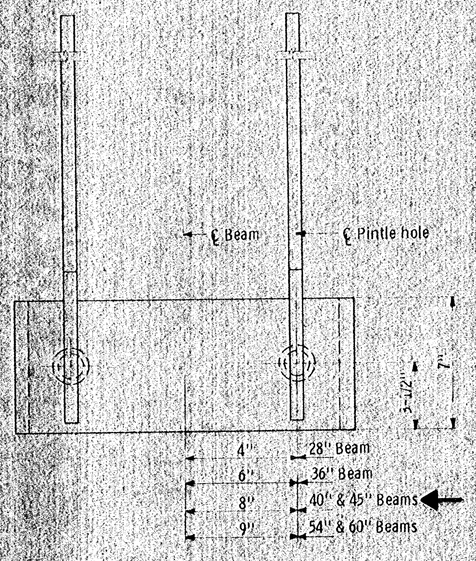
FRONT VIEW

Dimension "W" to be the width at the bottom flange of the beam.

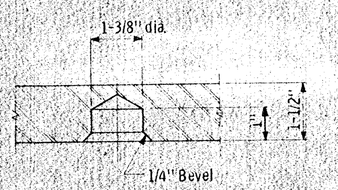


SIDE VIEW

Showing placement in beam



PLAN VIEW



PINTLE HOLE DETAIL

(2 Required)

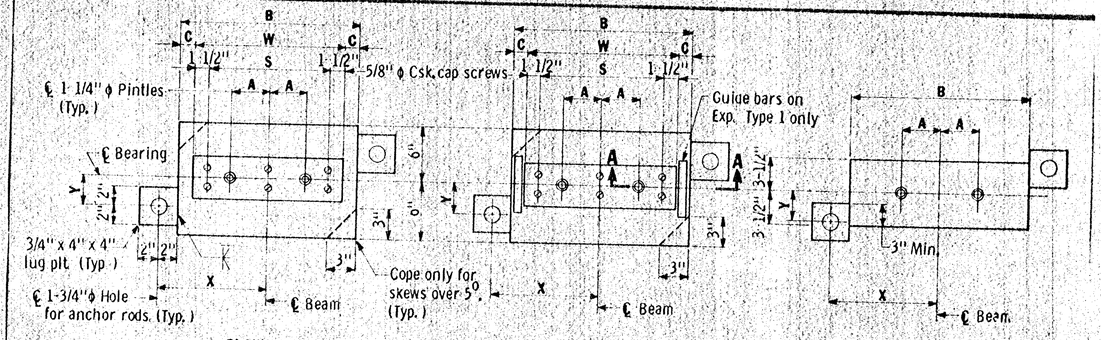
NOTES

Material to be Structural Steel per M. H. D. 3306.

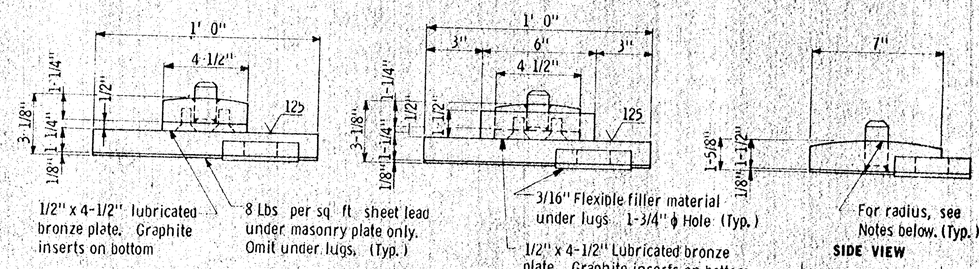
Sole plate to be hot dipped galvanized as per M. H. D. 3394 after fabrication

Payment for sole plates to be included in price bid for Prestressed Concrete Girders.

APPROVED Feb. 17, 1972	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS		DETAIL NO.
Douglas Dillt Engineering Standards Engineer RESEARCH AND STANDARDS DIVISION	**SOLE PLATE PRESTRESSED CONCRETE BEAMS**		**B303**

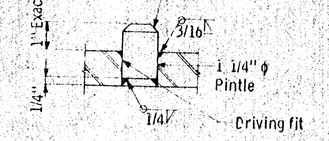


PLAN VIEW **PLAN VIEW** **PLAN VIEW**

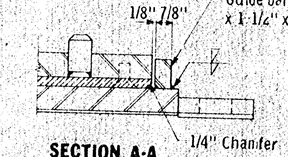


SIDE VIEW **SIDE VIEW** **SIDE VIEW**

EXPANSION TYPE 2 **EXPANSION TYPE 1** **FIXED TYPE 1** NOT REQ'D.

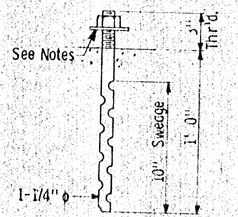


TYPICAL 1¼ϕ PINTLE DETAIL

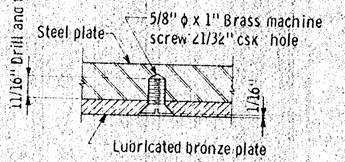


SECTION A-A

FOR EXPANSION TYPE 1



ANCHOR ROD DETAIL



MACHINE SCREW DETAIL

BEAM TYPE	B	W	X	Y	C	A	S	MAX. DESIGN LOAD (KIPS)	TOTAL MAX. DESIGN MOVEMENT
28"	1' 7"	1' 4"	11-1/2"		1-1/2"	4"	2 @ 6-1/2"	125	2-3/4"
36"	1' 9"	1' 6"	1' 0-1/2"		1-1/2"	6"	3 @ 5"	140	2-3/4"
40" & 45"	2' 1"	1' 10"	1' 2-1/2"		1-1/2"	8"	4 @ 4-3/4"	170	2-3/4"
54" & 60"	2' 7"	2' 2"	1' 5-1/2"		2-1/2"	9"	4 @ 5-3/4"	210	2-3/4"

NOTES:

Lubricated bronze plates shall comply with M. H. D. 3329.

All plates except lubricated bronze shall comply with M. H. D. 3306.

Pintles shall comply with M. H. D. 3314, Type II.

Steel plates and pintles shall be galvanized per M. H. D. 3394. No paint

Anchor rods shall be galvanized per M. H. D. 3392 No paint, with one cut washer and nut. Anchor rods shall project 3/8" above nuts after assembly.

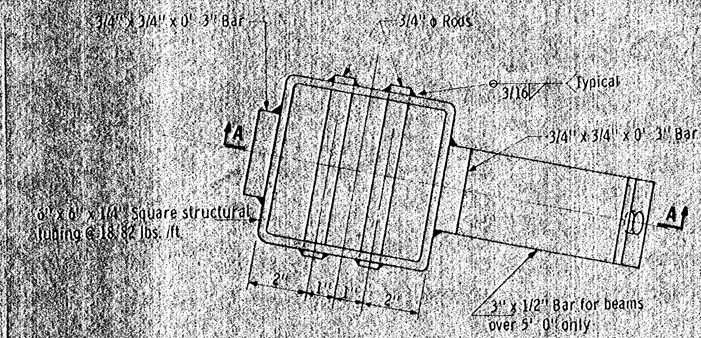
Position of anchor rod lugs shown is for left skews; for right skews, lugs are to be reversed.

Radius of rocker plate shall be 1' 0" minimum, 1' 6" maximum. Finish center 2" to 250 Micro. Thickness of rocker plate may be 1/16" less than shown.

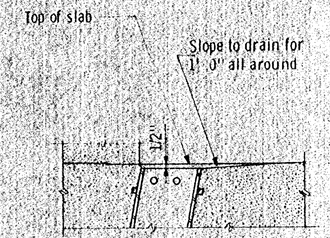
Flexible filler material shall be an approved sponge rubber installed so as to prevent the flow of grout under the 3/4" lug plate.

Payment for bearing assembly shall include all material on this detail.

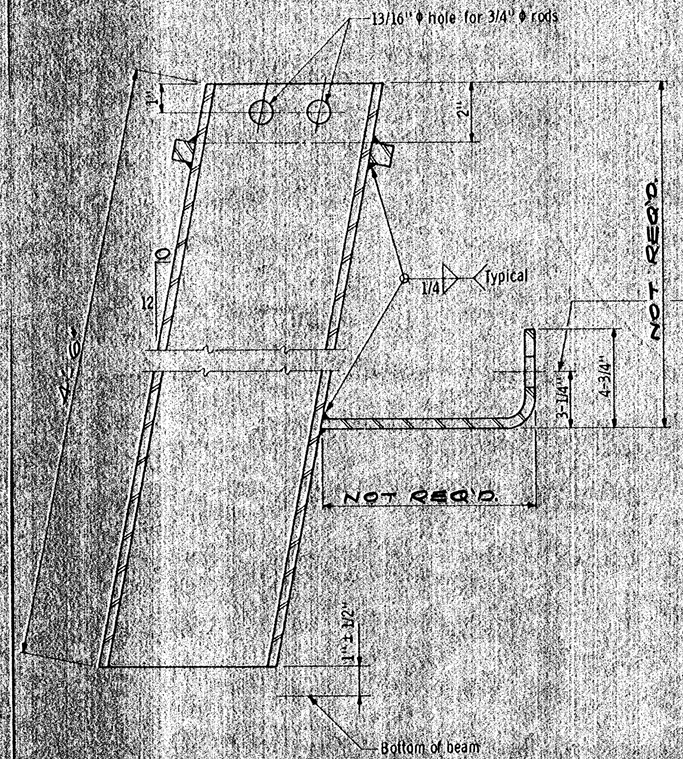
APPROVED Feb. 17, 1972	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS		DETAIL NO.
Douglas Dillt Engineering Standards Engineer RESEARCH AND STANDARDS DIVISION	**BEARING ASSEMBLIES PRESTRESSED CONCRETE BEAMS**		**B302**



PLAN VIEW



PLACEMENT DIAGRAM



SECTION A - A

NOTES:

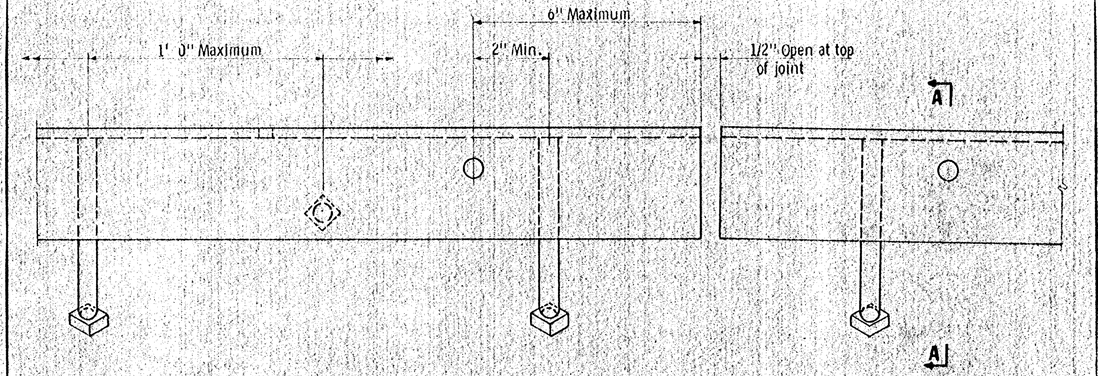
Material to be structural steel per M. H. D. 3306.

Galvanize bolts and washer per M. H. D. 3392.

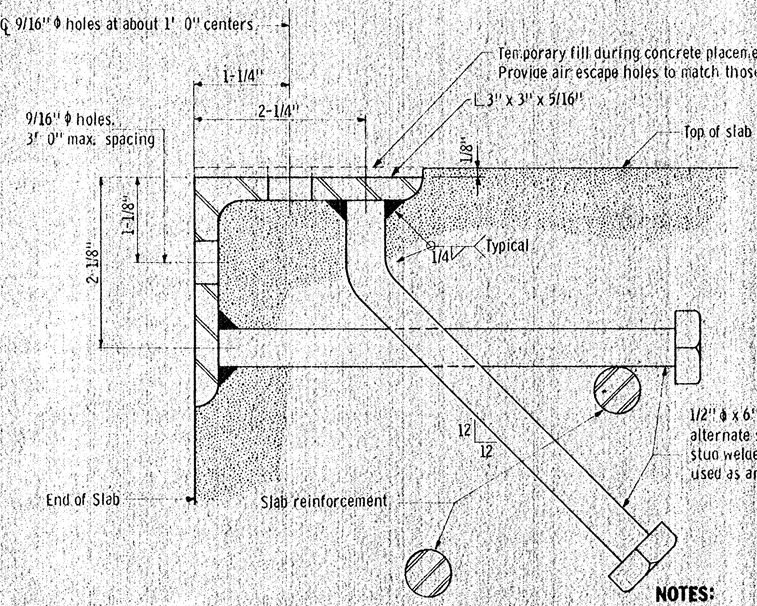
Galvanize other materials per M. H. D. 3394 after fabrication.

Payment for Floor Drain Type 1 shall include all material shown on this detail.

APPROVED July 24, 1972	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS		DETAIL NO.
Douglas DeFant Engineering Standards Engineer RESEARCH AND STANDARDS DIVISION	**BRIDGE FLOOR DRAIN STRUCTURAL TUBING**		**B702**



ELEVATION
(Concrete not shown)



SECTION A - A

NOTES:

Angles shall extend full width of roadway between curbs with a 1/2" open joint at each break in crown profile. Maximum length 22 feet.

Angles shall be straightened to a tolerance of 1/10" in 10 feet after galvanizing.

Material: Structural steel per M. H. D. 3306. Galvanize after fabrication per M. H. D. 3394

Set angle to proper grade and crown.

All material will be paid for as structural steel M. H. D. 3306

APPROVED May 26, 1972	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS		DETAIL NO.
Douglas DeFant Engineering Standards Engineer RESEARCH AND STANDARDS DIVISION	**PROTECTION ANGLE FOR END OF SLAB**		**B551**

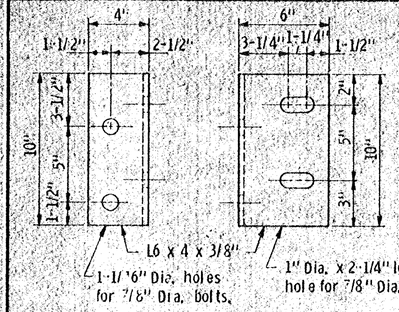
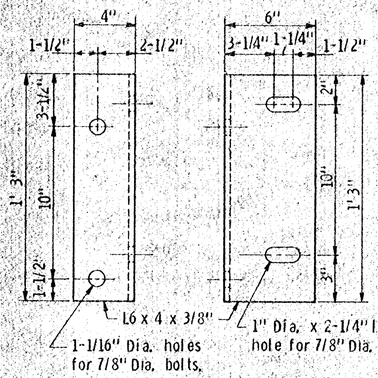
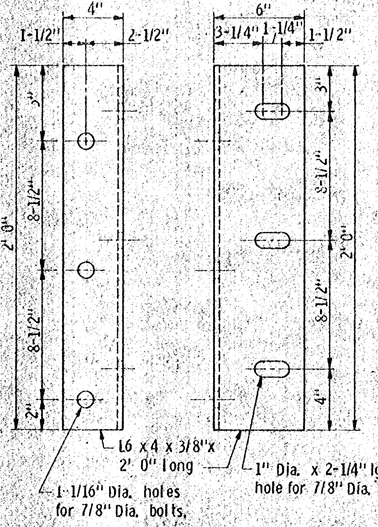


TABLE	
Beam Ht.	Distance "A"
28"	1' 2"
36"	1' 4"
40"	1' 3-1/2"
45"	1' 6"
54"	1' 10"
63"	2' 0"

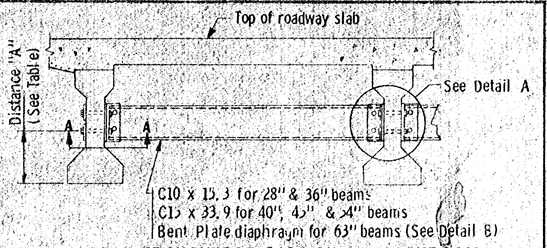
DIAPHRAGM SUPPORT FOR 28" & 36" BEAMS



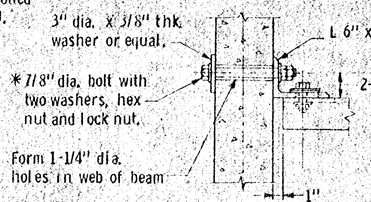
DIAPHRAGM SUPPORT FOR 40", 45" & 54" BEAMS



DIAPHRAGM SUPPORT FOR 63" BEAMS

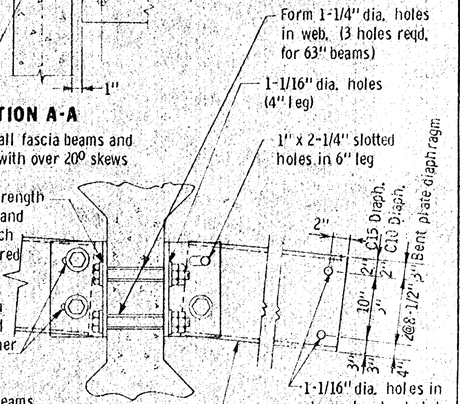


PART TRANSVERSE SECTION AT DIAPHRAGM



SECTION A-A

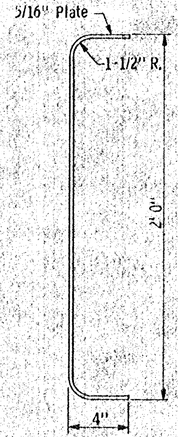
Section A-A applies at all fascia beams and at interior diaphragms with over 20° skews



DETAIL A

Interior beam with continuous line of diaphragms

C10 x 15.3 for 28" & 36" beams
C15 x 33.9 for 40", 45" & 54" beams
Bent plate for 63" beams



DETAIL B

Cross-section of diaphragm for 63" beams only

GENERAL NOTES:

The outstanding legs of 4" x 6" Angles shall be shop bent to conform to diaphragm line. For angles less than 30° shop bends will not be required.

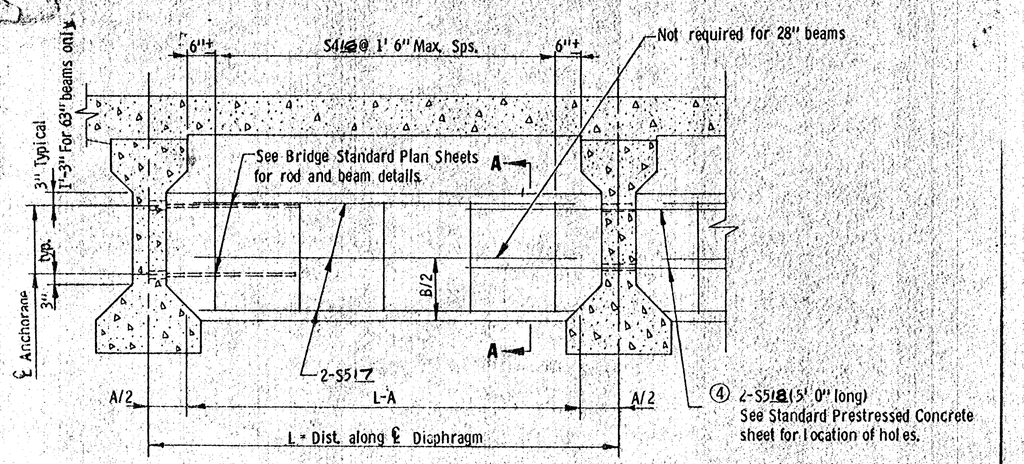
* As an alternate to the 7/8" bolt connection shown, the contractor may submit details of a cast-in-place anchorage to the engineer for approval. Anchorage must provide ultimate pull out strength of 15 kips per anchorage.

All structural steel shall conform to MHD 3306.

All structural steel shown on this detail shall be galvanized per MHD 3394 except that as an alternate, metalizing may be used. Metalizing shall comply with MHD 2471.3L4. All bolts, nuts and washers shall be galvanized per MHD 3392.

The use of concrete intermediate diaphragms (Detail B802) or steel intermediate diaphragms (Detail B403) shall be optional to the contractor. However, plan quantities are based on the material necessary to construct concrete diaphragms and payment will be based on the quantities necessary to construct concrete diaphragms reguardless of the type selected by the contractor.

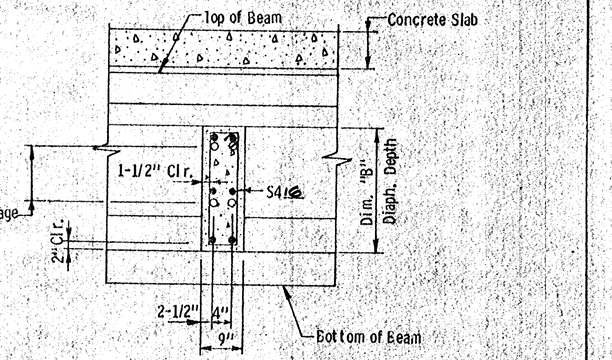
APPROVED: August 5 1974	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS		DETAIL NO.
Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN	**STEEL INTERMEDIATE DIAPHRAGM (FOR PRESTRESSED CONCRETE BEAM SPANS)**		**B403**
Issued by: OFFICE OF ENGINEERING STANDARDS			



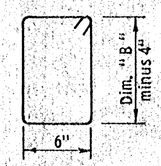
PART TRANSVERSE SECTION ③

Bm. Ht.	Dim. "A" For comp. volume	Diaph. Dim. "B"	S4@ Length
28"	7-1/2"	1'-4"	3'-9"
36"	7-3/4"	1'-9"	4'-7"
40"	9-1/4"	1'-11"	4'-11"
45"	9"	2'-2 1/2"	5'-6"
54"	10-1/2"	2'-8"	6'-5"
63"	9"	3'-0"	7'-1"

Concrete volume per diaphragm = $\frac{(L-A) \times B \times .75}{27}$ (Cu. yd.)



SECTION A-A ③

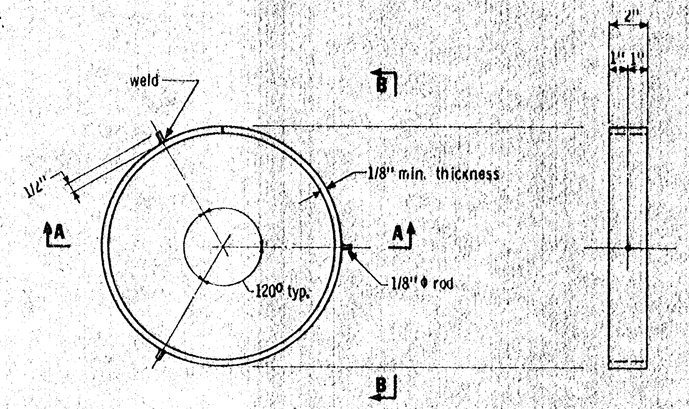


S4@

GENERAL NOTES

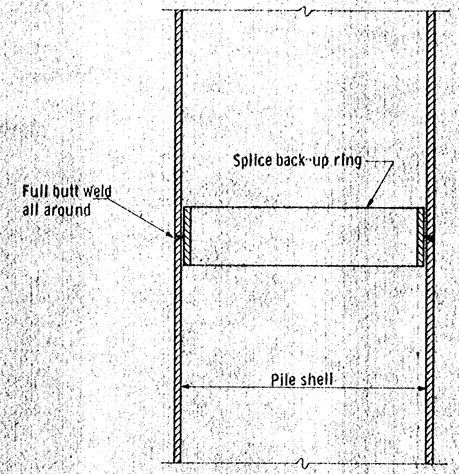
1. All reinforcement bars shown on this detail are listed with the superstructure reinforcement.
2. Diaphragm concrete and reinforcement quantities are included in superstructure quantities (threaded rods are included with prestressed beam quantities.)
3. Details shown are not to scale for 63" beam.
4. For Diaphragms 20° and over, use threaded rods as shown on standard prestressed concrete beam sheet.

APPROVED: August 5, 1974	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS		DETAIL NO.
Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN	**CONCRETE INTERMEDIATE DIAPHRAGM (FOR PRESTRESSED CONCRETE BEAM SPANS)**		**B802**
Issued by: OFFICE OF ENGINEERING STANDARDS			



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 E7010 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

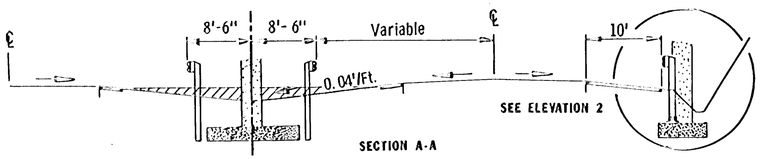
Douglas Siffert
Engineering Standards Engineer
RESEARCH AND STANDARDS DIVISION

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

PILE SPLICE
CAST-IN-PLACE CONCRETE PILES

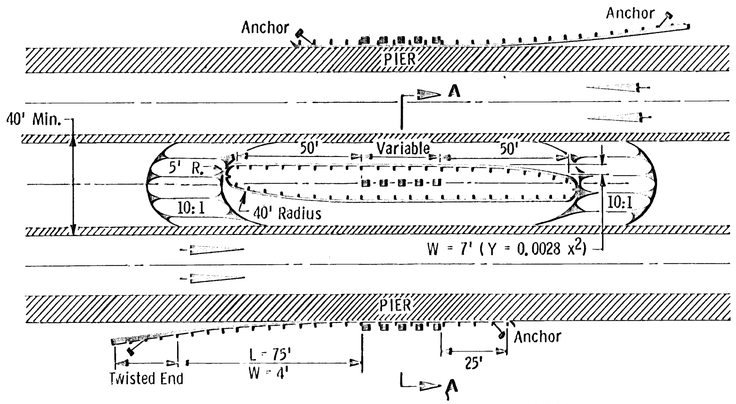
DETAIL NO.
B201

Fed. Proj. No.

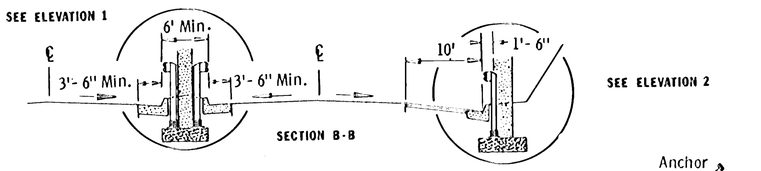


SECTION A-A

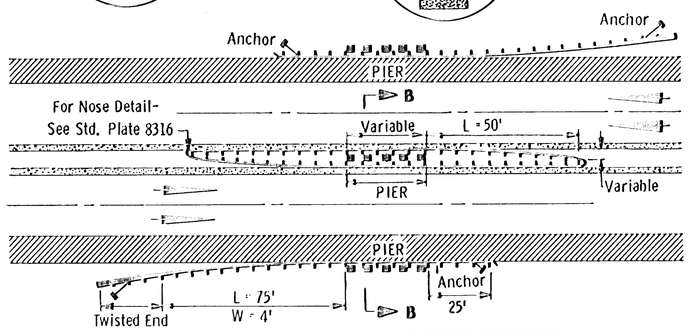
The median ditch shall be filled to provide an elevation of guardrail approximately the same as if installed on the shoulder. Extend fill to guardrail nose and taper to median ditch on 10:1 slope. Where special drainage features required, see Sheet No. _____



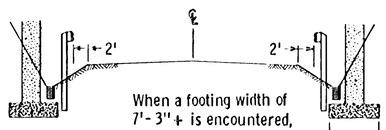
UNDERPASS-DEPRESSED MEDIAN



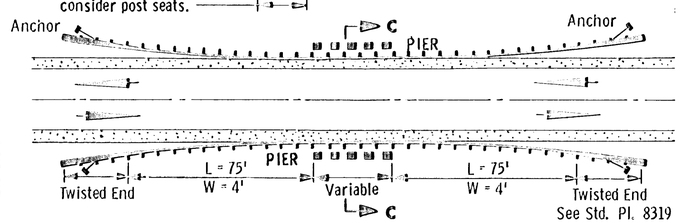
SECTION B-B



UNDERPASS - RAISED MEDIAN

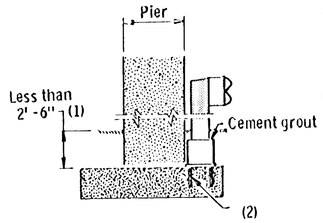


SECTION C-C



TWO-WAY UNDERPASS

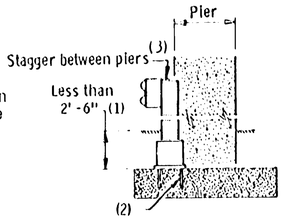
APPROVED May 16, 1974
Engineering Standards Engineer
RESEARCH AND STANDARDS DIVISION



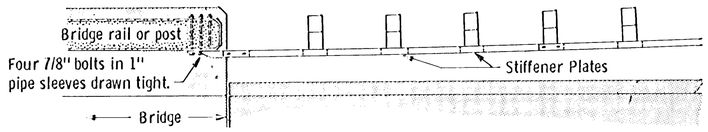
ELEVATION 1

(1) Less than 2' when adjacent posts are embedded 3' or more.
(2) See Standard Plate 8316 - 3/4" bolt, hex. head and nut, 1-3/4" ϕ cut washer, two-unit bolt anchorage per Spec. 3387.
(3) Use 3' 1-1/2" post spacing between piers when less than 2' from face of rail to face of pier.

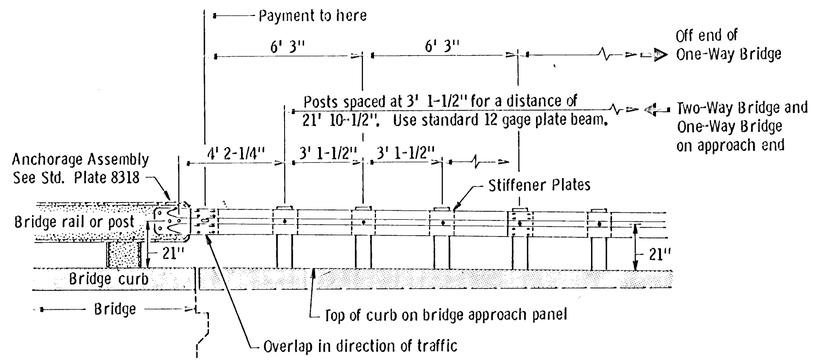
POST ANCHORAGE ON FOOTINGS



ELEVATION 2



PLAN

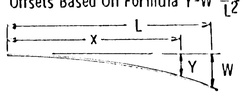


ELEVATION

GUARDRAIL CONNECTION TO BRIDGE

OFFSET FORMULA

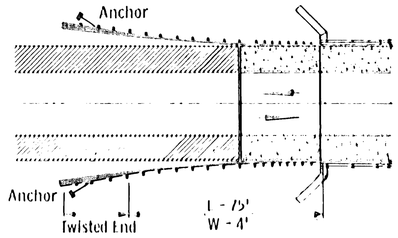
Offsets Based On Formula $Y = W \frac{x^2}{L^2}$



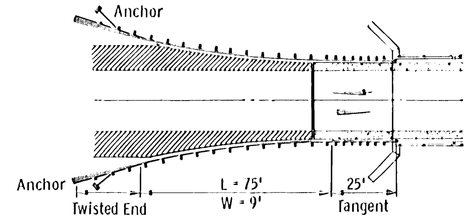
Y = Intermediate Offsets
W = Width of Final Offset
X = Intermediate Distances
L = Total Length of Flare

GENERAL NOTES:

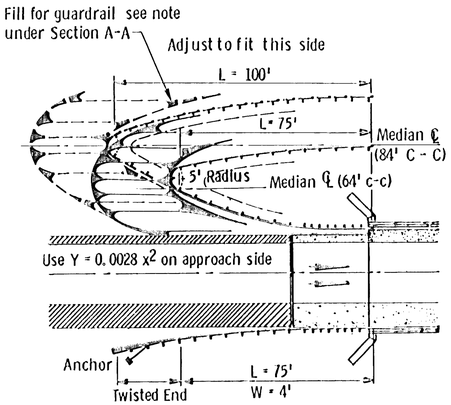
All guardrail posts shall be 6' 3" c. to c. except where noted.
When the approaching flare can be buried in the backslope eliminate the twisted end.
The required L length and W offset shall be determined in the field by the designer or engineer.
See Road Design Manual Fig. C 5-291.566 for offset charts.
The latest approved Standard Plates shall apply 8307, 8316, 8318, 8319.



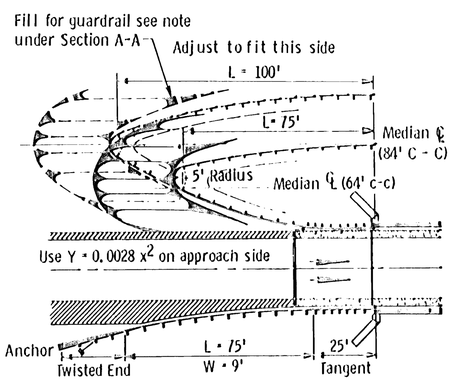
TWO-WAY BRIDGE WITH SHOULDERS



TWO-WAY BRIDGE WITHOUT SHOULDERS



ONE-WAY BRIDGE WITH SHOULDER



ONE-WAY BRIDGE WITHOUT SHOULDERS

GUARDRAIL TREATMENT AT BRIDGES AND PIERS

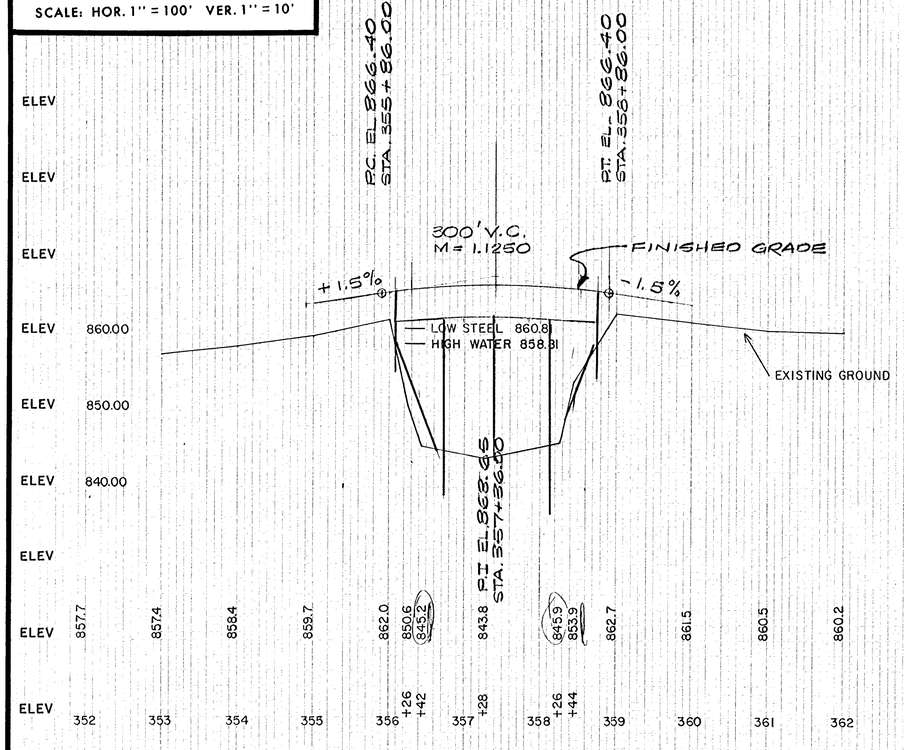
(FOR USE WITH STANDARD PLATE 8318)

State Proj. No.

Sheet No. 194 of 21 Sheets

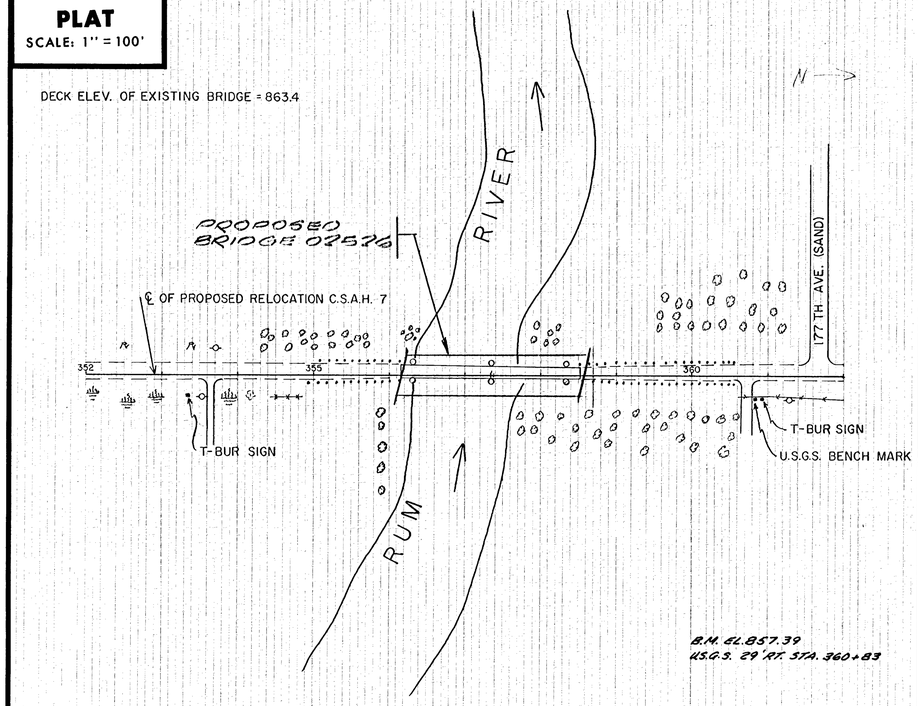
CONTRACTED PROFILE

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



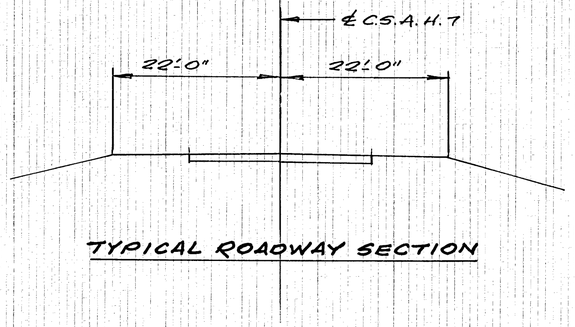
PLAT

SCALE: 1" = 100'

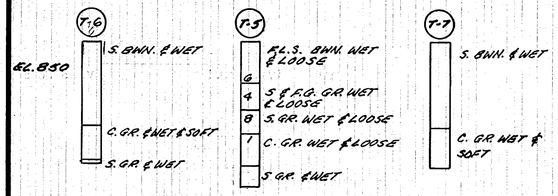


TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN

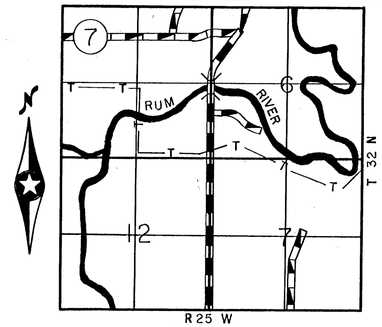


TYPICAL ROADWAY SECTION



SEE SHEET 21 OF 21 SHEETS FOR PLAN AND PROFILE

Fed. Proj. No.



R 25 W
INDEX MAP
(FOUR SECTIONS)

FOLLOW SEPARATE "INSTRUCTIONS FOR PREPARATION OF BRIDGE SURVEYS" WHEN MAKING BRIDGE SURVEYS.

DATA

1. Preliminary recommendations of Engineer in charge of Bridge Survey:
   a. Net span length and type of bridge 4-68' PRESTRESSED CONC. BM. SPANS
   b. Width of roadway on bridge 44'-0"
   c. Number and width of sidewalks, if any 2-4'-0"
   d. Locate center of bridge at station 357+36
   e. If a skew bridge is recommended, the angle of skew should be 20°
   f. Is piling required? YES
2. Special features: Waterfalls, dams, exceptional floods, ice, driftwood, sliding banks, logging, etc.
   NONE
3. Changes: In height or length from that of old bridge, and reasons why 1.0' HIGHER, 37' LONGER PER HYDRAULIC REPORT
4. Other bridges in vicinity:
   a. Over same stream (particularly structures which carry high water without overflow of roadway); give location, length, height above water, net cross-sectional area at high water stage and estimated age
   b. Over or under same highway or railroad; give location, length, horizontal and vertical clearances and estimated age
   c. Reasons why these bridges are, or are not, fair indications of what length the proposed bridge should be
5. If structure is over a drainage ditch, is ditch gradient liable to be altered?
6. Navigation clearances required, if any
7. Information and evidence in regard to high water stages was obtained as follows
8. Must contractor provide for traffic during construction of proposed bridge? No
   If so, by what means?

HYDRAULIC ENGINEERS RECOMMENDATION

DRAINAGE AREA	1449 SQ. MI.
DESIGN DISCHARGE (50-YR. FREQ.)	10300 c.f.s.
DESIGN HIGHWATER	858.6 FT.
WATERWAY AREA BELOW ELEV. 858.6 FT.	2290 SQ. FT.
MEAN VELOCITY THROUGH BRIDGE	4.5 f.p.s.

HIGH AND LOW WATER ELEVATIONS

Data obtained from
reflects highest water elevation in the area of this construction to be 868.8 and the lowest water elevation to be . The above figures are for informational purposes only. The state neither warrants nor represents that these figures for high water and low water are in any way indicative of the high water or low water to be expected or encountered during this construction.

SHIPPING POINT

Proposed Bridge is 6 miles NORTH of
* ANOKA which is the nearest Railroad shipping point.
*(Give name of town, station or siding)

Date — Project or County Engineer

Date — District Engineer

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE SURVEY

FOR

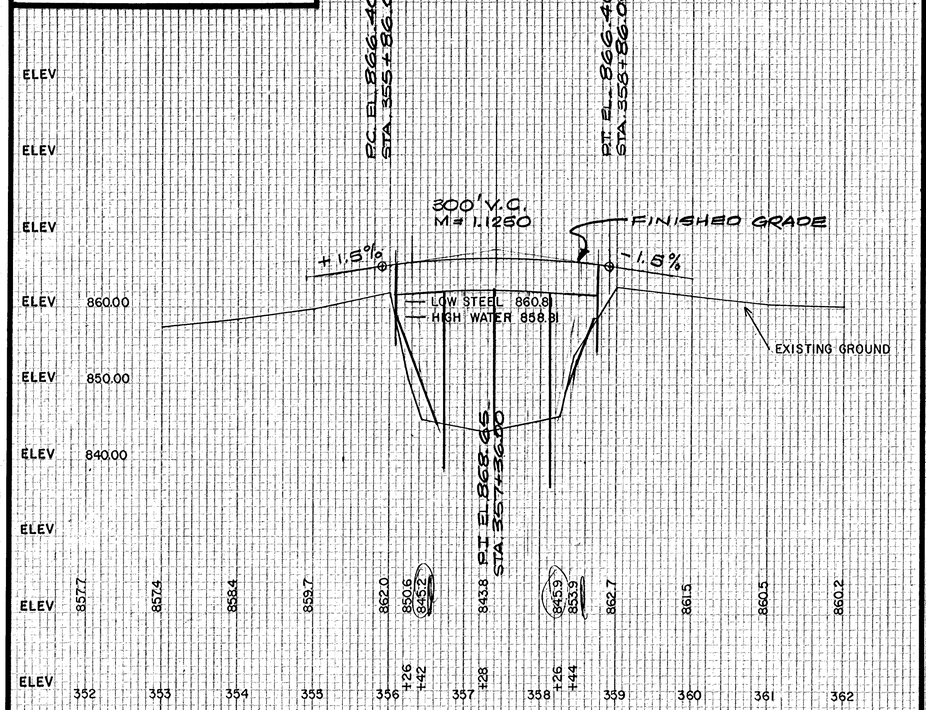
PROPOSED BRIDGE LOCATED 6 MILES NORTH OF
ANOKA (TOWN OR CITY) ON CSAH 7 (T.H., C.S.A.H. OR C.A.R. NUMBER)
SEC. 1 & 6 TWP. 32 N R. 25 W
TOWNSHIP RAMSEY & GROW COUNTY ANOKA
SURVEY MADE DURING MONTH OF NOV. 19 72
SURVEY MADE BY ANOKA COUNTY
BRIDGE NO. 02526

Bridge Survey Sheet (Sheet 1 of 2)

Area No. | Job No. | State Proj. No. | Sheet No. 20 of 21 Sheets

CONTRACTED PROFILE

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



PLAT

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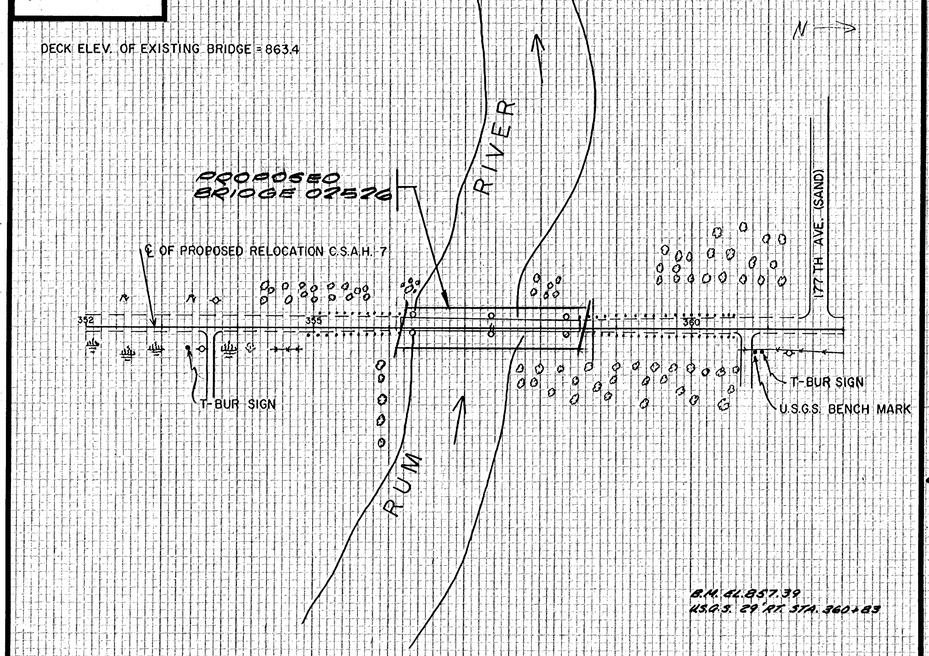

Bridge Survey Sheet (Sheet 1 of 2)

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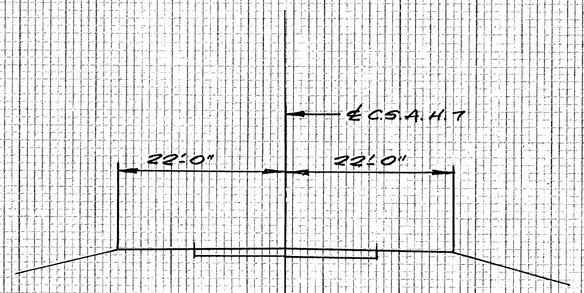
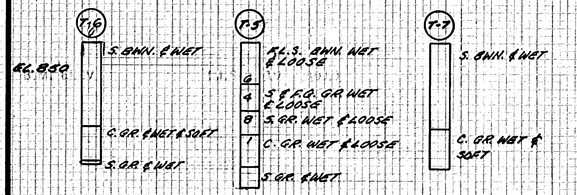
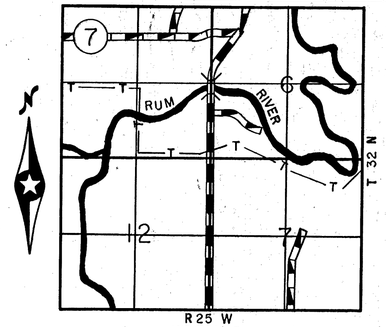


TYPICAL ROADWAY SECTION



SEE SHEET 21 OF 21 SHEETS FOR PLAN AND PROFILE

Fed. Proj. No.



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SHIPPING POINT

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* ANOKA which is the nearest Railroad shipping point.

*(Give name of town, station or siding)

Date ..... Project or County Engineer .....

Date ..... District Engineer .....

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE SURVEY

FOR

PROPOSED BRIDGE LOCATED 6 MILES NORTH OF ANOKA (TOWN OR CITY) ON CSAH 7 (T.H., C.S.A.H. OR C.A.R. NUMBER)

SEC. 1 & 6 TWP. 32 N R. 25 W.

TOWNSHIP RAMSEY & GROW COUNTY ANOKA

SURVEY MADE DURING MONTH OF NOV. 19 72

SURVEY MADE BY ANOKA COUNTY

BRIDGE NO. 02526

Area No. | Job No. | State Proj. No. | Sheet No. 20 of 21 Sheets

Fed. Proj. No.

SCALE: 1" = 10'

N

TEST PILE #1

TEST PILE #2

TEST PILE #3

TEST PILE #4

TEST PILE #5

TEST PILE #6

TEST PILE #7

TEST PILE #8

℄ SOUTH ABUT. STA. 355+99.87

℄ PIER 1 STA. 356+67.58

℄ PIER 2 STA. 357+36.00

℄ PIER 3 STA. 358+04.42

℄ NORTH ABUT. STA. 358+72.13

CENTERLINE OF LAYOUT

356

357

358

LIMITS OF RANDOM RIPRAP AS SHOWN ARE APPRX. ONLY. EXACT LIMITS ARE TO BE DETERMINED BY THE ENGINEER IN FIELD.

LIMITS OF RANDOM RIPRAP - AVG. 1 FT. THICK

FLOW

4:1

4:1

THE PLACING OF FILTER BLANKET MATERIAL MAY BE ELIMINATED IF IN THE OPINION OF THE ENGINEER THE MATERIAL IN PLACE WILL DRAIN PROPERLY WITHOUT SCOURING.

300' V.C.

FINISHED GRADE EL. 866.58

LOW CONC. EL. 861.60

ELEV.

ELEV 850 W. EL.

ELEV 840

ELEV 830

ELEV 820

ELEV 810

ELEV 800

ELEV 790

ELEV 780

ELEV 770

EL. 854.2

EL. 855.3

EL. 850.5

EL. 849.2

EL. 849.2

RANDOM RIPRAP

H.W. EL. 858.8

EL. 848.8

EL. 848.9

DES. H.W. EL. 858.6

20 FT. RT.

20 FT. LT.

EL. 852.8

EL. 853.3

EL. 854.0

EL. 848.8

6' FILTER BLANKET

BRIDGE CONTRACTOR TO REMOVE OLD BRIDGE AND EXCAVATE AND FILL TO THESE LINE FOR APPROX. 60 FT. LEFT AND RIGHT OF ℄ ROADWAY BETWEEN NEW ABUTMENTS. PLACE RIPRAP AND FILTER BLANKET. SEE SPECIAL PROVISIONS.

45 FT. UNTREATED TIMBER TEST PILES

70 FT. CAST-IN-PLACE CONC. TEST PILES (12" ϕ)

RUM RIVER

SAME AS ABOVE

SAME AS ABOVE

B.M. ELEV. 853.39 USGS STA. 360+83. 29' RT.

CONT'D

END BORING T-2 AT EL. 744.8

SOUNDINGS TAKEN WITH STANDARD 1 1/2" ROD

BORINGS SHOWN [ ] TAKEN WITH STD. 50 LB. HAMMER 24 INCH DROP 2 INCH O.D. SAMPLER

CONT'D

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN

For the design of the structure foundation, to obtain relative data concerning the character of material in and upon which the foundation might be built, borings and/or soundings were made at points approximately as indicated on this drawing with the log of such exploration data as interpreted for such design purpose as shown. The explorations were made by ordinary and conventional methods and care deemed adequate for such purpose. However, since it is a matter of common knowledge that the exact character of any material and its reaction is difficult to determine from such subsurface exploration and that the kind and character of material at the site where the foundations are built may vary substantially from that indicated by the log they are made available to the bidders simply for what they are worth, without any warranty, expressed or implied that the material to be encountered in building the foundation will conform therewith. If the log is used by the contractor in making his bid, it is hereby expressly stipulated that the Highway Department accepts no responsibility for said use.

TRUNK HIGHWAY NO.
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE NO. 02526

BRIDGE SURVEY
PLAN AND PROFILE

SEE SHEET NO. 20 FOR ADDITIONAL INFORMATION

State Proj. No.

Sheet No. 21 of 21 Sheets

Bridge Survey Sheet (Sheet 2 of 2)