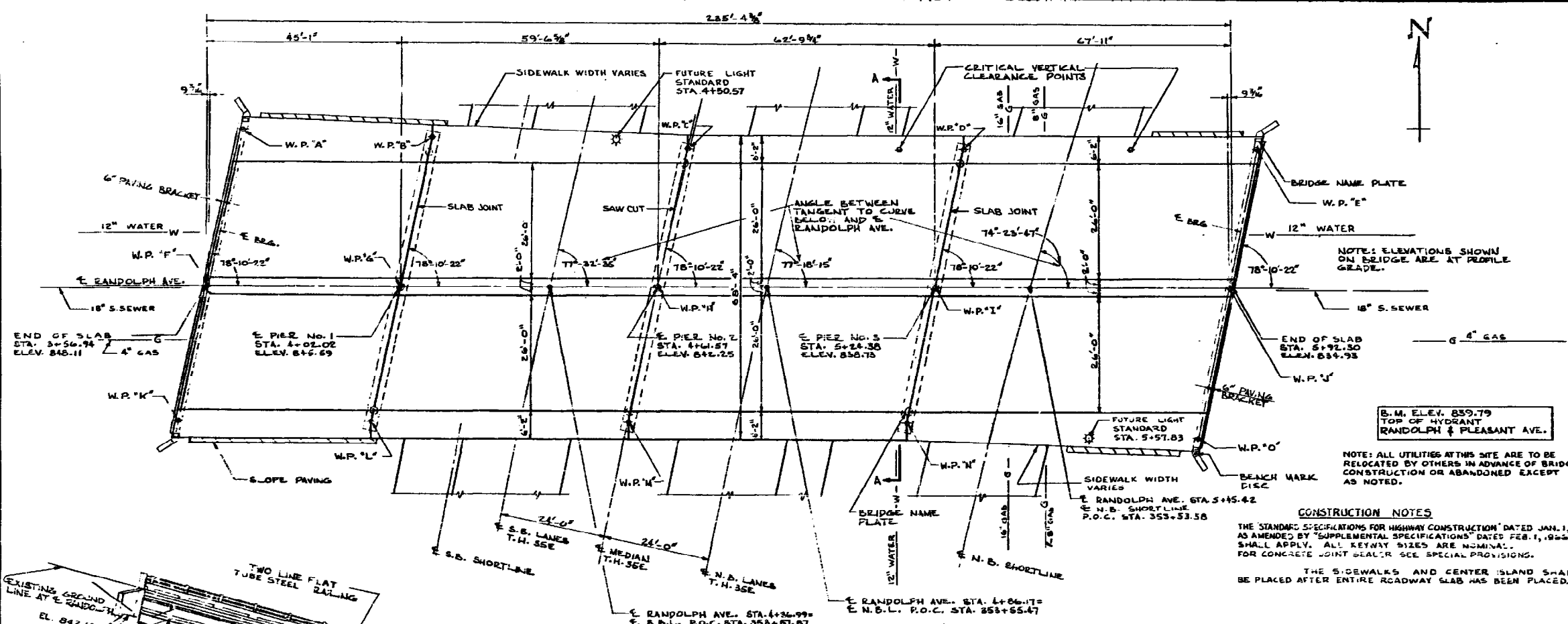


DESIGN DATA
 1961 A.A.S.H.O. DESIGN SPECIFICATIONS
 H-20 LOADING
 MAXIMUM ALLOWABLE DESIGN STRESSES:
 $F_c = 1400$ P.S.I. TYP.
 $F_s = 20,000$ P.S.I. INTERMEDIATE GRADE REINFORCEMENT
 $F_s = 20,000$ P.S.I. STRUCTURAL STEEL
 M.H.D. 5506
 DECK AREA = 16285 SQ. FT.

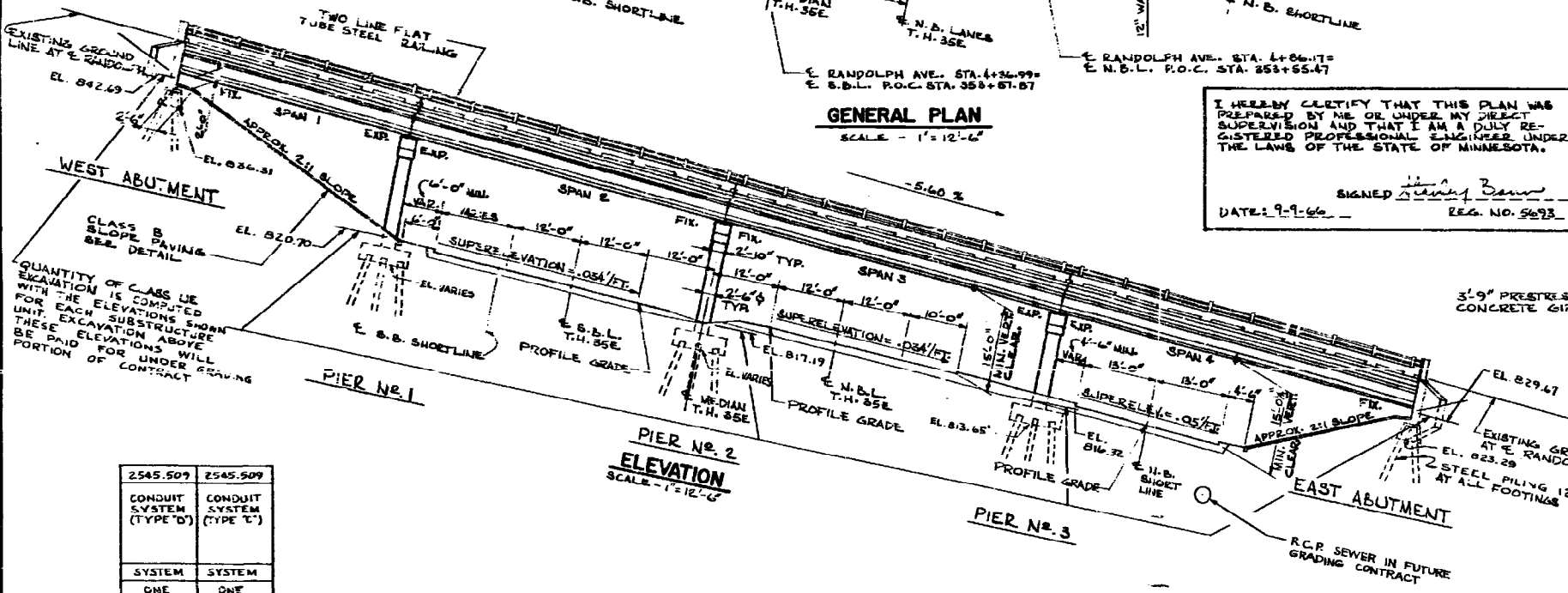
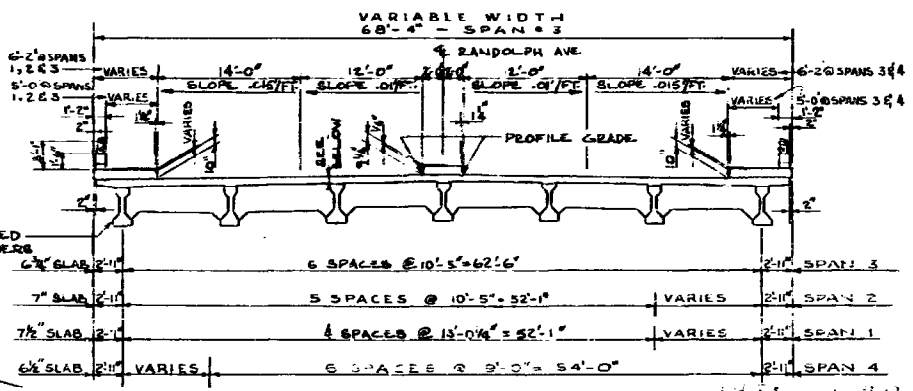
SHEET INDEX

NO.	TITLE
1	GENERAL PLAN & ELEVATION
2	BRIDGE LAYOUT
3	EAST ABUTMENT DETAILS
4	WEST ABUTMENT DETAILS
5	PIER No. 1 DETAILS
6	PIER No. 2 DETAILS
7	PIER No. 3 DETAILS
8	SUPERSTRUCTURE DETAILS
9	SUPERSTRUCTURE DETAILS
10	SUPERSTRUCTURE DETAILS
11	SUPERSTRUCTURE DETAILS
12	SUPERSTRUCTURE DETAILS
13	45" PRESTRESSED CONCRETE GIRDER TYPE A
14	45" PRESTRESSED CONCRETE GIRDER TYPE B
15	45" PRESTRESSED CONCRETE GIRDER TYPE C
16	45" PRESTRESSED CONCRETE GIRDER TYPE D
17	2-LINE FLAT TUBE STEEL RAIL
18	CONDUIT SYSTEM TYPE A
19	DETAILS
20	DETAILS
21	DETAILS
22	DETAILS
23	DETAILS
24	DETAILS
25	DETAILS
26	DETAILS
27	BRIDGE SURVEY
28	BRIDGE SURVLY - PLAN & PROFILE



CONSTRUCTION NOTES
 THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION DATED JAN. 1, 1964 AS AMENDED BY SUPPLEMENTAL SPECIFICATIONS DATED FEB. 1, 1965 SHALL APPLY. ALL KEYWAY SIZES ARE NOMINAL. FOR CONCRETE JOINT SEALER SEE SPECIAL PROVISIONS.
 THE SIDEWALKS AND CENTER ISLAND SHALL BE PLACED AFTER ENTIRE ROADWAY SLAB HAS BEEN PLACED.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
 SIGNED: *Walter Butler*
 DATE: 9-9-66 REG. NO. 5493



2545.509	2545.509
CONDUIT SYSTEM (TYPE 'D')	CONDUIT SYSTEM (TYPE 'C')
SYSTEM	SYSTEM
ONE	ONE

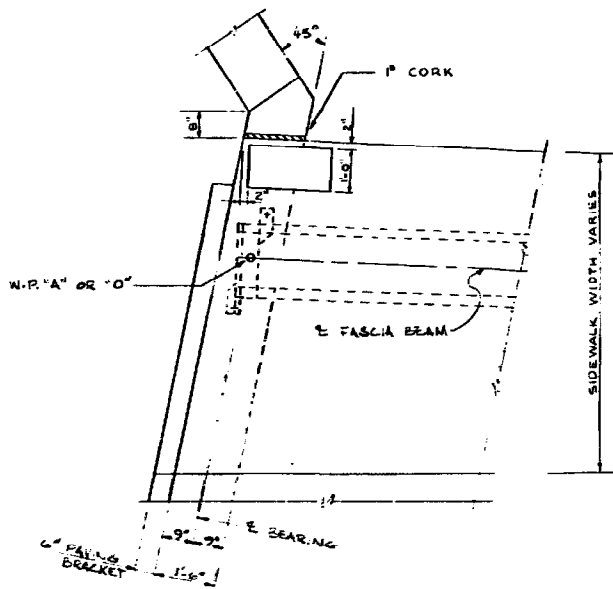
2031.501	2545.509	2481.501	2402.521	514.601
FIELD OFFICE TYPE B	CONDUIT SYSTEM (TYPE A)	THREE-PLY JOINT WATER PROOFING	STRUCTURAL STEEL 2000S	SLOPE PAVING
EACH	SYSTEM	LN. FT.	FOUND	SQ. YD.
ONE	ONE	170	1150	650

DESIGNED BY
WALTER BUTLER ENGR. CO.
 CONSULTING ENGINEERS
 ST. PAUL, MINN.
 TRUNK HIGHWAY NO. 35E
 STATE OF MINNESOTA
 DEPARTMENT OF HIGHWAYS

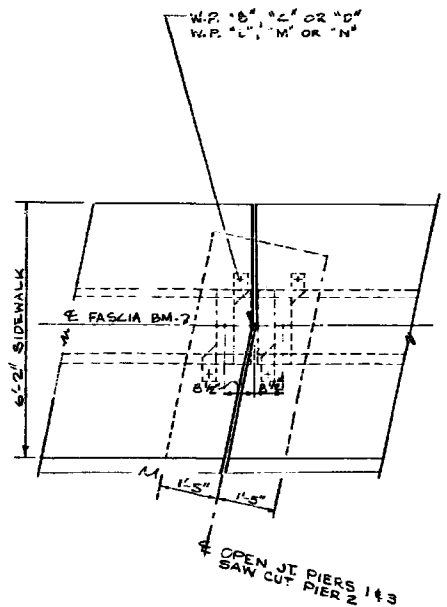
BRIDGE NO. 9528
 7.135E SHORT-SPAN BRIDGE UNDER RANDOLPH AVE., 8 MILE NORTH OF JCT. T.H. 35E & T.H. 5 (IN ST. PAUL)
 45'-60'-65'-68' PRESTRESSED CONCRETE GIRDER SPANS
 2-26 FT. ROADWAYS 2'-5'-0" SIDEWALKS
 SKEW 11°-49'-38" 4'-0" CENTER ISLAND
GENERAL PLAN & ELEVATION
 SEC. 11
 APPROVED: 11-4-66
Walter Butler
 BRIDGE ENGINEER
 RAYMOND CO. R228
 ASST. DIRECTOR OF OPERATIONS

QUANTITIES FOR ENTIRE BRIDGE

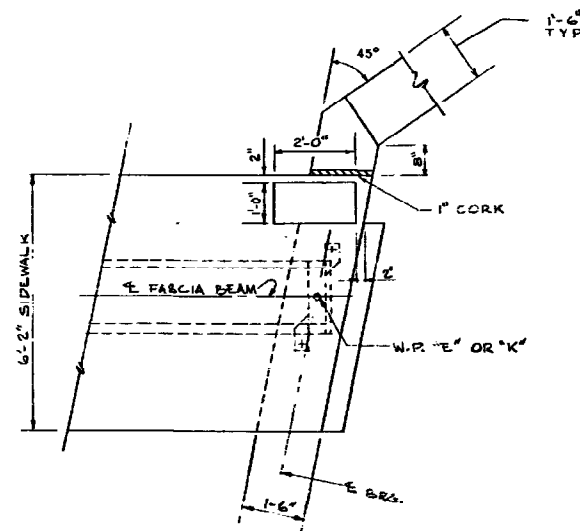
ITEM NO.	2401.521	2401.501	2401.501	2401.501	2401.539	2401.540	2402.577	2402.593	2402.594	2402.594	2405.502	2405.502	2405.502	2405.502	2405.502	2405.503	2405.503	2452.509	2452.510	2452.520	2452.520	2452.563	
ITEM	STRUCTURE EXCAVATION (CLASS UE)	CONCRETE, MIX NO. 1A6	CONCRETE, MIX NO. 3Y6	CONCRETE, MIX NO. 3Y60	REINFORCEMENT BARS DELIVERED	REINFORCEMENT BARS PLACED	STANDARD NAME PLATES	FIXED BEARING ASSEMBLIES (TYPE 1)	EXPANSION BEARING ASSEMBLIES (TYPE 1)	EXPANSION BEARING ASSEMBLIES (TYPE 2)	FURN. PRESTRESSED CONCRETE GIRDERS (TYPE A)	FURN. PRESTRESSED CONCRETE GIRDERS (TYPE B)	FURN. PRESTRESSED CONCRETE GIRDERS (TYPE C)	FURN. PRESTRESSED CONCRETE GIRDERS (TYPE D)	ERECT PRESTRESSED CONCRETE GIRDERS (TYPE A)	ERECT PRESTRESSED CONCRETE GIRDERS (TYPE B)	ERECT PRESTRESSED CONCRETE GIRDERS (TYPE C)	ERECT PRESTRESSED CONCRETE GIRDERS (TYPE D)	STEEL PILING DELIVERED	STEEL PILING DRIVE IN	STEEL JOINT PILING FACE	STEEL JOINT PILING	STEEL JOINT PILING
UNIT	CU. YD.	CU. YD.	CU. YD.	CU. YD.	POUND	POUND	UNIT	UNIT	UNIT	UNIT	GIRDER	GIRDER	GIRDER	GIRDER	GIRDER	GIRDER	GIRDER	GIRDER	LINEAL FT.	LINEAL FT.	LINEAL FT.	LINEAL FT.	LINEAL FT.
QUANTITY	500	181	576	125	277,460	277,460	2	20	16	20	6	7	7	8	6	7	7	8	119250	2163	4	6	470



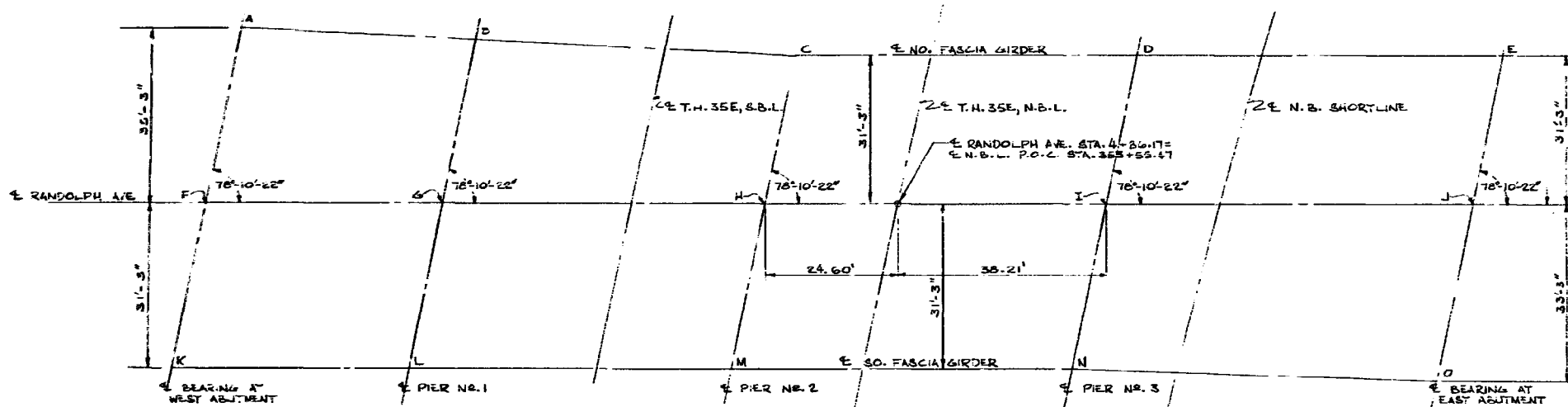
N.W. OR S.E. CORNER



PIER DETAIL



N.E. OR S.W. CORNER



LAYOUT SHOWING WORKING POINTS

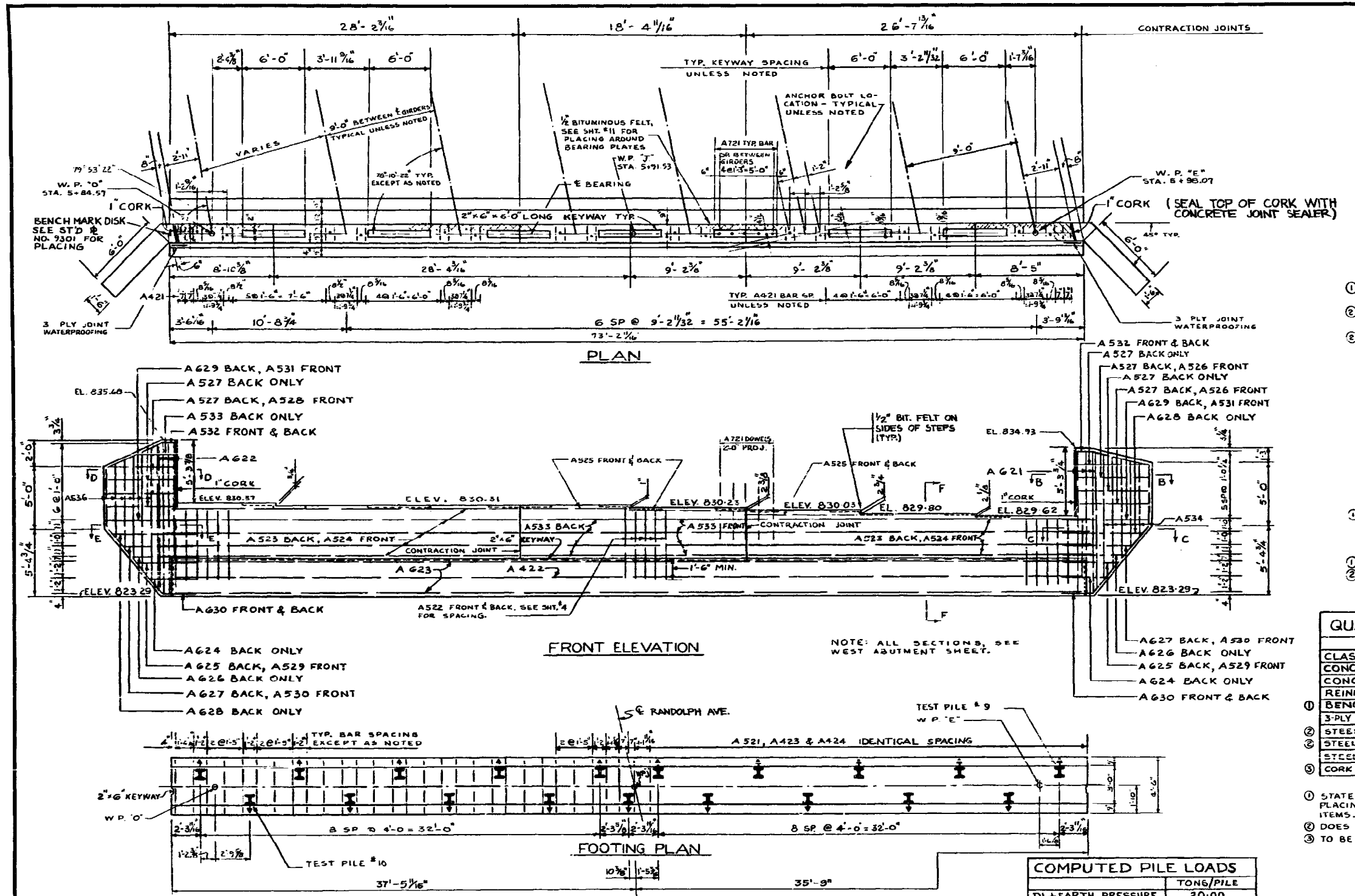
POINT	STATIONS	DIMENSIONS BETWEEN WORKING POINTS															ELEVATIONS		
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	TOP OF SLAB EL.	TOP OF SLAB TO BR. SEAT	BR. SEAT ELEV.
A	3+65.09		44.0				36.02	51.06					73.12	111.86			847.33	4.67	842.64
B	4+09.04			59.12			61.33	34.27	62.32								844.86	4.71	840.15
C	4+68.11				62.81			73.11	31.93	64.36			95.83		79.87	133.13	841.56	4.66	836.90
D	5+30.92					67.15			76.07		68.19						838.04	4.66	833.38
E	5+98.07										80.05	31.93					834.28	4.66	829.62
F	3+57.71							44.32				31.93	49.02						
G	4+02.02								59.65				31.93	61.53					
H	4+61.57									62.81			73.11	31.93	64.36				
I	5+24.38													76.07	31.93	68.76			
J	5+91.53															80.05	33.97		
K	3+51.17											44.32					843.10	4.68	838.42
L	3+95.48												59.55				845.22	4.71	840.51
M	4+55.03														62.81		842.29	4.71	837.58
N	5+17.84															66.76	838.77	4.71	834.06
O	5+84.57																835.03	4.66	830.37

STATE OF MINNESOTA
 DEPARTMENT OF HIGHWAYS

BRIDGE NO. 9528

BRIDGE LAYOUT

APPROVED: 11-4-66



Fed. Proj. No.

BILL OF REINFORCEMENT FOR EAST ABUTMENT

MARK	SIZE	NO	LENGTH	SHAPE	LOCATION
A421	#4	74	2'-2"	U	BEAM SEAT TIE
A422	#4	37	0'	U	FTG. HORIZ. MID HT.
A423	#56	3	7'-7"	U	FTG. TIE
A424	#4	56	4'-2"	U	" "
A521	#5	56	9'-0"	U	FTG. STRUPS
A522	#168	3	5'-5"	U	WALL VERT.
A523	#0	20	6'-0"	U	WALL HORIZ. FRONT
A524	#9	28	6'-0"	U	" "
A525	#6	9	0'	U	" "
A526	#2	10	4'-0"	U	WINGWALL HORIZ.
A527	#8	6	6'-6"	U	" "
A528	#2	9	11'-0"	U	" "
A529	#2	5	2'-0"	U	" "
A530	#2	6	10'-0"	U	" "
A531	#2	8	4'-0"	U	" "
A532	#4	8	0'-0"	U	" "
A533	#8	18	2'-0"	U	WALL HORIZONTAL
A534	#6	15	3'-0"	U	WINGWALL VERT.
A535	#1	5	0'-0"	U	HORIZ.
A536	#5	6	16'-2"	U	" VERT.
A621	#6	6	11'-0"	U	WINGWALL VERT.
A622	#6	12	0'-0"	U	" "
A623	#12	37	0'-0"	U	FTG. HORIZ.
A624	#2	5	1'-0"	U	WINGWALL HORIZ.
A625	#2	6	4'-0"	U	" "
A626	#2	7	0'-0"	U	" "
A627	#2	8	0'-0"	U	" "
A628	#2	9	1'-0"	U	" "
A629	#2	9	6'-0"	U	" "
A630	#6	4	11'-9"	U	" BOT
A721	#7	35	4'-0"	U	WALL DOWELS

① BEND IN FIELD AS REQUIRED
② CUT TWO FROM ONE. ONE LONG, ONE SHORT

QUANTITIES FOR TWO ABUT'S

ITEMS	EAST	WEST
CLASS USE EXCAVATION	152 C.YD.	156 C.YD.
CONCRETE MIX 1A6	31 C.YD.	32 C.YD.
CONCRETE MIX 3Y6	20 C.YD.	21 C.YD.
REINFORCING BARS	4470 LBS.	4480 LBS.
① BENCHMARK DISK	1	1
3-PLY JOINT WATERPROOFING	12 LIN. FT.	12 LIN. FT.
② STEEL PILING DRIVEN	578 "	578 "
③ STEEL PILING DELIVERED	31535 LBS	31535 LBS
STEEL TEST PILES IN PLACE	45' LG - 2	45' LG - 2
④ CORK AND BITUMINOUS FELT (SEE LISTS, SHY # 12)		

① STATE WILL FURNISH DISK. PAYMENT FOR PLACING TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS. SEE STD. PL. NO 9301 FOR PLACING.
② DOES NOT INCLUDE TEST PILES.
③ TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

COMPUTED PILE LOADS

	TONS/PILE
DL+ EARTH PRESSURE	20.00
LIVE LOAD	18.10
TOTAL	38.10

2 STEEL TEST PILES 45 FT. LONG, FOR EAST ABUT.
2 STEEL TEST PILES 45 FT. LONG, FOR WEST ABUT.
17 STEEL PILES 35 FT. LONG, FOR EAST ABUT.
17 STEEL PILES 35 FT. LONG, FOR WEST ABUT.
ALL PILES TO BE 12 BP 55.
ESTIMATED PENETRATION ONE FOOT LESS THAN LENGTH GIVEN.
ALL PILES TO BE DRIVEN TO A BEARING OF NOT LESS THAN 40 TONS/PILE.
SEE M.H.D. 2452.3E1
PILES MARKED THUS \rightarrow TO BE BATTERED 3/FOOT IN THE DIRECTION SHOWN FOR SPLICES AND TIP REINFORCEMENT SEE DETAIL B221.
PILE SPACING SHOWN IS AT BOTTOM OF FOOTING

A529	3'-2"
A530	4'-10"
A531	6'-4"
A624	3'-1"
A625	4'-4"
A626	5'-0"
A627	6'-0"
A628	7'-1"
A629	7'-6"

NOTE: ALL OTHER BAR BENDING DIAGRAMS, SEE WEST ABUTMENT SHEET.

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

Bridge No. 9528

EAST ABUTMENT DETAILS

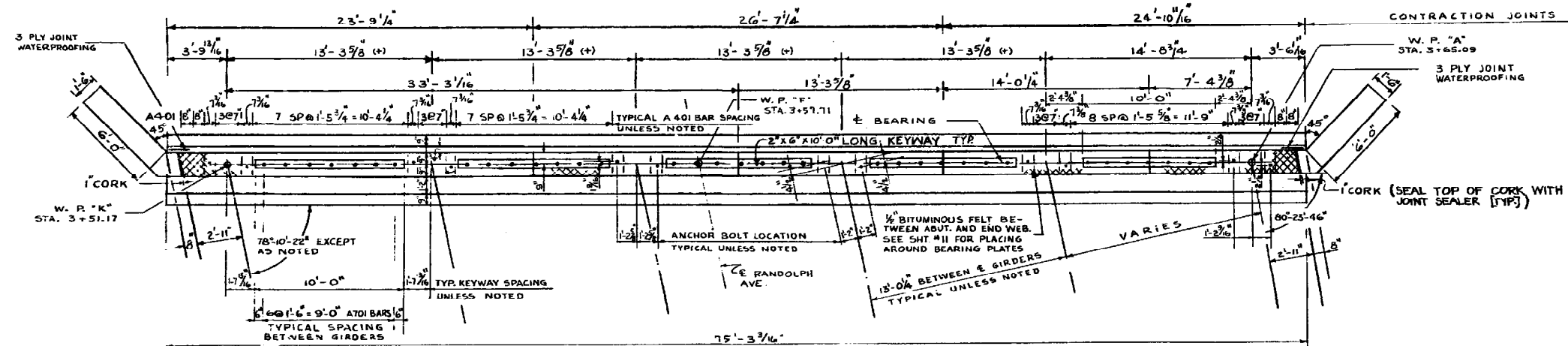
APPROVED: 11-4-66

DES. J.S.	DR. V.T.P.	9528
CHK. S.C.	DR. J.S.	

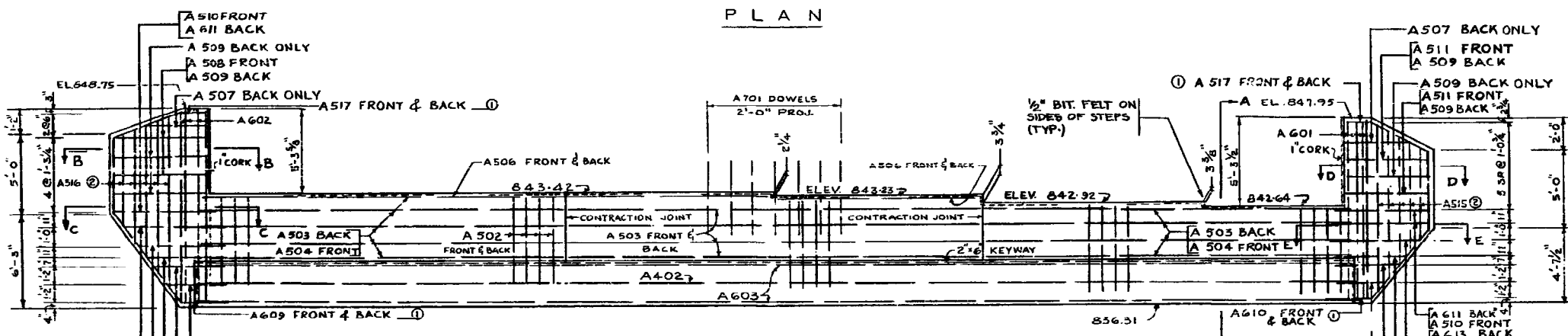
Fed. Proj. No.

BILL OF REINFORCEMENT FOR WEST ABUTMENT					
MARK	SIZE	NO.	LENGTH	SHAPE	LOCATION
A401	#4	71	2'-2"	U	BEAM SEAT TIE
A402	#4	4	38'-0"	U	FTG. HORIZ. MID HT.
A403	#6	56	3'-7"	U	FTG. TIE
A404	#4	56	4'-2"	U	" "
A501	#5	56	9'-0"	U	FTG. STIRRUP
A502	#6	163	5'-5"	U	WALL VERT.
A503	#7	17	26'-5"	U	WALL HORIZ.
A504	#9	9	25'-5"	U	" "
A505	#1	7'-8"		U	WINGWALL "
A506	#4	13'-1"		U	WALL "
A507	#2	4'-8"		U	WINGWALL HORIZ.
A508	#2	10'-4"		U	" "
A509	#7	6'-6"		U	" "
A510	#3	8'-2"		U	" "
A511	#2	9'-11"		U	" "
A512	#1	7'-3"		U	" "
A513	#1	4'-10"		U	" "
A514	#1	6'-3"		U	" "
A515	#6	15'-4"		U	WINGWALL VERT.
A516	#5	6	16'-2"		" "
A517	#3	4	8'-0"		" TOP
A518	#5	1	5'-8"		" HORIZONTAL
A601	#6	6	11'-0"		WINGWALL VERT.
A602	#6	6	12'-0"		" "
A603	#12	38'-0"		U	FTG. HORIZ.
A604	#1	4'-10"		U	WINGWALL HORIZ.
A605	#1	6'-5"		U	" "
A606	#1	8'-5"		U	" "
A607	#2	6'-8"		U	" "
A608	#2	7'-6"		U	" "
A609	#2	12'-4"		U	" BOT.
A610	#2	11'-3"		U	" "
A611	#3	3'-4"		U	" HORIZ.
A612	#1	5'-4"		U	" "
A613	#1	8'-10"		U	" "
A701	#7	55	4'-0"		WALL DOWELS

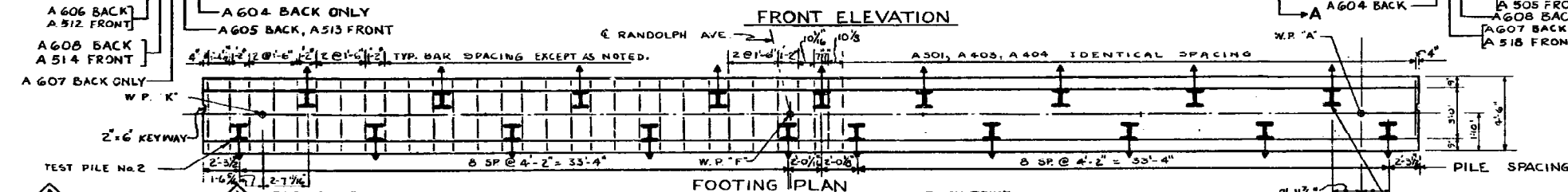
① BEND IN FIELD AS REQUIRED.
② CUT TWO FROM ONE, ONE LONG AND ONE SHORT.



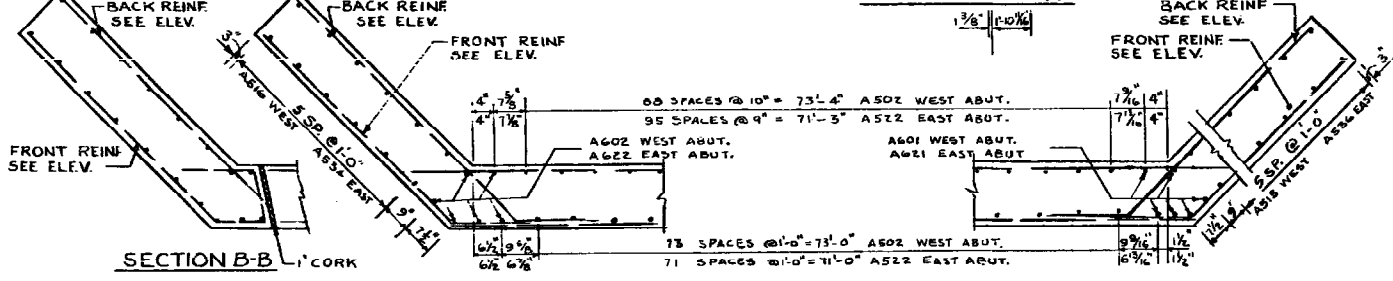
PLAN



FRONT ELEVATION



FOOTING PLAN

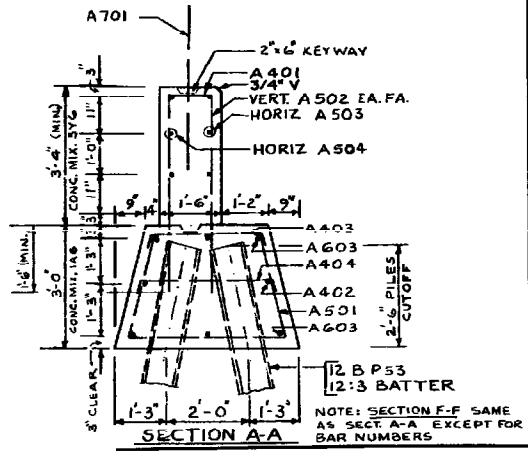


SECTION B-B

SECTION C-C

SECTION E-E

SECTION D-D



SECTION A-A

A604	A513	2'-10"
A605		4'-0"
A607		4'-8"
A608		5'-6"
A606		6'-5"
A611		7'-4"
A612		3'-4"
A613		6'-10"
A514		4'-3"
A512		5'-3"
A510		6'-2"
A518		3'-8"
A519		5'-8"

NOTE: COMPUTED PILE LOADS SAME AS FOR EAST ABUTMENT.

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

Bridge No. 9528

WEST ABUTMENT DETAILS

APPROVED: 11-4-66

DES. J. S.	DR. V. T. R.	9528
CHK. S. B.	CHK. J. T. G.	

State Proj. No.

Sheet No. 4 of 28 Sheets

Fed. Proj. No.

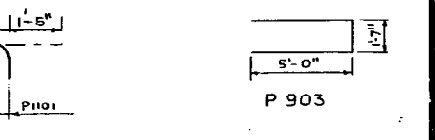
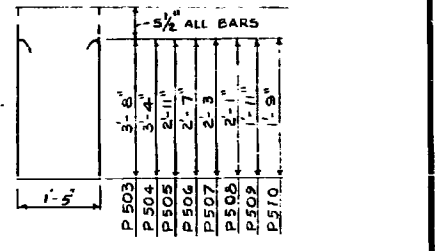
BILL OF REINFORCEMENT #1

MARK NO.	SIZE	LENGTH	SHAPE	LOCATION
P401	1 #4			SPIRAL
P402	1 "			"
P403	1 "			"
P404	79 #4	4'-6"	BENT	BDG SEAT TIES
P503	126 #5	9'-8"	BENT	STIRRUPS
P504	4 "	9'-0"		
P505	4 "	8'-2"		
P506	4 "	7'-6"		
P507	4 "	6'-10"		
P508	4 "	6'-6"		
P509	4 "	6'-2"		
P510	4 #5	5'-10"	BENT	STIRRUPS
P601	16 #6	19'-9"	ST.	COL. VERTICAL
P602	16 "	19'-2"	"	"
P603	16 "	17'-8"	"	"
P604	48 "	6'-6"	BENT	DWL. TO FTG.
P605	4 "	35'-6"	ST.	PR. BM. WAIST
P606	6 #6	7'-6"	BENT	PR. CANT. BM. BOT.
P701	24 #7	7'-8"	BENT	FOOTING REINF.
P702	12 #7	8'-8"	BENT	"
P801	36 #8	10'-2"	BENT	"
P903	12 #9	11'-7"	BENT	PILE TIES
P904	6 #8	8'-8"	"	"
P1001	4 #10	17'-0"	ST.	PR. BM. TOP
P1106	3 #11	23'-5"	ST.	"
P1101	3 #11	51'-5"	BENT	PR. BM. TOP CONT.
P1102	12 "	14'-0"	ST.	PR. BM. TOP
P1103	7 "	17'-0"	ST.	"
P1104	6 "	31'-0"	ST.	PR. BM. BOT. CONT.
P1105	6 #11	23'-2"	ST.	PR. BM. BOT.

SPIRAL DATA

	P401	P402	P403
OUTSIDE DIAMETER	2'-2"	2'-2"	2'-2"
HEIGHT	17'-6"	16'-6"	15'-7"
PITCH	0'-3"	0'-3"	0'-3"
SPIRAL ROD SIZE	1/2	1/2	1/2
ESTIMATED WEIGHT	332 LBS	314 LBS	297 LBS.

BAR DIMENSIONS ARE OUT TO OUT. BAR DETAILS SHALL CONFORM TO ACI 315, LATEST EDITION.



STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

Bridge No. 9528

PIER NO. 1 DETAILS

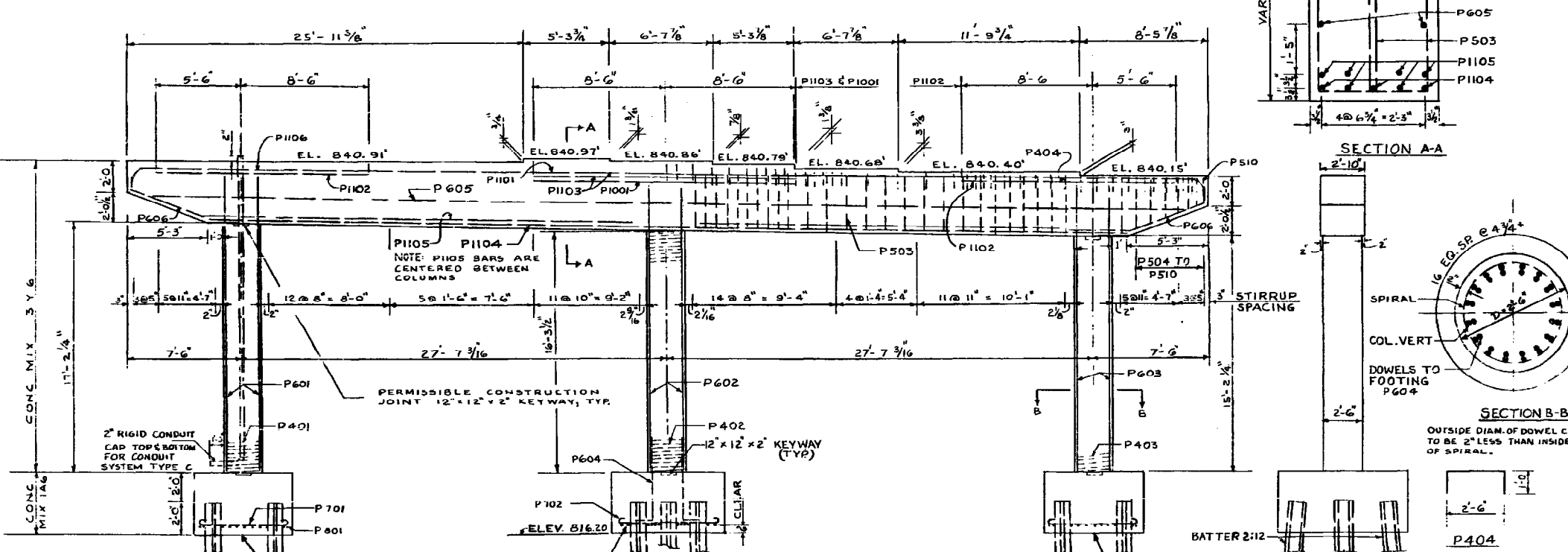
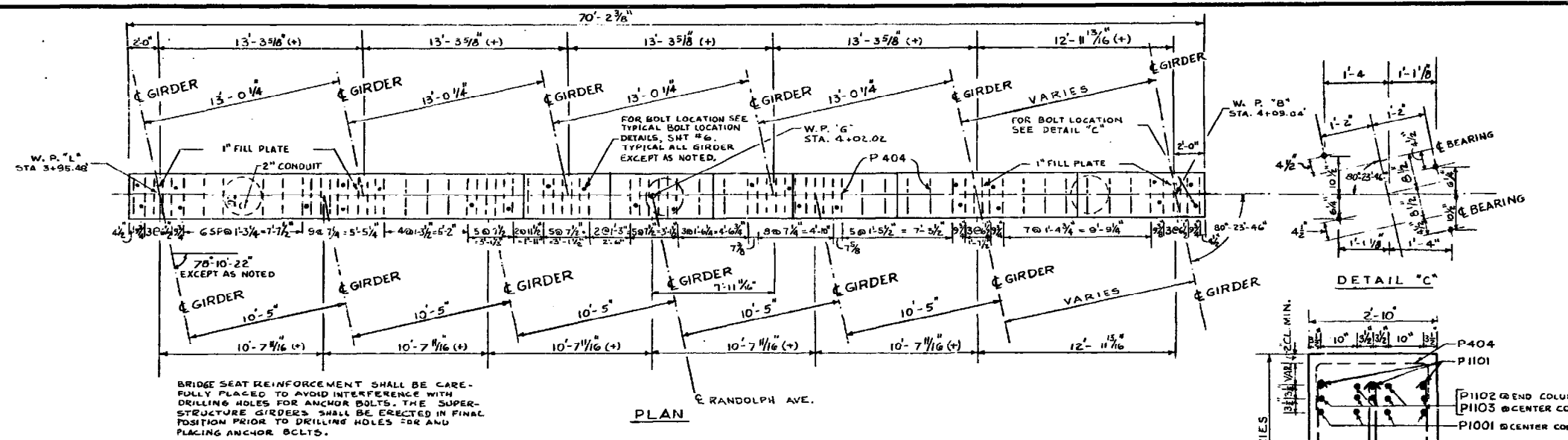
APPROVED: 11-4-66

DES. J.S. DR. V.T.P. **9528**

CHK. S.S. CHK. O.T.S.

State Proj. No. **9528**

Sheet No. 5 of 28 Sheets



USE SAME PILING AND STEEL SPACING AT THE OTHER END COLUMN

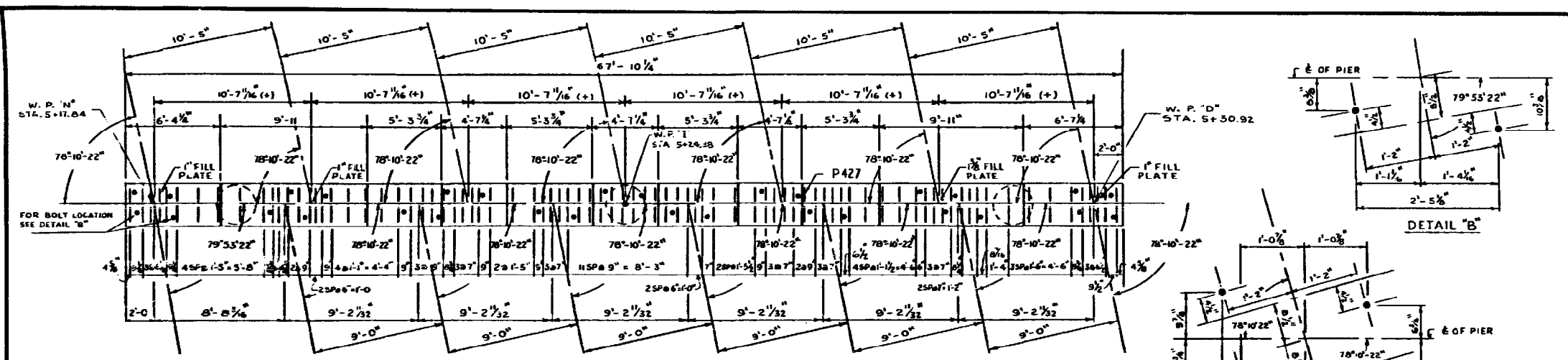
TEST PILE No. 3

TEST PILE No. 4

	TONS/PILE
DEAD LOAD	25.5
LIVE LOAD	5.8
OVERTURNING	13.7
TOTAL	45.0
*REDUCED TOTAL (1/25)	36.0

2 STEEL TEST PILES 30 FT. LONG.
17 STEEL PILES EST. LENGTH 20 FT.
ALL PILES TO BE 12 BP 53
ESTIMATED PENETRATION ONE FOOT LESS THAN LENGTH GIVEN.
ALL PILES TO BE DRIVEN TO A BEARING OF NOT LESS THAN 40 TONS/PILE. SEE M.H.D. 2452.3E1
PILES MARKED WITH H* TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN
PILE SPACING SHOWN IS AT BOTTOM FOOTING. FOR SPLICES ETIP REINFORCEMENT SEE DETAIL B 221.

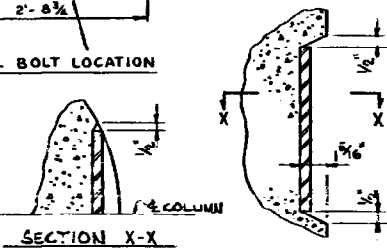
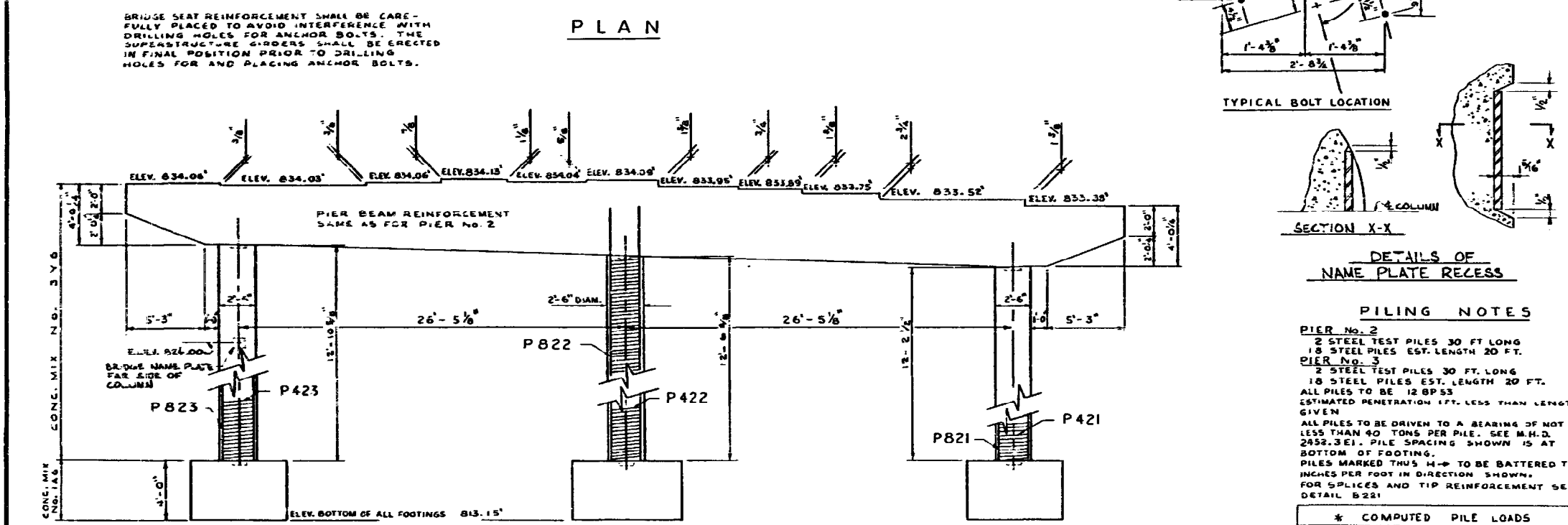
* REDUCED AS PER AASHTO I.4.1.



Fed. Proj. No.

BILL OF REINFORCING 2#3

MARK	NO.	SIZE	LENGTH	SHAPE	LOCATION
P421	1	#4			SPIRAL
P422	1	11	SEE		"
P423	1	11	SEE		"
P424	1	11	DATA		"
P425	1	11	BELOW		"
P426	1	11			"
P427	150	11	4'-6"	Bt.	BRIDGE SEAT TIES
P521	8	#5	5'-10"	Bt.	STIRRUPS
P522	8	11	6'-4"	"	"
P523	8	11	7'-0"	"	"
P524	8	11	7'-6"	"	"
P525	8	11	8'-0"	"	"
P526	8	11	8'-6"	"	"
P527	8	11	9'-2"	"	"
P528	348	11	9'-3"	"	"
P621	12	#6	7'-6"	Bt.	PIER BEAM CANT.
P622	8	11	34'-3"	Str.	PIER BEAM WAIST
P821	14	#8	14'-7"	Str.	COLUMN VERT.
P822	14	11	15'-5"	"	"
P823	14	11	15'-6"	"	"
P824	14	11	18'-0"	"	"
P825	14	11	19'-4"	"	"
P826	14	11	19'-11"	"	"
P827	84	11	6'-6"	Bt.	DOWELS TO FOOTING
P922	76	#9	10'-6"	Bt.	FOOTING REINF.
P923	24	11	11'-7"	"	PILE TIES
P924	16	11	8'-8"	"	"
P1021	20	#10	13'-0"	Str.	PIER BEAM TOP
P1022	10	11	16'-0"	"	"
P1023	8	11	29'-9"	"	" BOT.
P1024	12	11	23'-0"	"	"
P1121	6	#11	49'-5"	Bt.	PIER BEAM TOP
P1122	6	11	22'-11"	"	"
P1123	4	11	16'-0"	Str.	"
P1124	8	11	13'-0"	"	"
P1125	10	11	16'-0"	"	"
P1126	12	11	29'-9"	"	" BOT.
P1127	24	11	22'-11"	"	" BOT.
P721	48	#7	7'-8"	Bt.	FOOTING REINF.
P722	24	11	8'-8"	"	"



PILING NOTES

PIER No. 2
2 STEEL TEST PILES 30 FT LONG
18 STEEL PILES EST. LENGTH 20 FT.

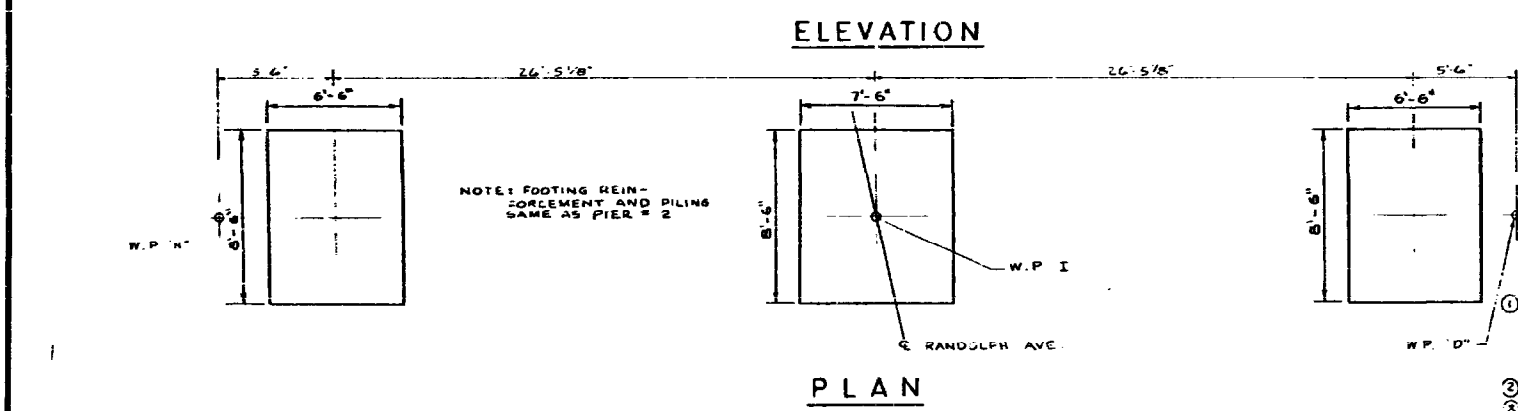
PIER No. 3
2 STEEL TEST PILES 30 FT LONG
18 STEEL PILES EST. LENGTH 20 FT.
ALL PILES TO BE 12 BP 53
ESTIMATED PENETRATION 1 FT. LESS THAN LENGTH GIVEN

ALL PILES TO BE DRIVEN TO A BEARING OF NOT LESS THAN 40 TONS PER PILE. SEE M.H.D. 2452.3 E.I. PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

PILES MARKED THUS H → TO BE BATTERED TWO INCHES PER FOOT IN DIRECTION SHOWN. FOR SPLICES AND TIP REINFORCEMENT SEE DETAIL B221

* COMPUTED PILE LOADS

DEAD LOAD	30.8 TONS/PILE
LIVE LOAD	5.7 " "
OVERTURNING	14.1 " "
TOTAL	50.6 " "
A REDUCED TOTAL (50.6 ÷ 1.25) =	40.5 " "
A REDUCED AS PER AASHTO 1.4.1.	



SUMMARY OF QUANTITIES

DESCRIPTION	PIER No. 1	PIER No. 2	PIER No. 3
CLASS 1E EXCAVATION	64 CU. YD.	64 CU. YD.	64 CU. YD.
CONCRETE MIX NO. 1A6	26 CU. YD.	26 CU. YD.	26 CU. YD.
CONCRETE MIX NO. 3Y6	37 CU. YD.	35 CU. YD.	34 CU. YD.
STEEL PILING DELIVERED	18020 POUNDS	19080 POUNDS	19080 POUNDS
STEEL PILING DRIVEN	323 LIN. FT.	342 LIN. FT.	342 LIN. FT.
STEEL TEST PILES IN PLACE	30'-0" LONG - 2 PILES	30'-0" LONG - 2 PILES	30'-0" LONG - 2 PILES
REINFORCING STEEL	11,790 LBS.	15,650 LBS.	15,050 LBS.
FILL PLATES	4'-1" THICK	7'-1" THICK	3'-11" THICK
2" Ø CONDUIT (TYPE C)	28'-2 LIN. FT.		
BRIDGE NAME PLATE			ONE

* DATA GIVEN APPLIES ONLY TO PIER NO. 2 AND PIER NO. 3

* SPIRAL DATA

OUTSIDE DIAMETER 2'-2" PITCH 3"

ROD SIZE 1/2"

HEIGHT AND ESTIMATED WEIGHT

P421	P422	P423	P424	P425	P426
12'-6"	12'-10"	13'-2"	15'-10"	16'-9"	17'-9"
241 LBS	247 LBS	255 LBS	302 LBS	319 LBS	337 LBS

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

Bridge No. 9528

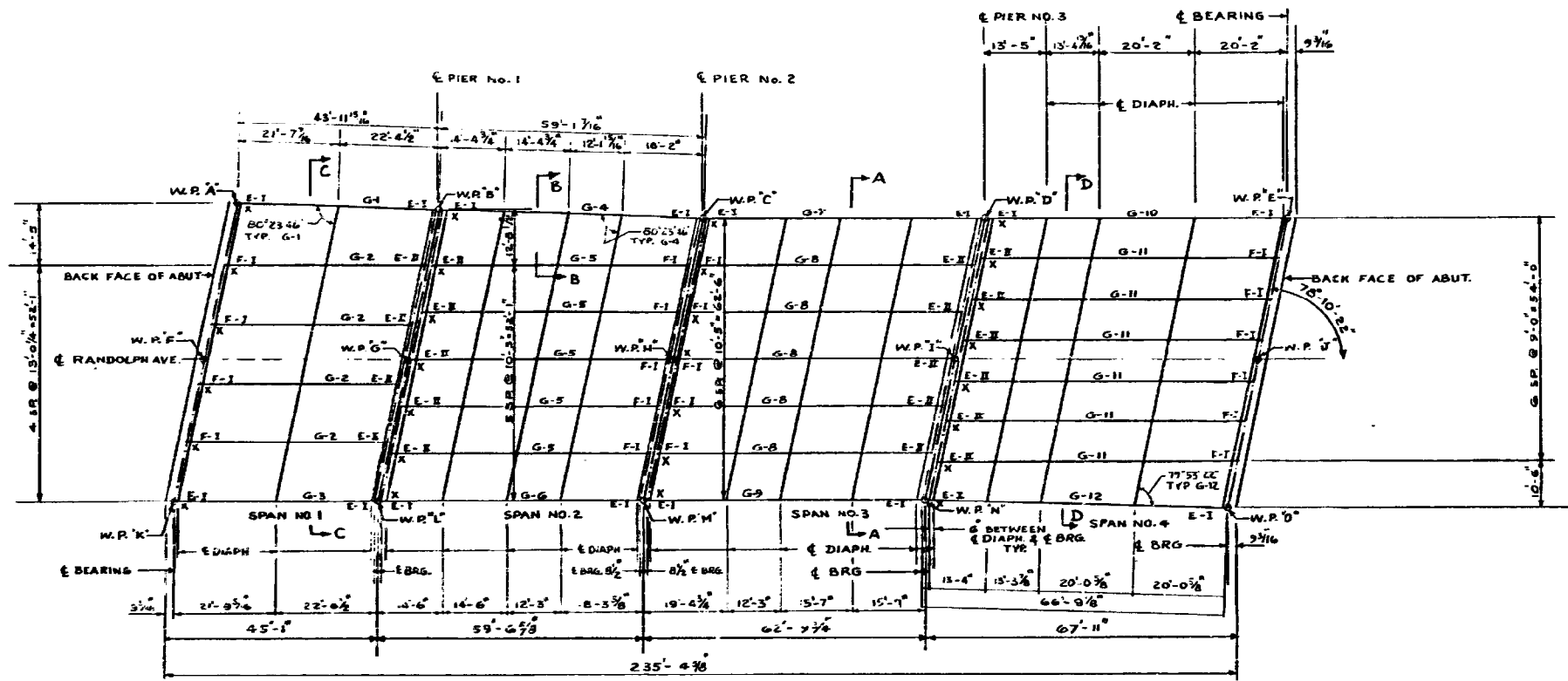
PIER NO. 3 DETAILS

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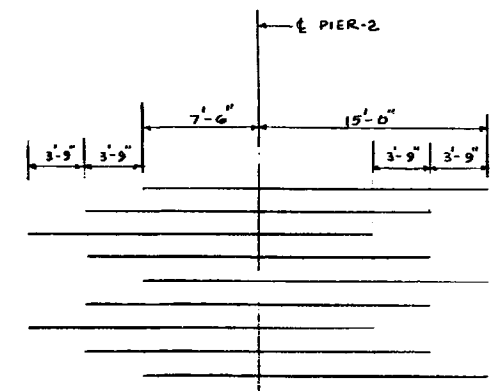
1 DOES NOT INCLUDE TEST PILES.
2 TO BE INCLUDED IN PRICE BID FOR BEARING ASSEMBLY.
3 TO BE INCLUDED IN PRICE BID FOR CONDUIT SYSTEM, TYPE 1C ON SHEET NO. 17.
4 BRIDGE NO. 9528 PROJ. FAI 35E-4-81 DATE 1967

Fed. Proj. No.



FRAMING PLAN

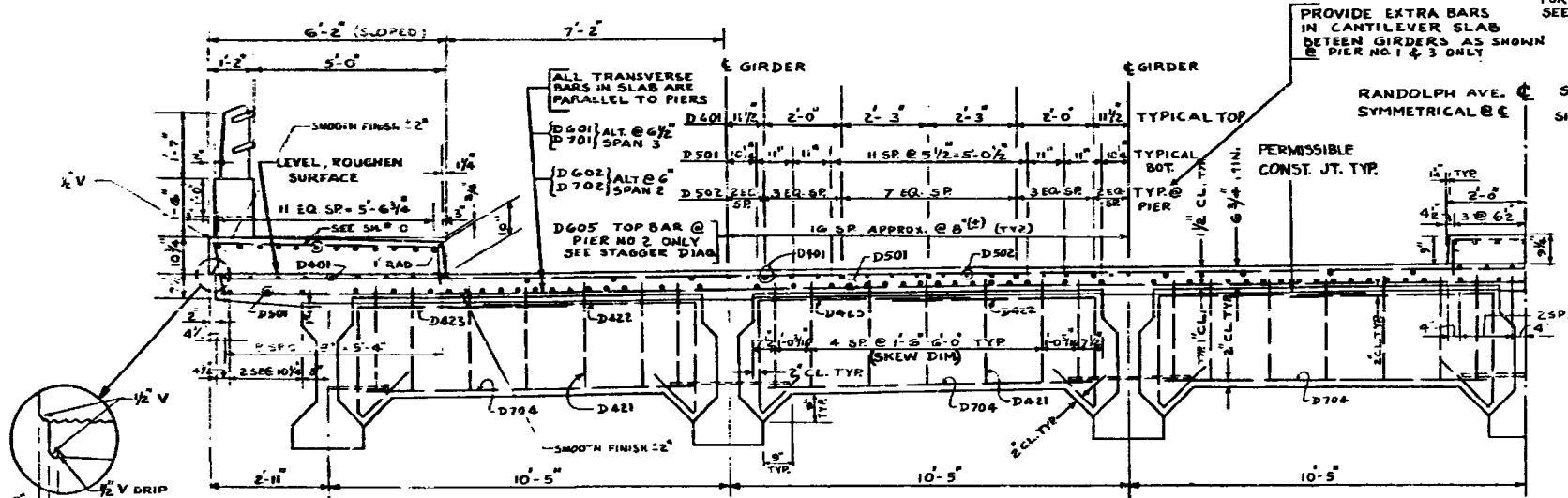
ALL DIMENSIONS SHOWN ARE HORIZONTAL



STAGGER DIAGRAM

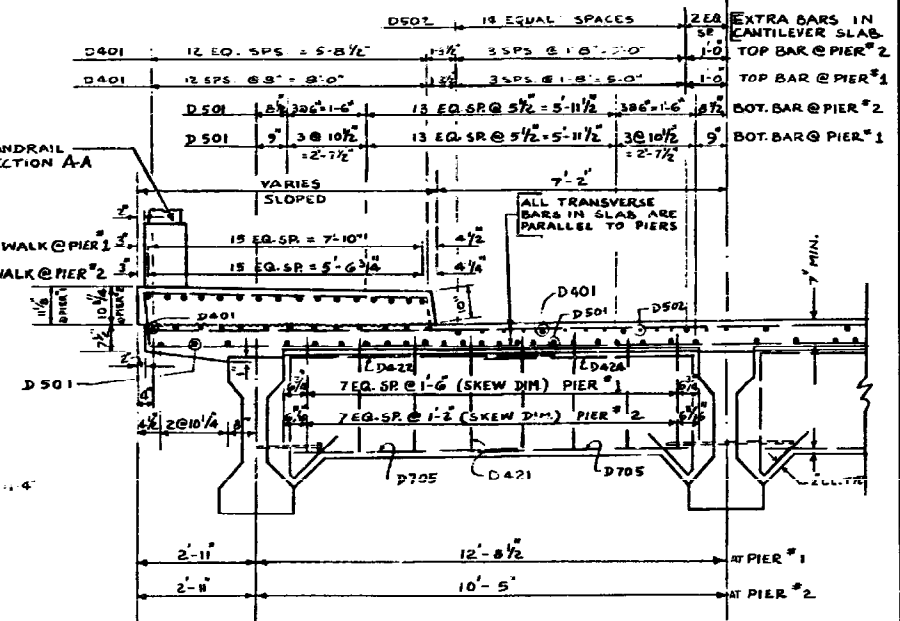
(BARS TO BE SPACED APPROXIMATELY 8" O.C. FOR FULL WIDTH OF SLAB)

NOTE: OMIT D502 CANTILEVER BARS AT SIDEWALKS & MEDIAN



SECTION A-A

NOTE: OMIT D502 CANTILEVER BARS AT SIDEWALKS & MEDIAN



SECTION B-B

(FOR DETAILS NOT SHOWN SEE SECT A-A)

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

Bridge No. 9528

SUPERSTRUCTURE DETAILS

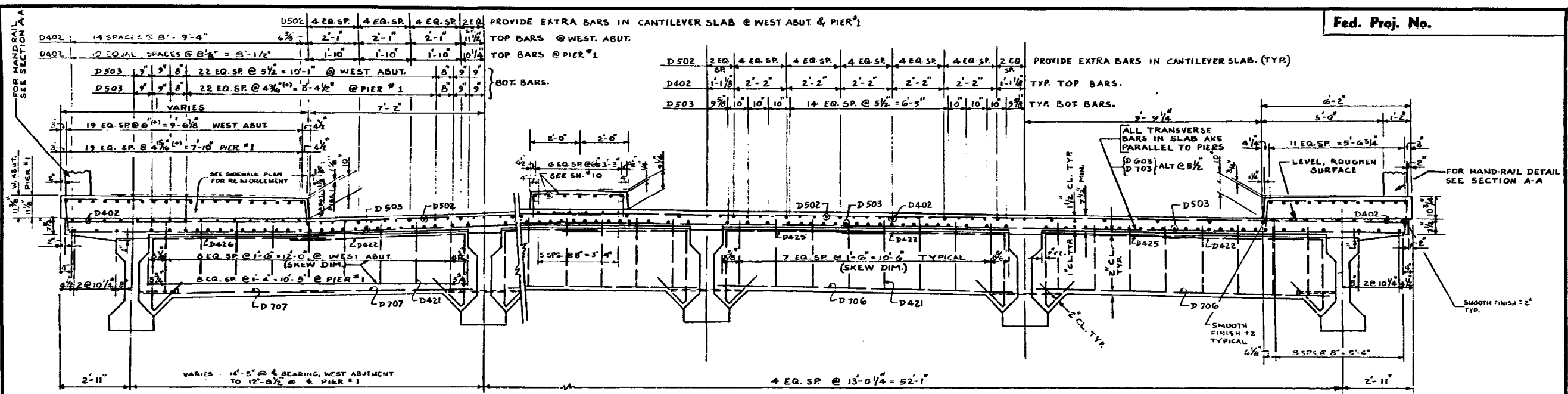
APPROVED: 11-4-66

DATE	BY	CK.	REVISION	DES. J.S.	DR. V.T.P.	9528
3/24/67	D.H.S.	J.A.K.	ADDITIONAL NOTE UNDER FRAMING PLAN	CHK. S.B.	CHK. R.H.	

State Proj. No.

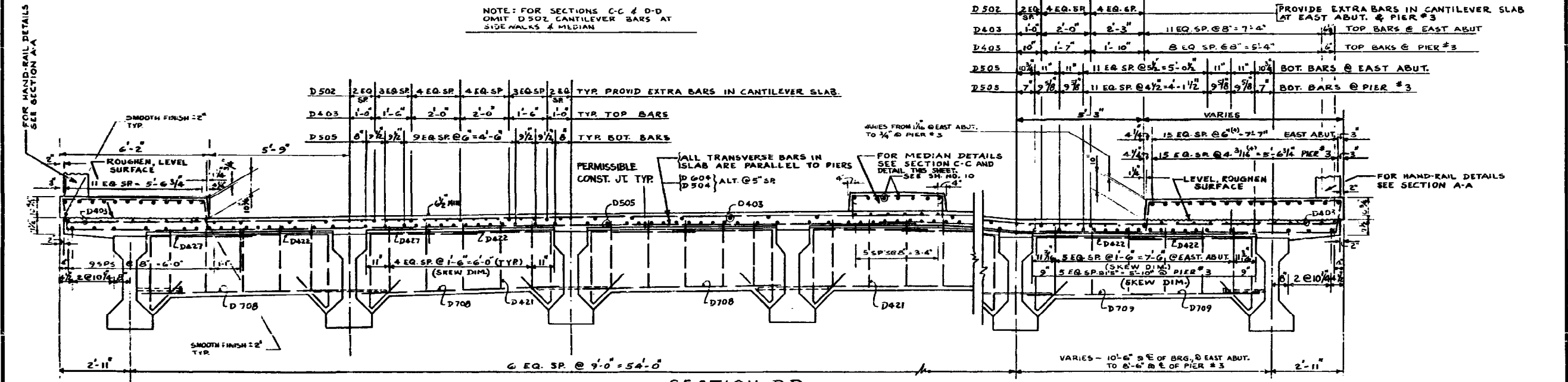
Sheet No. 8 of 28 Sheets

NORSTAR 817

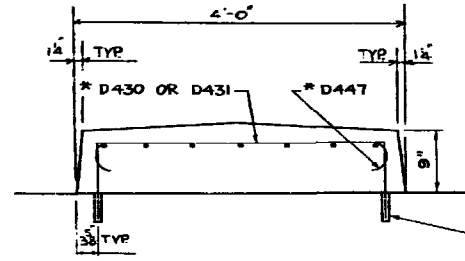


SECTION C-C

NOTE: FOR SECTIONS C-C & D-D OMIT D502 CANTILEVER BARS AT SIDE WALKS & MEDIAN



SECTION D-D



*ALTERNATE D430 WITH D447 ONLY DRILL HOLES FOR D430

DRILL 1" Ø HOLE, 4" MIN. DEPTH, FOR GROUTING D430 AND D431 BARS IN PLACE. GROUT SHALL CONSIST OF ONE PART PORTLAND CEMENT, ONE-TENTH PART OF HYDRATED LIME OR APPROVED EQUAL, 3 PARTS OF CLEAN SAND. ALL MEASURED BY VOLUME AND SUFFICIENT WATER TO PRODUCE THE DESIRED CONSISTENCY. PAYMENT TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

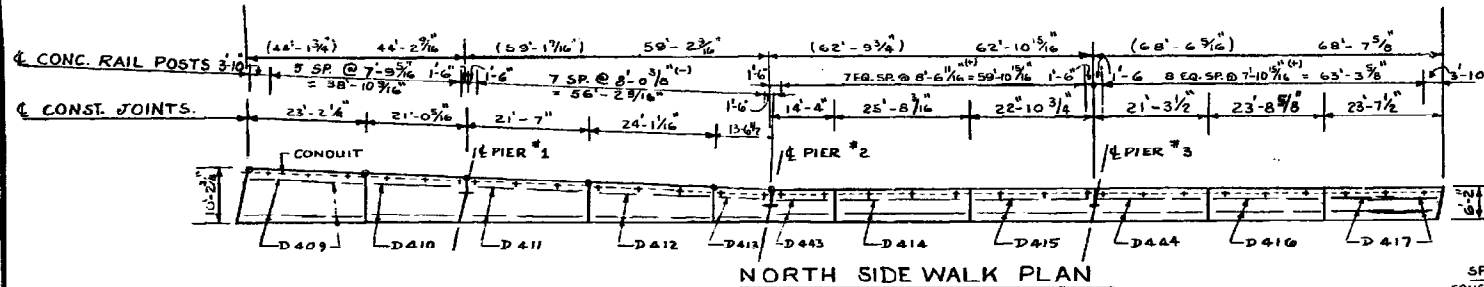
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DEPARTMENT OF HIGHWAYS

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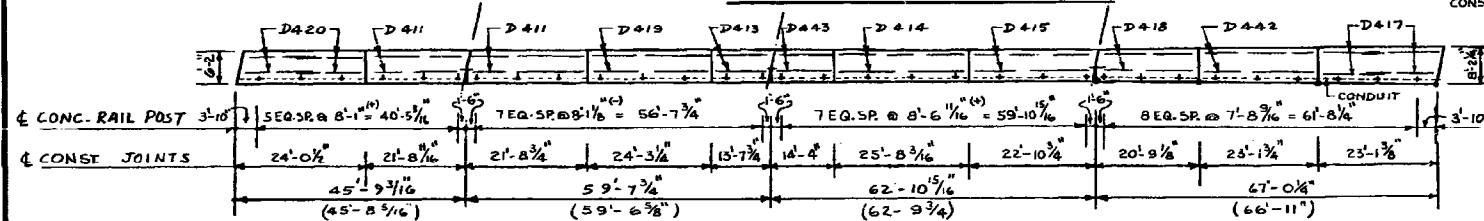
SUPERSTRUCTURE DETAILS

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CHK. S.B.	CHK. R.A.L.	

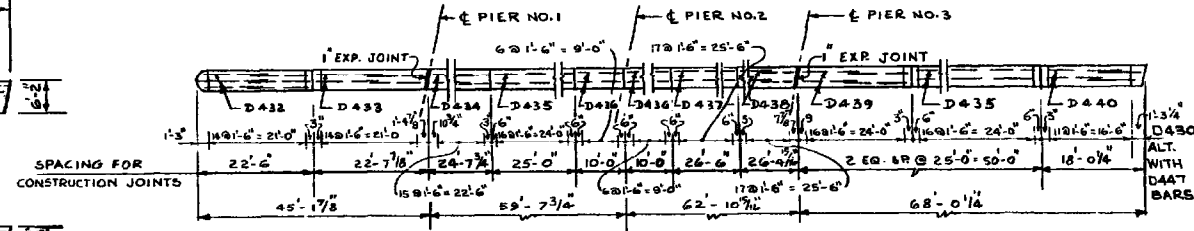


NORTH SIDE WALK PLAN



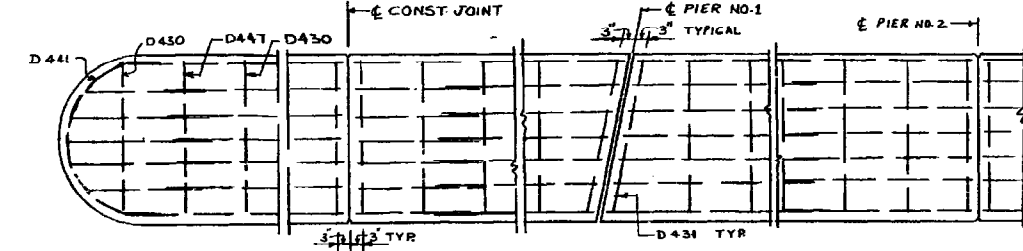
SOUTH SIDE WALK PLAN

DIMENSIONS SHOWN THUS (44'-1 3/4) ARE GIVEN IN THE HORIZONTAL OTHERWISE DIMENSIONS GIVEN ARE MEASURED ALONG THE VERTICAL GRADE ALL SIDEWALK LENGTHS, RAILPOST AND CONST. JOINT SPACING ARE SHOWN ALONG OUTSIDE EDGE OF SIDEWALK.



MEDIAN PLAN

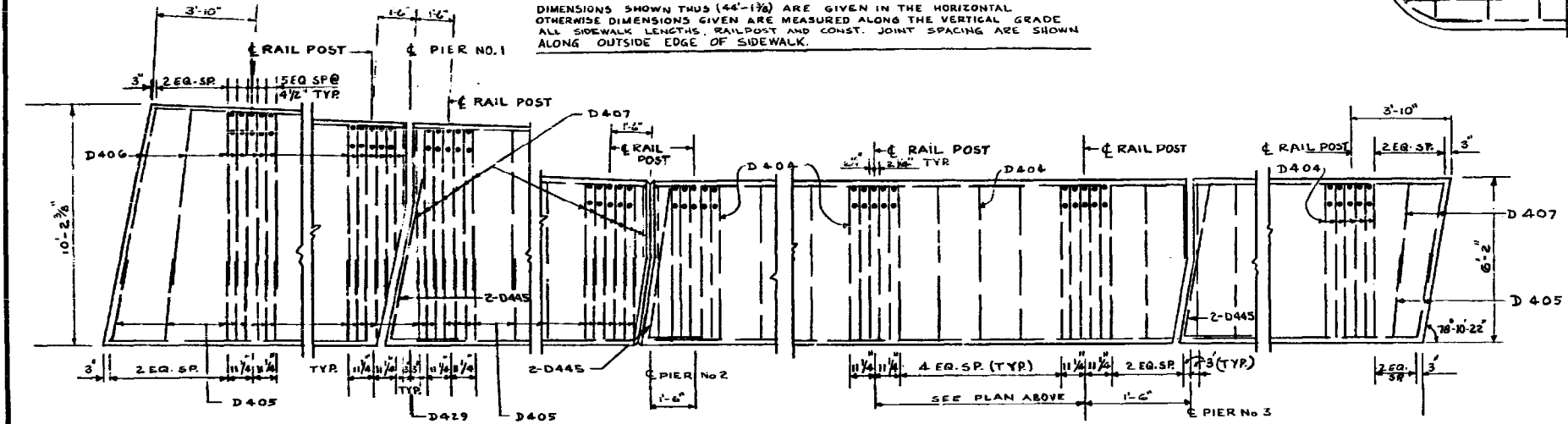
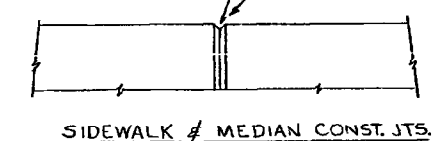
NOTE: ALL DIMENSIONS ARE MEASURED ALONG THE VERTICAL GRADE



MEDIAN DETAILS

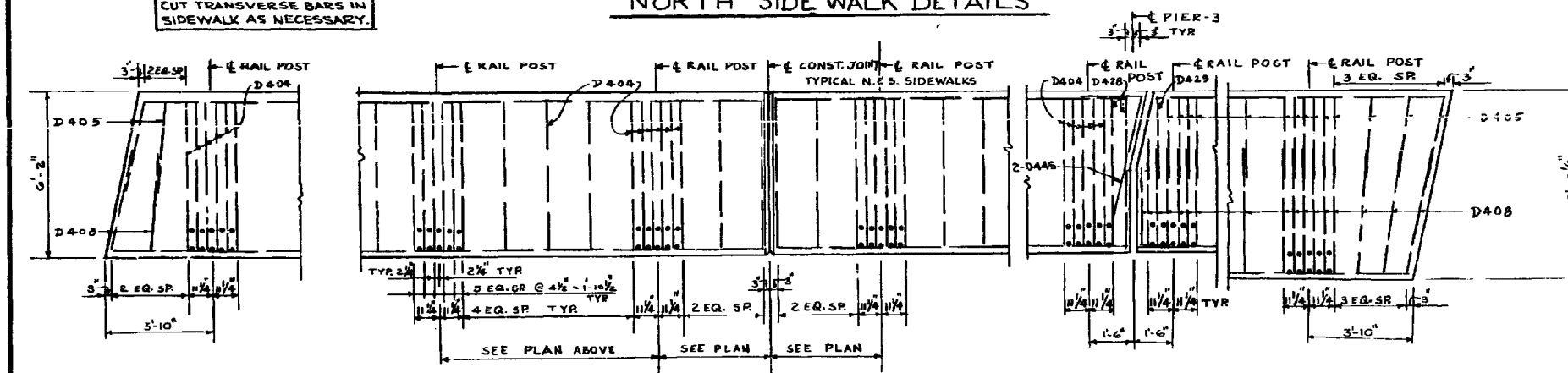
SEAL TOP AND FRONT FACE OF ALL JOINTS IN SIDEWALK AND MEDIAN WITH CONCRETE JOINT SEALER M.H.D. 3725. PAINT WITH ASPHALT OR APPROVED EQUAL TO BREAK BOND

FINISH TOP OF ALL SIDEWALK AND MEDIAN JOINTS WITH SMALL RADIUS EDGER AND VERTICAL EDGES WITH 1/2" V STRIPS. NO REINFORCEMENT THROUGH JOINT



NORTH SIDE WALK DETAILS

NOTE: CUT TRANSVERSE BARS IN SIDEWALK AS NECESSARY.



SOUTH SIDE WALK DETAILS

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

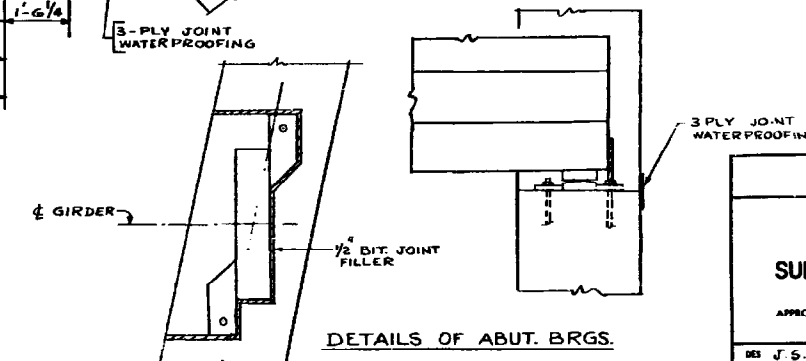
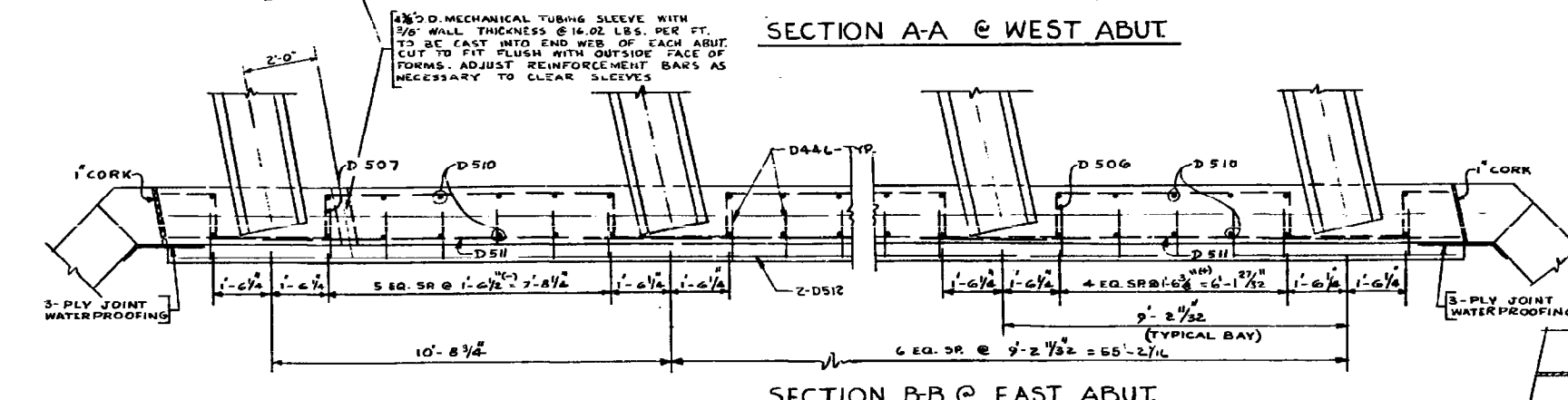
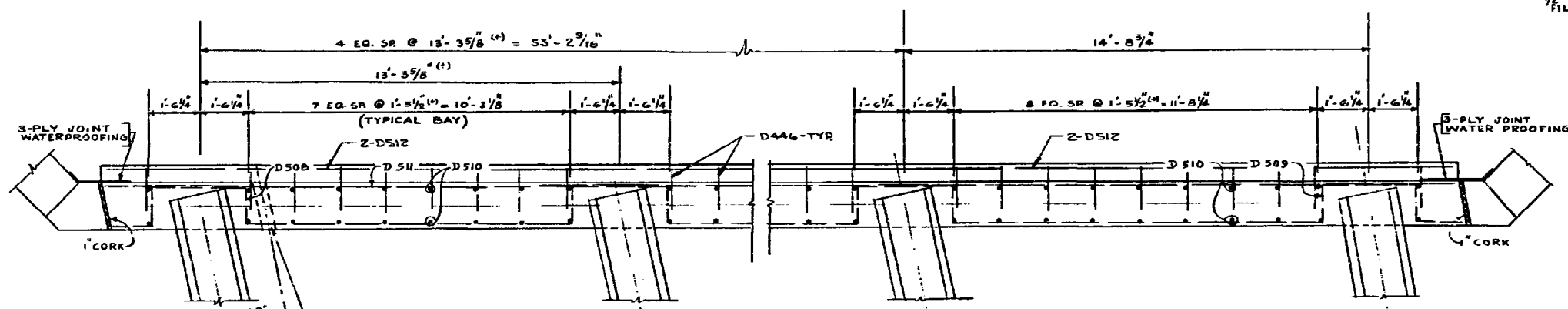
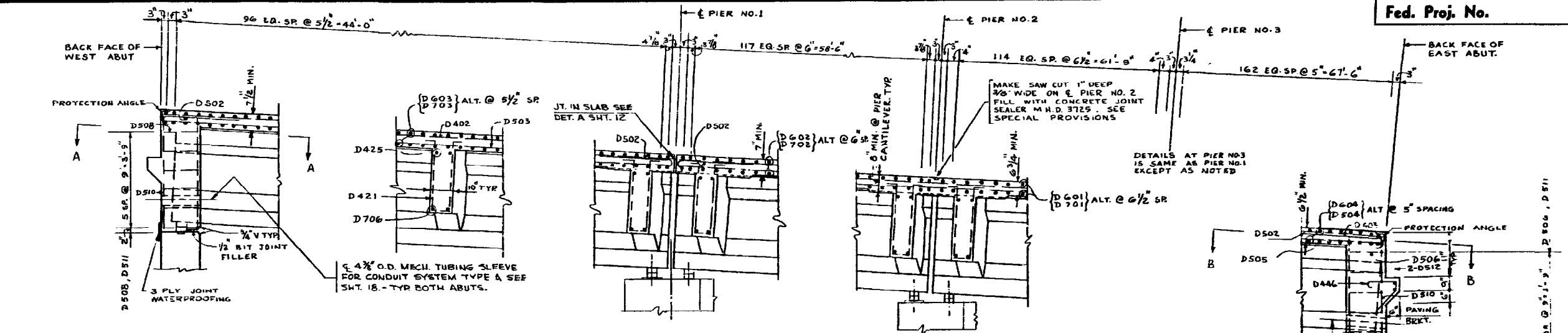
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SUPERSTRUCTURE DETAILS

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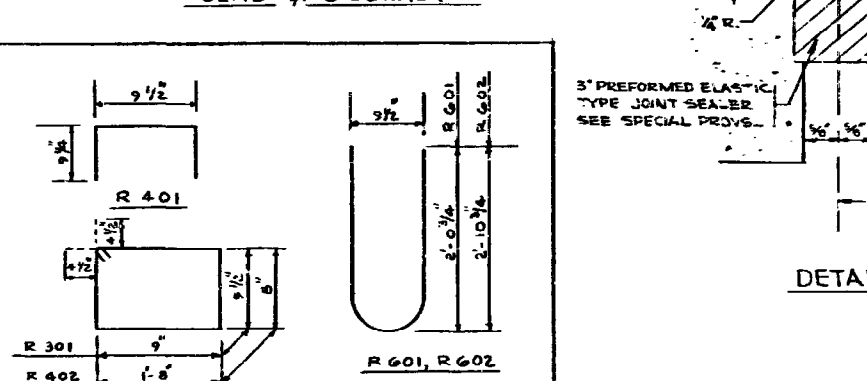
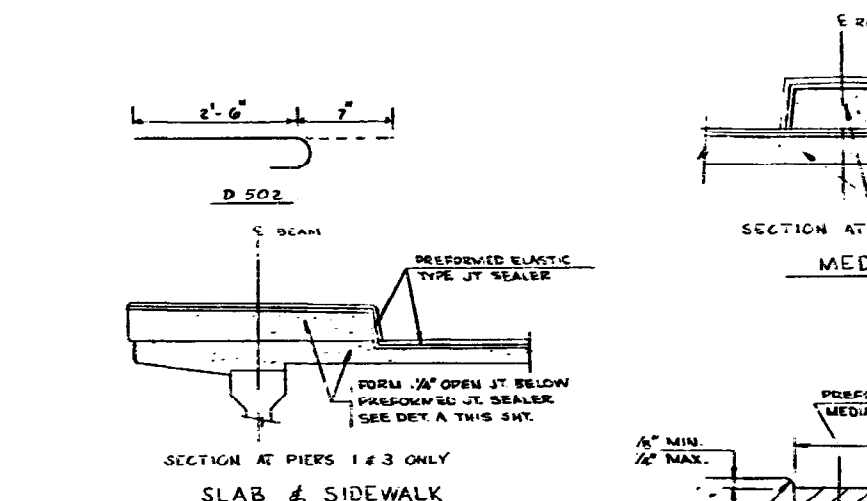
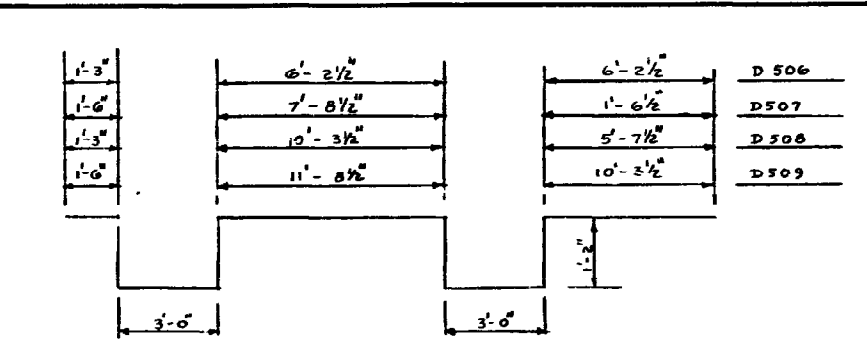
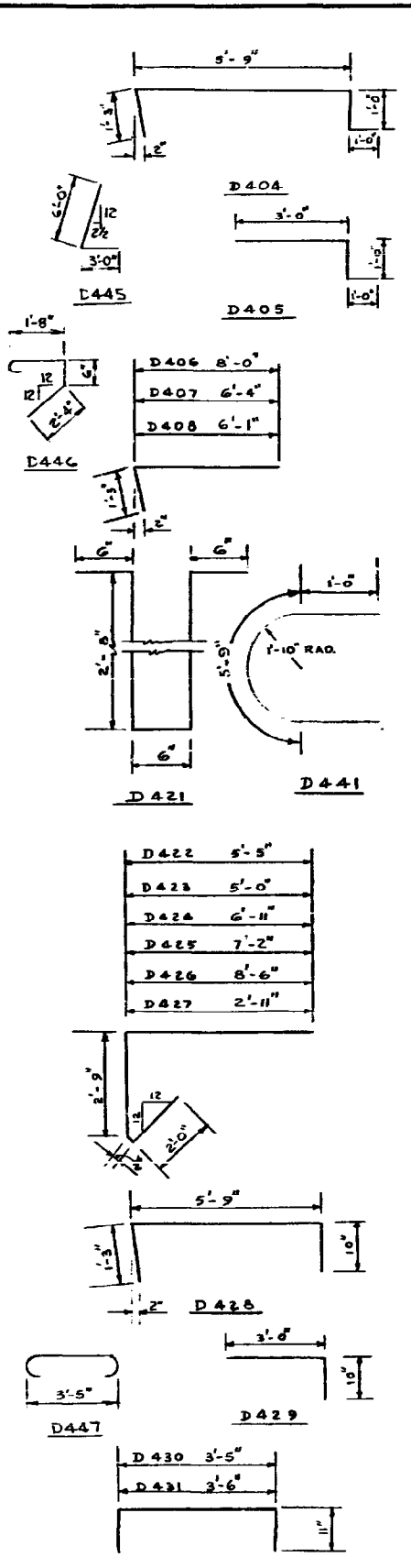
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Sheet No. 10 of 28 Sheets



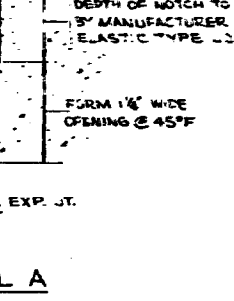
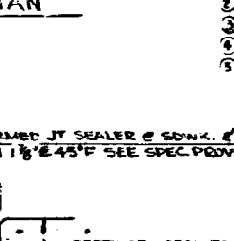
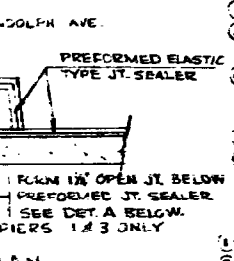
STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS	
Bridge No. 9528	
SUPERSTRUCTURE DETAILS	
APPROVED 11-4-66	
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9528	

BILL OF REINFORCEMENT FOR SUPERSTRUCTURE				
MARK NO.	SIZE	LENGTH	SHAPE	LOCATION
D401	1/2	31'-9"	—	TOP LONGITUDINAL SPAN 2 & 3
D402	6/8	44'-8"	—	" " SPAN 1
D403	1/4	34'-4"	—	" " SPAN 4
D404	3/4	9'-0"	—	SIDEWALK
D405	206	5'-0"	—	SIDEWALK ENDS
D406	5/8	7'-3"	—	" " N.W. END SPAN
D407	7/8	7'-7"	—	" " N.E. END & SPAN 2
D408	8/8	7'-8"	—	" " S.W. END & SE. END SPAN
D409	40	11'-10"	—	SIDEWALK
D410	20	20'-8"	—	" " " " " "
D411	40	21'-5"	—	" " " " " "
D412	16	23'-9"	—	" " " " " "
D413	28	15'-4"	—	" " " " " "
D414	28	25'-4"	—	" " " " " "
D415	24	22'-6"	—	" " " " " "
D416	12	23'-3"	—	" " " " " "
D417	5/8	12'-1"	—	" " " " " "
D418	16	20'-5"	—	" " " " " "
D419	12	24'-11"	—	" " " " " "
D420	24	12'-5"	—	" " " " " "
D421	6/8	6'-10"	—	SIDEWALK DIAPHRAGM
D422	204	10'-4"	—	" " ALL SPANS
D423	110	9'-11"	—	" " SPAN 2 & 3
D424	10	11'-10"	—	" " SPAN 2
D425	16	12'-1"	—	" " SPAN 1
D426	4	13'-5"	—	" " SPAN 1
D427	4/8	7'-10"	—	" " SPAN 4
D428	12	7'-10"	—	SIDEWALK @ PIER 1 & 3
D429	10	3'-10"	—	" " " " " "
D430	80	5'-3"	—	MEDIAN
D431	5	5'-4"	—	MEDIAN @ PIER 1, 3 & EAST END
D432	14	11'-3"	—	MEDIAN
D433	14	11'-11"	—	" " " " " "
D434	14	12'-8"	—	" " " " " "
D435	14	24'-8"	—	" " " " " "
D436	14	3'-8"	—	" " " " " "
D437	7	26'-2"	—	" " " " " "
D438	14	15'-6"	—	" " " " " "
D439	14	15'-0"	—	" " " " " "
D440	14	9'-4"	—	" " " " " "
D441	1	7'-9"	—	MEDIAN WEST END
D442	16	22'-5"	—	SIDEWALK
D443	24	14'-0"	—	" " " " " "
D444	12	20'-11"	—	" " " " " "
D445	12	9'-0"	—	" " " " " "
D446	81	5'-0"	—	PAVING BRACKET
D501	416	31'-8"	—	SLAB BOT. LONGITUDINAL SPAN 2 & 3
D502	479	3'-1"	—	EXTRA @ CANTILEVER SLAB PIER 1 & 3
D503	117	44'-8"	—	SLAB BOT. LONGITUDINAL SPAN 1
D504	324	36'-4"	—	TOP & BOT. TRANSV. SPAN 4
D505	200	34'-4"	—	" " BOT. LONGITUDINAL " "
D506	18	24'-4"	—	EAST ABUT.
D507	6	21'-5"	—	EAST ABUT.
D508	12	27'-10"	—	WEST ABUT.
D509	6	34'-2"	—	WEST ABUT.
D510	162	4'-0"	—	ABUT. VERT.
D511	24	37'-5"	—	ABUT. HORIZ.
D512	8	34'-0"	—	PAVING BRACKET
D447	79	4'-5"	—	MEDIAN
D601	232	35'-4"	—	SLAB TOP & BOT. SPAN 3 (TRANSV.)
D602	240	36'-6"	—	" " " " SPAN 2 (")
D603	194	37'-5"	—	" " " " SPAN 1 (")
D604	328	36'-4"	—	" " " " SPAN 4 (")
D605	105	22'-0"	—	STAGGER @ PIER-2 ONLY
D701	236	35'-4"	—	SLAB TOP & BOT. SPAN 3 (TRANSV.)
D702	240	36'-6"	—	" " " " SPAN 2 (")
D703	200	37'-5"	—	" " " " SPAN 1 (")
D704	110	9'-6"	—	DIAPHRAGM BOT. SPAN 2 & 3
D705	20	6'-7"	—	" " " " SPAN 2
D706	16	12'-4"	—	" " " " SPAN 1
D707	8	7'-8"	—	" " " " SPAN 1
D708	4/8	8'-3"	—	" " " " SPAN 4
D709	16	5'-8"	—	" " " " SPAN 4



BILL OF REINFORCEMENT FOR TWO SIDEWALK RAILINGS

MARK NO.	SIZE	LENGTH	SHAPE	LOCATION
R 301	5/8	3'-10"	□	RAIL TIES
R 401	3/4	2'-4"	□	RAIL POST
R 402	1/2	3'-2"	□	END POST TIES
R 601	3/4	2'-0"	U	RAIL POST
R 602	20	5'-8"	U	END POST
R 701	4	20'-8"	—	RAIL HORIZ.
R 702	4	20'-7"	—	" " " "
R 703	8	20'-1"	—	" " " "
R 704	4	15'-7"	—	" " " "
R 705	16	22'-6"	—	" " " "
R 706	8	16'-9"	—	" " " "
R 707	4	20'-11"	—	" " " "
R 708	4	23'-5"	—	" " " "
R 709	4	21'-4"	—	" " " "
R 710	4	21'-5"	—	" " " "
R 711	4	21'-5"	—	" " " "
R 712	8	21'-4"	—	" " " "
R 713	4	15'-10"	—	" " " "
R 714	4	22'-5"	—	" " " "
R 715	4	22'-9"	—	" " " "
R 716	4	20'-8"	—	RAIL HORIZ.



Fed. Proj. No. SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE

①	CONCRETE MIX NO. 3Y60	125 CU. YD.
	CONCRETE MIX NO. 3Y6	429 CU. YD.
①	REINFORCING STEEL	226020 LBS.
	PRESTRESSED CONC. GIRDER TYPE 'A'	6
	PRESTRESSED CONC. GIRDER TYPE 'B'	7
	PRESTRESSED CONC. GIRDER TYPE 'C'	7
	PRESTRESSED CONC. GIRDER TYPE 'D'	8
	BEARING ASSEMBLIES EXP. TYPE 1	16
	BEARING ASSEMBLIES EXP. TYPE 2	20
	BEARING ASSEMBLIES FIX. TYPE 1	20
②	BRIDGE NAME PLATE	1
③	PREFORMED CORK JOINT FILLER (SEE SCHED.)	
③	BITUMINOUS FELT JOINT FILLER (SEE SCHED.)	
④	STRUCTURAL STEEL 20,000	1150
	PROTECTION ANGLE	
⑤	CONDUIT SYSTEM (TYPE 'A')	1 SYSTEM
	CONDUIT SYSTEM (TYPE 'C')	1 SYSTEM
	CONCRETE INSERTS	
⑥	BEARERS FOR FLEXIBLE BEAM RAIL	
⑥	3 PLY JOINT WATERPROOFING	146 LIN. FT.
	CONDUIT SYSTEM (TYPE 'D')	1 SYSTEM
	ORNAMENTAL METAL RAILING	470 LIN. FT.

① INCLUDES RAILING QUANTITIES
 ② BRIDGE NO. 9528 PROJ. P.L. 35 E-4-B, DATE 1967
 ③ TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS
 ④ TO BE INCLUDED IN WEIGHT OF STRUCTURAL STEEL
 ⑤ TO BE INCLUDED IN CONDUIT SYSTEM (TYPE 'A' & TYPE 'D')
 THE VOLUME OF DECK CONCRETE FOR PAYMENT SHALL BE COMPUTED USING AN AVERAGE STOOD HEIGHT OF 1 1/2"

BIT FELT JOINT FILLER	
4 PC. 1'-0" x 6'-0" x 1/2" ABUT. ENDS	
1 PC. 10'-0" x 4'-0" x 1/2" TOP OF ABUT.	
1 PC. 6'-0" x 4'-0" x 1/2" " " "	
14 PC. 5'-2" x 7'-0" x 1/2" ABUT. BEARINGS	

BITUMINOUS FELT SHALL COMPLY WITH M.H.D. 3701. THE JOINT FILLER LIST (CORK & BIT. FELT) IS FOR THE CONTRACTOR'S CONVENIENCE ONLY. ANY ADDITIONAL JOINT FILLER REQUIRED AS SHOWN ON THE PLANS, SHALL BE FURNISHED BY THE CONTRACTOR WITH NO ADDITIONAL COMPENSATION.

PREFORMED CORK JOINT FILLER

4 PC. 5'-4" x 1'-0" x 1/2" ABUT. ENDS

CORK SHALL COMPLY WITH AASHTO SPEC. M153 TYPE 3. SEWER CORK JOINT FILLER WITH 2 1/2" LG. 11 GA. COPPER NAILS @ 5" C.C. CORK AND NAILS TO BE INCL. IN PRICE BID FOR OTHER ITEMS. TRIM JOINT FILLER TO FACE OF CONCRETE OR DEPTH OF WEB WHERE THE CORNERS HAVE BEEN VEED.

STATE OF MINNESOTA
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Bridge No. 9528

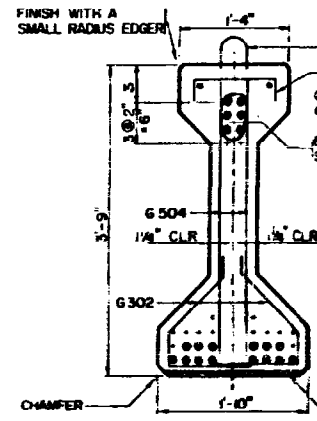
SUPERSTRUCTURE DETAILS

APPROVED: *11-4-66*

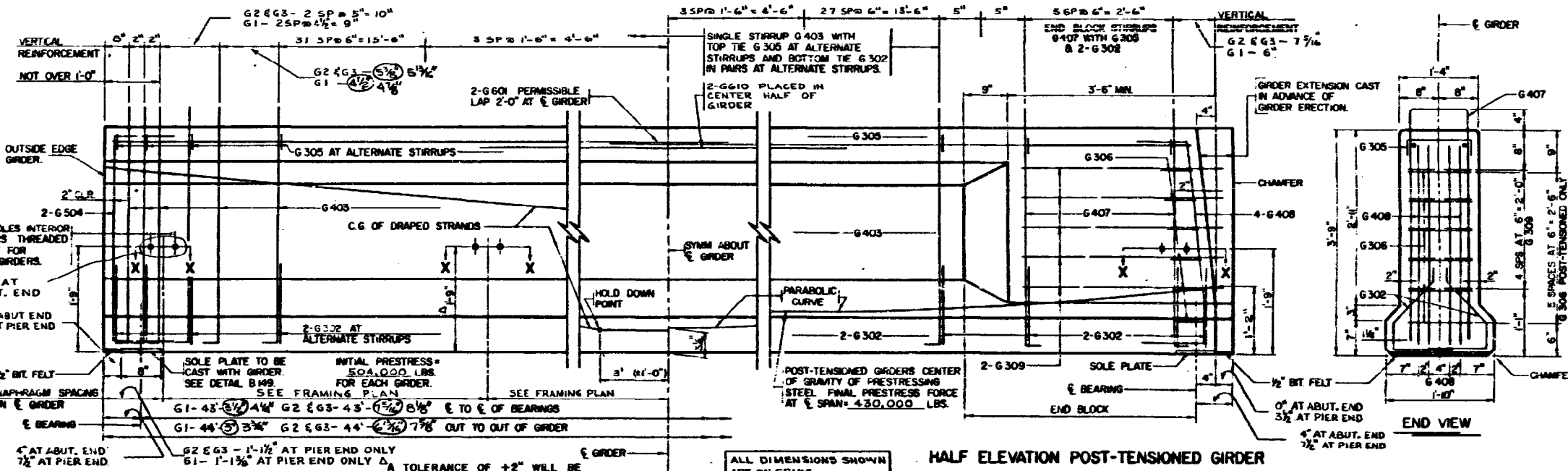
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DWG. E.S.	CHK. R.L.A.	

State Proj. No. **9528** Sheet No. 12 of 28 Sheets

CUT PRE-TENSIONED STRANDS FLUSH WITH CONCRETE. PAINT END WITH A PROTECTIVE COATING OF A GRAY EPOXY FORMULATION.

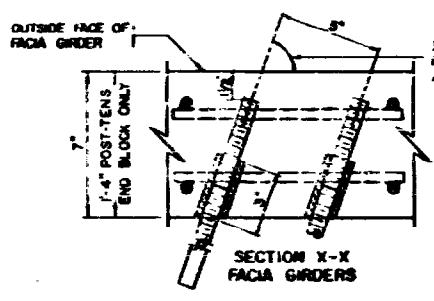


END VIEW
DETAILS NOT SHOWN ARE THE SAME AS SECTION AT \bar{C} GIRDER

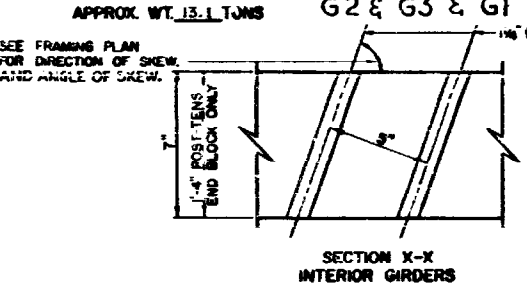


HALF ELEVATION POST-TENSIONED GIRDER
DETAILS AND DIMENSIONS NOT SHOWN ARE THE SAME AS FOR PRE-TENSIONED GIRDERS

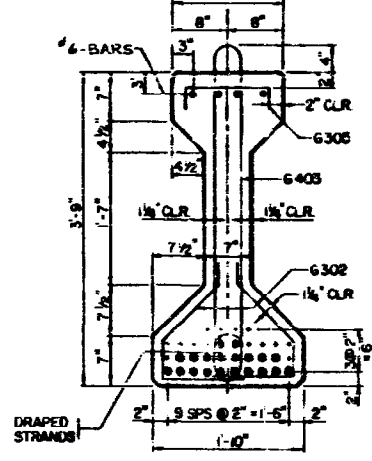
HALF ELEVATION PRE-TENSIONED GIRDER



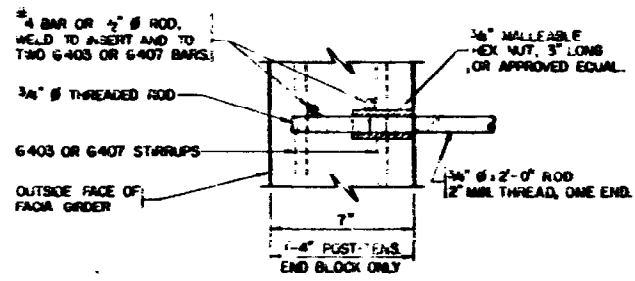
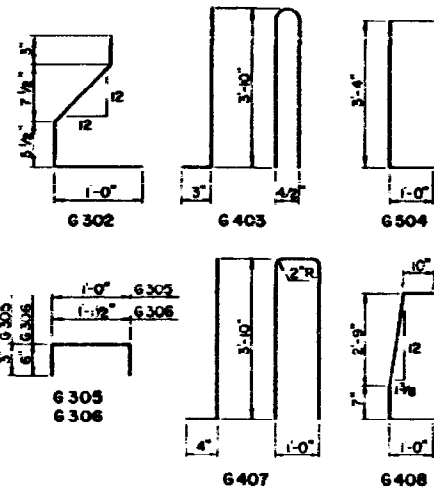
SECTION X-X FACIA GIRDERS



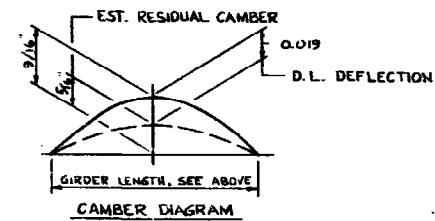
SECTION X-X INTERIOR GIRDERS



SECTION AT \bar{C} GIRDER
(STRANDS FOR PRE-TENSIONED SHOWN)



SECTION THRU THREADED INSERTS AND RODS IN FACIA GIRDERS
(NO PAINT)



DEFLECTIONS SHOWN ARE FOR WEIGHT OF SLAB, SIDEWALKS, CURB, RAILING, MEDIAN AND DIAPHRAGMS ONLY. THE ENGINEER WILL TAKE ELEVATIONS AT TOP OF GIRDERS AFTER ERECTION AND WILL ALLOW FOR DEFLECTIONS SHOWN TO ENABLE THE CONTRACTOR TO BUILD FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS.

Y DISTANCES (IN INCHES)			
	NO.	\bar{C} SPAN	END
STRAIGHT STRANDS	14	2.86	
DRAPED STRANDS	6	4.23	4.0
TOTAL STRANDS	20	3.27	

Y = DISTANCE OF CENTER OF GRAVITY OF PRE-TENSIONED STRANDS FROM BOTTOM OF GIRDER. ALL STRANDS SPACED AT 2" CENTERS BOTH DIRECTIONS.
ALL STRANDS $\frac{1}{2}$ " ϕ .
* A TOLERANCE OF ± 2 " WILL BE PERMITTED IN THIS DIMENSION.

GENERAL NOTES

- CONCRETE STRENGTH AT TIME OF TRANSFER SHALL NOT BE LESS THAN 4500 PSL FOR PRE-TENSIONED GIRDERS AND 5300 PSL FOR POST-TENSIONED GIRDERS. CONCRETE PER M.H.D. 2405.2A.
- PRESTRESSING STEEL FOR PRE-TENSIONED GIRDERS PER M.H.D. 3348.
- PRESTRESSING STEEL FOR POST-TENSIONED GIRDERS PER M.H.D. 3349 OR M.H.D. 3350.
- INSERTS AND $\frac{3}{8}$ " RODS SHALL BE STRUCTURAL STEEL PER M.H.D. 3305.
- ALL REINFORCEMENT BAR DIMENSIONS ARE OUT TO OUT. FIRST FIGURE IN BAR MARK INDICATES SIZE OF BAR.
- TOPS OF GIRDERS SHALL BE ROUGH FLOATED & 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 GIRDER.
- A MODIFIED STRAND PATTERN WHICH DOES NOT CHANGE CENTER OF GRAVITY OF STRANDS MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- EACH GIRDER SHALL BE MARKED, SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS. MARKINGS SHALL BE MADE ON THE FACE OF THE GIRDER, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. FACIA GIRDERS SHALL BE MARKED ON AN INSIDE FACE. ALL MARKINGS SHALL BE STENCILED, AND BE CLEARLY LEGIBLE FOR LOCATION OF GIRDERS. SEE FRAMING PLAN.
- ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET SHALL BE INCLUDED IN UNIT PRICE BID FOR FURNISHING PRESTRESSED CONCRETE GIRDERS. SEE M.H.D. 2405.
- SEE FRAMING PLAN FOR GIRDER ENDS MARKED "Y".

DATE	BY	CK.	REVISION
7/24/67	DHS	JAK	LENGTH OF GIRDERS, STIRRUP SPACING, & ADDITIONAL DIMENSION NOTE.

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE NO. 9528

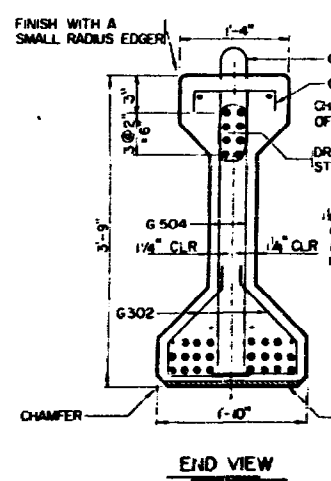
45" PRESTRESSED
CONCRETE GIRDER
TYPE A

APPROVED: 11-4-66

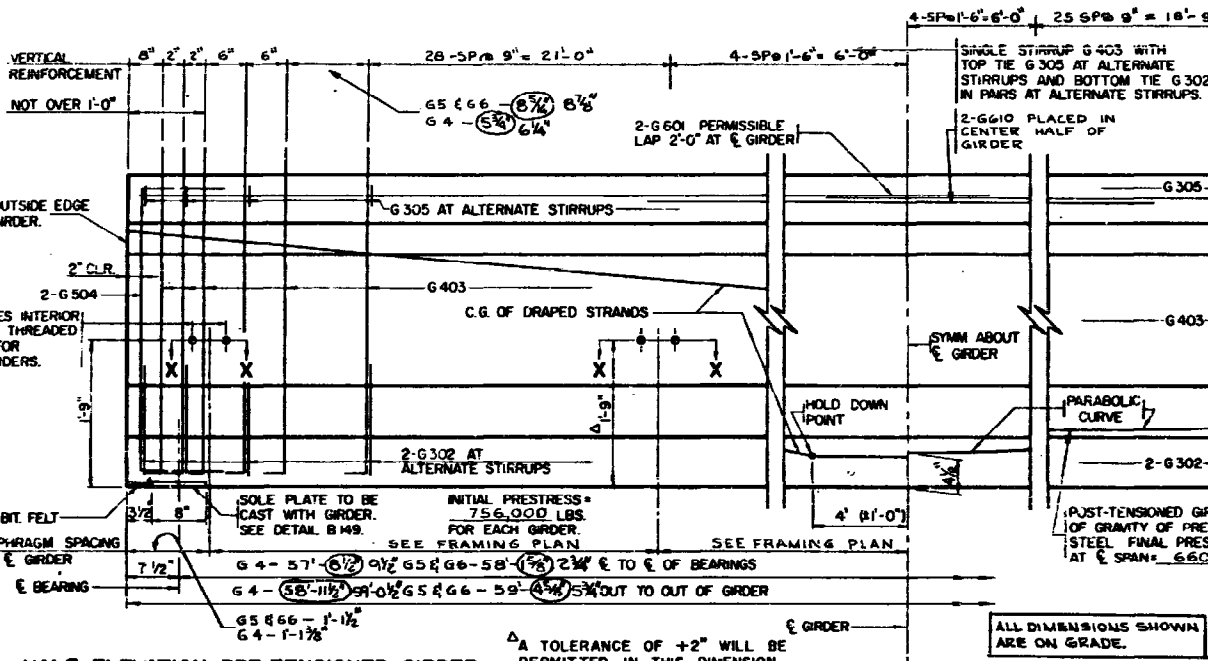
SHEET 13 OF 28 SHEETS **9528**

DRAWN: 7-1-63 A-ET-66
REVISED: 10-25-63
2-17-64
5-25-64
11-16-64

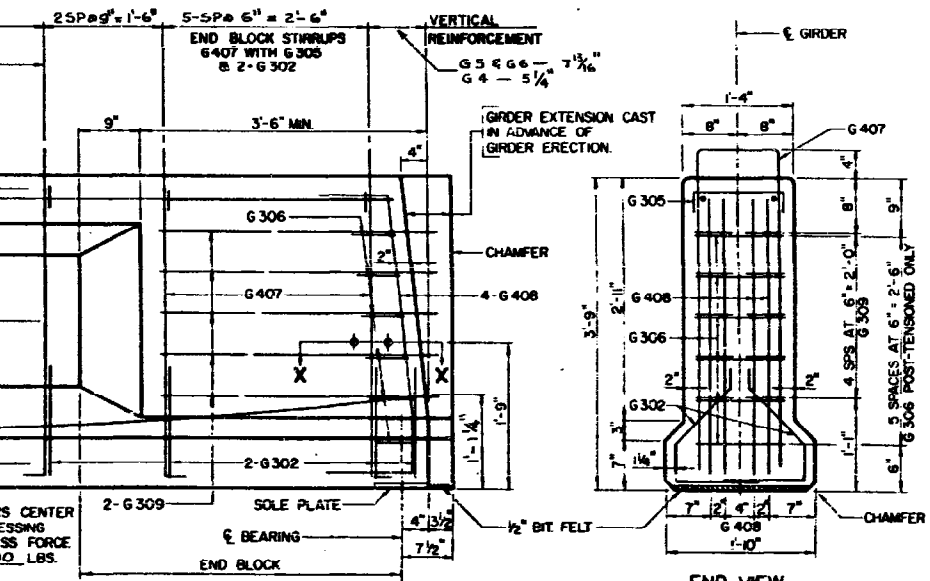
CUT PRE-TENSIONED STRANDS FLUSH WITH CONCRETE. PAINT END WITH A PROTECTIVE COATING OF A GRAY EPOXY FORMULATION.



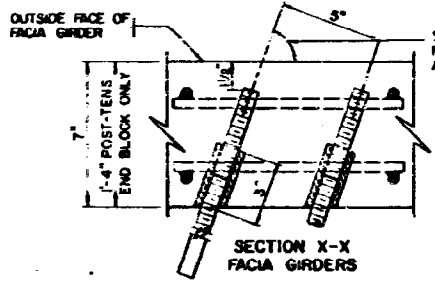
END VIEW
DETAILS NOT SHOWN ARE THE SAME AS SECTION AT \bar{E} GIRDER



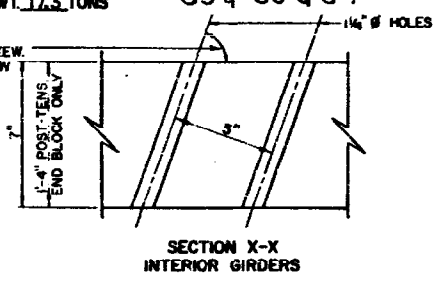
HALF ELEVATION PRE-TENSIONED GIRDER
APPROX. WT. 17.3 TONS
G 5 & G 6 & G 4



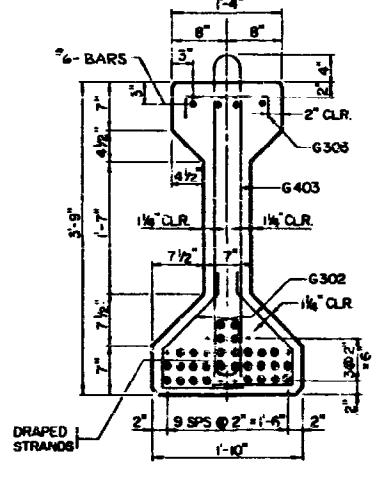
HALF ELEVATION POST-TENSIONED GIRDER
DETAILS AND DIMENSIONS NOT SHOWN ARE THE SAME AS FOR PRE-TENSIONED GIRDERS



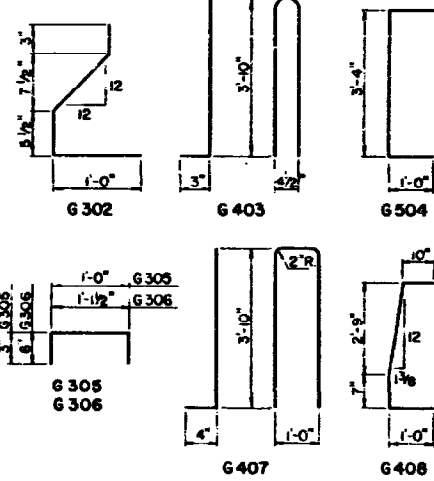
SECTION X-X
FACIA GIRDERS



SECTION X-X
INTERIOR GIRDERS

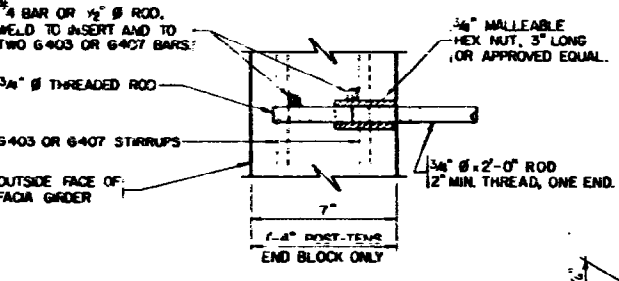


SECTION AT \bar{E} GIRDER
(STRANDS FOR PRE-TENSIONED SHOWN)

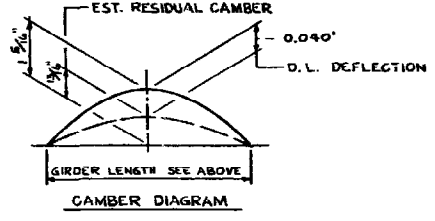


GENERAL NOTES

CONCRETE STRENGTH AT TIME OF TRANSFER SHALL NOT BE LESS THAN 4500 PSI FOR PRE-TENSIONED GIRDERS AND 5300 PSI FOR POST-TENSIONED GIRDERS.
 CONCRETE PER M.H.D. 2405.2A.
 PRESTRESSING STEEL FOR PRE-TENSIONED GIRDERS PER M.H.D. 3348.
 PRESTRESSING STEEL FOR POST-TENSIONED GIRDERS PER M.H.D. 3349 OR M.H.D. 3350.
 INSERTS AND $\frac{3}{8}$ " RODS SHALL BE STRUCTURAL STEEL PER M.H.D. 3305.
 ALL REINFORCEMENT BAR DIMENSIONS ARE OUT TO OUT.
 FIRST FIGURE IN BAR MARK INDICATES SIZE OF BAR.
 TOPS OF GIRDERS SHALL BE ROUGH FLOATED & 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 GIRDER.
 A MODIFIED STRAND PATTERN WHICH DOES NOT CHANGE CENTER OF GRAVITY OF STRANDS MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
 EACH GIRDER SHALL BE MARKED, SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS. MARKINGS SHALL BE MADE ON THE FACE OF THE GIRDER NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. FACIA GIRDERS SHALL BE MARKED ON AN INSIDE FACE. ALL MARKINGS SHALL BE STENCILED, AND BE CLEARLY LEGIBLE. FOR LOCATION OF GIRDERS, SEE FRAMING PLAN.
 ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET SHALL BE INCLUDED IN UNIT PRICE BID FOR FURNISHING PRESTRESSED CONCRETE GIRDERS. SEE M.H.D. 2405.
 SEE FRAMING PLAN FOR GIRDER ENDS MARKED "X".



SECTION THRU THREADED INSERTS AND RODS IN FACIA GIRDERS
(NO PAINT)



DEFLECTIONS SHOWN ARE FOR WEIGHT OF SLAB, CURB, SIDEWALKS, RAILING, MEDIAN AND DIAPHRAGMS ONLY. THE ENGINEER WILL TAKE ELEVATIONS AT TOP OF GIRDERS AFTER ERECTION AND WILL ALLOW FOR DEFLECTIONS SHOWN TO ENABLE THE CONTRACTOR TO BUILD FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS.

Y DISTANCES (IN INCHES)			
	NO.	\bar{E} SPAN	END
STRAIGHT STRANDS	22	3.82	
DRAPED STRANDS	8	6.25	39*
TOTAL STRANDS	30	4.47	

Y = DISTANCE OF CENTER OF GRAVITY OF PRE-TENSIONED STRANDS FROM BOTTOM OF GIRDER. ALL STRANDS SPACED AT 2" CENTERS BOTH DIRECTIONS.
 ALL STRANDS $\frac{1}{2}$ " ϕ .
 * A TOLERANCE OF ± 2 " WILL BE PERMITTED IN THIS DIMENSION.

DRAWN: 7-1-63 4-27-66
 REVISED: 10-25-63
 2-17-64
 5-25-64
 11-16-64

DATE	BY	CHK.	REVISION
3/28/67	DHB	JAK	LENGTH OF GIRDERS, STIRRUP SPACING, & ADDITIONAL DIMENSION NOTE.

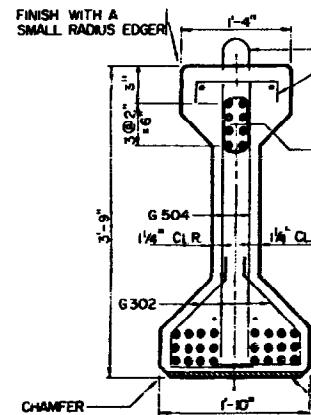
STATE OF MINNESOTA
 DEPARTMENT OF HIGHWAYS

BRIDGE NO. 9528
 45" PRESTRESSED
 CONCRETE GIRDER
 TYPE B

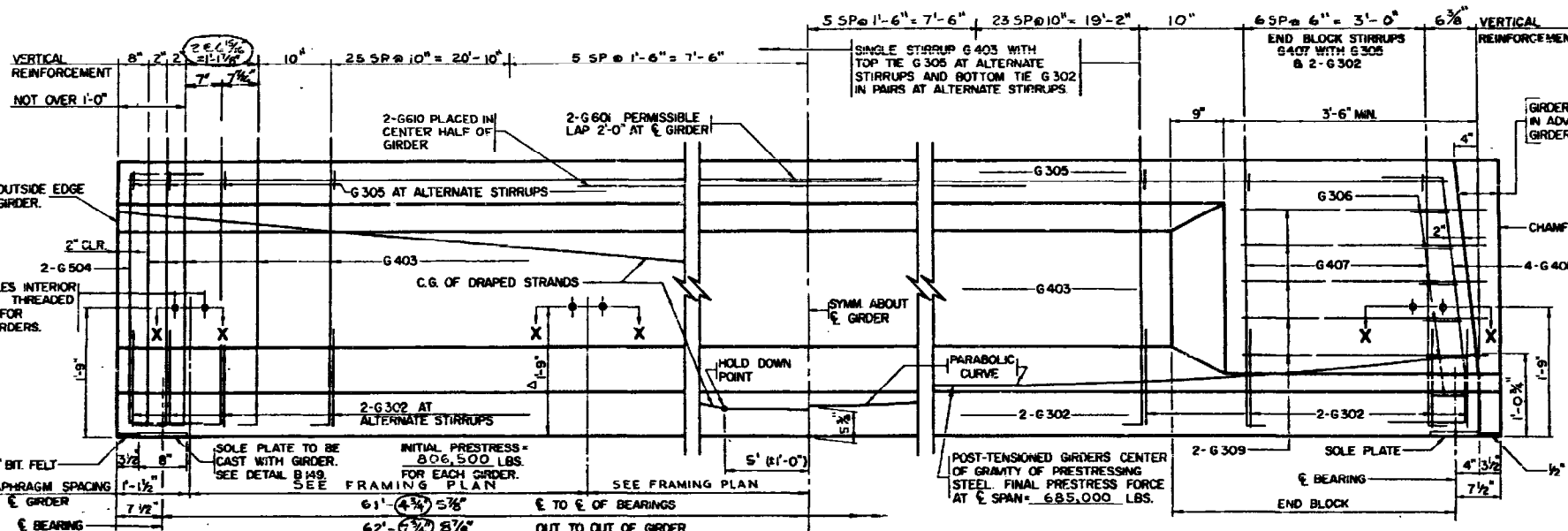
APPROVED: 11-4-66

SHEET 14 OF 28 SHEETS **9528**

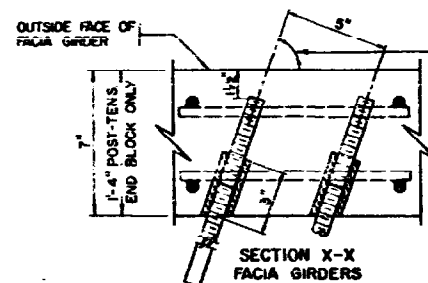
CUT PRE-TENSIONED STRANDS FLUSH WITH CONCRETE. PAINT END WITH A PROTECTIVE COATING OF A GRAY EPOXY FORMULATION.



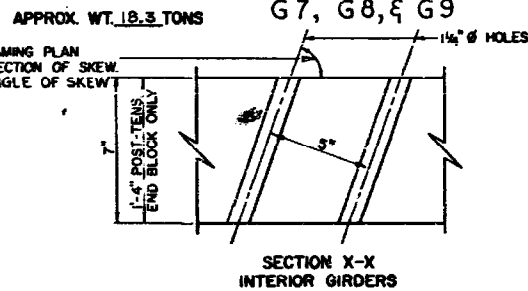
END VIEW
DETAILS NOT SHOWN ARE THE SAME AS SECTION AT \bar{C} GIRDER



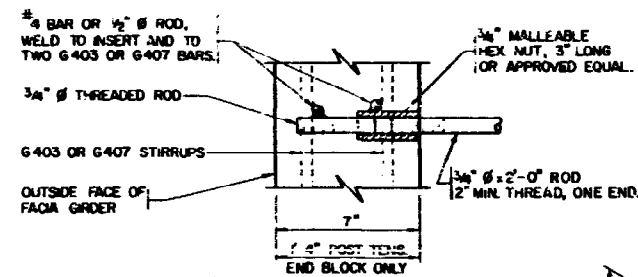
HALF ELEVATION PRE-TENSIONED GIRDER



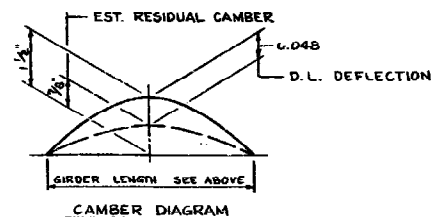
SECTION X-X FACIA GIRDERS



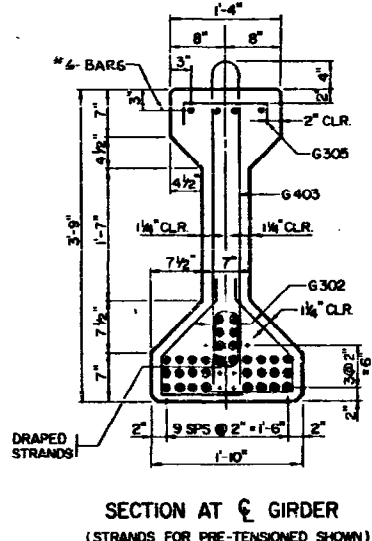
SECTION X-X INTERIOR GIRDERS



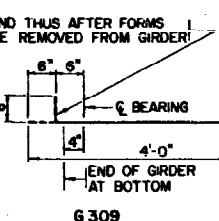
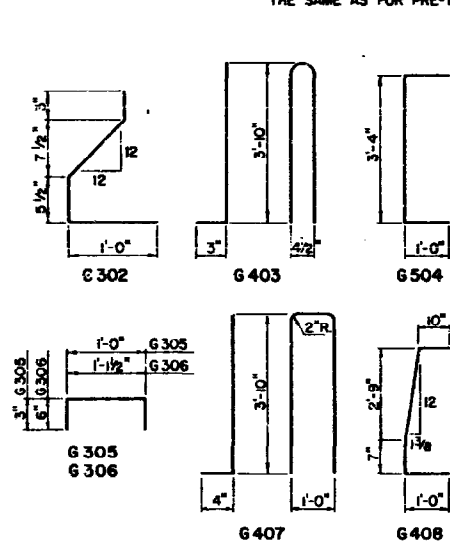
SECTION THRU THREADED INSERTS AND RODS IN FACIA GIRDERS
(NO PAINT)



DEFLECTIONS SHOWN ARE FOR WEIGHT OF SLAB, CURB, SIDEWALKS, RAILING, MEDIAN AND DIAPHRAGMS ONLY. THE ENGINEER WILL TAKE ELEVATIONS AT TOP OF GIRDERS AFTER ERECTION AND WILL ALLOW FOR DEFLECTIONS SHOWN TO ENABLE THE CONTRACTOR TO BUILD FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS



SECTION AT \bar{C} GIRDER
(STRANDS FOR PRE-TENSIONED SHOWN)



G 309

Y DISTANCES (IN INCHES)			
	NO.	\bar{C} SPAN	END
STRAIGHT STRANDS	24	4.0	
DRAPED STRANDS	8	9.5	39*
TOTAL STRANDS	32	5.37	

Y-DISTANCE OF CENTER OF GRAVITY OF PRE-TENSIONED STRANDS FROM BOTTOM OF GIRDER. ALL STRANDS SPACED AT 2" CENTERS BOTH DIRECTIONS.

ALL STRANDS $\frac{1}{2}$ " ϕ .
*A TOLERANCE OF ± 2 " WILL BE PERMITTED IN THIS DIMENSION.

HALF ELEVATION POST-TENSIONED GIRDER

DETAILS AND DIMENSIONS NOT SHOWN ARE THE SAME AS FOR PRE-TENSIONED GIRDERS.

GENERAL NOTES

- CONCRETE STRENGTH AT TIME OF TRANSFER SHALL NOT BE LESS THAN 4500 PSI FOR PRE-TENSIONED GIRDERS AND 5300 PSI FOR POST-TENSIONED GIRDERS. CONCRETE PER M.H.D. 2405.2A.
- PRESTRESSING STEEL FOR PRE-TENSIONED GIRDERS PER M.H.D. 3348.
- PRESTRESSING STEEL FOR POST-TENSIONED GIRDERS PER M.H.D. 3349 OR M.H.D. 3350.
- INSERTS AND $\frac{3}{4}$ " RODS SHALL BE STRUCTURAL STEEL PER M.H.D. 3305.
- ALL REINFORCEMENT BAR DIMENSIONS ARE OUT TO OUT. FIRST FIGURE IN BAR MARK INDICATES SIZE OF BAR.
- TOPS OF GIRDERS SHALL BE ROUGH FLOATED & 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 GIRDER.
- A MODIFIED STRAND PATTERN WHICH DOES NOT CHANGE CENTER OF GRAVITY OF STRANDS MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- EACH GIRDER SHALL BE MARKED, SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS. MARKINGS SHALL BE MADE ON THE FACE OF THE GIRDER, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. FACIA GIRDERS SHALL BE MARKED ON AN INSIDE FACE. ALL MARKINGS SHALL BE STENCILED, AND BE CLEARLY LEGIBLE. FOR LOCATION OF GIRDERS, SEE FRAMING PLAN.
- ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET SHALL BE INCLUDED IN UNIT PRICE BID FOR FURNISHING PRESTRESSED CONCRETE GIRDERS. SEE M.H.D. 2405.
- SEE FRAMING PLAN FOR GIRDER ENDS MARKED "X".

DATE	BY	CHK	REVISION
3/28/67	DWB	JAK	LENGTH OF GIRDERS, STIRRUP SPACING, & ADDITIONAL DIMENSION NOTE.

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

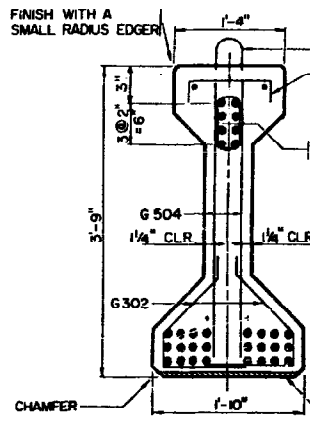
BRIDGE NO. 9528
45" PRESTRESSED
CONCRETE GIRDER
TYPE C

APPROVED: 11-4-66

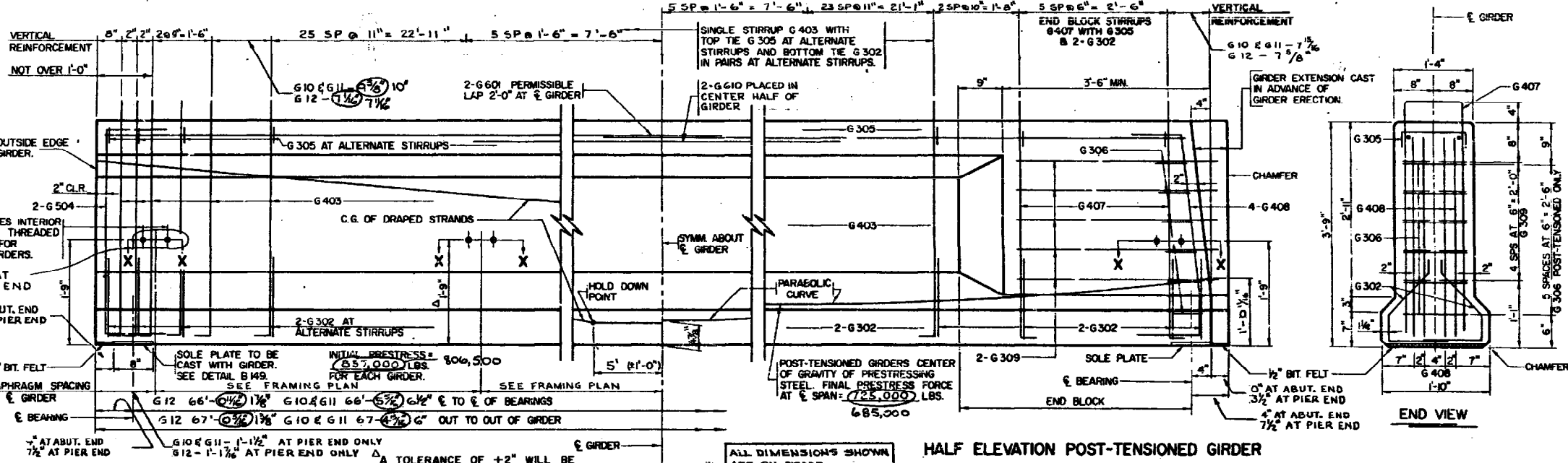
SHEET 15 OF 28 SHEETS **9528**

DRAWN: 7-1-63 4-27-66
REVISED: 10-25-63
2-17-64
5-23-64
11-11-64

CUT PRE-TENSIONED STRANDS FLUSH WITH CONCRETE. PAINT END WITH A PROTECTIVE COATING OF A GRAY EPOXY FORMULATION.



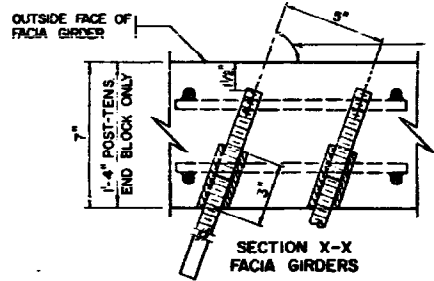
END VIEW
DETAILS NOT SHOWN ARE THE SAME AS SECTION AT ϵ GIRDER.



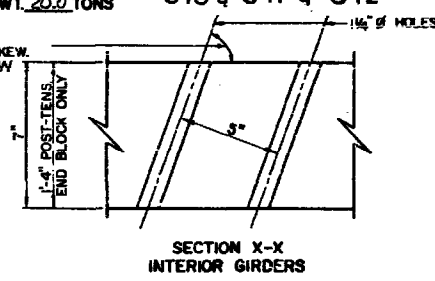
HALF ELEVATION PRE-TENSIONED GIRDER

HALF ELEVATION POST-TENSIONED GIRDER

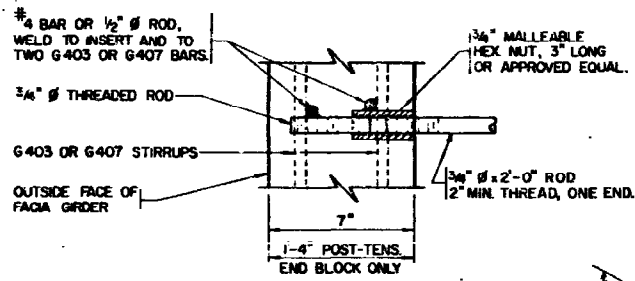
DETAILS AND DIMENSIONS NOT SHOWN ARE THE SAME AS FOR PRE-TENSIONED GIRDERS.



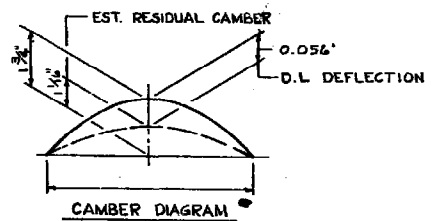
SECTION X-X FACIA GIRDERS



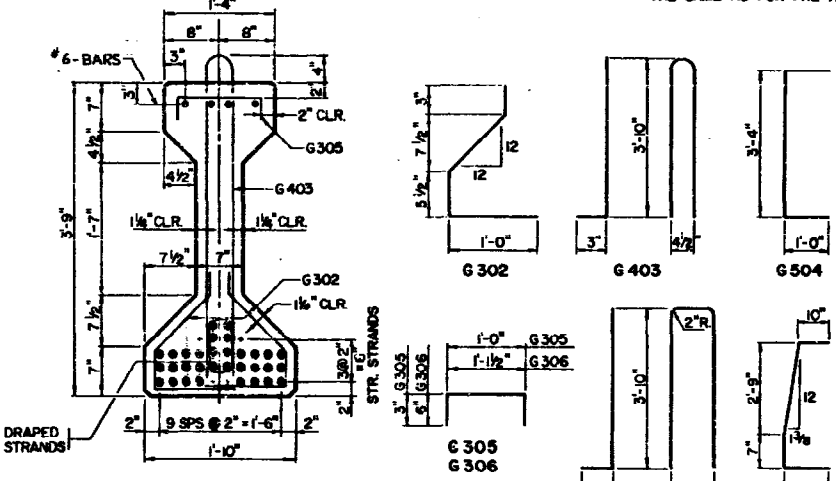
SECTION X-X INTERIOR GIRDERS



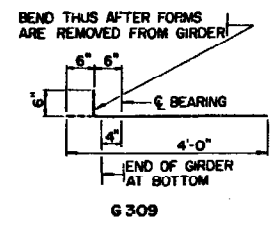
SECTION THRU THREADED INSERTS AND RODS IN FACIA GIRDERS (NO PAINT)



DEFLECTIONS SHOWN ARE FOR WEIGHT OF SLABS, CURB, SIDEWALKS RAILING, MEDIAN AND DIAPHRAGMS ONLY. THE ENGINEER WILL TAKE ELEVATIONS AT TOP OF GIRDERS AFTER ERECTION AND WILL ALLOW FOR DEFLECTIONS SHOWN TO ENABLE THE CONTRACTOR TO BUILD FORMS TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS.



SECTION AT ϵ GIRDER (STRANDS FOR PRE-TENSIONED SHOWN)



Y DISTANCES (IN INCHES)			
	NO.	ϵ SPAN	END
STRAIGHT STRANDS	24	4.0	
DRAPED STRANDS	8	7.5	3.9*
TOTAL STRANDS	32	4.87	

Y-DISTANCE OF CENTER OF GRAVITY OF PRE-TENSIONED STRANDS FROM BOTTOM OF GIRDER. ALL STRANDS SPACED AT 2" CENTERS BOTH DIRECTIONS.

ALL STRANDS $1/2"$ ϕ .
* A TOLERANCE OF $\pm 2"$ WILL BE PERMITTED IN THIS DIMENSION.

GENERAL NOTES

- CONCRETE STRENGTH AT TIME OF TRANSFER SHALL NOT BE LESS THAN 4500 PSI FOR PRE-TENSIONED GIRDERS AND 5300 PSI FOR POST-TENSIONED GIRDERS. CONCRETE PER M.H.D. 2405.2A.
- PRESTRESSING STEEL FOR PRE-TENSIONED GIRDERS PER M.H.D. 3348.
- PRESTRESSING STEEL FOR POST-TENSIONED GIRDERS PER M.H.D. 3349 OR M.H.D. 3350.
- INSERTS AND $3/8"$ RODS SHALL BE STRUCTURAL STEEL PER M.H.D. 3305.
- ALL REINFORCEMENT BAR DIMENSIONS ARE OUT TO OUT. FIRST FIGURE IN BAR MARK INDICATES SIZE OF BAR.
- TOPS OF GIRDERS SHALL BE ROUGH FLOATED & 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 GIRDER.
- A MODIFIED STRAND PATTERN WHICH DOES NOT CHANGE CENTER OF GRAVITY OF STRANDS MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
- EACH GIRDER SHALL BE MARKED, SHOWING BRIDGE NUMBER, CASTING DATE, AND INDIVIDUAL IDENTIFICATION LETTERS AND NUMBERS. MARKINGS SHALL BE MADE ON THE FACE OF THE GIRDER, NEAR THE END, SO LOCATED THAT THEY WILL BE EXPOSED AFTER THE END DIAPHRAGMS HAVE BEEN CAST. FACIA GIRDERS SHALL BE MARKED ON AN INSIDE FACE. ALL MARKINGS SHALL BE STENCILLED, AND BE CLEARLY LEGIBLE. FOR LOCATION OF GIRDERS, SEE FRAMING PLAN.
- ALL MATERIAL AND WORK SHOWN OR NOTED ON THIS SHEET SHALL BE INCLUDED IN UNIT PRICE BID FOR FURNISHING PRESTRESSED CONCRETE GIRDERS. SEE M.H.D. 2405.
- SEE FRAMING PLAN FOR GIRDER ENDS MARKED "X".

DATE	BY	CHKD	REVISION
3-15-67	DR	C.R.	INITIAL & FINAL PRESTRESS FORCE.
3-28-67	DB	JK	LENGTH OF EDGES, STIRRUP SPACING & ADDITIONAL DIMENSION NOTE.

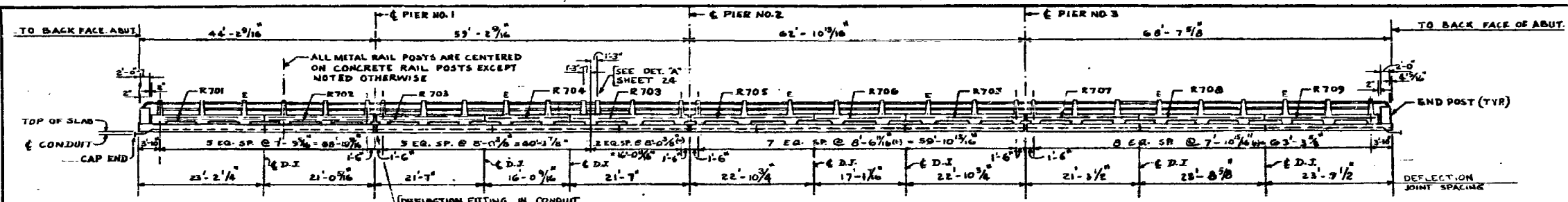
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE NO. 9528
45" PRESTRESSED CONCRETE GIRDER
TYPE D

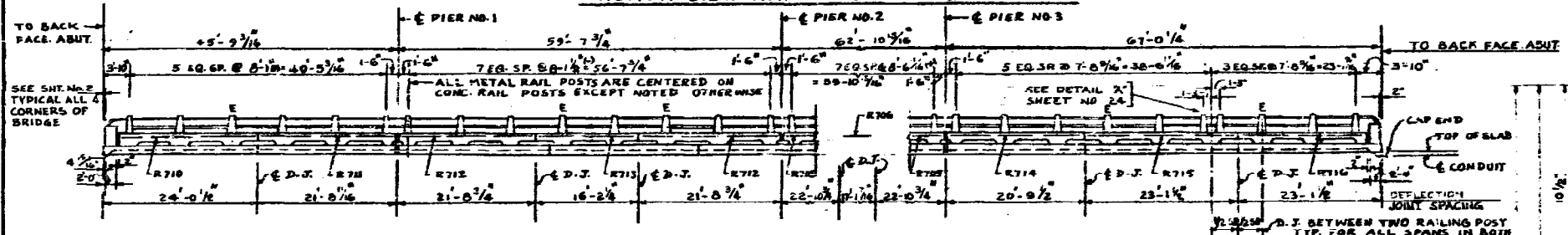
APPROVED: 11-4-66

SHEET 18 OF 28 SHEETS **9528**

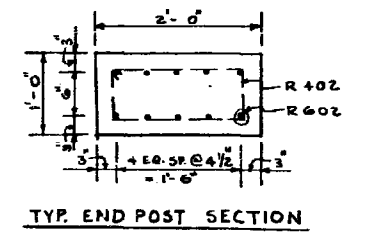
DRAWN: 7-1-63 A-27-66
REVISED: 10-25-63
2-17-64
5-25-64
11-16-64



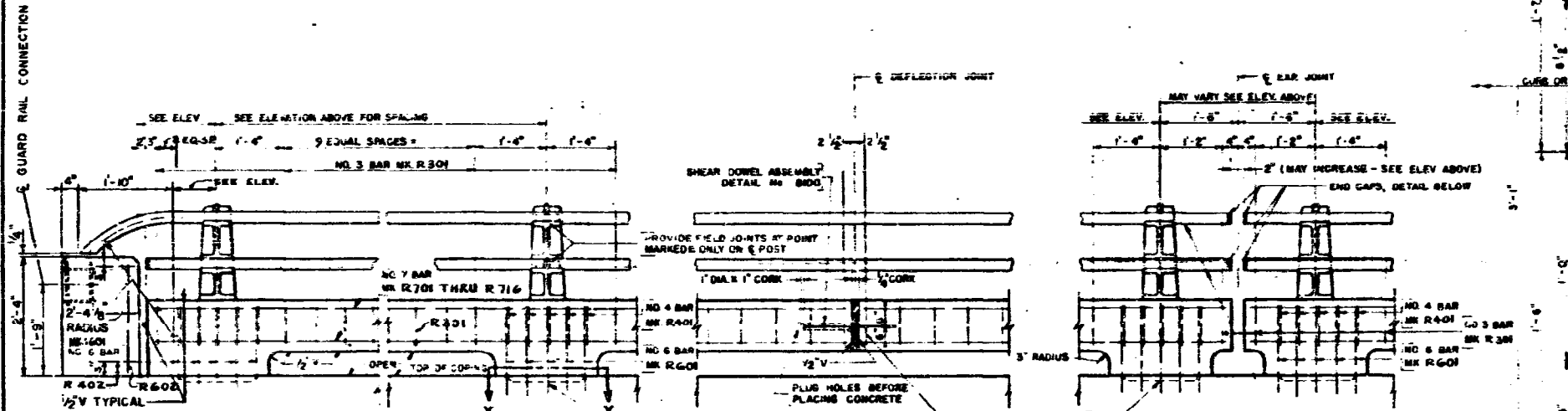
NORTH SIDE WALK RAILING ELEVATION



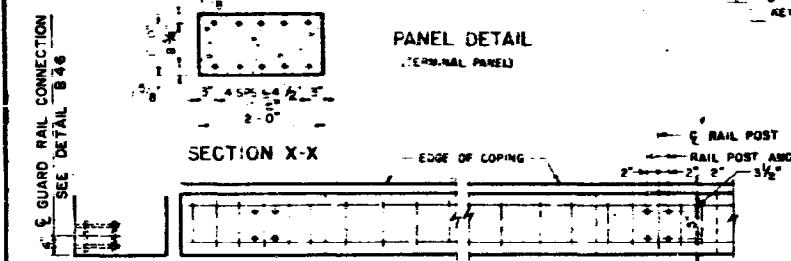
SOUTH SIDE WALK RAILING ELEVATION



TYP. END POST SECTION

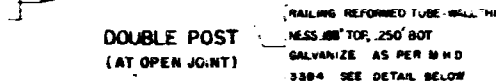
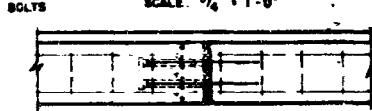


PANEL DETAIL



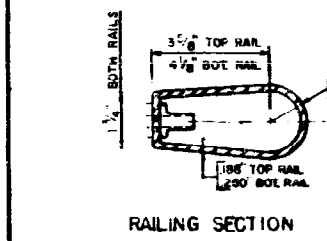
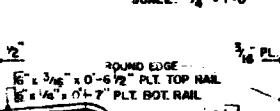
SECTION X-X

PART INSIDE ELEVATION

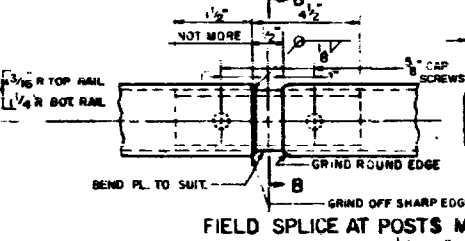


DOUBLE POST (AT OPEN JOINT)

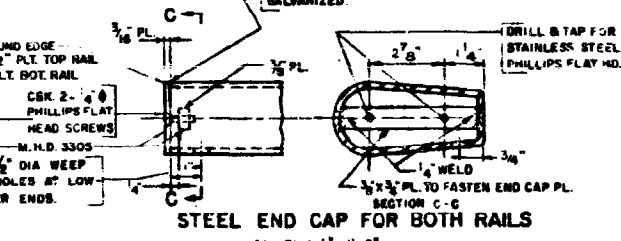
PART PLAN



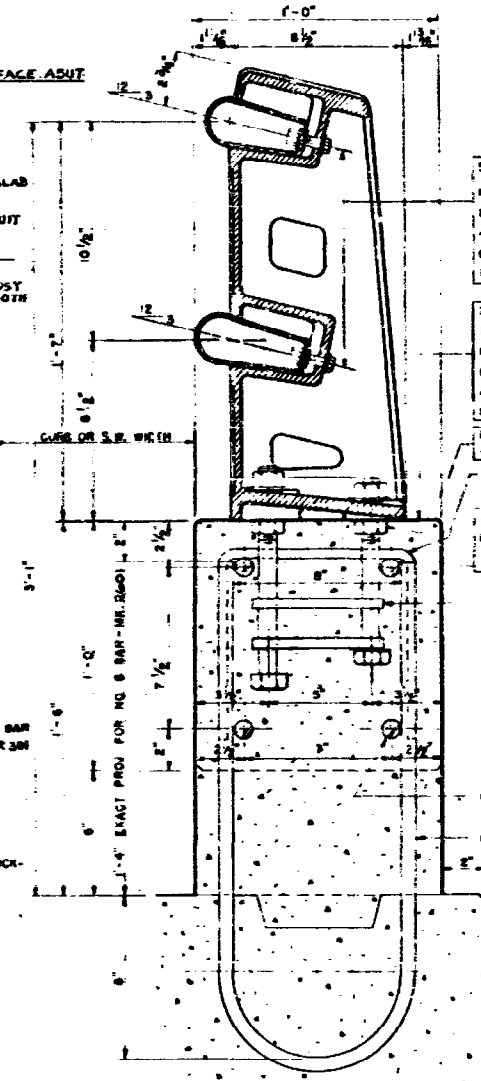
RAILING SECTION



FIELD SPLICE AT POSTS MARKED "E"



STEEL END CAP FOR BOTH RAILS



SECTION THROUGH RAILING

3" x 2" STAINLESS STEEL HEX HD CAP SCREW, MHD 3384, & EXPANDING PLATE-NUT. ONE (1) GALV CUT WASHER PLUS ONE GALV SPRING LOCK WASHER REQ'D. 2 BOLTS EACH POST

2 PCS OF 4" SOFT SHEET LEAD PER MHD SPEC 3336 PUNCH HOLES FOR ANCHOR BOLTS LEVEL POST & SHIM AS NECESSARY. TRIM AFTER POST IS PLACED. BEARING SURFACE FLUSH WITH CONCRETE.

NO 4 BAR MK R401 ANCHOR BOLT ASSEMBLY PER DETAIL B110

FRONT ELEVATION MALLEABLE IRON RAIL POST (BRP-5R-5) DETAIL NO B32

NO 7 BAR - MK R701 THRU R716
NO 6 BAR - MK R601
MAXIMUM SPACING OF RAILPOSTS = 9'-0"
SEE ALTERNATE RAILPOST DETAIL NO. B39

INCLUDES CONDUIT & CAPS ON PIERS

SUMMARY OF QUANTITIES FOR CONDUIT SYSTEM (TYPE C)	
* 2" x 2" RIGID CONDUIT, GALVANIZED	500 LIN. FT.
* 2" EXP. DEFLECTION FITTINGS	4
* CONDUIT CAPS - GALVANIZED	10
LAMP ANCHOR BOLT ASSEMBLIES	2
2" x 2 1/2" PIPE DRAINAGE TEES	2

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
BRIDGE NO. 9528
2-LINE FLAT TUBE STEEL RAIL
APPROVED 11-4-66

- 6-21-65
- 10-30-64
- 10-16-64
- 7-24-64
- 5-28-64
- 2-17-64
- 12-19-63
- 11-23-63
- 10-15-63
- 11-15-62
- 3-21-62
- 1-9-62
- 4-11-61
- 1-30-61
- 11-14-60
- 6-6-60
- REVISIONS

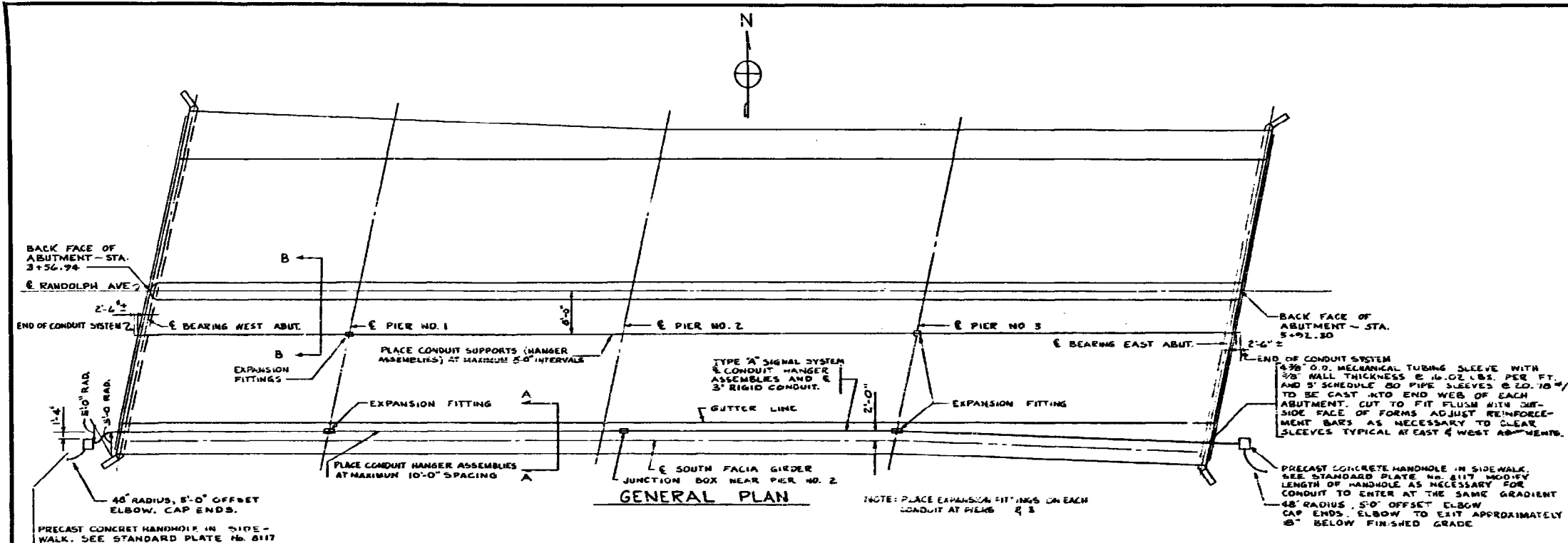
Fed. Proj. No.

SUMMARY OF QUANTITIES FOR CONDUIT SYSTEM - TYPE A

3" RIGID STEEL CONDUIT (GALV.)	260 LIN. FT.
EXPANSION FITTINGS	2
HANGER ASSEMBLIES	24
48 RAD. 5'-0" OFFSET ELBOW	2
PRECAST HAND HOLES (M.H.D. STD. R.H.I.T.)	2
GALVANIZED STEEL PIPE CAPS	2
INSULATING BUSHINGS WITH METAL CAPS	4
JUNCTION BOX, 12" x 12" x 8"	1
4 3/8" MECH. TUBING SLEEVES, 3/8" ALL	2

CONDUIT SYSTEM TYPE 'A' IS FOR FUTURE SIGNAL SYSTEM. SEE SPECIAL PROVISIONS

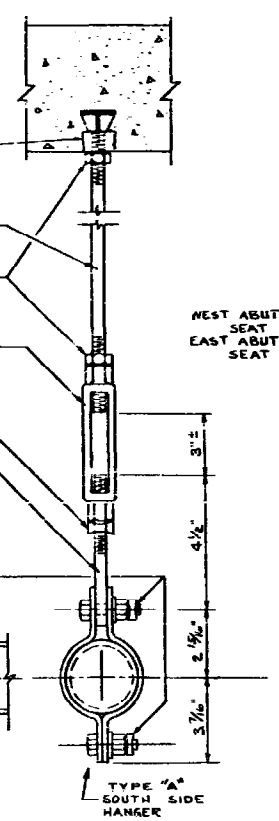
NOTES:
GALVANIZE SLEEVES, CHANNELS AND SPACER BARS PER M.H.D. 3394. GALVANIZE RODS, U-BOLTS, INSERTS, NUTS AND WASHERS AS PER M.H.D. 3392. HANGER ROD AND U-BOLT MATERIAL SHALL CONFORM TO M.H.D. 3313. ALL OTHER STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF M.H.D. 3304.



GENERAL PLAN

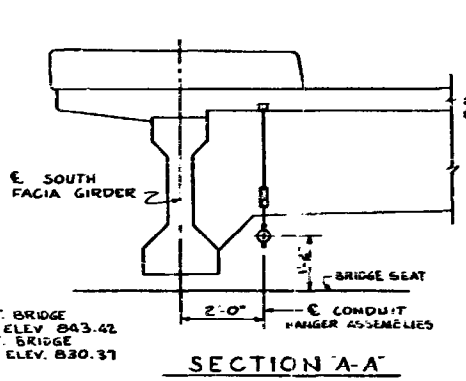
NOTE: PLACE EXPANSION FITTINGS ON EACH CONDUIT AT PIERS 2 & 3

- APPROVED MALLEABLE IRON CONCRETE INSERT MATERIAL SHALL CONFORM TO M.H.D. 3324 (GRADE NO. 32510) TO BE TAPPED AFTER GALVANIZING. SPACE CONCRETE INSERTS AT MAXIMUM 10'-0" INTERVALS
- 5/8" # CARBON STEEL ROD MATERIAL SHALL CONFORM TO M.H.D. 3313 (TYPE I)
- 2 1/2" RIGHT HAND THREADS TOP
- 5" LEFT HAND THREADS BOTTOM
- 3/8" # HEAVY HEX. NUTS
- 5/8" x 6" FORGED STEEL (HEX. ENDS) TURNBUCKLE MATERIAL TO CONFORM TO A.S.T.M.A. 235-62T (CLASS 'A' MINIMUM REQUIRED.)
- 5/8" MAC LEAN-FOGG LOCK NUT NO. 1 OR APPROVED EQUAL
- 5/8" x 4 1/2" FORGED STEEL EYE BOLT WITH 3/16" # HOLE. MATERIAL SHALL CONFORM TO A.S.T.M.A. 235-62T (CLASS 'A' MINIMUM REQ'D.)
- 1/2" BOLT WITH LOCK WASHER, HEAVY HEX NUT & MAC LEAN-FOGG LOCK NUT NO. 1 OR APPROVED EQUAL
- 1/8" x 1" CARBON STEEL PIPE CLAMP. MATERIAL SHALL CONFORM TO M.H.D. 3313 (TYPE I)

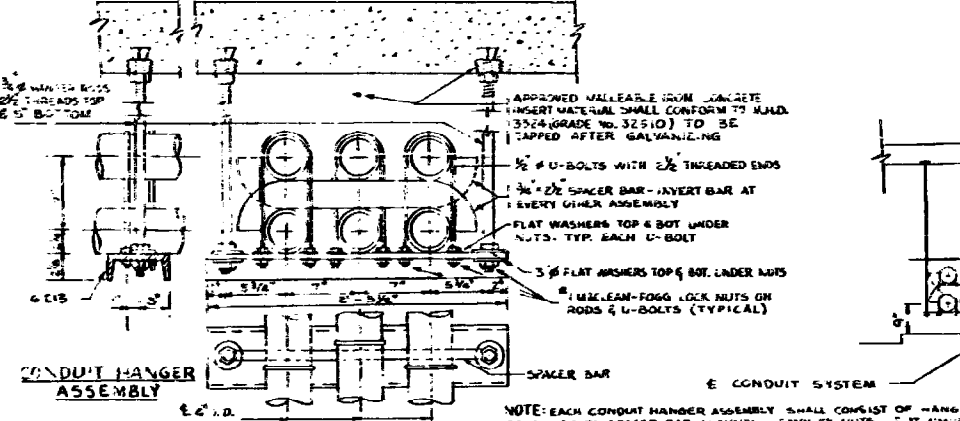


HANGER DETAILS

NOTE:
NUTS & BOLTS SHALL CONFORM TO M.H.D. 2471.3E II & GALVANIZE ALL NUTS, BOLTS, WASHERS, TURNBUCKLES, RODS & INSERTS PER M.H.D. 3392. GALVANIZE CLAMPS AFTER FABRICATION PER M.H.D. 3394.
EACH CONDUIT HANGER ASSEMBLY SHALL CONSIST OF CONCRETE INSERT, 5/8" # ROD, PIPE CLAMPS, NUTS, BOLTS, WASHERS AND TURNBUCKLE

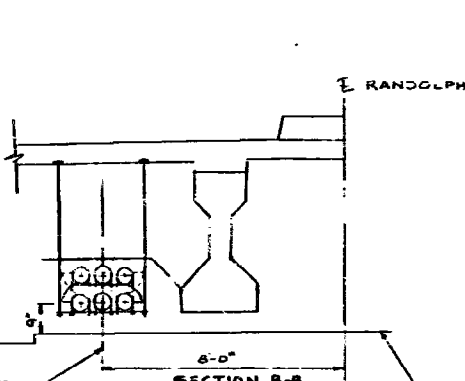


SECTION A-A

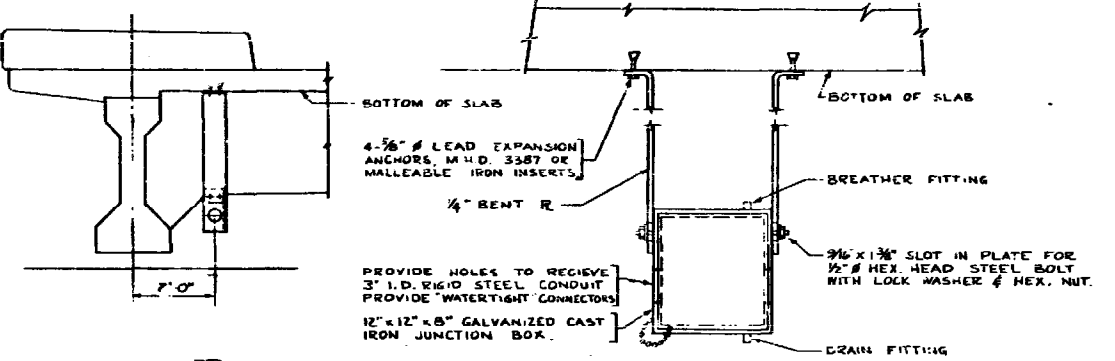


CONDUIT HANGER ASSEMBLY

NOTE: EACH CONDUIT HANGER ASSEMBLY SHALL CONSIST OF HANGER, ROD, U-BOLTS, SPACER BAR, CHANNEL HEAVY EX NUTS, FLAT WASHERS AND MACLEAN-FOGG LOCK NUTS NO. 1



SECTION B-B



JUNCTION BOX DETAILS

4-7/8" # LEAD EXPANSION ANCHORS, M.H.D. 3387 OR MALLEABLE IRON INSERTS.

1/4" BENT R

PROVIDE HOLES TO RECEIVE 3" I.D. RIGID STEEL CONDUIT PROVIDE 'WATERTIGHT' CONNECTORS

12" x 12" x 8" GALVANIZED CAST IRON JUNCTION BOX.

3/16" x 1 3/8" SLOT IN PLATE FOR 1/2" # HEX HEAD STEEL BOLT WITH LOCK WASHER & HEX. NUT.

NOTE: INSERTS, PLATES, BOLTS, AND JUNCTION BOX ARE INCLUDED IN CONDUIT SYSTEM TYPE A

CONDUIT SYSTEM TYPE 'D' IS FOR FUTURE NORTHERN STATES POWER COMPANY CABLES SEE SPECIAL PROVISIONS

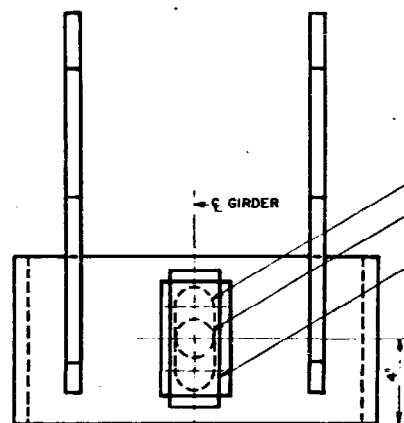
SUMMARY OF QUANTITIES FOR CONDUIT SYSTEM TYPE 'D'

1440 FT. 4" I.D. RIGID STEEL CONDUIT (GALV.)	
12 EXPANSION FITTINGS	
12 CAPS, GALVANIZED	
2-5" SCHEDULE 80 PIPE SLEEVE 20.76 #/FT.	
29 HANGER ASSEMBLIES	
58 CONCRETE INSERTS	

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

Bridge No. 9528
CONDUIT SYSTEM (TYPE A & D)
APPROVED: 11-4-66

DES.	DR. J.A.J.	9528
CHEK.	CH. D.Y.G.	



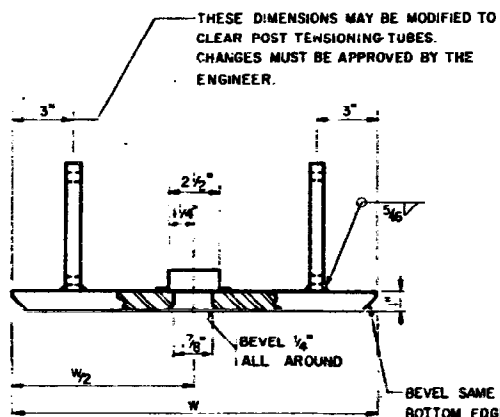
1 7/8" x 5" SLOTTED HOLE - EXPANSION BEARINGS - TYPE 2

1 7/8" Ø HOLE - FIXED BEARINGS - TYPE I

BOX - 2 1/2" x 1" x 5 1/2" 16 GA SHEET METAL. FASTEN TO PLATE AFTER PLATE IS GALVANIZED. ALL JOINTS MUST BE WATERPROOF TO PREVENT SEEPAGE INTO PINTLE RECESS. APPROVED ALTERNATE METHODS OF COVERING PINTLE RECESS MAY BE USED.

HOLE AND BOX NOT REQUIRED FOR EXPANSION BEARINGS TYPE I.

PLAN

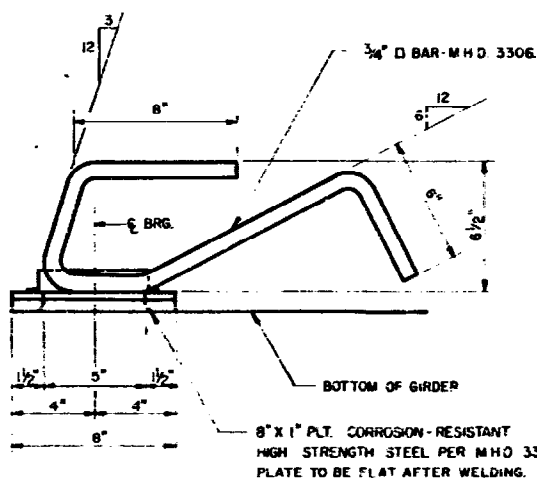


THESE DIMENSIONS MAY BE MODIFIED TO CLEAR POST TENSIONING TUBES. CHANGES MUST BE APPROVED BY THE ENGINEER.

BEVEL SAME AS BOTTOM EDGES OF GIRDER.

END VIEW

AREA AT HOLE SHOWN AS A SECTION. DIMENSION "W" TO BE THE WIDTH AT BOTTOM FLANGE OF THE GIRDER.

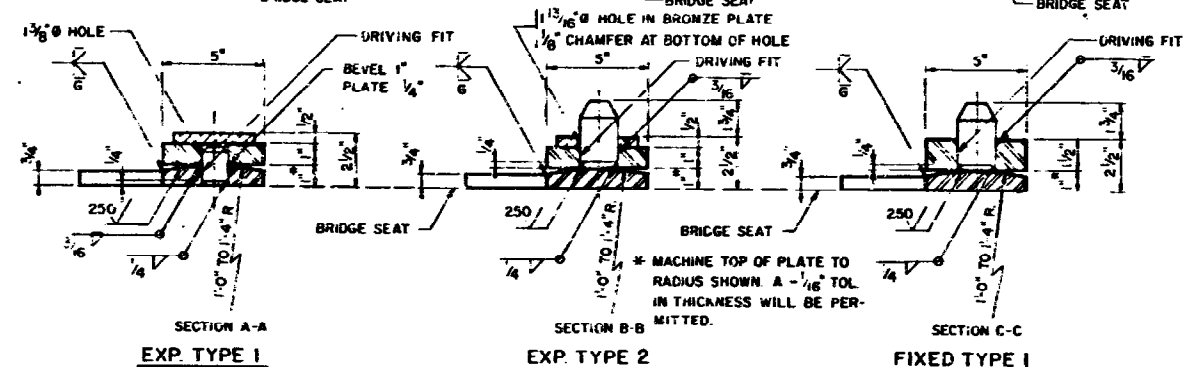
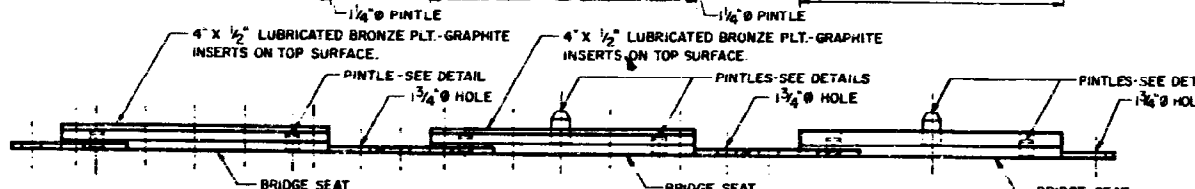
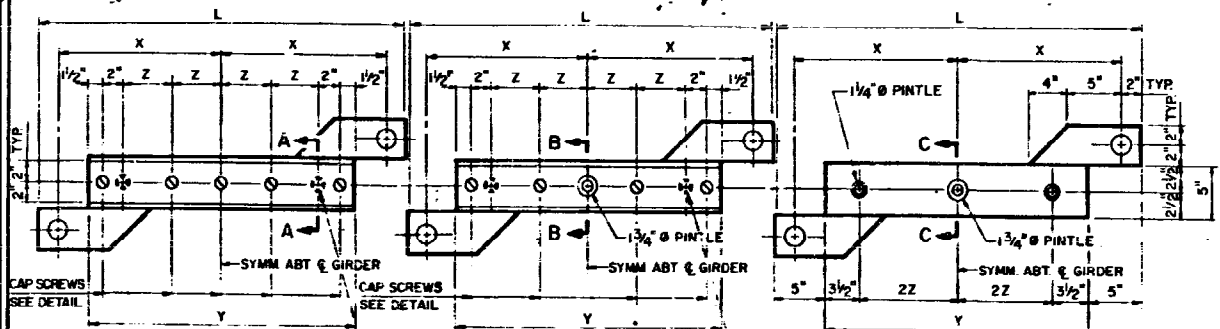


SIDE ELEVATION

SHOWING PLACEMENT IN GIRDER

NOTES:

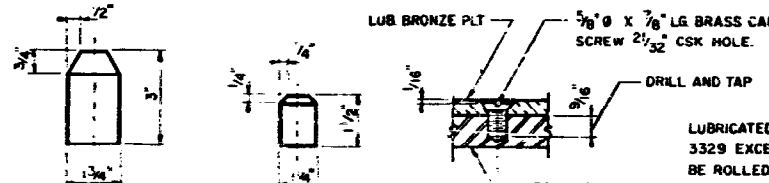
SOLE PLATE TO BE HOT DIPPED GALVANIZED AS PER M.H.D. 3394 AFTER FABRICATION. PAYMENT FOR SOLE PLATES TO BE INCLUDED IN PRICE BID FOR PRESTRESSED CONCRETE GIRDERS.



SECTION A-A
EXP. TYPE 1

SECTION B-B
EXP. TYPE 2

SECTION C-C
FIXED TYPE 1



PINTLE DETAILS

CAP SCREW DETAIL

NOTES

LUBRICATED BRONZE PLATE SHALL COMPLY WITH M.H.D. 3329 EXCEPT THAT BRONZE FOR THESE PLATES SHALL BE ROLLED ALLOY BRONZE A.S.T.M. B100 ALLOY NO 1 OR ALLOY NO 2, OR A.S.T.M. B169 ALLOY D, SOFT TEMPER (MILL FINISH)

ALL PLATES, EXCEPT LUBRICATED BRONZE, SHALL BE CORROSION-RESISTANT HIGH STRENGTH STEEL PER M.H.D. 3309

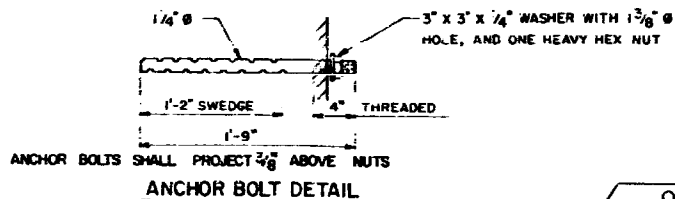
PINTLES SHALL CONFORM TO M.H.D. 3314, TYPE II.

STEEL PLATES AND PINTLES SHALL BE GALVANIZED PER M.H.D. 3394 NO PAINT
ANCHOR BOLTS SHALL BE GALVANIZED PER M.H.D. 3392. NO PAINT.

PAYMENT FOR BEARING ASSEMBLY SHALL INCLUDE ALL MATERIAL ON THIS DETAIL

POSITION OF ANCHOR BOLT LUGS SHOWN IS FOR LEFT SKEWS; FOR RIGHT SKEWS LUGS ARE TO BE REVERSED.

SCALE WEIGHTS SHALL BE FURNISHED IN ACCORDANCE WITH THE REQUIREMENTS OF M.H.D. 2471.3M1 AND SHALL BE LISTED ON THE SHIPPING STATEMENTS FOR THE INDIVIDUAL ITEMS.



ANCHOR BOLT DETAIL

BEARING ASSEMBLY SCHEDULE					
WIDTH OF BOTTOM FLANGE OF GIRDER	L	X	Y	Z	
4'-4"	2'-2"	0'-11"	1'-4"	2 1/4"	
1'-6"	2'-4"	1'-0"	1'-6"	2 3/4"	
1'-10"	2'-8"	1'-2"	1'-10"	3 3/4"	
2'-2"	3'-0"	1'-4"	2'-2"	4 3/4"	

FILL PLATE DETAIL
USE SAME DIMENSIONS AS BEARING ASSEMBLY FOR THICKNESS AND NUMBER SEE PLAN.

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

Bridge No.
9528

DETAILS

APPROVED 11-1-66

9528

Sheet No. 19 of
28 Sheets

APPROVED 12/22/59

A. C. LaBonte
BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
SOLE PLATE FOR
PRESTRESSED CONCRETE GIRDERS

REVISIONS
6-13-60A
11-2-62-B
8-20-64
6-9-65
11-15-65

DETAIL NO.
B149

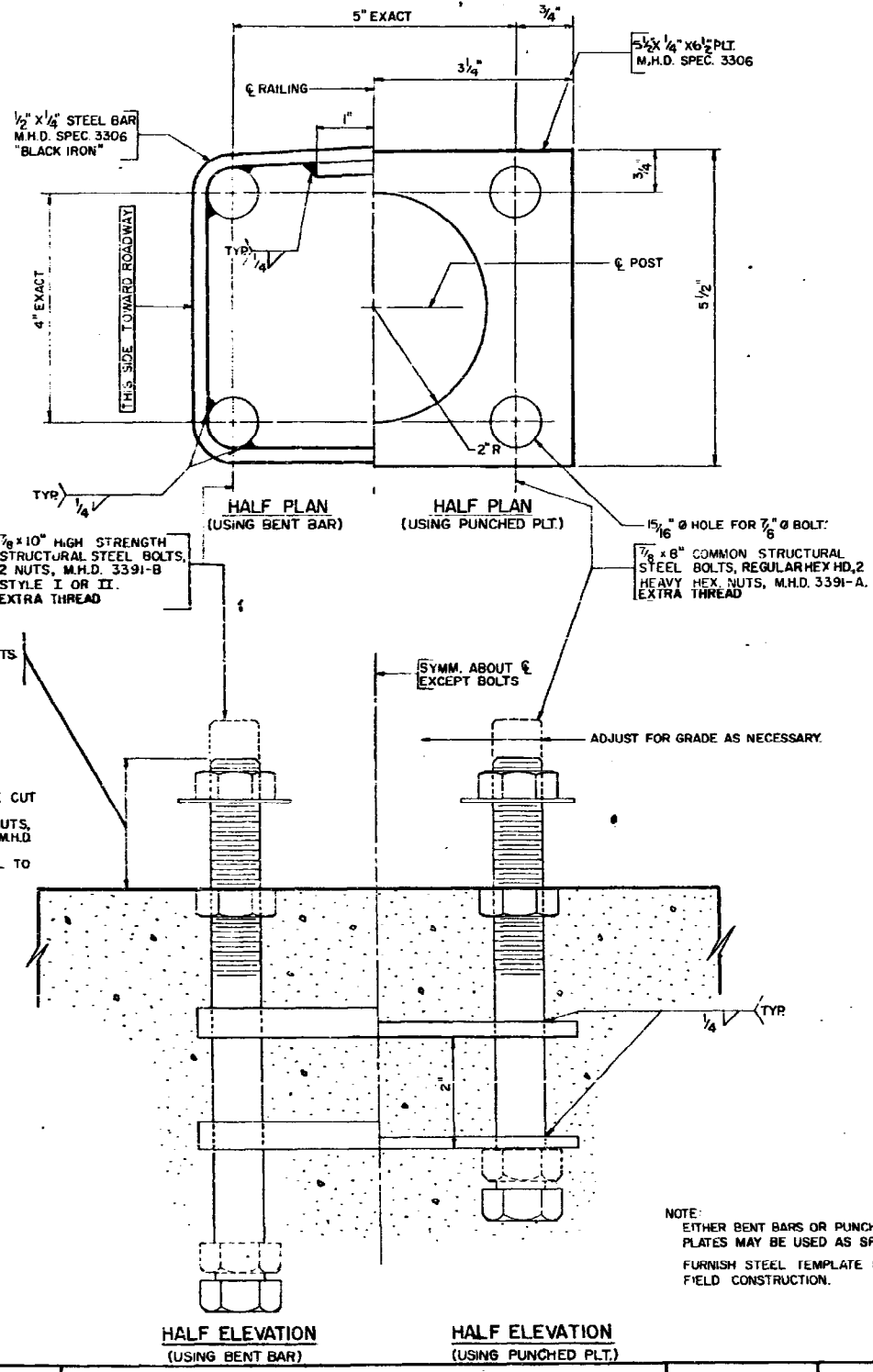
APPROVED 10-2-1961

A. C. LaBonte
BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
BEARING ASSEMBLY WITH LUGS
FOR PRESTRESSED CONCRETE GIRDERS

REVISIONS
11/2/62-A
5/22/63
12/1/64
4/28/65
8/9/65

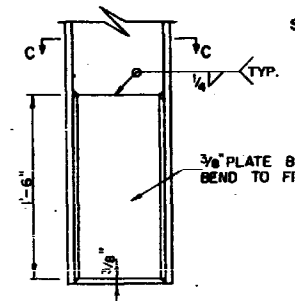
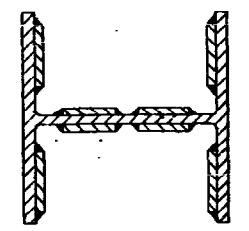
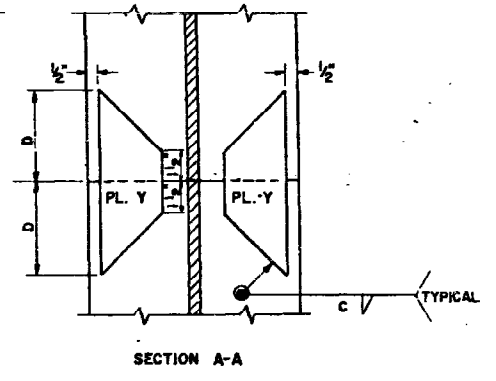
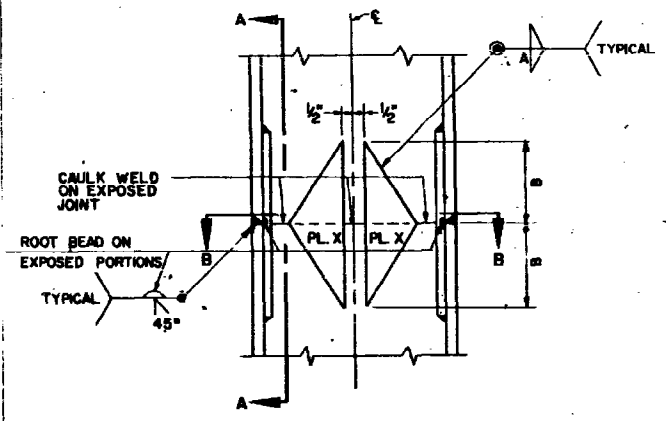
DETAIL NO.
B147



ANCHOR BOLTS SHALL PROJECT 1/4\"/>

NOTE:
ALL BOLTS TO HAVE CUT WASHERS.
GALVANIZE BOLTS, NUTS, AND WASHERS PER M.H.D. 3392.
SET BOLTS NORMAL TO GRADE.

NOTE:
EITHER BENT BARS OR PUNCHED PLATES MAY BE USED AS SPACERS.
FURNISH STEEL TEMPLATE FOR FIELD CONSTRUCTION.



PILE SECTION	SIZE	PLATE X		PLATE Y	
		A	B	C	D
10BP42	2 1/2 x 3	4	4	3 x 3	3/8 x 4
10BP57	2 1/2 x 2	5/8	4	3 x 2	3/8 x 5
12BP58	3 1/2 x 3	4	5	4 x 3	3/8 x 5
12BP74	3 1/2 x 2	5/8	6	4 x 2	3/8 x 6
14BP73	4 1/2 x 3	4	7	5 x 3	3/8 x 6
14BP89	4 1/2 x 1 1/2	5/8	7	5 x 2	3/8 x 7
14BP102	4 1/2 x 2	5/8	7	5 x 3/8	3/8 x 7
14BP117	4 1/2 x 1 1/2	5/8	7	5 x 3/8	3/8 x 8

NOTES:
PILE ENDS AT SPLICE TO BE SQUARE.
WELDING SEQUENCE:
A. PILES SPLICED ON SKIDS BEFORE DRIVING
1. BUTT WELD FLANGES.
2. WELD WEB SPLICE PLATES.
3. WELD FLANGE SPLICE PLATES.
4. MAKE CAULK WELDS & ROOT BEADS.
B. PILES SPLICED IN LEADS.
1. WELD SPLICE PLATES TO EXTENSION BEFORE ASSEMBLY.
2. CLAMP SECTIONS TOGETHER AND HOLD RIGID.
BUTT WELD FLANGES.
3. WELD SPLICE PLATES TO DRIVEN SECTION.
4. MAKE CAULK WELDS & ROOT BEADS.
WELDING ELECTRODES M.H.D. 3339.
WITH DC, REVERSE POLARITY (ELECTRODE POSITIVE) ONLY.
USE A.S.T.M. CLASSIFICATION E 6010.
WITH DC REVERSE POLARITY OR AC USE A.S.T.M. CLASSIFICATION E 6011.
WHERE MOISTURE CONTROL IS PROPERLY ENFORCED A.S.T.M. CLASSIFICATION E 6016 OR E 7016 MAY BE USED.
RECOMMENDED MOISTURE CONTENT, PER CENT OF COATING:
E 6010 3.0 TO 5.0% D.C.R. ONLY
E 6011 2.0 TO 4.0% A.C. OR D.C.R.
E 6016 LESS THAN 0.4% A.C. OR D.C.R.
E 7016 LESS THAN 0.4% A.C. OR D.C.R.
ALL WELDING PER M.H.D. 2471.3J
STEEL PLATES PER M.H.D. 3306

APPROVED SEPT 5 1963
BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
ANCHOR BOLT ASSEMBLY
(FOR STEEL AND FLAT TUBE RAILING)

REVISIONS
5/26/61 - A
12/11/61 - B
11/9/62 - C
1/11/63 6/21/65
7/30/64 11/15/65
10/8/64 4-12-66
12/18/64

DETAIL NO.
B110

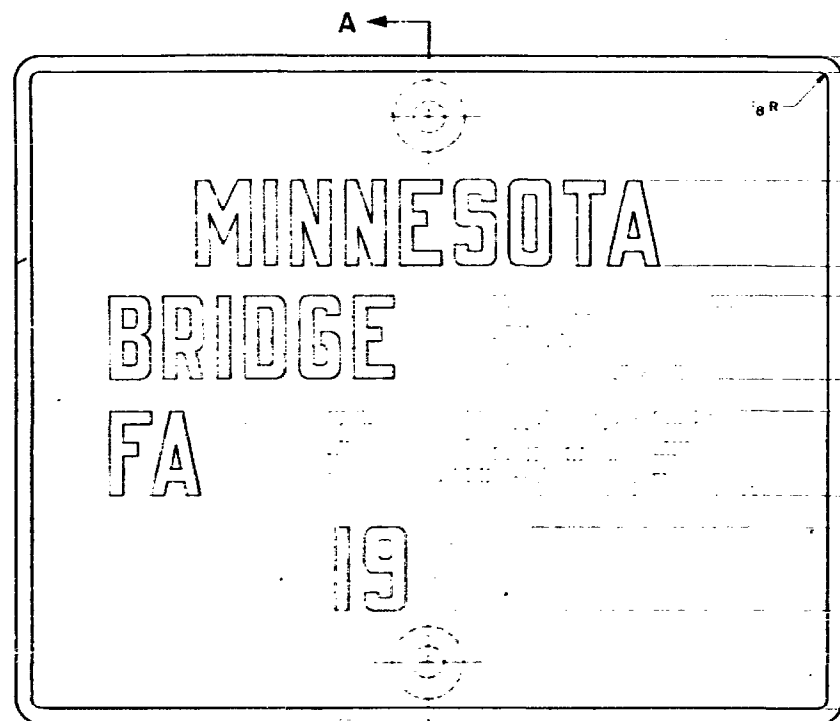
APPROVED 12-19-1958
C. P. de Conte
BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
SPLICES FOR STEEL H BEARING PILES
& PILE TIP REINFORCEMENT 10" TO 14"

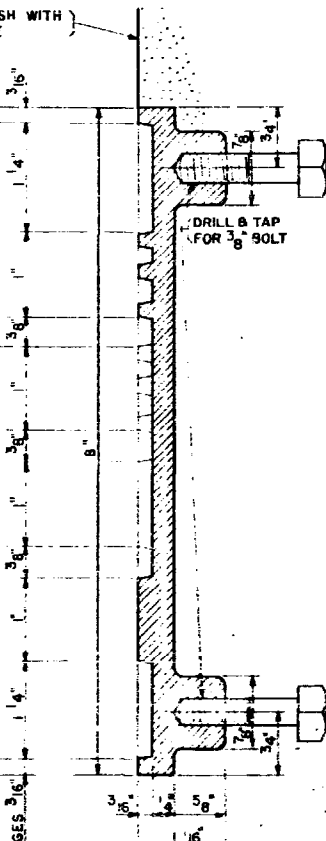
REVISIONS
6-2-59
7-31-62
12-2-63
11-15-65

DETAIL NO.
B 221

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
Bridge No.
9528
DETAILS
APPROVED 11-1-66
9528
Sheet No 22 of
28 Sheets

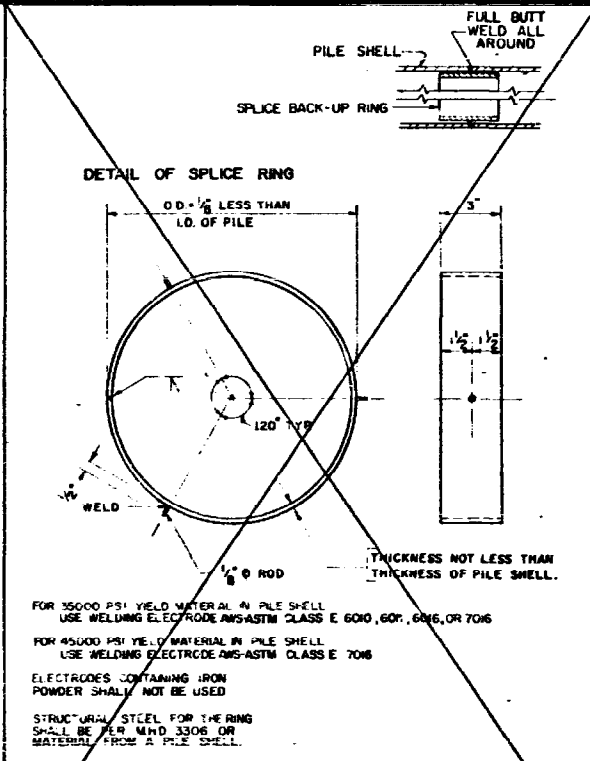


SET NAME PLATE FLUSH WITH SURFACE OF CONCRETE



SECTION A-A

FOR FEDERAL AID BRIDGES



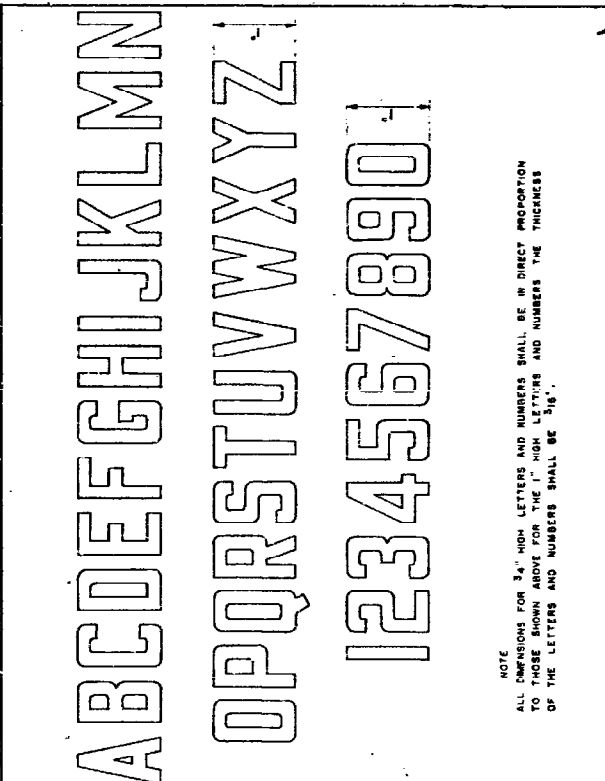
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
SPLICES FOR CAST IN
PLACE CONCRETE PILES

REVISIONS
6/2/59
11/17/64
5/27/64
3.4.65

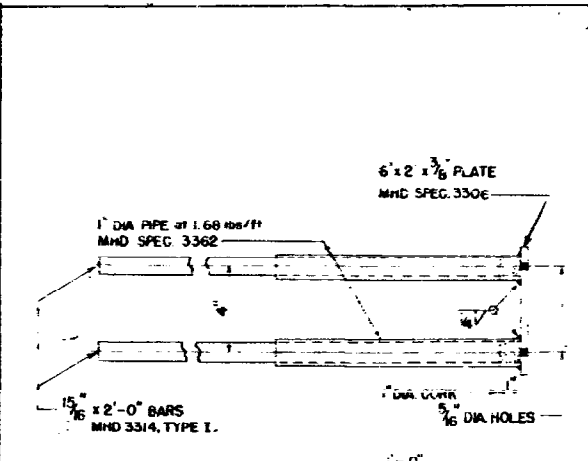
DETAIL NO.
8220

NOTES:
NUMBERS AND LETTERS SHALL CONFORM TO THOSE SHOWN ON DETAIL NO. 2102. DRAFT ON LETTERS SHALL NOT BE MORE THAN 3" IN 12". HORIZONTAL SPACING OF LETTERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN. TOP SURFACE OF LETTERS AND FRAMES SHALL BE BURNISHED. BACKGROUND OF PLATE SHALL HAVE A DEEP BROWN OXIDIZED FINISH. FURNISH 2 STEEL BOLTS 3/8" X 3" LONG WITH EACH PLATE. PLATES ORDERED IN PAIRS SHALL BE CAST FROM THE SAME HEAT. NUMBERS AND LETTERS SHOWN DOTTED ARE TO BE OBTAINED FROM BRIDGE PLANS.

SPECIFICATION REFERENCE 2471.3 H, 3327 (BRONZE CASTINGS TYPE 2)



NOTE
ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN ABOVE FOR THE 1" HIGH LETTERS AND NUMBERS THE THICKNESS OF THE LETTERS AND NUMBERS SHALL BE 3/16".



NOTE:
OPEN END OF PIPE MUST BE DE-BURRED AFTER CUTTING AND BEFORE GALVANIZING. BARS TO BE SAWED TO LENGTH. GALVANIZE AS PER M.H.D. 3394 AFTER FABRICATION.

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

Bridge No.
9528

DETAILS

APPROVED 11-4-64

9528

Sheet No. 23 of
28 Sheets

APPROVED 7/13 1959
A. E. de Bonte
BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
BRIDGE NAME PLATE
FOR TRUNK HIGHWAY BRIDGES

REVISIONS
DETAIL NO.
2100

APPROVED 7/13 1959
A. E. de Bonte
BRIDGE ENGINEER

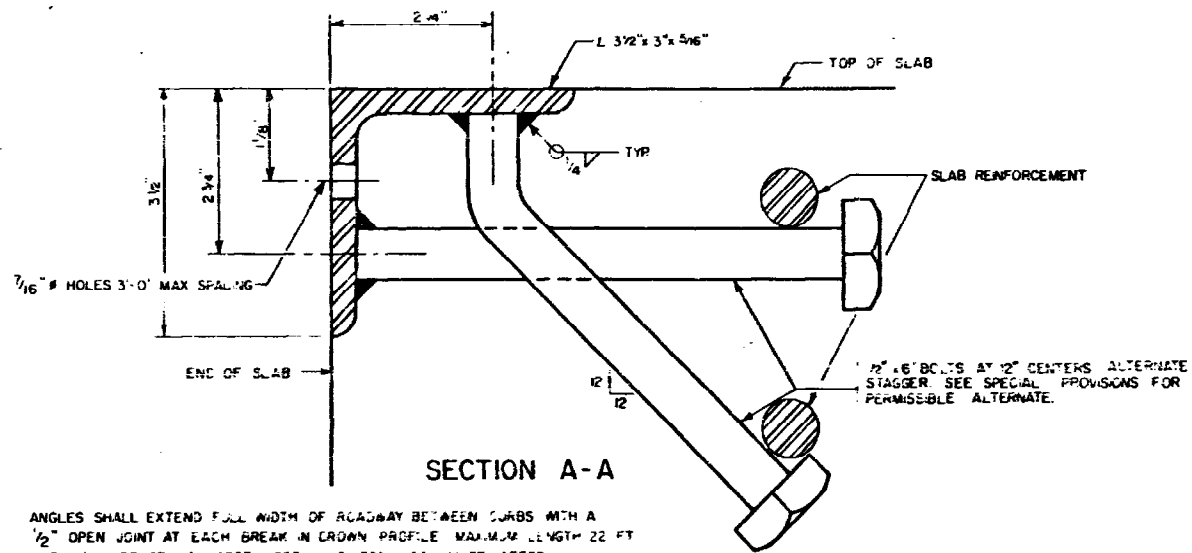
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
LETTERS FOR BRIDGE NAME PLATES

REVISIONS
DETAIL NO.
2102

APPROVED 8-18-1957
A. E. de Bonte
BRIDGE ENGINEER

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
SHEAR DOWEL ASSEMBLY

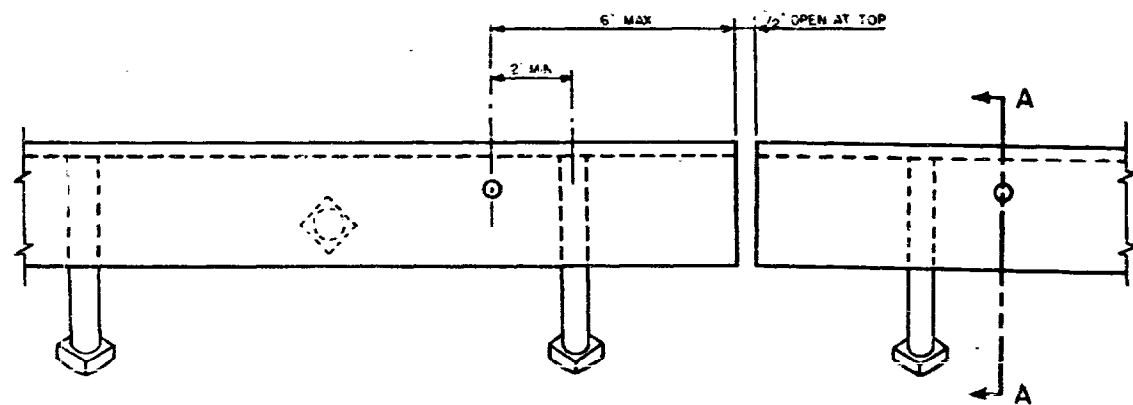
REVISIONS
DETAIL NO.
8100



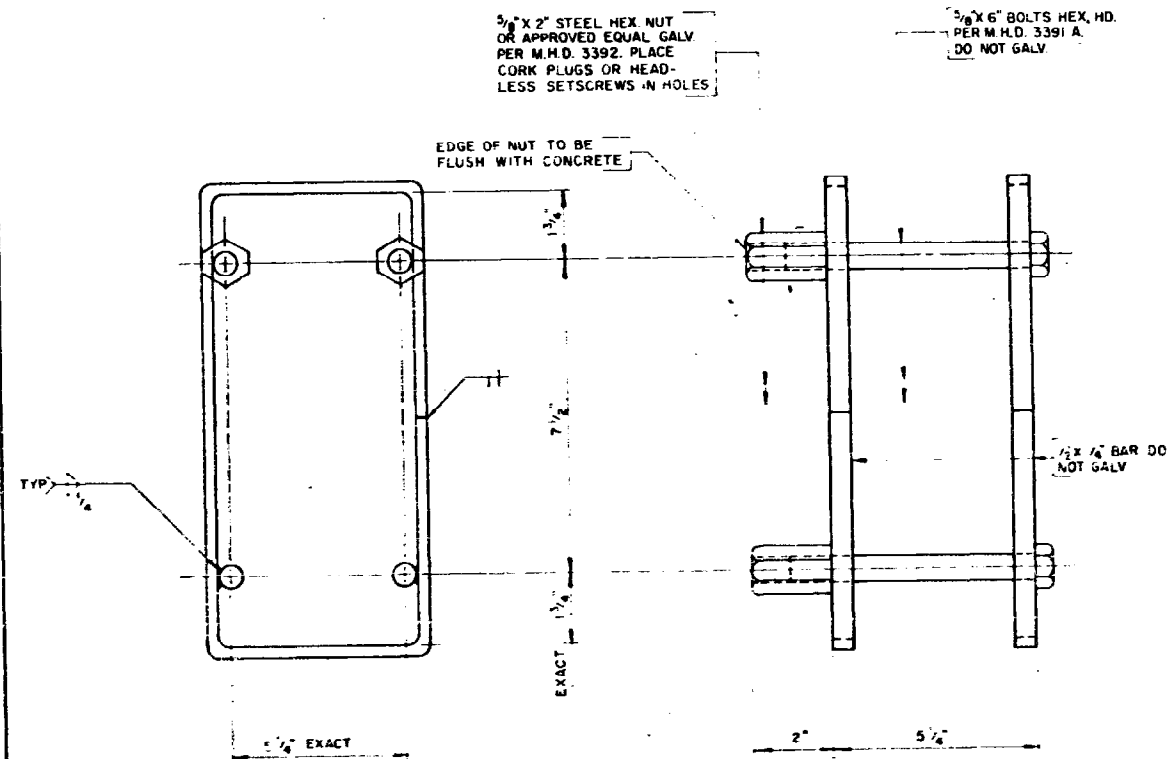
SECTION A-A

ANGLES SHALL EXTEND FULL WIDTH OF ROADWAY BETWEEN CURBS WITH A 1/2" OPEN JOINT AT EACH BREAK IN CROWN PROFILE. MAXIMUM LENGTH 22 FT. MATERIAL-STRUCTURAL STEEL PER M.H.D. 3306 GALVANIZE AFTER FABRICATION PER M.H.D. 3394

SET ANGLE TO PROPER GRADE AND CROWN



ELEVATION



5/8" X 2" STEEL HEX. NUT OR APPROVED EQUAL GALV. PER M.H.D. 3392. PLACE CORK PLUGS OR HEADLESS SETSCREWS IN HOLES.

1/2" X 1/4" BOLTS HEX. HD. PER M.H.D. 3391 A. DO NOT GALV.

EDGE OF NUT TO BE FLUSH WITH CONCRETE

1/2" X 1/4" BAR DO NOT GALV

NOTE
2 X 1/4" BAR TO BE M.H.D. SPEC. 3306 BLACK IRON

ESTIMATED WT 7 LBS

FURNISHING AND PLACING INSERT SHALL BE PAID FOR AS STRUCTURAL STEEL M.H.D. 3306

APPROVED 9-24-1963

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
PROTECTION ANGLE FOR END OF SLAB

REVISIONS
3/8/65
11/15/65
12/2/65

DETAIL NO.
B209

R. C. Smith
BRIDGE ENGINEER

APPROVED SEPT 5 1963

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
INSERT FOR PLATE BEAM GUARD RAIL CONNECTION

REVISIONS
12-2-63
7-30-64
8-5-64
8-14-64
10-7-64
11-1-64

DETAIL NO.
B 46

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

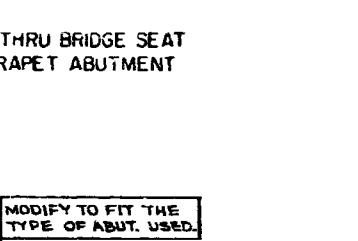
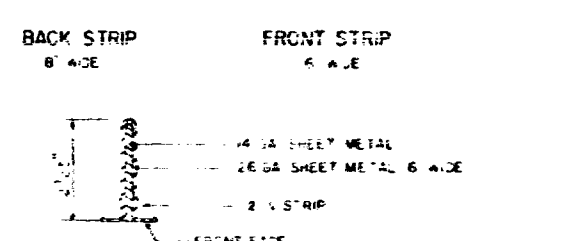
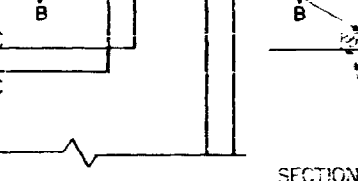
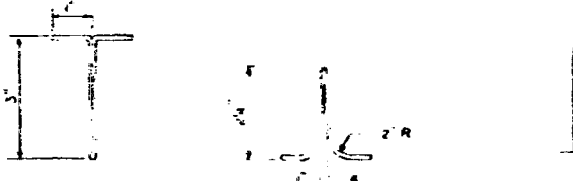
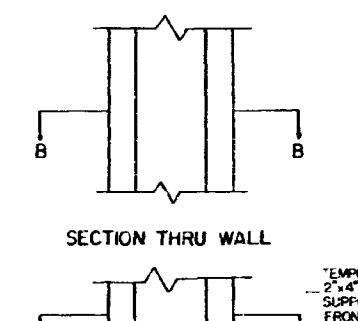
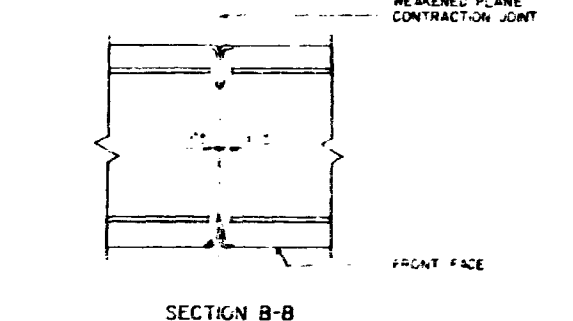
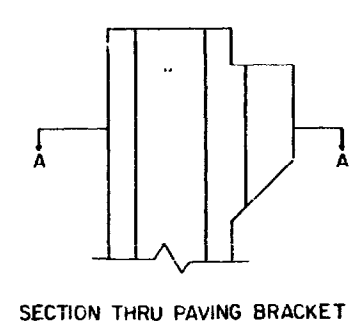
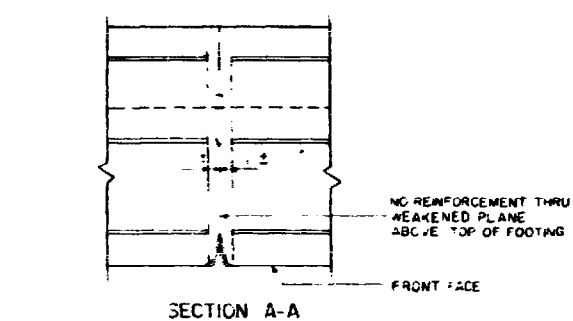
Bridge No.
9528

DETAILS

APPROVED 11-4-64

9528

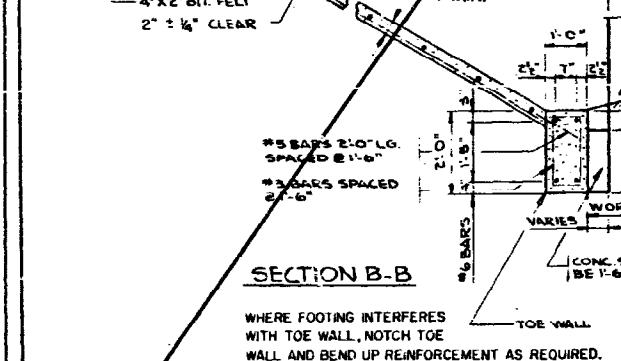
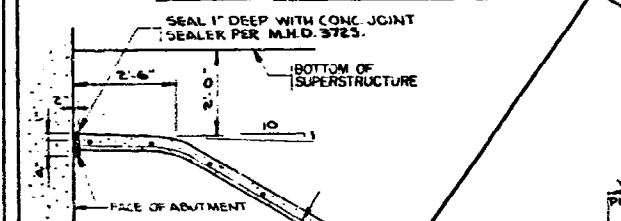
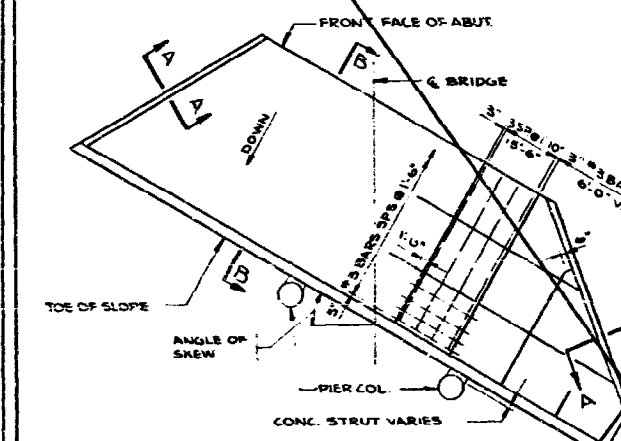
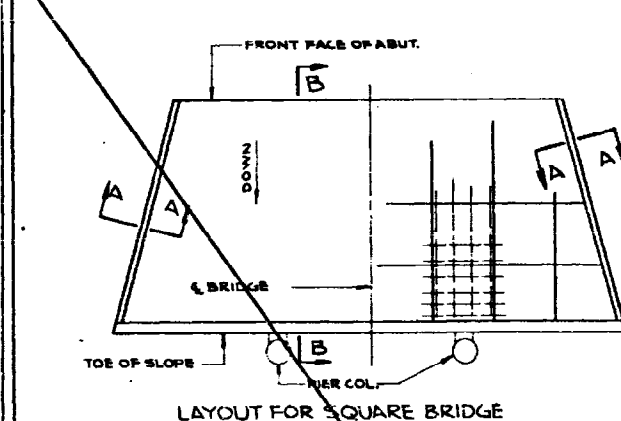
Sheet No. 24 of
28 Sheets



NOTES
 METAL STRIP TO BE 26 GA GALVANIZED SHEET METAL M.H.D. 3338 FASTEN TO FORMS WITH "B" ROOFING NAILS ABOUT 6" CENTERS. FRONT STRIP TO BE REMOVED WITH FORMS. BACK STRIP REMAINS IN PLACE. ALL METAL IN FRONT FACE TO BE OILED FOR EASY REMOVAL. COST OF FORMING JOINT TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

NOTE
 THE METHODS AND MATERIALS INDICATED HEREON SHALL BE CONSIDERED AS SUGGESTED ONLY. VARIATIONS WILL BE PERMITTED, SUBJECT TO APPROVAL BY THE ENGINEER, BUT MUST PROVIDE DUMMY JOINTS OF A DEPTH NOT LESS THAN THE DEPTH SHOWN, AND A WIDTH AT THE FRONT FACE OF THE ABUTMENT OF NOT GREATER THAN 5/8". THE SEPARATION OF THE HORIZONTAL REINFORCEMENT BARS SHALL BE NOT LESS THAN 1/2" NOR MORE THAN 3", CENTERED AS SHOWN, REGARDLESS OF THE PROCEDURE USED FOR FORMING THE DUMMY JOINT. IF A SUITABLE PLASTIC OR OTHER DURABLE MATERIAL, SATISFACTORY TO THE ENGINEER, IS USED FOR THE FRONT STRIP, THE MATERIAL MAY BE LEFT IN PLACE. STRIPS TO BE REMOVED SHALL BE OILED OR GREASED AS NECESSARY TO PERMIT REMOVAL WITHOUT SPALLING THE CONCRETE.

MODIFY TO FIT THE TYPE OF ABUT. USED.



SLOPE PAVING - CLASS B

Construction Notes

- The slope paving shall be constructed of cast-in-place concrete, in accordance with the applicable sections of M.H.D. 2401, and the following:
 - The concrete shall be any mix of Type 3, Grade A or stronger as provided in M.H.D. 2461. The concrete slump may be adjusted, subject to approval of the Engineer, as may be necessary to obtain the desired results.
 - Metal reinforcement shall conform to M.H.D. 3301. Lap 30 diameters of splices.
 - The slopes shall conform to the section shown on the General Plan and Elevation sheet in these Plans, except as otherwise provided for below. In the event the Engineer determines that a deficiency in material exists on the approach embankments constructed by others, he may order that the dimensions shown for the berm (see upper left of Section B-B) be revised to the extent necessary to construct the slope without hauling additional material. Such revision should, however, be limited to a decrease of not more than three inches, as applied to the height and or width of the berm. In the event additional fill is required in order to conform to the slope lines stated by the Engineer, on approach embankments completed by others, the cost of furnishing, hauling, placing and compacting additional material ordered by the Engineer, shall be paid for as Extra Work. In the event the Engineer determines that an excess of material is present on approach embankments completed by others, he may order that the width of the berm be increased to the extent necessary, to utilize such material, but not by more than 1" - 6". Excess material, beyond that which is required to dress the slope to true lines and to the grades stated by the Engineer, shall be used as directed by the Engineer for purposes such as widening the shoulders adjacent to the roadways, starting at these shoulders, and shaping up adjacent side slopes. The disposal of excess material, except material deposited by the Contractor during excavation for substructure units or related work, which can not be incorporated into the slopes as heretofore defined, and which the Engineer directs to be hauled from the site, will be paid for as Extra Work. Any revision in berm grades and dimensions should be applied uniformly for the full length of the berm. Compact on will be required.
- Toe and side walls shall be in place before casting remainder of slope paving.
- Slope paving shall, in general, be poured in equal alternate vertical strips with a maximum width of 6 ft. The strips shall be cut into sections by grooves spaced at equal distances not exceeding 6 ft. and shall be at right angles to the strips. Other patterns for strips and grooves will be considered if requested by the contractor.
- The forms shall be set to accurate grade and alignment, and shall be rigidly supported. Deviations of greater than 1/4" from a ten-foot straight edge shall be corrected.
- Care shall be taken in placement of concrete so as not to disturb the grade on which it is placed, or to contaminate the concrete.
- Sufficient ram spacing and or tamping shall be done to secure a dense paving relatively free of voids and honeycomb.
- The top surface shall be struck off immediately after placing the concrete. When the concrete has set sufficiently to hold its shape, it shall be struck off again, after which it shall be given a final finish by hand floating with a cork or wooden float. The finished appearance shall be reasonably smooth and uniform. The finished concrete shall not vary more than 3/8" from a ten-foot straight edge.
- All edges shall be finished with an edger unless otherwise noted. Grooves shall be cut using a sidewalk grooving tool. The trails left by the handles of these tools shall be removed by floating.
- The concrete shall be cured for at least 72 hours after casting by any of the methods outlined in M.H.D. 2401.362, except Earth Cover.
- Method of Measurement: Slope paving shall be measured by area of the top surface bounded by the outside edges of the toe and side walls and the front face of the abutment, unless otherwise shown and noted in the plans.
- Basis of Payment: Payment for furnishing and placing the slope paving shall be made as item No. 514.601 in the Contract price per square yard, which price shall be compensation in full for all costs of labor, equipment and materials required for the work. See Special Provisions.

APPROVED... SEPT 5... 1963
 BRIDGE ENGINEER

STATE OF MINNESOTA
 DEPARTMENT OF HIGHWAYS
 CONSTRUCTION JOINT

REVISIONS
 8-26-64
 9-1-65

DETAIL NO.
 B260
 (MODIFY)

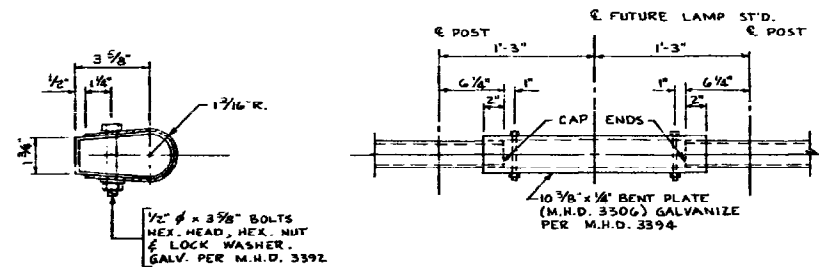
APPROVED... 9-2-1961
 A. C. LaBonte
 BRIDGE ENGINEER

STATE OF MINNESOTA
 DEPARTMENT OF HIGHWAYS
 SLOPE PAVING UNDER BRIDGE
 CLASS B
 (CAST-IN-PLACE CONCRETE SLAB-FLARED SIDES)

REVISIONS
 1/11/62
 12/20/62
 7/18/63
 11/7/63
 12/4/63
 2-11-64

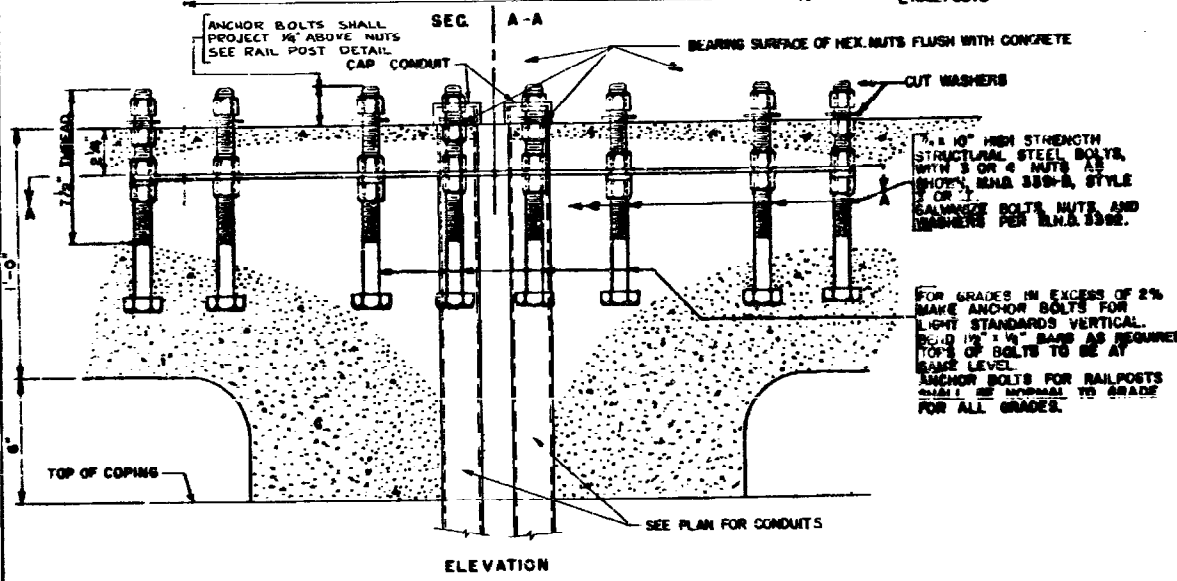
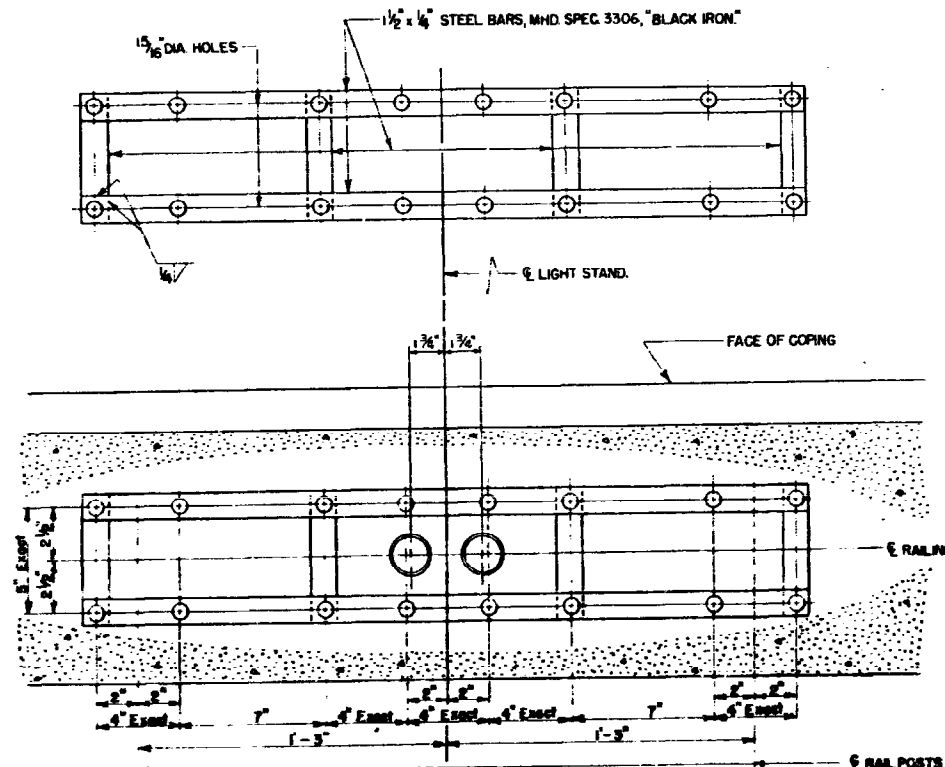
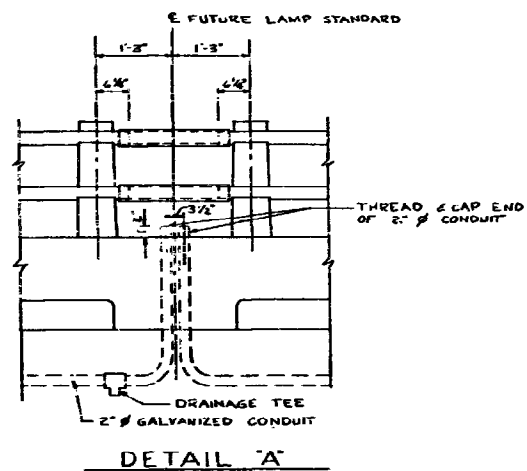
DETAIL NO.
 B 253

STATE OF MINNESOTA
 DEPARTMENT OF HIGHWAYS
 Bridge No.
 9528
 DETAILS
 APPROVED 11-9-64
 9528
 Sheet No. 25 of
 28 Sheets



NOTE: BENT PLATE, BOLTS, NUTS & WASHERS TO BE INCLUDED IN PRICE B/D FOR ORNAMENTAL METAL RAILING

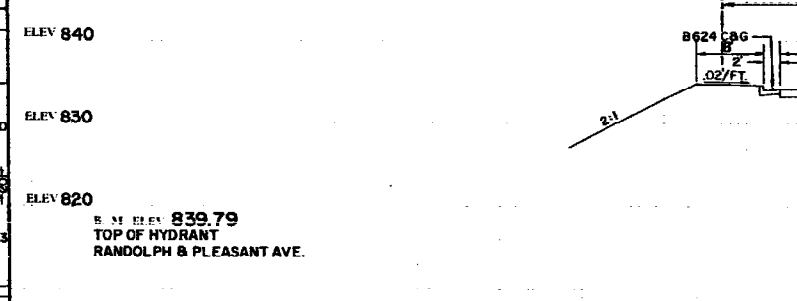
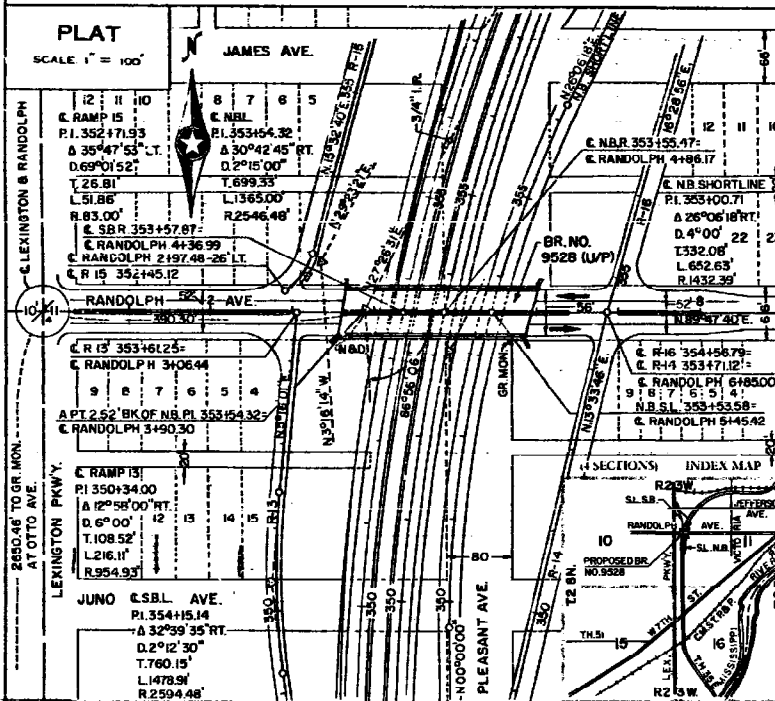
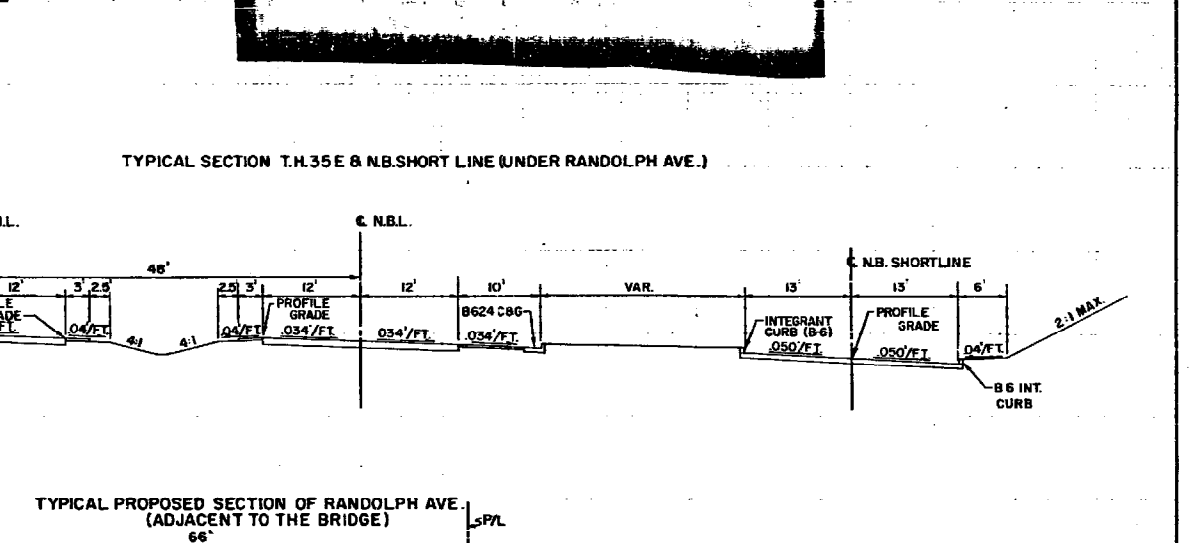
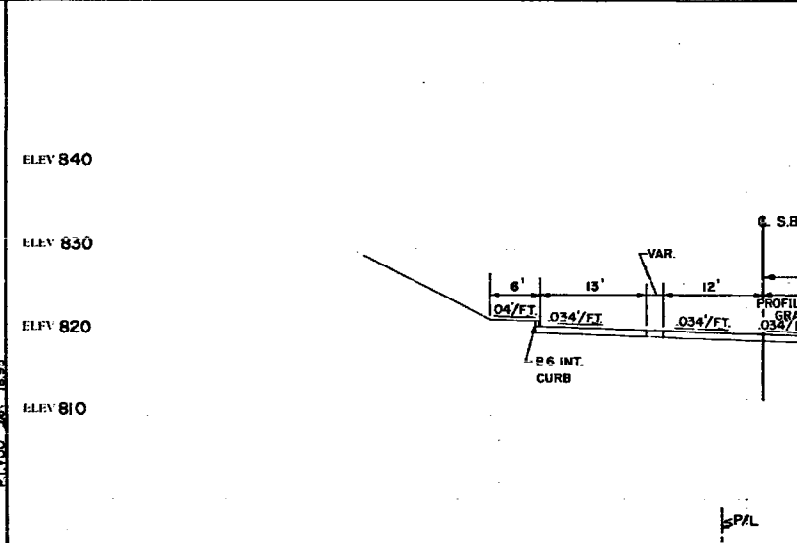
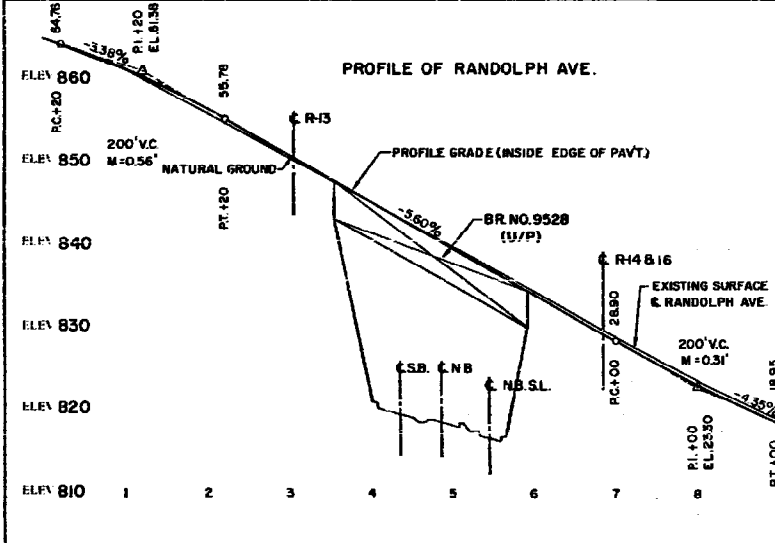
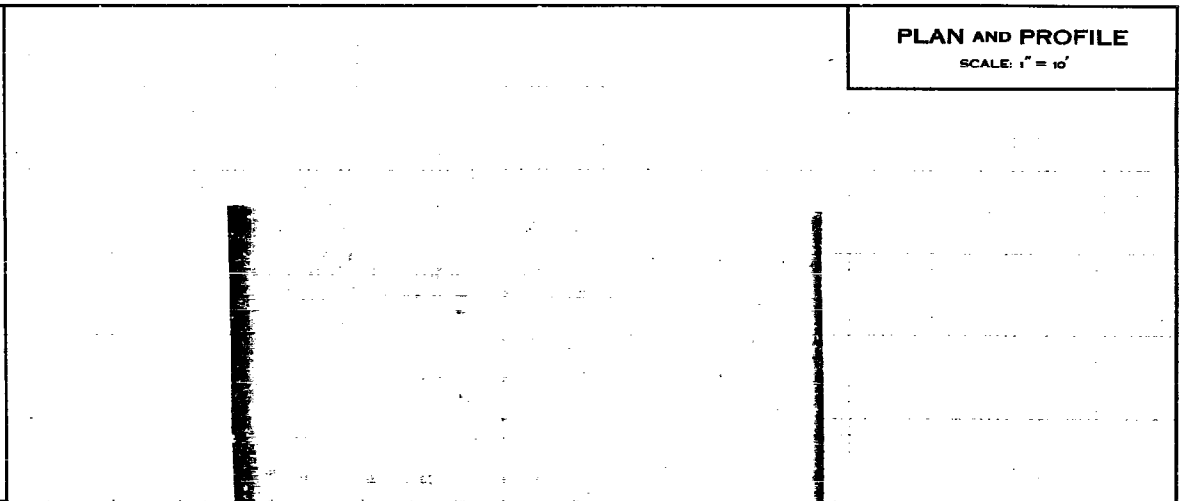
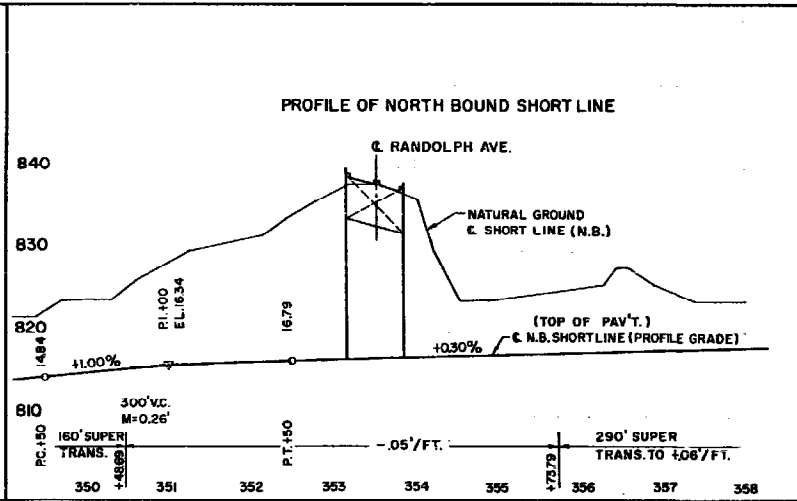
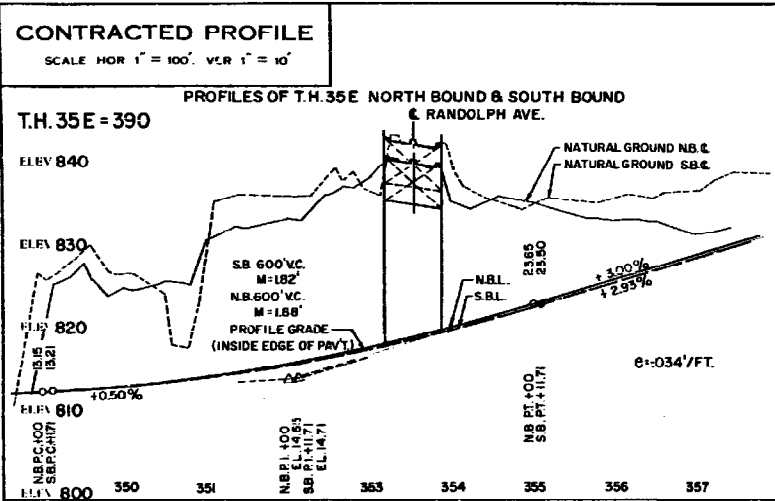
DETAIL of BENT PLATE at FUTURE LIGHT STANDARD



1/2" DIA HOLES
1 1/2 x 1/4" STEEL BARS, M.H.D. SPEC 3306, "BLACK IRON"
E LIGHT STAND.
FACE OF COPING
E RAILING
E RAIL POSTS
ANCHOR BOLTS SHALL PROJECT 1/8" ABOVE NUTS (SEE RAIL POST DETAIL)
CAP CONDUIT
BEARING SURFACE OF HEX. NUTS FLUSH WITH CONCRETE
CUT WASHERS
1/2" HIGH STRENGTH STRUCTURAL STEEL BOLTS, WITH 3 OR 4 NUTS AS SHOWN, M.H.D. 3304-A, STYLE 1 OR 2 GALVANIZED BOLTS, NUTS AND WASHERS PER M.H.D. 3392.
FOR GRADES IN EXCESS OF 2% MAKE ANCHOR BOLTS FOR LIGHT STANDARDS VERTICAL. BOLT IN 1/2" x 1/4" BARS AS REQUIRED. TOPS OF BOLTS TO BE AT SAME LEVEL.
ANCHOR BOLTS FOR RAILPOSTS SHALL BE NORMAL TO GRADE FOR ALL GRADES.
SEE PLAN FOR CONDUITS
ELEVATION

THIS ASSEMBLY TO BE USED WHERE LIGHT STANDARDS WILL BE PLACED WHEN BRIDGE IS CONSTRUCTED

APPROVED <i>11-21-1967</i> <i>R. L. Smith</i> BRIDGE ENGINEER	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS ANCHOR BOLT ASSEMBLY FOR LIGHT STD. WITH ANCHOR BOLT SPACING 4'-4'-4' AND FLANKING STEEL RAILPOSTS	REVISIONS 4/1/58-A 3/28/63 7/30/64 8/6/64 10/8/64 11/8/64 6/21/65	DETAIL NO. B 103
		STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS Bridge No. 952B DETAILS APPROVED <i>11-4-66</i> 9528 Sheet No. 26 of 28 Sheets	



DATA

1. Preliminary recommendations of Engineer in charge of Bridge Survey:

- Net span length and type of bridge.
- Width of roadway on bridge.
- Number and width of sidewalks, if any.
- Locate center of bridge at station.
- If a skew bridge is recommended, the angle of skew should be.
- Is piling required?

2. Special features: Waterfalls, dams, exceptional floods, ice, driftwood, sliding banks, logging, etc.

3. Changes: In height or length from that of old bridge, and reasons why.

HIGH AND LOW WATER ELEVATIONS

Data obtained from _____ reflects highest water elevation in the area of this construction to be _____ 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 _____ miles _____ of _____ 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 _____ MILES _____ OF
IN ST. PAUL _____ ON T.H. 35E = 390
(TOWN OR CITY) (T.H., S.A.R. OR C.A.R. NUMBER)

SEC. 11, TWP. 28 N., R. 23 W.,
TOWNSHIP _____ COUNTY RAMSEY.

SURVEY MADE DURING MONTH OF _____ 19____
SURVEY MADE BY _____

BRIDGE No. 9528

