

STATE OF MINNESOTA
DEPT. OF HIGHWAYS

INDEX
C1 THRU C6 MANHOLES
C7, C8, C9 BARREL ARCHES
C10 THRU C12 ARCHES

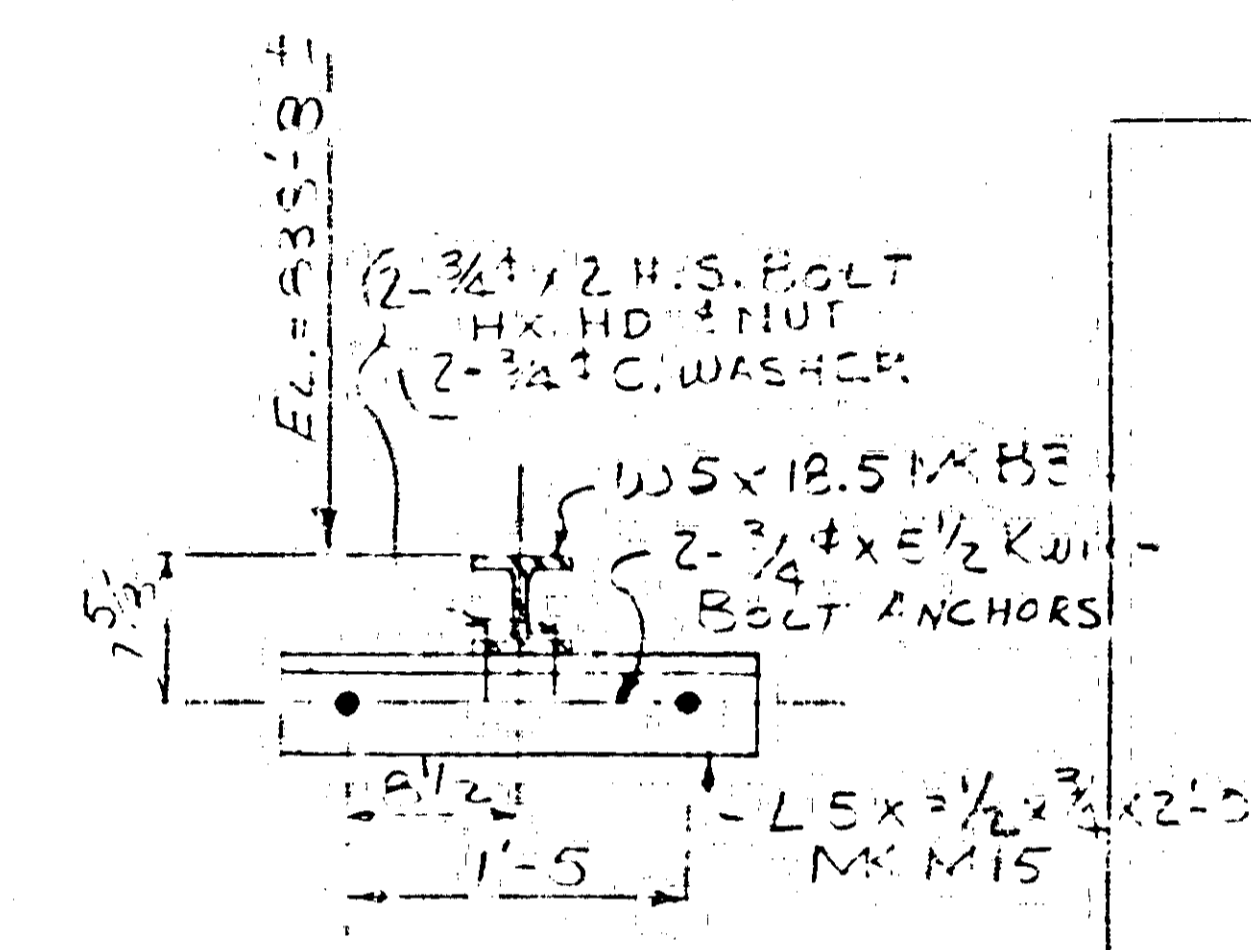
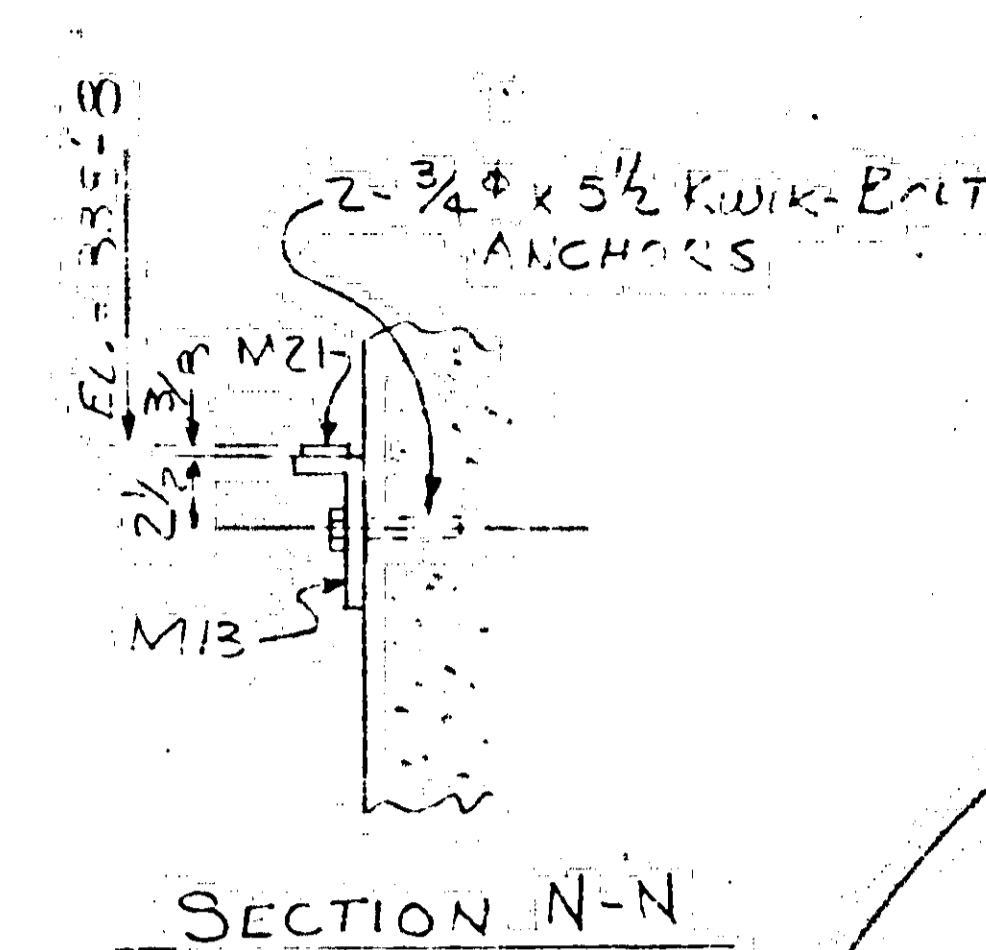
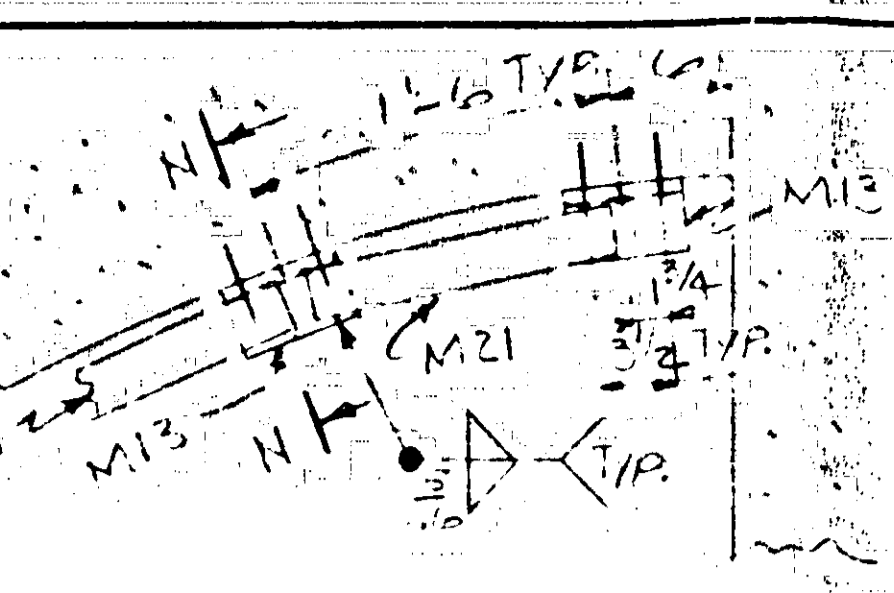
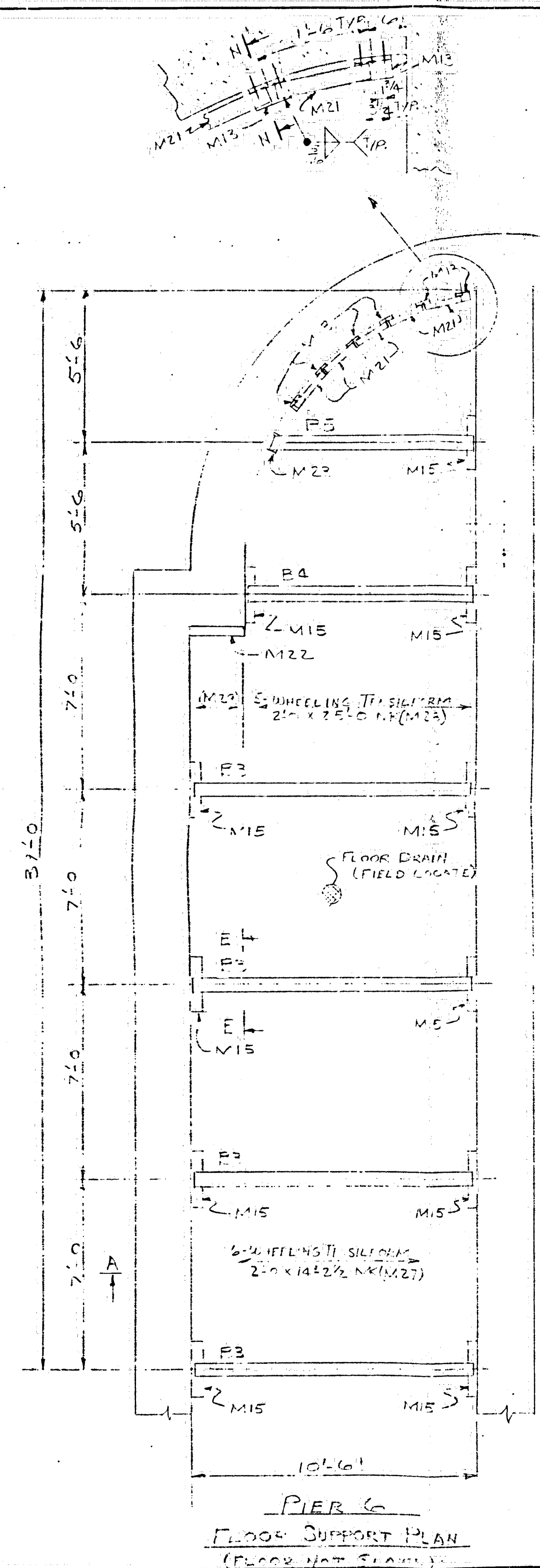
REVISIONS
1. J651C

BRIDGE NO.	- 2440
STATE PROJECT NO.	-
FEDERAL PROJECT NO.	-
CONTRACTOR	- JOHNSON BROS.
LOCATION	- 3RD AVE. BRIDGE OVER MISSISSIPPI RIVER
DESCRIPTION	- N.W.B. TELEPHONE CONDUIT

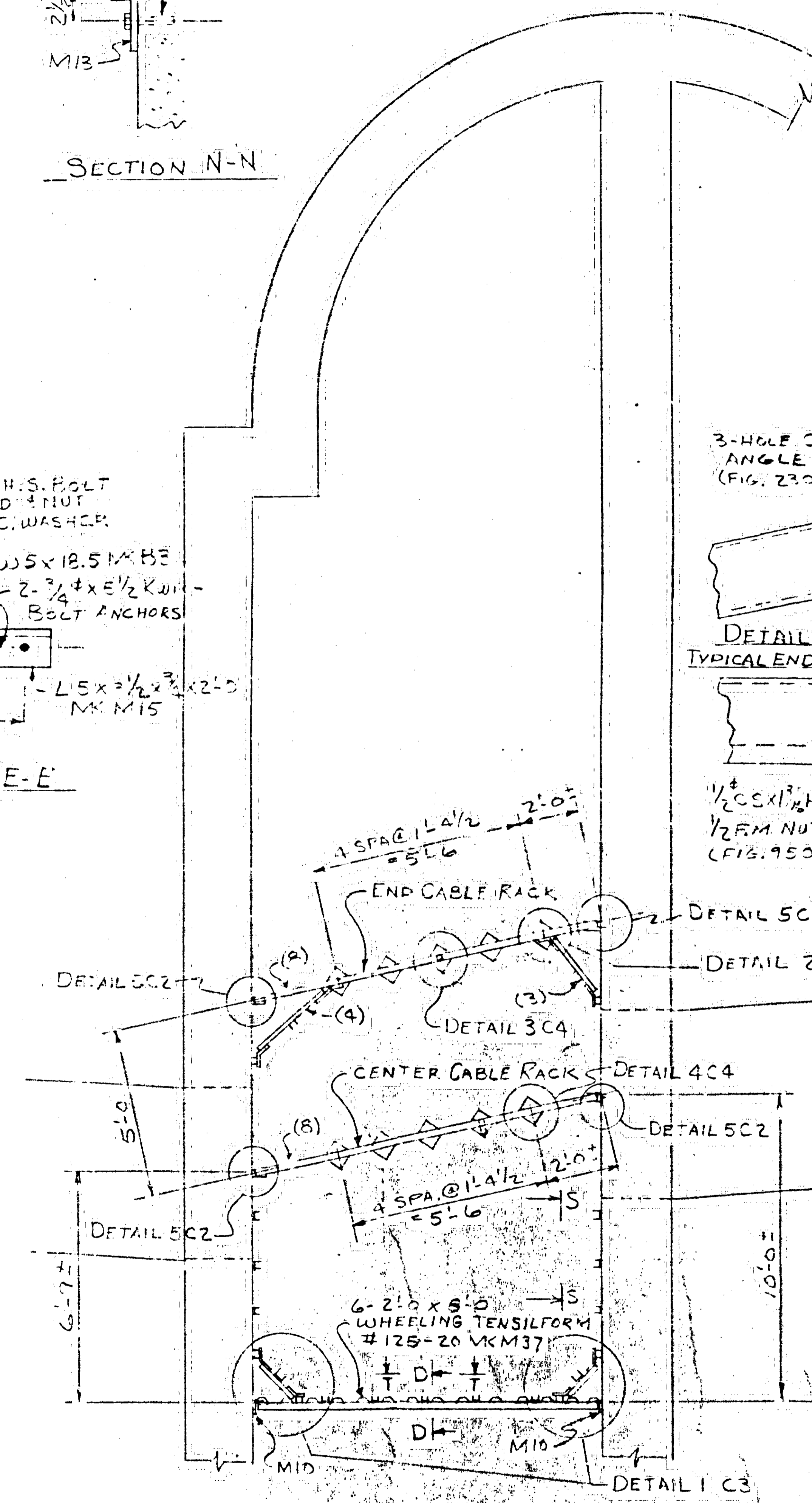
DESTROY ALL PREVIOUS PRINTS
LEWIS ENGINEERING COMPANY
5229 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 920-6161

MANHOLE DETAILS
M. H. D. - FILE

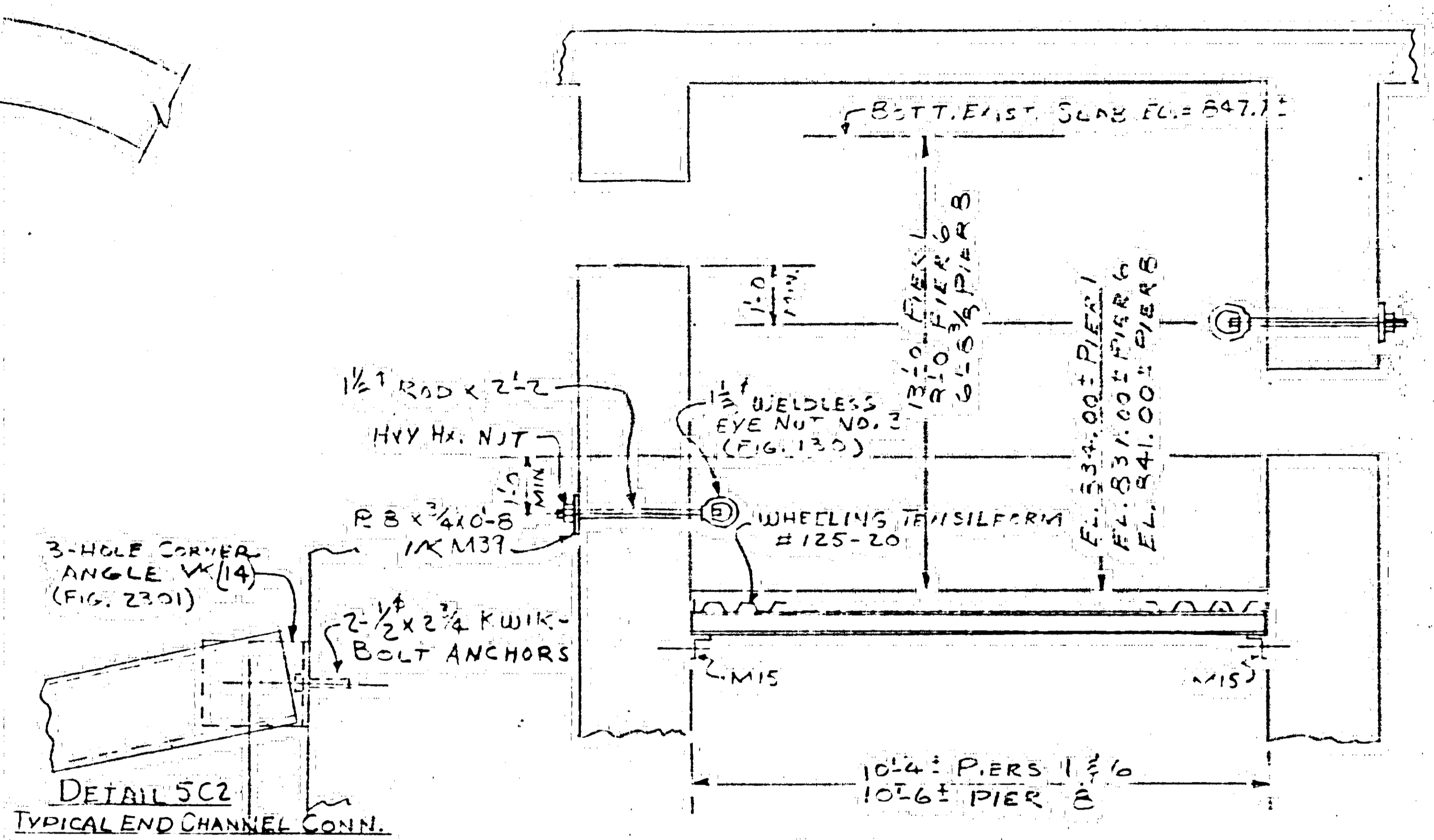
Job No. J651C
Drawn By CAD
Checked By EJS
M.H.D. Approved



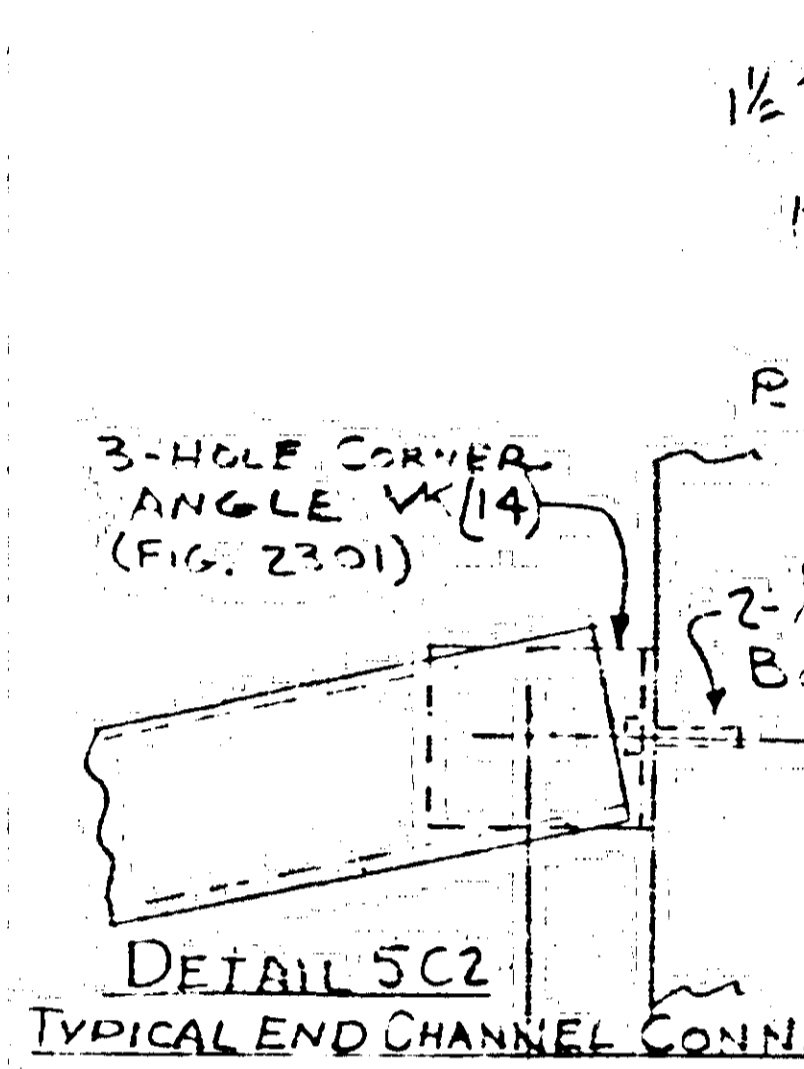
SECTION E-E



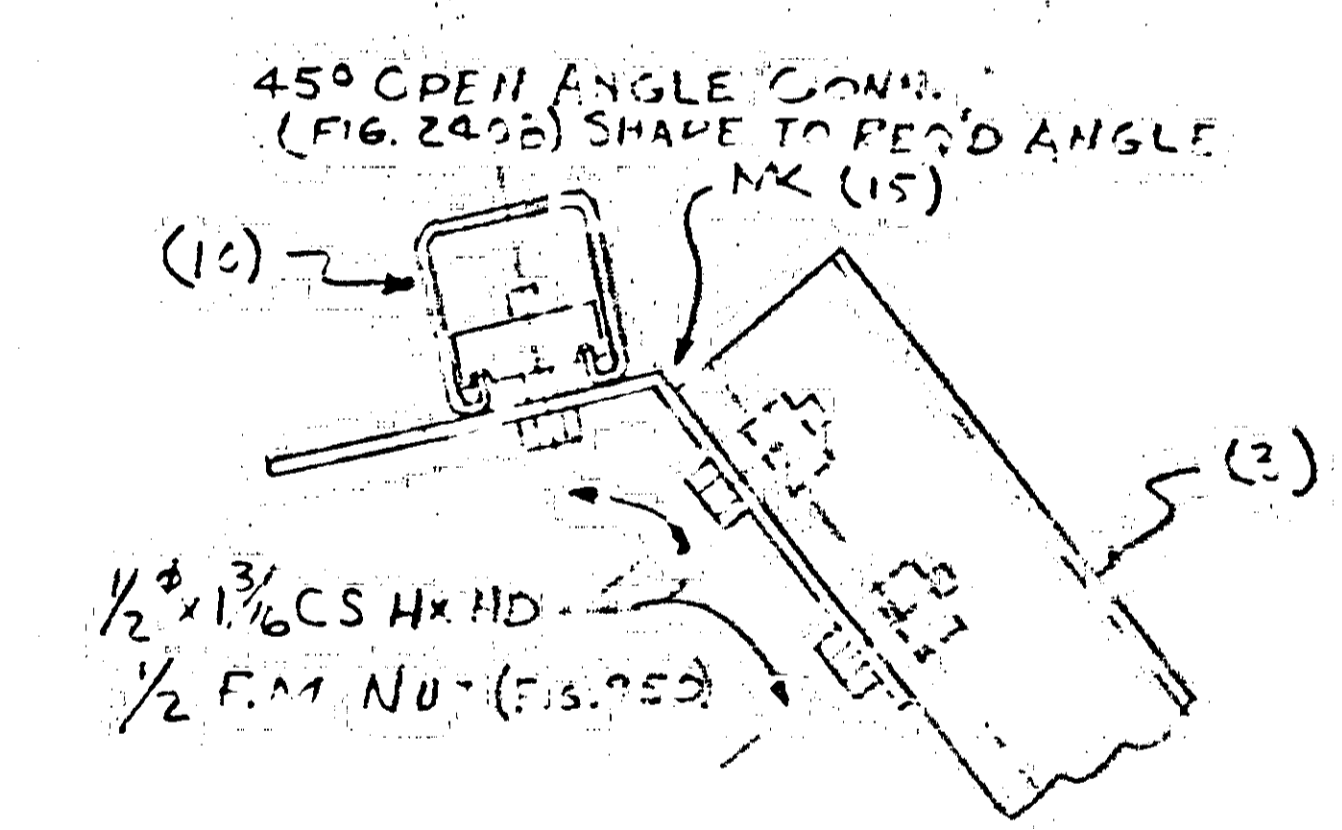
PIER 6 RACKING SETTING PLAN



SECTION A-A



DETAIL 5C2 TYPICAL END CHANNEL CONN.



DETAIL 2 TYPICAL BRACE CONN.

STATE OF MINNESOTA
DEPT. OF HIGHWAYS
Details and materials appear to
be satisfactory for the purpose
for which they are intended.

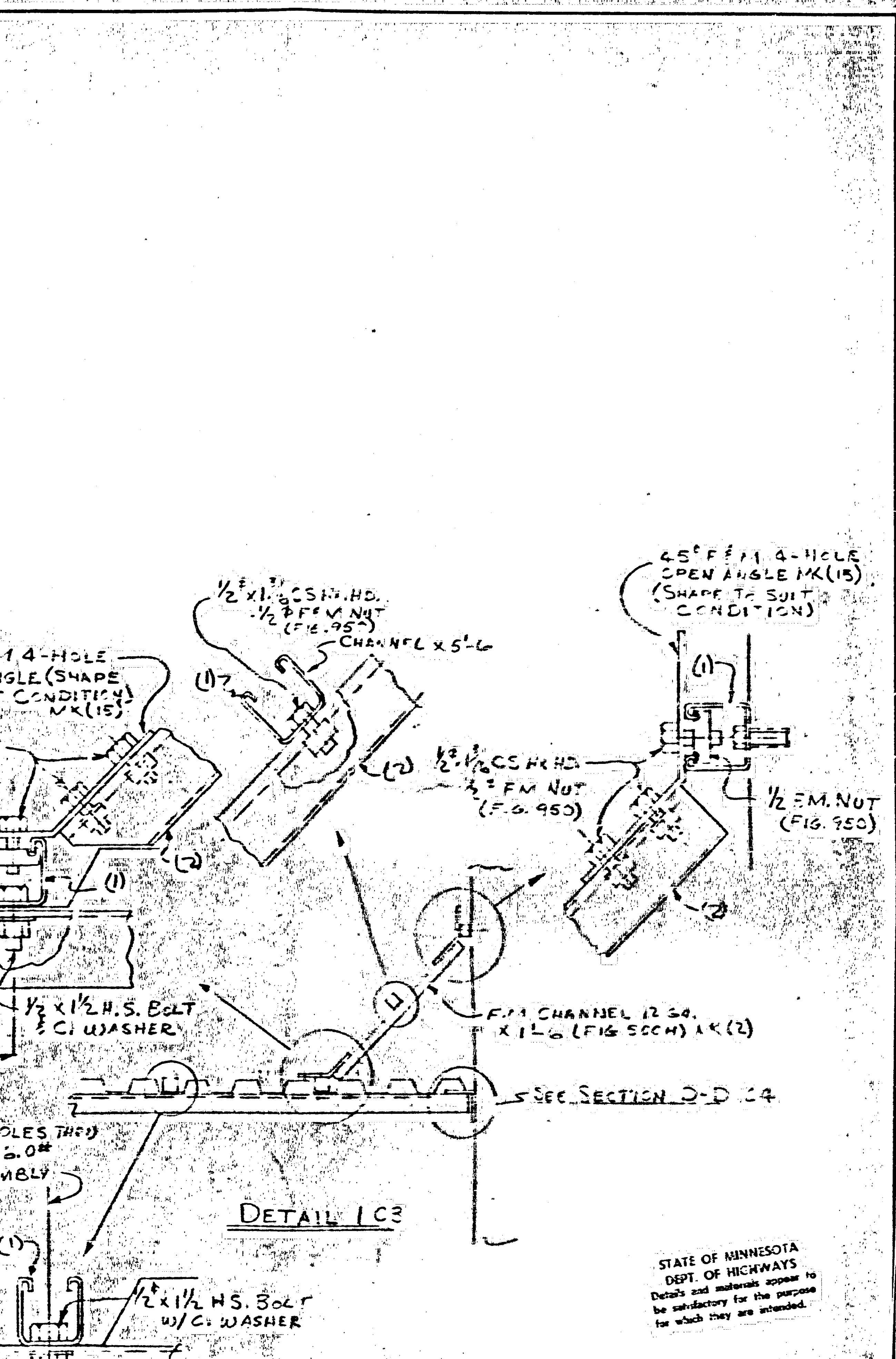
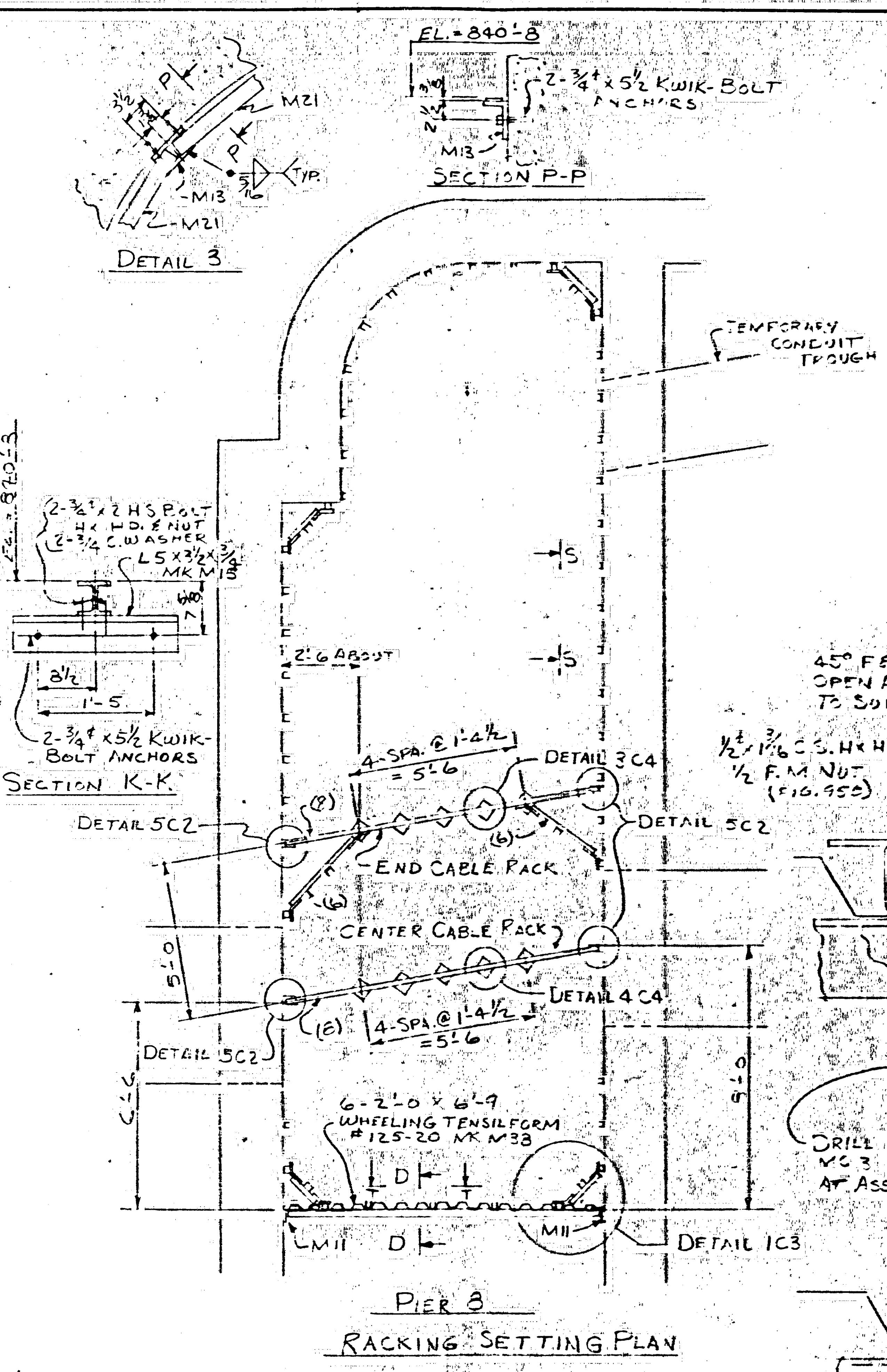
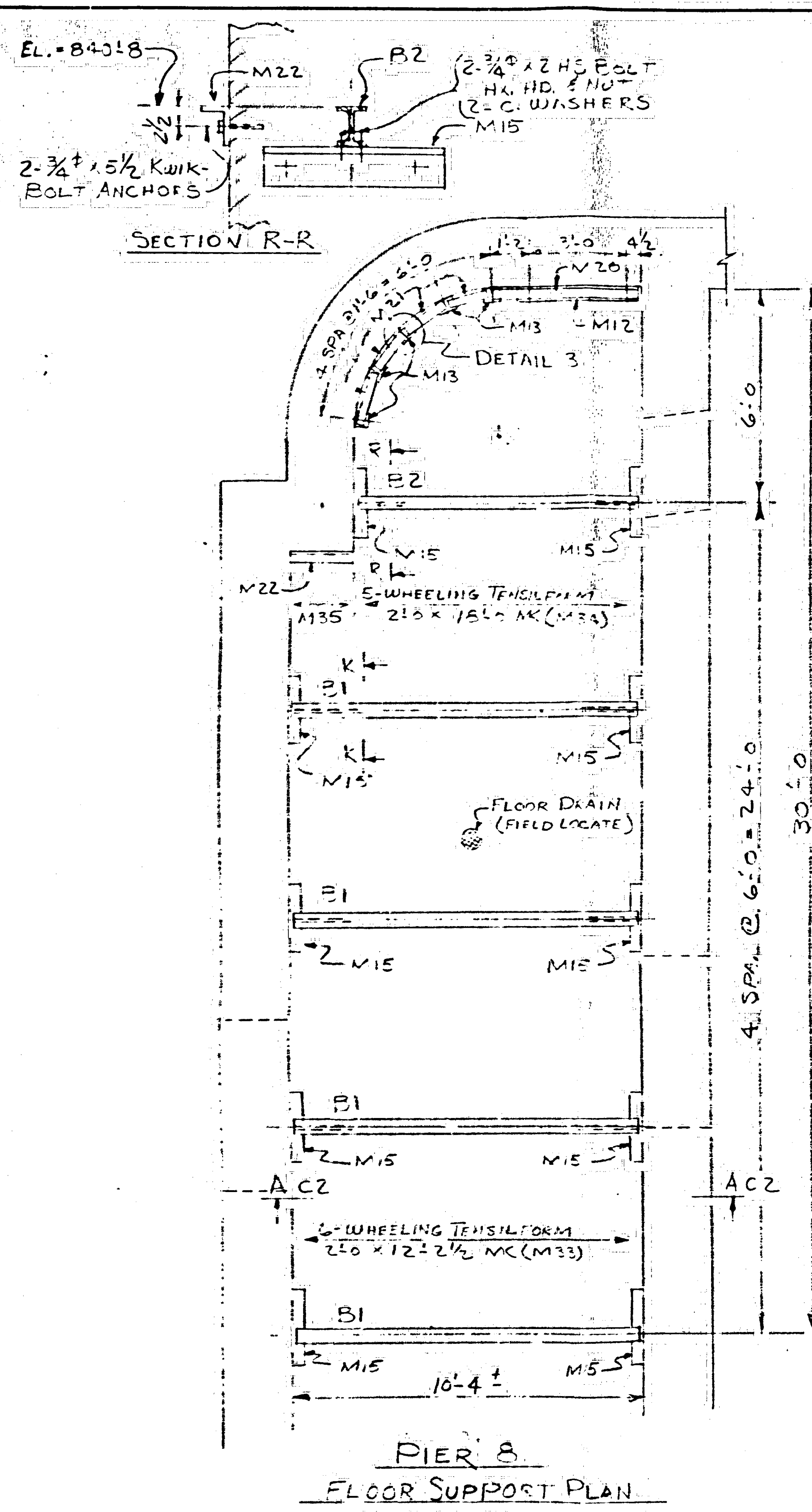
J 651C

LEWIS ENGINEERING COMPANY
5229 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 920-6161

BRIDGE NO.	- 2740
	<u>MANHOLE DETAILS</u>
STATE PROJECT NO.	-
FEDERAL PROJECT NO.	-
CONTRACTOR	- JOHNSON BROS.
LOCATION	- 3RD. AVE. BRIDGE OVER MISSISSIPPI RIVER
DESCRIPTION	- N.W.B. TELEPHONE CONDUIT

NOV 1973
REC'D
BRIDGE
DIV.

Job No. J 651C
Drawn By CAD
Checked By EAS
M.H.D. Approved



JGSIC

LEWIS ENGINEERING COMPANY
5229 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 920-6167

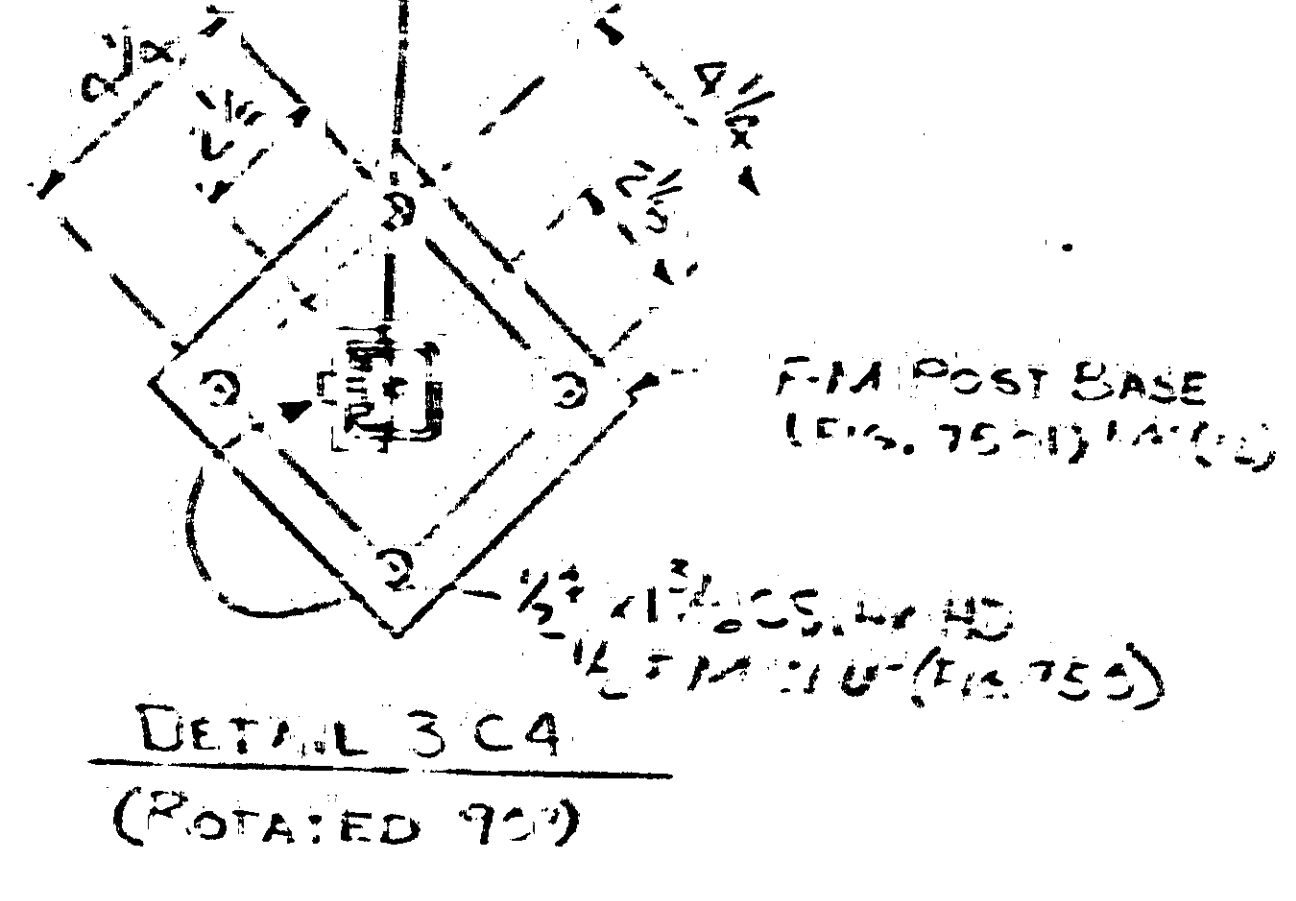
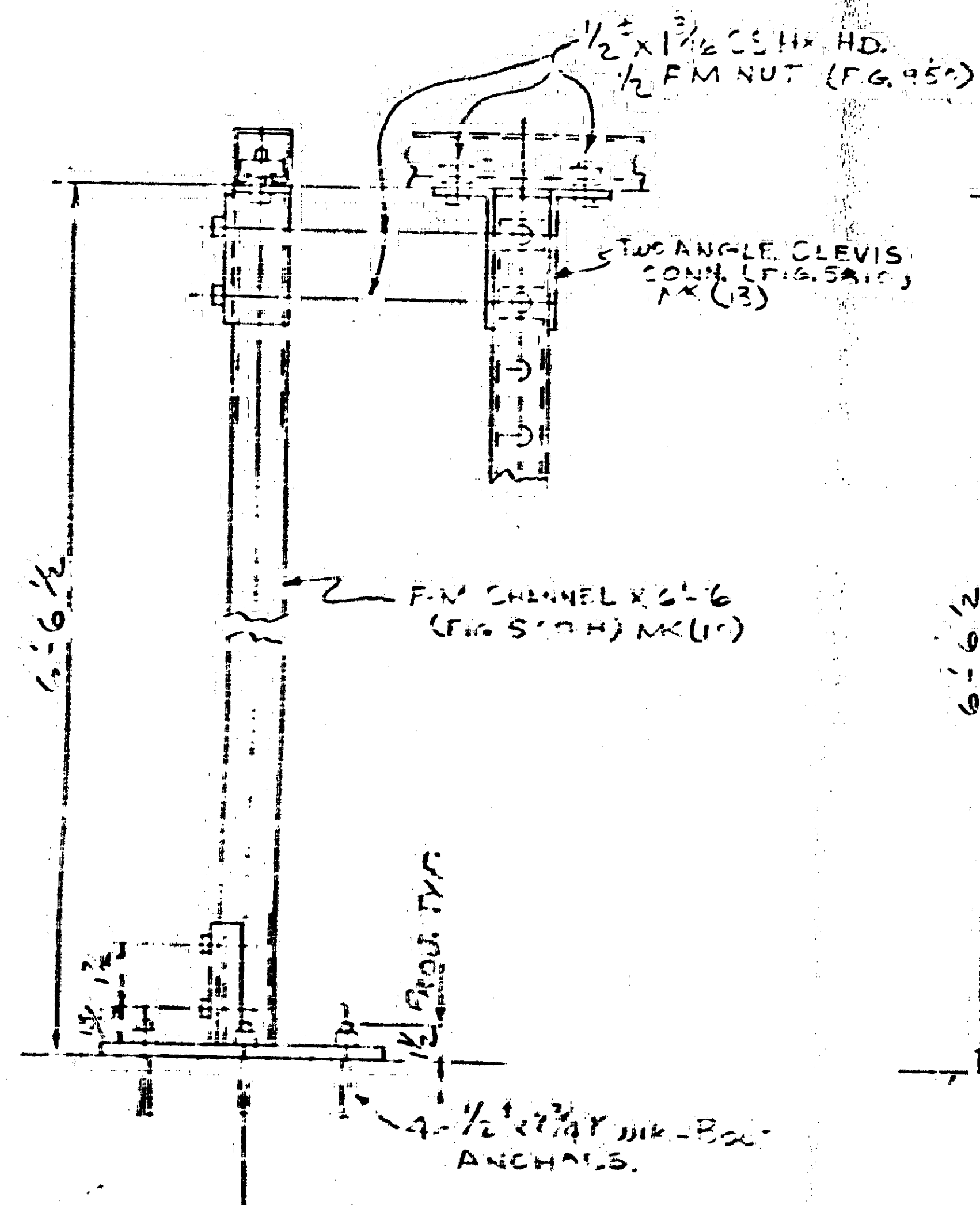
BRIDGE NO.	- 2440
	MANHOLE DETAILS
STATE PROJECT NO.	-
FEDERAL PROJECT NO.	-
CONTRACTOR	- JOHNSON ERSS.
LOCATION	- 3RD. AVE. BRIDGE OVER MISSISSIPPI RIVER
DESCRIPTION	- N.W. B.T. M.H.D. CO. FILE

Job No. JGSIC
Drawn By CAD
Checked By EPL
M.H.D. Approved

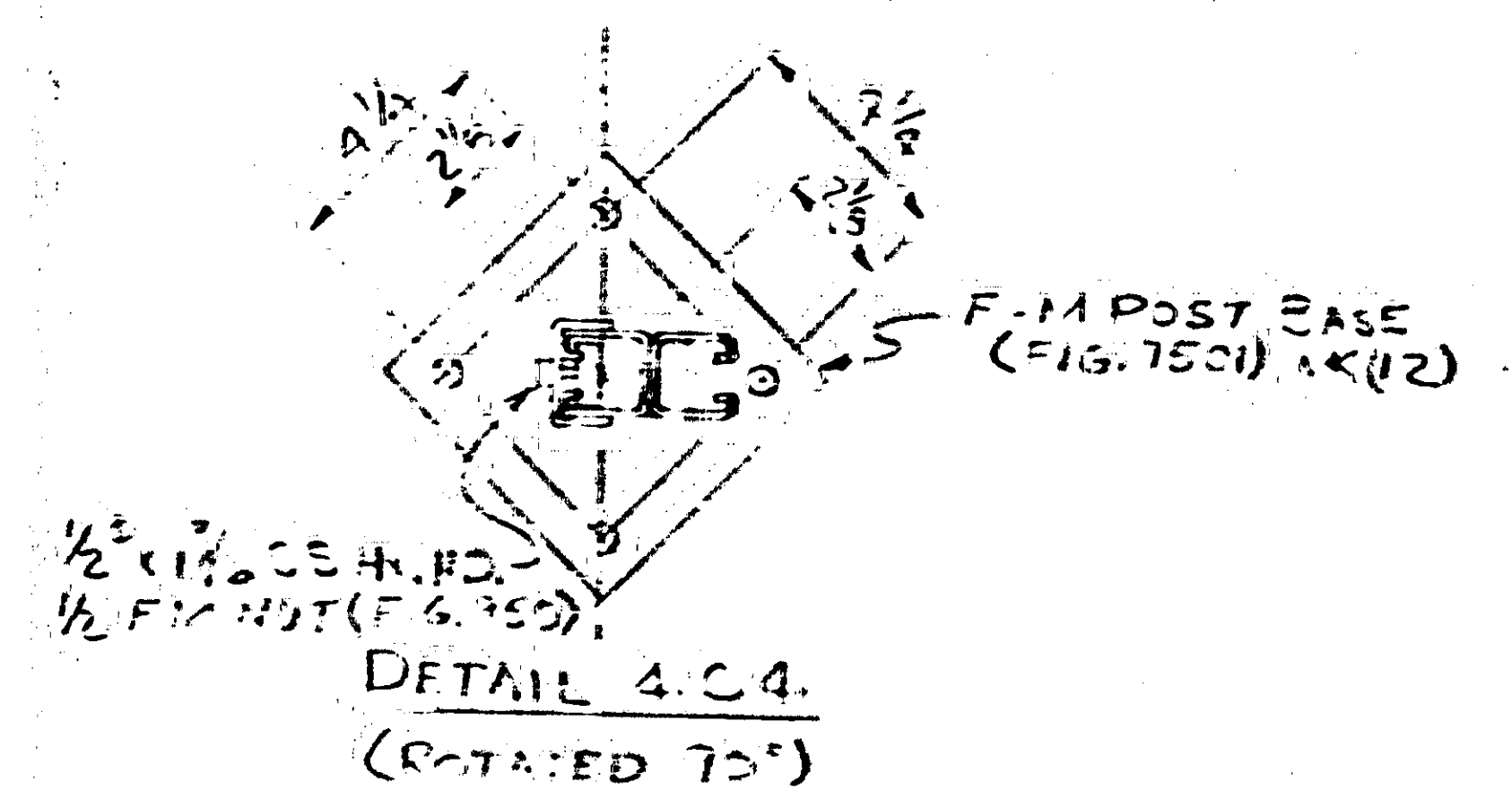
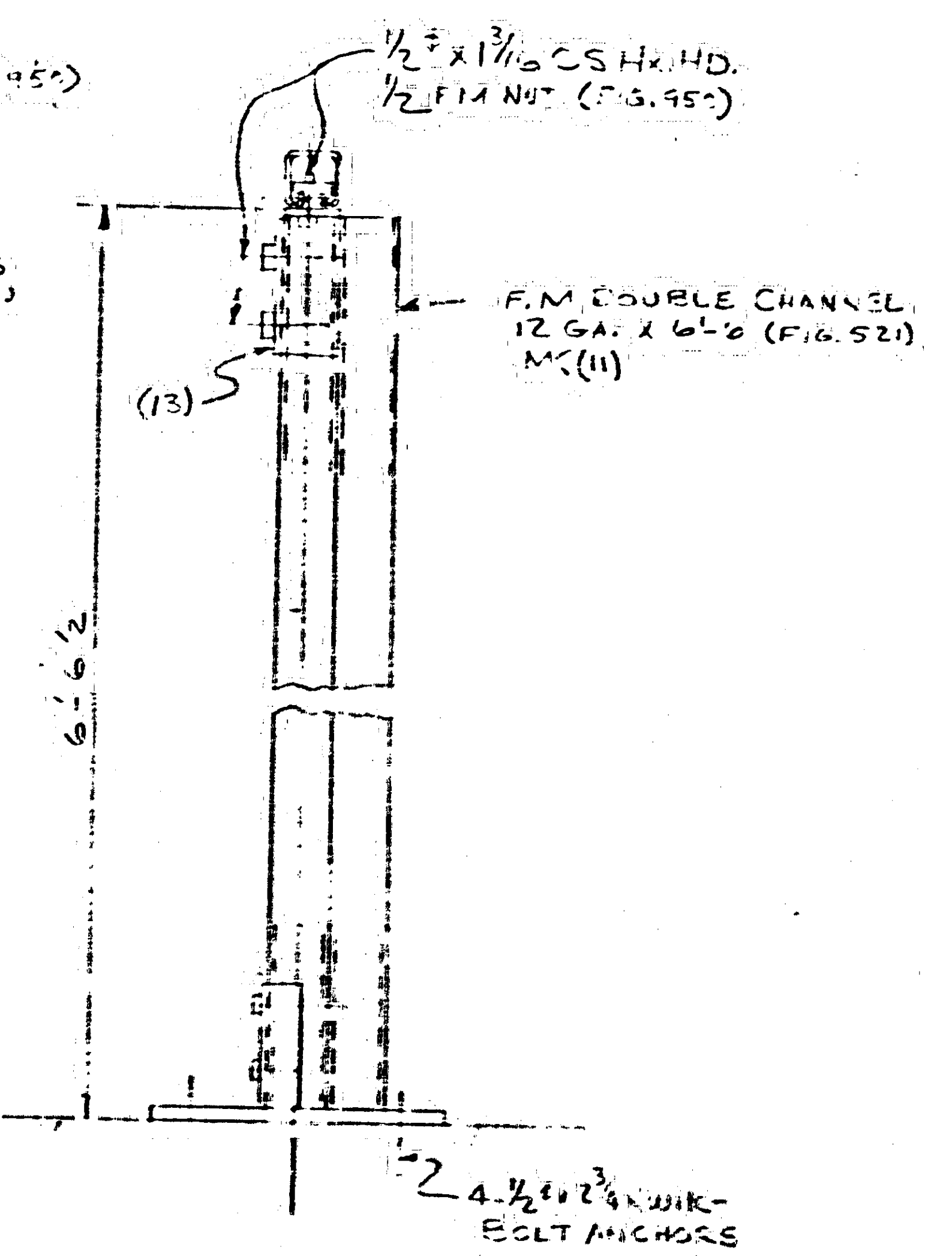
STATE OF MINNESOTA
DEPT. OF HIGHWAYS
Details and materials appear to be satisfactory for the purpose for which they are intended.

NOV 1973
REC'D
BRIDGE DIV.

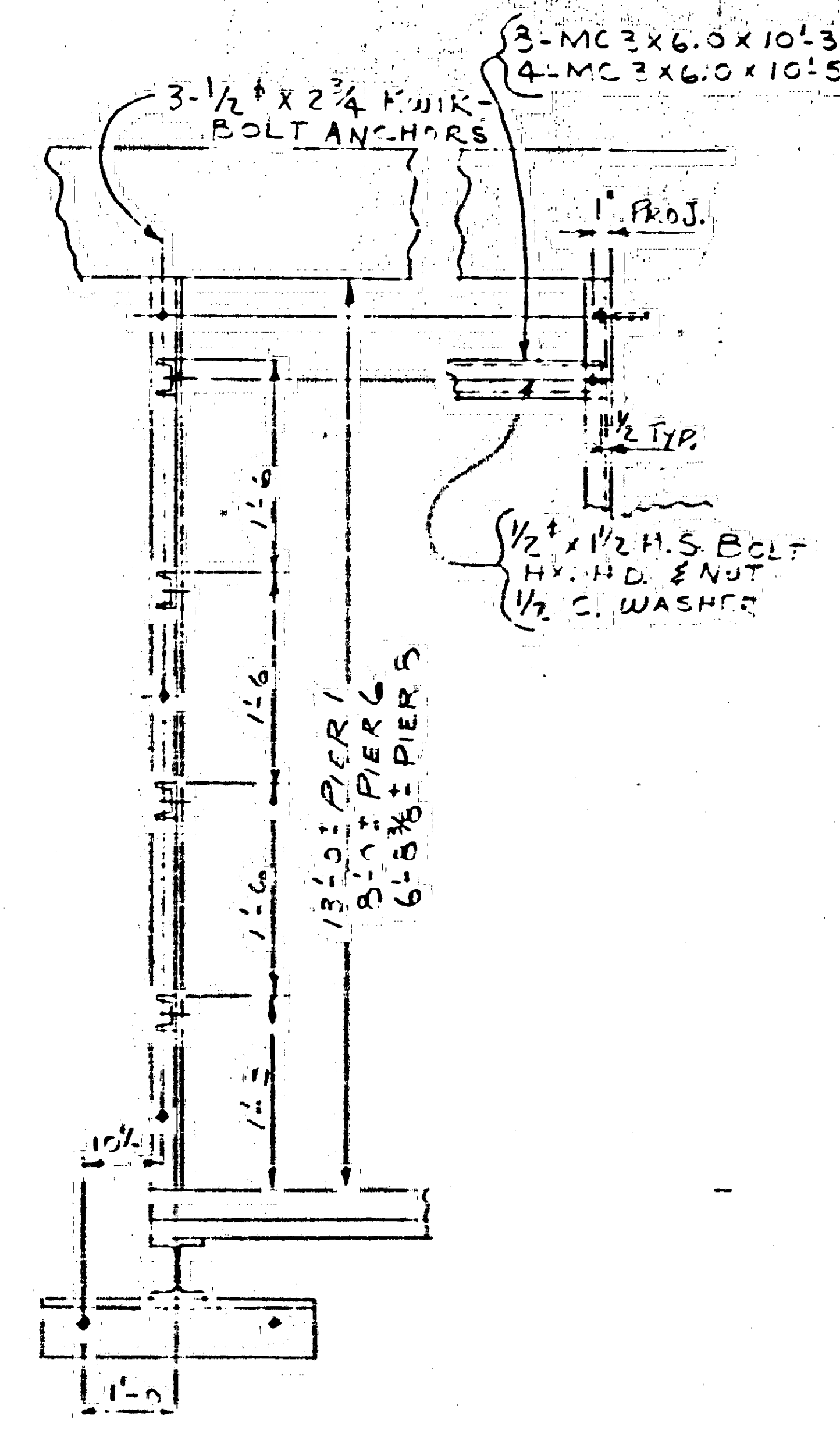
SHEET C3 OF



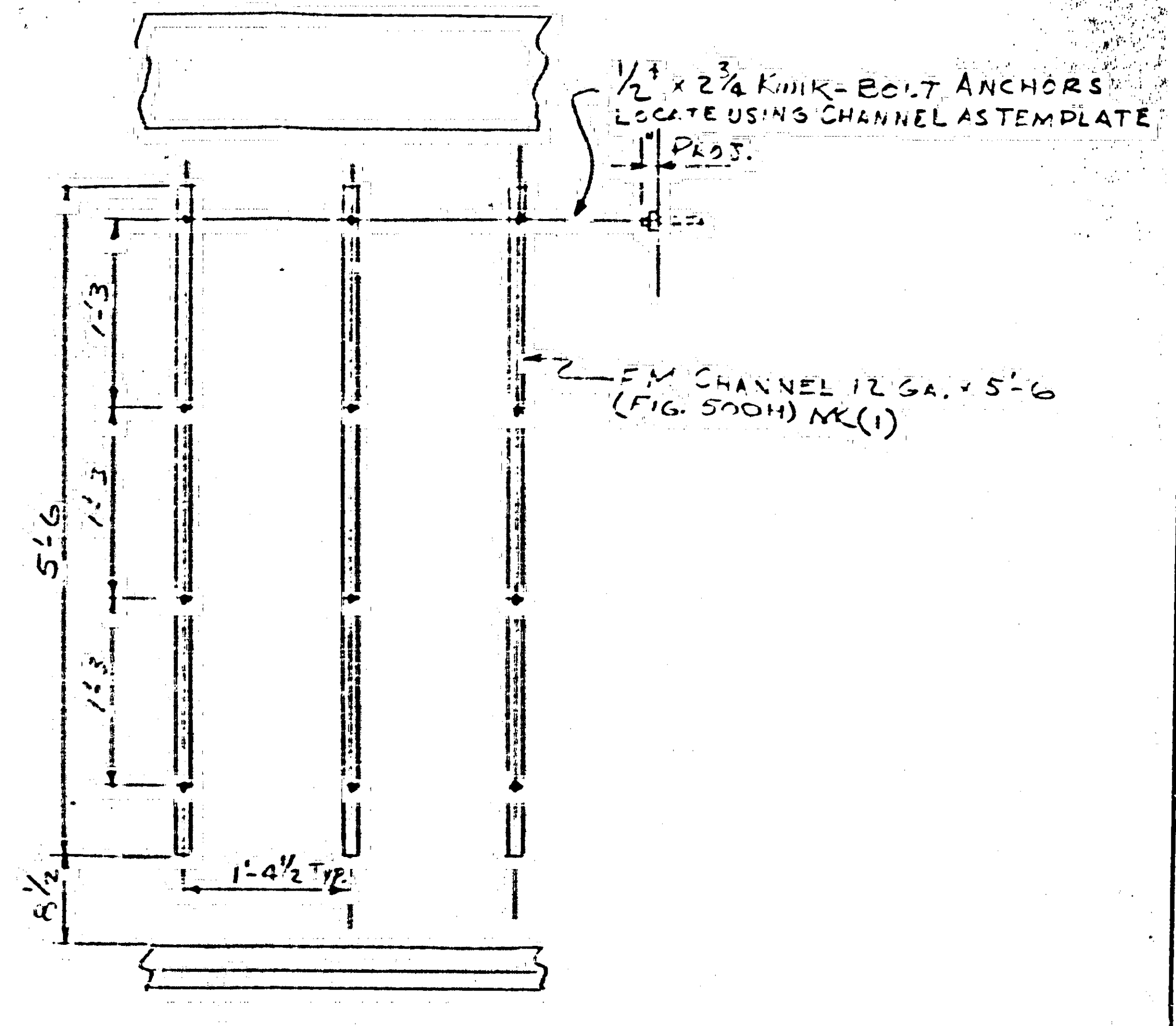
DETAIL 3 C4
(ROTATED 90°)



DETAIL 4 C4
(ROTATED 90°)



SECTION D-D

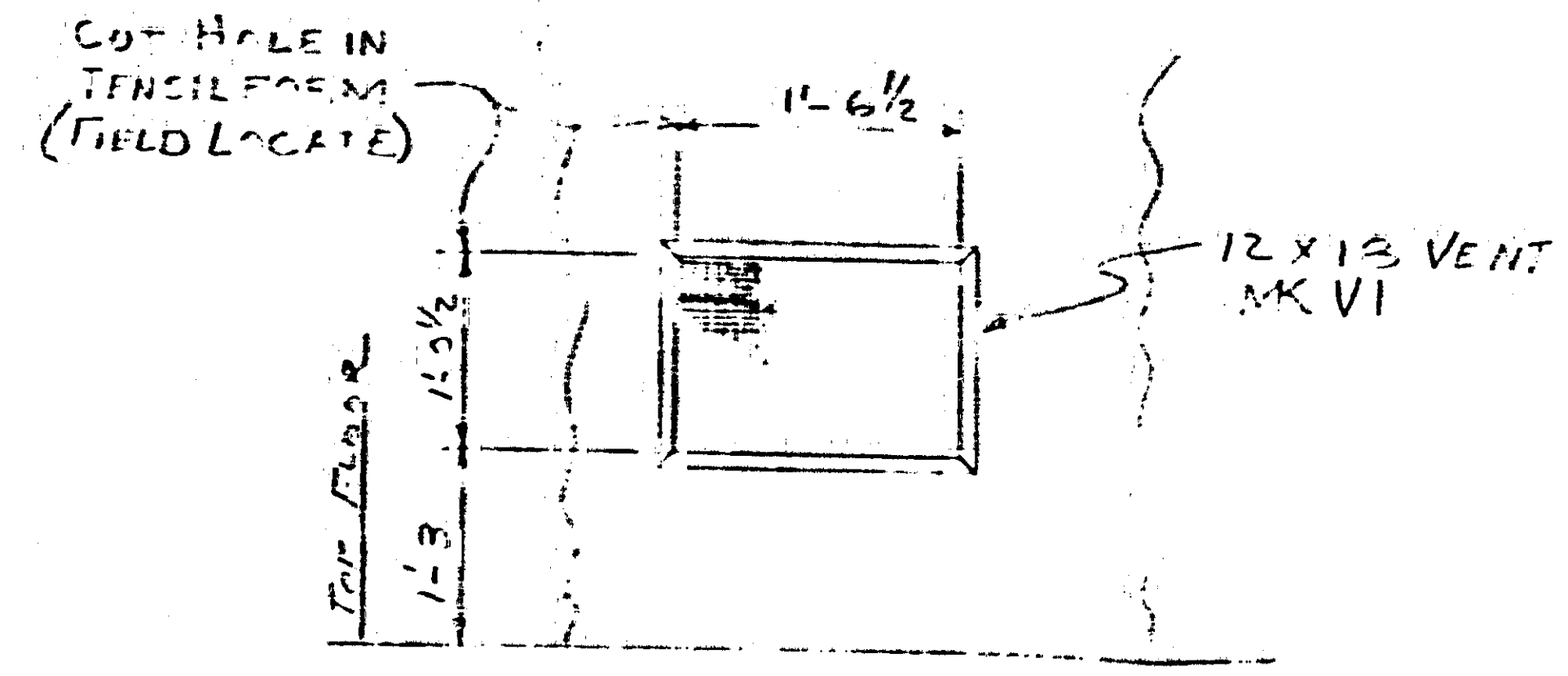


SECTION S-S
TYPICAL WALL CHANNELS

GENERAL NOTES

1. GALV. BEAMS, ANGLES & CHANNELS PER MHD 3394 AFTER FAB.
2. MAT'L TO CONFORM TO MHD 3306
3. GALV. BOLTS NUTS & WASHERS PER MHD 3392
4. ALL BEAMS, ANGLES & CHANNELS TO BE SHOP FABRICATED BEFORE GALV.
5. FIELD LOCATE ALL DRAINS - CENTER IN MANHOLE FLOOR.
6. SHOP INSPECTION BY MHD BEFORE & AFTER FAB.
7. MAT'L & WORKMANSHIP IN ACCORD. WITH MHD SPECS DATED 1-1-72 & SPECIAL PROVISIONS.

STATE OF MINNESOTA
DEPT. OF HIGHWAYS
Details and materials appear to
be satisfactory for the purpose
for which they are intended.



VIEW T-T
(TYP. MANHOLE VENT)

LEWIS ENGINEERING COMPANY
5229 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 920-8181

BRIDGE NO. - 2440
STATE PROJECT NO. -
FEDERAL PROJECT NO. -
CONTRACTOR - JOHNSON BROS.
LOCATION - 3RD. AVE. BRIDGE OVER MISSISSIPPI RIVER
DESCRIPTION - N.W. S. TELEPHONE CORP.

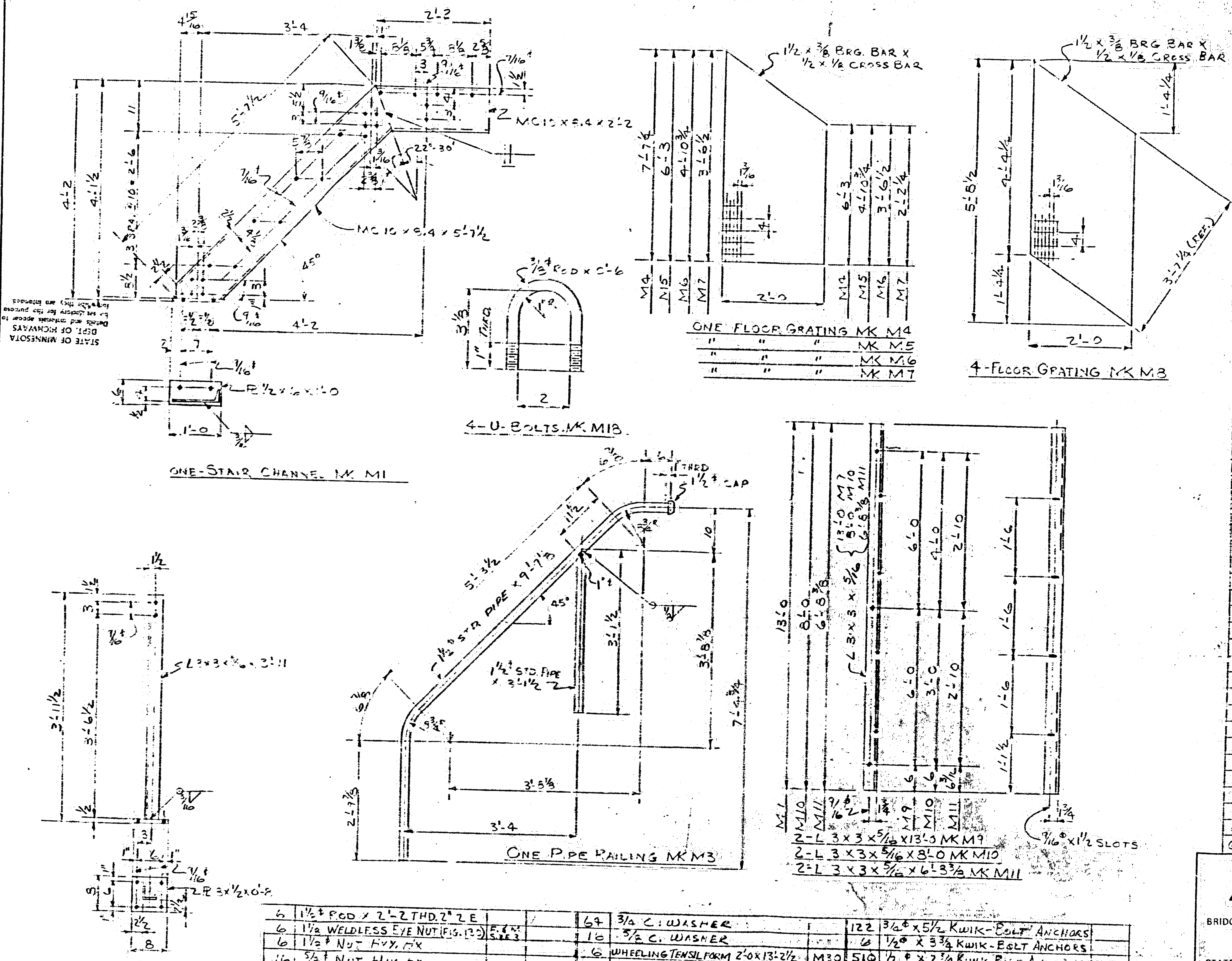
MANHOLE DETAILS

NOV 1973
REC'D
E.A.S.E.
S.I.L.

Job No. J651C
Drawn By CAD
Checked By EAS
M.H.D. Approved

M.H.D. FILE

M.H.D. FILE



QTY	DESCRIPTION	MARK	REMARKS	WT.
1	ONE STAIR CHANNEL	M1		
1	MC 10 X 8.4 X 5'-7 1/2"			
1	MC 10 X 8.4 X 2'-2"			
1	R 1/2 X 6 X 1'-0"			
1	ONE STAIR POST	M2		
1	L 3 X 3 X 3/8 X 3'-9"			
1	R 8 X 1/2 X 3'-8"			
1	ONE PIPE RAILING	M3		
1	1 1/2" STD. PIPE X 9'-9 3/8"			
1	1 1/2" STD. PIPE X 3'-1 1/2"		THRD 1 E	
1	1 1/2" CAP			
1	FLOOR GRATING 1 1/2" X 2'-0" X 7'-7 1/2"	M4		
1	X 6'-3"	M5	SEE DETAILS	
1	X 4'-10 3/4"	M6	FOR CUT	
1	X 3'-6 1/2"	M7		
4	X 5'-5 1/2"	M8		
1/6	BARS 1/2 X 1/2 X 1 1/2"			
2	L 3 X 3 X 5/8 X 13'-0"	M9		
2	X 8'-0"	M10		
2	X 6'-8 3/8"	M11		
2	STD STAIR TREADS 2" X 11 3/4" X 2'-6"	M16	GLUE GRIP STRIP 14 GA	
4	STD STAIR TREAD 2" X 9 1/2" X 2'-6"	M17		
4	U-BOLTS 3/4" ROD X 2'-6"	M18	BRIDGEWAY	
1	BAR 2 1/2 X 3/8 X 3'-0"	M19		
1	BAR 2 1/2 X 3/8 X 4'-6"	M20		
13	BAR 2 1/2 X 3/8 X 1'-6"	M21		
120	FAMET CHANNEL 12GA X 5'-6" (FIG 5004) (1)		FREE-MASSON	
36	X 1'-6"	(2)		
4	X 2'-0"	(3)		
4	X 2'-6"	(4)		
4	X 3'-0"	(5)		
8	X 3'-6"	(6)		
4	X 4'-0"	(7)		
4	X 11'-6"	(8)		
2	X 13'-0"	(9)		
15	X 6'-6"	(10)		
15	FAMET DOUBLE C 12GA X 6'-6" (F.6.52)	(11)		
30	FAMET POST BASE (FIG. 7501)	(12)		
30	FAMET Z-ANGLE CLEVIS CONN. (FIG. 5910)	(13)		
12	THREE HOLE CORNER ANGLE (FIG. 2301)	(14)		
112	45° OPEN ANGLE CONN. (FIG. 2405)	(15)		
640	1/2" X 1 1/2" CAP SCREW		FIG. 928	
640	1/2" NUT 1/8" SPRING		FIG. 950	

6	1 1/2" ROD X 2'-2 THD. 2" ZE	67	3/8" C. WASHER	122	3/4" X 5 1/2" KWIK-BOLT ANCHORS
6	1 1/2" WELDLESS EYE NUT (FIG. 130)	16	3/8" C. WASHER	6	1/2" X 3 3/8" KWIK-BOLT ANCHORS
6	1 1/2" NUT H.V. HX.	5	WHEELING TENSIFORM 2'-0 X 13'-2 1/2"	510	1/2" X 2 1/4" KWIK-BOLT ANCHORS
16	3/8" NUT H.V. HX.	6	2'-0 X 20'-0"	132	3/8" X 2 1/4" KWIK-BOLT ANCHORS
3	FLOOR DRAINS GOSAM 100 TYPE 104	7	2'-0 X 13'-0"	132	1/2" X 1 1/2" H.S. BOLT HX. HD & NUT
		6	2'-0 X 12'-2 1/2"	64	3/4" X 2" H.S. BOLT HX. HD & NUT
		5	2'-0 X 13'-0"	116	1/2" X 2" BOLT HX. HD
6	WHEELING TENSIFORM 2'-0 X 15'-2 1/2"	1	2'-0 X 2'-0"	12	3/8" X 1" BOLT HX. HD
5	2'-0 X 25'-0"	6	2'-0 X 3'-0"	12	3/8" C. WASHER
1	2'-0 X 14'-0"	6	2'-0 X 6'-9"	12	3/8" X 1" NUT

LEWIS ENGINEERING COMPANY
 5729 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 920-6161

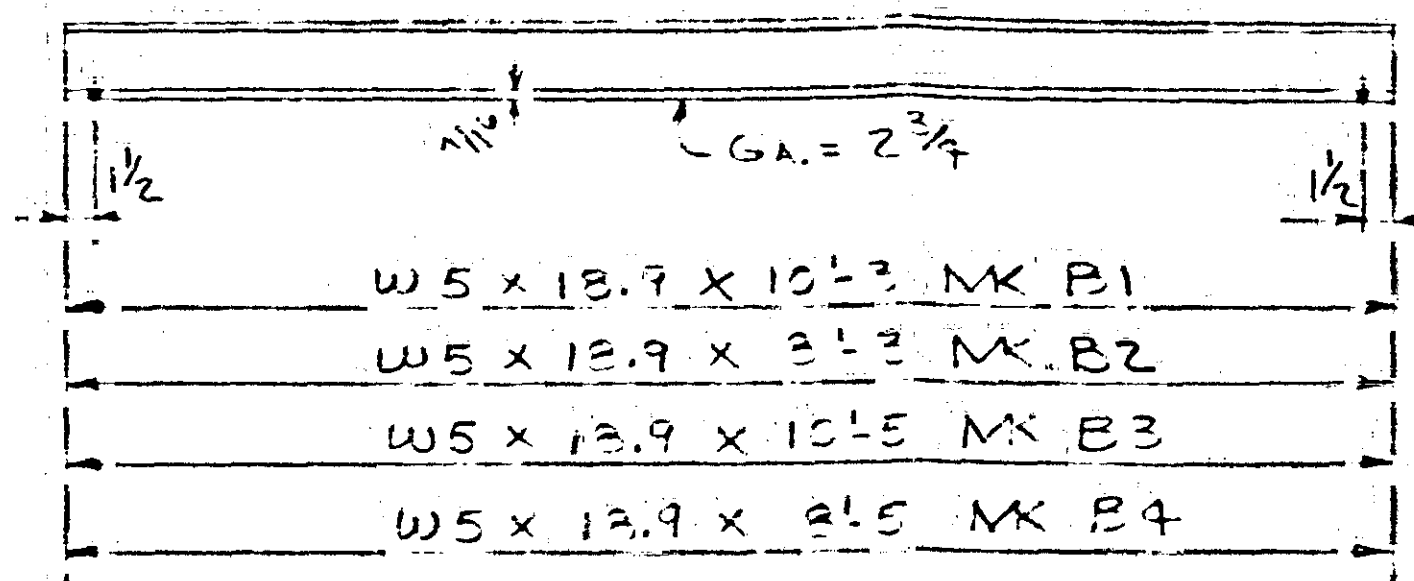
BRIDGE NO. - 2440
 MANHOLE DETAIL

STATE PROJECT NO. -
 FEDERAL PROJECT NO. -
 CONTRACTOR - JOHNSON, EROS
 LOCATION - 3RD AVE. BRIDGE OVER MISSISSIPPI RIVER
 DESCRIPTION - N.W.B. TELEPHONE CONDUIT

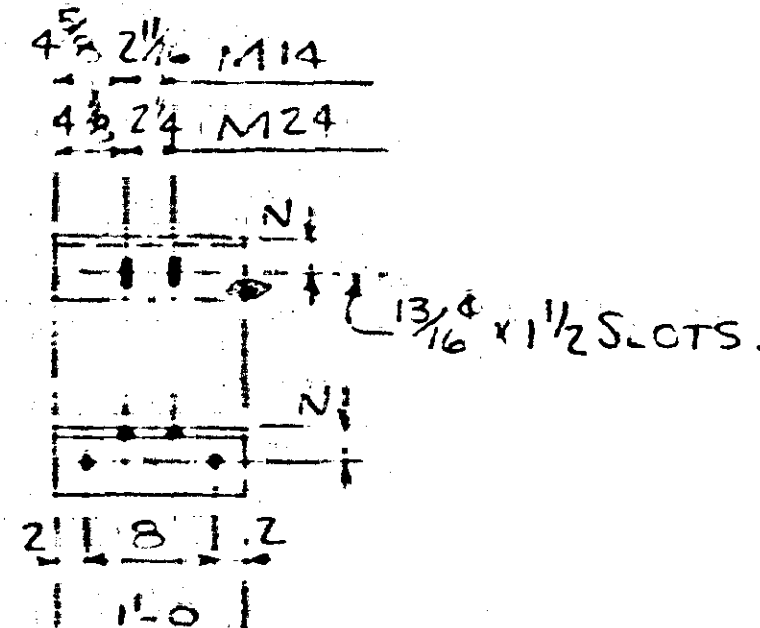
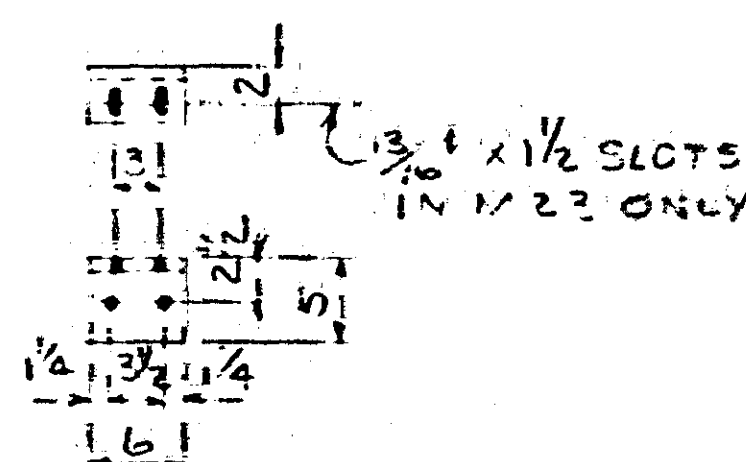
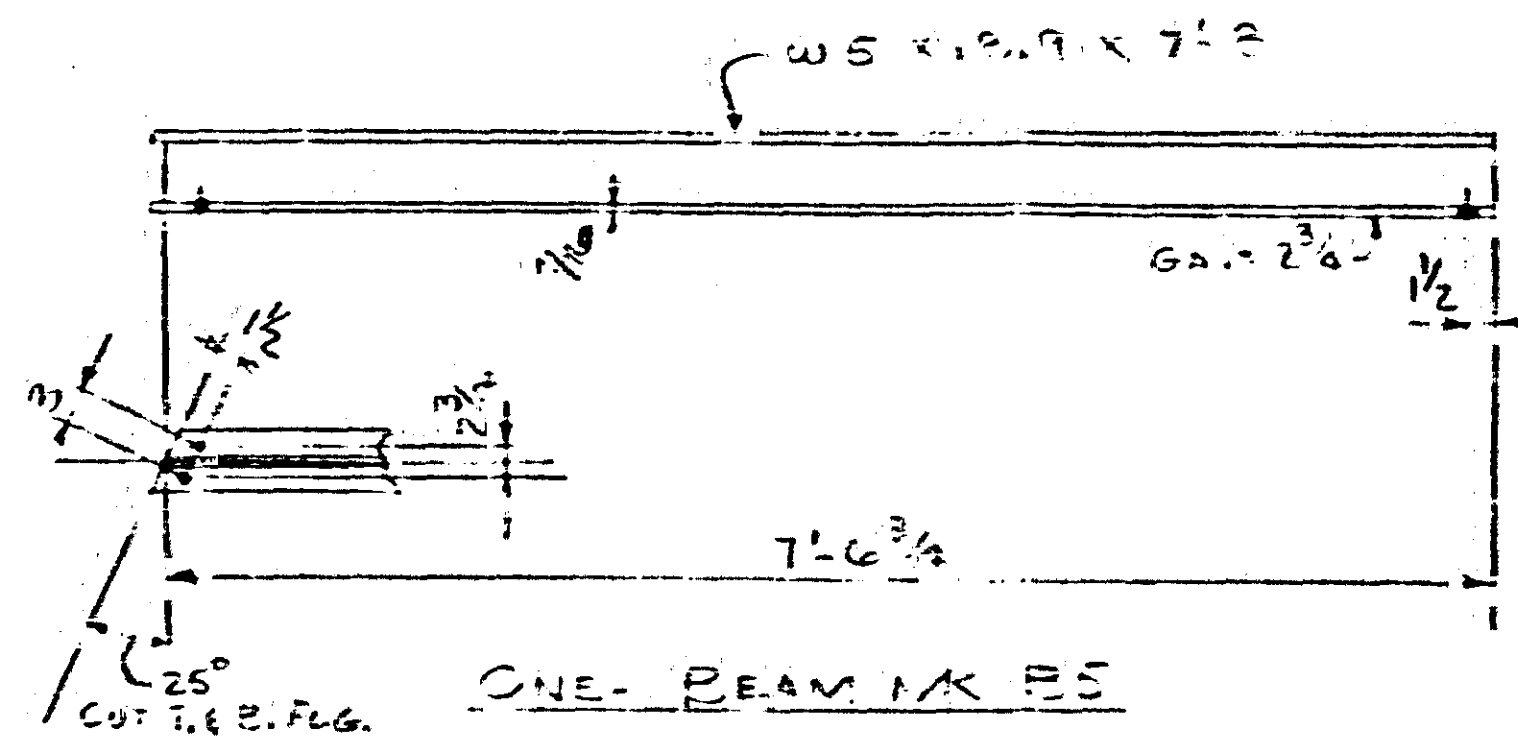
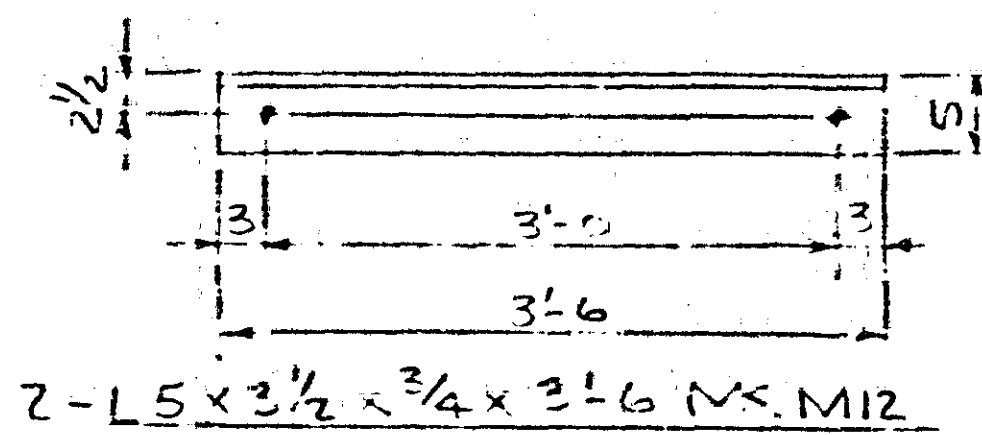
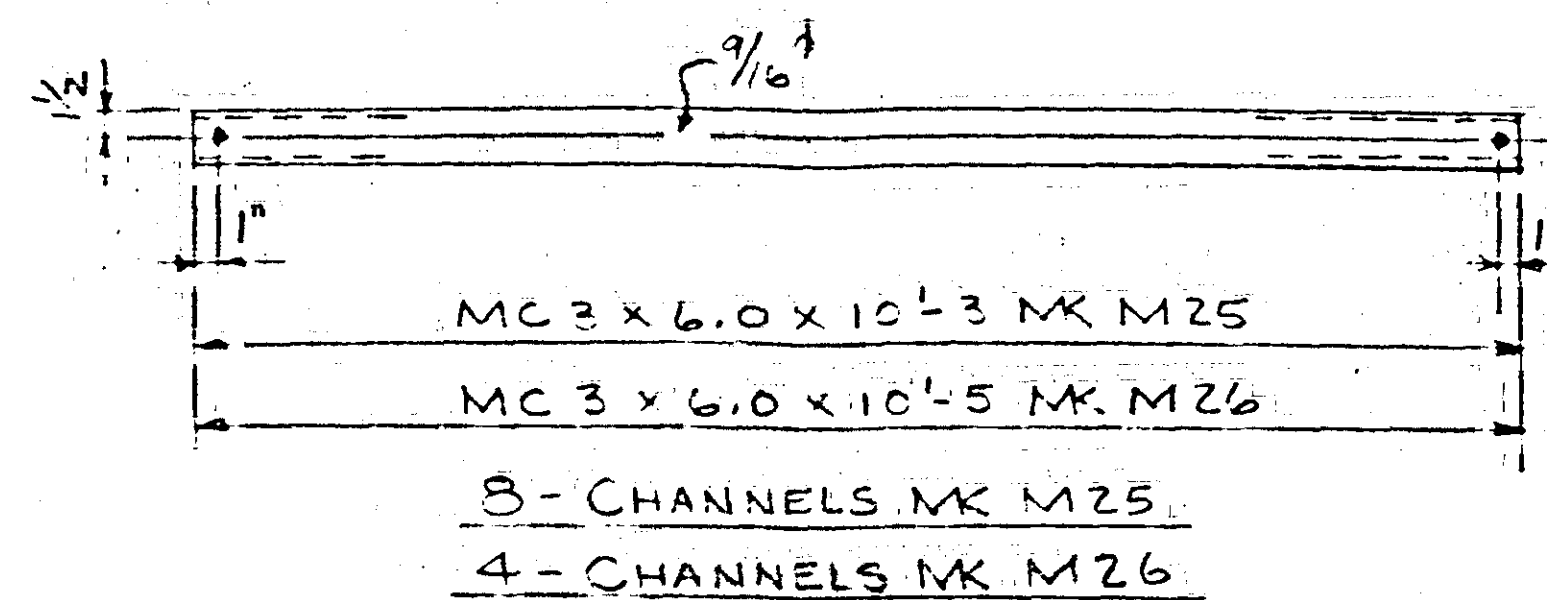
Job No. - J651C
 Drawn By CAD
 Checked By CAS
 M.H.D. Approved

NOV 15 1973
 REC'D
 BRIDGE DIV.

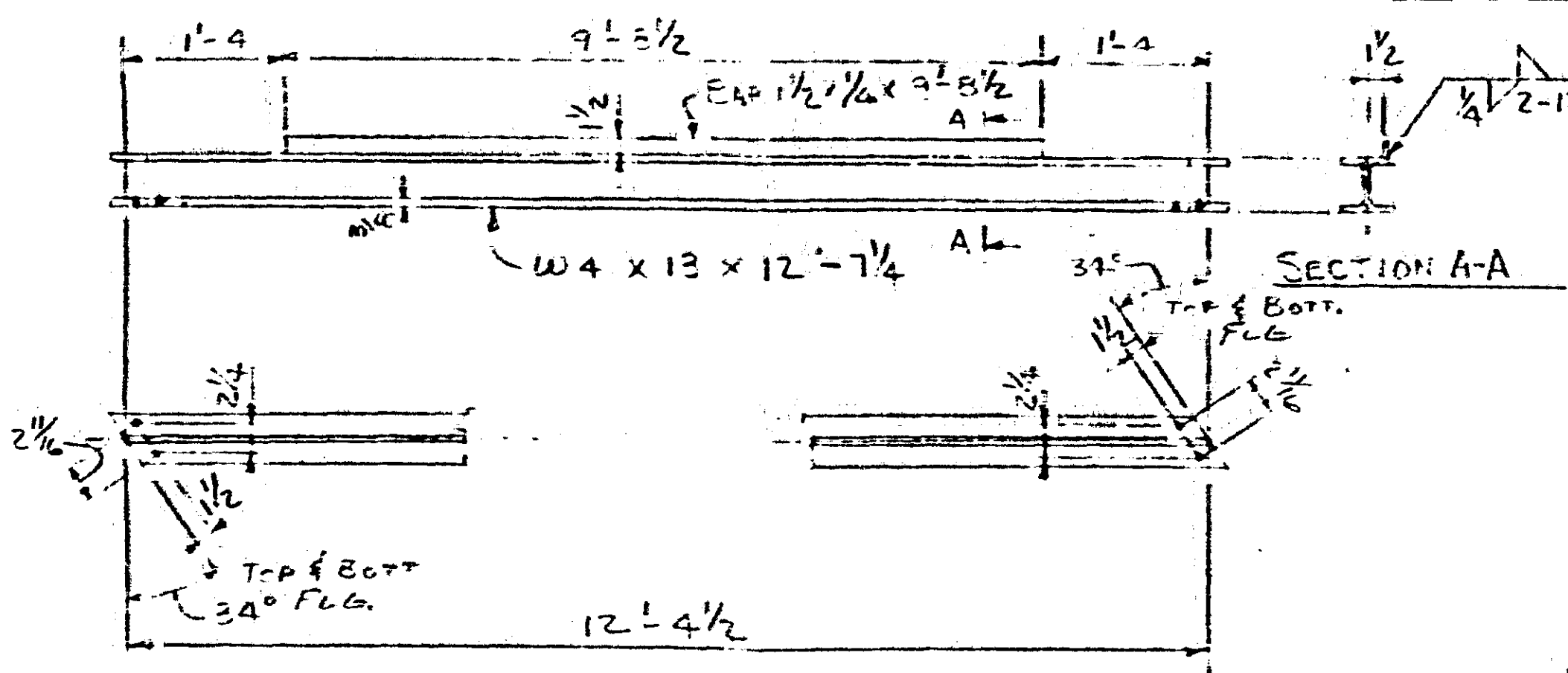
SHEETS OF



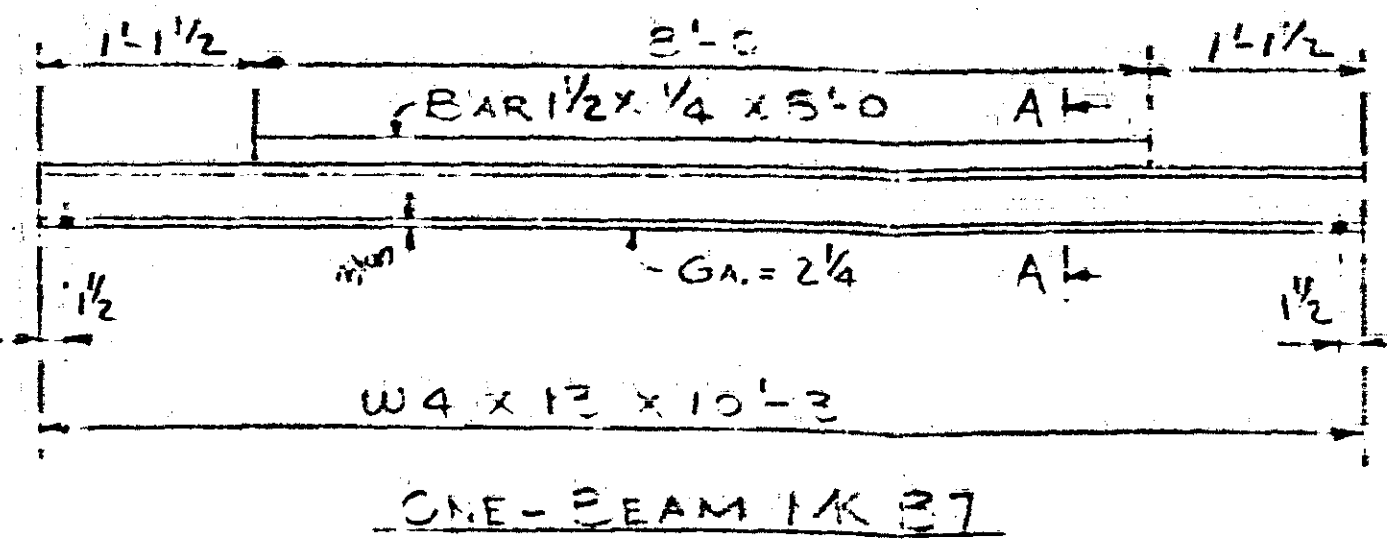
3-BEAMS MK B1
 2-BEAMS MK B2
 4-BEAMS MK B3
 ONE-BEAM MK B4



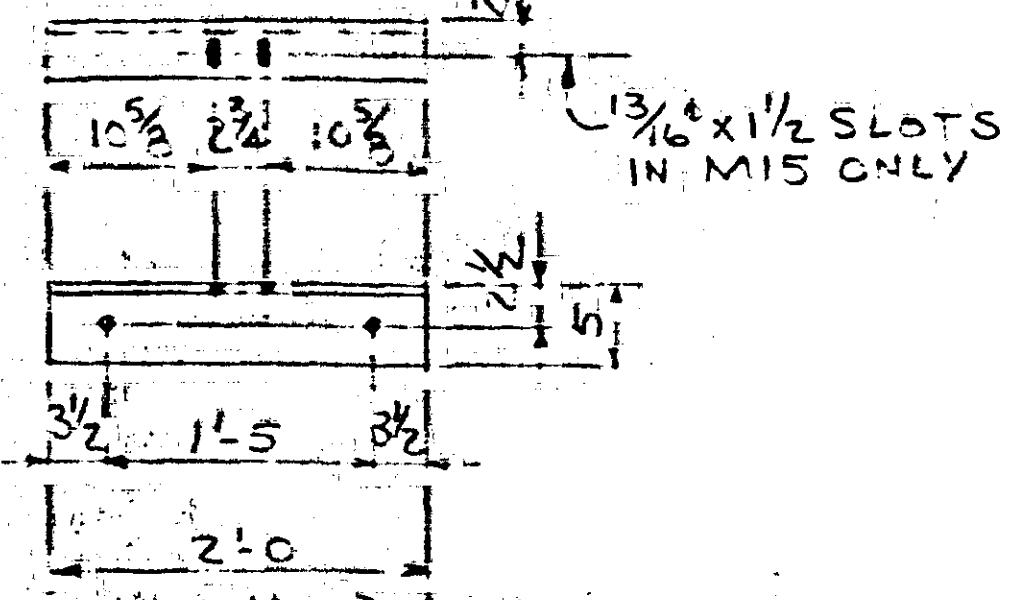
15-L5 x 3 1/2 x 3/4 x 0'-6 MK M13
 1-L5 x 3 1/2 x 3/4 x 0'-6 MK M23
 6-L4 x 4 x 1/2 x 1'-0 MK M14
 2-L4 x 4 x 1/2 x 1'-0 MK M24



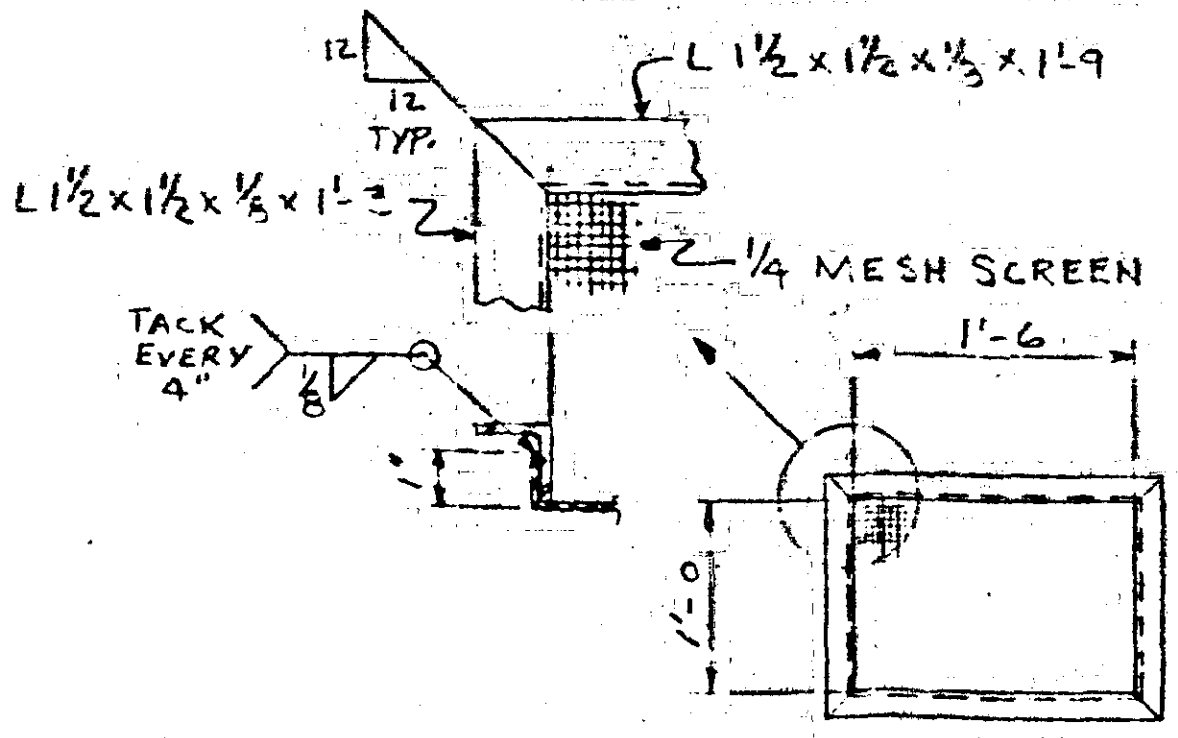
3-BEAMS MK B6



ONE-BEAM MK B7

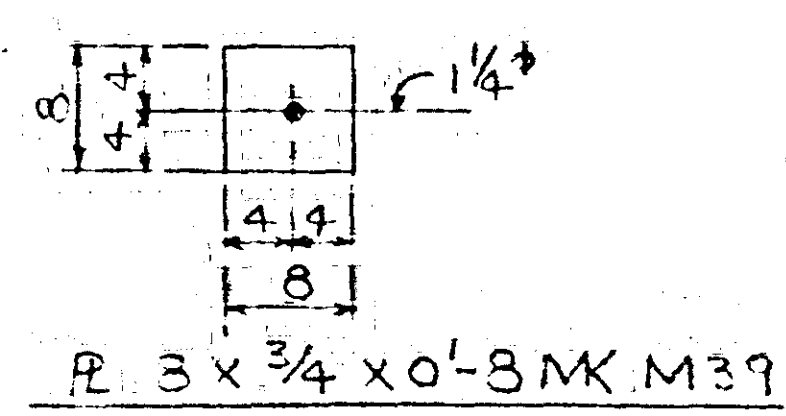


31-L5 x 3 1/2 x 3/4 x 2'-0 MK M15
 3-L5 x 3 1/2 x 3/4 x 2'-0 MK M22



3-VENTILATORS MK VI

NOTE:
 ALL HOLES 13/16" UNLESS NOTED



Job No. J651C
 Drawn By CAD
 Checked By CAS
 M.H.D. Approved

QTY	DESCRIPTION	MARK	REMARK	WT
8	BEAMS MK B1	B1		
2	BEAMS MK B2	B2		
4	BEAMS MK B3	B3		
1	BEAM MK B4	B4		
1	BEAM MK B5	B5		
3	BEAMS MK B6	B6		
3	BEAMS 1 1/2 x 1/4 x 9'-9 1/4			
1	BEAM MK B7	B7		
1	BAR 1 1/2 x 1/4 x 8'-0			
8	CHANNELS MK M25	M25		
4	CHANNELS MK M26	M26		
2	L5 x 3 1/2 x 3/4 x 3'-6	M12		
16	L5 x 3 1/2 x 3/4 x 0'-6	M13		
1	L5 x 3 1/2 x 3/4 x 0'-6	M23		
31	L5 x 3 1/2 x 3/4 x 2'-0	M15		
3	L5 x 3 1/2 x 3/4 x 2'-0	M22		
6	L4 x 4 x 1/2 x 1'-0	M14		
2	L4 x 4 x 1/2 x 1'-0	M24		
3	VENTILATORS MK VI			
2	L 1 1/2 x 1 1/2 x 1/8 x 1'-9			
2	L 1 1/2 x 1 1/2 x 1/8 x 1'-3			
1	SCREEN 1/4 MESH x 14 x 20			
6	RS 3 x 3/4 x 0'-8	M39		

STATE OF MINNESOTA
 DEPT. OF HIGHWAYS
 Details and materials appear to
 be satisfactory for the purpose
 for which they are intended.

LEWIS ENGINEERING COMPANY
 5229 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 920-6161

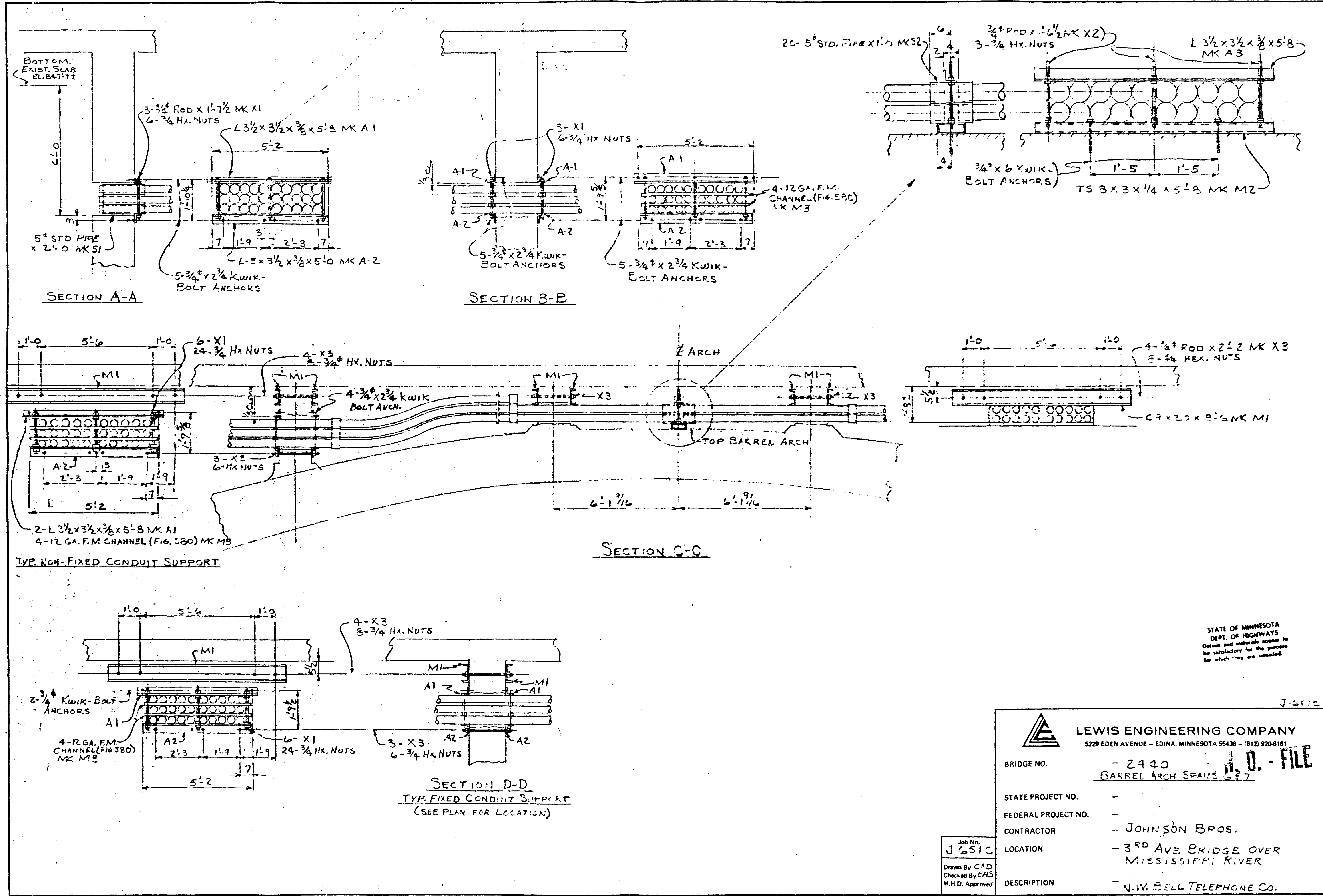
BRIDGE NO. - 2440
 MANHOLE DETAIL

STATE PROJECT NO. -
 FEDERAL PROJECT NO. -
 CONTRACTOR - JOHNSON BROS.
 LOCATION - 3RD AVE. BRIDGE OVER MISSISSIPPI RIVER
 DESCRIPTION - N.W. B. TELEPHONE CONDUIT

Job No. J651C
 Drawn By CAD
 Checked By CAS
 M.H.D. Approved

NOV 1975
 REC'D.
 SUPERVISOR

FILE



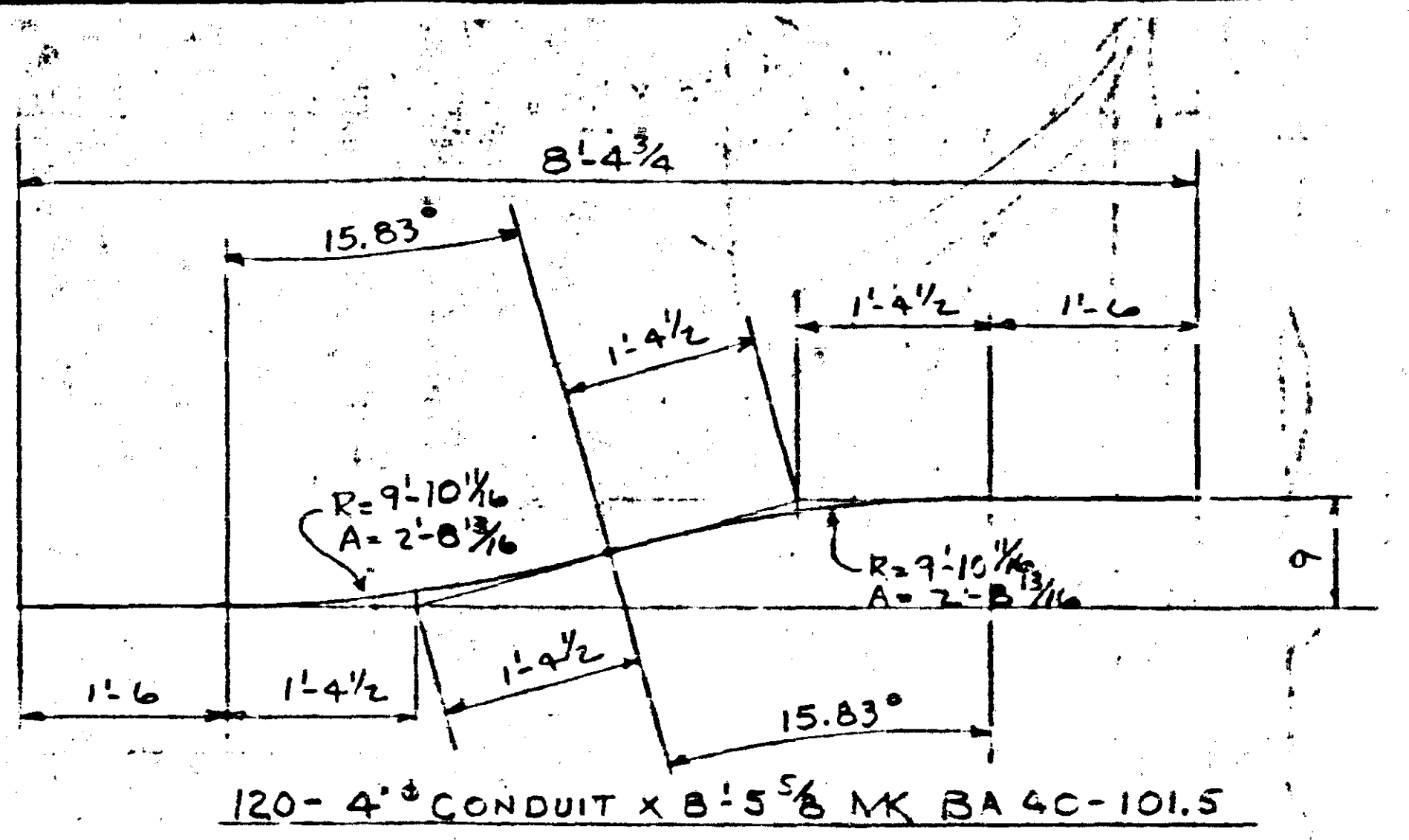
STATE OF MINNESOTA
 DEPT. OF HIGHWAYS
 Details and materials appear to
 be satisfactory for the purposes
 for which they are intended.

LEWIS ENGINEERING COMPANY
 5229 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 920-6181

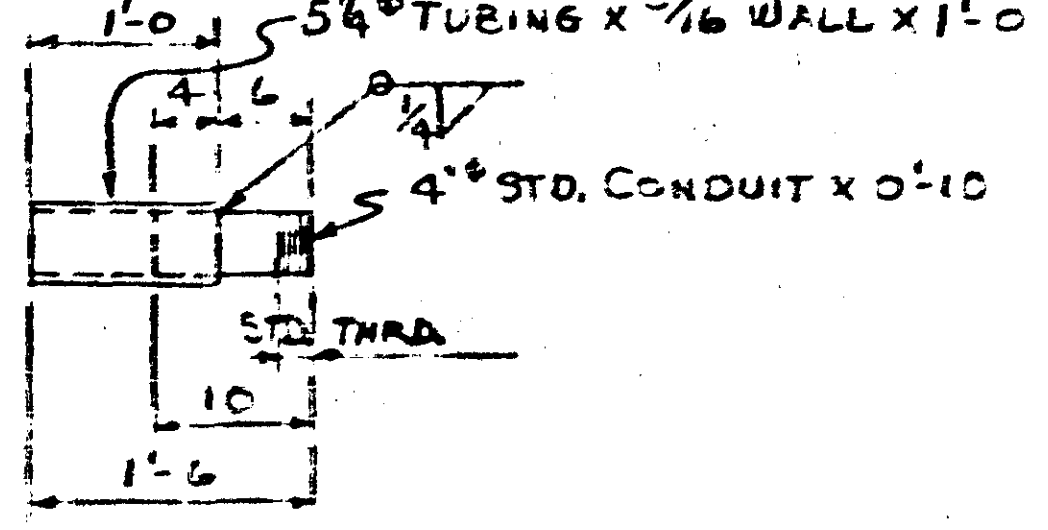
BRIDGE NO. - 2440
 BARREL ARCH SPAN'S 627

STATE PROJECT NO. -
 FEDERAL PROJECT NO. -
 CONTRACTOR - JOHNSON BROS.
 LOCATION - 3RD AVE. BRIDGE OVER MISSISSIPPI RIVER
 DESCRIPTION - N.W. BELL TELEPHONE CO.

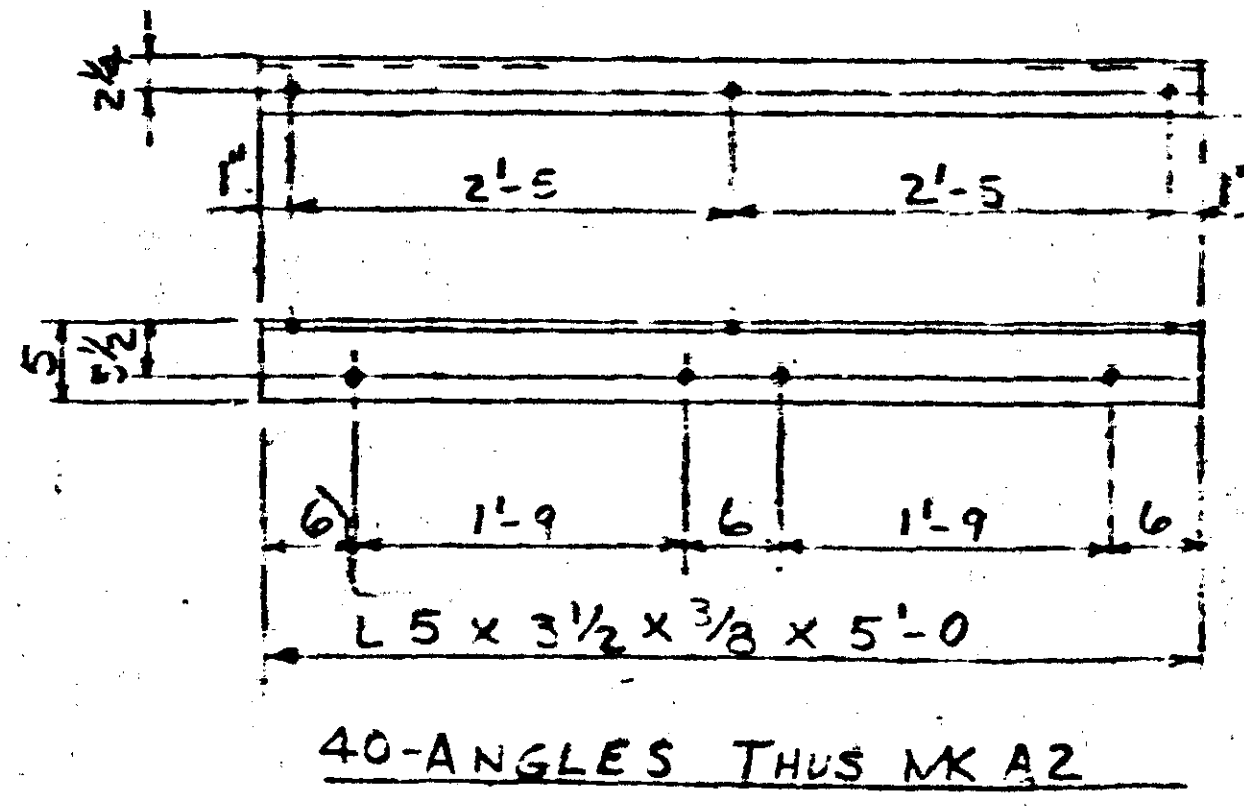
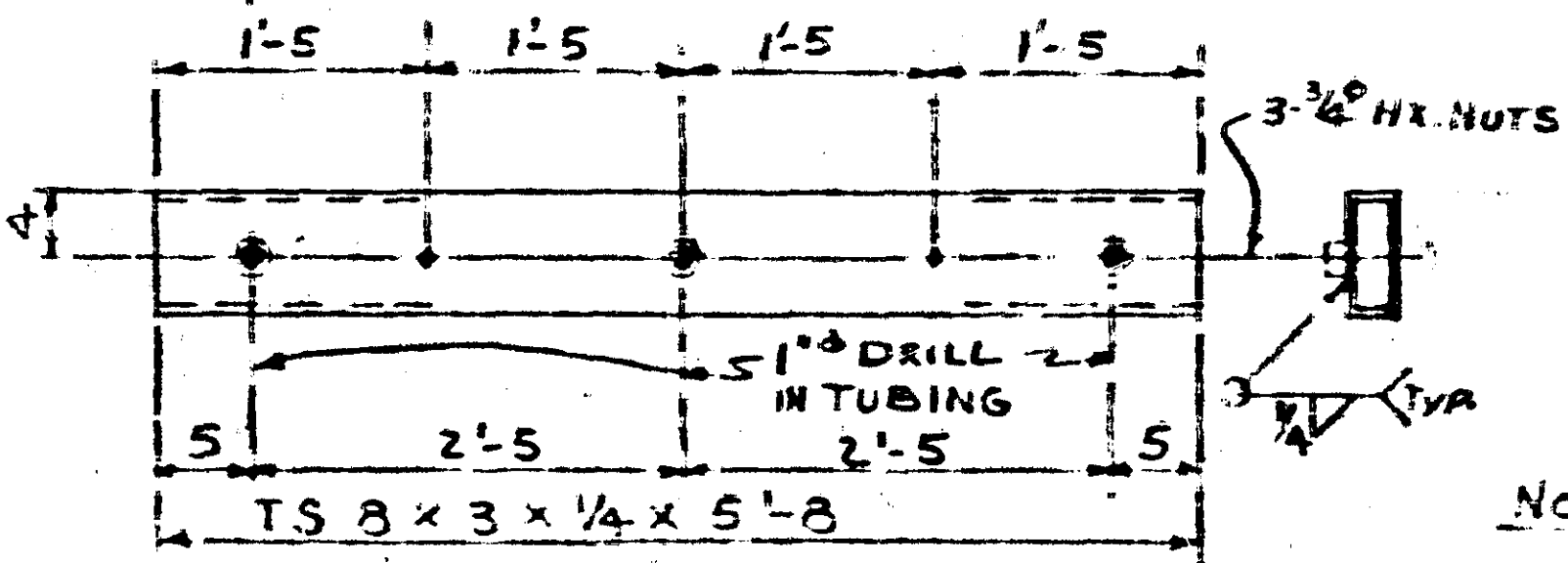
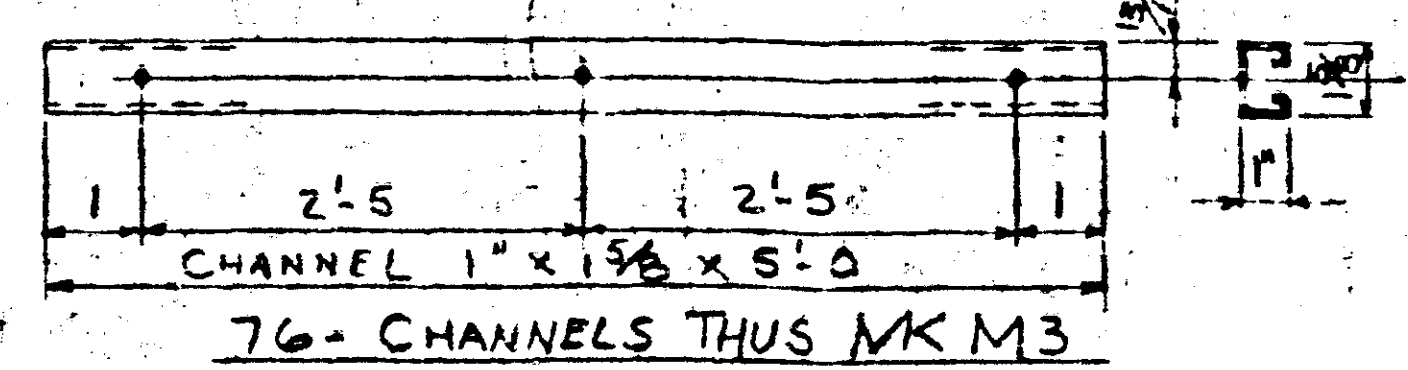
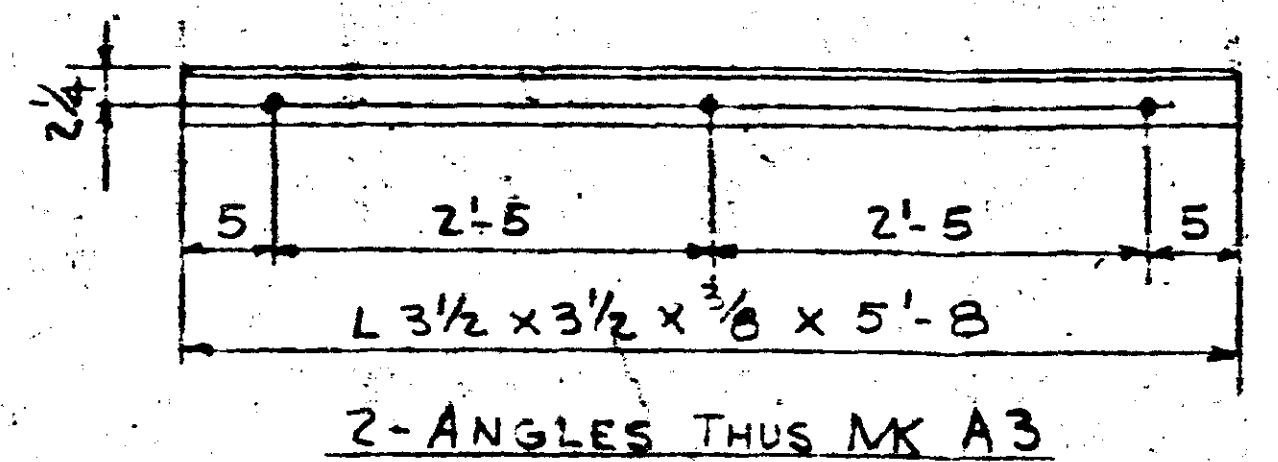
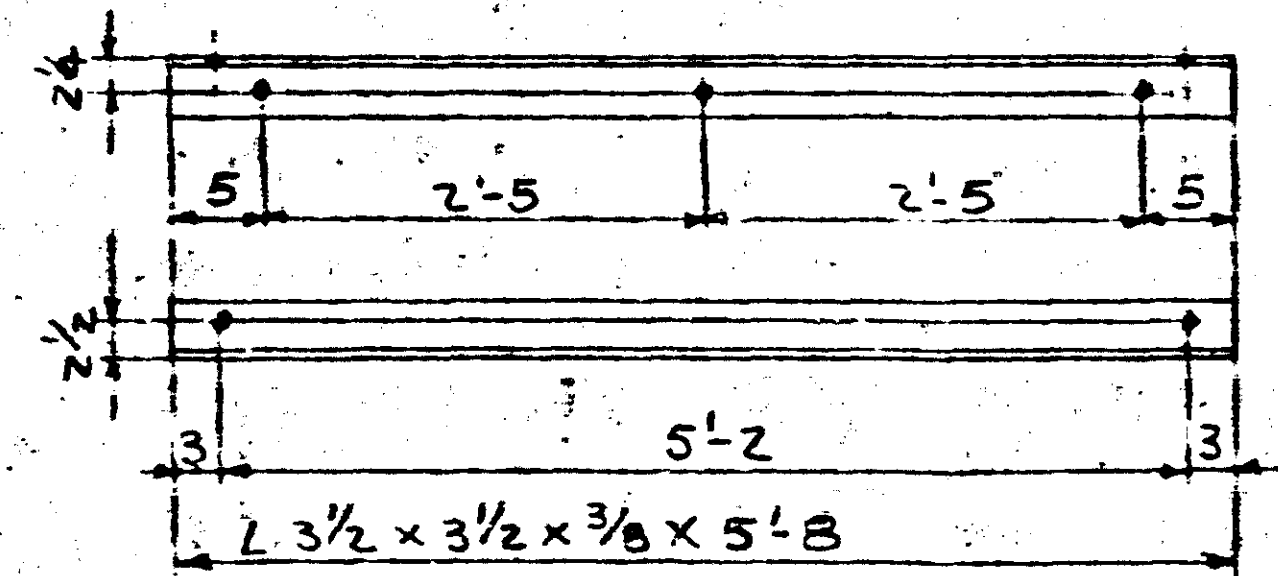
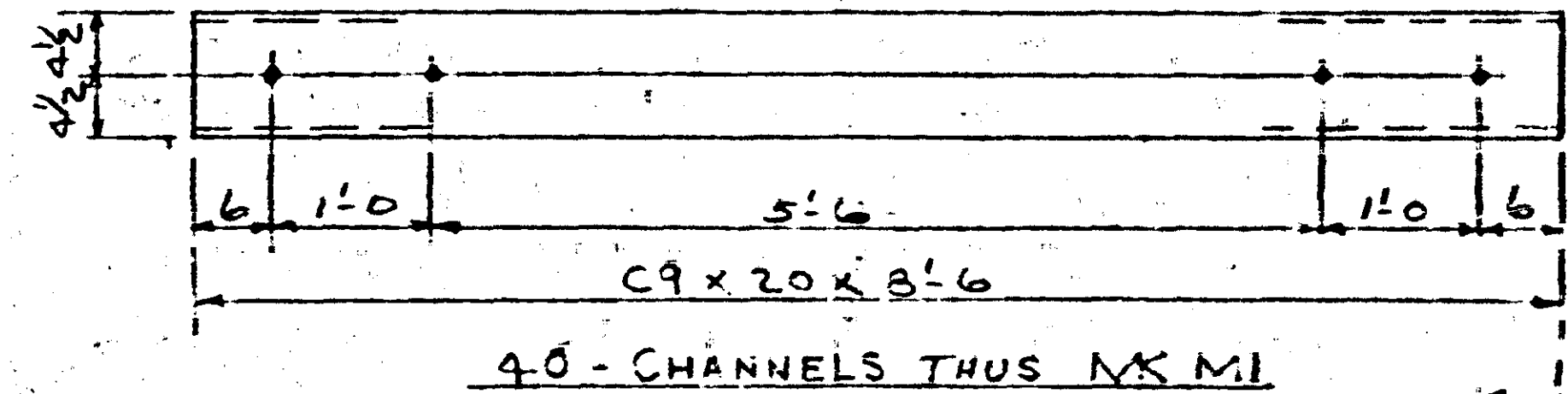
Job No. J-651C
 Drawn By CAD
 Checked By EAS
 M.H.D. Approved



- GENERAL NOTES:**
1. GALV. CHANNELS, ANGLES & TUBES PER MHD 3394 AFTER FAB.
 2. GALV. PDS & NUTS PER MHD 3392
 3. MAT'L. TO CONFORM TO MHD SPECS. 3392
 4. TUBING FOR EXPANSION SLEEVES (WHERE NOT SUPPORTED) TO BE COLD DRAWN SEAMLESS TUBING WITH DIMENSIONS AS SHOWN ON DETAILS. ENTIRE ASS'Y. TO BE GALV. AFTER FAB.
 5. SLEEVES FOR SUPPORTED EXPANSION JOINT AT MANHOLE WALLS & AT CENTER OF BARREL ARCH SPANS TO BE 5" STD. PIPE. THESE SLEEVES TO BE GALV. AFTER CUTTING.
 6. SHOP INSPECTION BEFORE & AFTER FAB.
 7. MAT'L. & WORKMANSHIP IN ACCORD MHD SPECS 1-1-72 & SPECIAL PROVISIONS.



QTY	DESCRIPTION	MARK	REMARK	WT
630	4" CONDUIT X 9'-10 1/4	S40-119		
120	X 7'-6	S40-90		
3	X 5'-5	S40-65		
3	X 5'-5 3/4	S40-65.4		
3	X 5'-6 1/2	S40-66.4		
3	X 5'-7 1/4	S40-67.2		
3	X 5'-8	S40-68		
3	X 5'-9	S40-69		
3	X 5'-9 3/4	S40-69.4		
3	X 5'-10 1/2	S40-70.4		
3	X 5'-11 1/4	S40-71.2		
3	X 6'-0	S40-72		
3	X 4'-7 1/2	S40-55.4		
3	X 4'-8 1/4	S40-56.2		
3	X 4'-9	S40-57.0		
3	X 4'-9 3/4	S40-57.6		
3	X 4'-10 1/2	S40-58.4		
3	X 4'-11 1/2	S40-59.4		
3	X 5'-0 1/4	S40-60.2		
3	X 5'-1	S40-61.0		
3	X 5'-1 3/4	S40-61.6		
3	X 5'-2 1/2	S40-62.4		
3	X 4'-5	S40-53.0		
3	X 4'-5 3/4	S40-53.6		
3	X 4'-6 1/2	S40-54.4		
3	X 4'-7 1/4	S40-55.2		
3	X 4'-8	S40-56.0		
3	X 4'-9	S40-57.0		
3	X 4'-9 3/4	S40-57.6		
3	X 4'-10 1/2	S40-58.4		
3	X 4'-11 1/4	S40-59.2		
3	X 5'-0	S40-60.0		
3	X 1'-10 1/2	S40-22.4		
3	X 1'-11 1/4	S40-23.2		
3	X 2'-0	S40-24.0		
3	X 2'-0 3/4	S40-24.6		
3	X 2'-1 1/2	S40-25.4		
3	X 2'-2 1/2	S40-26.4		
3	X 2'-3 1/4	S40-27.2		
3	X 2'-4	S40-28.0		
3	X 2'-4 3/4	S40-28.4		
3	X 2'-5 1/2	S40-29.4		
120	X 8'-5 5/8	BA4C-101.5		



40	CHANNELS MK M1		
40	C9 x 20 x 8-6		
40	ANGLES MK A1		
40	L 3 1/2 x 3 1/2 x 3/8 x 5'-8		
40	ANGLES MK A2		
40	L 5 x 3 1/2 x 3/8 x 5'-0		
2	ANGLES MK A3		
2	L 3 1/2 x 3 1/2 x 3/8 x 5'-8		
2	STRUCT. TUBE MK M2		
2	TS 8 x 3 x 1/4 x 5'-8		
6	3/4" HEX NUTS		
120	3/4" ROD X 1-7 1/2 (THD 3 1/2 ZE)	X1	
6	3/4" ROD X 1-6 1/2 (THD 2 IE, 3 IE)	X2	
80	3/4" ROD X 2'-2 (THD 5" ZE)	X3	
4	3/4" X 6 KWIK-BOLT ANCHORS		
200	3/4" X 2 1/4 KWIK-BOLT ANCHORS		
610	3/4" HEX NUTS		

NOTE: ALL HOLES 1 3/8" UNLESS NOTED.

LEWIS ENGINEERING COMPANY
 5229 SOEN AVENUE - EDINA, MINNESOTA 56436 - (612) 920-8101

BRIDGE NO. - 2440
 BARREL ARCH SPANS 657

STATE PROJECT NO. -
 FEDERAL PROJECT NO. -

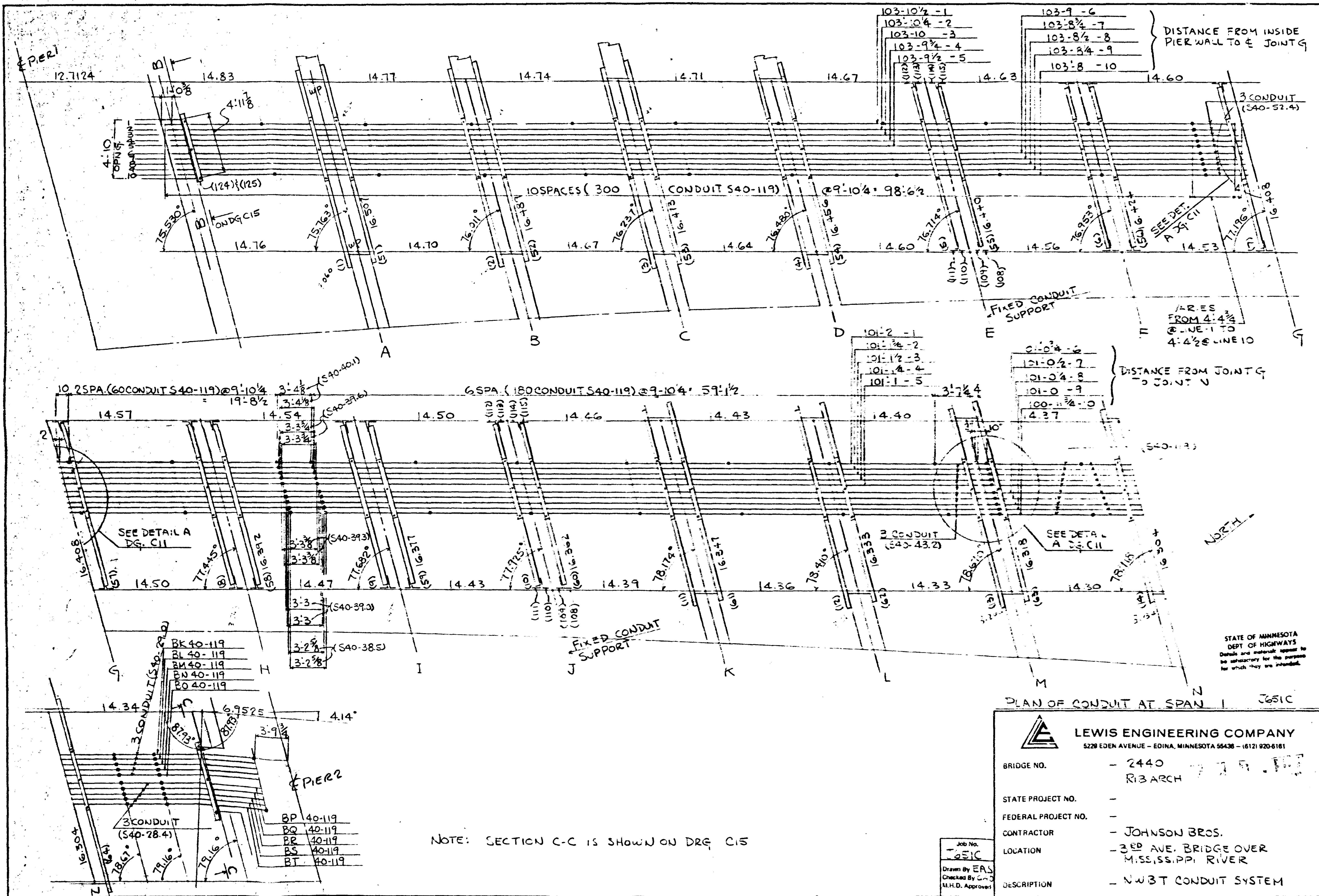
CONTRACTOR - JOHNSON BROS.
 LOCATION - 3RD AVE. BRIDGE OVER MISSISSIPPI RIVER

DESCRIPTION - N.W. BELL TELEPHONE CO.

Job No. J651C
 Drawn By CAD
 Checked By EAS
 M.H.D. Approved

STATE OF MINNESOTA
 DEPT. OF HIGHWAYS
 I hereby certify that the above is a true and correct copy of the plans for the work for which they are attached.

FEE-MIN-39



DISTANCE FROM INSIDE PIER WALL TO E JOINT G

DISTANCE FROM JOINT G TO JOINT U

STATE OF MINNESOTA
DEPT. OF HIGHWAYS
Details and materials appear to be satisfactory for the purpose for which they are intended.

PLAN OF CONDUIT AT SPAN 1 J651C

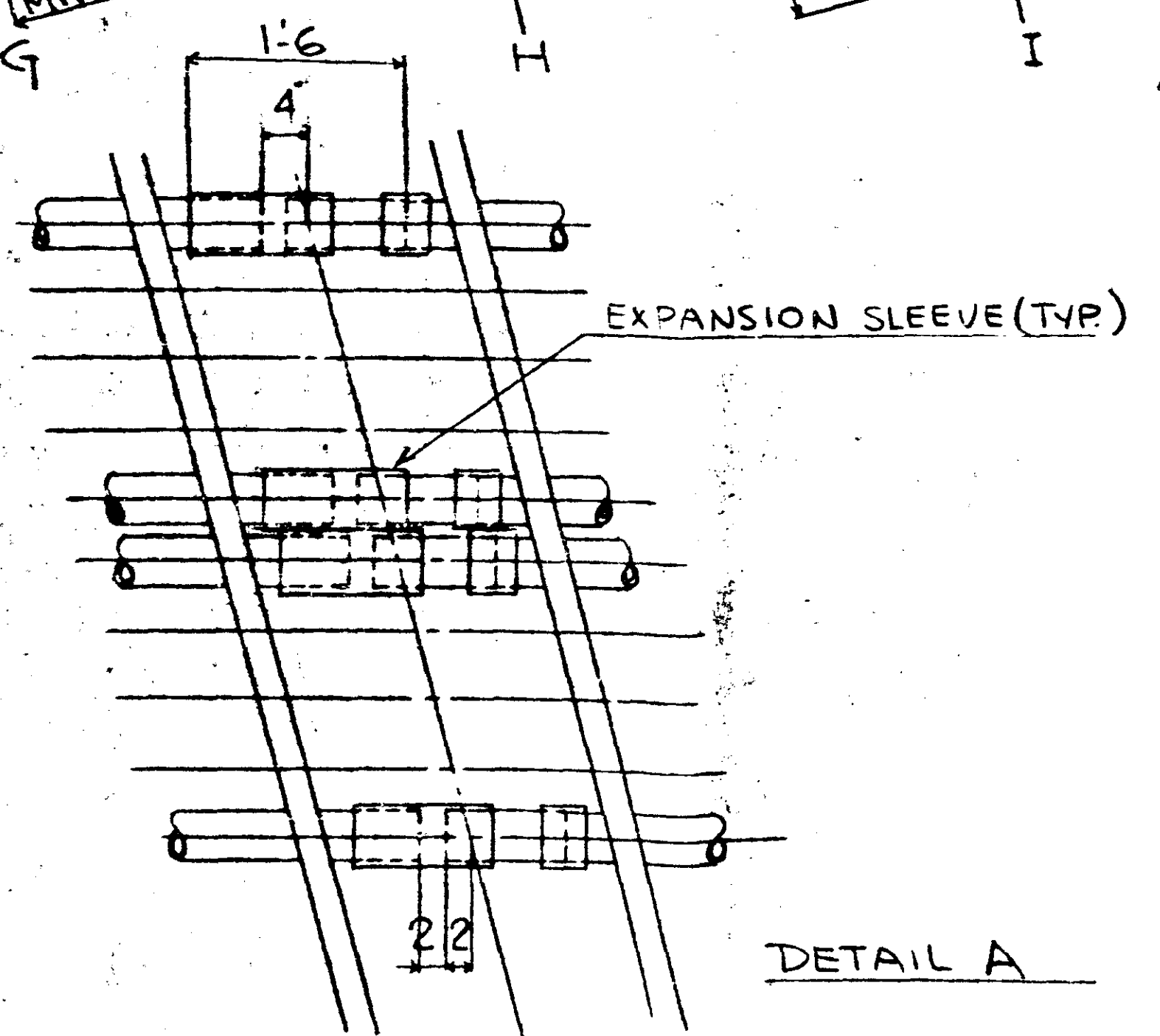
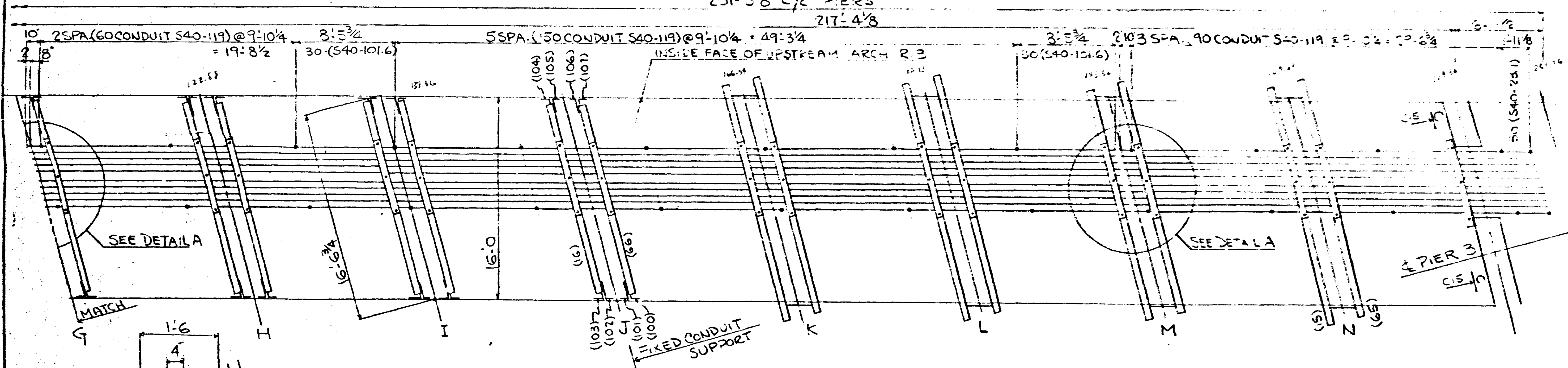
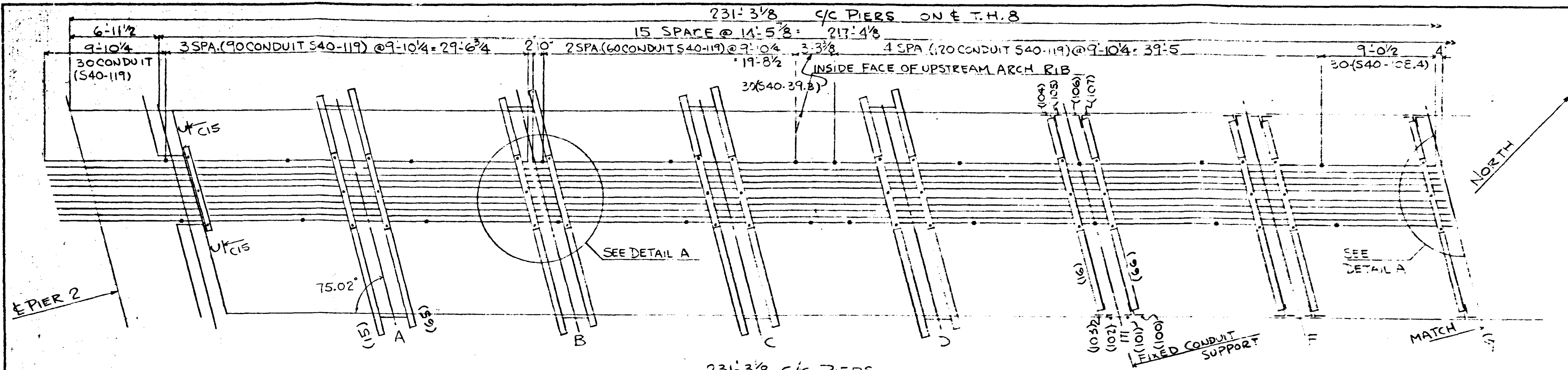


LEWIS ENGINEERING COMPANY
5229 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 920-6181

BRIDGE NO.	- 2440
	RIB ARCH
STATE PROJECT NO.	-
FEDERAL PROJECT NO.	-
CONTRACTOR	- JOHNSON BROS.
LOCATION	- 3RD AVE. BRIDGE OVER MISSISSIPPI RIVER
DESCRIPTION	- N.W.B.T CONDUIT SYSTEM

NOTE: SECTION C-C IS SHOWN ON DRG C15

Job No.
J651C
Drawn By EAS
Checked By G.M.
M.H.D. Approved



STATE OF MINNESOTA
 DEPT. OF HIGHWAYS
 Details and materials appear to
 be satisfactory for the purposes
 for which they are intended.

PLAN OF CONDUIT AT SPAN 2

J651C

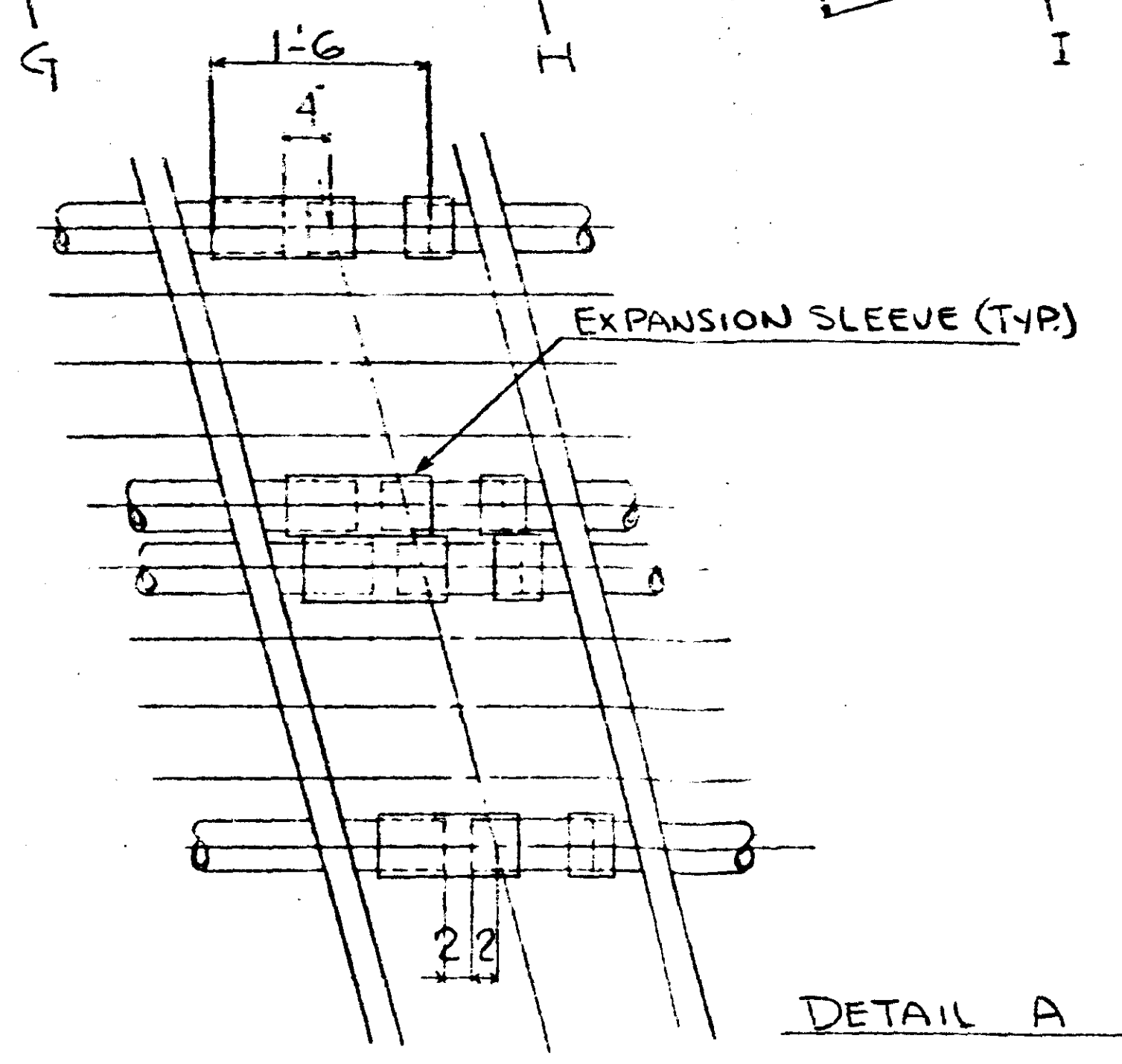
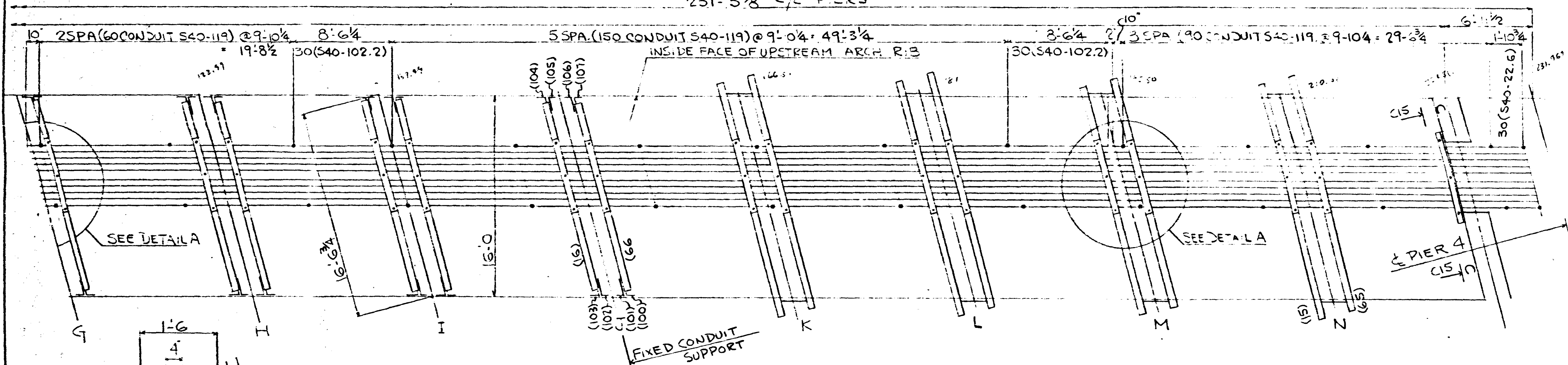
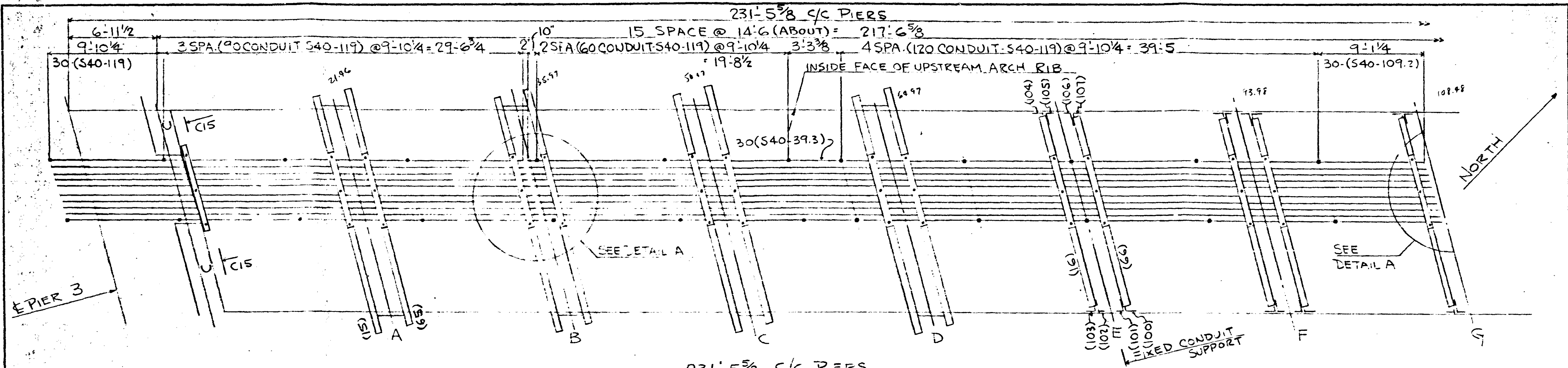
LEWIS ENGINEERING COMPANY
 5229 EDEN AVENUE - EDINA, MINNESOTA 55438 - (763) 920-0000

BRIDGE NO. - 2440 A.H.D. - FILE
 RIB ARCH

STATE PROJECT NO. -
 FEDERAL PROJECT NO. -
 CONTRACTOR - JOHNSON BROS.
 LOCATION - 3RD AVE BRIDGE OVER MISSISSIPPI RIVER
 DESCRIPTION - NJBT CONDUIT SYSTEM

Job No. J651C
 Drawn By EAS
 Checked By CAD
 M.H.D. Approved

14.5035




DETAIL A

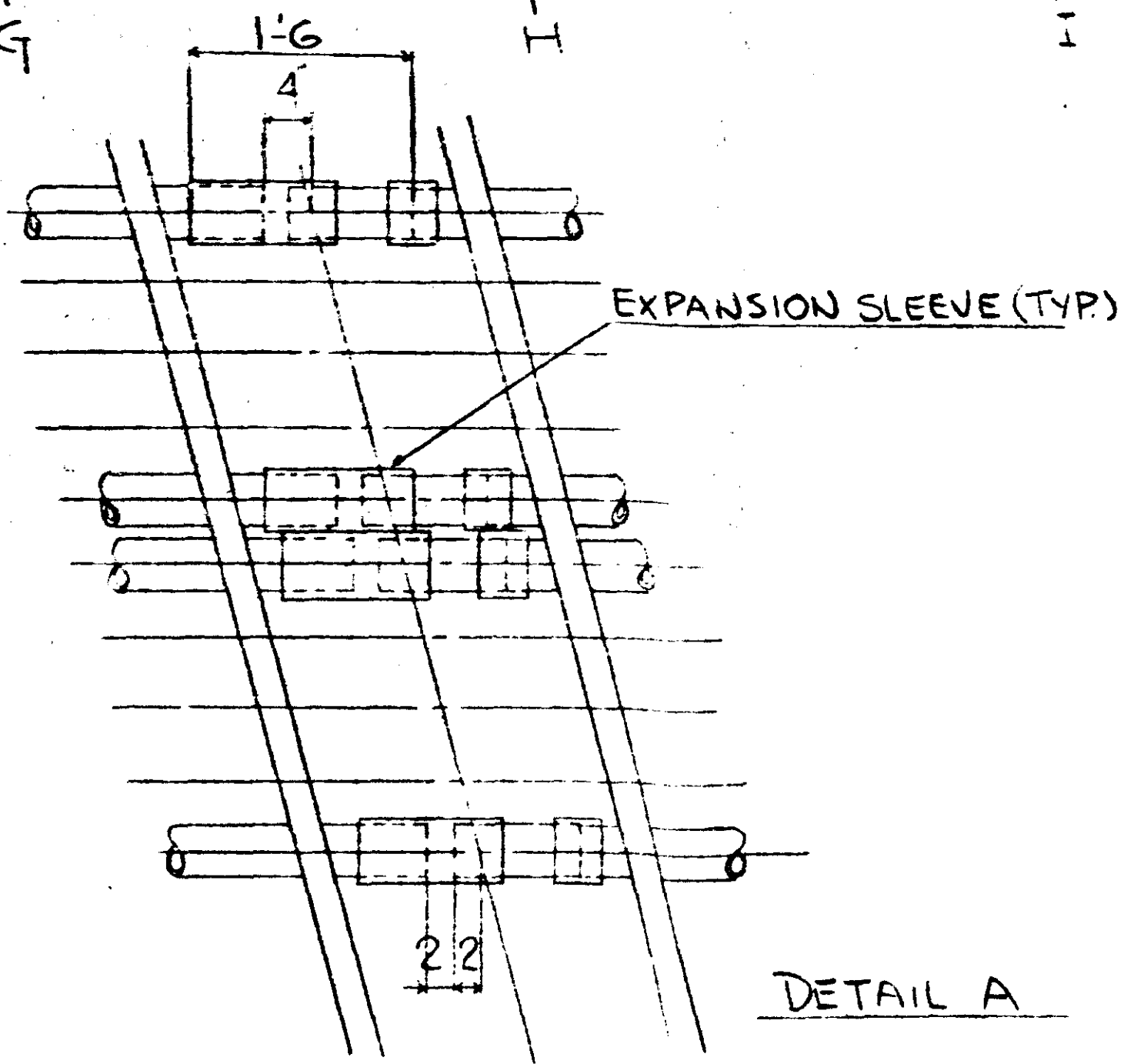
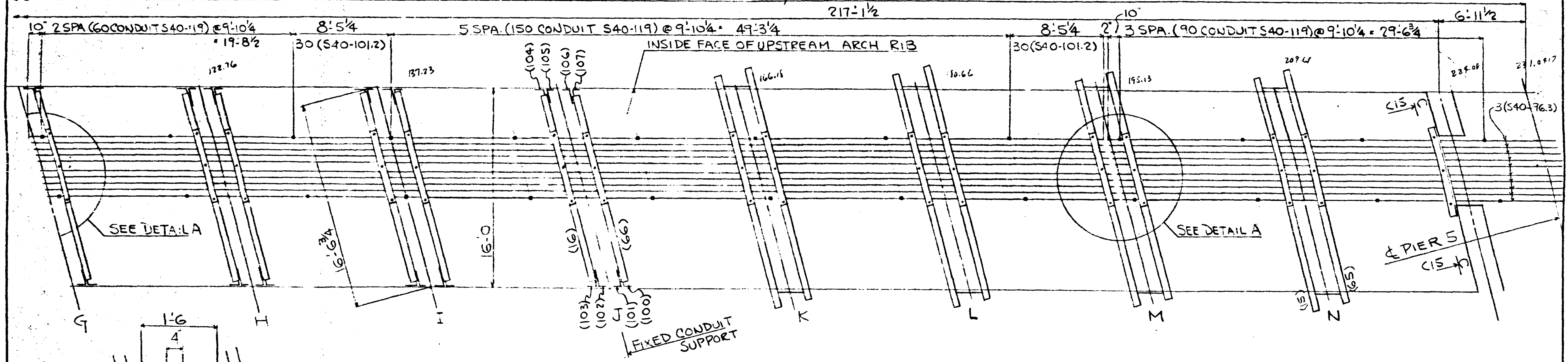
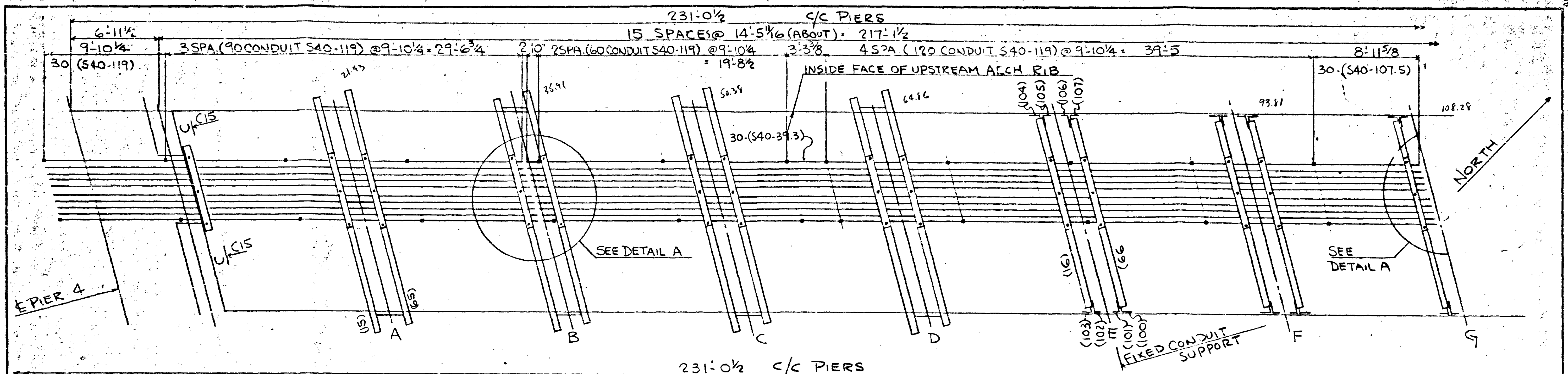
STATE OF MINNESOTA
 DEPT. OF HIGHWAYS
 Details and materials appear to
 be satisfactory for the purpose
 for which they are intended.

PLAN OF CONDUIT AT SPAN 3

J651C

	
LEWIS ENGINEERING COMPANY	
5229 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 920-6161	
BRIDGE NO.	- 2440
	RIB ARC M. H. D. - FILE
STATE PROJECT NO.	-
FEDERAL PROJECT NO.	-
CONTRACTOR	- JOHNSON BROS.
LOCATION	- 3RD AVE BRIDGE OVER MISSISSIPPI RIVER
DESCRIPTION	- NWBT CONDUIT SYSTEM

Job No.
 Drawn By EAS
 Checked By CAD
 M.H.D. Approved

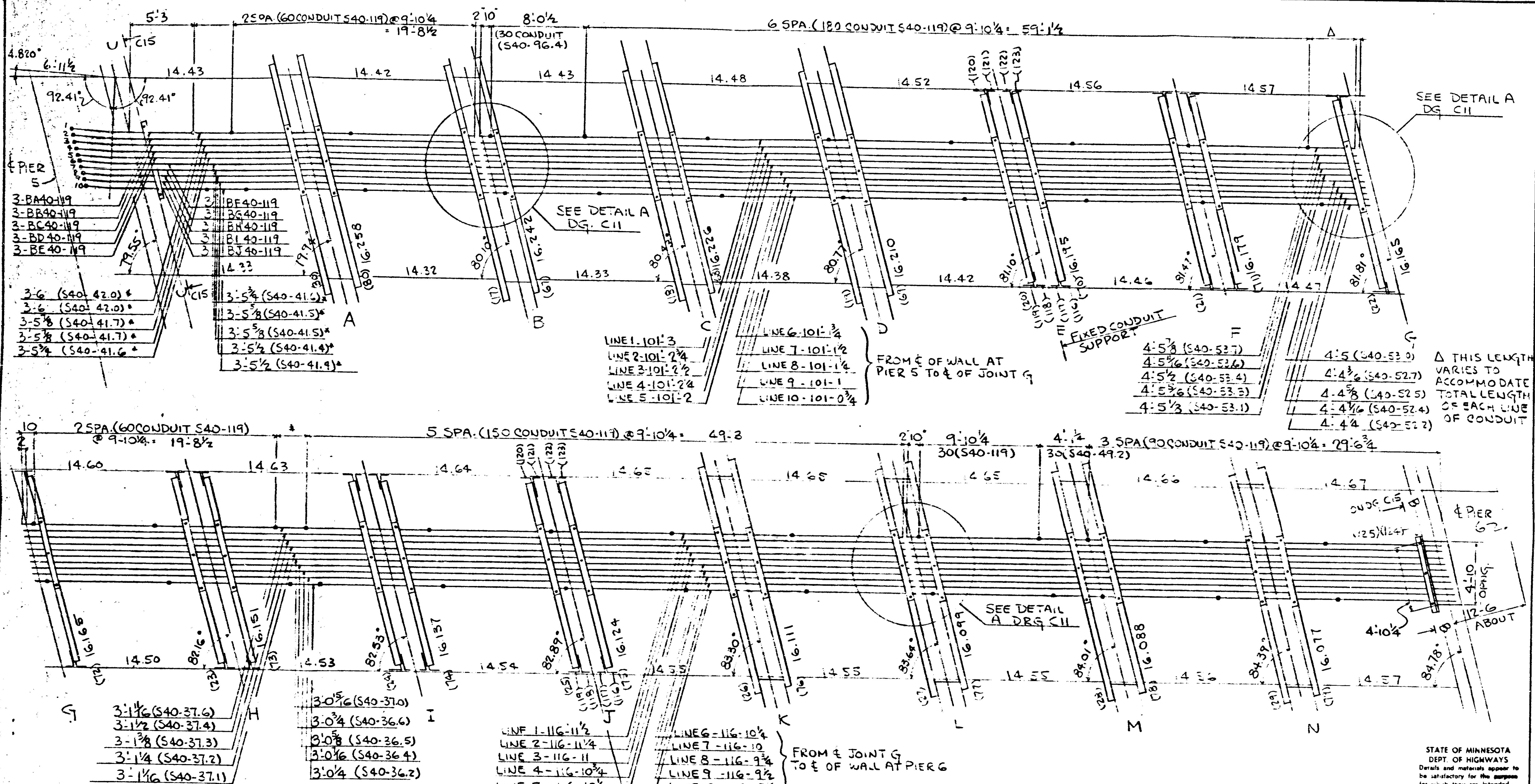


STATE OF MINNESOTA
 DEPT. OF HIGHWAYS
 Details and materials appear to
 be satisfactory for the purposes
 for which they are intended.

PLAN OF CONDUIT AT SPAN 4
 J651C

LEWIS ENGINEERING COMPANY 5229 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 920-8181	
BRIDGE NO.	- 2440 RIB ARCH. J. H. D. - FILE
STATE PROJECT NO.	-
FEDERAL PROJECT NO.	-
CONTRACTOR	- JOHNSON BROS.
LOCATION	- 3RD AVE BRIDGE OVER MISSISSIPPI RIVER
DESCRIPTION	- NWBT CONDUIT SYSTEM

Job No.
J651C
 Drawn By EAS
 Checked By CAD
 M.H.D. Approved



SEE DETAIL A
DG. C11

SEE DETAIL A
DG. C11

FIXED CONDUIT
SUPPORT

FROM E OF WALL AT
PIER 5 TO E OF JOINT G

Δ THIS LENGTH
VARIES TO
ACCOMMODATE
TOTAL LENGTH
OF EACH LINE
OF CONDUIT

SEE DETAIL A
DRG. C11

FROM E JOINT G
TO E OF WALL AT PIER 6

* THIS LENGTH VARIES TO ACCOMMODATE
TOTAL LENGTH OF EACH LINE OF CONDUIT

STATE OF MINNESOTA
DEPT. OF HIGHWAYS
Details and materials appear to
be satisfactory for the purpose
for which they are intended.

PLAN OF CONDUIT AT SPAN 5

J651C

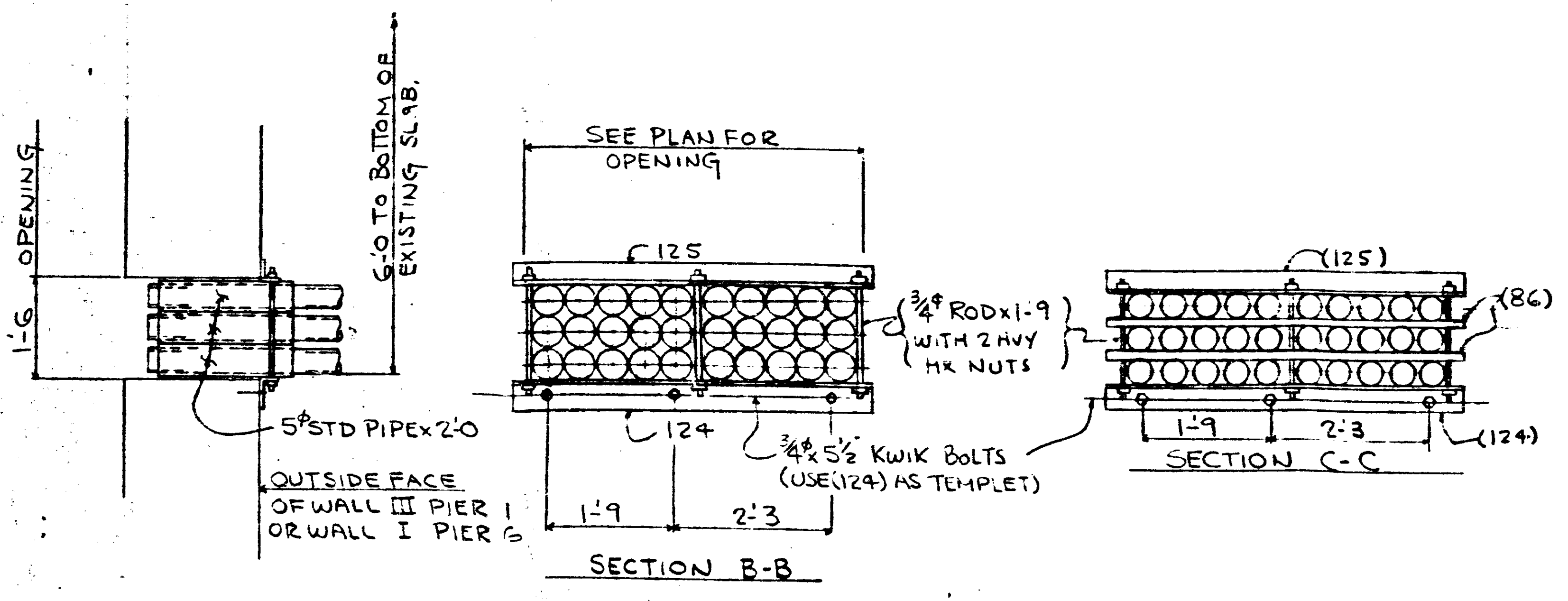
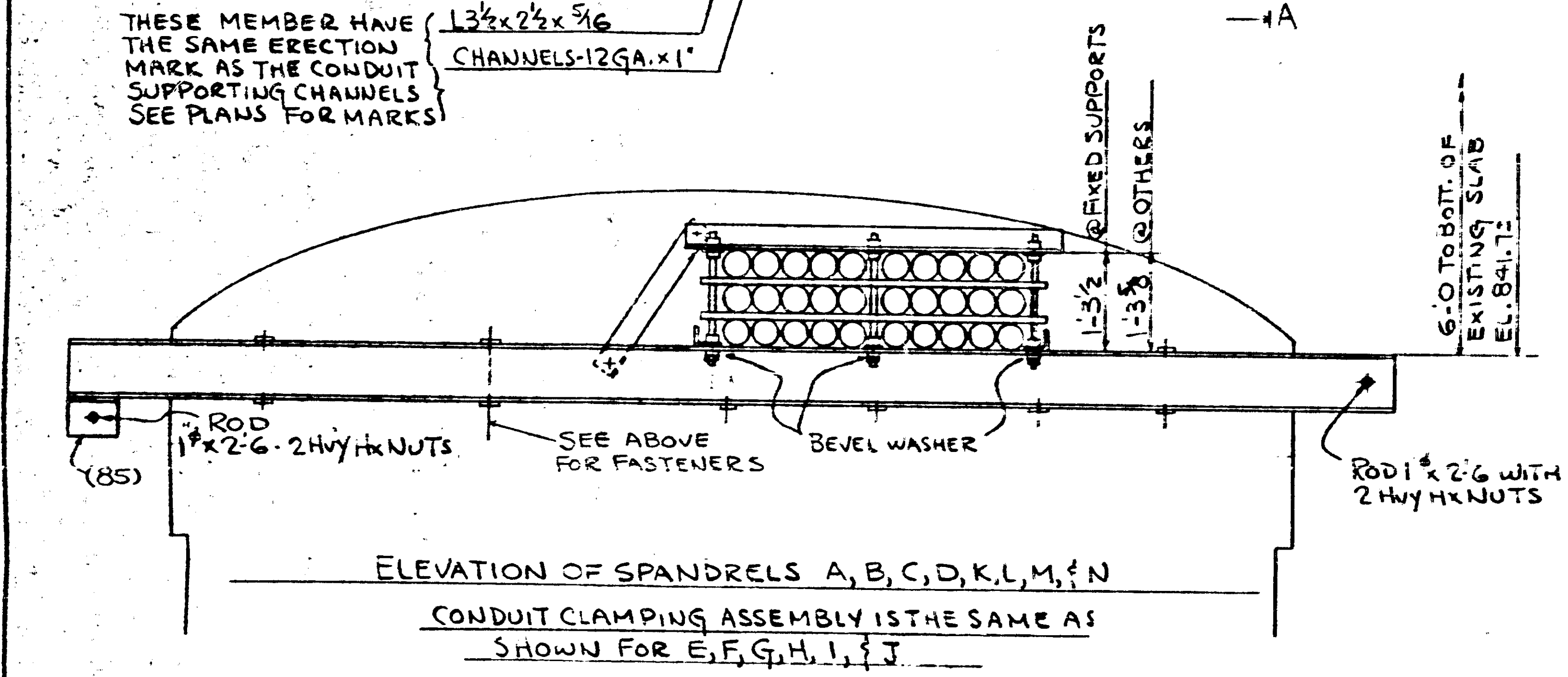
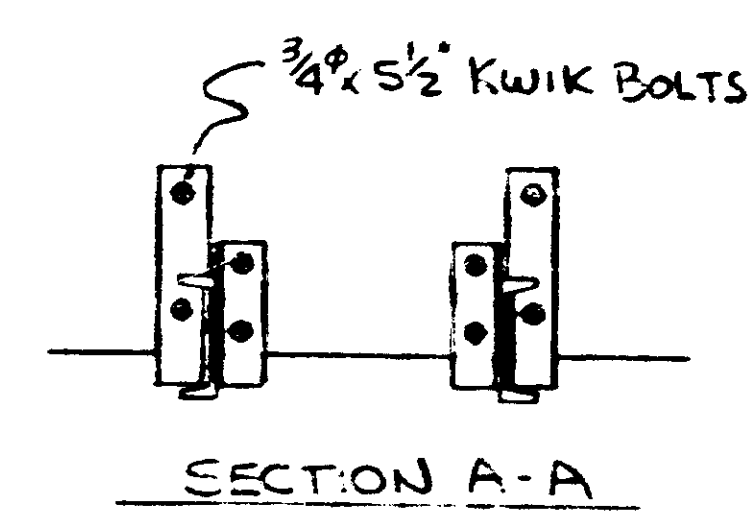
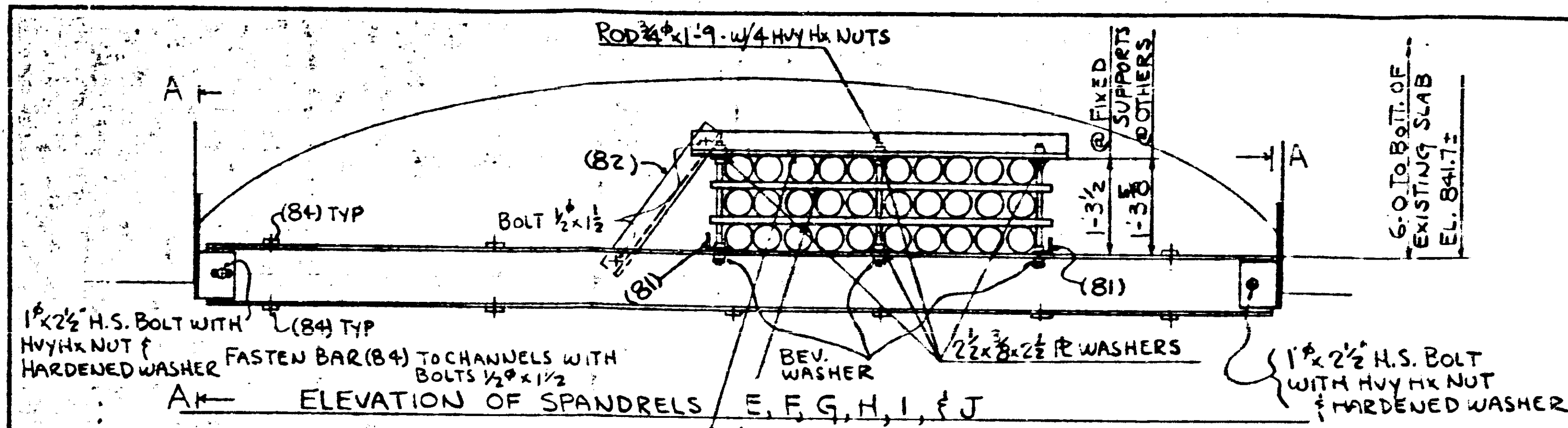


LEWIS ENGINEERING COMPANY
5229 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 920-8161

BRIDGE NO. - 2440
RIB ARC **M. H. D. - FILE**


STATE PROJECT NO. -
FEDERAL PROJECT NO. -
CONTRACTOR - JOHNSON BROS.
LOCATION - 3RD AVE BRIDGE OVER MISSISSIPPI RIVER
DESCRIPTION - NWBT CONDUIT SYSTEM

Job No.
J651C
Drawn By EAS
Checked By CAD
M.H.D. Approved



STATE OF MINNESOTA
 DEPT. OF HIGHWAYS
 Details and materials appear to be satisfactory for the purpose for which they are intended.

J651C


LEWIS ENGINEERING COMPANY
 5229 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 920-8181

BRIDGE NO.	- 2440
STATE PROJECT NO.	-
FEDERAL PROJECT NO.	-
CONTRACTOR	- JOHNSON BROS.
LOCATION	- 3RD AVE BRIDGE OVER MISSISSIPPI RIVER
DESCRIPTION	- N.W. 3. T. CONDUIT SYSTEM

Job No.
J651C
 Drawn By EAS
 Checked By CAD
 M.H.D. Approved

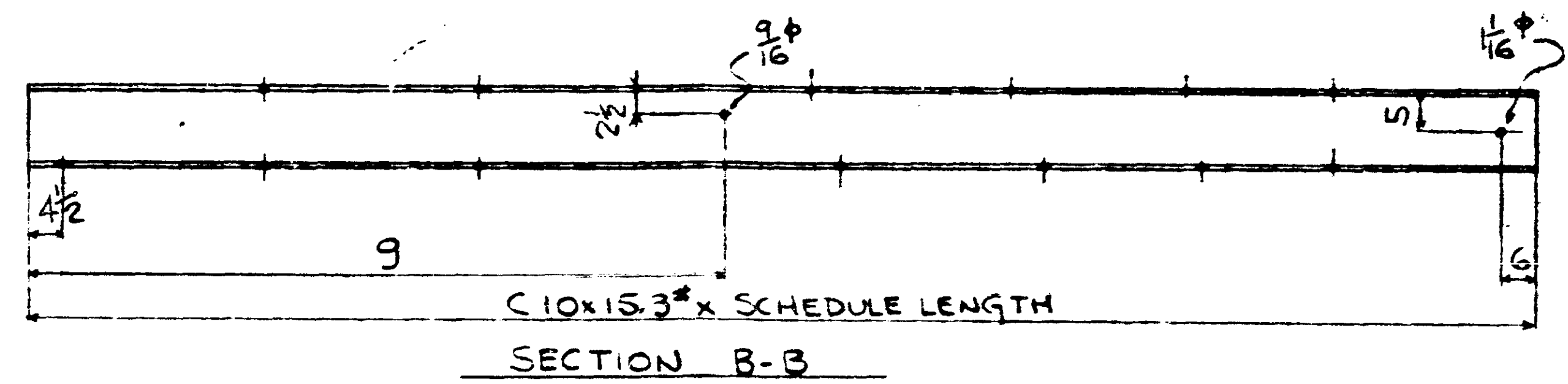
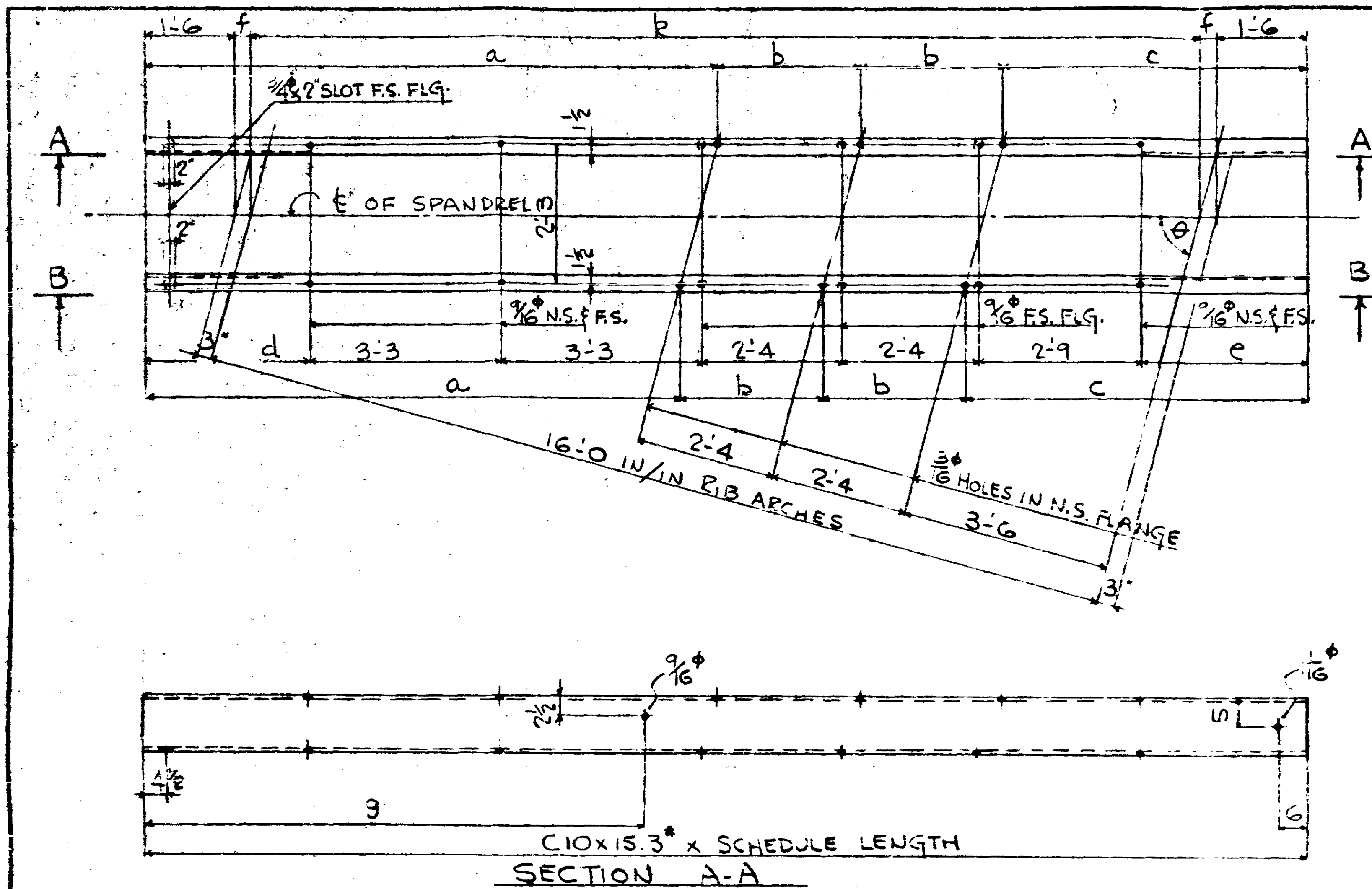


TABLE OF VARIABLES & BILL OF MATERIAL FOR SEC. B-B

QTY	a	b	c	d	e	f	g	θ	R	DESCRIPTION	MARK
1	7-6 ¹ / ₁₆	2-4 ³ / ₈	5-7 ⁷ / ₈	3-5	2-8 ⁵ / ₁₆	3-8	8-3 ¹ / ₂	75.763	6-2 ¹ / ₂	C10x15.3x20-0 ⁵ / ₁₆	(51)
1	9-6 ¹ / ₂	2-4 ³ / ₈	5-7 ⁷ / ₈	3-4 ³ / ₈	2-8 ³ / ₄	3 ¹ / ₂	8-3 ¹ / ₂	76.011	6-5 ³ / ₈	x20-0	(52)
1	9-6 ¹ / ₂	2-4 ³ / ₈	5-7 ⁷ / ₈	3-4 ³ / ₈	2-8 ³ / ₄	3 ¹ / ₂	8-3 ¹ / ₂	76.237	6-5 ³ / ₈	x19-1 ³ / ₈	(53)
1	9-6 ¹ / ₂	2-4 ³ / ₈	5-7 ⁷ / ₈	3-4 ³ / ₈	2-8 ³ / ₄	3 ¹ / ₂	8-3 ¹ / ₂	76.480	6-5 ³ / ₈	x19-1 ³ / ₈	(54)
1	9-6 ⁵ / ₁₆	2-4 ³ / ₈	5-6 ³ / ₄	3-3 ³ / ₄	2-7 ⁷ / ₈	3 ¹ / ₂	8-3 ¹ / ₂	78.174	6-4 ¹ / ₂	x19-0 ³ / ₈	(61)
1	9-6 ⁵ / ₁₆	2-4 ³ / ₈	5-6 ³ / ₄	3-3 ³ / ₄	2-7 ⁷ / ₈	3 ¹ / ₂	8-3 ¹ / ₂	78.410	6-4	x19-0 ³ / ₈	(62)
1	9-6 ¹ / ₂	2-4 ³ / ₈	5-6 ³ / ₄	3-3 ³ / ₄	2-7 ⁷ / ₈	3 ¹ / ₂	8-3 ¹ / ₂	78.670	6-3 ³ / ₈	x19-0 ³ / ₈	(63)
1	9-6 ¹ / ₂	2-4 ³ / ₈	5-6 ³ / ₄	3-3 ³ / ₄	2-7 ⁷ / ₈	3 ¹ / ₂	8-3 ¹ / ₂	78.918	6-3 ³ / ₈	x19-0 ³ / ₈	(64)
24	7-8	2-5	5-7	3-5 ¹ / ₁₆	2-8 ³ / ₁₆	3-8	8-5	75.02	6-6 ¹ / ₂	x20-1	(65)
1	9-6 ¹ / ₂	2-4 ³ / ₈	5-4 ¹ / ₂	3-2 ³ / ₈	2-7 ³ / ₈	3 ¹ / ₂	8-3 ¹ / ₂	80.10	6-2 ³ / ₈	x19-9	(67)
1	9-6 ³ / ₁₆	2-4 ³ / ₈	5-5 ¹ / ₈	3-2 ³ / ₈	2-7	3 ¹ / ₂	8-3 ¹ / ₂	80.43	6-2 ³ / ₈	x19-8 ¹ / ₁₆	(68)
1	9-6 ³ / ₁₆	2-4 ³ / ₈	5-5 ¹ / ₈	3-2 ³ / ₈	2-6 ³ / ₈	3 ¹ / ₂	8-3 ¹ / ₂	80.77	6-2 ³ / ₈	x19-8 ¹ / ₁₆	(69)
1	9-6 ³ / ₁₆	2-4 ³ / ₈	5-4 ³ / ₈	3-1 ³ / ₈	2-6 ¹ / ₂	3	8-3 ¹ / ₂	83.30	6-5 ¹ / ₈	x19-7 ¹ / ₁₆	(76)
1	9-6 ³ / ₁₆	2-4 ³ / ₈	5-4 ³ / ₈	3-1 ³ / ₈	2-6 ¹ / ₂	3	8-3 ¹ / ₂	83.64	6-5 ¹ / ₈	x19-7 ¹ / ₁₆	(77)
1	9-6 ³ / ₁₆	2-4 ³ / ₈	5-4 ³ / ₈	3-1 ³ / ₈	2-6 ¹ / ₂	3	8-3 ¹ / ₂	84.01	6-5 ¹ / ₈	x19-7 ¹ / ₁₆	(78)
1	9-6 ³ / ₁₆	2-4 ³ / ₈	5-4 ³ / ₈	3-1 ³ / ₈	2-6 ¹ / ₂	3	8-3 ¹ / ₂	84.39	6-0 ³ / ₈	x19-6 ³ / ₁₆	(79)
1	9-6 ³ / ₁₆	2-4 ³ / ₈	5-6 ¹ / ₁₆	3-3	2-7 ³ / ₈	3 ¹ / ₂	8-3 ¹ / ₂	79.94	6-3	x19-9 ³ / ₈	(80)

TABLE OF VARIABLES & BILL OF MATERIAL FOR SEC. A-A

QTY	a	b	c	d	e	f	g	θ	R	DESCRIPTION	MARK
1	10-1 ¹ / ₂	2-4 ³ / ₈	5-1	3-5	2-8 ⁵ / ₁₆	3-8	8-10 ¹ / ₁₆	75.76	6-6 ¹ / ₂	C10x15.3x20-0 ⁵ / ₁₆	(1)
1	9-6 ¹ / ₂	2-4 ³ / ₈	5-1 ¹ / ₂	3-4 ³ / ₈	2-8 ³ / ₄	3 ¹ / ₂	8-10 ¹ / ₁₆	76.011	6-5 ³ / ₈	x20-0	(2)
1	9-6 ¹ / ₂	2-4 ³ / ₈	5-1 ¹ / ₂	3-4 ³ / ₈	2-8 ³ / ₄	3 ¹ / ₂	8-10 ¹ / ₁₆	76.237	6-5 ³ / ₈	x19-1 ³ / ₈	(3)
1	9-6 ¹ / ₂	2-4 ³ / ₈	5-1	3-4 ³ / ₈	2-8 ³ / ₄	3 ¹ / ₂	8-10	76.480	6-5 ³ / ₈	x19-1 ³ / ₈	(4)
1	9-6 ⁵ / ₁₆	2-4 ³ / ₈	5-1 ¹ / ₂	3-3 ³ / ₄	2-7 ⁷ / ₈	3 ¹ / ₂	8-8 ³ / ₈	78.174	6-4 ¹ / ₂	x19-10 ³ / ₈	(11)
1	9-6 ⁵ / ₁₆	2-4 ³ / ₈	5-1 ¹ / ₂	3-3 ³ / ₄	2-7 ⁷ / ₈	3 ¹ / ₂	8-8 ³ / ₈	78.410	6-4	x19-10 ³ / ₈	(12)
1	9-6 ¹ / ₂	2-4 ³ / ₈	5-1 ¹ / ₂	3-3 ³ / ₄	2-7 ⁷ / ₈	3 ¹ / ₂	8-8 ³ / ₈	78.670	6-3 ³ / ₈	x19-10 ³ / ₈	(13)
1	9-6 ¹ / ₂	2-4 ³ / ₈	5-1 ¹ / ₂	3-3 ³ / ₄	2-7 ⁷ / ₈	3 ¹ / ₂	8-8 ³ / ₈	78.918	6-3 ³ / ₈	x19-10 ³ / ₈	(14)
24	10-3 ¹ / ₄	2-5	5-0 ³ / ₈	3-5 ¹ / ₁₆	2-8 ³ / ₁₆	3-8	9-0 ¹ / ₄	75.02	6-6 ¹ / ₂	x20-1	(15)
1	9-6 ¹ / ₂	2-4 ³ / ₈	5-1 ¹ / ₂	3-2 ³ / ₈	2-7 ³ / ₈	3 ¹ / ₂	8-7 ³ / ₈	80.10	6-2 ³ / ₈	x19-9	(17)
1	9-6 ¹ / ₂	2-4 ³ / ₈	5-1 ¹ / ₂	3-2 ³ / ₈	2-7	3 ¹ / ₂	8-7 ³ / ₈	80.43	6-2 ³ / ₈	x19-8 ¹ / ₁₆	(18)
1	9-6 ¹ / ₂	2-4 ³ / ₈	5-1 ¹ / ₂	3-2 ³ / ₈	2-6 ³ / ₈	3 ¹ / ₂	8-7 ³ / ₈	80.77	6-2 ³ / ₈	x19-8 ¹ / ₁₆	(19)
1	9-6 ³ / ₁₆	2-4 ³ / ₈	5-1 ¹ / ₂	3-1 ³ / ₈	2-6 ¹ / ₂	3	8-6 ³ / ₈	83.30	6-5 ¹ / ₈	x19-7 ¹ / ₁₆	(26)
1	9-6 ³ / ₁₆	2-4 ³ / ₈	5-1 ¹ / ₂	3-1 ³ / ₈	2-6 ¹ / ₂	3	8-6 ³ / ₈	83.64	6-5 ¹ / ₈	x19-7 ¹ / ₁₆	(27)
1	9-6 ³ / ₁₆	2-4 ³ / ₈	5-1 ¹ / ₂	3-1 ³ / ₈	2-6 ¹ / ₂	3	8-6	84.01	6-5 ¹ / ₈	x19-7 ¹ / ₁₆	(28)
1	9-6 ³ / ₁₆	2-4 ³ / ₈	5-1 ¹ / ₂	3-1 ³ / ₈	2-6 ¹ / ₂	3	8-5 ³ / ₄	84.39	6-0 ³ / ₈	x19-6 ³ / ₁₆	(29)
1	9-10 ³ / ₁₆	2-4 ³ / ₈	5-1 ¹ / ₂	3-3	2-7 ³ / ₈	3 ¹ / ₂	8-7 ³ / ₈	79.94	6-3	x19-9 ³ / ₈	(30)

STATE OF MINNESOTA
DEPT. OF HIGHWAYS
DATE AND HOURS SHOWN TO
BE APPROVED BY THE ENGINEER
FOR WHICH THEY ARE PREPARED

ALL MATERIAL ON THIS DRAWING TO CONFORM
TO MND 3306 GALV. PER MND. SPEC 3394

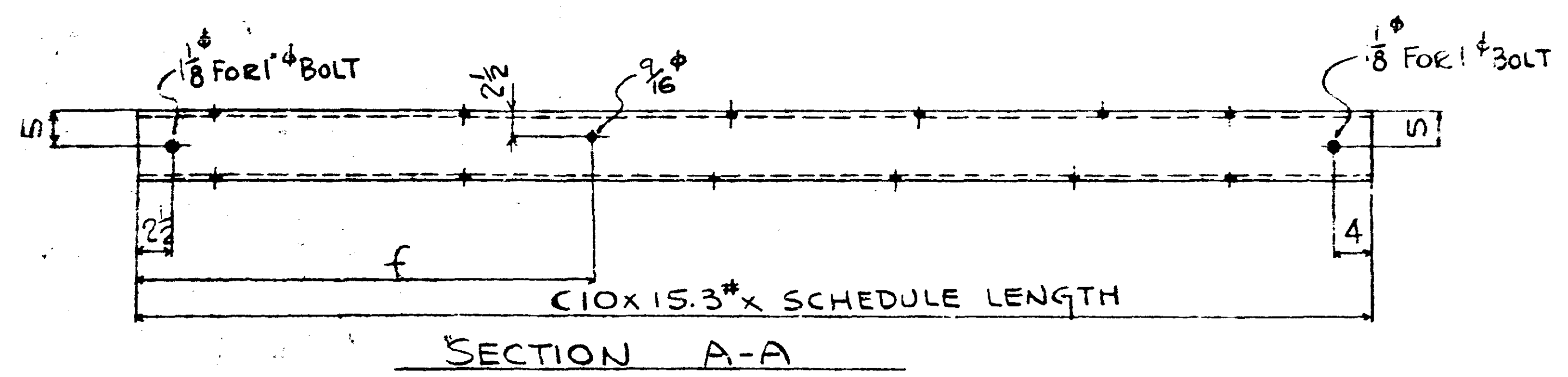
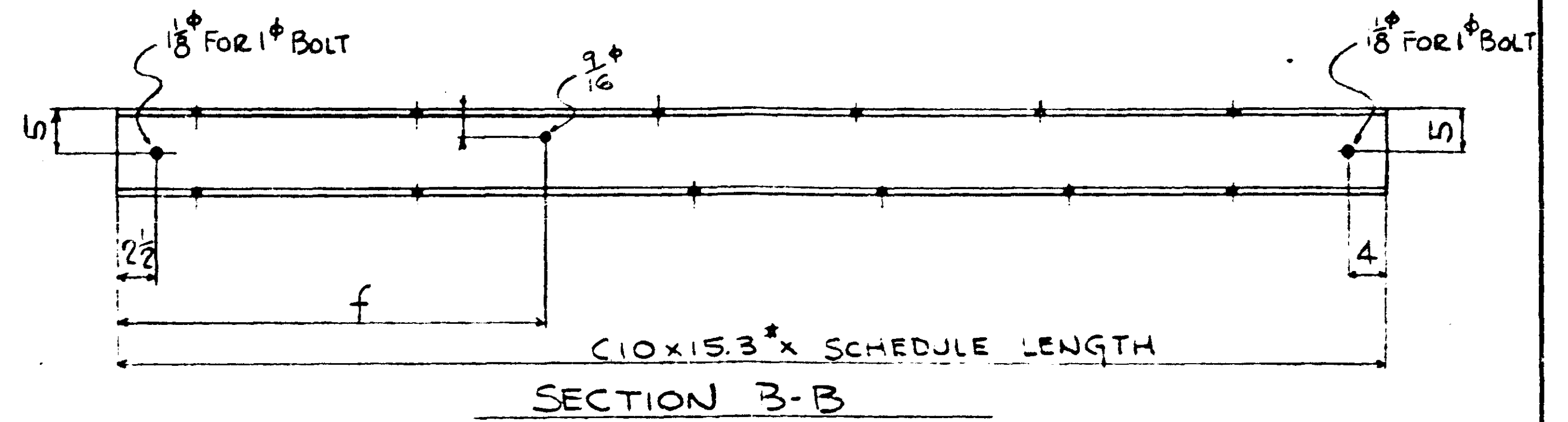
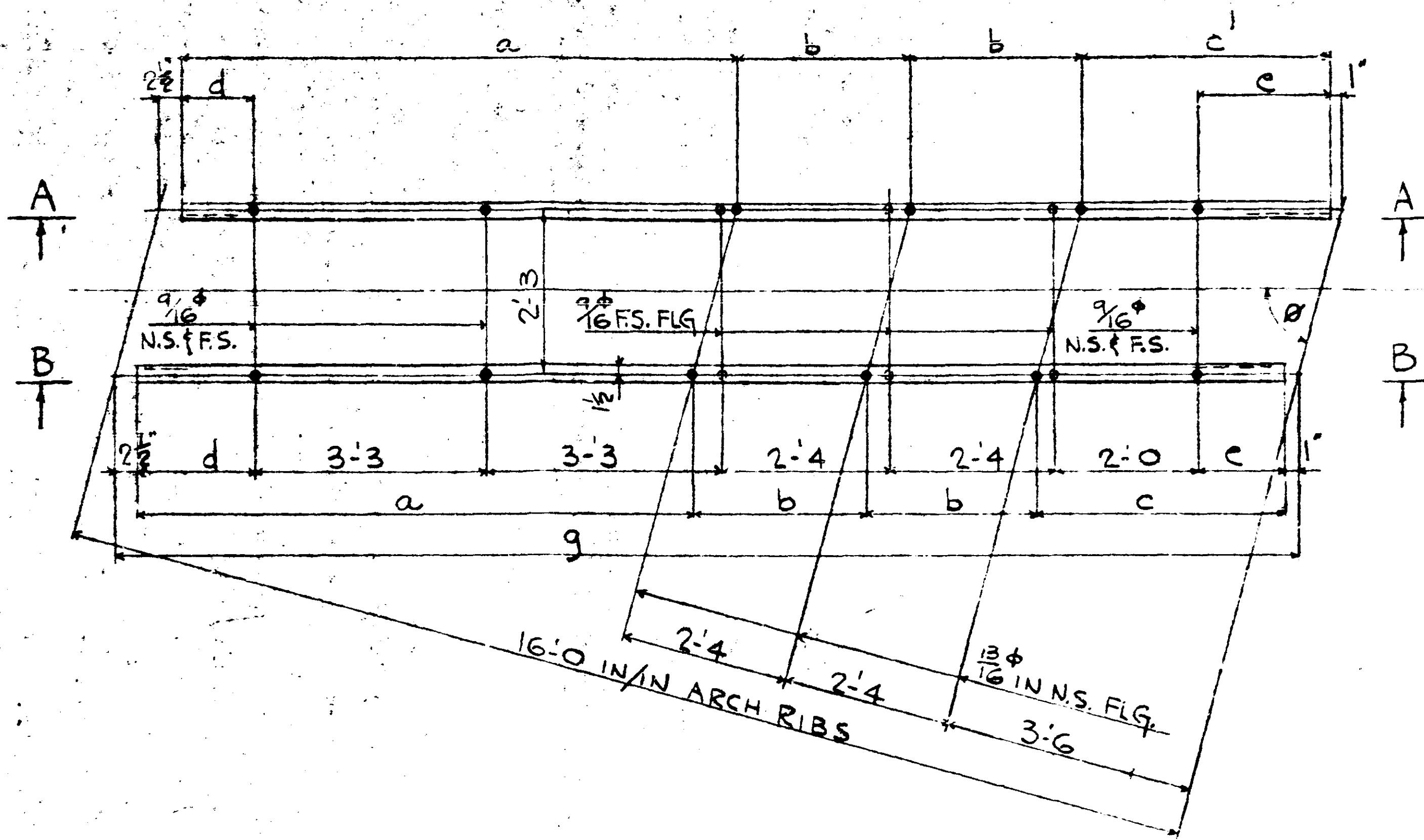
JESIC



LEWIS ENGINEERING COMPANY
5229 EDEN AVENUE - EDINA, MINNESOTA 56430 - (612) 820-6181

BRIDGE NO. - 2440 H. H. J. - FILE
RIB ARCH.
STATE PROJECT NO. -
FEDERAL PROJECT NO. -
CONTRACTOR - JOHNSON BROS.
LOCATION - BEAVER BR. OVER MISSISSIPPI RIVER
DESCRIPTION - N.W.B.T. CONDUIT SYSTEM

Job No.
JESIC
Drawn By EAS
Checked By CAD
M.H.D. Approved



QTY	a	b	c	d	e	f	g	θ	DESCRIPTION	MARK
1	7'-10 3/8	2'-4 3/4	3'-6 1/8	1'-8 1/16	1'-3 1/16	6'-4 8/16	6'-5 4/16	76.714	C10x15.3 x 6'-1 3/4	(55)
1	7'-10	2'-4 3/4	3'-6 1/8	1'-7 3/8	1'-3 3/4	6'-4	6'-5 8/16	76.953	x 16'-1 7/8	(56)
1	7'-9 3/16	2'-4 1/2	3'-6 1/16	1'-7 5/8	1'-3 3/4	6'-3 3/16	6'-4 8/16	77.196	x 16'-1 3/8	(57)
1	7'-9 3/16	2'-4 1/2	3'-6	1'-7 1/2	1'-3 1/16	6'-3 3/16	6'-4 1/16	77.445	x 16'-1 3/16	(58)
1	7'-9 1/4	2'-4 3/8	3'-6	1'-7 5/16	1'-3 1/16	6'-3 3/4	6'-4 1/2	77.682	x 6'-1	(59)
1	7'-9 1/2	2'-4 3/8	3'-5 5/16	1'-7 1/16	1'-3 1/16	6'-3 1/2	6'-4 3/8	77.925	x 6'-0 8/16	(60)
18	7'-10 3/16	2'-5	3'-6 1/16	1'-9 1/16	1'-3 3/16	6'-4 3/16	6'-6 4/16	75.02	x 6'-3 4/16	(66)
1	7'-8 3/8	2'-4 3/8	3'-5 1/2	1'-5 8/16	1'-3 3/16	6'-2 8/16	6'-2 8/16	81.10	x 15'-10 3/8	(70)
1	7'-8 1/2	2'-4 3/16	3'-5 1/2	1'-4 3/16	1'-3 3/16	6'-2 2/16	6'-2 8/16	81.47	x 15'-10 3/8	(71)
1	7'-8 7/16	2'-4 5/16	3'-5 7/16	1'-4 1/16	1'-3 3/16	6'-2 7/16	6'-2	81.81	x 15'-0 1/2	(72)
1	7'-8 3/8	2'-4 4/16	3'-5 7/16	1'-4 3/16	1'-3 3/16	6'-2 8/16	6'-1 3/16	82.16	x 15'-10 3/16	(73)
1	7'-8 1/4	2'-4 4/16	3'-5 3/8	1'-4 4/16	1'-3 3/8	6'-2 4/16	6'-1 8/16	82.53	x 15'-0 8/16	(74)
1	7'-8 1/4	2'-4 3/16	3'-5 3/8	1'-4 8/16	1'-3 8/16	6'-2 4/16	6'-1 1/2	82.89	x 15'-0	(75)

QTY	a	b	c	d	e	f	g	θ	DESCRIPTION	MARK
1	7'-10 3/8	2'-4 3/4	3'-6 1/8	1'-11 1/16	1'-10 1/16	6'-4 8/16	6'-5 4/16	76.714	C10x15.3 x 6'-1 3/4	(5)
1	7'-10	2'-4 3/4	3'-6 1/8	1'-11 5/8	1'-10	6'-4	6'-5 8/16	76.953	x 16'-1 7/8	(6)
1	7'-9 3/16	2'-4 1/2	3'-6 1/16	1'-11 1/2	1'-9 3/8	6'-3 3/16	6'-4 8/16	77.196	x 16'-1 3/8	(7)
1	7'-9 3/16	2'-4 1/2	3'-6	1'-11 1/2	1'-9 1/16	6'-3 3/16	6'-4 1/16	77.445	x 16'-1 3/16	(8)
1	7'-9 1/4	2'-4 3/8	3'-6	1'-11 1/16	1'-9 1/16	6'-3 3/4	6'-4 1/2	77.682	x 16'-1	(9)
1	7'-9 1/2	2'-4 3/8	3'-5 5/16	1'-11 1/16	1'-9 1/16	6'-3 1/2	6'-4 3/8	77.925	x 16'-0 8/16	(10)
18	7'-10 3/16	2'-5	3'-6 1/16	1'-12 1/16	1'-11 1/16	6'-4 3/16	6'-6 4/16	75.02	x 16'-3 4/16	(16)
1	7'-8 3/8	2'-4 3/8	3'-5 1/2	1'-10 3/8	1'-8	6'-2 8/16	6'-2 8/16	81.10	x 15'-10 3/8	(20)
1	7'-8 1/2	2'-4 3/16	3'-5 1/2	1'-10 3/16	1'-7 3/16	6'-2 2/16	6'-2 8/16	81.47	x 15'-10 3/8	(21)
1	7'-8 7/16	2'-4 5/16	3'-5 7/16	1'-10 3/16	1'-7 1/16	6'-2 7/16	6'-2	81.81	x 15'-10 1/2	(22)
1	7'-8 3/8	2'-4 4/16	3'-5 7/16	1'-10 1/4	1'-7 1/16	6'-2 8/16	6'-1 3/16	82.16	x 15'-10 3/16	(23)
1	7'-8 1/4	2'-4 4/16	3'-5 3/8	1'-10 1/4	1'-7 3/8	6'-2 4/16	6'-1 8/16	82.53	x 15'-10 8/16	(24)
1	7'-8 1/4	2'-4 3/16	3'-5 3/8	1'-10 1/4	1'-7 1/4	6'-2 4/16	6'-1 1/2	82.89	x 15'-10	(25)

STATE OF MINNESOTA
DEPT. OF HIGHWAYS
Details and materials appear to
be satisfactory for the purpose
for which they are intended.

ALL MATERIAL ON THIS DRAWING TO CONFORM
TO MHD 3306 & GALV. PER MHD 3394

J651C

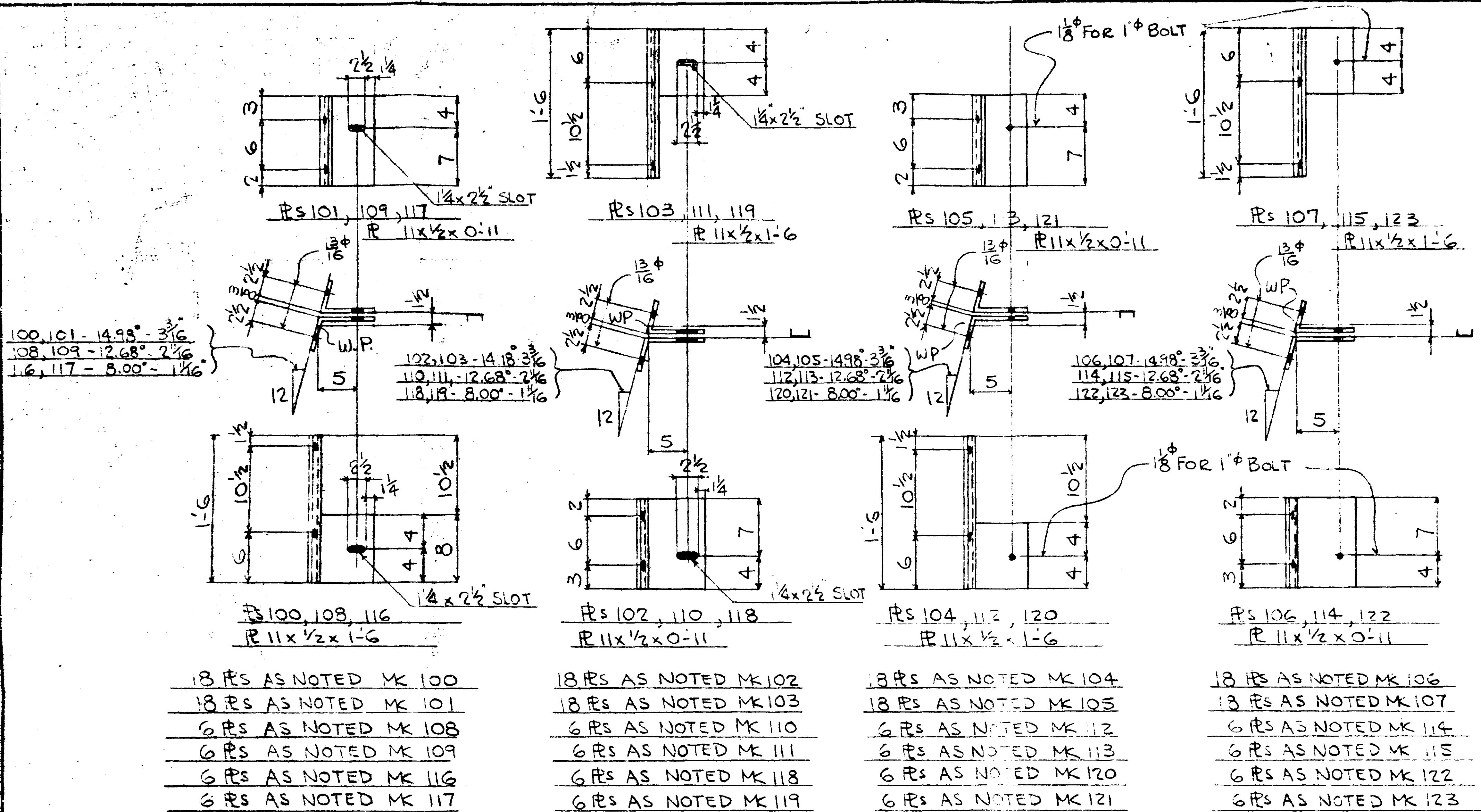


LEWIS ENGINEERING COMPANY
5229 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 920-6181

BRIDGE NO. - 2440
RIB ARCH **M. H. D. - FILE**

STATE PROJECT NO. -
FEDERAL PROJECT NO. -
CONTRACTOR - JOHNSON BROS.
LOCATION - 3RD AVE BRIDGE OVER MISSISSIPPI RIVER
DESCRIPTION - N.W.B.T. CONDUIT SYSTEM

Job No.
J651C
Drawn By: EAS
Checked by: CAD
M.H.D. Approved



100,101 - 14.98° - 3 3/16
 108,109 - 12.68° - 2 1/16
 116,117 - 8.00° - 1 1/16

102,103 - 14.18° - 3 3/16
 110,111 - 12.68° - 2 1/16
 118,119 - 8.00° - 1 1/16

104,105 - 14.98° - 3 3/16
 112,113 - 12.68° - 2 1/16
 120,121 - 8.00° - 1 1/16

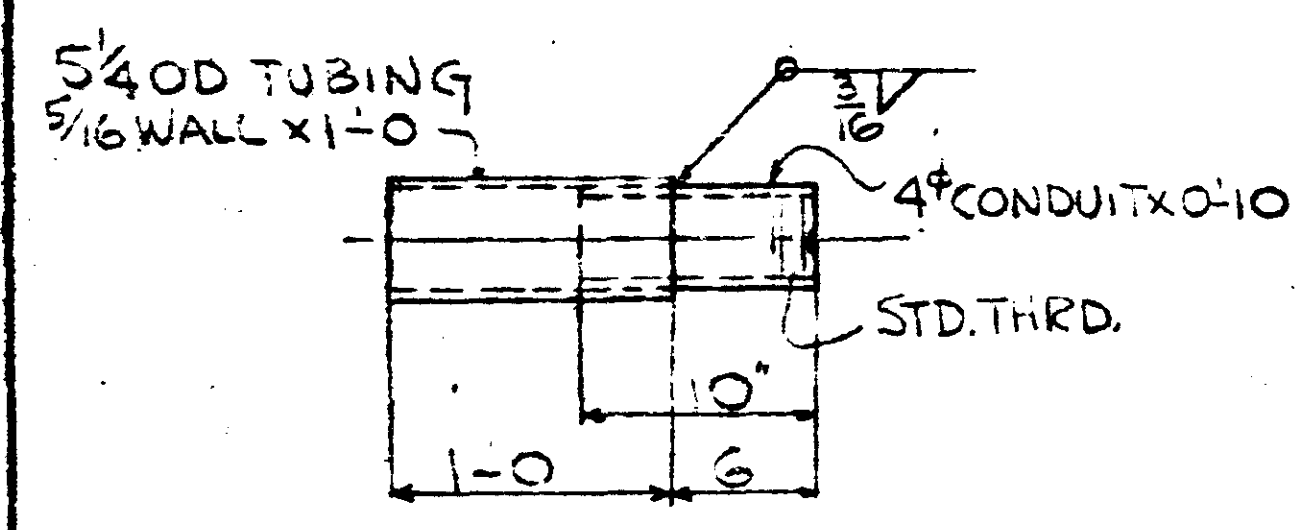
106,107 - 14.98° - 3 3/16
 114,115 - 12.68° - 2 1/16
 122,123 - 8.00° - 1 1/16

- 18 RS AS NOTED MK 100
- 18 RS AS NOTED MK 101
- 6 RS AS NOTED MK 108
- 6 RS AS NOTED MK 109
- 6 RS AS NOTED MK 116
- 6 RS AS NOTED MK 117

- 18 RS AS NOTED MK 102
- 18 RS AS NOTED MK 103
- 6 RS AS NOTED MK 110
- 6 RS AS NOTED MK 111
- 6 RS AS NOTED MK 118
- 6 RS AS NOTED MK 119

- 18 RS AS NOTED MK 104
- 18 RS AS NOTED MK 105
- 6 RS AS NOTED MK 112
- 6 RS AS NOTED MK 113
- 6 RS AS NOTED MK 120
- 6 RS AS NOTED MK 121

- 18 RS AS NOTED MK 106
- 18 RS AS NOTED MK 107
- 6 RS AS NOTED MK 114
- 6 RS AS NOTED MK 115
- 6 RS AS NOTED MK 122
- 6 RS AS NOTED MK 123



420 EXPANSION SLEEVES THUS

BA40-119	3-9/4	6-1
BB40-119	3-8	6-2 1/4
BC40-119	3-6 3/4	6-3 1/2
BD40-119	3-5 1/2	6-4 3/4
BE40-119	3-4 1/4	6-6
BF40-119	3-3	6-7 1/4
BG40-119	3-1 3/4	6-8 1/2
BH40-119	3-0 1/2	6-9 3/4
BI40-119	2-11 1/4	6-11
BJ40-119	2-10	7-0 1/4

CONDUIT AS NOTED - BA40-119
 - BE40-119
 - BC40-119
 - BD40-119
 - BE40-119
 - BF40-119
 - BG40-119
 - BH40-119
 - BI40-119
 - BJ40-119

SPAN 5

EK40-119	4-0 1/4	4-0
EL40-119	3-7 3/8	4-1 1/8
EM40-119	3-5 1/2	4-2 3/8
EN40-119	3-4	4-4
EO40-119	3-2 3/4	4-5 1/8
EP40-119	3-1 1/2	4-6 3/8
EQ40-119	3-0 1/2	4-7 3/8
ER40-119	2-11 1/4	4-9 1/8
ES40-119	2-10 1/4	4-10 3/8
ET40-119	2-9 1/4	4-12 1/8
EU40-119	2-8 1/4	5-0

CONDUIT AS NOTED - EK40-119
 - EL40-119
 - EM40-119
 - EN40-119
 - EO40-119
 - EP40-119
 - EQ40-119
 - ER40-119
 - ES40-119
 - ET40-119
 - EU40-119

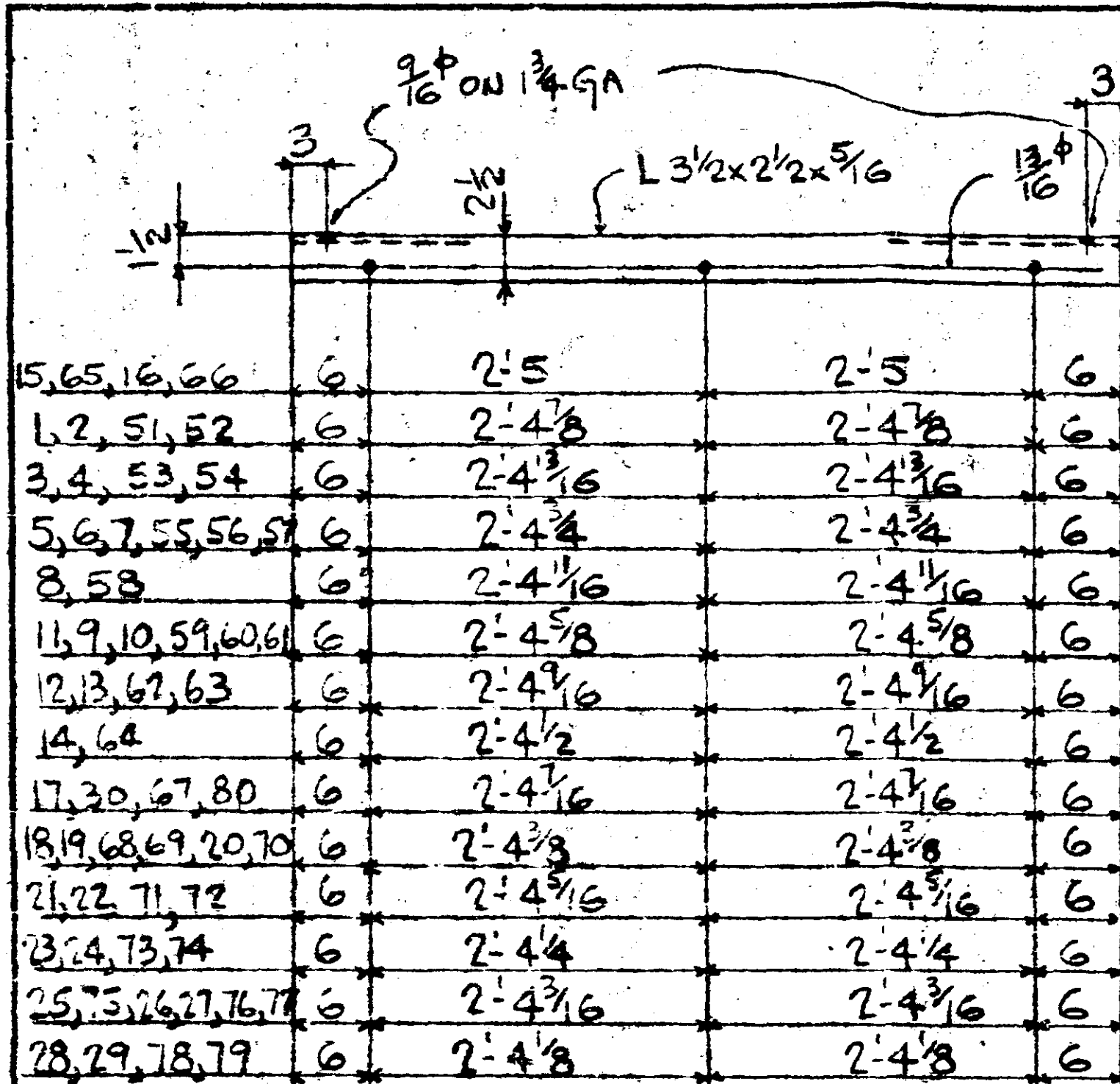
SPAN 1

QTY	DESCRIPTION	MARK	REMARKS	WT.
120	RS 11x 1/2 x 1-6		FOR 100-103-104 107-108-111-112 115-116-119-120 #123	
120	RS 11x 1/2 x 0-11		FOR 101-102-105 106-109-110-113 114-117-118-121 #122	
420	EXPANSION SLEEVES			
420	5/4 O.D. TUBING X 1-0		5/16 WALL - COLD	
420	4\"/>			
3	4\"/>			
3		BB40-119	SPAN 5	
3		BC40-119		
3		BD40-119		
3		BE40-119		
3		BF40-119		
3		BG40-119		
3		BH40-119		
3		BI40-119		
3		BJ40-119		
3		BK40-119		
3		BL40-119	SPAN 1	
3		BM40-119		
3		BN40-119		
3		BO40-119		
3		BP40-119		
3		BQ40-119		
3		BR40-119		
3		BS40-119		
3		BT40-119		
3		BU40-119		
60	3\"/>			
			GALV. AFTER CUTTING	
			STATE OF MINNESOTA DEPT. OF HIGHWAYS Details and materials appear to be satisfactory for the purpose for which they are intended.	
			ALL RS TO BE MHD 3306 - GALV. PER MHD 3394 - SEE DRG C19 FOR CONDUIT NOTES	

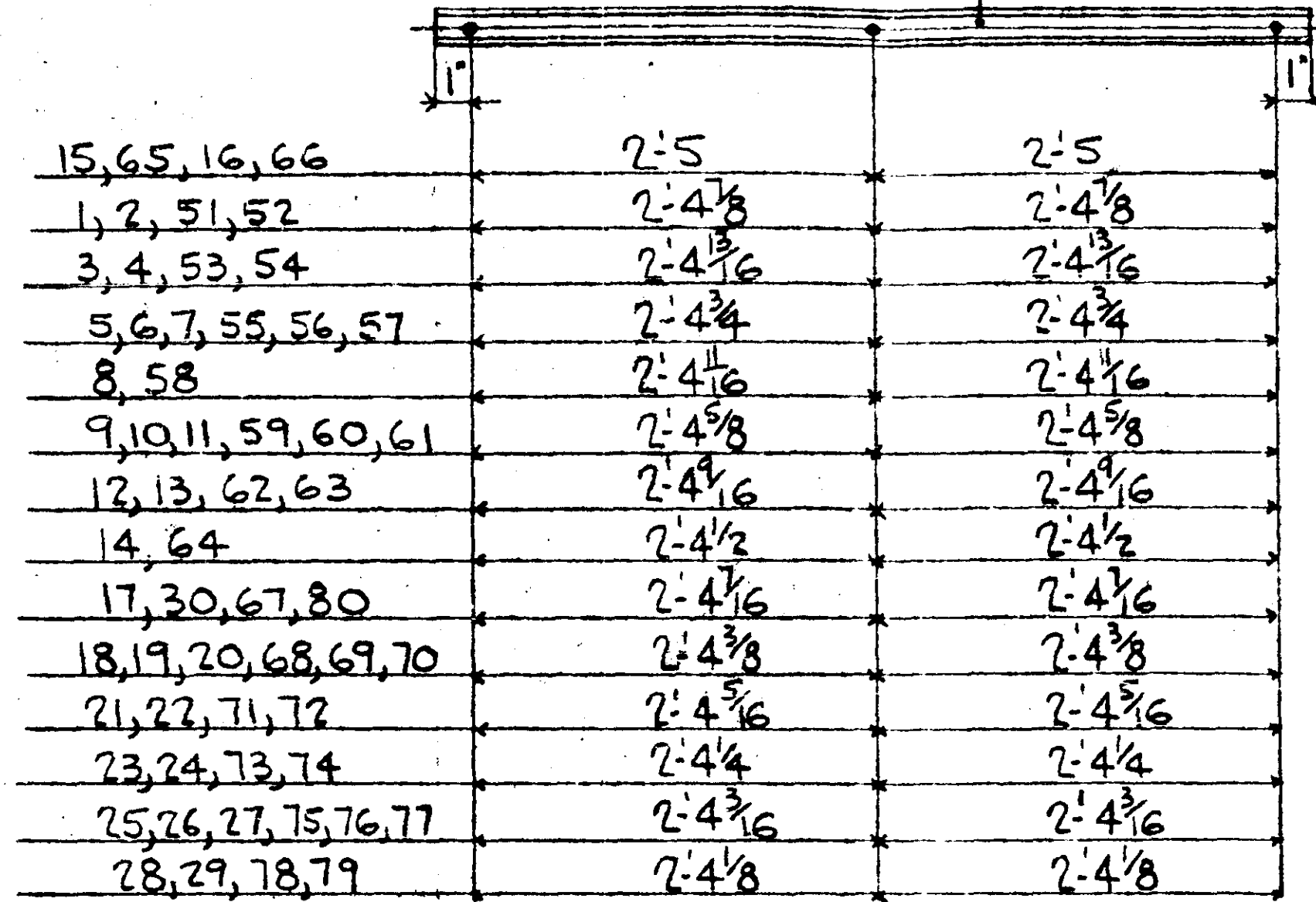
LEWIS ENGINEERING COMPANY
 5229 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 920-8181

BRIDGE NO. - 2440
 STATE PROJECT NO. -
 FEDERAL PROJECT NO. -
 CONTRACTOR - JOHNSON BROS
 LOCATION - 3RD AVE BRIDGE OVER MISSISSIPPI RIVER
 DESCRIPTION - CURT CONDUIT SYSTEM

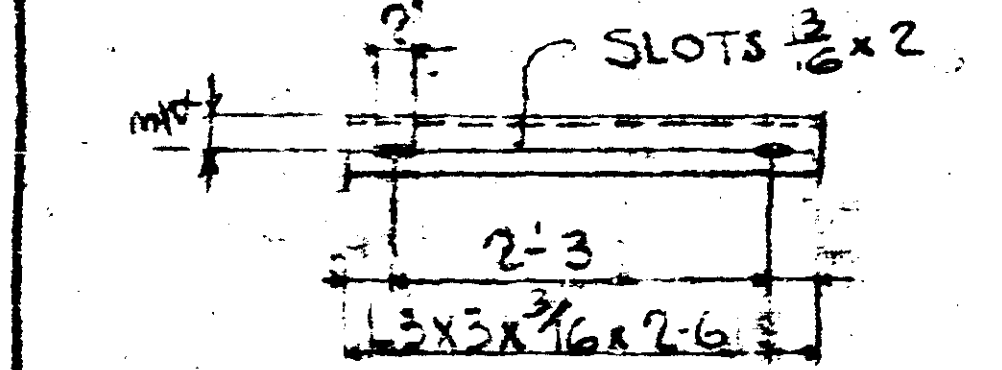
Job No. J651C
 Drawn by ERS
 Checked by CAD
 M.H.D. approved



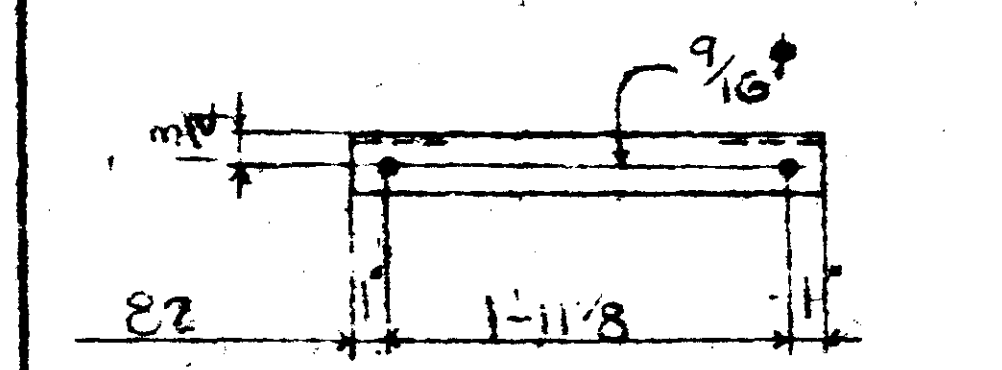
ONE ANGLE OF EACH MK 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, & 30
 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 67, 68
 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, & 80 - 24 ANGLES - 15,
 18 ANGLES 16, 24 ANGLES 65, 13 ANGLES 66



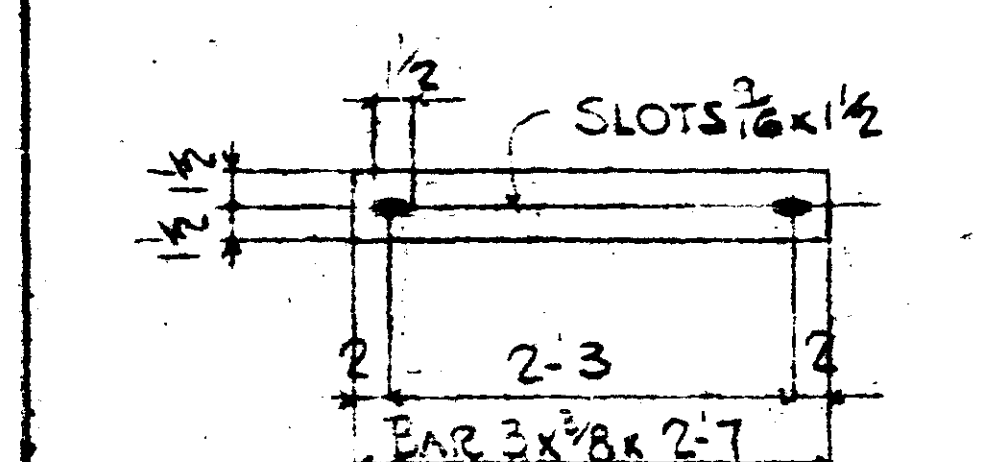
2 CHANNELS OF EACH MK 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13,
 14, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29 & 30
 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 67, 68, 69,
 70, 71, 72, 73, 74, 75, 76, 77, 78, 79 & 80 - 48 CHANNELS 15
 36 CHANNELS 16, 48 CHANNELS 65, 36 CHANNELS 66



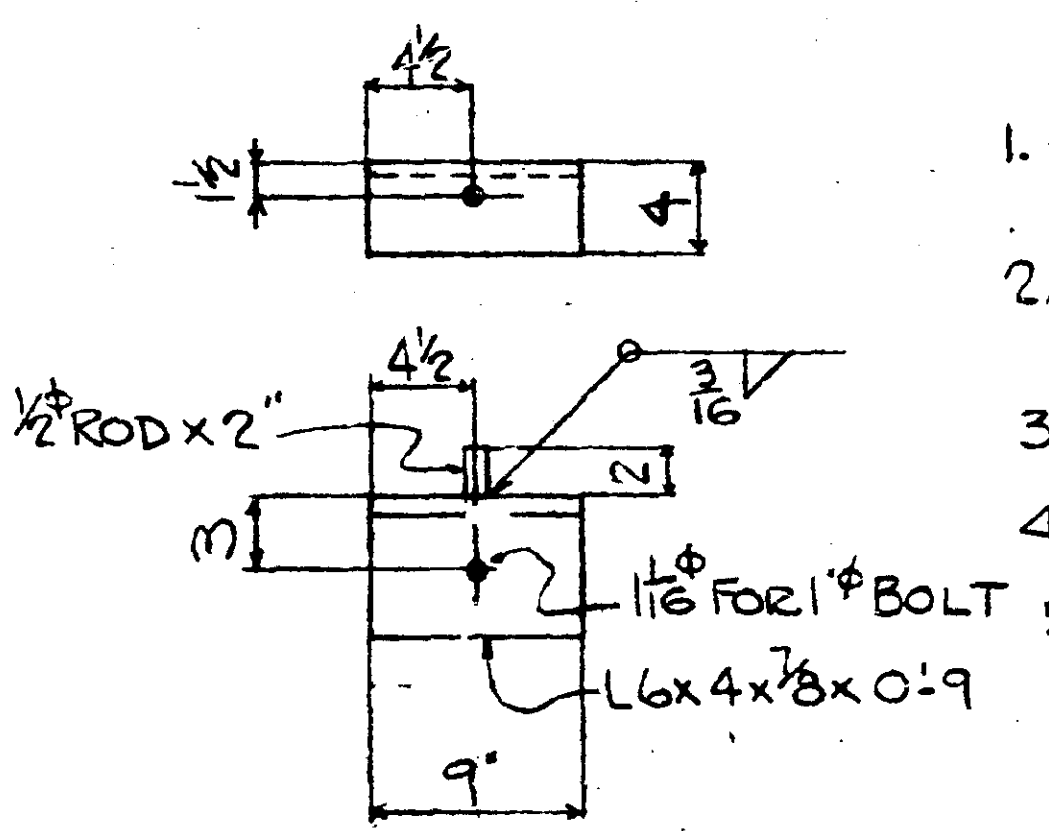
140 ANGLES MK 81



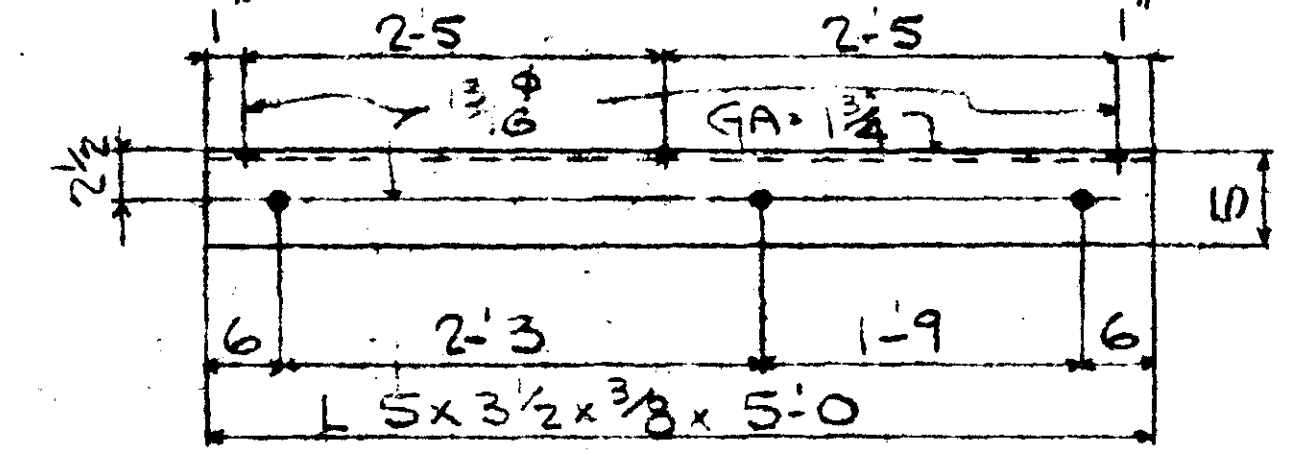
140 - 3x3x5/16x2-1/8 MK 82



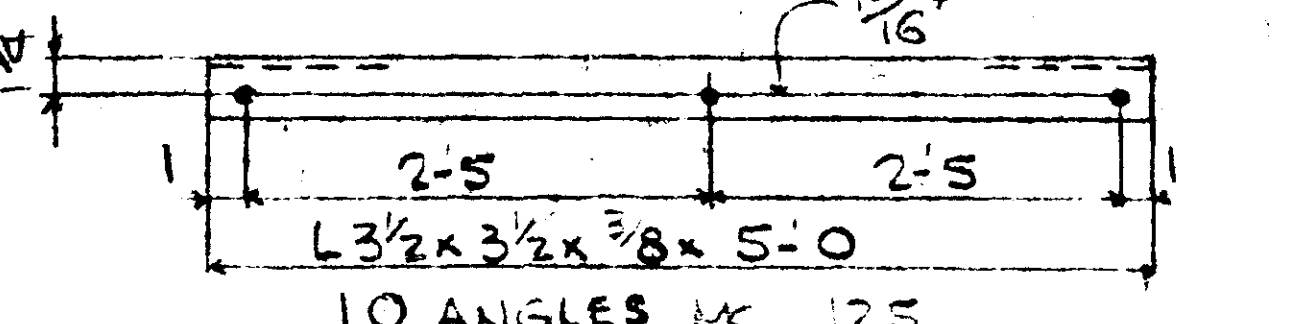
630 BARS MK 84



80 SEAT ANGLES 85



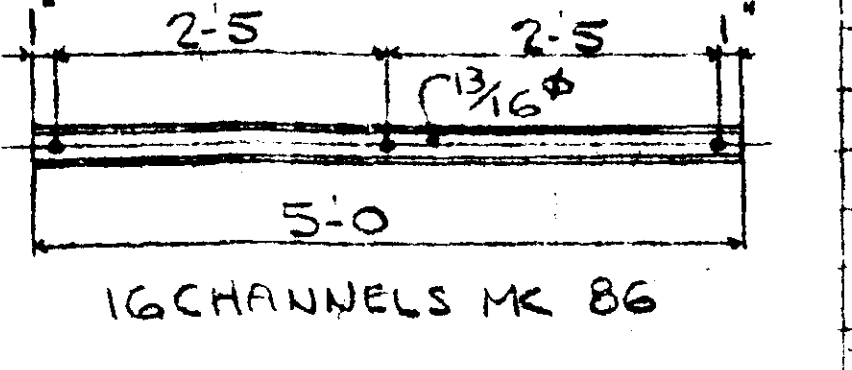
10 ANGLES MK 124



10 ANGLES MK 125

- NOTES:
- CONDUIT-MHD 3801, HOT DIPPED GALV. AFTER FAB. PROTECT SHOP CUT THREADS WITH ZRC.
 - SEAL CONNECTIONS WITH 3M#48 SEALANT SO ALL THREADS ARE COVERED WHEN TIGHT.
 - FASTENERS SHALL CONFORM TO MHD 3391-A
 - GALV. FASTENERS, WASHERS & RODS PER MHD 3392
 - ALL CONDUIT FITTINGS SHALL BEAR U.L. LABEL OF APPROVAL.
 - ANGLES & BARS - MHD 3306 GALV. PER MHD 3394
 - SHOP INSPECTION BY MHD BEFORE & AFTER GALV.
 - MAT'L & WORKMANSHIP IN ACCORD WITH MHD SPECS. DATED 1-1-72 & SPECIAL PROVISIONS

- FIELD BOLTS
- 1540 - BOLTS 1/2" x 1 1/2"
 - 1540 - HX NUTS 1/2"
 - 510 - KWIK BOLTS 3/4" x 5 1/2"
 - 120 - H.S. BOLTS 1" x 2 1/2"
 - 120 - HARD WASHERS - 1 1/8" HOLE
 - 120 - HX NUTS FOR 1" H.S. BOLTS
 - 420 - REV. WASHER - 3/16" HOLE



16 CHANNELS MK 86

BILL OF MATERIAL- CONDUIT- SPAN 1				BILL OF MATERIAL				
QTY	DESCRIPTION	MARK	REMARKS	QTY	DESCRIPTION	MARK	REMARKS	WT.
600	4" CONDUIT x 9'-10 1/4	S40-119		24	3 1/2 x 2 1/2 x 5/16 x 5'-10	15		
30	x 4'-4 1/2	S40-524		24	x 5'-10	65		
6	x 3'-4 1/8	S40-401		4	x 5'-9 3/8	1 EA OF 1, 2, 51, 52		
6	x 3'-3 3/4	S40-396		4	x 5'-9 3/8	1 EA OF 3, 4, 53, 54		
6	x 3'-3 3/8	S40-393		6	x 5'-9 1/2	1 EA OF 5, 6, 7, 55, 56, 57		
6	x 3'-3	S40-390		2	x 5'-9 3/8	1 EA OF 8, 58		
6	x 3'-2 7/8	S40-385		6	x 5'-9 1/4	1 EA OF 9, 10, 11, 59, 60, 61		
30	x 3'-7 1/4	S40-432		4	x 5'-9 1/8	1 EA OF 12, 13, 62, 63		
15	x 2'-5	S40-290		2	x 5'-9	1 EA OF 14, 64		
15	x 2'-4 1/2	S40-284		4	x 5'-8 3/8	1 EA OF 17, 30, 67, 80		
750	4" THRD. CPLGS			6	x 5'-8 1/4	1 EA OF 18, 19, 20, 68, 69, 70		
				4	x 5'-8 3/8	1 EA OF 21, 22, 71, 72		
	CONDUIT- SPAN 2			4	x 5'-8 1/2	1 EA OF 23, 24, 73, 74		
600	4" CONDUIT x 9'-10 1/4	S40-119		6	x 5'-8 3/8	1 EA OF 25, 26, 27, 75, 76, 77		
30	x 9'-0 1/2	S40-1084		4	x 5'-8 1/4	1 EA OF 28, 29, 78, 79		
60	x 8'-5 1/4	S40-1016		18	x 5'-10	16		
30	x 3'-3 3/8	S40-393		18	x 5'-10	66		
30	x 1'-11 1/8	S40-231		140	3x3x3/16x2-6 1/2	81		
750	4" THRD. CPLGS			140	3x3x3/16x2-1 1/8	82		
	CONDUIT- SPAN 3							
600	4" CONDUIT x 9'-10 1/4	S40-119		48	CHANNELS 12GA x 5'-0	15	FAMET (FIG. 580)	
30	x 9'-1 1/4	S40-1092		48	x 5'-0	65		
60	x 8'-6 1/4	S40-1022		8	x 4'-11 3/4	2 EA OF 1, 2, 51, 52		
30	x 3'-3 3/8	S40-393		8	x 4'-11 3/8	2 EA OF 3, 4, 53, 54		
30	x 1'-10 1/4	S40-226		8	x 4'-11 1/2	2 EA OF 5, 6, 7, 55, 56, 57		
750	4" THRD. CPLGS			2	x 4'-11 1/8	2 EA OF 8, 58		
	CONDUIT- SPAN 4			4	x 4'-11 1/4	2 EA OF 9, 10, 11, 59, 60, 61		
600	4" CONDUIT x 9'-10 1/4	S40-119		2	x 4'-11 1/8	2 EA OF 12, 13, 62, 63		
30	x 8'-11 3/8	S40-1075		4	x 4'-11	2 EA OF 14, 64		
60	x 8'-5 1/4	S40-1012		3	x 4'-10 1/8	2 EA OF 17, 30, 67, 80		
30	x 3'-3 3/8	S40-393		3	x 4'-10 3/4	2 EA OF 18, 19, 20, 68, 69, 70		
30	x 8'-0 1/8	S40-963		8	x 4'-10 3/8	2 EA OF 21, 22, 71, 72		
750	4" THRD. CPLGS			8	x 4'-10 1/4	2 EA OF 23, 24, 73, 74		
	CONDUIT SPAN 5			8	x 4'-10 3/8	2 EA OF 25, 26, 27, 75, 76, 77		
570	4" CONDUIT x 9'-10 1/4	S40-119		8	x 4'-10 1/4	2 EA OF 28, 29, 78, 79		
30	x 8'-0 1/2	S40-964		36	x 5'-0	16		
6	x 3'-5	S40-420		36	x 5'-0	66		
6	x 3'-5 1/8	S40-417		630	BARS 3x3/8x2-7	84		
6	x 3'-5 1/4	S40-414		16	CHANNELS 12GA x 5'-0	86	FAMET (FIG. 580)	
6	x 3'-5 3/8	S40-415		80	SEAT ANGLES	85		
6	x 3'-5 1/2	S40-414		80	3x3x3/8x0-9			
3	x 4'-5 1/8	S40-537		80	RODS 1/2" x 0-2			
3	x 4'-5 1/4	S40-536		10	5x3 1/2x3/8x5-0	124		
3	x 4'-5 1/2	S40-534		10	3 1/2x3 1/2x3/8x5-0	125		
3	x 4'-5 3/4	S40-533		450	4" RODS x 1-9		THRD 2.E. 4"	
3	x 4'-5 1/2	S40-531		1748	3/4" Hvy HX NUTS			
3	x 4'-5	S40-530		80	1" RODS x 2-6		THRD 2.E. 4"	
3	x 4'-4 1/2	S40-527		160	1" Hvy HX NUTS			
3	x 4'-4 3/8	S40-525						
3	x 4'-4 1/4	S40-524						
3	x 4'-4 1/8	S40-522						
3	x 3'-1 1/2	S40-376						
3	x 3'-1 1/4	S40-374						
3	x 3'-1 1/8	S40-373						
3	x 3'-1 1/4	S40-372						
3	x 3'-1 1/8	S40-371						
3	x 3'-0 3/4	S40-370						
3	x 3'-0 1/2	S40-366						
3	x 3'-0 1/4	S40-365						
3	x 3'-0 1/8	S40-364						
3	x 3'-0 1/4	S40-362						
720	4" THRD. CPLGS							

J651C

LEWIS ENGINEERING COMPANY
 5229 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 920-0101

BRIDGE NO. - 2440

STATE PROJECT NO. -

FEDERAL PROJECT NO. -

CONTRACTOR - JOHNSON BROS.

LOCATION - 3RD AVE BRIDGE OVER MISSISSIPPI RIVER

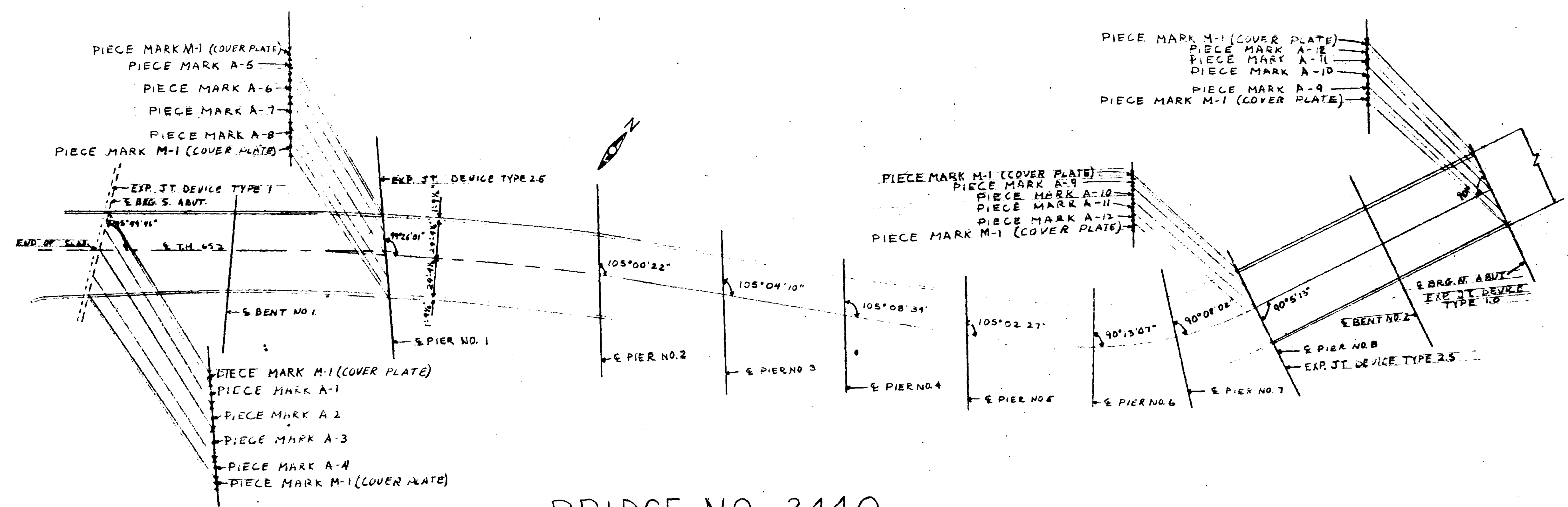
DESCRIPTION - NW3T CONDUIT SYSTEM

M. H. D. FILE

J651C
 Drawn By: EAS
 Checked By: CAD
 M.H.D. Approved

SHEET INDEX

SHEET NO.	DESCRIPTION
1 OF 7	BRIDGE DECK
2 OF 7	EXPANSION ASSEMBLY
3 OF 7	EXPANSION ASSEMBLY
4 OF 7	EXPANSION ASSEMBLY
5 OF 7	GENERAL NOTES, SECTION AA, DETAILS
6 OF 7	GENERAL NOTES, SECTION AA, DETAILS
7 OF 7	COVER PLATE DETAILS



BRIDGE NO. 2440

STATE OF MINNESOTA
DEPT. OF TRANSPORTATION
This drawing is to be used only for the purpose for which it is intended.

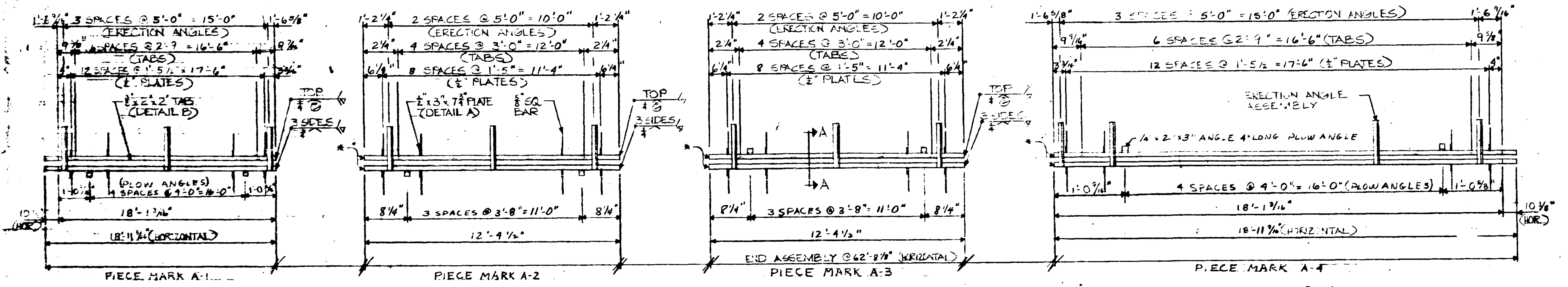
SEP 21 1979



M. H. D. FILE

CONSTRUCTION MATERIALS, INC. MPLS., MINN.	SEP-27-1979
BRIDGE DECK	2440
JOHNSON BROS.	7-06-79
JOHNSON BROS.	9-03-79
DATE	1 OF 7

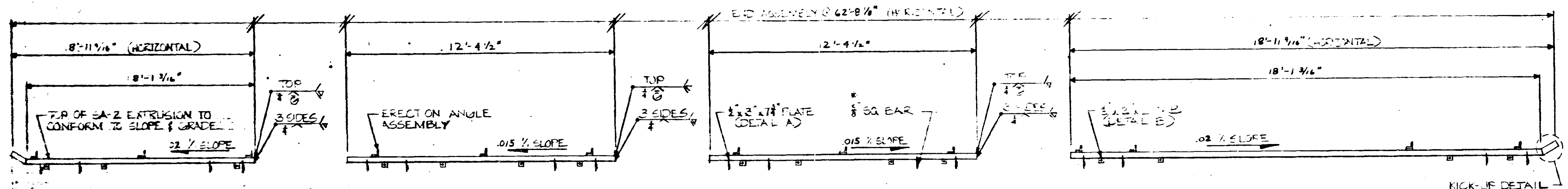
BILL OF MATERIALS		
QTY	UNIT	DESCRIPTION
4	PCS	18'-11 1/2" RAILS @ 2" EXTENSION WITH KICK UP
4	PCS	12'-4 1/2" SA-2 EXTRUSION
1	PIECE	65'-0" 2" EXTENSION
88	PCS	2" x 3" x 7/8" PLATE (DETAIL A)
24	PCS	2" x 3" x 2" T&E (DETAIL B)
1	GAL	EON LASTIC ADHESIVE
1	QT	ZINC RICH PAINT
14	PCS	3" x 2" x 1/2" ANGLE 1" LONG (REMOVE AFTER PLACEMENT)
28	PCS	1/4" x 2" x 2" SHIM (REMOVE AFTER PLACEMENT)
8	PCS	1/4" x 2" x 3" ANGLE 4" LONG PLOW ANGLE
18	PCS	3/4" x 3" x 8" PLOW FINGER



PLAN

1-REQUIRED AS SHOWN SOUTH ABUTMENT

* 1/4" BEVEL ALL AROUND FOR FIELD WELD AS DIRECTED BY ENGINEER BEFORE INSTALLING NEOPRENE ISLAND.



ELEVATION

• GENERAL NOTES, SECTION AA, AND DETAILS ON SHEET 5

STATE OF MINNESOTA
DEPT. OF TRANSPORTATION
Details and materials appear to be satisfactory for the purpose for which they are intended.

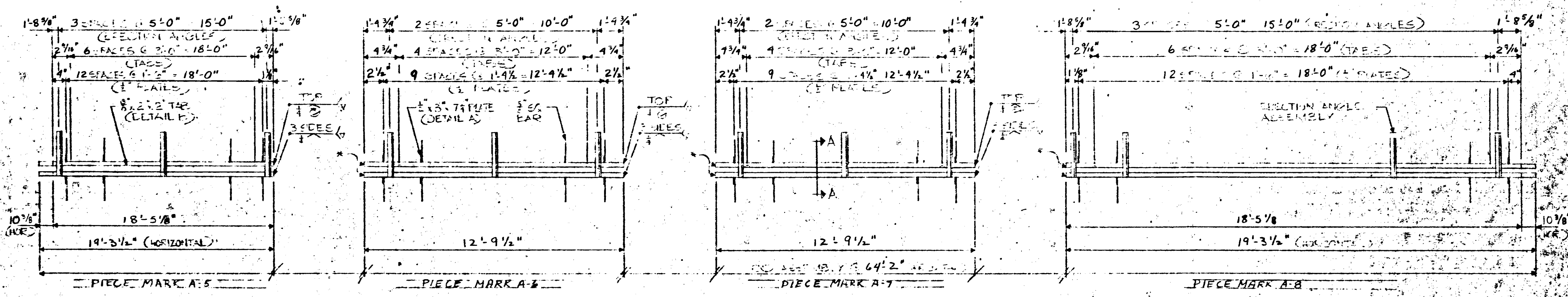
M. H. D. FILE

SEP 21 1973



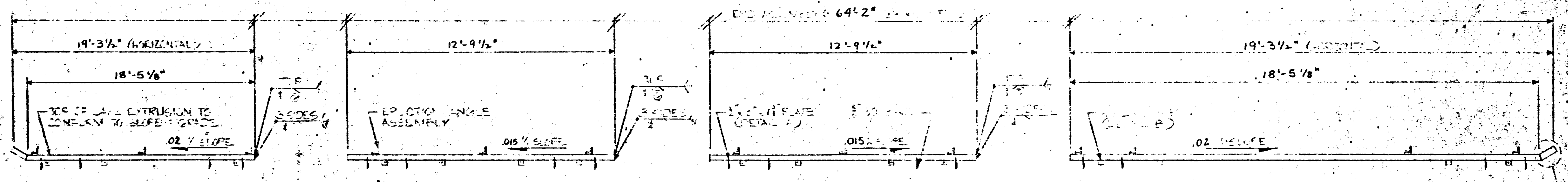
CONSTRUCTION MATERIALS INC.	SP 2710-21
Mpls. Minn.	2440
EXPANSION ASSEMBLY	547005-2-67
JOHNSON BROS.	RJT 7-26-79
JOHNSON BROS.	9-03-79

BILL OF MATERIALS		
QTY	UNIT	DESCRIPTION
4	PC	19'-3 1/2" (HORIZONTAL) EA 2 EXTENSION WITH KICK UP
4	PC	12'-9 1/2" (HORIZONTAL) EA 2 EXTENSION WITH KICK UP
1	PIECE	2" x 12" x 12" PLATE EXTENSION
92	PCS	1/2" x 12" x 12" PLATE (DETAIL A)
24	PCS	1/2" x 12" x 12" PLATE (DETAIL B)
1	CS	8" x 2" x 2" TAP (DETAIL C)
1	CS	NON ELASTIC ADHESIVE
14	CS	1/2" x 12" x 12" PLATE (REMOVE AFTER PLACEMENT)
28	CS	1/2" x 12" x 12" PLATE (REMOVE AFTER PLACEMENT)



PLAN
 REQUIRED AS SHOWN
 PIER NO 1

* ALL WELDS AND END FIELD WELDS AS REQUIRED BY ENGINEER BEFORE INSTALLATION



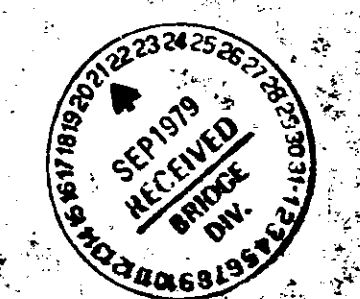
ELEVATION

GENERAL NOTES, SECTION AA AND REFERENCE SHEET 6

STATE OF MINNESOTA
 DEPT. OF TRANSPORTATION
 Details and materials appear to be satisfactory for the purpose for which they are intended.

M. H. D. - FILE

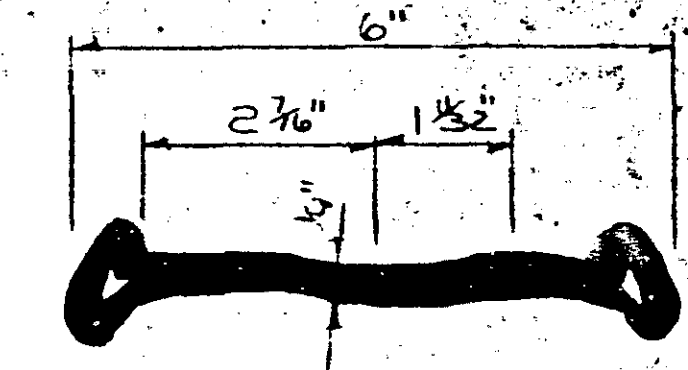
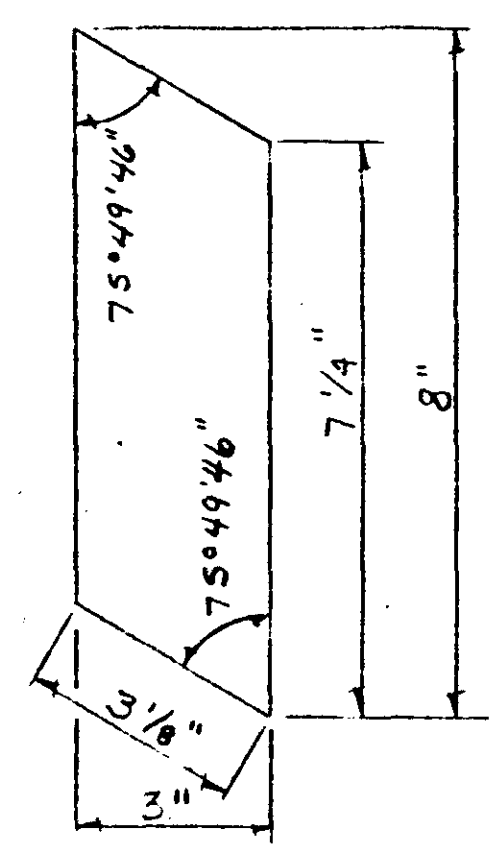
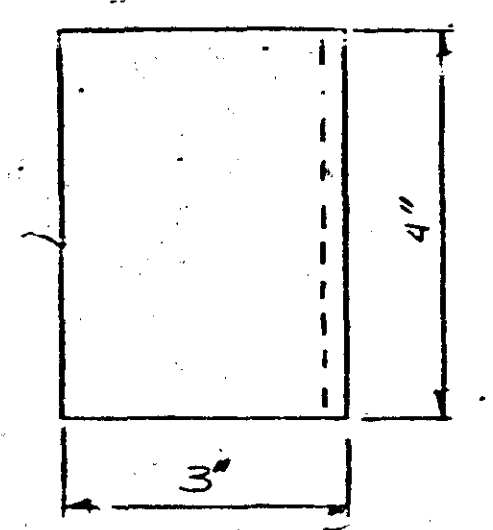
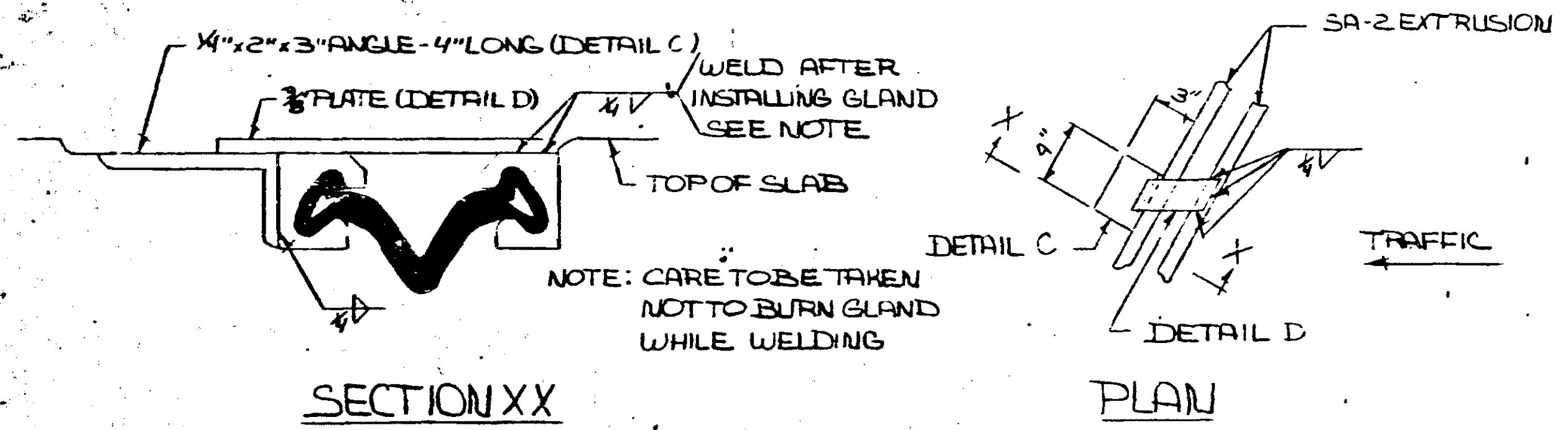
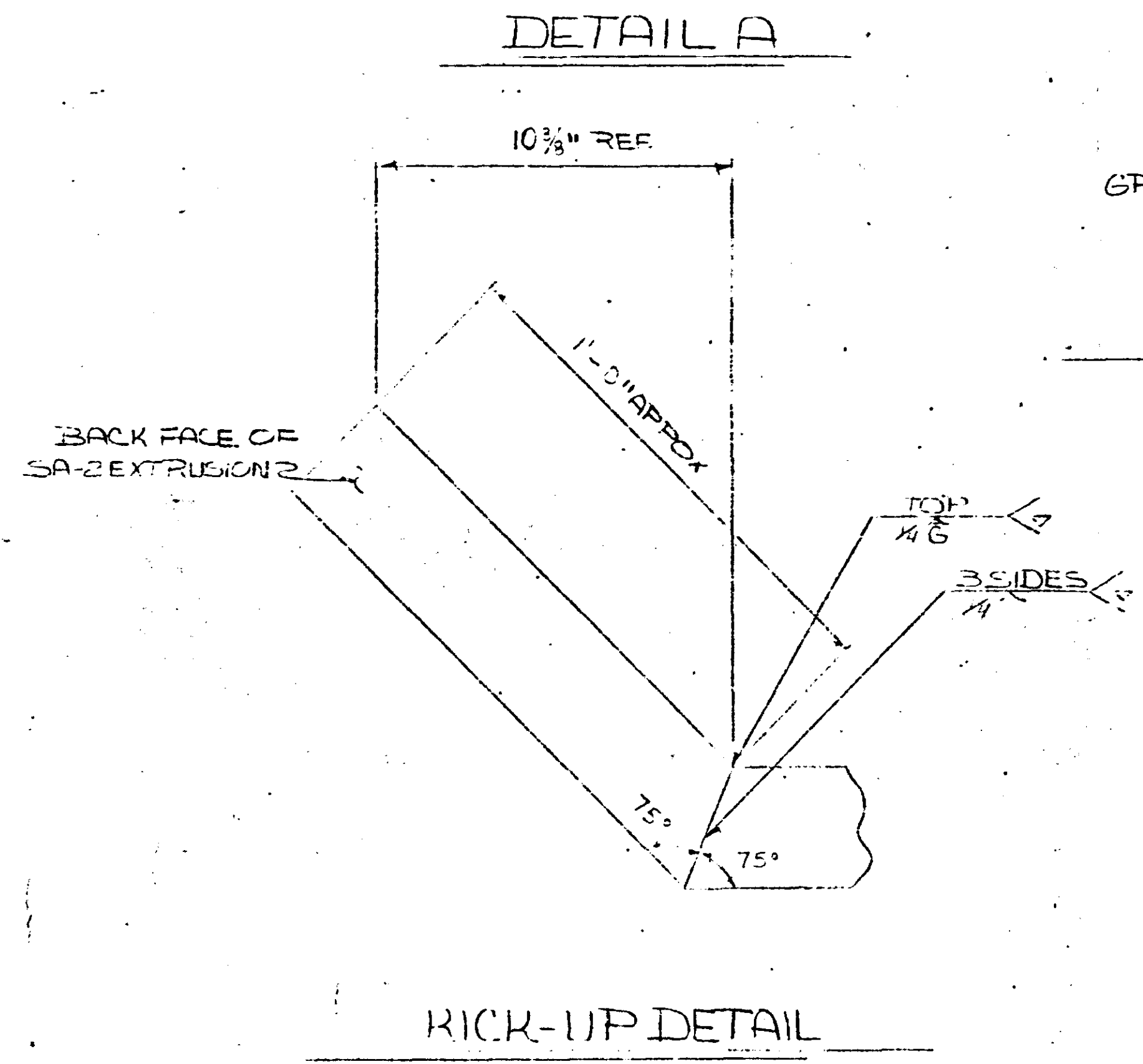
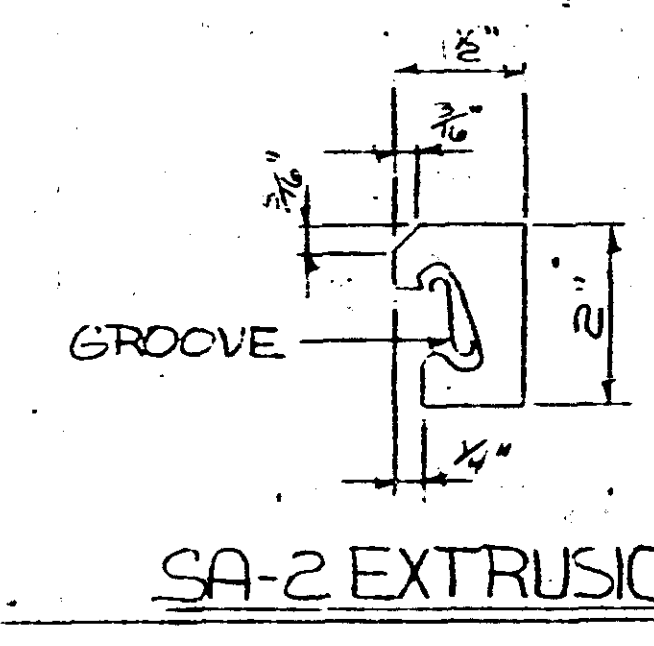
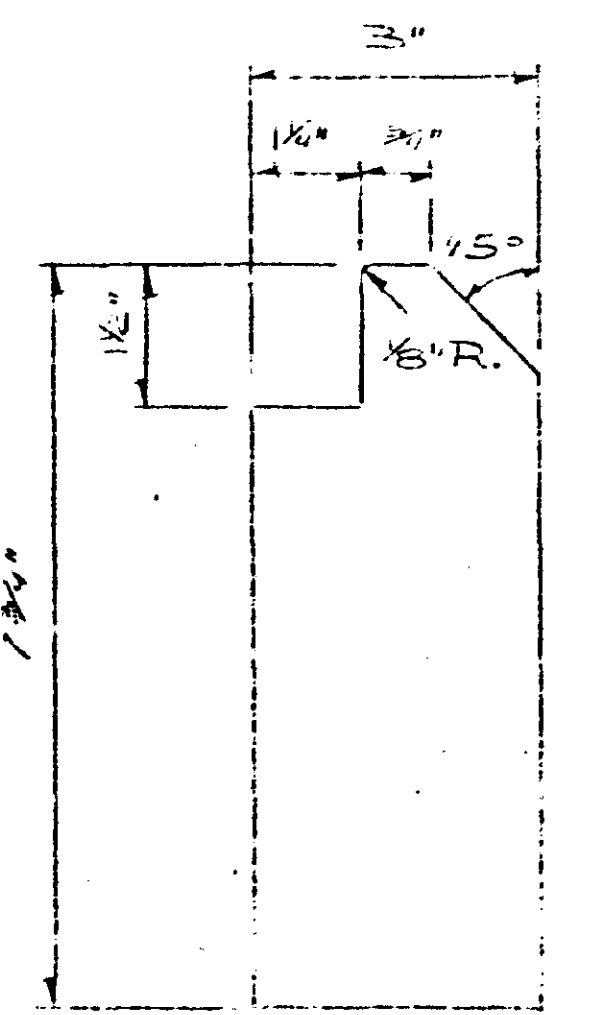
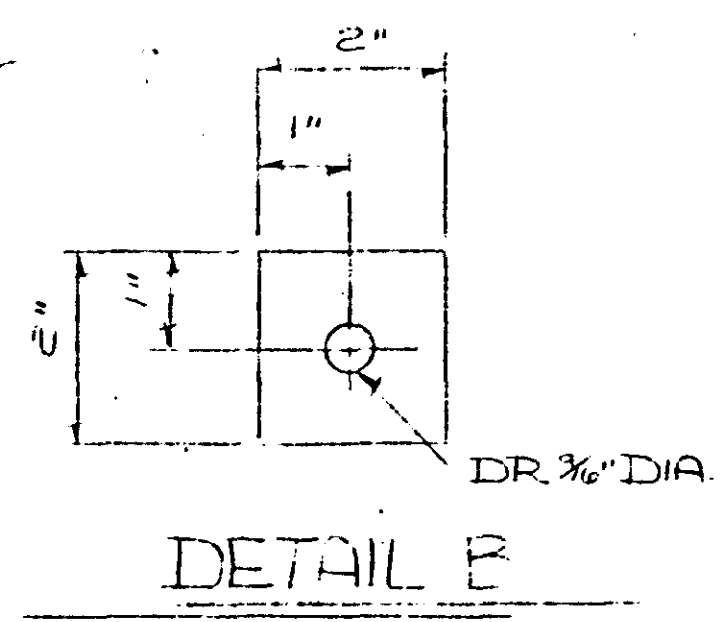
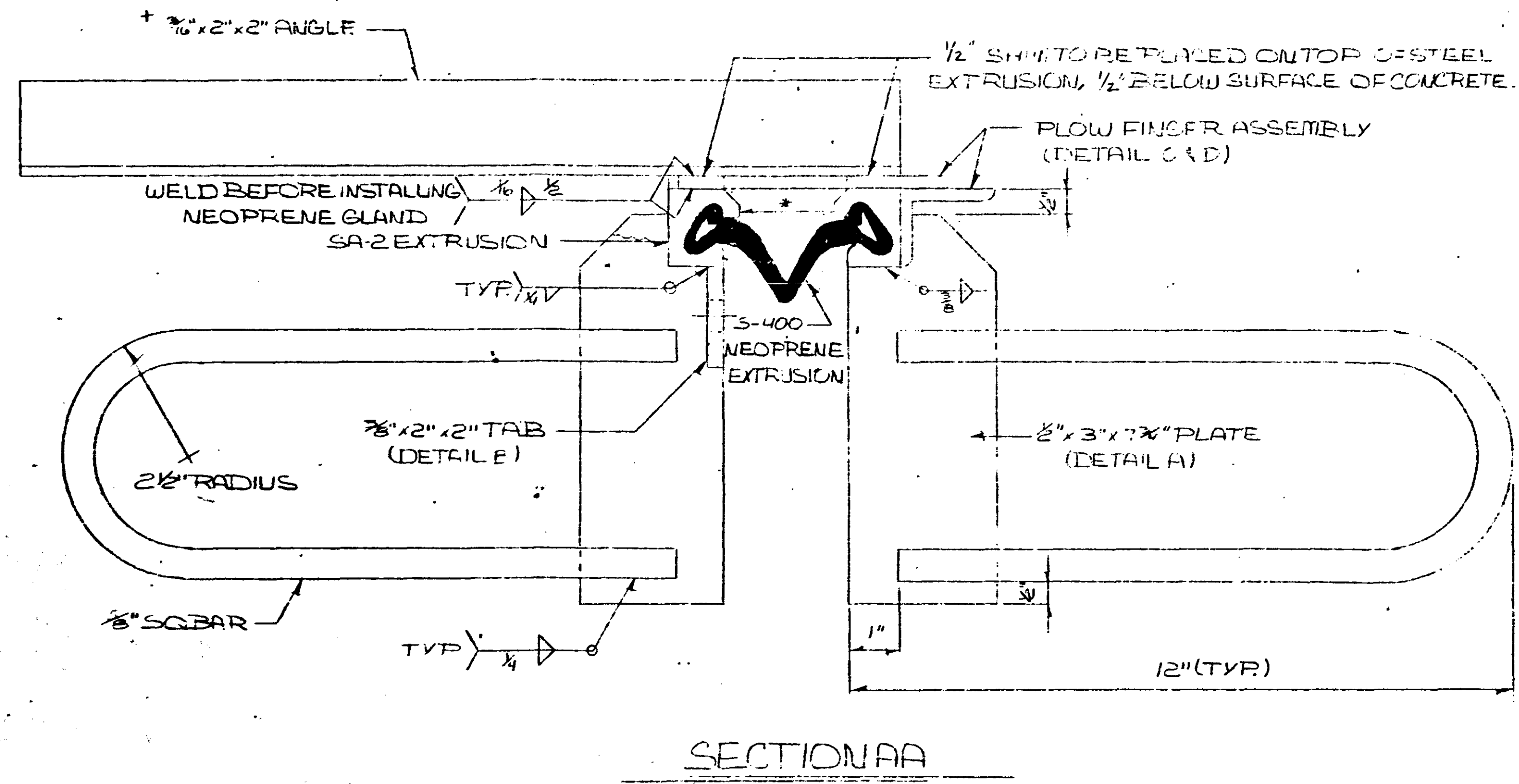
SEP 21 1979



CONSTRUCTION MATERIALS, INC.	SP 2710-2F
MADISON, MINN.	2440
BRIDGE DIVISION	BHP 005-2 (67)
JOHNSON BROS.	7-06-79
JOHNSON BROS.	9-18-79
3RD AVE. BRIDGE MACHIN.	PLC 3077

GENERAL NOTES

- (WORKMANSHIP AND MATERIALS PER. MIN./DOT. SPECS DATED JAN. 1, 1978 AND SPECIAL PROVISIONS.
- (STEEL EXTRUSIONS PER. MIN./D.O.T. 3307
- (STEEL PLATES AND BARS PER MIN./D.O.T. 3306
- (NEOPRENE EXTRUSION PER APPLICABLE SS MIN./DOT. 3721
- (BON LASTIC ADHESIVE PER. MIN./DOT. 3722 AS AMENDED BY 1978 SPECS. EXCEPT THE FOLLOWING:
 - SOLID CONTENT - 65% BY WEIGHT
 - ELONGATIONS - 250%
- (STEEL EXTRUSIONS TO BE SANDBLASTED FOLLOWING FABRICATION
- (FOLLOWING SANDBLASTING EXTRUSIONS TO BE GALVANIZED PER. MIN./D.O.T. 2471.3L2
- (SHOP INSPECTION BY MIN./DOT. BEFORE AND AFTER GALV
- (NO WELDS SHALL BE PERMITTED IN INTERNAL AREAS (I.E. GROOVE) OF SA-2 EXTRUSION THAT IS THOSE AREAS TO BE IN CONTACT WITH NEOPRENE GLAND. INTERNAL AREAS TO BE SMOOTH.
- (MANUFACTURER RECOMMENDS A 2" JOINT SPACING FOR EASE OF INSTALLING GLAND AND SUBSEQUENT SERVICE
- (REMOVAL OF 1/2" SHIM BY CAREFUL CHIPPING AND GRINDING. TOUCH-UP EXTRUSION WITH ZINC-RICH SPRAY PAINT OR AS DIRECTED BY THE ENGINEER.
- (URETHANE STRIP TO BE INSTALLED IN GROOVE OF SA-2 EXTRUSION PRIOR TO SHIPPING, TO AID IN KEEPING FOREIGN MATTER OUT OF GROOVE.
- (STEEL EXTRUSIONS AND ROADWAY PLATE TO BE STRAIGHTENED TO A TOLERANCE OF 1/8" IN TEN FEET AFTER GALVANIZING.
- (STEEL EXTRUSION FOR GUTTER SECTION MAY BE WELDED BUT SHALL BE SMOOTH AT THE GRID SURFACE.
- (ERECTION ANGLES AT GUTTER LINES TO BE REPOSITIONED IN FIELD IF INTERFERENCE OCCURS.



M. H. D. - FILE

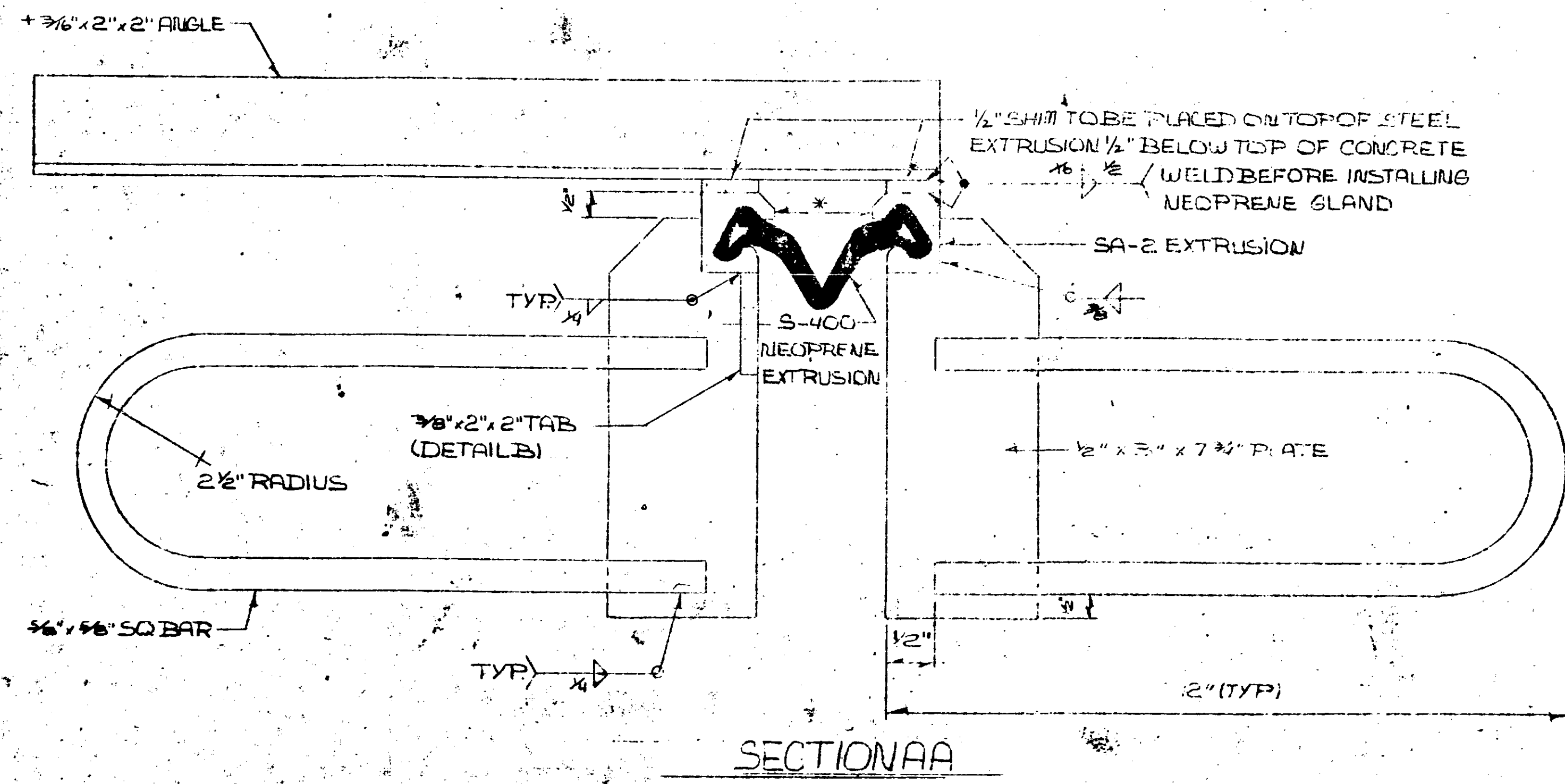
STATE OF MINNESOTA
DEPT. OF TRANSPORTATION
Details and materials appear to be satisfactory for the purpose for which they are intended.
SEP 21 1979

CONSTRUCTION MATERIALS INC. MPLS. MINN.
GENERAL NOTES SECTION AA DETAILS
SOLD TO JOHNSON BROS.
CONTRACTOR JOHNSON BROS.
LOCATION 3RD AVE. BRIDGE MPLS. MINN.

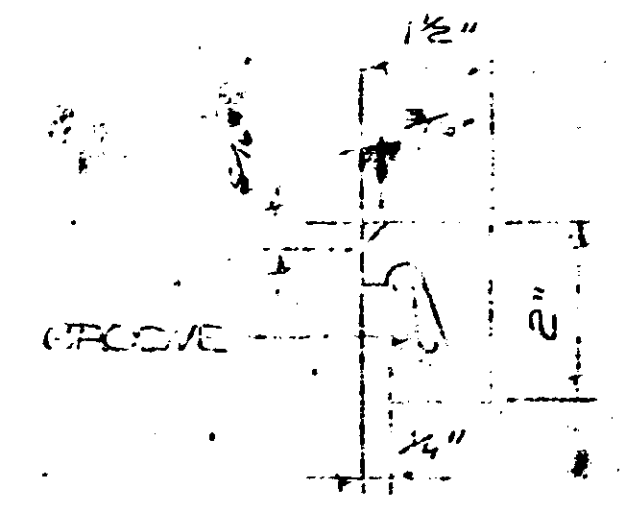
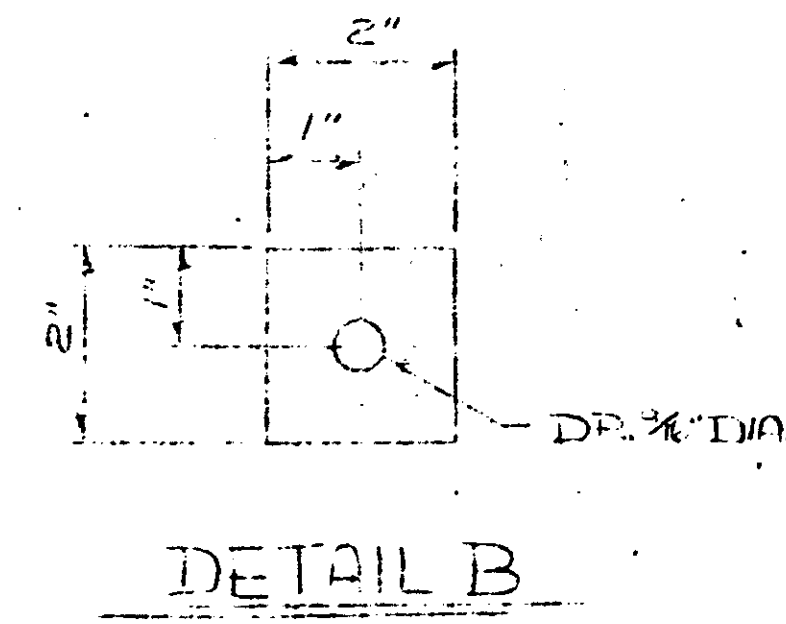
PROJECT SP 2710-21
SHEET 2440
REV. BH F005-2 (67)
DATE 7-06-79
BY 8-11-79
SHEET 5 OF 7

GENERAL NOTES

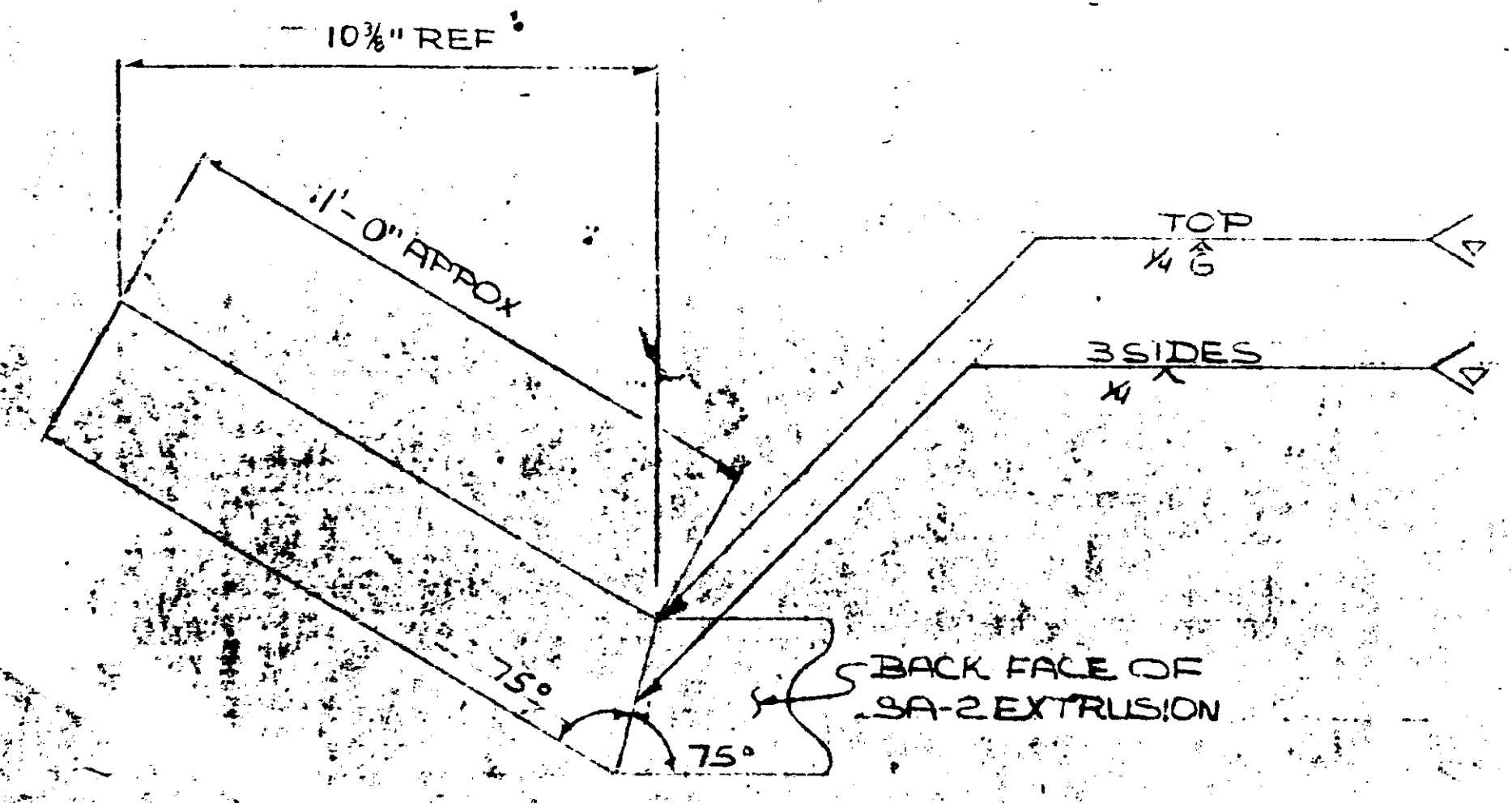
- WORKMANSHIP AND MATERIALS PER MN/DOT SPECS DATED JAN, 1978 AND SPECIAL PROVISIONS
- STEEL EXTRUSIONS PER MN/DOT 3307
- STEEL PLATES AND BARS PER MN/DOT 3306
- NEOPRENE EXTRUSIONS PER APPLICABLE SS. MN/DOT 3721
- ELASTIC ADHESIVE PER MN/DOT 3721B AS AMENDED BY 1976 SUPPLEMENTAL SPECS EXCEPT THE FOLLOWING:
SOLID CONTENT - 65% BY WEIGHT
ELONGATIONS - 250%
- STEEL EXTRUSIONS TO BE SANDBLASTED FOLLOWING FABRICATION
- FOLLOWING SANDBLASTING EXTRUSIONS TO BE GALVANIZED PER MN/DOT 2471.3L2
- SHOP INSPECTION BY MN/DOT BEFORE AND AFTER GALV.
- NO WELDS SHALL BE PERMITTED IN INTERNAL AREAS (i.e. GROOVE) OF SA-2 EXTRUSION THAT IS THOSE AREAS TO BE IN CONTACT WITH NEOPRENE GLAND. INTERNAL AREAS TO BE SMOOTH.
- MANUFACTURER RECOMMENDS A 2" JOINT SPACING FOR EASE OF INSTALLING GLAND AND SUBSEQUENT SERVICE
- REMOVAL OF 1/8" SHIM BY CAREFUL CHIPPING AND GRINDING. TOUCH UP EXTRUSION WITH ZINC RICH TOUCH-UP PAINT OR AS DIRECTED BY THE ENGINEER.
- URETHANE STRIP TO BE INSTALLED IN GROOVE OF SA-2 EXTRUSION PRIOR TO SHIPPING, TO AID IN KEEPING FOREIGN MATTER OUT OF GROOVE.
- STEEL EXTRUSIONS AND ROADWAY PLATE TO BE STRAIGHTENED TO A TOLERANCE OF 1/16" IN TEN FEET AFTER GALV.
- STEEL EXTRUSION TO BE BENT TO CONFORM TO CROWN PROFILE
- STEEL EXTRUSION FOR GUTTER SECTIONS MAY BE WELDED BUT SHALL BE SMOOTH AT THE GRIP SURFACE.
- ERECTION ANGLE AT GUTTER LINES TO BE REPOSITIONED IN FIELD IF INTERFERENCE OCCURS.



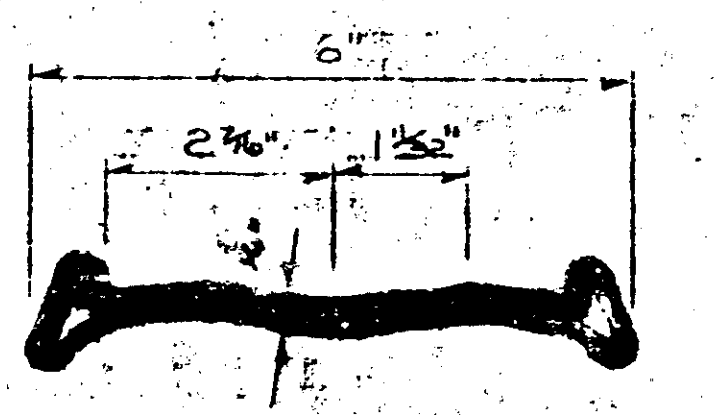
SECTION AA



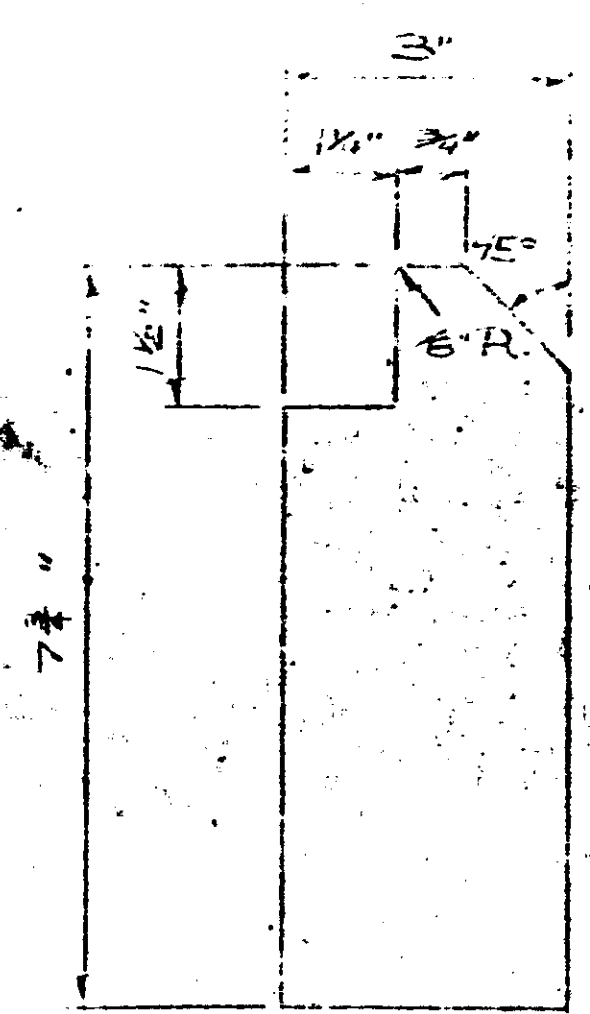
SA-2 EXTRUSION



KICK-UP DETAIL



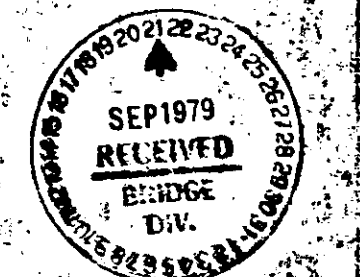
S-400 EXTRUSION



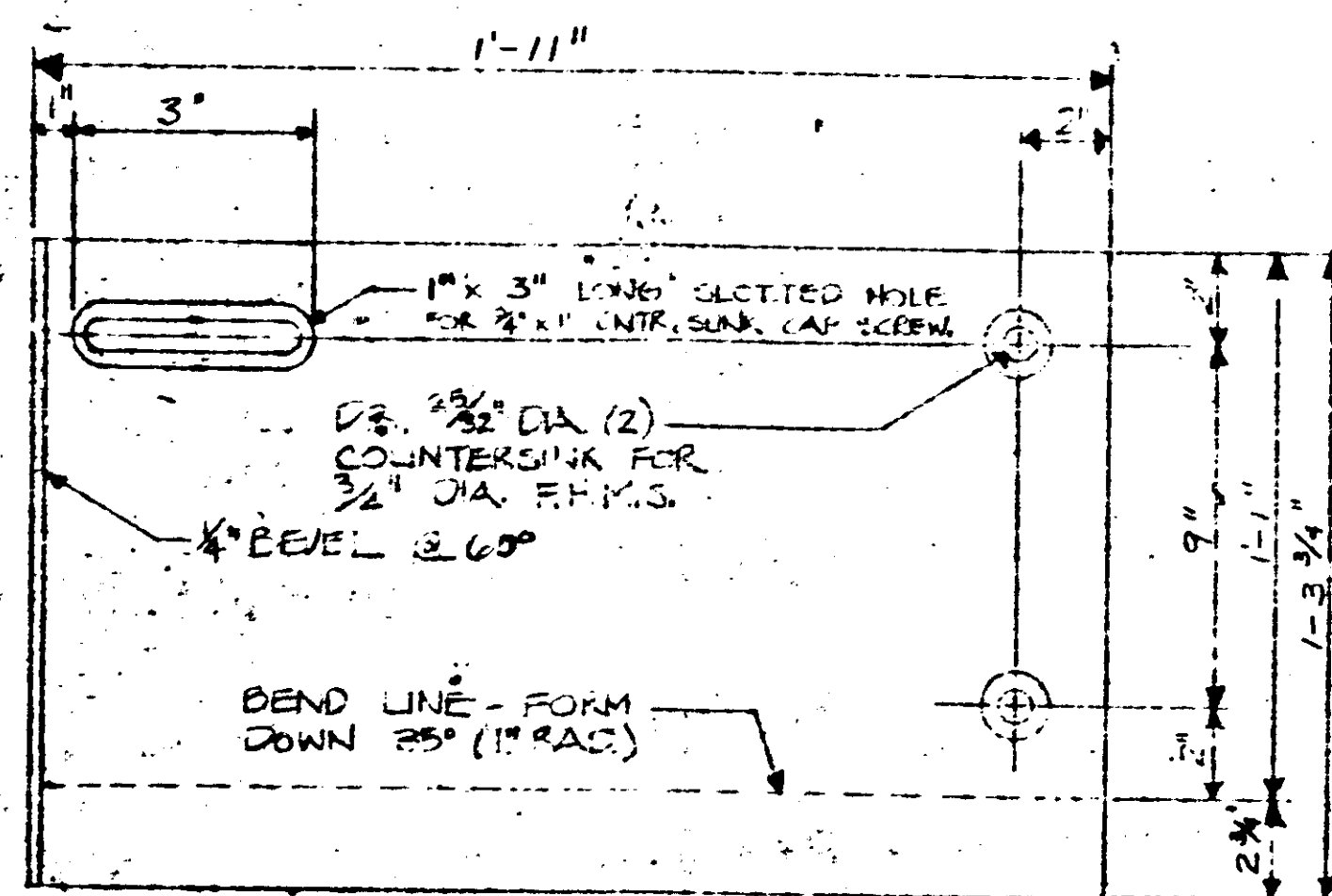
DETAIL A

M. H. D. FILE

STATE OF MINNESOTA
DEPT. OF TRANSPORTATION
Details and materials appear to
be satisfactory for the purpose
for which they are intended.
SEP 21 1979



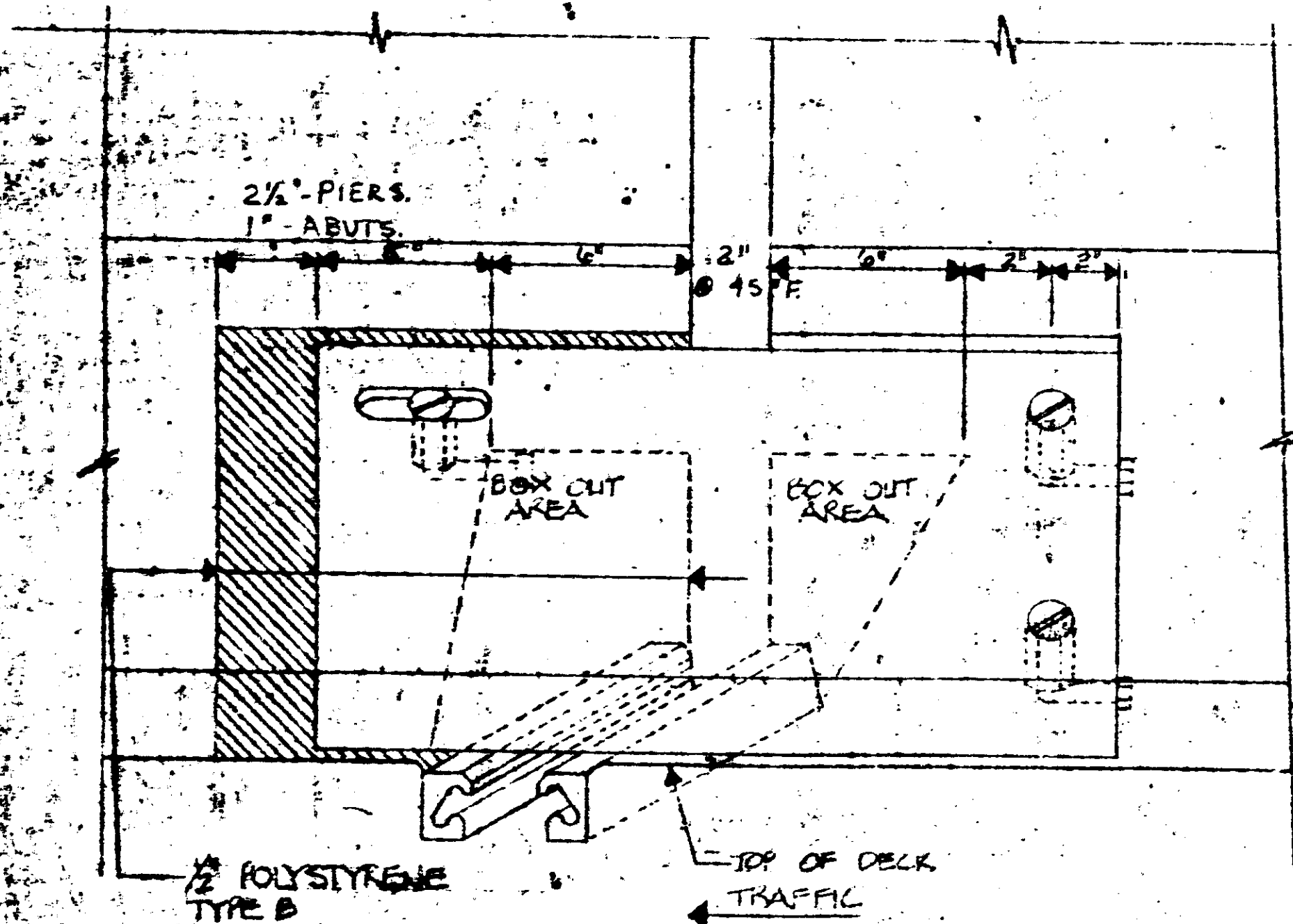
CONSTRUCTION MATERIALS, INC. MINN. TUNN.	PROJECT SP 2710-21
GENERAL NOTES, SECTION AA DETAILS	BRIDGE 2440
JOHNSON BROS.	DRAWN BY SHE COS-2 (67)
JOHNSON BROS.	DATE 7-06-79
BRG. AVE. BRIDGE MPLS. MN.	DATE 9-03-79
	SHEET 6 OF 7



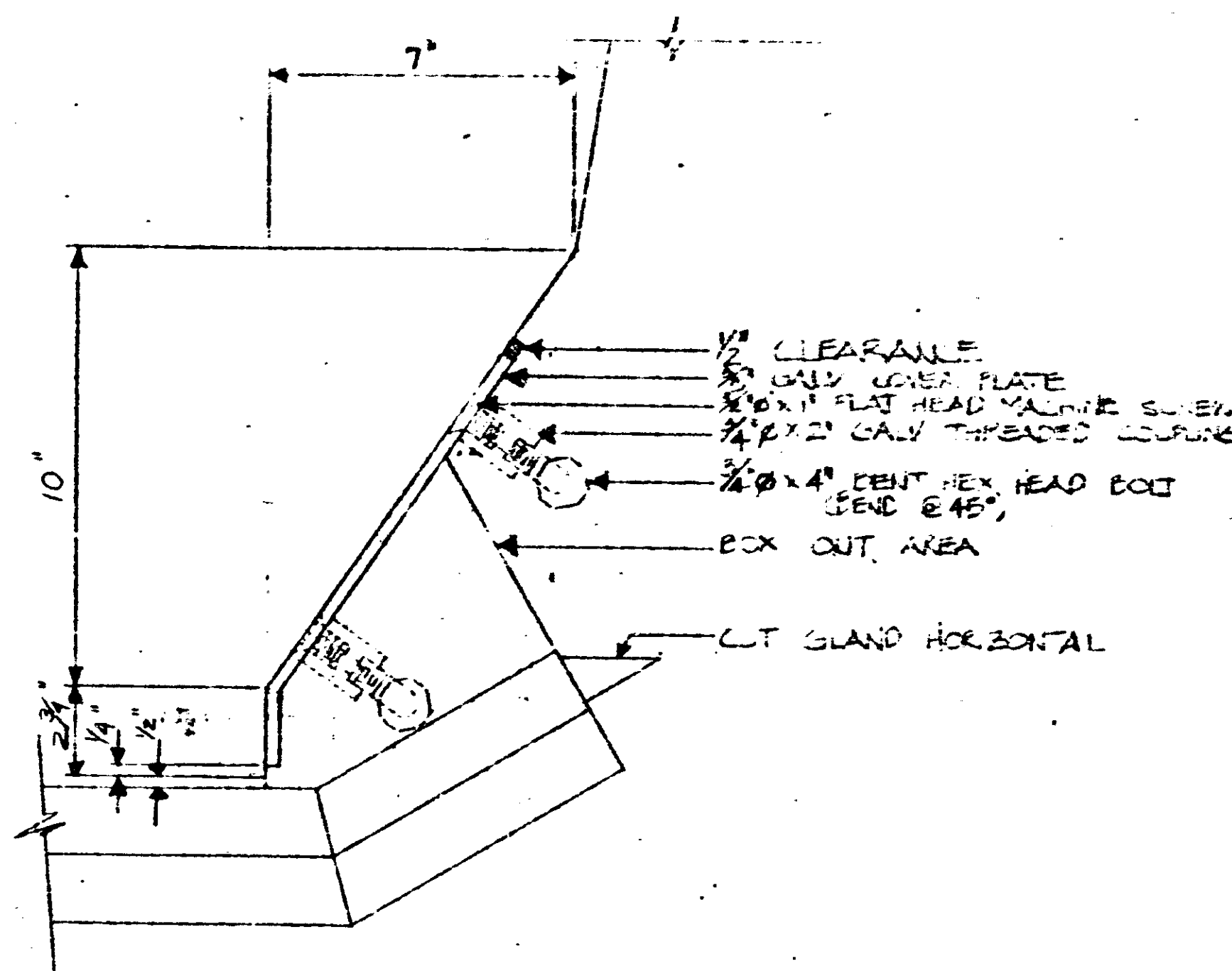
FLAT LAYOUT

8 REQ'D. AS SHOWN
PIECE MARK MET

BILL OF MATERIALS		DESCRIPTION
8	PCS	1/2" X 11" X 1 3/4" GALV. FACIATED COVER PLATE
24	PCS	3/8" X 1" GALV. FLAT HEAD MACHINE SCREW
24	PCS	3/4" X 2" GALV. THREADED COUPLING
24	PCS	3/8" X 4" BENT HEX HEAD BOLT



FRONT VIEW



SIDE VIEW

GENERAL NOTES

- ABOVE QUANTITIES FOR 8 COMPLETE COVER PLATE ASSEMBLIES.
- DIMENSIONS AND MATERIALS PER AASHTO SPEC. DATED JAN. 1978, AND OTHER REVISIONS.
- ANCHOR SYSTEM TO CONFORM TO REQUIREMENTS SPECIFIED FOR EXPANSION ASSEMBLY, ANCHORAGE SYSTEM.
- COVER PLATES TO BE GALVANIZED PER AASHTO M 2894.
- PLATES TO BE FLAT AFTER GALVANIZING.
- ANCHOR SYSTEM TO BE GALVANIZED PER AASHTO M 2892.
- CHECK DIMENSION BY A/C BEFORE AND AFTER GALVANIZING.
- COVER PLATES TO BE RECESSED INTO CONCRETE TO FIT FLUSH WITH SURROUNDING CONCRETE.
- CAP SCREWS TO BE COUNTERSUNK 1/8" BELOW TOP OF PLATE.
- ANCHORS TO BE EITHER CAST IN PLACE OR DRILLED AND EPOXYED WITH AN APPROVED EPOXY.
- DIMENSIONS TO BE FIELD VERIFIED BEFORE FABRICATION.

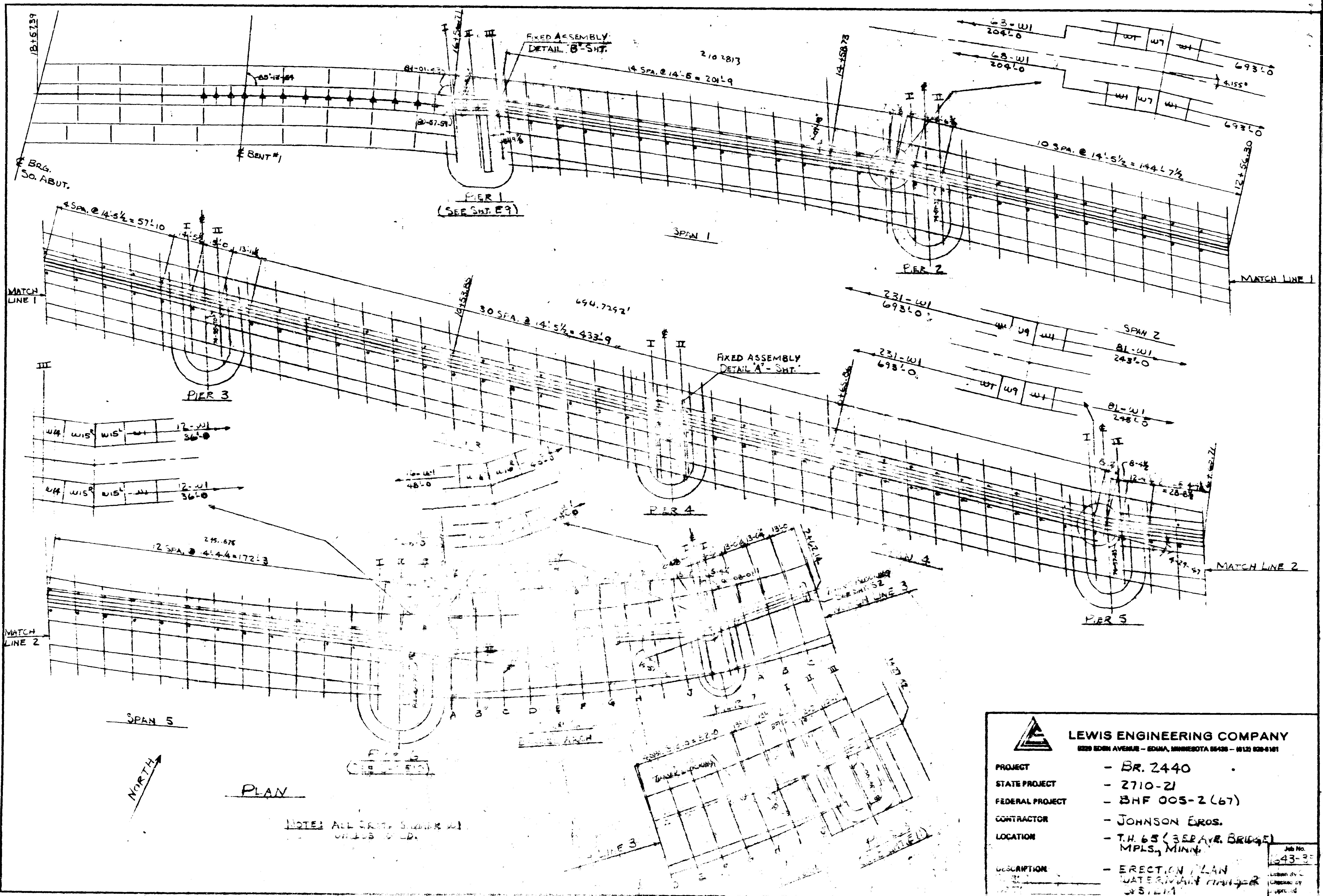
M. H. D. - FILE


STATE OF MINNESOTA
DEPT. OF TRANSPORTATION
Details and materials appear to be satisfactory for the purpose for which they are intended.

SEP 21 1979

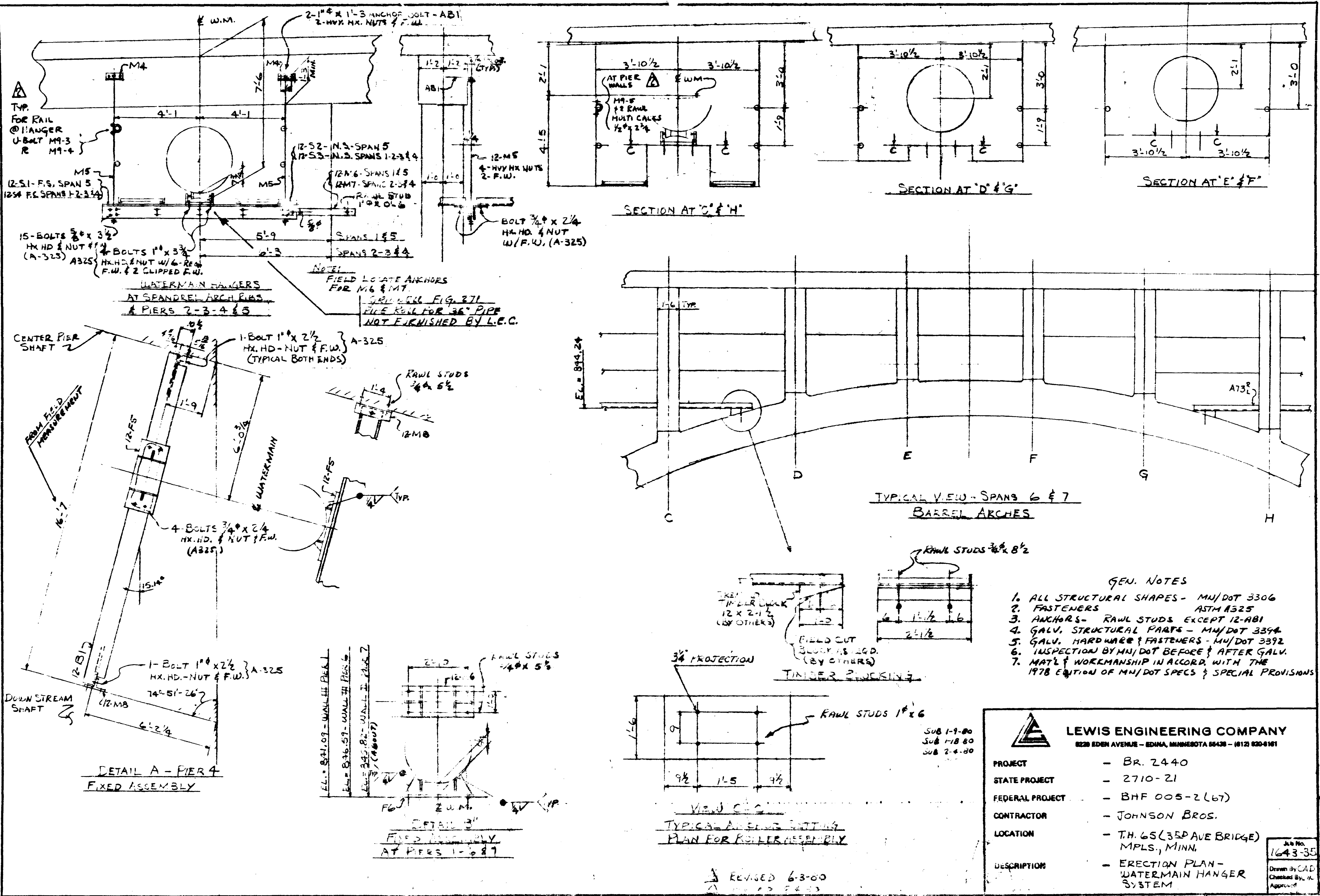


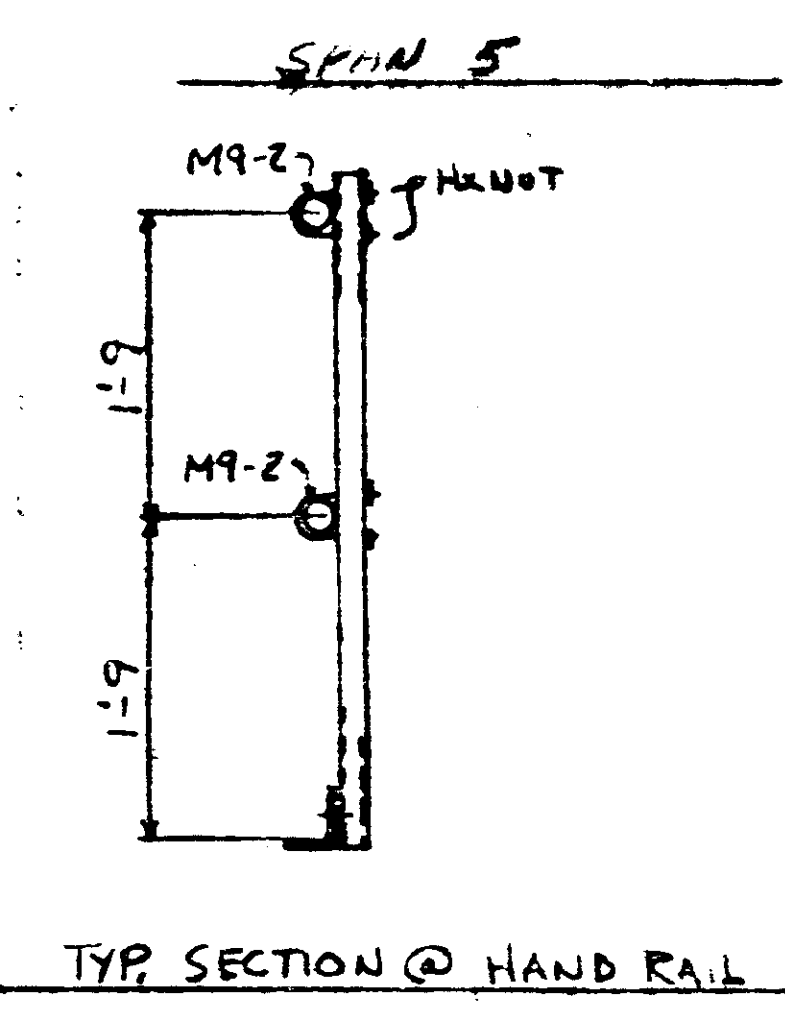
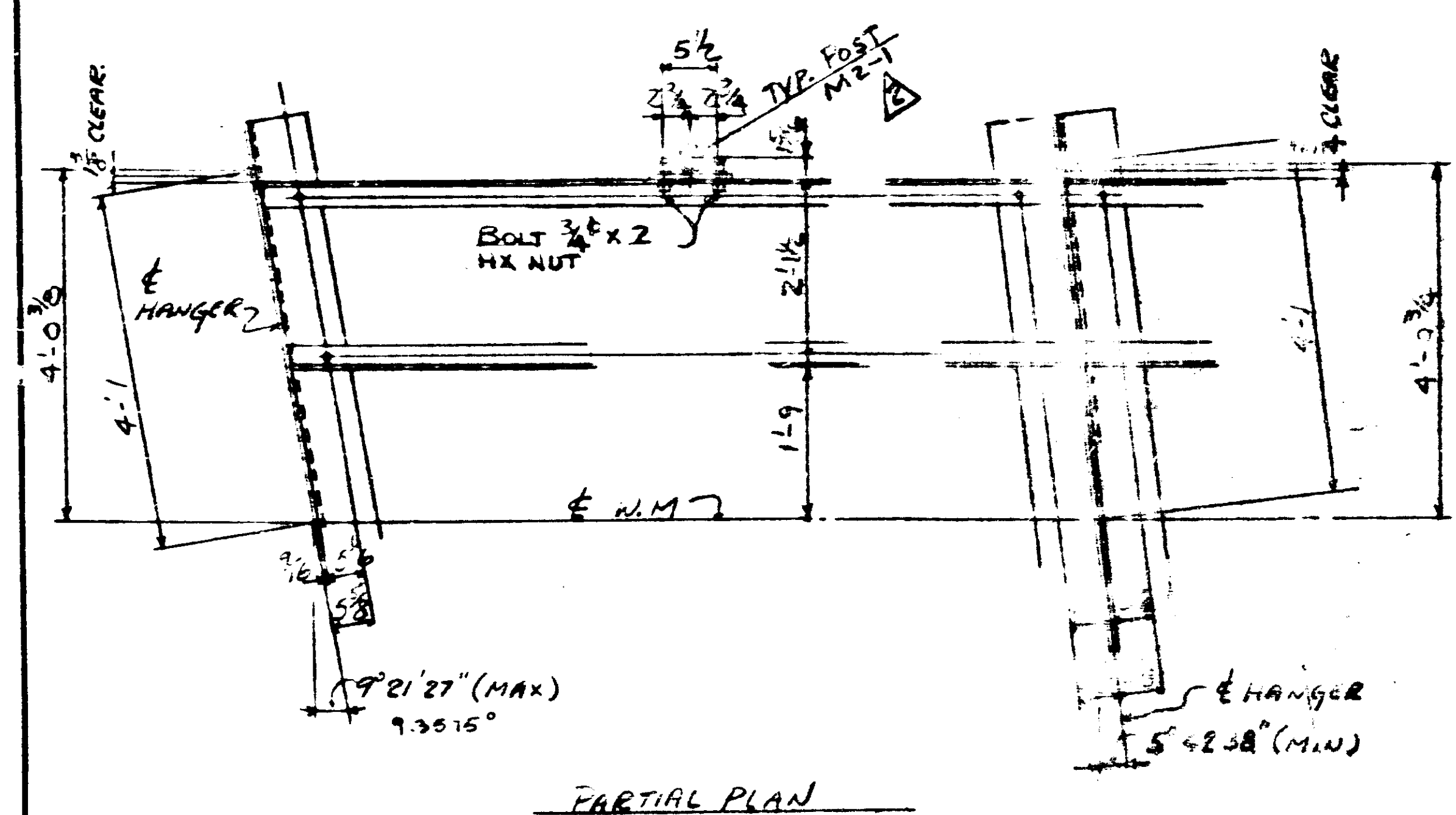
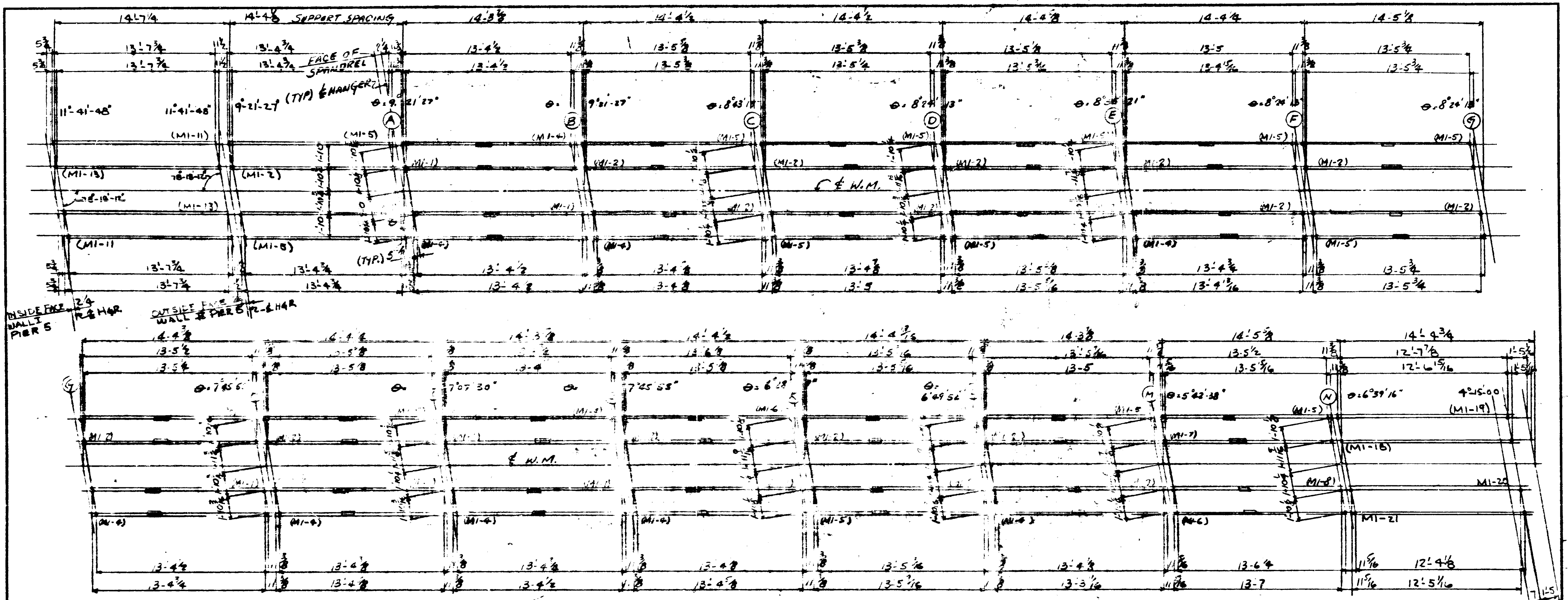
CONSTRUCTION MATERIALS, INC.	PROJ. NO. SD 2710-21
MPLS. MN.	REV. NO. 2490
COVER PLATE DETAIL	DATE 08-21-79
JOHNSON BROS.	BY 7-08-79
JOHNSON BROS.	DATE 9-08-79
690 AVE. DRG. MPLS. MN.	7 OF 7



 LEWIS ENGINEERING COMPANY <small>825 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 838-6181</small>	
PROJECT	- BR. 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BHF 003-2 (67)
CONTRACTOR	- JOHNSON ERCS.
LOCATION	- T.H. 65 (3RD AVE. BRIDGE) MPLS., MINN.
DESCRIPTION	- ERECTION PLAN WATERWAY CONTRACT 351211

Job No.
 43-35
 Drawn by
 Checked by
 Approved





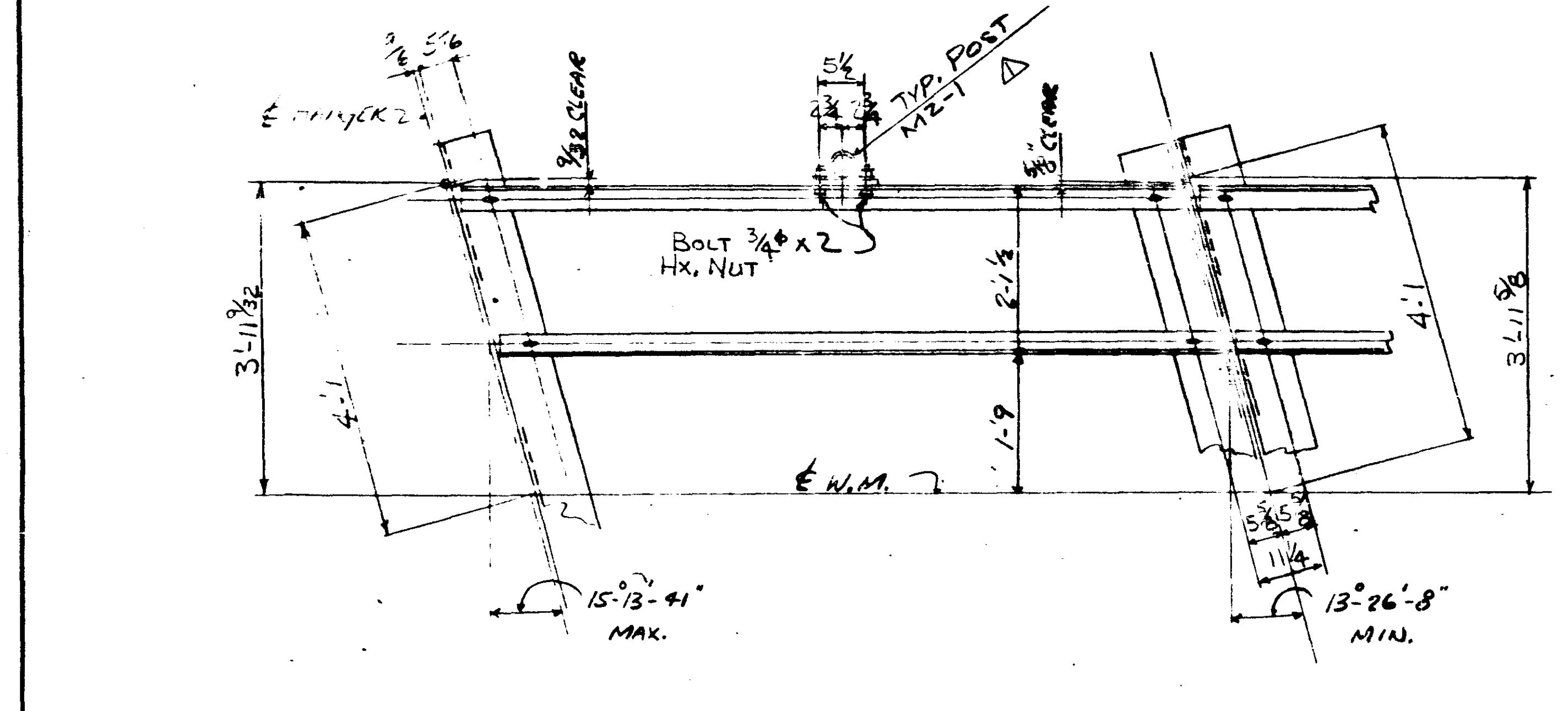
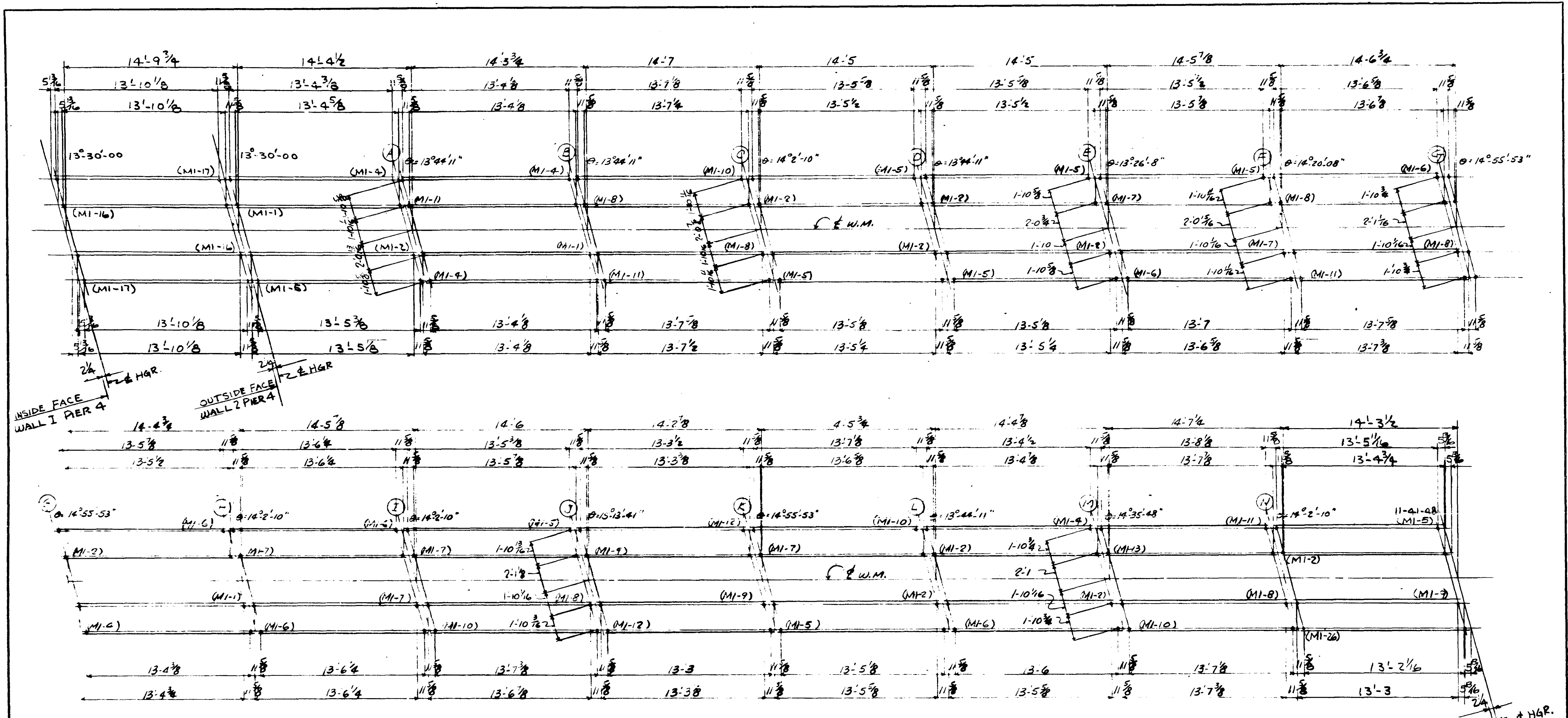
▲ COMPLETED SPANS & ADDED RAIL POST LOCATION
 △ ADDED SPANS L-M & M-N



LEWIS ENGINEERING COMPANY
 8220 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-6181

PROJECT - BR 2440
 STATE PROJECT - 2710-21
 FEDERAL PROJECT - BHF-005-2(67)
 CONTRACTOR - JOHNSON BROS.
 LOCATION - T.H. 65 (3RD AVE. BRIDGE) MPLS. MINN.
 DESCRIPTION - ERECTION PLAN-SPAN 5 FROM SPANDREL (A) TO SPANDREL (G) WATER MAIN HANGER SYSTEM

Job No. 108305
 Drawn By: EHS
 Checked By: [Signature]
 Appro: [Signature]



SPAN 4

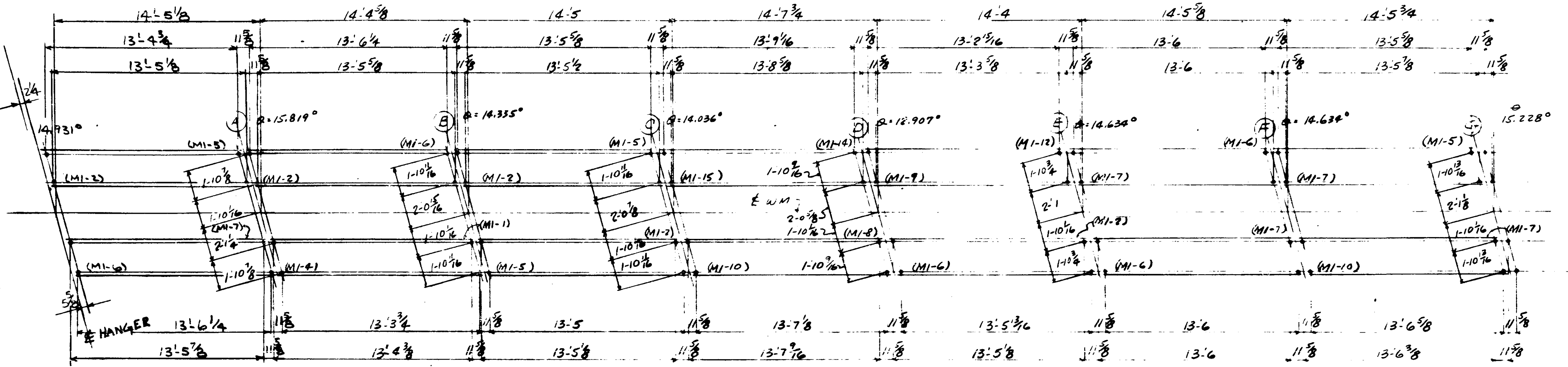
* DETAILS FROM FIELD MEASUREMENTS AT 4 OF WATER MAIN
 SEE E2 FOR GEN. NOTES
 SEE E3 FOR TYP. SECTION
 @ HAND RAIL

REV. 6-3-80
 SUB. 2-25-80
 SUB. 2-3-80

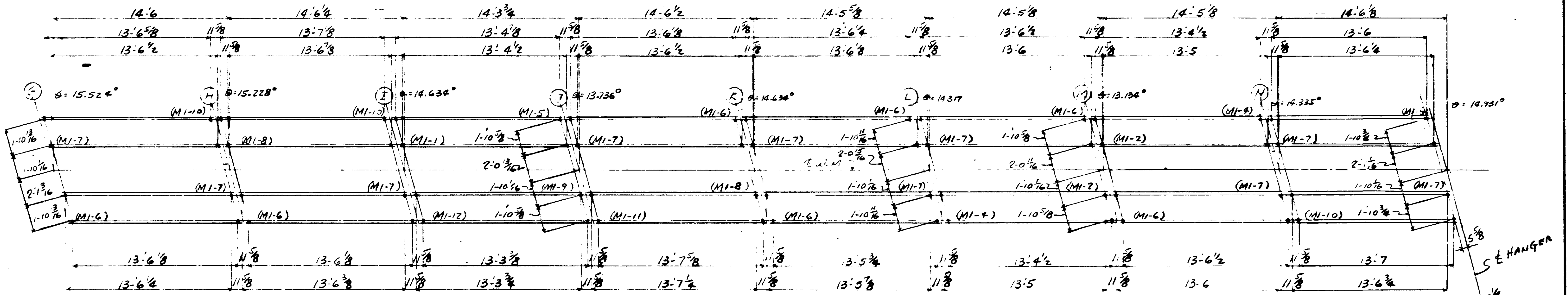
LEWIS ENGINEERING COMPANY 6228 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-8181	
PROJECT	- BR. 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BHF-005-2(67)
CONTRACTOR	- JOHNSON BROS
LOCATION	- T.H. 65 (3RD AVE BRIDGE) MPLS. MINN.
DESCRIPTION	- ERECTION PLAN SPAN 4 - FROM SPAN DELTA TO SPAN DELTA N - WATER MAIN HANGER SYSTEM - INCLUDING IN PIER 4

Job No.
1643-35
 Drawn By: [initials]
 Checked By: [initials]
 Approved: [initials]
 2-26-80

OUTSIDE FACE
WALL II PIER 3

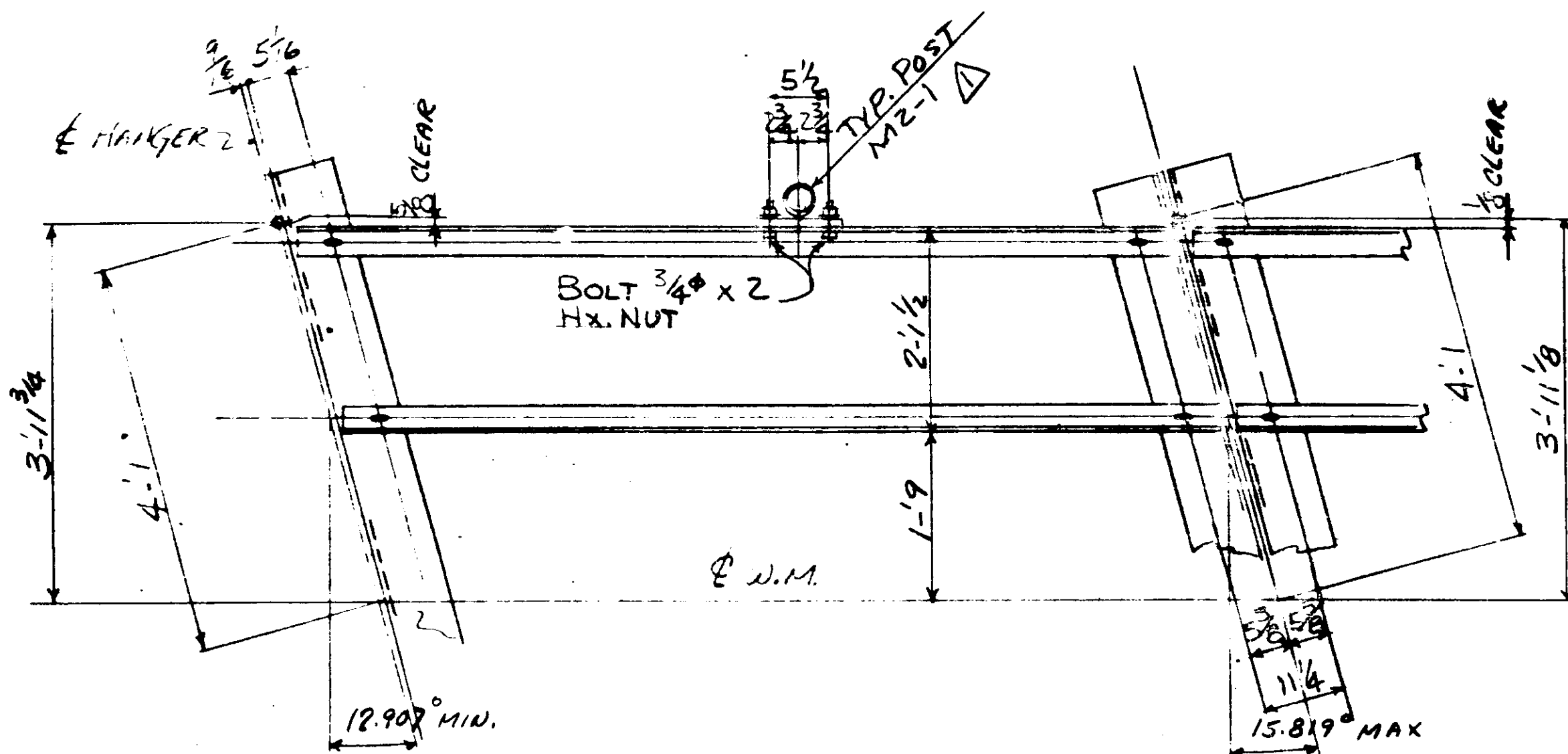


SPAN 3



SPAN 3

INSIDE FACE
WALL I
PIER 2



LEWIS ENGINEERING COMPANY

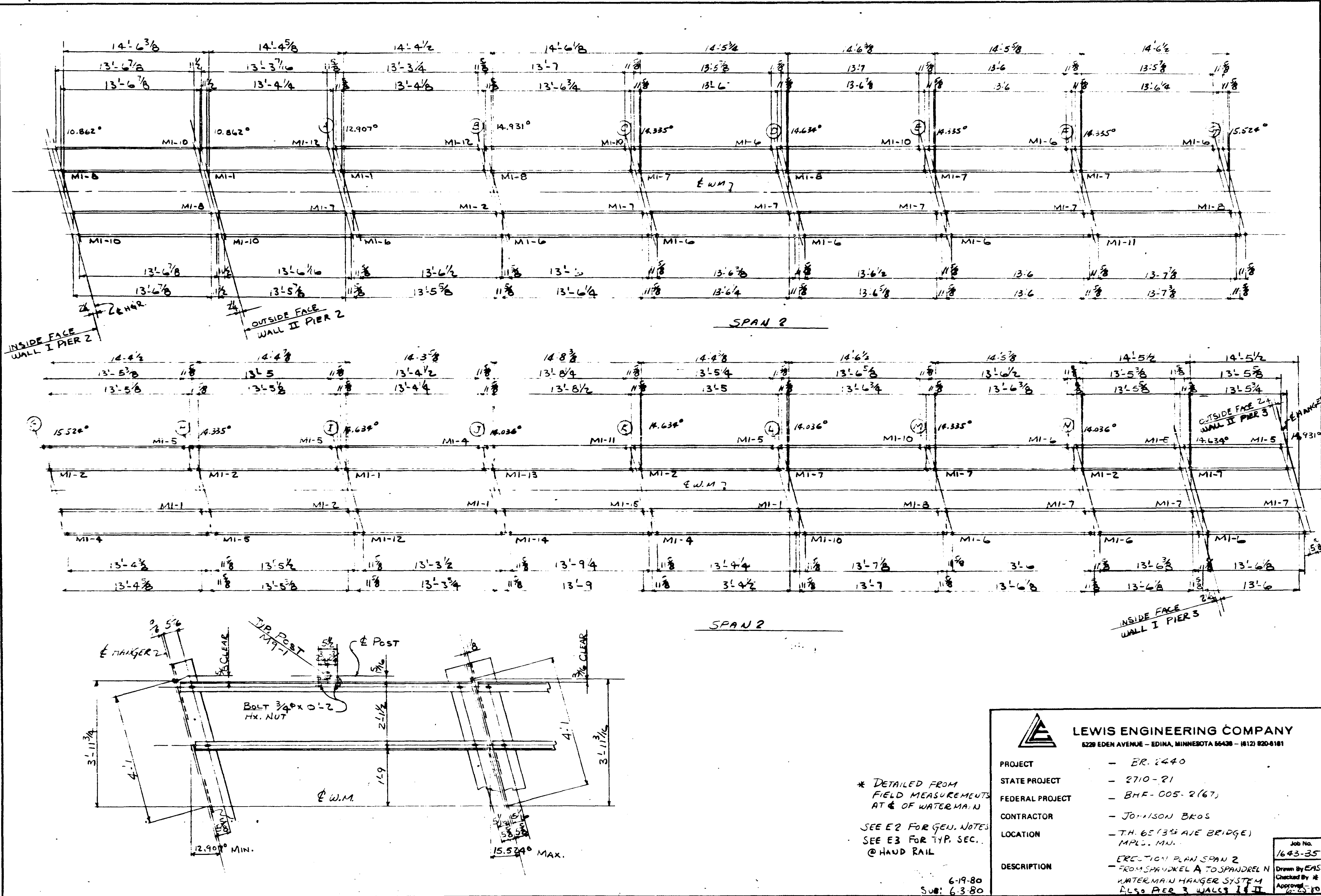
6229 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 920-6181

PROJECT - BR. 2440
 STATE PROJECT - 2710-21
 FEDERAL PROJECT - BHF-005-2(67)
 CONTRACTOR - JOHNSON BROS.
 LOCATION - T.H. 65 (BEAVER BRIDGE) MPLS. MN.
 DESCRIPTION - ERECTION PLAN SPAN 3 FROM SPANDREL 'A' TO WALL I PIER 4 WATERMAIN HANGER SYSTEM
 DET: 2-13-80

* DIMENSIONS FROM FIELD MEASUREMENTS
 1/2" OF W.M. CLEARANCE
 SEE E2 FOR GEN. NOTES.
 SEE E3 FOR TYP. SEC.
 @ HAND RAIL

REV. 6-3-80
 SUB: 2-25-80

Job No.
1643-35
 Drawn By: EAS
 Checked By: [Signature]
 Approved: [Signature]



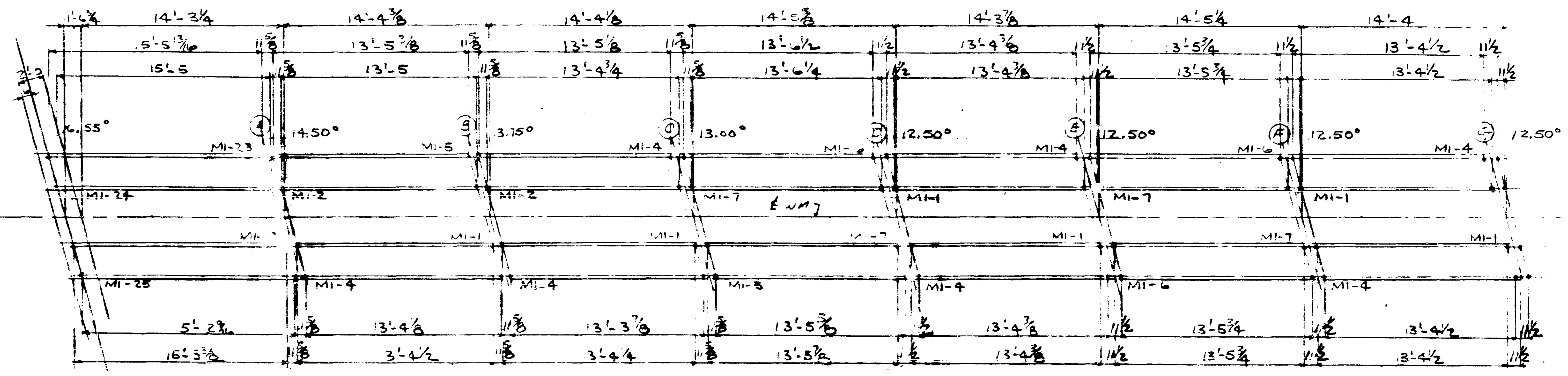
LEWIS ENGINEERING COMPANY
 5229 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-8181

PROJECT	- ER. 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BHF-005-2(67)
CONTRACTOR	- JOHNSON BROS.
LOCATION	- T.H. 65 (3RD AVE BRIDGE) MPLS. MN.
DESCRIPTION	ERECTION PLAN SPAN 2 FROM SPANDREL A TO SPANDREL N WATER MAIN HANGER SYSTEM ALSO PIER 3 WALLS I & II

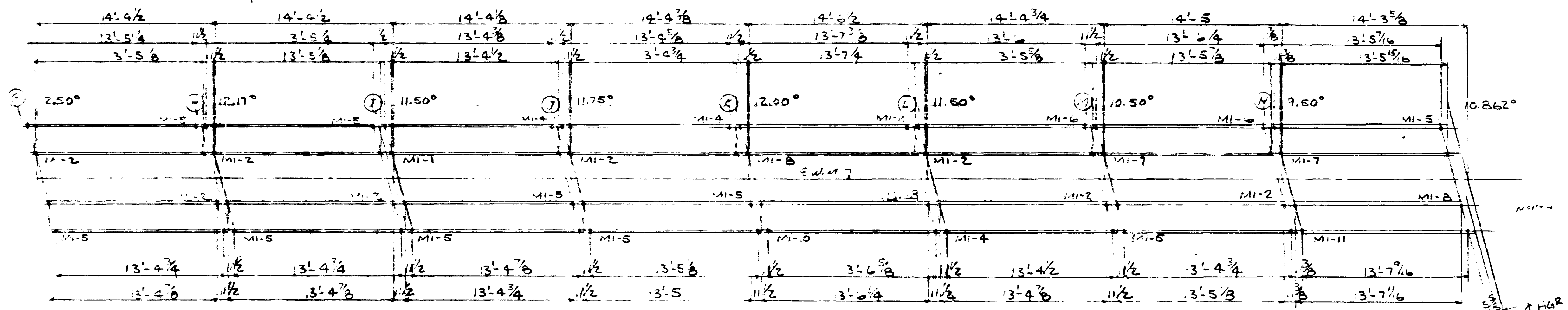
Job No. 1643-35
 Drawn By EAS
 Checked By [Signature]
 Approved [Signature] 6-25-80

* DETAILED FROM
 FIELD MEASUREMENTS
 AT & OF WATER MAIN
 SEE E2 FOR GEN. NOTES
 SEE E3 FOR TYP. SEC.
 @ HAUD RAIL

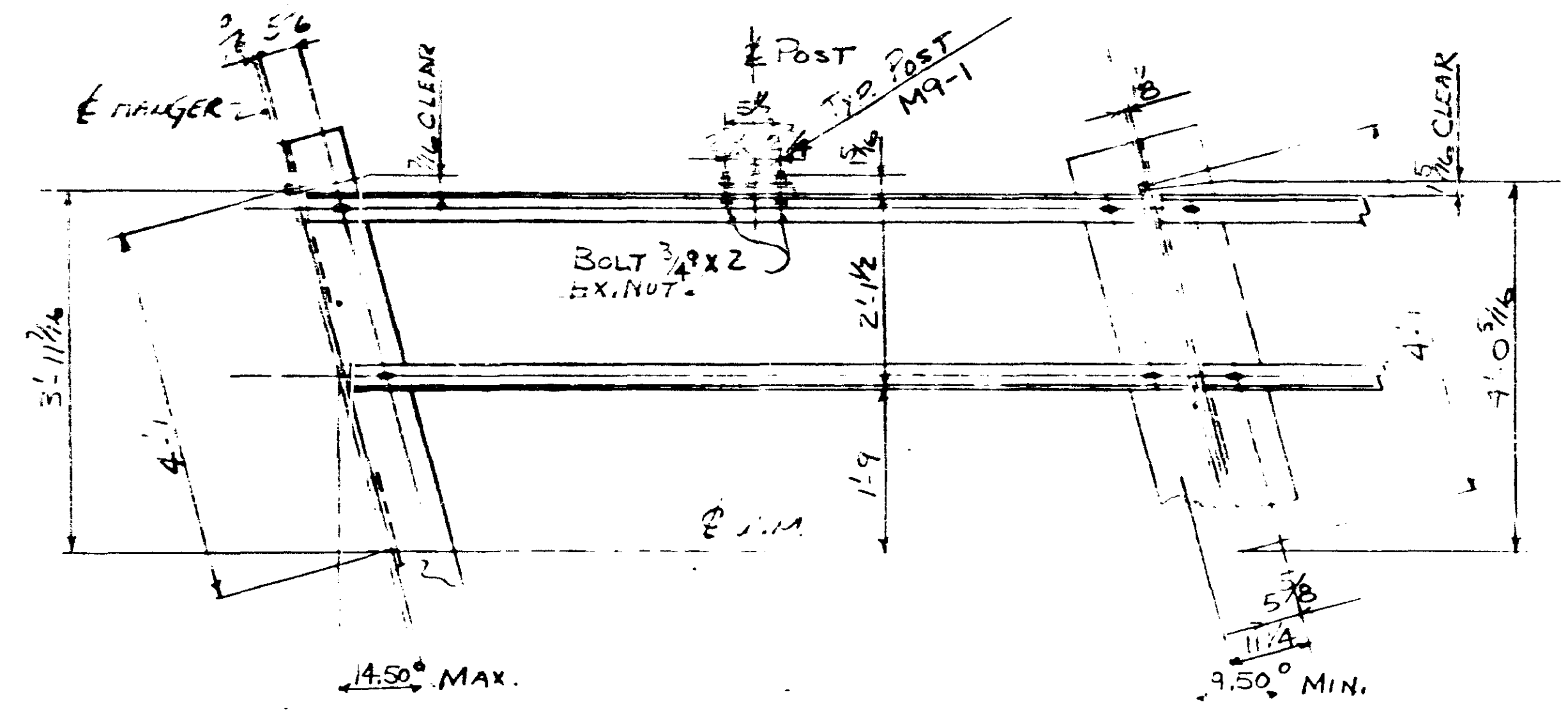
6-19-80
 SUB: 6-3-80



SPAN 1



SPAN 1



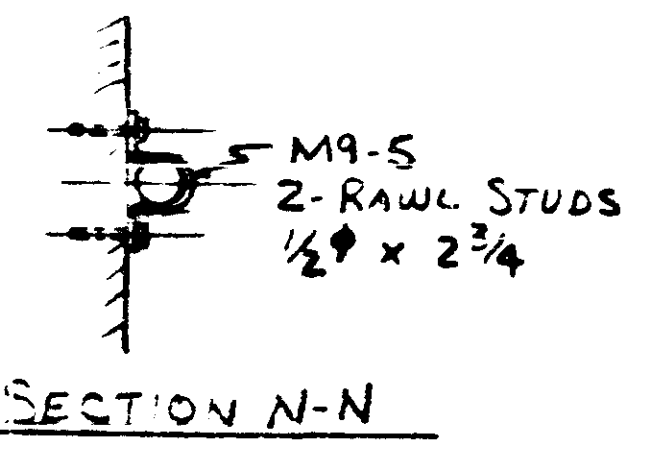
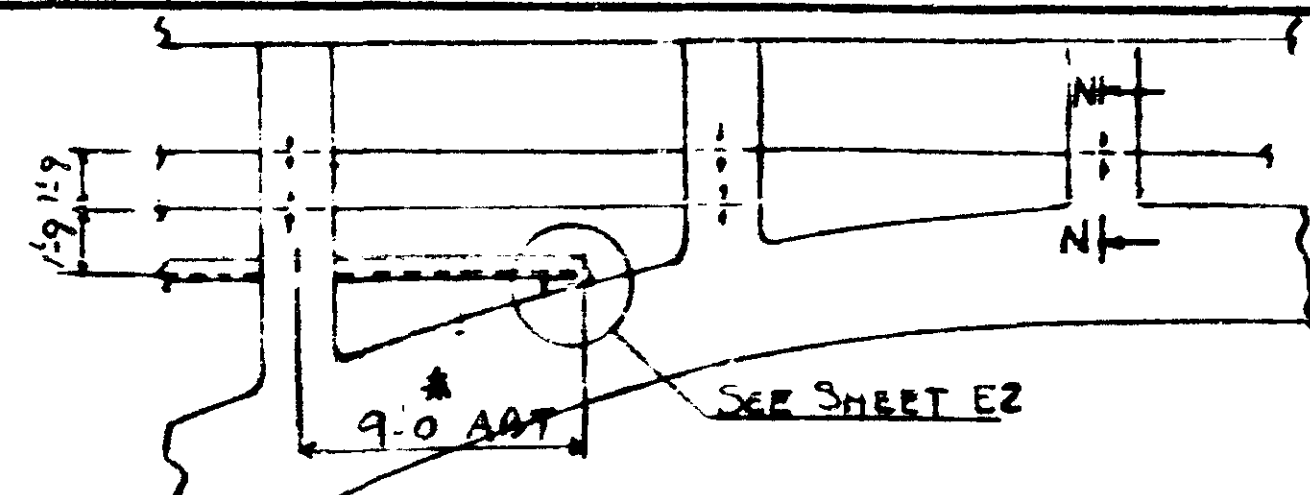
LEWIS ENGINEERING COMPANY
 8229 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-6181

PROJECT - BR. 2440
 STATE PROJECT - 2710-21
 FEDERAL PROJECT - BHF-005-2(67)
 CONTRACTOR - JOHNSON BROS
 LOCATION - TH. 6515 AVE BRIDGE, Mpls, Minn.
 DESCRIPTION - BRIDGE PIER 1

* DETAIL FROM FIELD MEASUREMENTS & SURVEY DATA
 SEE E3 FOR TYP. SECTION @ HAND RAIL

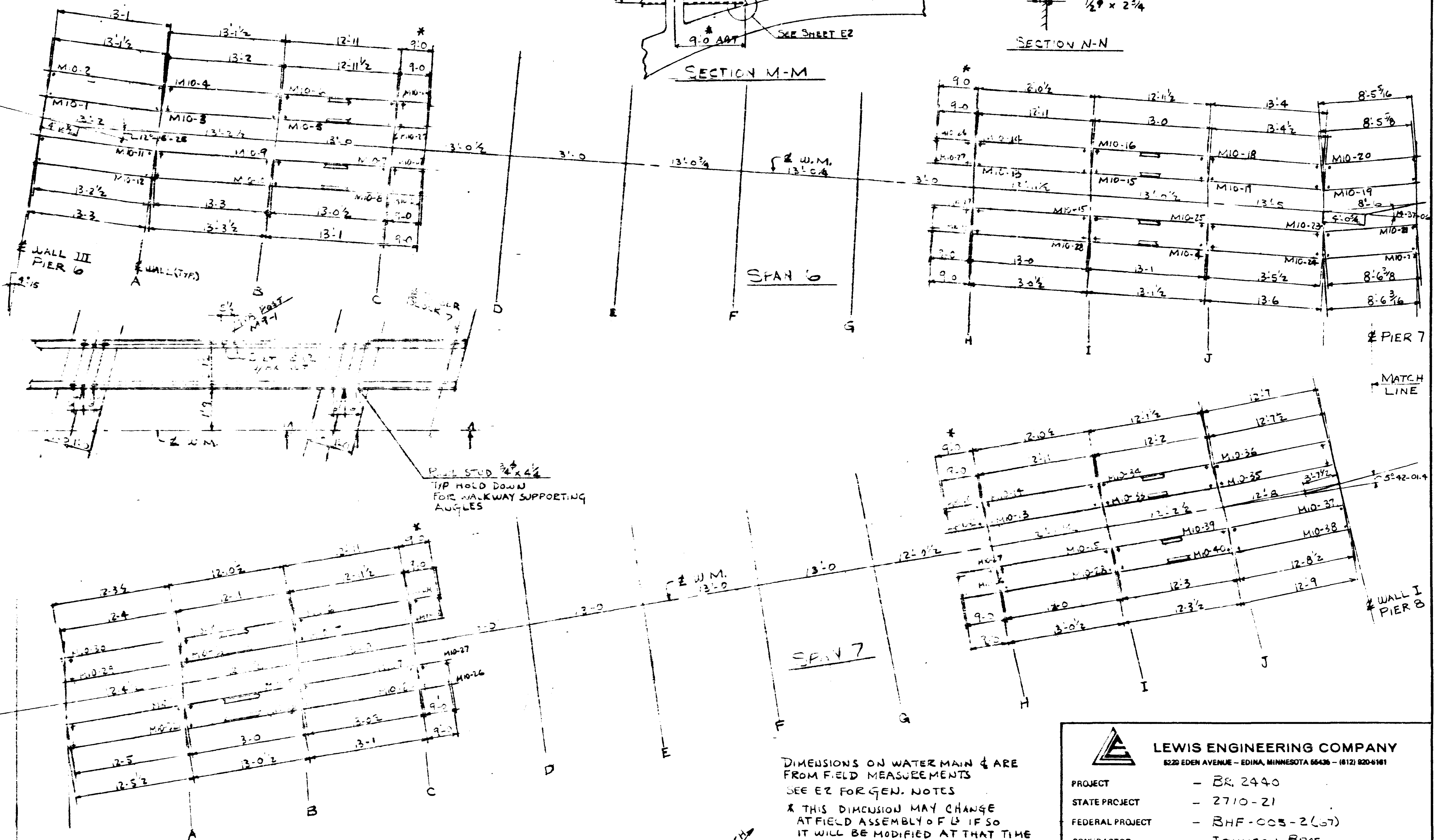
6-19-80
 SUB: 6-3-80

JOB No.	2440
DATE	EC
Drawn By	EC
Checked By	EC
Approved	EC



SECTION M-M


SECTION N-N



SPAN 6

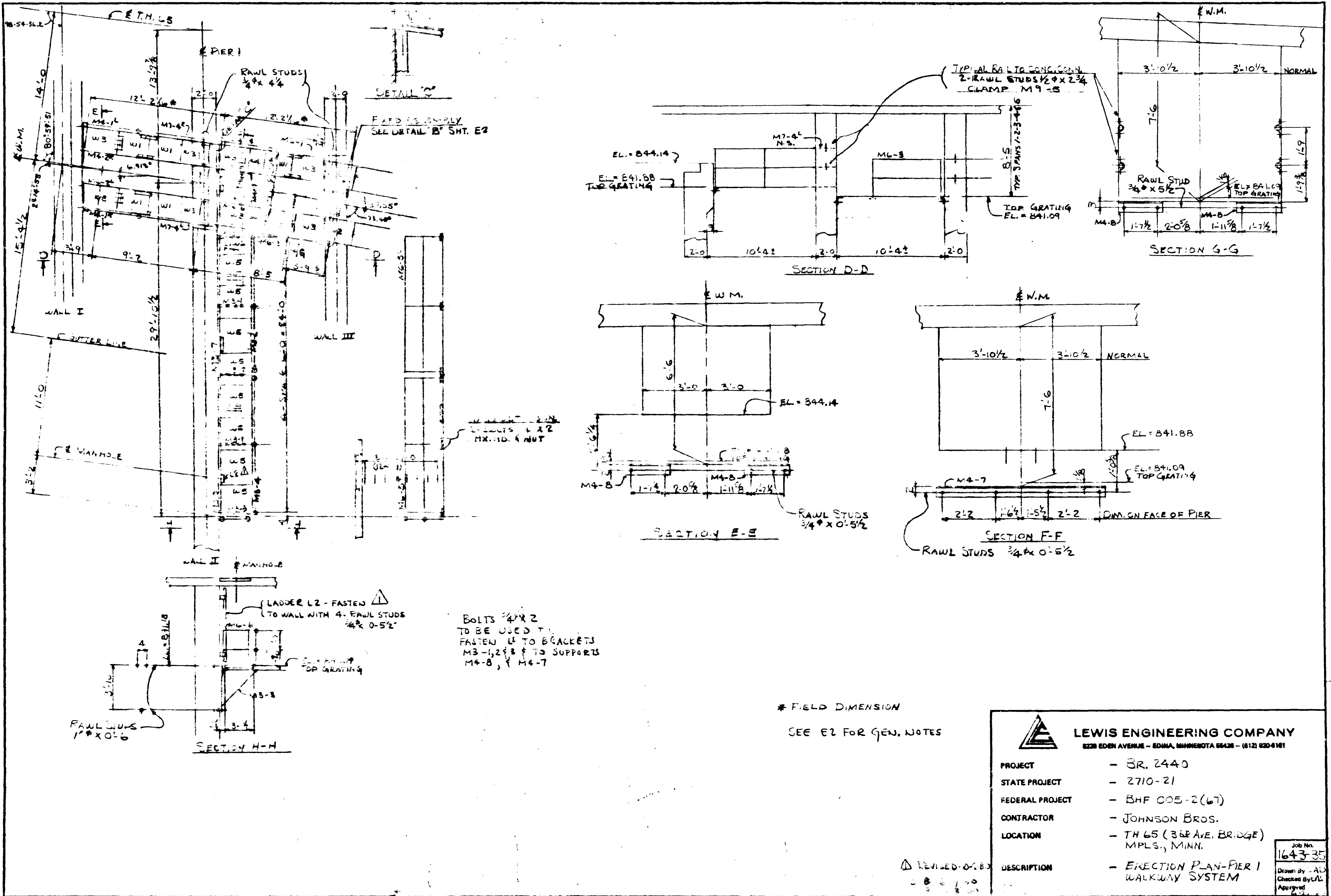
SPAN 7

DIMENSIONS ON WATER MAIN & ARE FROM FIELD MEASUREMENTS
 SEE E2 FOR GEN. NOTES
 * THIS DIMENSION MAY CHANGE AT FIELD ASSEMBLY OF B IF SO IT WILL BE MODIFIED AT THAT TIME

	
LEWIS ENGINEERING COMPANY	
8220 EDEN AVENUE - EDINA, MINNESOTA 55436 - (812) 820-6181	
PROJECT	- BR. 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BHF-005-2(67)
CONTRACTOR	- JOHNSON BROS.
LOCATION	- TH 65 (3RD AVE. BRIDGE) MPLS., MN.
DESCRIPTION	- ERECTION PLAN SPAN 6 & SPAN 7 BARREL ARCHES (LATE MAIN HANGER SYSTEM)


Job No. 1643-35
 Drawn By CAD
 Checked By EAS
 Approved By

SUB 7-18-80
 DET. 5-12-80

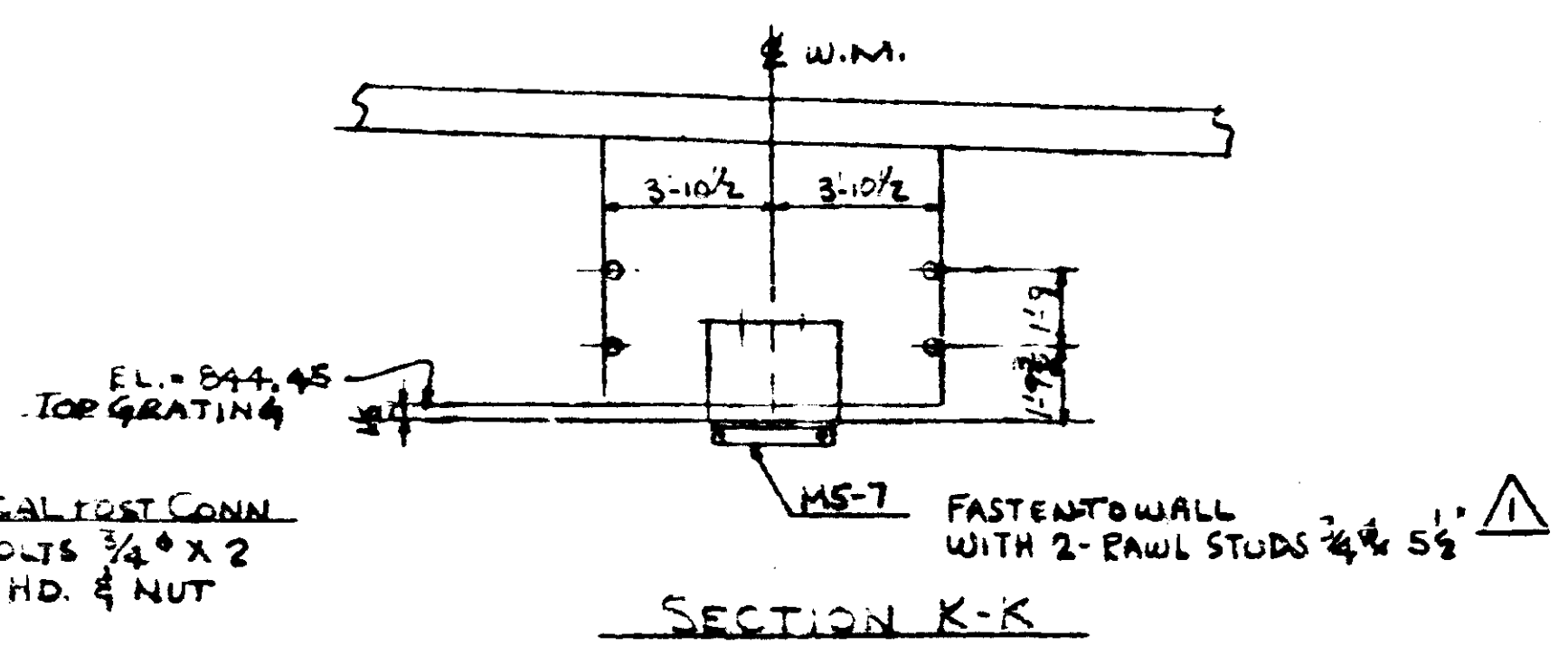
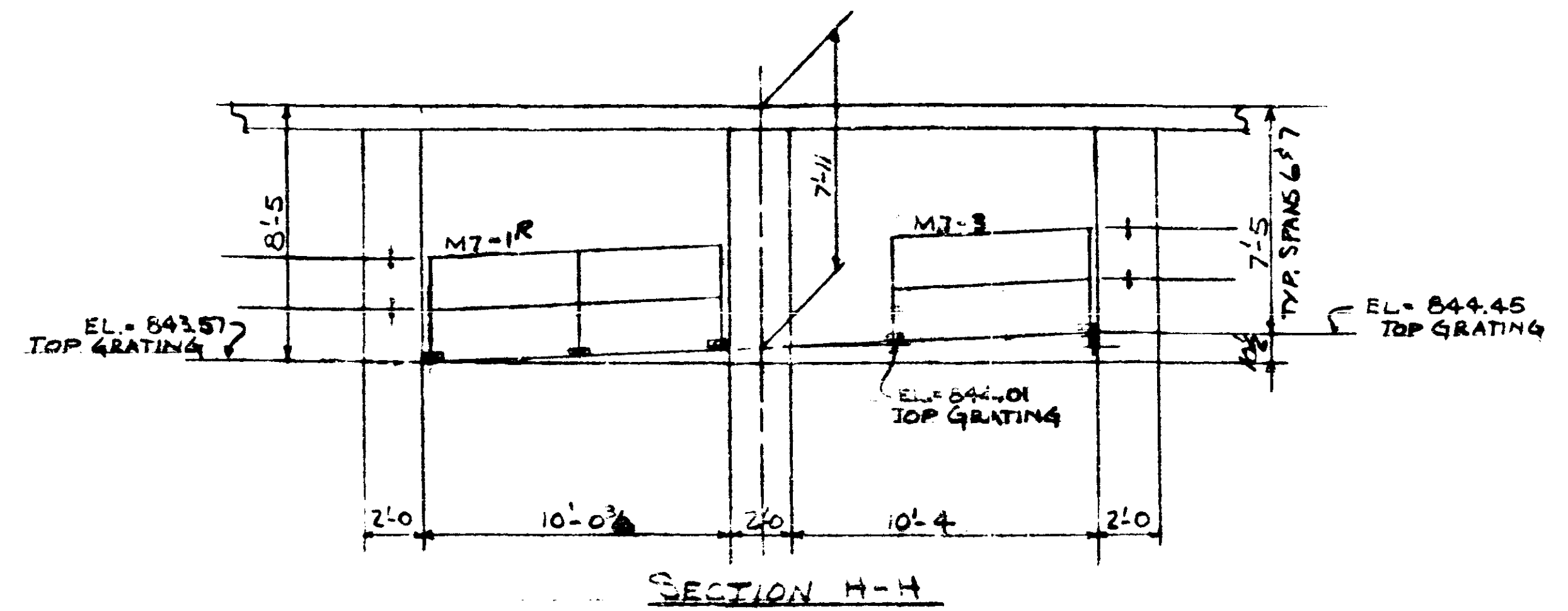
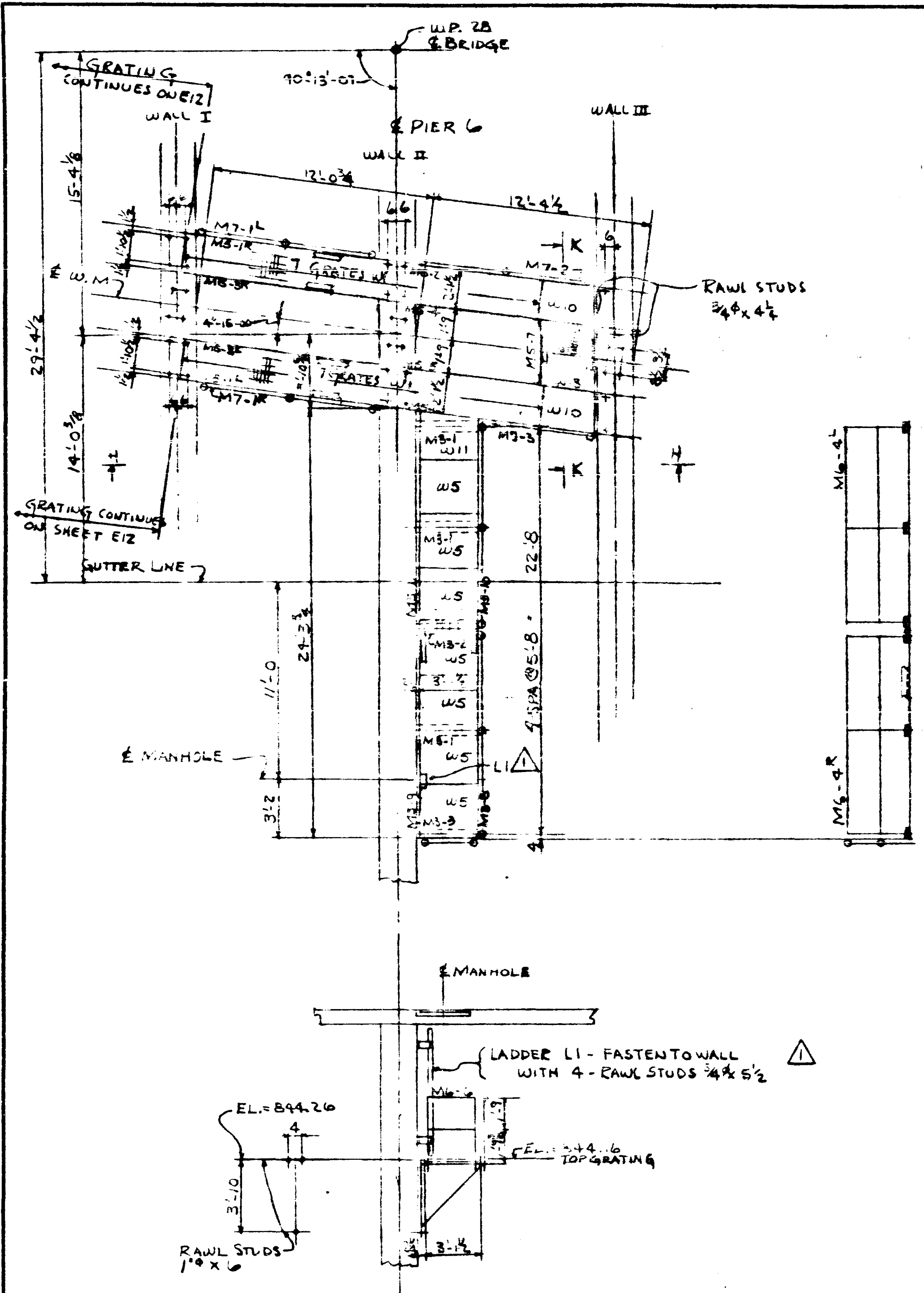


BOLTS 3/4" X 2"
 TO BE USED TO
 FASTEN L2 TO BRACKETS
 M3-1, 2 & 3 TO SUPPORTS
 M4-8, & M4-7

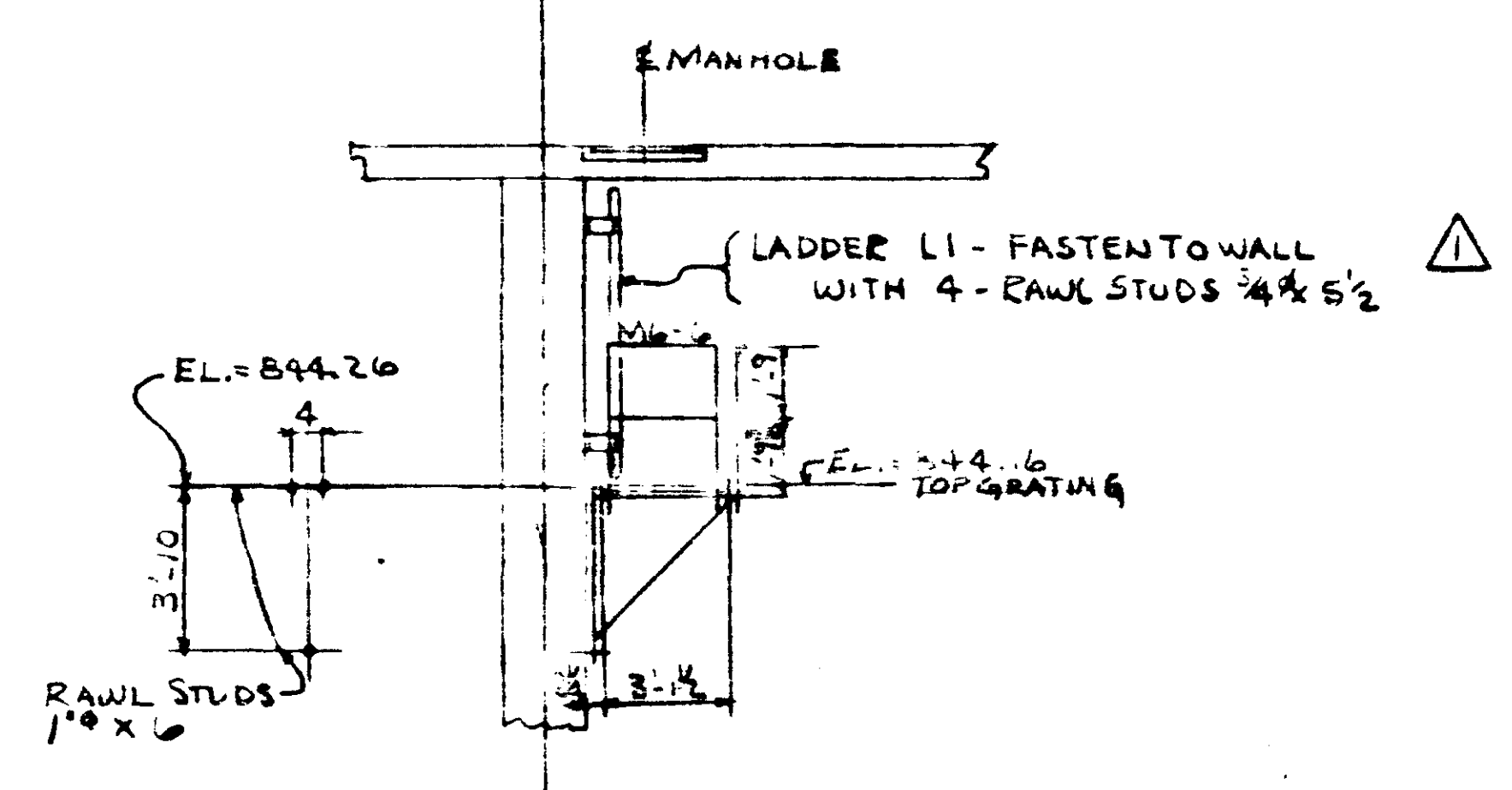
* FIELD DIMENSION
 SEE E2 FOR GEN. NOTES

 LEWIS ENGINEERING COMPANY 8228 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 920-6161	
PROJECT	- BR. 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BHF 005-2(67)
CONTRACTOR	- JOHNSON BROS.
LOCATION	- TH 65 (368 AVE. BRIDGE) MPLS., MINN.
DESCRIPTION	- ERECTION PLAN-PIER 1 WALKWAY SYSTEM

Job No.
1643-35
 Drawn by: AD
 Checked by: AL
 Approved: [Signature]




BOLTS 3/4" X 2 - TO BE USED TO FASTEN L'S TO BRACKETS

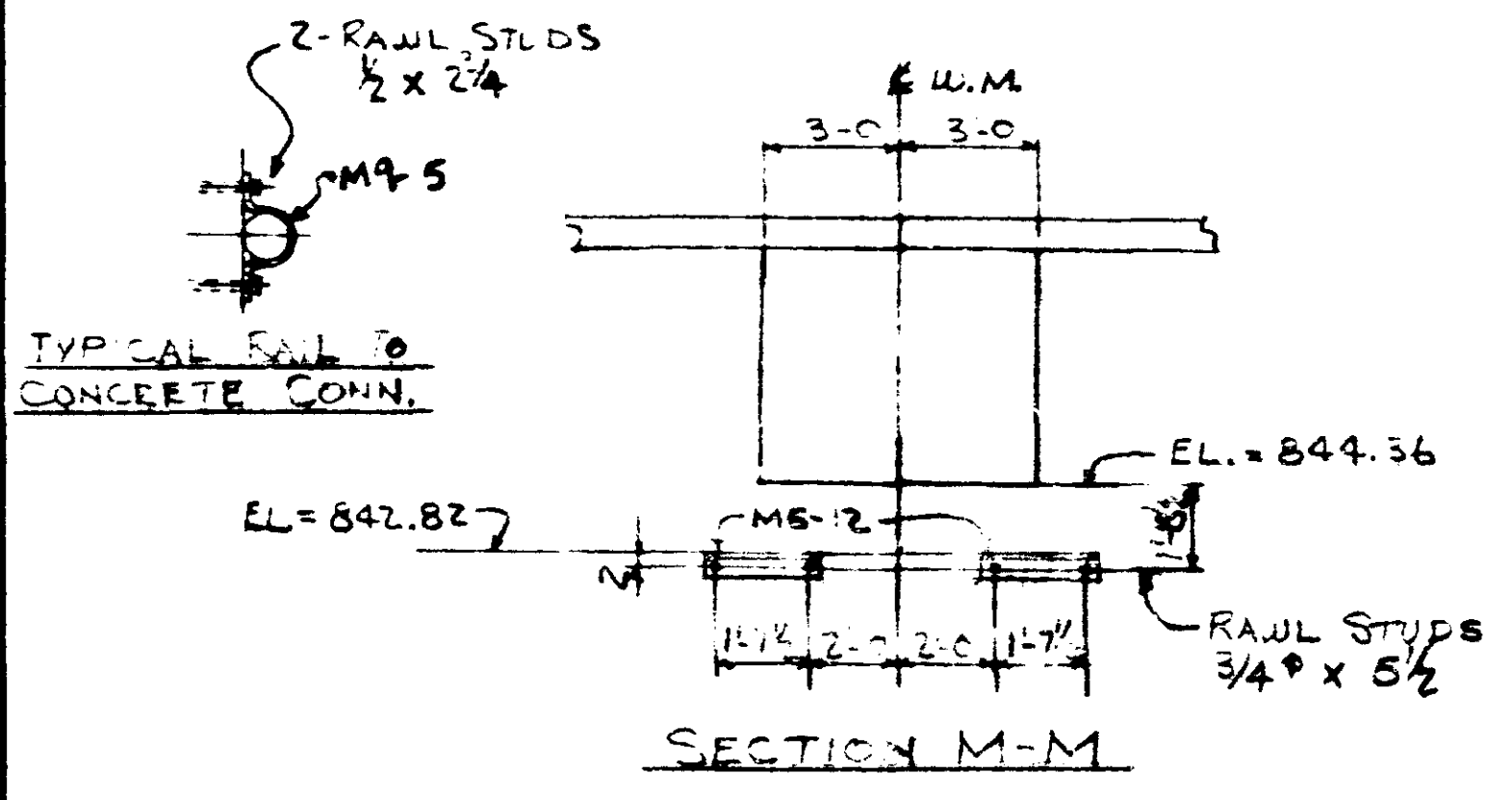
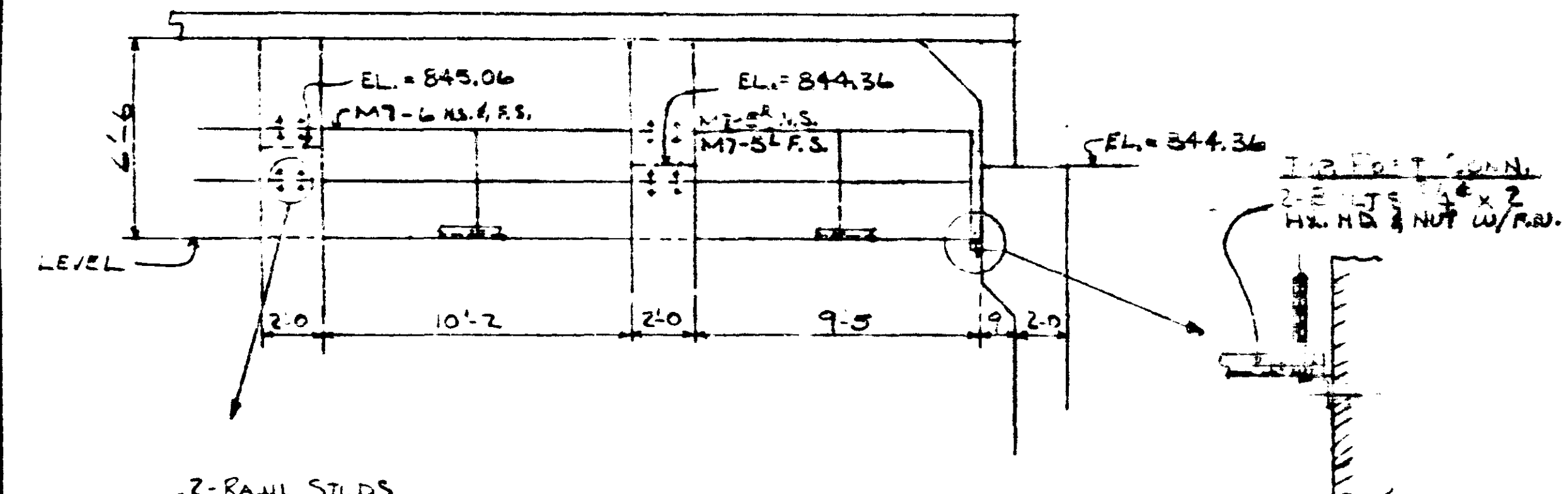
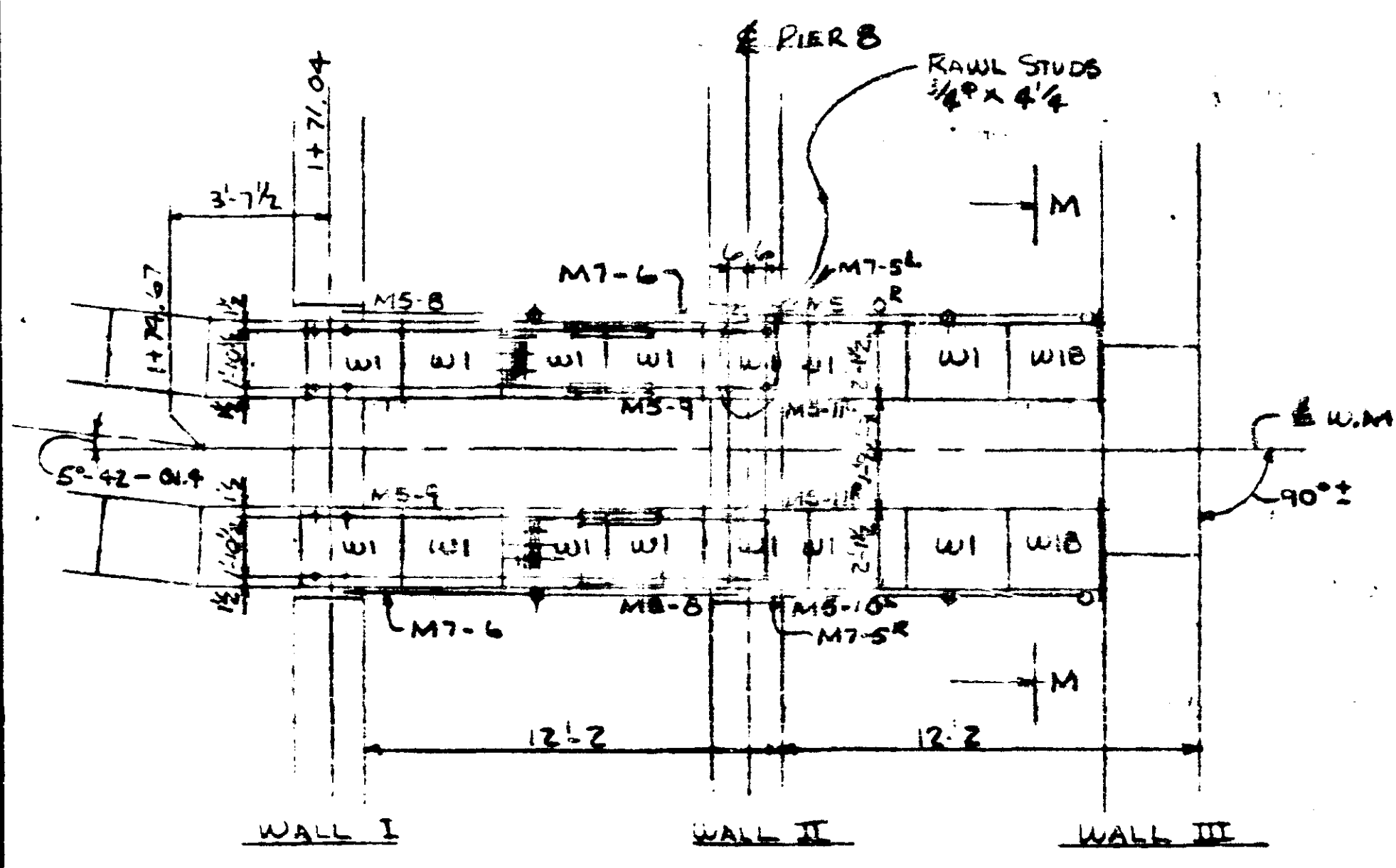


NOTE:
CONTROL DIMENSIONS ON & OF WATERMAIN AND SKEW &S ARE FROM FIELD MEASUREMENTS
SEE E2 FOR GEN. NOTES:

REvised 10-2-80
S.C.B. 6/14/80
7/1/80


	
LEWIS ENGINEERING COMPANY 6229 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-8161	
PROJECT	- BR. 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BHF 005-2(67)
CONTRACTOR	- JOHNSON BROS.
LOCATION	- T.H. 65 (3RD AVE. BRIDGE) MPLS., MINN.
DESCRIPTION	- ERECTION PLAN - PIER 6 WALKWAY SYSTEM. WATERMAIN TANKER SYSTEM

Job No.
1643-35
Drawn By CAD
Checked By EAS
Approved

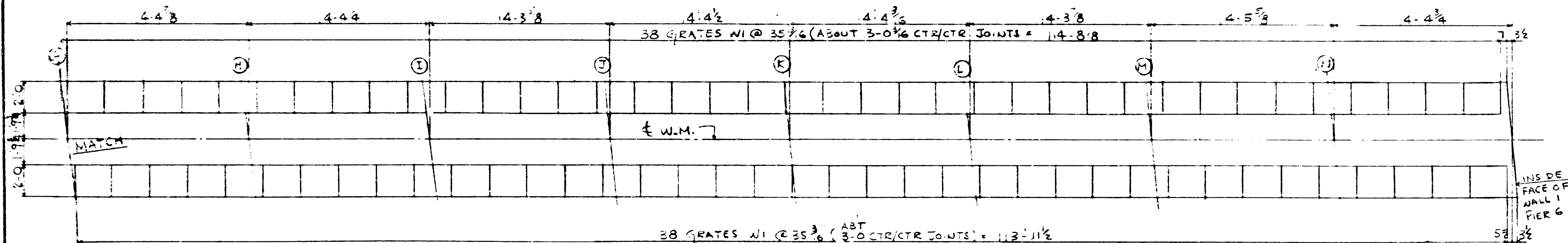
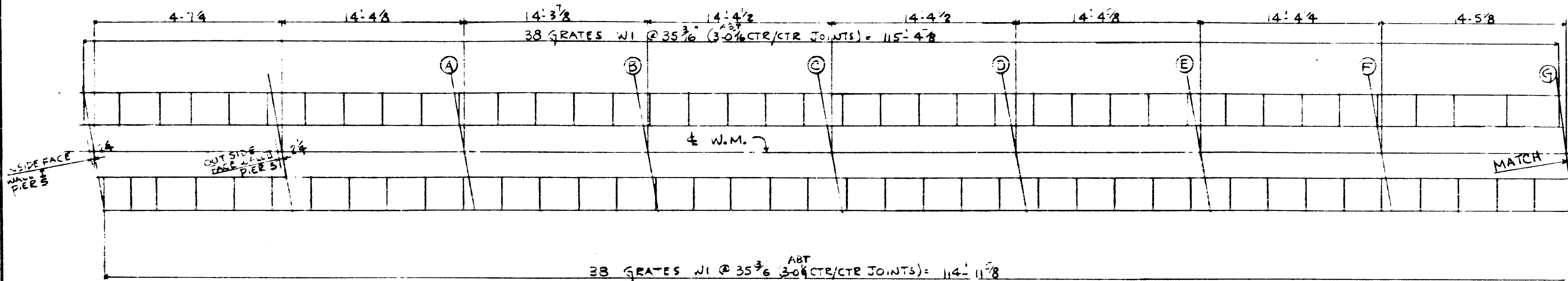


SEE E2 FOR GEN. NOTES:

SUB 619 80
SUB. 6-3 80

 LEWIS ENGINEERING COMPANY 8228 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-6181	
PROJECT	- BR. 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BHF 005-2 (L7)
CONTRACTOR	- JOHNSON BROS.
LOCATION	- T.H 65 (3RD AVE. BRIDGE) MPLS., MINN.
DESCRIPTION	- ERECTION PLAN-PIER B WALKWAY SYSTEM

Job No.
1643-35
 Drawn By: CAD
 Checked By: EA
 Approved:



52 GRATES W1 FOR SPANS INCLUDING PERS

GRATES TO BE HELD DOWN BY FIELD WELDING @ 4 PTS TO EACH GRATE WHERE BRG BARS INTERFERE WITH BOLTS IN SUPPORTING W. THE BAR MUST BE NOTCHED OR BENT ASIDE AT ERECTION

ERECTION PLAN FOR SUPPORT W. SHEET E3 - DIM. ARE FROM FIELD MEASUREMENTS

SUB. 6-19-80 SUB. 6-11-80 DET. 6-9-80

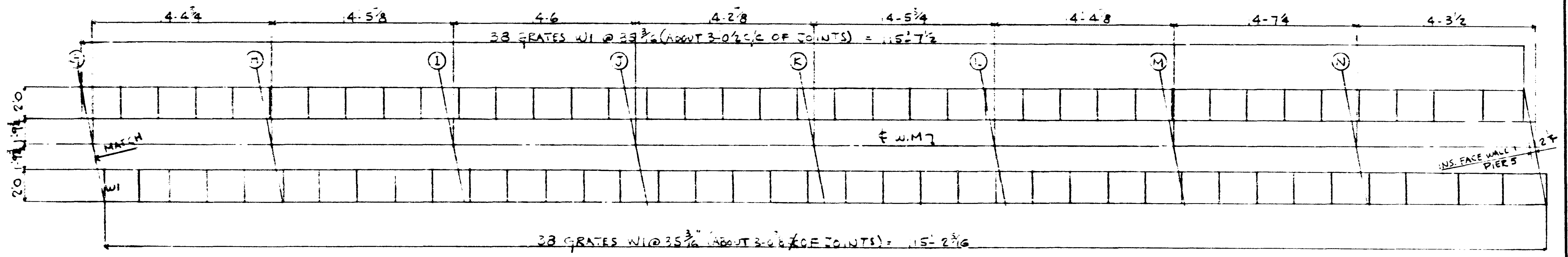
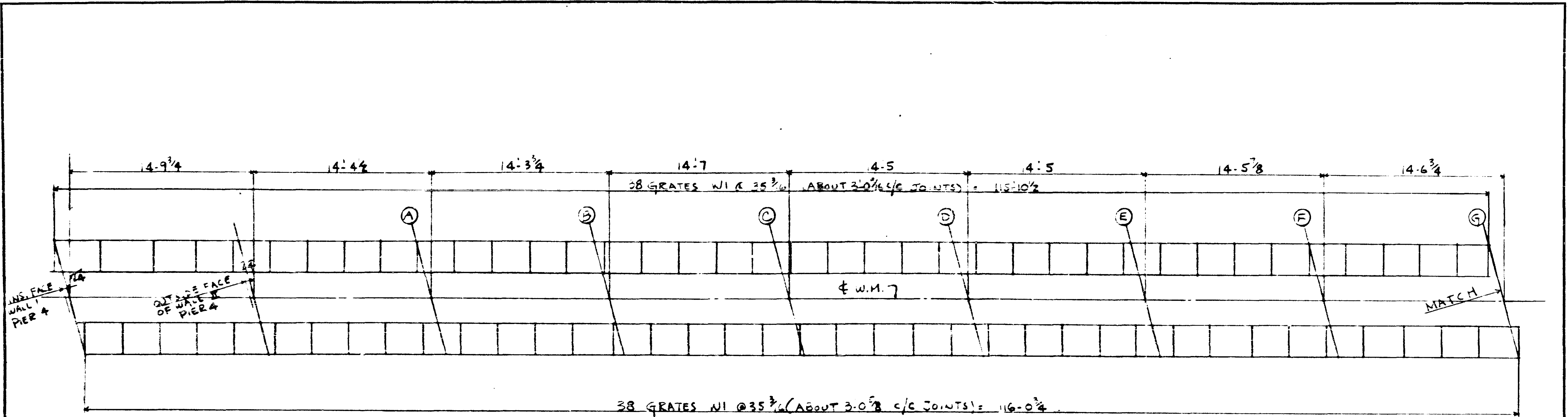


LEWIS ENGINEERING COMPANY

6229 EDEN AVENUE - EDINA, MINNESOTA 56438 - (612) 320-6181

PROJECT - BRIDGE 2440
 STATE PROJECT - 2710-21
 FEDERAL PROJECT - BHF-005-2(67)
 CONTRACTOR - JOHNSON BROS.
 LOCATION - T.H. 65 (3RD AVE BR.) MPLS. MINNESOTA
 DESCRIPTION - ERECTION PLAN FOR SPANS FROM WALL 1 PIERS TO WALL 1 PIER 6 W.M. WALKWAY GRATING

Job No. 1643-35
 Drawn By EAS
 Checked By UCI
 Approved




152 GRATES W1 FOR SPAN 4
INCLUDING PIER 4

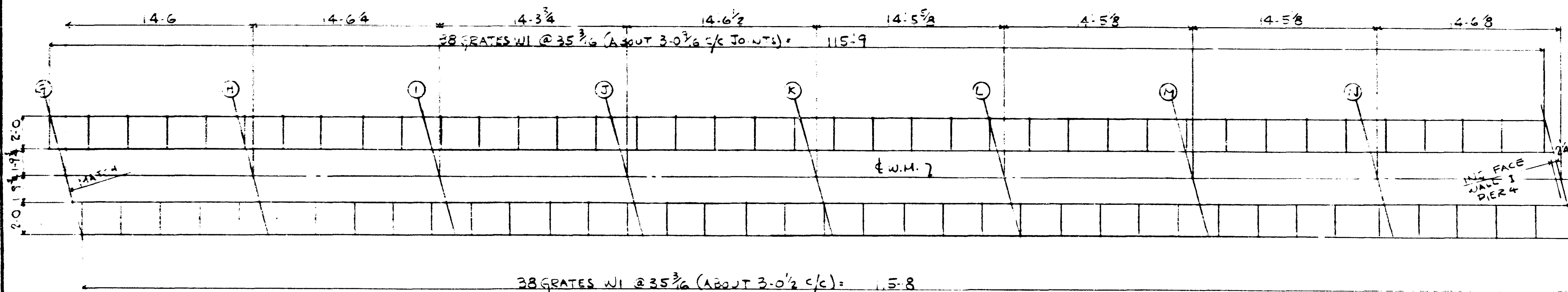
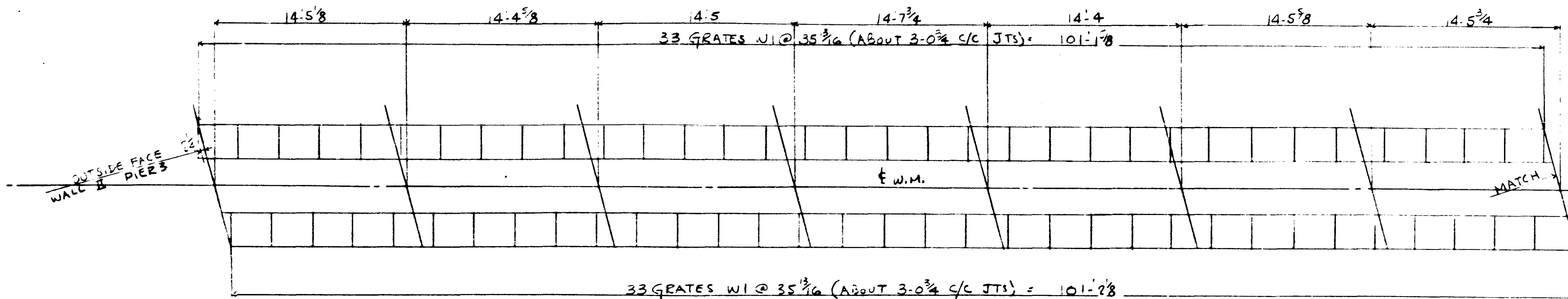
ERECTION PLAN FOR SUPPORT W-5-SHE. 4

DIMENSIONS ARE FROM FIELD
MEASUREMENTS

ADDITIONAL NOTES ON E12


SUB 6-19-80
SUB 6-11-80
DET 6-10-80

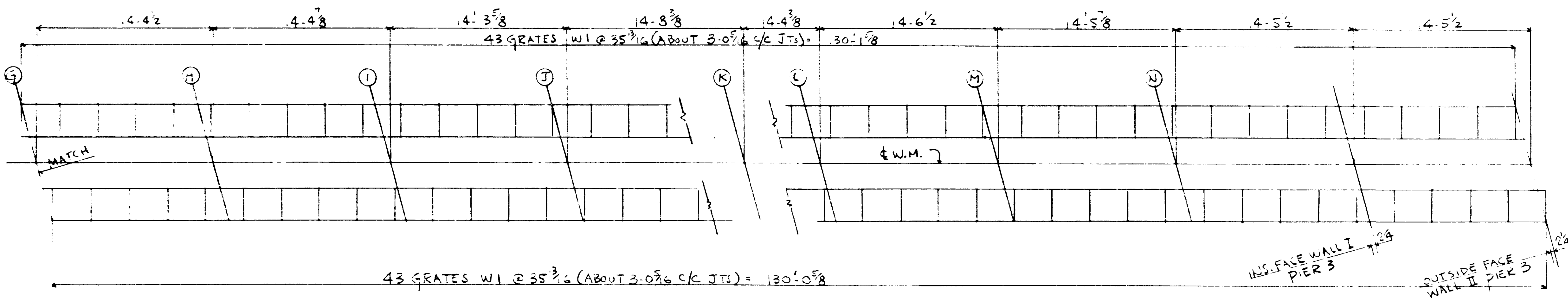
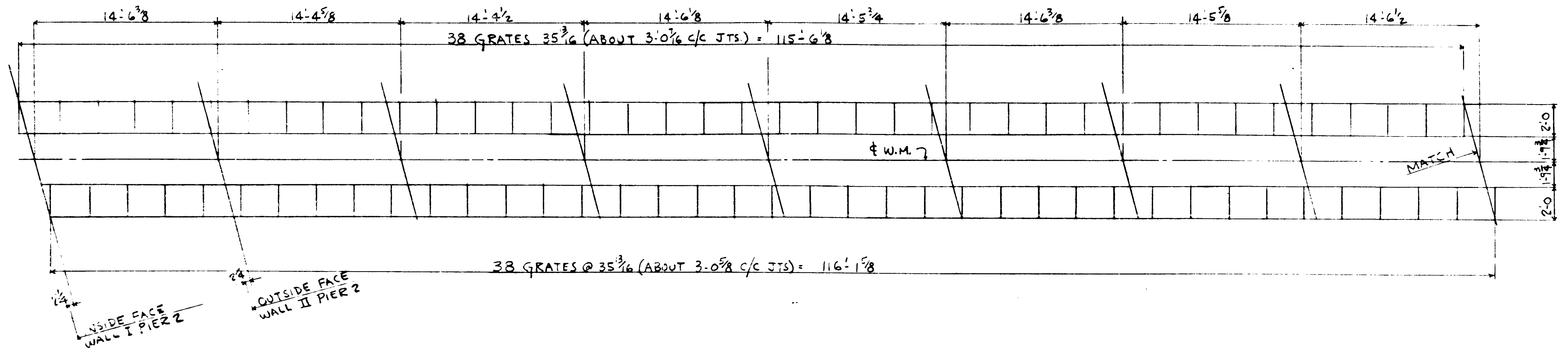
 LEWIS ENGINEERING COMPANY 8220 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 920-8181	
PROJECT	- BRIDGE 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BHF-005-2(67)
CONTRACTOR	- JOHNSON BROS.
LOCATION	- T.H. 65 (3RD AVE. BR.) MPLS. MN.
DESCRIPTION	- ERECTION PLAN FOR SPAN 4 FROM WALL 1- PIER 4 TO WALL 1- PIER 5 W.M. WALK WAY GRATING
Job No. 1643-35 Drawn By EAS Checked By J.C. Approved	



142 GRATES W1 FOR SPAN 3
 ERECTION PLAN FOR SUPPORT 15 SHEET 5
 DIMENSIONS ARE FROM FIELD MEASUREMENTS
 ADDITIONAL NOTES ON E12


SUB 6-19-80
 SUB 6-11-80
 DET 6-9-80

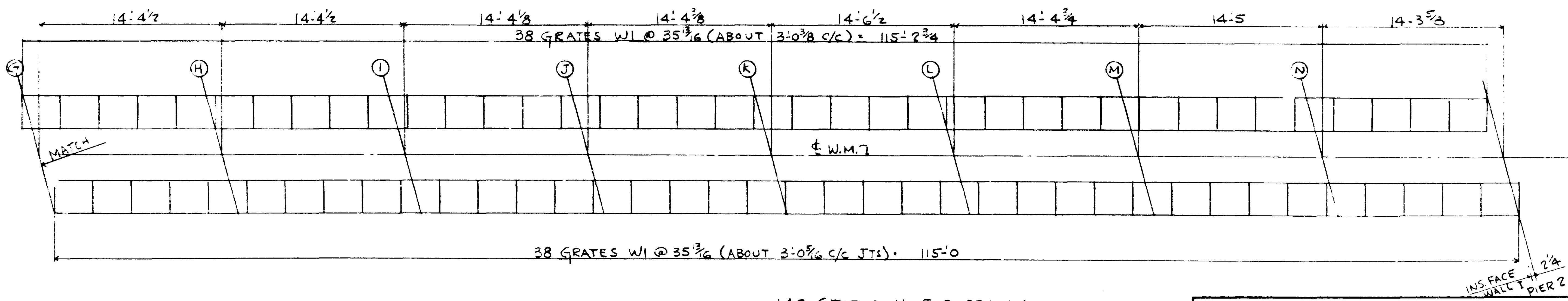
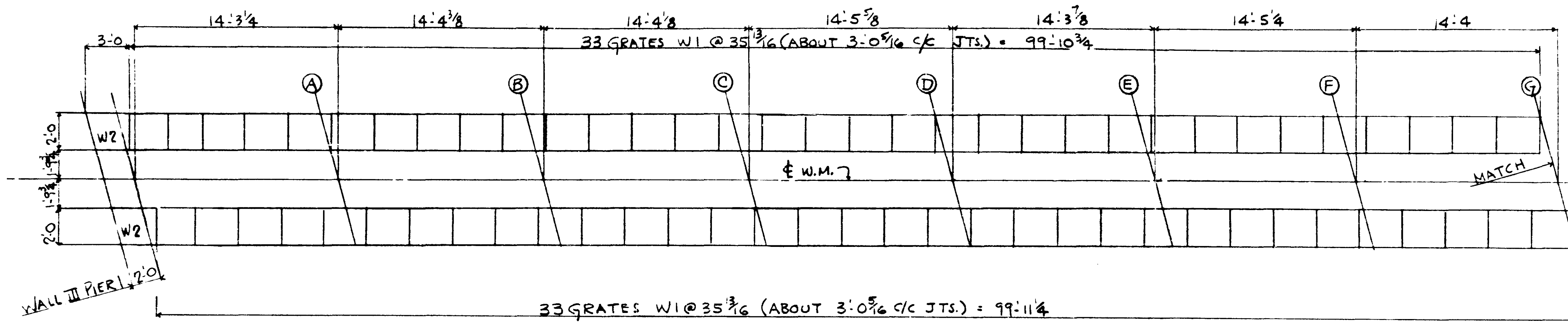
		LEWIS ENGINEERING COMPANY	
		5220 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 920-8181	
PROJECT	- BRIDGE 2440		
STATE PROJECT	- 2710 - 21		
FEDERAL PROJECT	- BKF-005-2(67)		
CONTRACTOR	- JOHNSON BROS		
LOCATION	- T.H. 65 (3RD AVE. BR.) MRS. MN.		
DESCRIPTION	- ERECTION PLAN FOR SPAN 3 FROM OUTSIDE FACE WALL - II PIER 3 TO INS. FACE WALL I PIER 4		
	- W.M. WALKWAY GRATING		
		Job No.	1643-35
		Drawn By	EAS
		Checked By	UCI
		Approved	



162 GRATES W1 FOR SPAN 2 INCL PIERS 2 & 3
 ERECTION PLAN FOR SUPPORT OF EG
 DIMENSIONS ARE FROM FIELD MEASUREMENTS
 ADDITIONAL NOTES ON E12


SUB. 6-19-80
 SUB. 6-11-80
 DET. 6-10-80

 LEWIS ENGINEERING COMPANY 5229 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 920-6181	
PROJECT	- BR. 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BHF-005 - 2(67)
CONTRACTOR	- JOHNSON BROS.
LOCATION	- T.H. 65 (3RD AVE. BR) MPLS. MN. ERECTION PLAN FOR SPAN 2 FROM WALL I PIER 2 TO WALL II PIER 3
DESCRIPTION	W.M. WALKWAY GRATING
Job No. 1643-35 Drawn By EAS Checked By JCI Approved	

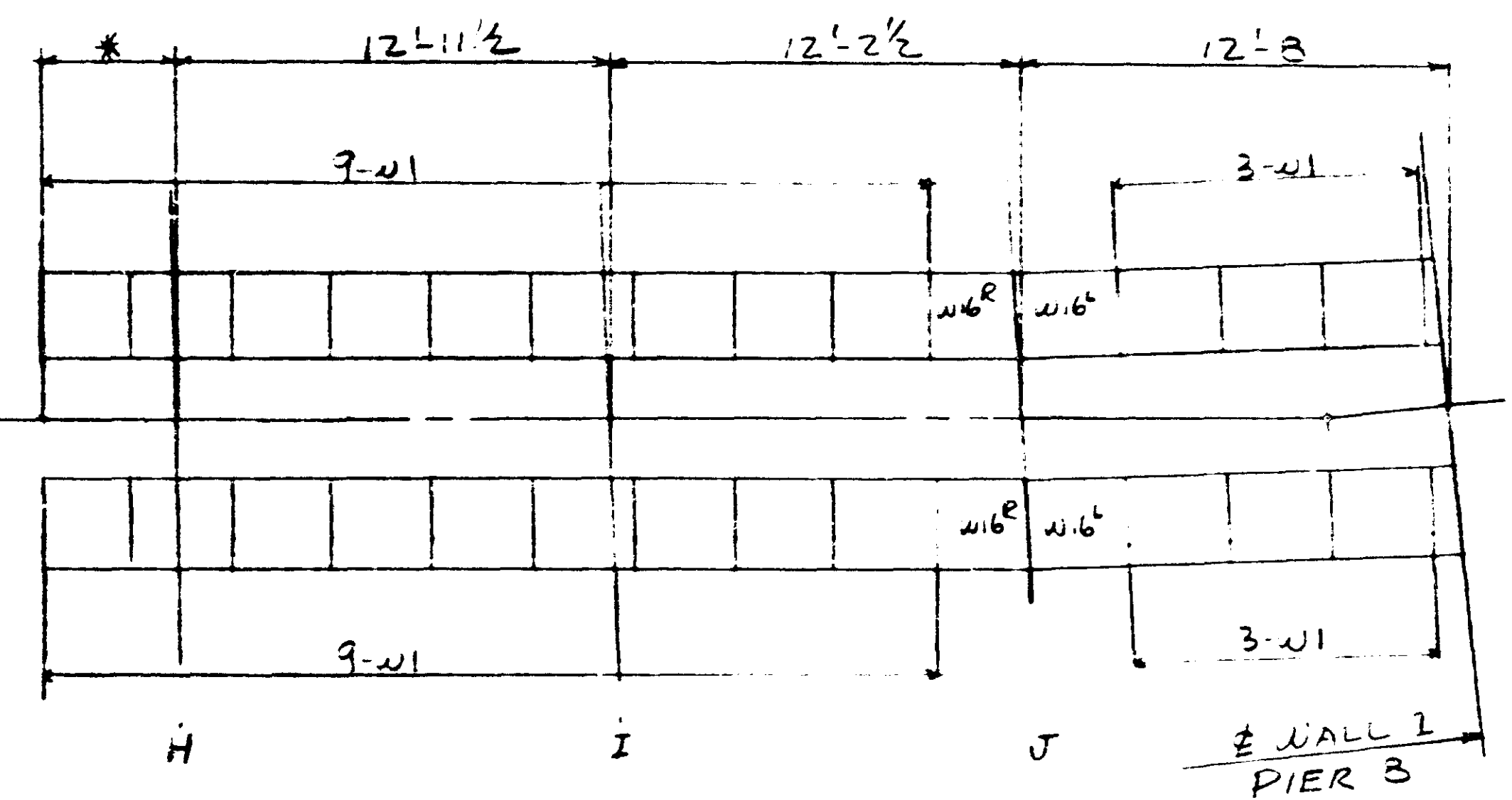
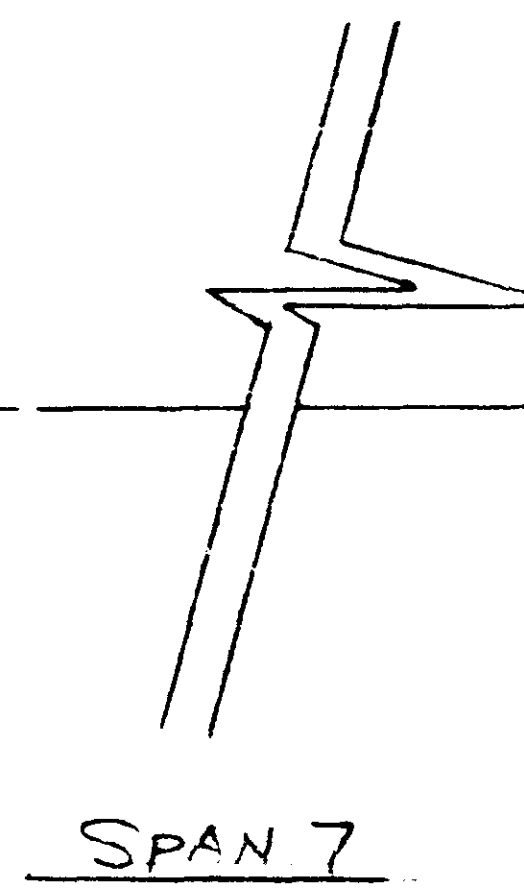
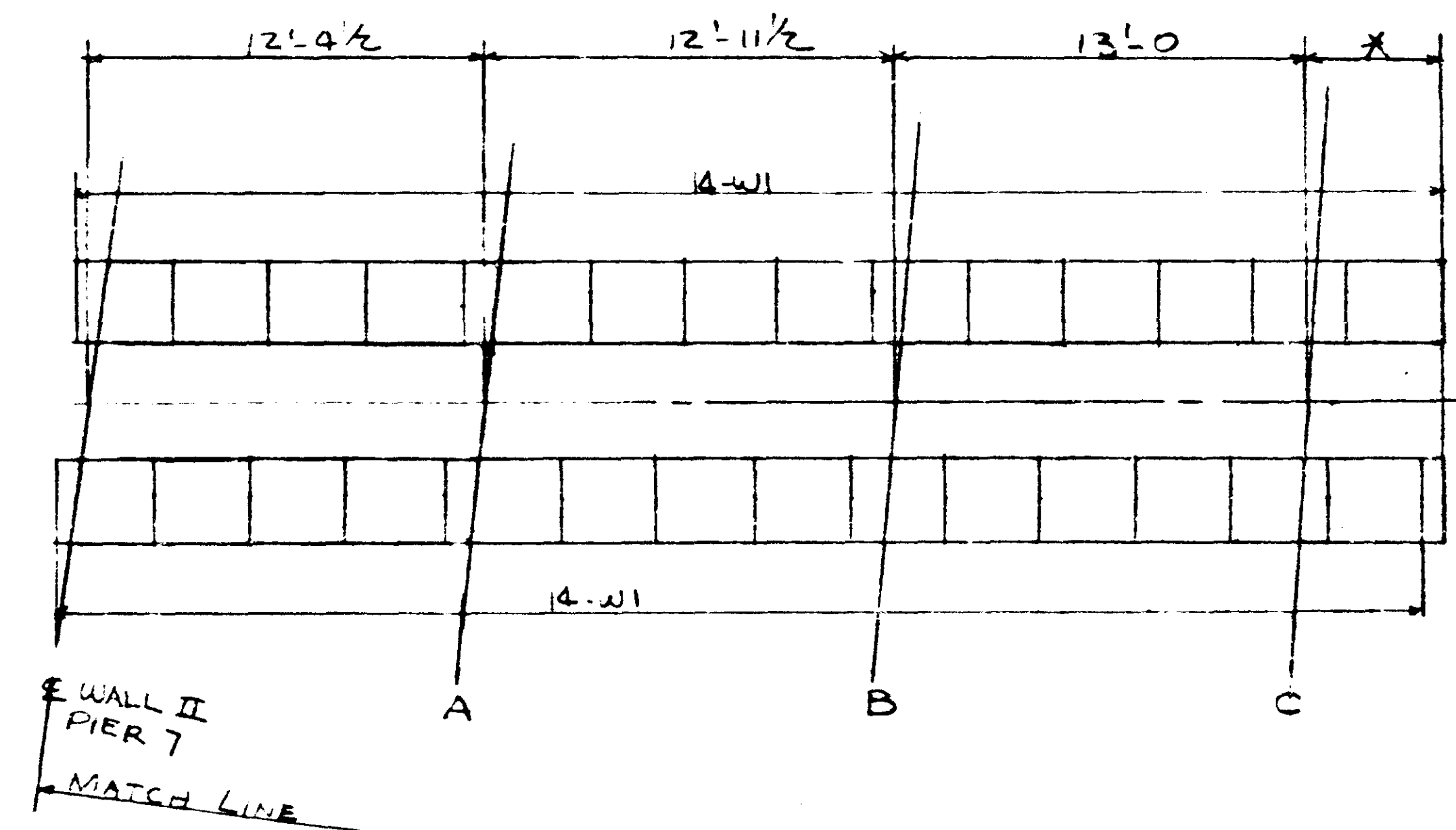
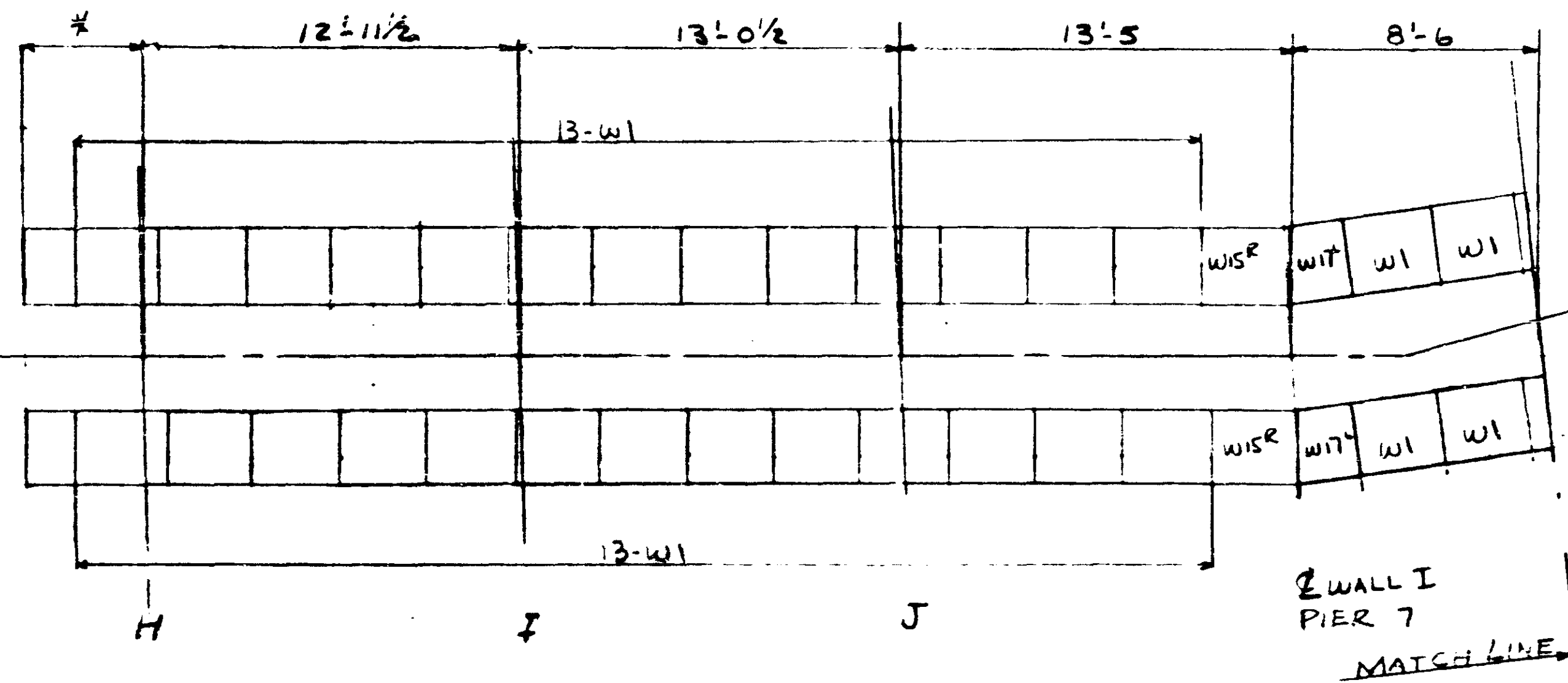
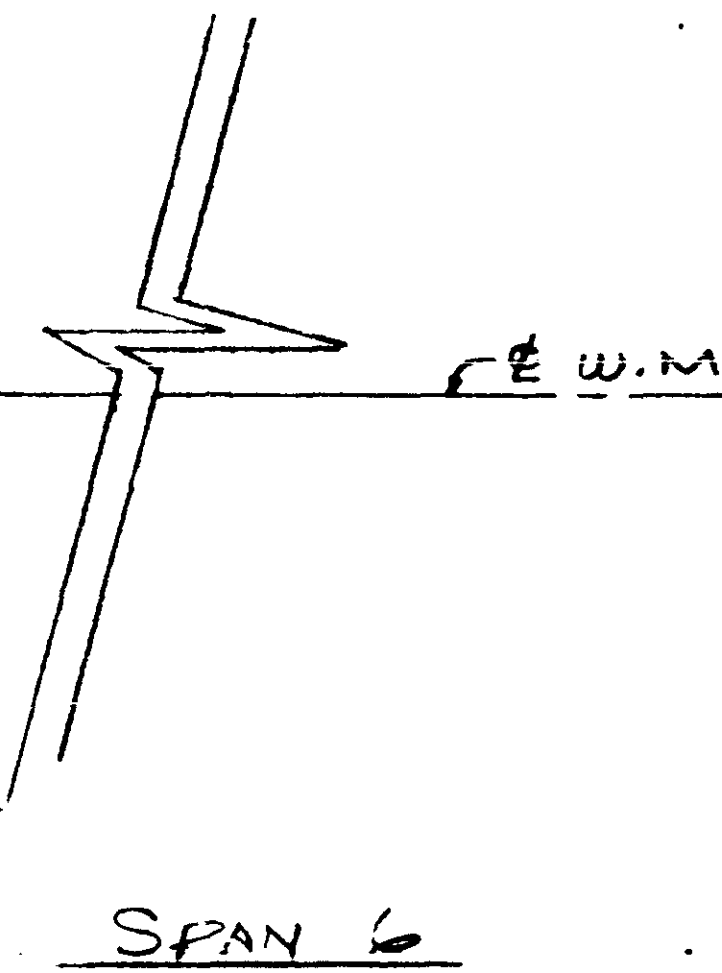
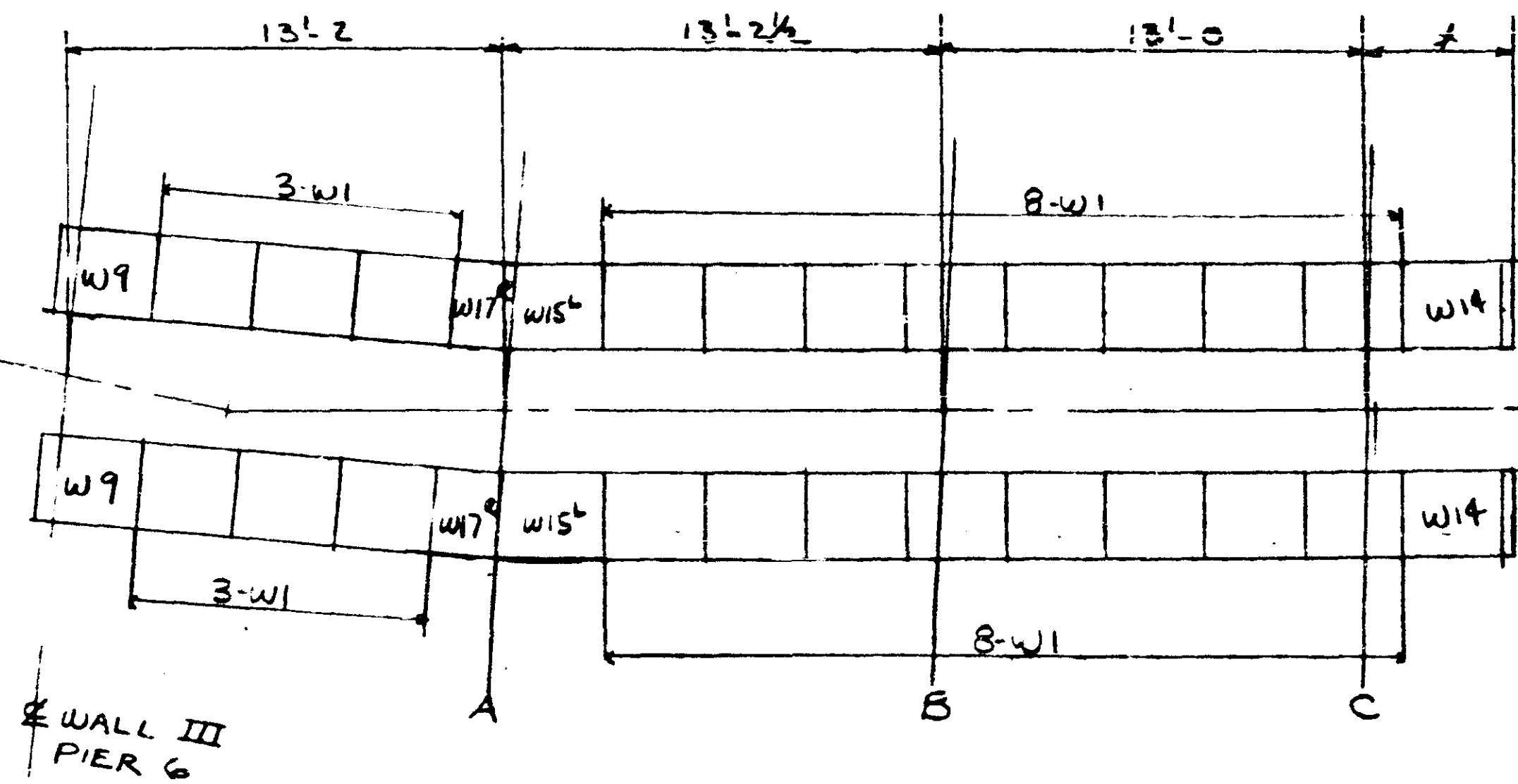


142 GRATES W1 FOR SPAN I
 W2 SHOWN ON FIG FOR E9
 ERECTION PLAN FOR SUPPORT SHEET E7
 DIMENSIONS ARE FROM FIELD MEASUREMENTS

SUB 6-19-80
 SUB 6-11-80
 DET. 6-11-80


	
LEWIS ENGINEERING COMPANY	
6228 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-8181	
PROJECT	- BR. 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BHF-005-2(67)
CONTRACTOR	- JOHNSON BROS.
LOCATION	- T.H. 65 (3 RD AVE BR) MPLS MN. FOR SPAN I - WALL III PIER I TO WALL I PIER 2
DESCRIPTION	-

Job No.
1643-35
Drawn By EAS
Checked By UGI
Approved

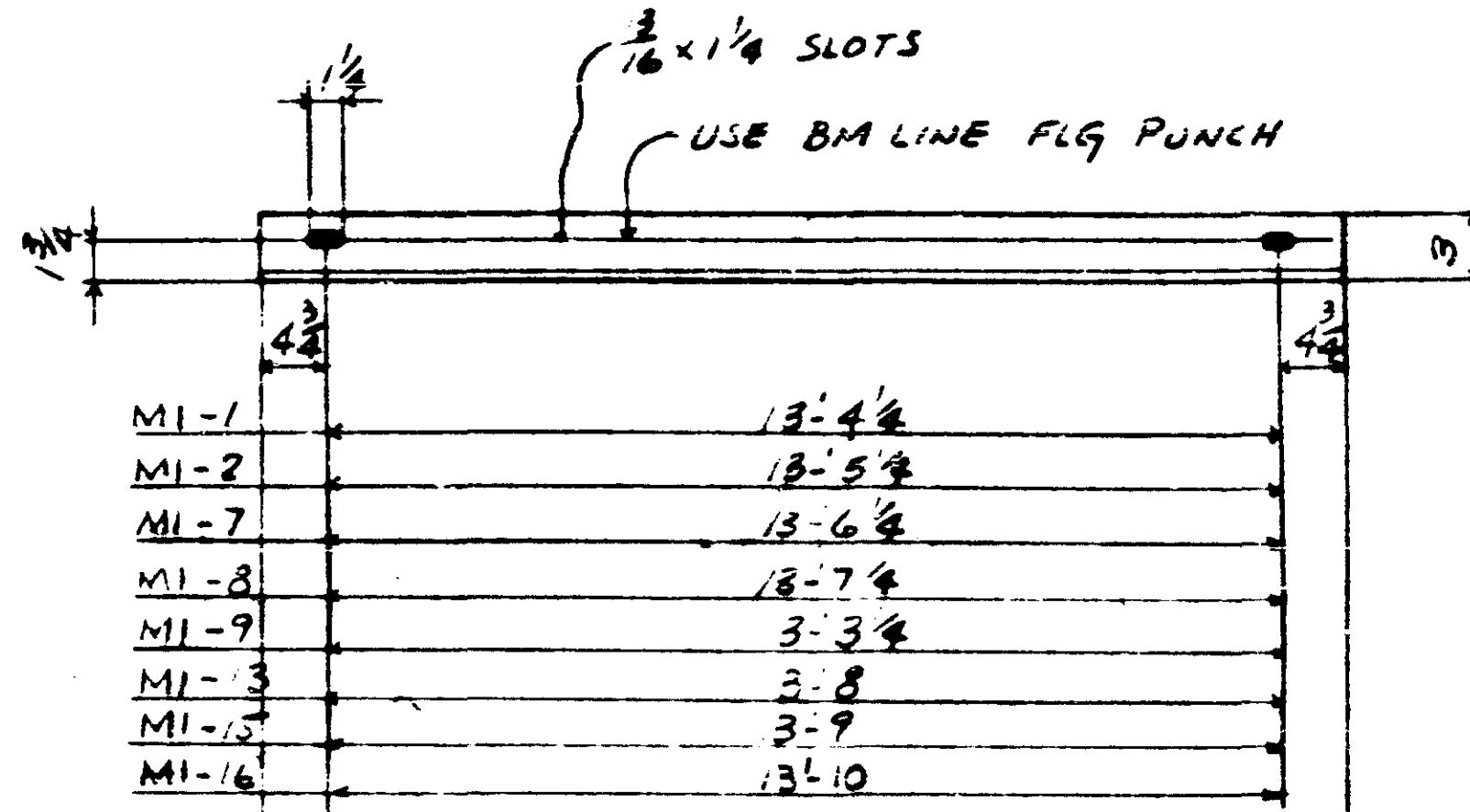


10+ GRATES W1 FOR SPANS 6 & 7
 ERECTION PLAN FOR SUPPORT Ls EB
 DIMENSIONS ARE FROM FIELD MEASUREMENTS
 * THIS DIMENSION CANNOT BE DETERMINED
 UNTIL FIELD ASSEMBLY - THEN, IF NECESSARY
 GRATING WILL BE MODIFIED
 SEE ADDITION NOTES ON E12- CONCERNING
 GRATING ERECTION

Sub: 7-8-80
 Det: 2-27-80

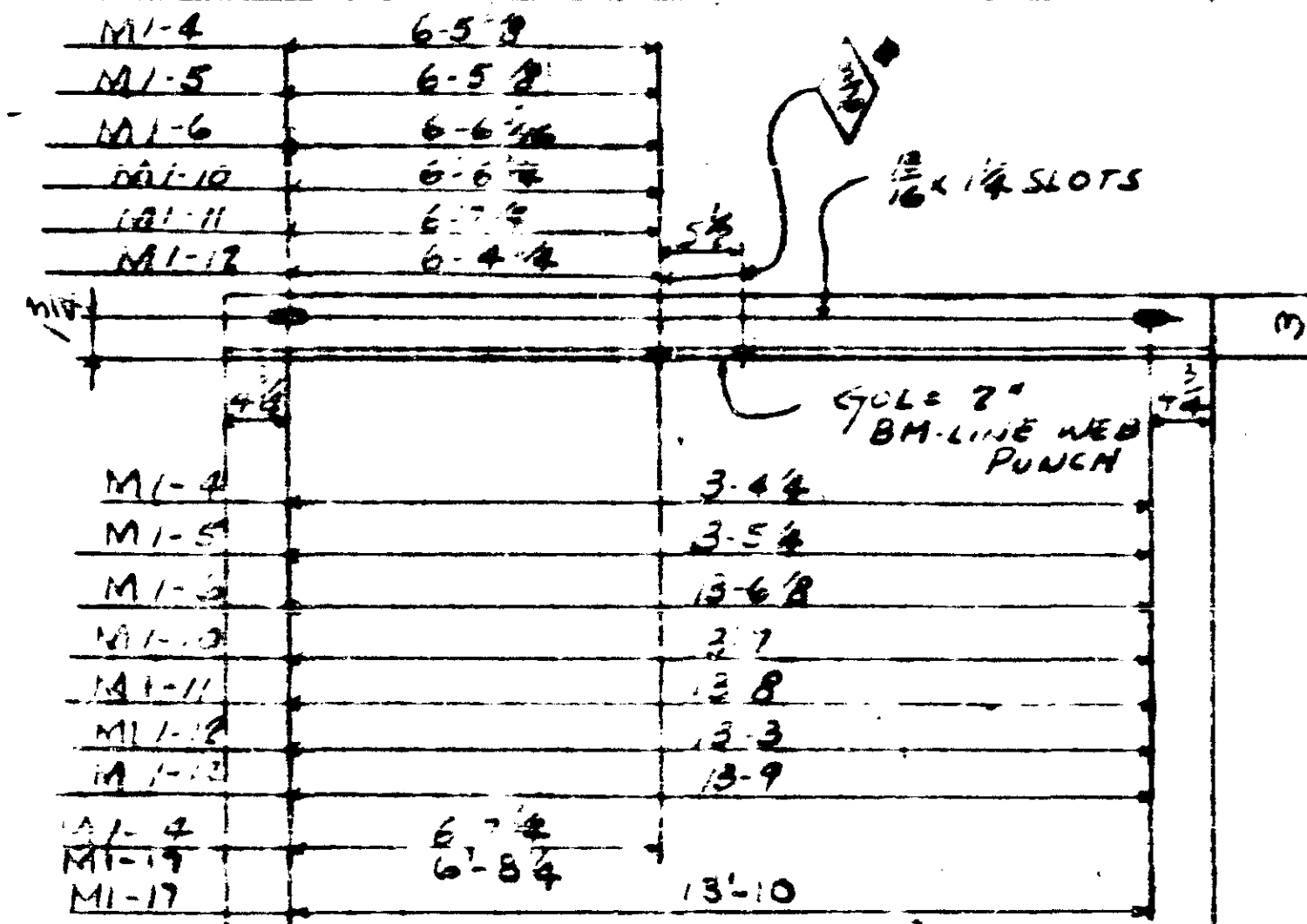
	
LEWIS ENGINEERING COMPANY	
8229 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 920-6161	
PROJECT	- BR. 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BHF-005-2(67)
CONTRACTOR	- JOHNSON BROS.
LOCATION	- T.H. 65 (350 AVE. BR.) MPLS., MINN.
DESCRIPTION	- FOR SPANS 6 & 7 & PIER 7 - BARREL ARCHES

Job No. 1643-35
 Drawn By CAD
 Checked By EAC
 ASB



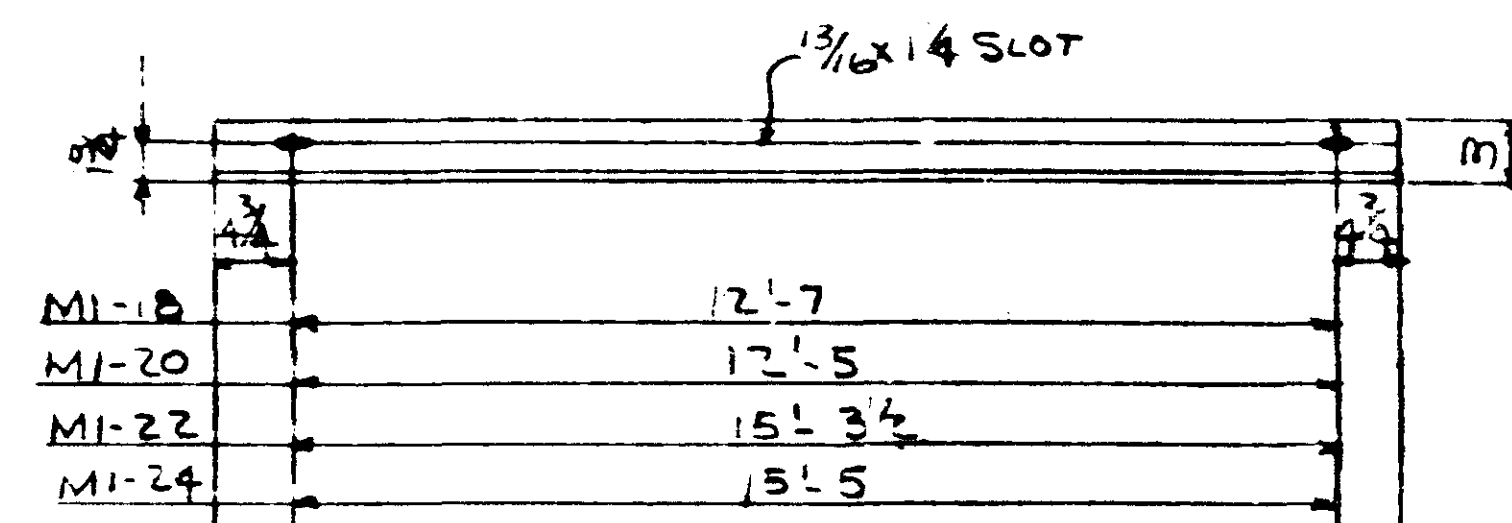
MI-1	L 4x3x3/8 x 14-1 1/4
MI-2	L 4x3x3/8 x 14-2 1/4
MI-7	L 4x3x3/8 x 14-3 1/4
MI-8	L 4x3x3/8 x 14-4 1/4
MI-9	L 4x3x3/8 x 14-0 3/4
MI-13	L 4x3x3/8 x 14-5 1/2
MI-15	L 4x3x3/8 x 14-6 1/2
MI-16	L 4x3x3/8 x 14-7 1/2

FOR QUANTITIES SEE SPAN
SCHEDULE BY CALC OF MATL.

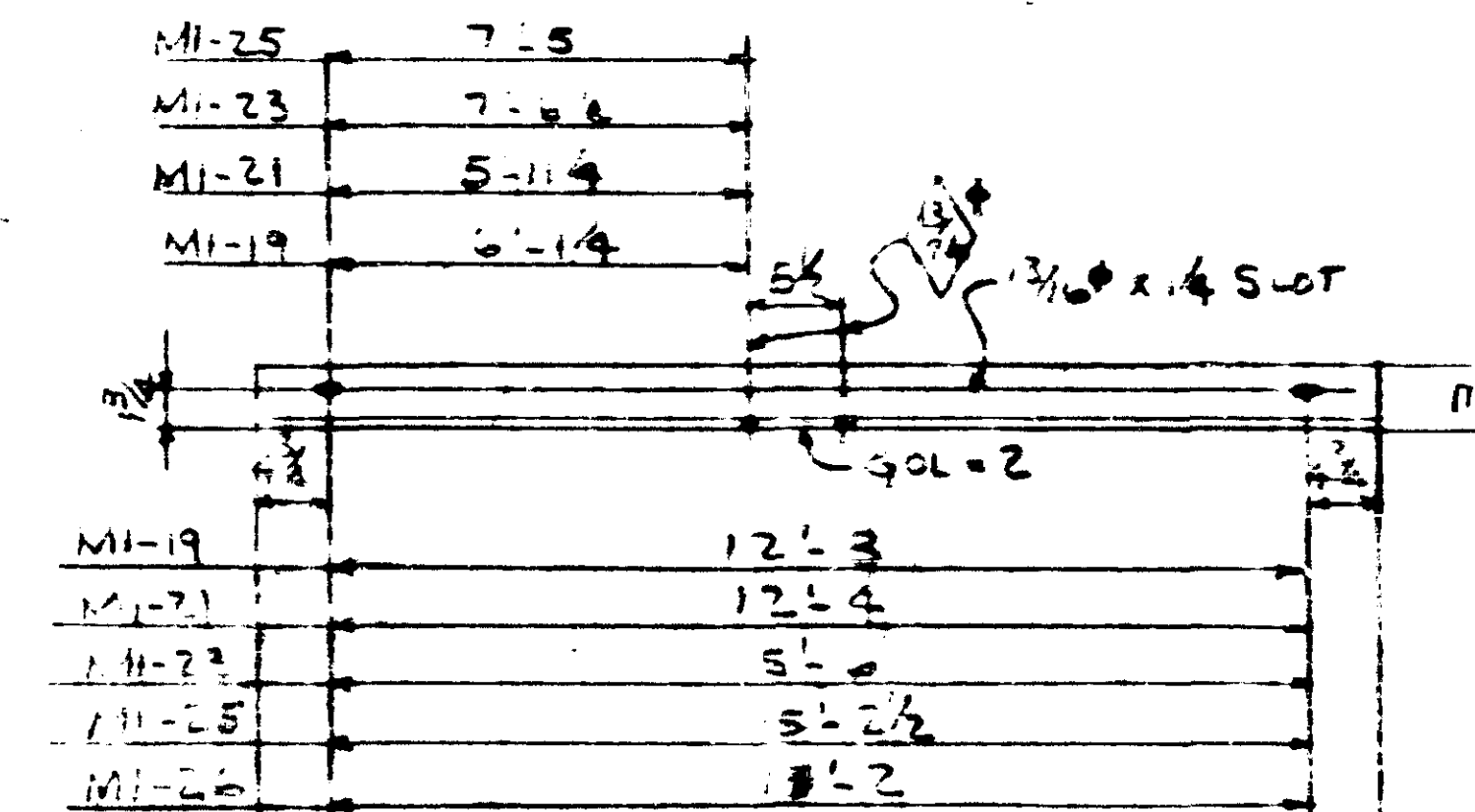


MI-4	L 4x3x3/8 x 14-1 1/4
MI-5	L 4x3x3/8 x 14-2 1/4
MI-6	L 4x3x3/8 x 14-3 1/4
MI-10	L 4x3x3/8 x 14-4 1/4
MI-11	L 4x3x3/8 x 14-5 1/2
MI-12	L 4x3x3/8 x 14-0 1/2
MI-13	L 4x3x3/8 x 14-6 1/2
MI-17	L 4x3x3/8 x 14-7 1/2

FOR QUANTITIES SEE SPAN
SCHEDULE BY CALC OF MATL.



MI-18	L 4x3x3/8 x 13-4 1/2
MI-20	L 4x3x3/8 x 13-2 1/2
MI-22	L 4x3x3/8 x 16-1
MI-24	L 4x3x3/8 x 16-2 1/2



MI-19	L 4x3x3/8 x 13-5 1/2
MI-21	L 4x3x3/8 x 13-1 1/2
MI-23	L 4x3x3/8 x 10-3 1/2
MI-25	L 4x3x3/8 x 10-0
MI-26	L 4x3x3/8 x 13-1 1/2

* DETAILED FROM FIELD MEASUREMENTS

SEE E2 FOR GEN NOTES

5/8 1-28 80
5/8 2-2-80
5/8 2-3-80
5/8 2-4-80
5/8 2-5-80
5/8 2-10-80
5/8 2-11-80

NO.	QTY	SIZE	DESCRIPTION	LENGTH		MK	REMARKS	WGHT.
				FT	INCH			
1	1	1/2	L 4x3x3/8	14	1 1/4	MI-1	MN/DOT 3304	14.3
2	2	1/2	L 4x3x3/8	13	2 1/4	MI-2	Grind. 3224	36.20
3	2	1/2	L 4x3x3/8	14	1 1/4	MI-4		20.64
4	2	1/2	L 4x3x3/8	14	2 1/4	MI-5		30.24
5	2	1/2	L 4x3x3/8	14	3 1/4	MI-6		40.81
6	2	1/2	L 4x3x3/8	14	3 1/4	MI-7		40.81
7	2	1/2	L 4x3x3/8	14	4 1/4	MI-8		48.24
8	2	1/2	L 4x3x3/8	14	0 1/4	MI-9		5.33
9	2	1/2	L 4x3x3/8	14	4 1/2	MI-10		11.00
10	2	1/2	L 4x3x3/8	14	5 1/2	MI-11		40.2
11	2	1/2	L 4x3x3/8	16	0 1/2	MI-12		4.97
12	1	1/2	L 4x3x3/8	14	5 1/2	MI-13		1.3
13	1	1/2	L 4x3x3/8	14	6 1/2	MI-14		1.4
14	1	1/2	L 4x3x3/8	14	6 1/2	MI-15		1.3
15	1	1/2	L 4x3x3/8	14	7 1/2	MI-16		1.3
16	1	1/2	L 4x3x3/8	14	7 1/2	MI-17		1.3
17	1	1/2	L 4x3x3/8	14	7 1/2	MI-18		1.3
18	1	1/2	L 4x3x3/8	14	7 1/2	MI-19		1.3
19	1	1/2	L 4x3x3/8	14	7 1/2	MI-20		1.3
20	1	1/2	L 4x3x3/8	14	7 1/2	MI-21		1.3
21	1	1/2	L 4x3x3/8	14	7 1/2	MI-22		1.3
22	1	1/2	L 4x3x3/8	14	7 1/2	MI-23		1.3
23	1	1/2	L 4x3x3/8	14	7 1/2	MI-24		1.3
24	1	1/2	L 4x3x3/8	14	7 1/2	MI-25		1.3
25	1	1/2	L 4x3x3/8	14	7 1/2	MI-26		1.3

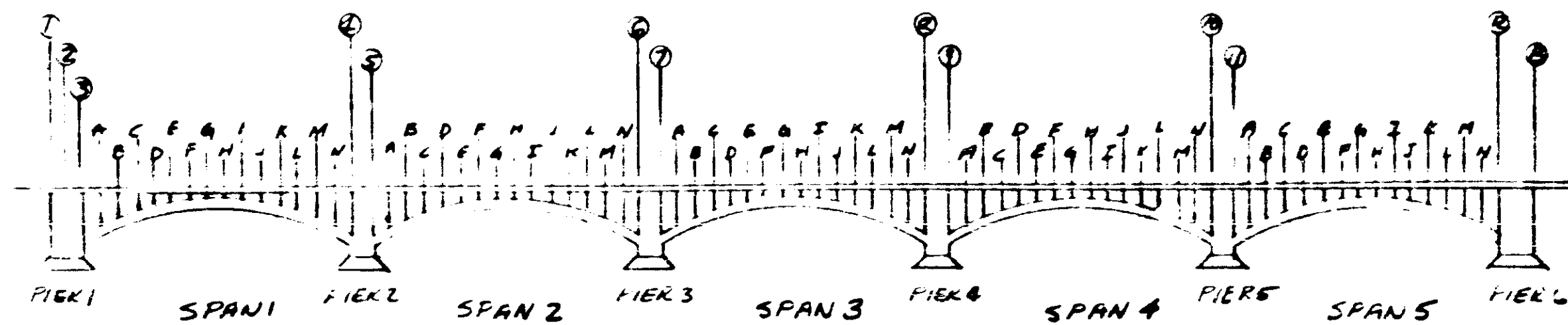


LEWIS ENGINEERING COMPANY
8228 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-8181

PROJECT - BR 2440
STATE PROJECT - 2710-21
FEDERAL PROJECT - BAF-005-2(67)
CONTRACTOR - JOHNSON BROS.
LOCATION - T.H. 65 (3RD AVE. BRIDGE) MPLS MINN.
DESCRIPTION - WALKWAY ANGLES FOR WATERMAIN HANGER SYSTEM

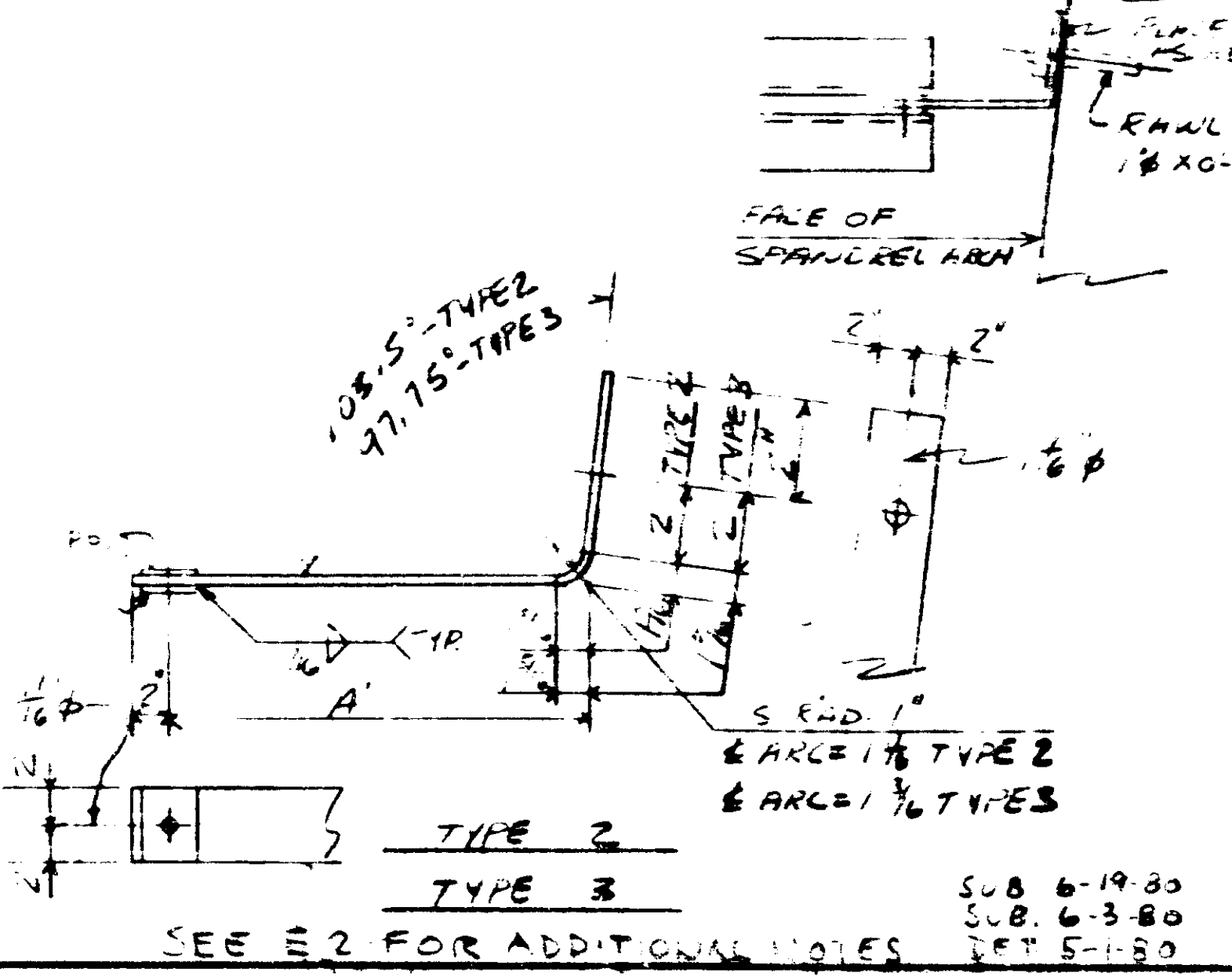
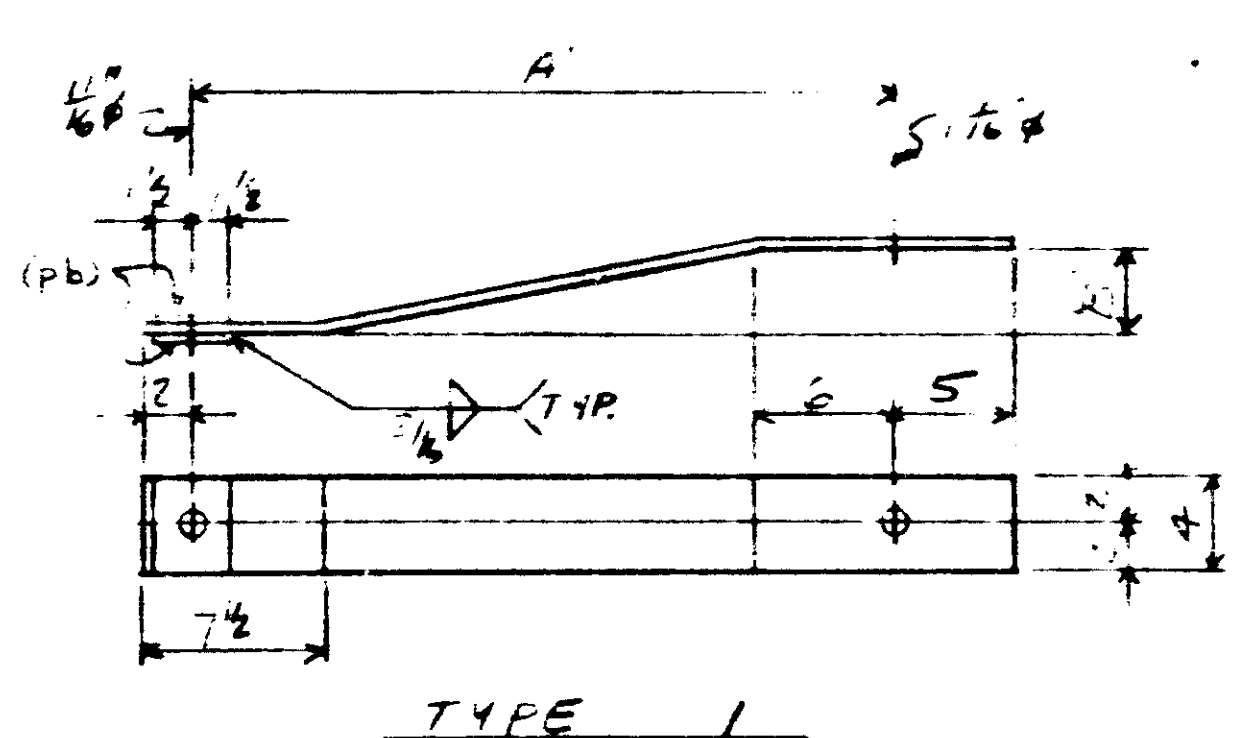
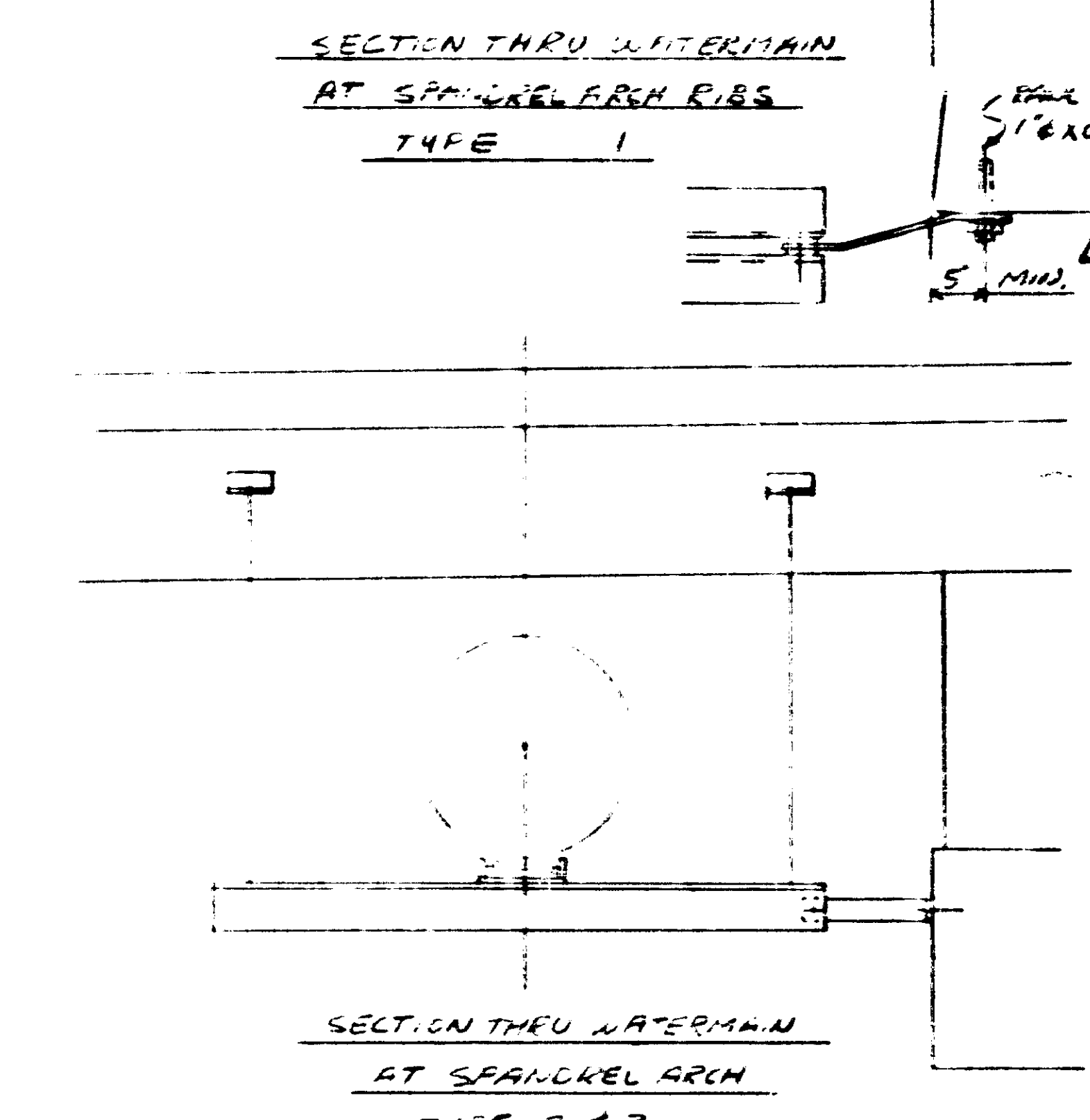
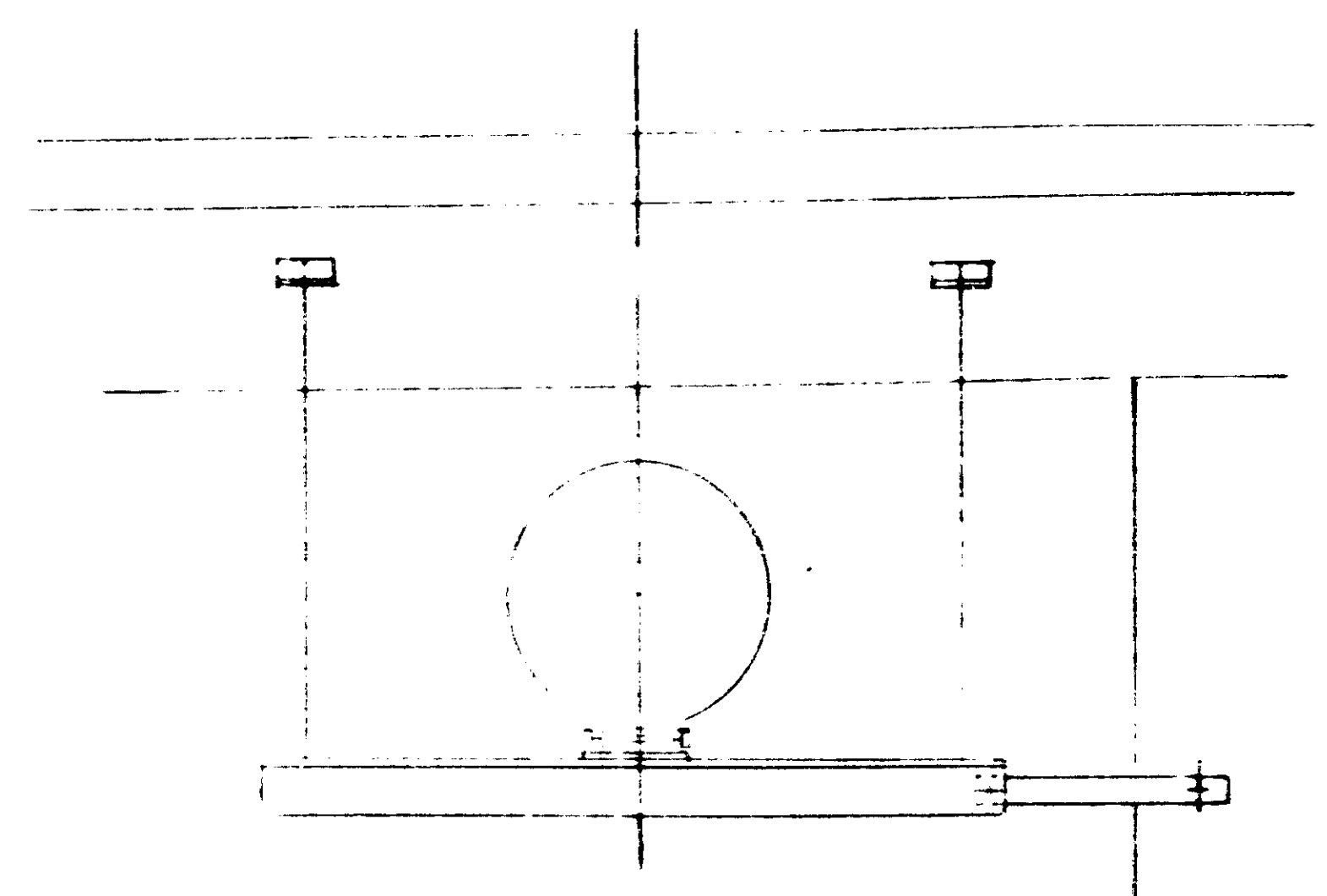
Job No. 64335
Drawn By: [Signature]
Checked By: [Signature]
Approved: [Signature]

ET 1-25-80



SPAN	LOC.	TYPE	MK	A	B	BAR # & SIZ.	REMARKS
SPAN 1							
1							
2							
3							
A							
B							
C							
D							
E	2	M37	1-1			1-7/8	
F	2	M39	1-0 3/8			1-6 3/4	
G	2	M38	1-3/4			1-8 3/4	
H	2	M39	0-11			1-5 1/2	
I	2	M39	1-0 3/4			1-6 3/4	
J	2	M39	1-0 3/4			1-6 3/4	
K							
L							
M	1	M3	2-0 3/2	5 1/2		2-8 3/4	
N	1	M34	1-10 3/8	4 3/4		2-6 3/2	
SPAN 2							
A	1	M5	1-8	5		2-4 B	
B							
C	1	M6	1-5 1/8	4 1/2		2-2 3/8	
D	1	M7	1-7 1/4	4 1/2		2-3 3/4	
E							
F	2	M8	9 1/2			1-4 1/4	
G	2	M9	11 1/8			1-5 3/8	
H	2	M20	11 1/8			1-5 3/8	
I							
J	1	M21	1-10	5 1/4		2-6 1/2	
K							
L	1	M22	2-2	5 1/4		2-10	
M	1	M27	2-6	3 1/2		3-1 1/2	
N							
O	2	M23	1-5 1/8			2-0 3/8	
SPAN 3							
A							
B							
C							
D							
E							
F	2	M24	1-3 1/2			1-4 10	
G	2	M25	1-6 3/8			2-1 3	
H	2	M26	1-6 3/8			2-0 3/8	
I	2	M27	1-7 5/8			2-1 5/8	
J							
K							
L							
M							
N							
O	2	M28	1-6 3/8			1-4 3/8	

SPAN	LOC.	TYPE	MK	A	B	BAR # & SIZ.	REMARKS
SPAN 4							
9	1	M29	3-0	3 1/4		3-7 1/4	
A							
B							
C							
D							
E							
F							
G	2	M30	1-9 1/4			2-3 1/4	
H	2	M31	1-9 1/8			2-4 3/8	
I							
J							
K							
L							
M							
N							
O	1	M32	2-8	3 1/2		3-3 1/4	
SPAN 5							
A							
B							
C							
D							
E							
F	3	M33	11 1/2			1-1 1/2	
G	3	M34	11 1/8			1-2 1/8	
H	3	M35	1-0 3/4			1-7 1/8	
I	3	M36	1-0 3/8			1-6 3/8	
J							
K							
L							
M							
N							
O							
P							



LINE NO.	NO.	DESCRIPTION	LENGTH	MK	REMARKS	WGHT.
			FT.	INCH		
1	3	BAR 2x4x	1	6 1/4	M9	
2						
3	1		2	8-8	M3	
4	2		2	6-2	M4	
5	7		2	4-8	M5	
6	1		2	2-5	M6	
7	1		2	3-4	M7	
8	1		1	4-4	M8	
9	1		1	5-2	M9	
10	2		1	5-8	M20	
11	1		2	6-2	M21	
12	1		2	10	M22	
13	1		2	0-3/8	M23	
14	1		1	10	M24	
15	1		2	1-1/2	M25	
16	1		2	2-1/2	M26	
17	1		2	1-1/2	M27	
18	1		2	4-1/2	M28	
19	2		3	7-4	M29	
20	1		2	3-4	M30	
21	1		2	4-8	M31	
22	1		3	3-4	M32	
23	1		1	6	M33	
24	1		1	6-1/2	M34	
25	1		1	7-4	M35	
26	1		1	6-5/8	M36	
27	1		3	1-1/2	M37	
28	1		1	7-2	M38	
29	1		1	8-4	M39	
30	1		1	5-2	M40	
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						
54						
55						
56						
57						
58						
59						
60						
61						
62						
63						

NOTE
 2-1/2 INCHS DIA. PIPE
 TO BE USED AS
 REEF FOR S-PIERS

REVISIONS
 8-6-80 - FIELD REQUESTED 6 PCS

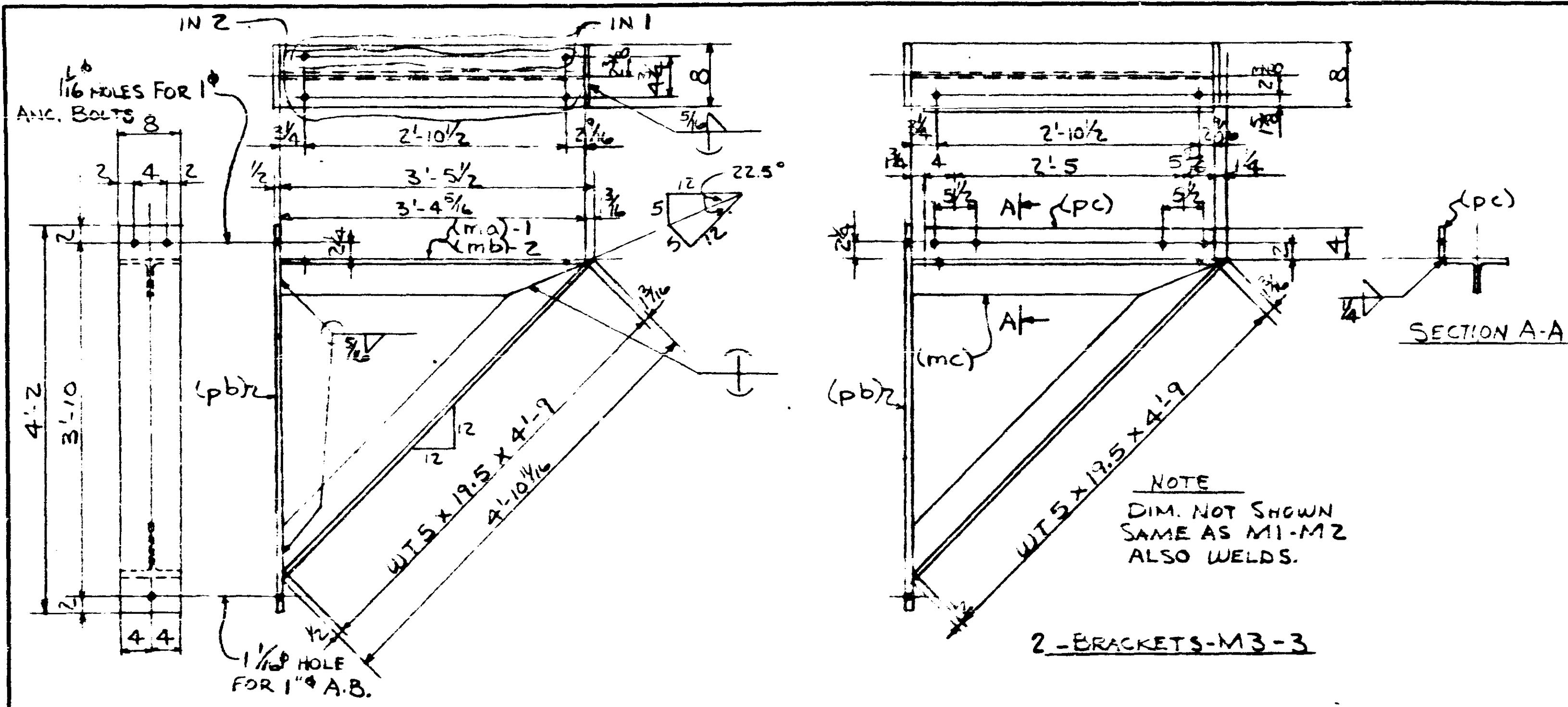
LEWIS ENGINEERING COMPANY
 5229 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 920-6181

PROJECT - BRIDGE 2440
 STATE PROJECT - 270-21
 FEDERAL PROJECT - BHF CCS-2(67)
 CONTRACTOR - JOHNSON BROS.
 LOCATION - TH 651 3RD AVE. BRIDGE
 MPLS. MN.

DESCRIPTION - WATERMAIN HANGERS SYSTEM

Job No. 1643-35
 Drawn By: BLCB
 Checked By: EAS
 Approved: .

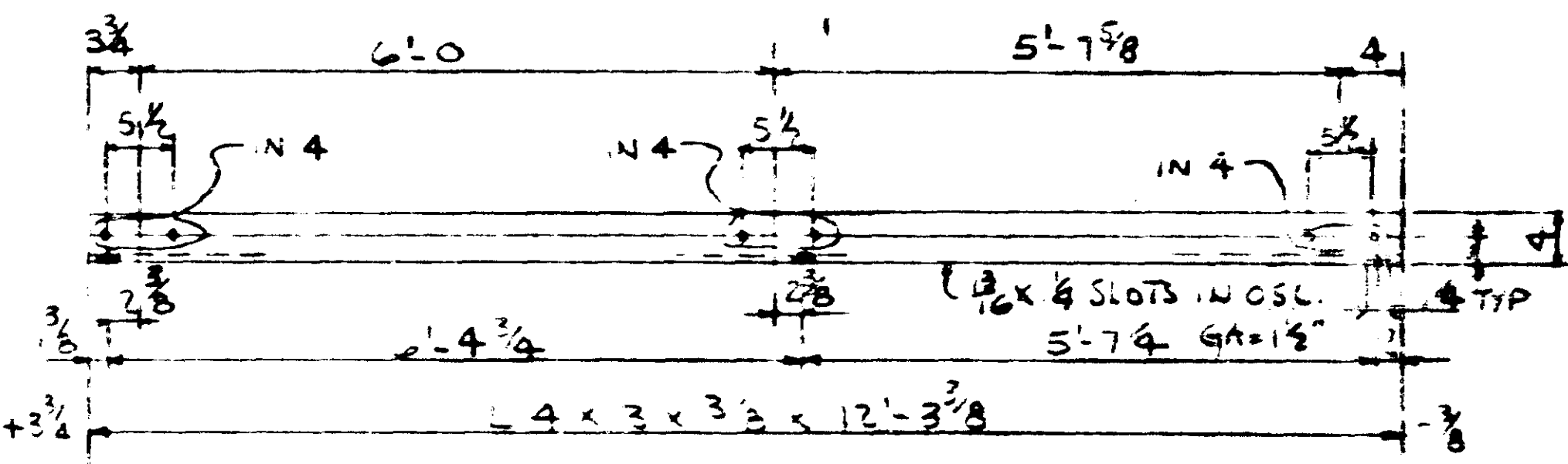
SEE E2 FOR ADDITIONAL NOTES
 SUB 6-19-80
 SUB. 6-3-80
 SET 5-1-80



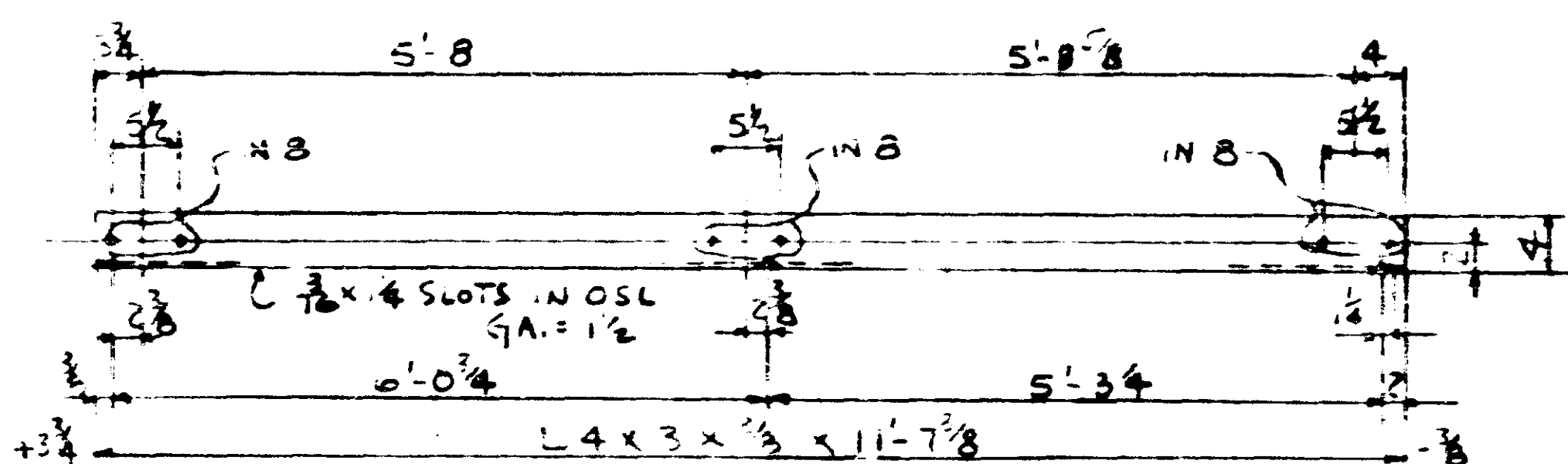
6-BRACKETS-M3-1
2-BRACKETS-M3-2

2-BRACKETS-M3-3

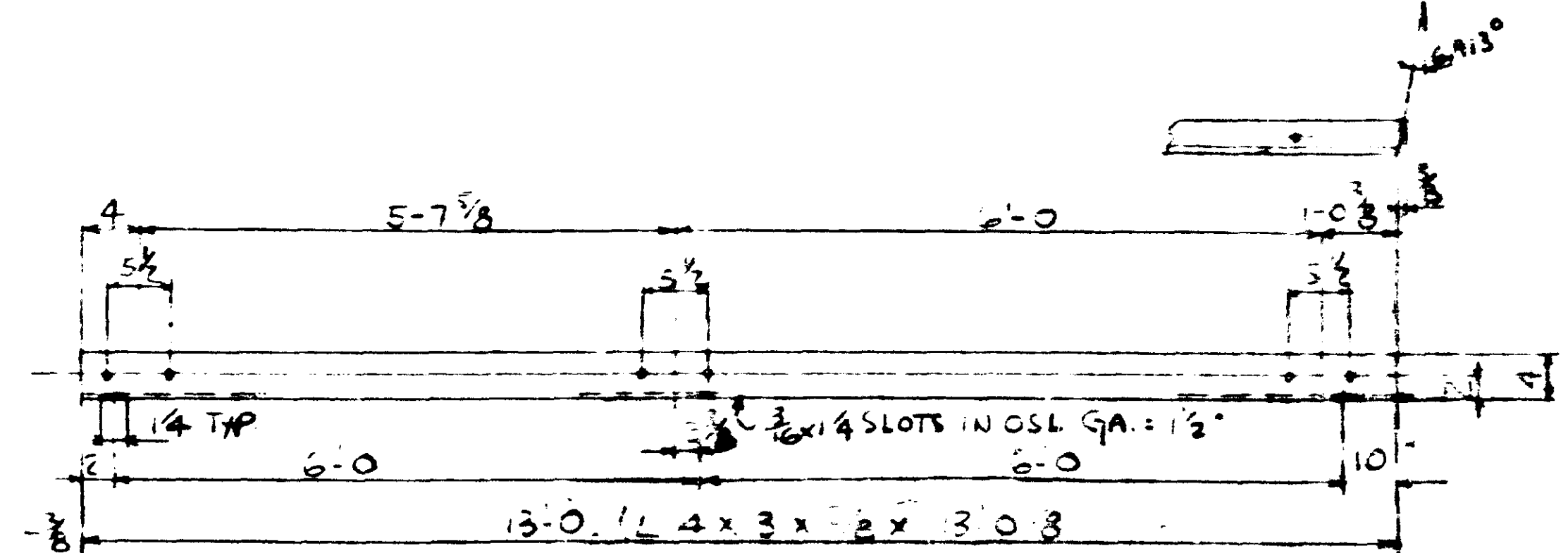
NOTE
DIM. NOT SHOWN
SAME AS M1-M2
ALSO WELDS.



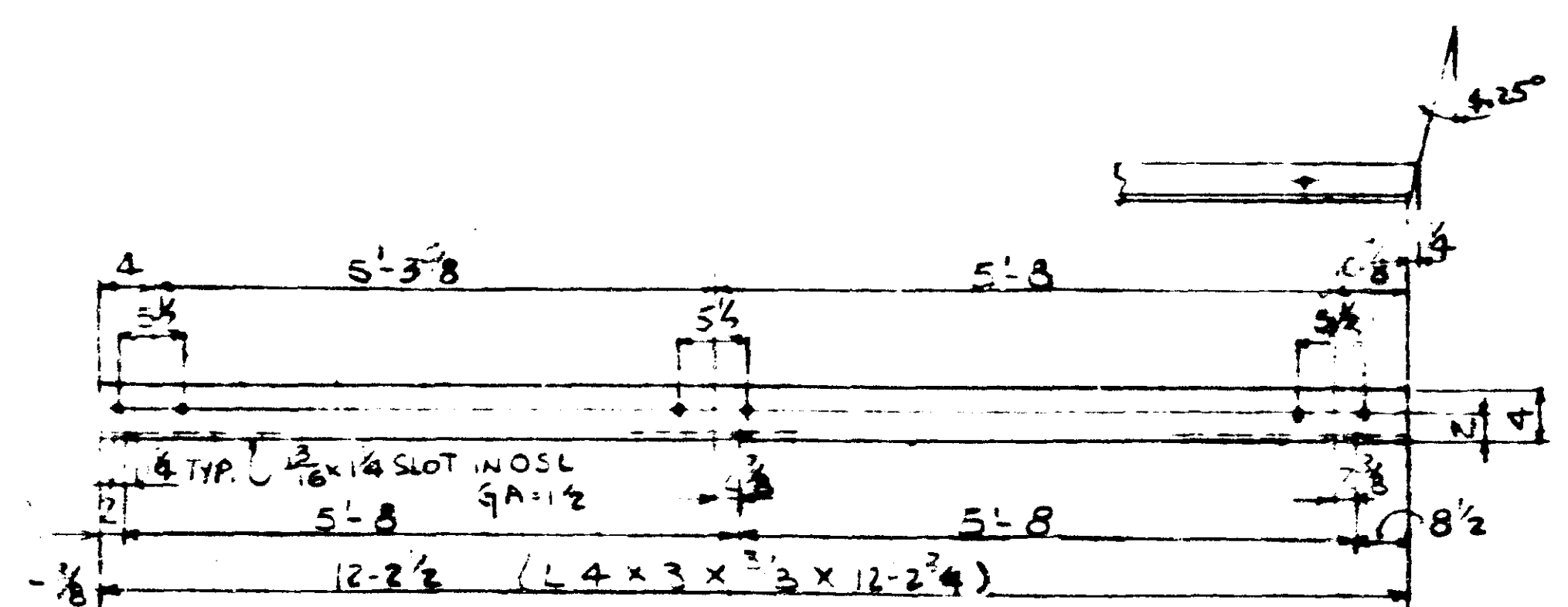
ONE-WALKWAY SUPPORT AS SHOWN M3-4
ONE -DO- OPP.HAND M3-5



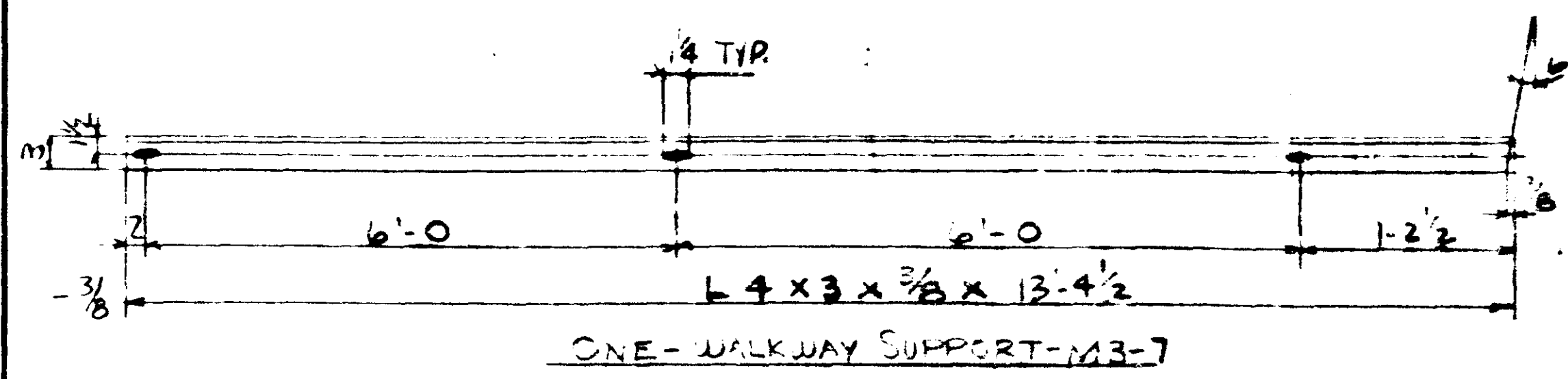
ONE-WALKWAY SUPPORT AS SHOWN-M3-8
ONE -DO- OPP.HAND-M3-9



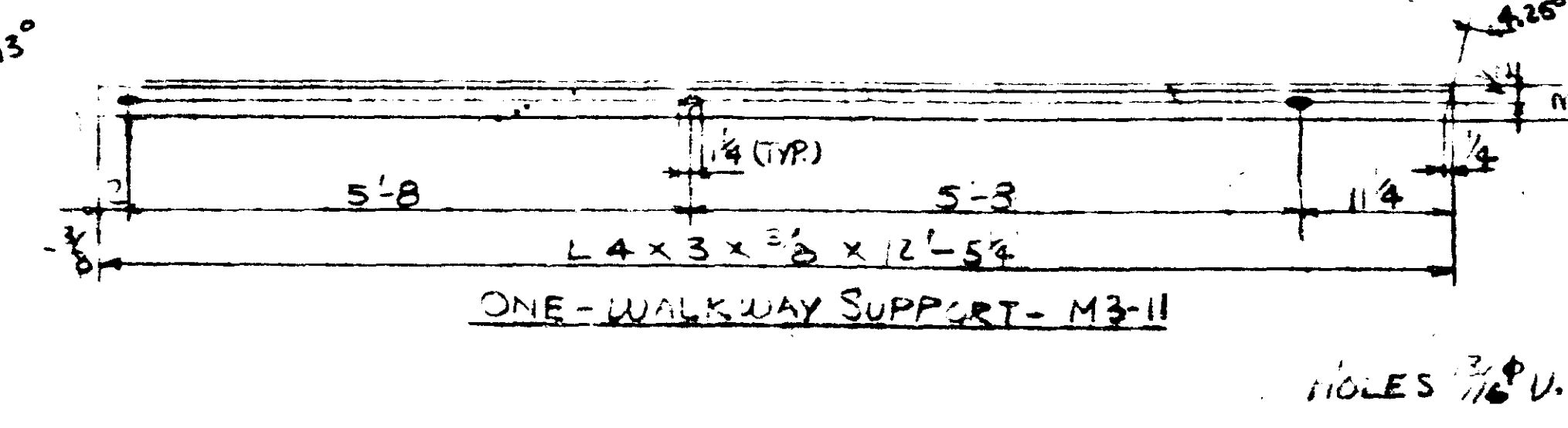
ONE-WALKWAY SUPPORT-M3-6



ONE-WALKWAY SUPPORT-M3-10



ONE-WALKWAY SUPPORT-M3-7



ONE-WALKWAY SUPPORT-M3-11

HOLES 3/16" U.N.

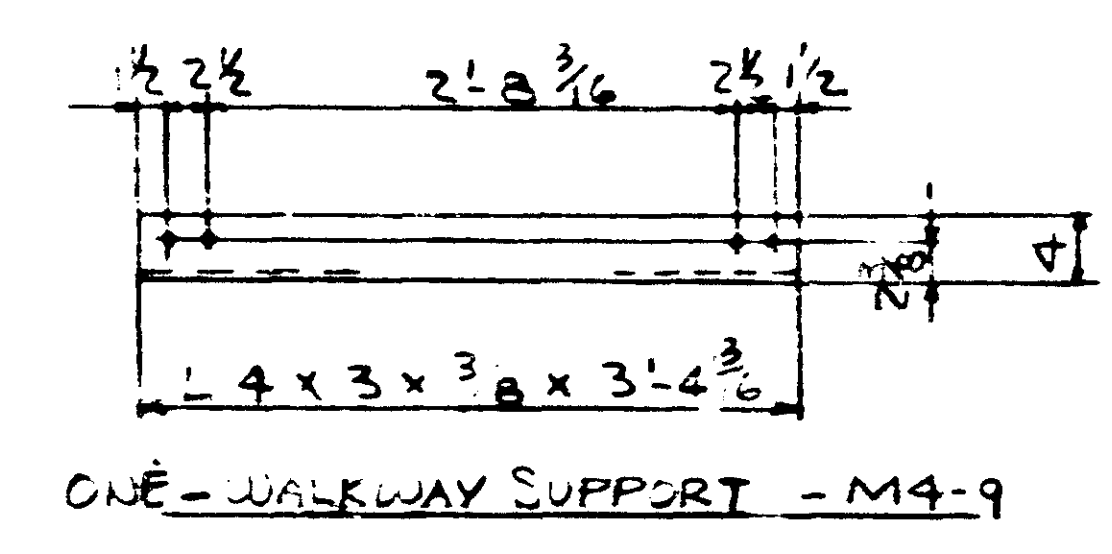
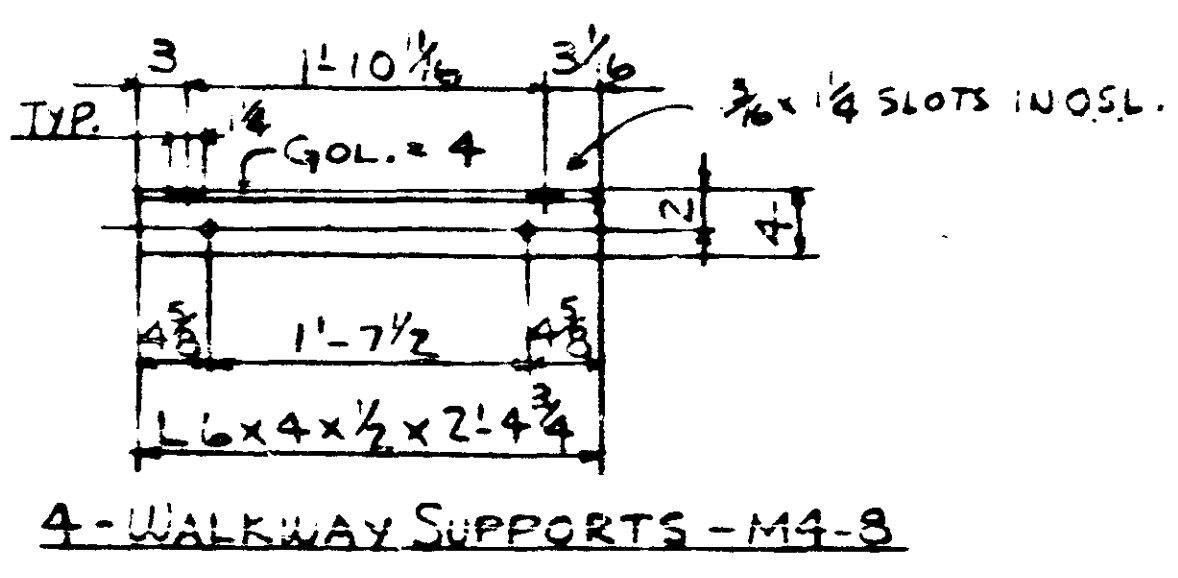
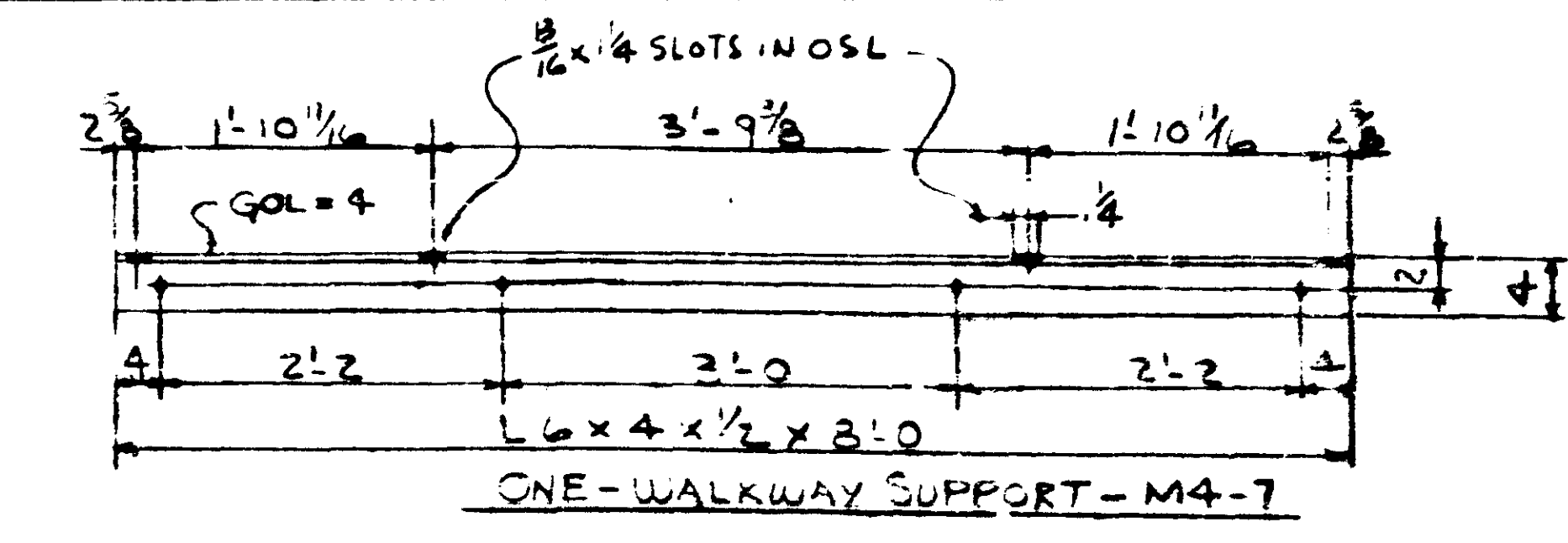
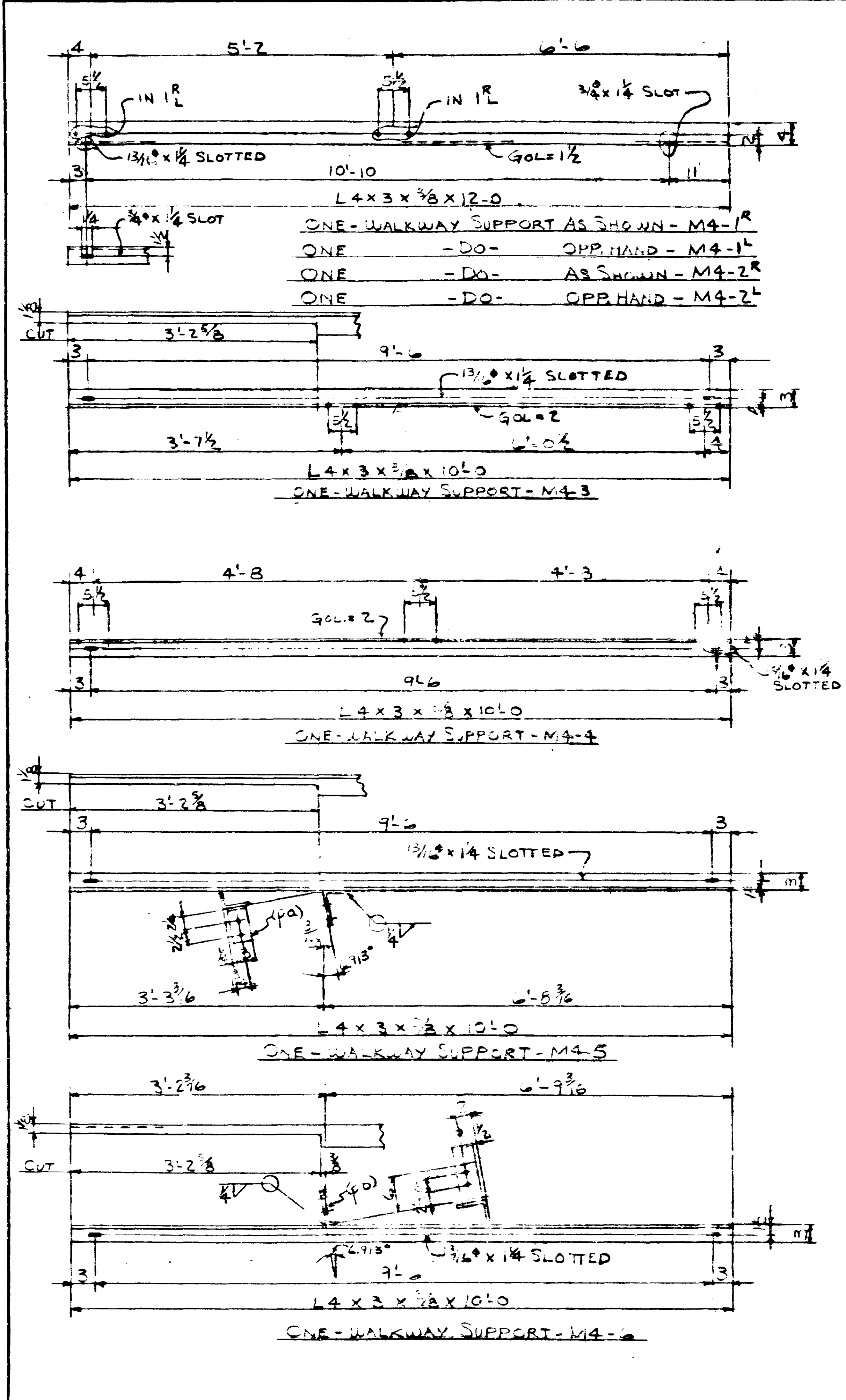
SEE E2 FOR ADDITIONAL NOTES

LINE NO	RECD	DESCRIPTION	LENGTH		MK	REMARKS	WGHT.
			FT.	INCH			
1							
2		2-BRACKETS-M3-1					
3		2-BRACKETS-M3-2					
4		2 WT5 x 19.5	4	9			251
5		2 WT5 x 19.5	3	4 5/8	ma	FOR 1	22
6		2 WT5 x 19.5	3	4 7/8	mb	FOR 2	131
7		2 RS 1/2 x 8	4	2	pd		473
8							
9							
10		2-BRACKETS-M3-3					
11		2 WT5 x 19.5	4	9			152
12		2 WT5 x 19.5	3	4 5/8	mc		171
13		2			pb		113
14		2 R 3/8 x 4	3	2 1/2	pc		32
15							
16							
17		1 L4 x 3 x 3/8	12	3 3/8	M3-4		
18		1 L4 x 3 x 3/8	12	3 3/8	M3-5		
19							
20		1 L4 x 3 x 3/8	13	0 1/2	M3-6		
21							
22		1 L4 x 3 x 3/8	13	4 1/2	M3-7		
23							
24		1 L4 x 3 x 3/8	11	7 1/2	M3-8		
25		1 L4 x 3 x 3/8	11	7 3/8	M3-9		
26							
27		1 L4 x 3 x 3/8	12	2 3/4	M3-10		
28							
29		1 L4 x 3 x 3/8	12	5 1/4	M3-11		
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62		SUB. 6-19-80					
63		SUB. 6-3-80					

LEWIS ENGINEERING COMPANY
6220 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 920-6191

PROJECT - BR. 2440
STATE PROJECT - 2710-21
FEDERAL PROJECT - BHF 005-2 (67)
CONTRACTOR - JOHNSON BROS.
LOCATION - T.H. 65 (3RD) AVE. BRIDGE) MPLS, MINN.
DESCRIPTION - WATERMAIN WALKWAY SYSTEM

Job No. 1643-35
Drawn By CAD
Checked By E.A.
Approved



HOLES 13/16" O.N.

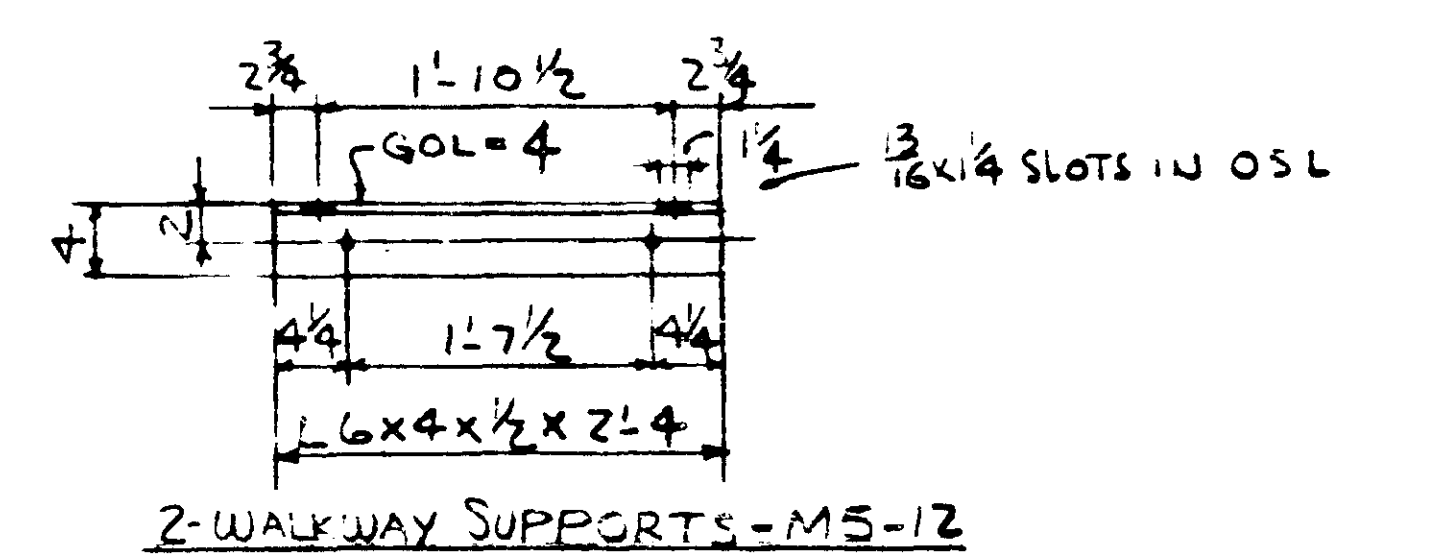
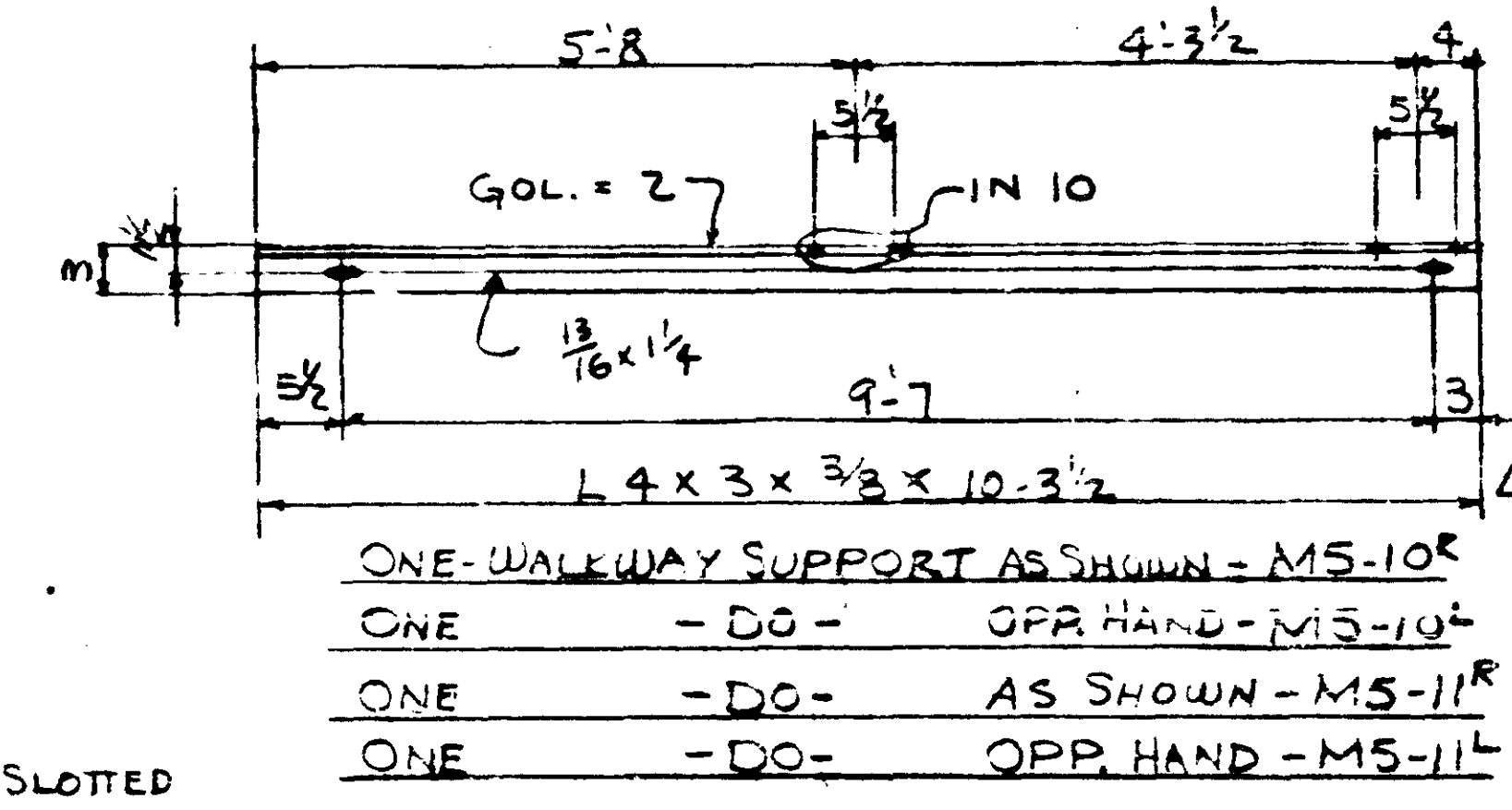
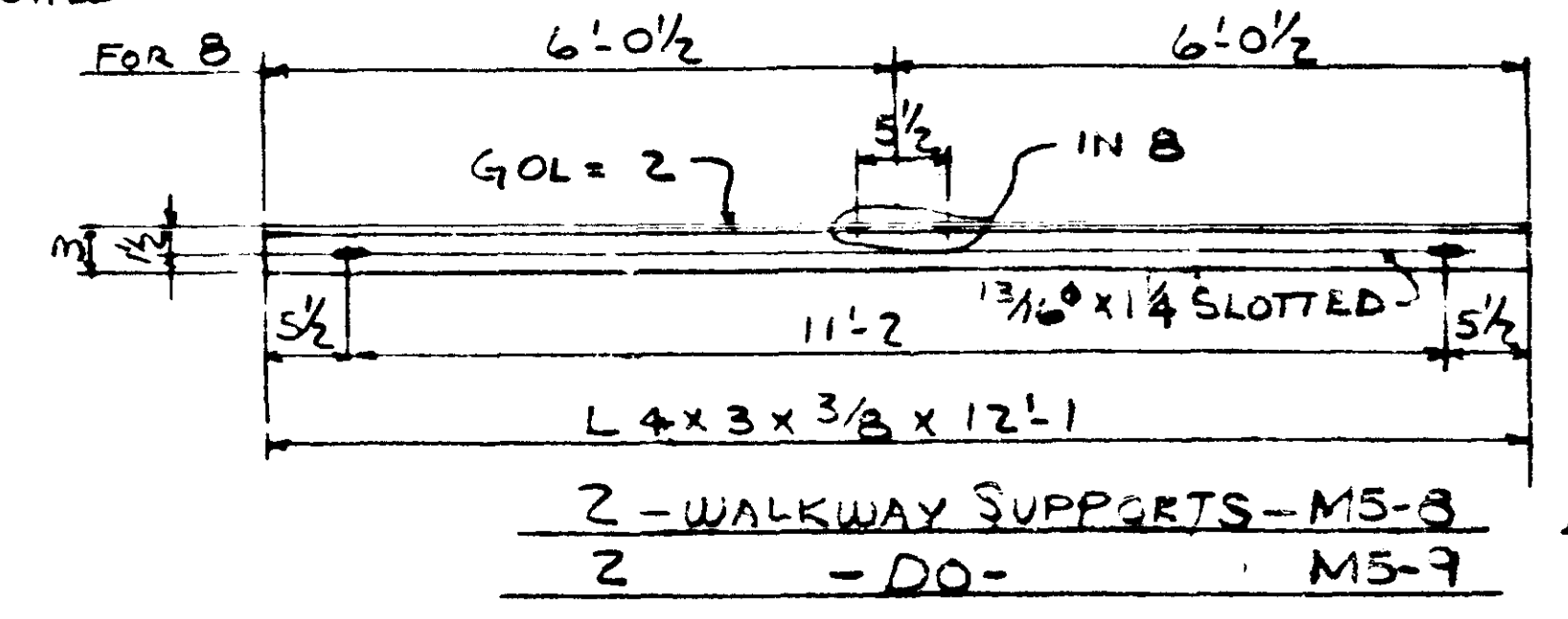
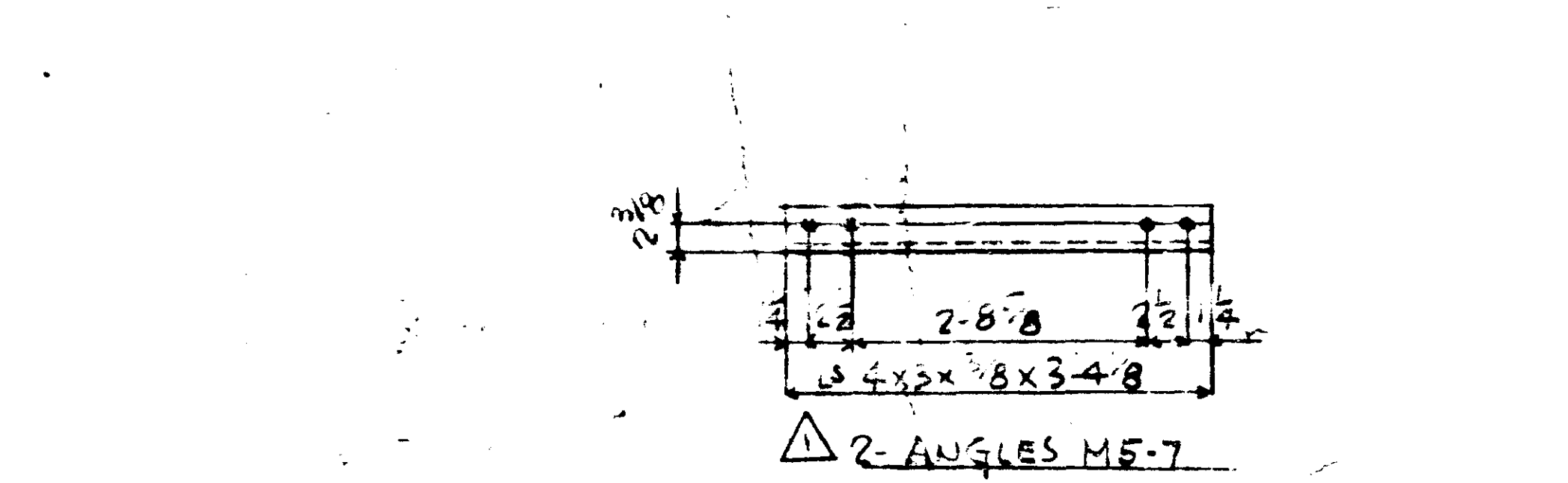
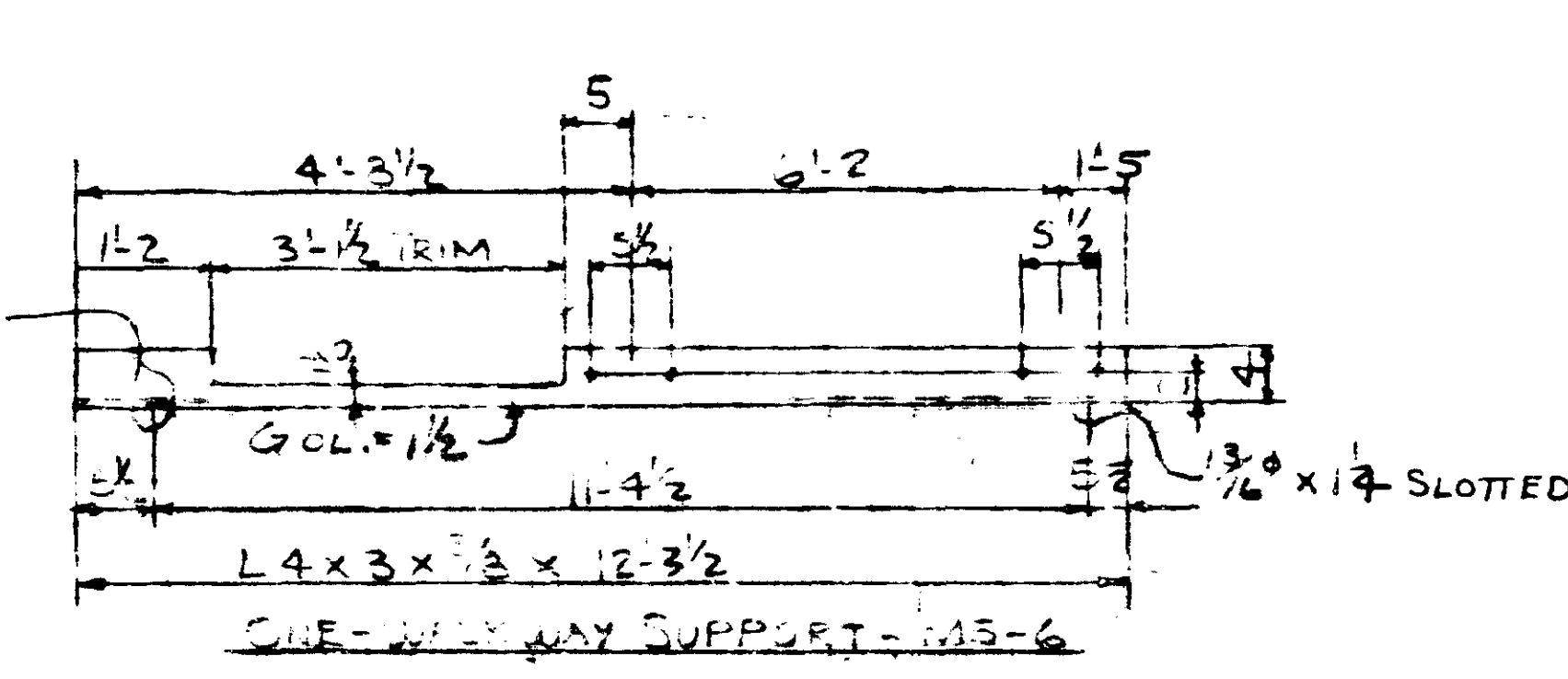
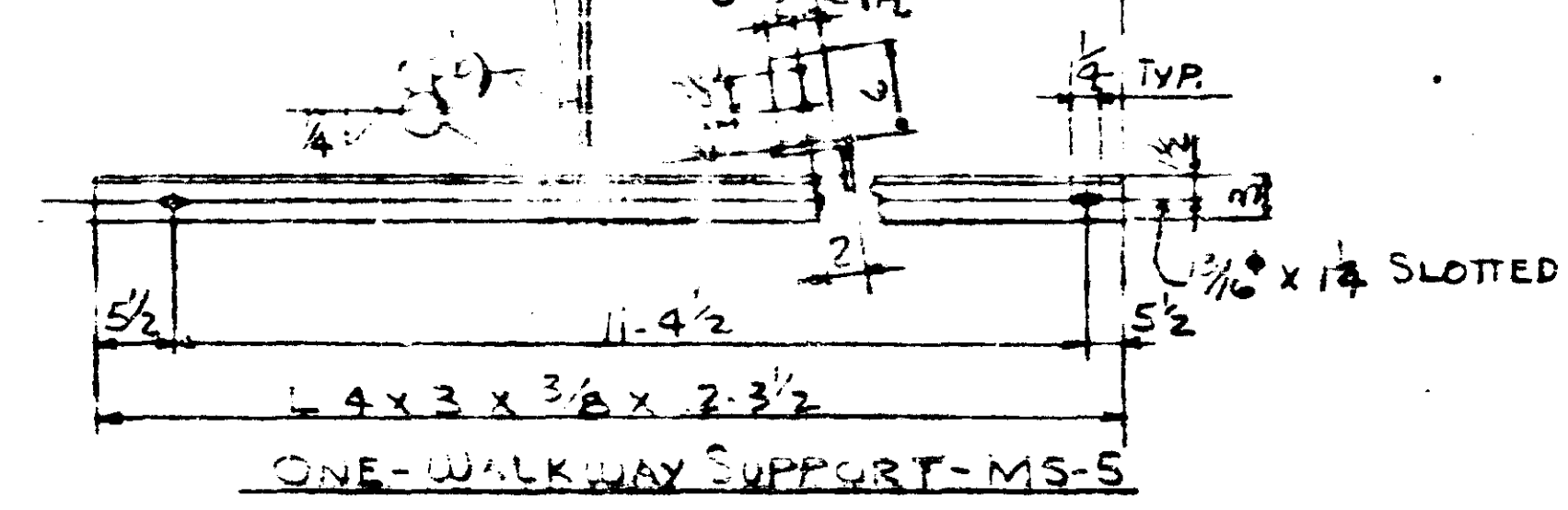
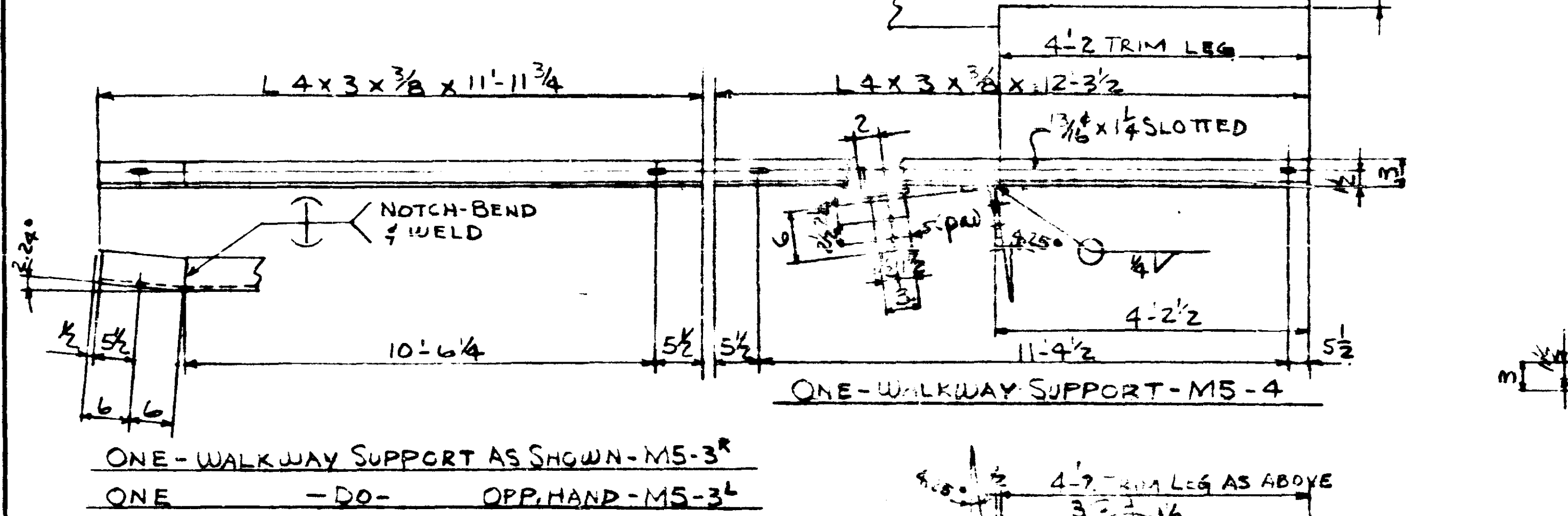
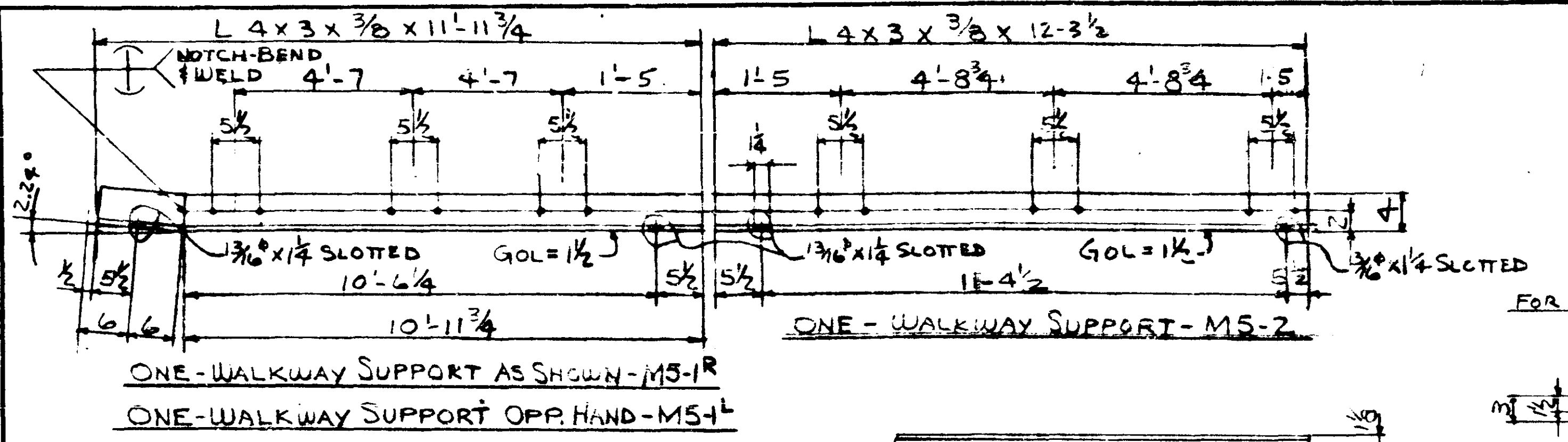
SEE E2 FOR ADDITIONAL NOTES

NO.	REQD.	DESCRIPTION	LENGTH		MK	REMARKS	WGHT.
			FT.	INCH			
1							
2							
3		L4x3x3/8	12	0	M4-1 ^R		
4			12	0	M4-1 ^L		
5			12	0	M4-2 ^R		
6			12	0	M4-2 ^L		
7							
8							
9		L4x3x3/8	10	0	M4-3		
10							
11		L4x3x3/8	10	0	M4-4		
12							
13		L4x3x3/8	10	0	M4-5		
14		BAR 3/8x3	0	9	pk BENT		
15							
16		L4x3x3/8	10	0	M4-6		
17		BAR 3/8x3	0	9	pk BENT		
18							
19		L6x4x1/2	8	0	M4-7		
20							
21		4 L5/6x4x1/2	2	4 3/4	M4-8		
22							
23		L4x3x3/8	3	4 3/16	M4-9		
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62		SUB 6-19-80					
63		SUB 6-3-80					

LEWIS ENGINEERING COMPANY
5229 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-8181

PROJECT - BR 2440
 STATE PROJECT - 2710-21
 FEDERAL PROJECT - BHF 005-2 (07)
 CONTRACTOR - JOHNSON BROS.
 LOCATION - TH. 65 (3RD AVE. BRIDGE) MPLS., MINN.
 DESCRIPTION - WALKWAY SUPPORTS WATER MAIN HANGER SYSTEM

Job No. 1643-35
 Drawn By CAD
 Checked By EAS
 Approved



ALL HOLES 1 3/16 U.N.

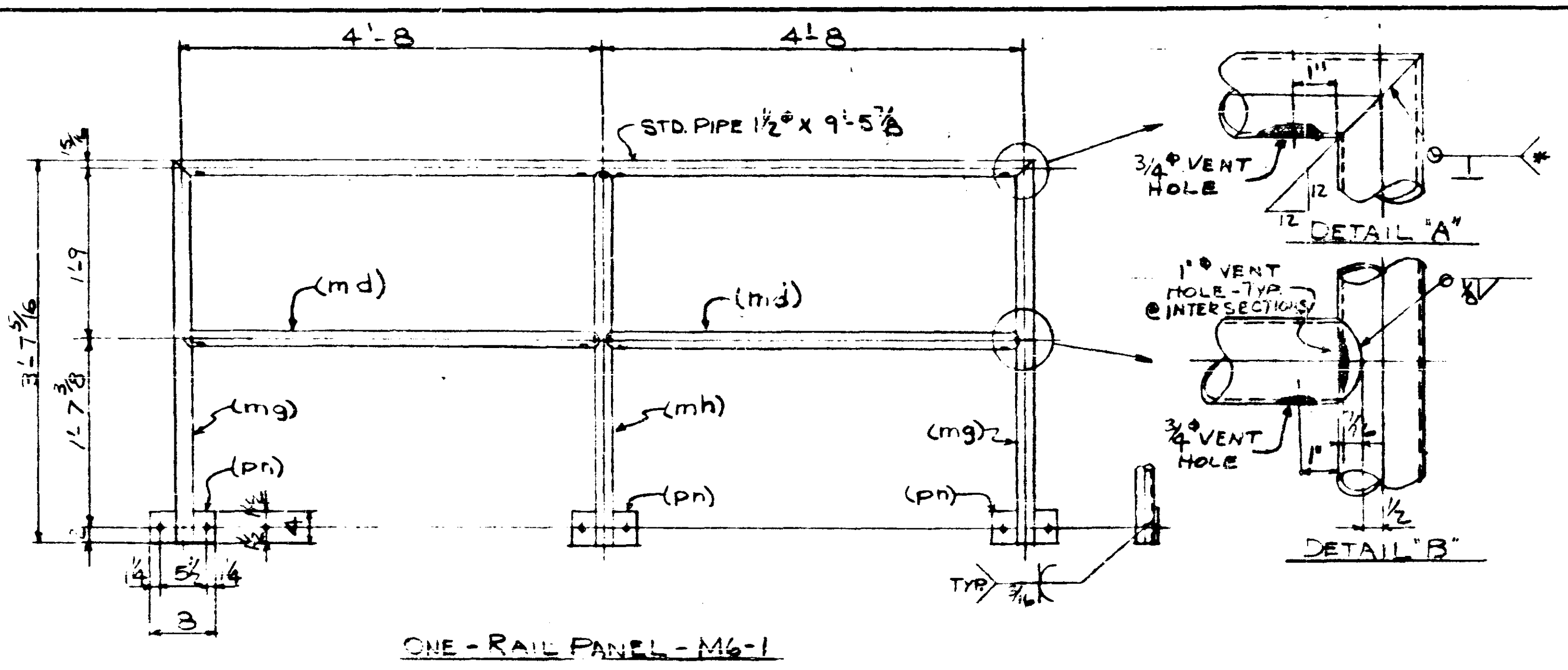
SEE E2 FOR ADDITIONAL NOTES

LINE NO.	NO. REQD.	DESCRIPTION	LENGTH		MK	REMARKS	WGHT.
			FT.	INCH			
1							
2							
3							
4	1	L 4x3 x 3/8	11	11 3/4	MS-1R		
5	1	L 4x3 x 3/8	11	11 3/4	MS-1L		
6							
7	1	L 4x3 x 3/8	12	3 1/2	MS-2		
8							
9	1	L 4x3 x 3/8	11	11 3/4	MS-3R		
10	1	L 4x3 x 3/8	11	11 3/4	MS-3L		
11							
12	1	L 4x3 x 3/8	12	3 1/2	MS-4		
13	1	BAR 3/8x3	0	9	pd BENT		
14							
15	1	L 4x3 x 3/8	12	3 1/2	MS-5		
16	1	BAR 3/8x3	0	9	pd BENT		
17							
18	1	L 4x3 x 3/8	12	3 1/2	MS-6		
19							
20	2	L 4x3 x 3/8	3	4 1/8	MS-7		
21							
22	2	L 4x3 x 3/8	12	1	MS-8		
23	2	L 4x3 x 3/8	12	1	MS-9		
24							
25	1	L 4x3 x 3/8	10	3 1/2	MS-10R		
26	1	L 4x3 x 3/8	10	3 1/2	MS-10L		
27	1	L 4x3 x 3/8	10	3 1/2	MS-11R		
28	1	L 4x3 x 3/8	10	3 1/2	MS-11L		
29							
30	2	L 6x4 x 1/2	2	4	MS-12		
31							
32							
33							
34							
35	2	RAWL STUDS 3/4"	0	5 1/2			
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62		SUB 6-19-80					
63		SUB 6-3-80					

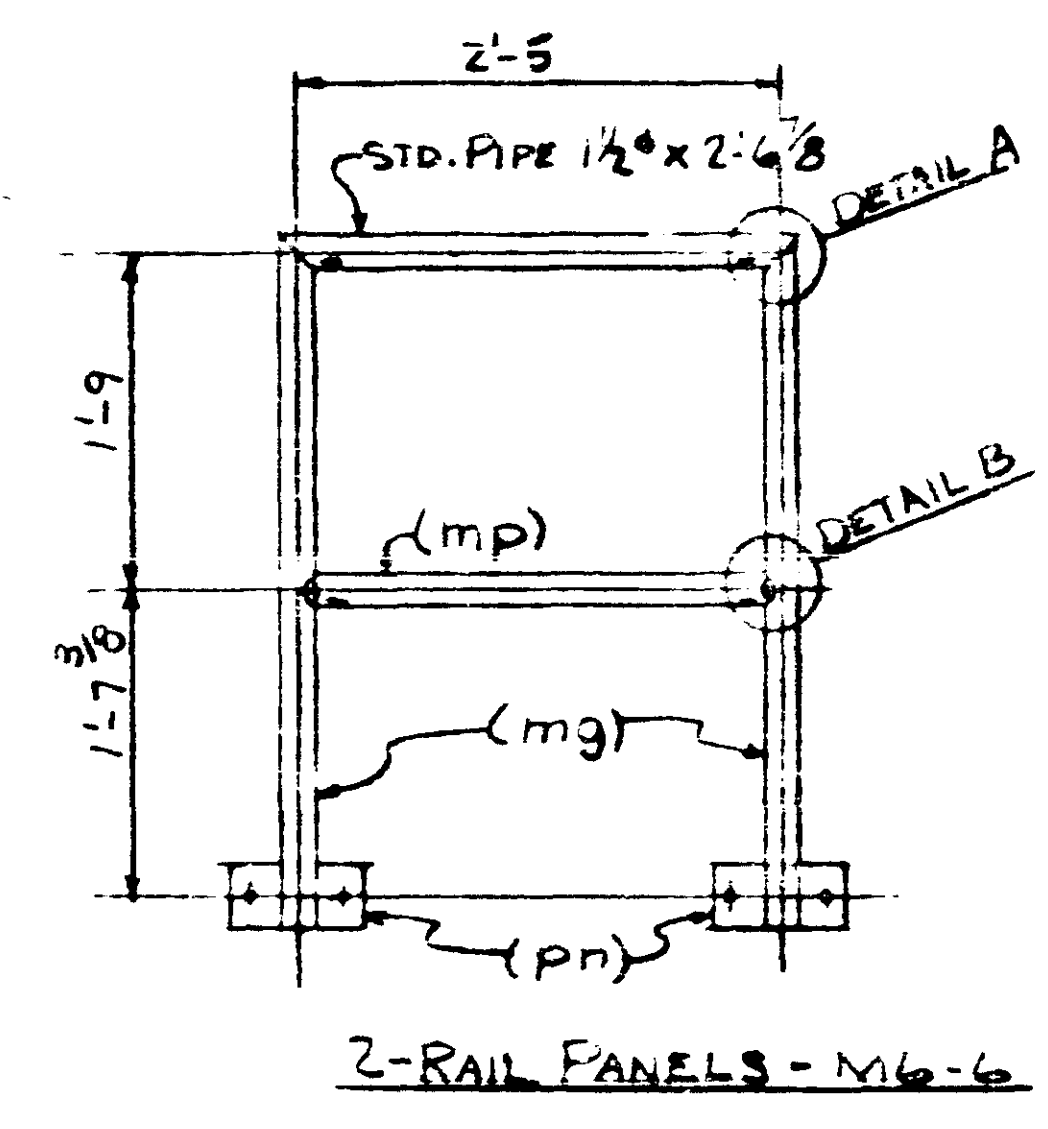
LEWIS ENGINEERING COMPANY
8220 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-6161

PROJECT - BR. 2440
STATE PROJECT - 2710-21
FEDERAL PROJECT - BHF 005-2(57)
CONTRACTOR - JOHNSON BROS.
LOCATION - T.H. 65 (3RD AVE. BRIDGE) MPLS., MINN.
DESCRIPTION - WATERMAIN WALKWAY SYSTEM

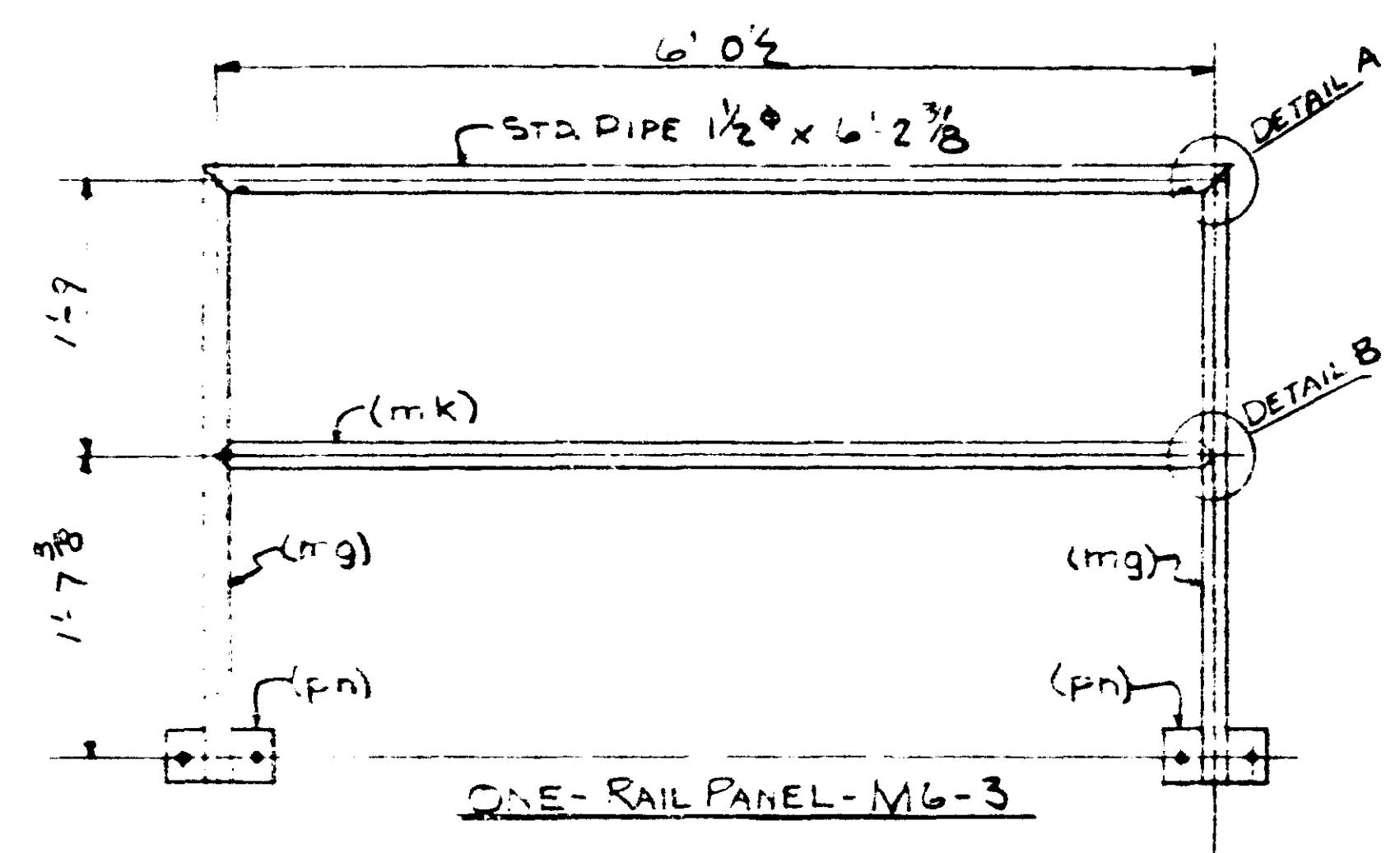
Job No. 1643-35
Drawn By CAD
Checked By EAS
Approved



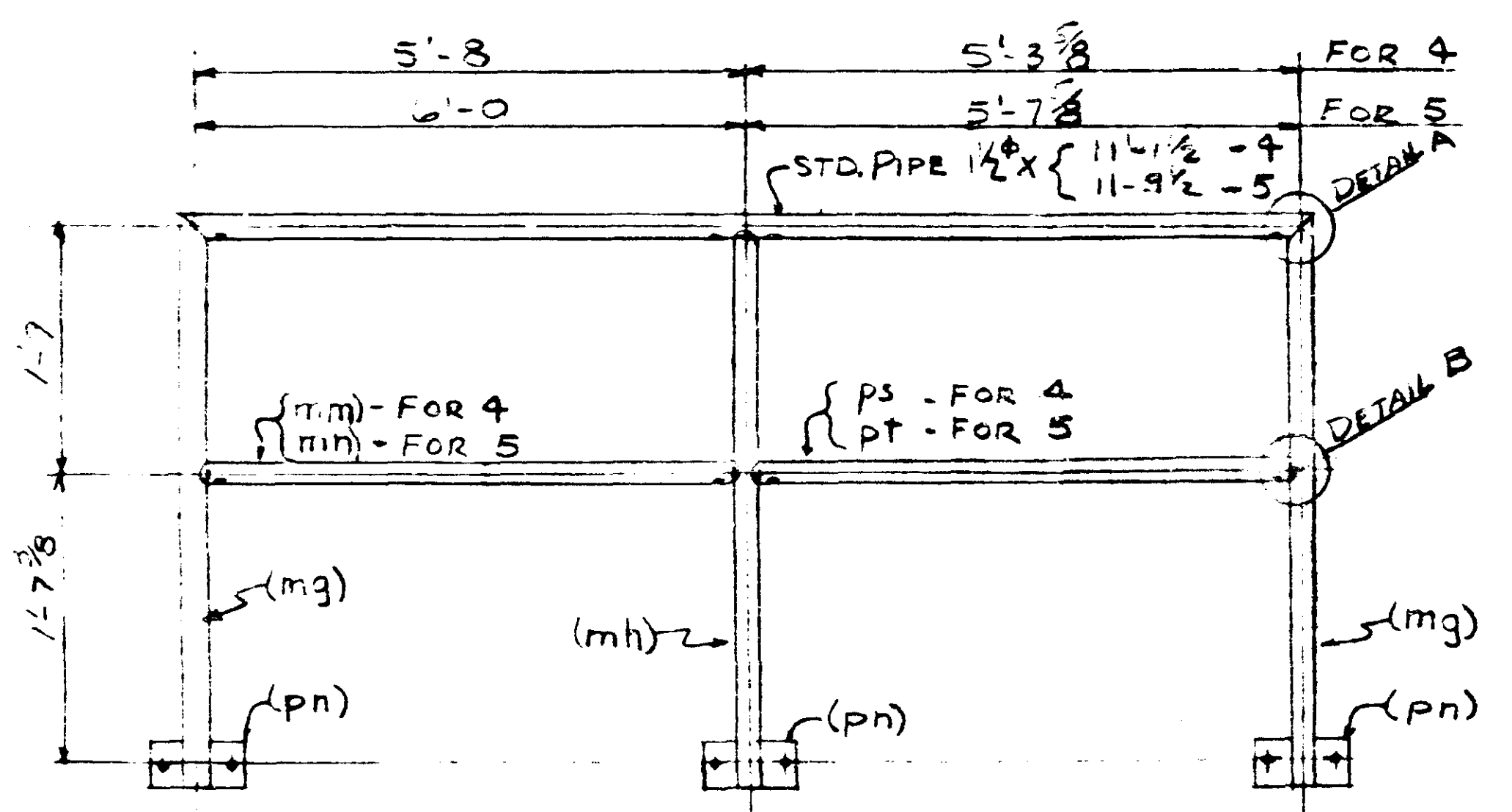
ONE-RAIL PANEL - M6-1



2-RAIL PANELS - M6-6



ONE-RAIL PANEL - M6-3



ONE-RAIL PANEL SHOWN - M6-4R
 ONE -DO- LEFT - M6-4L
 ONE -DO- SHOWN - M6-5R
 ONE -DO- LEFT - M6-5L

LINE NO.	NO. MOD.	DESCRIPTION	LENGTH		MK	REMARKS	WGHT.
			FT.	INCH			
1							
2							
3		ONE-RAIL PANEL - M6-1					
4							
5	1	STD. PIPE 1/2"	9	5 7/8			26
6	2	-DO-	4	7	md		25
7	2	-DO-	3	7 3/8	mg		20
8	1	-DO-	3	5 7/8	mh		16
9	3	Ps 3/8 X 4	0	8	pn		10
10							51
11							
12							
13							
14							
15		ONE-RAIL PANEL - M6-3					
16	1	STD. PIPE 1/2"	6	2 3/8			17
17	1	-DO-	5	11 1/2	mk		2
18	2	-DO-			mg		20
19	2	Ps			pn		7
20							60
21							
22							
23		2-RAIL PANELS - M6-6					
24	2	STD. PIPE 1/2"	11	1 1/2		FOR 4	41
25	2	DO	5	7	mm		20
26	2	DO	11	9 1/8		FOR 5	47
27	2	DO	5	11	mm		32
28	3	DO			mg		20
29	4	DO			mh		40
30	2	DO	5	2 3/8	ps-4		23
31	2	DO	5	6 5/8	pt-5		30
32	1	Ps			pn		40
33		2-RAIL PANELS - M6-3					
34	2	STD. PIPE 1/2"	2	6 3/8			1
35	2	-DO-	2	4	mp		13
36	4	-DO-			mg		20
37	4	Ps			pn		7
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61		6-19-80					
62		6-3-80					
63							

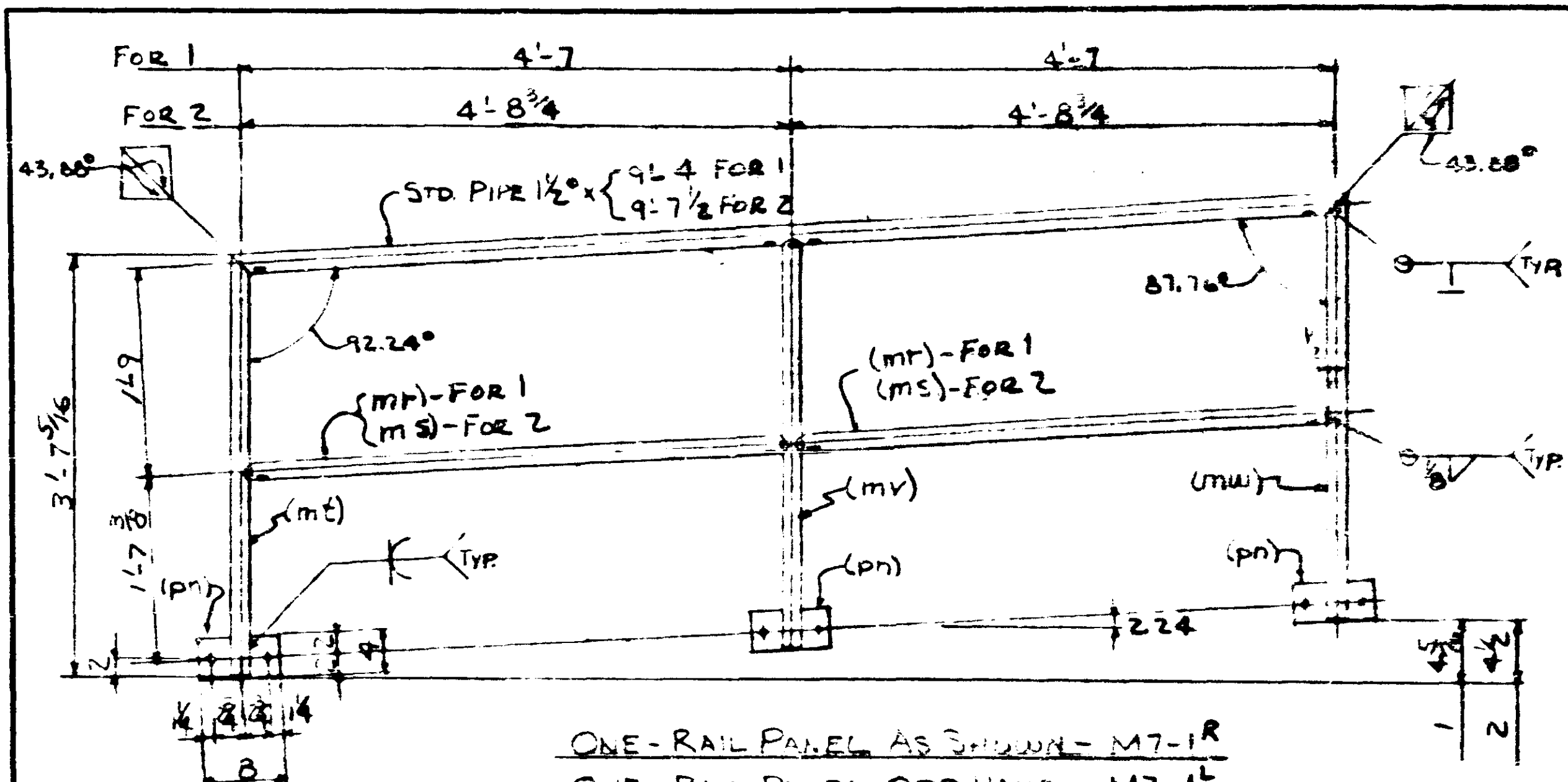
ALL HOLES 3/16" U.N.

SEE E2 FOR ADDITIONAL NOTES

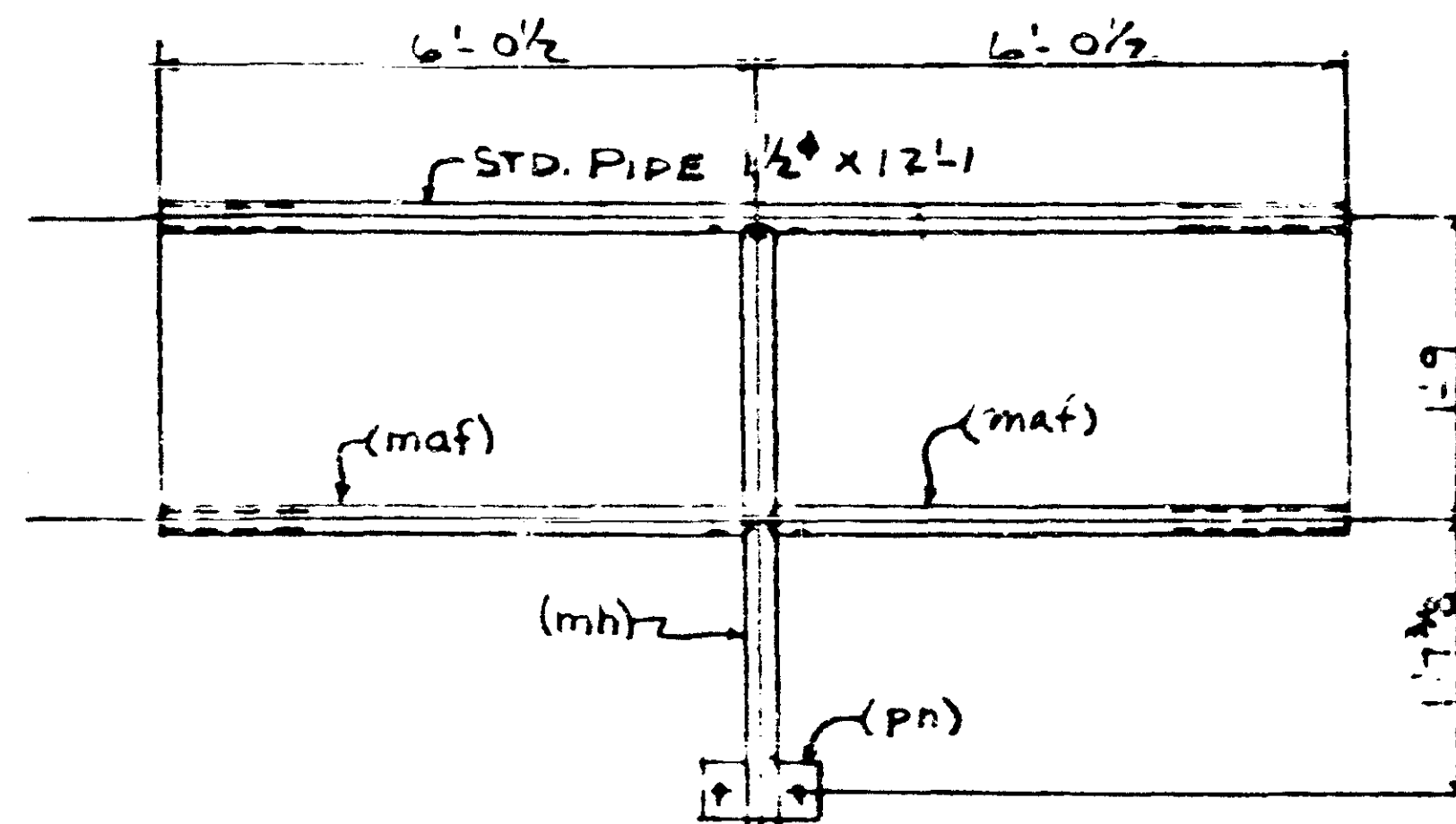
LEWIS ENGINEERING COMPANY
 8228 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-6161

PROJECT - BR. 2440
 STATE PROJECT - 2710-21
 FEDERAL PROJECT - BHF 005-2 (67)
 CONTRACTOR - JOHNSON BROS.
 LOCATION - TH 65 (3RD AVE. BRIDGE) MPLS., MINN.
 DESCRIPTION - PIPE RAIL DETAILS WATERMAIN WALKWAY SYSTEM

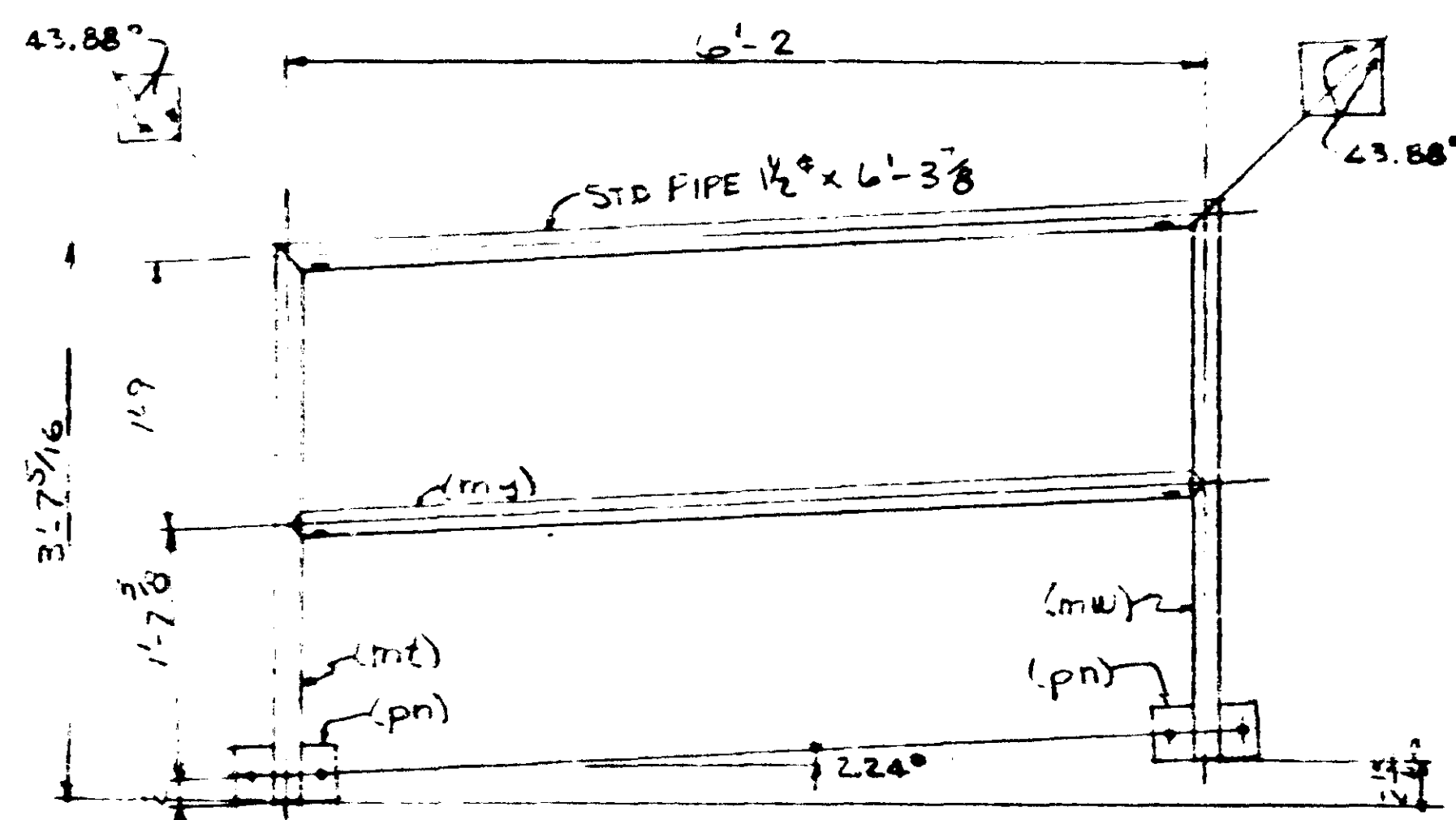
Job No. 1643-35
 Drawn By CAD
 Checked By EAS
 Approved



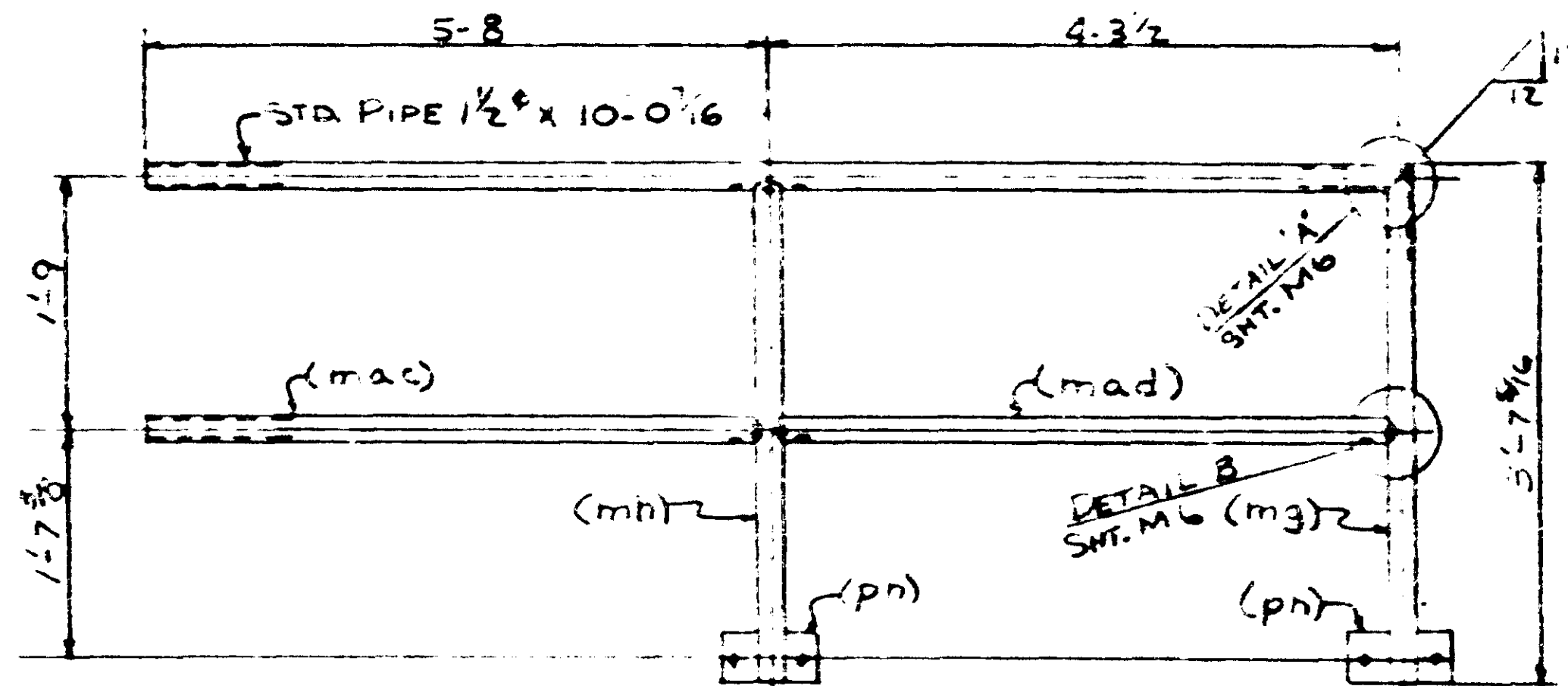
ONE-RAIL PANEL AS SHOWN - M7-1R
 ONE-RAIL PANEL OPP. HAND - M7-1L
 ONE-RAIL PANEL OPP. HAND - M7-2



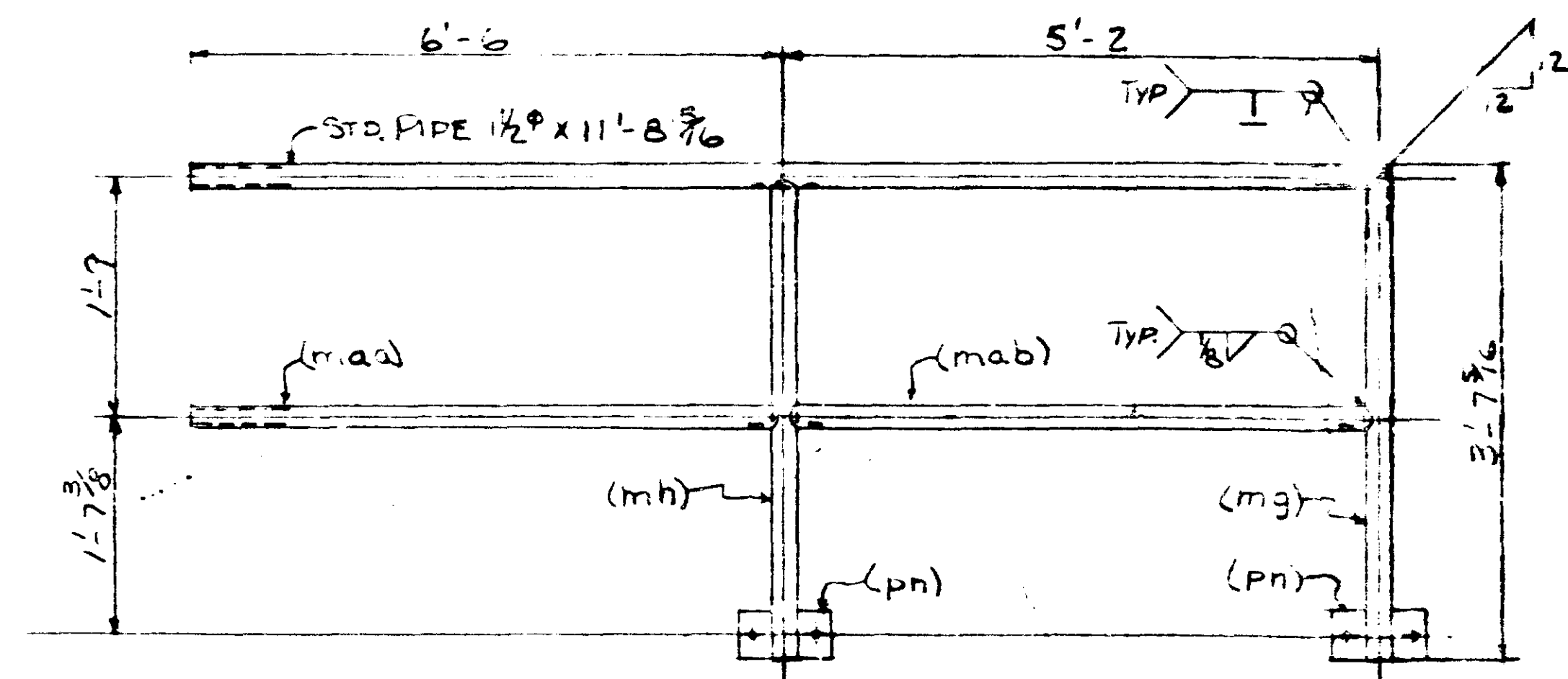
2-RAIL PANELS - M7-6



ONE-RAIL PANEL - M7-3



ONE-RAIL PANEL AS SHOWN - M7-5R
 ONE -DO- OPP. HAND - M7-5L



ONE-RAIL PANEL AS SHOWN - M7-4R
 ONE-RAIL PANEL OPP. HAND - M7-4L

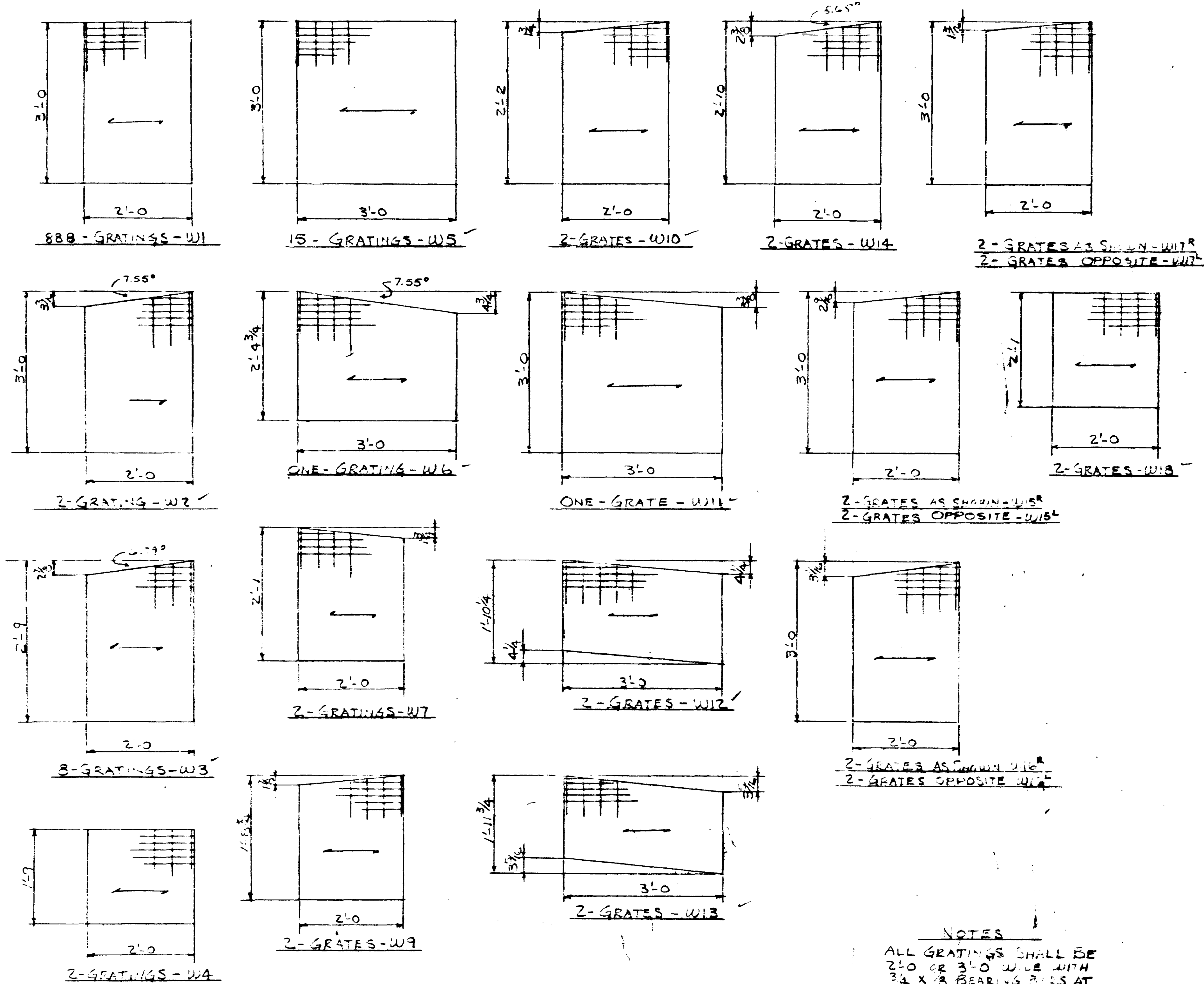
LINE NO.	DESCRIPTION	LENGTH	MR	REMARKS	WGHT.
1	2	FT	INCH		
1					
2					
3	ONE-RAIL PANEL - M7-1R				
4	ONE -DO- M7-1L				
5	ONE -DO- M7-2				
6	2 STD PIPE 1 1/2"	9' 4"		FOR 1	49
7	4 -DO-	4 1/2"	mf		48
8	1 -DO-	9' 1/2"		FOR 2	26
9	2 -DO-	4' 7 1/4"			26
10	3 -DO-	3' 1 1/2"			30
11	3 -DO-	3' 5 3/4"	my		27
12	3 -DO-	3' 7 3/4"	mw		30
13	3 Rs 2x4	0' 8"	pn		31
14					
15	ONE-RAIL PANEL - M7-3				
16	1 STD PIPE 1 1/2"	6' 3 3/8"			17
17	1 -DO-	6' 1"	mf		17
18	1 -DO-	2' 7 1/2"	mf		15
19	1 -DO-	3' 7 1/4"	mw		17
20	2 Rs		pn		7
21					
22					
23	ONE-RAIL PANEL - M7-4R				
24	ONE-RAIL PANEL - M7-4L				
25	2 STD PIPE 1 1/2"	11' 8 7/16"			61
26	2 -DO-	6' 5 1/2"	mac		15
27	2 -DO-	5' 1"	mac		14
28	2 -DO-	3' 7 1/4"	mg		17
29	2 -DO-	3' 5 3/4"	mh		17
30	4 Rs		pn		13
31					
32					
33	2-RAIL PANELS - M7-6				
34	2 STD PIPE 1 1/2"	12' 1"			30
35	4 -DO-	6' 0"	maf		45
36					
37	2 -DO-		mh		15
38	7 Rs		pn		7
39					
40					
41					
42	ONE-RAIL PANEL - M7-5R				
43	ONE-RAIL PANEL - M7-5L				
44	2 STD PIPE 1 1/2"	2' 0 7/16"			55
45	2 -DO-	5' 7 1/4"	mac		42
46	2 -DO-	4' 2 1/4"	mad		23
47	2 -DO-		mw		52
48	2 -DO-		mw		22
49	4 Rs		pn		13
50					
51					
52					
53					
54					
55					
56					
57					
58					
59					
60					
61	S. B. G. 9-80				
62	S. B. G. 3-80				
63					

HOLES 3/16" U.N.
 SEE E2 FOR ADDITIONAL NOTES

LEWIS ENGINEERING COMPANY
 6228 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-6101

PROJECT - BR. 2440
 STATE PROJECT - 2710-21
 FEDERAL PROJECT - BHF OCS-2 (67)
 CONTRACTOR - JOHNSON BROS.
 LOCATION - TH 65 (3RD AVE. BRIDGE) MPLS., MINN.
 DESCRIPTION - PIPE RAIL DETAILS WATERMAIN WALKWAY SYSTEM

Job No. 1643-35
 Drawn By CAD
 Checked By E.A.
 Approved



LINE NO.	REQD.	DESCRIPTION	LENGTH		MK	REMARKS	WGHT.
			FT.	INCH			
1							
2							
3							
4	888	GRATINGS 2'-0" x 3/4"	3	0	W1		
5							
6	2	-DO-	3	0	W2		
7							
8	8	-DO-	2	9	W3		
9							
10	2	-DO-	1	9	W4		
11							
12	15	GRATINGS 3'-0" x 3/4"	3	0	W5		
13							
14	1	-DO-	2	4 3/4	W6		
15							
16	2	GRATINGS 2'-0" x 3/4"	2	1	W7		
17							
18	2	-DO-	1	8 3/4	W9		
19							
20	2	-DO-	2	8	W10		
21							
22	1	GRATE 3'-0" x 3/4"	3	0	W11		
23							
24	2	-DO-	1	10 1/4	W12		
25							
26	2	-DO-	1	11 3/4	W13		
27							
28	2	GRATINGS 2'-0" x 3/4"	2	10	W14		
29							
30	4	-DO-	3	0	W15R		
31							
32	4	-DO-	3	0	W16R		
33							
34	4	-DO-	3	0	W15L		
35							
36	2	-DO-	2	1	W18		
37							
38	22	BANDING BARS 1/8" x 3/4"	2	0			
39	10	BANDING BARS 1/8" x 3/4"	3	0			
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62							
63							

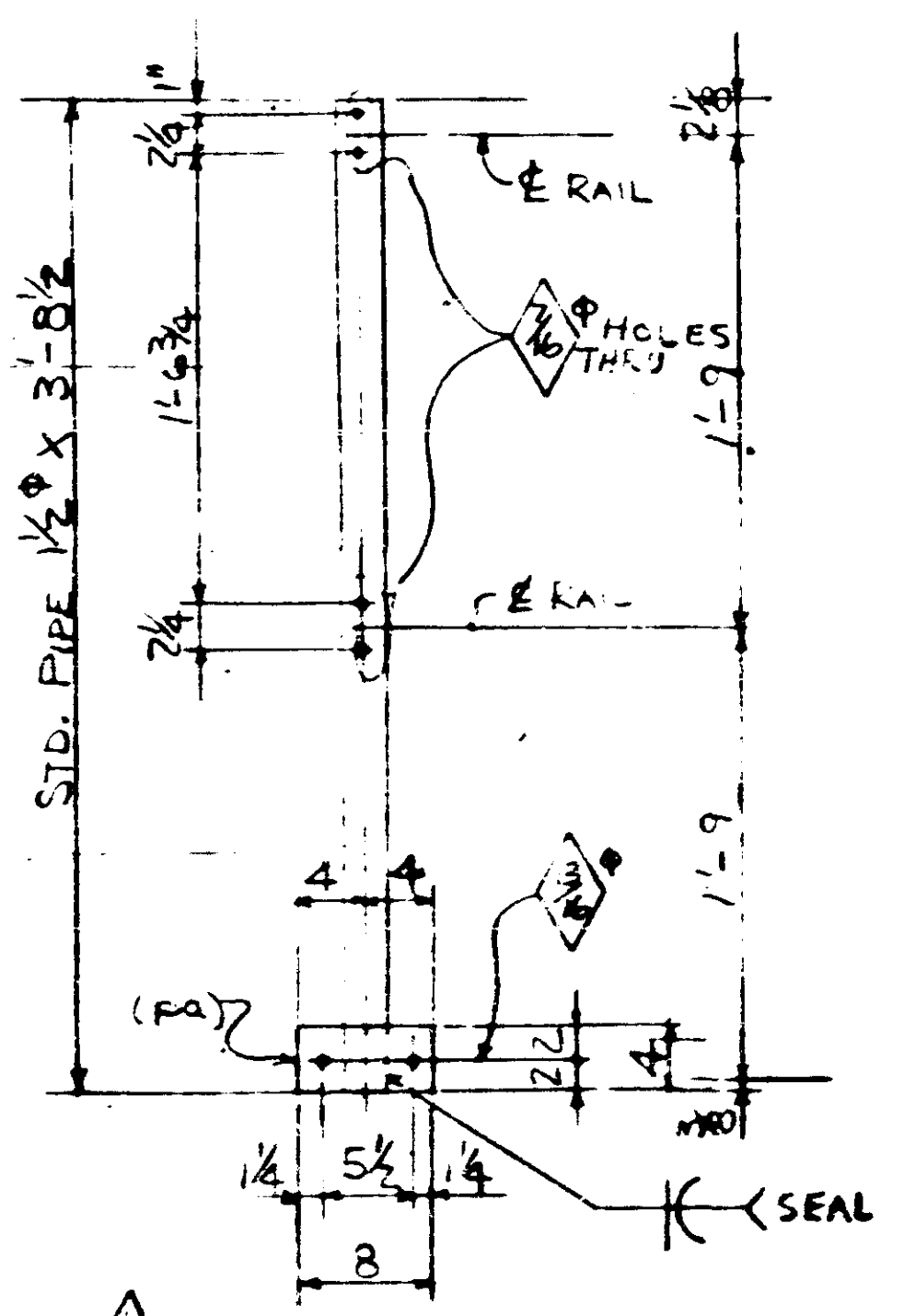
NOTES
 ALL GRATINGS SHALL BE 2'-0" OR 3'-0" WIDE WITH 3/4" x 1/8" BEARING BARS AT 1 1/16" C/C & CROSS BARS AT 4" C/C.
 BANDING BAR AT ALL CUT ENDS 1/8" x 3/4"

DATE: 7-8-80
 CHECKED BY: [Signature]
 DRAWN BY: [Signature]

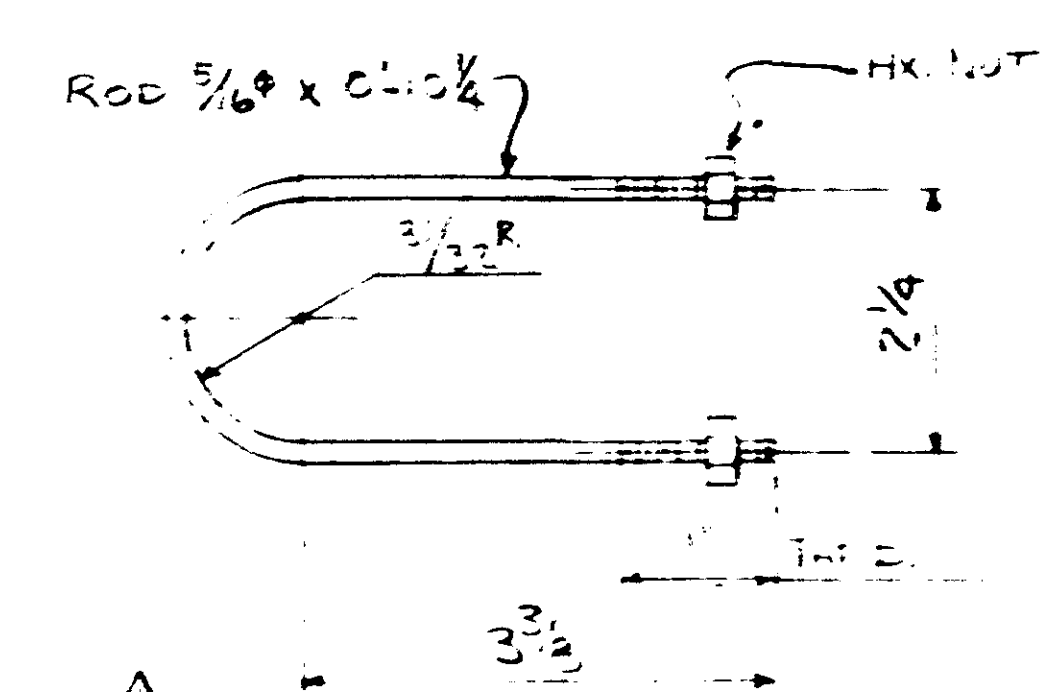
LEWIS ENGINEERING COMPANY
 6229 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 926-6101

PROJECT - BR. 2440
 STATE PROJECT - 2710-21
 FEDERAL PROJECT - BHF 005-2(67)
 CONTRACTOR - JOHNSON BROS.
 LOCATION - TH 65 (3RD AVE. BRIDGE) MPLS, MINN.
 DESCRIPTION - GRATINGS - WATERMAIN HANGER SYSTEM

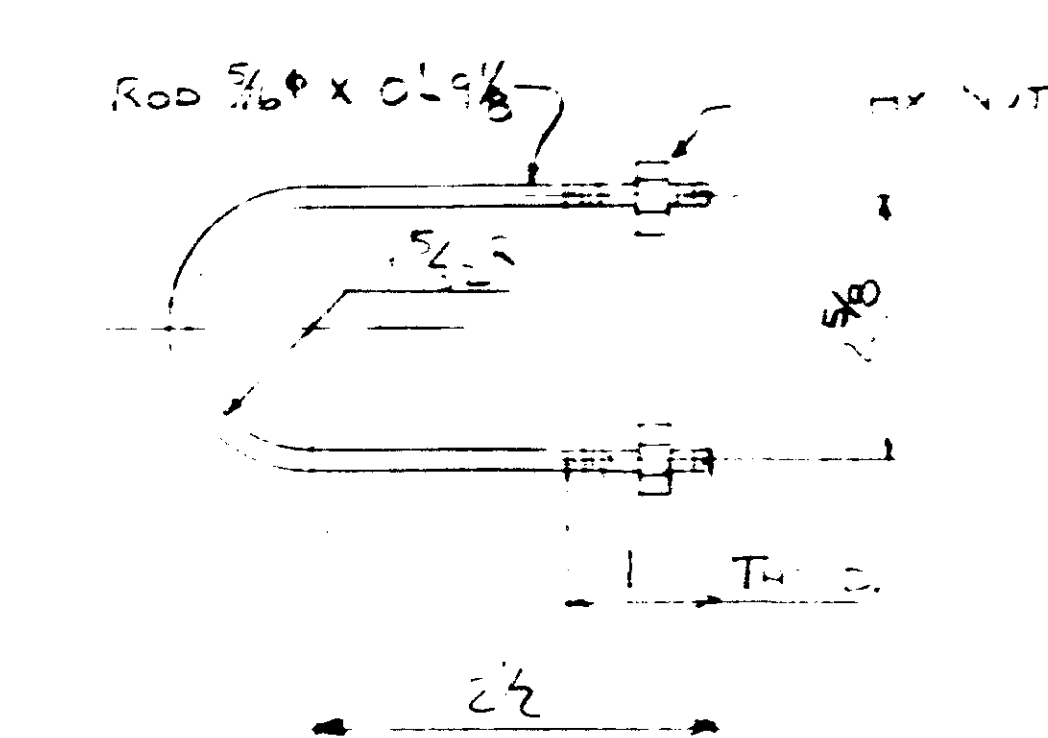
Job No. 1643-35
 Drawn By CAD
 Checked By [Signature]
 Approved [Signature]



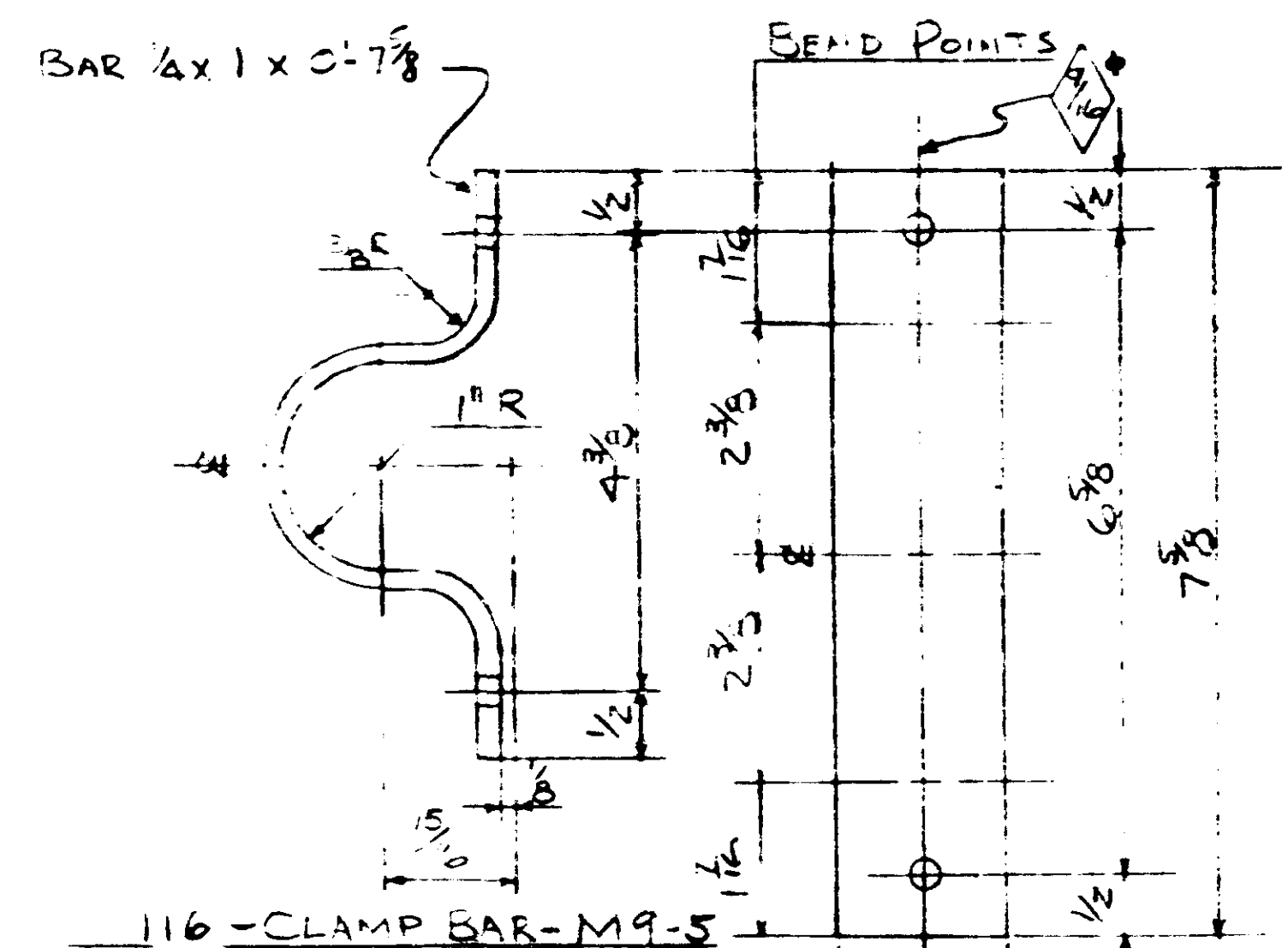
32 - HANDRAIL POSTS - M9-1



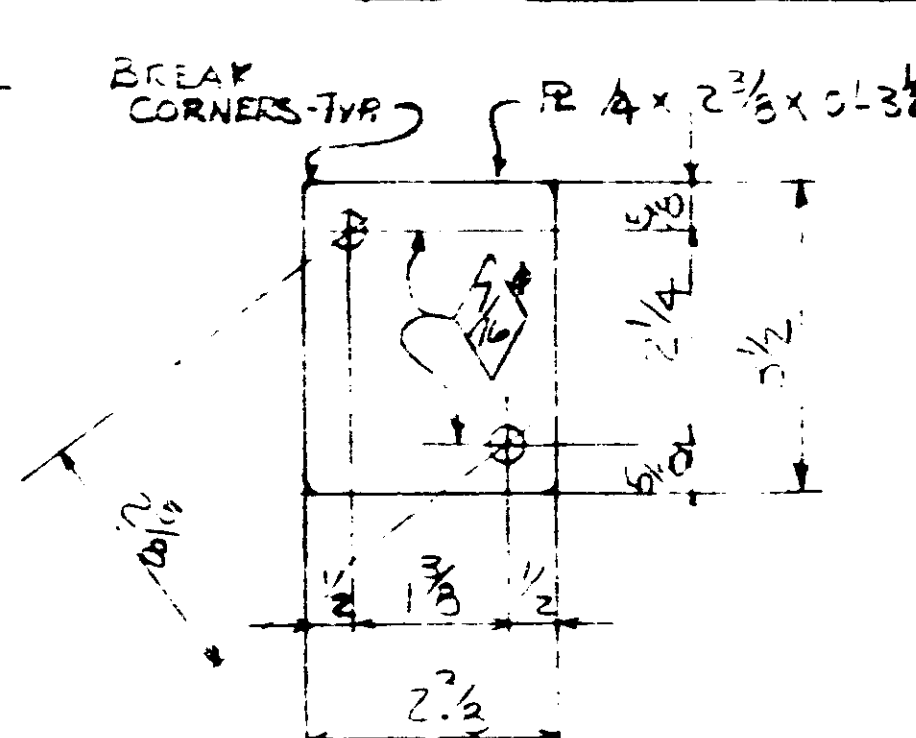
384 - U-BOLTS - M9-2



312 - U-BOLTS - M9-3



116 - CLAMP BAR - M9-5




312 - PLATES - M9-4

STRETCH OUT BAR M9-5

HOLES TO BE DRILLED
SEE SHT. E2 FOR DETAILS

SUB 7-3-80 Δ REVISED
E 6-19-80
C.B. 3-3-

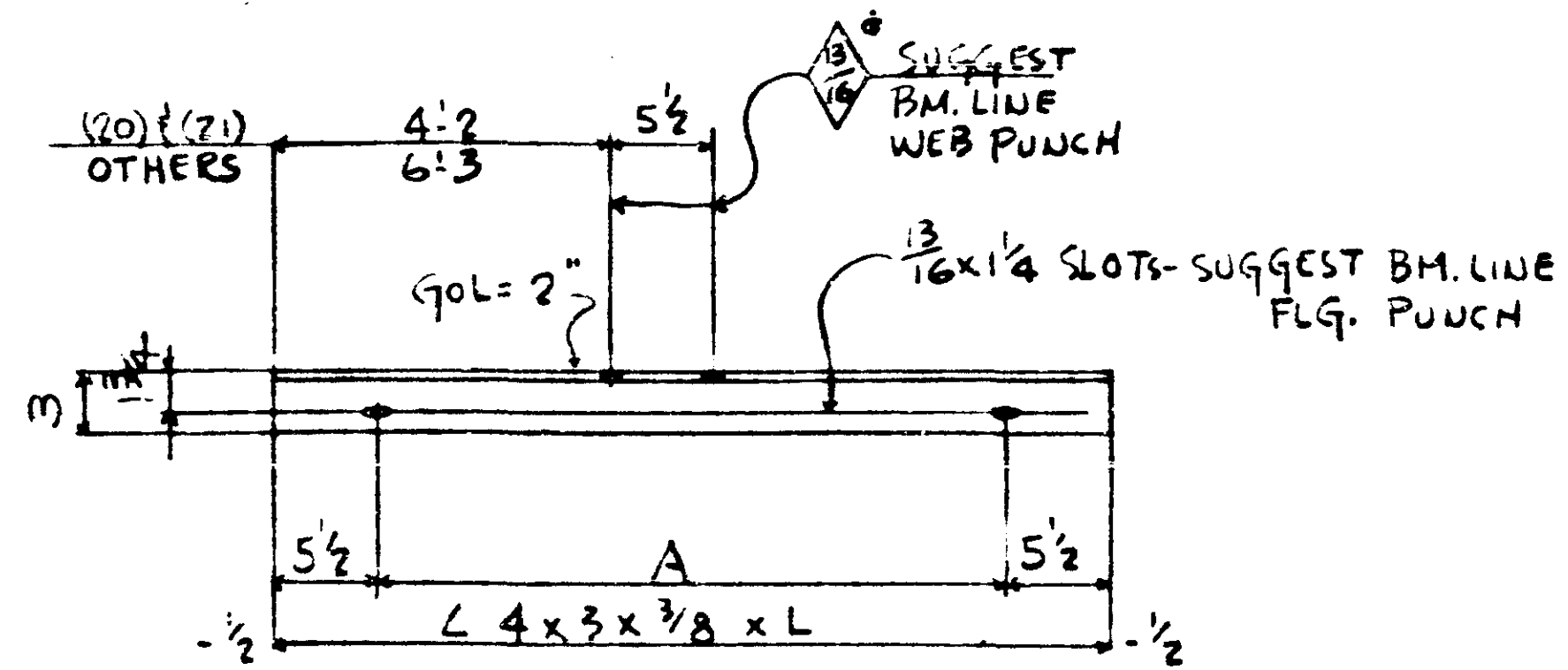
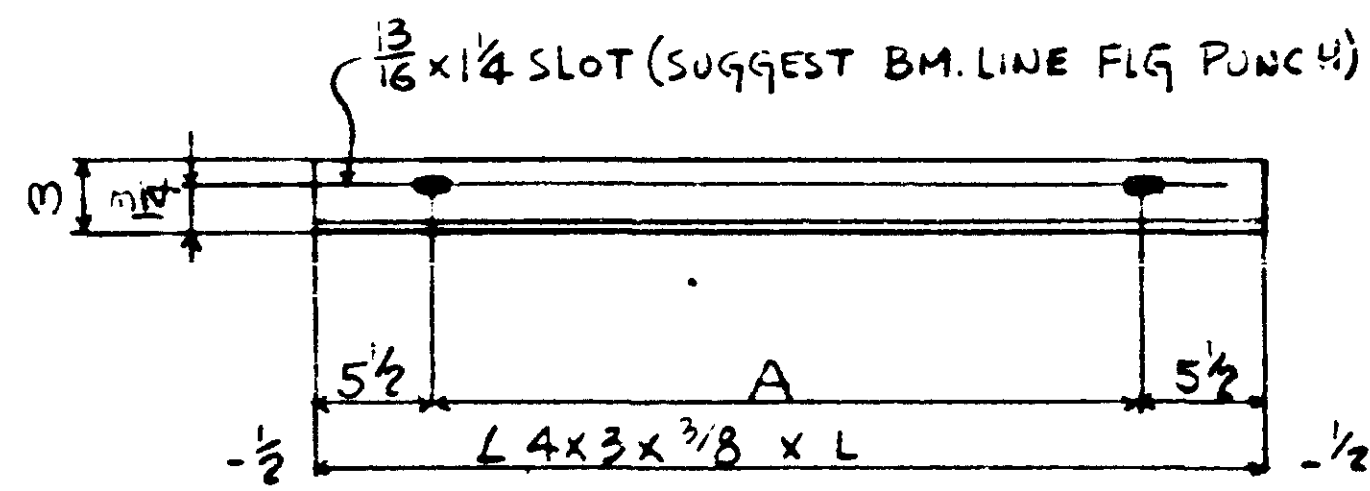
LINE NO.	NO. REQD.	DESCRIPTION	LENGTH		MK	REMARKS	WGHT.
			FT.	INCH			
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62							
63							
41		230 STD. PIPE 1/2"	21	0		THRD. 2E. GALV.	
42		230 C-PLGS 1/2"					
43							
44		32 - HANDRAIL POSTS - M9-1					
45		STD. PIPE 1/2"	3	5/2			
46		RS 3/8 x 4	0	8		PA	
47							
48		U-BOLTS 5/16"	0	10		M9-2	
49		HYX. NUTS 5/16"					
50							
51		U-BOLTS 5/16"	0	9		M9-3	
52		HYX. NUTS 5/16"					
53							
54		RS 4 x 2 3/8	0	3		M9-4	
55							
56		CLAMP BARS 1/4 x 10 7/8	1	9		M9-5	
57							
58		RAIL STUDS 1/2"	0	2		MFG. STD.	
59		RAIL STUDS 3/4"	0	4		-30-	
60		RAIL STUDS 3/4"	0	2			
61		HYX. NUTS 3/4"					
62		RAIL STUDS 1/2"	0	5		MFG. STD.	
63		RAIL STUDS 1/2"	0	6		MFG. STD.	



LEWIS ENGINEERING COMPANY
5229 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 920-8181

PROJECT	- BR. 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BR. 005-2(40)
CONTRACTOR	- JOHNSON BROS.
LOCATION	- TH 35 (3RD AVE BRIDGE) MPLS., MINN.
DESCRIPTION	-

Job No.
1643-35
Drawn By: CAS
Checked By: [Signature]
Approved: [Signature]



MARK	QTY	A	L
M10-1	1	12-1 1/2	13-0 1/2
-3	1	12-2	13-1
-5	2	11-11 1/2	12-10 1/2
-7	2	12-0 1/2	12-11 1/2
-9	1	12-3	13-2
-11	1	12-2 1/2	13-1 1/2
-13	3	11-11	12-10
-15	4	12-0	12-11
-17	1	2-4 1/2	3-3 1/2
-19	1	7-5 3/8	8-4 3/8
-21	1	7-6 8	8-5 8
-23	1	2-5 1/2	12-4 1/2
-25	1	12-1	13-0
-29	1	11-4	12-3
-31	1	11-5	12-4
-33	1	11-7	12-1
-35	1	11-7 1/2	12-6 1/2
-37	1	11-8 1/2	12-7 1/2
-39	1	11-3	12-2
-27	8	8-1	9-0

MARK	QTY	A	L
M10-2	1	12-1	13-0
-4	2	12-1 1/2	13-0 1/2
-6	2	11-11	12-10
-8	2	12-1	13-0
-10	1	12-3 1/2	13-2 1/2
-12	1	12-3	13-2
-14	3	11-0 1/2	12-9 1/2
-16	1	11-11 1/2	12-10 1/2
-18	1	12-4	13-3
-20	1	7-5 5/8	8-4 5/8
-22	1	7-6 1/8	8-5 1/8
-24	1	12-5	13-2
-28	3	12-0 1/2	12-11 1/2
-30	1	11-3 1/2	12-2 1/2
-32	1	11-5 1/2	12-4 1/2
-34	1	11-1 1/2	12-0 1/2
-36	1	11-7	12-6
-28	1	11-9	12-3
-40	1	11-3 1/2	12-2 1/2
-26	8	8-1	9-0

NO.	RECD.	DESCRIPTION	LENGTH		MK	REMARKS	WGHT.
			FT	INCH			
1							
2	1	4x3x3/8	13	0 1/2	M10-1		
3	1		13	0	-2		
4	1		13	1	-3		
5	2		13	0 1/2	-4		
6	2		12	10 1/2	-5		
7	2		12	10	-6		
8	2		12	11 1/2	-7		
9	2		13	0	-8		
10	1		13	2	-9		
11	1		13	2 1/2	-10		
12	1		13	1 1/2	-11		
13	1		13	2	-12		
14	3		12	10	-13		
15	3		12	9 1/2	-14		
16	4		12	11	-15		
17	1		12	10 1/2	-16		
18	1		13	3 1/2	-17		
19	1		13	3	-18		
20	1		8	4 3/8	-19		
21	1		8	4 1/16	-20		
22	1		8	5 3/8	-21		
23	1		8	5 1/16	-22		
24	1		13	4 1/2	-23		
25	1		13	5	-24		
26	1		13	0	-25		
27	3		12	11 1/2	-28		
28	1		12	3	-29		
29	1		12	2 1/2	-30		
30	1		12	4	-31		
31	1		12	4 1/2	-32		
32	1		12	1	-33		
33	1		12	0 1/2	-34		
34	1		12	6 1/2	-35		
35	1		12	6	-36		
36	1		12	7 1/2	-37		
37	1		12	8	-38		
38	1		12	2	-39		
39	1		12	2 1/2	-40		
40							
41							
42	8		9	0	-27		
43	8		9	0	-26		
44							
45							
46							
47		13/16 RAWL STUDS 3/4"	0	4 1/4			
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62							
63							

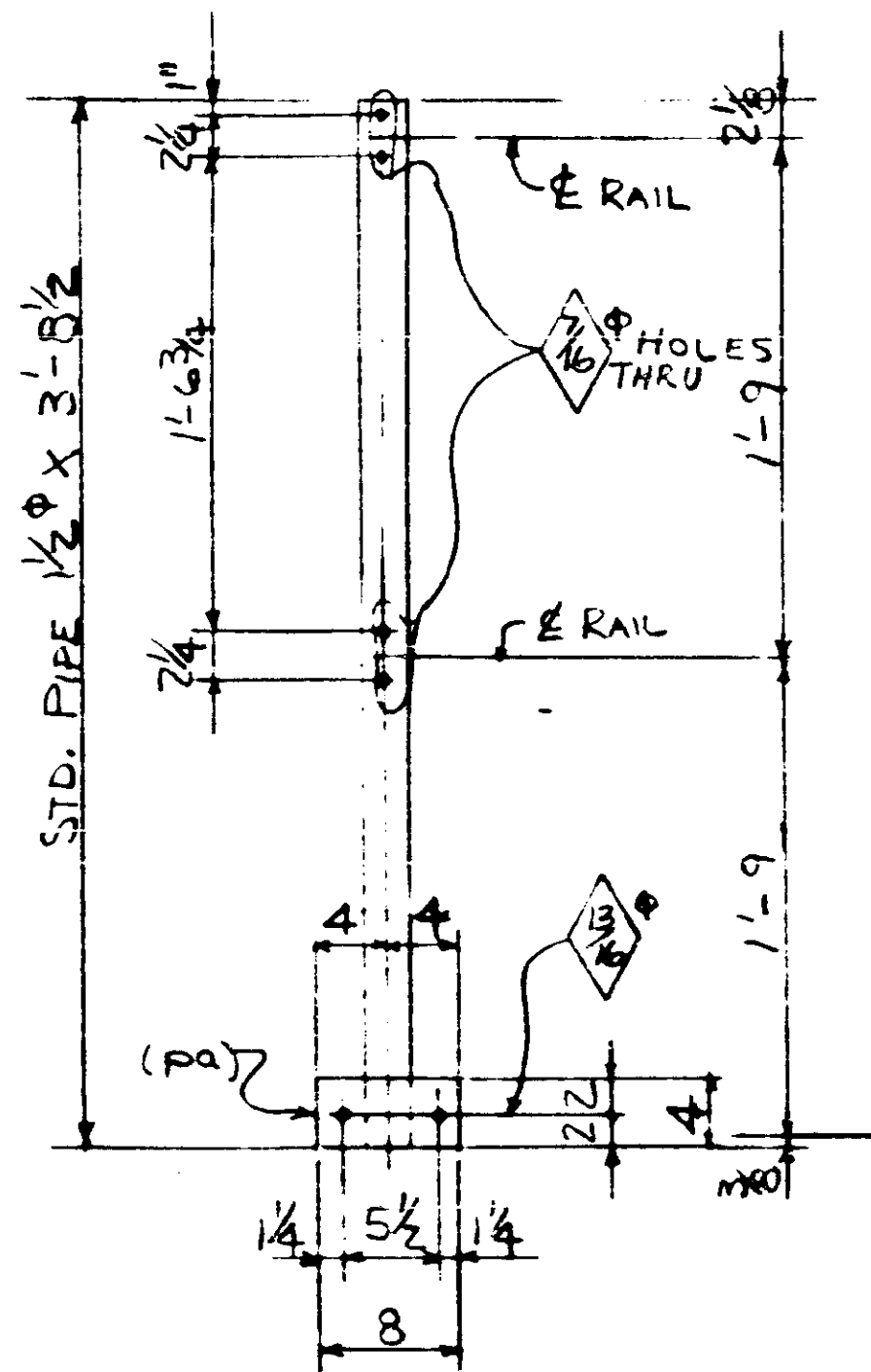
* ALL DIMENSIONS ARE FROM FIELD MEASUREMENT
SEE E2 FOR GEN. NOTES:

LEWIS ENGINEERING COMPANY
5229 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 920-8161

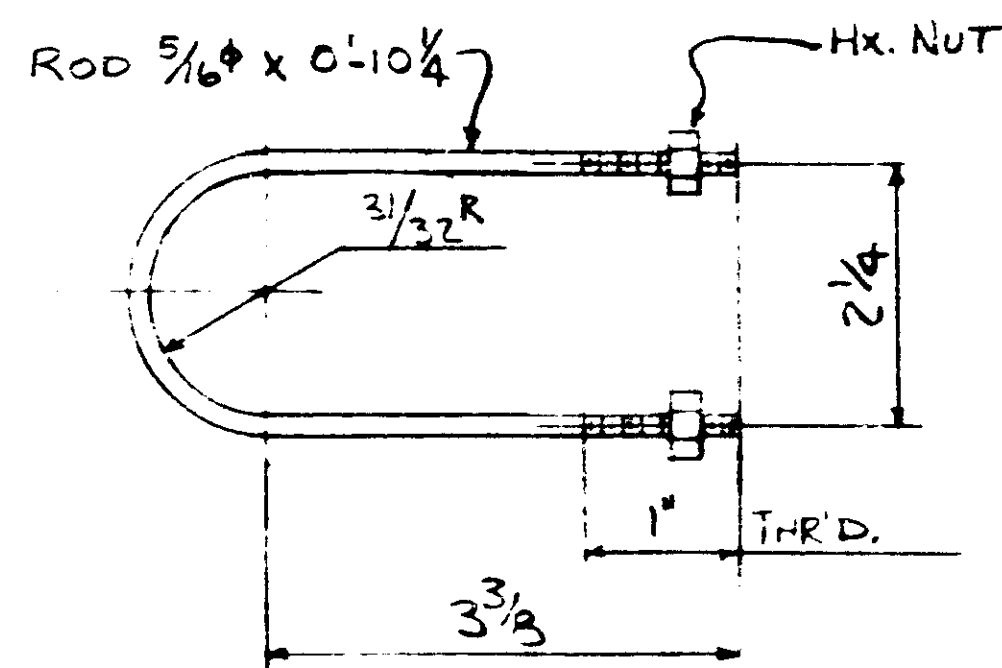
PROJECT - BR. 2490
STATE PROJECT - 2710-21
FEDERAL PROJECT - BHF-005-2 (67)
CONTRACTOR - JOHNSON BROS.
LOCATION - T.H. 65 (3RD AVE. BRIDGE) MPLS. MN.
DESCRIPTION - WALKWAY SUPPORT ANGLES FOR SPANS 6 & 7 - BARREL ARCHES

Job No. 1643-35
Drawn By EAS
Checked By
Approved

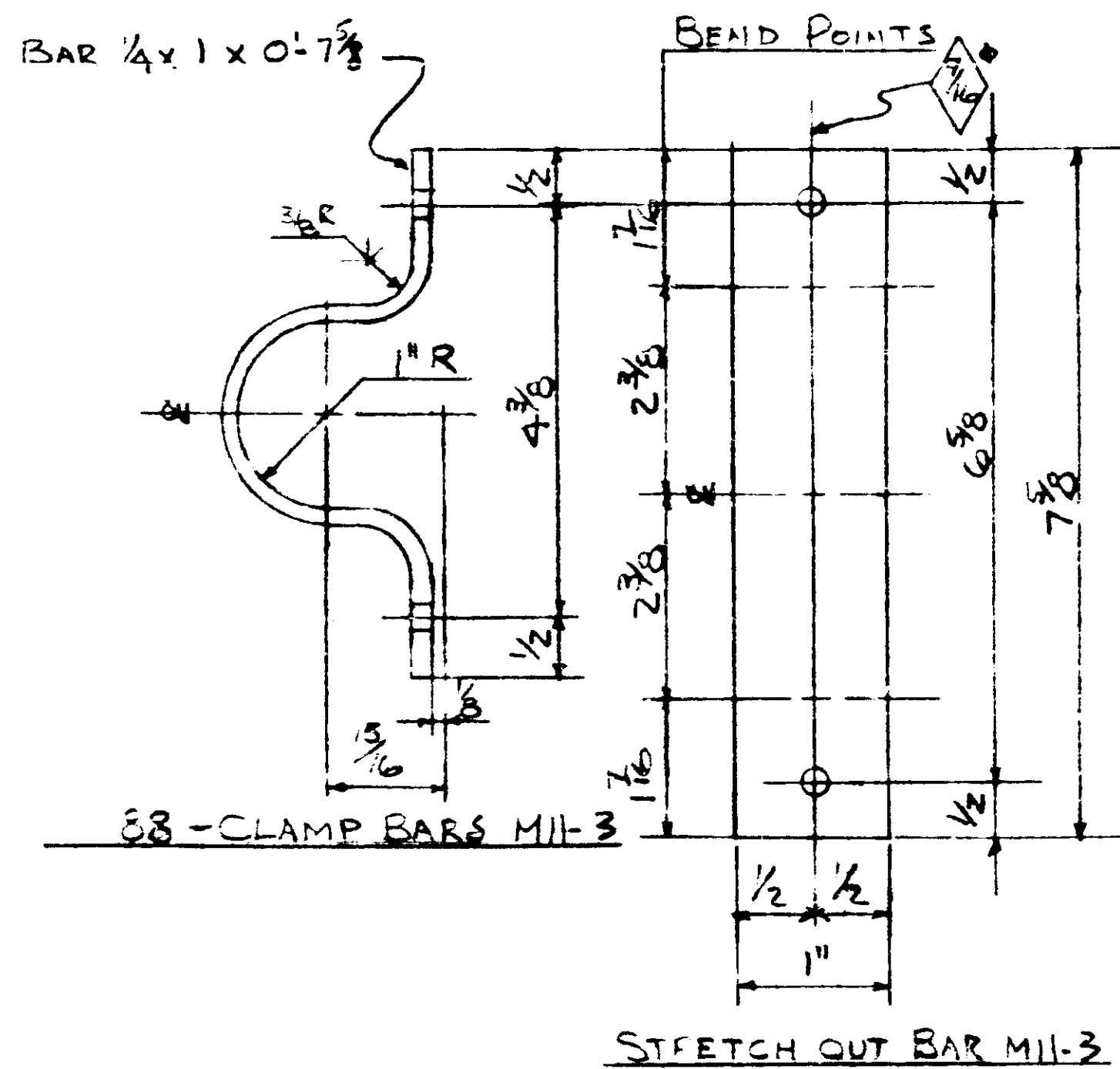
SUB 7-18-80



34-HANDRAIL POSTS - M11-1



68-U-BOLTS-M11-2



68-CLAMP BARS M11-3

STRETCH OUT BAR M11-3

HOLES AS NOTED
SEE SHT. E2 FOR NOTES

SUB 6-19-80
SUB. 6-3-80

LINE NO.	RECD.	DESCRIPTION	LENGTH		MK	REMARKS	WGHT.
			FT.	INCH			
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44		34-HANDRAIL POSTS - M11-1				GALV.	
45		34 STD. PIPE 1/2"	3	3/2			948.94 10.0000
46		34 Pcs 3/4" x 4	0	3	pa		115.58
47							
48		68 U-BOLTS 5/16"	0	10/4	M11-2		
49		136 HVY HX. NUTS 5/16"					
50							
51		88 BARS 1/4" x 1	0	7/8	M11-3		47.52
52							
53		176 RAWL STUDS 1/2"	0	2/4			
54		68 BOLTS 3/4"	0	2			
55		68 HXNUTS 3/4"					
56							
57							
58							
59							
60							
61							
62							
63							

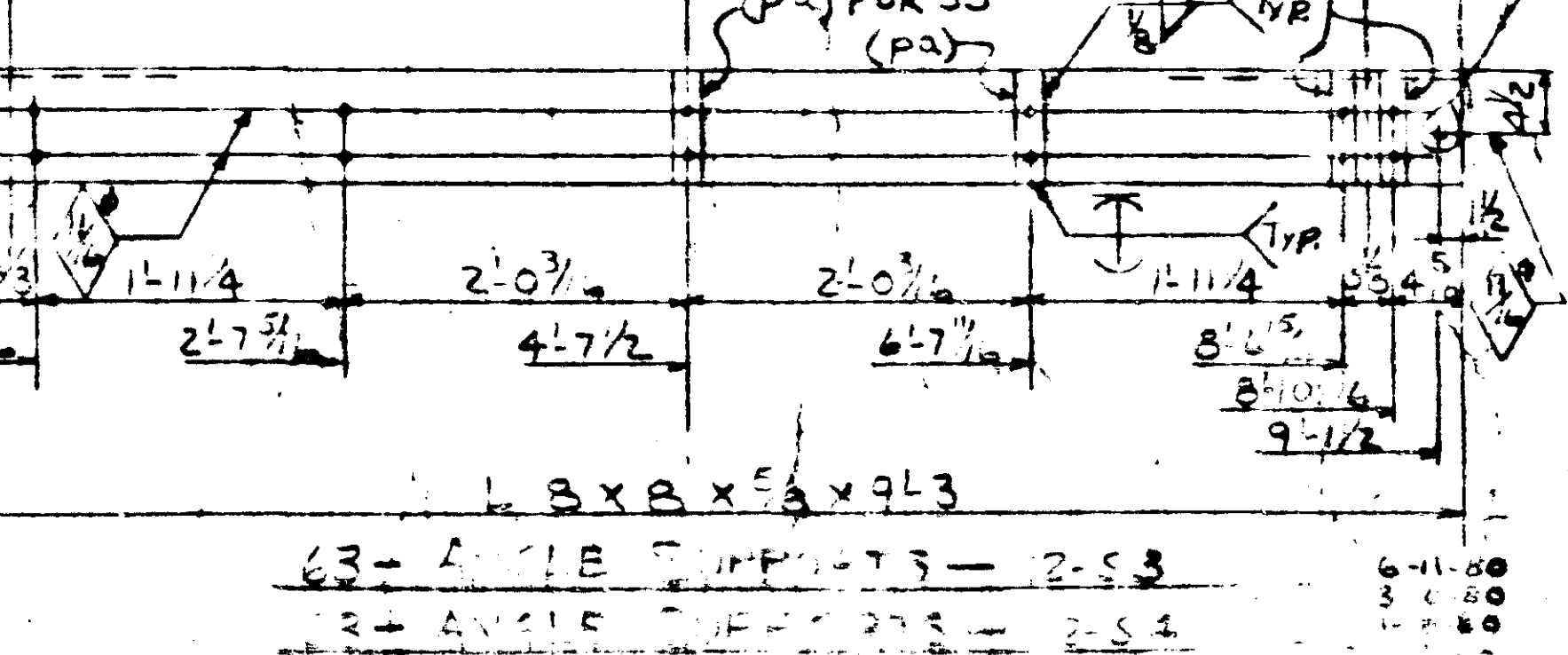
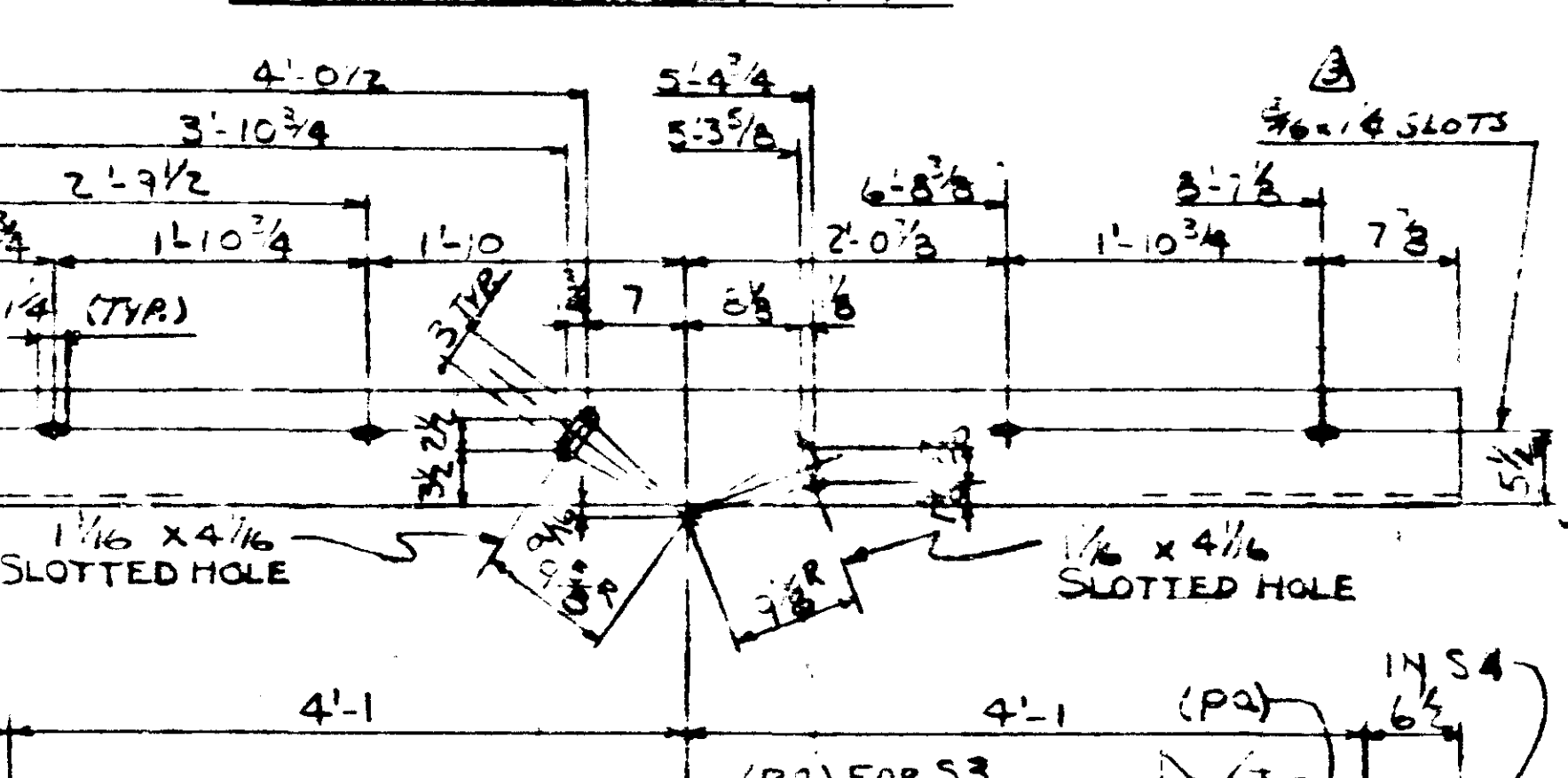
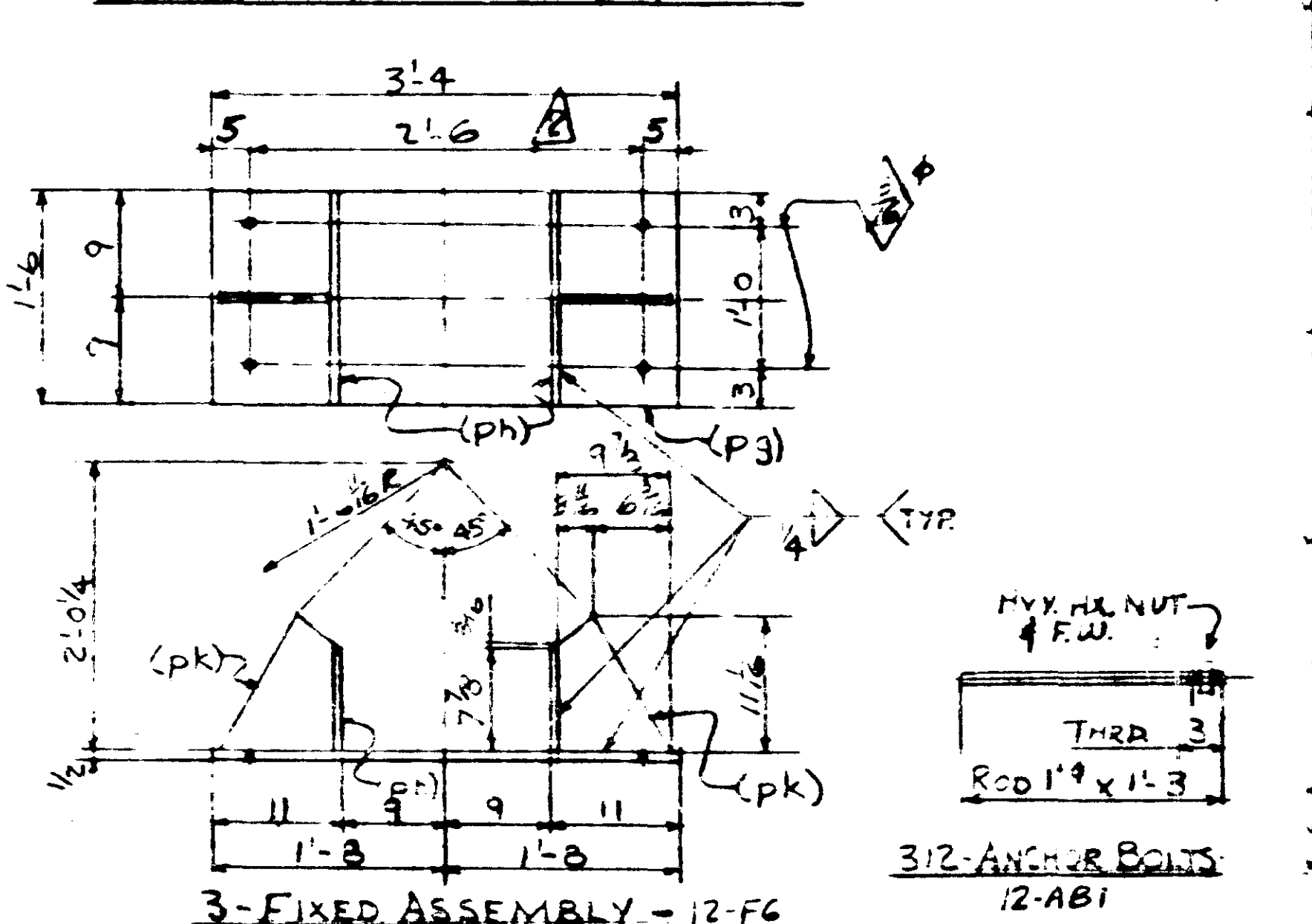
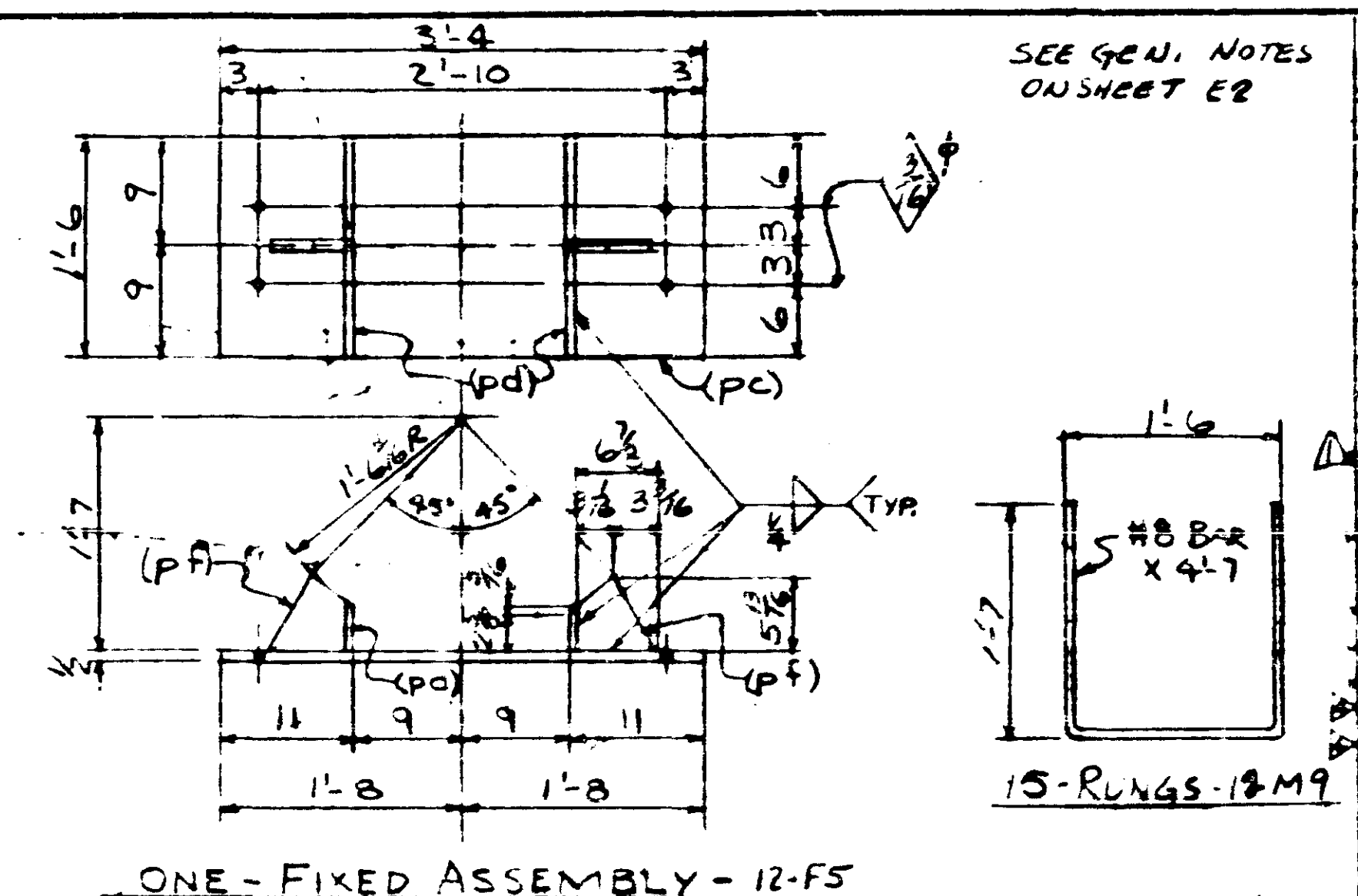
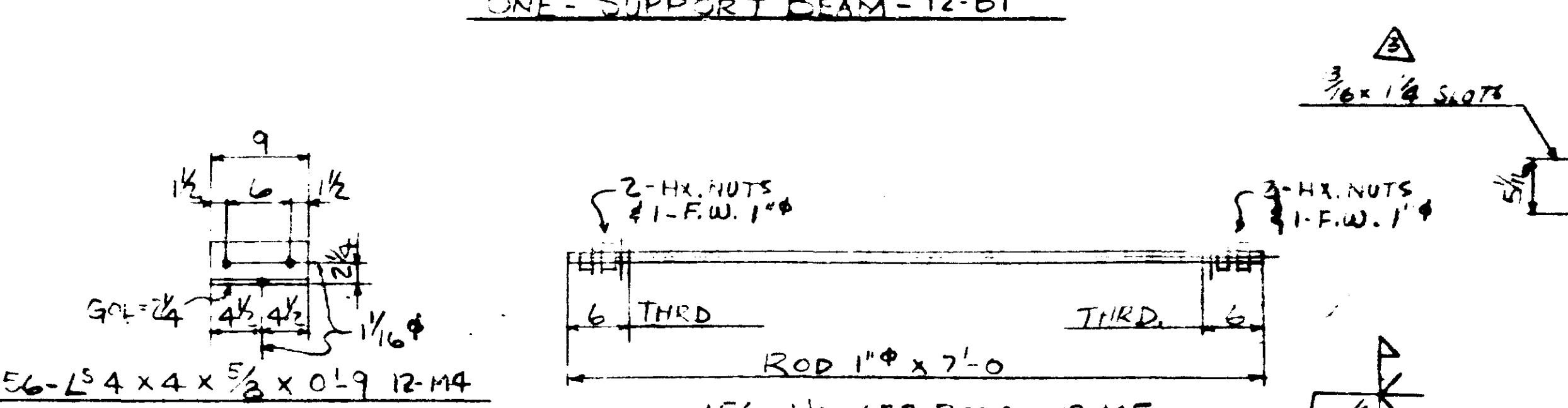
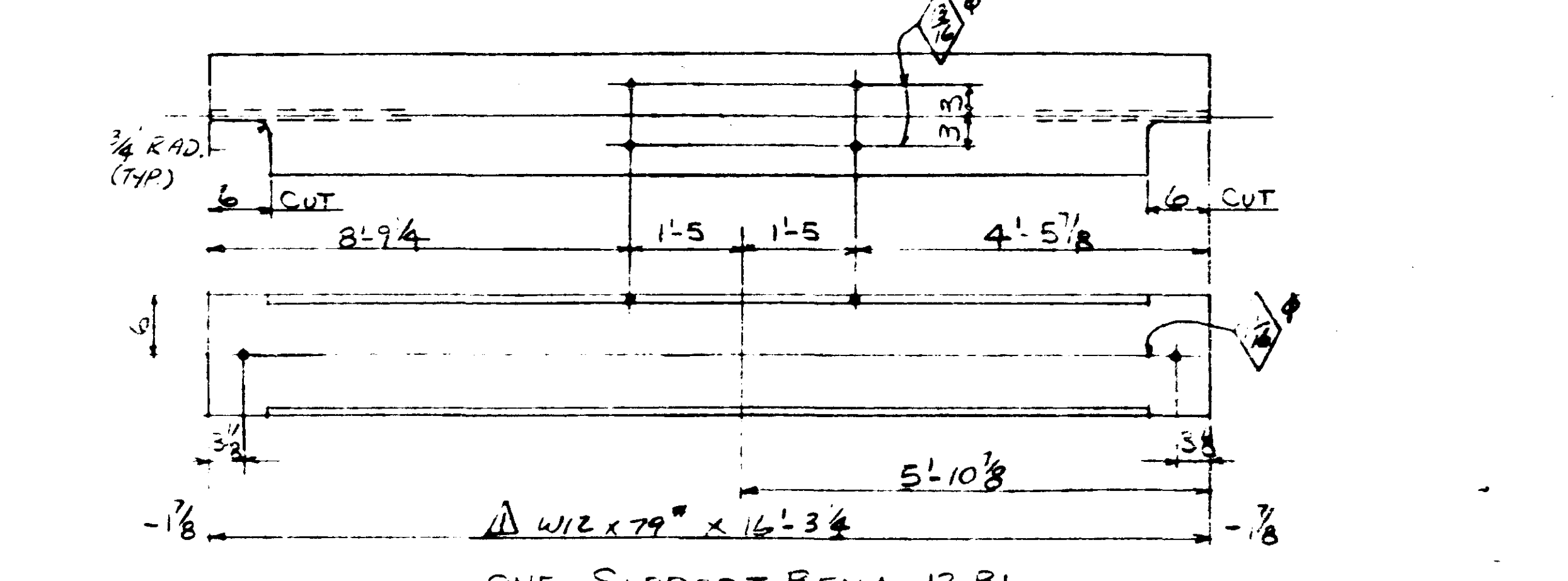
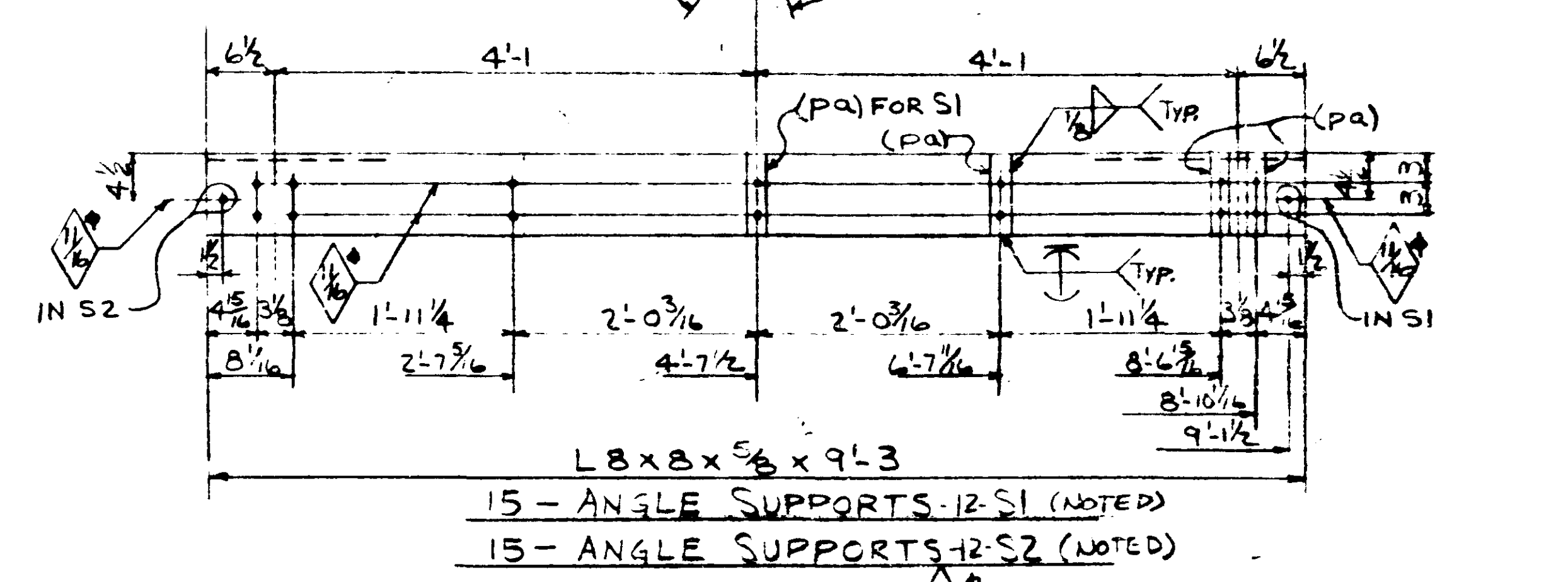
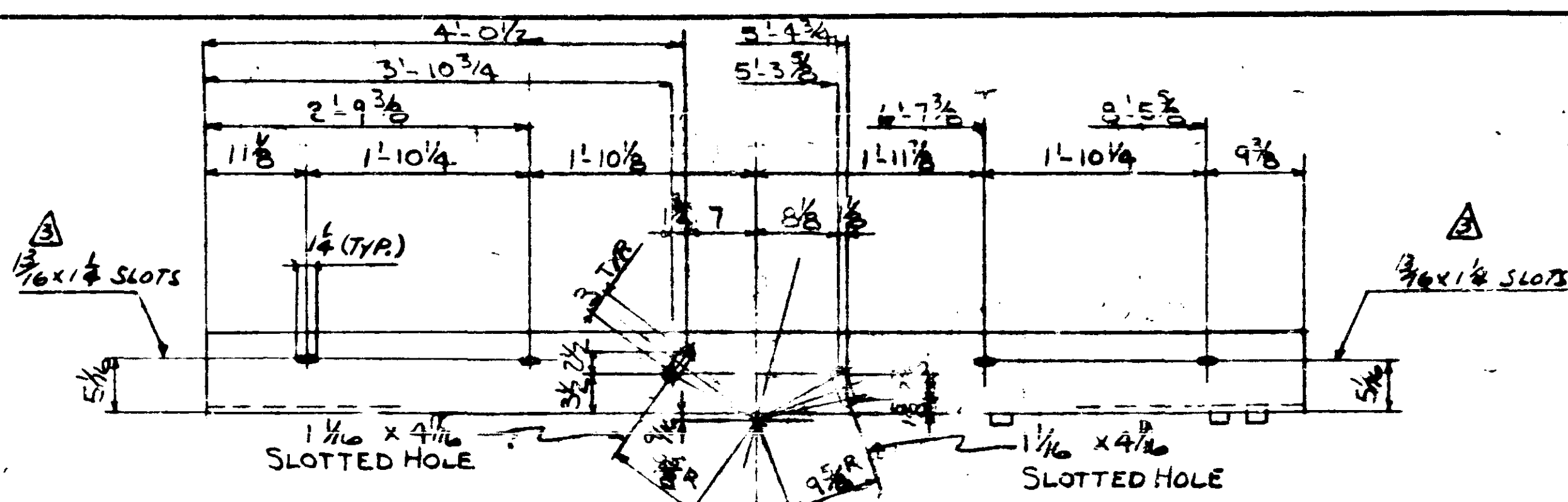


LEWIS ENGINEERING COMPANY

5228 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-6181

PROJECT - BR. 2440
 STATE PROJECT - 2710-21
 FEDERAL PROJECT - BHF-005-2(67)
 CONTRACTOR - JOHNSON BROS.
 LOCATION - TH 65 (3RD AVE BRIDGE)
 MPLS., MIN.
 DESCRIPTION - HANDRAIL & POST
 WATERMAIN WALKWAY
 SYSTEM (BARREL ARCHES)

Job No.
1643-35
 Drawn By CAD
 Checked By EAS
 Approved



SEE GEN. NOTES ON SHEET E2

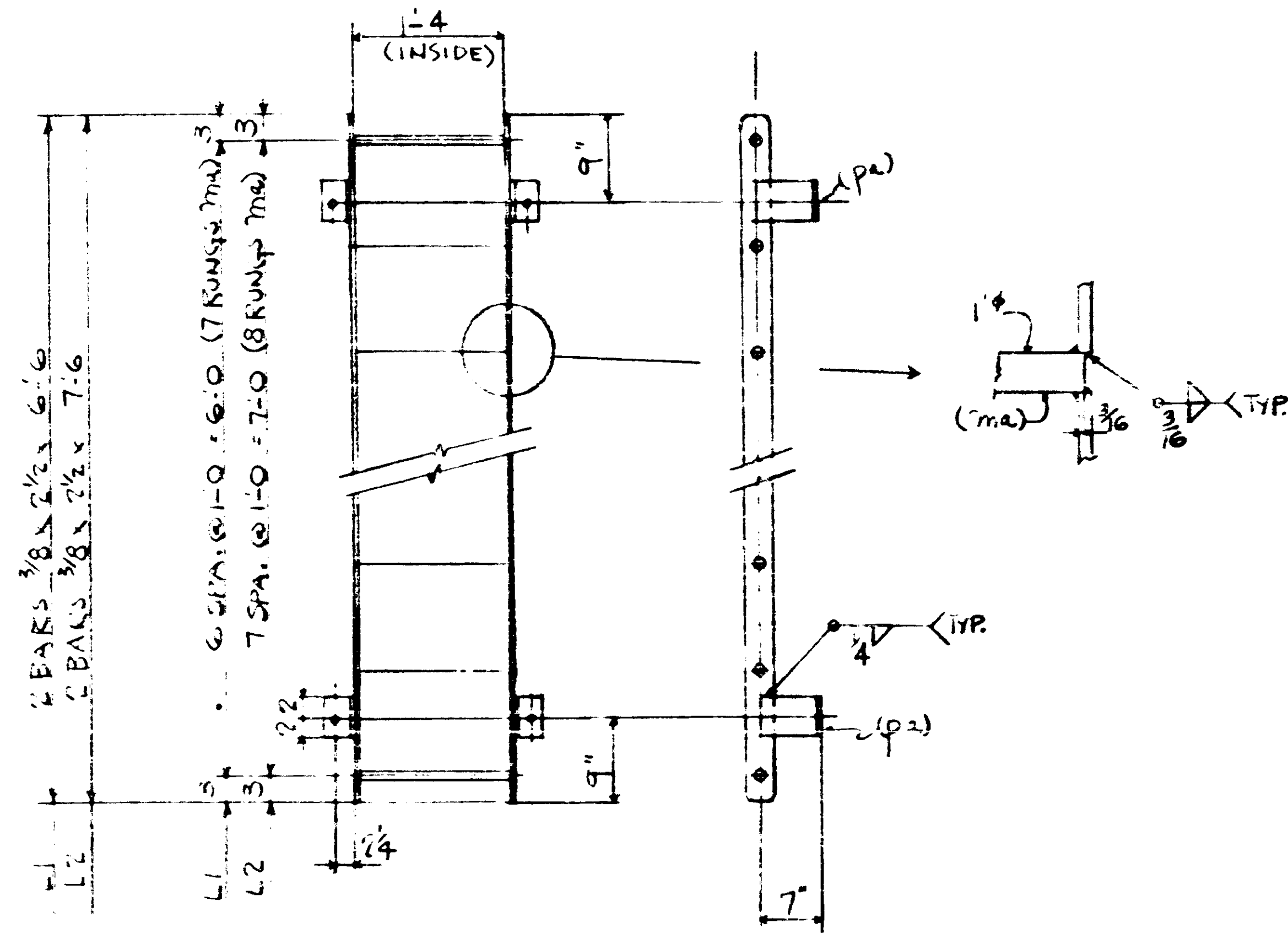
LINE NO.	DESCRIPTION	LENGTH FT. INCH	QUANTITY	REMARKS	WGHT.
1					
2	15 SUPPORTS 12-S1				
3	15 - 20 - 12-S2				
4	63 - 20 - 12-S3				
5	63 - 20 - 12-S4				
6	56 L8x8x5/8	9 3		6.0	40136 3394
7	56 BARS 1/2x2	0 3		PA	2150
8					
9					
10	1 W12x79	16 3/4	12-B1		234 3394
11					
12	56 L8x4x5/8	0 9	12-M4	5.0	1837 3394
13					
14	56 HGR. RODS 1"	7 0	12-M5	6.2	20.6 3394
15	24 HVY HX NUTS 1"				28 3394
16	312 F.W. 1"				22 3394
17	20 BARS 1/2x4	2 7/2	12-M6 (BENT)		512 3394
18	4 BARS 1/2x4	3 1 1/2	12-M6 (BENT)		1041 3394
19	63 BARS 5/8x3	0 4	PD		167 3394
20					
21	2 TEES		12-M8		3394
22	2 RS 1/2x6 1/8	1 10			39
23	2 RS 1/2x4 1/2	1 0			152
24	ONE-FIXED ASSEMBLY-12-F5				3394
25					
26	1 R 1/2x13	3 4	PC		102
27	2 RS 1/2x8 3/8	1 6	PD	BEV. 1. EDGE	5
28	2 RS 1/2x5 1/2	0 0 1/2	PD		12
29					
30					
31	3-FIXED ASSEMBLY-12-F6				3394
32	3 RS 1/2x13	3 4	PG		305
33	6 RS 1/2x8 3/8	1 6	PH	BEV. 1. EDGE	22
34	6 RS 1/2x9 1/2	0 11 1/2	PK		32
35					
36					
37	15 #3 BARS	4 7	12-M9		602 3394
38					
39					
40					
41					
42	312-ANCHOR BOLTS 12-AB1				3394
43	312 RODS 1"	1 3	THRD 3" LE		50
44	312 HVY HX NUTS 1"				3394
45	312 F.W. 1"				22 3394
46					
47	FIELD BOLTS				
48	20 BOLTS 1/2"	0 3 1/2		HERE	255 3394
49	20 BOLTS 1"	0 3 1/2			52
50	2 BOLTS 1"	0 2 1/2			3
51	28 BOLTS 3/4"	0 2 1/2			2
52	100 HX NUTS 1"				
53	4 HX NUTS 1"				
54	28 HX NUTS 3/4"				
55	36 F.W. 1"			CLIP-ED	31
56	20 F.W. 1"				59
57	28 F.W. 3/4"				24
58	100 F.W. 5/8"				24
59	20 RAW STDS 1/2"	0 6		PLATED	33
60	4 RAW STDS 3/4"	0 8 1/2		PER MANU-	4
61	20 RAW STDS 1/2"	0 5 1/2		FACTORIES	5
62	REVISD 1-22-80			STANDARD	
63	REVISD 1-6-80			REVISD 1-28-80	
64	REVISD 3-10-80			REVISD 5-1-80 BLB	

LEWIS ENGINEERING COMPANY
 822 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-6161

PROJECT - BR. 2440
 STATE PROJECT - 2710-21
 FEDERAL PROJECT - BHF 005-2(67)
 CONTRACTOR - JOHNSON BROS.
 LOCATION - TH 65 (3RD AVE. BRIDGE) MPLS., MINN.

DESCRIPTION - HANGERS & FIXED ASS'YS WATERMAIN HANGER SYSTEM
 5-10-80
 1-18-80
 1-9-80

Job No. 1643-35
 Drawn By CAD
 Checked By
 Approved



ONE LADDER NOTED L1 (PIER 6)
 ONE LADDER NOTED L2 (PIER 1)

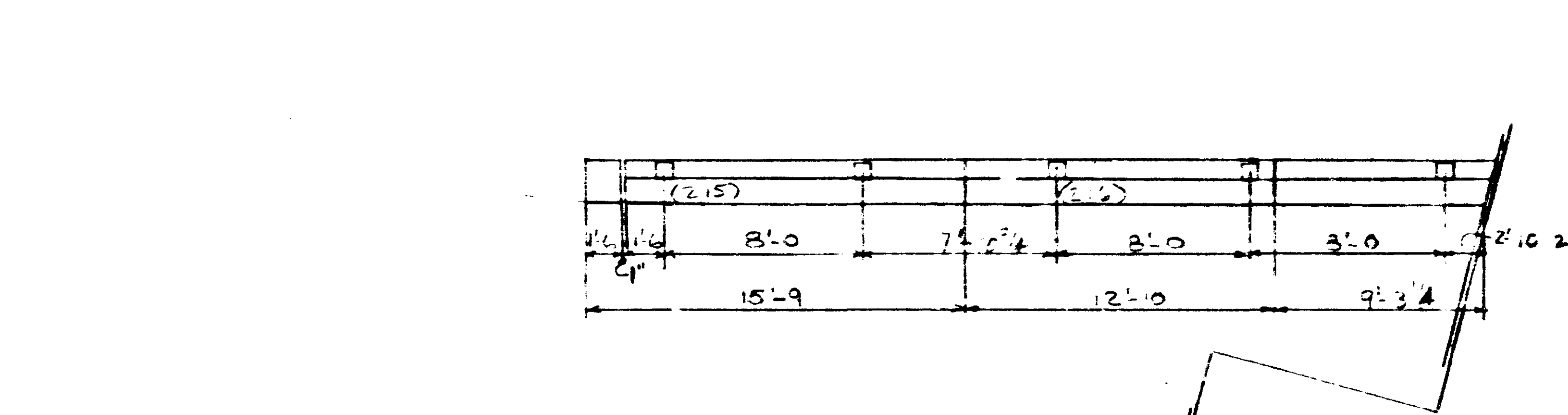
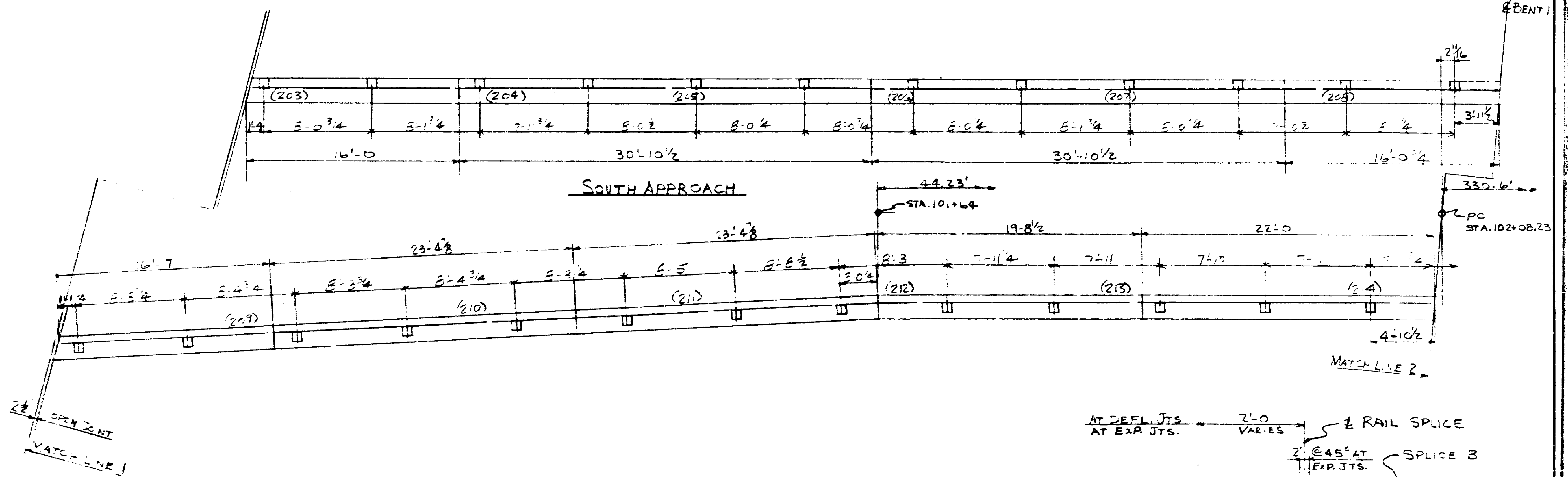
SEE E2 FOR
 ADDITIONAL NOTES

LINE NO.	DESCRIPTION	LENGTH		MK	REMARKS	WGHT.
		FT.	INCH			
1						
2						
3	ONE LADDER L1	1		4		
4	ONE LADDER L2	1		4		
5	2 BARS 3/8 x 1/2	6	6		FOR L1	41
6	2 BARS 3/8 x 2 1/2	7	6		FOR L2	42
7	5 RODS 1/4"	1	4 3/8	ma		3.425
8	8 BARS 3/8 x 4	0	10	pa		
9						
10	2 RAIL STUDS 3/4"	0	5 1/2			
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						
54						
55						
56						
57						
58						
59						
60						
61						
62						
63						

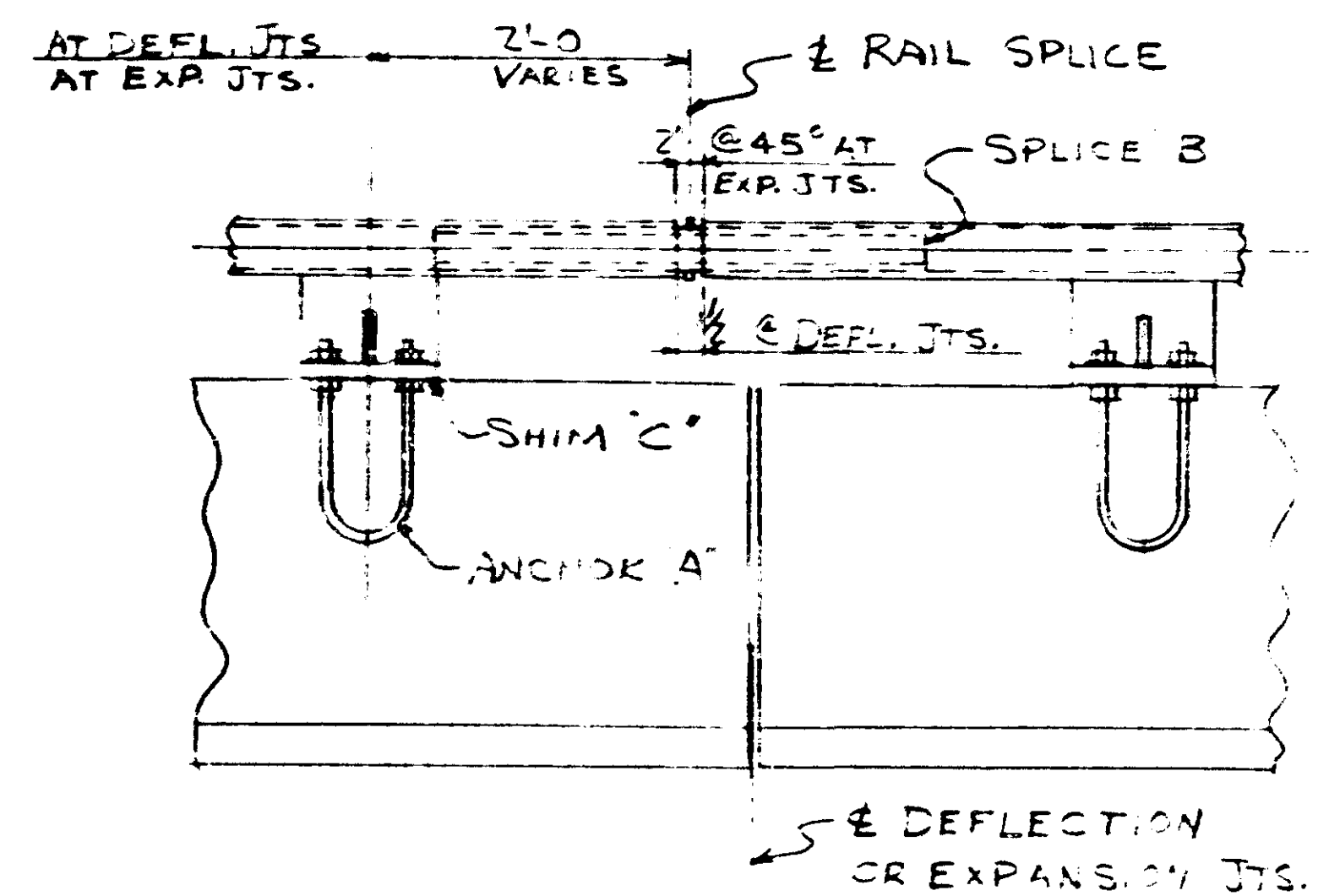
LEWIS ENGINEERING COMPANY
 5228 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 920-8161

PROJECT - BR 2440
 STATE PROJECT - 2710-21
 FEDERAL PROJECT - 3MF 005-2.67)
 CONTRACTOR - JOHNSON BROS
 LOCATION - T.H. 65 (3RD AVE BRIDGE)
 MPLS MN.
 DESCRIPTION - WATERMAIN WALKWAY
 SYSTEM - LADDERS AT
 MANHOLES PIERS 1 & 6

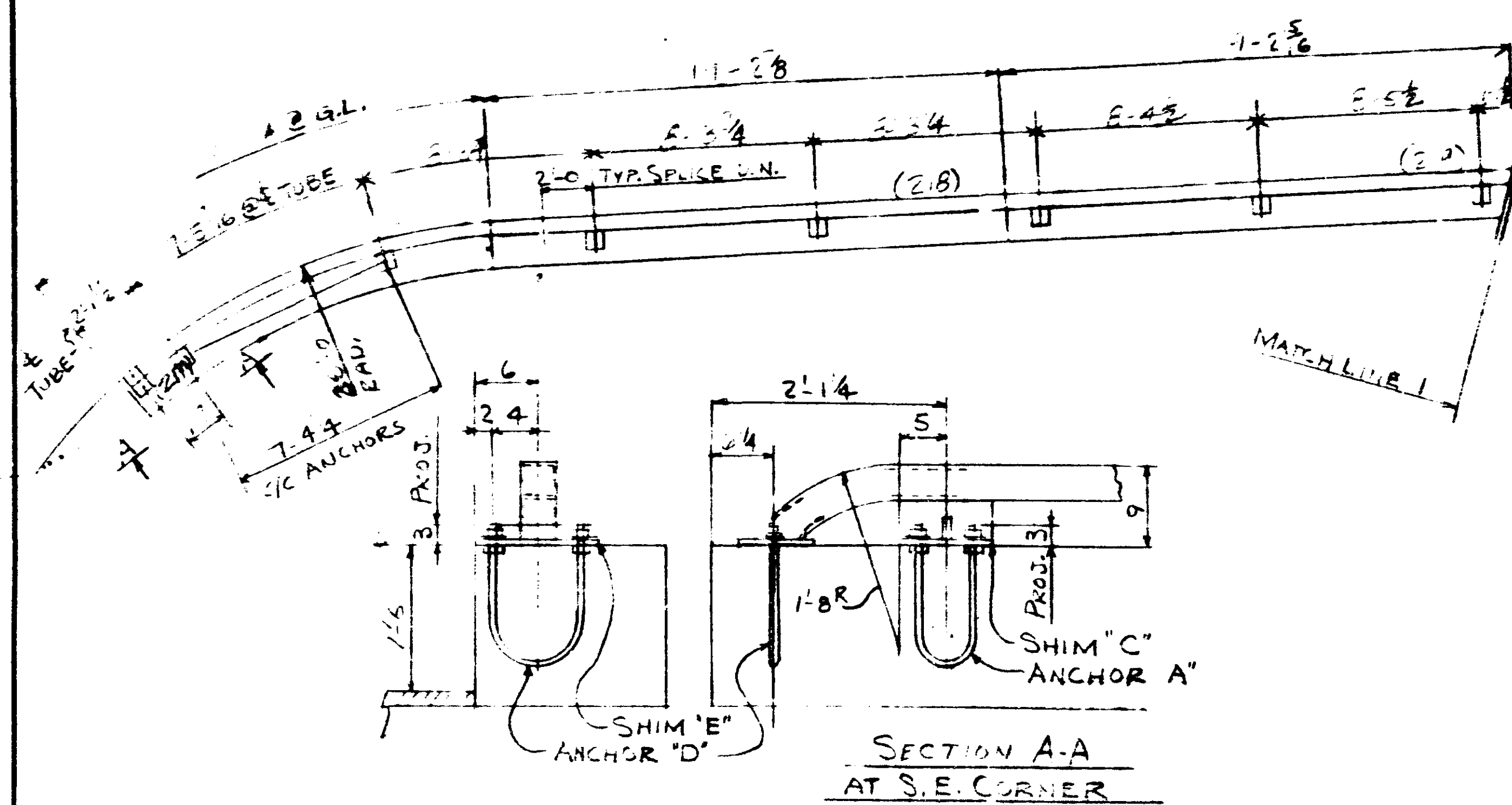
Job No. 643-35
 Drawn By EA
 Checked By JCI
 Approved



PLAN



CONDITION AT DEFLECTION OR EXPANSION JOINTS



SECTION A-A AT S.E. CORNER

SHEET INDEX FOR RAILING
 R1 THRU R9 - ERECTION PLANS
 R10 THRU R16 - DETAILS

FIELD NOTE
 13 SLEEVES FOR DEFLECTION JOINTS
 2 SLEEVES FOR EXPANSION JTS.

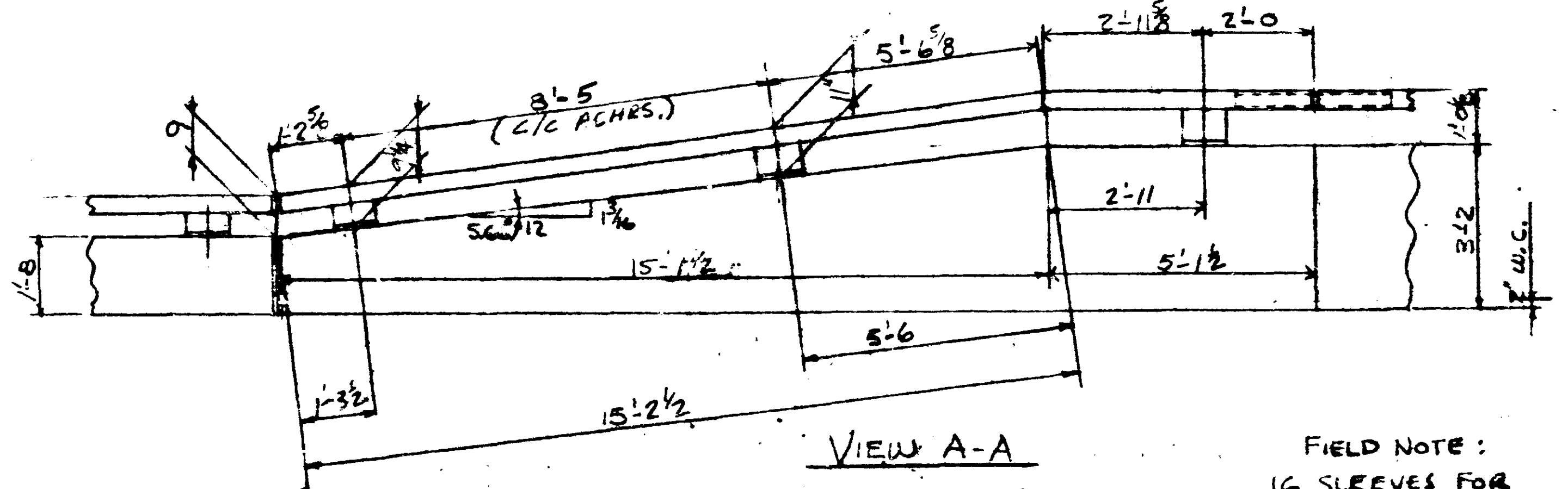
ALL DIMENSIONS FROM FIELD MEASUREMENTS



LEWIS ENGINEERING COMPANY
 8229 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 920-6181

PROJECT	- BR. 2440
STATE PROJECT	- 275-21
FEDERAL PROJECT	- BHF 005-2057
CONTRACTOR	- JOHNSON BROS.
LOCATION	- TH 65 (3RD AVE. BRIDGE) MPLS, MINN.
DESCRIPTION	- ERECTION PLAN - PIPE RAILING
DATE	5-7-80
DET.	5-6-80

Job No. 1843-17
 Drawn By CAD
 Checked By
 Approved

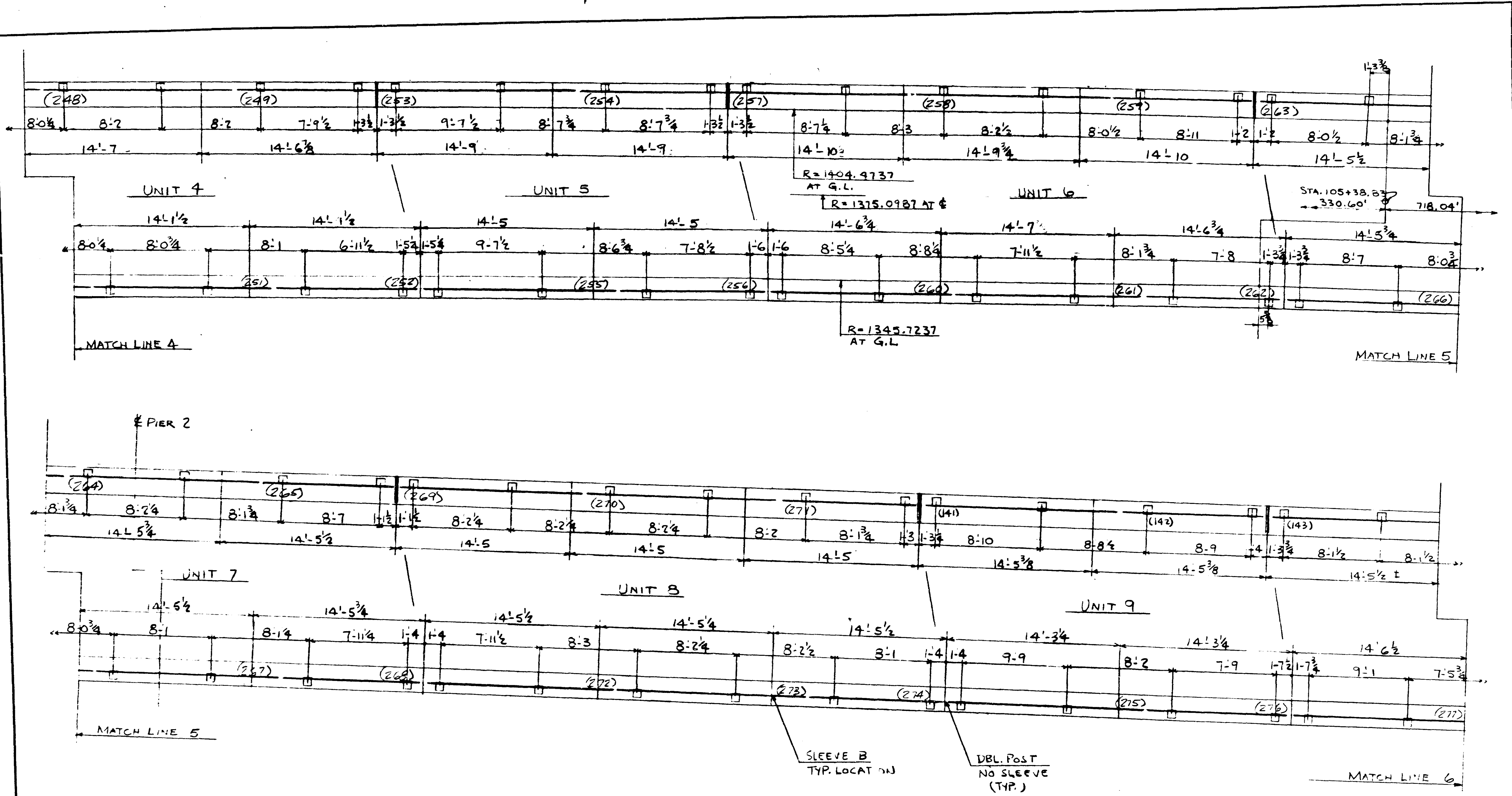


FIELD NOTE:
 16 SLEEVES FOR
 DEFLECTION JOINTS
 2- SLEEVES FOR
 EXPANSION JT.

ALL DIMENSIONS FROM
 FIELD AND SEE CODE

LEWIS ENGINEERING COMPANY 8228 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 920-8161	
PROJECT	- BR 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BHF 005-2(67)
CONTRACTOR	- JOHNSON BROS.
LOCATION	- TH 65 (3RD AVE. BRIDGE) MPLS., MINN.
DESCRIPTION	- ERECTION PLAN - PIPE RAILING
S.D:	S-7-80
DET:	S-6-80

Job No.
1643-17
 Drawn By CAD
 Checked By CA
 Approved
 11-27-80



FIELD NOTE:
16 SLEEVES FOR DEFLECTION JTS

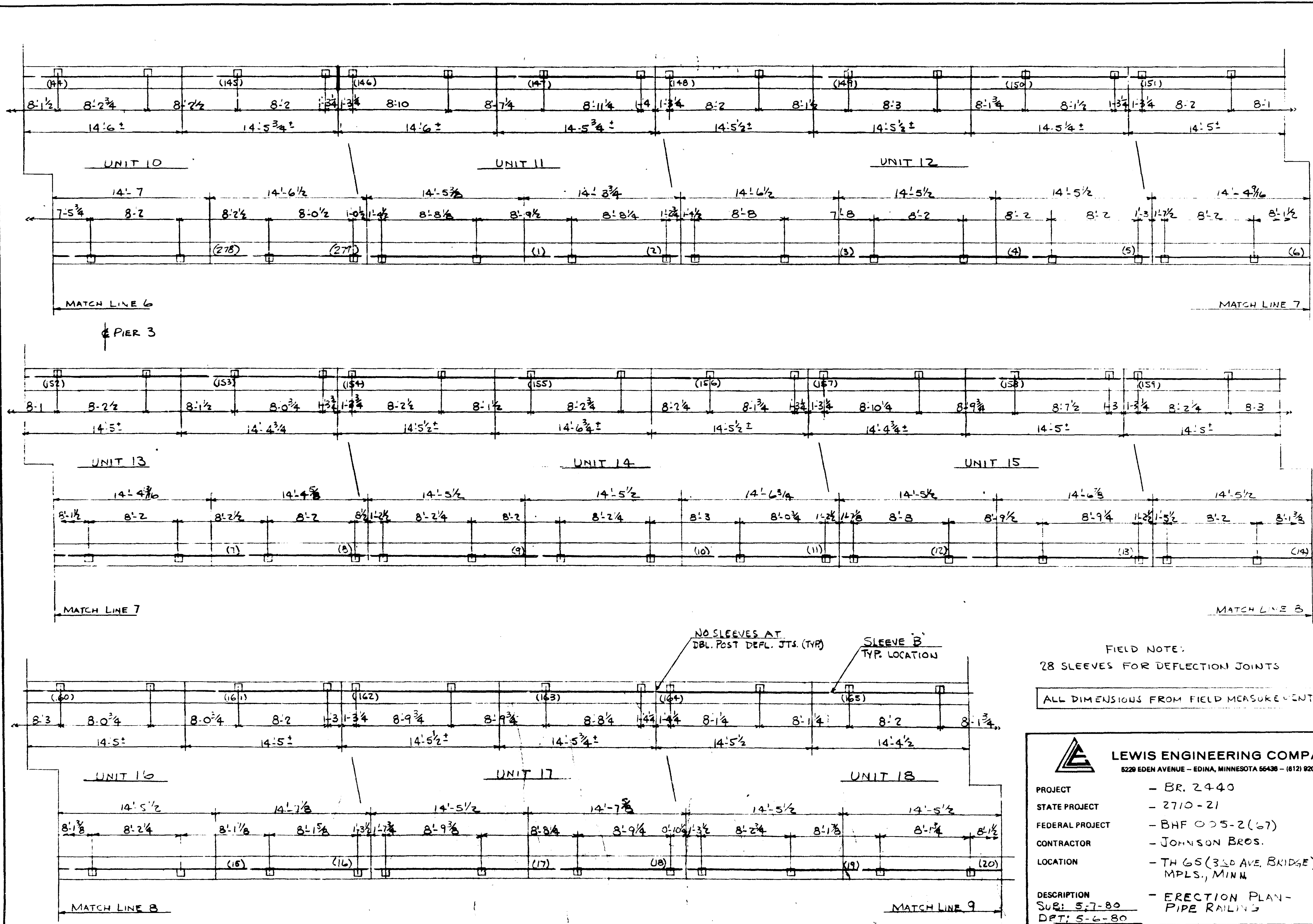
ALL DIMENSIONS FROM
FIELD MEASUREMENTS

67

LEWIS ENGINEERING COMPANY
5229 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 920-8181

PROJECT	- BR. 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BHF 005-2(67)
CONTRACTOR	- JOHNSON BROS.
LOCATION	- TH 65 (3RD AVE. BRIDGE) MPLS., MN.
DESCRIPTION	- ERECTION PLAN - PIPE RAILING
SUBJ: 5-7-80	
DFT: 5-6-80	

Job No.
1643-17
 Drawn By CAD
 Checked By E7S
 Approved
 11/21/80



NO SLEEVES AT DBL. POST DEF. JTS. (TYP)
SLEEVE B TYP. LOCATION

FIELD NOTE:
28 SLEEVES FOR DEFLECTION JOINTS
ALL DIMENSIONS FROM FIELD MEASUREMENTS

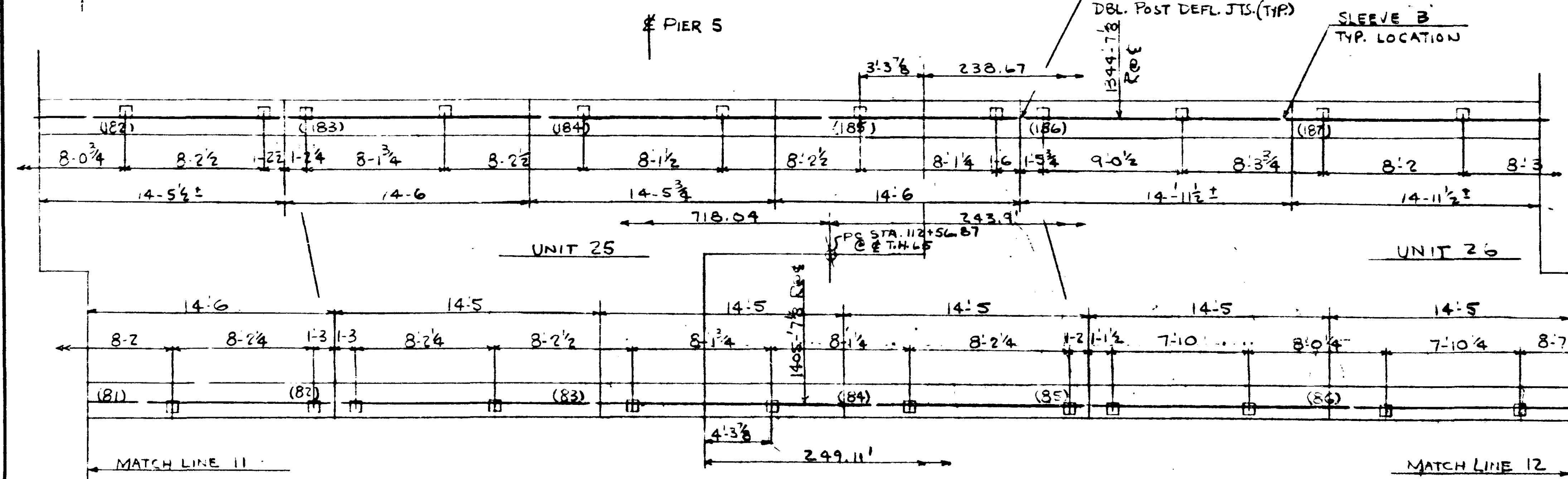
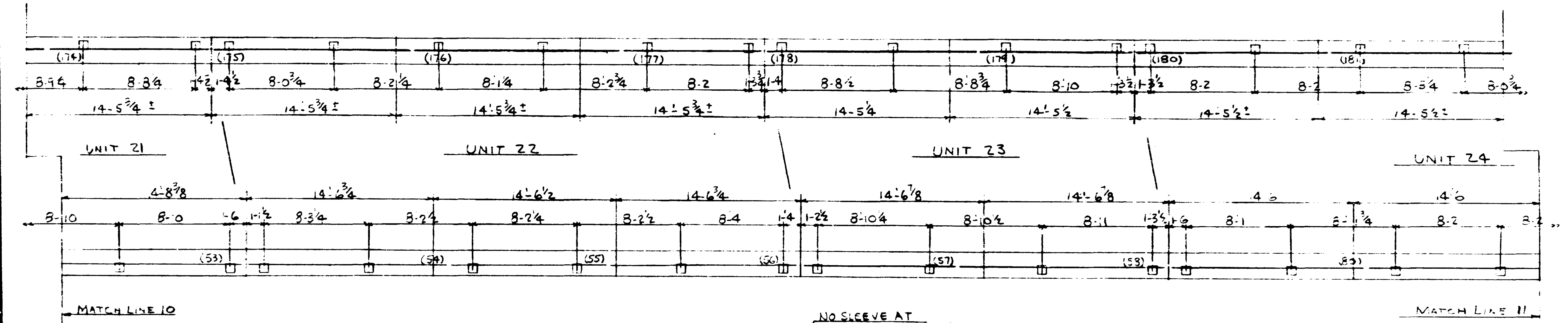
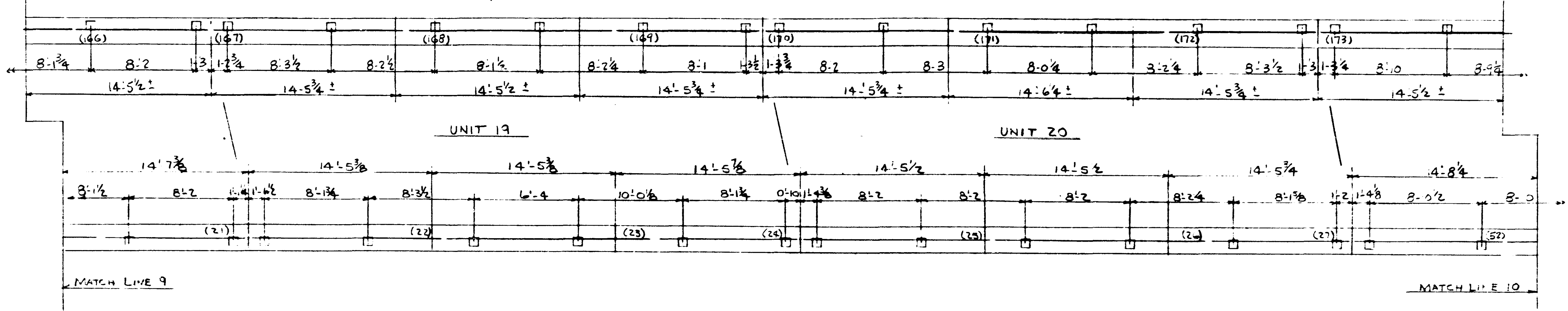
LEWIS ENGINEERING COMPANY
5229 EDEN AVENUE - EDINA, MINNESOTA 56436 - (612) 920-8161

PROJECT - BR. 2440
STATE PROJECT - 2710-21
FEDERAL PROJECT - BHF 005-2(67)
CONTRACTOR - JOHNSON BROS.
LOCATION - TH 65 (3RD AVE. BRIDGE) MPLS., MINN.

DESCRIPTION - ERECTION PLAN - PIPE RAILING
SUB: 5-7-80
DPT: 5-6-80

Job No. 1643-17
Drawn By CAD
Checked By EAS
Approved 11.17.80

PIER 4



FIELD NOTE:
28 SLEEVES FOR DEFLECTION JOINTS

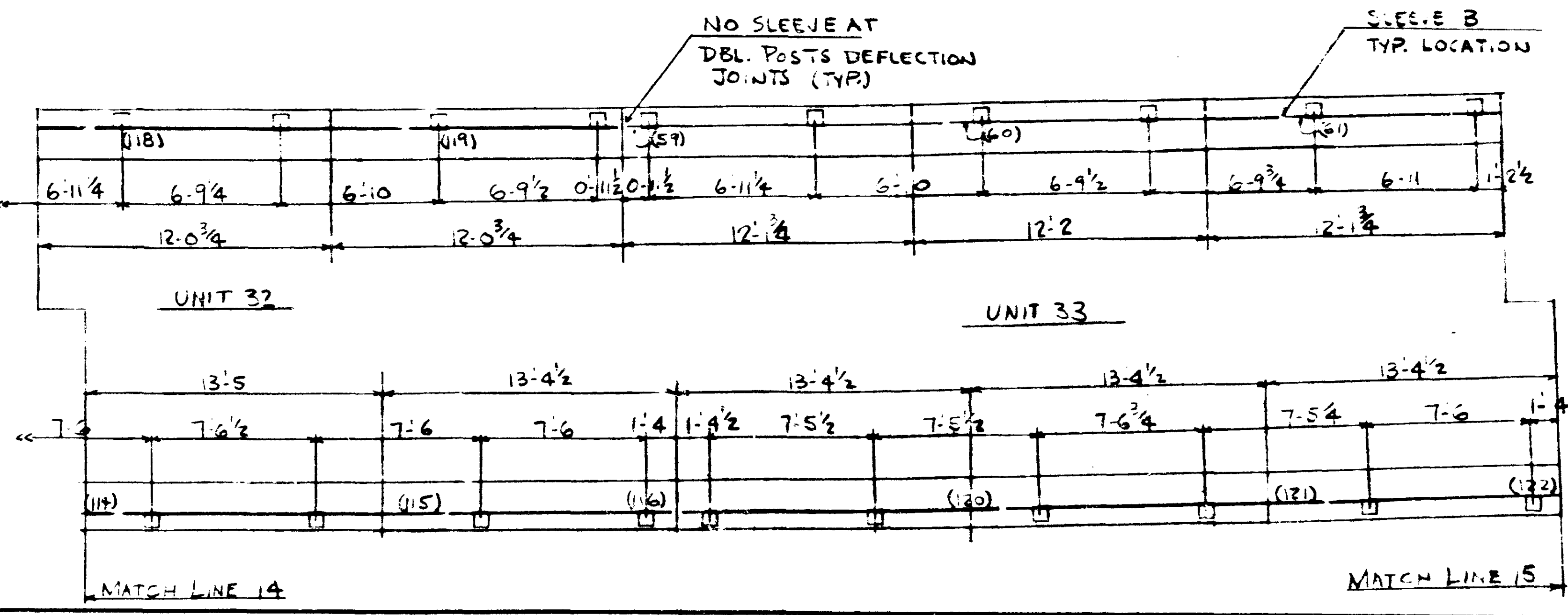
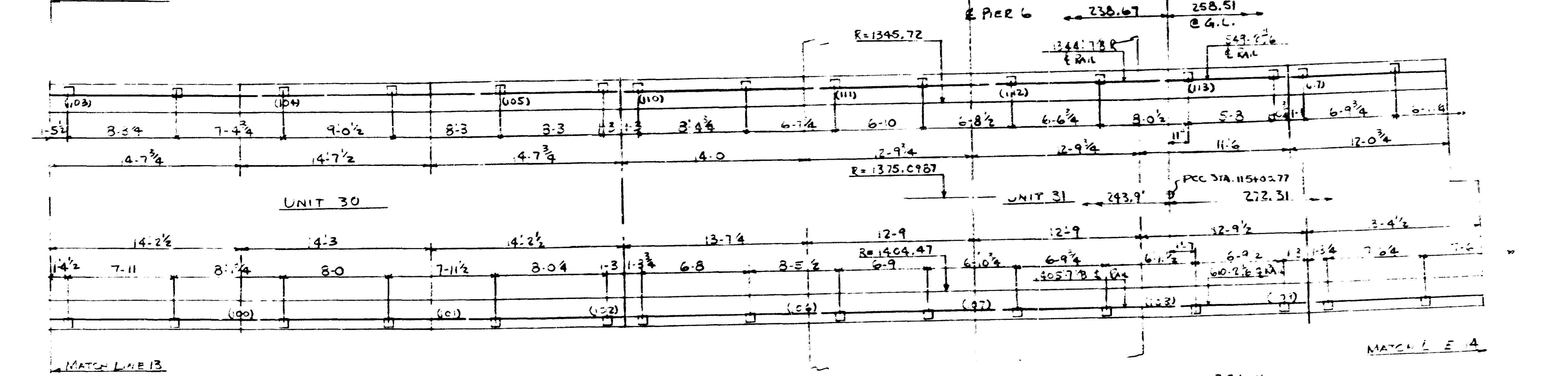
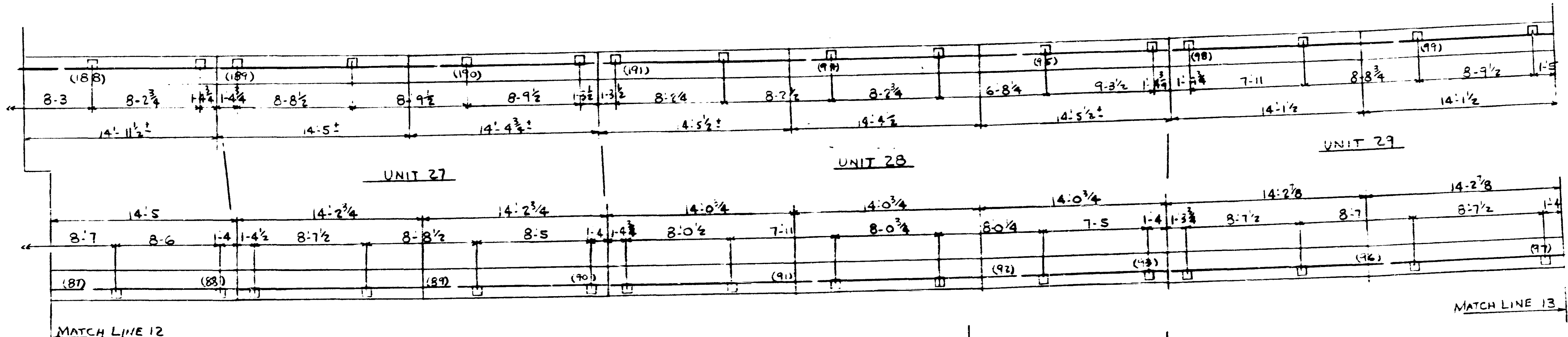
ALL DIMENSIONS, FROM FIELD MEASUREMENTS

LEWIS ENGINEERING COMPANY
8228 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 920-8181

PROJECT - BR. 2440
STATE PROJECT - 2710-21
FEDERAL PROJECT - BHF 005-2(67)
CONTRACTOR - JOHNSON BROS.
LOCATION - TH 65 (3RD AVE. BRIDGE) MPLS., MINN.

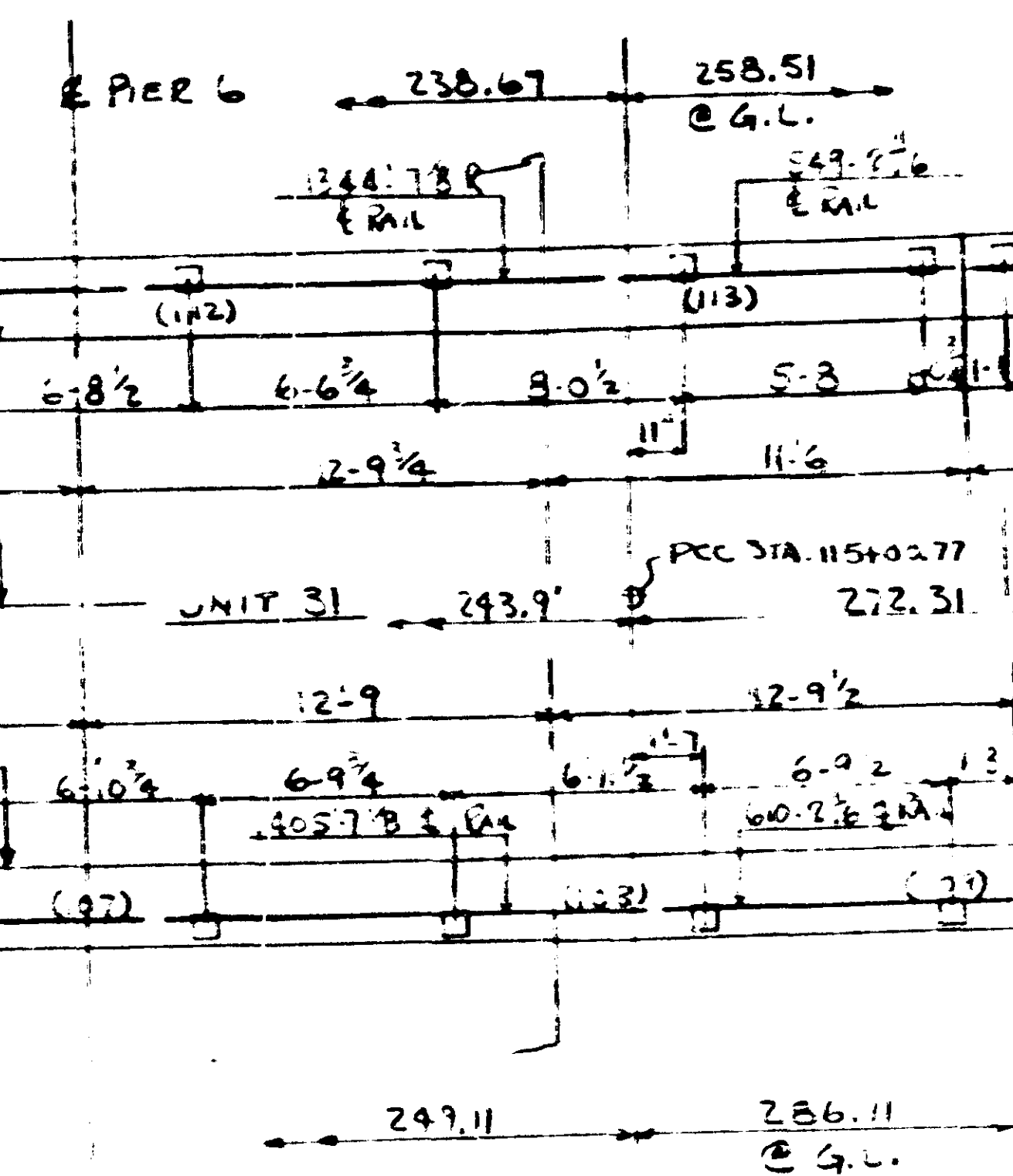
DESCRIPTION - ERECTION PLAN-PIPE RAILING
SUB: 5-7-80
DET: 5-6-80

Job No. 1643-17
Drawn By CAD
Checked By G.S.
Approved



NO SLEEVE AT DBL. POSTS DEFLECTION JOINTS (TYP.)

SLEEVE B TYP. LOCATION



ALL DIMENSIONS FROM FIELD MEASUREMENTS

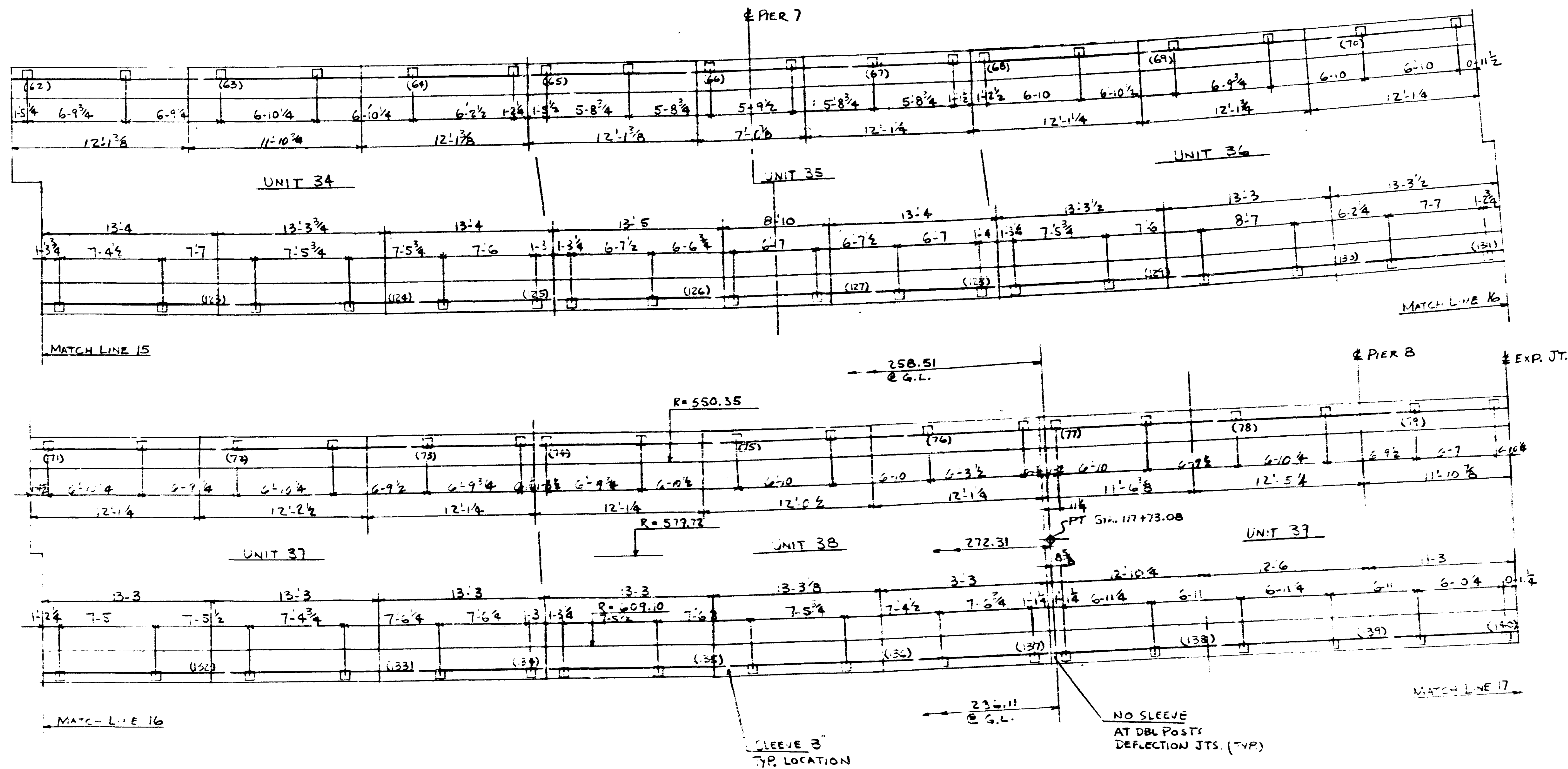
LEWIS ENGINEERING COMPANY
 8228 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-8181

PROJECT - BR. 2440
 STATE PROJECT - 2710-21
 FEDERAL PROJECT - BHF 005-2(67)
 CONTRACTOR - JOHNSON BROS.
 LOCATION - TH. 65 (3RD AVE. BRIDGE) MPLS., MINN.

DESCRIPTION - ERECTION PLAN -
 SUB: S-7-80
 DET: S-6-80


Job No. 1643-17
 Drawn By CAD
 Checked By JEA
 Approved JEA

FIELD NOTE:
 28 SLEEVES AT DEFLECTION JOINTS



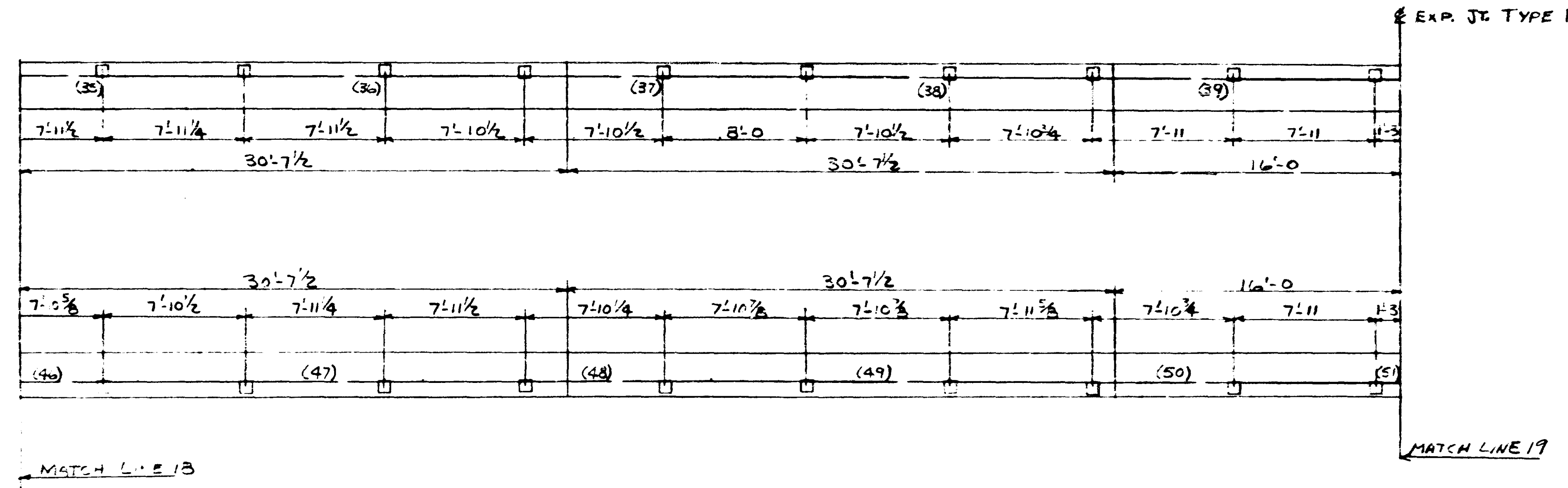
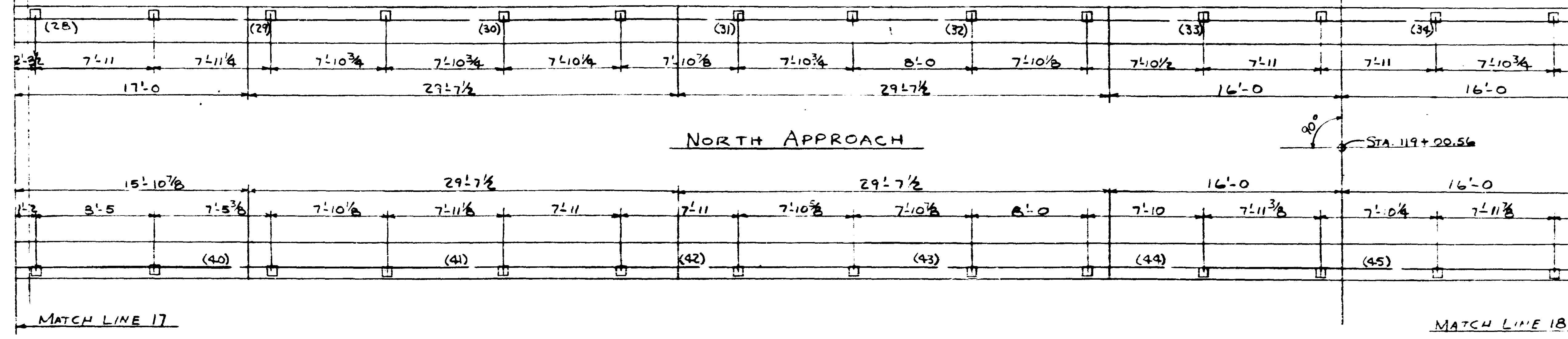
FIELD NOTE:
24 SLEEVES AT DEFLECTION JTS.

ALL DIMENSIONS FROM FIELD MEASUREMENTS

 LEWIS ENGINEERING COMPANY 8220 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-8181	
PROJECT	- BR. 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BHF 005-2(67)
CONTRACTOR	- JOHNSON BROS.
LOCATION	- T.H. 65 (3RD AVE. BRIDGE) MPLS., MINN.
DESCRIPTION	- ERECTION PLAN - PIPE RAILING
SUB: 5-7-80	
DET: 5-8-80	
Job No.	1643-17
Drawn By	CAD
Checked By	CF
Approved	
	11-21-80


EXP. JT. TYPE 2 1/2
 BRG-ARCH PIER 8

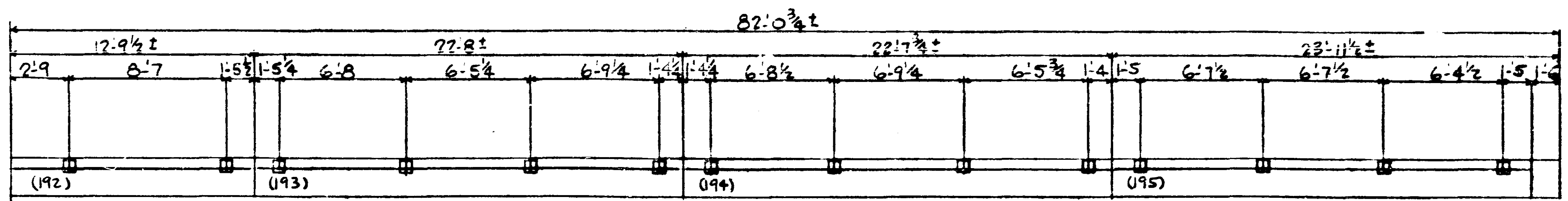
BENT # 2



FIELD NOTE:
 22 SLEEVES AT DEFLECTION JOINTS
 2 SLEEVES AT EXP. JT. TYPE 2 1/2
 2 SLEEVES AT EXP. JT. TYPE 1

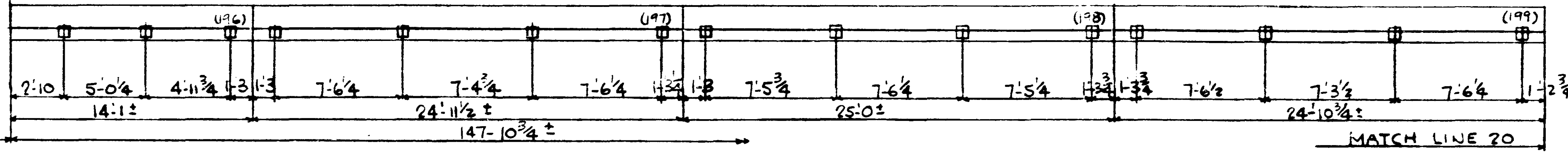
ALL DIMENSIONS FROM FIELD MEASUREMENTS

 LEWIS ENGINEERING COMPANY 6229 EDEN AVENUE - EDINA, MINNESOTA 56438 - (612) 920-6161	
PROJECT	- BR. 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BHF 005-2(67)
CONTRACTOR	- JOHNSON BROS.
LOCATION	- TH 65 (3RD AVE BRIDGE) MPLS., MINN.
DESCRIPTION	- ERECTION PLAN
SUB: 5-7-8	PIPE RAILING
DET: 5-6-80	
Job No.	1643-17
Drawn By	CAD
Checked By	CA
Approved	

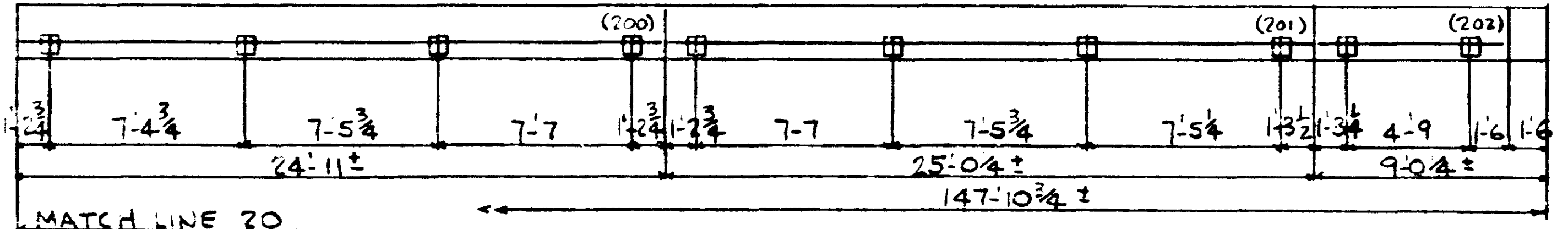


NORTH WEST WING WALL

SE EXP. JT.



NORTH EAST WING WALL




NORTH EAST WING WALL

FIELD NOTE:
RAIL SLEEVES NOT REQ'D
FOR WING WALLS

ALL DIMENSIONS FROM FIELD
MEASUREMENTS

DET. 8-6-83

 LEWIS ENGINEERING COMPANY 8229 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-6181	
PROJECT	- BR. 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BHF 00S-2(67)
CONTRACTOR	- JOHNSON BROS.
LOCATION	- T.H. 65 (3RD AVE. BRIDGE) MPLS. MN.
DESCRIPTION	- ERECTION PLAN PIPE RAILING

Job No.
1643-17
 Drawn By EAS
 Checked By CAD
 Approved
11-21-80

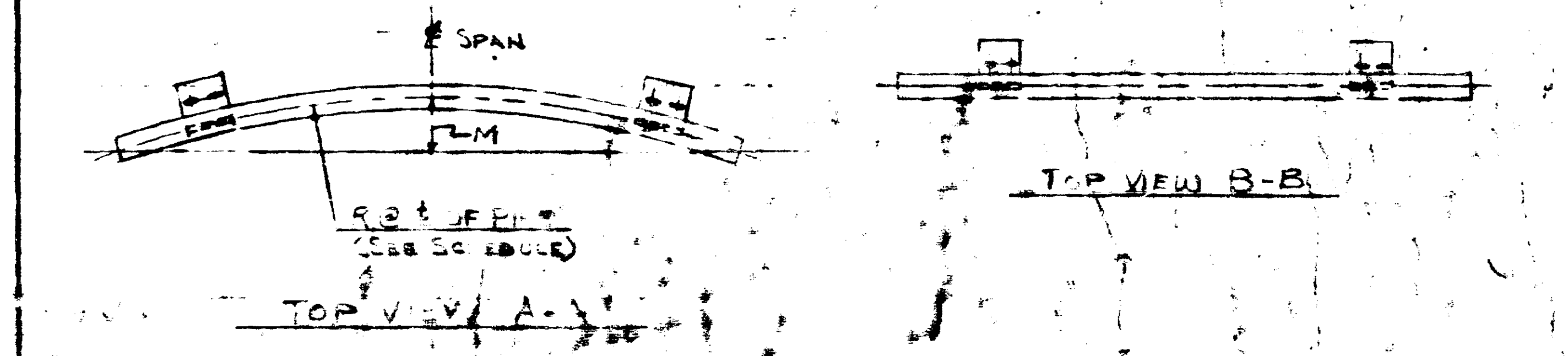
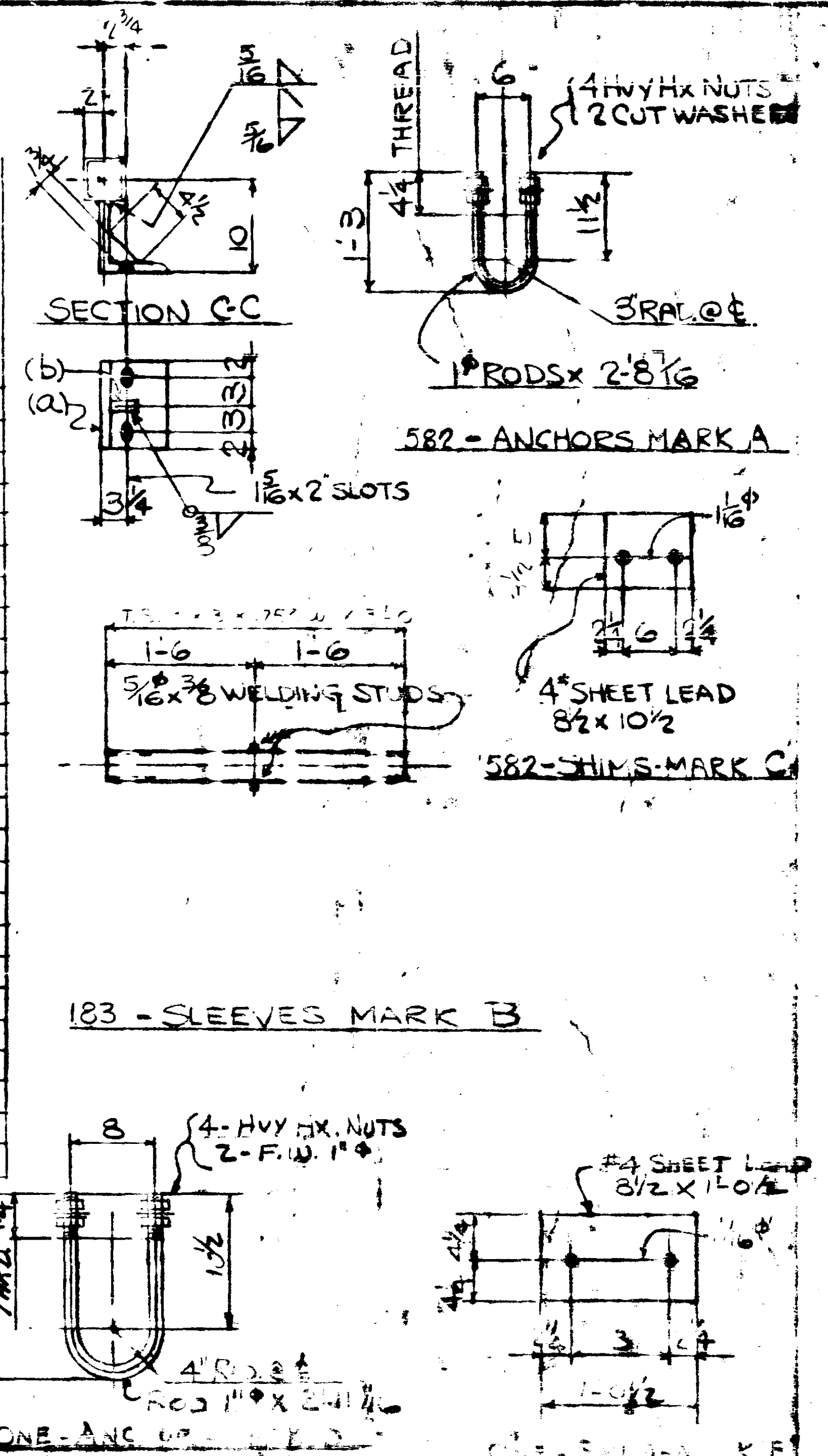
SHOP STAMP MARK ON F.S. SPAN TO BE

TOP VIEW

Re & Me & PIPE SPAN TOP VIEW

ENDLESS ARROWS START AT THIS LINE

MARK	UNIT	QTY.	DIMENSIONS		REMARKS
(1)	11	1	6'-8 3/4"	15'-4 7/8"	16'-8 5/8"
(2)	11	1	1'-2"	9'-10 1/4"	11'-9 1/2"
(3)	12	1	5'-7 1/4"	14'-3 1/4"	15'-7"
(4)	12	1	6'-1 1/4"	14'-3 1/4"	16'-2 1/2"
(5)	12	1	1'-2 1/4"	9'-4 1/4"	11'-3 1/2"
(6)	13	1	6'-0 1/4"	14'-2 3/4"	15'-9 1/2"
(7)	13	1	6'-1 3/4"	14'-3 3/4"	16'-3"
(8)	13	1	0'-7 3/4"	8'-9 1/4"	10'-9"
(9)	14	1	6'-1 1/4"	14'-3 1/2"	15'-5 1/4"
(10)	14	1	6'-2 1/4"	14'-4 1/2"	16'-3 1/4"
(11)	14	1	1'-1 3/4"	9'-2 1/2"	11'-1 3/4"
(12)	15	1	1'-11 1/4"	10'-7 1/4"	12'-1 7/8"
(13)	15	1	1'-1 3/4"	9'-11"	16'-7 3/4"
(14)	16	1	6'-0 3/8"	14'-2 3/8"	15'-7 3/8"
(15)	16	1	6'-1 1/8"	14'-3 3/8"	16'-2 3/8"
(16)	16	1	1'-2 1/4"	9'-4 1/8"	11'-3 3/8"
(17)	17	1	6'-7 1/2"	15'-4 1/2"	16'-11 1/2"
(18)	17	1	0'-9 1/2"	9'-6 1/2"	11'-6"
(19)	18	1	6'-1 1/2"	14'-3 1/2"	15'-0 1/2"
(20)	18	1	6'-0 1/4"	14'-2 1/2"	16'-1 3/4"
(21)	8	1	1'-0 1/2"	9'-2 1/2"	11'-1 3/4"
(22)	19	1	6'-2 1/4"	14'-4 1/2"	15'-0 1/4"
(23)	19	1	7'-11 1/2"	14'-3 1/2"	16'-2 1/2"
(24)	19	1	0'-9 1/4"	8'-11"	10'-10 1/4"
(25)	20	1	6'-1 1/4"	14'-3 1/4"	15'-6 1/4"
(26)	20	1	6'-1 1/2"	14'-3 1/2"	16'-2 3/4"
(27)	20	1	1'-1 1/4"	9'-2 1/8"	11'-2 1/8"



1. GALVANIZE ALL STEEL PER MIN/ST. SEC. 5132
2. GALVANIZE ALL STEEL PER MIN/ST. SEC. 5132
3. ALL STEEL SHALL BE GALVANIZED WITH PROVISIONS OF MIN/ST. SEC. 5132 (PART 4)
4. SHOP INSPECTION REQUIRED
5. MATERIAL SHALL BE PER 1975 EDITION OF MIN/ST. SEC. 5132
6. ALL PARTS OF BRIDGE SHALL BE FIELD MEASURED AND SHOWN TO ERECTION PLANS

LINE NO.	NO. REQ'D.	DESCRIPTION	LENGTH FT. INCH	MK	REMARKS	WGHT.
1	1	T.S. 4x4x.375	16'-8 5/8"	(1)		
2	1		11'-9 1/2"	(2)		
3	1		15'-7"	(3)		
4	1		16'-2 1/2"	(4)		
5	1		11'-3 1/2"	(5)		
6	1		15'-9 1/2"	(6)		
7	1		16'-3"	(7)		
8	1		10'-9"	(8)		
9	1		15'-5 1/4"	(9)		
10	1		16'-3 1/4"	(10)		
11	1		11'-1 3/4"	(11)		
12	1		12'-1 7/8"	(12)		
13	1		16'-7 3/4"	(13)		
14	1		15'-7 3/8"	(14)		
15	1		16'-2 3/8"	(15)		
16	1		11'-3 3/8"	(16)		
17	1		16'-1 3/4"	(17)		
18	1		11'-6"	(18)		
19	1		15'-0 1/2"	(19)		
20	1		16'-1 3/4"	(20)		
21	1		11'-1 3/4"	(21)		
22	1		15'-0 1/4"	(22)		
23	1		16'-2 1/2"	(23)		
24	1		16'-10 1/4"	(24)		
25	1		15'-6 1/4"	(25)		
26	1		16'-2 3/4"	(26)		
27	1		11'-2 1/8"	(27)		
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						
43	582	1" RODS	2'-8 1/4"	A	GALV	
44	183	1" HVY. HEX. NUTS				
45	183	1" F.W.				
46						
47	183	1" HVY. HEX. NUTS	3'-0"	B	8.80#/FT.	
48	183	1" F.W.	0'-0"			
49						
50	582	4" SHEET LEAD 3 1/2"	2'-10 1/2"	C		
51	582	4" SHEET LEAD 8 1/2"	1'-0 1/2"	E		
52	582	1" x 8 x 5 x 1"	0'-10"	(A)		
53	582	BAR 3/4 x 1 1/4"	0'-4 1/2"	(B)	7 1/4 CUTS 2	
54						
55						
56	1	1" ROD	2'-11 1/2"	D	GALV	
57	4	1" HVY. HEX. NUTS				
58	2	1" F.W.				
59						
60						
61						
62						
63						

LEWIS ENGINEERING COMPANY
 620 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 920-6181

BRIDGE NO. - 2440

PROJECT -

STATE PROJECT NO. - 2710-21

FEDERAL PROJECT NO. - BHF 005-2(67)

CONTRACTOR - JOHNSON BROS.

LOCATION - T.H. 65 (3RD AVE. BRIDGE) MPLS., MINN.

DESCRIPTION - DETAILS - PIPE RAILING

Job No. 1643-17
 Drawn By: [Signature]
 Checked By: [Signature]
 Approved: [Signature]

SHOP STAMP MARK ON F.C. STRUCTURE

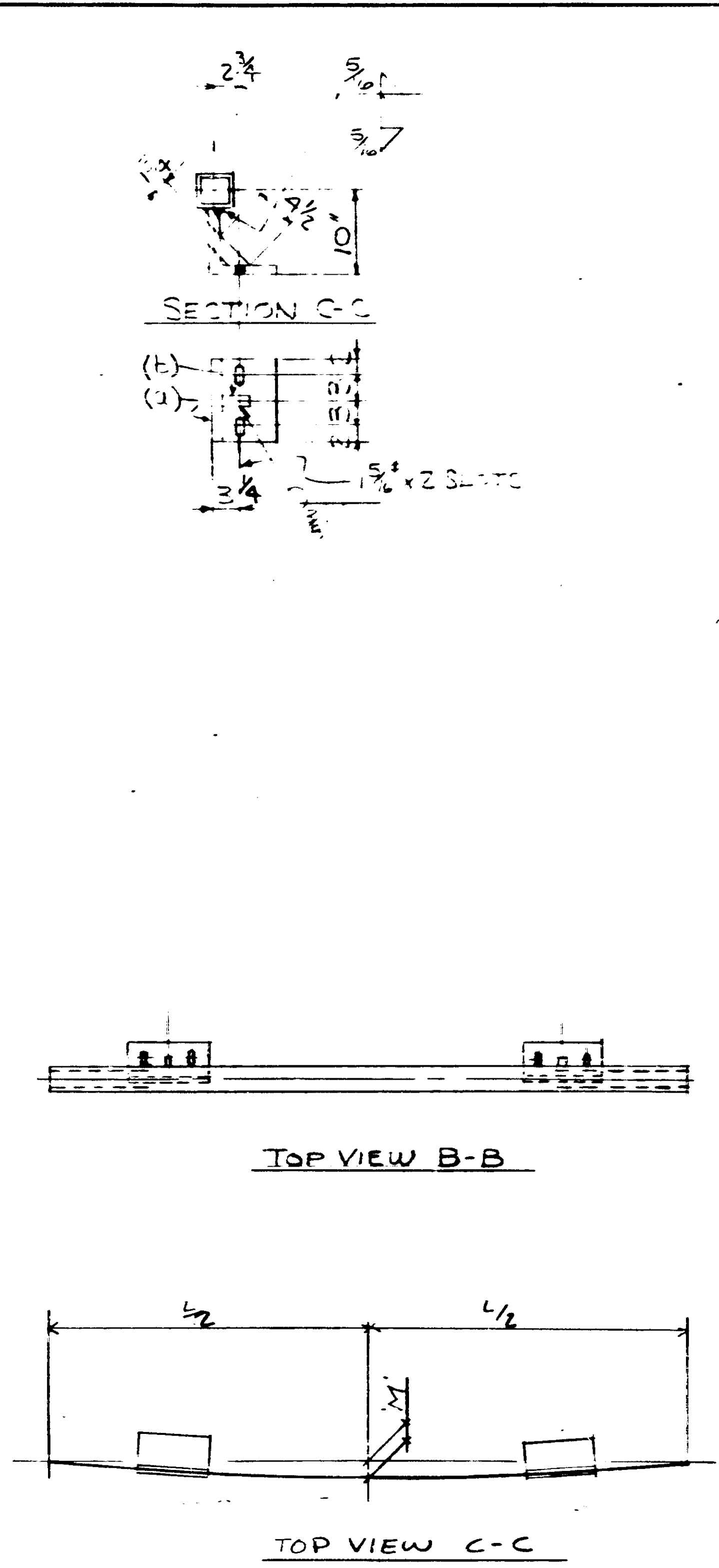
TOP VIEW

SECTION C-C

SECTION B-B

ENDLESS ARROLL START AT THIS LINE

MARK	UNIT	2 1/2	10 1/2	16'-0"
(28)	NORTH APPROACH	2'-2 1/2"	10'-1 1/2"	16'-0"
(29)		1'-11 3/4"	9'-10"	15'-8"
(30)		1'-11 3/4"	9'-9 1/2"	15'-7 1/2"
(31)		1'-11 3/4"	9'-10"	15'-9 1/4"
(32)		1'-11 3/4"	9'-9 3/8"	15'-7 3/8"
(33)		1'-11 3/4"	9'-10 1/4"	15'-8 1/2"
(34)		1'-11 3/4"	9'-10"	15'-8 3/4"
(35)		1'-11 3/4"	9'-10 1/2"	15'-9 1/4"
(36)		1'-11 3/4"	9'-9 3/4"	15'-7 1/2"
(37)		1'-11 3/4"	9'-11 1/4"	15'-9"
(38)		1'-11 3/4"	9'-10"	15'-8 1/4"
(39)		1'-11 3/4"	9'-10 1/4"	11'-0 1/4"
(40)		5'-4 5/8"	13'-9 5/8"	14'-10 3/8"
(41)		5'-10 3/8"	13'-8 1/2"	15'-7 1/4"
(42)		5'-10 1/4"	13'-9 1/4"	15'-8 1/2"
(43)		5'-10 3/8"	13'-8 3/4"	15'-8"
(44)		5'-9 1/4"	13'-9 1/4"	15'-8 1/2"
(45)		5'-9 1/2"	13'-8 1/2"	15'-8 1/8"
(46)		5'-9 7/8"	13'-9 3/4"	15'-9"
(47)		5'-10 1/2"	13'-9"	15'-8 1/4"
(48)		5'-9 1/2"	13'-9"	15'-8 1/4"
(49)		5'-10 1/8"	13'-9"	15'-8 1/4"
(50)		5'-10"	13'-9 3/8"	15'-8 3/8"
(51)		1'-2"	9'-1"	11'-0 1/4"
(52)	UNIT 21	1'-11 3/4"	8'-9 3/4"	12'-1 1/8"
(53)		1'-5 1/4"	10'-3 1/4"	17'-0 1/2"
(54)	UNIT 22	1'-11 3/4"	11'-5"	15'-5 1/4"
(55)		1'-11 3/4"	10'-1 1/2"	12'-0 3/4"
(56)		1'-3 1/4"	7'-7 1/4"	15'-9"
(57)	UNIT 23	1'-11 3/4"	10'-9 1/2"	11'-11 1/4"
(58)		1'-2 3/4"	10'-1 1/4"	16'-11 1/2"
(59)	UNIT 33	0'-10 3/4"	7'-10"	12'-7 1/4"
(60)		1'-11 3/4"	8'-8 3/4"	13'-5 3/4"
(61)		1'-11 3/4"	8'-10 1/4"	10'-0"
(62)	UNIT 34	1'-4 1/2"	8'-2 1/4"	12'-10 3/4"
(63)		1'-11 3/4"	8'-9 1/2"	13'-7"
(64)		1'-11 3/4"	8'-1 3/4"	9'-3 1/4"
(65)	UNIT 35	1'-4 3/4"	7'-1 1/2"	10'-9 1/2"
(66)		1'-11 3/4"	7'-8 3/4"	11'-4 3/4"
(67)		1'-11 3/4"	7'-8"	8'-8 3/4"
(68)	UNIT 36	1'-1 3/4"	7'-11 3/4"	12'-9 1/2"
(69)		1'-11 3/4"	8'-9"	13'-6 1/4"
(70)		1'-11 3/4"	8'-9 1/4"	9'-8"
(71)	UNIT 37	1'-3 3/4"	8'-2"	12'-10 1/2"
(72)		1'-11 3/4"	8'-9 1/2"	13'-6 1/4"
(73)		1'-11 3/4"	8'-9"	9'-7 3/4"
(74)	UNIT 38	1'-7 3/4"	8'-5 1/2"	13'-3 1/4"
(75)		1'-11 3/4"	8'-9 1/4"	13'-6 1/4"
(76)		1'-11 3/4"	8'-2 3/4"	9'-0 3/4"
(77)	UNIT 39	1'-1 1/4"	7'-11 1/4"	12'-8"
(78)		1'-11 3/4"	8'-9 1/2"	13'-6 1/4"
(79)		1'-11 3/4"	8'-6 1/4"	9'-3 3/4"



LINE NO.	REQD.	DESCRIPTION	LENGTH FT. INCH.	WT.	REMARKS	WGHT.
1		T.S. 4 x 4 x .375	16.0 (28)			
2			15.8 (29)			
3			15.7 1/2 (30)			
4			15.9 1/4 (31)			
5			15.7 1/8 (32)			
6			15.8 1/2 (33)			
7			15.8 1/4 (34)			
8			15.9 1/4 (35)			
9			15.7 1/2 (36)			
10			15.9 (37)			
11			15.8 1/4 (38)			
12			11.0 1/4 (39)			
13			14.10 1/2 (40)			
14			15.7 3/4 (41)			
15			15.8 1/2 (42)			
16			15.8 (43)			
17			15.8 1/2 (44)			
18			15.8 1/8 (45)			
19			15.9 (46)			
20			15.8 1/4 (47)			
21			15.8 1/4 (48)			
22			15.8 1/4 (49)			
23			15.8 1/8 (50)			
24			11.0 1/4 (51)			
25			12.1 1/8 (52)			
26			17.0 1/2 (53)			
27			15.5 3/4 (54)			
28			12.0 1/4 (55)			
29			15.9 (56)			
30			11.1 1/4 (57)			
31			16.1 1/2 (58)			
32			12.7 1/4 (59)			
33			13.5 1/4 (60)			
34			10.0 (61)			
35			17.10 3/4 (62)			
36			13.7 (63)			
37			9.3 1/4 (64)			
38			10.9 1/2 (65)			
39			11.4 1/4 (66)			
40			8.5 1/4 (67)			
41			12.9 1/2 (68)			
42			13.6 1/4 (69)			
43			9.8 (70)			
44			12.10 1/2 (71)			
45			13.6 1/4 (72)			
46			9.7 1/4 (73)			
47			13.3 1/4 (74)			
48			13.6 1/2 (75)			
49			9.0 3/4 (76)			
50			12.8 (77)			
51			13.6 1/4 (78)			
52			9.3 1/4 (79)			

SHOP NOTE: ITEMS (a) & (b) BILLED ON SHEET R10

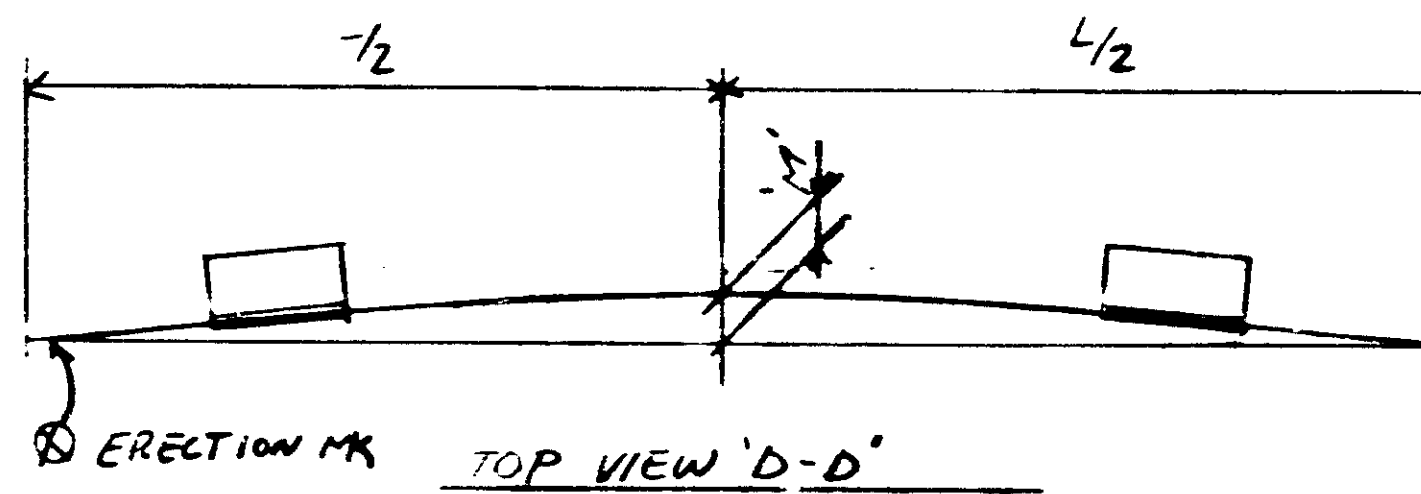
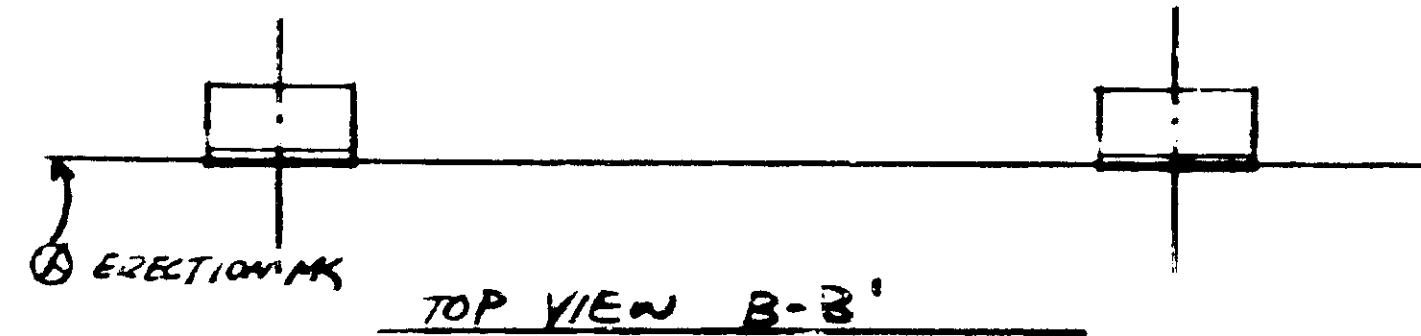
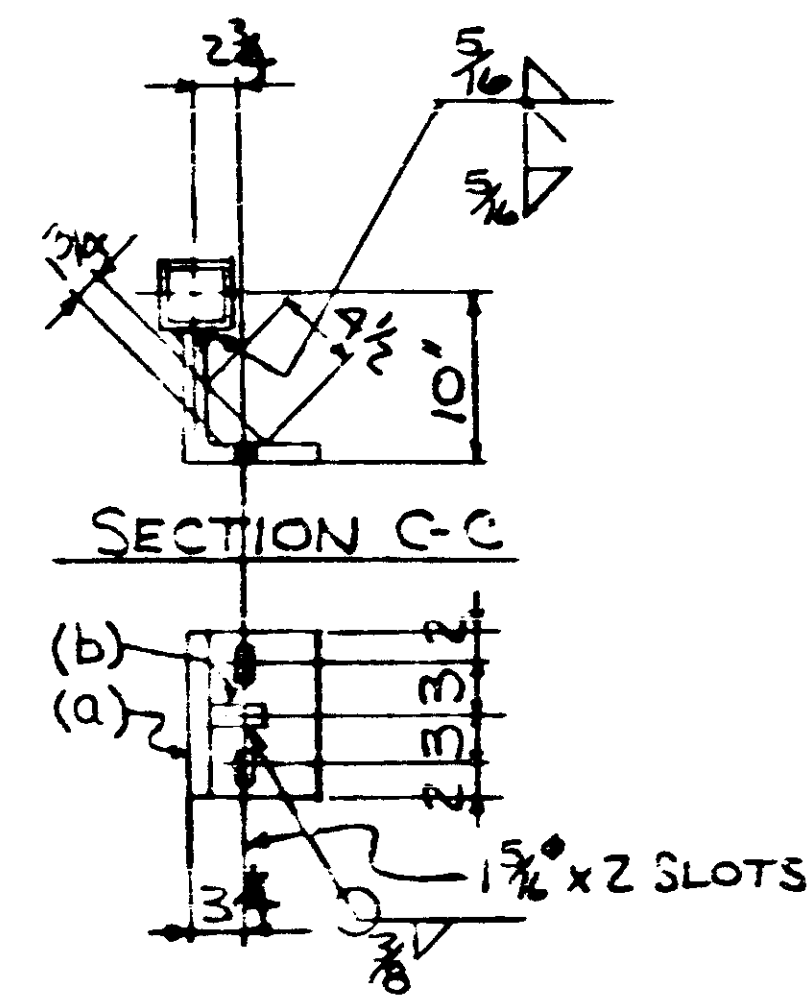
LEWIS ENGINEERING COMPANY
 5229 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 920-6161

PROJECT: BR. 2440
 STATE PROJECT: 2710-21
 FEDERAL PROJECT: BHF 005-2 (67)
 CONTRACTOR: JOHNSON BROS.
 LOCATION: TH 65 (3RD AVE. BRIDGE) MPLS., MINN.
 DESCRIPTION: DETAILS - PIPE RAILING

JUNO NO. 1643-17
 Drawn By: CAD
 Checked By: EA
 Date: 11-24-80

SUB:
 DET: 7-24-80

MARK	UNIT	QTY.	TOP VIEW		R O F TUBE	M O E SPAN	TOP VIEW
			3 3	3 3			
132	UNIT 37	1	5'-4 3/4	12'-9 3/4	6'10 2/16	2'	O-D
133		1	5'-5 1/2	12'-10 1/4		3 1/16	
134		1	1'-2 1/4	8'-8 1/2		4"	
135	UNIT 38	1	5'-5 3/8	12'-10 3/8		2"	
136		1	5'-3 3/4	12'-9 1/2		3 1/16	
137		1	1'-0 1/2	8'-7 1/4		4"	
138	UNIT 39	1	4'-10 1/4	11'-9 1/2	∞	0	B-B'
139		1	4'-10 1/4	11'-9 1/2			
140		1	10 1/2"	7'-8 3/4			
141	UNIT 9	1	1'-2 1/2	10'-0 1/2			
142		1	1'-11 1/4	10'-8 1/4			
143	UNIT 10	1	1'-3	9'-4 1/2			
144		1	1'-11 1/4	10'-2			
145		1	1'-11 1/4	10'-1 1/4			
146	UNIT 11	1	1'-2 1/2	10'-0 1/2			
147		1	1'-11 1/4	10'-10 1/2			
148	UNIT 12	1	1'-2 1/2	9'-4 1/2			
149		1	1'-11 1/4	10'-2 1/4			
150		1	1'-11 1/4	10'-0 3/4			
151	UNIT 13	1	1'-2 1/2	9'-4 1/2			
152		1	1'-11 1/4	10'-1 3/4			
153		1	1'-11 1/4	0-0			
154	UNIT 14	1	1'-3	9'-5 1/2			
155		1	1'-11 1/4	10'-2			
156		1	1'-11 1/4	10'-1			
157	UNIT 15	1	1'-2 1/2	10'-0 3/4			
158		1	1'-11 1/4	10'-6 3/4			
159	UNIT 16	1	1'-2 1/2	9'-4 3/4			
160		1	1'-11 1/4	10'-0			
161		1	1'-11 1/4	10'-1 1/4			
162	UNIT 17	1	1'-2 1/2	10'-0 1/4			
163		1	1'-11 1/4	0-7 1/2			
164	UNIT 18	1	1'-3 1/2	9'-4 3/4			
165		1	1'-11 1/4	0-1 1/4			
166		1	1'-11 1/4	10'-1 1/4			
167	UNIT 19	1	1'-2	9'-5 1/2			
168		1	1'-11 1/4	10'-0 3/4			
169		1	1'-11 1/4	10'-0 1/4			
170	UNIT 20	1	1'-3	9'-5			
171		1	1'-11 1/4	9'-11 1/2			
172		1	1'-11 1/4	10'-2 3/4			
173	UNIT 21	1	1'-2 1/2	10'-0 1/2			
174		1	1'-11 1/4	10'-7 1/2			
175	UNIT 22	1	1'-3 1/4	9'-4 1/2			
176		1	1'-11 1/4	10'-0 1/2			
177		1	1'-11 1/4	10'-4 1/4			
178	UNIT 23	1	1'-3 1/4	9'-11 3/4			
179		1	1'-11 1/4	10'-9 1/4			
180	UNIT 24	1	1'-2 3/4	9'-4 1/4			
181		1	1'-11 1/4	10'-2 1/2			
182		1	1'-11 1/4	10'-1 3/4			
183	UNIT 25	1	1'-1 1/2	9'-3 1/4			
184		1	1'-11 1/4	10'-0 3/4			
185		1	1'-11 1/4	10'-0 1/2			



LINE NO	RECD	DESCRIPTION	LENGTH		MK	REMARKS	WGHT
			FT	INCH			
1		T.S. 4x4x.375 X	13	11 1/4	132	✓	
2			14	9 1/2	133	✓	
3			10	7 3/4	134	✓	
4			4	1 3/8	135	✓	
5			4	8 3/4	136	✓	
6			0	6 1/2	137	✓	
7			12	10	138	✓	
8			13	8 3/4	139	✓	
9			9	8	140	✓	
10			16	8 1/4	141	✓	
11			11	11 1/2	142	✓	
12			15	5 1/4	143	✓	
13			6	3 3/4	144	✓	
14			11	3 3/4	145	✓	
15			16	7	146	✓	
16			12	1 3/4	147	✓	
17			15	5 1/4	148	✓	
18			6	3 1/4	149	✓	
19			11	3 1/4	150	✓	
20			15	4 3/4	151	✓	
21			6	2 1/2	152	✓	
22			11	3	153	✓	
23			5	6 1/4	154	✓	
24			16	3 1/2	155	✓	
25			11	3 1/2	156	✓	
26			16	9 3/4	157	✓	
27			11	9	158	✓	
28			15	7	159	✓	
29			6	0	160	✓	
30			11	3 1/2	161	✓	
31			6	9 1/4	162	✓	
32			11	11	163	✓	
33			15	5 1/4	164	✓	
34			16	2 1/4	165	✓	
35			11	3 1/2	166	✓	
36			5	7 1/4	167	✓	
37			6	2 1/4	168	✓	
38			11	3	169	✓	
39			15	7 1/4	170	✓	
40			16	1	171	✓	
41			11	5	172	✓	
42			16	9	173	✓	
43			11	11 1/4	174	✓	
44			5	6	175	✓	
45			16	2 1/2	176	✓	
46			11	4 1/4	177	✓	
47			6	7 3/4	178	✓	
48			12	0	179	✓	
49			15	6	180	✓	
50			6	2 1/2	181	✓	
51			11	3 1/2	182	✓	
52			5	5	183	✓	
53			16	2 1/2	184	✓	
54			5	3/4	185	✓	



LEWIS ENGINEERING COMPANY
8229 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 920-6161

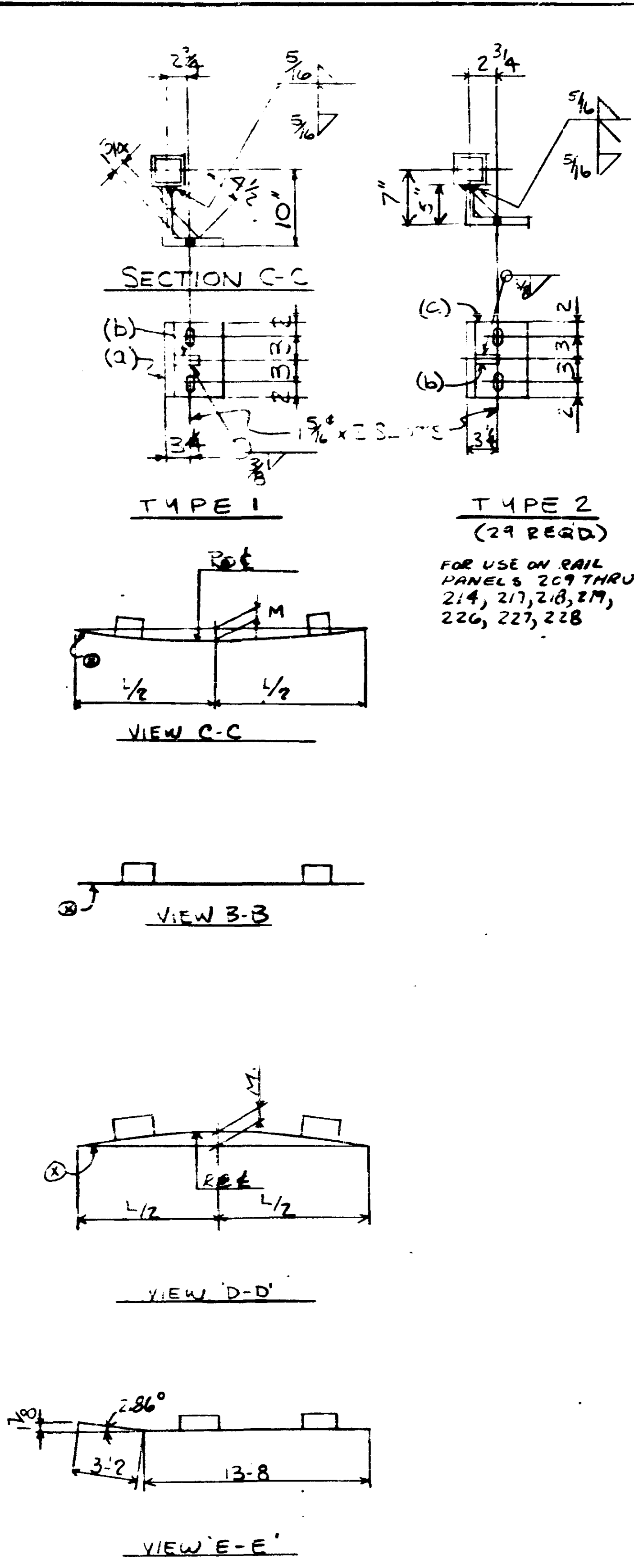
PROJECT - BRIDGE 2440
STATE PROJECT - 2710-21
FEDERAL PROJECT - BHF 005-2(67)
CONTRACTOR - JOHNSON BROS. CORPORATION
LOCATION - T.H. 65 (3RD AVE. BRIDGE) MPLS., MN.
DESCRIPTION - DETAILS - PIPE RAILING

Job No. 443-17
Checked By EAS
Approved 11-21-80

SUB. 0-21-80
DET. 9-16-80

TOP VIEW APPROX. SHOP STAMP MARK ON F.S. STRUCT. TUBE TOP VIEW

MARK	UNIT	QTY.	DIMENSIONS		REF. TUBE	M & S	SPAN	TOP VIEW	ANGLE TYPE	
186	26	1	1-5	10-5 1/2	16-8 1/2	344-18	5/16	C-C	1	
187		1	1-11 1/4	10-1 1/4	16-3 1/2		5/16			
188		1	1-11 1/4	10-2	11-6		5/16			
189	27	1	1-4	10-0 1/2	16-9 1/4		5/16			
190		1	1-11 1/4	10-8 3/4	11-11 1/2		5/16			
191	28	1	1-2 3/4	9-5	15-6 3/4		1/4			
192	NORTH WEST WING	1	2-8	11-3	17-7 1/4	∞	0	B-B		
193		1	1-4 1/2	8-0 1/2	14-5 3/4	21-3				
194	WALL	1	1-3 1/2	8-0	14-9 1/4	21-3				
195		1	1-4 1/2	7-11 1/4	14-7 1/4	20-11 3/4				
196	NORTH EAST WING	1	1-2 1/4	6-2	11-2 1/4	13-11 1/4				
197		1	1-2 1/2	8-8 3/4	16-1 1/2	23-7 3/4				
198	WING	1	1-3	8-8 1/4	16-2 1/2	23-8 1/4				
199	WALL	1	1-2	8-8 1/4	15-11 3/4	23-6 1/4				
200		1	1-2	8-9	16-2 3/4	23-7 1/2				
201		1	1-2 1/4	8-8	16-1 3/4	23-8 3/4				
202		1	1-4	6-1	7-3 1/2					
203	SOUTH APPROACH	1	1-4	9-4 3/4	5-5 3/4					
204		1	1-11 1/4	9-11	15-10 3/4					
205		1	1-11 1/4	9-11 1/2	15-11 1/2					
206		1	1-11 1/4	9-11 1/2	16-0 1/2					
207		1	1-11 1/4	10-0	15-9 3/4					
208		1	1-11 1/4	10-0 1/2	16-1					
209		1	6-4	15-0 3/4	16-2 1/2				2	
210		1	6-4	14-7 3/4	6-7					
211		1	6-4 1/4	14-7 1/2	6-6 3/4					
212		1	6-2 1/4	14-10 3/4	16-10			F-E		
213		1	5-10 1/4	13-9 1/2	5-8 3/4	∞	0	B-B		
214		1	1-11 1/4	9-0 1/4	17-8 1/4					
215		1	1-6	9-6	15-4					
216		1	1-11 1/4	9-11 1/4	17-11 1/4					
217		1	SEE DETAIL ON SHT. R16		20-9 3/4				2	
218		1	2-2 1/2	14-6 1/4	16-5 1/2	∞	0	B-B	2	
219		1	1-1 1/2	9-7	17-11 1/2				2	
220		1	1-11 1/4	9-11 1/2	15-11 3/4	405-63	1/4	D-D	1	
221		1	1-11 1/4	9-11 1/4	5-9 3/4		4"			
222		1	1-11 1/4	9-12 1/2	16-2 1/2		5/16"			
223		1	1-11 1/4	9-7 1/4	15-11 3/4		3"			
224		1	1-11 1/4	10-0 3/4	5-8 1/2		4"			
225		1	1-11 1/4	9-11 1/4	11-0 1/2		8"			
226		1	1-11 1/4	9-10 1/4	17-9 1/2	23-8 1/2	345-2 1/4	5/8"	C-C	2
227		1	1-11 1/4	9-10	17-9 1/2	23-8		5/8"		2
228		1	1-3	9-1	17-1 1/4	22-11 1/4		9/16"		2
229		1	SEE DETAIL ON SHT. R16							1
230		1	1-4 1/4	9-9 1/4	16-1 1/4	344-7 1/8	5/16"	C-C		1
231	UNIT 1	1	1-3 1/4	8-4	13-6	405-6 1/8	3/16"	D-D		1
232		1	1-11 1/4	8-11 3/4	13-10 1/2		3/16"			
233		1	1-11 1/4	9-1 3/4	9-5 1/4		1/8"			
234		1	5-2	11-0 3/4	12-3 1/2	344-7 1/8	3/16"	C-C		1
235		1	5-3	12-5	14-4 1/4		1/4"			
236		1	1-4 3/4	8-10 3/4	10-10		1/8"			
237	UNIT 2	1	1-3 1/2	9-8 1/4	15-10 1/4	A-05-68	1/4"	D-D		1
238		1	1-11 1/4	10-0	16-1 1/4		1/4"			
239		1	1-11 1/4	10-4 1/2	11-5 1/4		1/8"			
240		1	6-1 3/4	13-8 1/4	15-0 3/4	1344-7 1/8	1/4"	C-C		1

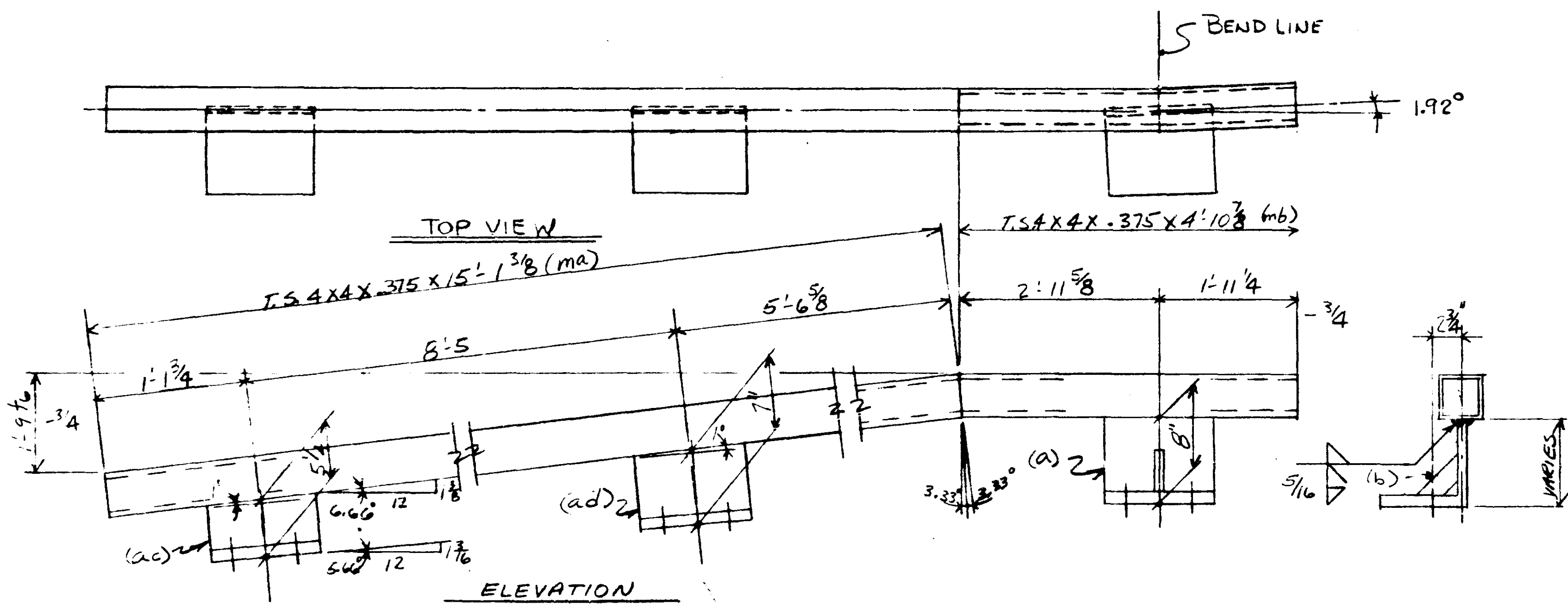
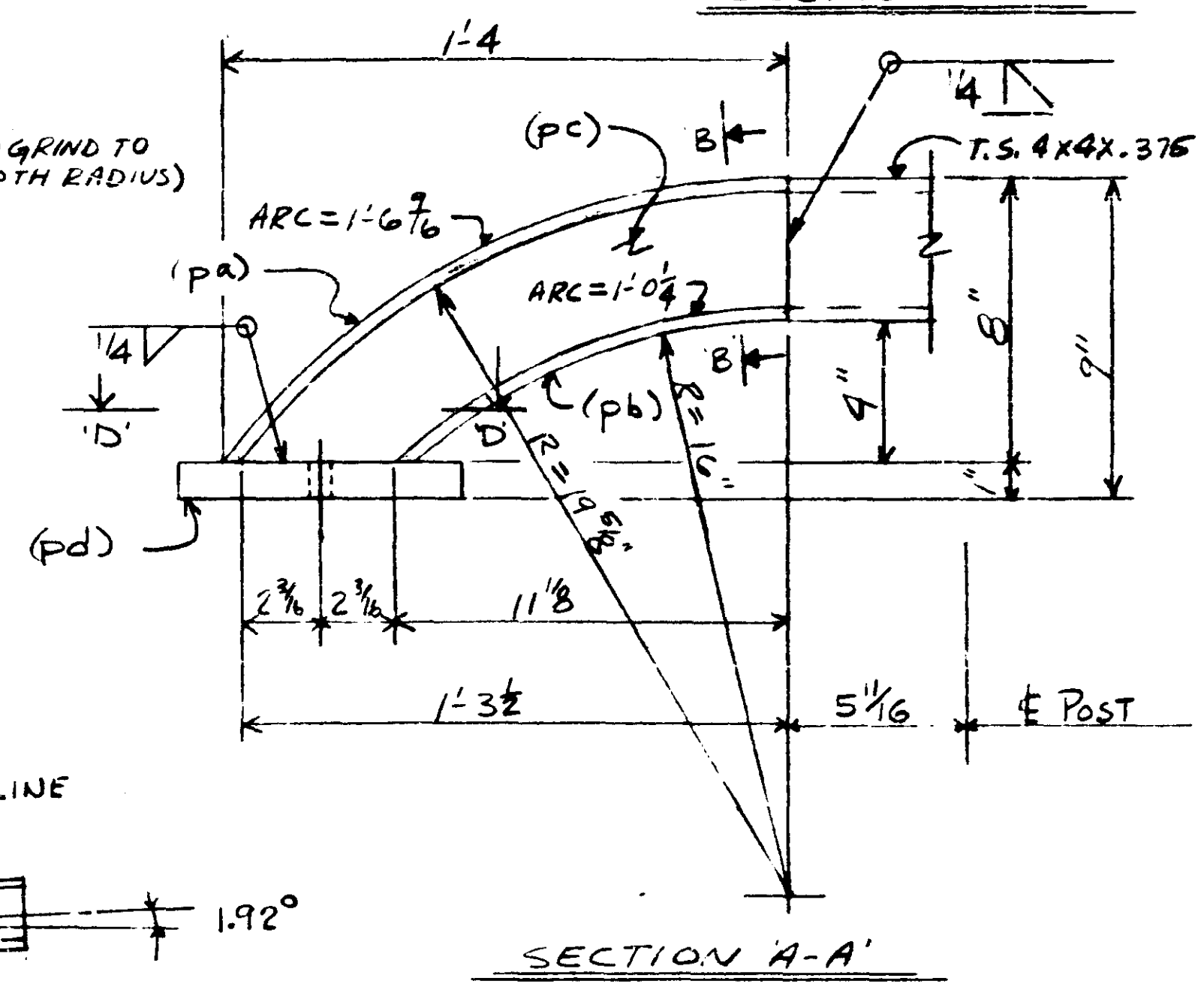
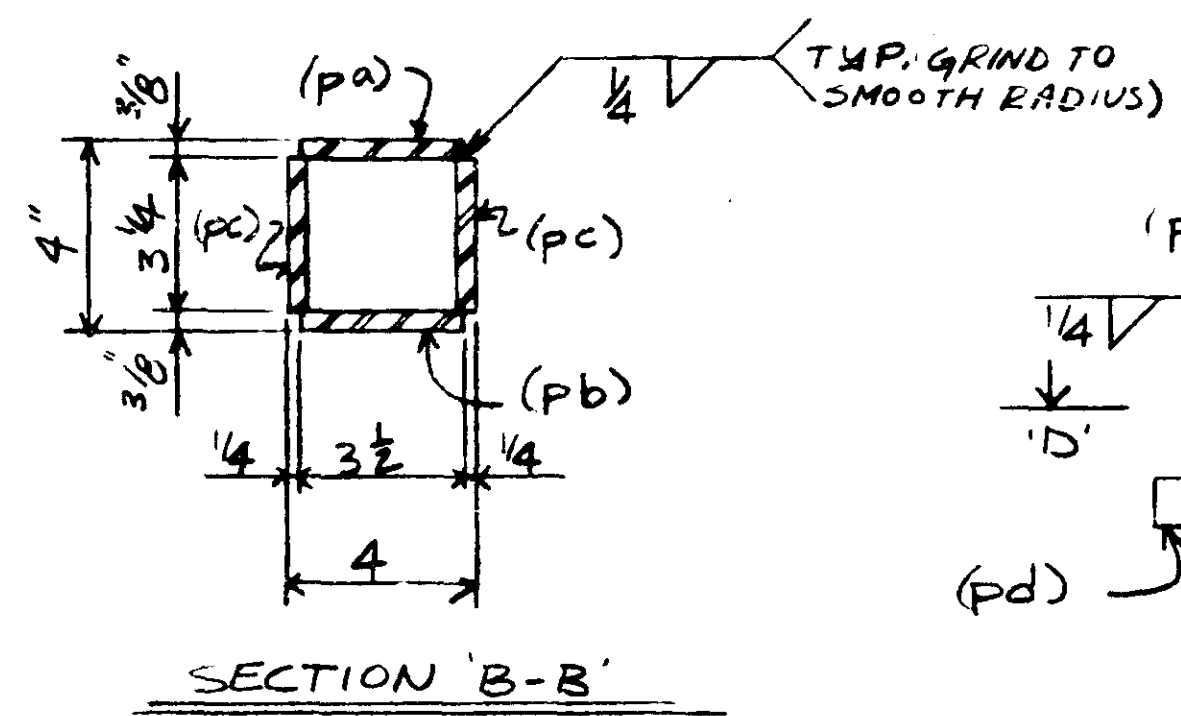
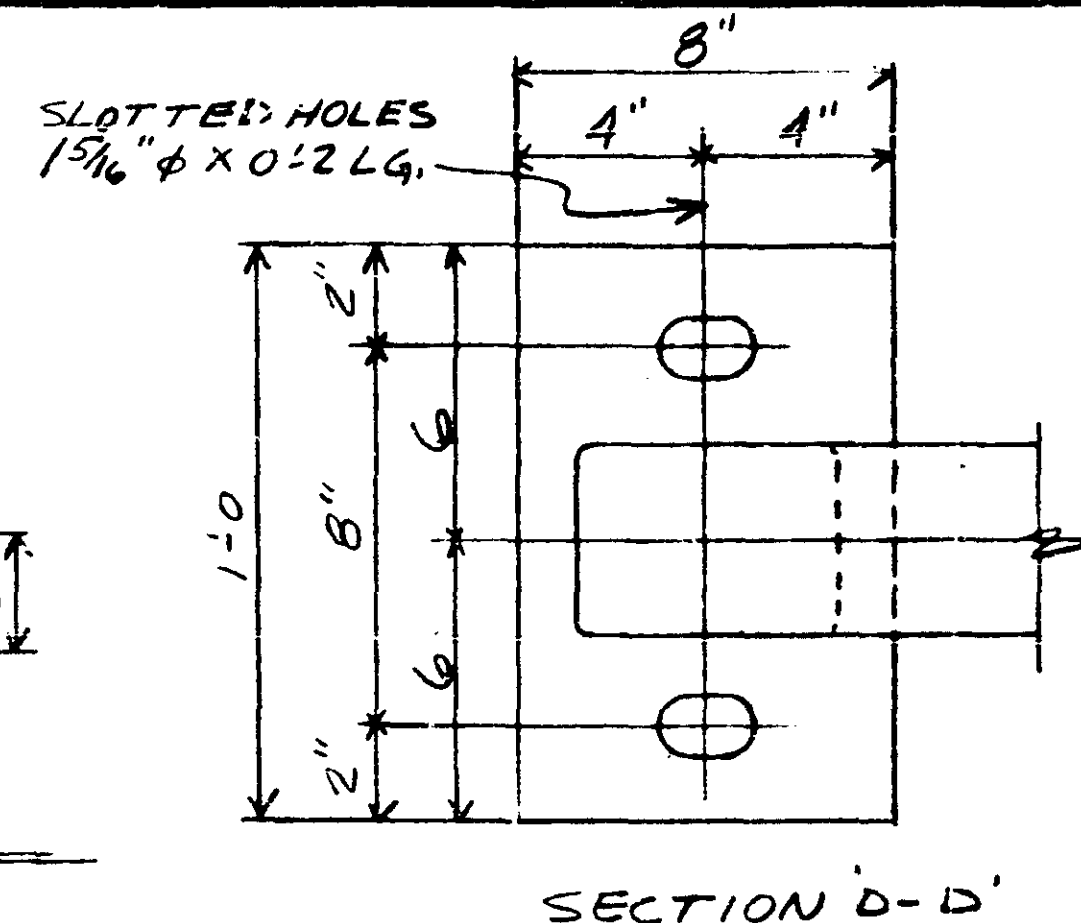
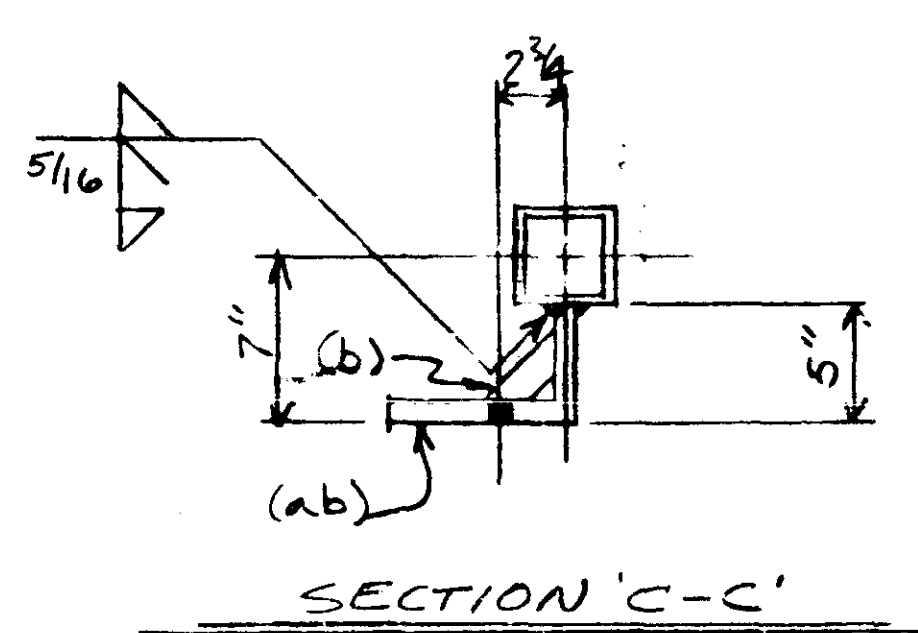
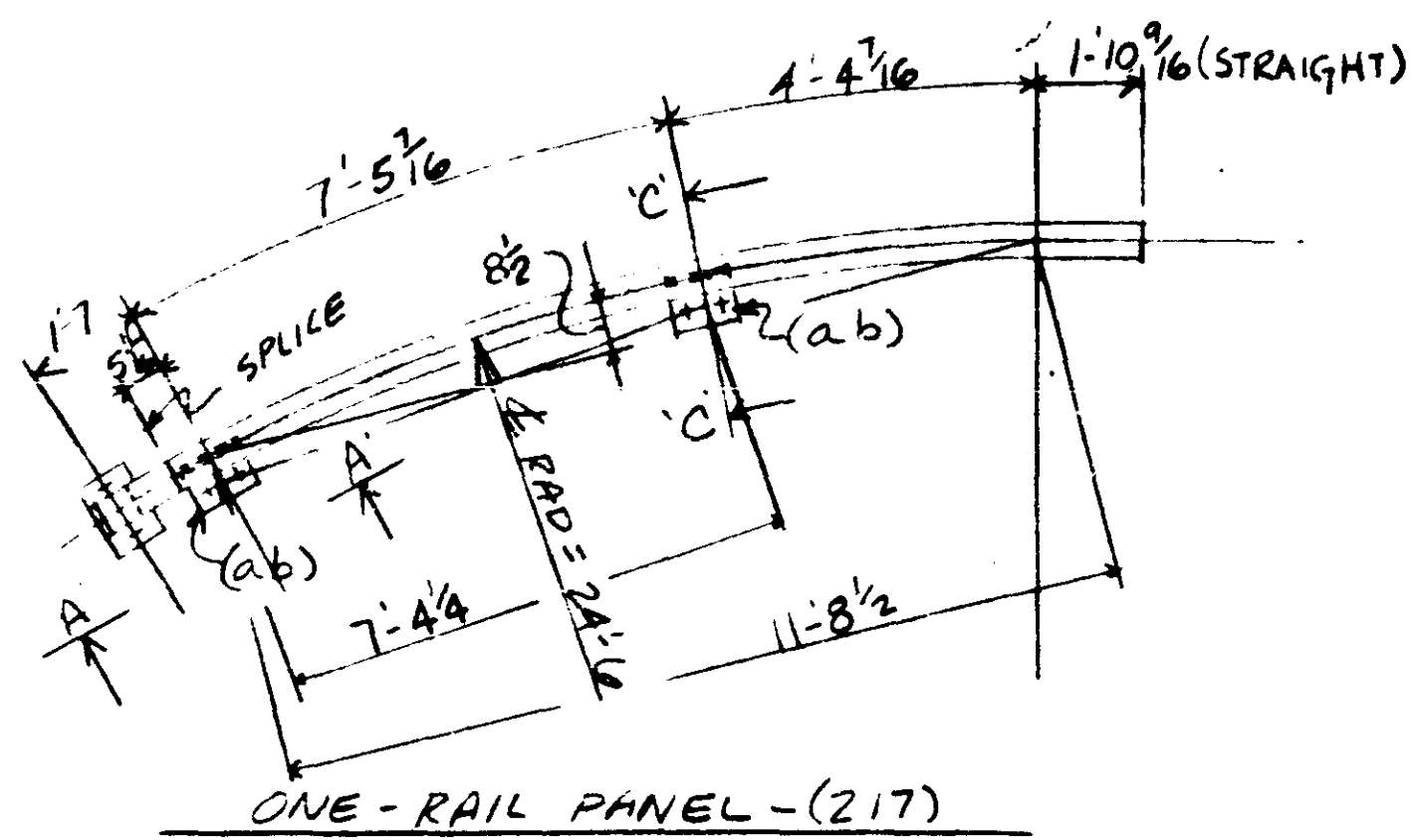


LINE NO.	DESCRIPTION	LENGTH		MK	REMARKS	WGHT.
		FT.	INCH			
1	T.S. 4x4x.375	16	8 1/2	186		
2		16	3 1/2	187		
3		11	6	188		
4		16	9 1/4	189		
5		11	11 1/2	190		
6		5	6 3/4	191		
7		12	7 3/4	192		
8		22	6 1/2	193		
9		22	6 1/4	194		
10		22	2 3/4	195		
11		3	11 1/4	196		
12		24	10	197		
13		24	10 1/2	198		
14		24	9 1/4	199		
15		24	9 1/2	200		
16		24	10 3/4	201		
17		7	3 1/2	202		
203	T.S. 4x4x.375	15	5 3/4	203		
204		15	10 3/4	204		
205		15	11 1/2	205		
206		16	0 1/2	206		
207		15	9 3/4	207		
208		16	1	208		
209		16	2 1/2	209		
210		6	7	210		
211		16	6 3/4	211		
212		6	10	212		
213		15	8 3/4	213		
214		9	7 1/2	214		
215		15	4	215		
216		20	9 1/4	216		
217		16	5 1/2	217		
218		19	10 1/4	218		
219		5	1 3/4	219		
220		5	9 3/4	220		
221		16	2 1/2	221		
222		5	11 3/4	222		
223		5	8 1/2	223		
224		11	0 1/2	224		
225		23	8 1/2	225		
226		23	8	226		
227		22	11 1/4	227		
228		16	1 1/4	228		
229		13	6	229		
230		13	10 1/2	230		
231		6	5 1/4	231		
232		12	3 1/2	232		
233		4	4 1/4	233		
234		16	10	234		
235		15	10 1/4	235		
236		6	1 1/4	236		
237		11	5 1/4	237		
238		5	0 3/4	238		
239	29 L8x5x1x	0	0	239	CUT FROM IS ON WHICH ARE BILLED ON R10	

LEWIS ENGINEERING COMPANY
5229 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 920-6161

PROJECT - BR. 2440
STATE PROJECT - 2710-21
FEDERAL PROJECT - BHF 005-2(67)
CONTRACTOR - JOHNSON BROS.
LOCATION - T.H. 65 (3RD AVE. BRIDGE) MPLS. MN.
DESCRIPTION - DETAILS - PIPE RAILING

Job No. 1643-17
Drawn By EA
Checked By BA
Approved



LINE NO.	NO. REQD.	DESCRIPTION	LENGTH		MK	REMARKS	WGHT.
			FT.	INCH			
1							
2							
3							
4		ONE-RAIL PANEL			217		
5	1	T.S. 4x4x.375	14	8		5/8" ADDED TO LENGTH FOR BENDLINE	
6	1	P. 3/8x3 1/2x	1	6 1/4	pa	BENT	
7	1	P. 3/8x3 1/2x	1	0 1/4	pb	BENT	
8	2	P. 3/8x4 1/2x	1	5 1/2	pc	SHAPE CUT	
9	2	L.B. 5x1x	0	10	ab	CUT FROM L.B. 5x8	
10	1	P. 1x8x	1	0	pd		
11	2	BAR 3/4x1 3/4x	0	4 1/2	b		
12							
13		ONE-RAIL PANEL			229		
14	1	T.S. 4x4x.375	15	13/8	ma		
15	1	T.S. 4x4x.375	4	10/8	mb		
16	1	L.B. (5 1/4 TO 5 3/4)x1x	0	10	(ac)	CUT FROM L.B. 5x8	
17	1	L.B. (7 1/4 TO 6 3/4)x1x	0	10	(ad)	-DO-	
18	1	L.B. 8x1x	0	10	(a)		
19	3	BAR			(b)		
20							
21							
22		NOTE: CUT LS (ab), (ac), (ad) FROM LS (a) WHICH ARE DETAILED AND MFG. ON SHT. R10 - ALSO BAR (b)'S DETAILED & MFG. ON SHT. R10.					
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62							
63							

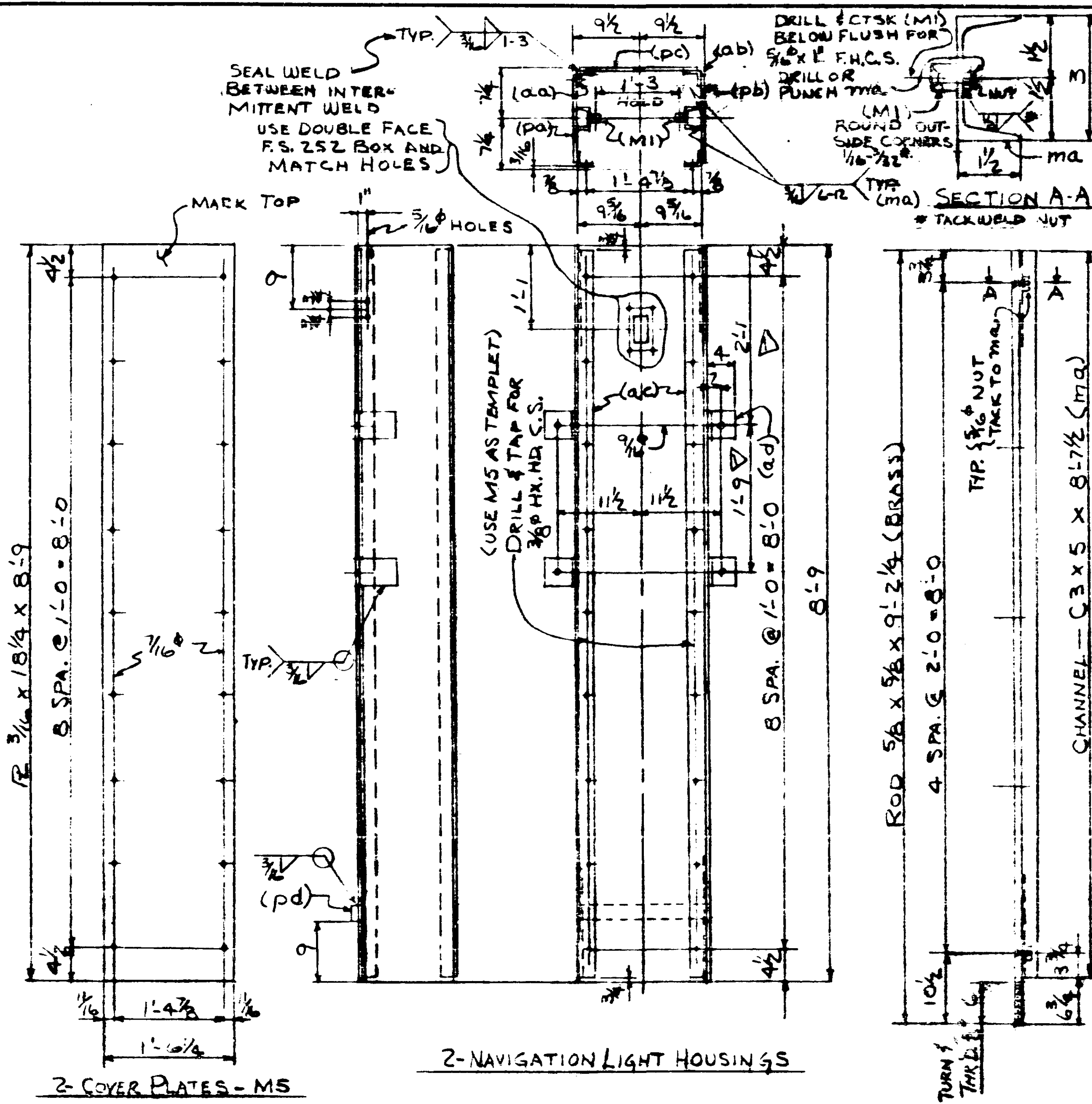
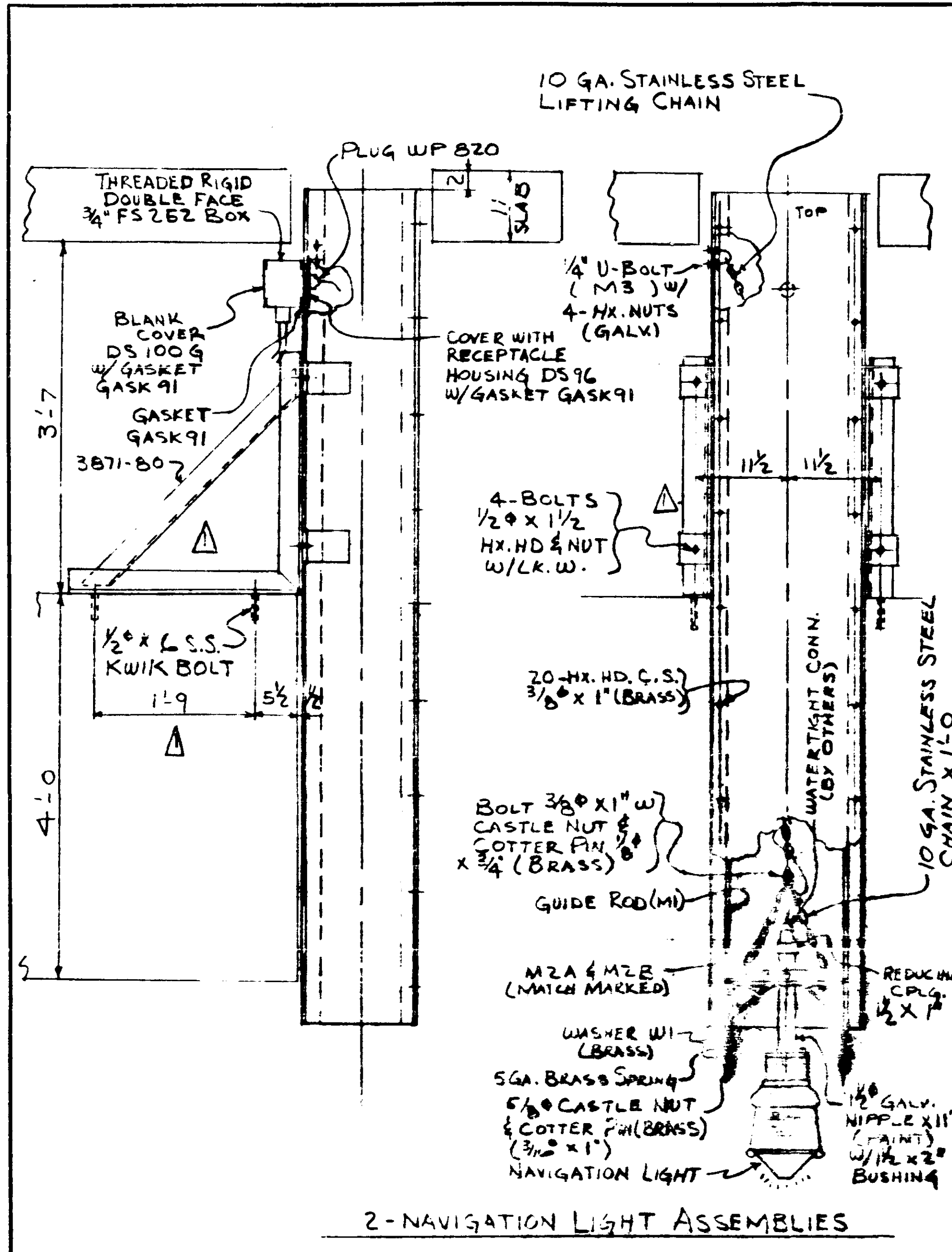
LEWIS ENGINEERING COMPANY
 5229 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 820-8161

PROJECT - BRIDGE 2440
 STATE PROJECT - 2710-21
 FEDERAL PROJECT - B.H.F. C05-2(67)
 CONTRACTOR - JOHNSON BRGS. CORPORATION
 LOCATION - T.N. 65 (3RD AVE BRIDGE) MPLS., MN.
 DESCRIPTION - DETAILS - PIPE RAILING.

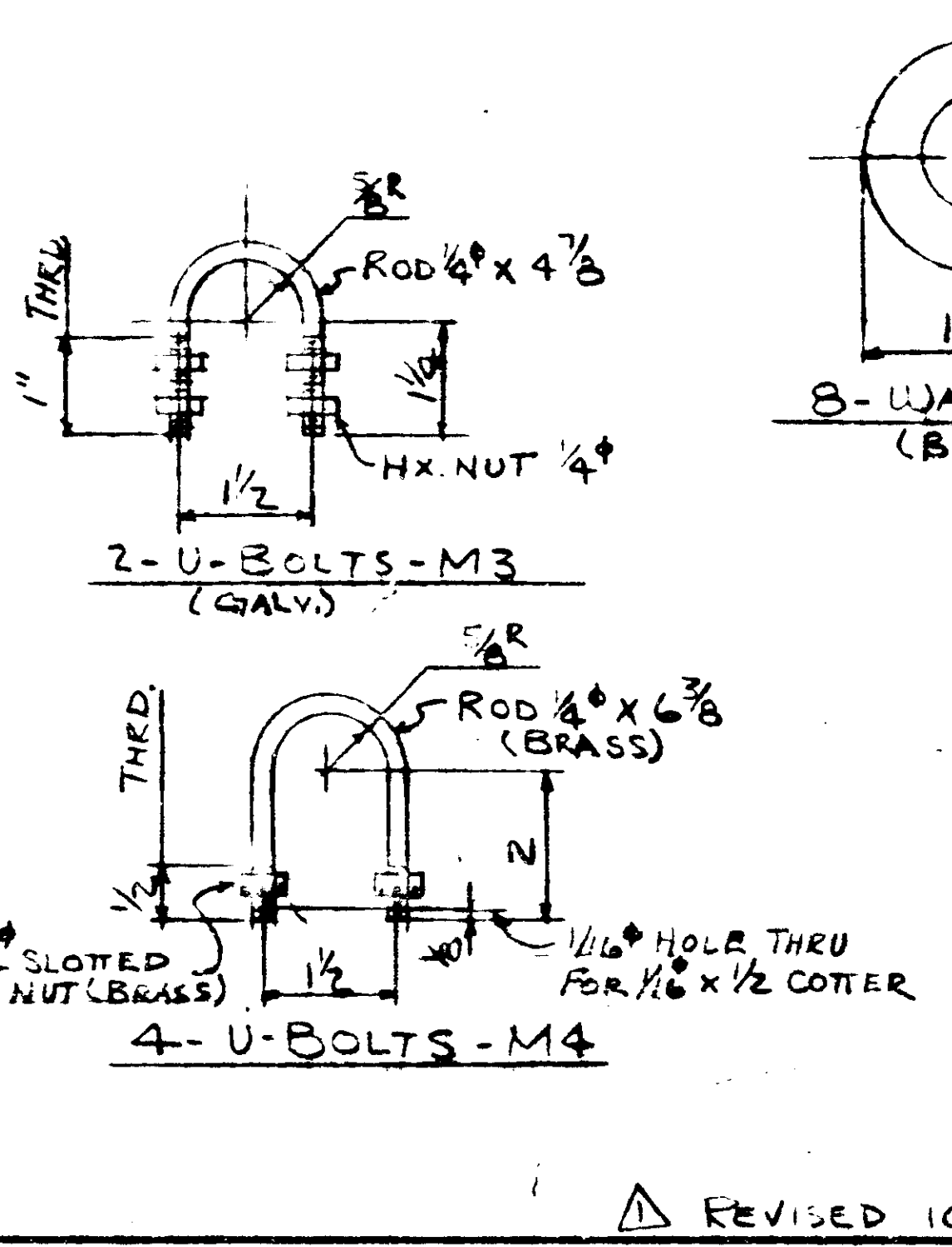
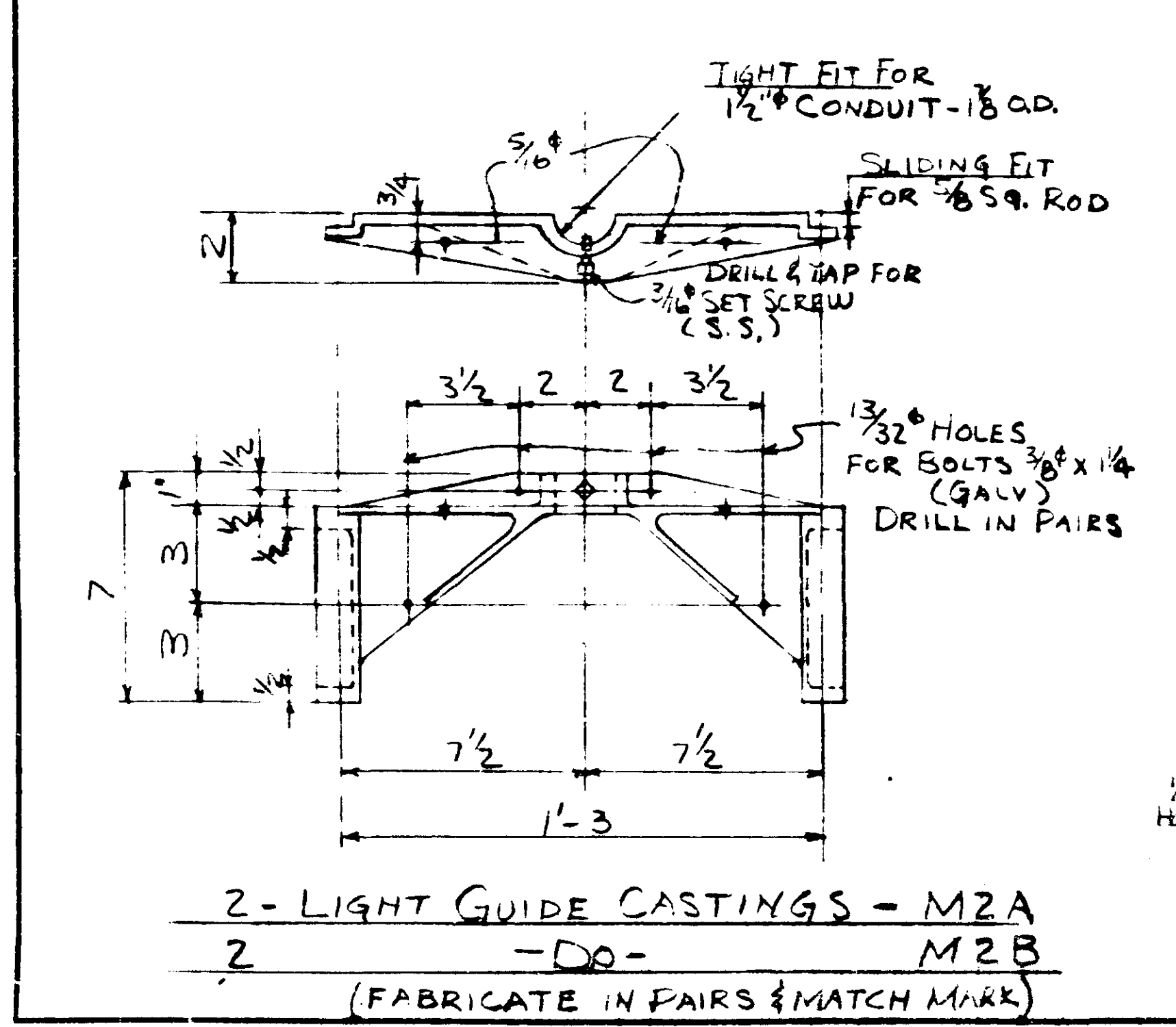
Job No. 1643-17
 Drawn By: BLB
 Checked By: EA
 Approved: [Signature]

SEE SHOP NOTES ON R10

SUB: 10-21-80
 DET: 10-14-80



LINE NO.	NO. REQD.	DESCRIPTION	LENGTH		MK	REMARKS	WGHT.
			FT.	INCH.			
1							
2	2	THR'D RIGID DOUBLE FACE BOX FS 252					
3	2	BLANK COVERS DS 100 G					
4	2	COVERS W/ RECEPTACLE DS 96				CRUISE HANDS	
5	2	PLUGS - 3 POLE W/P 820					
6	2	NEOPRENE GASKETS - GASK 91					
7							
8							
9							
10	2	LS 1/2" x 1/2" x 3/16"	8	7 1/2	aa		
11	2	LS -DO-	8	7 1/2	ab		
12	4	LS -DO-	8	7 1/2	ac		
13	8	LS 1/2" x 1/2" x 3/16"	0	9	ad		
14	2	RS 3/16" x 1 3/4"	8	9	pa		
15	2	RS -DO-	8	9	pb		
16	2	RS 3/16" x 1 3/4"	8	9	pc		
17	4	C 3 X 5	8	7 1/2	ma		
18	20	NUTS 5/16" (TACK TO MZA)				BLACK	
19	2	BAR 1/2" x 2"	1	6 3/4	pd		
20							
21							
22	4	RODS 5/8" x 5/8"	9	2 1/4	MI	(BRASS) TURN 1/4" THRU	
23	4	SPRINGS 130D 3/8 PIRN					
24		5 GA. STAINLESS STEEL	0	3 1/2		TYPE 302	
25	2	WASHERS 3/4" x 1 1/2"			W1	1/2" HOLE BRASS	
26	4	CASTLE NUTS 5/8"				BRASS	
27	4	COTTER PINS 3/16"	0	1		BRASS	
28	20	F.H.C.S. 5/16"	0	1		BRASS	
29							
30	2	LIGHT GUIDE CASTINGS			MZA C.I.		
31	2	-DO-			MZB C.I.		
32	4	SET SCREWS 3/16"	0	1		S.S.	
33	8	BOLTS 3/8"	0	1 1/4		GALV.	
34	8	HX. NUTS 3/8"					
35	8	LK. W. 3/8"					
36							
37	2	U-BOLTS - M3					
38	2	RODS 1/2"	0	4 1/2		BENT GALV.	
39	8	HX NUTS 1/4"				GALV.	
40							
41							
42	4	U-BOLTS - M4					
43	4	RODS 1/4"	0	6 3/8		BRASS BENT	
44	8	CASTLE NUTS 1/4"				BRASS	
45	8	COTTER PINS 1/8"	0	0 1/2		BRASS	
46	2	RS 3/16" x 1 3/4"	8	9	MS	GALV.	
47	36	HX HD. CS. 3/8"	0	1		BRASS	
48	2	REDUCING CPLG. 1/2" - 1"				GALV.	
49							
50							
51	2	NIPPLES 1/2"	0	1 1/2		GALV. (PAINT)	
52	2	BUSHINGS 1 1/2" x 2"				-DO-	
53	2	10 GA CHAINS	7	0		STAINLESS STEEL	
54	4	10 GA CHAINS	1	0			
55							
56	2	BOLTS 3/8"	0	1			
57	2	CASTLE NUT 3/8"				BRASS	
58	2	COTTER PINS 1/8"	0	3/4			
59							
60							
61	2	NAVIGATION LIGHTS - TENWAL -					
62		AUTOMATIC POWER - COMPLETE					
63		W/ LAMP CHANGER & TRANSFORMER					



DETAIL ASSEMBLY (MI) & (MZA)

SHOP NOTE: WELD (MI) TO UNIT BEFORE GALV. SHIP (MI) SEPARATELY.

GENERAL NOTES

- 1) ALL STRUCTURAL STEEL SHALL BE GALV. PER MN/DOT 3394.
- 2) PIPE NIPPLE - GALV. & PAINT 1-SHOP COAT RED LEAD PER MN/DOT 3506.
- 3) WELDING AS SHOWN
- 4) MAT'L. & WORKMANSHIP IN ACCORD. WITH MN/DOT STANDARD SPEC. FOR HIGHWAY CONSTRUCTION 1978 EDITION & SPECIAL PROVISIONS.
- 5) SHOP INSPECTION BY MN/DOT BEFORE & AFTER GALV.

6-30-80
L-26-80
SUB. 6-9-80
DET. 5-22-80

REVISD 10-8-80

LEWIS ENGINEERING COMPANY
5229 EDEN AVENUE - EDINA, MINNESOTA 56438 - (612) 920-6161

PROJECT - BR. 2440

STATE PROJECT - 2710-21

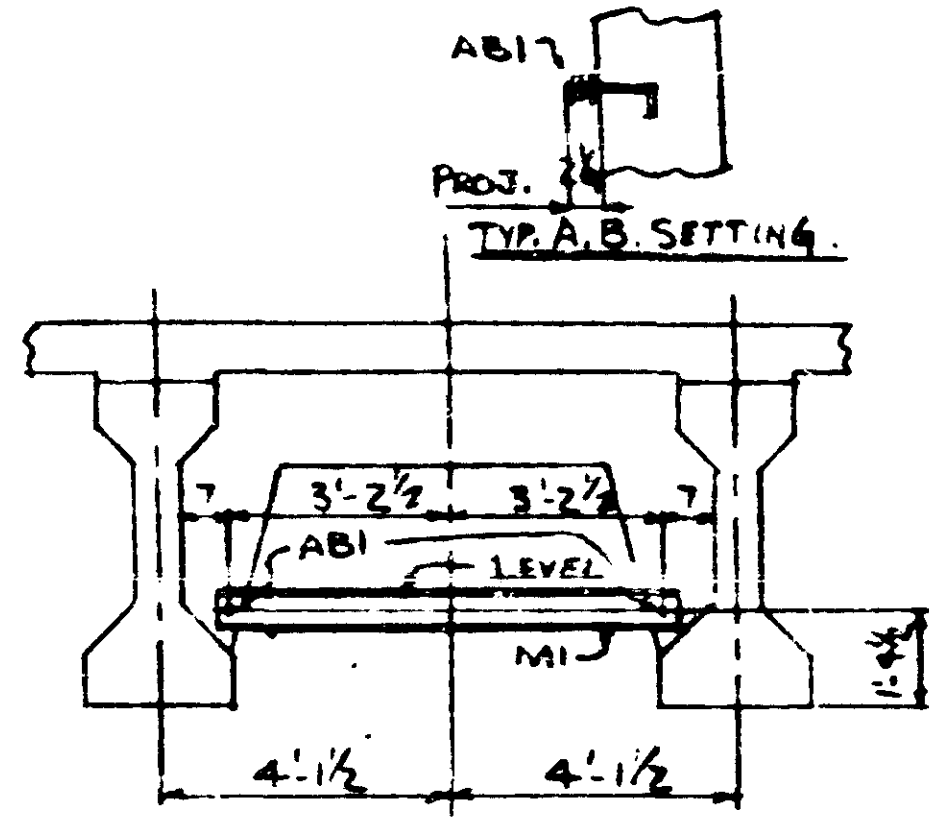
FEDERAL PROJECT - BHF 005-2 (67)

CONTRACTOR - JOHNSON BROS.

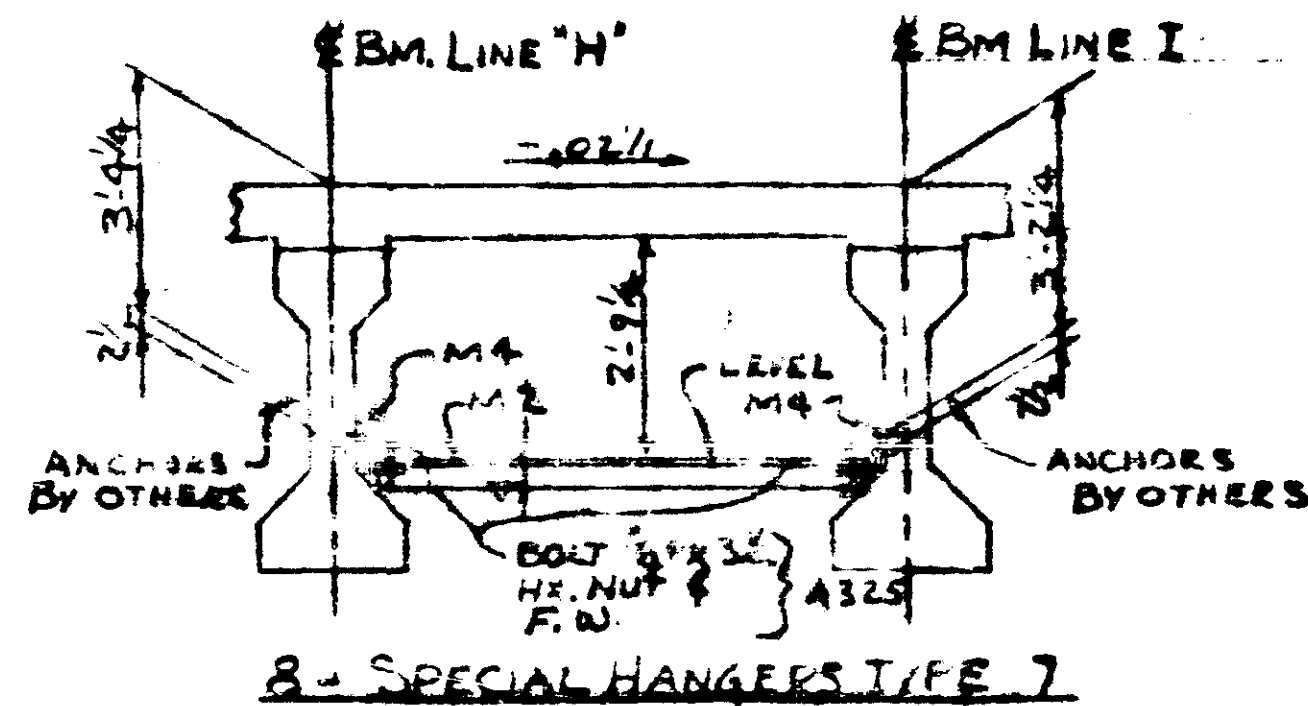
LOCATION - TH. 65 (3RD AVE. BRIDGE) MPLS., MINN.

DESCRIPTION - CONDUIT SYSTEM NAVIGATION LIGHTS

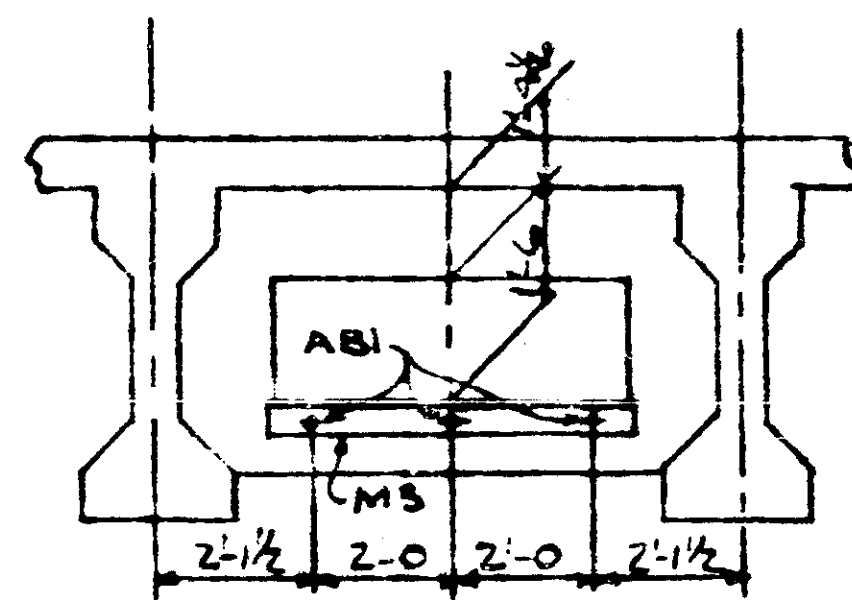
Job No. 1643-72
Drawn By CAD
Checked By CA.
Approved [Signature]



2 - DIAPHRAGMS TYPE 5
AT ARCH PIER B & NO. ABUT.



8 - SPECIAL HANGERS TYPE 7



6 - DIAPHRAGMS TYPE 4
2 - DIAPHRAGMS TYPE 6

INDEX

S2	DIAPHRAGM LOCATIONS
S3	DIAPHRAGM DETAILS
S4	SIDE WALK EX. JT. & STAIRWAY ERECTION PLANS
S5	DETAILS
S6	}
S7	
S8	
S9	

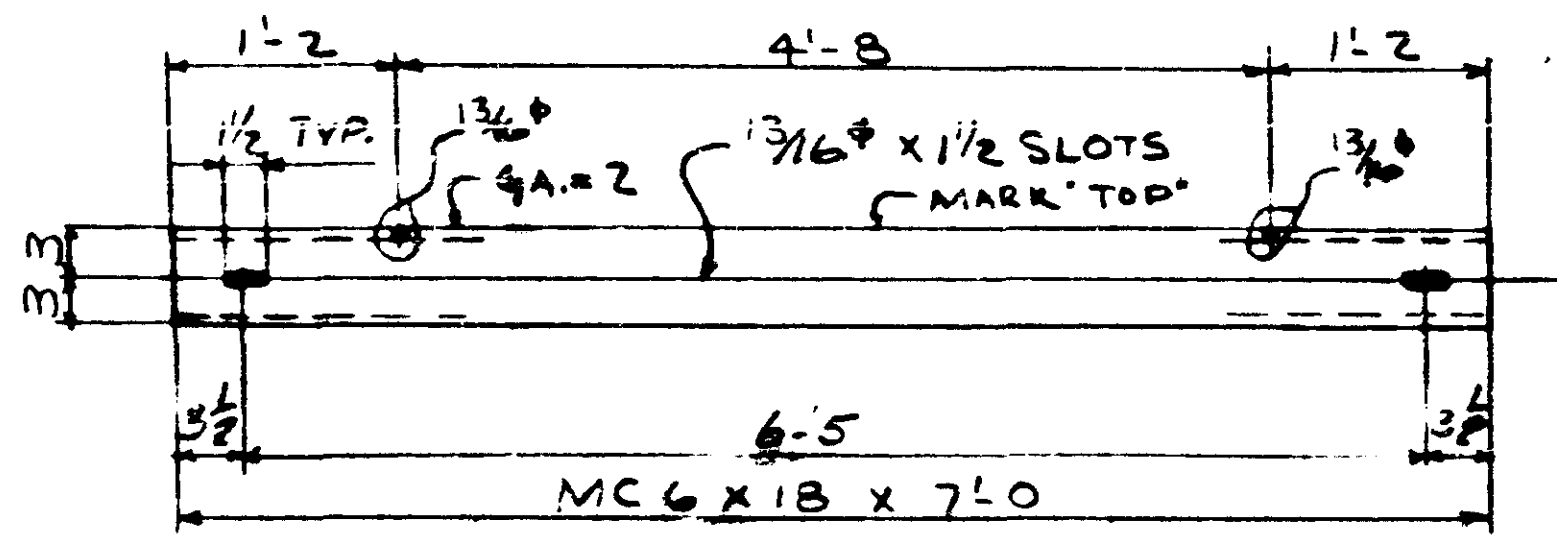
NOTE:
FOR PLAN & LOCATION OF
DIAPHRAGM TYPES SEE
TELEPHONE CONDUIT SYSTEM
SHEET 019 NORTH APPROACH.

LEWIS ENGINEERING COMPANY
8228 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-8181

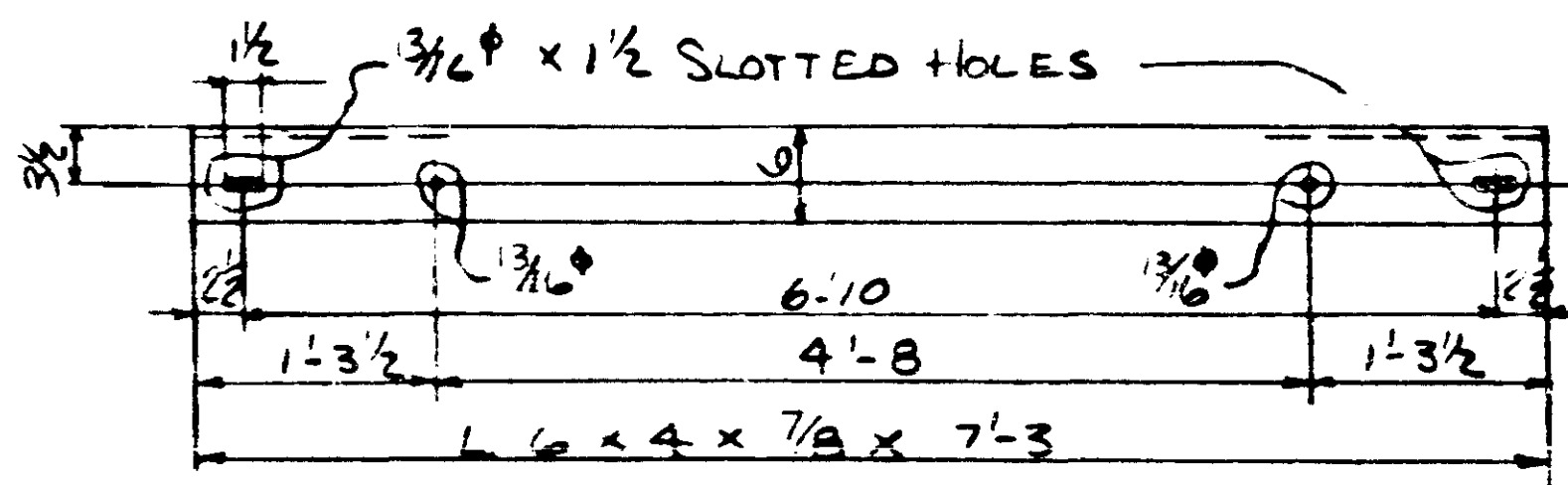
PROJECT	- BR. 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BHF 005-2 (67)
CONTRACTOR	- JOHNSON BROS
LOCATION	- TH 65 (3RD AVE. BRIDGE) MPLS., MINN.
DESCRIPTION	- STRUCTURAL STEEL DIAPHRAGMS FOR PRECAST BEAMS

Job No.
643-31

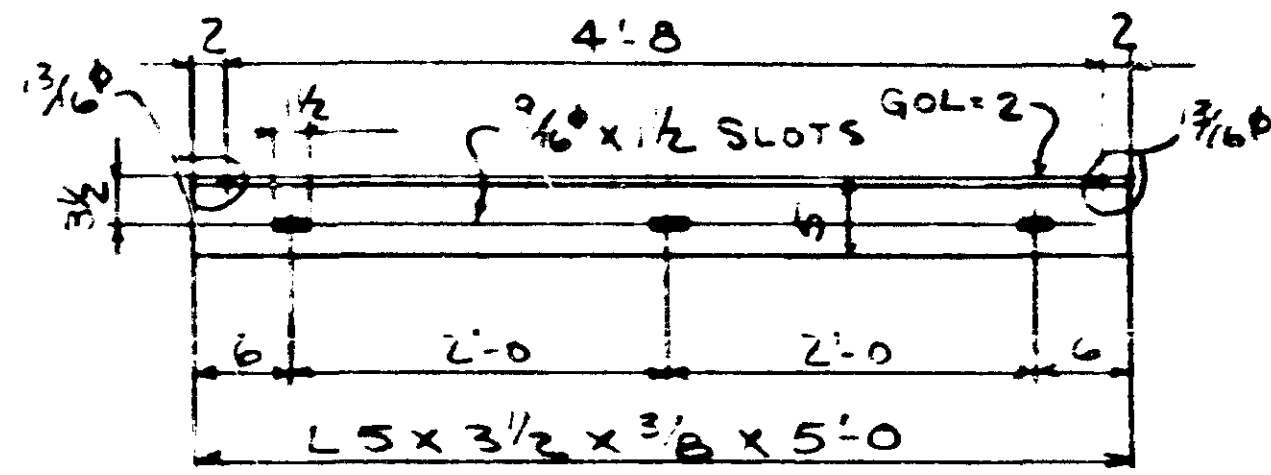
Drawn By CAD
Checked By GEA
Approved



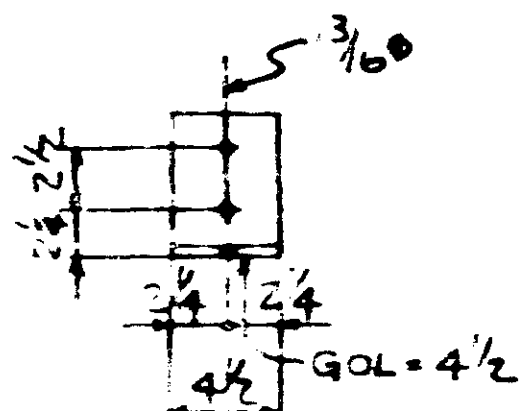
2-CONDUIT SUPPORT CHANNELS - M1



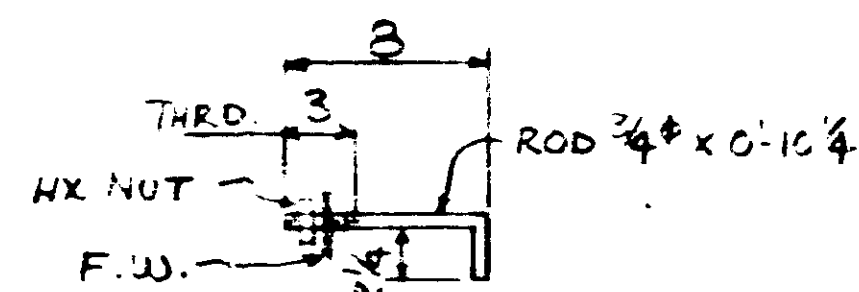
8-CONDUIT SUPPORT ANGLES - M2



8-CONDUIT SUPPORT ANGLES - M3



16-CLIP L6 x 6 x 1" x 0'-7 1/2" M4



28-ANCHOR BOLTS - AB1

LINE NO.	RECD.	DESCRIPTION	LENGTH		MK	REMARKS	WGHT.
			FT.	INCH			
1							
2							
3		2 MCL6 x 18	7	0	M1	GALV.	
4							
5		8 Ls 6 x 4 x 7/8	7	3	M2		
6							
7		8 Ls 5 x 3 1/2 x 3/8	5	0	M3		
8							
9		16 Ls 6 x 6 x 1"	0	4 1/2	M4		
10							
11							
12		16 BOLTS 3/4"	0	3 1/4			
13		16 HX. NUTS 3/4"				ASTM A325	
14		16 F.W. 3/4"				GALV.	
15							
16							
17		28-ANCHOR BOLTS - AB1					
18		28 RODS 3/4"	0	10 1/4		BEND. A36 GALV	
19		28 HX. NUTS 3/4"					
20		28 F.W. 3/4"					
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							
46							
47							
48							
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							
61							
62							
63							

ALL HOLES AS NOTED.
 ALL MATERIAL MN/DOT 3306,
 GALV. PER MN/DOT 3394,
 GALV. FASTENERS PER MN/DOT 3392.
 MATL. & WORKMANSHIP PER
 1978 EDITION OF MN/DOT SPECS AND
 SPECIAL PROVISIONS
 SHOP INSPECTION BY MN/DOT BEFORE
 AND AFTER GALVANIZING

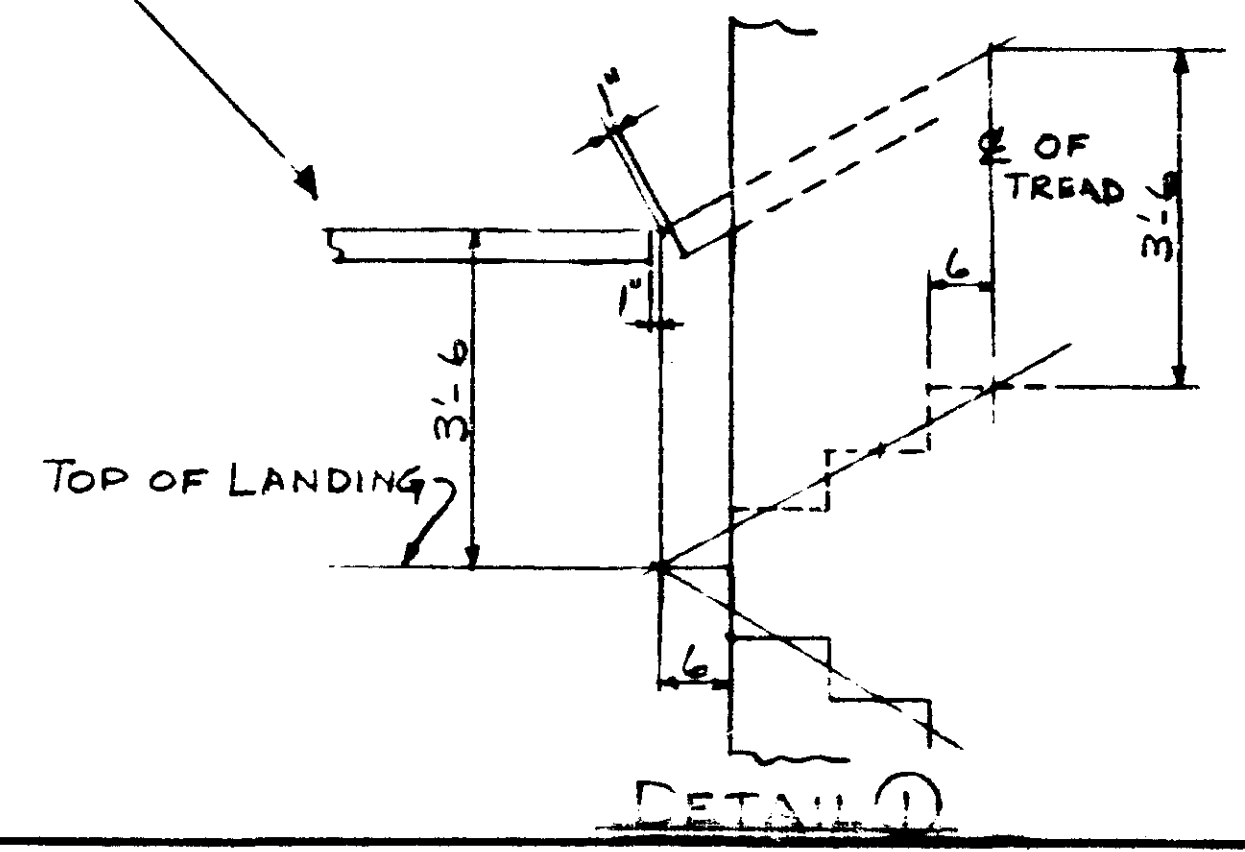
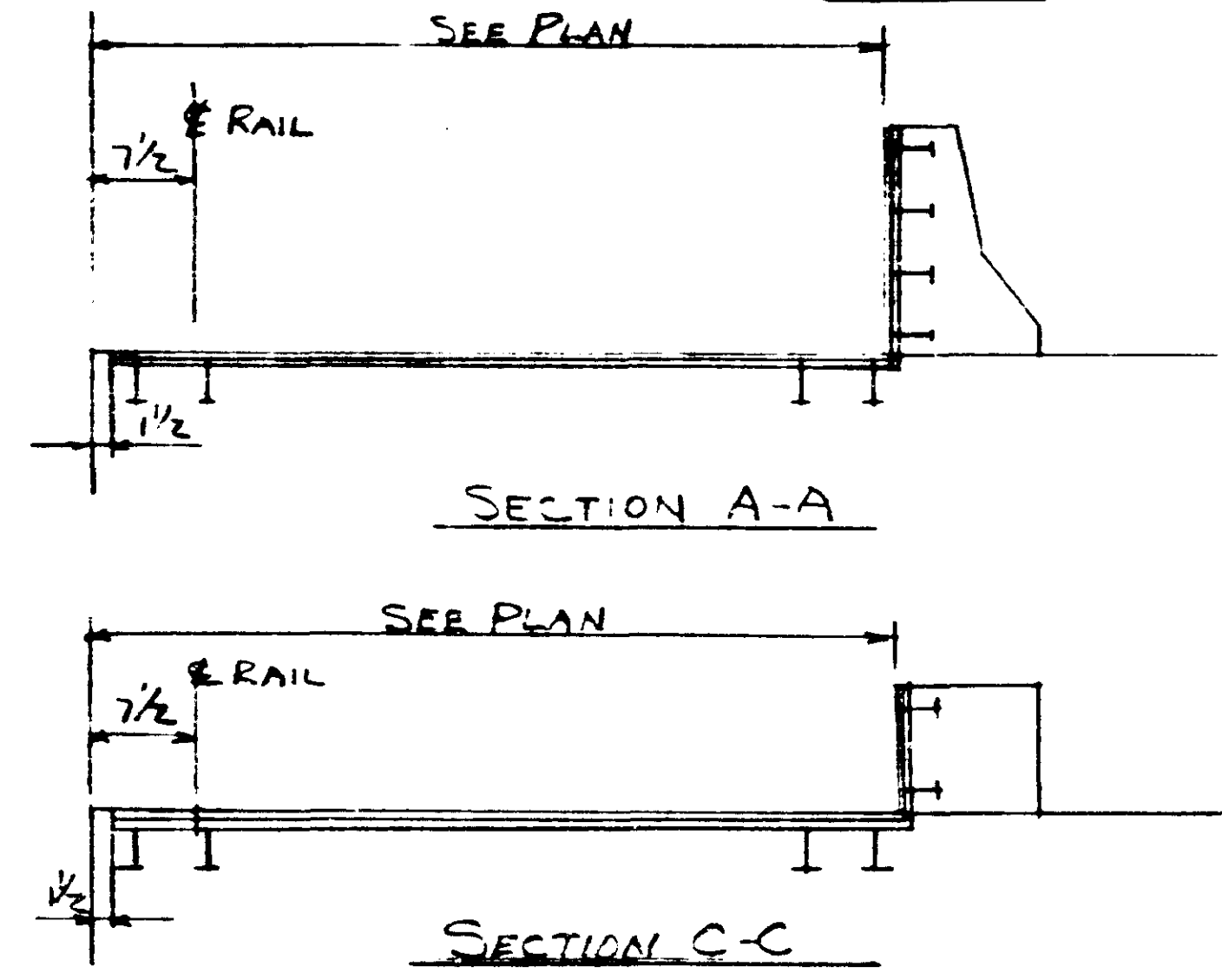
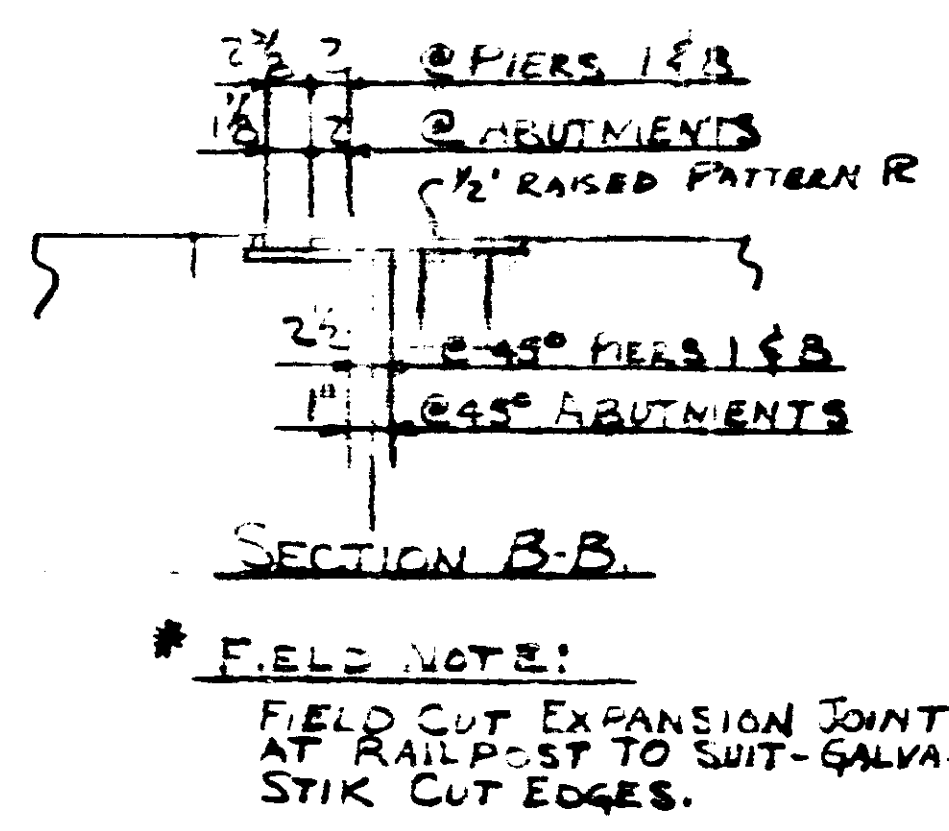
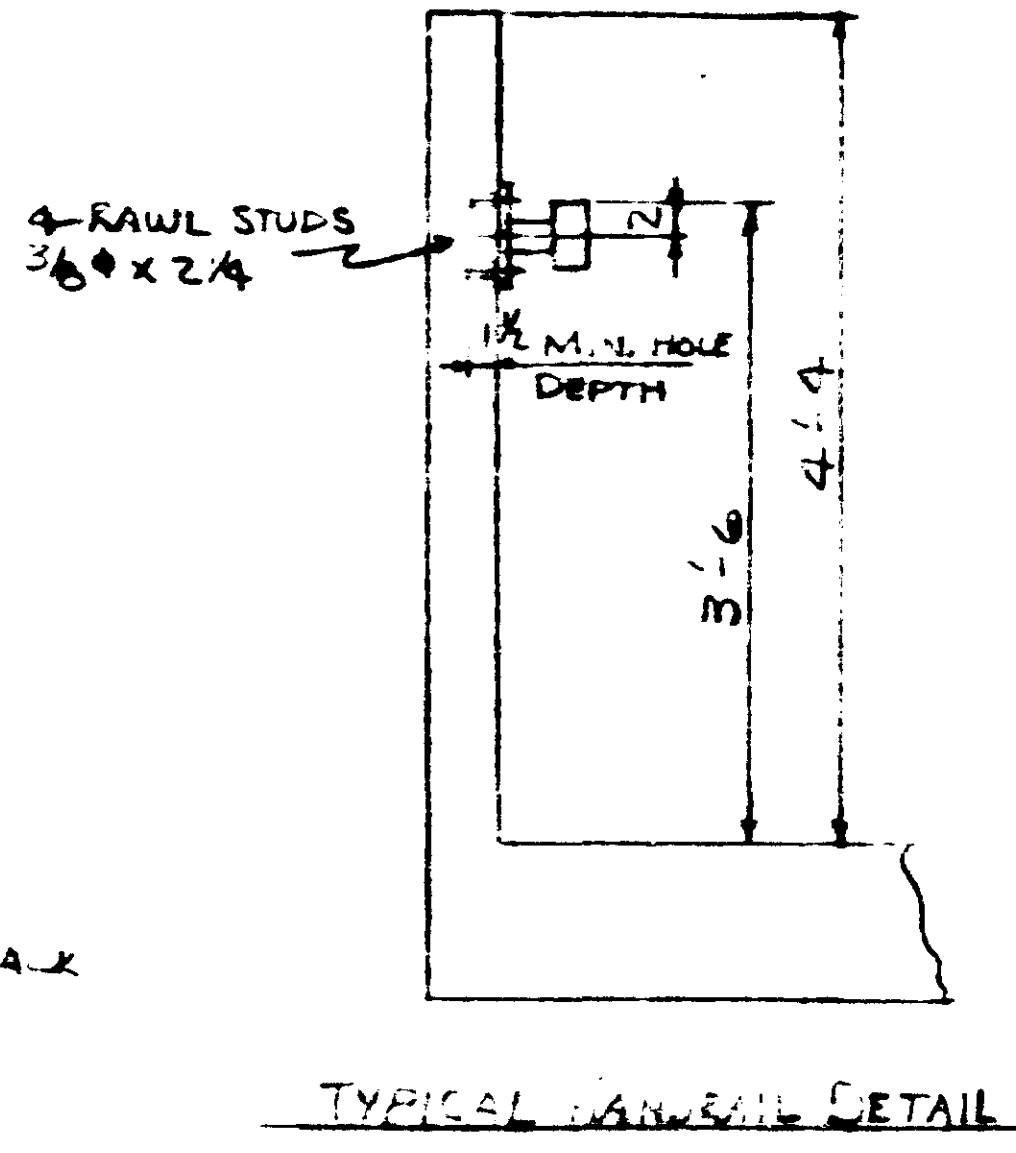
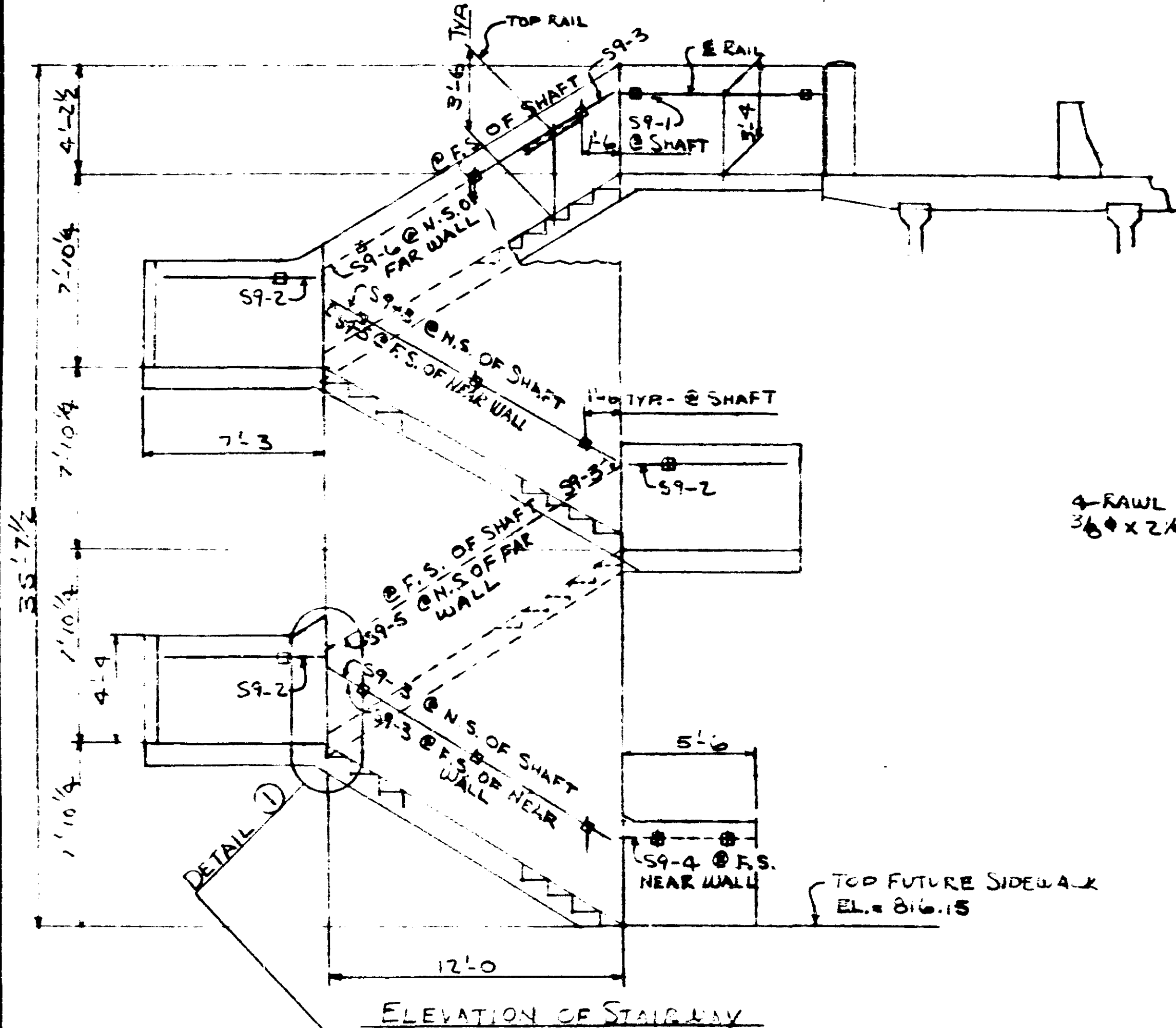
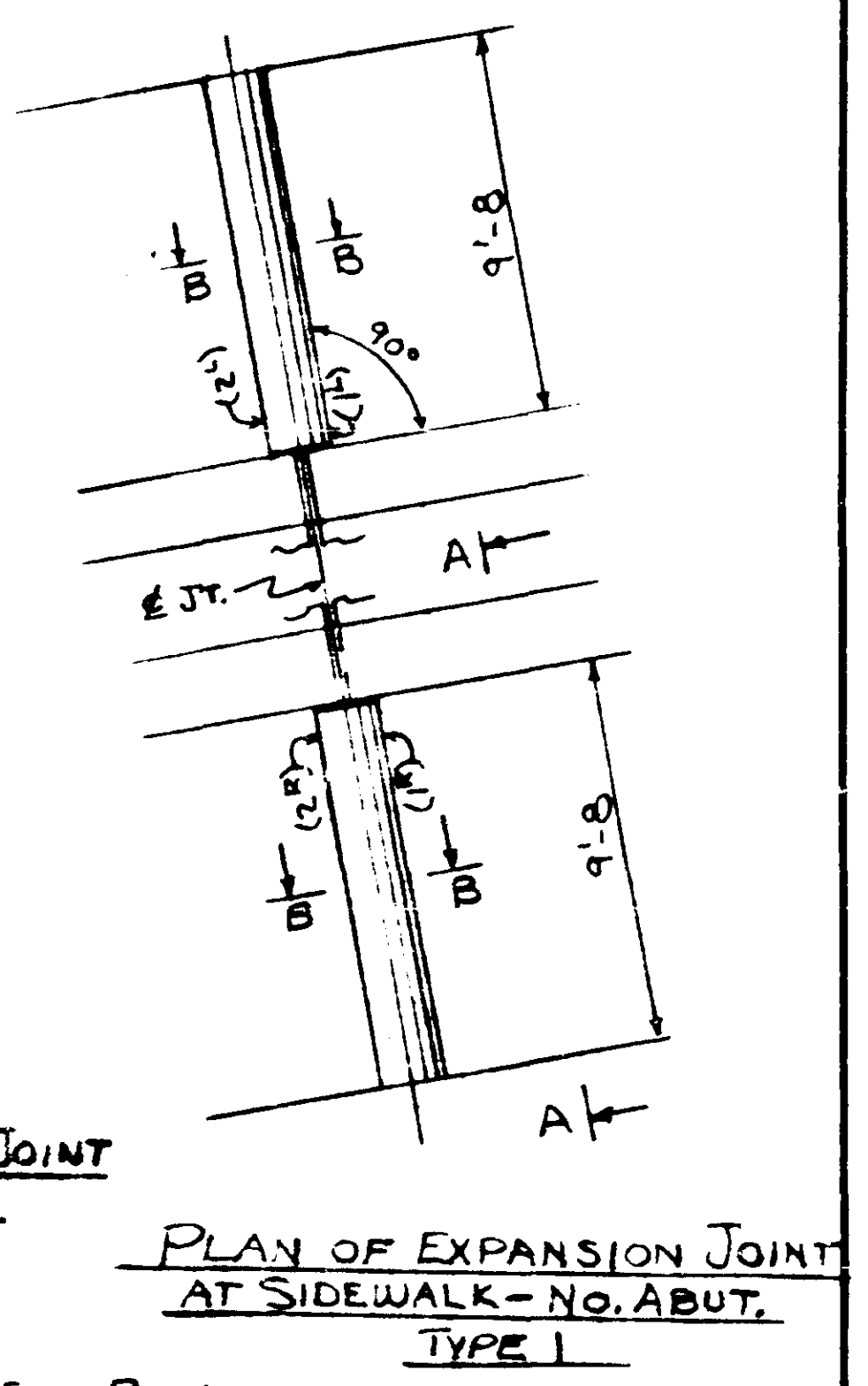
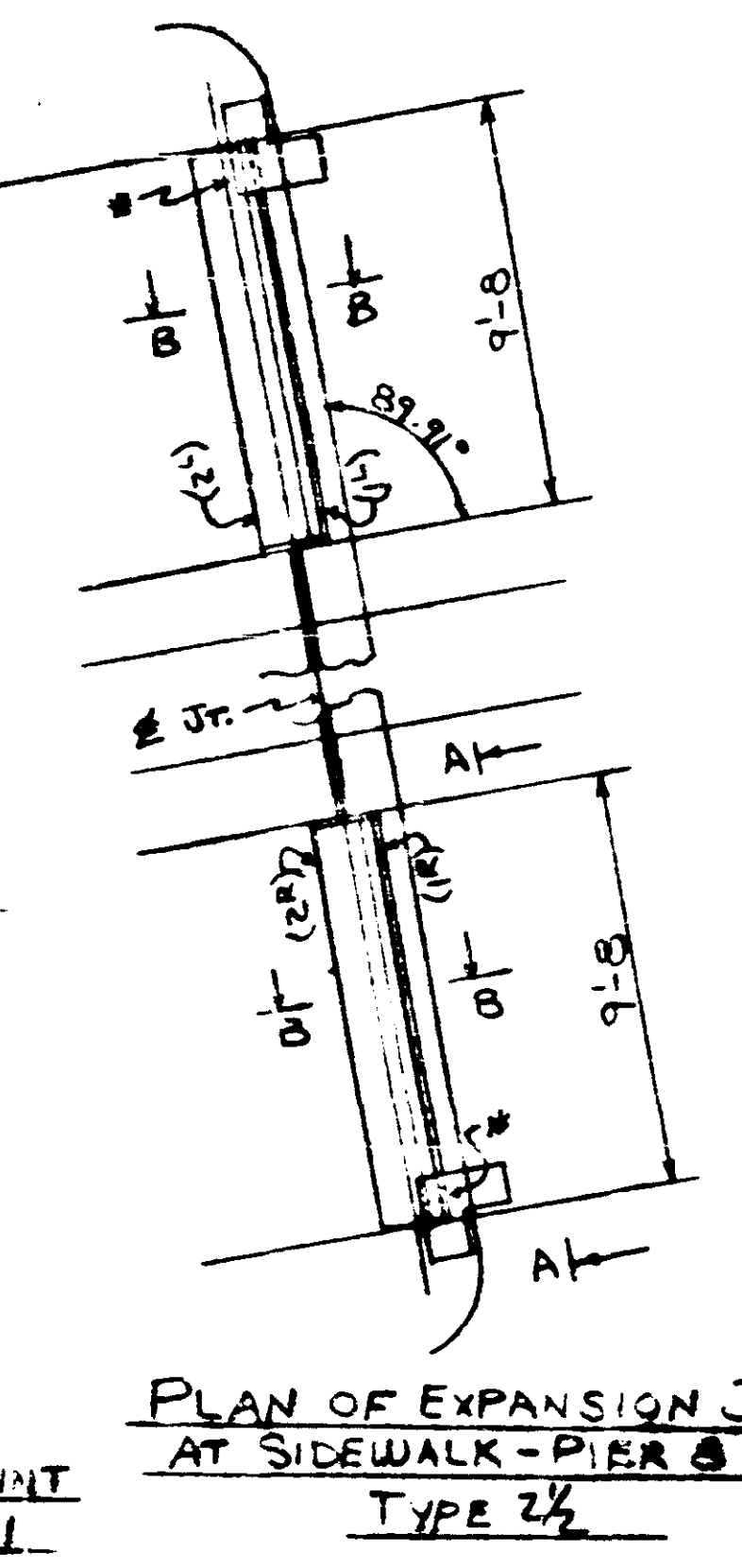
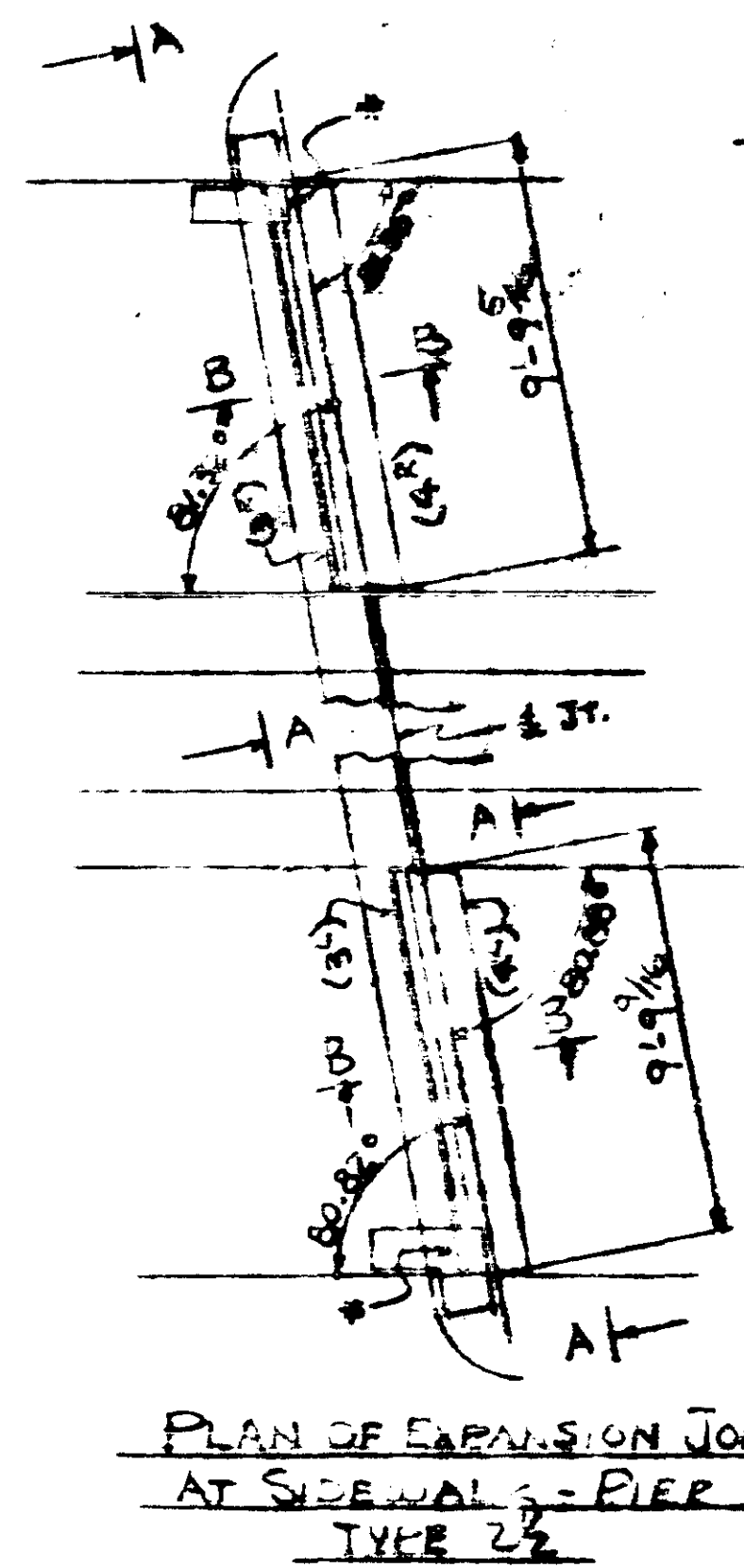
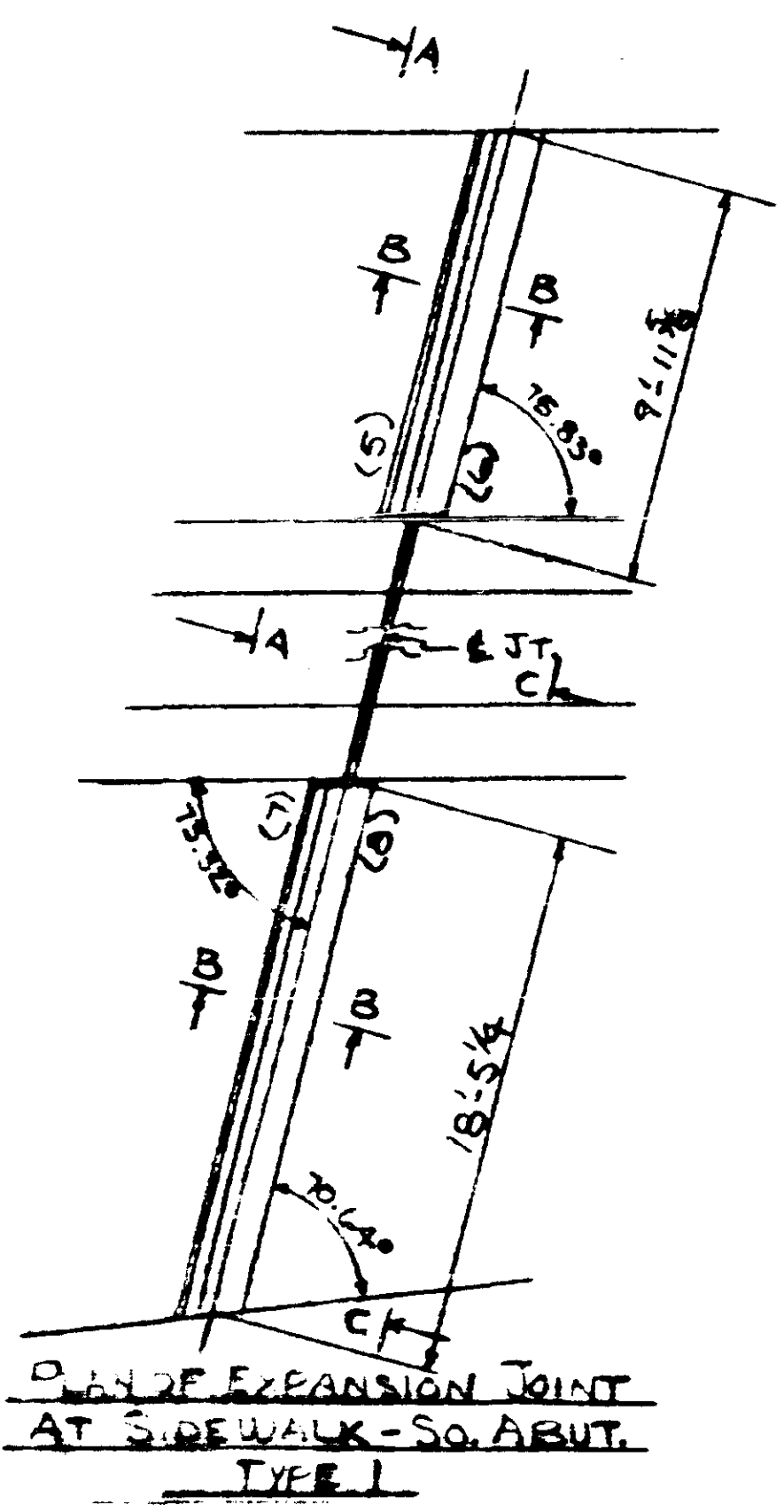
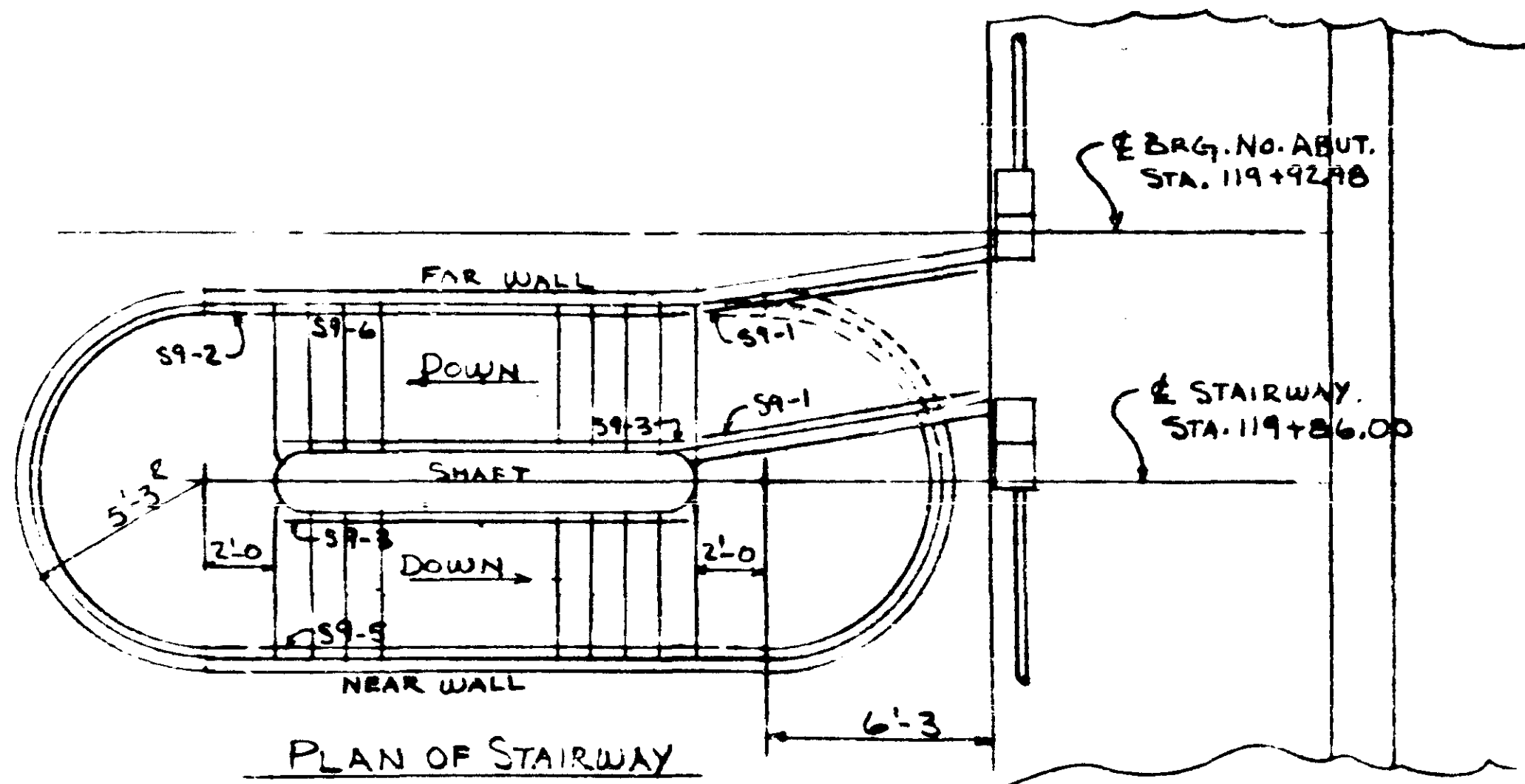


LEWIS ENGINEERING COMPANY

5229 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-8181

PROJECT	- BR. 2440
STATE PROJECT	- 2710-21
FEDERAL PROJECT	- BHF 005-2 (67)
CONTRACTOR	- JOHNSON BROS.
LOCATION	- TH 65 (3RD AVE. BRIDGE) MPLS., MINN.
DESCRIPTION	- STRUCTURAL STEEL CONDUIT SUPPORTS
SUB: 3-10-82	
DET: 3-2-82	

Job No.
1643-31
 Drawn By CAD
 Checked By C
 Approved
 4-2-82



APPROVED RAIL MISC. DETAIL (1)

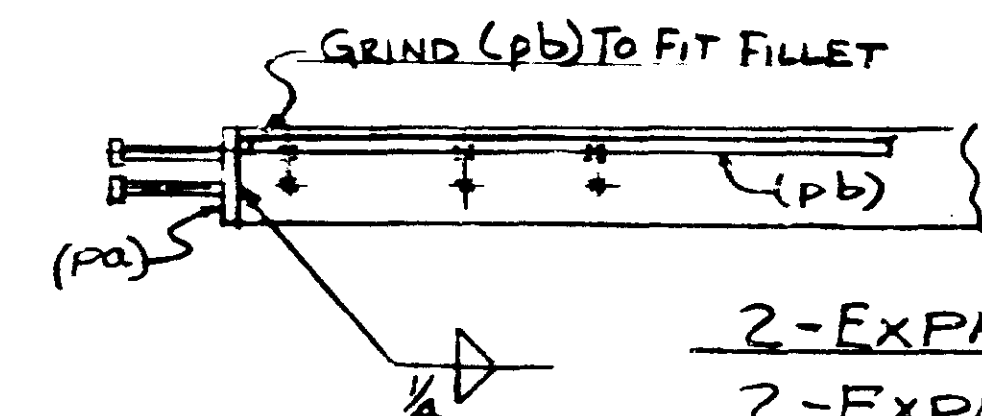
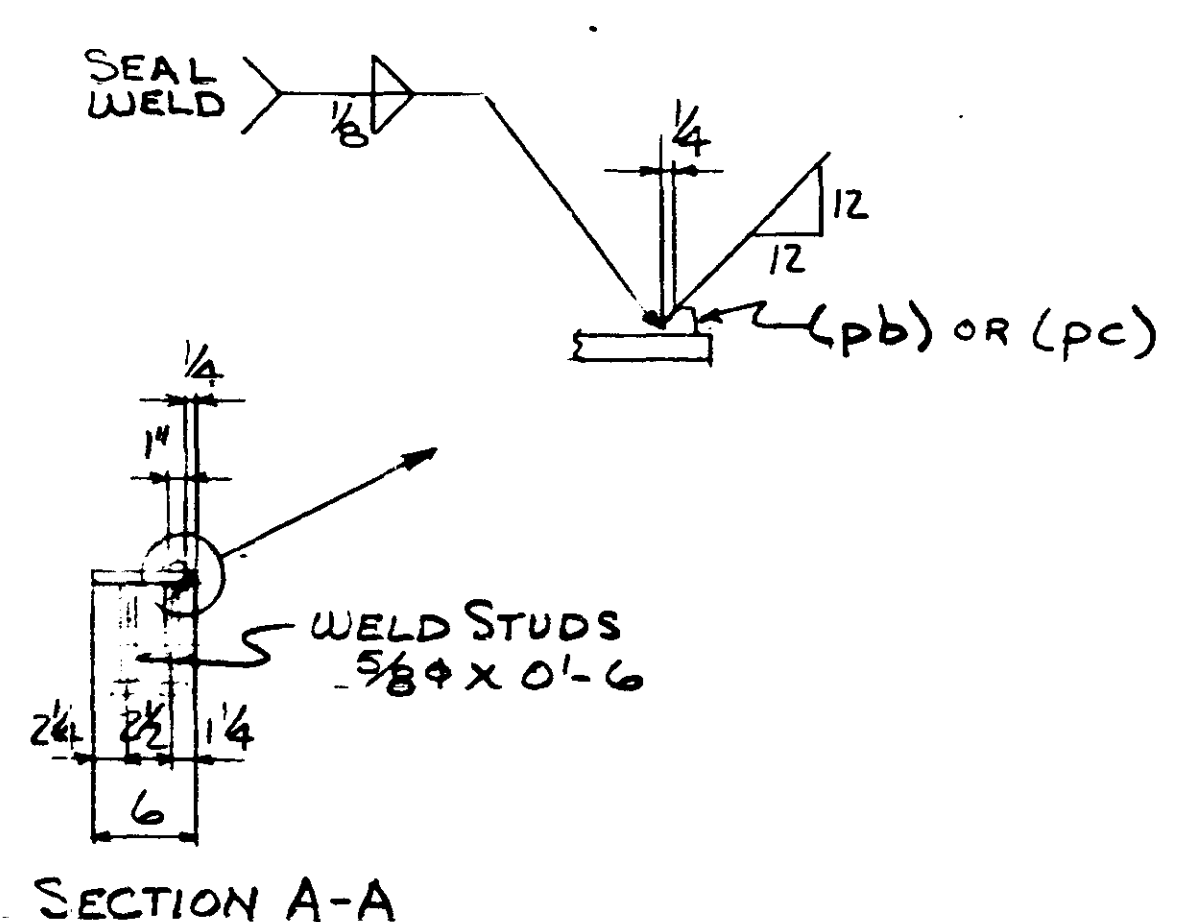
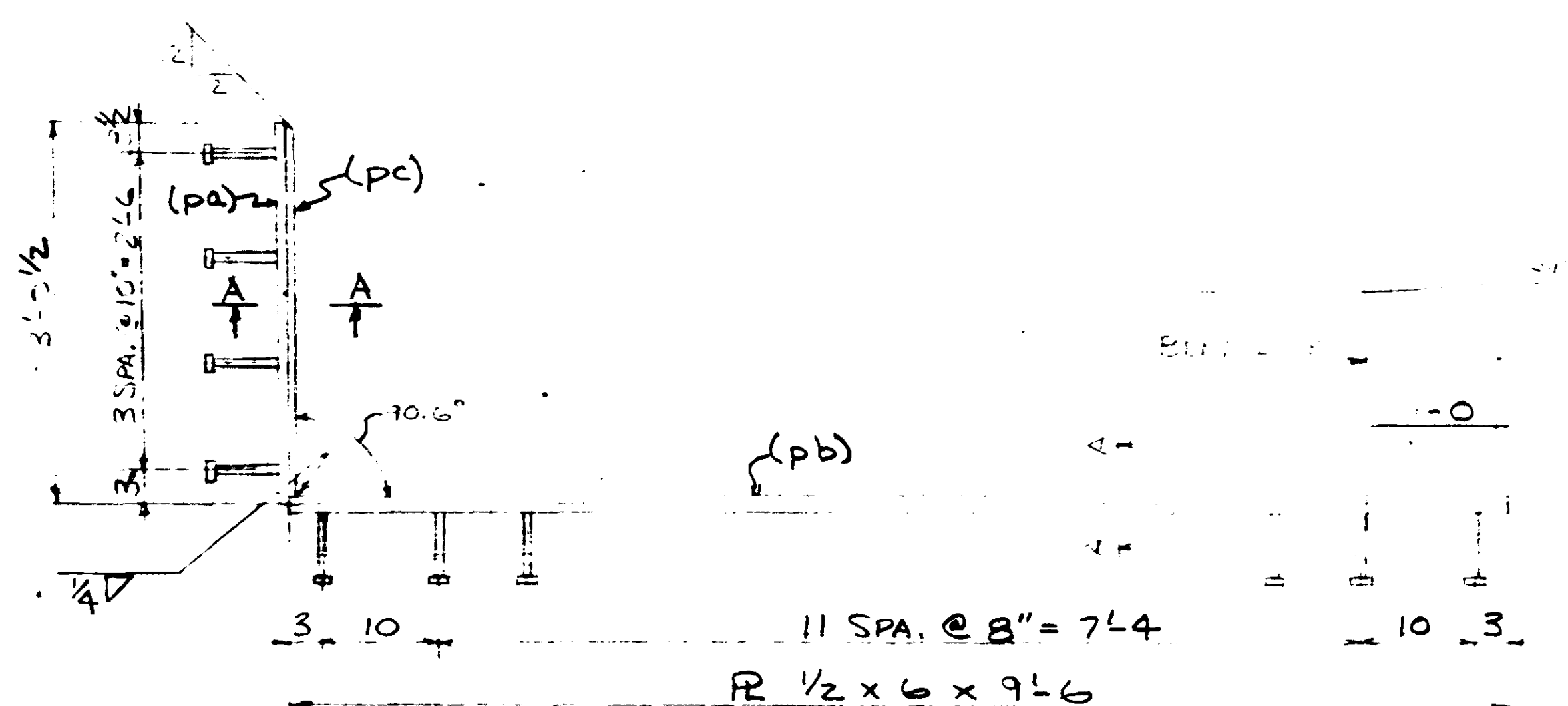
SUB: 6-18-80
 SUB: 5-27-80
 SUB: 4-2-80
 SUB: 3-29-80
 SUB: 5-21-80

LEWIS ENGINEERING COMPANY
 8228 EDEN AVENUE - EDINA, MINNESOTA 55438 - (612) 820-8181

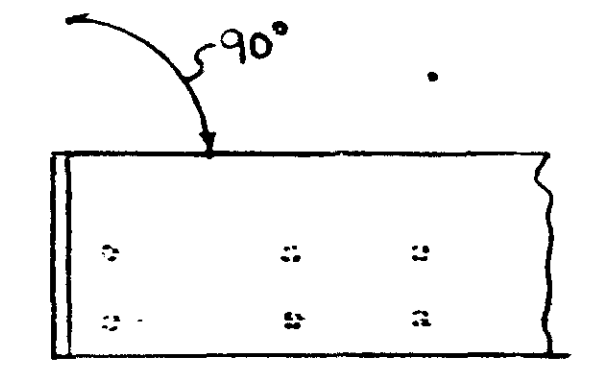
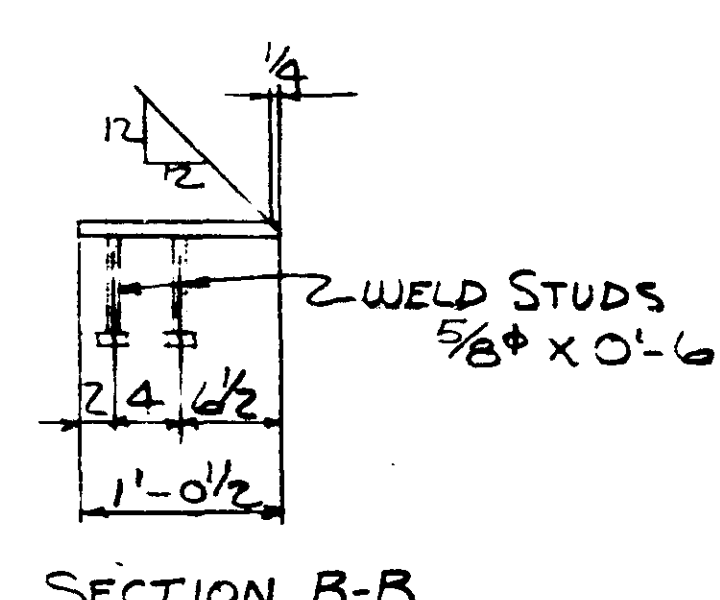
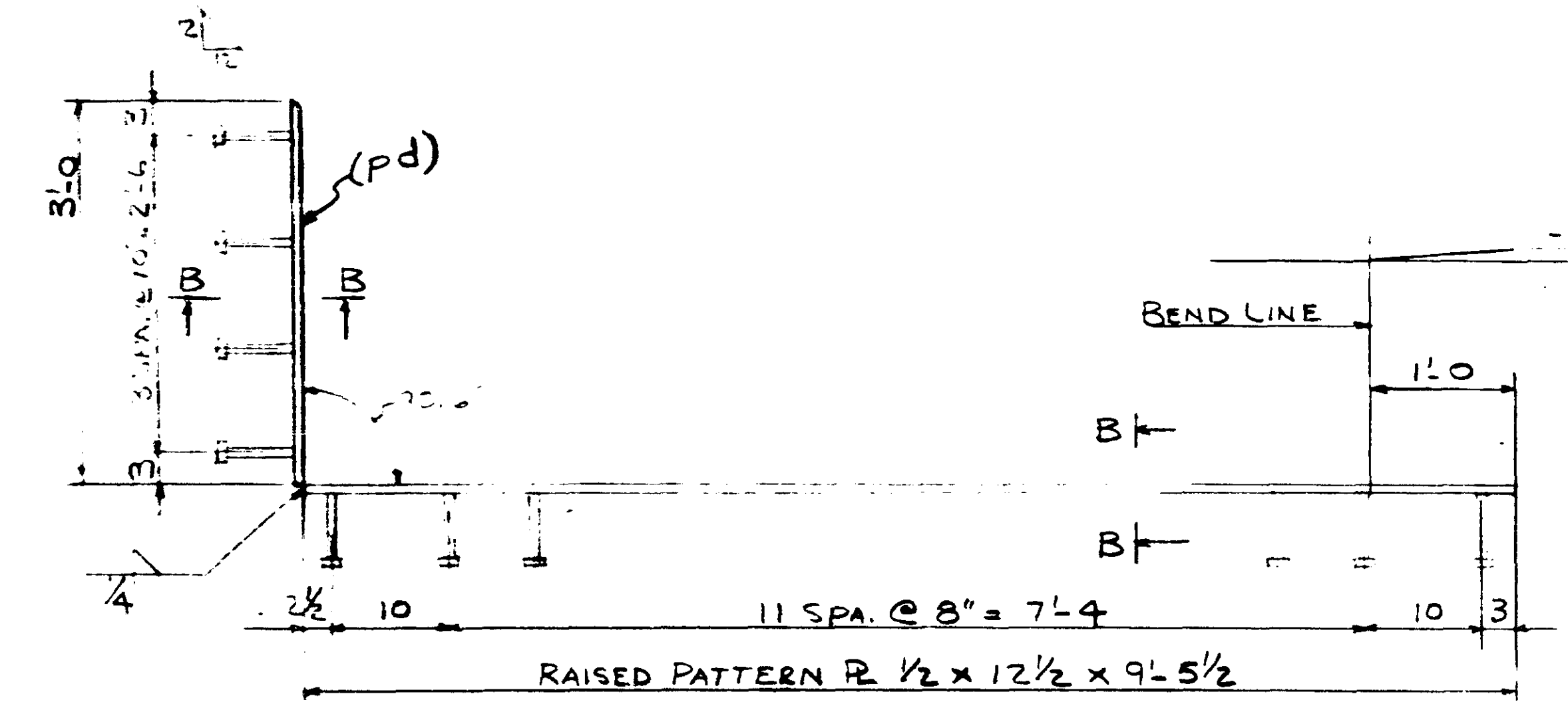
PROJECT - BR. 2440
 STATE PROJECT - 2710-21
 FEDERAL PROJECT - BHF 005-2(67)
 CONTRACTOR - JOHNSON BROS.
 LOCATION - T.H. 65 (3RD AVE BRIDGE) MPLS., MINN.

DESCRIPTION - STRUCTURAL STEEL STAIR RAILS & SIDEWALK EXPANSION JOINTS

Job No. 1643-31
 Drawn By CAD
 Checked By CA
 Approved go



2-EXPANSION RS AS SHOWN - (1^R)
 2-EXPANSION RS OPP. HAND - (1^L)



2-EXPANSION RS AS SHOWN - (2^R)
 2-EXPANSION RS OPP. HAND - (2^L)

GENERAL NOTES:

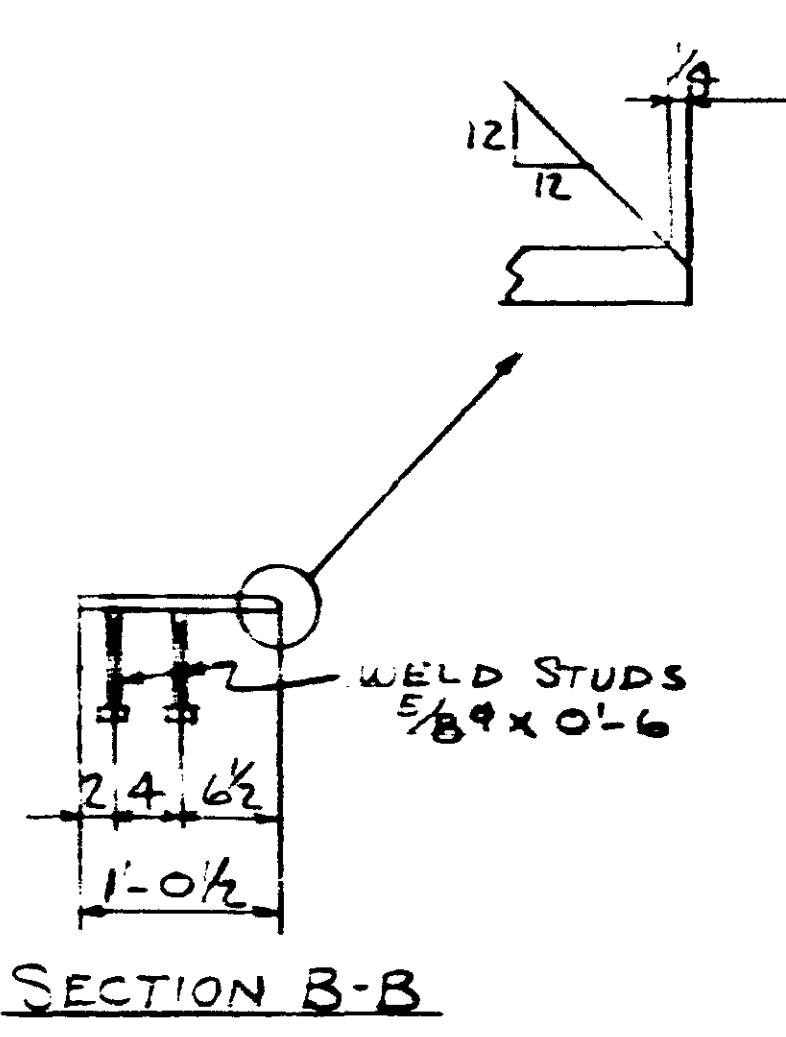
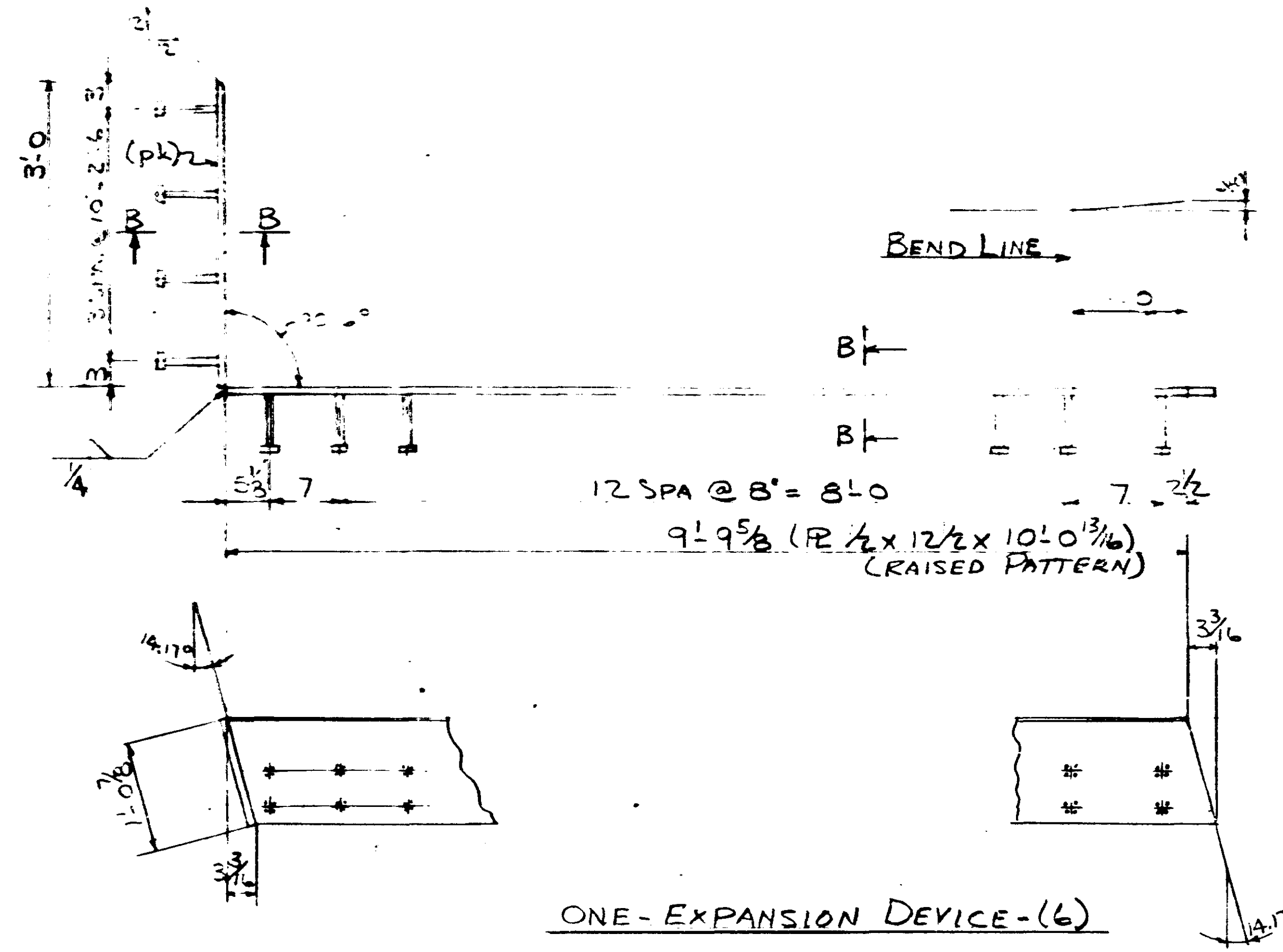
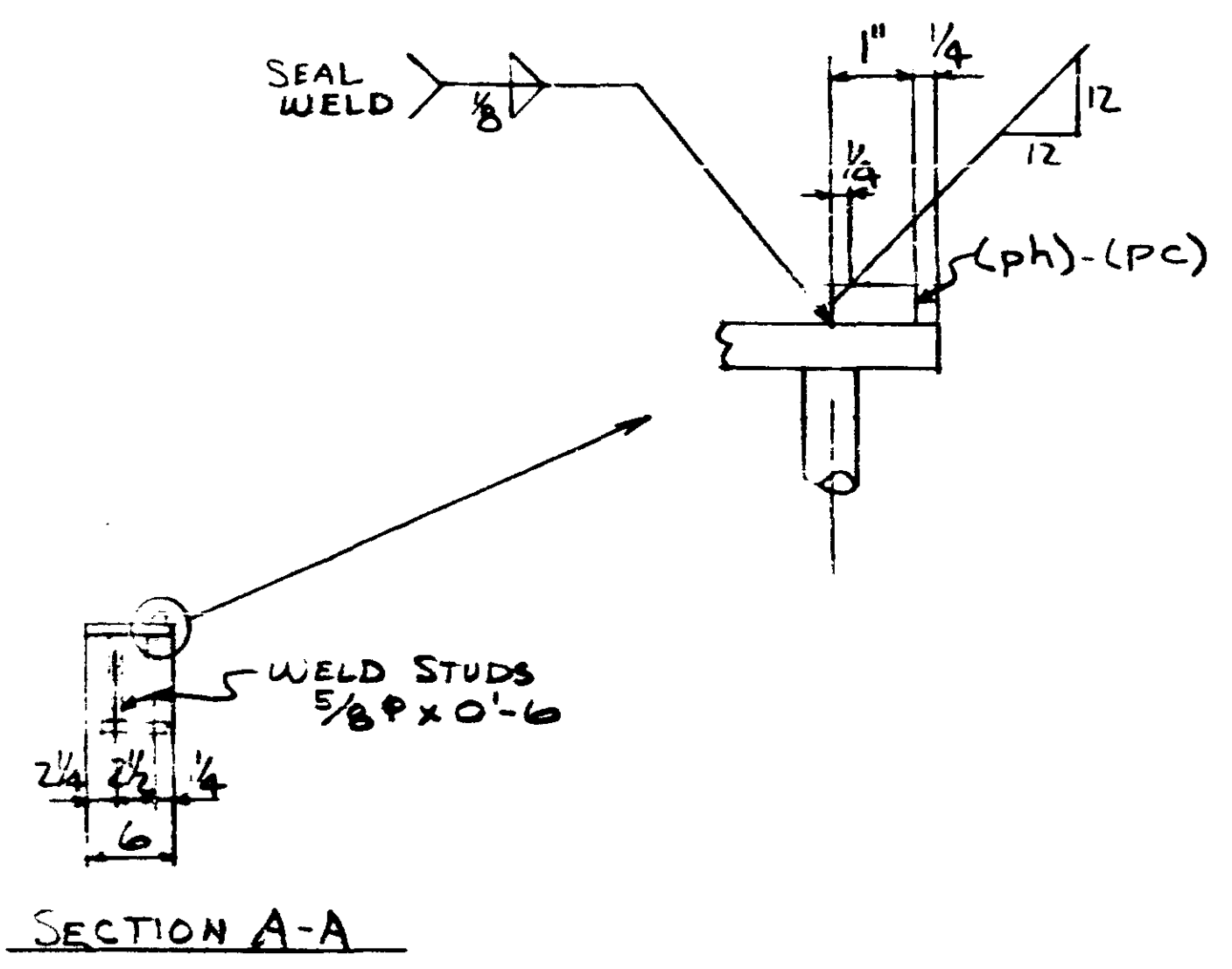
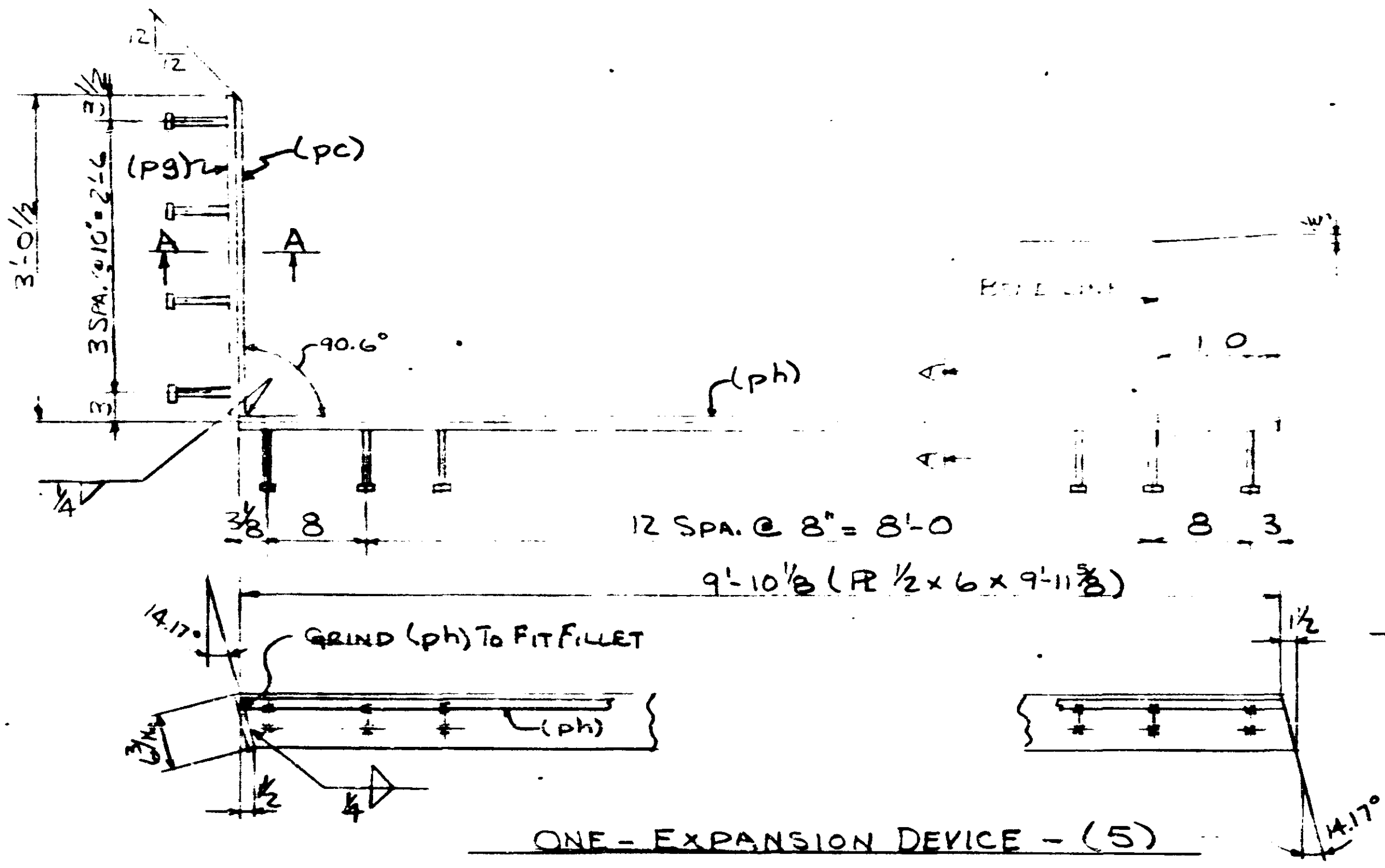
- 1) ALL MATERIAL - MN/DOT 3306.
- 2) GALV. PER MN/DOT 3394
- 3) MAT'L. & WORKMANSHIP IN ACCORD WITH MN/DOT STANDARD SPECS FOR HIGHWAY CONSTRUCTION 1978 EDITION & SPECIAL PROVISIONS.
- 4) SHOP INSPECTION BY MN/DOT BEFORE & AFTER GALVANIZING.

LINE NO	RECD	DESCRIPTION	LET. TH	REMARKS	WGHT
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					
57					
58					
59					
60					
61					
62					
63					

LEWIS ENGINEERING COMPANY
 5229 EDEN AVENUE - EDINA, MINNESOTA 55436 (612) 920-6161

PROJECT	BR. 2440
STATE PROJECT	2710-21
FEDERAL PROJECT	BHF 005-2(67)
CONTRACTOR	JOHNSON BROS.
LOCATION	T.H. 65 (3RD PAVE. BRIDGE) MPL., MINN.
DESCRIPTION	STRUCTURAL STEEL -
SUB:	SIDEWALK EXPANSION RS.
DET:	3-21-80

Job No. 1643-31
 Drawn by: CAD
 Checked by: EAS
 Date: 4-3-80



NO.	DESCRIPTION	QTY	UNIT	REMARKS	WGHT
ONE-EXPANSION DEVICE - (5)					
1	P 1/2 x 6	9	11/8		102
1	R 1/2 x 6 3/16	3	0 7/8	ph	32
1	BAR 1/2 x 1	9	10 3/8	ph	17
1	BAR 1/2 x 1	3	0	pc	5
38	WELD STUDS 5/8 x 0.6				28
ONE-EXPANSION DEVICE - (6)					
1	R 1/2 x 12 1/2	10	0 3/4	RAISED PATTERN	226
1	R 1/2 x 12 1/2	3	0	pk	66
38	WELD STUDS 5/8 x 0.6				23

SEE SHEET SS FOR NOTES.

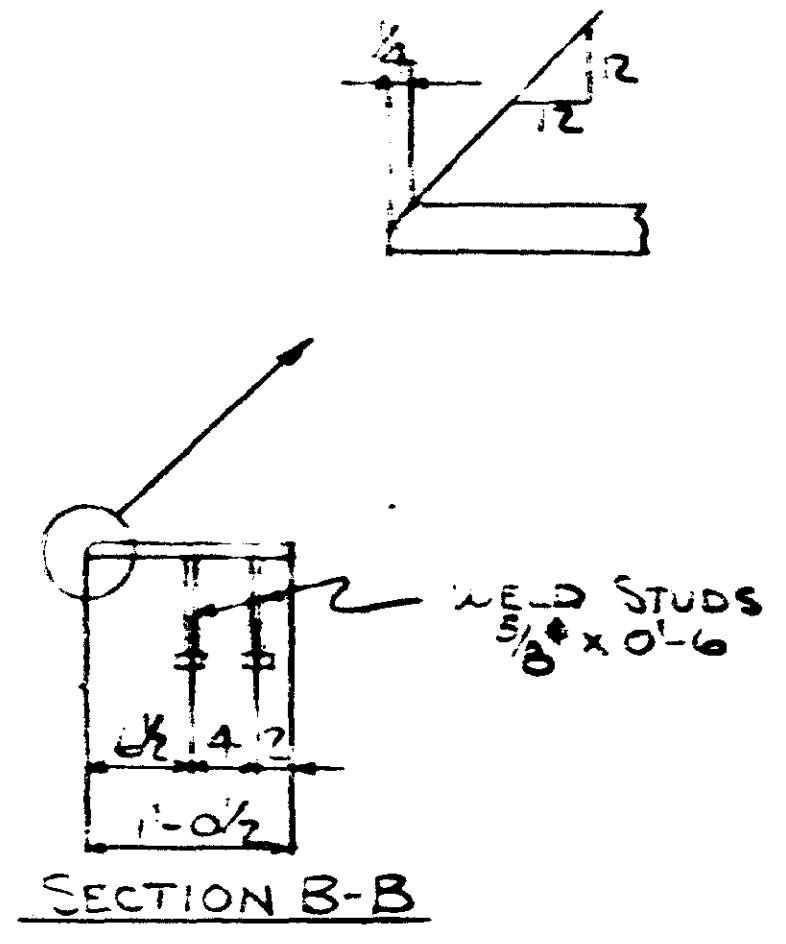
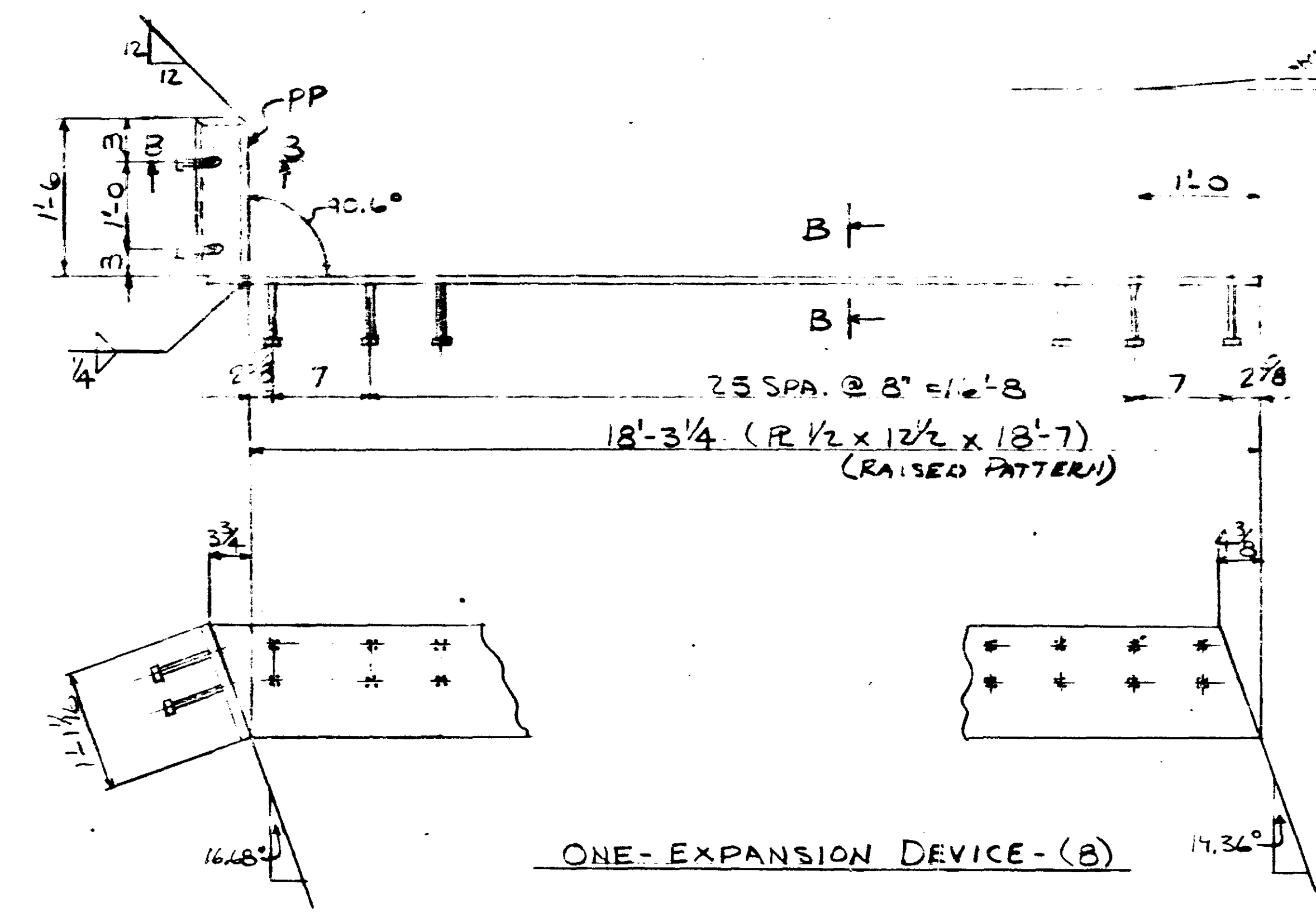
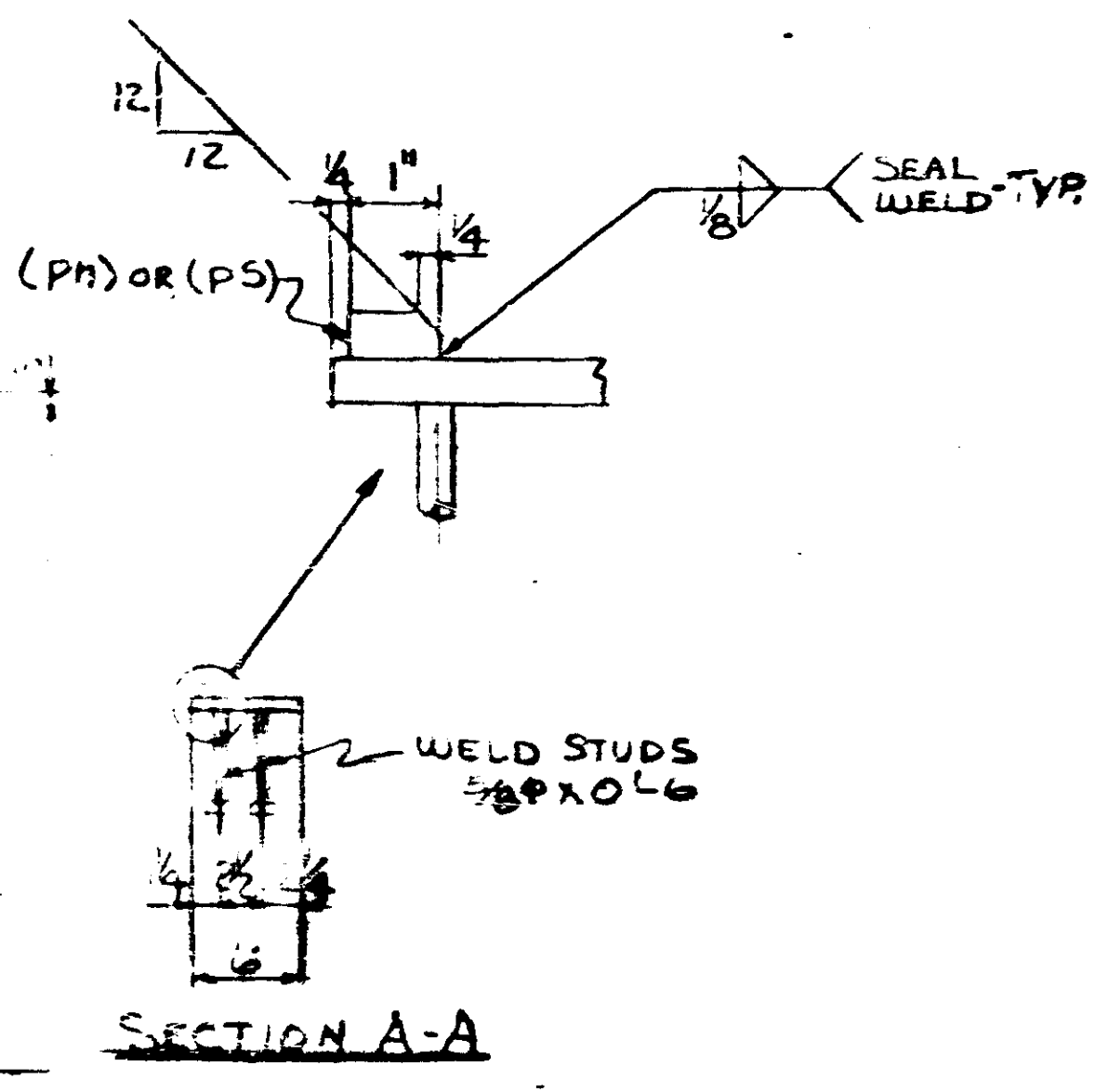
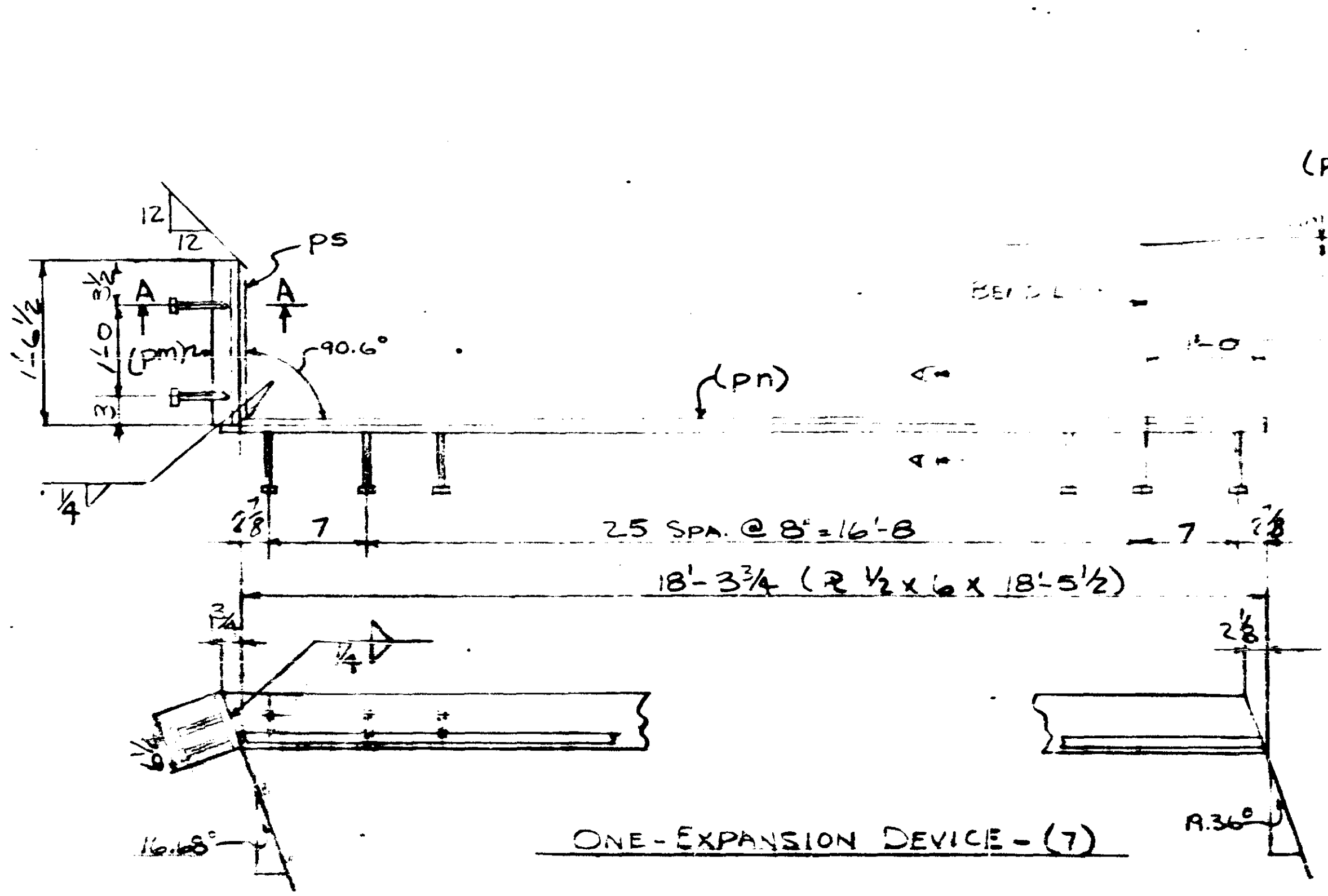
LEWIS ENGINEERING COMPANY
5225 EDEN AVENUE - EDINA, MINNESOTA 55436 - (612) 920-6161

PROJECT - BR. 2440
 STATE PROJECT - 2710-21
 FEDERAL PROJECT - BHF 005-2. (67)
 CONTRACTOR - JOHNSON BROS.
 LOCATION - TH. 65 (3RD AVE. BRIDGE) MPLS., MINN.

DESCRIPTION 4-2-80 - STRUCTURAL STEEL
 SUB: 3-29-80 - SIDEWALK EXPANSION
 LE: 3-21-80 - DEVICES.

Job No.
1643-31
 Drawn By CAD
 Checked By [Signature]
 Approved [Signature] 4-3-80

ADJACENT DOCUMENT WAS SUPPLIED BY AGENCY NAMED BELOW, DURING THE REGULAR COURSE OF BUSINESS. TO BE FILLED BY STATE OF MINNESOTA HYDROGRAPHIC SERVICE UNIT ACCORDING TO NATIONAL BUREAU OF



NO.	DESCRIPTION	LENGTH	UNIT	REMARKS	WGHT
1		FT	INCH		
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11	ONE-EXPANSION DEVICE-(7)				
12	PL 1/2 X 6	16.52			88
13	PL 1/2 X 1/4	1.52	PM		16
14	BAR 1/2 X 1	18.4	PM		31
15	BAR 1/2 X 1	1.0	PS		3
16	WELD STUDS 5/8 X 0-6				36
17					
18					
19					
20					
21					
22	ONE-EXPANSION DEVICE-(8)				
23	PL 1/2 X 12 1/2	18.7		RAISED PATTERN 4.5	
24	PL 1/2 X 13	1.0	PP		33
25	WELD STUDS 5/8 X 0-6				36
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					
57					
58					
59					
60					
61					
62					
63					

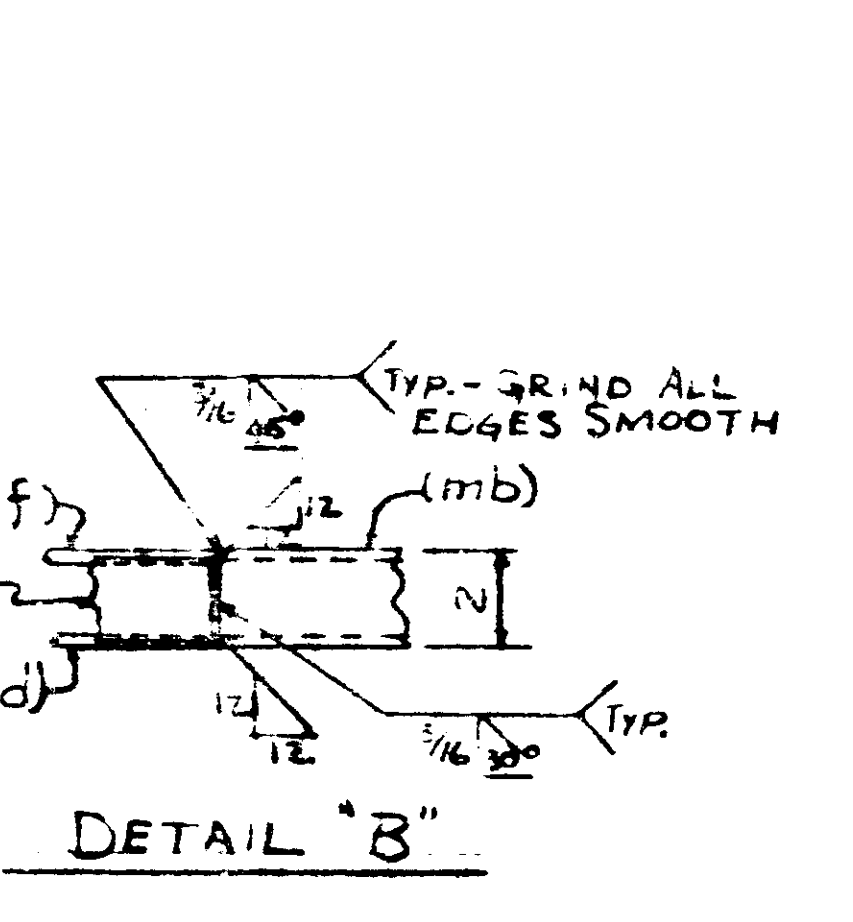
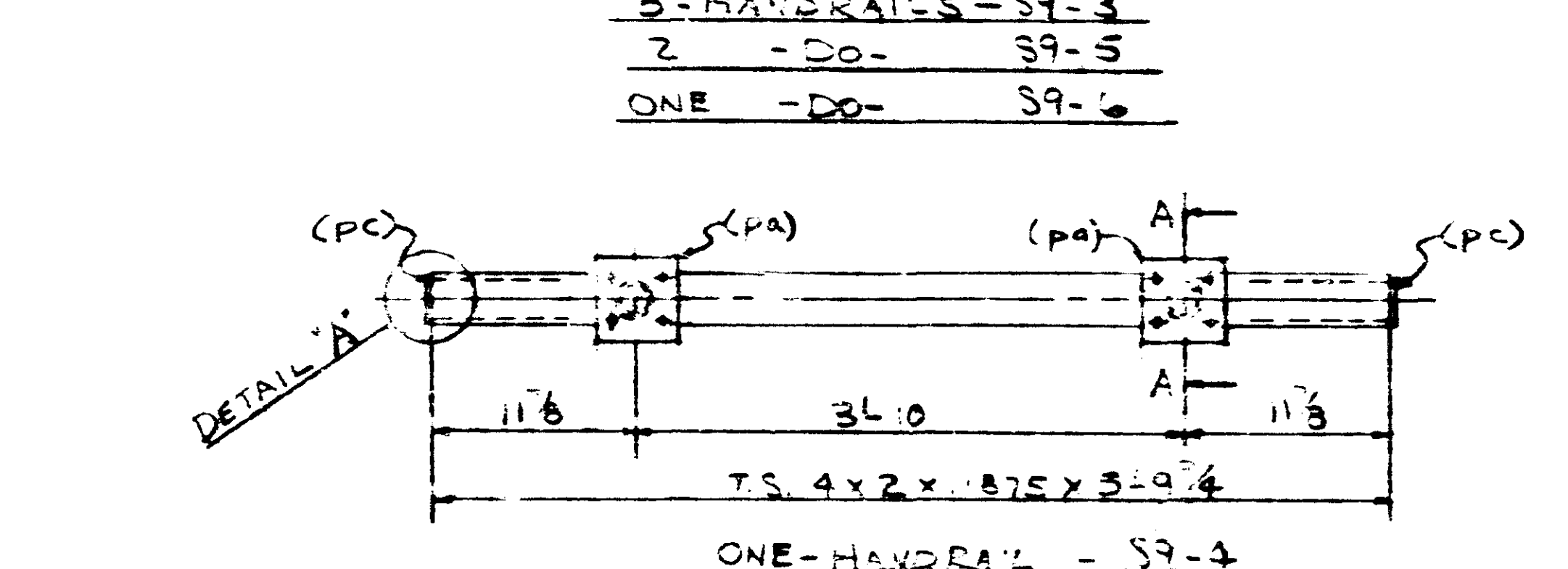
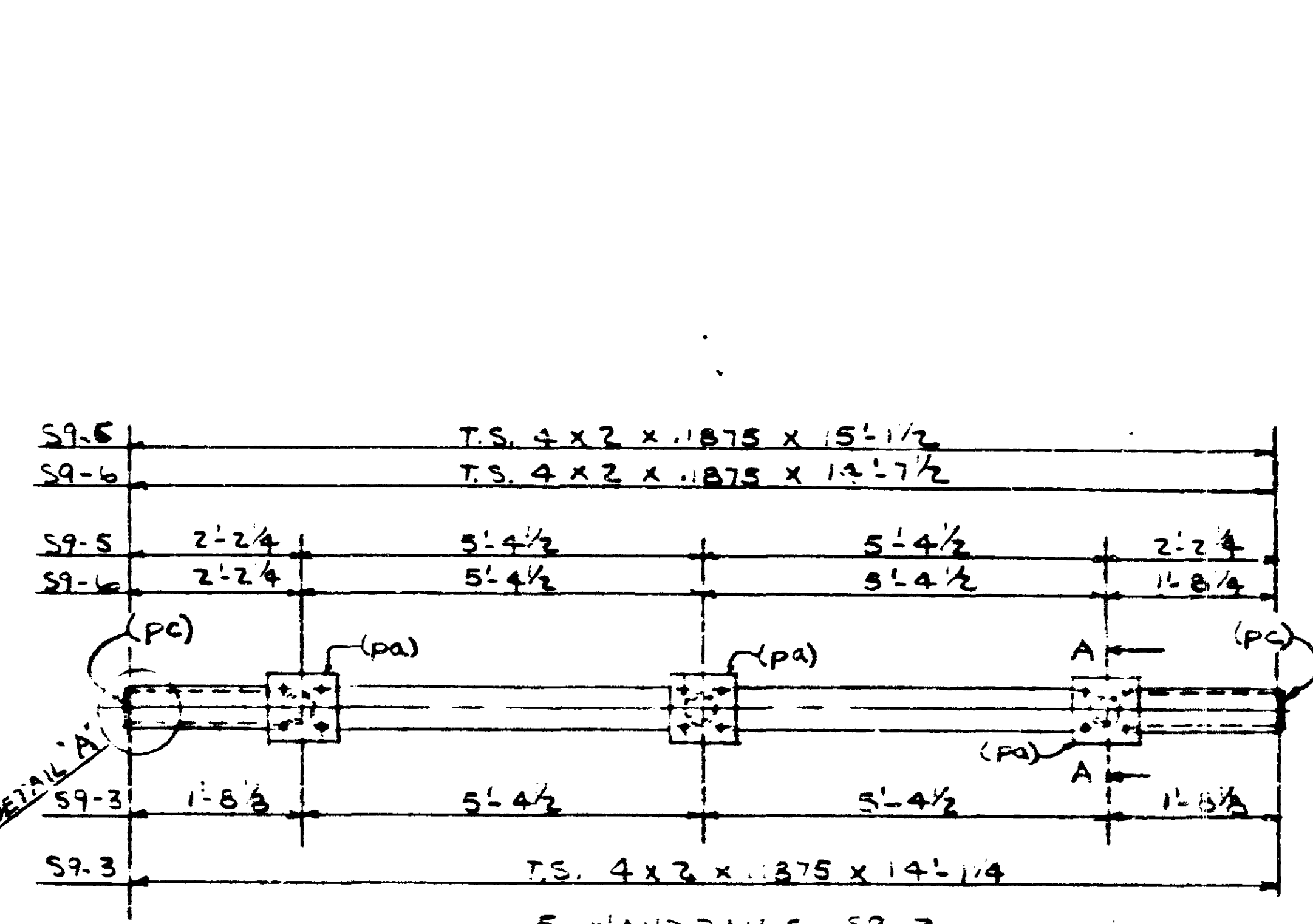
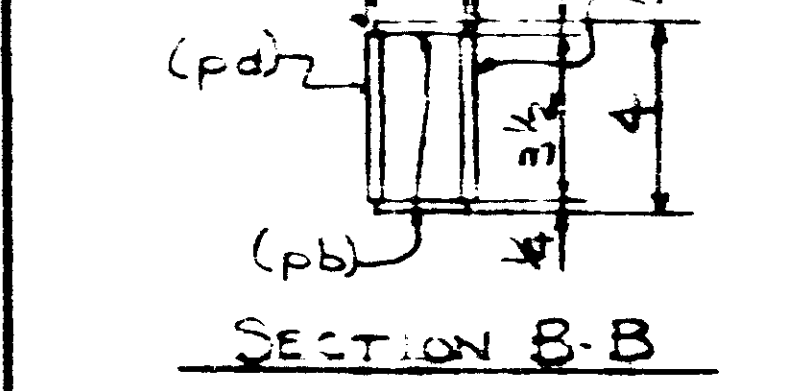
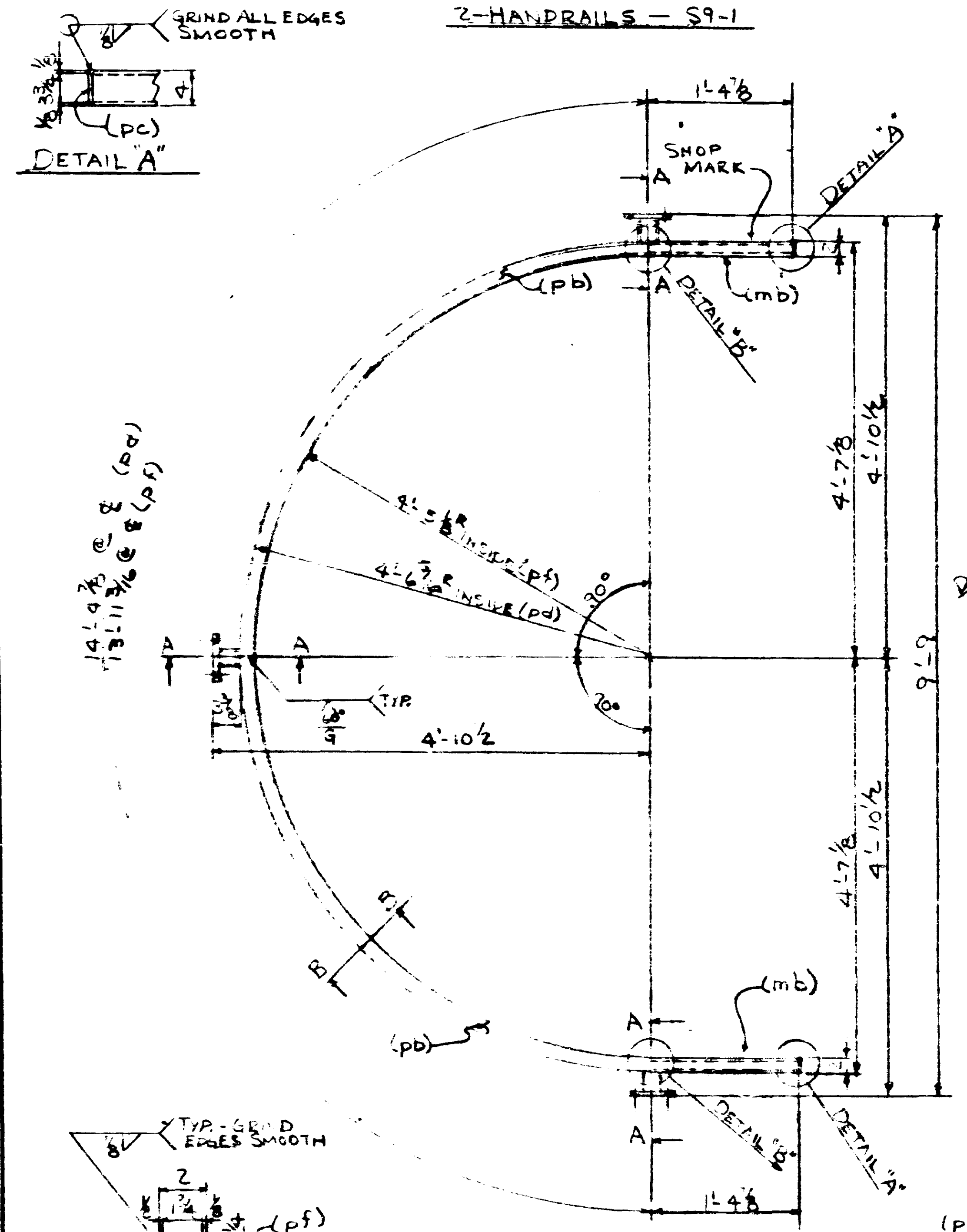
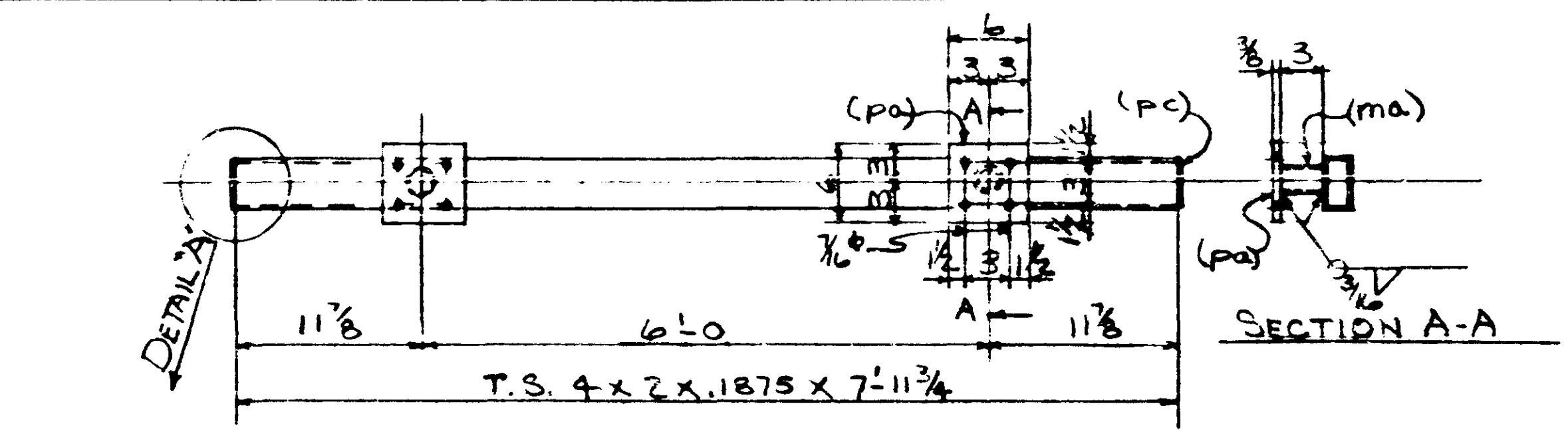
SEE SHEET SS FOR NOTES.

LEWIS ENGINEERING COMPANY
 5229 EDEN AVENUE - EDINA, MINNESOTA 56438 (612) 920-6181

PROJECT - BR. 2440
 STATE PROJECT - 2710-21
 FEDERAL PROJECT - BHF 005-2(67)
 CONTRACTOR - JOHNSON BROS.
 LOCATION - T.H. 65 (3RD AVE. BRIDGE) MPLS., MINN.

DESCRIPTION 4-2-80 - STRUCTURAL STEEL
 DATE 3-28-80 - SIDEWALK EXPANSION
 LET 3-21-80 - DEVICES

Job No. 1643-31
 Drawn By CAD
 Checked By GRS
 Date 7-3-80



- GENERAL NOTES:**
- 1) HANDRAIL TUBING & ANCHORAGE ASSEMBLIES TO BE STRUCTURAL STEEL MIN/DOT 5306.
 - 2) HANDRAIL TUBING & ANCHORAGE SHALL BE CLEANED & PAINTED IN ACCORD. WITH THE APPLICABLE PROVISIONS OF MIN/DOT 2477
 - 3) THE COLOR OF THE VINYL COAT, WHEN DRY, SHALL BE DARK BRONZE MATCHING ANODIC 313.

Δ 10-2-80
6-16-80
SUR: 5-21-80
DETL: 5-19-80

LINE NO.	NO. RECD.	DESCRIPTION	LENGTH FT INCH	MK	REMARKS	WGHT.
1						
2						
3						
4		2-HANDRAILS - S9-1				
5	2	T.S. 4x2x.1875	7 1 3/4			
6	4	STD PIPE 1 1/2"	0 3	ma		
7	4	RS 3/8x1/4	0 6	pa		
8	4	RS 1/2x1/4	0 3 3/4	pc		
9						
10						
11						
12		3-HANDRAILS - S9-2				
13	3	RS 3/8x3/2	14 4 1/2	pd		
14	3	RS 3/8x3/2	13 11 3/4	pf		
15	2	RS 1/4x1 3/4	7 1	pb	ADD 11' FOR FEND.	
16	3	RS		pa		
17	9	STD PIPE		ma		
18	6	RS		pc		
19	6	T.S. 4x2x.1875	1 4 1/2	mb		
20						
21						
22		ONE-HANDRAIL - S9-4				
23	1	T.S. 4x2x.1875	5 9 3/4			
24	2	RS		pa		
25	2	RS		pc		
26	2	STD PIPE		ma		
27						
28						
29		5-HANDRAILS - S9-3				
30	2	-DO-	S9-5			
31	ONE	-DO-	S9-6			
32	5	T.S. 4x2x 3/8"	14 1 1/4		FOR S9-3	
33	2	-DO-	15 1 1/2		FOR S9-5	
34	1	-DO-	14 7 1/2		FOR S9-6	
35	24	RS		pa		
36	24	STD PIPE		ma		
37	16	RS		pc		
38						
39	56	RAWL STUDS 3/8"	0 1/4	pd		
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						
54						
55						
56						
57						
58						
59						
60						
61						
62						
63						

LEWIS ENGINEERING COMPANY
 8228 SOEN AVENUE - EDINA, MINNESOTA 55425 - (612) 820-6191

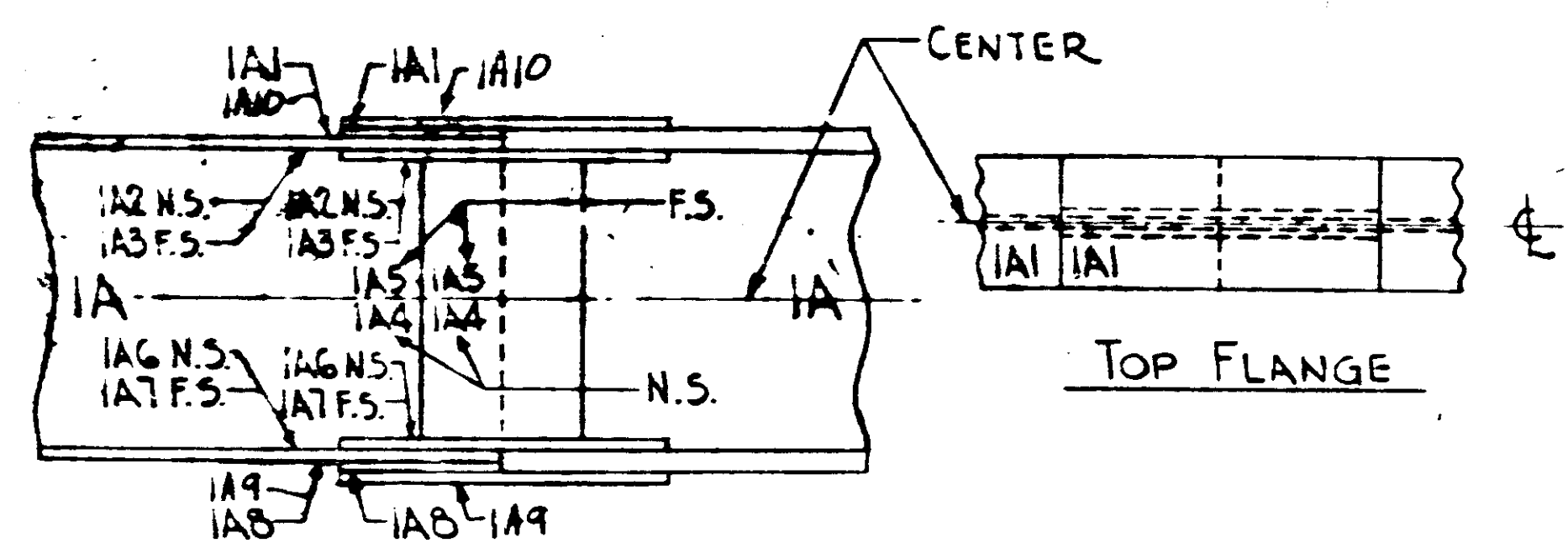
PROJECT - BR. 2440
 STATE PROJECT - 2710-21
 FEDERAL PROJECT - BHF 005-2(67)
 CONTRACTOR - JOHNSON BROS.
 LOCATION - T.H. 65 (3RD AVE BRIDGE MPLS., MINN.)
 DESCRIPTION - STRUCTURAL STEEL - STAIR HANDRAILS

Job No. 1643-31
 Drawn By CAD
 Checked By EAS
 Approved
 10-2-80

B A325 TYPE 3 ERECTION BOLT LIST			
LOCATION	GRIP	LENGTH	QTY
INTER. DIAPHS 101 THRU 1013 & 121 THRU 2013	1/2	0-2 1/2	864
DIAPHRAGMS - 7DI - 8DI 9DI & 10DI	3/4	0-2 1/2	192
DIAPHRAGM ANGLE 6A3	3/4	0-2 1/2	72
GIRDER J1 To DIAPH 6D5	3/4	0-2 1/2	9
DIAPH 6D5 To GIRDERS H1 & K1	3/4	0-2 1/2	14
INTER. DIAPHRAGMS 3F1	3/4	0-2 1/2	288
WEB SPLICES	1 1/8	0-2 1/2	1242
INTER. DIAPHRAGMS 6A1	1 1/8	0-2 1/2	108
W14 DIAPHRAGMS SOUTH ABUT	1 1/8	0-2 1/2	252
SPLICE #1 TOP FLG. LINE F & G (FILL)	1 1/2	0-3	32
SPLICE #1 TOP FLG. LINE H (FILL)	1 3/8	0-3	18
SPLICE #1 TOP FLG. 7L LINE H	1 5/16	0-3 1/2	2
W14 DIAPHS & 10D3 DIAPH @ ARCH PIER	1 1/8	0-2 1/2	240
BENT #1 DIAPHS 3F2, 10D2 & 6A4	1 1/8	0-3 1/4	92
SPLICE #1 TOP FLG. LINES A & B	2 1/8	0-3 1/2	160
SPLICE #2 TOP FLG. LINES A & B	2 1/8	0-3 1/2	160
SPLICE #2 TOP FLG. LINES C, D, & E	2 1/4	0-3 3/4	240
SPLICE #2 TOP FLG. LINE K	2 3/8	0-3 3/4	80
SPLICE #1 TOP FLG. LINES C, D & E	2 1/4	0-3 3/4	120
SPLICE #1 TOP FLG. LINE K	2 3/8	0-3 3/4	40
BENT #1 DIAPHRAGM 6A2	2 1/4	0-3 3/4	6
SPLICE #1 BOT. FLG. LINES C, D & E	2 1/4	0-3 3/4	160
SPLICE #1 TOP FLG. LINES F & G	2 1/2	0-4	80
SPLICE #1 TOP FLG. LINE H	2 3/8	0-4	40
SPLICE #2 TOP FLG. LINES F & G	2 1/2	0-4	160
SPLICE #2 TOP FLG. LINE H	2 3/8	0-4	80
SPLICE #1 BOT. FLG. LINE K	2 3/4	0-4 1/2	50
SPLICE #1 BOT. FLG. LINE H	3 1/4	0-4 3/4	72
SPLICE #1 BOT. FLG. LINES F & G	3	0-4 1/2	120

SHEET SCHEDULE	
SHT. NO.	DESCRIPTION
32	GIRDER H1
33	GIRDER H2
34	GIRDER H3
35	GIRDER J1
36	GIRDER K1
37	GIRDER K2
38	GIRDER K3

SHEET SCHEDULE	
SHT. NO.	DESCRIPTION
E1	GEN. NOTES & EREC. BOLTS
E2	ERECTION PLAN
C1	CAMBER DIAGRAM
C2	CAMBER DIAGRAM
C3	CAMBER DIAGRAM
C4	CAMBER DIAGRAM
C5	BLOCKING DIAGRAM
C5A	BLOCKING DIAGRAM
1	BENT & DIAPHRAGMS
2	BENT & DIAPHRAGMS
3	CROSSFRAMES
4	W14 DIAPHRAGMS
5	W14 DIAPHRAGMS
6	CONDUIT SUPPORT DIAPHS
7	WATERMAIN DIAPHRAGMS
8	WATERMAIN DIAPHRAGMS
9	WATERMAIN DIAPHRAGMS
10	WATERMAIN DIAPHRAGMS
11	GIRDER A1
12	GIRDER A2
13	GIRDER A3
14	GIRDER B1
15	GIRDER B2
16	GIRDER B3
17	GIRDER C1
18	GIRDER C2
19	GIRDER C3
20	GIRDER D1
21	GIRDER D2
22	GIRDER D3
23	GIRDER E1
24	GIRDER E2
25	GIRDER E3
26	GIRDER F1
27	GIRDER F2
28	GIRDER F3
29	GIRDER G1
30	GIRDER G2
31	GIRDER G3



TYPICAL MATCHMARKING DIAGRAM FOR SPLICE MATERIAL.

THE INTERSECTION OF A GIRDER LINE NUMBER & JOINT NUMBER WILL FORM AN IDENTIFICATION MATCH MARK. EXAMPLE; IA. THIS MARK WILL BE PLACED ON THE ENDS OF THE GIRDERS AT THE SPLICES. ALL SPLICE MATERIAL WILL BE MARKED WITH THE IDENTIFICATION MATCH MARK PLUS A DIFFERENT SUFFIX NUMERAL FOR EACH INDIVIDUAL PIECE OF SPLICE MATERIAL. EXAMPLE; IA2. CORRESPONDING MARKS ALSO WILL BE AFFIXED ON THE GIRDERS. THE MARKS MUST BE POSITIONED TO PREVENT INTERCHANGE OR ROTATION OF THE SPLICE MATERIAL. MATCHMARKS SHALL BE PLACED ON THE OUTSIDE FACE OF THE SPLICE MATERIAL WITH MARKS OPPOSITE EACH OTHER IN AN OFF-CENTER OF PLATE POSITION & SHALL BE CLEARLY MADE WITH 1/2" SIZE STEEL NUMBERING DIES.

NOTES:

1. WORKMANSHIP AND MATERIALS TO BE IN ACCORDANCE WITH THE 1978 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION & SPECIAL PROVISIONS.
2. ALL STEEL FOR STRUCTURAL ITEMS SHALL CONFORM TO MN./DOT 3309 (STRUCTURAL STEEL) UNLESS OTHERWISE NOTED.
3. ALL FIELD CONNECTIONS TO BE BOLTED USING 3/4" TYPE 3 STRUCTURAL BOLTS UNLESS OTHERWISE NOTED.
4. HOLES 1 1/2" U.N. - FOR 1 1/2" HOLES IN DIAPHRAGM CONNS USE 1 WASHER UNDER HEAD AND 1 WASHER UNDER NUT.
5. SPECIAL REAMING PER MN./DOT. 2471.3E1D WILL BE REQUIRED FOR THE BOLTED BEAM SPLICES. HOLES SHALL BE SUB-PUNCHED OR SUBDRILLED 1 1/2" AND REAMED TO 1 1/2" IN ASS-EMBLIED POSITION. THE SECTION TO BE ASSEMBLED FOR REAMING SHALL HAVE A LENGTH NO SHORTER THAN THE LENGTH SUPPORTED BY THREE ADJACENT POINTS OF BEARING. ALL OTHER HOLES MAY BE FULL PUNCHED PER MN./DOT. 2471.3E1a. (ON SPLICES TO HAVE (1) WASHER)
6. SHOP INSPECTION BY MN./DOT.
7. STRUCTURAL STEEL 3309 TO BE CLEANED IN THE FIELD PER SPECIAL PROVISIONS. SB-10.2
8. EDGE FINISH PER MN./DOT. 2471.3C4 & 2471.3D4.
9. WELDING PER MN./DOT. 2471.3J.
10. SHEAR STUDS INSTALLED IN THE FIELD.
11. BOLT SHIP ALL SPLICE MATERIAL.

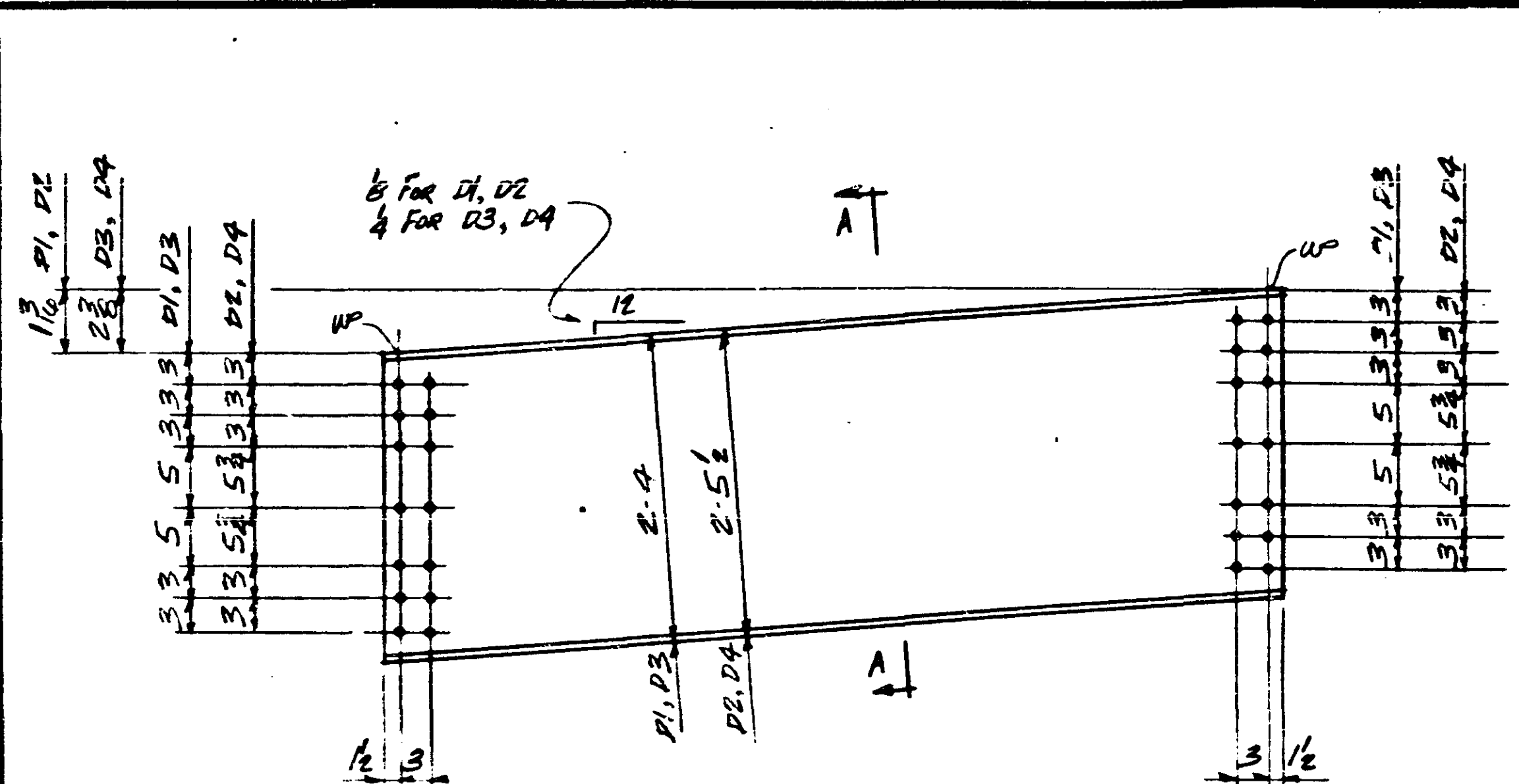
STATE PROJ. NO. 2710-21 (T.H. 65 = 105)
 FED. PROJ. NO. BHF 005-2(67)

ST. PAUL STRUCTURAL STEEL CO.
 162 YORK AVE. ST. PAUL, MN.

DESCRIPTION BRIDGE No. 2440
 LOCATION 3RD AVE. OVER MISS RIVER MP5.
 CUSTOMER JOHNSON BROS. CORP
 ARCHITECT MINN. DEPT. TRANSPORTATION
 MADE BY ALAN DATE 12-19-79
 CHECKED BY HJK DATE 1/4/80

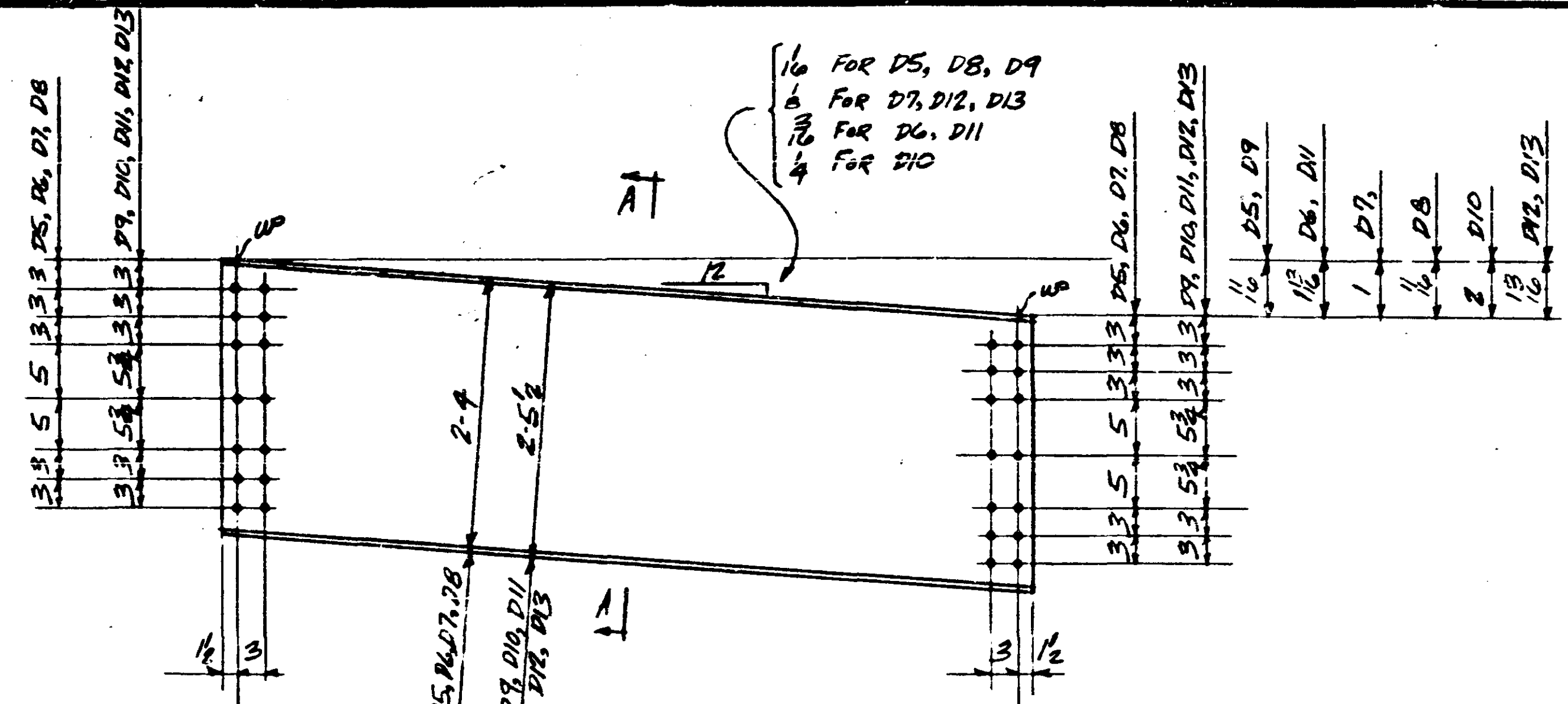
SHOP PAINT UNLESS NOTED

CONTRACT NO. 42000 SHEET E1



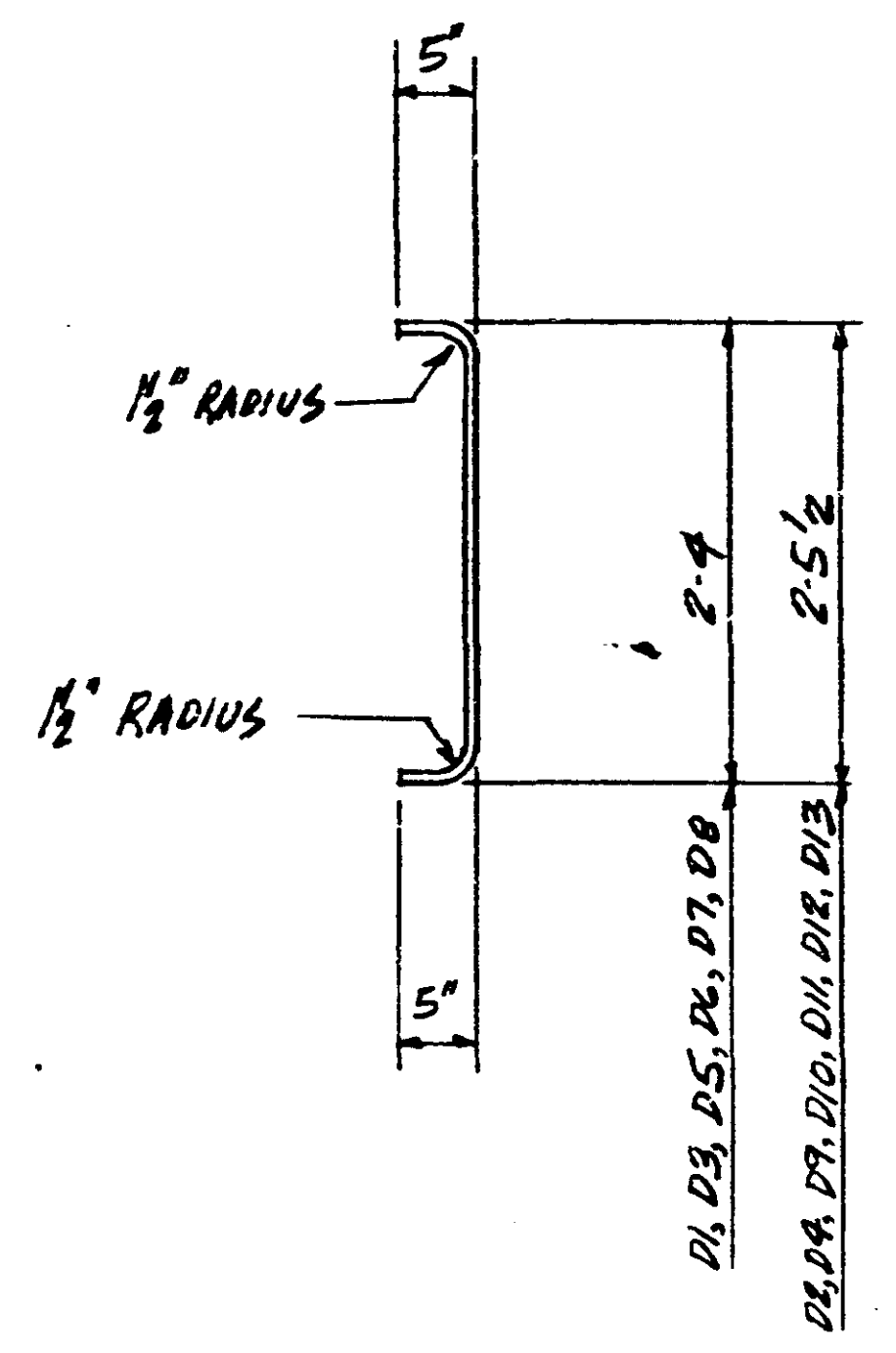
D1	8-10 1/2	BT. PL 5/16	x 36	x 9-1 3/8	(2)	PS-13
D2	8-10 1/2	D0	x 37 1/2	x 9-1 3/8	(2)	PS-13
D3	8-10 1/2	D0	x 36	x 9-2 1/4	(1)	PS-13
D4	8-10 1/2	D0	x 37 1/2	x 9-2 5/16	(1)	PS-13

2-DIAPHRAGMS-1D1 2-DIAPHRAGMS-1D2
 1-DIAPHRAGM-1D3 1-DIAPHRAGM-1D4



D5	8-10 1/2	BT. PL 5/16	x 36	x 9-1 1/16	(1)	PS-13
D6	8-10 1/2	D0	x 36	x 9-2 1/16	(2)	PS-13
D7	8-1	D0	x 36	x 8-4 3/8	(1)	PS-13
D8	7-11	D0	x 36	x 8-2 3/8	(1)	PS-13
D9	8-10 1/2	D0	x 37 1/2	x 9-1 1/16	(1)	PS-13
D10	8-10 1/2	D0	x 37 1/2	x 9-2 5/16	(1)	PS-13
D11	8-10 1/2	D0	x 37 1/2	x 9-2 1/16	(1)	PS-13
D12	7-14	D0	x 37 1/2	x 7-4 5/8	(1)	PS-13
D13	6-1 15/16	D0	x 37 1/2	x 7-3 5/16	(1)	PS-13

1-DIAPHRAGM-1D5 2-DIAPHRAGMS-1D6 1-DIAPHRAGM-1D7
 1-DIAPHRAGM-1D8 1-DIAPHRAGM-1D9 1-DIAPHRAGM-1D10
 1-DIAPHRAGM-1D11 1-DIAPHRAGM-1D12 1-DIAPHRAGM-1D13

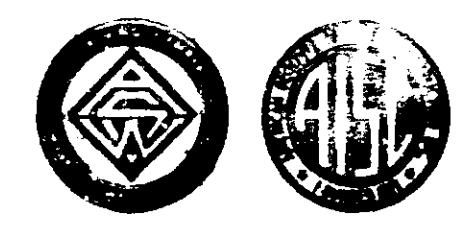


SECTION A-A

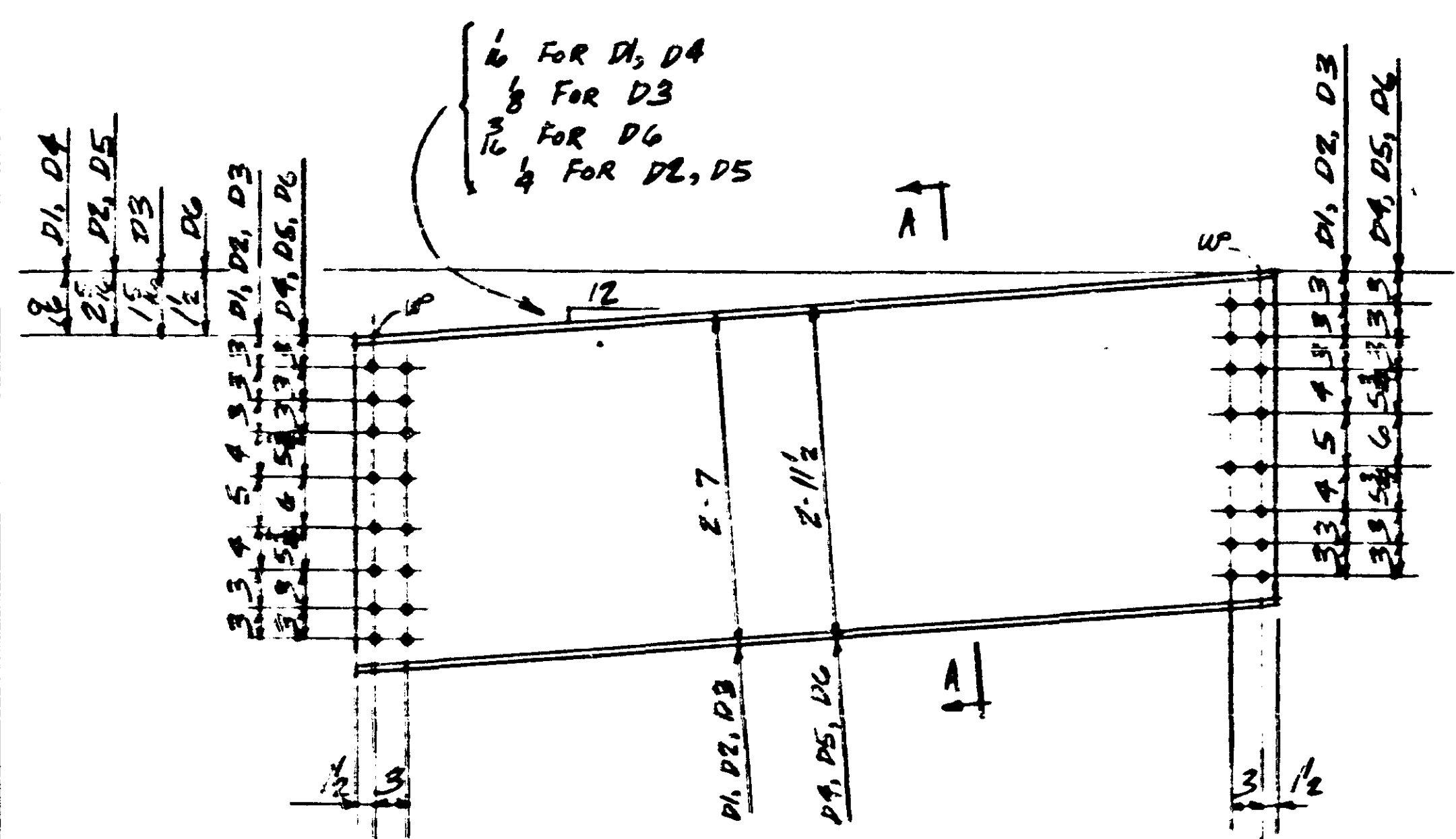
ITEM	QTY	MATERIAL
1D1	2	BT. PL 5/16 x 36 x 9-1 3/8
1D2	2	D0 x 37 1/2 x 9-1 3/8
1D3	1	D0 x 36 x 9-2 1/4
1D4	1	D0 x 37 1/2 x 9-2 5/16
1D5	1	D0 x 36 x 9-1 1/16
1D6	2	D0 x 36 x 9-2 1/16
1D7	1	D0 x 36 x 8-4 3/8
1D8	1	D0 x 36 x 8-2 3/8
1D9	1	D0 x 37 1/2 x 9-1 1/16
1D10	1	D0 x 37 1/2 x 9-2 5/16
1D11	1	D0 x 37 1/2 x 9-2 1/16
1D12	1	D0 x 37 1/2 x 7-4 5/8
1D13	1	BT. PL 5/16 x 37 1/2 x 7-3 5/16

1/16 FOR D5, D8, D9
 3/16 FOR D7, D12, D13
 3/16 FOR D6, D11
 1/4 FOR D10

NOTES: SEE SHIT E2 FOR ERECTION PLAN & E1 FOR ADDITIONAL NOTES.
 MATERIAL PER MN/DOT 3309.



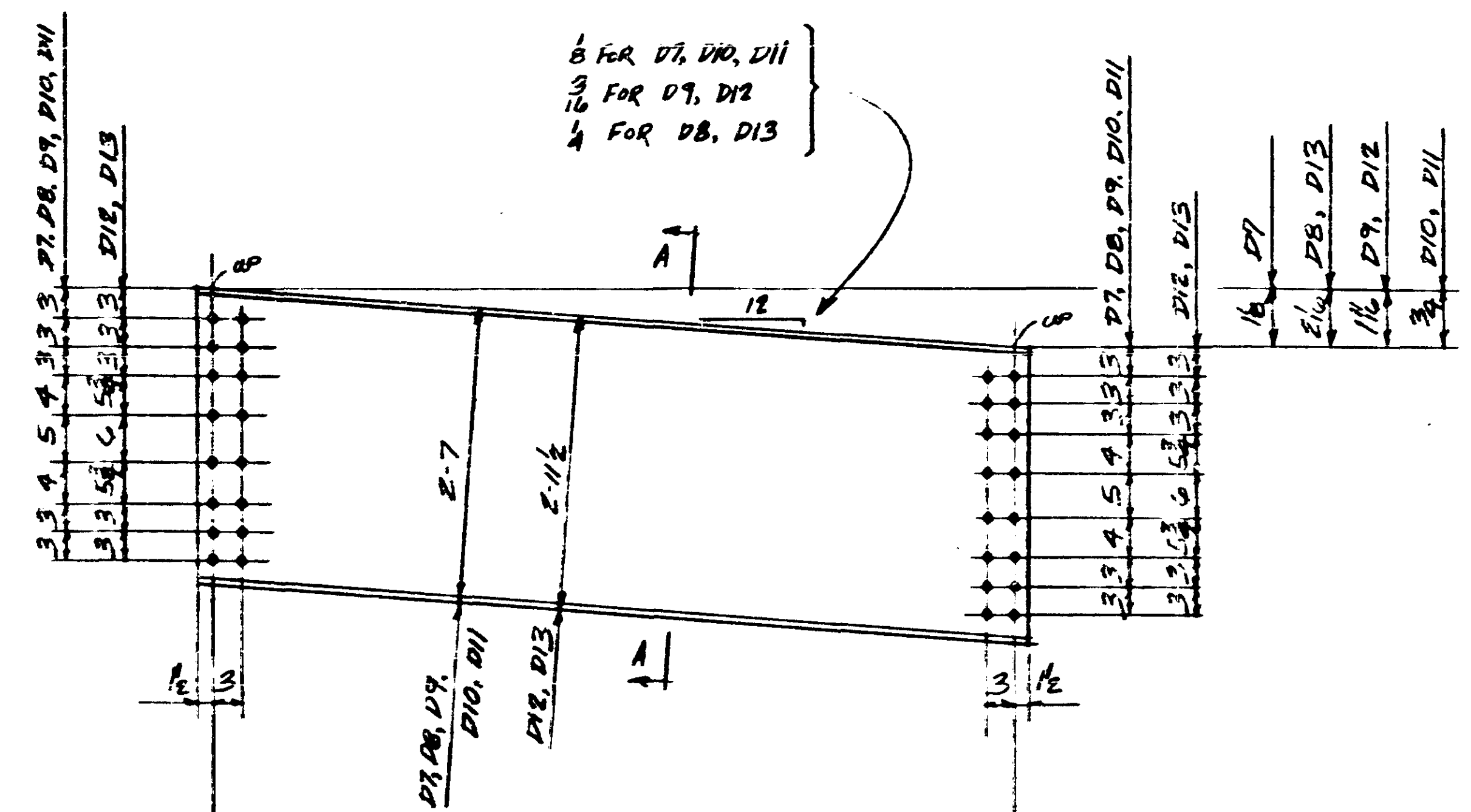
ST. PAUL STRUCTURAL STEEL CO.	
BRIDGE NO. 2440	DATE 10-8-79
MADE BY PRF	DATE 11/28/79
CHECKED BY HJK	DATE 11/28/79
SHOP PAINT NONE	
STATE PROJ. No. E710-21(TH 65-105)	OPEN HOLES 1/16" UNLESS NOTED
FED PROJ. No. BHF 005-2(67)	CONTRACT NO. 42000 SHEET 1
DESCRIPTION: ST. R. DIAPHRAGMS	



$\frac{1}{16}$ FOR D1, D4
 $\frac{3}{8}$ FOR D3
 $\frac{3}{16}$ FOR D6
 $\frac{1}{4}$ FOR D2, D5

D1	8-10 1/2	BT R 5/16	X 39 X 9-1 1/16	(1)	P5-13
D2	8-10 1/2	D6	X 39 X 9-2 5/16	(1)	P5-13
D3	8-10 1/2	D6	X 39 X 9-1 5/16	(1)	P5-13
D4	8-10 1/2	D6	X 43 1/2 X 9-1 3/4	(1)	P5-13
D5	8-10 1/2	D6	X 43 1/2 X 9-2 3/16	(1)	P5-13
D6	8-10 1/2	D6	X 43 1/2 X 9-2 3/16	(1)	P5-13

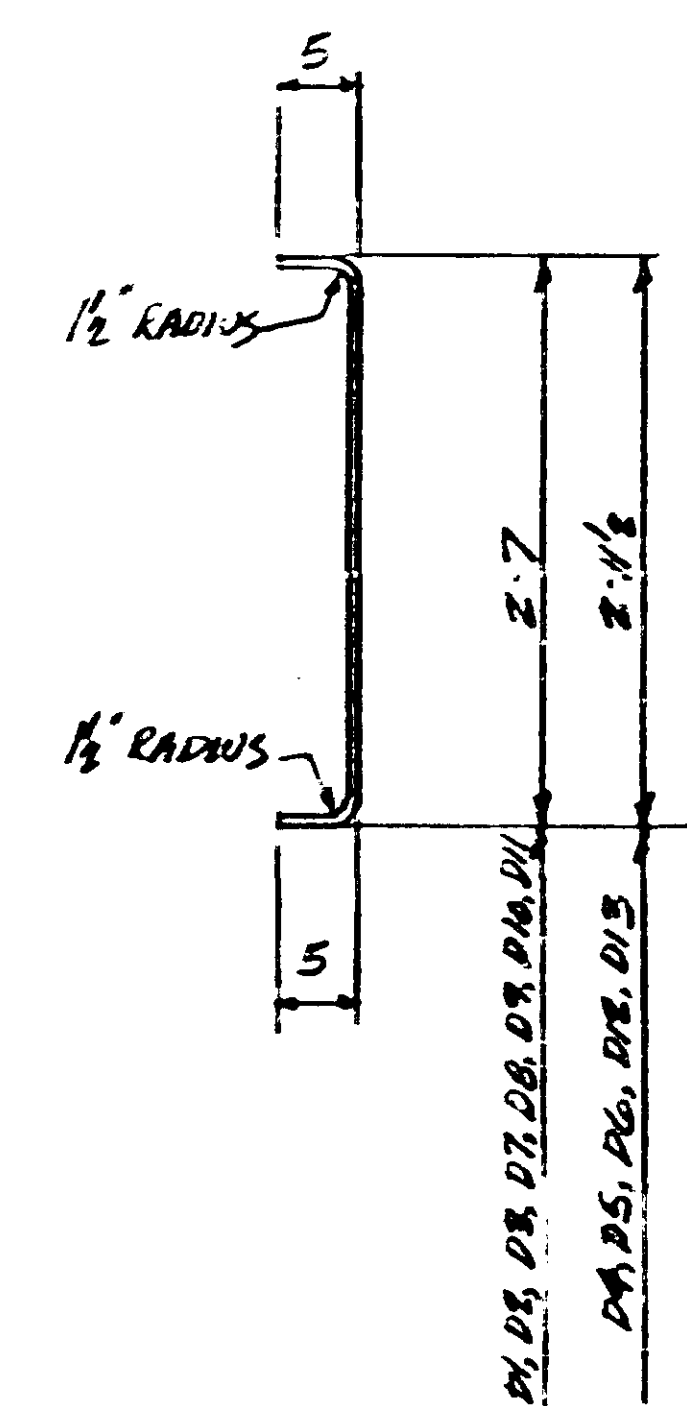
1-DIAPHRAGM-2D1 1-DIAPHRAGM-2D2 1-DIAPHRAGM-2D3
 1-DIAPHRAGM-2D4 1-DIAPHRAGM-2D5 1-DIAPHRAGM-2D6



$\frac{3}{8}$ FOR D7, D10, D11
 $\frac{3}{16}$ FOR D9, D12
 $\frac{1}{4}$ FOR D8, D13

D7	8-10 1/2	BT R 5/16	X 39 X 9-1 5/16	(1)	P5-13
D8	8-10 1/2	D6	X 39 X 9-2 5/16	(1)	P5-13
D9	8-10 1/2	D6	X 39 X 9-2 1/16	(1)	P5-13
D10	6-1 1/2	D6	X 39 X 6-5	(1)	P5-13
D11	6-0 5/16	D6	X 39 X 6-4 3/8	(1)	P5-13
D12	8-10 1/2	D6	X 43 1/2 X 9-2 3/16	(1)	P5-13
D13	8-10 1/2	D6	X 43 1/2 X 9-2 7/16	(1)	P5-13

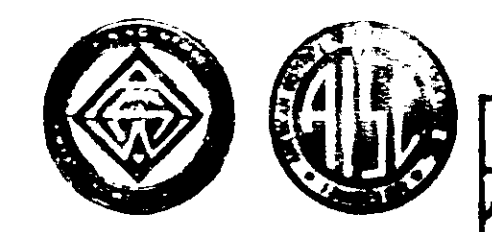
1-DIAPHRAGM-2D7 1-DIAPHRAGM-2D8 1-DIAPHRAGM-2D9
 1-DIAPHRAGM-2D10 1-DIAPHRAGM-2D11 1-DIAPHRAGM-2D12
 1-DIAPHRAGM-2D13



SECTION A-A

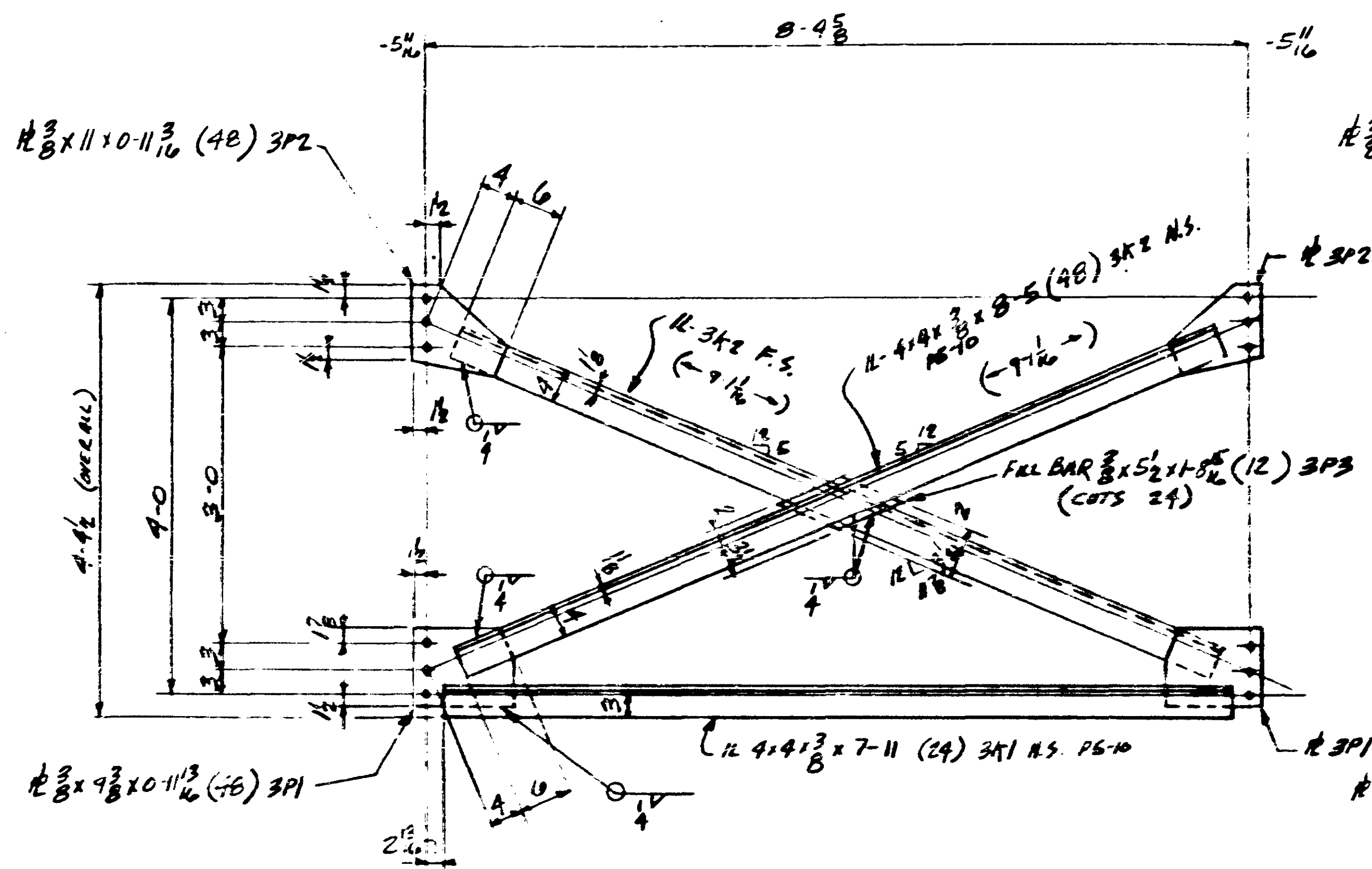
ITEM	QTY	MATERIAL
2D1	1	BT R 5/16 X 39 X 9-1 1/16
2D2	1	D6 X 39 X 9-2 5/16
2D3	1	D6 X 39 X 9-1 5/16
2D4	1	D6 X 43 1/2 X 9-1 3/4
2D5	1	D6 X 43 1/2 X 9-2 3/16
2D6	1	D6 X 43 1/2 X 9-2 3/16
2D7	1	D6 X 39 X 9-1 5/16
2D8	1	D6 X 39 X 9-2 5/16
2D9	1	D6 X 39 X 9-2 1/16
2D10	1	D6 X 39 X 6-5
2D11	1	D6 X 39 X 6-4 3/8
2D12	1	D6 X 43 1/2 X 9-2 3/16
2D13	1	BT R 5/16 X 43 1/2 X 9-2 7/16

NOTES: SEE SHEET E2 FOR ERECTION PLAN & E1
 FOR ADDITIONAL NOTES.
 MATERIAL PER MN/DOT 3309.

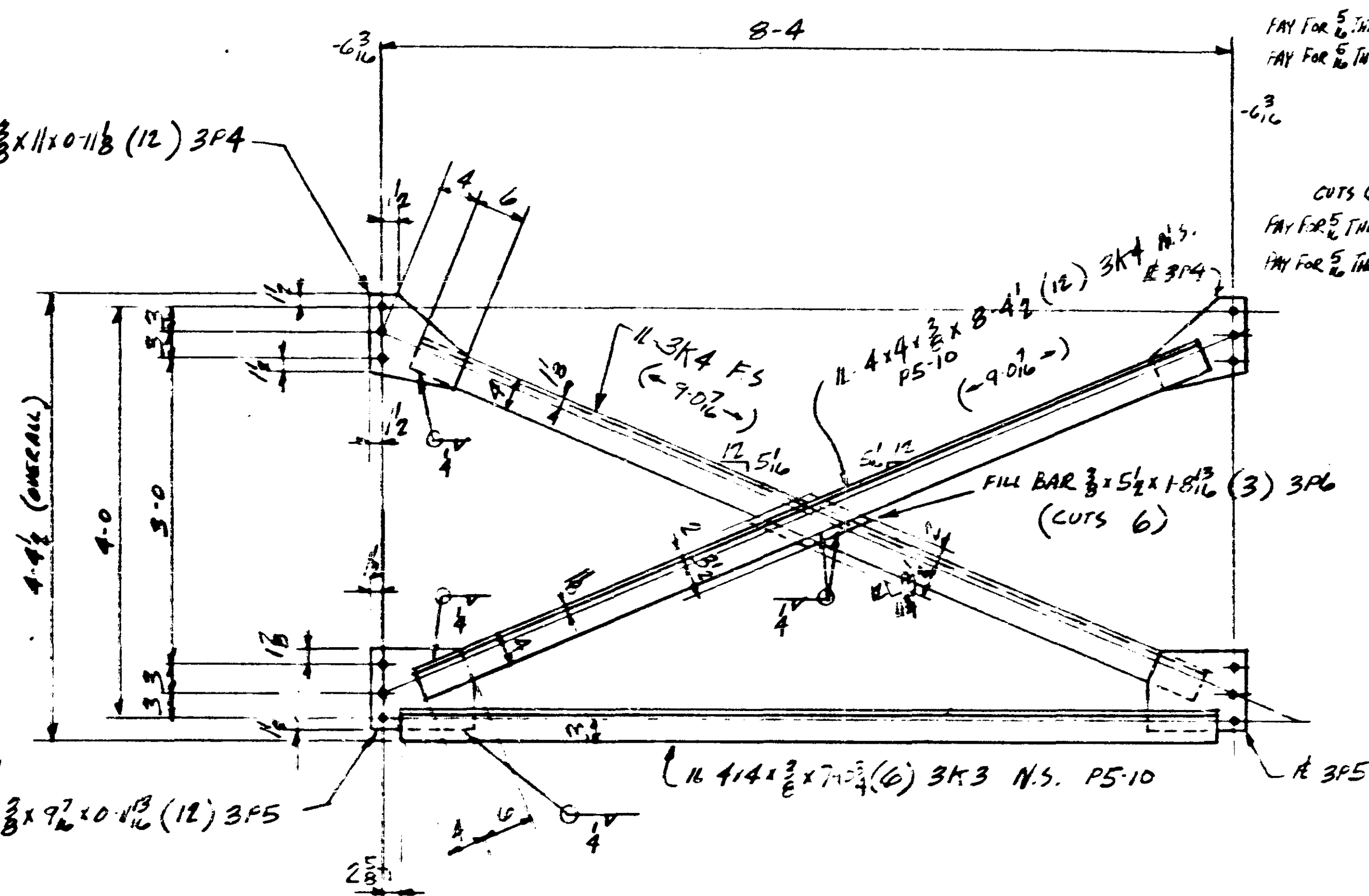


ST. PAUL STRUCTURAL STEEL CO.	
102 YORK AVE.	ST. PAUL, MINN 55117
BRIDGE NO. 2440	
MADE BY RKF	DATE 10-9-79
CHECKED BY HJK	DATE 11/28/79
SHOP PAINT NONE	
STATE PROJ. No. 2710-2(TH65=105)	OPEN HOLES 1/16" UNLESS NOTED
FED PROJ. No. 84F 005-2(67)	CONTRACT NO. 42000 SHEET 2

DESCRIPTION: BT R DIAPHRAGMS



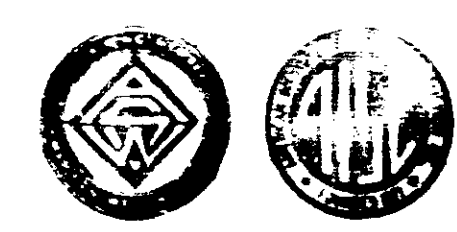
24 - FRAMES - 3F1



6 - FRAMES - 3F2

ITEM	QTY	MATERIAL
3P1	48	$R \frac{3}{8} \times 9 \frac{3}{8} \times 0-11 \frac{3}{16}$
3P2	48	$R \frac{3}{8} \times 11 \times 0-11 \frac{3}{16}$
CUTS 24	3P3	12 BAR $\frac{3}{8} \times 5 \frac{1}{2} \times 1-8 \frac{15}{16}$
1AY FOR 5 INCH	3A1	24 $L 4 \times 4 \times \frac{3}{8} \times 7-11$
1AY FOR 6 INCH	3A2	48 $L 4 \times 4 \times \frac{3}{8} \times 8-5$
CUTS 6	3P4	12 $R \frac{3}{8} \times 11 \times 0-11 \frac{3}{16}$
1AY FOR 5 INCH	3P5	12 $R \frac{3}{8} \times 9 \frac{7}{16} \times 0-11 \frac{3}{16}$
1AY FOR 6 INCH	3P6	3 BAR $\frac{3}{8} \times 5 \frac{1}{2} \times 1-8 \frac{15}{16}$
	3A3	6 $L 4 \times 4 \times \frac{3}{8} \times 7-10 \frac{3}{4}$
	3A4	12 $L 4 \times 4 \times \frac{3}{8} \times 8-4 \frac{1}{2}$

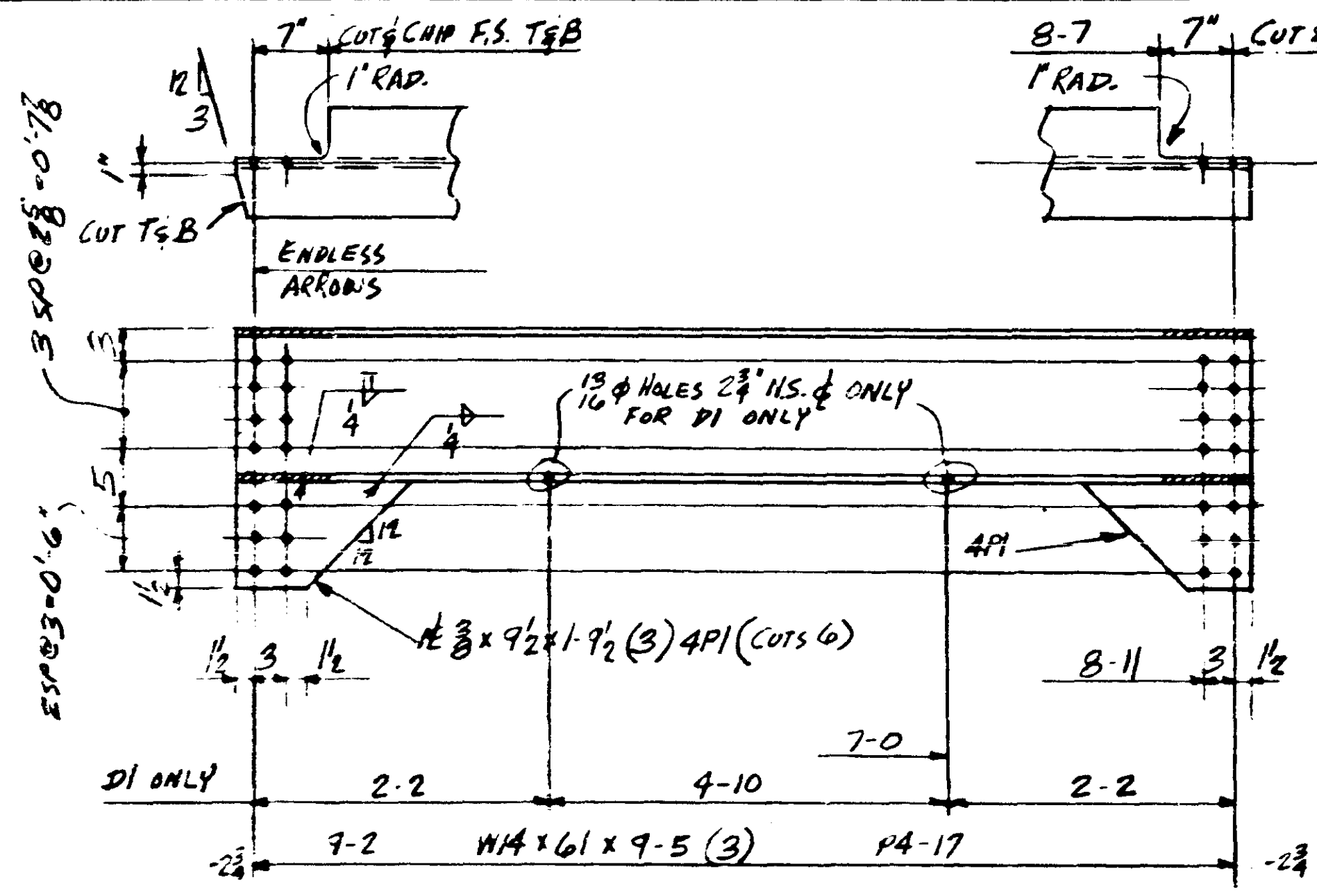
NOTES: SEE SHEET E2 FOR ERECTION PLAN & E1 FOR ADDITIONAL NOTES.
MATERIAL PER M/N/DOT 3307.



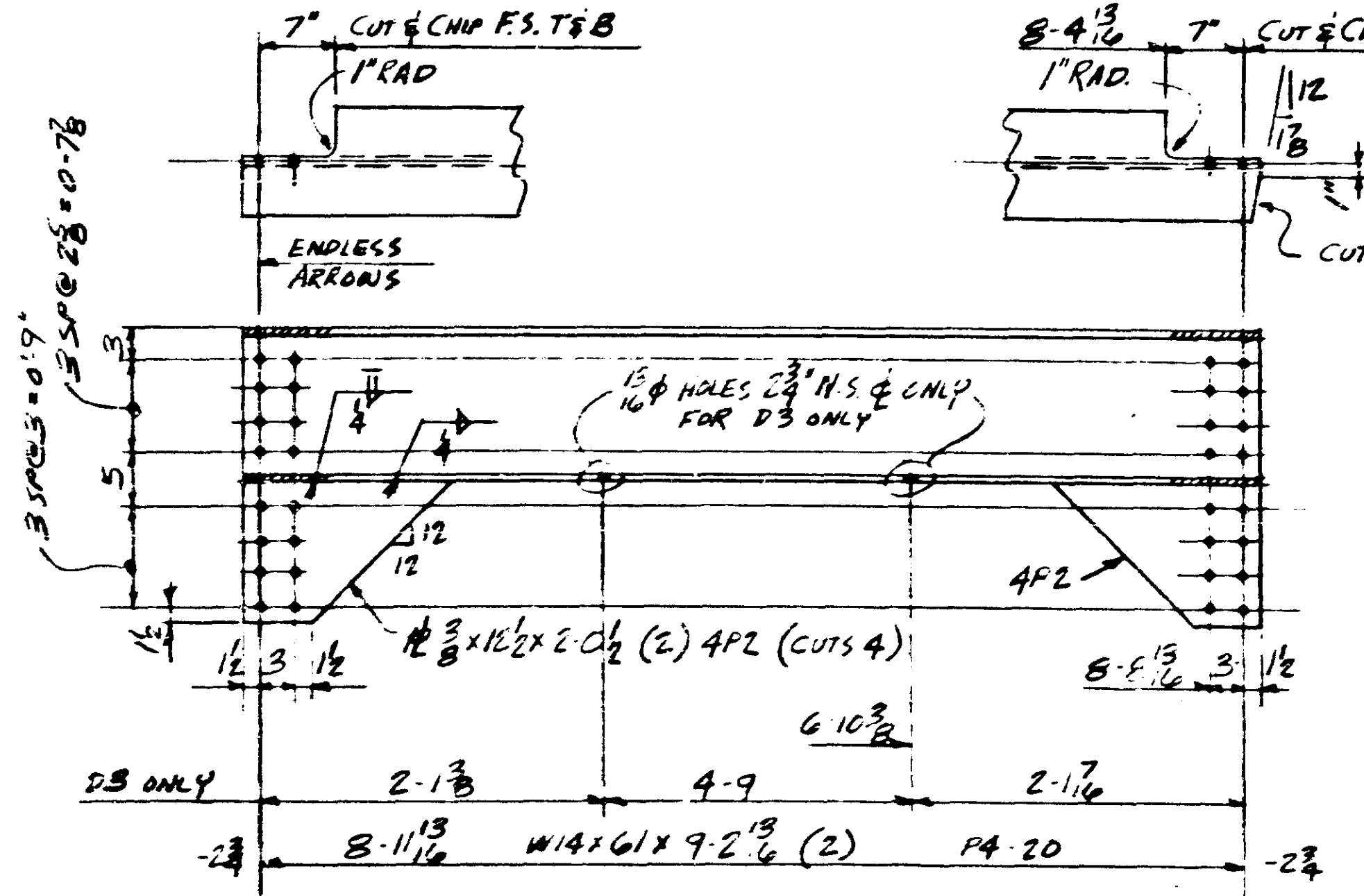
STATE PROJ. No. 2710-21 (TH 65-105)
FED PROJ. No. BHF 005-2(67)

ST. PAUL STRUCTURAL STEEL CO.	
BRIDGE NO.	2440
MADE BY	RKF DATE 10-9-79
CHECKED BY	HJK DATE 11/28/79
SHOP PAINT	NONE
OPEN HOLES	1/16" UNLESS NOTED
CONTRACT NO.	42000 SHEET 3

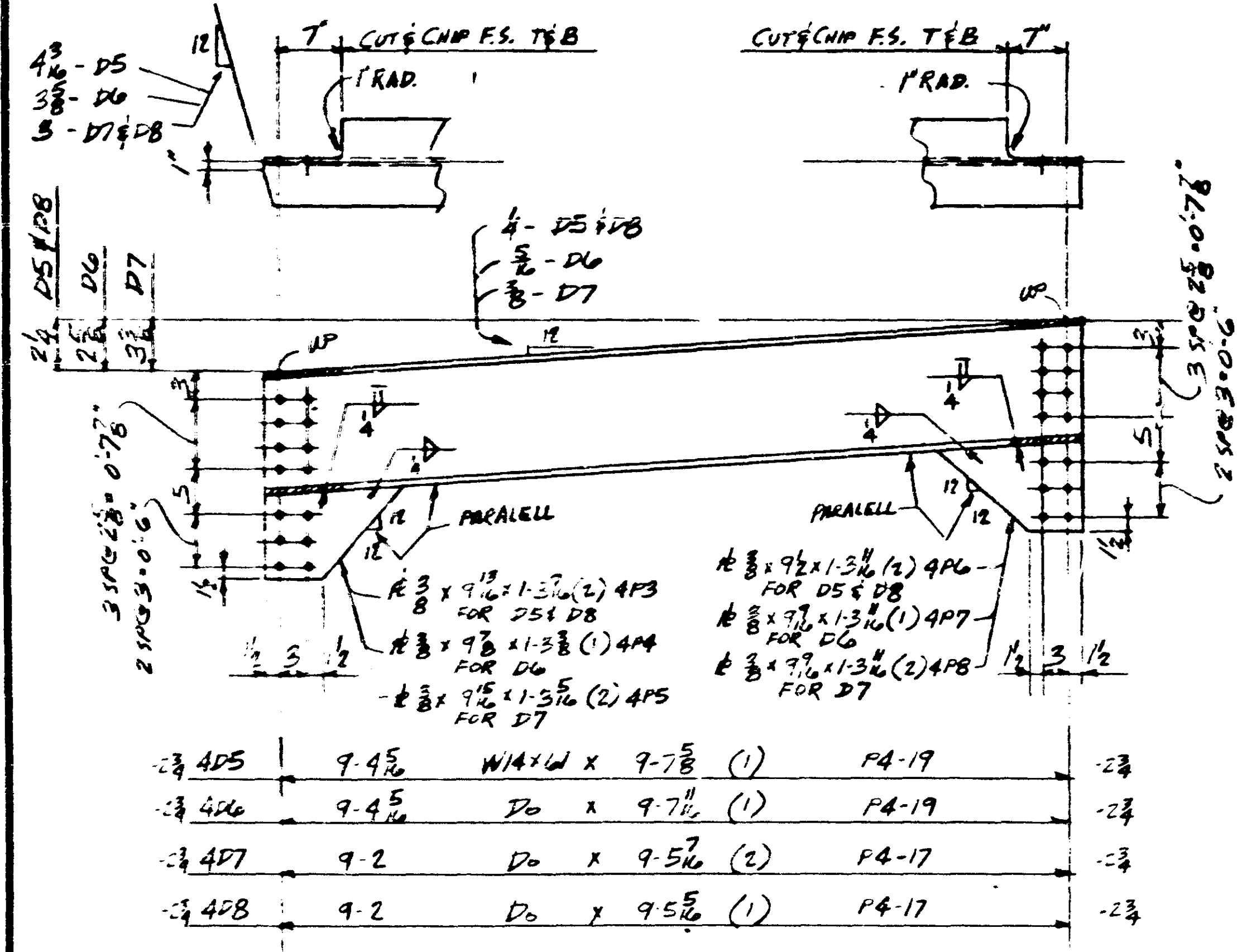
DESCRIPTION CROSSFRAMES



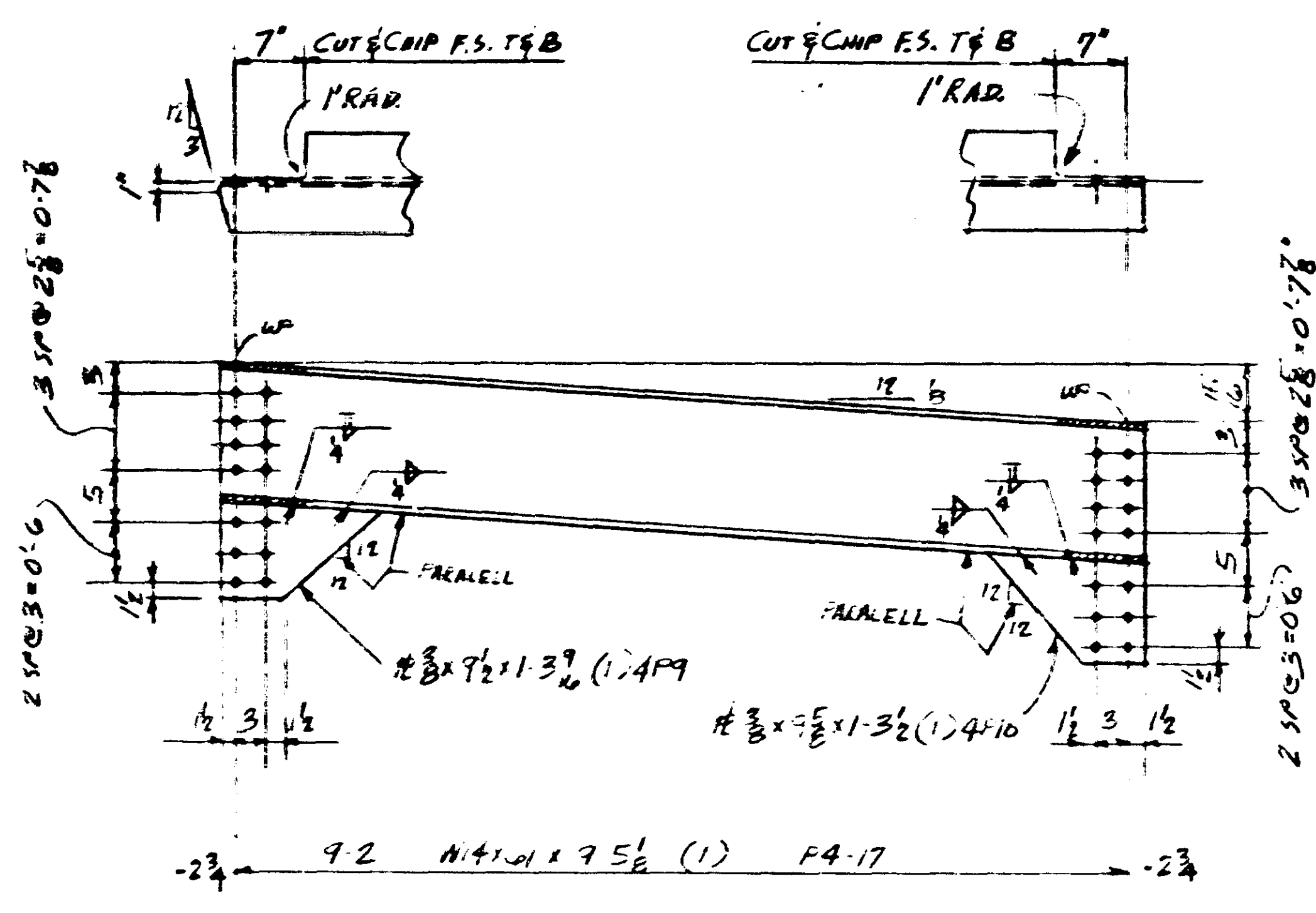
ONE - DIAPHRAGM - 4D1
2 - DIAPHRAGMS - 4D2



ONE - DIAPHRAGM - 4D3
ONE - DIAPHRAGM - 4D4



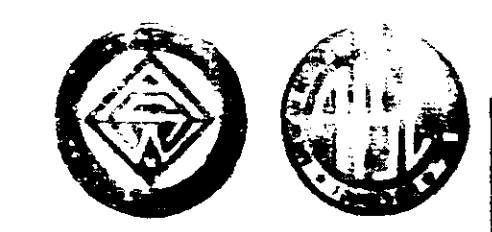
ONE - DIAPHRAGM - 4D5
2 - DIAPHRAGMS - 4D7
ONE - DIAPHRAGM - 4D6
ONE - DIAPHRAGM - 4D8



ONE - DIAPHRAGM - 4D9

ITEM	QTY	MATERIAL
4D1	1	W14 x 61 x 9-5
4D2	2	D6 x 9-5
4D3	1	D6 x 9-2 13/16
4D4	1	D6 x 9-2 13/16
4D5	1	D6 x 9-7 5/16
4D6	1	D6 x 9-7 1/16
4D7	2	D6 x 9-5 1/16
4D8	1	D6 x 9-5 1/16
4D9	1	W14 x 61 x 9-5 1/16
4P1	3	#3/8 x 9 1/2 x 1 9/16
4P2	2	#3/8 x 12 1/2 x 2 0/16
4P3	2	#3/8 x 9 1/2 x 1 3/16
4P4	1	#3/8 x 9 7/8 x 1 3/16
4P5	2	#3/8 x 9 1/2 x 1 3/16
4P6	2	#3/8 x 9 7/8 x 1 3/16
4P7	1	#3/8 x 9 7/8 x 1 3/16
4P8	2	#3/8 x 9 7/8 x 1 3/16
4P9	1	#3/8 x 9 1/2 x 1 3/16
4P10	1	#3/8 x 9 5/8 x 1 3/16

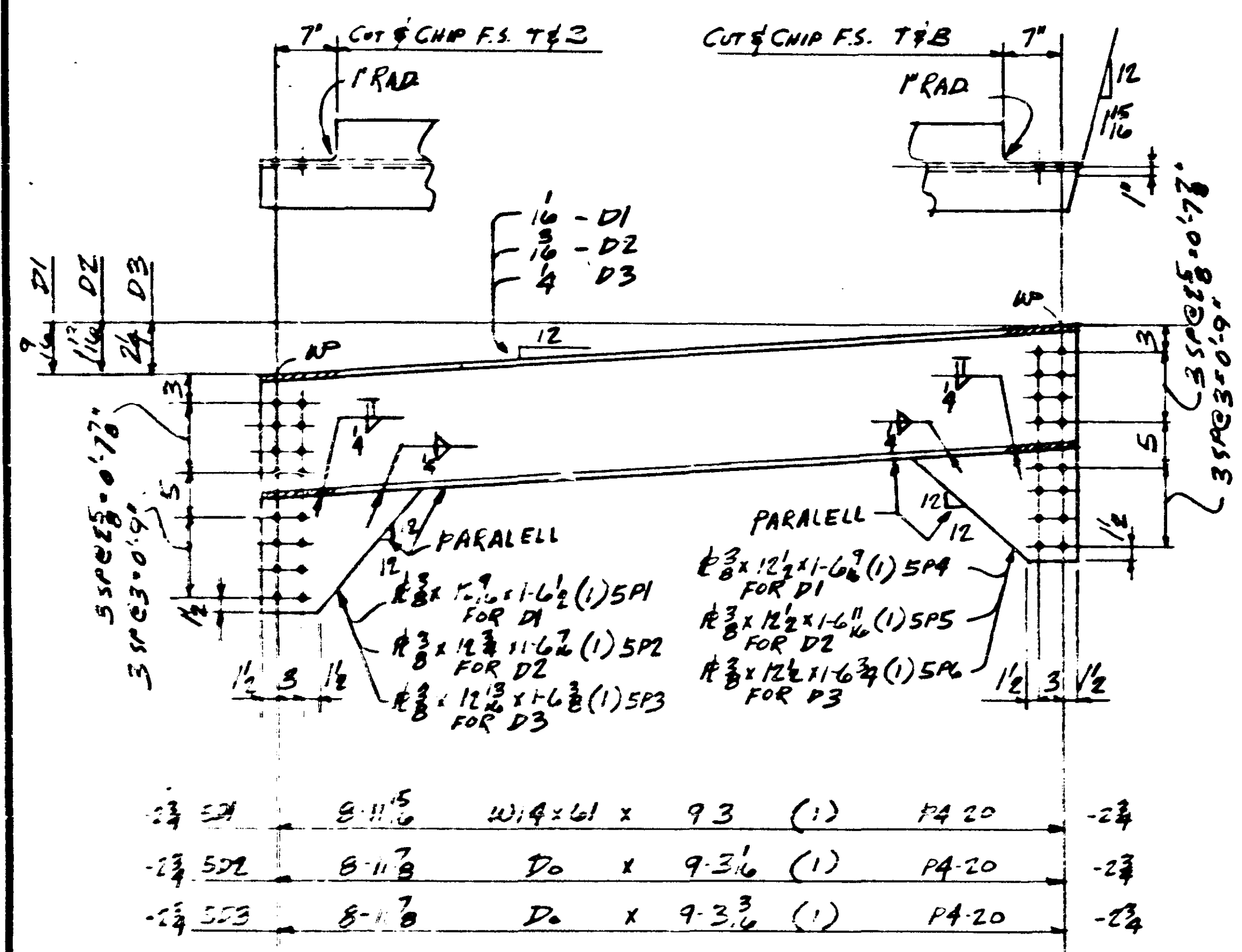
NOTES: SEE SHEET E2 FOR ERECTION PLAN & E1 FOR ADDITIONAL NOTES.
MATERIAL PER IAN/DOT 3309.



STATE PROJ. No. 2710-21(TN65-105)
FED PROJ. No. BHF 005-2(67)

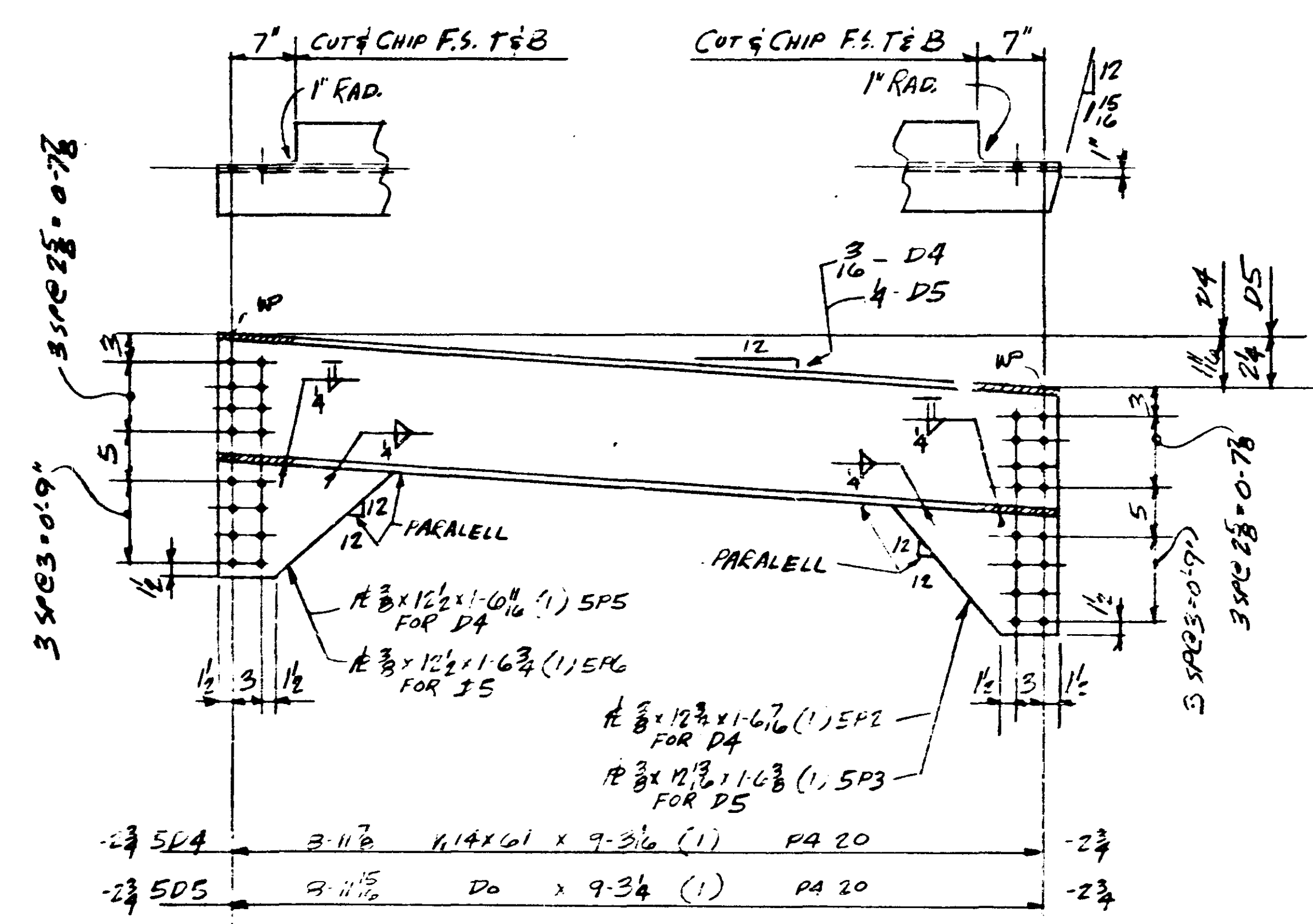
ST. PAUL STRUCTURAL STEEL CO.	
142 YORK AVE. ST. PAUL, MINN 55117	
BRIDGE NO. 2440	DATE 10-15-77
MADE BY RAF	DATE 11/28/77
CHECKED BY WJK	SHOP PAINT NONE
OPEN HOLES 1/16 φ UNLESS NOTED	CONTRACT NO. 42000
DESCRIPTION W14 DIAPHRAGMS	SHEET 4

ITEM	QTY	MATERIAL
SD1	1	W14x61 X 9.3
SD2	1	D ₀ X 9.3 ¹ / ₁₆
SD3	1	D ₀ X 9.3 ³ / ₁₆
SD4	1	D ₀ X 9.3 ¹ / ₁₆
SD5	1	W14x61 X 9.3 ⁴ / ₁₆
SP1	1	R ³ / ₈ X 12 ¹ / ₂ X 1-6 ¹ / ₂
SP2	2	R ³ / ₈ X 12 ¹ / ₂ X 1-6 ¹ / ₁₆
SP3	2	R ³ / ₈ X 12 ¹ / ₂ X 1-6 ³ / ₁₆
SP4	1	R ³ / ₈ X 12 ¹ / ₂ X 1-6 ¹ / ₁₆
SP5	2	R ³ / ₈ X 12 ¹ / ₂ X 1-6 ¹ / ₁₆
SP6	2	R ³ / ₈ X 12 ¹ / ₂ X 1-6 ³ / ₁₆



SD1	8-11 ⁵ / ₁₆	W14x61 X 9.3	(1)	PA 20	-2 ³ / ₄
SD2	8-11 ⁷ / ₁₆	D ₀ X 9.3 ¹ / ₁₆	(1)	PA 20	-2 ³ / ₄
SD3	8-11 ⁸ / ₁₆	D ₀ X 9.3 ³ / ₁₆	(1)	PA 20	-2 ³ / ₄

ONE - DIAPHRAGM - ED1 ONE - DIAPHRAGM - ED2
 ONE - DIAPHRAGM - ED3

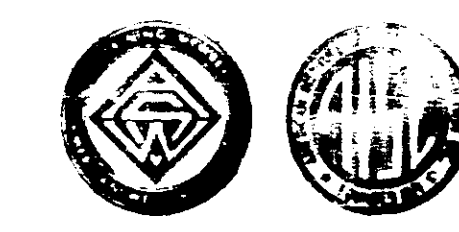


SD4	3-11 ⁵ / ₁₆	W14x61 X 9.3 ¹ / ₁₆	(1)	PA 20	-2 ³ / ₄
SD5	3-11 ⁸ / ₁₆	D ₀ X 9.3 ⁴ / ₁₆	(1)	PA 20	-2 ³ / ₄

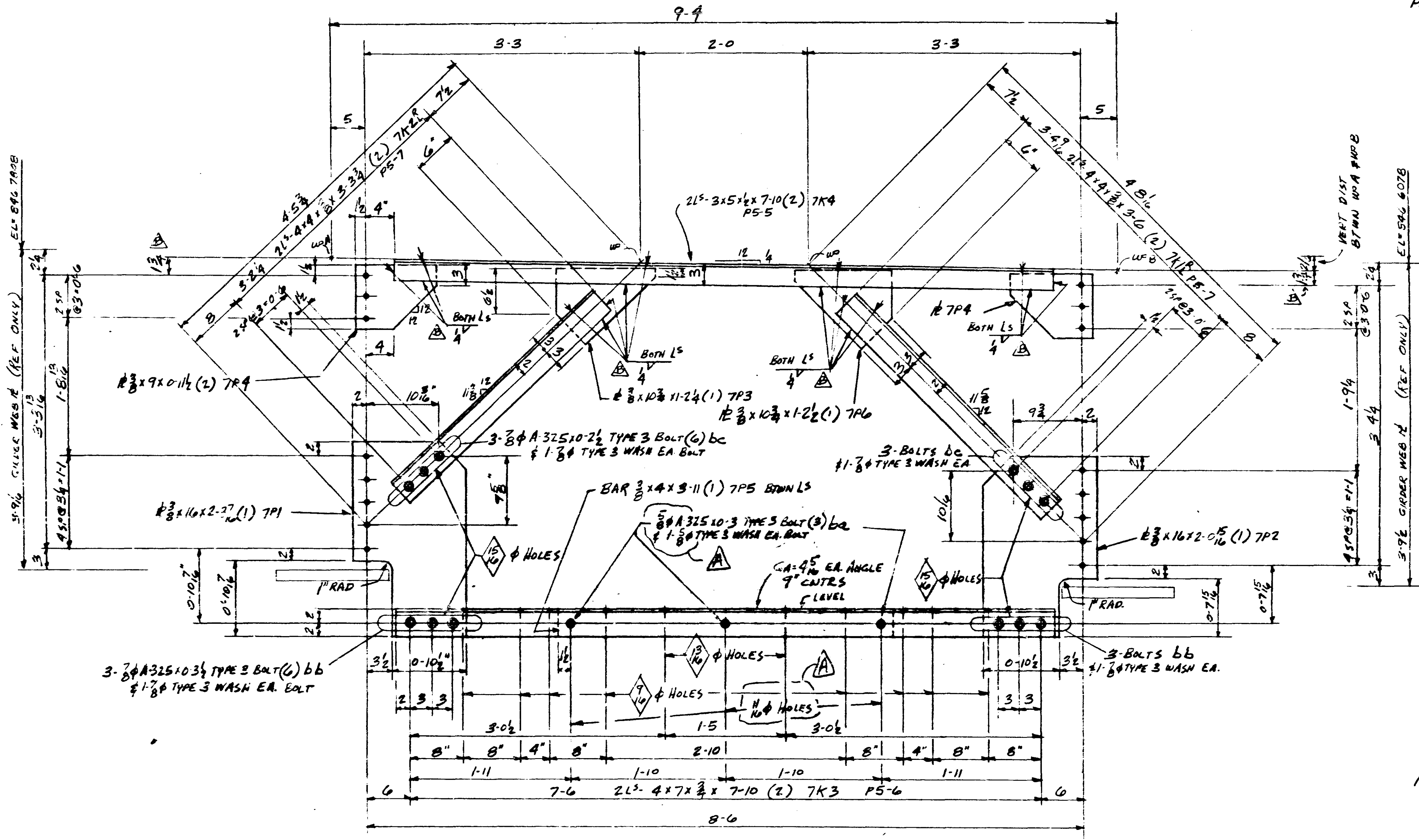
ONE - DIAPHRAGM - SD4 ONE - DIAPHRAGM - SD5

NOTES: SEE SHEET E2 FOR ERECTION PLAN
 E E1 FOR ADDITIONAL NOTES.
 MATERIAL PER MM/DOT 3309.

ST. PAUL STRUCTURAL STEEL CO.	
BRIDGE NO. 2440	DATE
MADE BY RRF	DATE 11/28/79
CHECKED BY HJK	DATE 11/28/79
SHOP PAINT None	UNLESS NOTED
STATE PROJ. No. 2710-21 (FH 65-105)	CONTRACT NO. 42000
FED PROJ. No. 3BF 005-2 (67)	SHEET 5



DESCRIPTION: W14 DIAPHRAGMS



ITEM	QTY	MATERIAL
7K1	2	14x4x $\frac{3}{8}$ x 3-0
7K2	2	D ₀ x 3-3 $\frac{3}{4}$
7K3	2	14x7 $\frac{1}{2}$ x $\frac{3}{8}$ x 7-10
7K4	2	13x5x $\frac{1}{2}$ x 7-10
7P1	1	R $\frac{3}{8}$ x16x2-3 $\frac{1}{2}$
7P2	1	R $\frac{3}{8}$ x16x2-0 $\frac{1}{2}$
7P3	1	R $\frac{3}{8}$ x10 $\frac{3}{4}$ x1-2 $\frac{1}{2}$
7P4	2	R $\frac{3}{8}$ x9x0-1 $\frac{1}{2}$
7B	3	5 ϕ A325 TYPE 3 X 0-3
7B	6	5 ϕ A325 TYPE 3 X 0-3 $\frac{1}{2}$
7B	6	D ₀ x 0-2 $\frac{1}{2}$
7P5	1	BAR $\frac{3}{8}$ x4x3-11
7P6	1	R $\frac{3}{8}$ x10 $\frac{3}{4}$ x1-2 $\frac{1}{2}$

NOTES: SEE SHEET E2 FOR ERECTION PLAN & E1 FOR ADDITIONAL NOTES MATERIAL PER MN/DOT 3309

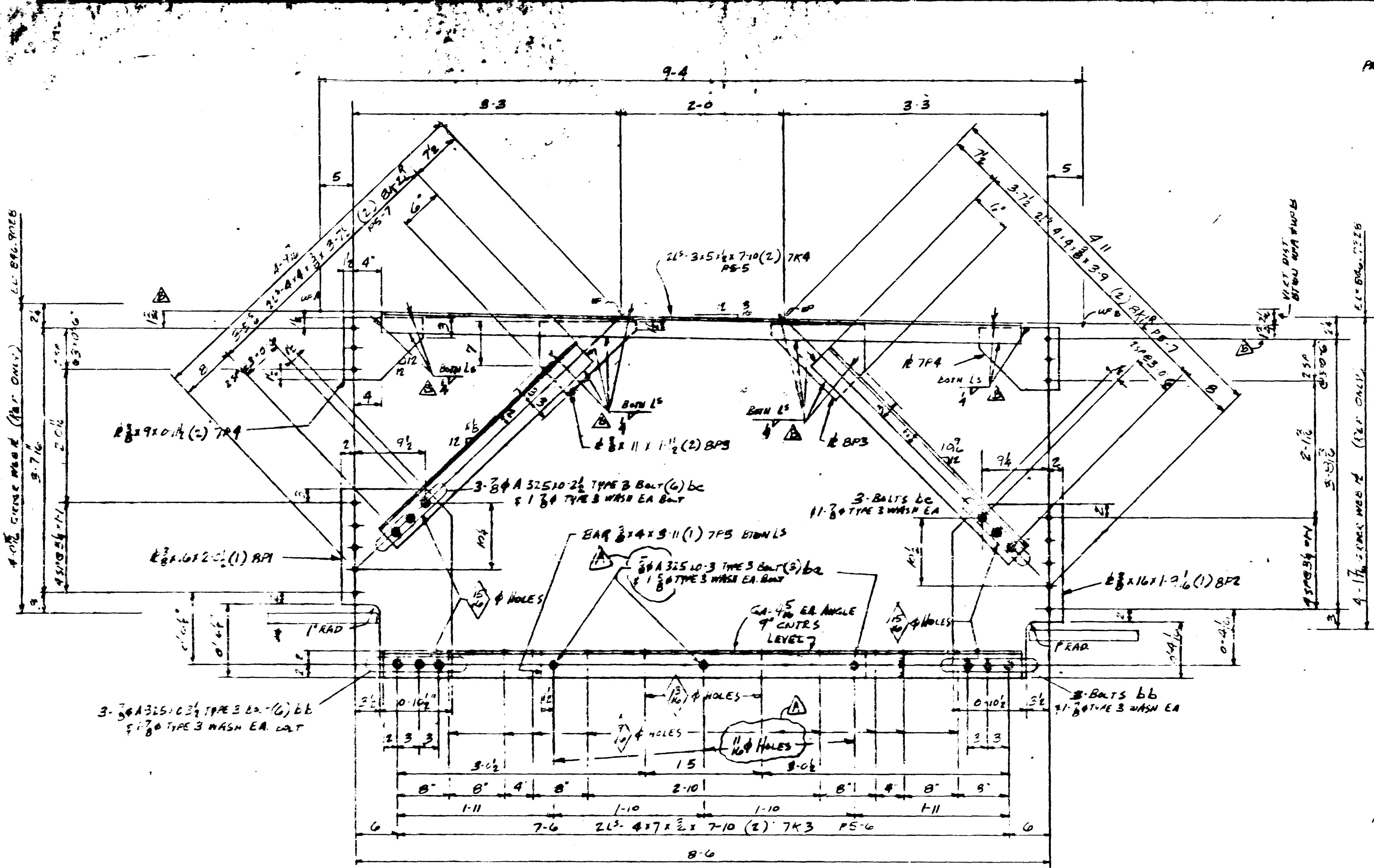
REV B 4-14-80 CHANGED WELD ON TOP L'S
 REV A 1-22-80 7B FROM $\frac{1}{2}$ " TO $\frac{5}{8}$ " HOLES FROM $\frac{9}{16}$ " TO $\frac{11}{16}$ "

ONE - DIAPHRAGM - 7D1

ST. PAUL STRUCTURAL STEEL CO.	
162 YORK AVE. ST. PAUL, MINN 55117	
BRIDGE NO. 2440	MADE BY RKF DATE 10-17-79
CHECKED BY HJK DATE 11/23/79	SHOP PAINT NONE
STATE PROJ. No. 2710-21(TNCS=105)	OPEN HOLES $\frac{1}{16}$ " UNLESS NOTED
FED. PROJ. No. BHF-005-2(67)	CONTRACT NO. 42000 SHEET 7



DESCRIPTION SPECIAL WATERMAIN DIAPHRAGM



ITEM	QTY	MATERIAL
7K1	2	2L 3x5 1/2 x 7-10
7K2	2	2L 3x5 1/2 x 7-10
7K3	2	2L 3x5 1/2 x 7-10
7K4	2	2L 3x5 1/2 x 7-10
BPI	1	PL 3/8 x 16 x 20 1/2
BPI	1	PL 3/8 x 16 x 19 1/2
BPI	2	PL 3/8 x 11 x 1-1/2
7P4	2	PL 3/8 x 9 x 0-11/2
6a	3	3/8\"/>

NOTES: SEE SHEET E2 FOR ERECTION PLAN
 & E1 FOR ADDITIONAL NOTES
 MATERIAL PER MM/DOT 3309

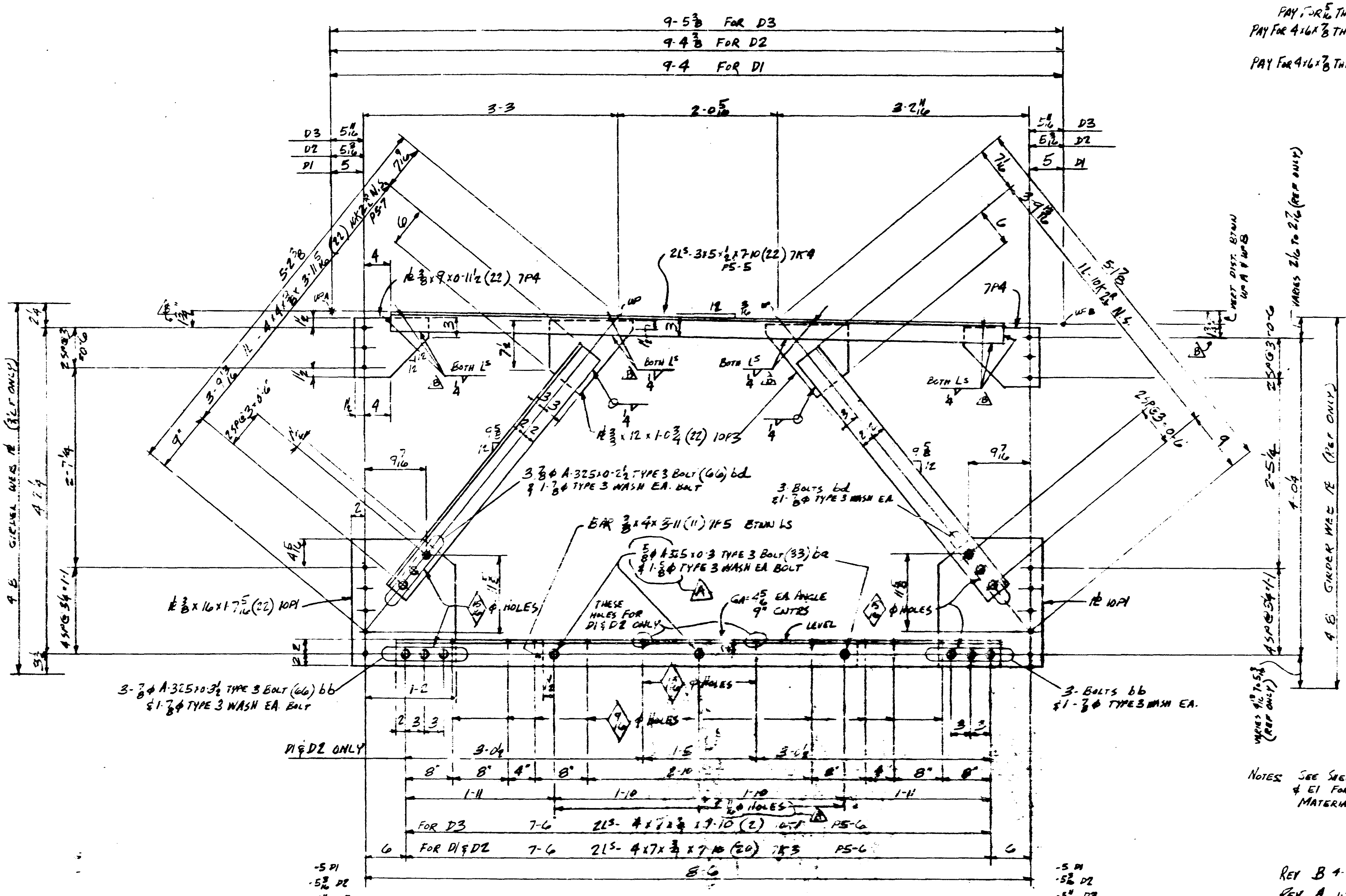
REV B 4-4-80 CHANGED WELD ON TOP L'S
 REV A 1-22-80 6a FROM 1/2\"/>

ONE - DIAPHRAGM - ED1

ST. PAUL STRUCTURAL STEEL CO.	
BRIDGE NO. 2440	DATE 10/17/79
MADE BY RKF	CHECKED BY HJK
DATE 11/28/79	DATE 11/28/79
SHOP PAINT NONE	UNLESS NOTED



STATE PROJ. NO. 2710-EI(TN65-105)
 FED. PROJ. NO. SHF-005-2(69)
 CONTRACT NO. 410-01-8



PAY FOR 5/8 THICK
 PAY FOR 4x16x 3/8 THICK
 PAY FOR 4x16x 5/8 THICK

ITEM	QTY	MATERIAL
10K2	22	L4x4x 3/8 x 3-11 1/2
7K3	20	L4x7x 3/8 x 7-10
7K4	22	L3x5 1/2 x 7-10
10K1	2	L4x7x 3/8 x 7-10
10P1	22	L 3/8 x 16 x 1-7 1/2

MP3	22	L 3/8 x 1 1/2 x 1-0 3/4
7P4	22	L 3/8 x 9 x 0-1 1/2
b6	33	3/8 A325 TYPE 3 x 0-3
b6	66	3/8 A325 TYPE 3 x 0-3 1/2
b6	66	DO DO 2 1/2
7P5	11	BAR 3/8 x 4 x 3-11

3/8 A325 (TYPE 3) ERECT. BOLTS

FURNISH	SIZE
1515	3/8 x 0-24
1935	3/8 x 0-2 1/2
55	3/8 x 0-3
20	3/8 x 0-3 1/4
340	3/8 x 0-3 1/2
690	3/8 x 0-3 3/4
350	3/8 x 0-4
60	3/8 x 0-4 1/4
135	3/8 x 0-4 1/2
50	3/8 x 0-4 3/4
7300	3/8 HI (TYPE 3) WASHERS
TOTAL AMOUNT	

- 9 - DIAPHRAGMS - 10D1
 - 1 - DIAPHRAGM - 10D2
 - 1 - DIAPHRAGM - 10D3
- IDENTICAL TO DIAPHRAGM EXCEPT MARK AND 1/2" HOLES IN 7' LEG OF 4x7 1/2 LS

NOTES: SEE SHEET E2 FOR ERECTION PLAN & E1 FOR ADDITIONAL NOTES MATERIAL PER M/D/P 3307

REV B 4-14-80 CHANGED WELD ON TOP L'S
 REV A 1-22-80 b6 FROM 1/2 TO 5/8 HOLES FROM 1 1/2 TO 1 1/4

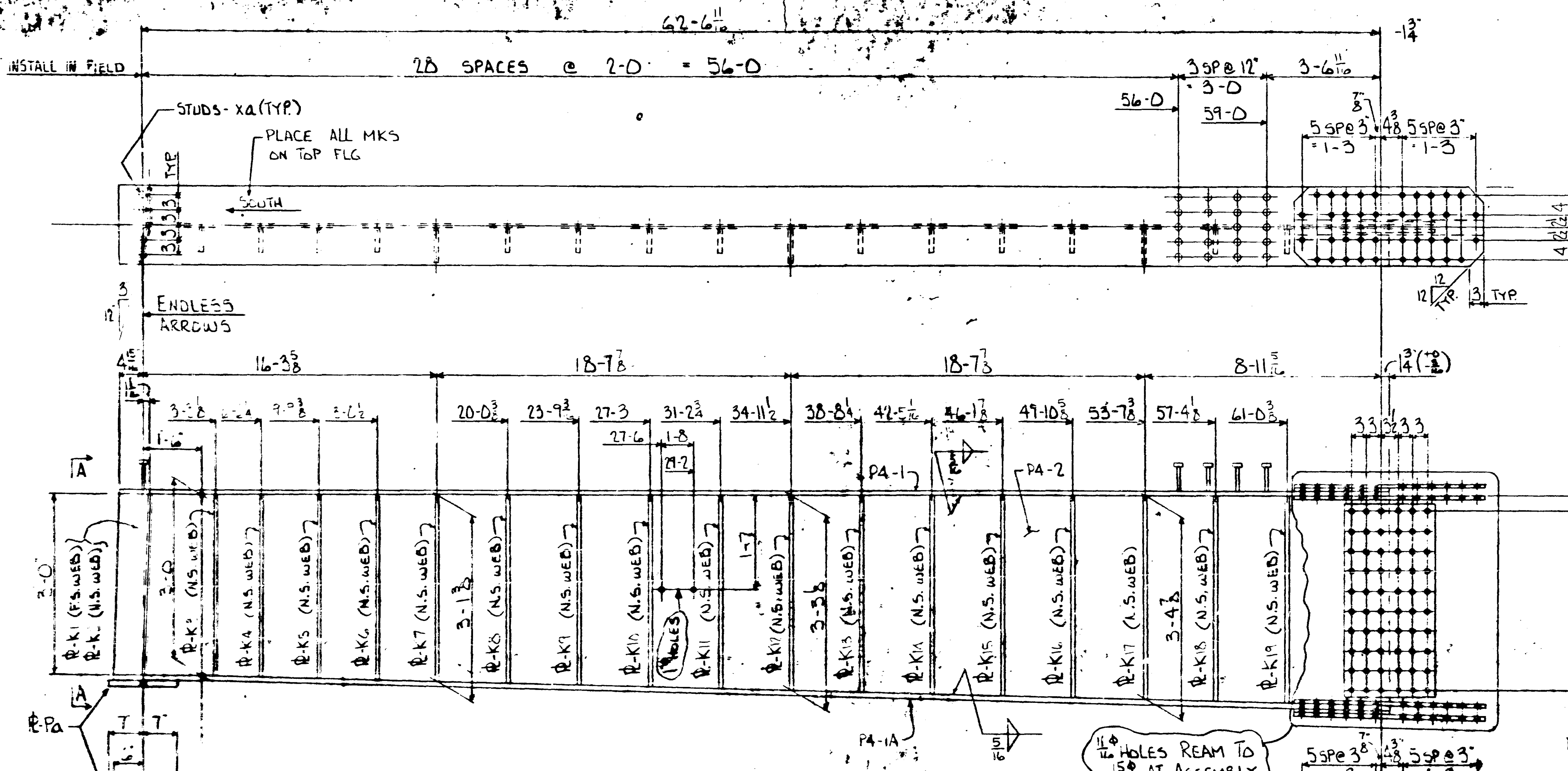
ST. PAUL STRUCTURAL STEEL CO.
 100 YORK AVE. ST. PAUL, MINN 55117

BRIDGE NO. 2440
 MADE BY RKF DATE 10-19-79
 CHECKED BY HJK DATE 11/20/79
 SHOP PAINT None

STATE PROJ. No. 2710-21 (TH 65-105)
 FED PROJ. No. BHF-005-2(67)

OPEN HOLES 1/16" UNLESS NOTED
 CONTRACT NO. 42000 SHEET 10

DESCRIPTION: SPECIAL WATERMAIN FABRICATION & ERECT. BOLTS



ITEM	QTY	MATERIAL
PA-1	1	UMP-3 x 16 x 63-1/2
PA-2	1	P-3 x 444 x 63-1/2
PA-1A	1	UMP-3 x 16 x 63-1/2
Pa	1	P-1 x 14 x 1-10
fa	2	UMP-1/2 x 16 x 3-24
fb	4	UMP-1/2 x 7 1/2 x 3-24
fc	2	P-3 x 39 x 1-6 1/2
fd	2	FILL P-4 x 16 x 1-7 1/8
K2	1	P-3/8 x 7 1/2 x 3-0 1/2
K1	1	P-3/8 x 7 1/2 x 3-0 1/2
K7	1	P-3/8 x 7 x 3-1 1/2
K12	1	P-3/8 x 7 x 3-3/4
K17	1	P-3/8 x 7 x 3-5
K3	1	P-5/16 x 5 x 3-0 1/2
K4	1	P-5/16 x 5 x 3-0 1/2
K5	1	P-5/16 x 5 x 3-0 1/2
K6	1	P-5/16 x 5 x 3-1 1/2
K8	1	P-5/16 x 5 x 3-1 1/2

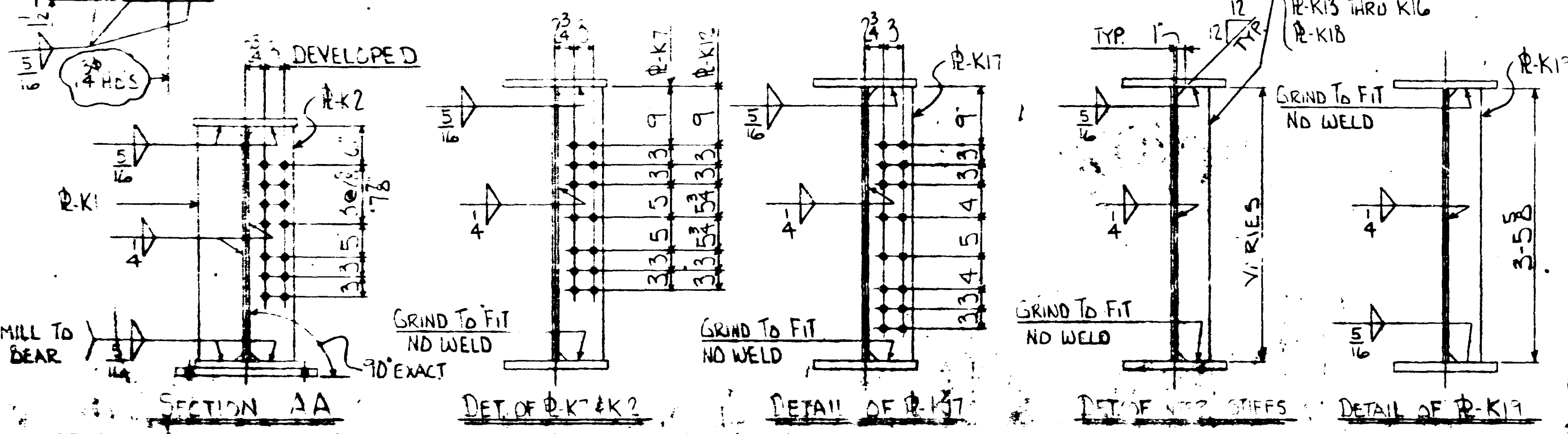
ONE GIRDER - A1
(APPROX WT = 5 TONS)

11/16" HOLES REAM TO 5/8" AT ASSEMBLY

ITEM	QTY	MATERIAL
K9	1	P-5/16 x 5 x 3-2 1/2
K10	1	P-5/16 x 5 x 3-2 1/2
K11	1	P-5/16 x 5 x 3-2 1/2
K13	1	P-5/16 x 5 x 3-3 1/2
K4	1	P-5/16 x 5 x 3-4
K5	1	P-5/16 x 5 x 3-4 1/2
K6	1	P-5/16 x 5 x 3-4 1/2
K7	1	P-5/16 x 5 x 3-5 1/2
K9	1	P-5/16 x 5 x 3-5 1/2
xa	160	3" STUDS x 0-5

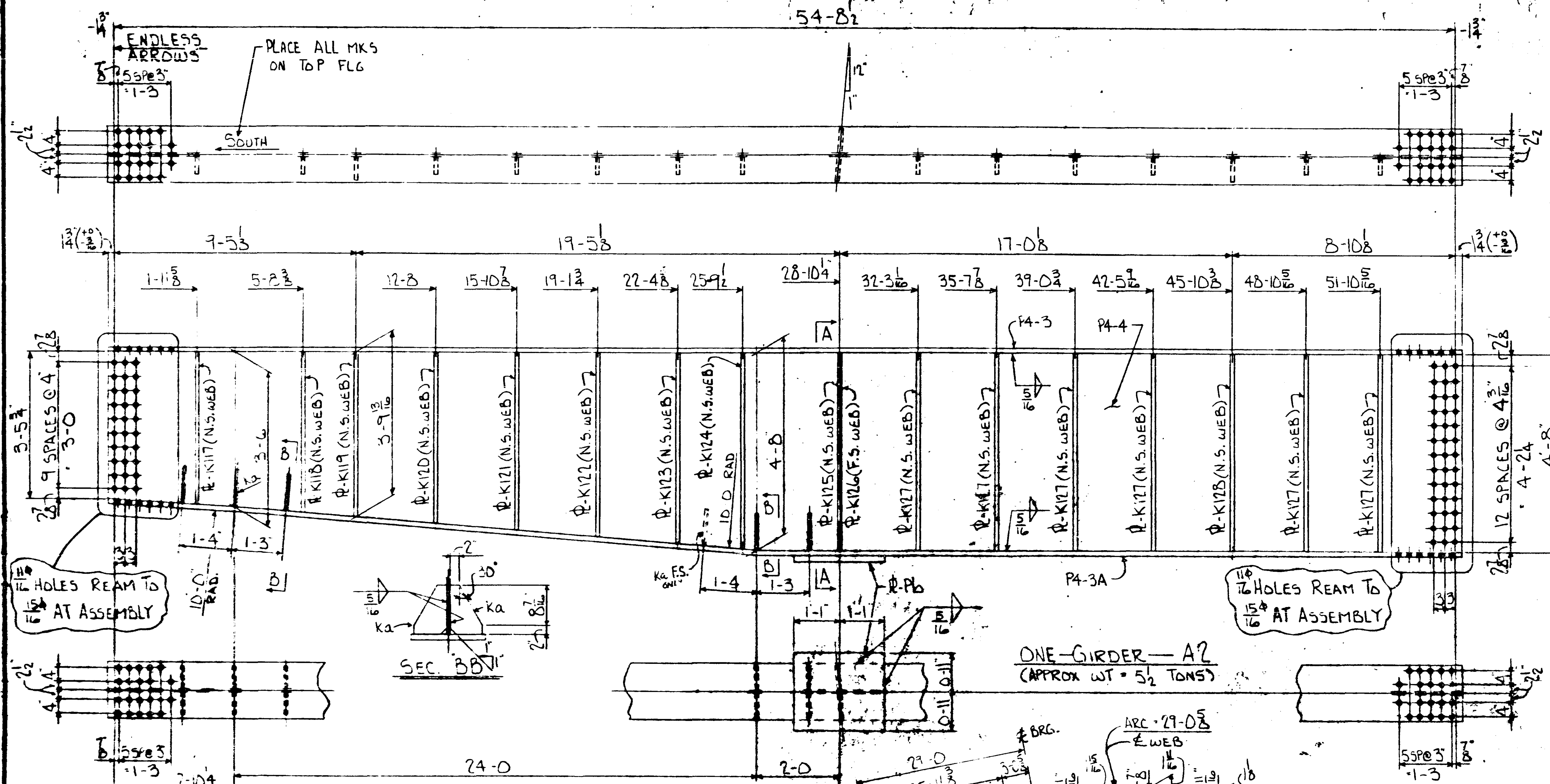
SEE SH. E1 & E2 FOR ERECTION & NOTES
SEE SH. C1 FOR CAMBER DIAGRAM
SEE SH. C5 & C5A FOR BLOCKING DIAGRAM
ALL STEEL TO BE MN/DOT 3309

ST. PAUL STRUCTURAL STEEL CO.	
BRIDGE NO. 2440	DATE 11-8-79
MADE BY A.A.N.	DATE 1/3/78
CHECKED BY HJK	SHOP PAINT NONE
OPEN HOLES 1 1/2"	UNLESS NOTED
CONTRACT NO. 42005	SHEET 11

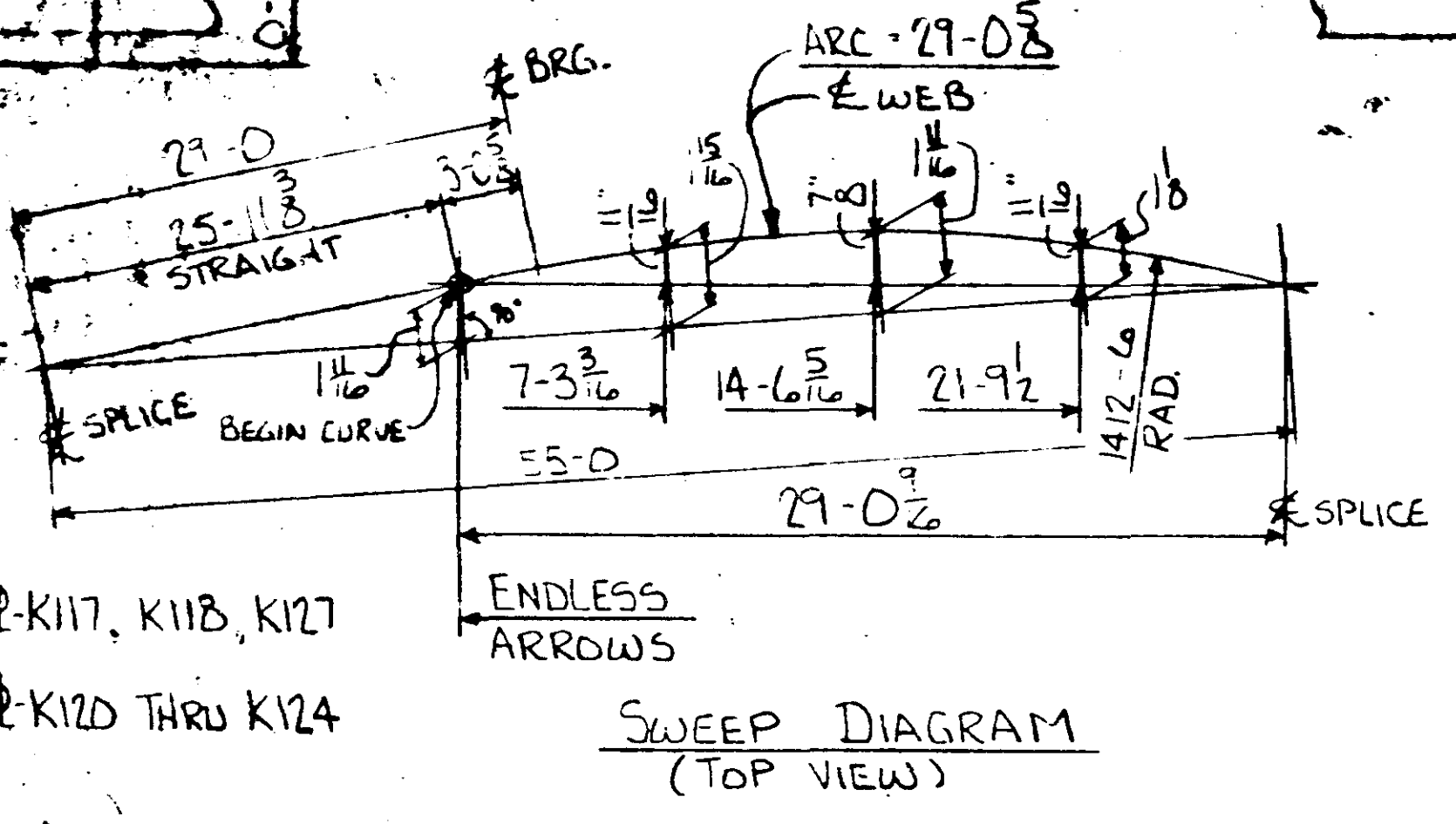
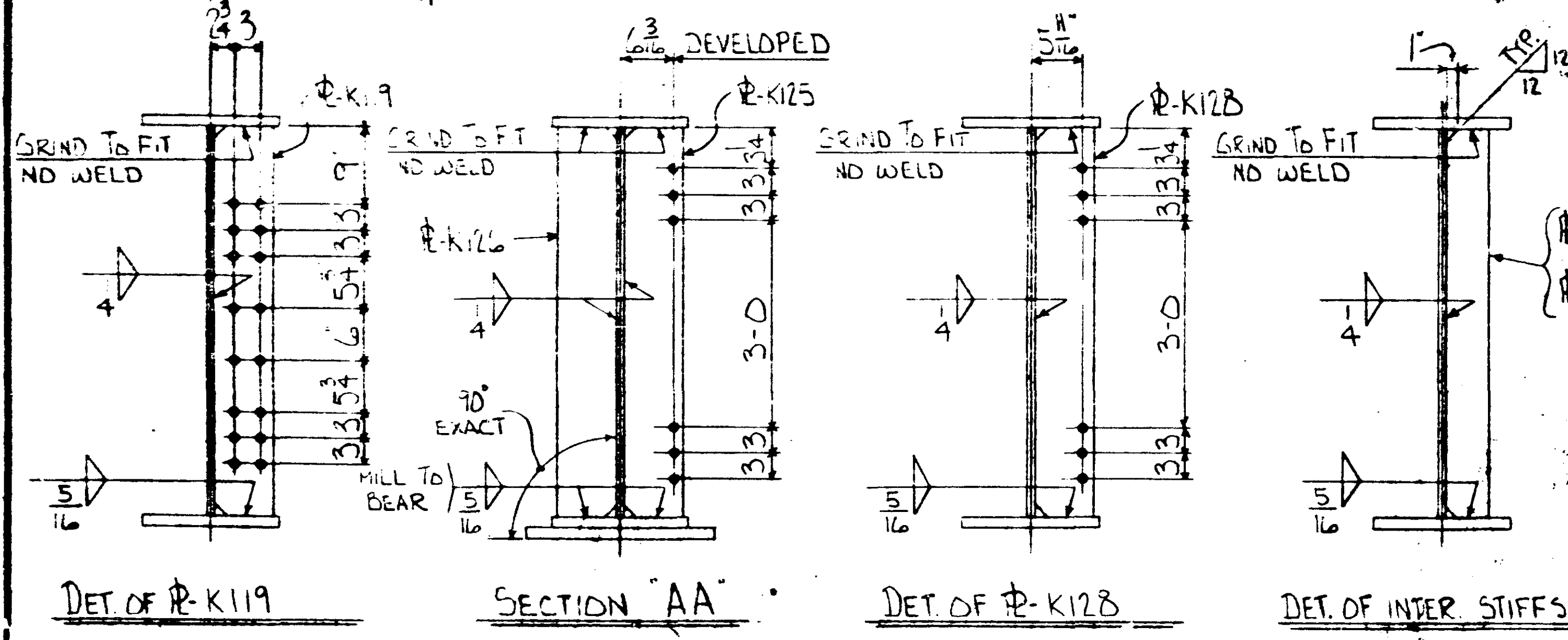


STATE PROJ. NO. 2710-21 (T.H. 65-105)
FED. PROJ. NO. BHF 005-2 (67)

54-82

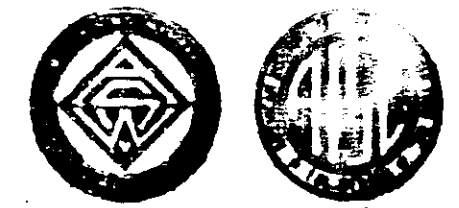


ITEM	QTY	MATERIAL
P4-3	1	UMP-18 x 16 x 55-0
P4-4	1	P-8 x 56 x 55-0
P4-3A	1	UMP-18 x 16 x 55-0
Pb	1	P-14 x 22 x 2-2
Ka	11	P-8 x 68 x 0-10 1/2
K117	1	P-5 x 5 x 3-6
K118	1	P-5 x 5 x 3-7 1/2
K119	1	P-5 x 7 x 3-9 1/2
K120	1	P-5 x 5 x 3-11 8/16
K121	1	P-5 x 5 x 4-1 3/8
K122	1	P-5 x 5 x 4-3 3/8
K123	1	P-5 x 5 x 4-5 1/2
K124	1	P-5 x 5 x 4-7 1/2
K125	1	P-1 1/2 x 7 1/2 x 4-8 1/4
K126	1	P-1 1/2 x 7 1/2 x 4-8 1/4
K127	6	P-5 x 5 x 4-8 1/4
K128	1	P-8 x 7 x 4-8 1/4

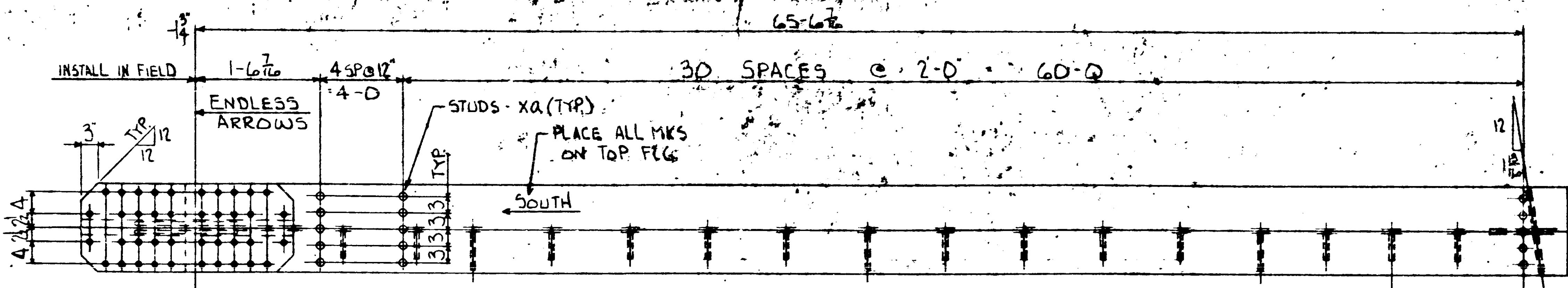


SEE SH. E1 & E2 FOR ERECTION & NOTES
SEE SH. C3 FOR CAMBER DIAGRAM
SEE SH. C5 & CSA FOR BLOCKING DIAGRAMS
ALL STEEL TO BE MN/DOT 3309

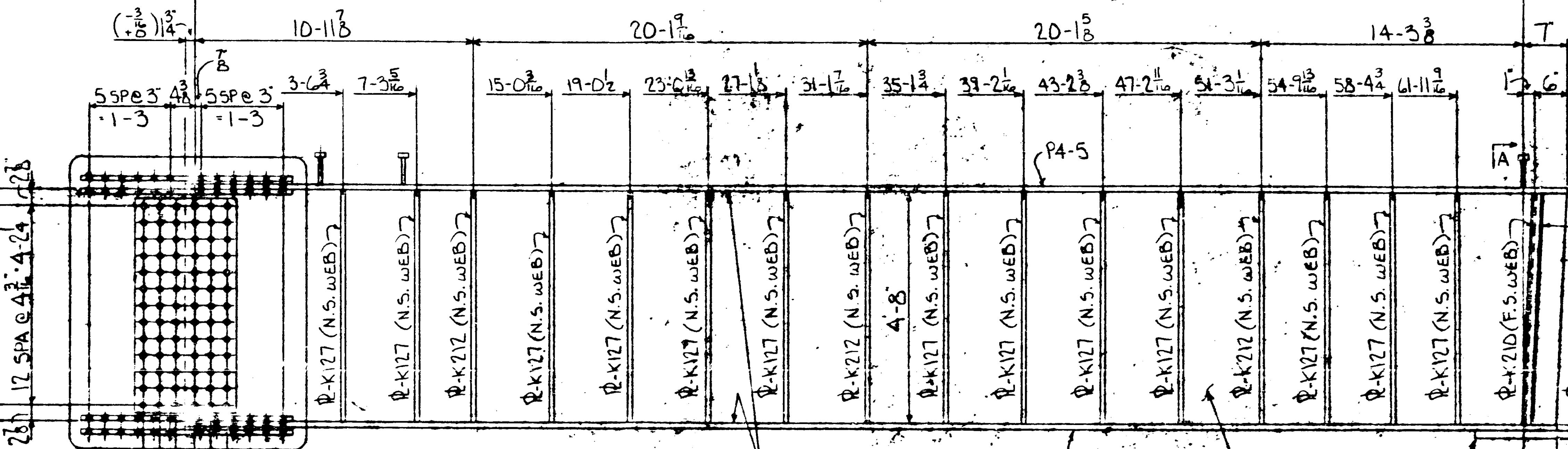
ST. PAUL STRUCTURAL STEEL CO.			
180 YORK AVE.		ST. PAUL, MINN. 55117	
BRIDGE NO. 2440	MADE BY ALAN	DATE 11-26-79	
CHECKED BY HJK		DATE 1/3/80	
SHOP PAINT NONE			
STATE PROJ. NO. 2710-21 (T.H. 65-105)	OPEN MOLES 1/16"	UNLESS NOTED	
FED. PROJ. NO. BHF 005-2(67)	CONTRACT NO. 4700D	SHEET 12	



DESCRIPTION GIRDER - A2



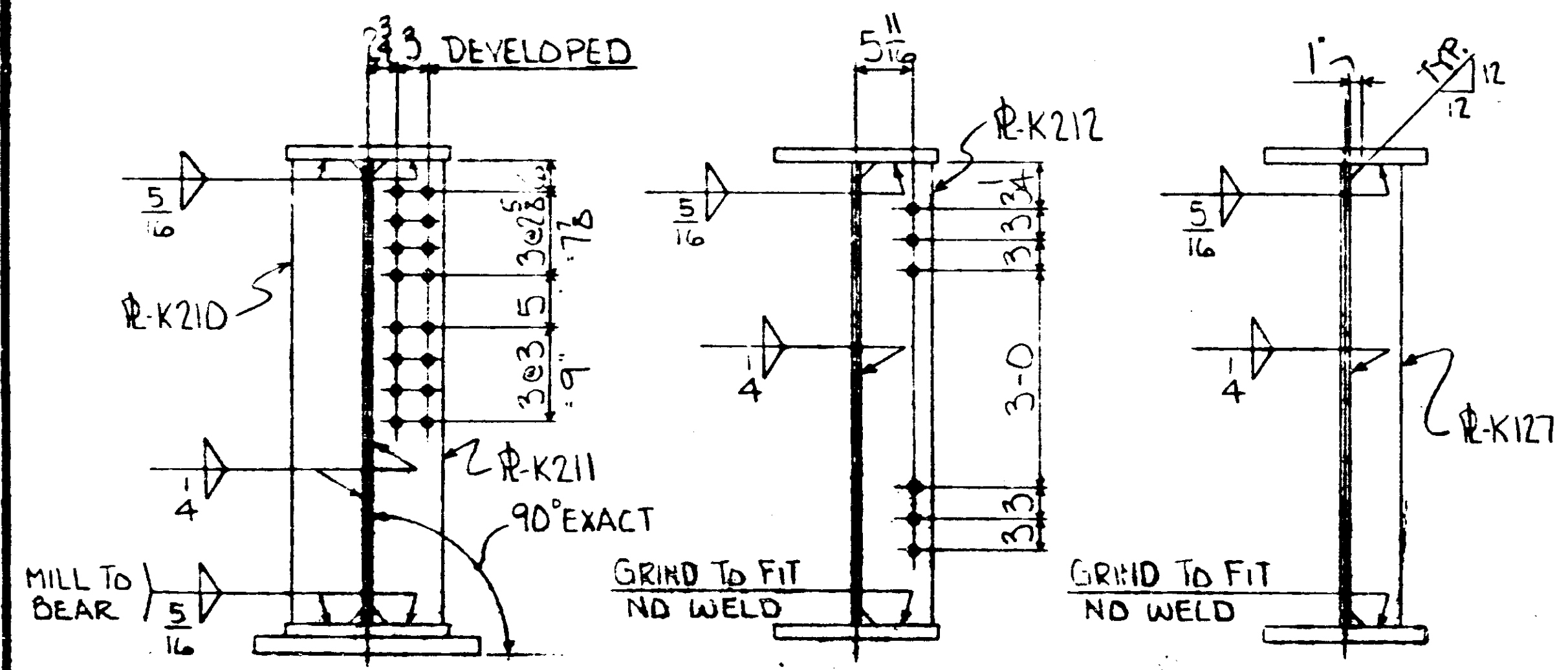
ITEM	QTY	MATERIAL
P4-5	1	UMP-3 x 16 x 66
P4-6	1	P-3 x 57 x 66
P4-5A	1	UMP-3 x 16 x 66
FE	1	P-14 x 18 x 1-10
Fa	2	P-2 x 16 x 3-24
Fb	4	UMP-2 x 7 x 3-24
Fw	2	P-3 x 53 x 1-7
fd	2	P-4 x 6 x 1-78
K210	1	P-3 x 7 1/2 x 4-88
K211	1	P-3 x 7 1/2 x 4-88
K212	3	P-3 x 7 x 4-88
K217	13	P-3 x 5 x 4-88



Loose XA 175 3/8 INEL-STUDS x 0-5

11/16 HOLES REAM TO 15/16 AT ASSEMBLY

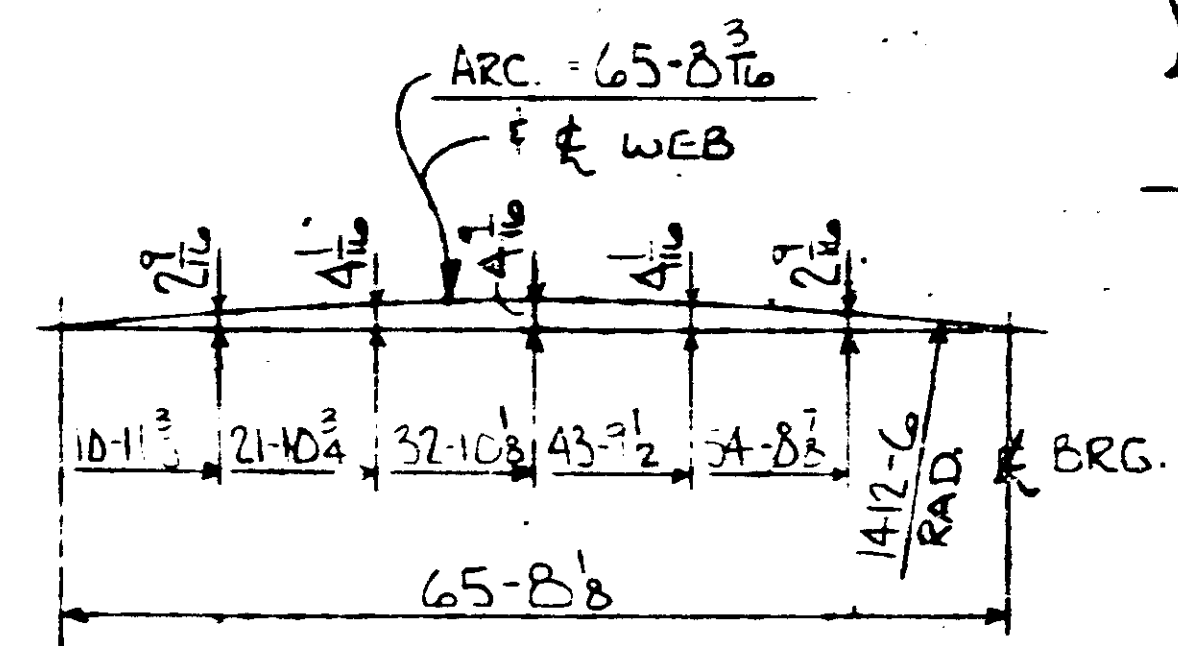
ONE GIRDER - A3
(APPROX WGT 64 TONS)



SECTION AA

DET. OF R-K212

DET. OF INTER STIFFS



SWEEP DIAGRAM
(TOP VIEW)

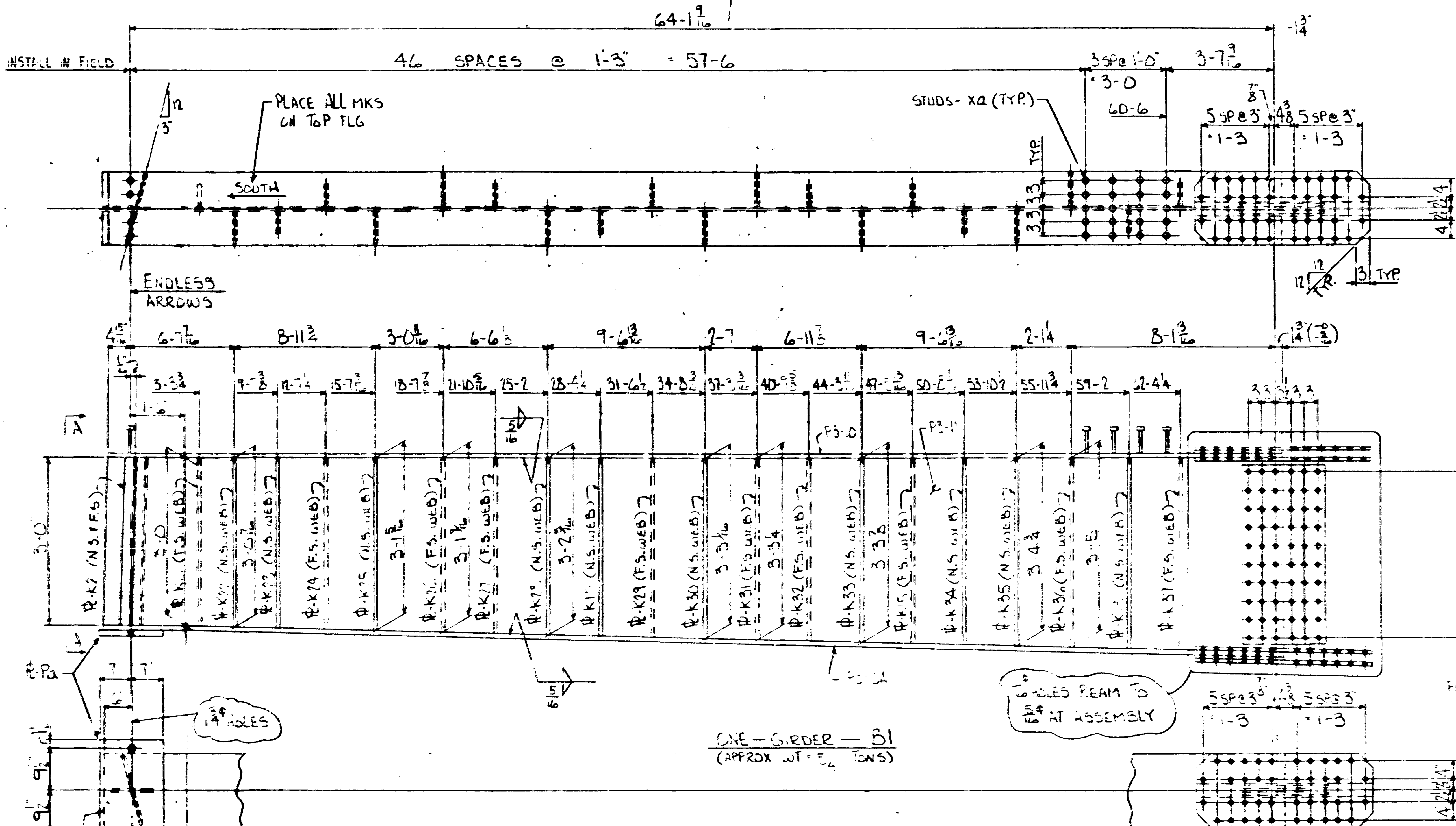
ENDLESS ARROWS
& SPLICE

SEE SHET E1 & E2 FOR ERECTION & NOTES
SEE SHET C4 FOR CAMBER DIAGRAM
SEE SHET C5 & CSA FOR BLOCKING DIAGRAMS
ALL STEEL TO BE MIN/DOT 3309

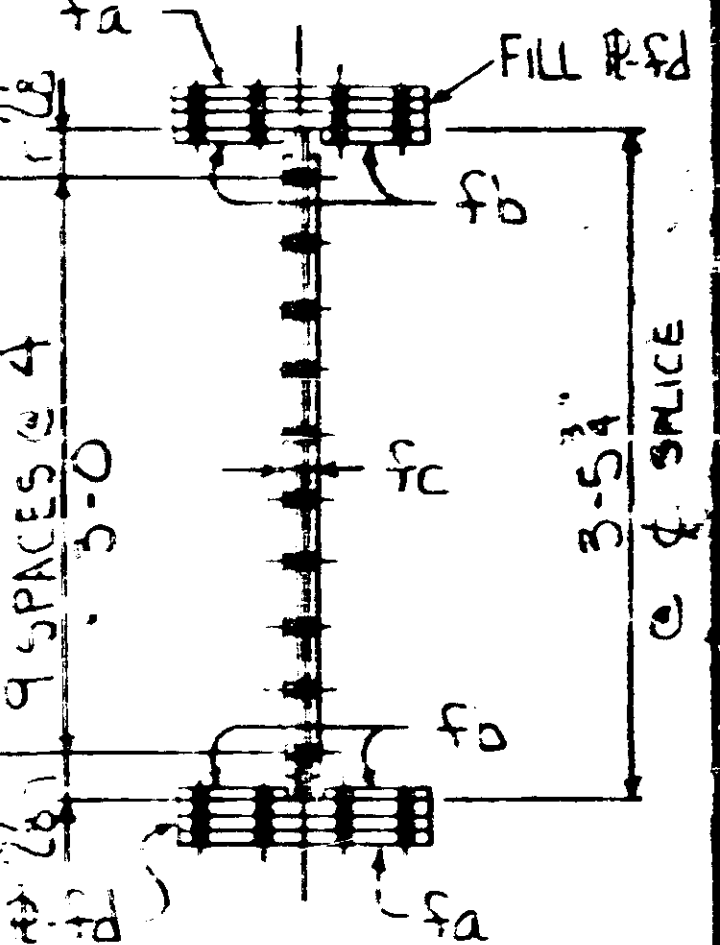
ST. PAUL STRUCTURAL	
BRIDGE NO. 2440	DATE 12-7-54
MADE BY ALAN	CHECKED BY HJK
DATE 1/3/55	DATE 1/3/55
SHOP PAINT NONE	OPEN HOLES 1/2"
UNLESS NOTED	CONTRACT NO. A7000

STATE PROJ. NO. 2740-2(16) (15-25)
FED. PROJ. NO. BHF 108-2 (17)

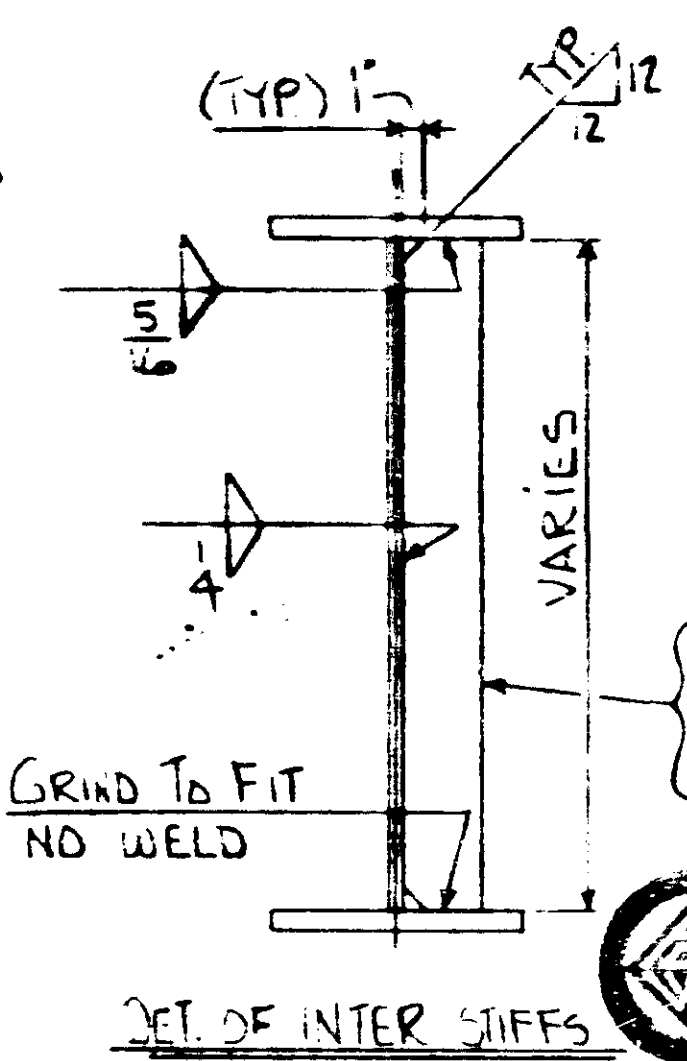
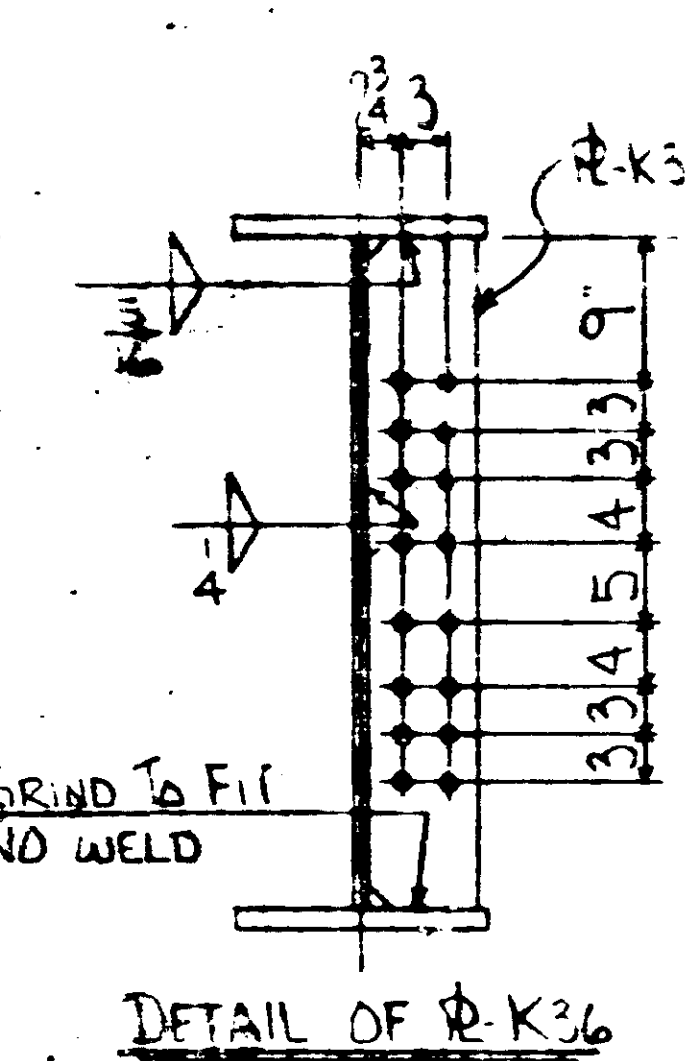
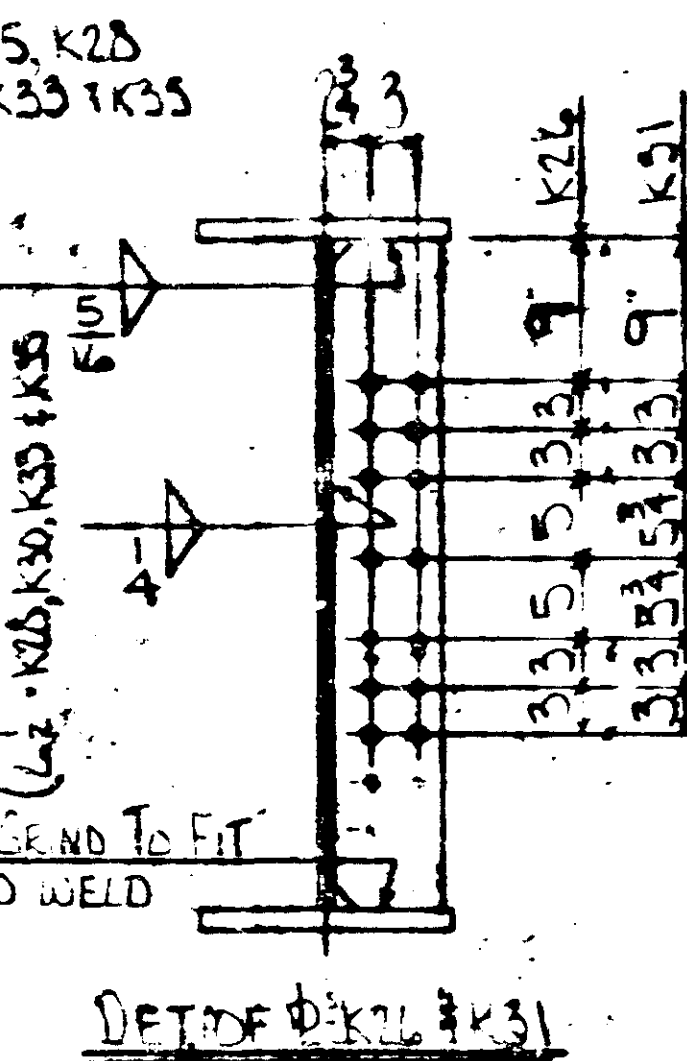
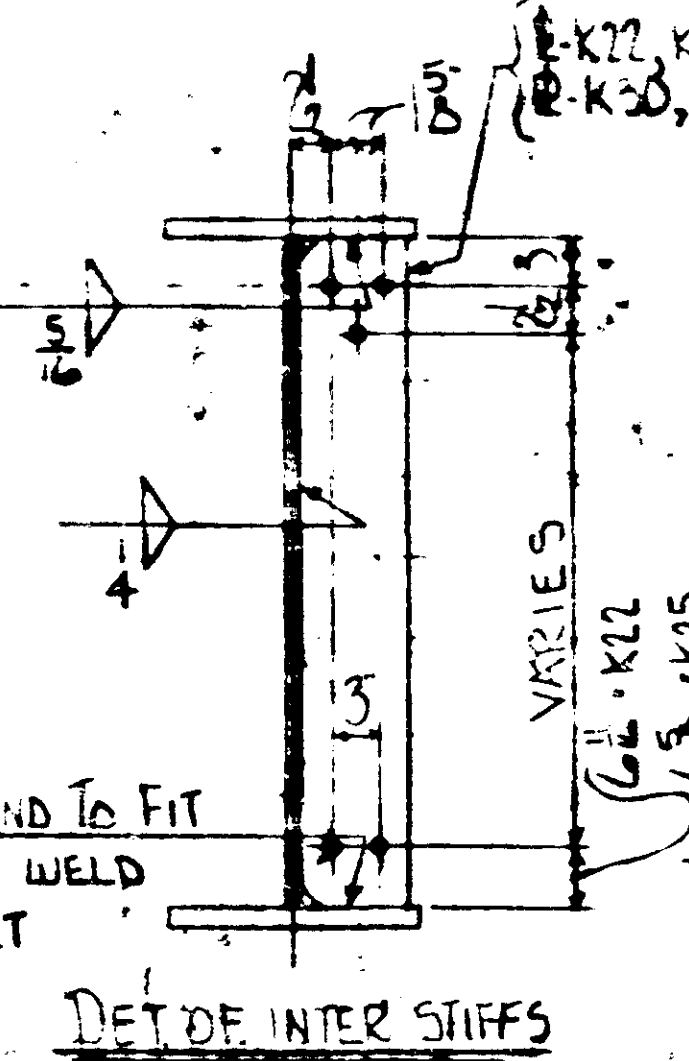
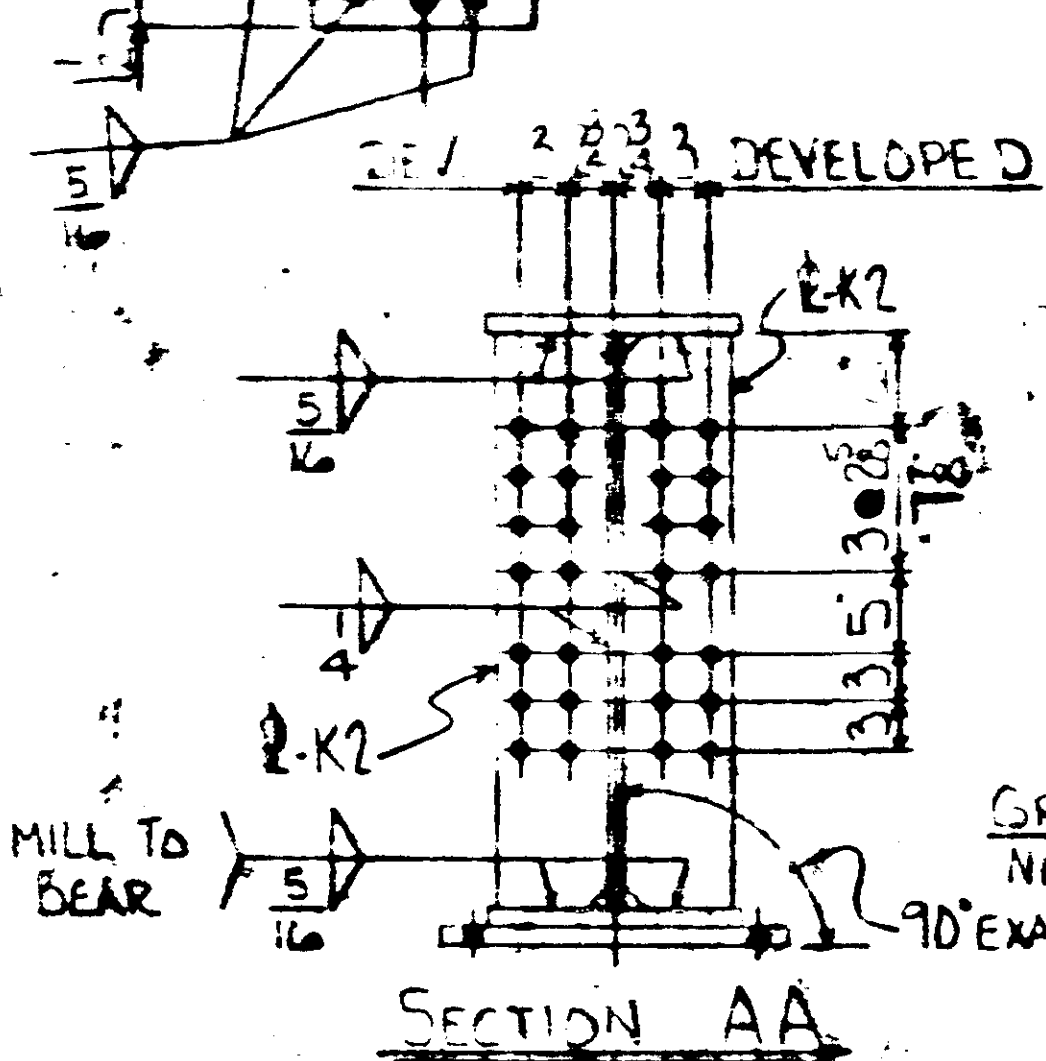




ITEM	QTY	MATERIAL
P3-10	1	UMP-8 x 16 x 64-8 1/2
P3-11	1	P-3 x 44 1/2 x 64-9 1/2
P3-12	1	UMP-8 x 16 x 64-9 1/2
Pa	1	P-1 x 14 x 1-10
fa	2	UMP-2 x 16 x 3-2 1/4
fb	4	UMP-2 x 7 1/2 x 3-2 1/4
fc	2	P-3 x 39 x 1-6 1/2
fd	2	FILL P-4 x 16 x 1-7 1/2
K2	2	P-3 x 7 1/2 x 3-0 1/2
K21	1	P-3 x 5 x 3-0 1/4
K22	1	P-3 x 7 x 3-0 1/2
K23	1	P-3 x 5 x 3-0 1/2
K4	1	P-3 x 5 x 3-1 1/2
K25	1	P-3 x 7 x 3-1 1/2
K26	1	P-3 x 7 x 3-1 1/2
K27	1	P-3 x 5 x 3-2
K28	1	P-3 x 7 x 3-2 1/2
K10	1	P-3 x 5 x 3-2 1/2
K29	1	P-3 x 5 x 3-2 1/2

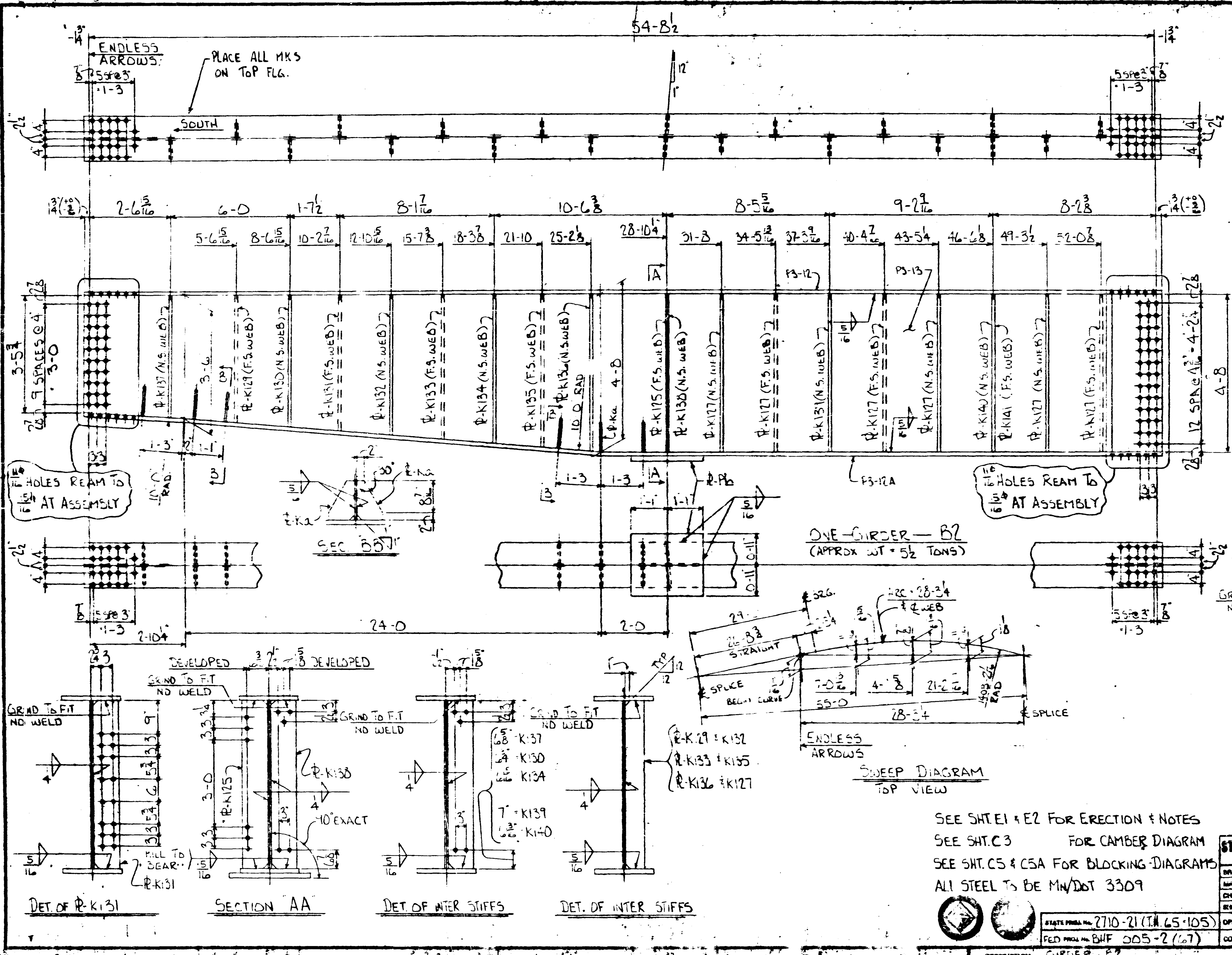


ITEM	QTY	MATERIAL
K30	1	P-3 x 7 x 3-3 1/2
K2	1	P-3 x 7 x 3-3 1/2
K32	1	P-3 x 5 x 3-3 1/2
K33	1	P-3 x 7 x 3-4
K15	1	P-3 x 5 x 3-4 1/2
K34	1	P-3 x 5 x 3-4 1/2
K35	1	P-3 x 7 x 3-4 1/2
K3	1	P-3 x 7 x 3-5
K18	1	P-3 x 5 x 3-5
K31	1	P-3 x 5 x 3-5
XA	250	3" STUDS x 0-5



SEE SHT E1 & E2 FOR ERECTION & NOTES
 SEE SHT C1 FOR CAMBER DIAGRAM
 SEE SHT. C5 = CSA FOR BLOCKING DIAGRAM
 ALL STEEL TO BE MN/DOT 3309

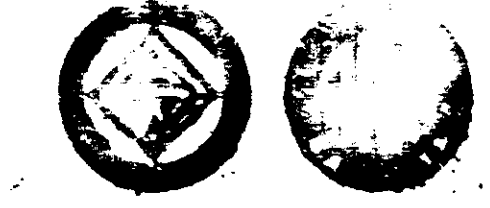
ST. PAUL STRUCTURAL STEEL CO.	
BRIDGE NO. 2440	DATE 11-9-79
MADE BY A.A.N.	DATE 1/3/80
CHECKED BY H.T.K.	DATE 1/3/80
SHOP PAINT NONE	
STATE PROJ. NO. 2710-21 (T.H. 65-105)	UNLESS NOTED
FED. PROJ. NO. BHF 005-2 (67)	CONTRACT NO. 42000
	SHEET 14



ITEM	QTY	MATERIAL
P3-12	1	UMP-18 x 16 x 55-0
P3-13	1	P-8 x 57 x 55-0
P3-14	1	UMP-18 x 16 x 55-0
P6	1	P-4 x 22 x 2-2
Ka	12	P-8 x 68 x 0-10
K137	1	P-8 x 7 x 3-6
K129	1	P-8 x 5 x 3-7 1/2
K130	1	P-8 x 7 x 3-9 1/2
K131	1	P-8 x 7 x 3-10 1/2
K132	1	P-8 x 5 x 4-0
K133	1	P-8 x 5 x 4-1 1/2
K134	1	P-8 x 7 x 4-3 1/2
K135	1	P-8 x 5 x 4-5 1/2
K136	1	P-8 x 5 x 4-7 1/2
K138	1	P-8 x 7 1/2 x 4-8 1/2
K127	6	P-8 x 5 x 4-8 1/2
K140	1	P-8 x 7 x 4-8 1/2
K141	1	P-8 x 7 x 4-8 1/2
K139	1	P-8 x 7 x 4-8 1/2

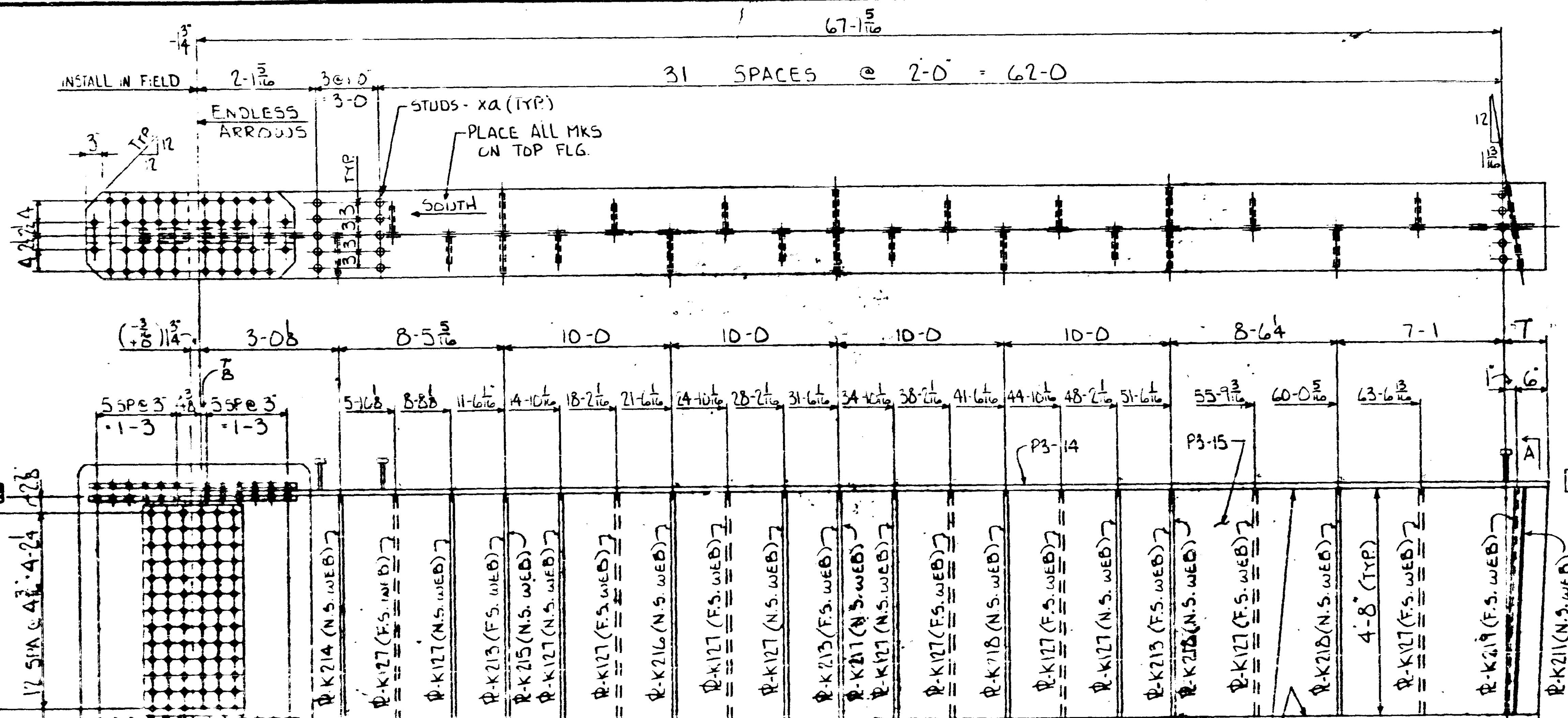
SEE SHT. E1 & E2 FOR ERECTION & NOTES
 SEE SHT. C3 FOR CAMBER DIAGRAM
 SEE SHT. C5 & C5A FOR BLOCKING DIAGRAMS
 ALL STEEL TO BE M/W/DOT 3309

ST. PAUL STRUCTURAL STEEL CO.	
140 YORK AVE. ST. PAUL, MINN. 55107	
DRAWING NO. 2440	DATE 11-27-79
MADE BY ALAN	CHECKED BY HJK
DATE 1/3/80	DATE 1/3/80
GROUP PAINT NONE	OPEN HOLES UNLESS NOTED
CONTRACT NO. 49000	SHEET 15

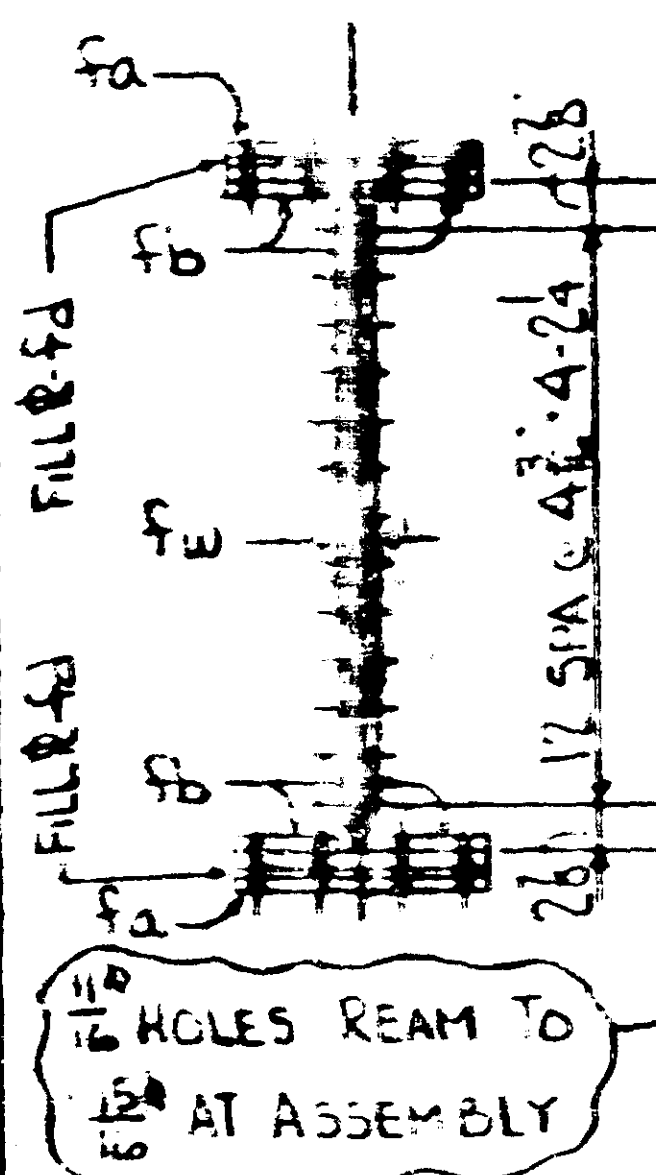


STATE PROJ. NO. 2710-21 (T.M. 65-105)
 FED. PROJ. NO. BHF 005-2 (67)

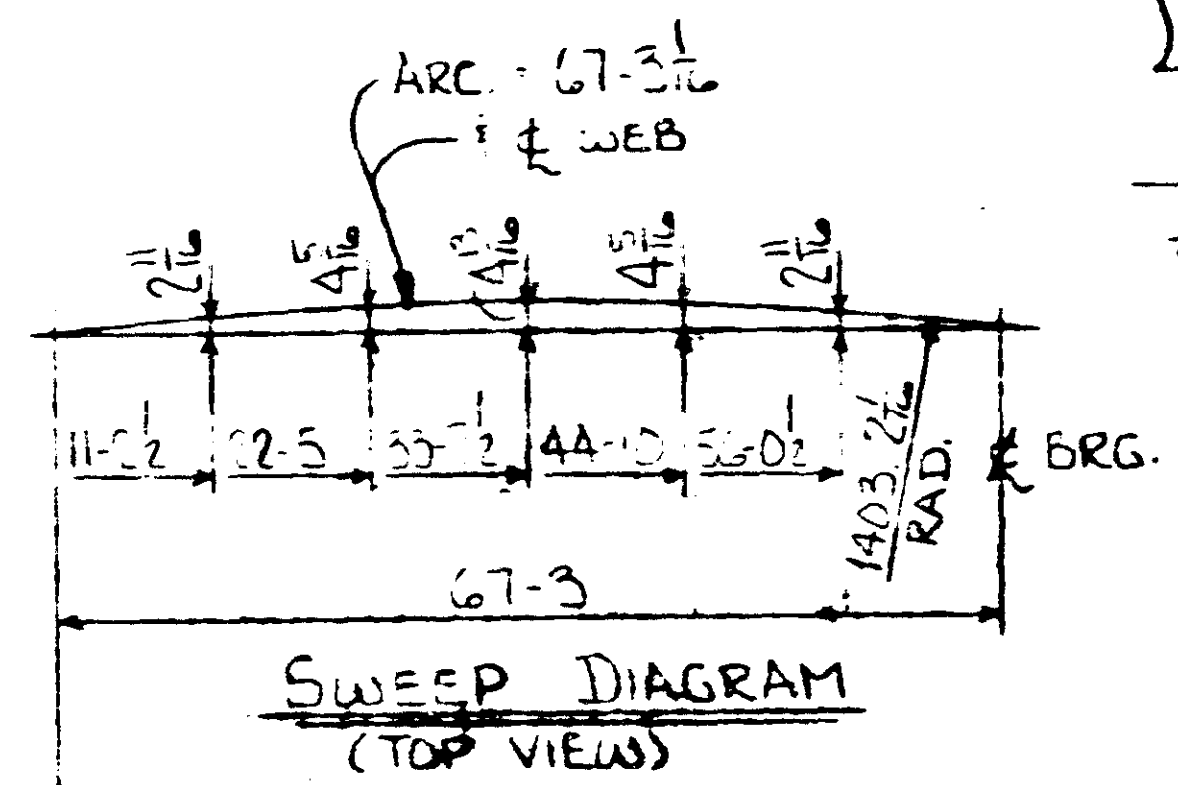
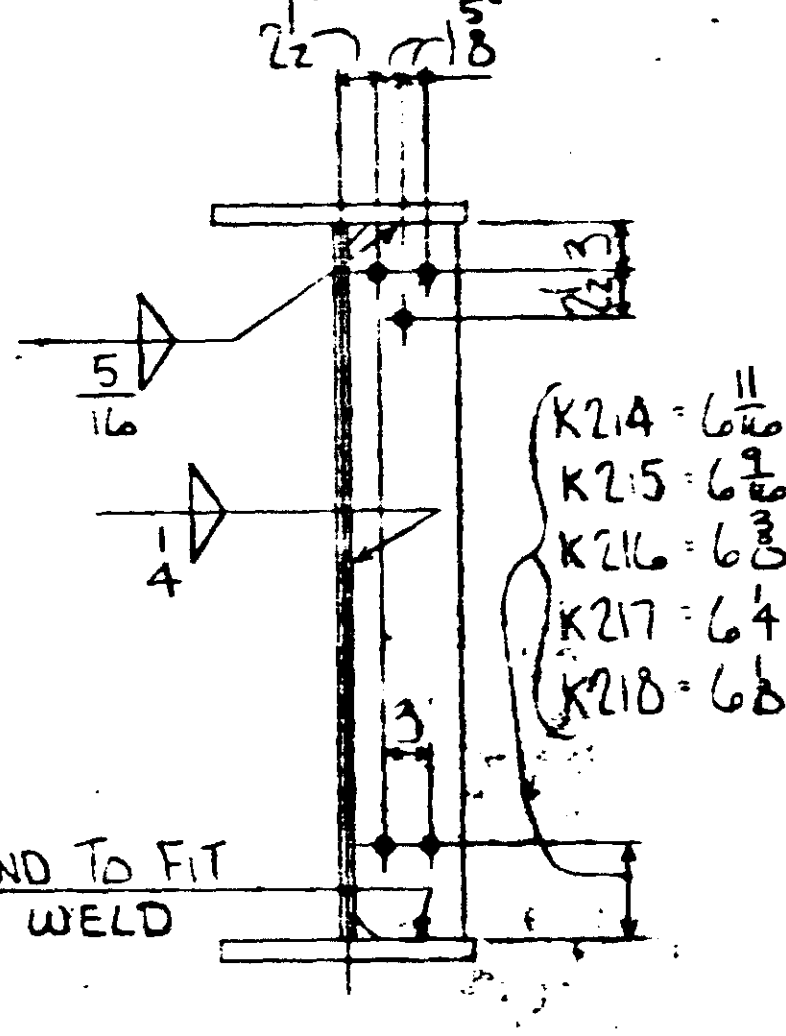
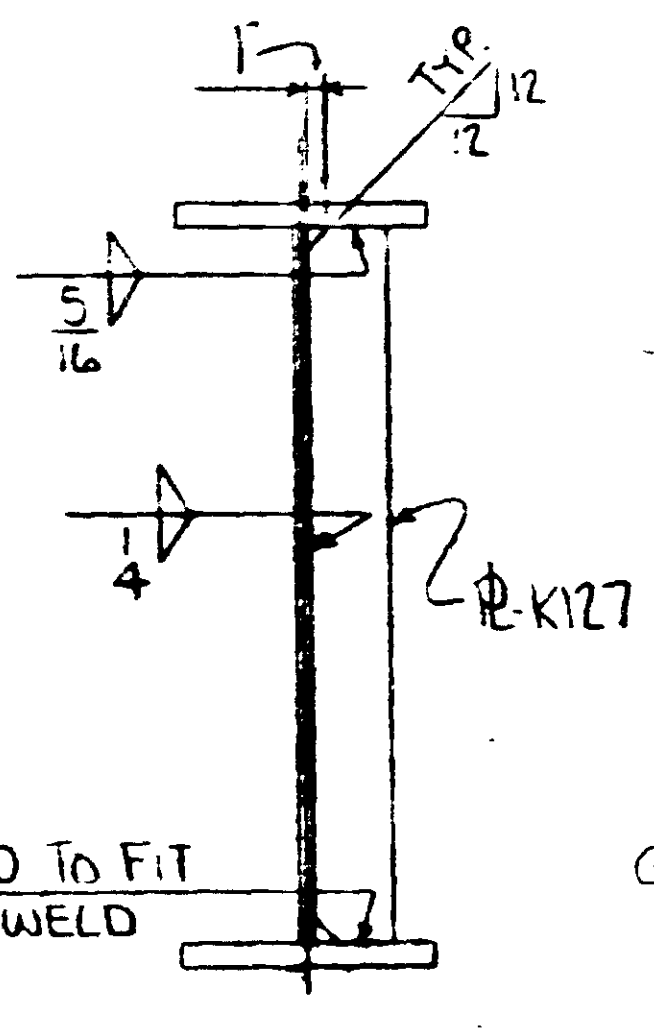
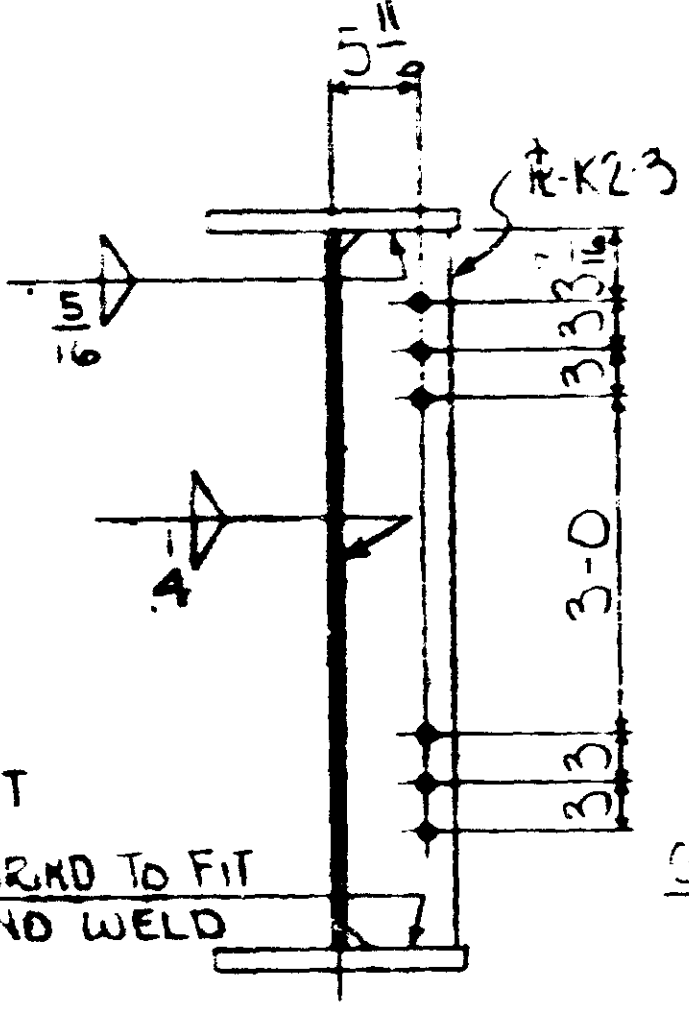
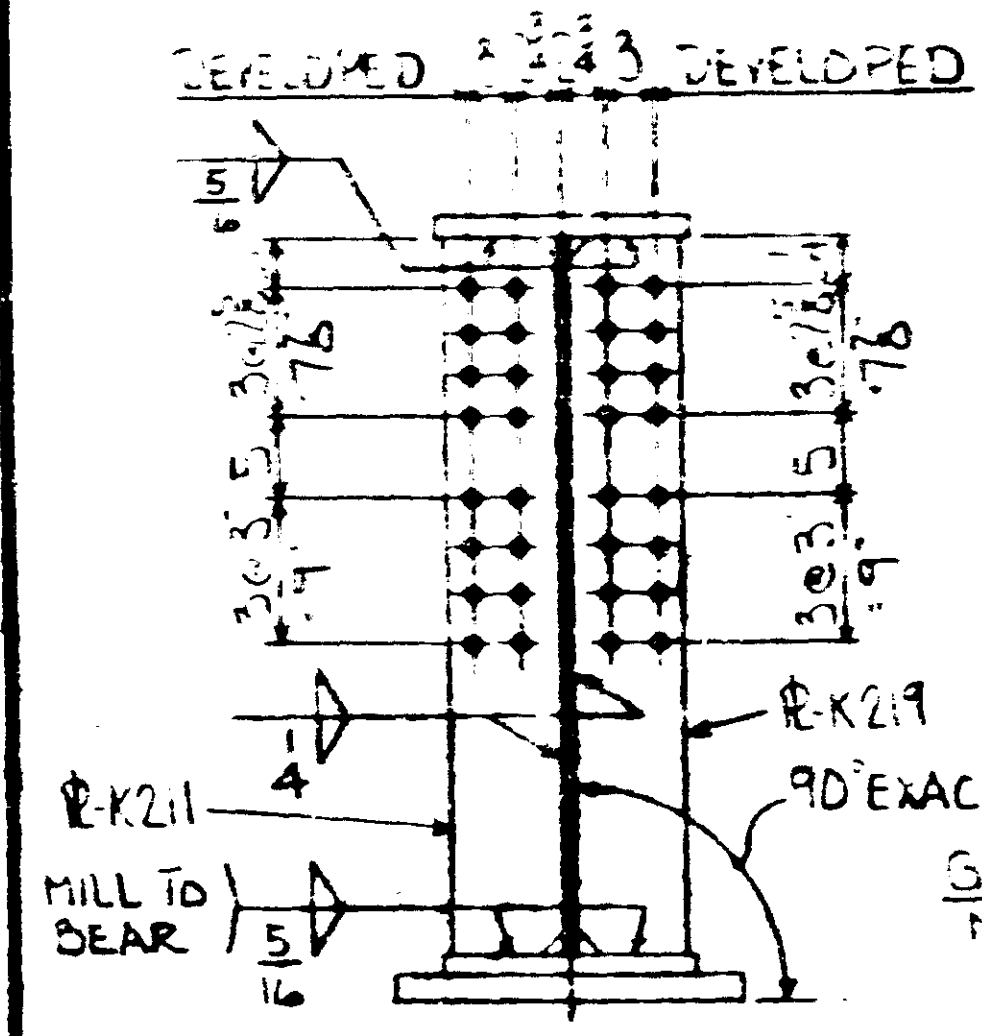
DESCRIPTION GIRDER B2



ITEM	QTY	MATERIAL
P3-14	1	UMP-3 x 16 x 67-10 1/2
P3-15	1	P-3 x 57 x 67-10 1/2
P3-14A	1	UMP-3 x 16 x 67-9 1/2
PC	1	P-14 x 18 x 1-10
Fa	2	UMP-2 x 16 x 3-24
Fb	4	UMP-2 x 7 1/2 x 3-24
Fc	2	P-3 x 57 x 1-7
Fd	2	P-4 x 16 x 1-7 1/2
K211	1	P-3 x 7 1/2 x 4-8 1/2
K219	1	P-3 x 7 1/2 x 4-8 1/2
K213	3	P-3 x 7 x 4-8 1/2
K214	1	P-3 x 7 x 4-8 1/2
K215	1	P-3 x 7 x 4-8 1/2
K216	1	P-3 x 7 x 4-8 1/2
K217	1	P-3 x 7 x 4-8 1/2
K218	3	P-3 x 7 x 4-8 1/2
K217 1/2	1	P-3 x 5 x 4-8 1/2
LOOSE	XA 175	6 NEL-STUDS - 0-5



ONE GIRDER - B5
(APPROX WT = 6 1/2 TONS)

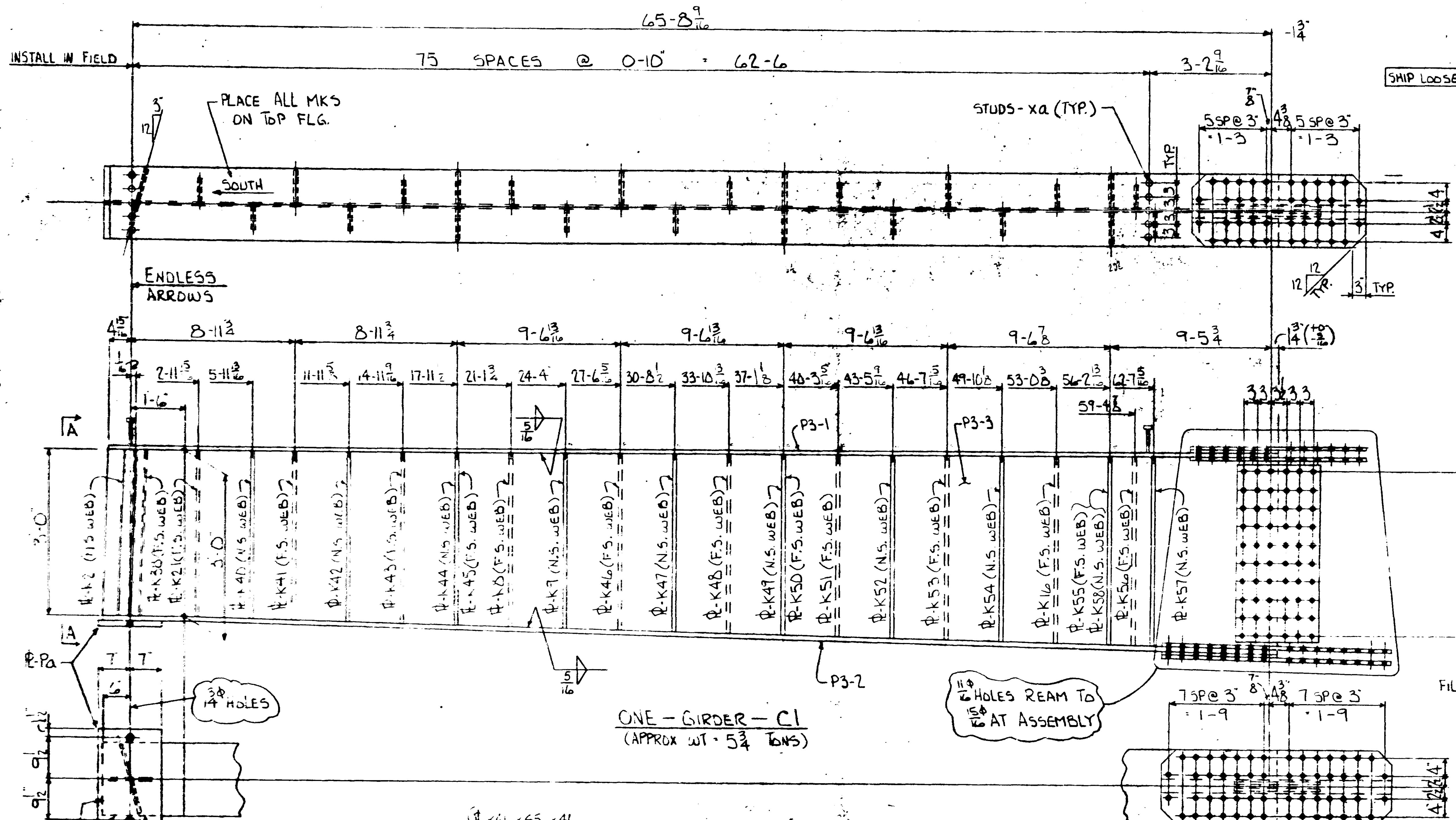


SEE SHT E1 & E2 FOR ERECTION & NOTES
SEE SHT. C4 FOR CAMBER DIAGRAM
SEE SHT. C5 & C5A FOR BLOCKING DIAGRAMS
ALL STEEL TO BE MN/DOT 3309

ST. PAUL STRUCTURAL STEEL CO.	
BRIDGE NO. 244D	DATE 12-7-75
MADE BY ALAN	DATE 1/3/80
CHECKED BY HJK	
SHOP PAINT NONE	UNLESS NOTED
OPEN HOLES 1/2"	
STATE PROJ. NO. 271D-21(T.H. 65-105)	CONTRACT NO. A7000
FED. PROJ. NO. BHF 005-2(67)	

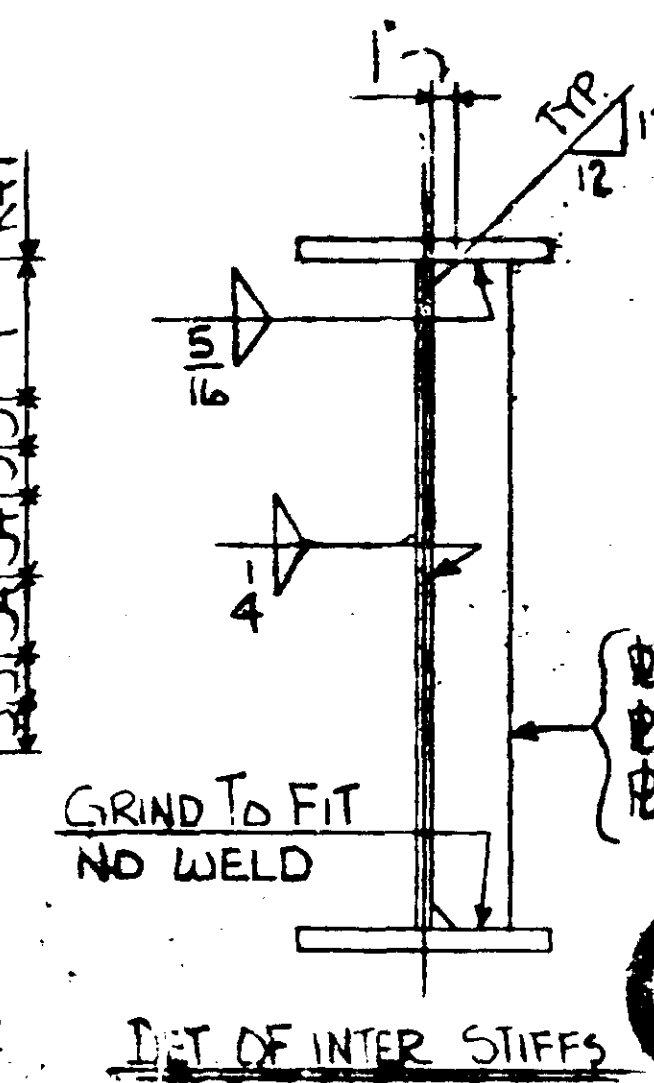
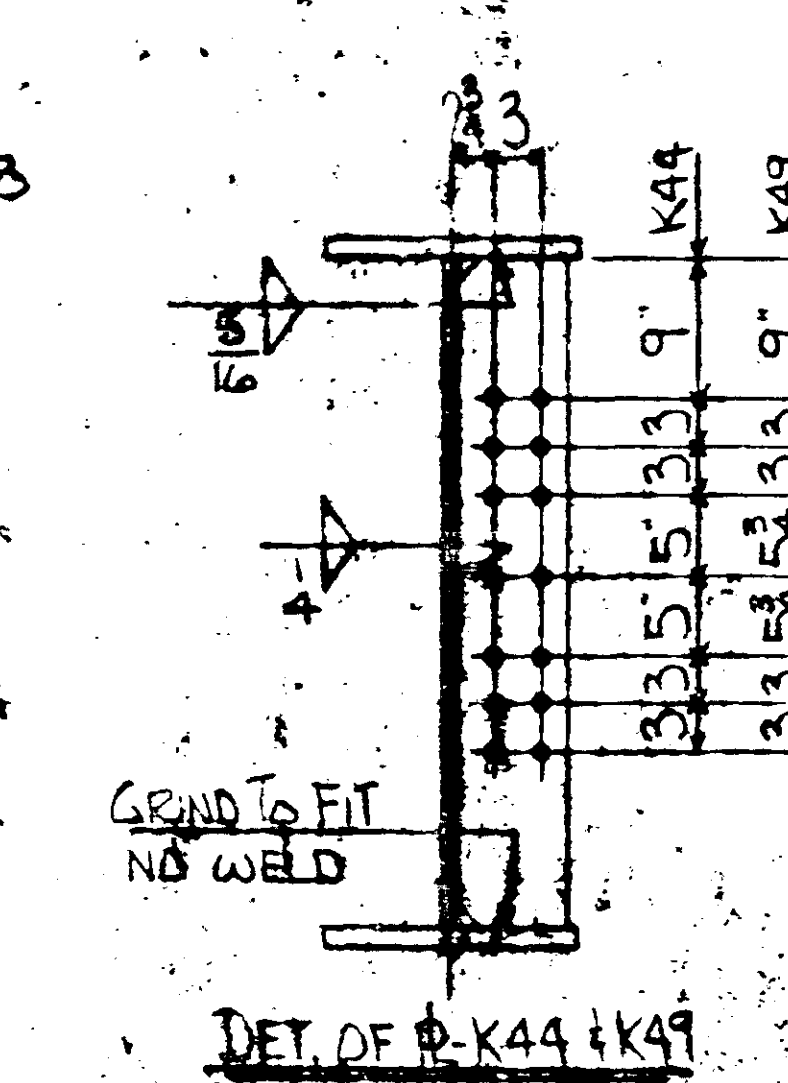
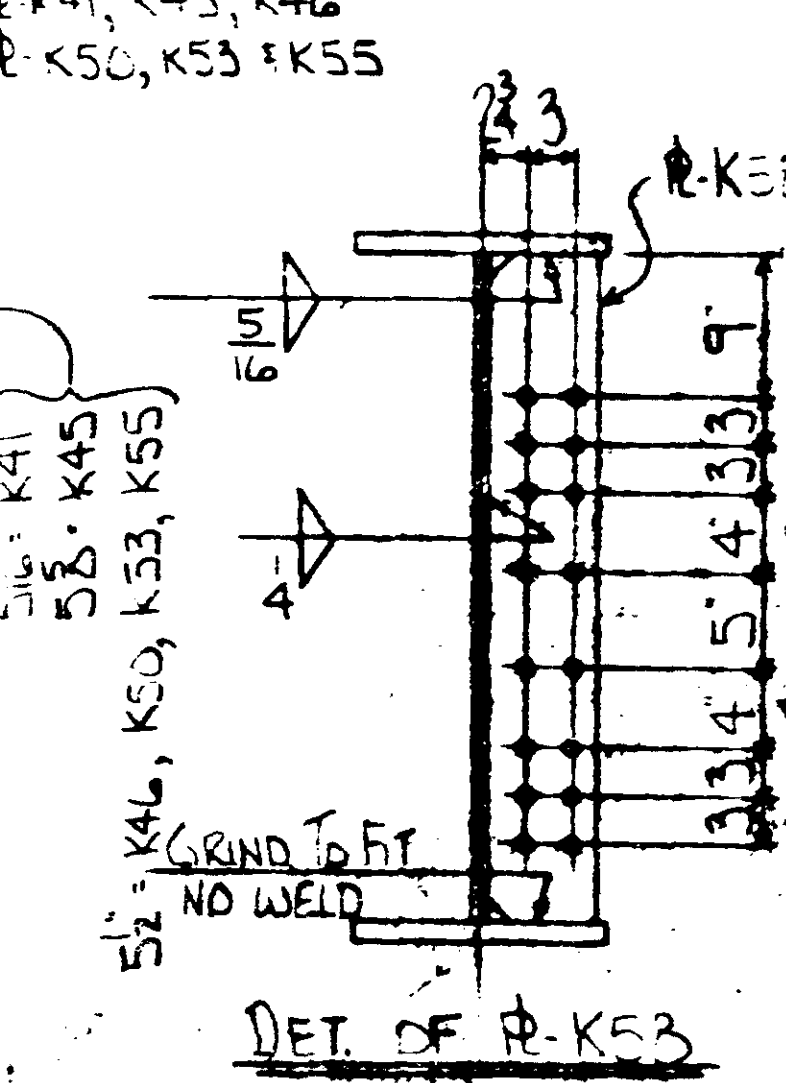
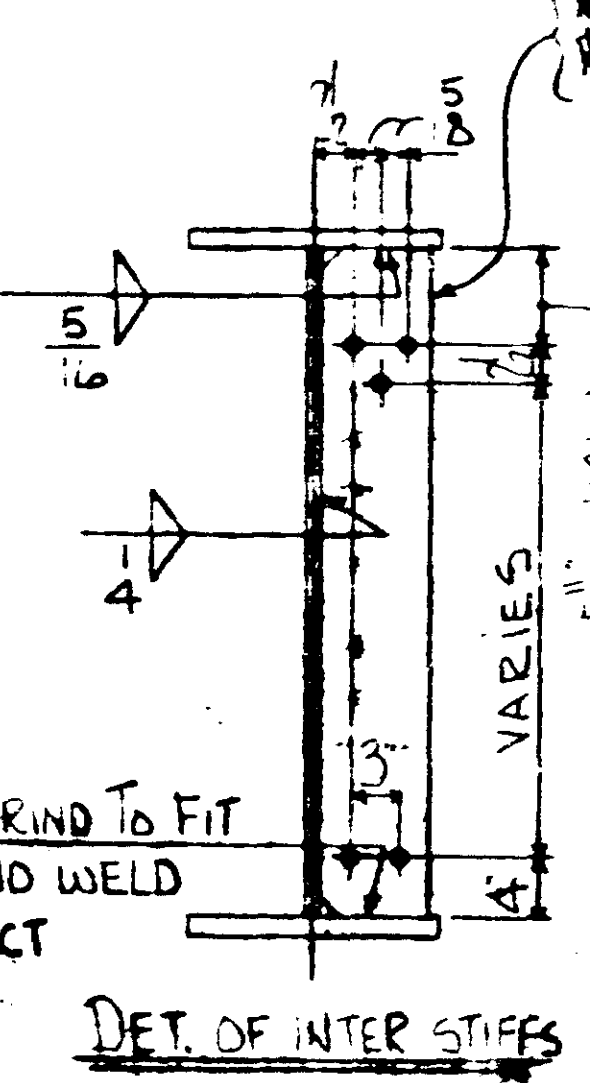
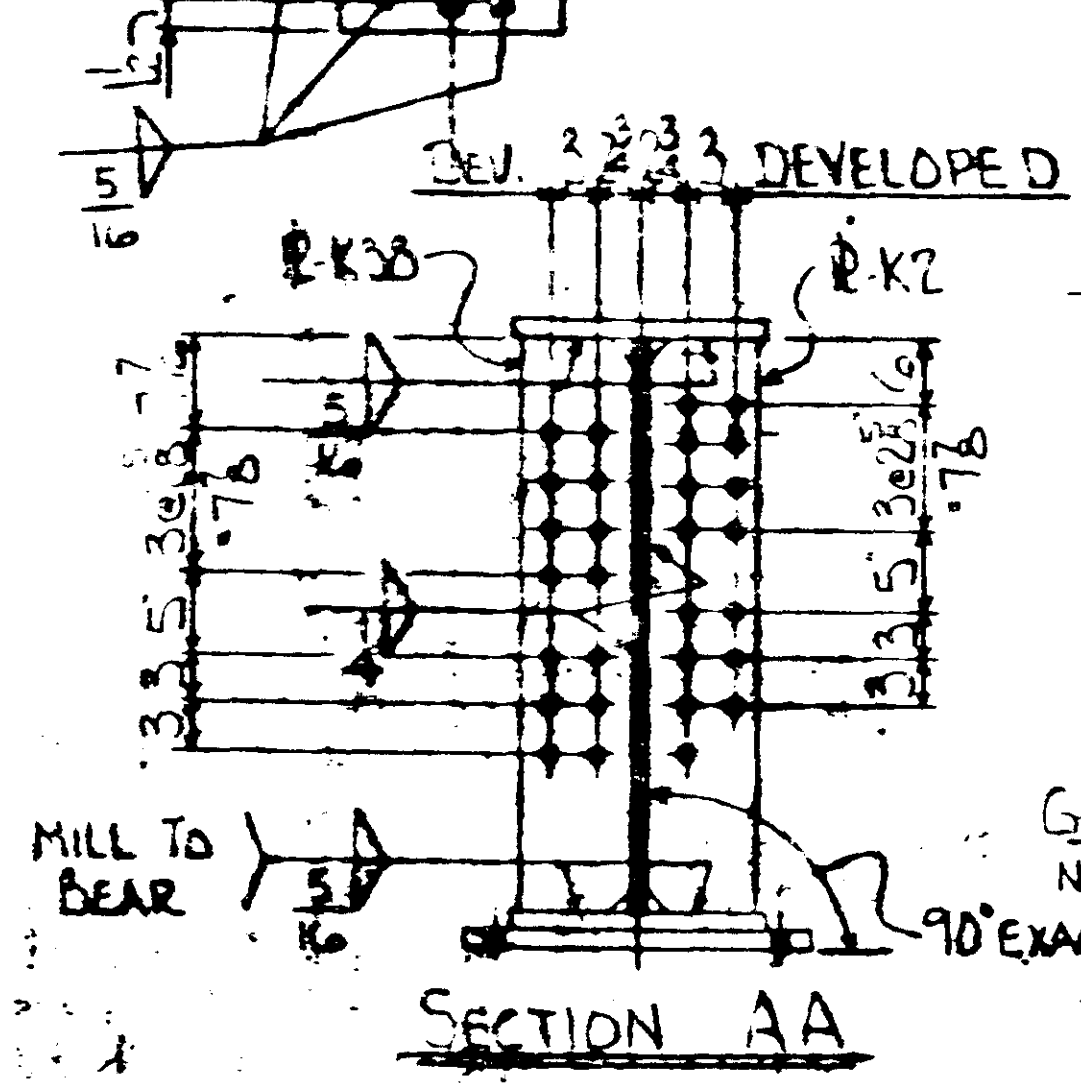


GIRDER



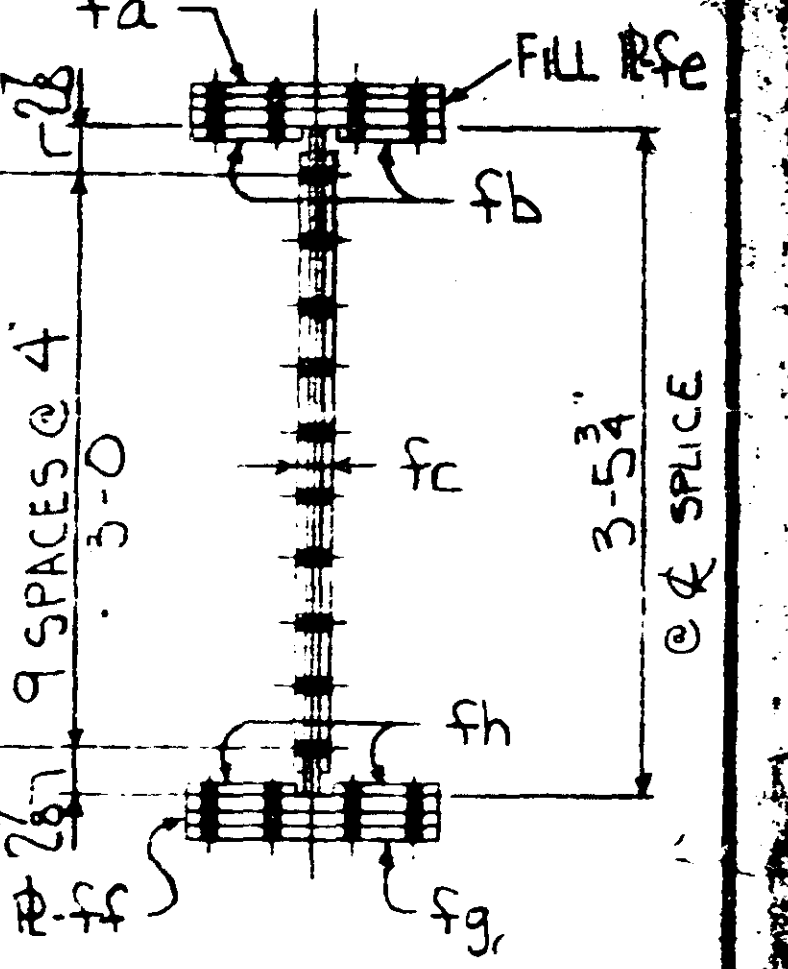
ITEM	QTY	MATERIAL
P3-1	1	UMP-3 x 16 x 66-3/4
P3-3	1	P-3 x 44 x 66-4 1/2
P3-2	1	UMP-16 x 16 x 66-4 1/2
XA	380	3" STUDS x 0-5
Pa	1	P-1 x 14 x 1-10
Fb	2	UMP-3 x 7 x 4-24
Fa	1	UMP-2 x 16 x 3-24
Fb	2	UMP-2 x 7 x 3-24
Fc	2	P-3 x 39 x 1-6 1/2
Fe	1	FILL P-2 x 16 x 1-7 1/2
Ff	1	FILL P-2 x 16 x 2-1 1/2
Fg	1	UMP-3 x 16 x 4-24
K38	1	P-3 x 7 1/2 x 3-0 3/8
K2	1	P-3 x 7 1/2 x 3-0 3/8
K21	1	P-5/16 x 5 x 3-0 1/2
K40	1	P-5/16 x 5 x 3-0 1/2
K41	1	P-3 x 7 x 3-0 1/2
K42	1	P-3/16 x 5 x 3-1 1/2
K43	1	P-3/16 x 5 x 3-1 1/2
K44	1	P-3 x 7 x 3-1 1/2
K45	1	P-3 x 7 x 3-1 1/2
K8	1	P-5/16 x 5 x 3-1 1/2

ONE - GIRDER - C1
(APPROX WT - 5 3/4 TONS)



SEE SHT. E1 & E2 FOR ERECTION & NOTES
SEE SHT. C1 FOR CAMBER DIAGRAM
SEE SHT. C5 & C5A FOR BLOCKING DIAGRAMS
ALL STEEL TO BE MN/D&T 3309

- P-K8, K9, K16, K21, K40
- P-K42, K43, K47, K48
- P-K51, K52, K54, K56 & K57

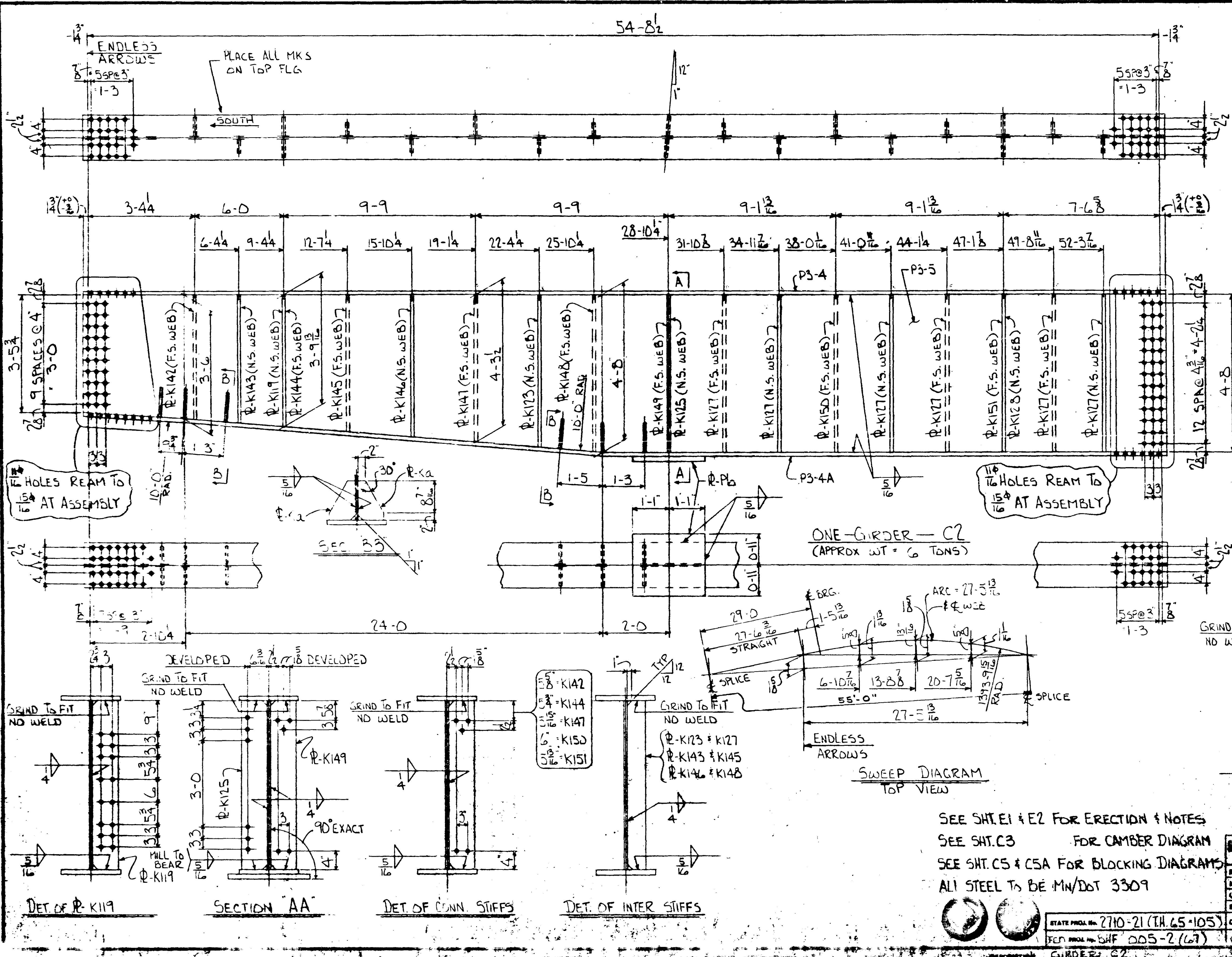


ITEM	QTY	MATERIAL
K9	1	P-5/16 x 5 x 3-2 1/2
K46	1	P-3 x 7 x 3-2 1/2
K47	1	P-3 x 5 x 3-2 1/2
K48	1	P-3 x 5 x 3-3
K49	1	P-3 x 7 x 3-3 1/2
K50	1	P-3 x 7 x 3-3 1/2
K51	1	P-3/16 x 5 x 3-3 1/2
K52	1	P-3/16 x 5 x 3-3 1/2
K53	1	P-3 x 7 x 3-4 1/2
K54	1	P-5/16 x 5 x 3-4 1/2
K16	1	P-3/16 x 5 x 3-4 1/2
K58	1	P-3 x 7 x 3-4 1/2
K55	1	P-3 x 7 x 3-4 1/2
K56	1	P-3/16 x 5 x 3-4 1/2
K57	1	P-3/16 x 5 x 3-5

ST. PAUL STRUCTURAL STEEL CO.	
103 PINE AVE. ST. PAUL, MINN. 55101	
BRIDGE NO. 2440	DATE 11-14-79
MADE BY ALAN	CHECKED BY HJK
SHOP PAINT NDPE	UNLESS NOTED
STATE PROJ. NO. 2710-21 (T.M. 65-105)	CONTRACT NO. 42000
FED. PROJ. NO. BHF 005-2 (67)	SHEET 17



DESCRIPTION GIRDER - C1



ITEM	QTY	MATERIAL
P3-4	1	UMP-14 x 16 x 55-D
P3-5	1	P-3 x 5 1/2 x 55-D
P3-4A	1	UMP-14 x 16 x 55-D
Pb	1	P-14 x 22 x 2-2
Ka	12	P-3 x 6 3/8 x 0-10 1/2
K142	1	P-3 x 7 x 3-6
K143	1	P-3 x 5 x 3-8 1/2
K119	1	P-3 x 7 x 3-9 1/2
K144	1	P-3 x 7 x 3-9 1/2
K145	1	P-3 x 5 x 3-11 1/2
K146	1	P-3 x 5 x 4-1 1/2
K147	1	P-3 x 7 x 4-3 3/8
K123	1	P-3 x 5 x 4-5 1/2
K148	1	P-3 x 7 x 4-7 1/2
K149	1	P-1 1/2 x 7 1/2 x 4-8 1/4
K125	1	P-1 1/2 x 7 1/2 x 4-8 1/4
K150	1	P-3 x 7 x 4-8 1/4
K151	1	P-3 x 7 x 4-8 1/4
K128	1	P-3 x 7 x 4-8 1/4
K127	6	P-3 x 5 x 4-8 1/4

ONE GIRDER - C2
(APPROX WT = 6 TONS)

SWEET DIAGRAM
TOP VIEW

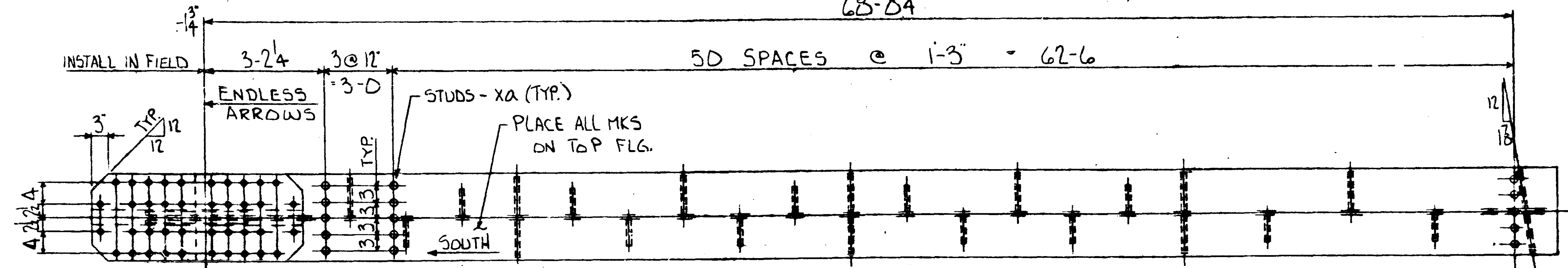
SEE SHET E1 & E2 FOR ERECTION & NOTES
SEE SHET C3 FOR CAMBER DIAGRAM
SEE SHET C5 & C5A FOR BLOCKING DIAGRAMS
ALL STEEL TO BE MN/DOT 3309

ST. PAUL STRUCTURAL STEEL CO.	
BRIDGE NO. 2440	
MADE BY ALAN	DATE 11-27-79
CHECKED BY HJK	DATE 1/3/80
SHOP PAINT NONE	
STATE PROJ. NO. 2710-21 (I.H. 65-105)	OPEN HOLES UNLESS NOTED
FED. PROJ. NO. SHF 005-2 (L3)	CONTRACT NO. 47000
SHEET 13	

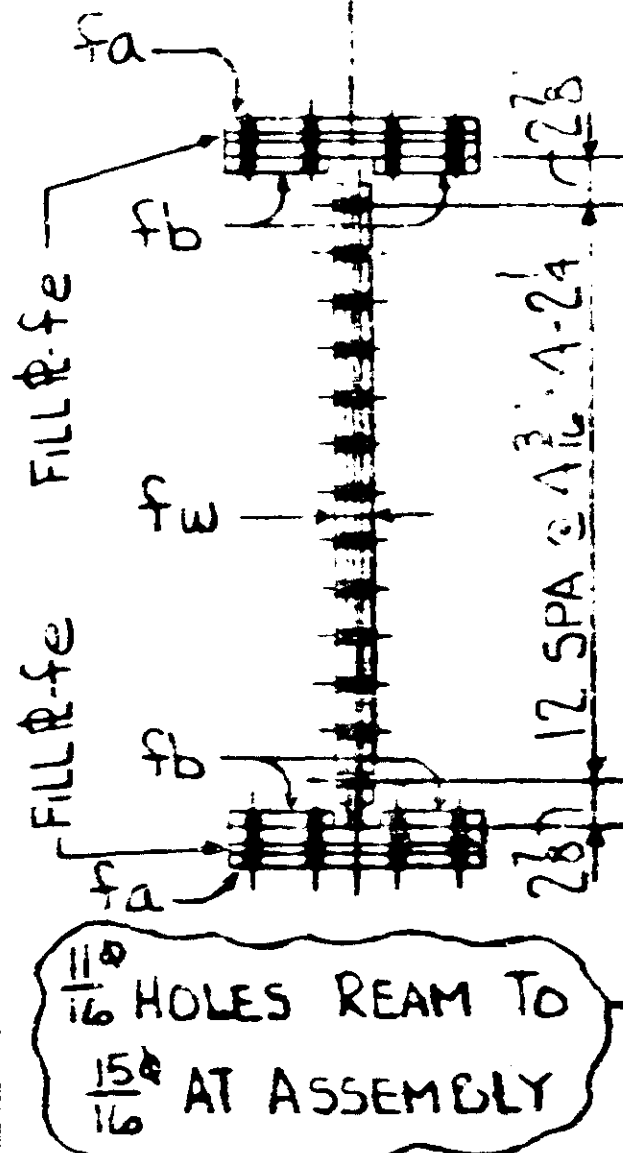
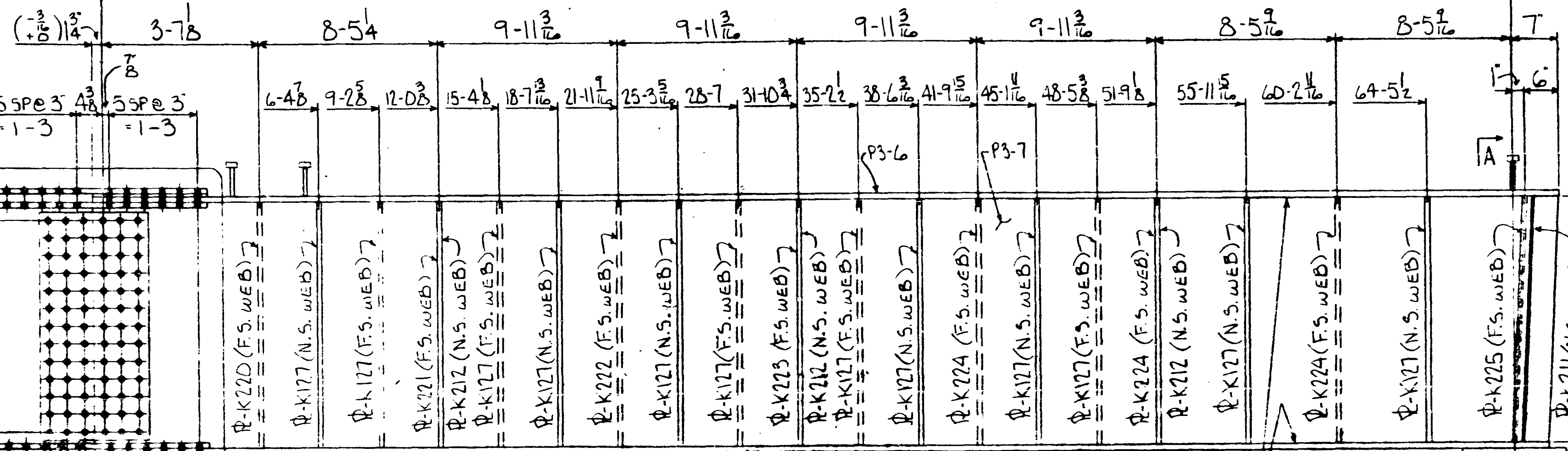
68-84

50 SPACES @ 1'-3" = 62'-6"

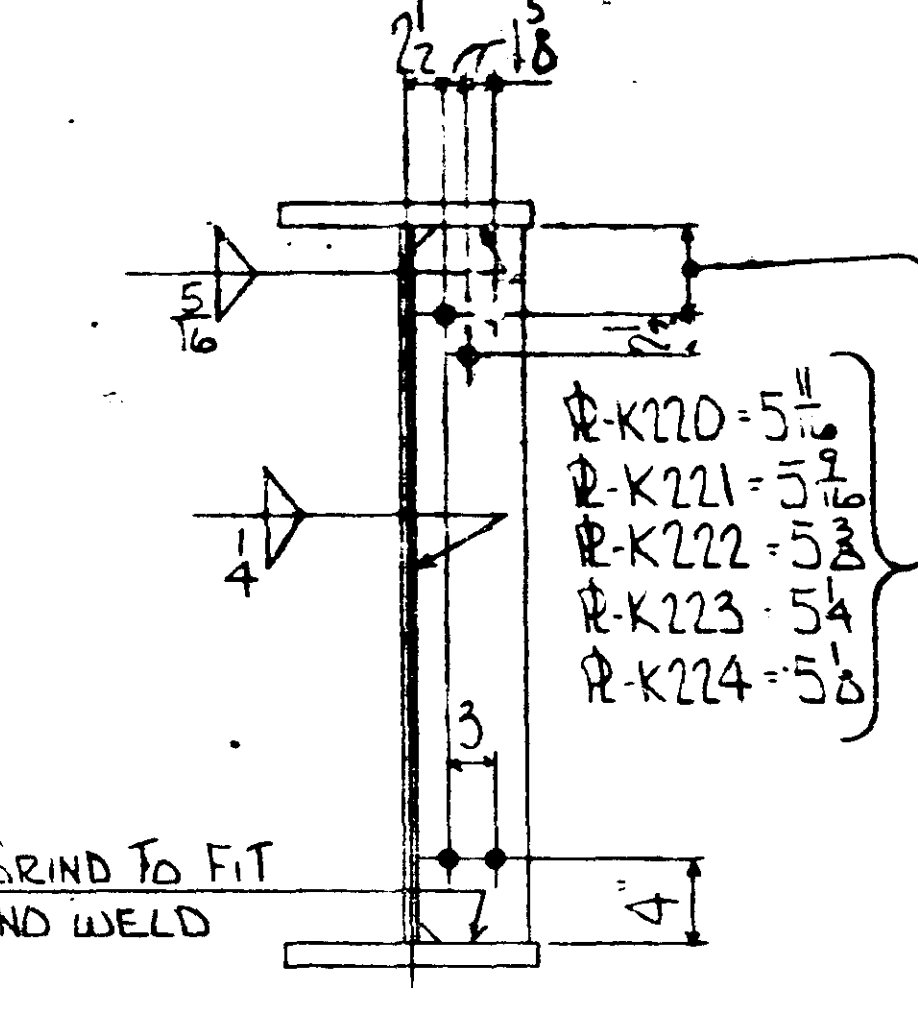
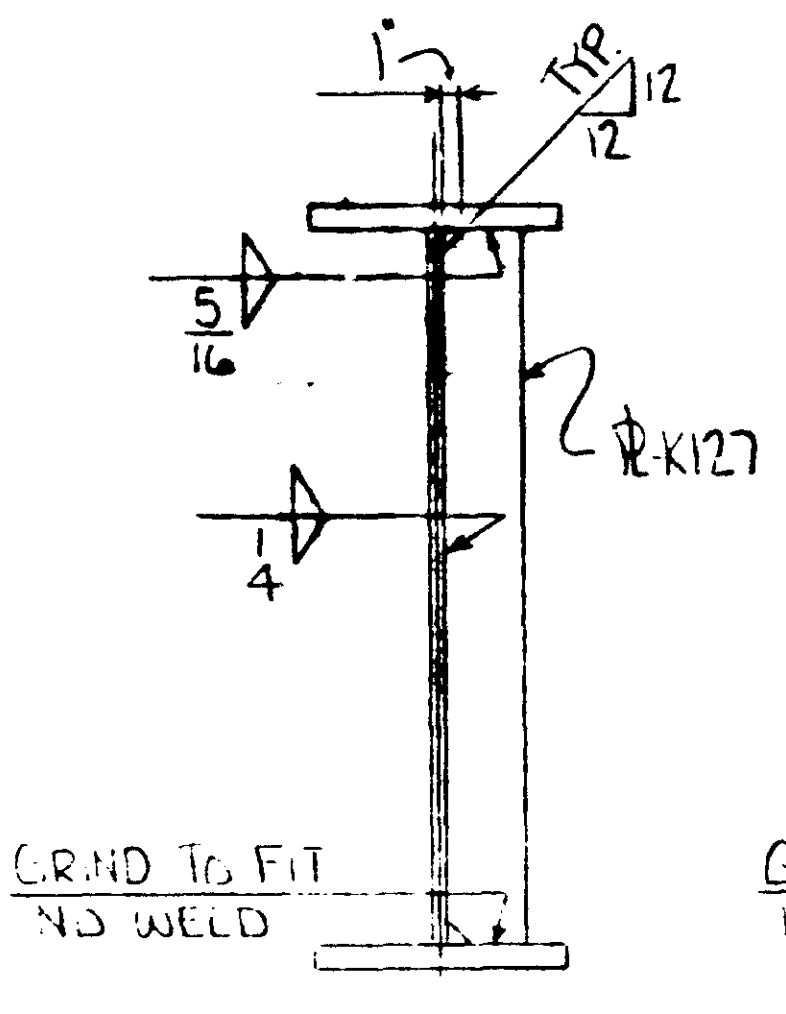
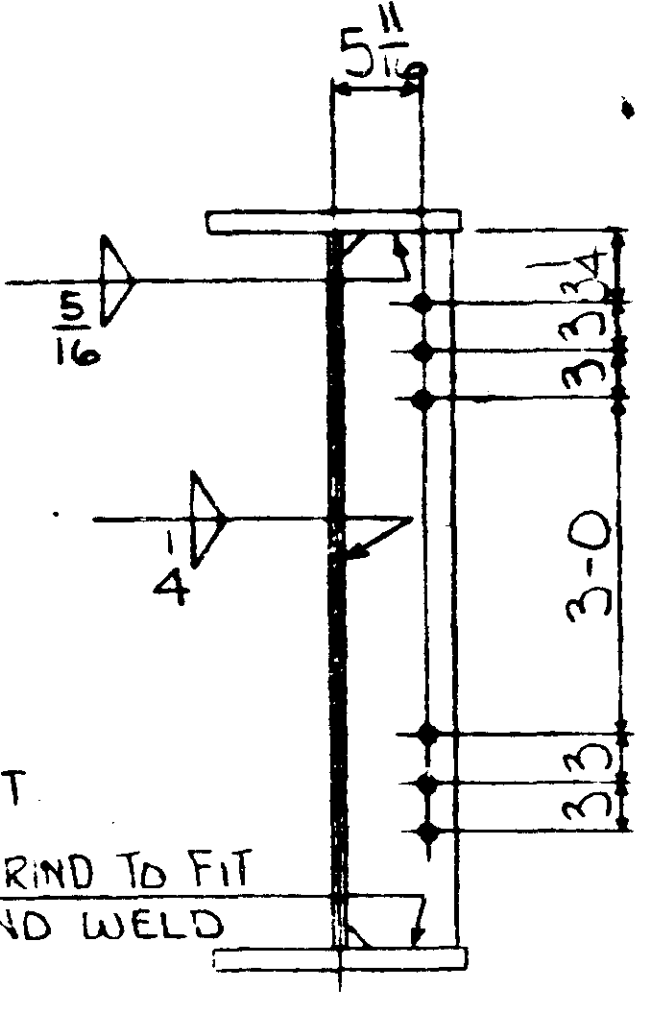
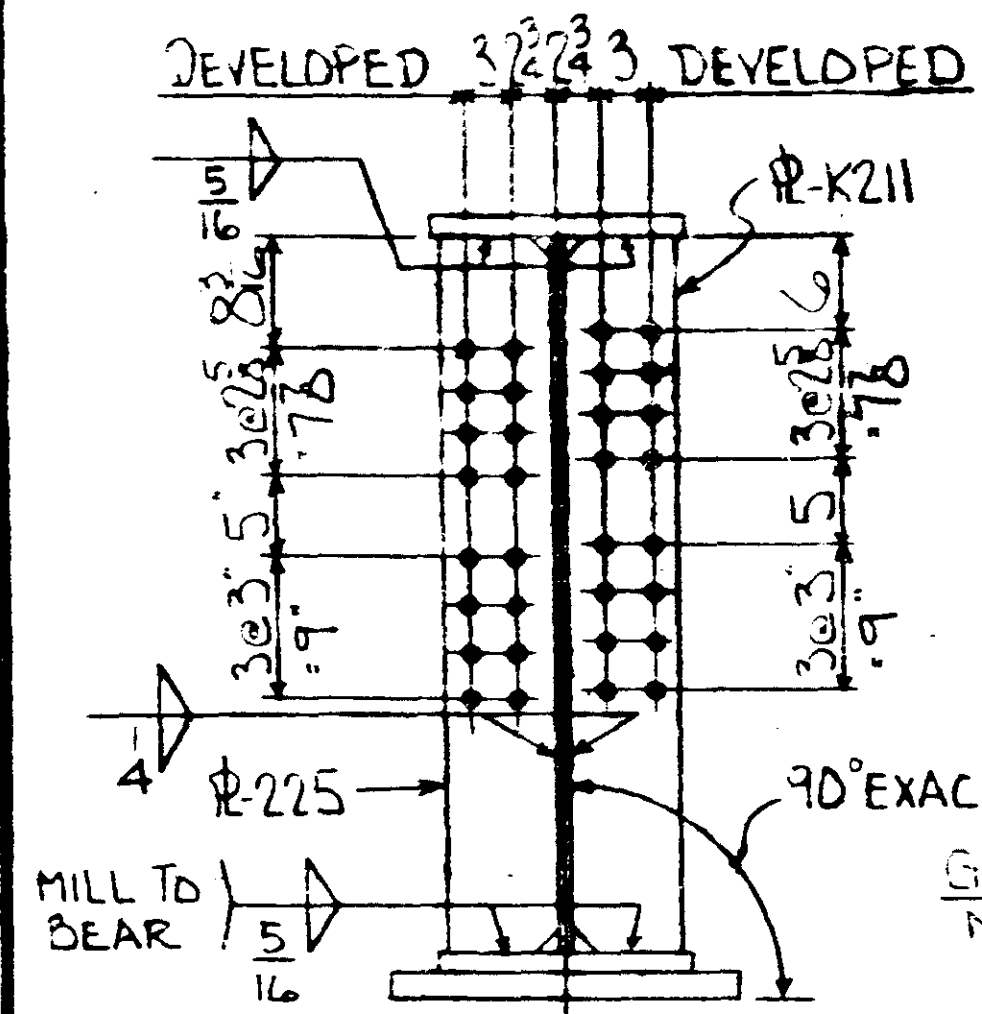
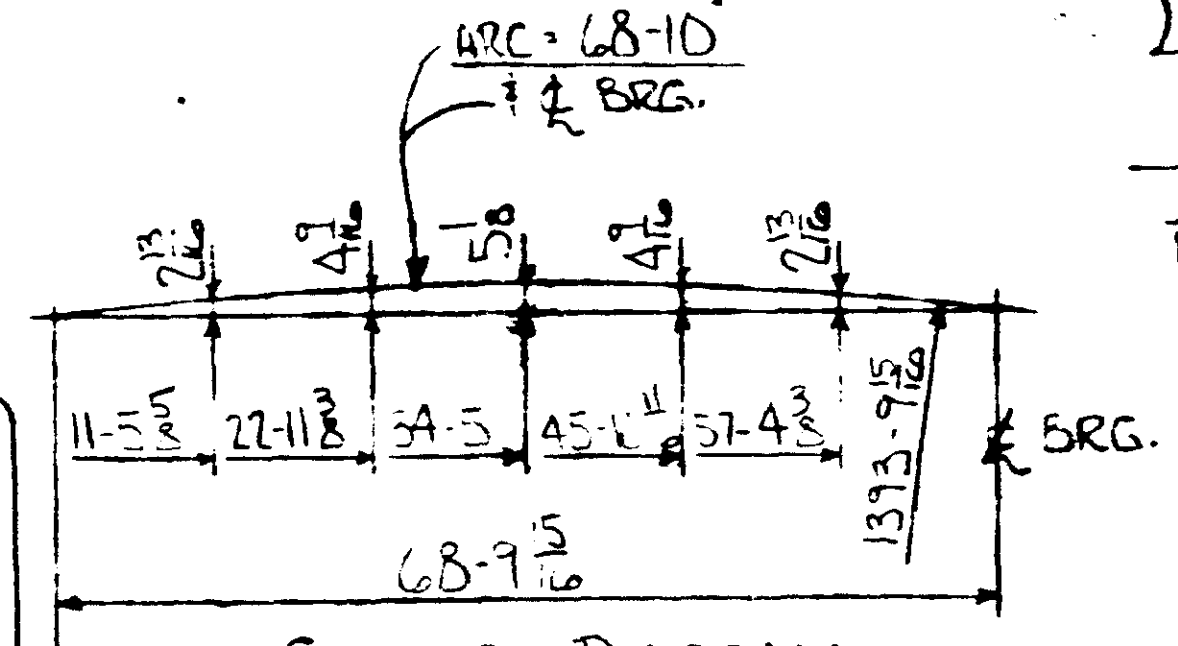
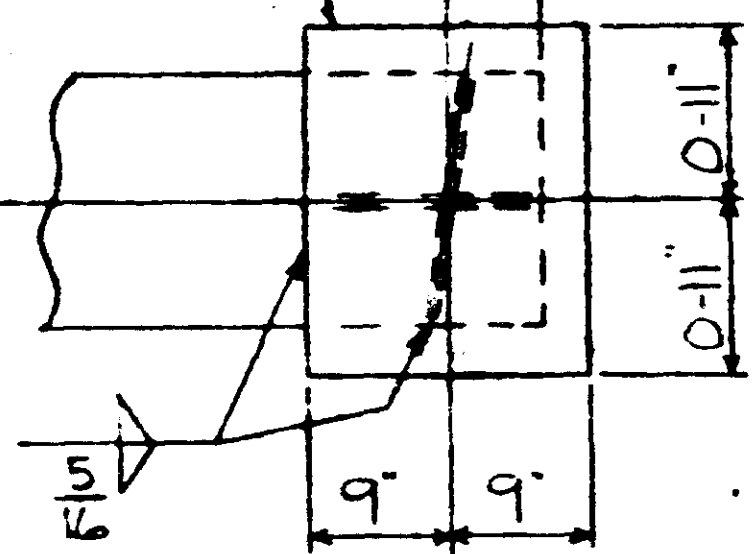
INSTALL IN FIELD



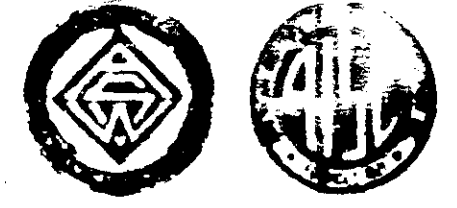
ITEM	QTY	MATERIAL
P3-6	1	UMP-8 x 16 x 69-5
P3-7	1	P-8 x 57 1/2 x 69-5
P3-6A	1	UMP-8 x 16 x 69-4
Pc	1	P-14 x 18 x 1-10
Fa	2	UMP-2 x 16 x 3-24
Fb	4	UMP-2 x 7 1/2 x 3-24
Fw	2	P-8 x 53 1/2 x 1-7
Fe	2	P-8 x 16 x 1-7 1/2
K225	1	P-8 x 7 1/2 x 4-8 1/2
K211	1	P-8 x 7 1/2 x 4-8 1/2
K212	3	P-8 x 7 x 4-8 1/2
K220	1	P-8 x 7 x 4-8 1/2
K221	1	P-8 x 7 x 4-8 1/2
K222	1	P-8 x 7 x 4-8 1/2
K223	1	P-8 x 7 x 4-8 1/2
K224	3	P-8 x 7 x 4-8 1/2
K217	12	P-8 x 5 x 4-8 1/2
LOOSE	XA 270	8 STUDS x 0-5



ONE GIRDER - C3
(APPROX WT = 6 1/2 TONS)

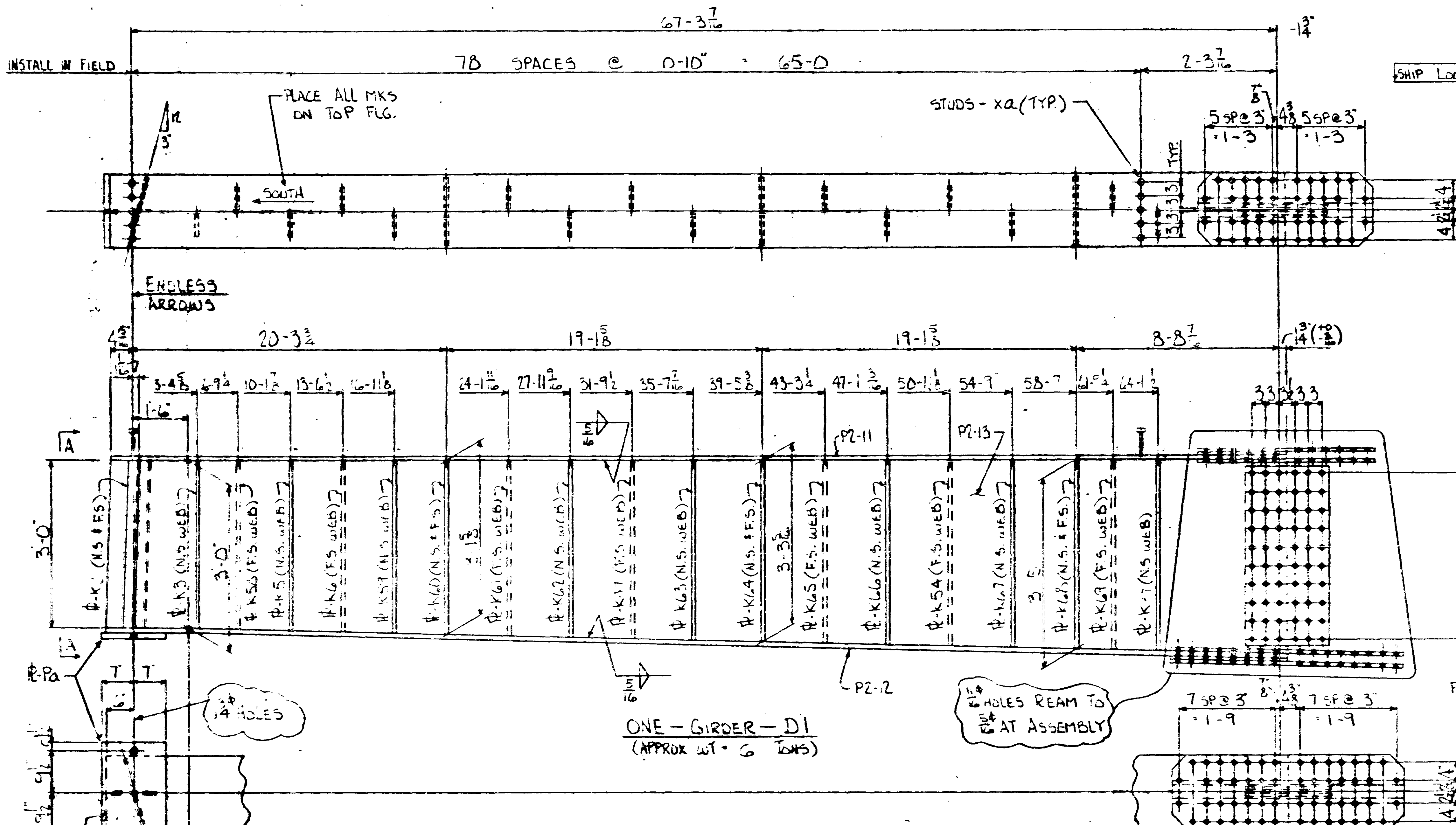


SEE SHET E1 & E2 FOR ERECTION & NOTES
SEE SHET C4 FOR CAMBER DIAGRAM
SEE SHET C5 & C5A FOR BLOCKING DIAGRAMS
ALL STEEL TO BE MN/DOT 3309



ST. PAUL STRUCTURAL STEEL CO.	
102 YORK AVE. ST. PAUL, MINN 55117	
BRIDGE NO. 2440	DATE 12-10-79
MADE BY ALAN	DATE 1/3/80
CHECKED BY HJK	
SHOP PAINT NONE	
OPEN HOLES 1/2" UNLESS NOTED	
STATE PROJ NO. 2710-21(T.H.65-105)	CONTRACT NO. 42000
FED PROJ NO. BHF ODS-2(67)	SHEET 19

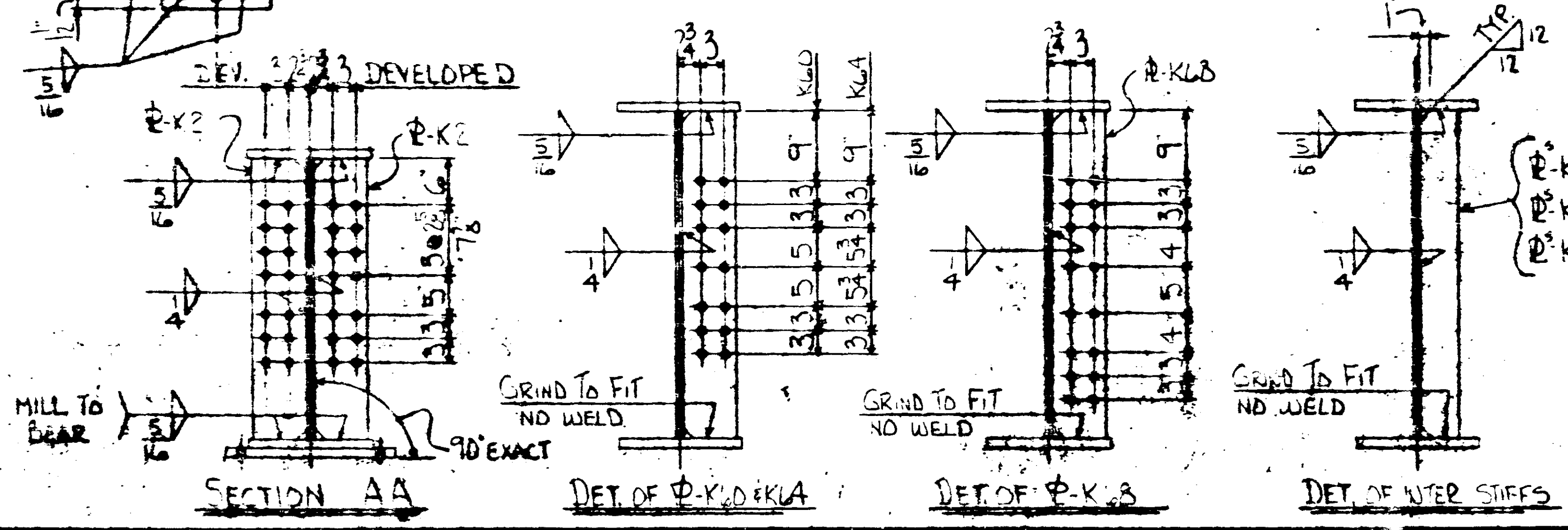
DESCRIPTION GIRDER C3



ITEM	QTY	MATERIAL
P2-11	1	UMP-3 x 16 x 67-10 1/2
P2-13	1	P-3 x 44 x 67-11 1/2
P2-12	1	UMP-1 1/2 x 16 x 67-11 1/2
SHIP LOOSE	XA	395 3/8 STUDS x 0-5
Pa	1	P-1 x 14 x 1-10
Fa	1	UMP-2 x 16 x 3-24
Fg	1	UMP-2 x 16 x 4-24
Fb	2	UMP-2 x 7 1/2 x 3-24
Fc	2	P-3 x 39 x 1-6 1/2
Fe	1	FILL P-3 x 16 x 1-7 1/2
Ff	1	FILL P-3 x 16 x 2-1 1/2
Fh	2	UMP-3 x 7 1/2 x 4-24
K2	2	P-3 x 7 1/2 x 3-0 1/2
K3	1	P-3/8 x 5 x 3-0 1/2
K53	1	P-3/8 x 5 x 3-0 1/2
K5	1	P-3/8 x 5 x 3-0 1/2
K6	1	P-3/8 x 5 x 3-1 1/2
K57	1	P-3/8 x 5 x 3-1 1/2
K60	2	P-3/8 x 7 x 3-1 1/2
K61	1	P-3/8 x 5 x 3-1 1/2
K62	1	P-3/8 x 5 x 3-2 1/2
K47	1	P-3/8 x 5 x 3-2 1/2

ITEM	QTY	MATERIAL
K63	1	P-3/8 x 5 x 3-3 1/2
K64	2	P-3/8 x 7 x 3-3 1/2
K65	1	P-3/8 x 5 x 3-3 1/2
K66	1	P-3/8 x 5 x 3-4 1/2
K54	1	P-3/8 x 5 x 3-4 1/2
K67	1	P-3/8 x 5 x 3-4 1/2
K68	2	P-3/8 x 7 x 3-5 1/2
K69	1	P-3/8 x 5 x 3-5 1/2
K57	1	P-3/8 x 5 x 3-5 1/2

SEE SH. E1 & E2 FOR ERECTION & NOTES
 SEE SH. C1 FOR CAMBER DIAGRAM
 SEE SH. C5 & C5A FOR BLOCKING DIAGRAMS
 ALL STEEL TO BE MIN/DOT 3309

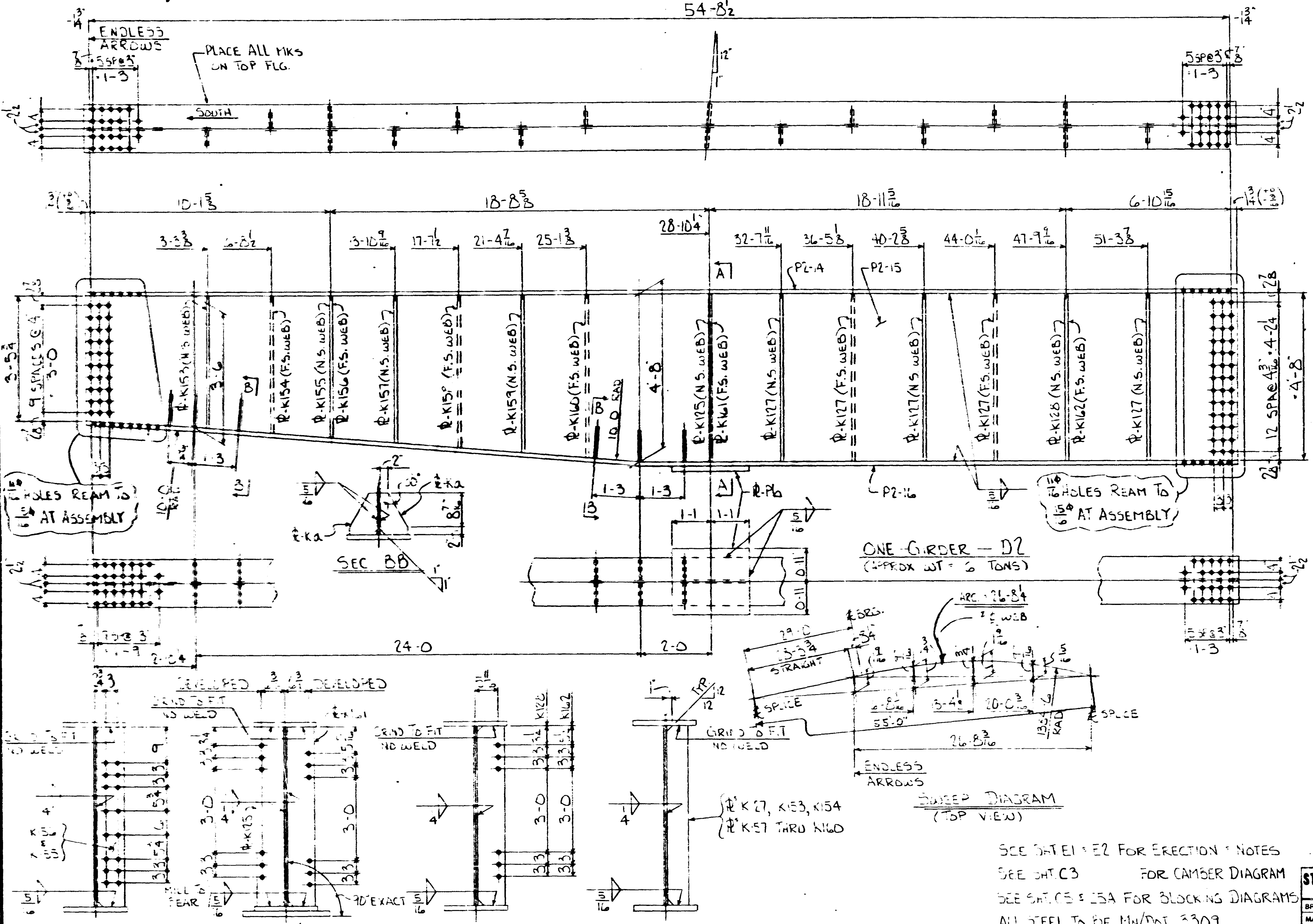


ST. PAUL STRUCTURAL STEEL CO.	
BRIDGE NO. 2340	DATE 11-14-79
MADE BY	DATE 1/3/80
CHECKED BY	
STATE PROJ. NO. 2710-21 (T.A. 65-105)	CONTRACT NO. 42000
FED. PROJ. NO. B4F ODS-2 (67)	SHEET 20



DESCRIPTION GIRDER D1

54-82



ITEM	QTY	MATERIAL
P2-14	1	UMR-14 x 16 x 55-D
P2-15	1	R-3 x 5 1/2 x 55-D
P2-16	1	UMR-14 x 16 x 55-D
P6	1	R-14 x 22 x 2-2
Ka	12	R-3 x 6 3/8 x 10 1/2
K153	1	R-3/4 x 5 x 3-6 3/8
K154	1	R-3/4 x 5 x 3-8 3/8
K155	1	R-3/4 x 7 x 3-10 3/8
K156	1	R-3/4 x 7 x 3-10 3/8
K157	1	R-3/4 x 5 x 4-0 1/2
K158	1	R-3/4 x 5 x 4-2 3/4
K159	1	R-3/4 x 5 x 4-4 1/2
K160	1	R-3/4 x 5 x 4-7 1/2
K161	1	R-1/2 x 7 1/2 x 4-8 1/2
K162	1	R-1/2 x 7 1/2 x 4-8 1/2
K125	1	R-1/2 x 7 1/2 x 4-8 1/2
K161	1	R-1/2 x 7 1/2 x 4-8 1/2
K127	5	R-3/4 x 5 x 4-8 1/2
K123	1	R-3/4 x 7 x 4-8 1/2
K162	1	R-3/4 x 7 x 4-8 1/2

15 HOLES REAM TO 1/2" AT ASSEMBLY

15 HOLES REAM TO 1/2" AT ASSEMBLY

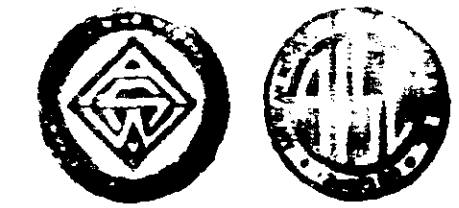
ONE GIRDER - D2
(APPROX WT = 6 TONS)

SWEEP DIAGRAM
(TOP VIEW)

SEE SHEET # E2 FOR ERECTION NOTES
SEE SHEET C3 FOR CAMBER DIAGRAM
SEE SHEET # E5A FOR BLOCKING DIAGRAMS
ALL STEEL TO BE MN/DOT 3309

ST. PAUL STRUCTURAL STEEL CO.
82 YORK AVE. ST. PAUL, MINN 55117

BRIDGE NO. 2440	DATE 11-28-79
MADE BY ALAN	CHECKED BY HJK
DATE 1/3/80	DATE 1/3/80
SHOP PAINT NONE	UNLESS NOTED
OPEN HOLES 1/2"	CONTRACT NO. 42000
SHEET 21	



STATE PROJ. NO. 2710-21 (TH. 65-105)
FED. PROJ. NO. BHF 005-2 (67)

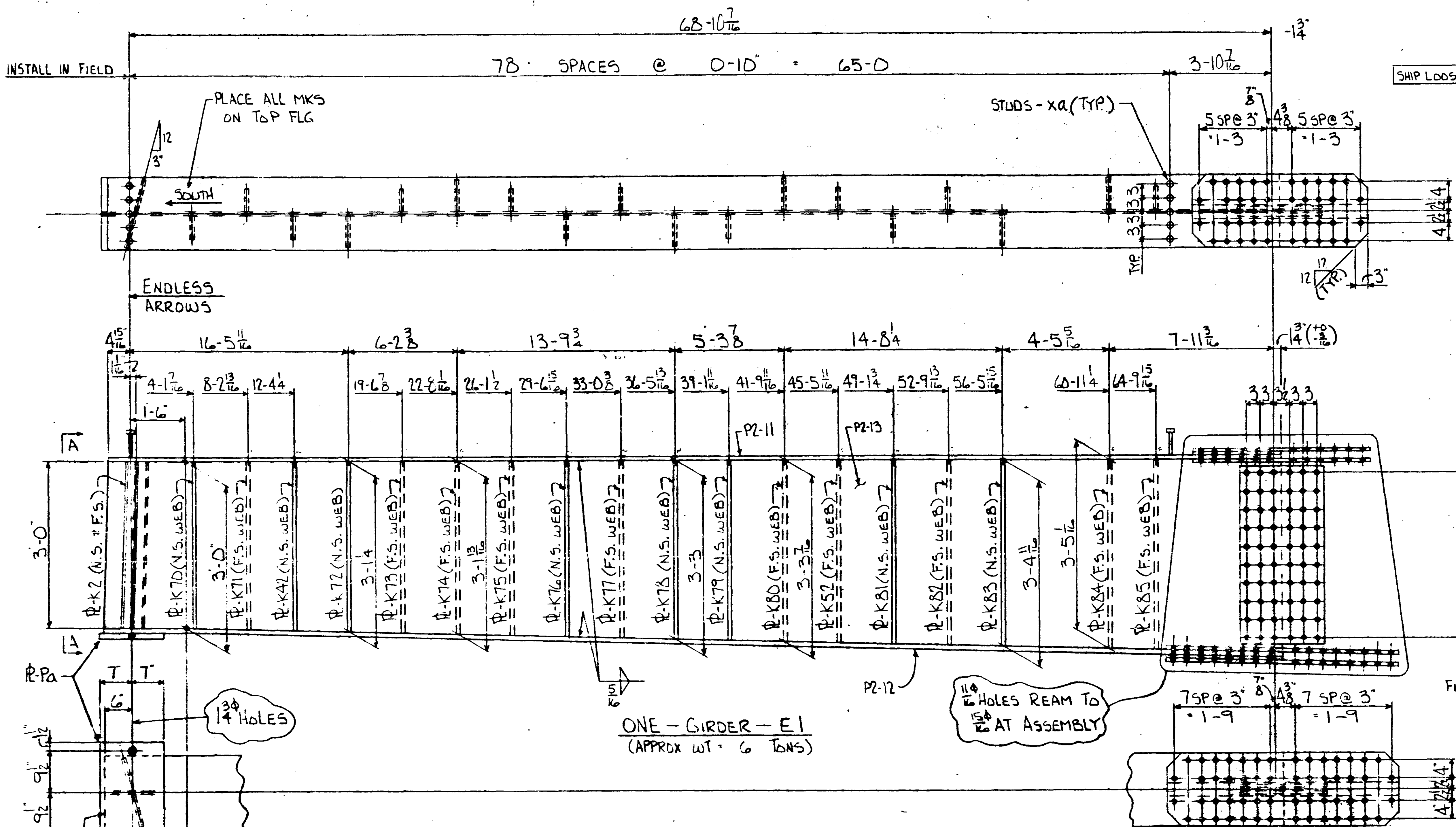
DESCRIPTION GIRDER D2

DET OF R-K155 & K156

SECTION AA

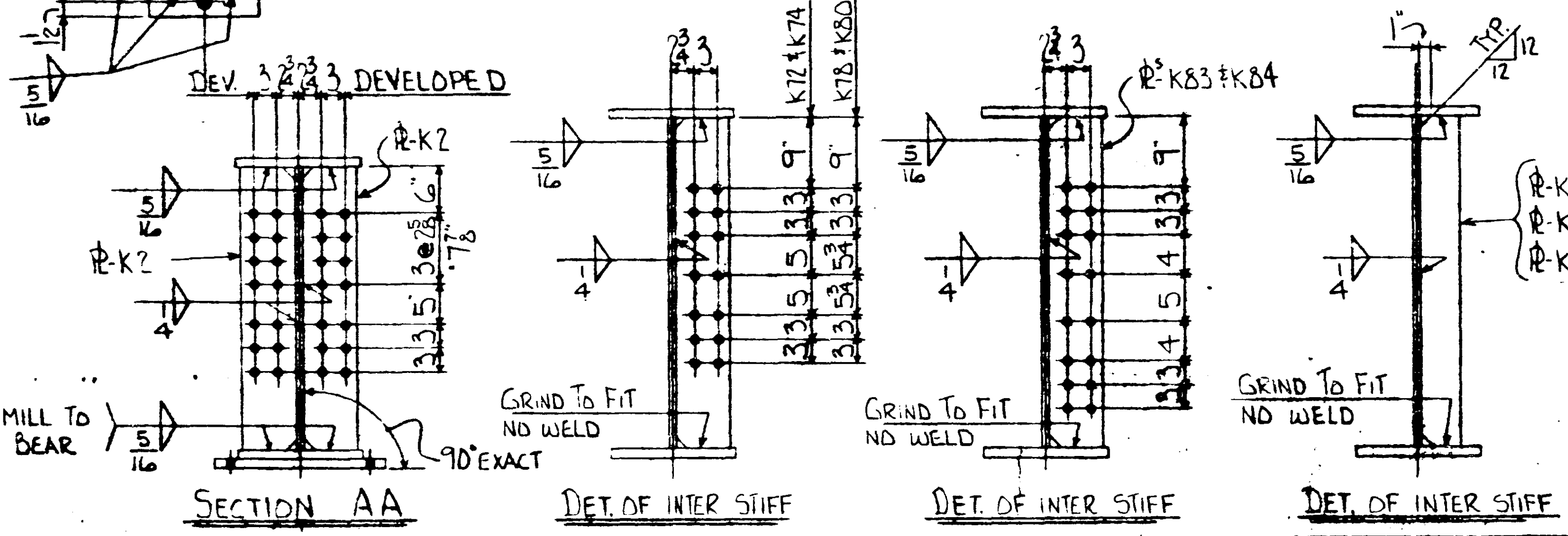
DET OF R-K128 & K162

DET. OF INTER STIFFS

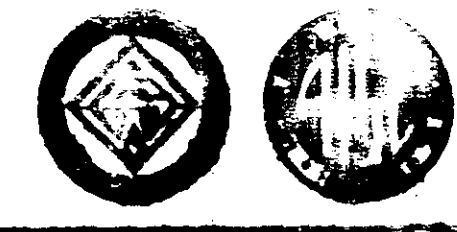


ITEM	QTY	MATERIAL
P2-11	1	UMP-3 x 16 x 69-5 1/2
P2-13	1	P-3 x 44 x 69-6 3/8
P2-12	1	UMP-18 x 16 x 69-6 3/8
SHIP LOOSE	XA	395 STUDS - X 0-5
Pa	1	P-1 x 14 x 1-10
Fa	1	UMP-2 x 16 x 3-24
Fg	1	UMP-3 x 16 x 4-24
Fb	2	UMP-2 x 7 1/2 x 3-24
Fc	2	P-3 x 39 x 1-6 1/2
Fe	1	FILL P-3 x 16 x 1-7 1/2
Ff	1	FILL P-3 x 16 x 2-1 1/2
Fh	2	UMP-3 x 7 1/2 x 4-24
K2	2	P-3 x 7 1/2 x 3-0 8
K70	1	P-3/16 x 5 x 3-0 8
K71	1	P-3/16 x 5 x 3-0 1/16
K42	1	P-3/16 x 5 x 3-1 1/16
K72	1	P-3/16 x 7 x 3-1 1/8
K73	1	P-3/16 x 5 x 3-1 1/16
K74	1	P-3/16 x 7 x 3-1 1/16
K75	1	P-3/16 x 5 x 3-24
K76	1	P-3/16 x 5 x 3-2 1/2
K77	1	P-3/16 x 5 x 3-2 1/2

ITEM	QTY	MATERIAL
K78	1	P-3/16 x 7 x 3-3 3/8
K79	1	P-3/16 x 5 x 3-3 3/8
K80	1	P-3/16 x 7 x 3-3 3/8
K52	1	P-3/16 x 5 x 3-3 3/8
K81	1	P-3/16 x 5 x 3-4 1/2
K82	1	P-3/16 x 5 x 3-4 1/2
K83	1	P-3/16 x 7 x 3-4 1/2
K84	1	P-3/16 x 7 x 3-5 1/2
K85	1	P-3/16 x 5 x 3-5 1/2



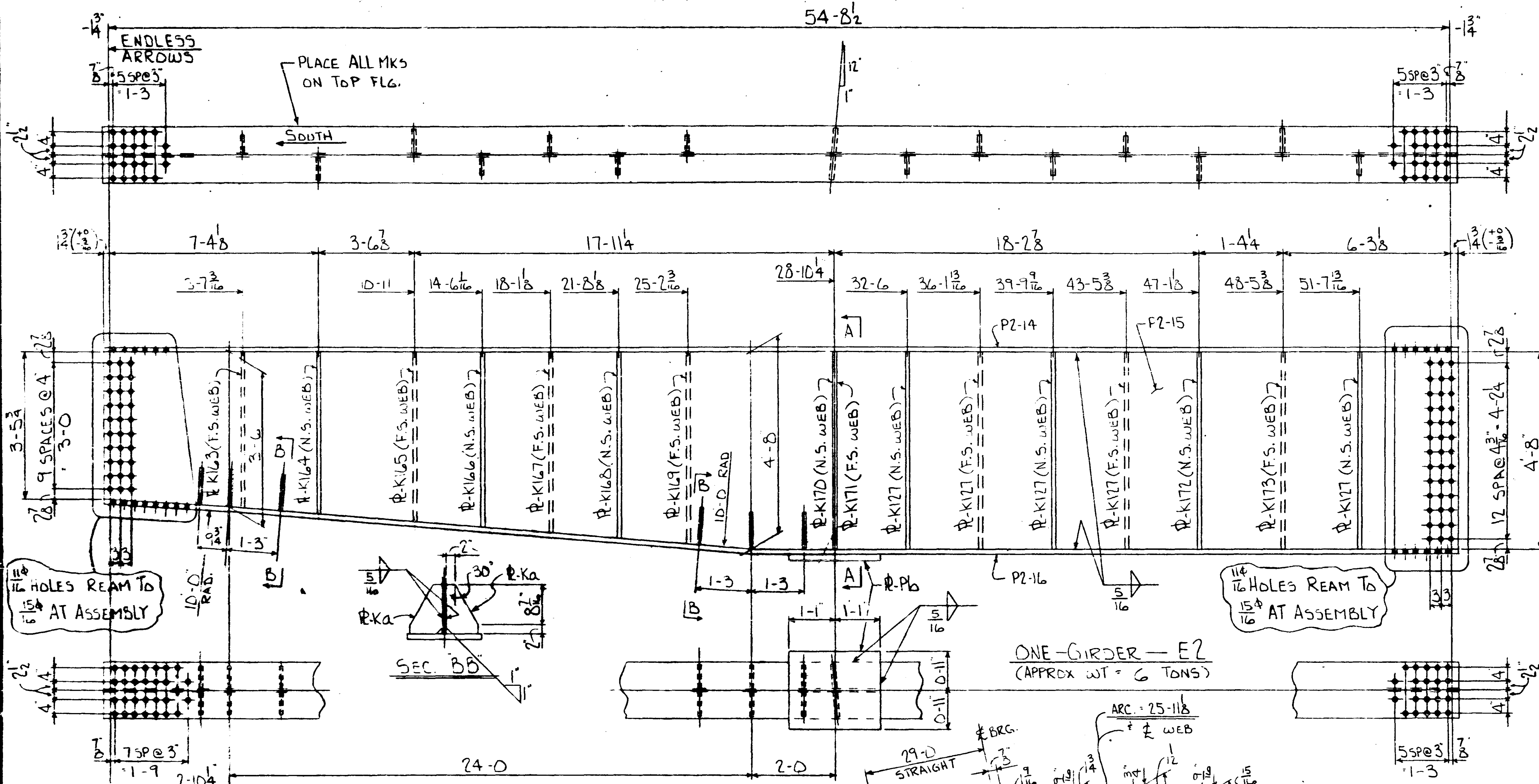
SEE SH. E1 & E2 FOR ERECTION & NOTES
 SEE SH. C1 FOR CAMBER DIAGRAM
 SEE SH. C5 & C5A FOR BLOCKING DIAGRAMS
 ALL STEEL TO BE MN/DOT 3309



STATE PROJ. NO. 2710-21 (TH. 65-105)
 FED. PROJ. NO. BHF 005-2 (67)

ST. PAUL STRUCTURAL STEEL CO.	
BRIDGE NO. 2440	DATE 11-15-79
MADE BY ALAN	CHECKED BY HJK
SNOP PAINT NONE	UNLESS NOTED
OPEN HOLES 1 1/2"	CONTRACT NO. 42000
SHEET 23	

54-8₂

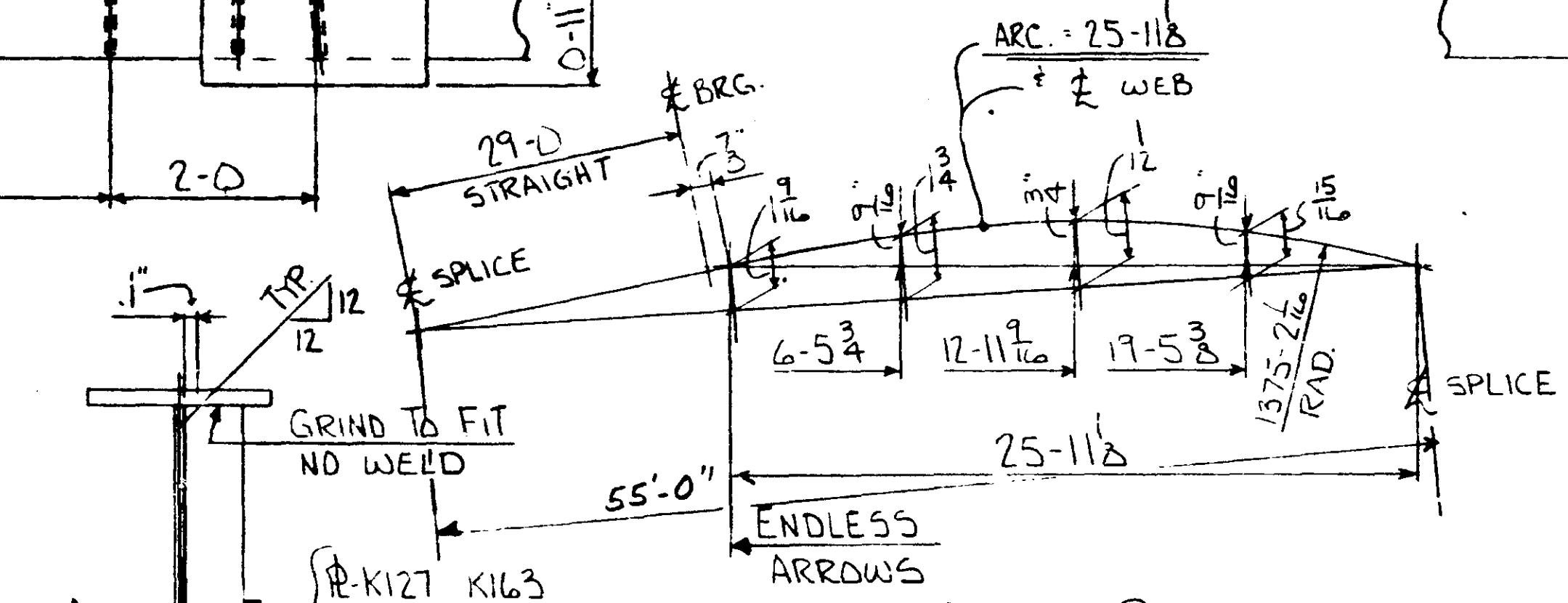
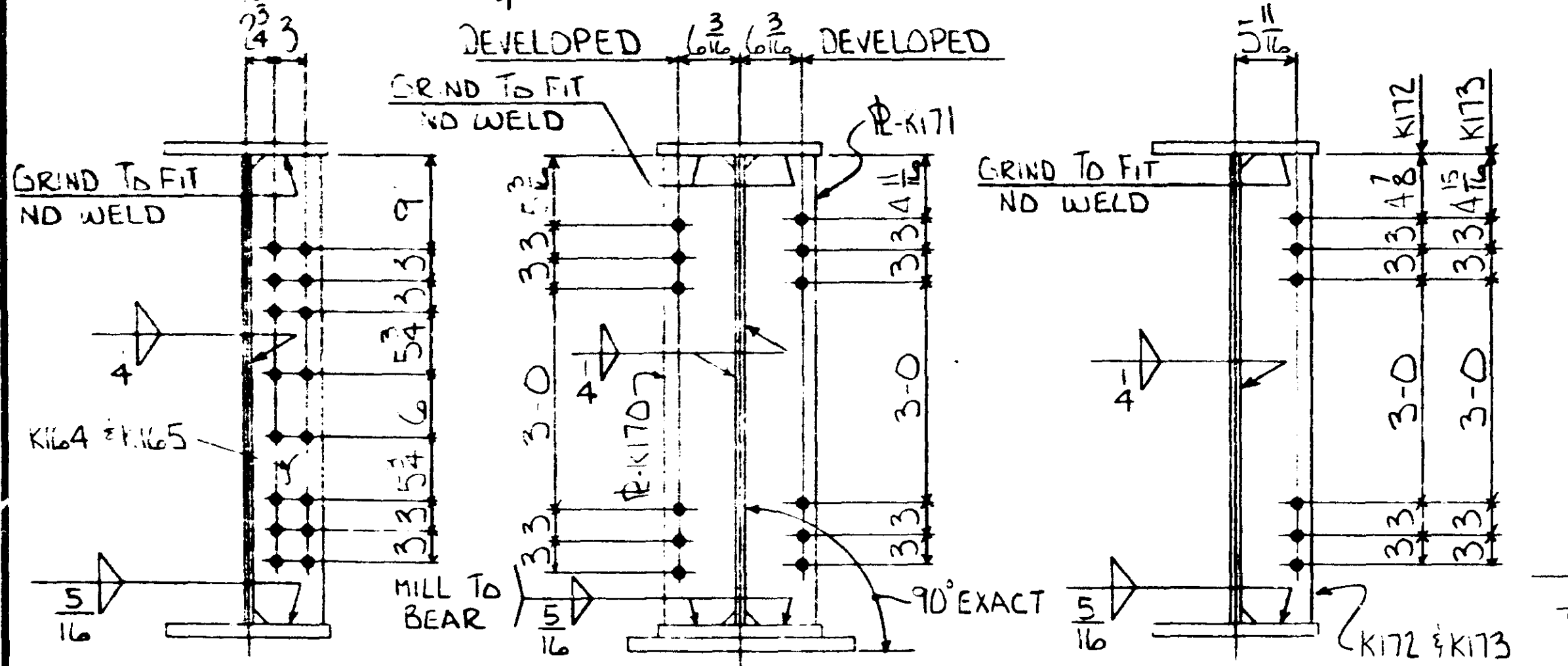


ITEM	QTY	MATERIAL
P2-14	1	UMP-14 x16 x55-0
P2-15	1	P-3 x56 ³ / ₁₆ x55-0
P2-16	1	UMP-14 x16 x55-0 ³ / ₁₆
P6	1	P-14 x22 x2-2
Ka	12	P-3 x63 x0-10 ¹ / ₁₆
K163	1	P-5 ¹ / ₁₆ x5 x3-6 ⁹ / ₁₆
K164	1	P-3 x7 x3-8 ³ / ₄
K165	1	P-3 x7 x3-10 ¹³ / ₁₆
K166	1	P-5 ¹ / ₁₆ x5 x4-0 ¹⁵ / ₁₆
K167	1	P-5 ¹ / ₁₆ x5 x4-3
K168	1	P-5 ¹ / ₁₆ x5 x4-5 ³ / ₈
K169	1	P-5 ¹ / ₁₆ x5 x4-7 ¹ / ₁₆
K170	1	P-1 ¹ / ₂ x7 ¹ / ₂ x4-8 ⁴ / ₈
K171	1	P-1 ¹ / ₂ x7 ¹ / ₂ x4-8 ⁴ / ₈
K172	1	P-3 x7 x4-8 ⁸ / ₈
K173	5	P-5 ¹ / ₁₆ x5 x4-8 ⁸ / ₈

14 HOLES REAM TO 15/16 AT ASSEMBLY

14 HOLES REAM TO 15/16 AT ASSEMBLY

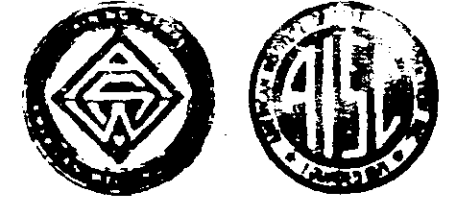
ONE GIRDER - E2
(APPROX WT = 6 TONS)



SWEEP DIAGRAM
(TOP VIEW)

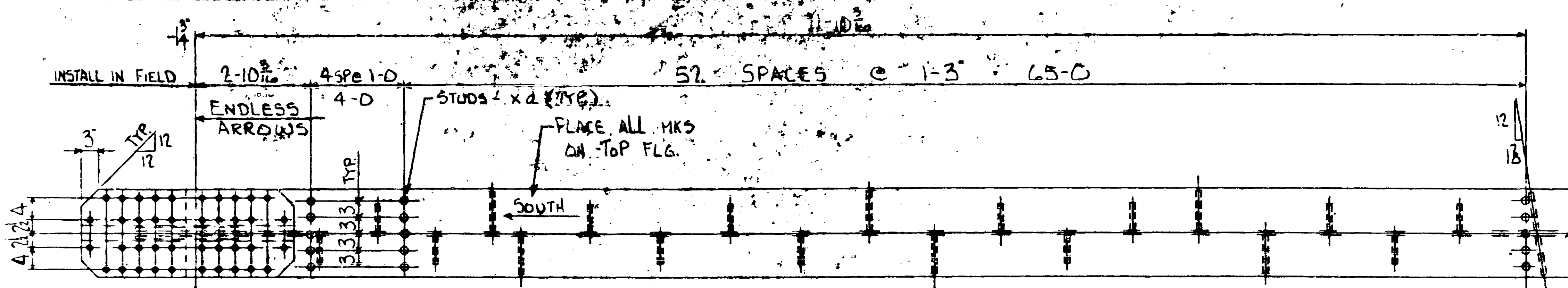
SEE SHT. E1 & E2 FOR ERECTION NOTES
SEE SHT. C3 FOR CAMBER DIAGRAM
SEE SHT. C5 & C5A FOR BLOCKING DIAGRAMS
ALL STEEL TO BE MN/DOT 3309

ST. PAUL STRUCTURAL STEEL CO.	
192 YORK AVE. ST. PAUL, MINN 55117	
BRIDGE NO. 2440	DATE 11-28-79
MADE BY ALAN	DATE 1/3/80
CHECKED BY HJK	DATE 1/3/80
SHOP PAINT NONE	
OPEN HOLES 1/16 UNLESS NOTED	
CONTRACT NO. 4200D	SHEET 24

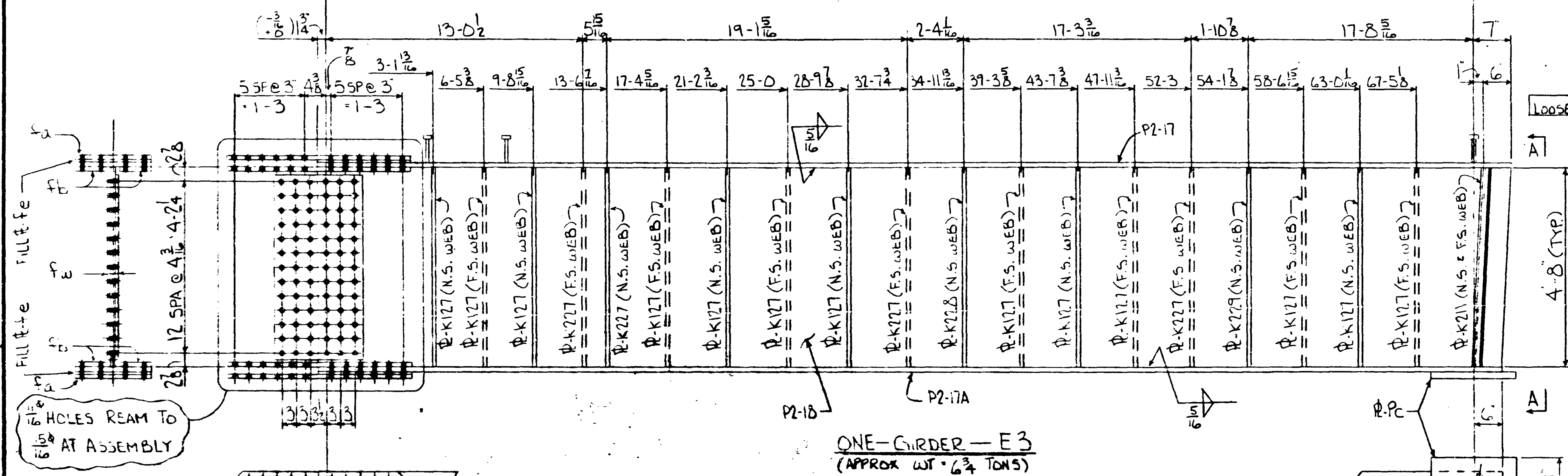


STATE PROJ. No. 2710-21 (T.H. 65-105)
FED. PROJ. No. BHF 005-2 (67)

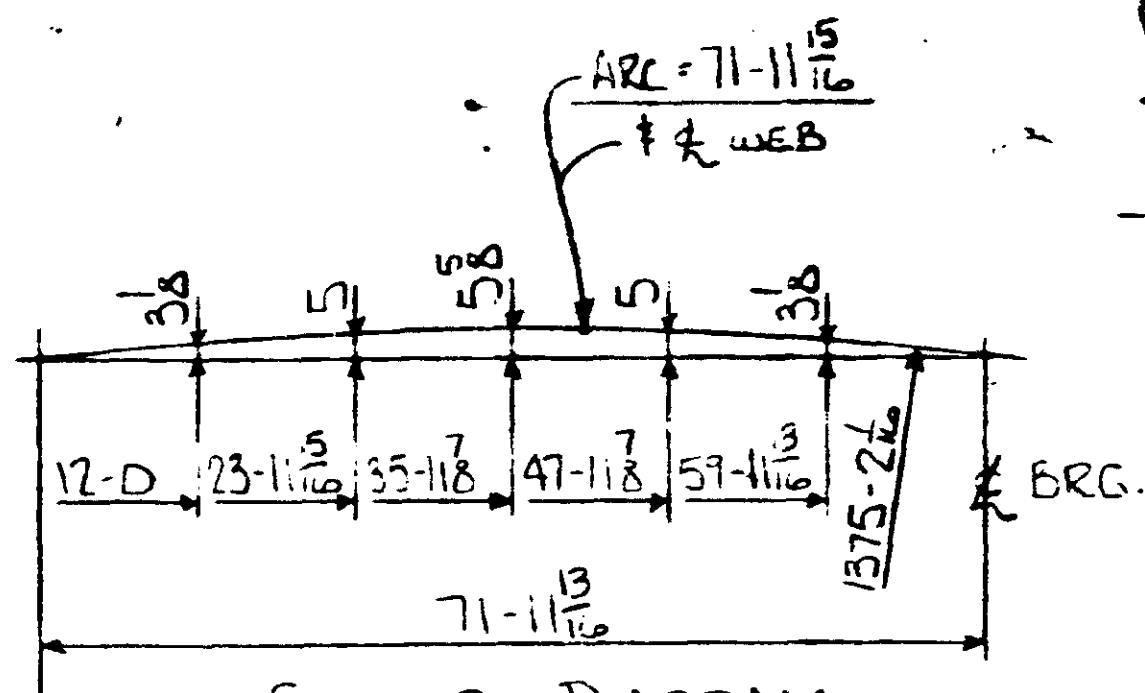
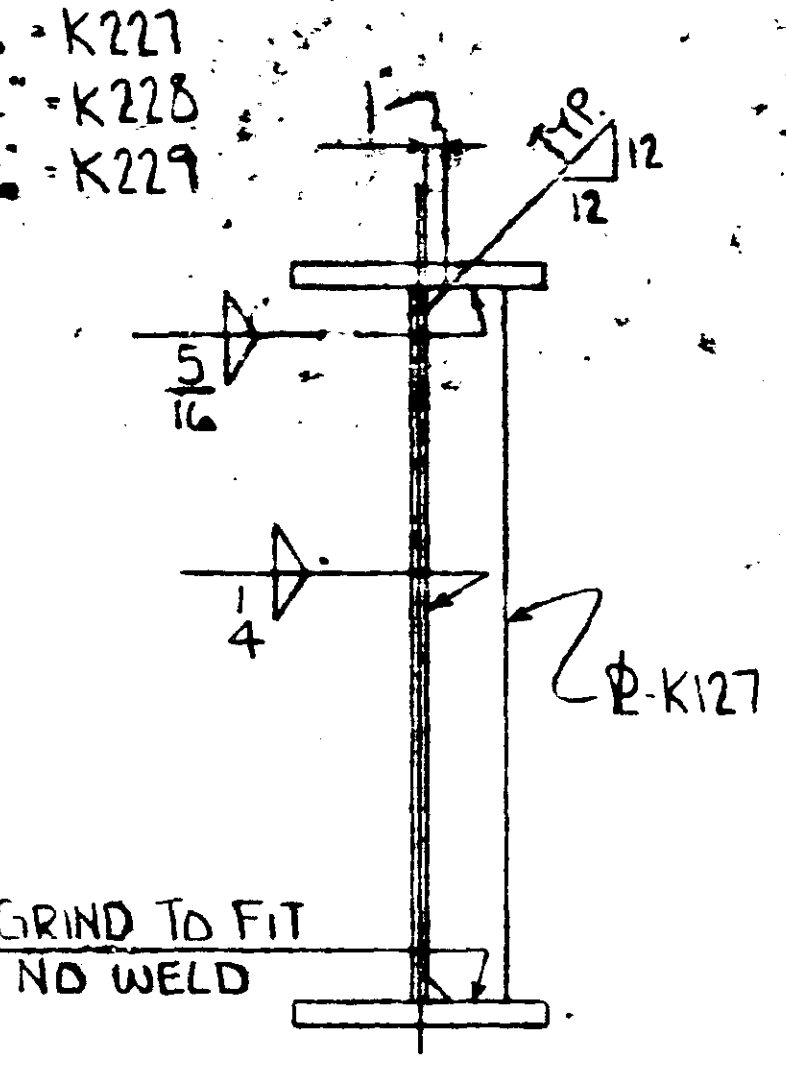
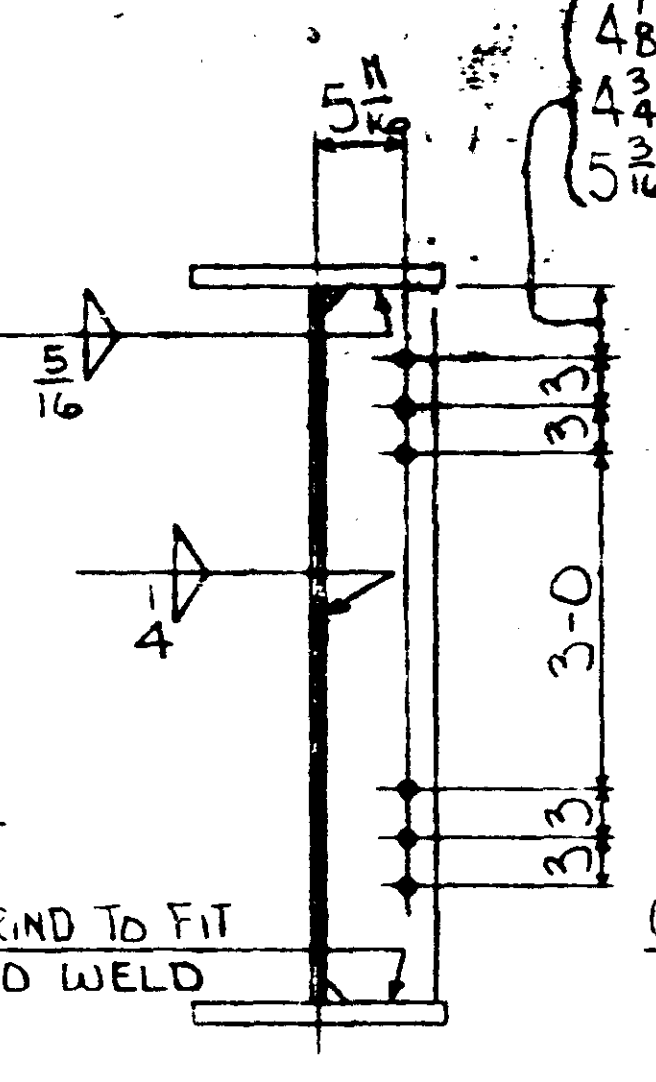
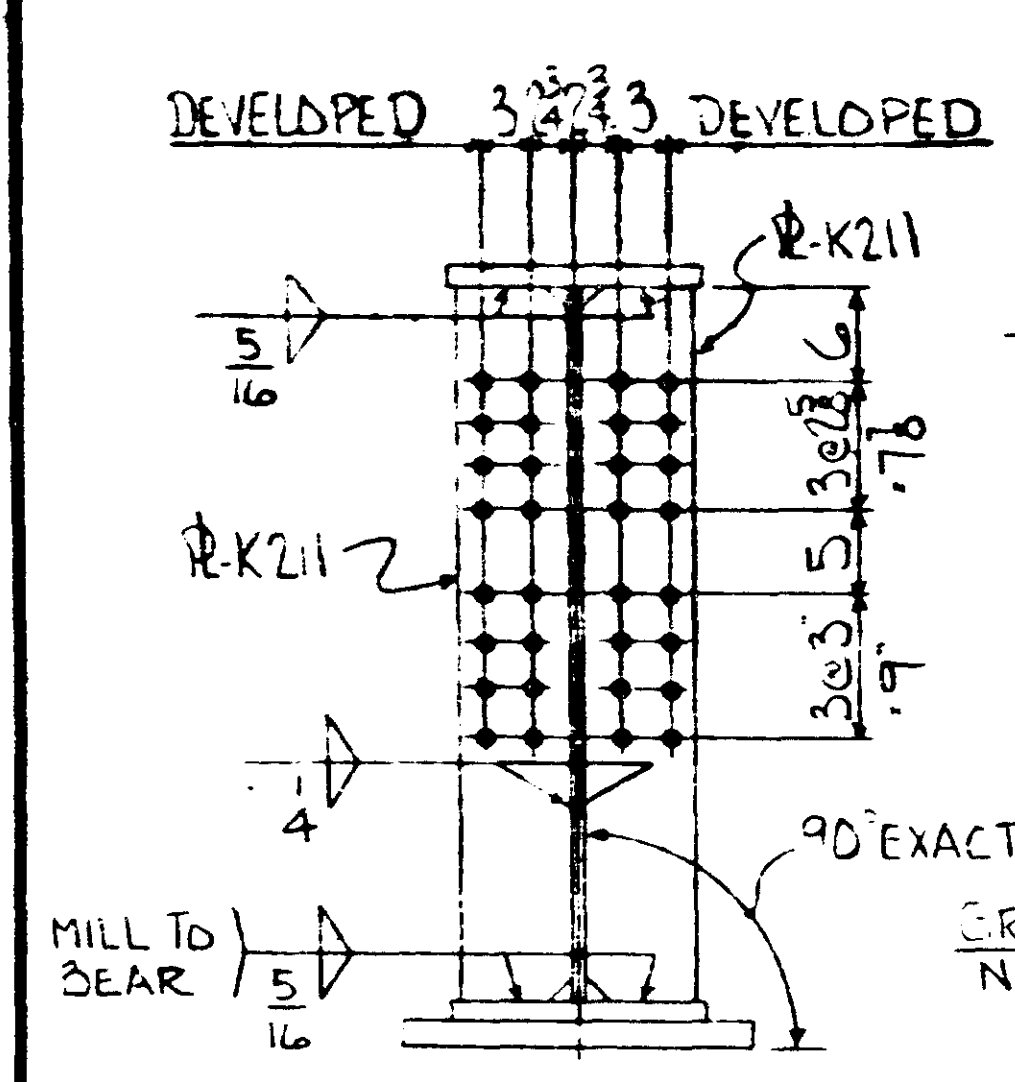
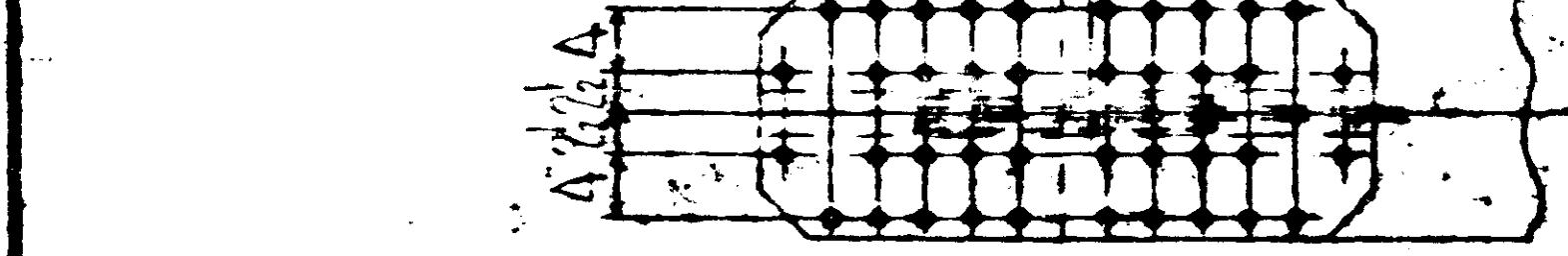
DESCRIPTION GIRDER E2



ITEM	QTY	MATERIAL
P2-17	1	UMP-8 x 16 x 72-6
P2-18	1	P-3 x 58 x 72-6
P2-17A	1	UMP-8 x 16 x 72-5
PC	1	P-14 x 18 x 1-10
Fa	2	UMP-1/2 x 16 x 3-24
Fb	4	UMP-1/2 x 7 x 3-24
FW	2	P-3 x 53 x 1-7
Fe	2	P-3 x 16 x 1-7
P211	2	P-3 x 7 x 4-8
K227	4	P-3 x 7 x 4-8
K228	1	P-3 x 7 x 4-8
K229	1	P-3 x 7 x 4-8
K127	13	P-16 x 5 x 4-8
Loose	XA 285	3/8" STUDS x 0-5

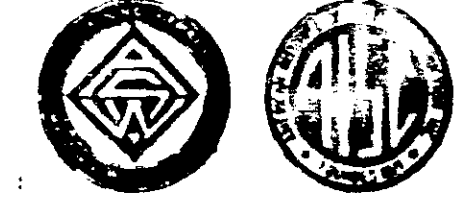


ONE-GIRDER - E3
(APPROX WT = 6 3/4 TONS)



SEE SHET E1 & E2 FOR ERECTION & NOTES
SEE SHET C4 FOR CAMBER DIAGRAM
SEE SHET C5 & C5A FOR BLOCKING DIAGRAMS
ALL STEEL TO BE MN/DOT 3309

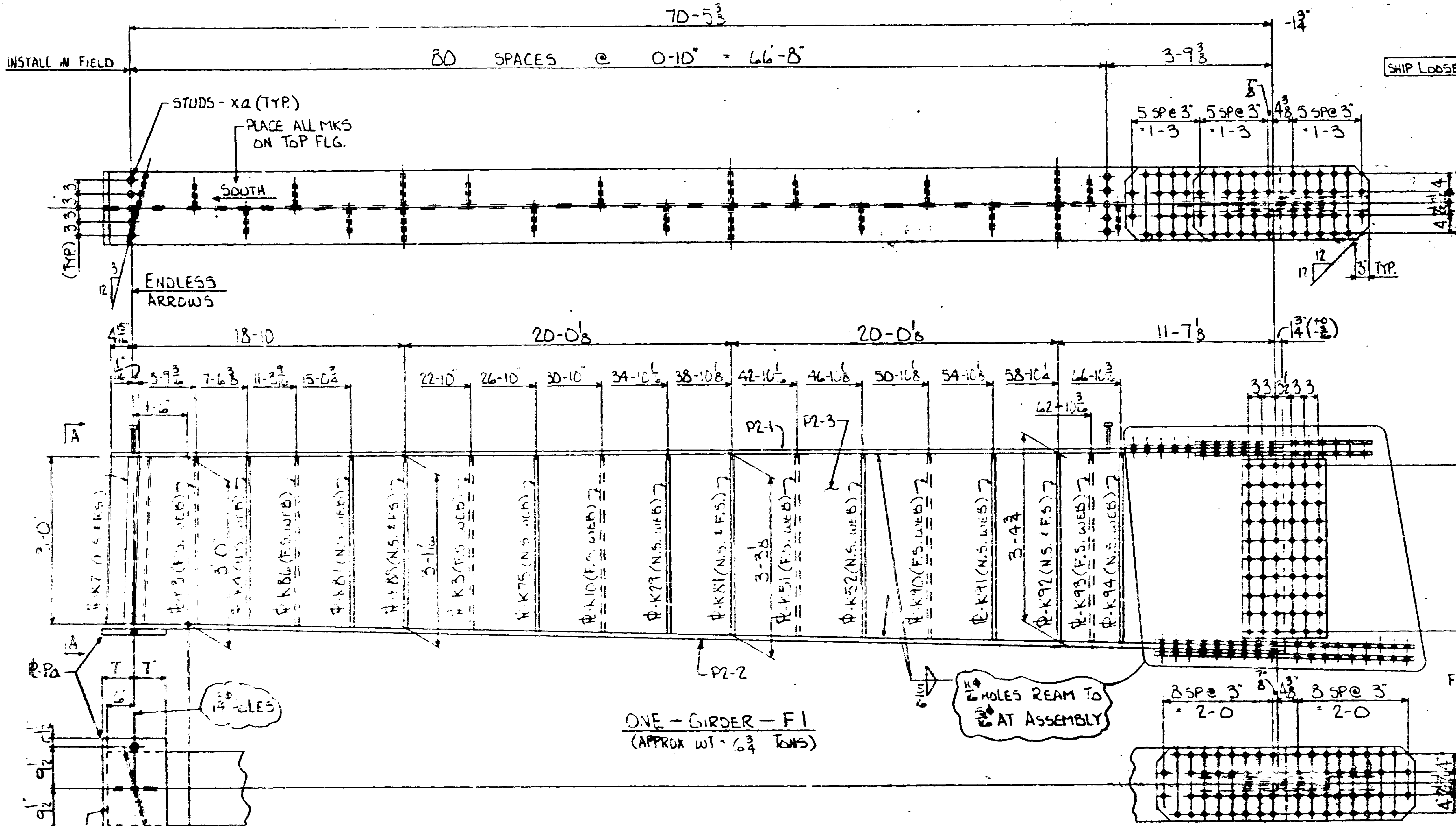
ST. PAUL STRUCTURAL STEEL CO.	
182 YORK AVE. ST. PAUL, MINN 55117	
BRIDGE NO. 2440	DATE 12-12-79
MADE BY ALAN	DATE 1/3/80
CHECKED BY HJK	
SHOP PAINT NONE	
OPEN HOLES 1/16" UNLESS NOTED	



STATE PROJ. NO. 2710-21 (TH. 65-105)
FED. PROJ. NO. BHF 005-2 (67)

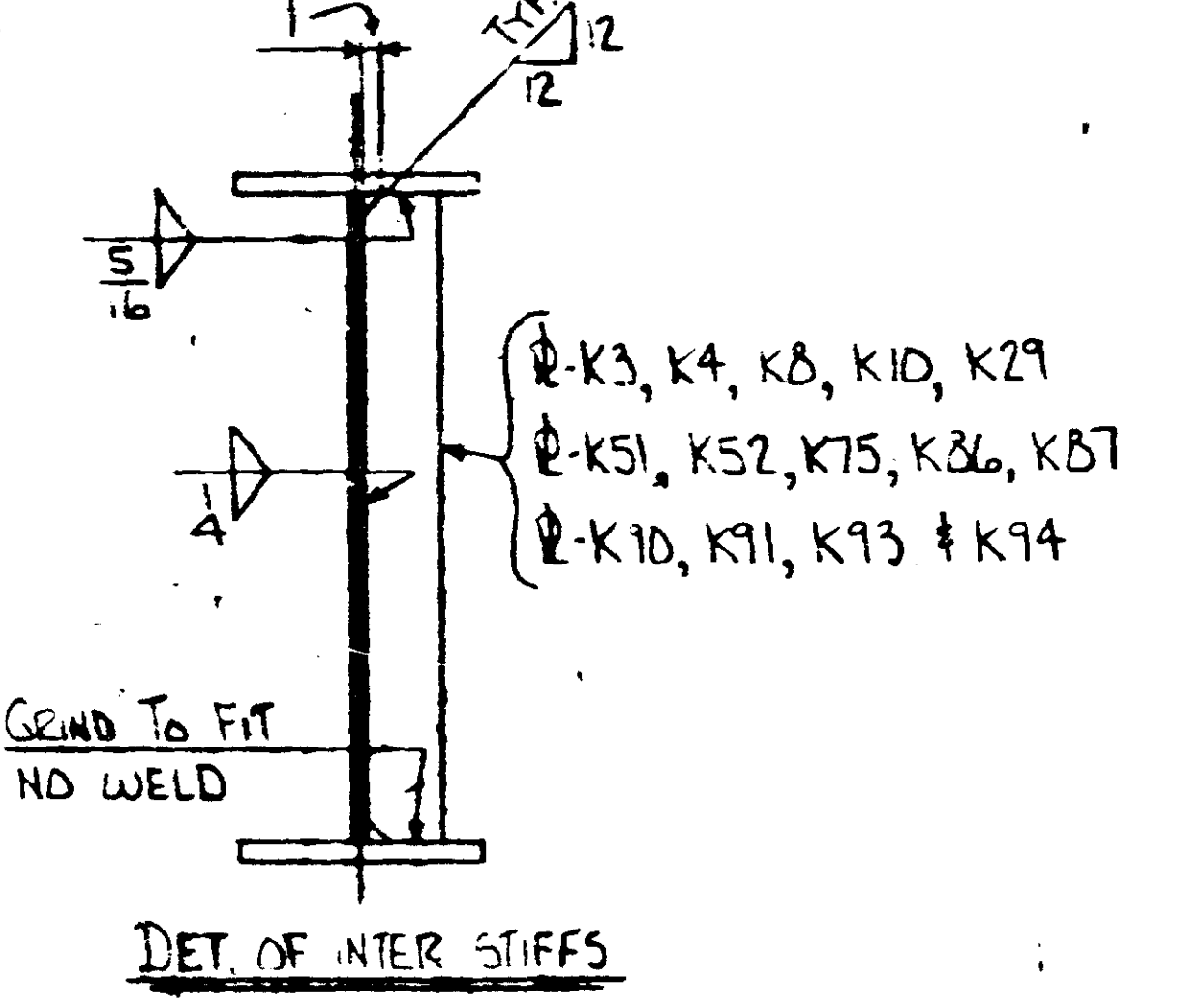
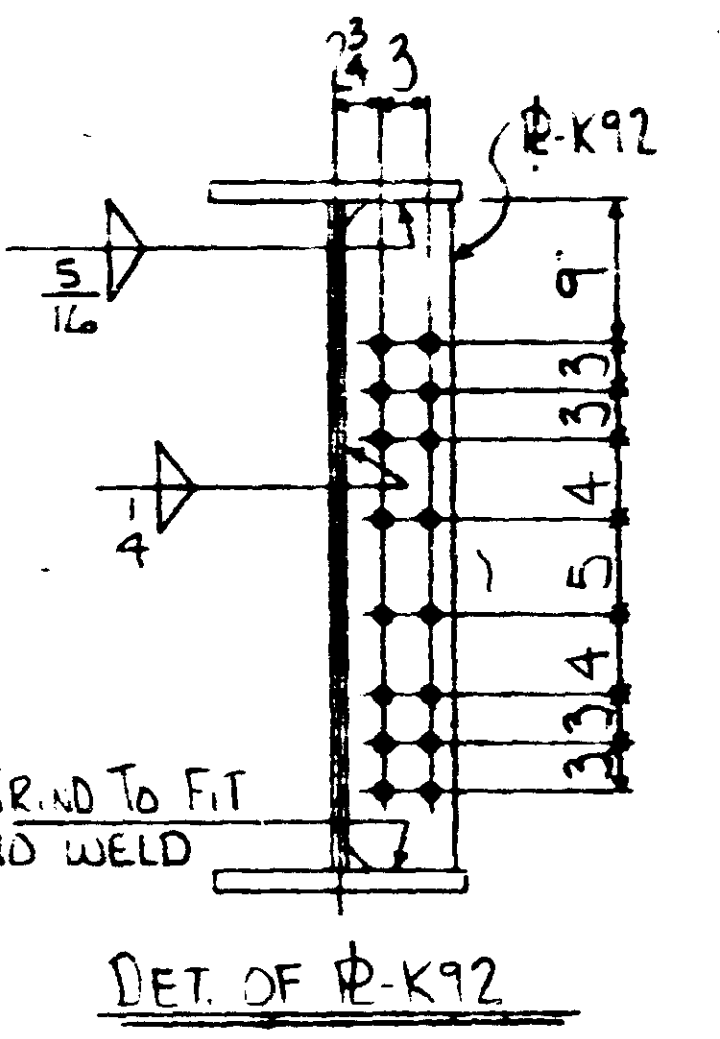
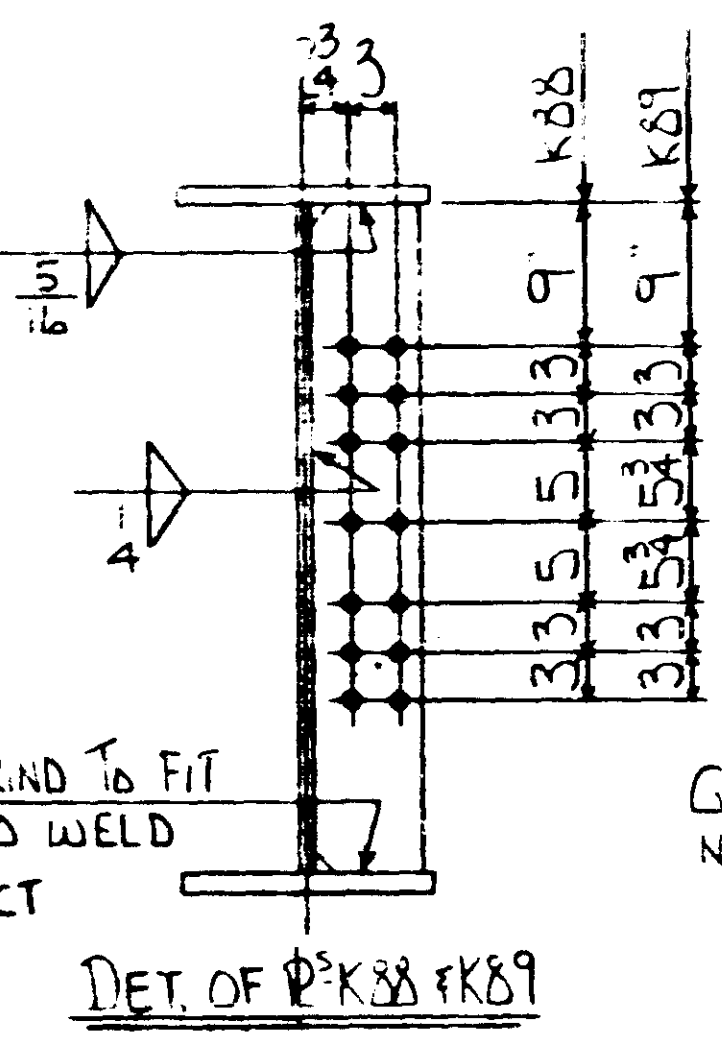
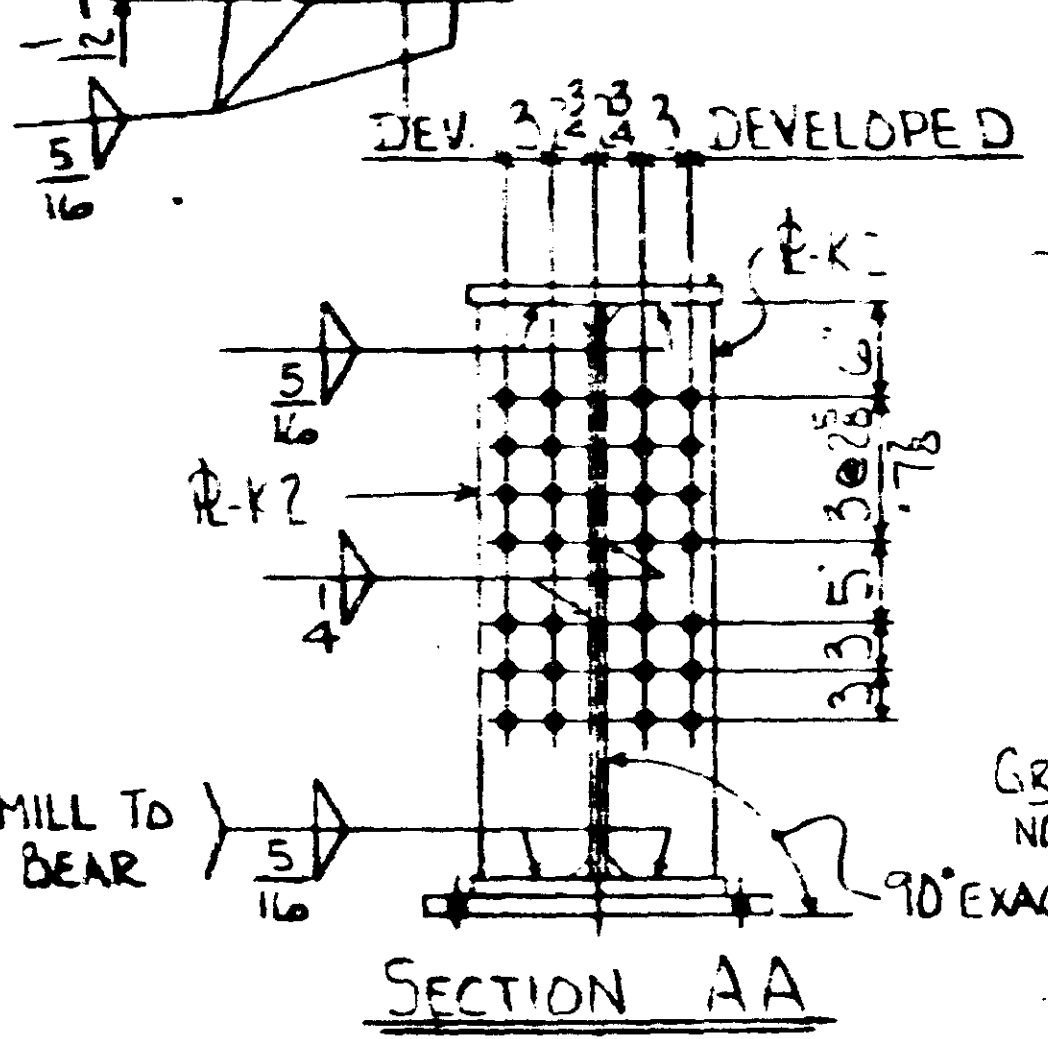
CONTRACT NO. 42000 SHEET 25

DESCRIPTION GIRDER E3

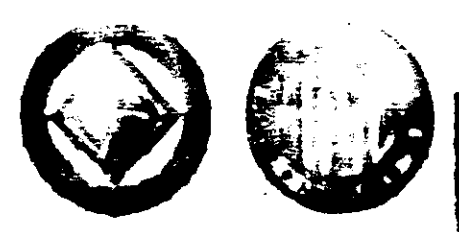


ITEM	QTY	MATERIAL
P2-1	1	UMP-3 x 16 x 71-C
P2-3	1	P-3 x 45 ³ / ₈ x 71-18
P2-2	1	UMP-13 x 16 x 71-16
XA	405	3 STUDS x 0-5
Pa	1	P-1 x 14 x 1-10
Fa	1	UMP-2 x 16 x 3-24
FJ	1	UMP-2 x 16 x 4-84
Fb	2	UMP-2 x 16 x 3-24
Fc	2	P-3 x 39 x 1-62
Fd	1	FILL P-3 x 16 x 2-102
Fm	1	FILL P-3 x 16 x 2-42
Fk	2	MP-2 x 7 x 4-84
K2	2	P-3 x 7 x 3-0
K3	1	P-3 x 5 x 3-0
K4	1	P-3 x 5 x 3-0
K86	1	P-3 x 5 x 3-0
K87	1	P-3 x 5 x 3-14
K88	2	P-3 x 7 x 3-14
K8	1	P-3 x 5 x 3-18
K15	1	P-3 x 5 x 3-24
K10	1	P-3 x 5 x 3-24
K29	1	P-3 x 5 x 3-28

ITEM	QTY	MATERIAL
K81	2	P-3 x 7 x 3-34
K51	1	P-3 x 5 x 3-38
K52	1	P-3 x 5 x 3-38
K90	1	P-3 x 5 x 3-44
K91	1	P-3 x 5 x 3-44
K92	2	P-3 x 7 x 3-44
K93	1	P-3 x 5 x 3-54
K94	1	P-3 x 5 x 3-54

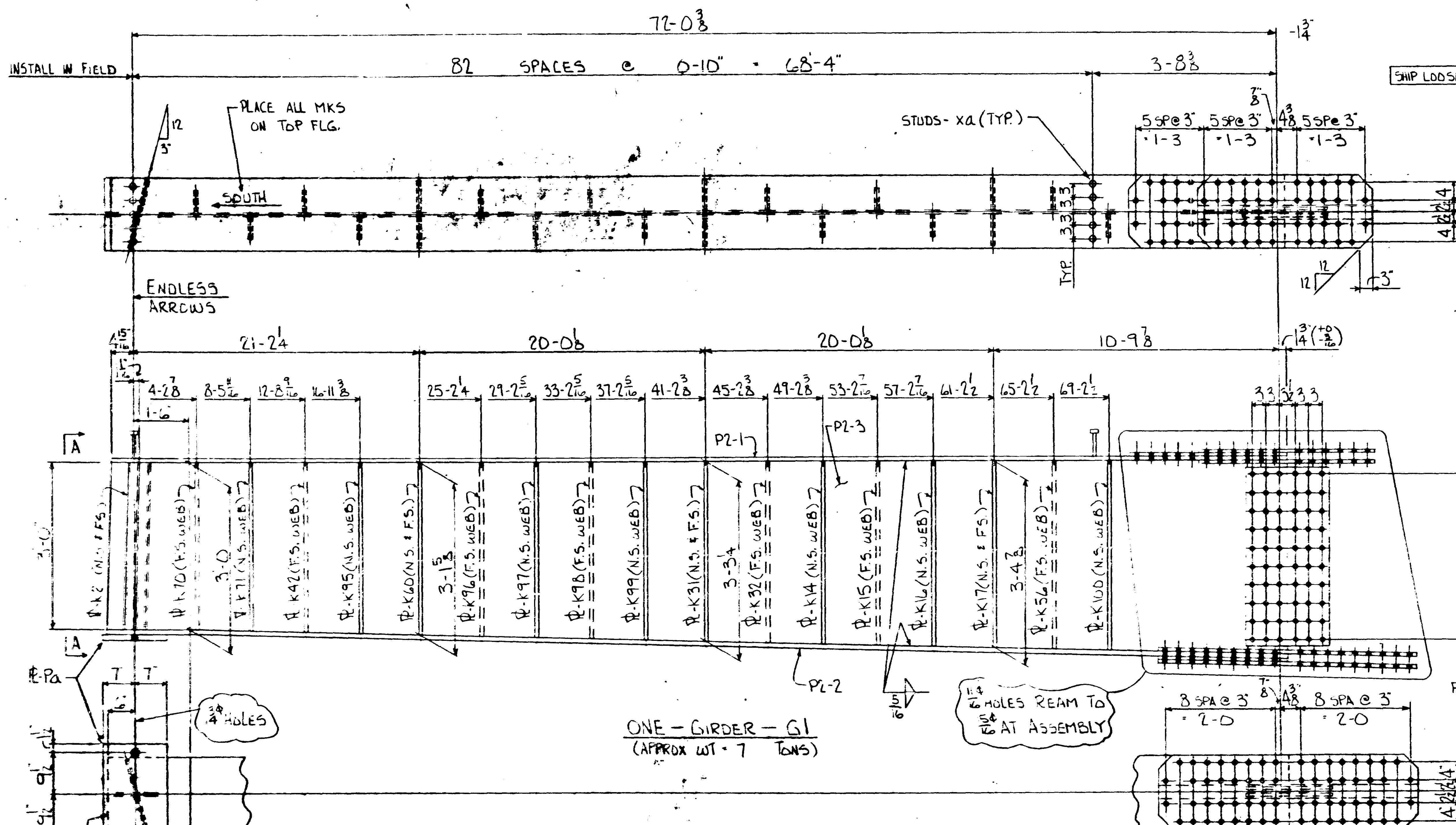


SEE SH. E1 & E2 FOR ERECTION & NOTES
 SEE SH. C1 FOR CAMBER DIAGRAM
 SEE SH. C5 & C5A FOR BLOCKING DIAGRAMS
 ALL STEEL TO BE MN/DOT 3309



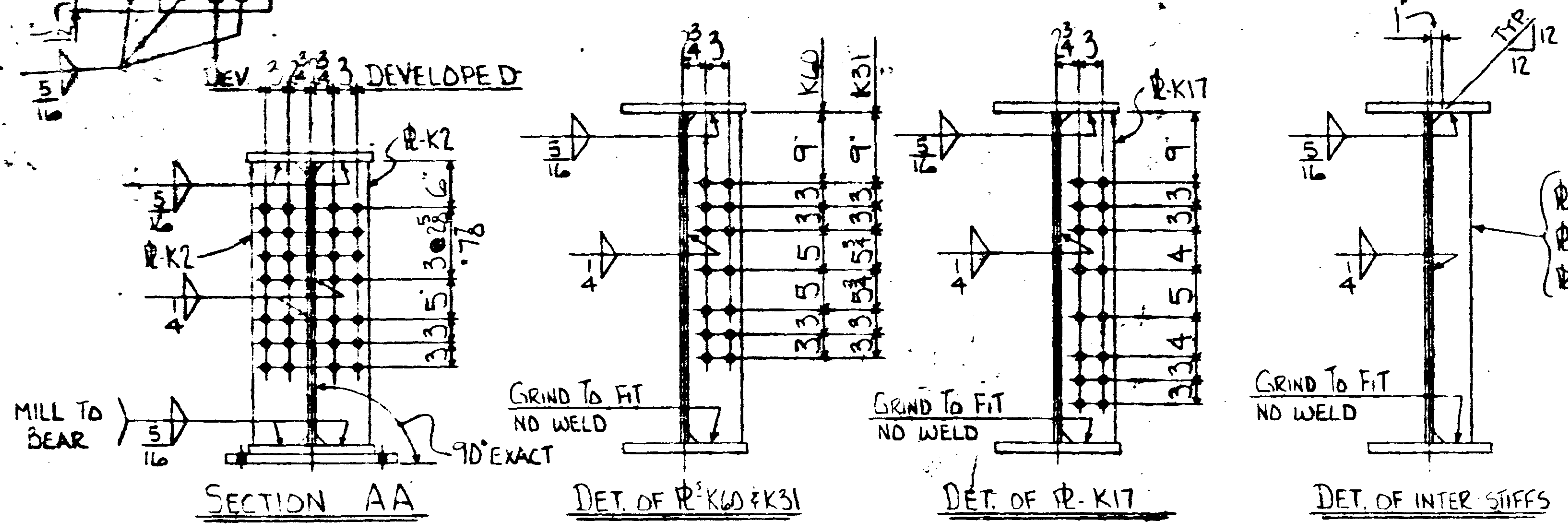
STATE PROJ. NO. 2710-21 (T.H. 65-105)
 FED. PROJ. NO. BHF 005-2 (67)

ST. PAUL STRUCTURAL STEEL CO.	
BRIDGE NO. 2440	DATE 11-15-79
MADE BY ALAN	CHECKED BY HJK
SHIP PART NONE	CONTRACT NO. 49000
ORDER NO. 11	INVENTORY 26



ITEM	QTY	MATERIAL
P2-1	1	UMP-3 x 16 x 72-7
P2-3	1	P-3 x 45 x 72-0
P2-2	1	UMP-18 x 16 x 72-0
xa	415	8" STUDS x 0-5
fa	1	P-1" x 14" x 1-10
fj	1	UMP-2 x 16 x 3-24
fb	2	UMP-2 x 16 x 4-8
fc	2	UMP-2 x 7 1/2 x 3-24
fl	1	UMP-2 x 39 x 1-6
fm	1	FILL P-3 x 16 x 2-10
fk	2	UMP-2 x 7 1/2 x 4-8
k2	2	P-3 x 7 1/2 x 3-0
k70	1	P-5/16 x 5" x 3-0
k71	1	P-5/16 x 5" x 3-0
k42	1	P-5/16 x 5" x 3-1
k95	1	P-5/16 x 5" x 3-1
k60	2	P-3 x 7" x 3-1
k96	1	P-5/16 x 5" x 3-2
k97	1	P-5/16 x 5" x 3-2
k98	1	P-5/16 x 5" x 3-2
k99	1	P-5/16 x 5" x 3-3

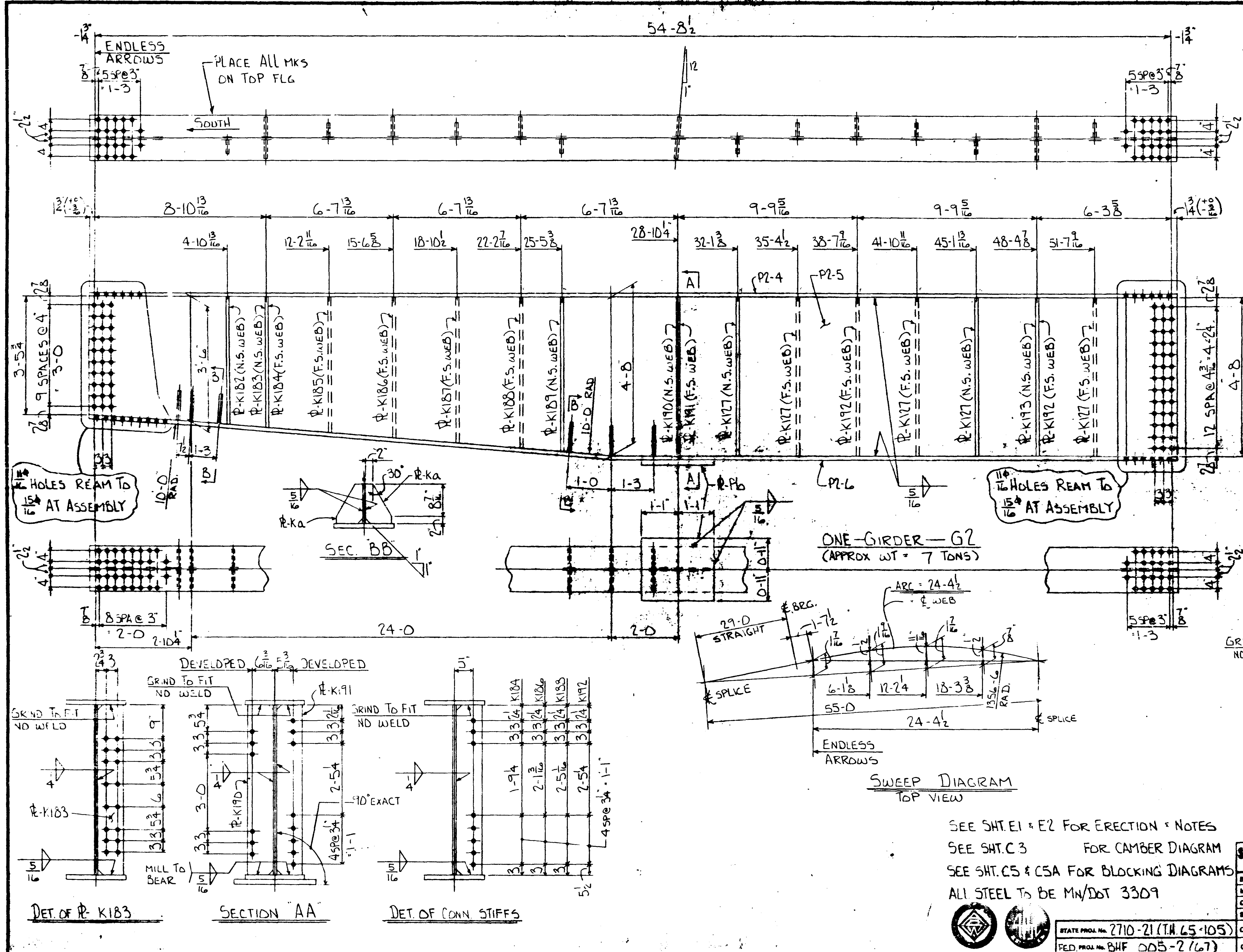
ITEM	QTY	MATERIAL
K31	2	P-3 x 7" x 3-3
K32	1	P-3/16 x 5" x 3-3
K14	1	P-5/16 x 5" x 3-4
K15	1	P-5/16 x 5" x 3-4
K16	1	P-5/16 x 5" x 3-4
K17	2	P-3 x 7" x 3-5
K56	1	P-5/16 x 5" x 3-5
K100	1	P-5/16 x 5" x 3-5



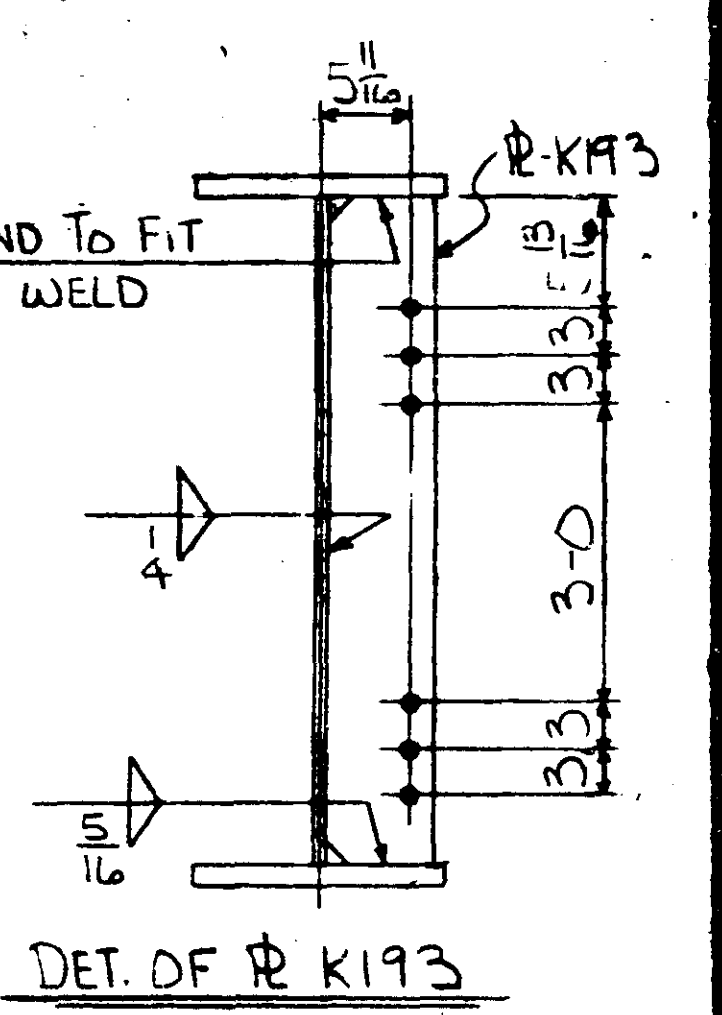
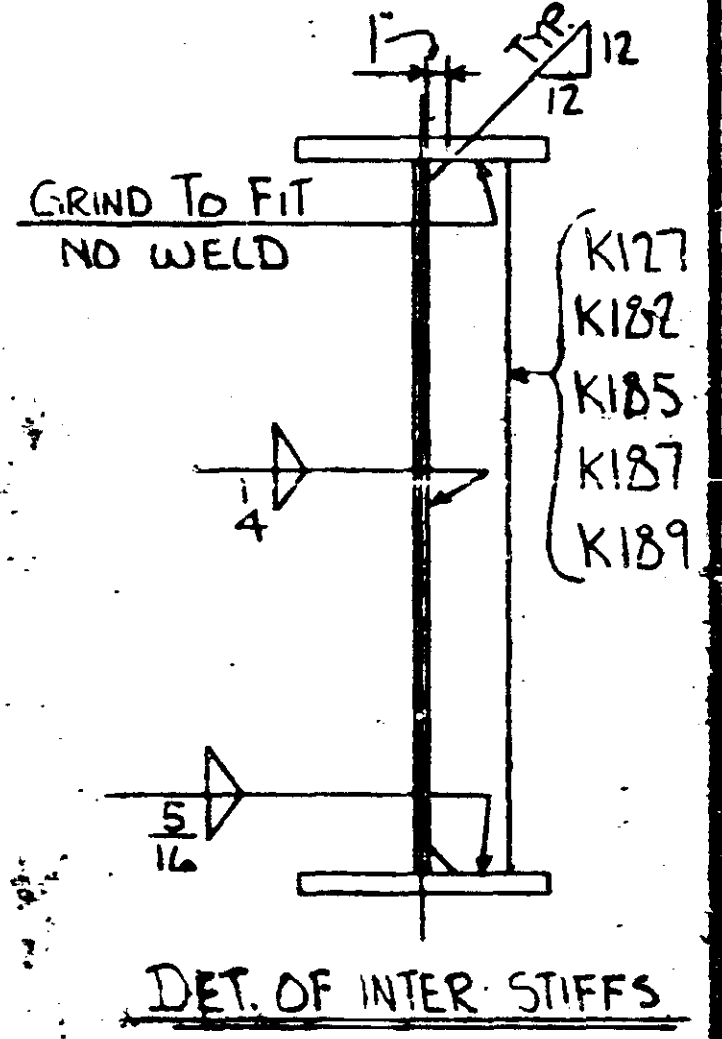
6 HOLES REAM TO 1/4" AT ASSEMBLY

SEE SHT. E1 & E2 FOR ERECTION & NOTES
 SEE SHT. C1 FOR CAMBER DIAGRAM
 SEE SHT. C5 & C5A FOR BLOCKING DIAGRAMS
 ALL STEEL TO BE MN/DOT 3309

ST. PAUL STRUCTURAL STEEL CO.	
BRIDGE NO. 2440	DATE 11-16-79
MADE BY ALAN	DATE 1/3/80
CHECKED BY HJK	DATE 1/3/80
SHOP PAINT NONE	UNLESS NOTED
STATE PROJ No 2710-21 (TH. 65-10E)	OPEN HOLES 1 1/2"
FED PROJ No 84F-005-2 (67)	CONTRACT NO. 42000
DESCRIPTION GIRDER G1	SHEET 29



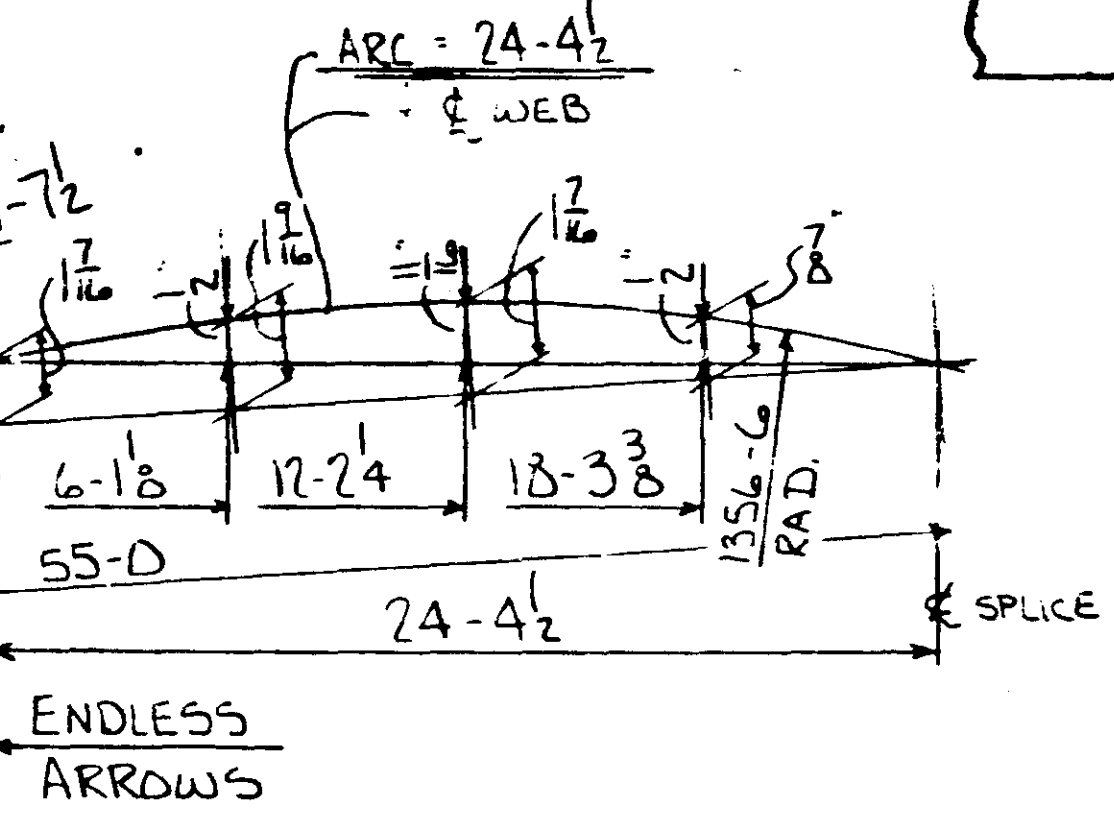
ITEM	QTY	MATERIAL
P2-4	1	UMP-1/2 x 16 x 55-0
P2-5	1	P-3 x 56 3/4 x 55-0
P2-6	1	UMP-1/2 x 16 x 55-0
P6	1	P-14 x 22 x 2-2
Ka	12	P-3 x 63 x 0-10 1/2
K182	1	P-5/8 x 5 x 3-7 3/16
K183	1	P-3/8 x 7 x 3-9 3/8
K184	1	P-3/8 x 7 x 3-9 3/8
K185	1	P-5/8 x 5 x 3-11 1/16
K186	1	P-3/8 x 7 x 4-1 1/16
K187	1	P-5/8 x 5 x 4-3 1/2
K188	1	P-3/8 x 7 x 4-5 1/16
K189	1	P-5/8 x 5 x 4-7 1/16
K190	1	P-1/2 x 7 1/2 x 4-8 1/4
K191	1	P-1/2 x 7 1/2 x 4-8 1/4
K192	2	P-3/8 x 7 x 4-8 3/8
K193	1	P-3/8 x 7 x 4-8 3/8
K194	5	P-5/8 x 5 x 4-8 3/8



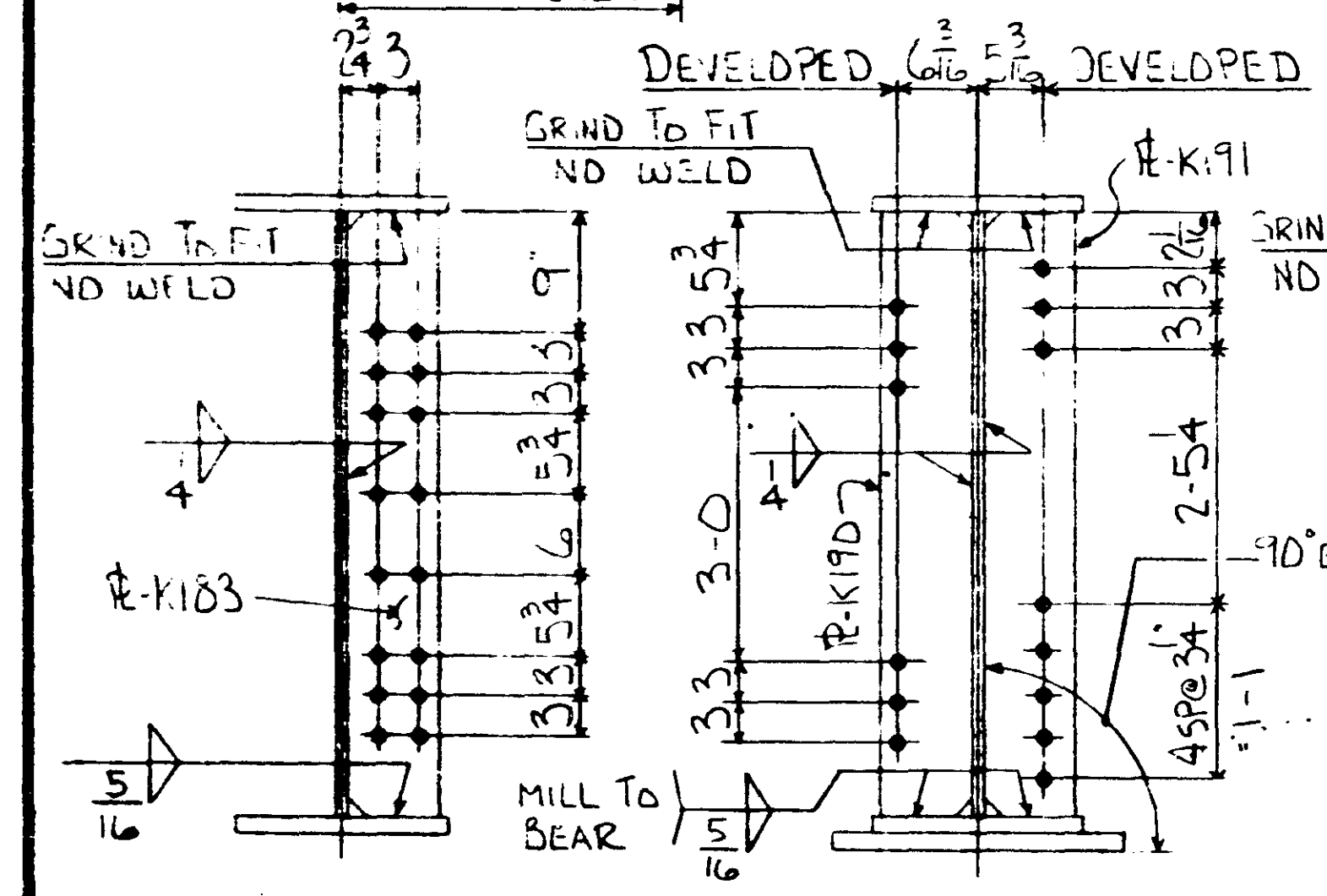
Holes Ream to 5/16\"/>

Holes Ream to 5/16\"/>

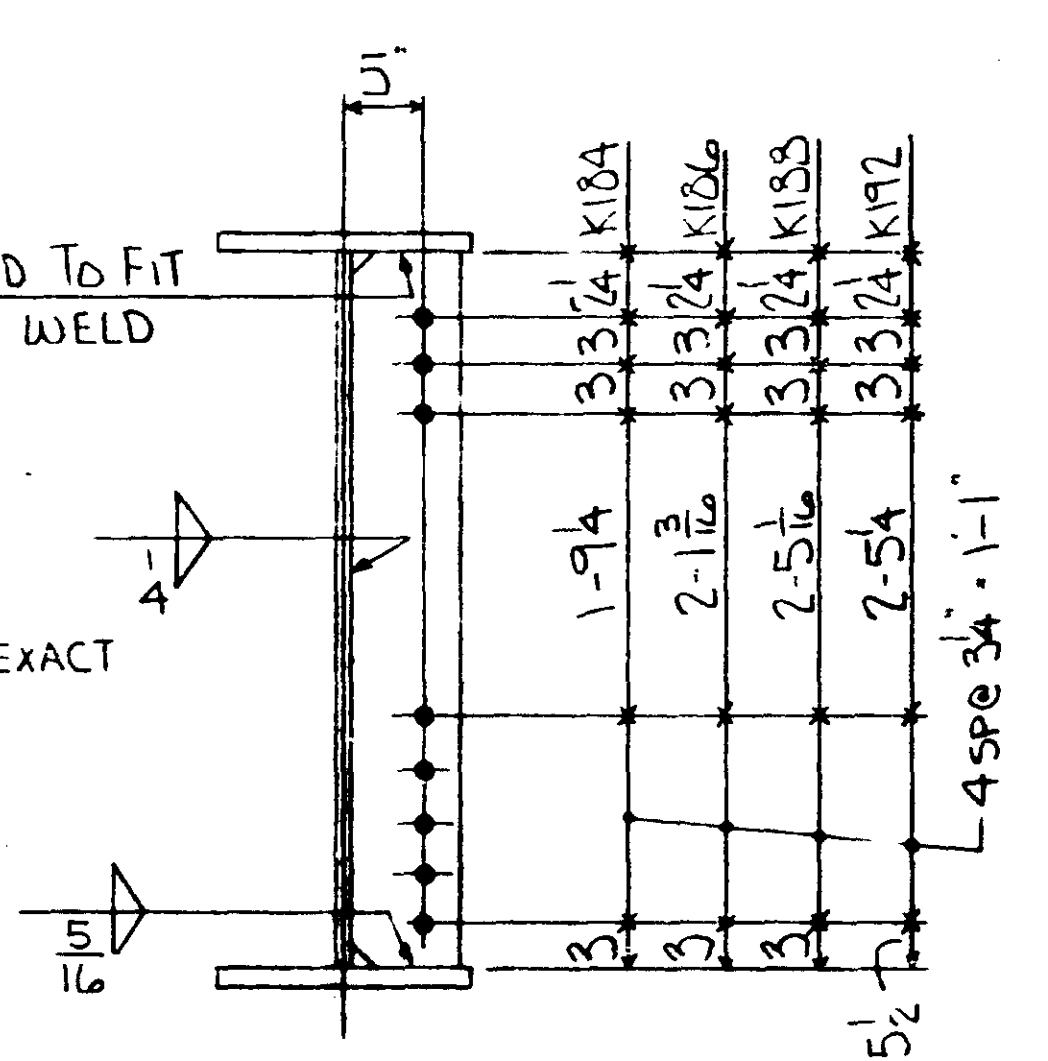
ONE GIRDER - G2
(APPROX WT = 7 TONS)



SWEEP DIAGRAM
TOP VIEW

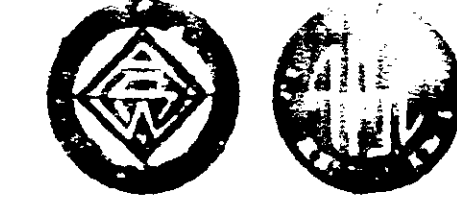


SECTION AA



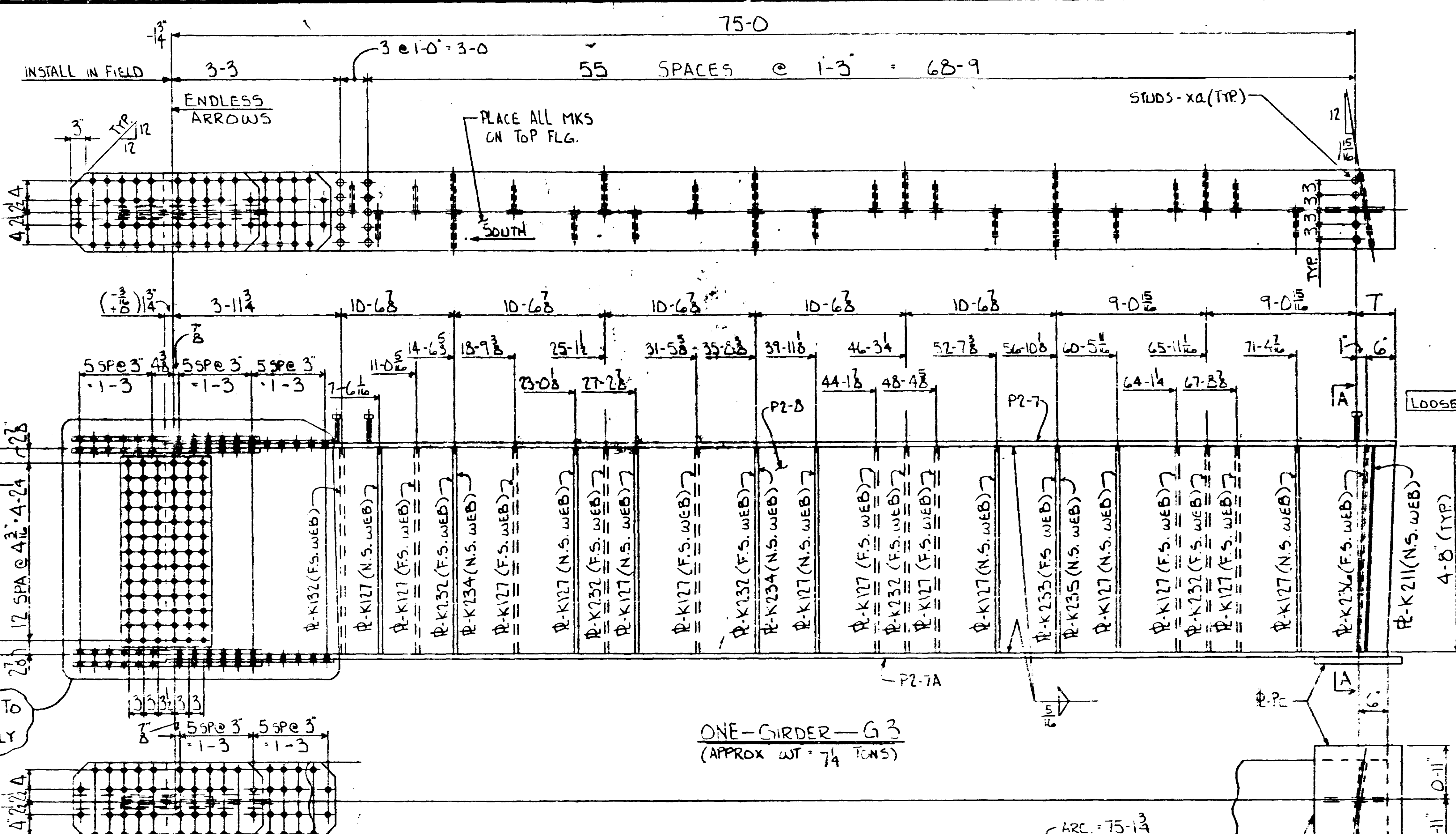
DET. OF CONN. STIFFS

SEE SH. E1 & E2 FOR ERECTION & NOTES
SEE SH. C3 FOR CAMBER DIAGRAM
SEE SH. C5 & C5A FOR BLOCKING DIAGRAMS
ALL STEEL TO BE MN/DOT 3309



STATE PROJ. No. 2710-21 (TH 65-105)
FED. PROJ. No. BHF 005-2 (67)

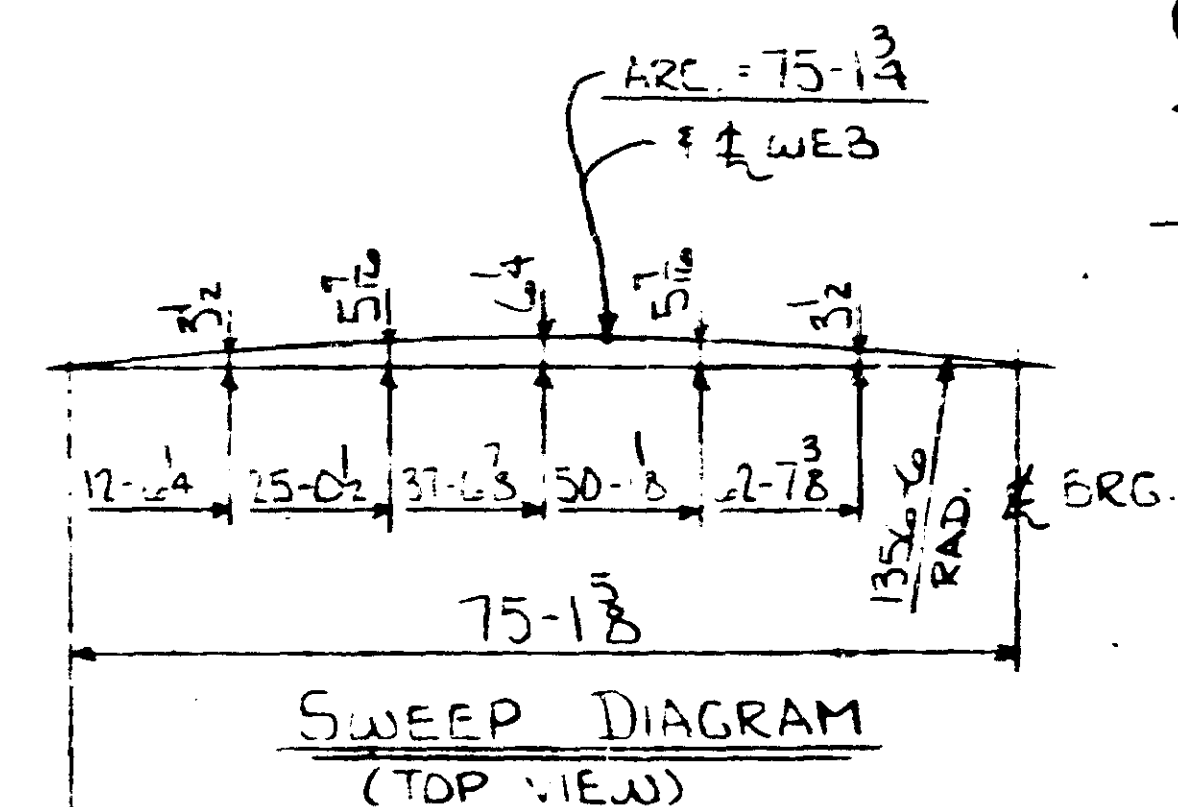
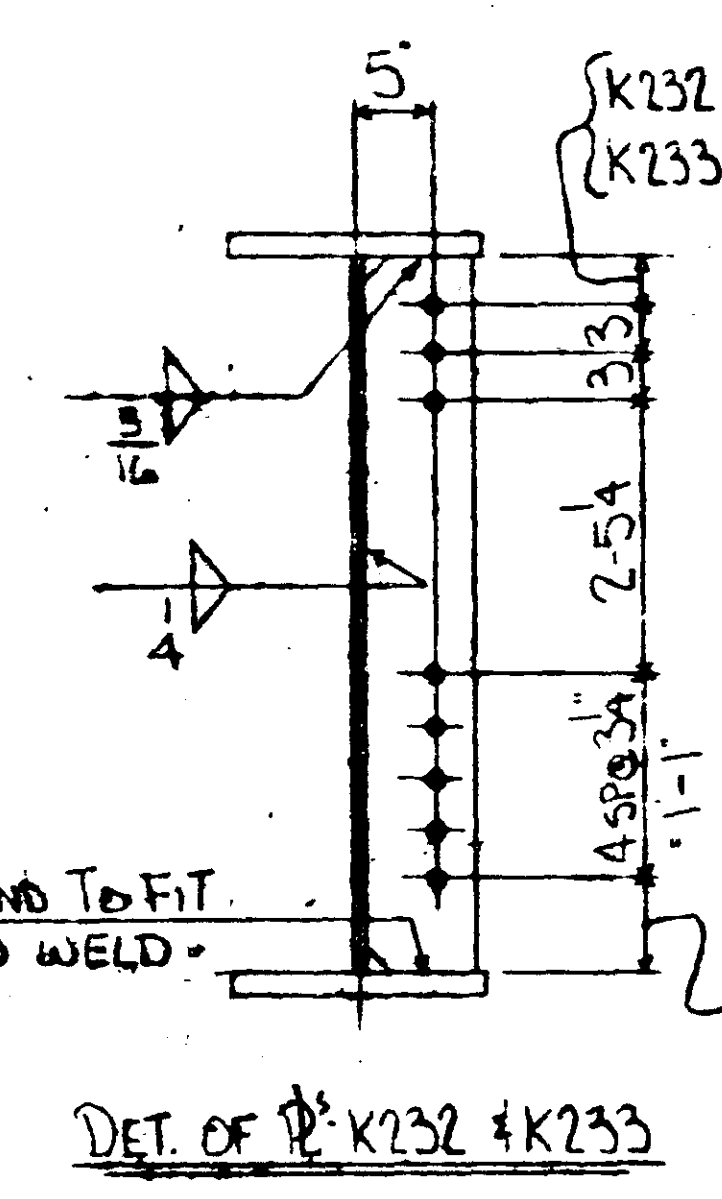
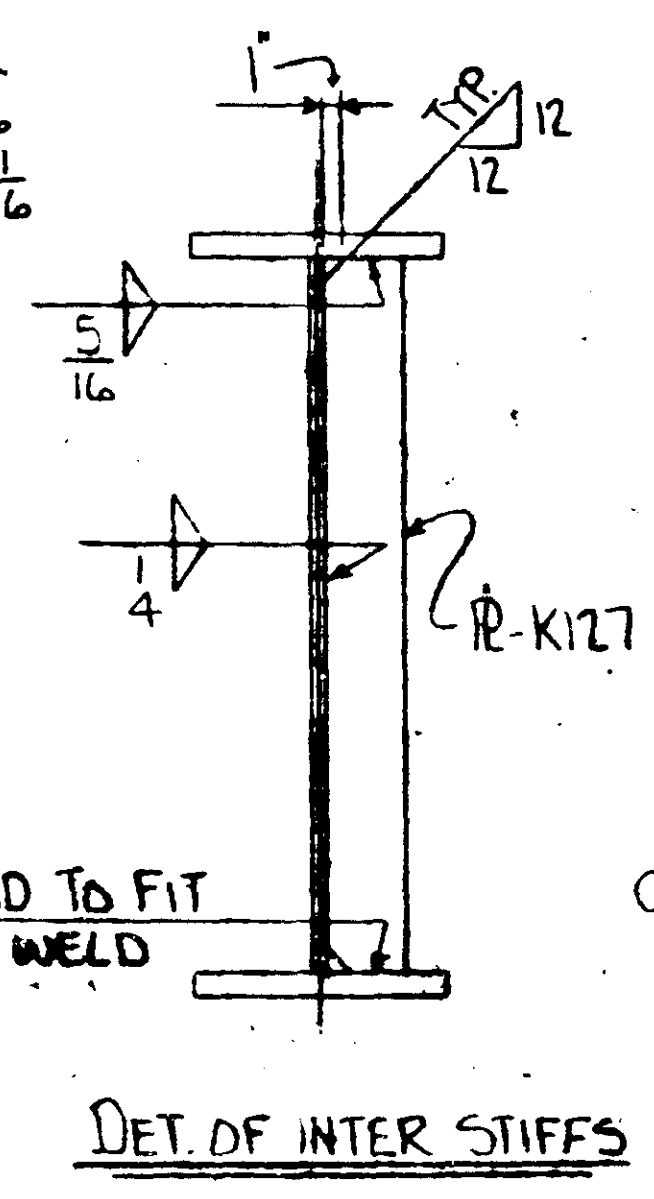
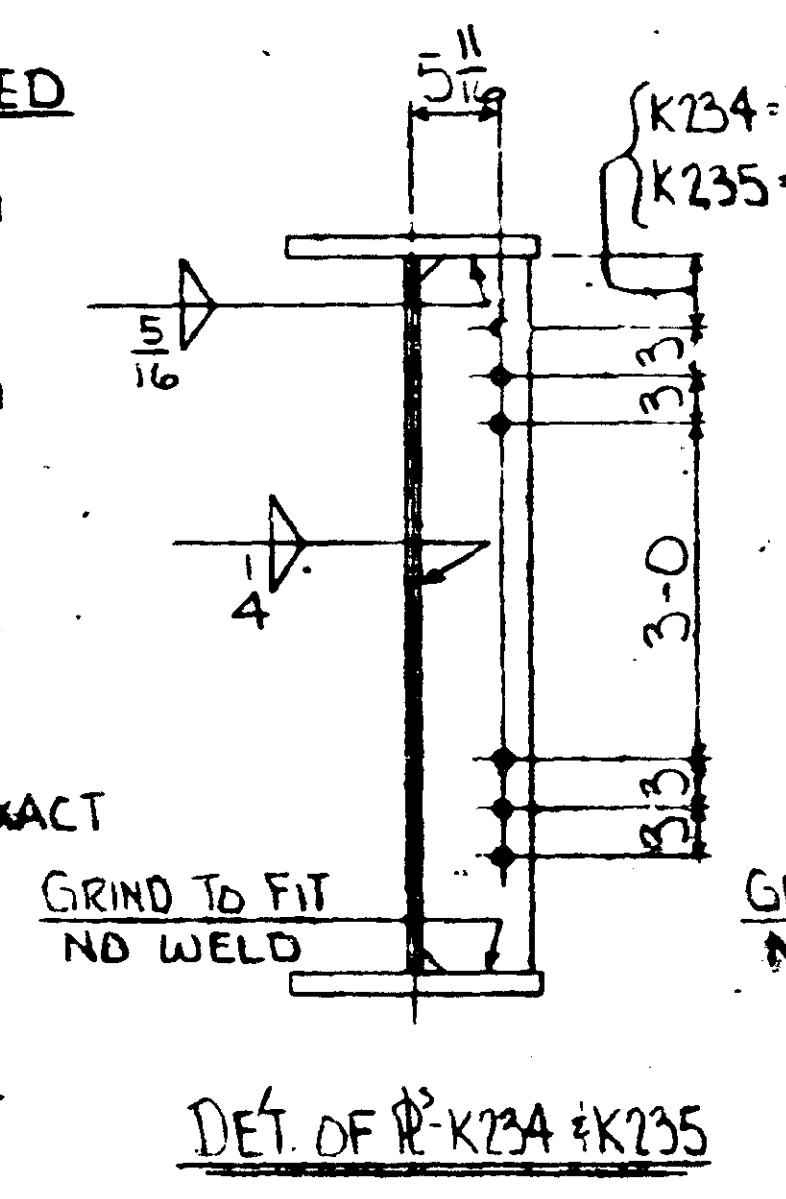
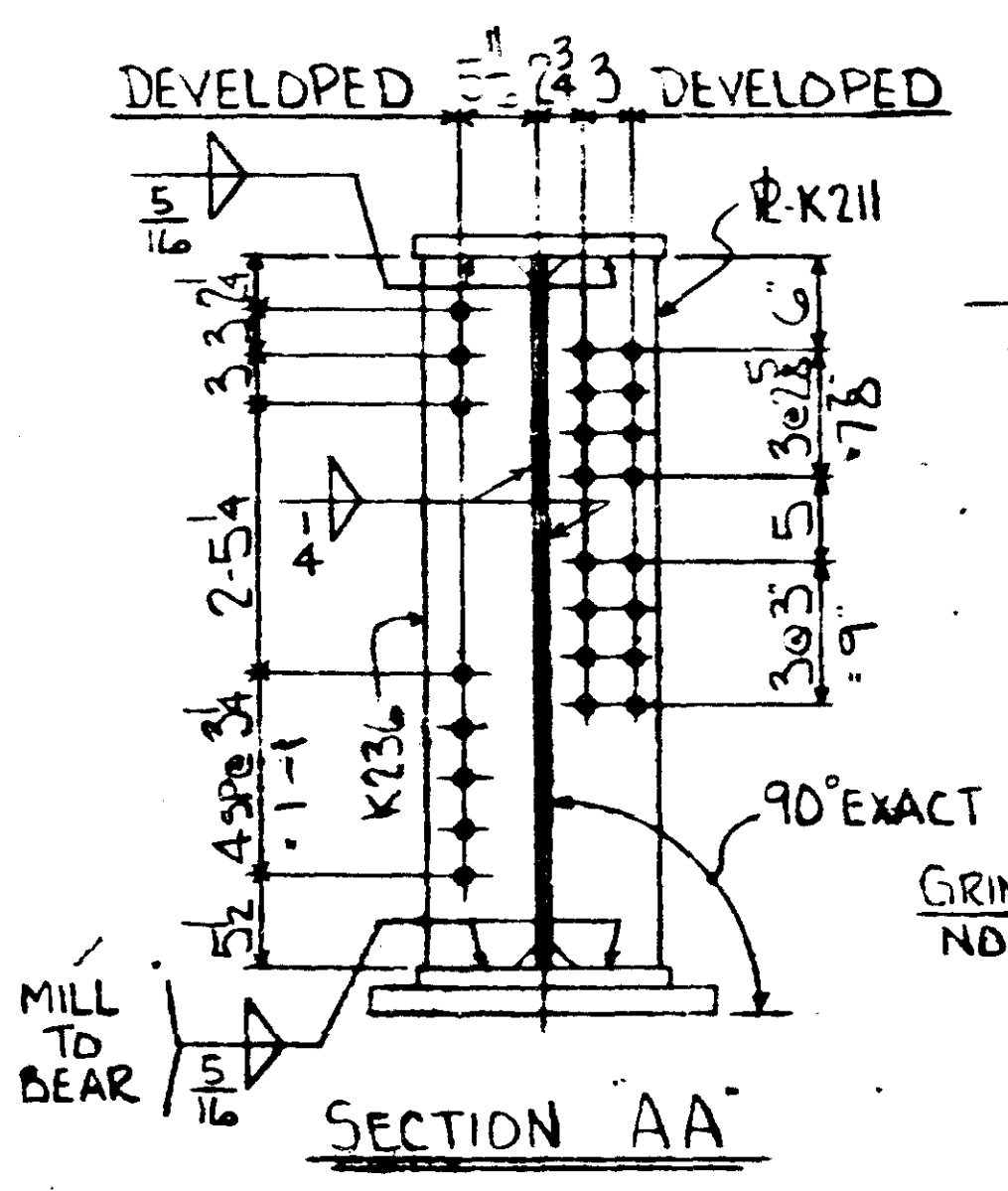
ST. PAUL STRUCTURAL STEEL CO.			
BRIDGE NO. 2440			
MADE BY ALAN	DATE 11-30-79		
CHECKED BY HJK	DATE 1/5/80		
SPRINT PAINT NONE			
OPEN HOLES 1/2"	UNLESS NOTED		
CONTRACT NO. 49000	SHEET 30		



ITEM	QTY	MATERIAL
P2-7	1	UMP- $\frac{3}{8}$ x $1\frac{1}{2}$ x 75-8 $\frac{3}{4}$
P2-8	1	P- $\frac{3}{8}$ x 58 $\frac{1}{2}$ x 75-8 $\frac{3}{4}$
P2-7A	1	UMP- $\frac{3}{8}$ x $1\frac{1}{2}$ x 75-7 $\frac{3}{4}$
Pc	1	P- $1\frac{1}{2}$ x 18 x 1-10
Fa	2	UMP- $\frac{1}{2}$ x $1\frac{1}{2}$ x 3-2 $\frac{1}{4}$
Fb	4	UMP- $\frac{1}{2}$ x $7\frac{1}{2}$ x 3-2 $\frac{1}{4}$
Fw	2	P- $\frac{3}{8}$ x 53 $\frac{1}{4}$ x 1-7
Ft	2	P- $\frac{3}{8}$ x $1\frac{1}{2}$ x 2-10 $\frac{3}{4}$
K211	1	P- $\frac{3}{8}$ x $7\frac{1}{2}$ x 4-8 $\frac{3}{4}$
K236	1	P- $\frac{3}{8}$ x $7\frac{1}{2}$ x 4-8 $\frac{3}{4}$
K232	6	P- $\frac{3}{8}$ x 7 x 4-8 $\frac{3}{4}$
K233	1	P- $\frac{3}{8}$ x 7 x 4-8 $\frac{3}{4}$
K234	2	P- $\frac{3}{8}$ x 7 x 4-8 $\frac{3}{4}$
K235	1	P- $\frac{3}{8}$ x 7 x 4-8 $\frac{3}{4}$
K127	14	P- $\frac{3}{8}$ x 5 x 4-8 $\frac{3}{4}$
LOOSE	xa 295	$\frac{3}{8}$ STUDS x 0-5

15/16 HOLES REAM TO 15/16 AT ASSEMBLY

ONE-GIRDER-G3
(APPROX WT = 74 TONS)



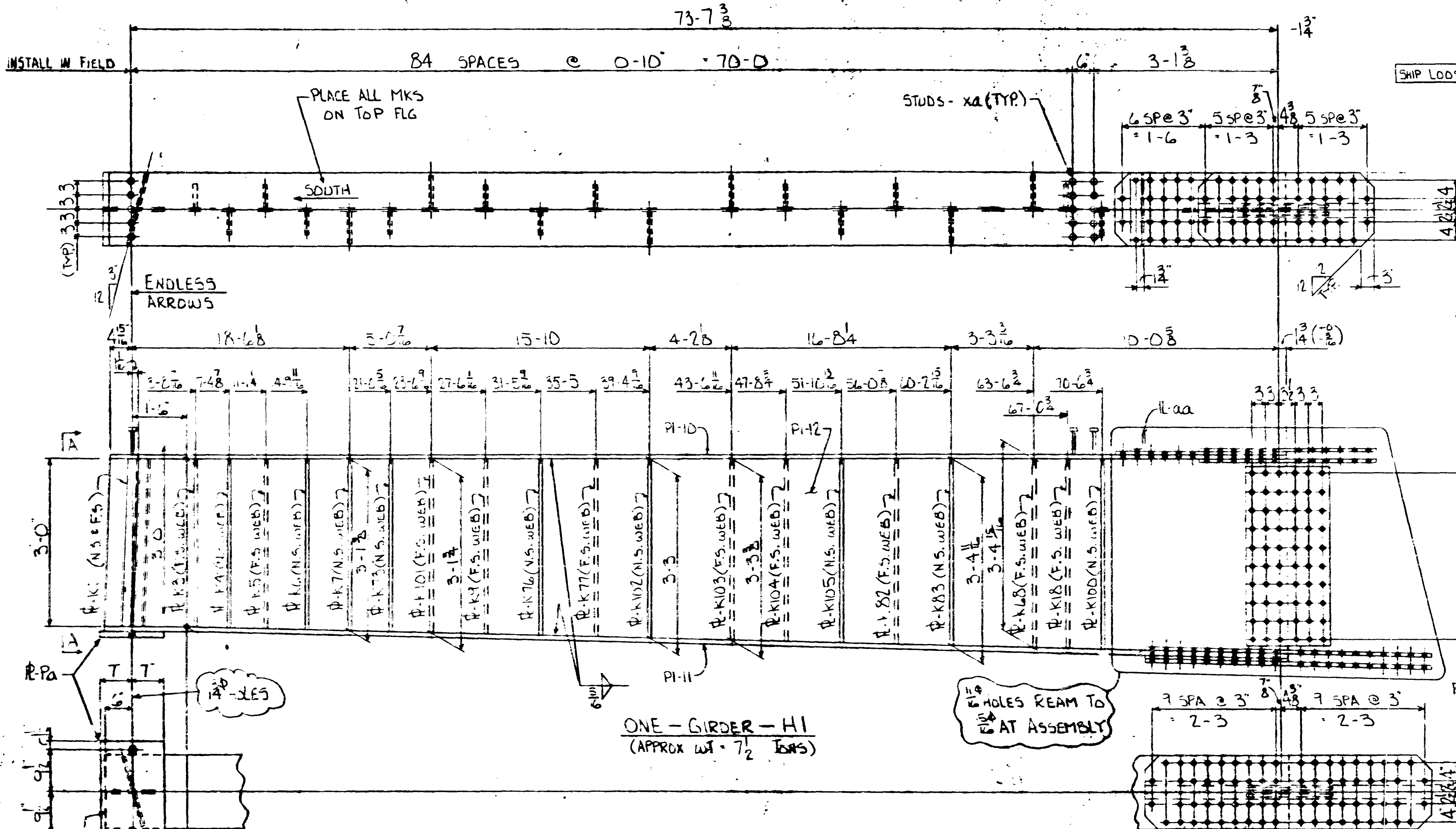
SEE SHT. E1 & E2 FOR ERECTION & NOTES
SEE SHT. C4 FOR CAMBER DIAGRAM
SEE SHT. C5 & CSA FOR BLOCKING DIAGRAMS
ALL STEEL TO BE MIN/DOT 3309



STATE PROJ. No. 2710-21(T.H. 65-105)
FED. PROJ. No. BHF 005-2(67)

ST. PAUL STRUCTURAL STEEL CO.	
BRIDGE NO. 2440	DATE 12-13-79
MADE BY ALAN	DATE 1/3/80
CHECKED BY JTK	
SHOP PAINT NONE	
OPEN HOLES H ₁₆	UNLESS NOTED
CONTRACT NO. 42000	SHEET 31

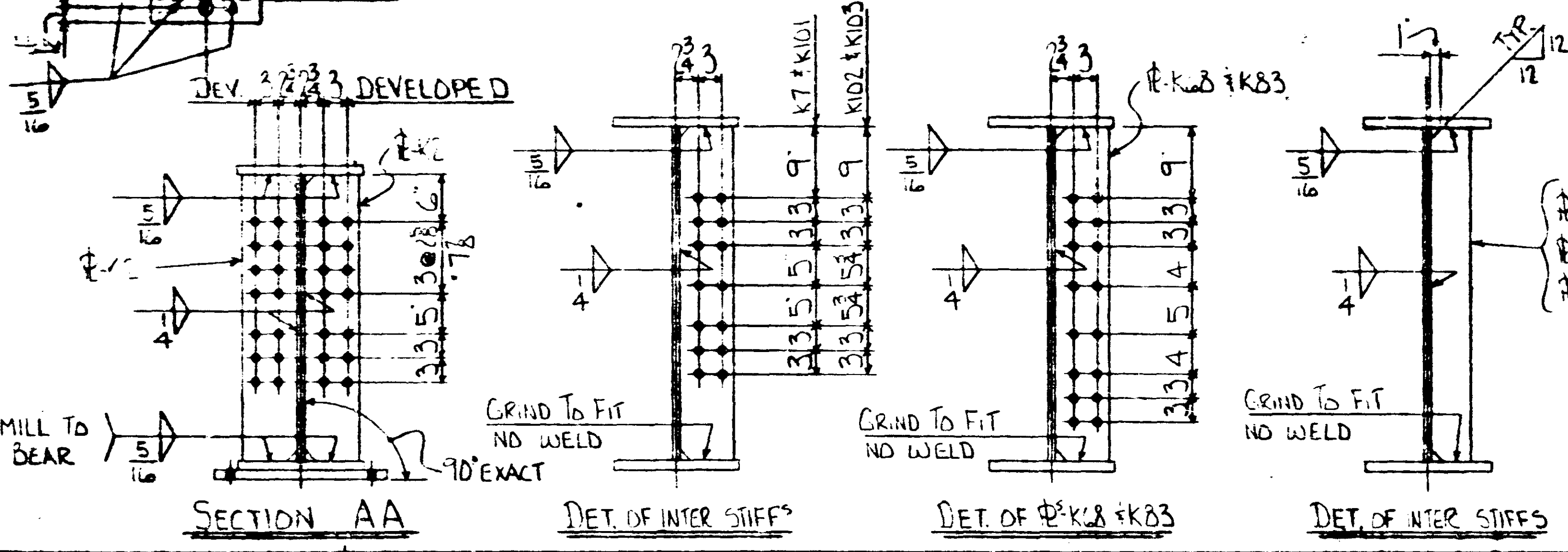
DESCRIPTION GIRDER G3



ITEM	QTY	MATERIAL
PI-10	1	UMP-3 x 16 x 7-1/2
PI-12	1	P-3 x 45-1/2 x 7-1/2
PI-11	1	UMP-12 x 16 x 7-1/2
XA	430	5 STUDS x 0-5
Pa	1	P-1 x 14 x 1-10
Fa	1	UMP-1/2 x 16 x 3-24
FN	1	UMP-3/4 x 16 x 5-24
Fb	2	UMP-1/2 x 7-1/2 x 3-24
Fc	2	P-3 x 39 x 1-6
Fo	1	FILL P-3 x 16 x 3-18
FP	1	FILL P-8 x 16 x 2-7-8
FQ	2	UMP-8 x 7-1/2 x 5-24
K2	2	P-3 x 7-1/2 x 3-0-3
K3	1	P-5/8 x 5 x 3-0-5
K4	1	P-5/8 x 5 x 3-0-8
K5	1	P-5/8 x 5 x 3-0-3
K6	1	P-5/8 x 5 x 3-1-1/2
K7	1	P-5/8 x 7 x 3-1-1/2
K73	1	P-5/8 x 5 x 3-1-1/2
KD1	1	P-5/8 x 7 x 3-1-1/2
K9	1	P-5/8 x 5 x 3-2-3/4
K76	1	P-5/8 x 5 x 3-2-3/4

ITEM	QTY	MATERIAL
K77	1	P-5/8 x 5 x 3-2-3/4
KD2	1	P-5/8 x 7 x 3-3-3/4
KD3	1	P-5/8 x 7 x 3-3-3/4
KD4	1	P-5/8 x 5 x 3-3-3/4
KD5	1	P-5/8 x 5 x 3-4
K82	1	P-5/8 x 5 x 3-4
K83	1	P-5/8 x 7 x 3-4-1/2
K83	1	P-5/8 x 7 x 3-5-1/2
K18	1	P-5/8 x 5 x 3-5-1/2
KD0	1	P-5/8 x 5 x 3-5-1/2
aa	1	L-3 x 4 x 3/8 x 1-4

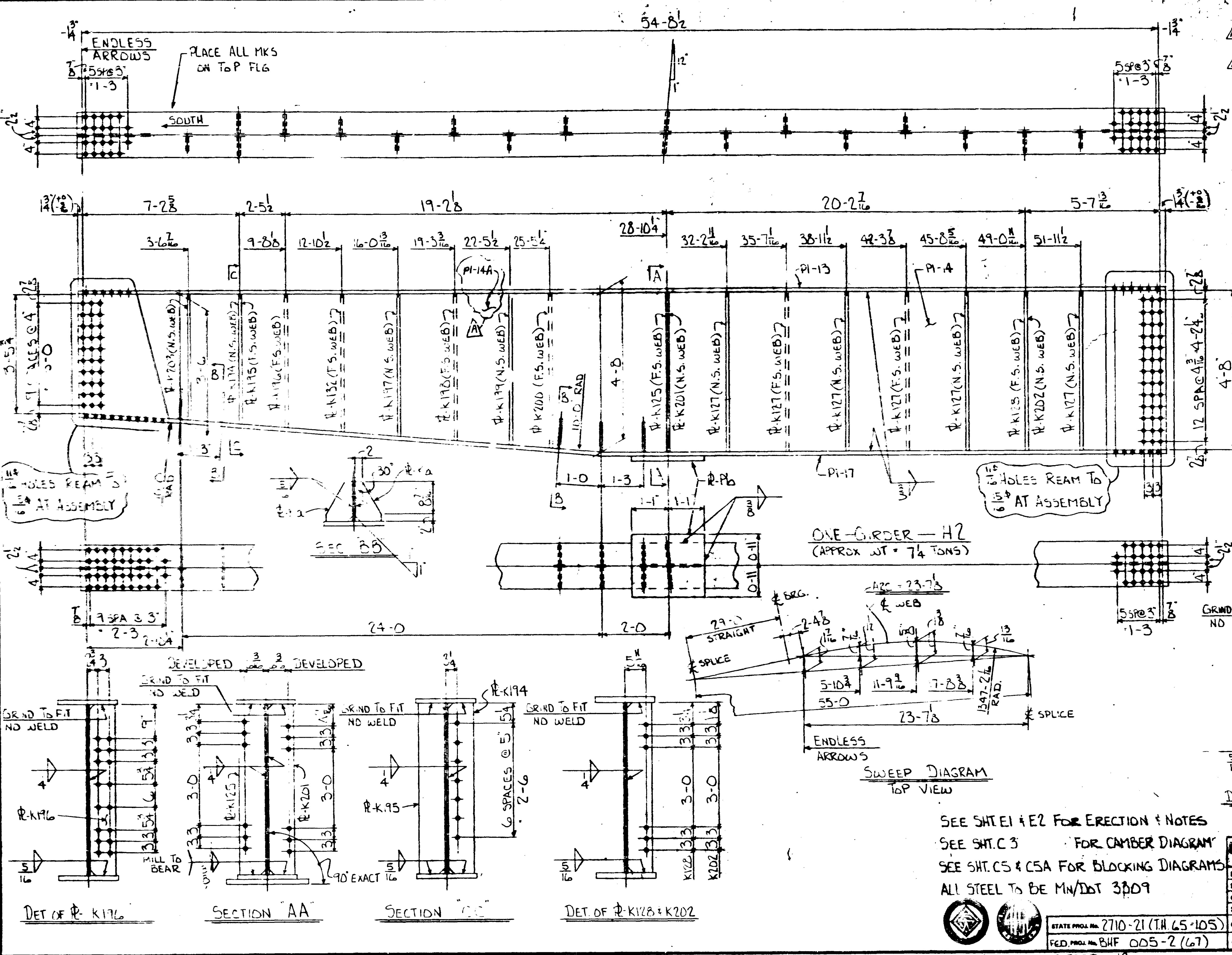
SEE SH. E1 & E2 FOR ERECTION & NOTES
 SEE SH. C1 FOR CAMBER DIAGRAM
 SEE SH. C5 & C5A FOR BLOCKING DIAGRAMS
 ALL STEEL TO BE MIN/DOT 3309



ST. PAUL STRUCTURAL STEEL CO.	
BRIDGE NO. 2440	DATE 11-19-79
MADE BY ALAN	DATE 1/3/80
CHECKED BY HJK	DATE 1/3/80
SHOP PAINT NONE	UNLESS NOTED
OPEN HOLES 1/8"	UNLESS NOTED
STATE PROJ No 2710 21 (TH. 65-105)	CONTRACT NO. 42000
FED PROJ No SHF 005-2 (67)	SHEET 32

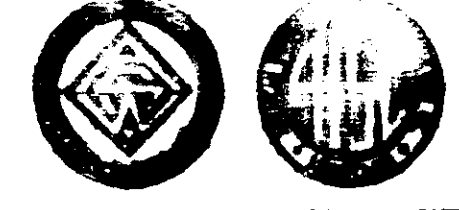


DESCRIPTION GIRDER H1



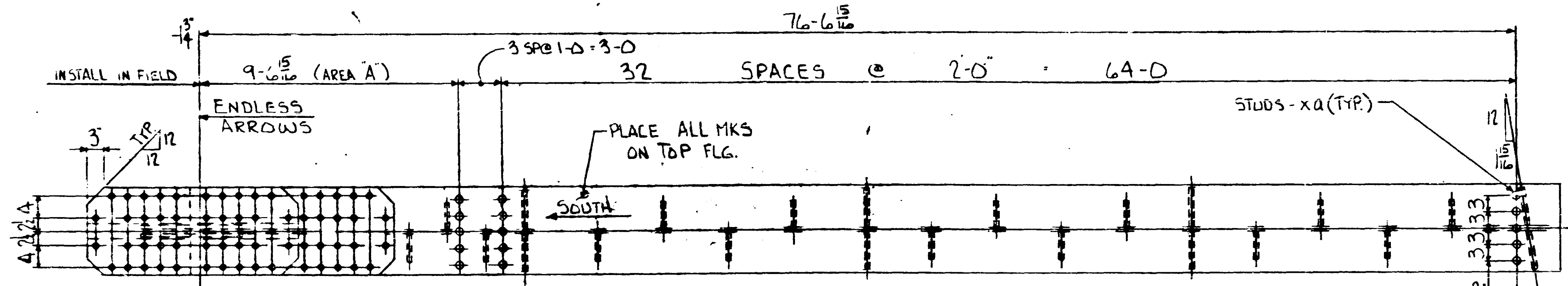
ITEM	QTY	MATERIAL
R-13	1	UMP-12 x 16 x 55-D
PI-4	1	R-3 x 56 x 32-2
PI-7	1	UMP-12 x 16 x 55-D
PI-4A	1	R-3 x 56 x 22-9
P16	1	R-14 x 22 x 2-2
Ka	10	R-3 x 6 x 10-0
K203	1	R-3 x 5 x 3-6
K194	1	R-3 x 7 x 3-8
K195	1	R-3 x 7 x 3-8
K196	1	R-3 x 7 x 3-10
K197	1	R-3 x 5 x 4-0
K198	1	R-3 x 5 x 4-1
K199	1	R-3 x 5 x 4-3
K200	1	R-3 x 5 x 4-7
K201	1	R-12 x 7 x 4-8
K202	1	R-3 x 7 x 4-8
K203	6	R-3 x 5 x 4-8

SEE SHET E1 & E2 FOR ERECTION & NOTES
 SEE SHET C3 FOR CAMBER DIAGRAM
 SEE SHET C5 & C5A FOR BLOCKING DIAGRAMS
 ALL STEEL TO BE MN/DOT 3009

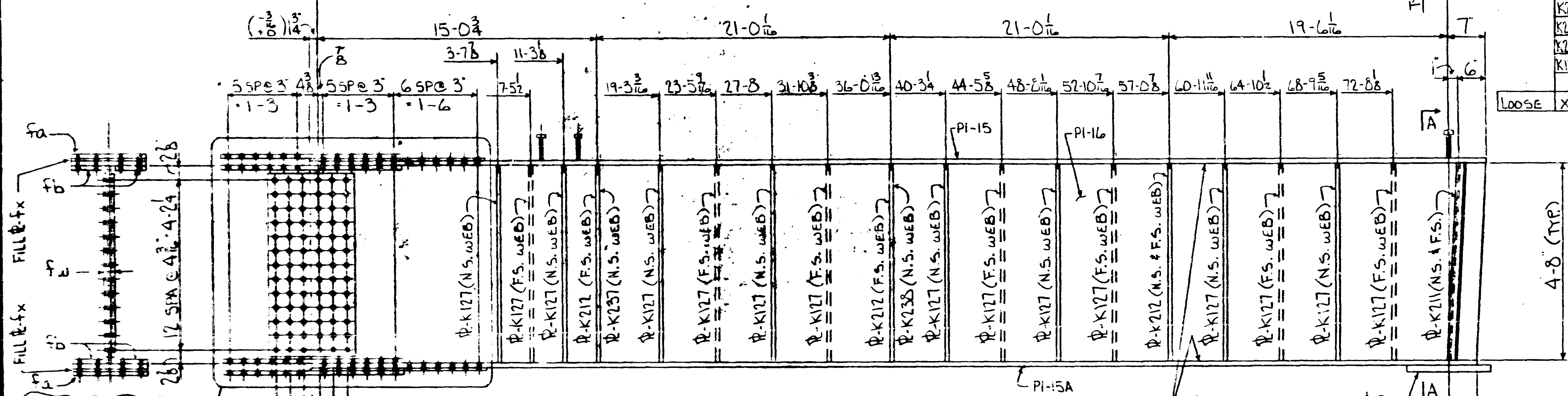


ST. PAUL STRUCTURAL STEEL	
BRIDGE NO.	2440
MADE BY	ALAN
DATE	12-3-79
CHECKED BY	HJK
DATE	1/3/80
SHOP PAINT	NONE
OPEN HOLES	UNLESS NOTED
CONTRACT NO.	47000
SHEET	33

DESCRIPTION GIRDER H2

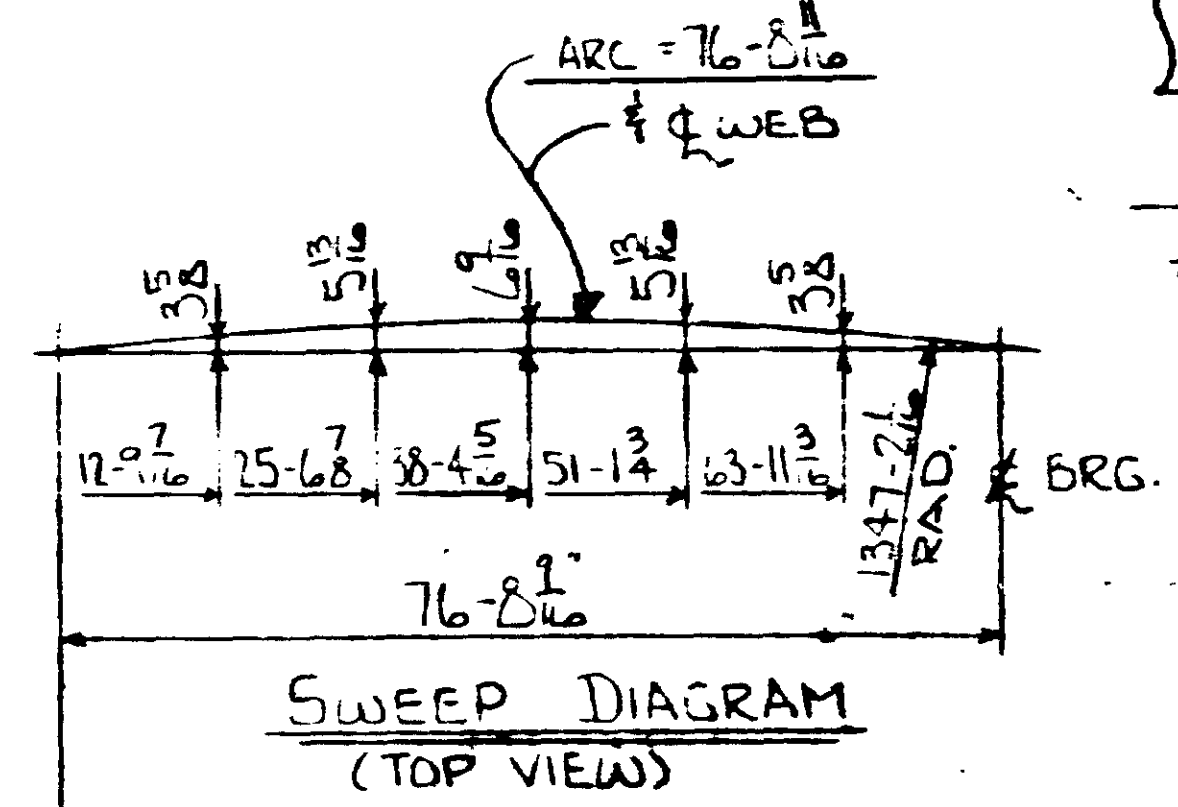
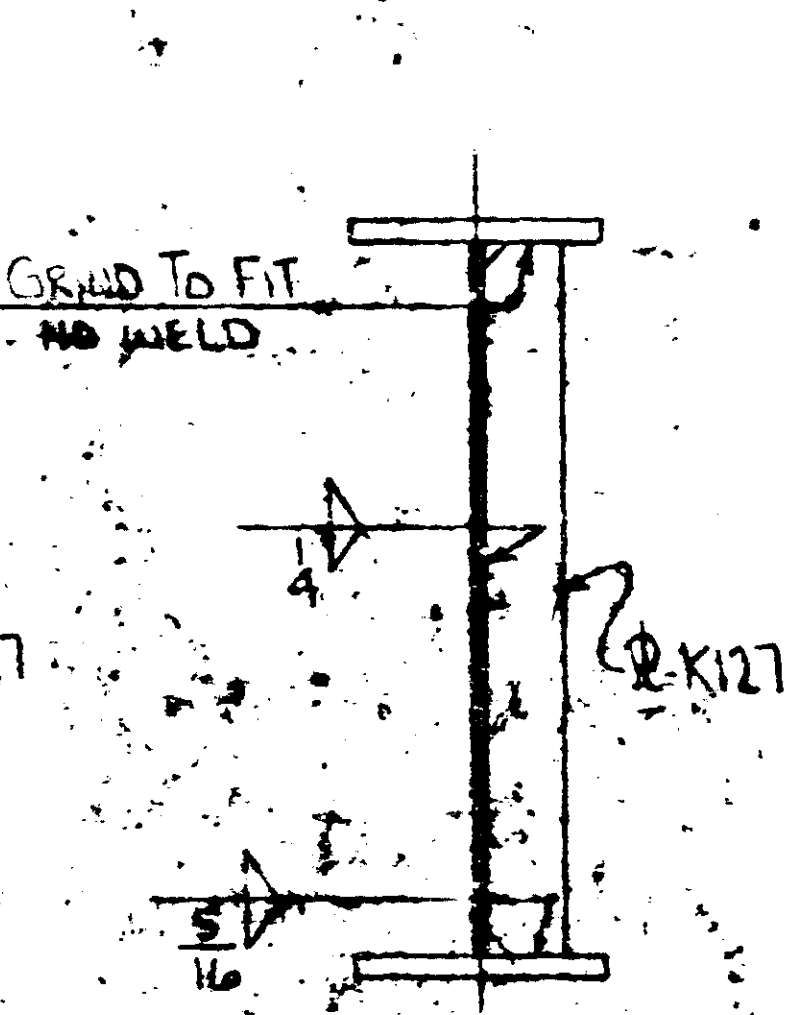
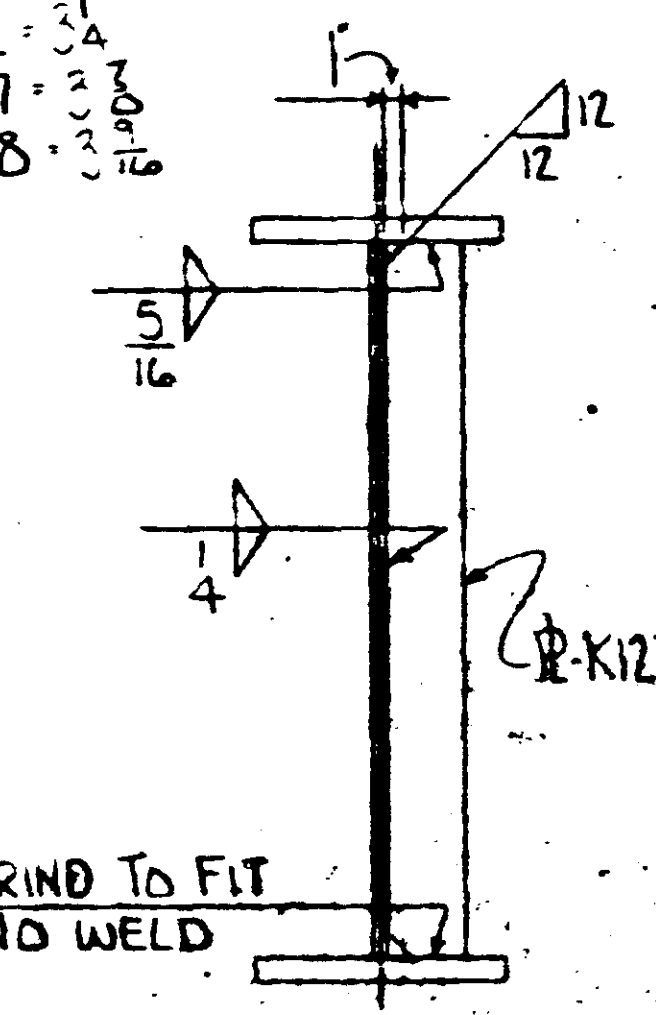
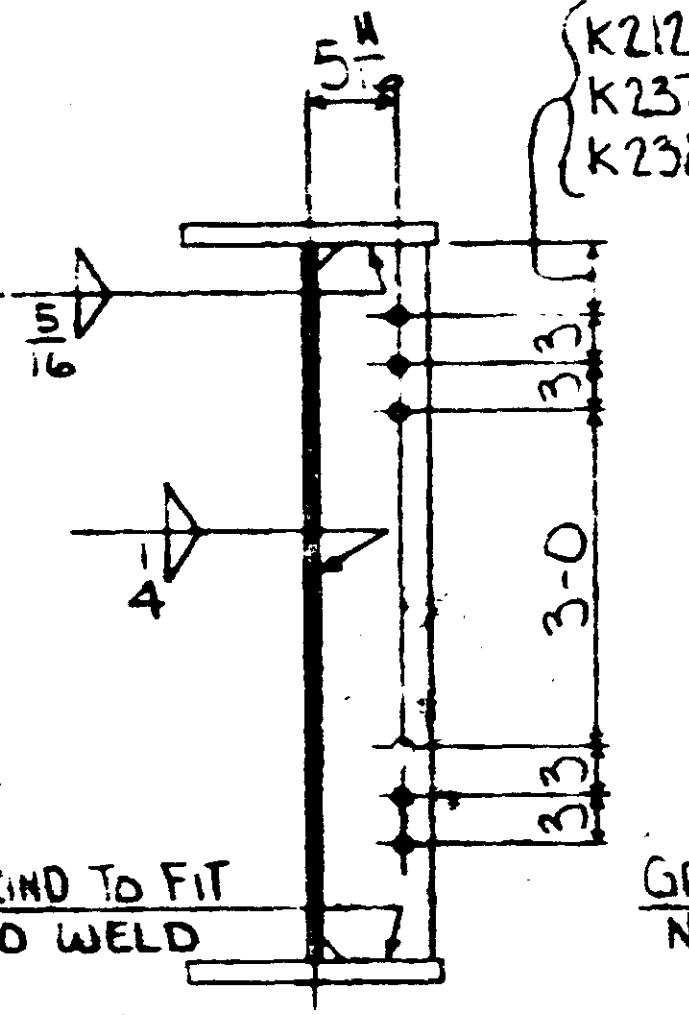
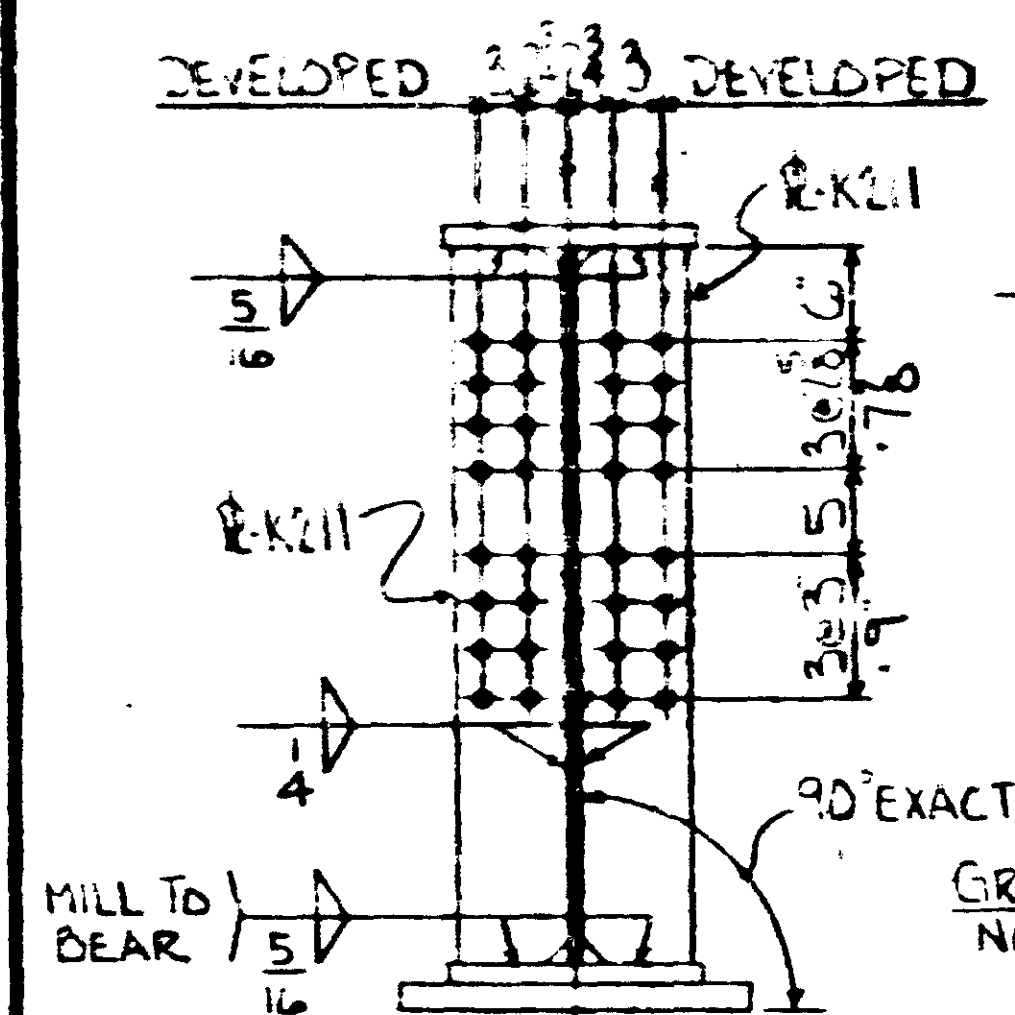
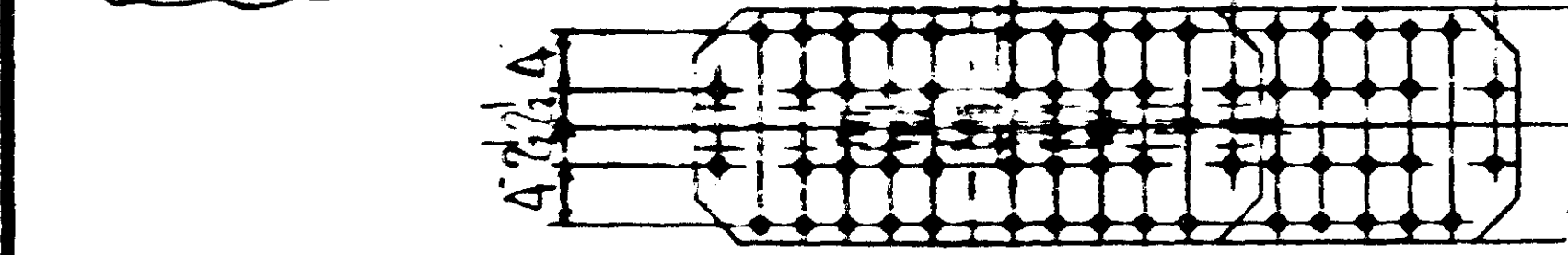


ITEM	QTY	MATERIAL
PI-15	1	UMP-8 x 16 x 77-3 1/2
PI-16	1	P-3 x 58 1/2 x 77-3 1/2
PI-15A	1	UMP-8 x 16 x 77-2 1/2
Pc	1	P-14 x 18 x 1-10
Fa	2	UMP-2 x 16 x 3-24
Fb	4	UMP-2 x 72 x 3-24
Fw	2	P-3 x 53 1/2 x 1-7
Fx	2	P-3 x 16 x 3-18
K211	2	P-3 x 7 1/2 x 4-88
K212	4	P-3 x 7 x 4-88
K237	1	P-3 x 7 x 4-88
K238	1	P-3 x 7 x 4-88
K127	15	P-3/16 x 5 x 4-88
LOOSE	XA 180	7/8 STUDDS x 0-5

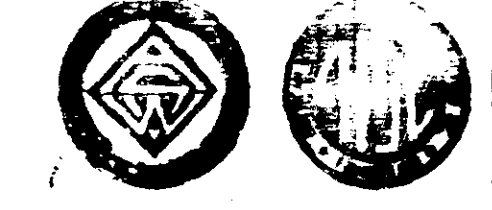


1/16 HOLES REAM TO 5/16 AT ASSEMBLY

ONE-GIRDER - H3
(APPROX WT = 7 1/2 TONS)



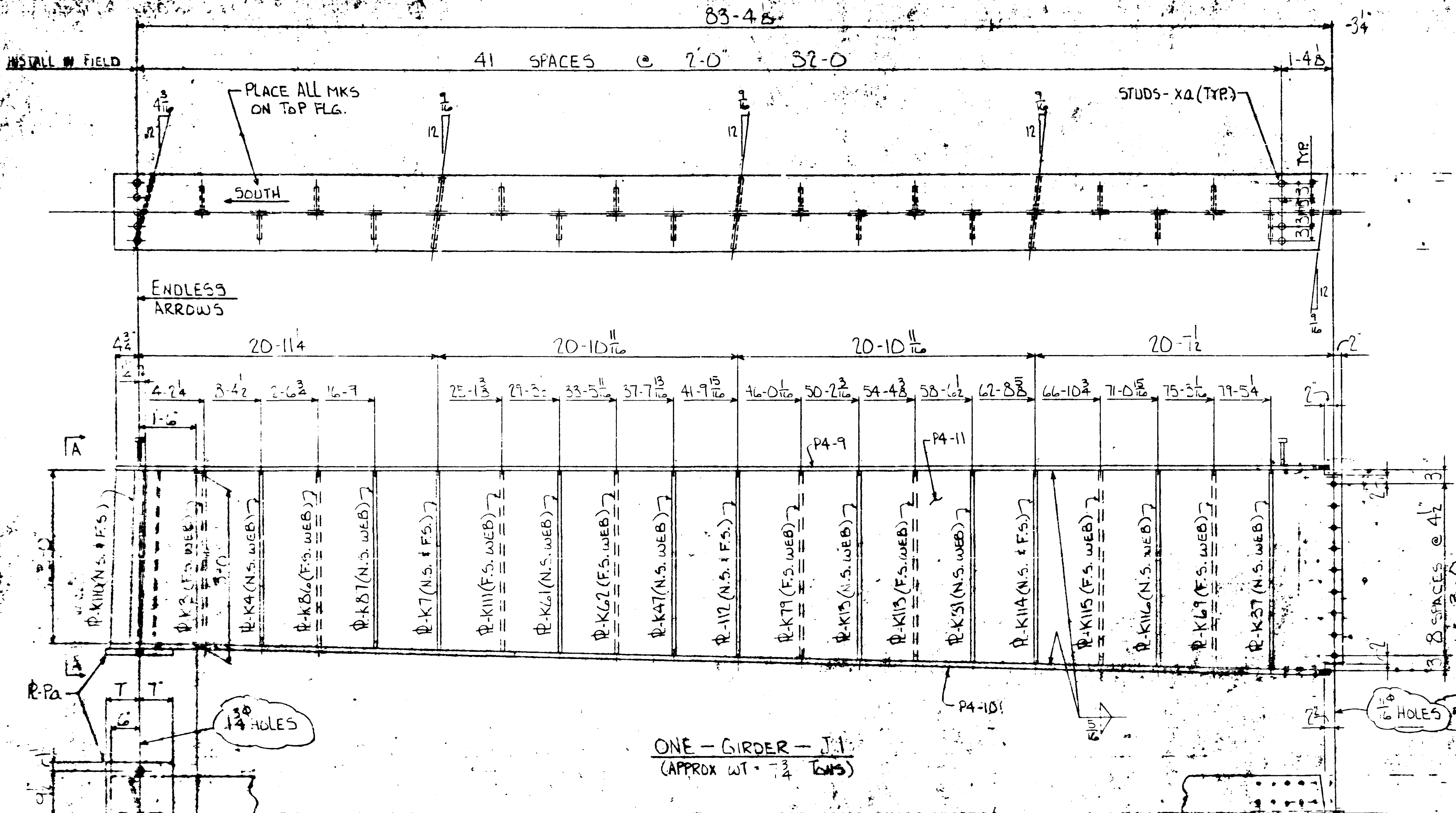
SEE SHET # E2 FOR ERECTION & NOTES
SEE SH. C4 FOR CAMBER DIAGRAM
SEE SH. C5 & C5A FOR BLOCKING DIAGRAMS
ALL STEEL TO BE MN/DOT 3309



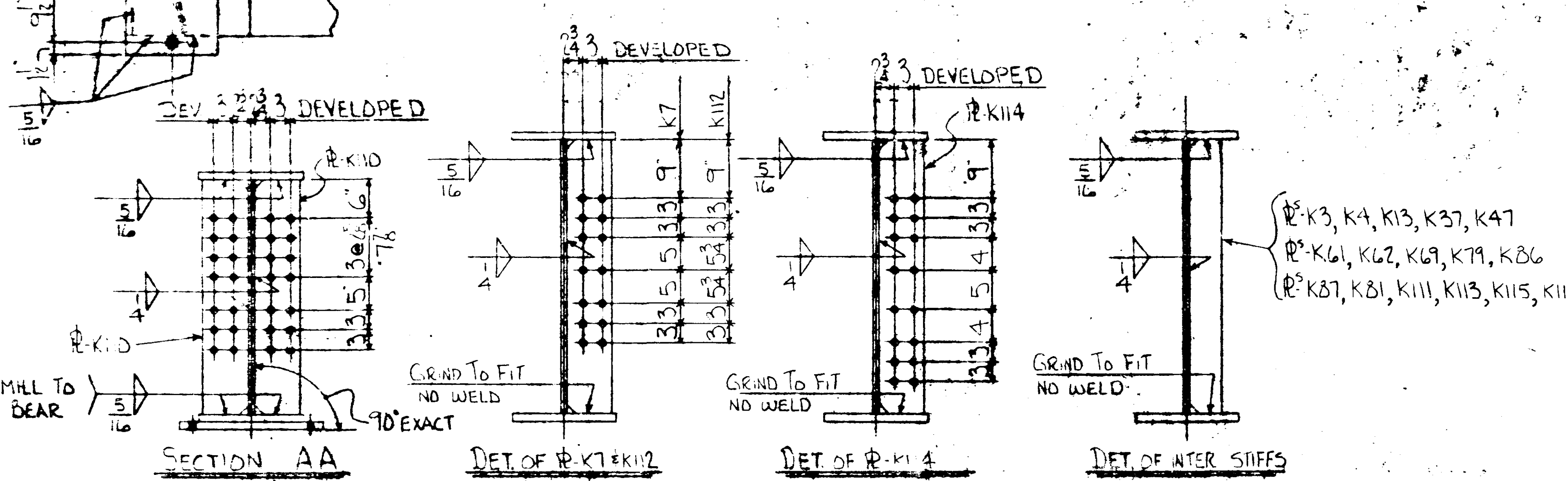
STATE PROJ. NO. 2710-21(T.H. 65-105)
FED. PROJ. NO. BHF 005-2 (67)

ST. PAUL STRUCTURAL STEEL CO.	
BRIDGE NO. 2440	DATE 12-13-79
MADE BY ALAN	DATE 1/3/80
CHECKED BY HJK	
SHOP PAINT NONE	
OPEN HOLES 1/16 UNLESS NOTED	
CONTRACT NO. 42000	SHEET 3-1

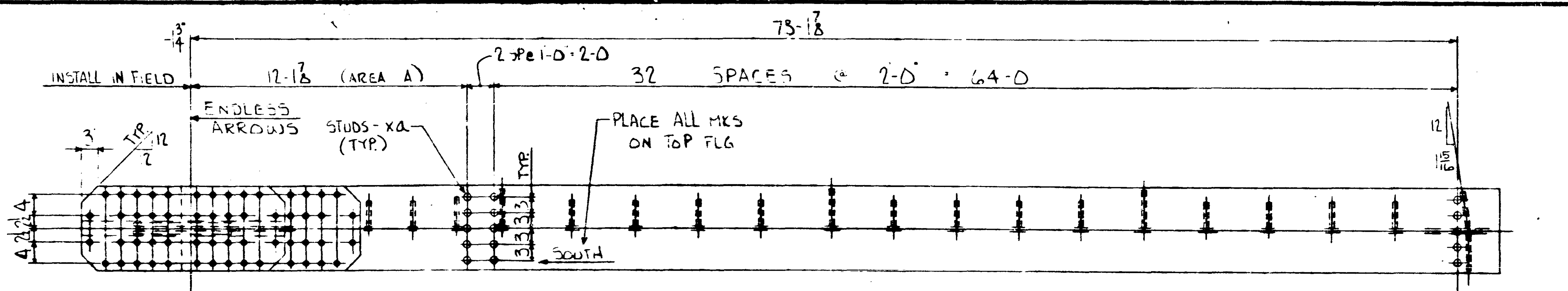
DESCRIPTION GIRDER H3



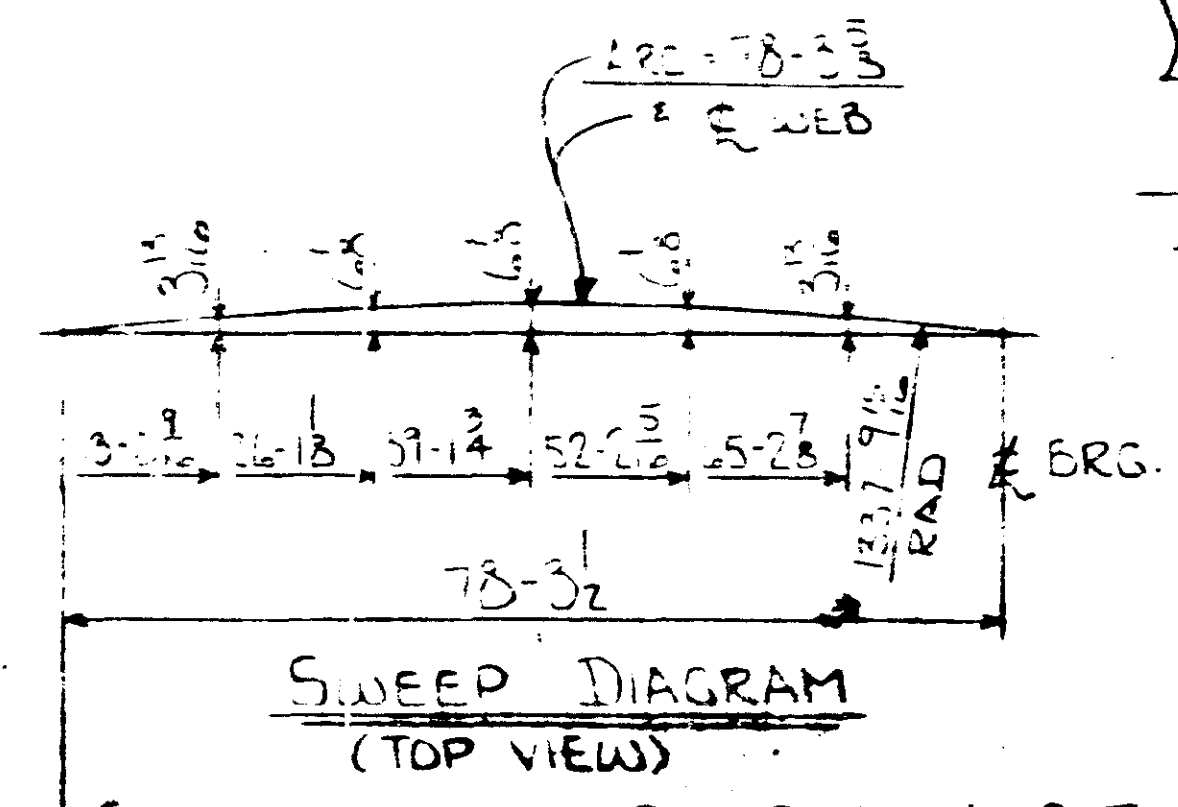
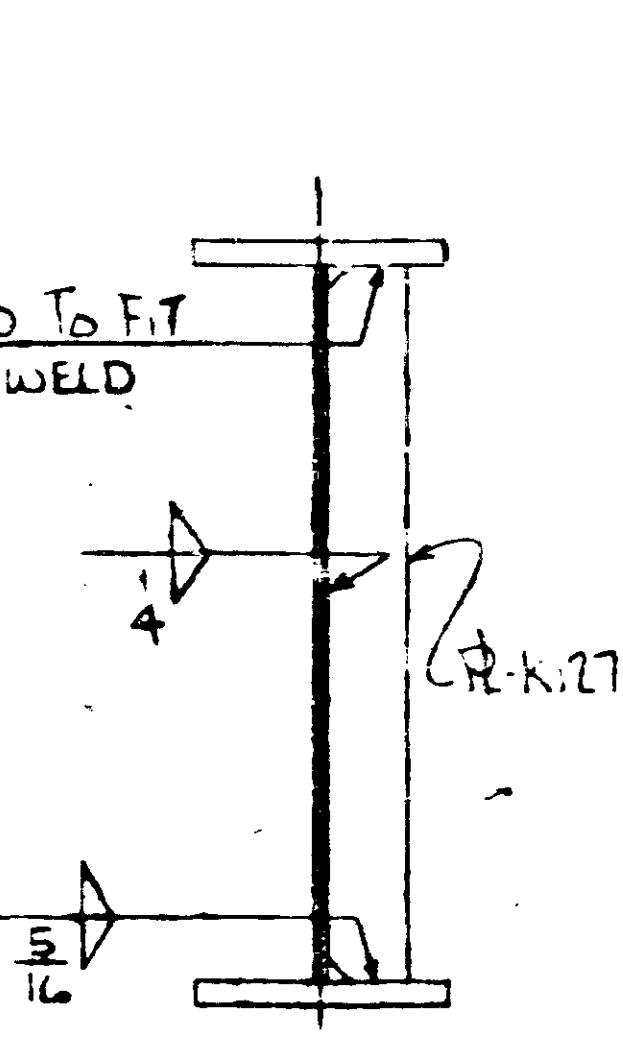
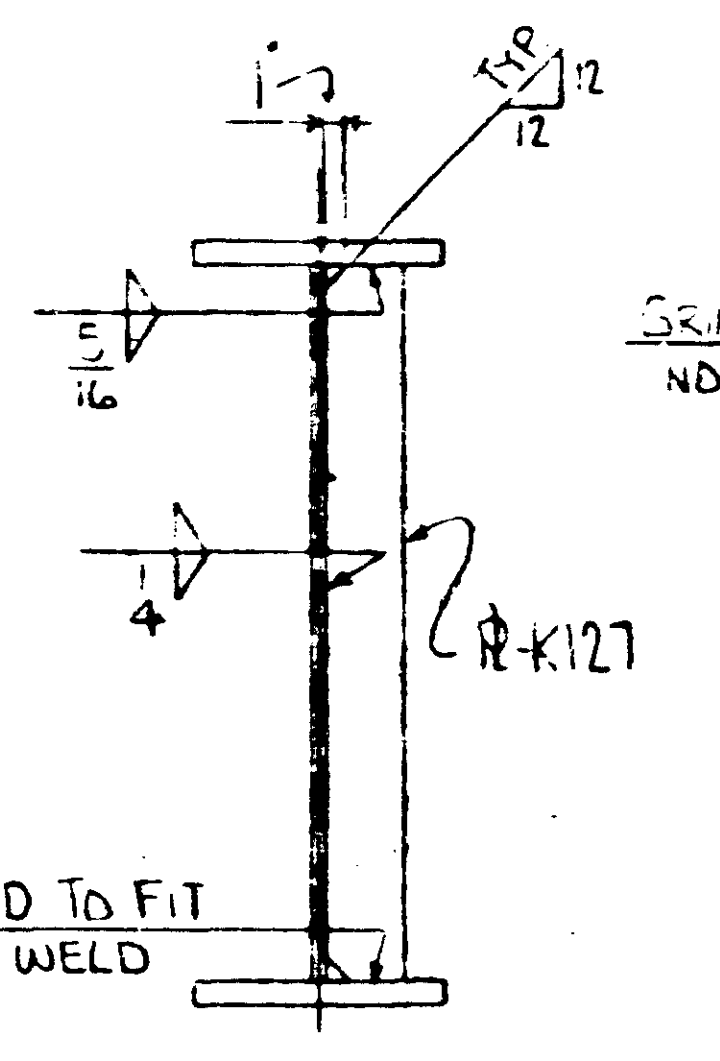
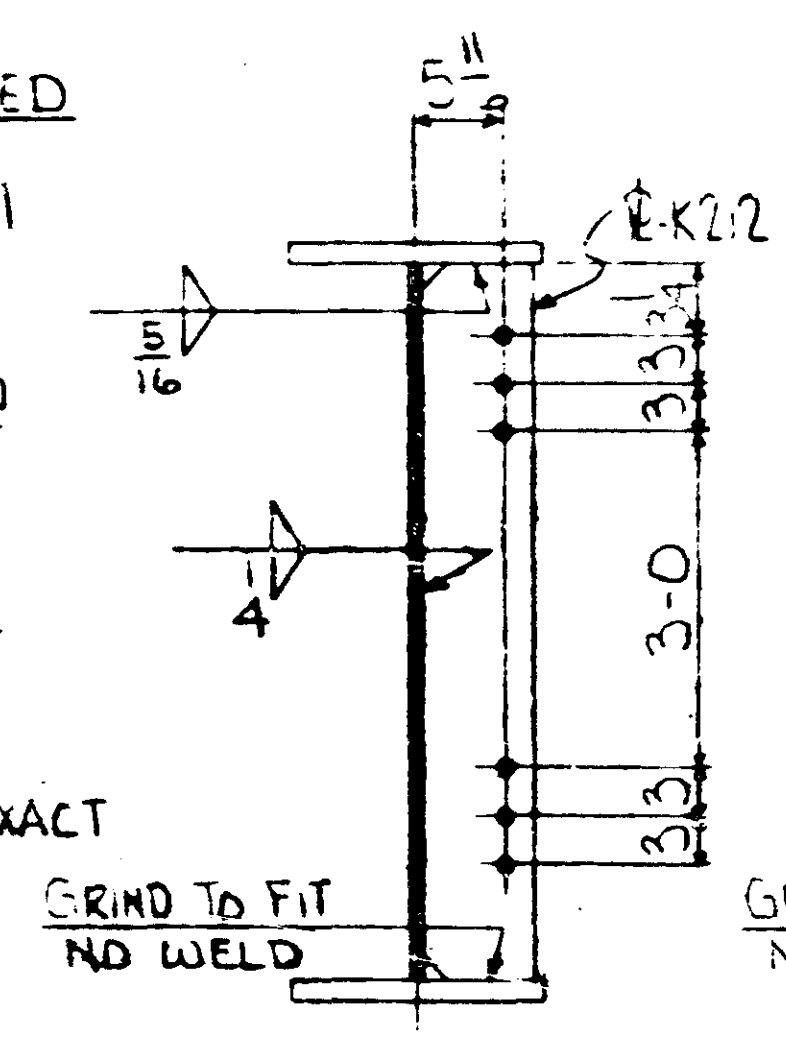
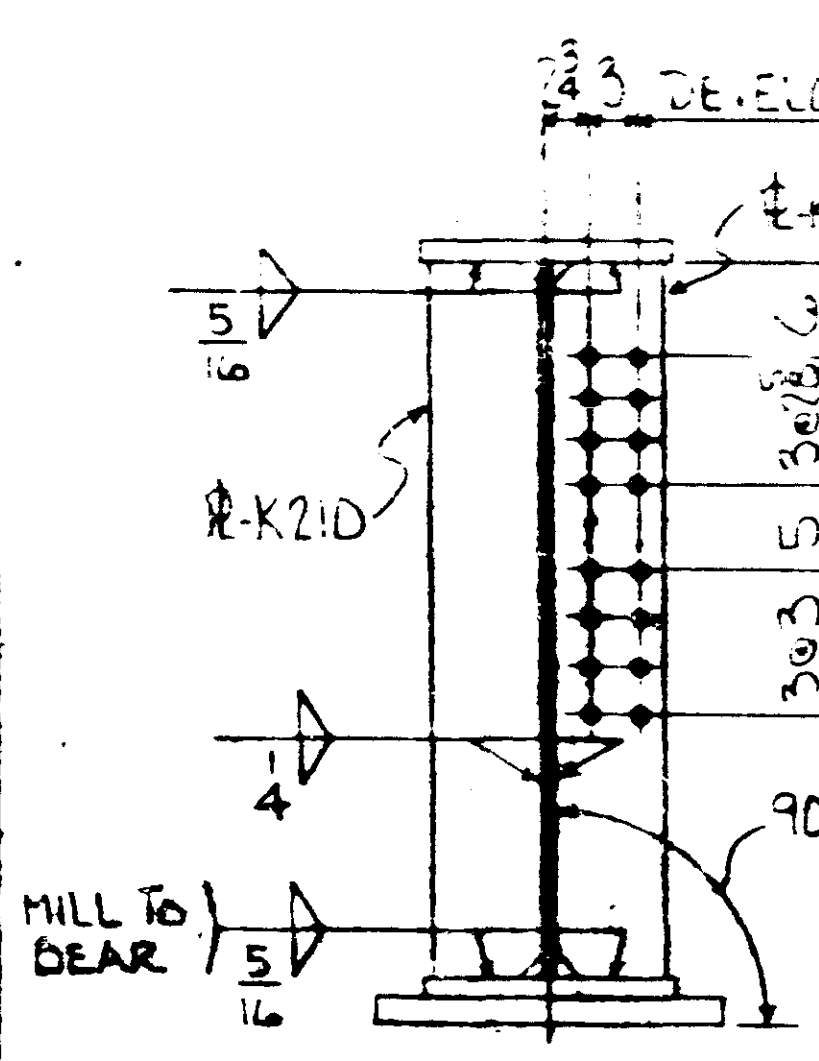
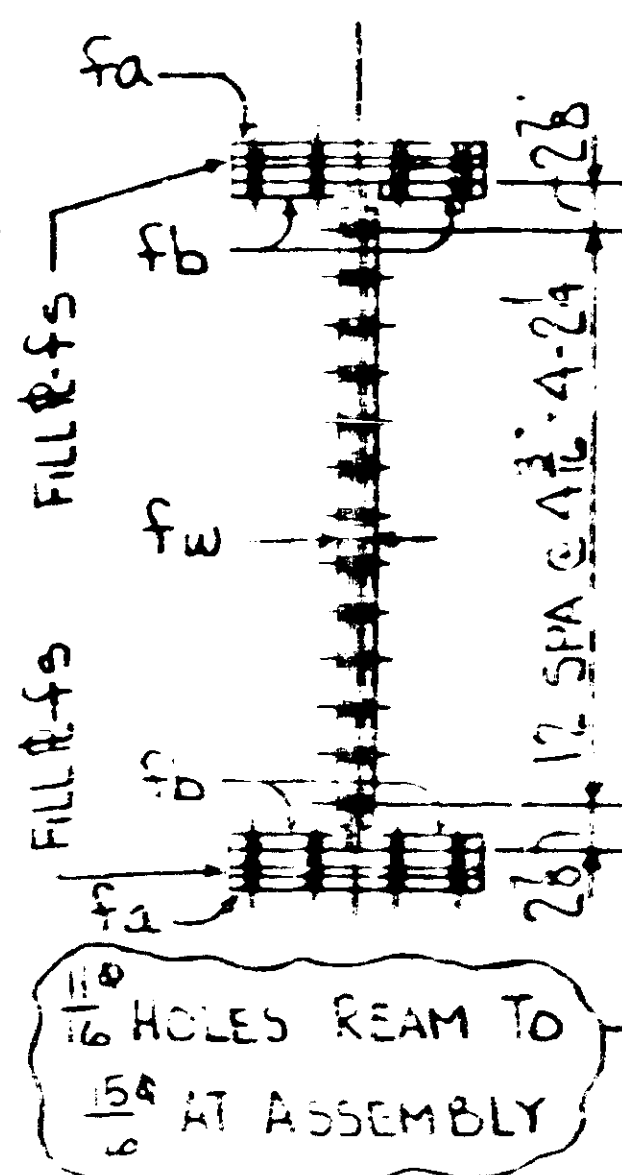
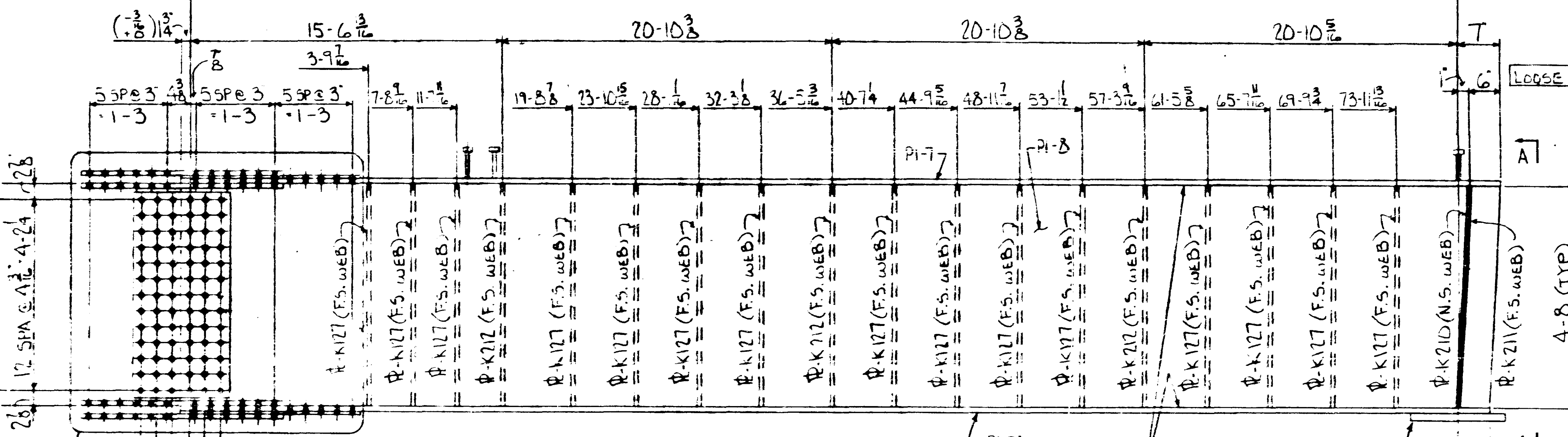
ITEM	QTY	MATERIAL
K-1	1	2" x 4" x 1/2"
K-2	1	2" x 4" x 1/2"
K-3	1	2" x 4" x 1/2"
K-4	1	2" x 4" x 1/2"
K-5	1	2" x 4" x 1/2"
K-6	1	2" x 4" x 1/2"
K-7	1	2" x 4" x 1/2"
K-8	1	2" x 4" x 1/2"
K-9	1	2" x 4" x 1/2"
K-10	1	2" x 4" x 1/2"
K-11	1	2" x 4" x 1/2"
K-12	1	2" x 4" x 1/2"
K-13	1	2" x 4" x 1/2"
K-14	1	2" x 4" x 1/2"
K-15	1	2" x 4" x 1/2"
K-16	1	2" x 4" x 1/2"
K-17	1	2" x 4" x 1/2"
K-18	1	2" x 4" x 1/2"
K-19	1	2" x 4" x 1/2"
K-20	1	2" x 4" x 1/2"
K-21	1	2" x 4" x 1/2"
K-22	1	2" x 4" x 1/2"
K-23	1	2" x 4" x 1/2"
K-24	1	2" x 4" x 1/2"
K-25	1	2" x 4" x 1/2"
K-26	1	2" x 4" x 1/2"
K-27	1	2" x 4" x 1/2"
K-28	1	2" x 4" x 1/2"
K-29	1	2" x 4" x 1/2"
K-30	1	2" x 4" x 1/2"
K-31	1	2" x 4" x 1/2"
K-32	1	2" x 4" x 1/2"
K-33	1	2" x 4" x 1/2"
K-34	1	2" x 4" x 1/2"
K-35	1	2" x 4" x 1/2"
K-36	1	2" x 4" x 1/2"
K-37	1	2" x 4" x 1/2"
K-38	1	2" x 4" x 1/2"
K-39	1	2" x 4" x 1/2"
K-40	1	2" x 4" x 1/2"
K-41	1	2" x 4" x 1/2"
K-42	1	2" x 4" x 1/2"
K-43	1	2" x 4" x 1/2"
K-44	1	2" x 4" x 1/2"
K-45	1	2" x 4" x 1/2"
K-46	1	2" x 4" x 1/2"
K-47	1	2" x 4" x 1/2"
K-48	1	2" x 4" x 1/2"
K-49	1	2" x 4" x 1/2"
K-50	1	2" x 4" x 1/2"
K-51	1	2" x 4" x 1/2"
K-52	1	2" x 4" x 1/2"
K-53	1	2" x 4" x 1/2"
K-54	1	2" x 4" x 1/2"
K-55	1	2" x 4" x 1/2"
K-56	1	2" x 4" x 1/2"
K-57	1	2" x 4" x 1/2"
K-58	1	2" x 4" x 1/2"
K-59	1	2" x 4" x 1/2"
K-60	1	2" x 4" x 1/2"
K-61	1	2" x 4" x 1/2"
K-62	1	2" x 4" x 1/2"
K-63	1	2" x 4" x 1/2"
K-64	1	2" x 4" x 1/2"
K-65	1	2" x 4" x 1/2"
K-66	1	2" x 4" x 1/2"
K-67	1	2" x 4" x 1/2"
K-68	1	2" x 4" x 1/2"
K-69	1	2" x 4" x 1/2"
K-70	1	2" x 4" x 1/2"
K-71	1	2" x 4" x 1/2"
K-72	1	2" x 4" x 1/2"
K-73	1	2" x 4" x 1/2"
K-74	1	2" x 4" x 1/2"
K-75	1	2" x 4" x 1/2"
K-76	1	2" x 4" x 1/2"
K-77	1	2" x 4" x 1/2"
K-78	1	2" x 4" x 1/2"
K-79	1	2" x 4" x 1/2"
K-80	1	2" x 4" x 1/2"
K-81	1	2" x 4" x 1/2"
K-82	1	2" x 4" x 1/2"
K-83	1	2" x 4" x 1/2"
K-84	1	2" x 4" x 1/2"
K-85	1	2" x 4" x 1/2"
K-86	1	2" x 4" x 1/2"
K-87	1	2" x 4" x 1/2"
K-88	1	2" x 4" x 1/2"
K-89	1	2" x 4" x 1/2"
K-90	1	2" x 4" x 1/2"
K-91	1	2" x 4" x 1/2"
K-92	1	2" x 4" x 1/2"
K-93	1	2" x 4" x 1/2"
K-94	1	2" x 4" x 1/2"
K-95	1	2" x 4" x 1/2"
K-96	1	2" x 4" x 1/2"
K-97	1	2" x 4" x 1/2"
K-98	1	2" x 4" x 1/2"
K-99	1	2" x 4" x 1/2"
K-100	1	2" x 4" x 1/2"



ST. PAUL STRUCTURAL STEEL CO.	
BRIDGE NO. 2440	DATE 11-20-79
MADE BY ALAN	CHECKED BY HJK
STATE PROJ. NO. 71D-21 (TH. 65-105)	DATE 11/3/80
FED. PROJ. NO. BHF 005-2 (67)	SNIP PAINT NONE
CONTRACT NO. 42000	UNLESS NOTED
	OPEN HOLES
	ORDER J1



ITEM	QTY	MATERIAL
PI-7	1	UMP-8 x 16 x 78-10 3/8
PI-8	1	P-8 x 58 1/2 x 78-10 3/8
PI-7A	1	UMP-8 x 16 x 78-9 3/8
Pc	1	P-14 x 18 x 1-10"
Fa	2	UMP-2 x 16 x 3-24
Fb	4	UMP-2 x 7 1/2 x 3-24
Fw	2	P-8 x 53 1/2 x 1-7
Fs	2	P-2 x 16 x 2-10 8
K210	1	P-3 x 7 1/2 x 4-8 8
K211	1	P-3 x 7 1/2 x 4-8 8
K212	3	P-8 x 7 x 4-8 8
K127	15	P-8 x 5 x 4-8 8



SEE SHET E1 & E2 FOR ERECTION & NOTES

SEE SHET C4 FOR CAMBER DIAGRAM

SEE SHET C5 & C5A FOR BLOCKING DIAGRAMS

ALL STEEL TO BE MN/DOT 3309

ST. PAUL STRUCTURAL STEEL CO.	
BRIDGE NO. 2440	DATE 2-4-79
MADE BY ALAM	CHECKED BY HJK
SHOP PAINT NONE	DATE 1/9/80
OPEN HOLES 1/16" UNLESS NOTED	CONTRACT NO. 42000
STATE PROJ. NO. 2710-21 (T.H. 65-105)	SHEET 38
FED. PROJ. NO. BHF 005-2 (67)	

DESCRIPTION GIRDER K3