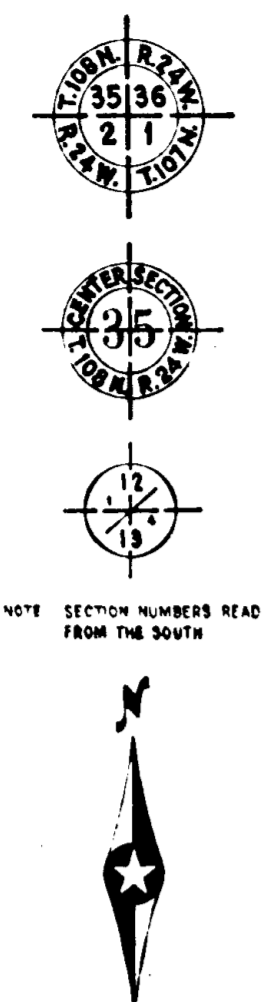


CONVENTIONAL SIGNS

STATE LINE	--- --- --- --- --- ---	NUMBER	
COUNTY LINE	--- --- --- --- --- ---	BRUSH	
TOWNSHIP OR RANGE LINE	--- --- --- --- --- ---	ORCHARD	
SECTION LINE	--- --- --- --- --- ---	ROCK LEDGE	
QUARTER LINE	--- --- --- --- --- ---	SAND	
SIXTEENTH LINE	--- --- --- --- --- ---	EDGE OF CUT	
RIGHT OF WAY LINE	--- --- --- --- --- ---	TOE OF EMBANKMENT	
PRESENT ROAD "W" LINE	--- --- --- --- --- ---	CATCH BASIN	
LIMITED ACCESS	--- --- --- --- --- ---	MANHOLE	
PROPERTY LINE, Etc., and UNIMPROVED PLATTED PROPERTY	--- --- --- --- --- ---	DEEP WELT	
CORPORATE OR CITY LIMITS	--- --- --- --- --- ---	FINE HYDRANT	
TRUNK HIGHWAY CENTER LINE	--- --- --- --- --- ---	ASC. LAMP	
RETAINING WALL	--- --- --- --- --- ---	STEEL LAMP (DOWN & UP)	
STEAM RAILROAD	--- --- --- --- --- ---	RA. ROAD CROSSING S.S.W.	
ELECTRIC RAILROAD	--- --- --- --- --- ---	RAILROAD CROSSING WALL	
RAILROAD RIGHT OF WAY LINE	--- --- --- --- --- ---	ELECTRIC WARNING SIGN	
GREEN	--- --- --- --- --- ---	CROSSING GATE	
RADIUS OR WATERBAIL	--- --- --- --- --- ---	FAST-L.E. SLAB	
DRY RUN	--- --- --- --- --- ---	OVERHEAD HIGHWAY OVER	
DRAINAGE DITCH	--- --- --- --- --- ---	ADDERPASS (H. or S. or B.)	
HIGH TENSION LINE	--- --- --- --- --- ---	ABUTMENT, WALL & PIER	
POWER POLE LINE	--- --- --- --- --- ---	BRIDGE	
TELEPHONE OR TELEGRAPH LINE	--- --- --- --- --- ---	COLLECTOR	
TELEPHONE CONDUIT	--- --- --- --- --- ---	BUILDING (One story frame)	
SHIELD SIGN	--- --- --- --- --- ---	C. CONCRETE & STONE, F. F. L. BRICK, ST. STUCCO	
WIRE FENCE	--- --- --- --- --- ---	HEDGE	
RAILROAD SNOW FENCE	--- --- --- --- --- ---	ROCK PILE	
ROAD OR HIGHWAY SNOW FENCE	--- --- --- --- --- ---	STONE MONUMENT	
STONE WALL OR FENCE	--- --- --- --- --- ---	WOOD STAKE OR "A"	
GAS MAIN	--- --- --- --- --- ---	WEATHER CORNER	
WATER PIPE	--- --- --- --- --- ---		
SEWER PIPE	--- --- --- --- --- ---		
DRAIN TILE	--- --- --- --- --- ---		
GRAVEL PIT	--- --- --- --- --- ---		
SAND PIT	--- --- --- --- --- ---		
CLAY PIT	--- --- --- --- --- ---		
ROCK QUARRY	--- --- --- --- --- ---		
SPRINGS	--- --- --- --- --- ---		
MARSH	--- --- --- --- --- ---		



STATE OF MINNESOTA  
DEPARTMENT OF HIGHWAYS  
CONSTRUCTION PLAN FOR BRIDGE NO. 02501  
**County State Aid Highway No. 24**

BEG. OF BRIDGE STA. 11+39.67

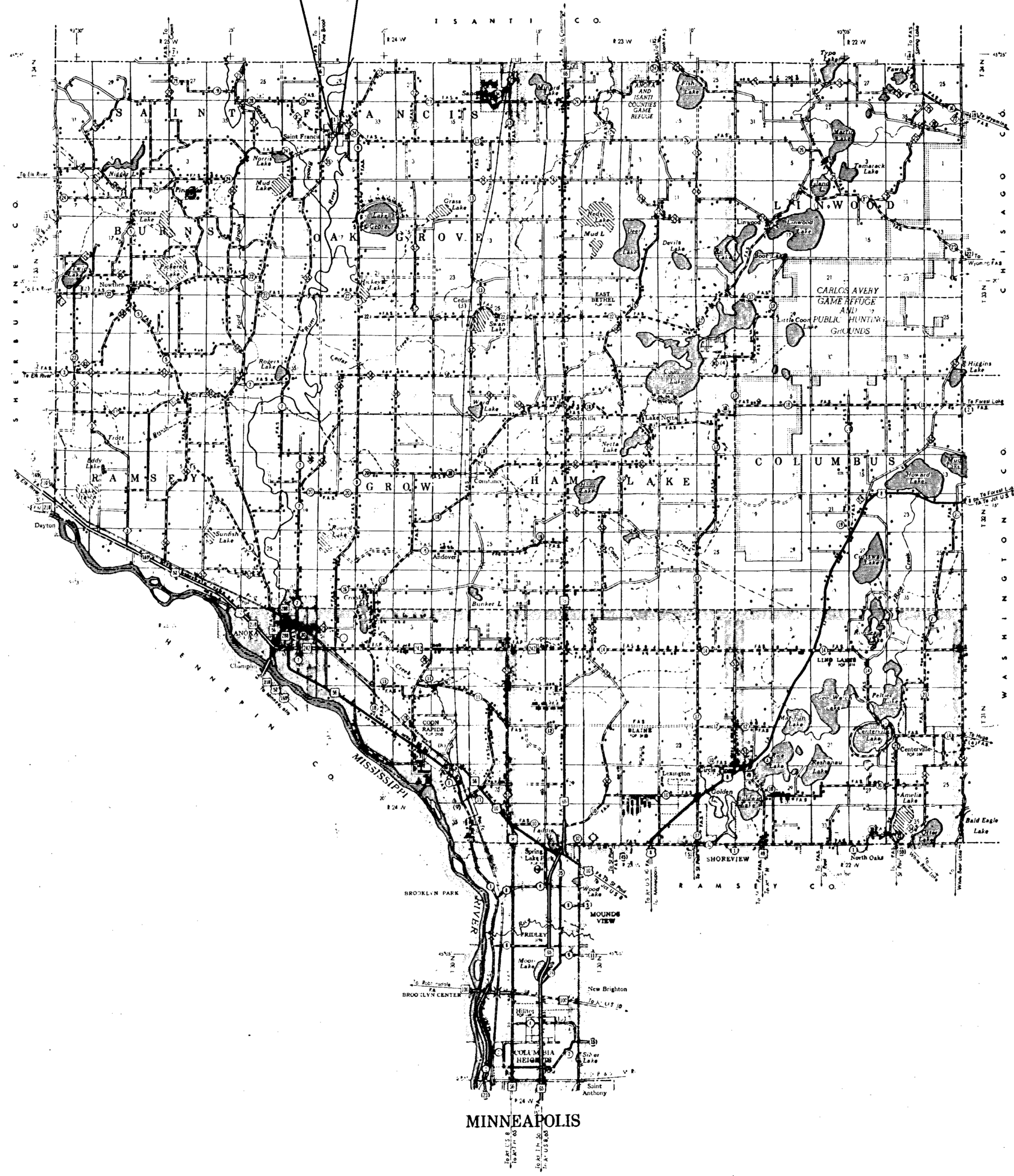
BRIDGE No. 02501

END OF BRIDGE STA. 15+30.33

IN SAINT FRANCIS  
From A POINT 2005 FT. EAST & 900 FT. NORTH OF SW CORNER, SEC. 32, TWP. 34N, R. 24W To A POINT 2395 FT. EAST & 900 FT. NORTH OF S.W. CORNER, SEC. 32, TWP. 34N, R. 24W

GROSS LENGTH	FEET	MILES
BRIDGES LENGTH	390.67 FEET	.074 MILES
EXCEPTIONS LENGTH	FEET	MILES
NET LENGTH	390.67 FEET	.074 MILES

SCALES  
Plan 1 inch = 200 Feet  
PROFILE: Horiz. 1 inch = 200 Feet, Vert. 1 inch = 20 Feet  
WORKING PLANS: Horiz. 1 inch = 100 Feet, Vert. 1 inch = 10 Feet  
LAYOUT: Scale 1 inch = Feet



MINN. PROJ. 56374(II)

- INDEX OF SHEETS
- Sheet No. Title Sheet & Layout Map
  - No. 1 GENERAL PLAN & ELEVATION.
  - No. 2 DETAILS OF ABUTMENTS.
  - No. 3 DETAILS OF PIERS.
  - No. 4 DETAILS OF SUPERSTRUCTURE SLAB
  - No. 5 ROADWAY CROSS-SECTIONS
  - No. 6 FRAMING PLAN & ELEVATION OF GIRDERS
  - No. 7 DETAILS OF GIRDERS & EXPANSION DEVICES
  - No. 8 DETAIL PLATES
  - No. 9 DETAIL PLATES
  - No. 10 BRIDGE SURVEY
  - No. 11 BRIDGE SURVEY
  - No. 12 CROSS SECTIONS

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

PLANS & R/W APPROVED: E. J. Lundeheim DATE 4-22-63  
CLINLY ENGINEER  
ANOKA COUNTY, REG. NO. 2551  
RECOMMENDED FOR APPROVAL Edgar C. Damon 5-16-63  
DISTRICT ENGINEER  
RECOMMENDED FOR APPROVAL W. C. M... .. 1963  
ASST. BRIDGE ENGINEER  
APPROVED W. C. M... .. 1963  
STATE AID ENGINEER

DEPARTMENT OF COMMERCE  
BUREAU OF PUBLIC ROADS  
MINN. PROJ. 56374(II)  
DISTRICT ENGINEER DATE

Minn. Project No. 56374(II) State Project No. 02-624-06(C.S.A.H.24)

ANOKA County, Minnesota.

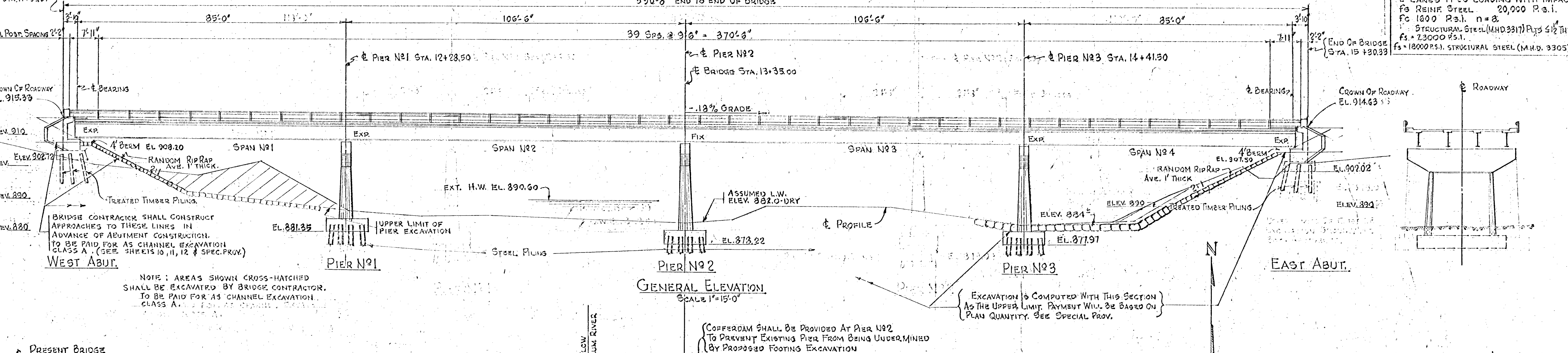
02501

SPECIFICATIONS  
THE "SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" DATED MAY 1, 1959, AND SUBMITTED FOR APPROVAL BY THE DIVISION ENGINEER OF THE BUREAU OF PUBLIC ROADS ON MARCH 26, 1959, SHALL GOVERN.



Des. of Bridge  
Sta. 11+39.67

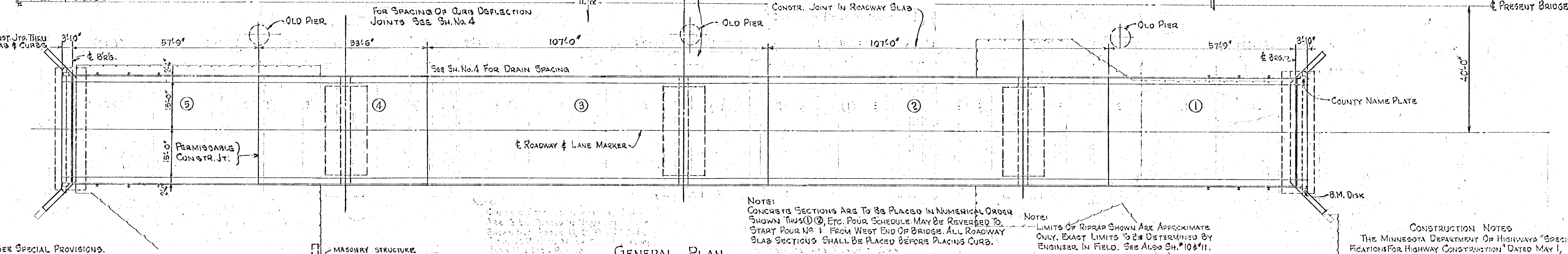
DESIGN DATA  
1961 AASHTO SPECIFICATIONS  
2-LANES H-20 LOADING WITH IMPACT  
F<sub>s</sub> REINF. STEEL 20,000 P.S.I.  
F<sub>c</sub> 1600 P.S.I. n=8  
STRUCTURAL STEEL (M.H.D. 3317) PLS 3/2 THICK  
F<sub>s</sub> = 23000 P.S.I.  
F<sub>c</sub> = 18000 P.S.I. STRUCTURAL STEEL (M.H.D. 3305)



NOTE: AREAS SHOWN CROSS-HATCHED SHALL BE EXCAVATED BY BRIDGE CONTRACTOR. TO BE PAID FOR AS CHANNEL EXCAVATION CLASS A. (SEE SHEETS 10, 11, 12 & SPEC. PROV.)

EXCAVATION IS COMPUTED WITH THIS SECTION AS THE UPPER LIMIT. PAYMENT WILL BE BASED ON PLAN QUANTITY. SEE SPECIAL PROV.

COFFERDAM SHALL BE PROVIDED AT PIER NO. 2 TO PREVENT EXISTING PIER FROM BEING UNDERMINED BY PROPOSED FOOTING EXCAVATION.

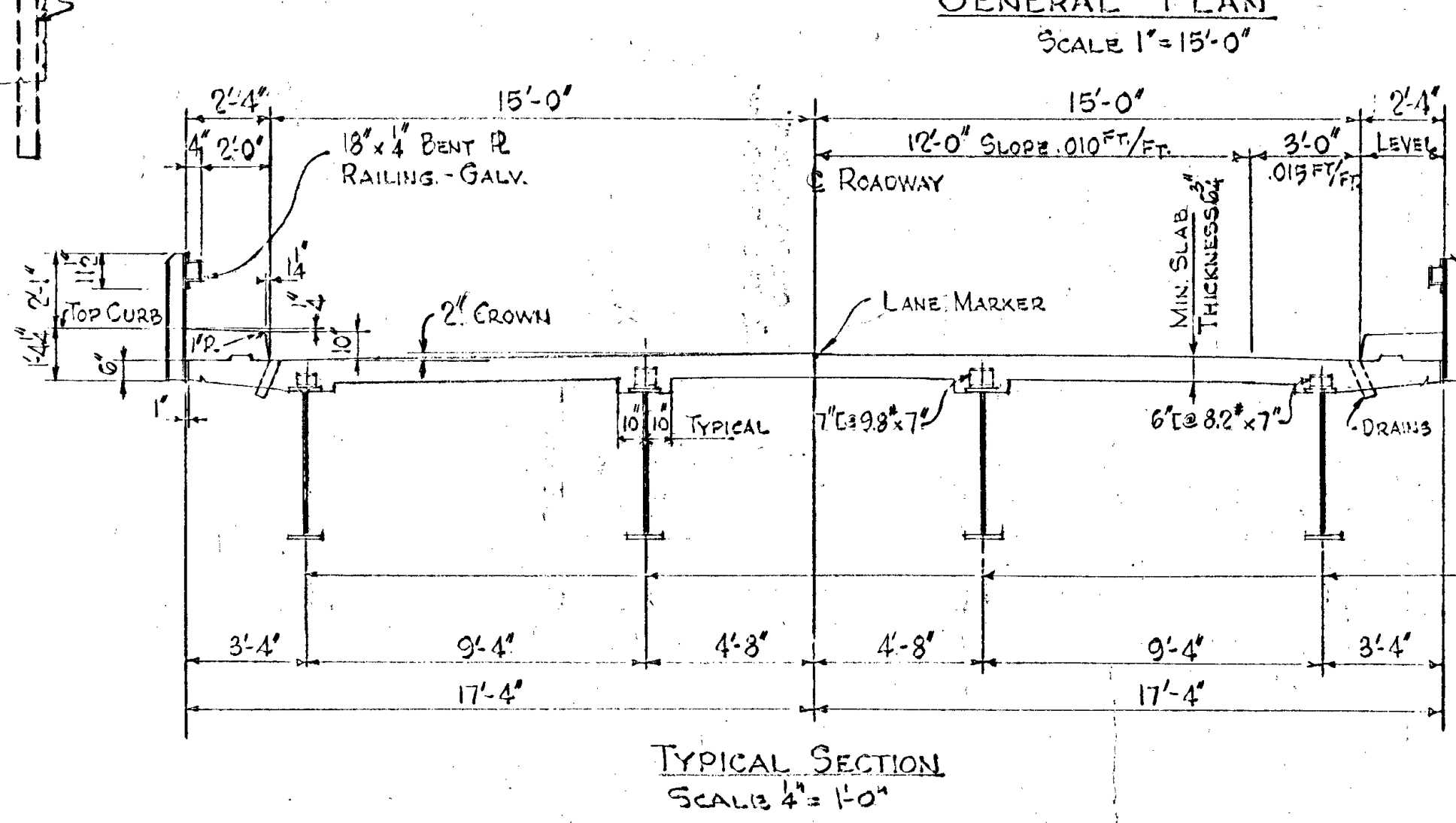


NOTE: CONCRETE SECTIONS ARE TO BE PLACED IN NUMERICAL ORDER SHOWN THUS ①, ②, ETC. POUR SCHEDULE MAY BE REVERSED TO START POUR NO. 1 FROM WEST END OF BRIDGE. ALL ROADWAY SLAB SECTIONS SHALL BE PLACED BEFORE PLACING CURB.

NOTE: LIMITS OF RIPRAP SHOWN ARE APPROXIMATE ONLY. EXACT LIMITS TO BE DETERMINED BY ENGINEER IN FIELD. SEE ALSO SH. #10 & #11.

SCHEDULE OF QUANTITIES FOR ENTIRE STRUCTURE

ITEM NO.	ITEM	UNIT	QUANTITY
401.921	CLASS DE EXCAVATION	CU. YD.	371
401.922	CLASS WE EXCAVATION	CU. YD.	154
401.501	CONCRETE (MIX NO. 1A)	CU. YD.	243
401.501	CONCRETE (MIX NO. 3Y)	CU. YD.	633
401.501	CONCRETE (MIX NO. 3Y60)	CU. YD.	56
401.641	FURNISHING REINFORCEMENT BARS	POUND	131175
401.741	PLACING REINFORCEMENT BARS	POUND	131175
402.199	ERECTING STRUCTURAL METALS	POUND	240190
402.621	FURNISHING STRUCTURAL STEEL (M.H.D. 3305)	POUND	79620
416.501	PAINTING METAL STRUCTURES	STRUCTURE	ONE
402.546	FLOOR DRAINS (TYPE BD-13)	UNIT	32
402.577	STANDARD NAME PLATES	UNIT	ONE
402.594	EXPANSION BEARING ASSEMBLIES (TYPE A)	UNIT	8
402.594	EXPANSION BEARING ASSEMBLIES (TYPE B)	UNIT	8
402.593	FIXED BEARING ASSEMBLIES (TYPE C)	UNIT	4
404.507	REMOVE MASONRY STRUCTURES	CU. YD.	31
452.520	STEEL TEST PILES IN PLACE, 45 FT LG.	PILE	2
452.503	TREATED TIMBER PILING DELIVERED	LN. FT.	990
452.504	TREATED TIMBER PILING DRIVEN	LN. FT.	918
452.517	TREATED TIMBER TEST PILES IN PLACE, 30 FT LG.	PILE	2
452.517	TREATED TIMBER TEST PILES IN PLACE, 35 FT LG.	PILE	2
452.520	STEEL TEST PILES IN PLACE, 35 FT LG.	PILE	4
452.509	STEEL PILING DELIVERED	POUND	136080
452.510	STEEL PILING DRIVEN	LN. FT.	3142
511.502	RANDOM RIPRAP CLASS B	CU. YD.	380
402.621	FURNISHING STRUCTURAL STEEL (M.H.D. 3317)	POUND	261170
08.511	CHANNEL EXCAVATION CLASS A	CU. YD.	990



TYPICAL SECTION  
SCALE 1/4" = 1'-0"

LIST OF SHEETS

NO.	TITLE SHEET
1	GENERAL PLAN & ELEVATION
2	DETAILS OF ABUTMENTS
3	DETAILS OF PIERS
4	DETAILS OF SUPERSTRUCTURE SLAB
5	ROADWAY CROSS-SECTIONS
6	FRAMING PLAN & ELEVATION OF GIRDERS
7	DETAILS OF GIRDERS & EXPANSION DEVICE
8	DETAIL PLATES
9	DETAIL PLATES
10	BRIDGE SURVEY
11	BRIDGE SURVEY
12	CROSS SECTIONS

BENCH MARK STA. 8+35  
45' RT. ELEV. 919.00

I hereby certify that this plan was prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the State of Minnesota.  
Date 11-25-60  
Reg. No. 3452

CONSTRUCTION NOTES  
THE MINNESOTA DEPARTMENT OF HIGHWAYS SPECIFICATIONS FOR HIGHWAY CONSTRUCTION DATED MAY 1, 1959 AND SUBMITTED FOR APPROVAL BY THE DIVISION ENGINEER OF THE BUREAU OF PUBLIC ROADS ON MARCH 26, 1959 SHALL GOVERN.  
KEYWAY SIZES GIVEN ARE NOMINAL.  
FOR CONCRETE JOINT SEALER SEE SPEC. PROV.

STRUCTURAL METAL ITEMS

MATERIAL SPECIFICATIONS - YEAR CODE	M.H.D. SPECIFICATION NO.	MATERIAL SPECIFICATION
	3305	3305-59
	3317	3317-61

PLANS PREPARED BY  
ROBERT E. ERICKSON ENGINEERING CO.  
3340 REPUBLIC AVE. ST. LOUIS PARK, MINN.

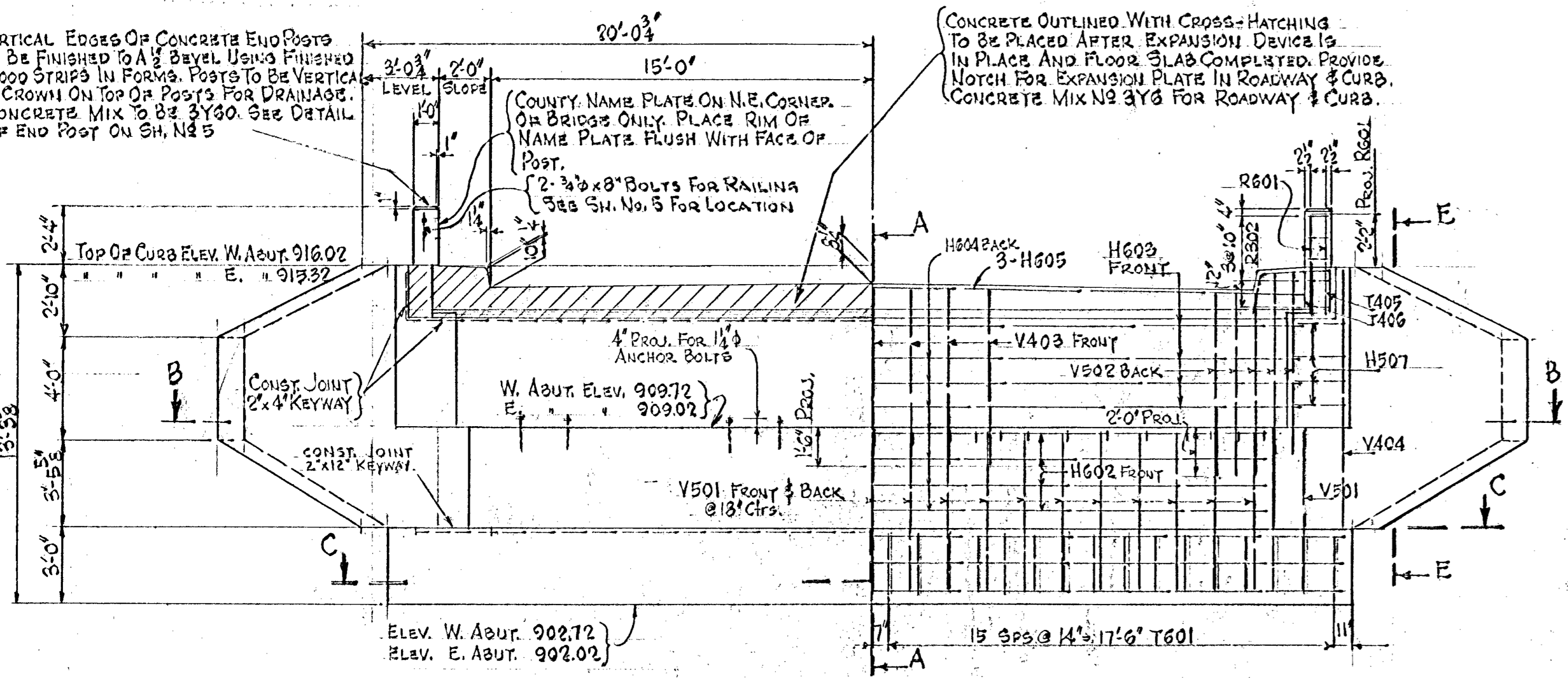
C.S.A.H. 24  
BRIDGE NO. 02501  
GENERAL PLAN & ELEVATION  
85+06.6' TO 85+35.0' CONT. WELDED BEAM SPANS 30' ROW  
OVER RUM RIVER AT ST. FRANCIS ST. FRANCIS TWP.  
SEC. 32 T34N R24W

APPROVED  
[Signature]  
ANOKA COUNTY ENGR.

APPROVED  
STATE OF MINNESOTA  
DEPARTMENT OF HIGHWAYS  
DATE 5-9-63  
[Signature]  
ASST. BRIDGE ENGINEER

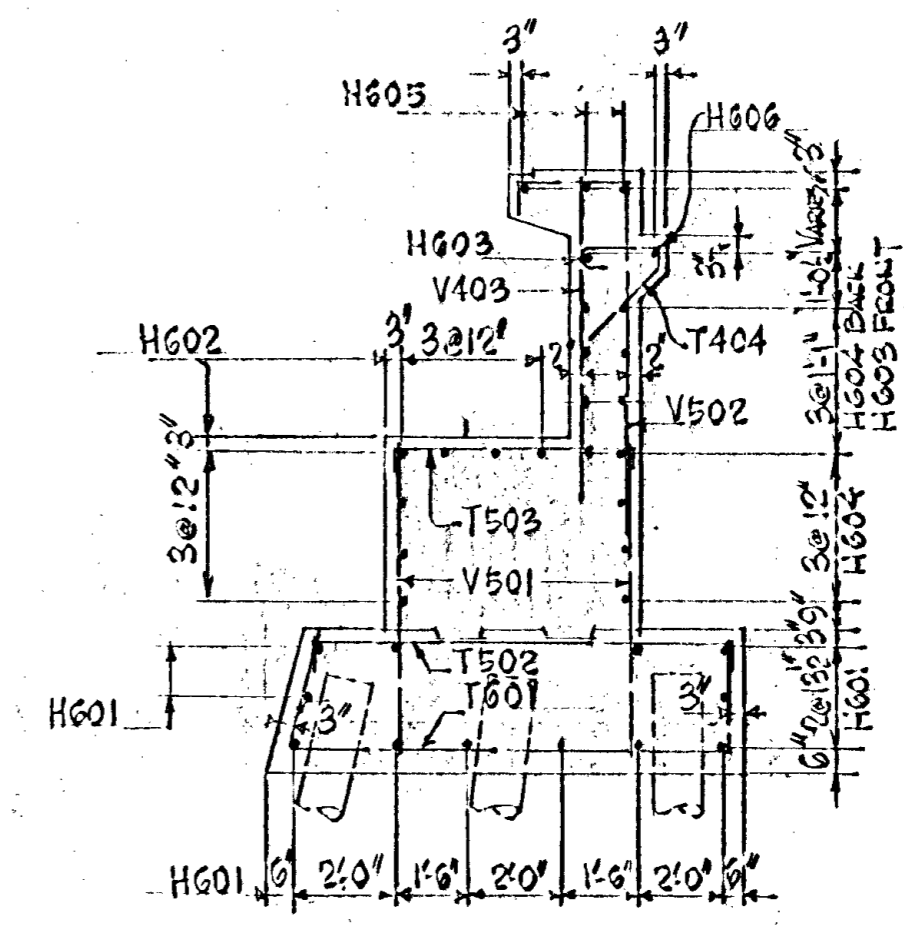
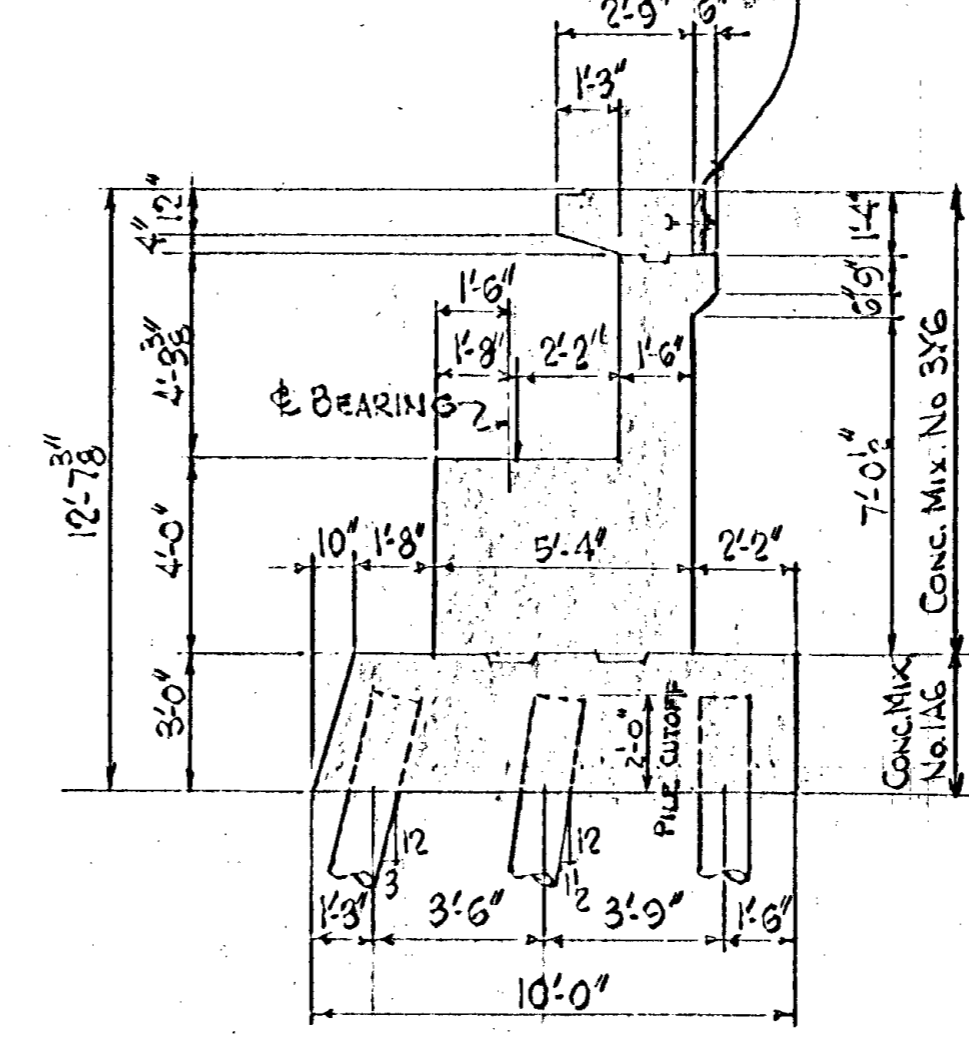


VERTICAL EDGES OF CONCRETE END POSTS TO BE FINISHED TO A 1/2" BEVEL USING FINISHED WOOD STRIPS IN FORMS. POSTS TO BE VERTICAL & CROWN ON TOP OR POSTS FOR DRAINAGE. CONCRETE MIX TO BE 3Y6. SEE DETAIL OF END POST ON SH. N25

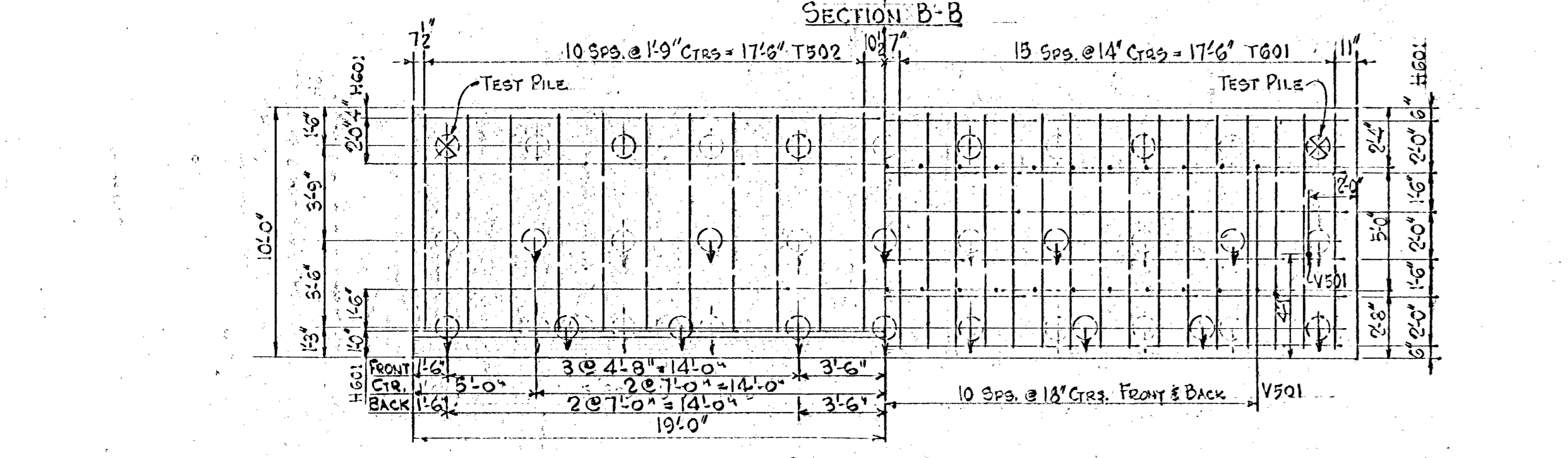
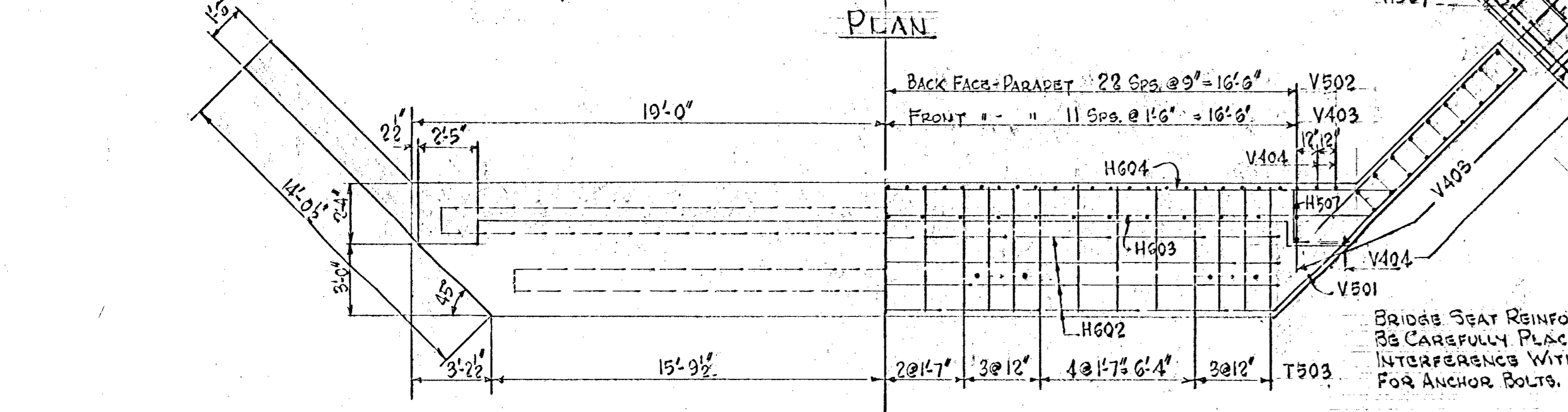
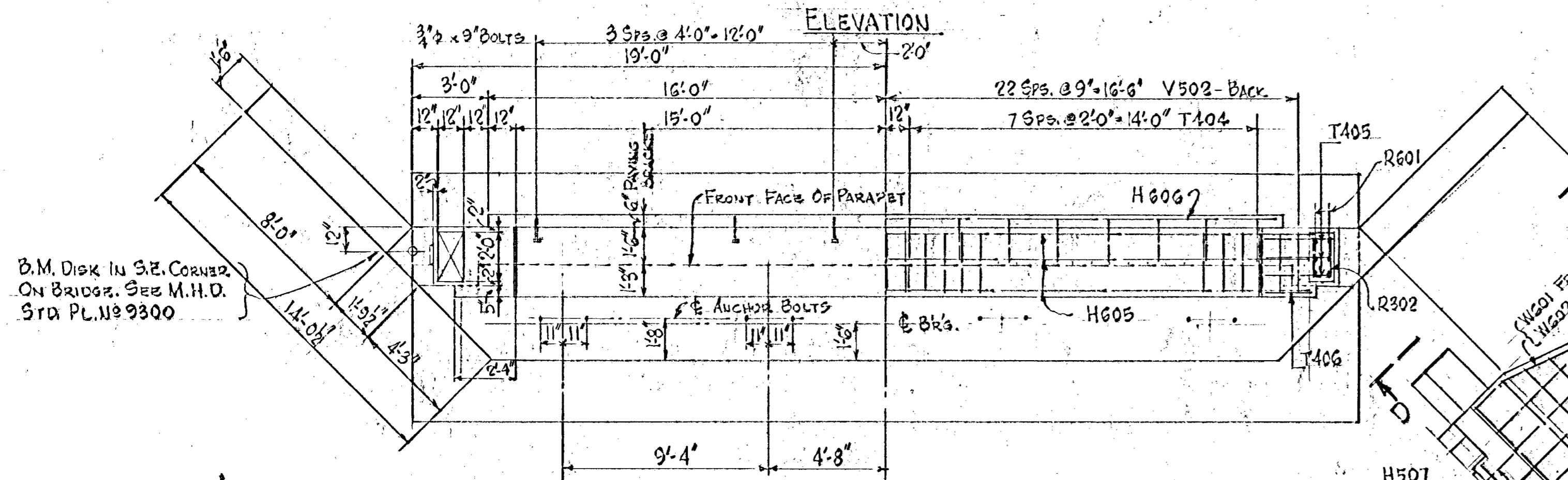


Sta. 11+39.67 BACK FACE WEST ABUT.  
Sta. 15+30.33 " " " " EAST " "

3" x 18" PLANK TOP OF PLANK TO BE TRIMMED FLUSH WITH TRANSVERSE CROWN OF TOP SURFACE OF CONCRETE ROADWAY FOR FULL WIDTH BETWEEN CURBS SECURE WITH 8-3/8" x 9" Sq. Hd. BOLTS EACH WITH SQ. NUT & CUT WASHER. SEE PLAN FOR SPACING.



BAR	NO	SIZE	LENGTH	SHAPE	LOCATION
H601	24	6	37'6"	STRT	FOOTING - LONGIT.
H602	14	6	31'6"	"	BR. SEAT - HORIZ.
H603	10	6	39'0"	"	PARAPET - FRONT
H604	14	6	41'0"	"	" - BACK
H605	6	6	34'0"	"	" - TOP
H606	2	6	31'6"	"	PAVING BRACKET
H607	18	5	4'3"	BENT	PARAPET
R601	24	6	4'0"	STRT	RAIL POST DOWELS
R302	20	3	3'9"	BENT	" " TIES
T601	84	6	14'0"	BENT	FOOTING - TIES
T602	44	5	9'6"	"	" - "
T603	50	5	5'6"	"	BR. SEAT - "
T404	32	4	4'6"	"	PAVING BRKT-TIE
T405	12	4	5'7"	"	CURB - "
T406	4	4	4'9"	"	" - "
V501	38	5	6'6"	STRT	BR. SEAT - FRONT & BACK
V502	90	5	10'6"	BENT	PARAPET - BACK
V403	50	4	6'9"	STRT	" - FRONT
V404	12	4	10'0"	"	BR. SEAT - "
V405	32	4	14'6"	"	WINGWALLS - FRONT & BACK
W601	4	6	15'6"	BENT	WINGWALL - FRONT
W602	4	6	14'0"	"	" - BACK
W303	3	5	13'6"	STRT	" - FR. & BACK
W304	12	5	10'6"	BENT	" - FRONT
W505	19	5	10'0"	STRT	" - BACK
W506	3	5	21'0"	"	" - FRONT
W507	6	5	12'0"	"	" - BACK



BAR-V502

BAR H507

BAR T502 & T503

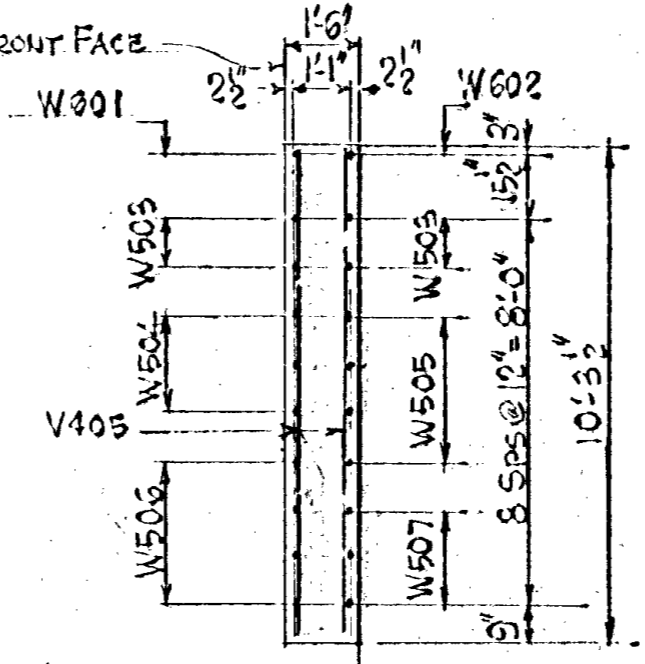
BAR T601

BAR T405 & T406

BAR T404

BAR W504

BAR R302



NOTE: ALL BAR DIMENSIONS ARE OUT TO OUT OF BAR.

PILE NOTES

2 TREATED TIMBER TEST - 30 FT LONG - EAST ABUTMENT

2 " " " " - 35 FT LONG - WEST

18 " " " " PILES ESTIMATED LENGTH: 25 FT E. ABUT. 30 FT W. "

40 TREATED TIMBER PILES REQ. FOR 2 ABUTMENTS

ALL PILES TO BE DRIVEN TO A MIN. BRG. VALUE OF 24 TONS PER PILE. FRONT ROW PILES TO BE BATTERED 3" IN 12" IN DIRECTION INDICATED BY ARROW. MIDDLE ROW OF PILES TO BE BATTERED 1 1/2" IN 12" IN DIRECTION INDICATED BY ARROW.

ESTIMATED PENETRATION: 2 FT LESS THAN LENGTH GIVEN.

TEST PILE LOCATIONS

TEST PILE N#1 SOUTH END WEST ABUTMENT

" " " " 2 NORTH " "

" " " " 9 SOUTH " EAST ABUTMENT

" " " " 10 NORTH " " "

CONCRETE MIX N2 1A6	81	CUYD.
CONCRETE MIX N2 3Y6	102	CUYD.
CONCRETE MIX N2 3Y6G	1	CUYD.
CLASS OF EXCAVATION	220	CUYD.
REINFORCEMENT BARS	9370	LBS.
STRUCTURAL STEEL MHD: 3305	35	LBS.
16- BOLTS 3/8" x 9" Lg. Sq. Hd. & Nut & Cut Wash.		
BENCH MARK DISK, ONE PER M.H.D. STA. PL. N29300		
1 COUNTY NAME PLATE (Dtl. N2 210)		
EXPANSION BEARINGS TYPE "A"	8	UNITS
4 Pcs. 3" x 18" x 18" PLANKS		
TREATED TIMBER TEST PILES IN PLACE 30 FT 2 PILES		
TREATED TIMBER TEST PILES IN PLACE 35 FT 2 PILES		
TREATED TIMBER PILING (EXCL. OF TEST PILES) 930 L.M.F.T.		
8- BOLTS 3/8" x 3" Lg. Sq. Hd. Hex. Nut Beval & Lock Wash.		

LOAD TYPE	TONS PER PILE
DEAD LOAD & EARTH PRESS.	17.5
LIVE LOAD	2.6
FRICTION	1.1
TOTAL	21.2

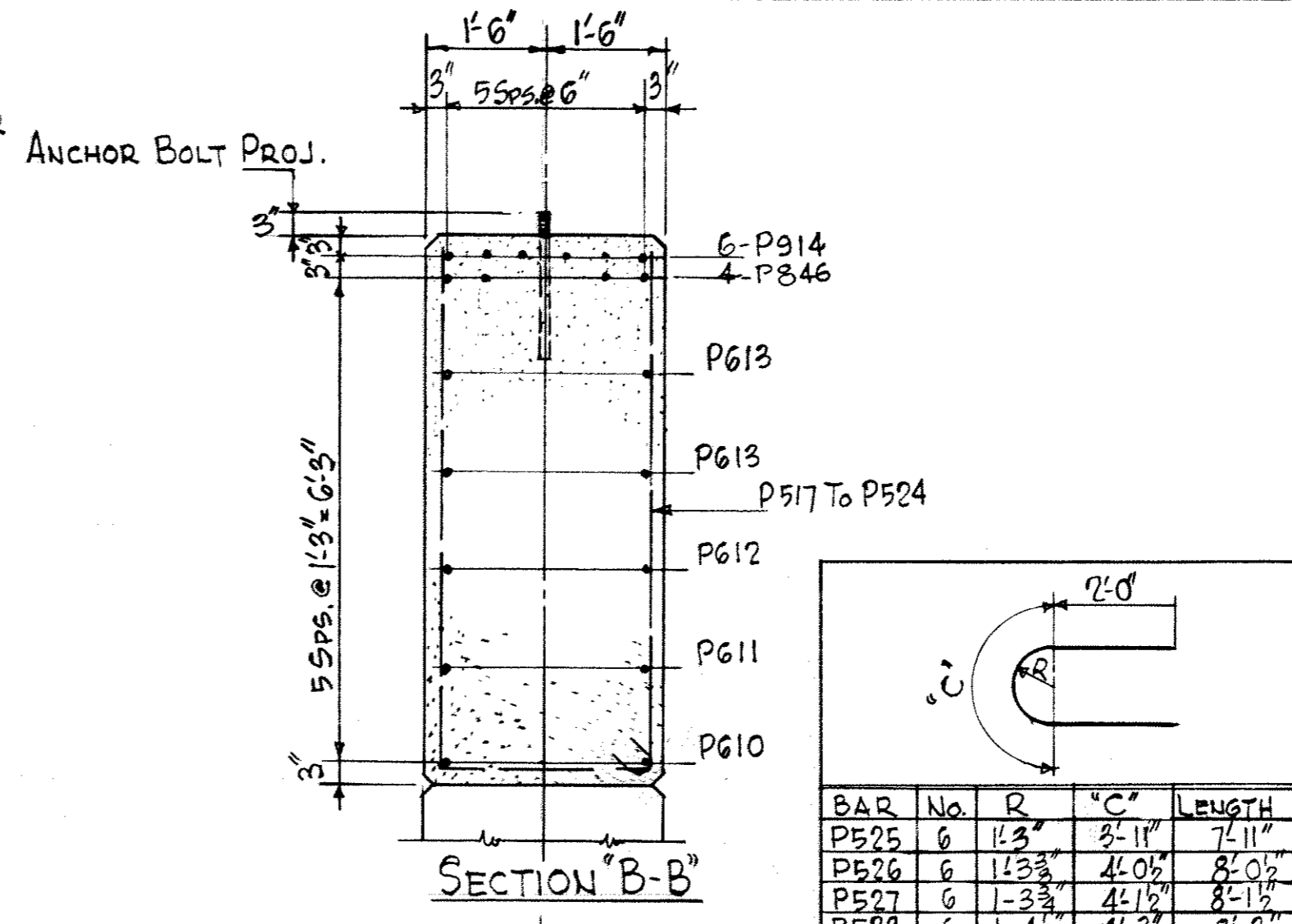
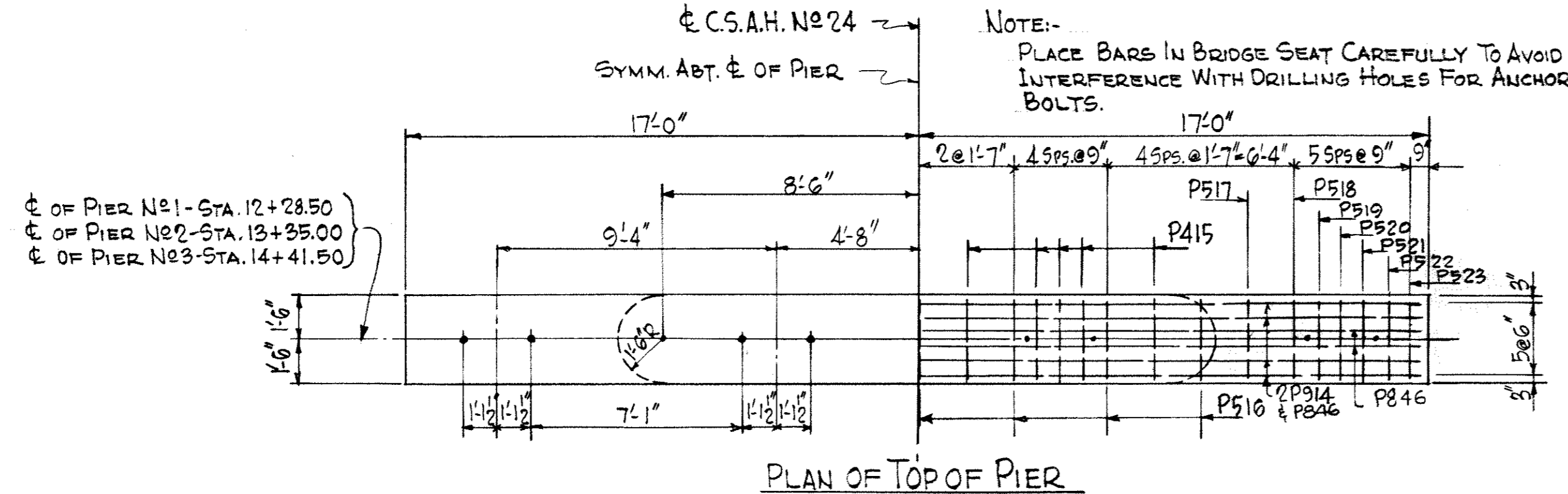
PLANS PREPARED BY  
ROBERT E. ERICKSON ENGINEERING CO.  
3340 REPUBLIC AVE. ST. LOUIS PARK, MINN.

C.S.A.H. N2 24  
BRIDGE N2 02501  
DETAILS OF ABUTMENTS

APPROVED: 5-3-63

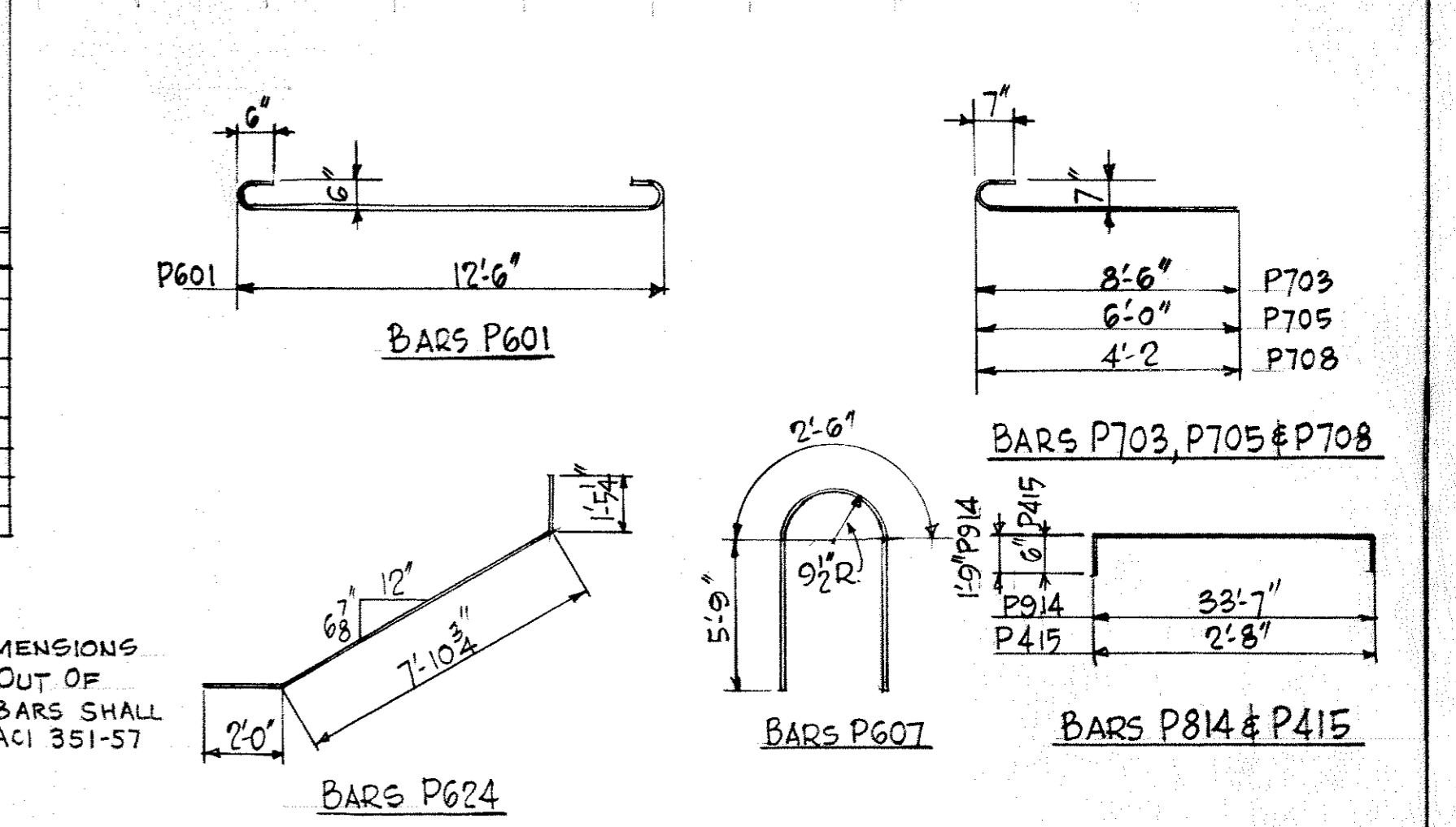
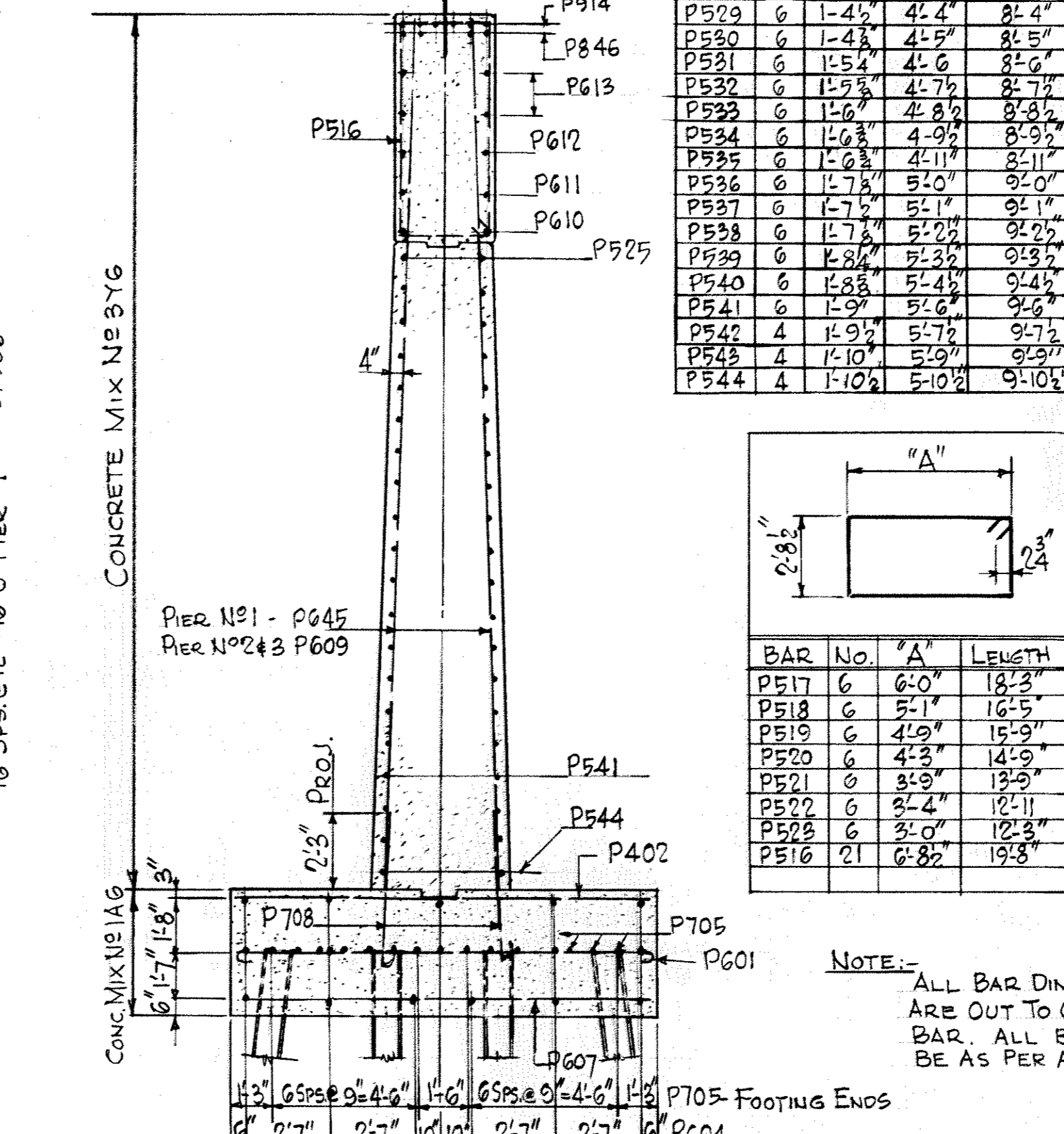
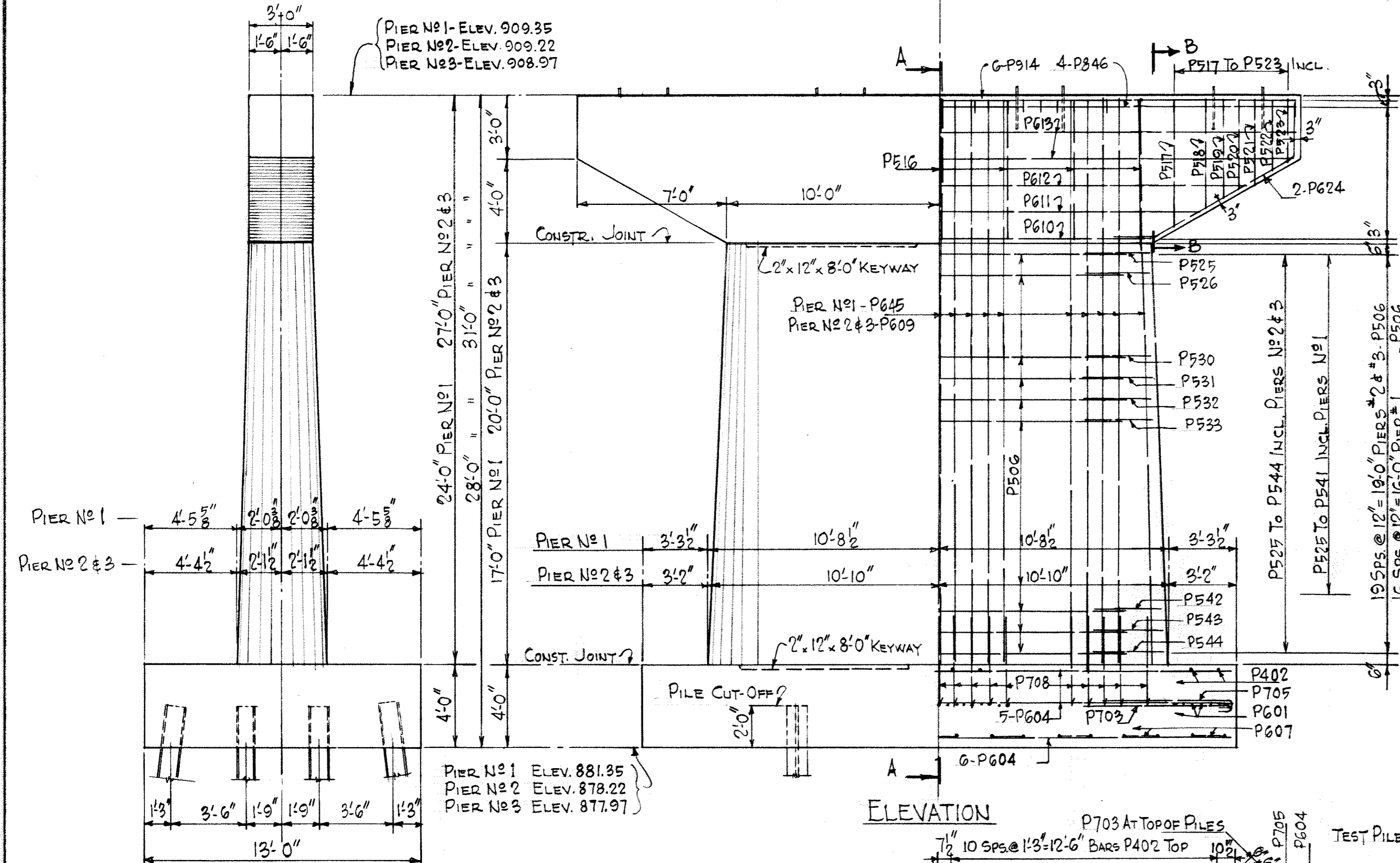
MICRO-FILMED





BAR No.	R	"C"	LENGTH
P525	6	11.3	8.11
P526	6	11.3	4.02
P527	2	1.33	4.12
P528	6	1.4	4.3
P529	6	1.4	4.4
P530	6	1.4	4.5
P531	6	1.5	4.6
P532	6	1.5	4.7
P533	2	1.6	4.8
P534	6	1.6	4.9
P535	6	1.6	5.0
P536	6	1.7	5.1
P537	6	1.7	5.2
P538	6	1.7	5.2
P539	6	1.8	5.3
P540	6	1.8	5.4
P541	6	1.9	5.5
P542	4	1.9	5.7
P543	4	1.10	5.9
P544	4	1.10	5.10

BAR	NUMBER			TOTAL	SIZE	LENGTH	SHAPE	LOCATION
	PIER #1	PIER #2	PIER #3					
P601	66	66	66	198	6	13.10	2-HOOKS	FOOTING-TRANSV.
P402	22	22	22	66	4	12.6	STRT.	" - TOP
P703	12	12	12	36	7	3.4	1-HOOK	" - DIAGONAL - CORNERS
P604	16	16	16	48	6	27.6	STRT.	" - LONGIT.
P705	18	18	18	54	7	6.10	1-HOOK	" - " - ENDS
P506	34	40	40	114	5	17.0	STRT.	PIER SHAFT-HORIZ.
P607	18	18	18	54	6	14.0	BENT	FOOTING-TRANSV.-PILE TIES
P708	50	50	50	150	7	5.0	1-HOOK	" - DOWELS
P609	50	50	50	150	6	20.9	STRT.	PIER SHAFT-VERTICAL
P610	2	2	2	6	6	20.0	"	" CAP - HORIZ.
P611	2	2	2	6	6	24.8	"	" " " "
P612	2	2	2	6	6	23.0	"	" " " "
P613	4	4	4	12	6	33.8	"	" " " "
P414	6	6	6	18	9	37.1	BENT	" " " "
P415	10	10	10	30	4	3.8	"	" " " - TIES
P516	7	7	7	21	5	13.8	"	" " " - STIRRUP
P517	2	2	2	6	6	18.3	"	" " " " "
P518	2	2	2	6	6	16.5	"	" " " " "
P519	2	2	2	6	6	15.9	"	" " " " "
P520	2	2	2	6	6	14.9	"	" " " " "
P521	2	2	2	6	6	13.9	"	" " " " "
P522	2	2	2	6	6	12.1	"	" " " " "
P523	2	2	2	6	6	12.3	"	" " " " "
P624	4	4	4	12	12	11.4	"	" " " - CAP ENDS - BOTH
P525	2	2	2	6	6	7.11	"	PIER SHAFT - HORIZONTAL
P526	2	2	2	6	6	8.0	BENT	" " " - HORIZ. END
P527	2	2	2	6	6	8.1	"	" " " " "
P528	2	2	2	6	6	8.3	"	" " " " "
P529	2	2	2	6	6	8.4	"	" " " " "
P530	2	2	2	6	6	8.5	"	" " " " "
P531	2	2	2	6	6	8.6	"	" " " " "
P532	2	2	2	6	6	8.7	"	" " " " "
P533	2	2	2	6	6	8.8	"	" " " " "
P534	2	2	2	6	6	8.9	"	" " " " "
P535	2	2	2	6	6	9.0	"	" " " " "
P536	2	2	2	6	6	9.1	"	" " " " "
P537	2	2	2	6	6	9.1	"	" " " " "
P538	2	2	2	6	6	9.2	"	" " " " "
P539	2	2	2	6	6	9.3	"	" " " " "
P540	2	2	2	6	6	9.4	"	" " " " "
P541	2	2	2	6	6	9.4	"	" " " " "
P542	2	2	2	6	6	9.5	"	" " " " "
P543	2	2	2	6	6	9.7	"	" " " " "
P544	2	2	2	6	6	9.10	"	" " " " "
P645	50	50	50	150	6	23.9	"	PIER SHAFT-VERTICAL
P846	4	4	4	12	6	33.0	STRT.	" CAP VERTICAL



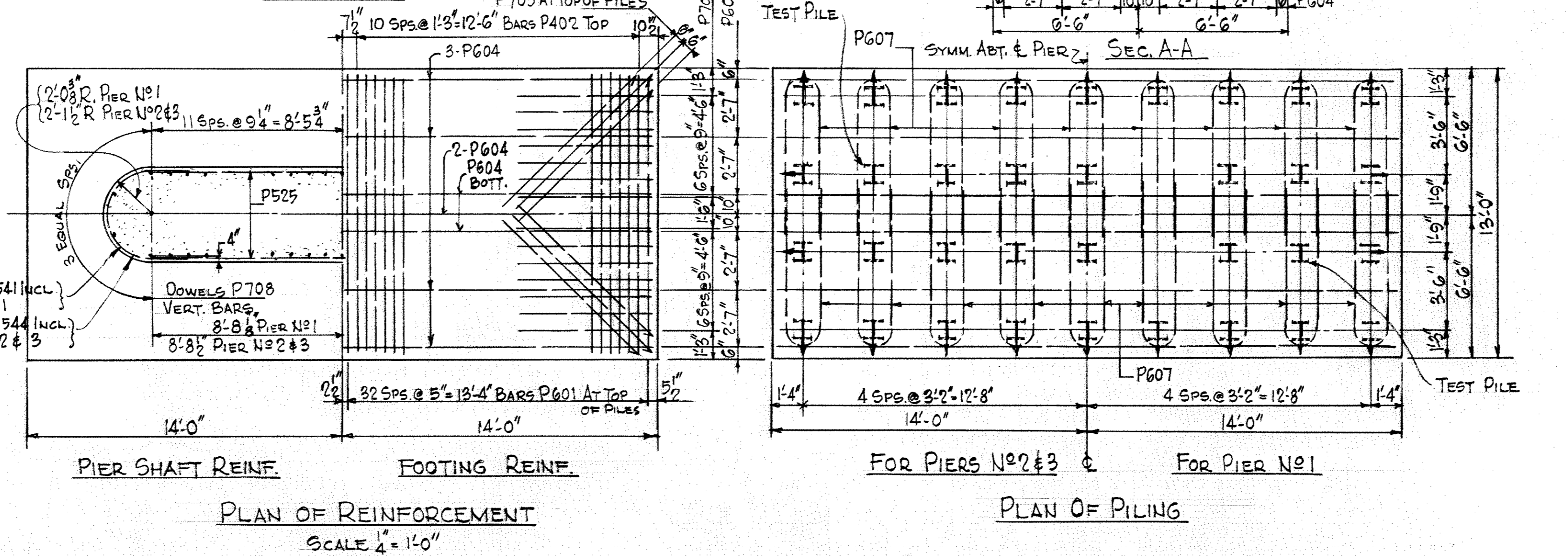
END VIEW - PIERS NO 2 & 3 AS SHOWN  
- PIER NO 1 AS NOTED

NOTE:-  
TEST PILE NO 3 PIER NO 1 SOUTH END  
" " NO 4 " " NO 1 NORTH " "  
" " NO 5 " " NO 2 SOUTH " "  
" " NO 6 " " NO 2 NORTH " "  
" " NO 7 " " NO 3 SOUTH " "  
" " NO 8 " " NO 3 NORTH " "

PILE NOTES  
2 - STEEL TEST PILES FOR PIER NO 1 - 45 FT. LG  
4 - STEEL TEST PILES REQD. FOR PIERS NO 2 & 3 - 35 FT. LG  
30 - STEEL PILES REQD. FOR PIER NO 1 EST. LENGTH 40 FT.  
68 - " " " " PIERS NO 2 & 3 EST. " 30 FT.  
104 STEEL PILES REQD. FOR 3 PIERS

MINIMUM BEARING ON ALL PILES 24 TONS EACH  
ESTIMATED PENETRATION ONE FT. LESS THAN LENGTH GIVEN.  
PILES MARKED WITH **H** TO BE BATTERED 2" IN 12" IN DIRECTION INDICATED BY ARROW.  
ALL PILES TO BE 10 BP 42

COMPUTED PILE LOADS	TONS/PILE
DEAD LOAD	15.1
LIVE LOAD	2.8
OVERTURNING	4.9
TOTAL	22.8



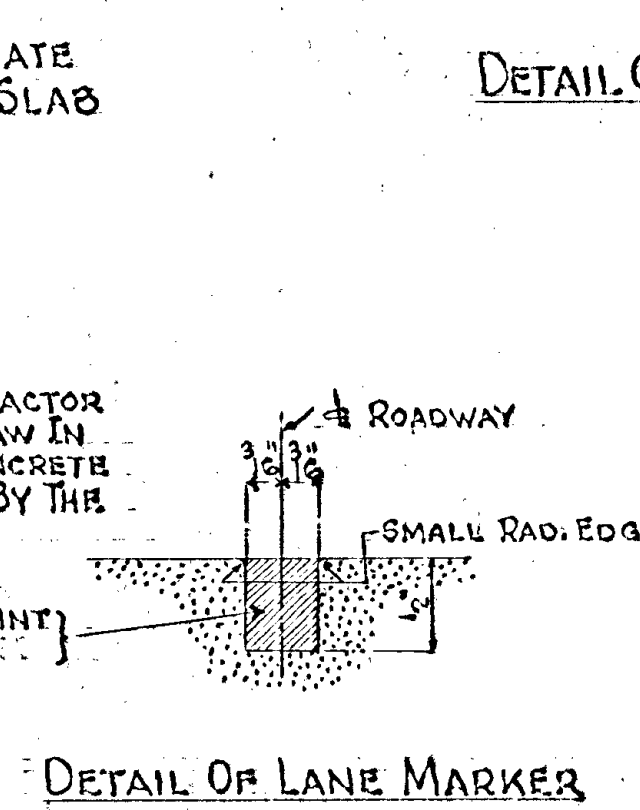
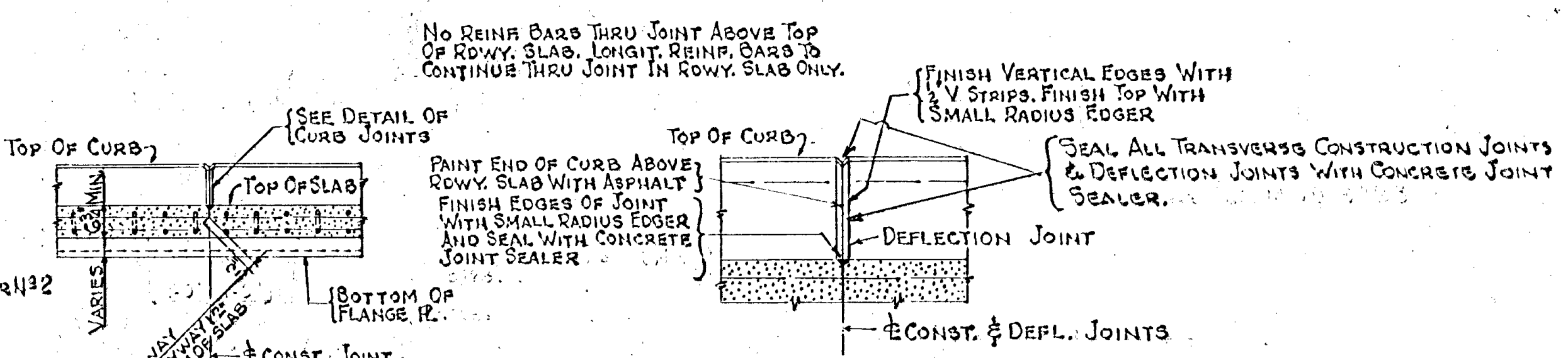
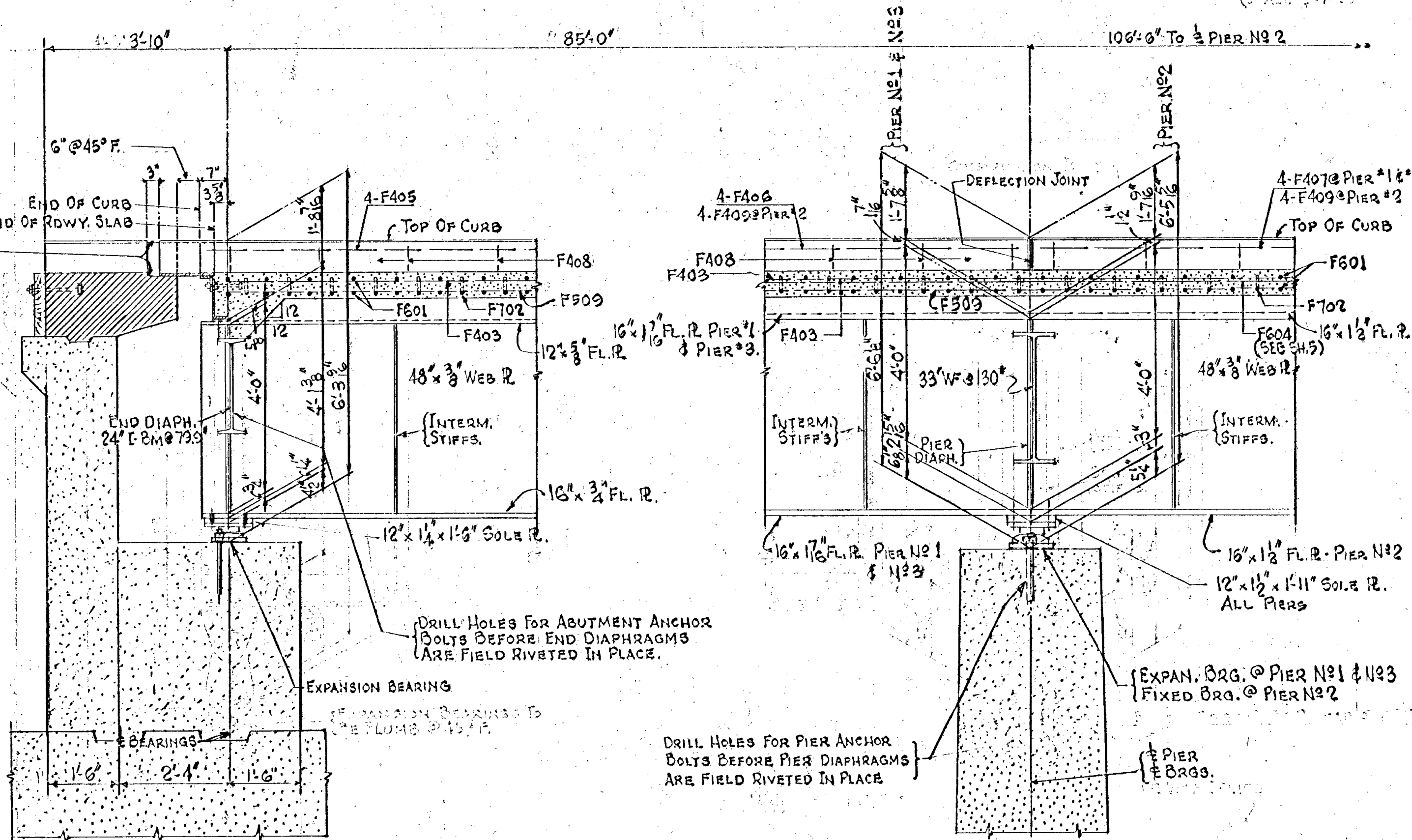
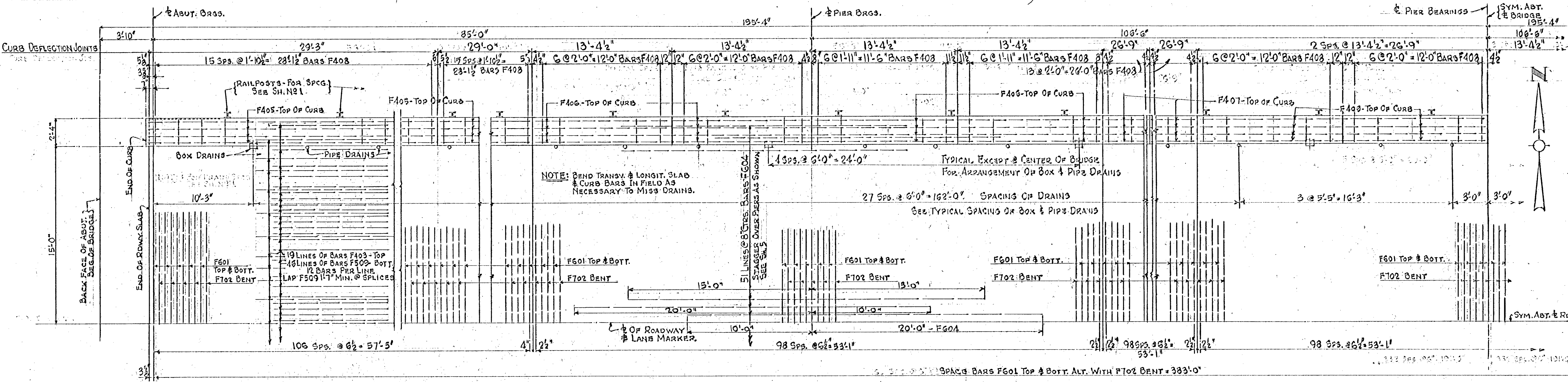
ITEM	UNIT	QUANTITY			TOTAL
		PIER NO 1	PIER NO 2	PIER NO 3	
CONCRETE MIX NO 1A6	CUYDS	54	54	54	162
CONCRETE MIX NO 3YG	CUYDS	67	78	78	223
REINFORCEMENT BARS	LBS.	8490	8800	8800	26090
CLASS WE EXCAVATION	CUYDS	12	68	74	154
STEEL PILING (EXCLUSIVE OF TEST PILES)	LBS.	50400	42840	42840	136080
STEEL TEST PILES 35 FT. LONG IN PLACE	PILES	2	2	2	4
EXPANSION BEARINGS MARK "B"	UNITS	4	4	4	12
FIXED " MARK "C"	UNITS	2	2	2	6
CLASS D E EXCAVATION	CUYDS	99	4	24	127
STEEL TEST PILES 45 FT. LONG IN PLACE	PILES	2			2

PLANS PREPARED BY  
ROBERT E. ERICKSON ENGINEERING CO.  
3340 REPUBLIC AVE. ST. LOUIS PARK, MINN.

C.S.A.H. NO 24  
BRIDGE NO 02501  
DETAILS OF PIERS

APPROVED 5-3-63





FOR BAR DETAILS, LIST OF BARS AND SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE SEE SH. NO. 5

MICRO-FILMED

PLANS PREPARED BY:  
 ROBERT E. ERICKSON ENGINEERING CO.  
 3340 REPUBLIC AVE. ST. LOUIS PARK, MINN.  
 C.S.A.H. NO. 24  
 BRIDGE NO. 02501  
 DETAILS OF SUPERSTRUCTURE SLAB

APPROVED 5-3-63



**BILL OF REINFORCEMENT BARS FOR SUPERSTRUCTURE**

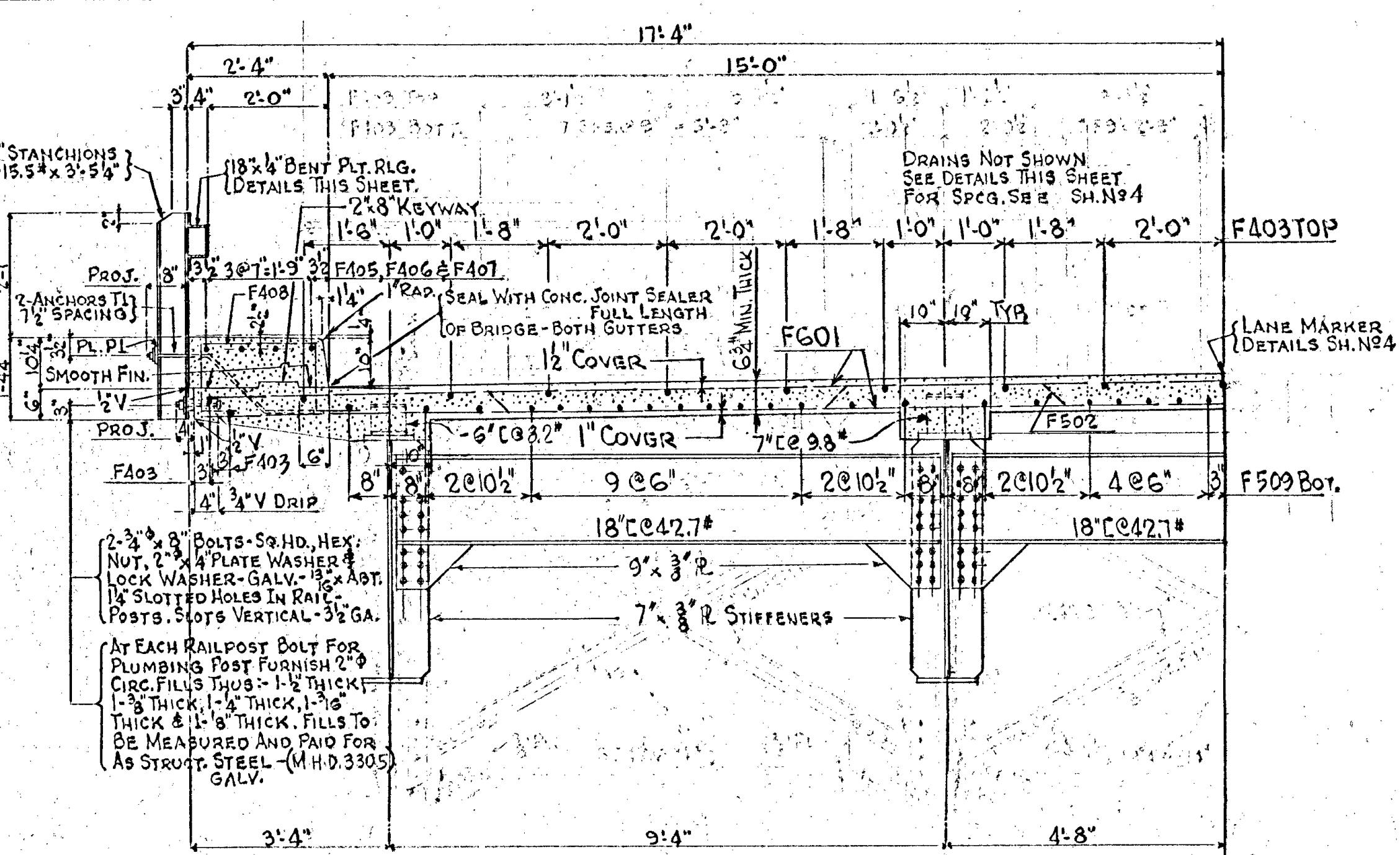
BAR NO.	SIZE	LENGTH	SHAPE	LOCATION
F601	710	6	34'-3"	STRT. SLAB-TRANSV.
F702	354	7	35'-0"	BENT " " -
F403	252	4	33'-1"	STRT. " " -LONGIT.
F604	173	6	30'-0"	" " - OVER PIERS
F405	32	4	28'-9"	" " - CURBS - " - OVER PIERS
F406	64	4	13'-0"	" " - " " -
F407	32	4	26'-3"	" " - " " -
F408	408	4	5'-0"	BENT " " - TRANSV.
F509	228	7	23'-5"	STRT. SLAB - LONGIT.

\* LAP 1'-3" MINIMUM AT SPLICES  
+ LAP 1'-7" " " "

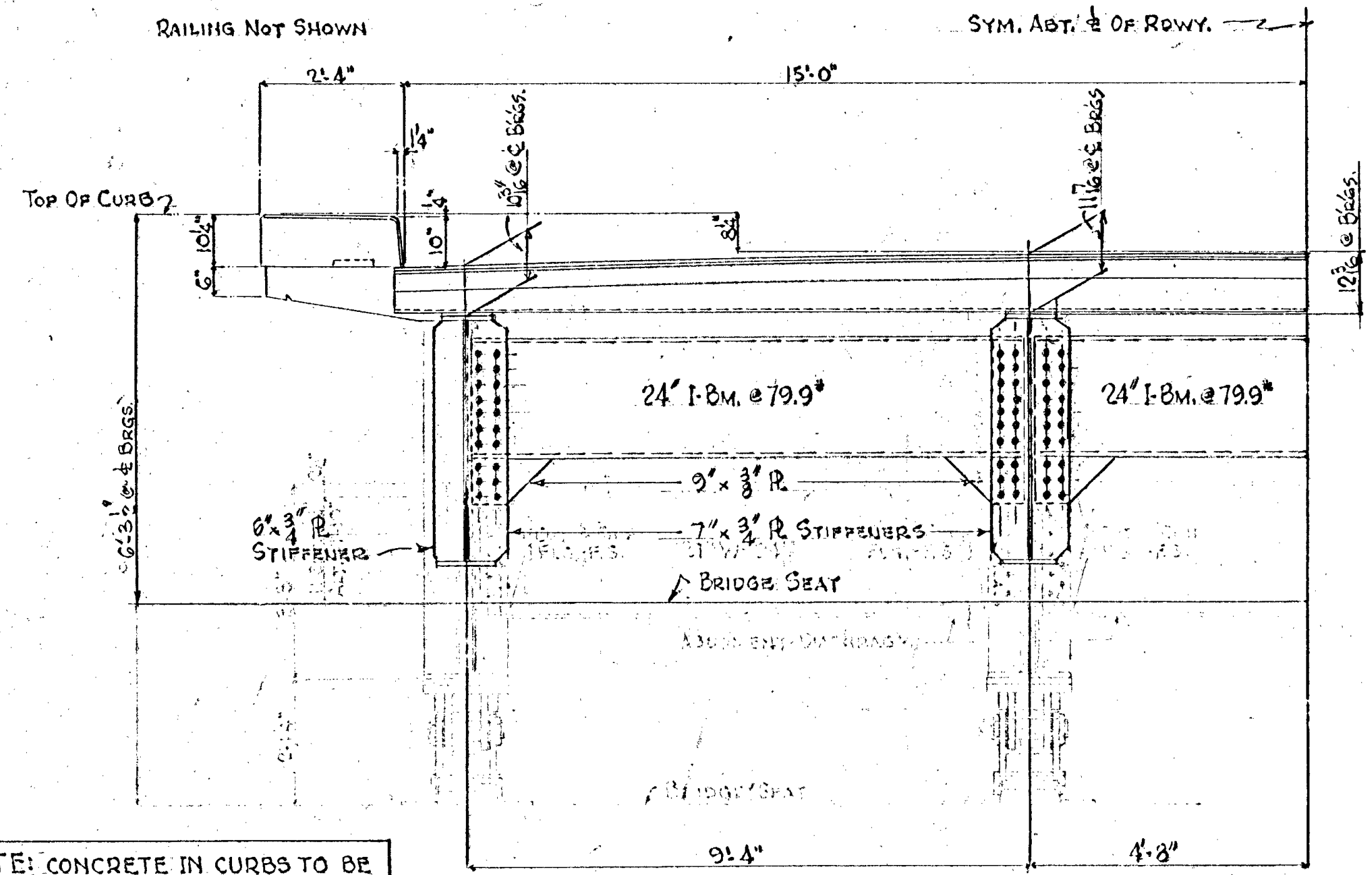
**SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE**

CONCRETE MIX NO 3Y60	55	CU. YDS.
CONCRETE MIX NO 3Y6	311	CU. YDS.
REINFORCEMENT BARS	9580	LBS.
STRUCTURAL STEEL M.H.D. 3305	7985	LBS.
FLOOR DRAINS (TYPE DD-13) BOX DRAINS	32	UNITS
PIPE DRAINS - DETAILS THIS SHEET		
RAILING AND STANCHION RAILPOSTS - DETAILS THIS SHEET		
RAILPOST PLATES P1 - DETAILS THIS SHEET		
RAIL CONNECTOR ANGLES P2 - DETAILS THIS SHEET		
RAIL CONNECTOR PLATES P3 - DETAILS THIS SHEET		
RAILPOST ANCHORS T1 - DETAILS THIS SHEET		
3/4" x 3" BOLTS - SQ. HD. HEX. NUT - 2" x 4" PL. WASH. - LOCK WASH. - GALV. (668 LBS.)		
STRUCTURAL STEEL M.H.D. 3317	26170	LBS.
3/8" x 3" AND 3/4" x 3" BOLTS LISTED ON SH. 2		

INCLUDED IN WEIGHT OF STRUCTURAL STEEL M.H.D. 3305

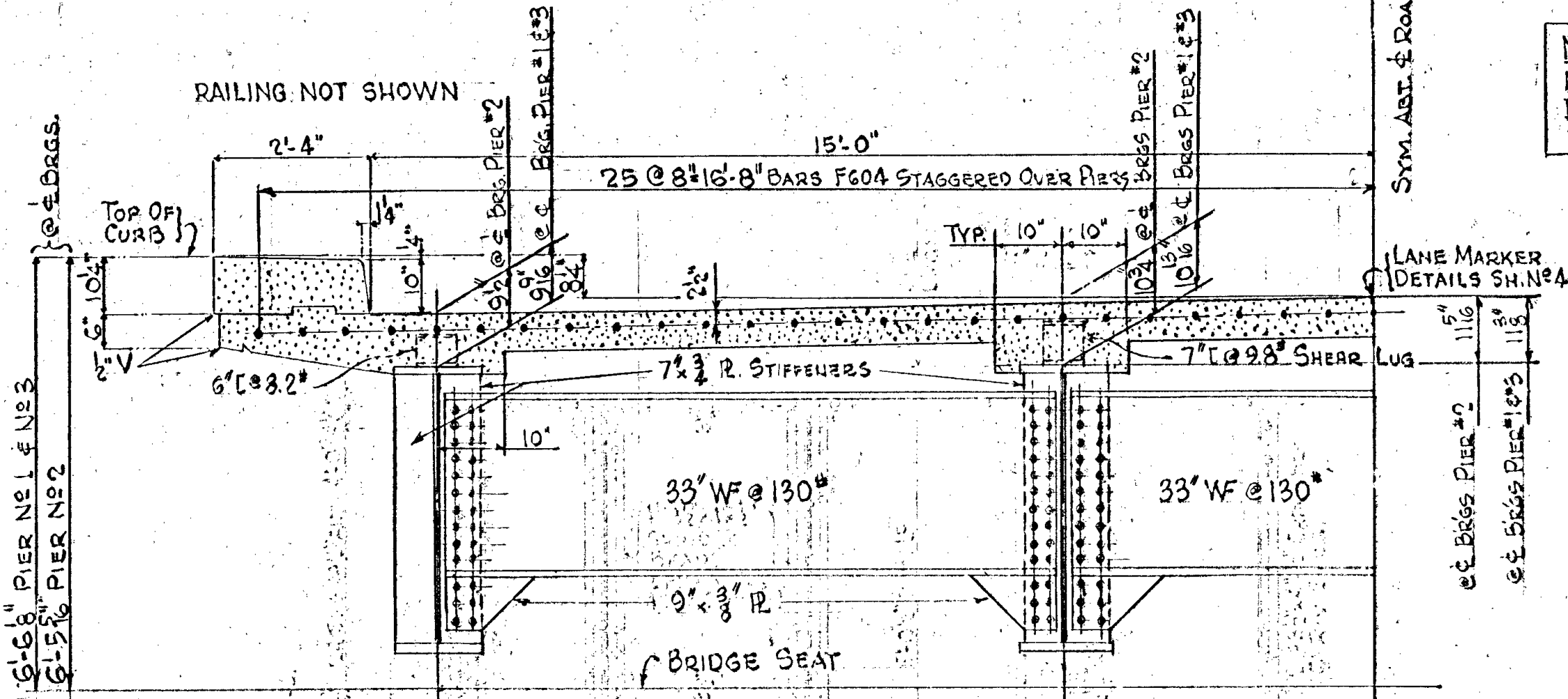


HALF TRANSVERSE SECTION NEAR SPANS SHOWING INTERM. DIAPHRAGM

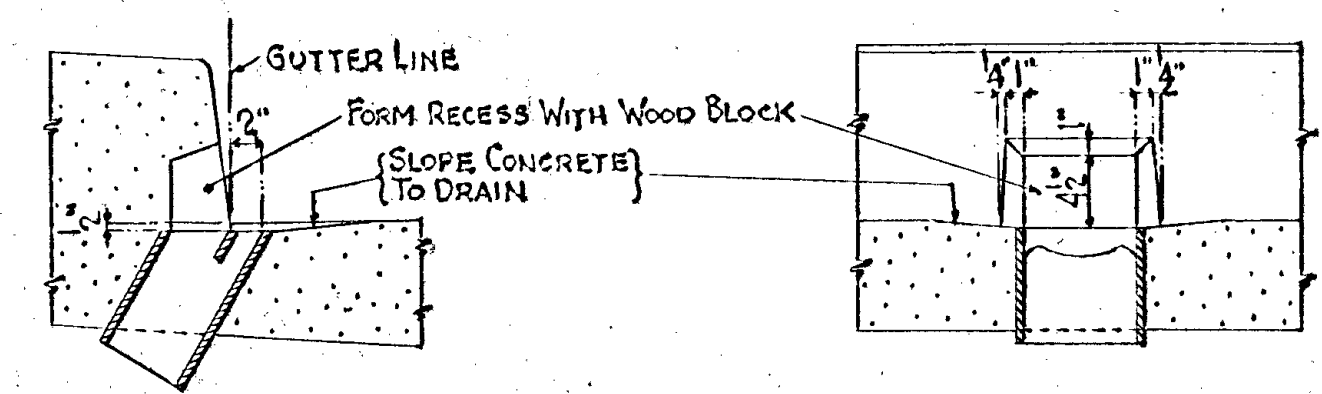


HALF END ELEVATION AT ABUTMENTS

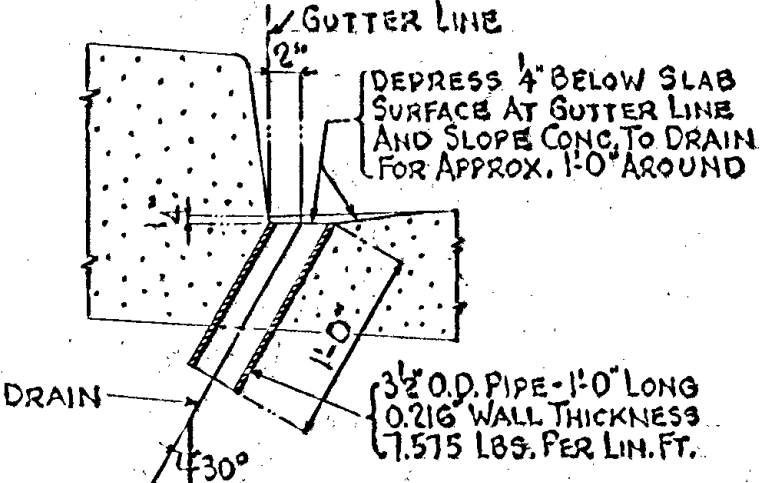
NOTE: CONCRETE IN CURBS TO BE MIX NO 3Y60. ALL OTHER CONCRETE IN SUPERSTRUCTURE TO BE MIX NO 3Y6.



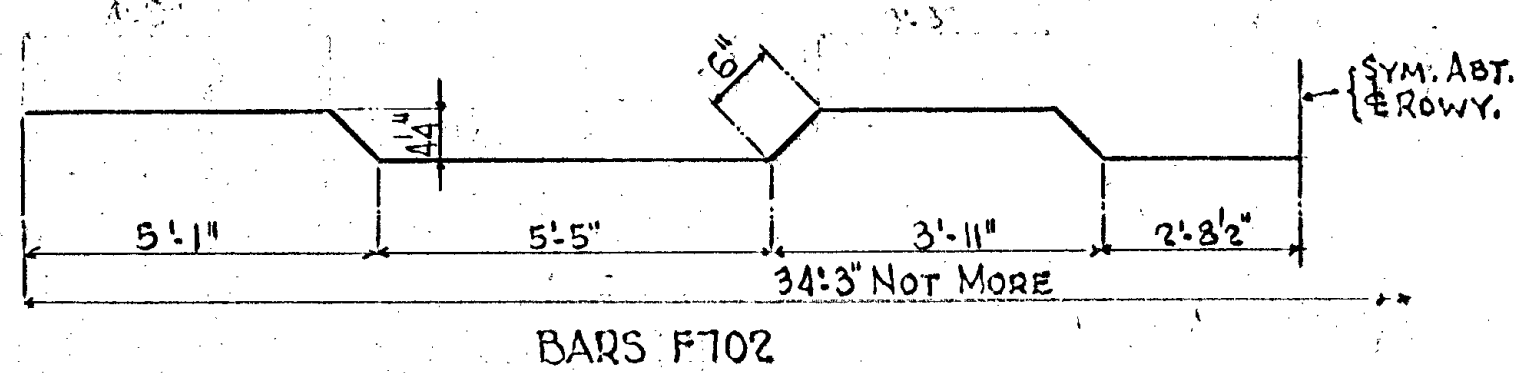
HALF TRANSVERSE SECTION NEAR PIERS SHOWING PIER DIAPHRAGMS NOTES, DIMENSIONS AND REINFORCEMENT NOT SHOWN SAME AS IN SECTION NEAR SPANS ABOVE.



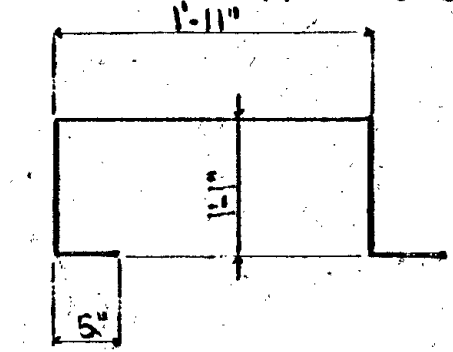
DETAIL OF BOX DRAINS 32 REQ'D THUS BOX DRAINS TO BE AS PER M.H.D. STD. PLT. NO 8138



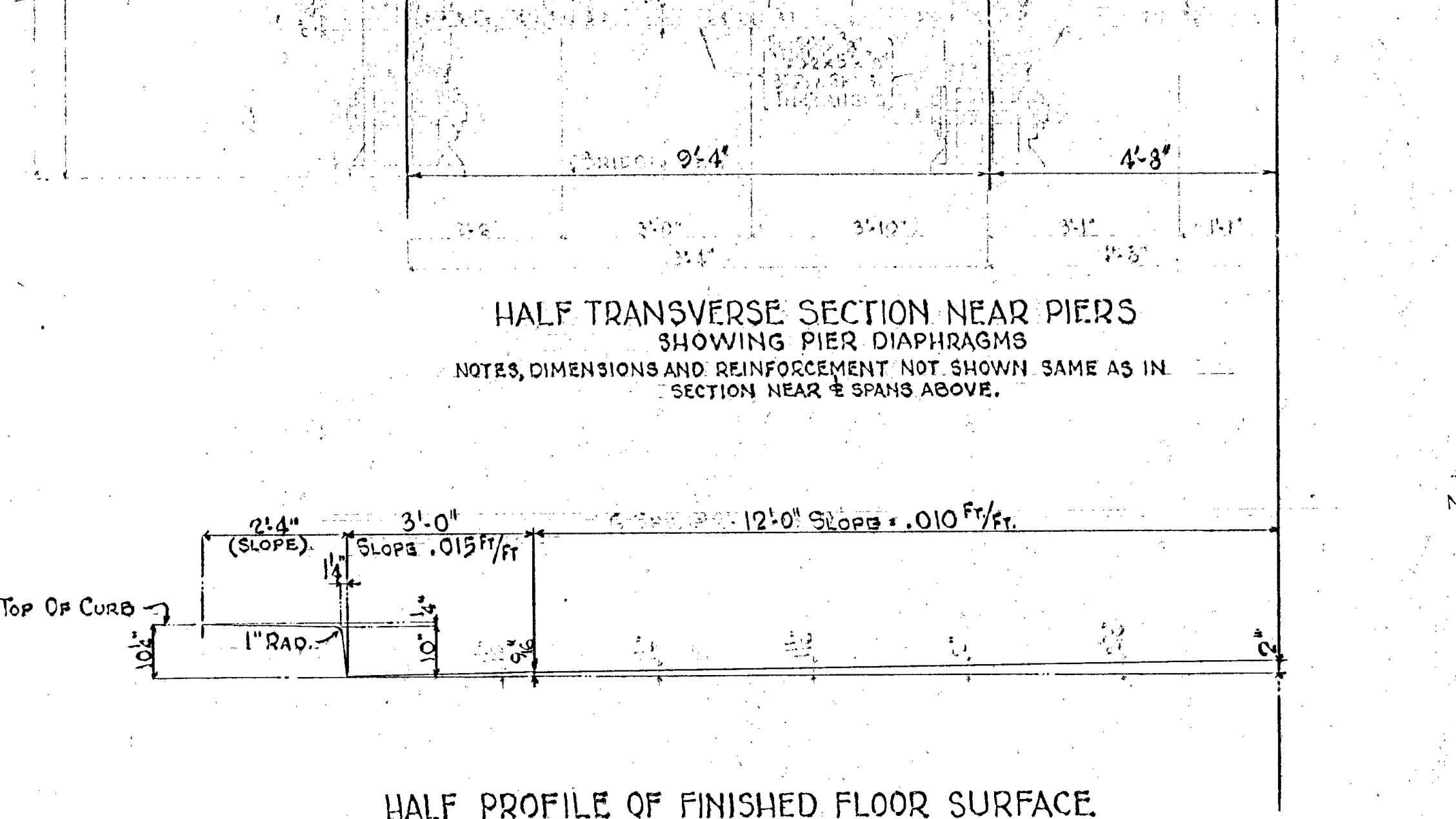
DETAIL OF PIPE DRAINS 92 REQ'D THUS GALVANIZE AS PER M.H.D. 3394 AFTER FABRICATION. (INCLUDED IN STRUCTURAL STEEL) M.H.D. 3305



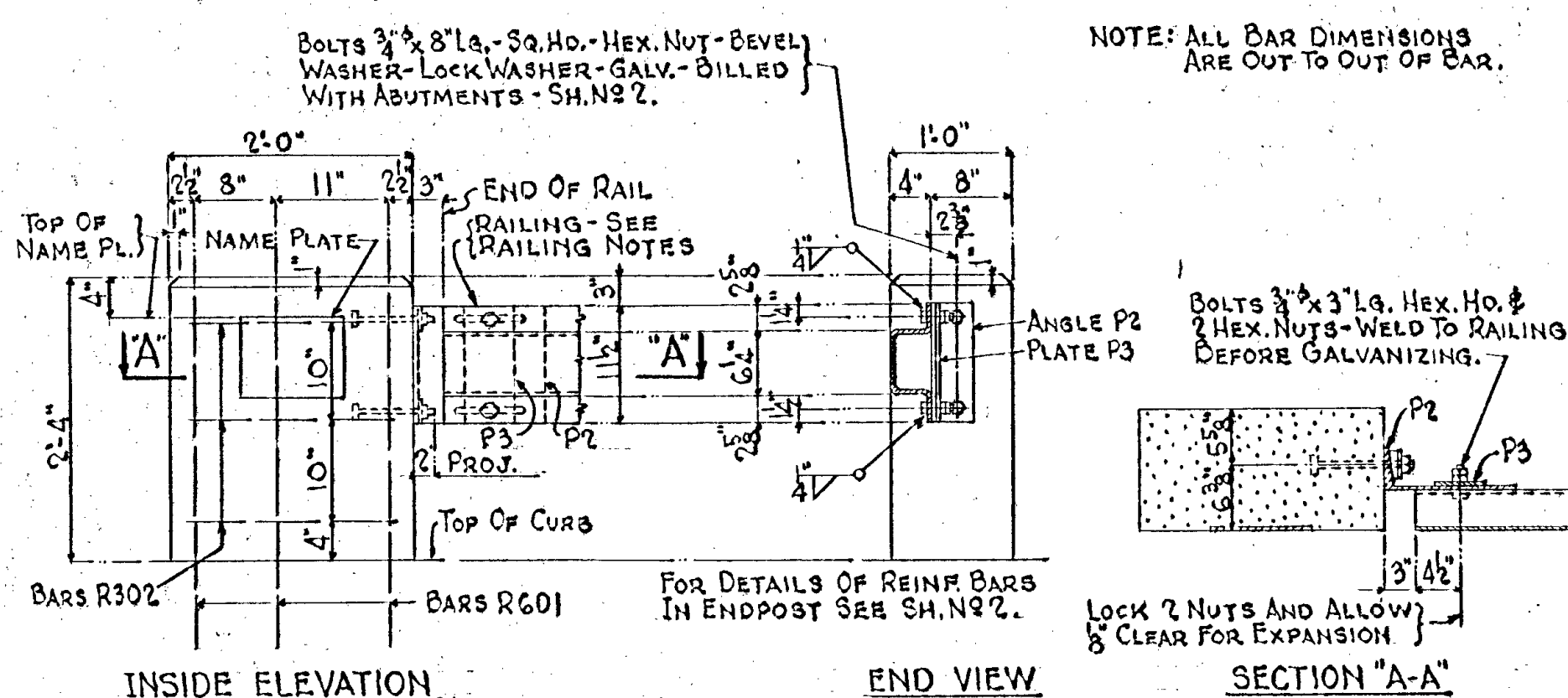
BAR F702



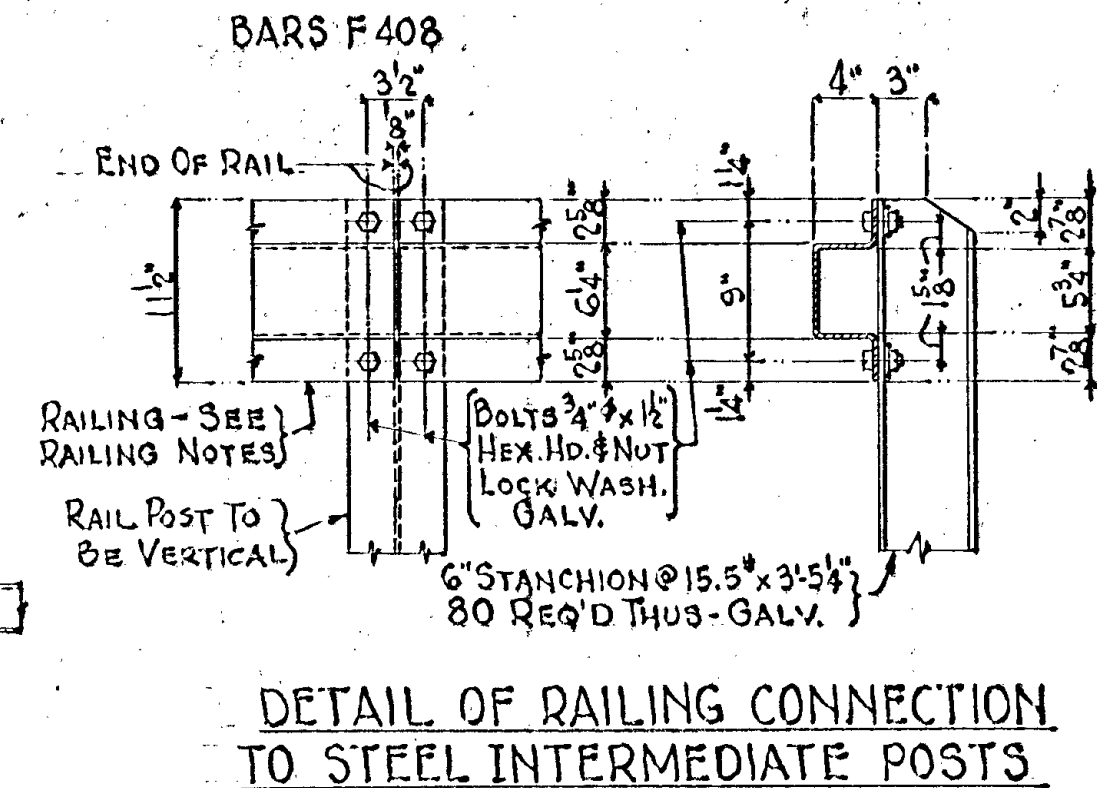
BAR F408



HALF PROFILE OF FINISHED FLOOR SURFACE



DETAILS OF END RAILPOST FOR NAME PLATE NOTES SEE 'ELEVATION' ON SH. NO 2. CONCRETE, REINF. BARS AND NAME PLATE BILLED WITH ABUTMENTS - SH. NO 2.



DETAIL OF RAILING CONNECTION TO STEEL INTERMEDIATE POSTS

**RAILING NOTES:-**  
RAILING TO BE 18" x 1/4" U.M. PLATE BENT TO DIMENSIONS SHOWN WITH 2" INSIDE RADIUS BENDS.  
RAILINGS TO BE CONTINUOUS FOR A MINIMUM OF TWO PANELS AND A MAXIMUM OF THREE PANELS. LEAVE 1/8" CLEAR OPENING AT JOINTS BETWEEN ENDS OF RAILS.  
THE FABRICATOR WILL BE PERMITTED TO SPLICE CONTINUOUS BENT PLATE RAILINGS AT THE E OF RAILPOSTS USING A BUTT WELD GROUND SMOOTH.  
ALL RAILINGS, POSTS, BOLTS AND ALL FITTINGS TO BE MEASURED AND PAID FOR AS STRUCTURAL STEEL \* GALVANIZE STRUCTURAL STEEL ITEMS AFTER FABRICATION PER M.H.D. 3394. GALVANIZE ALL BOLTS, NUTS, WASHERS AND ANCHORS T1 AS PER M.H.D. 3392 \* M.H.D. 3305

PLANS PREPARED BY: **ROBERT E. ERICKSON ENGINEERING CO.**  
3340 REPUBLIC AVE. ST. LOUIS PARK, MINN.

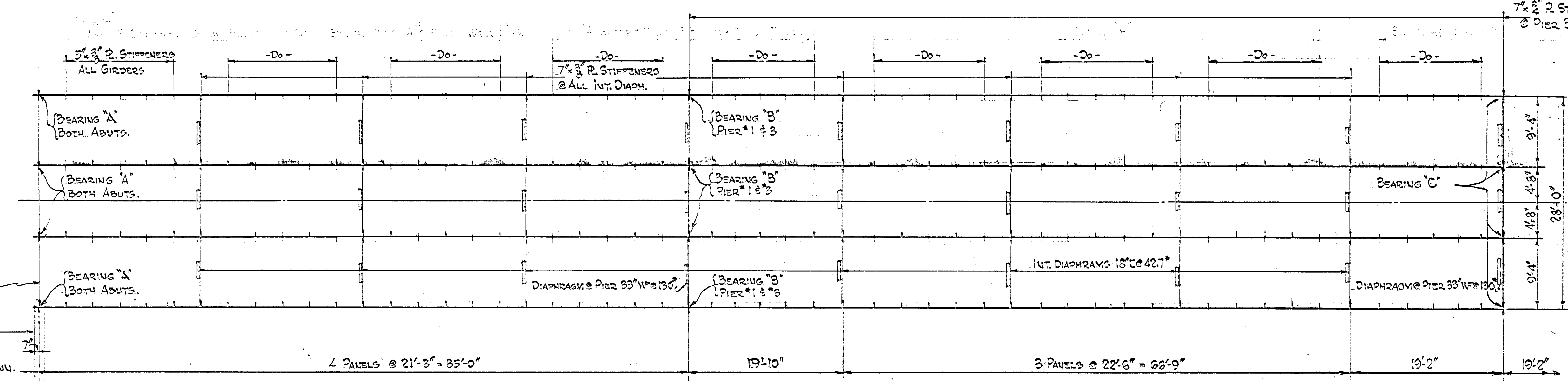
C.S.A.H. NO 24  
**BRIDGE NO 02501**  
ROADWAY CROSS-SECTIONS

APPROVED 5-3-63



**NOTES FOR STRUCTURAL STEEL**  
 FLANGE PLATES, WEB PLATES AND FIELD SPLICE PLATES OF MAIN WELDED GIRDERS TO BE STRUCTURAL STEEL AS PER M.H.D. 3317.  
 ALL OTHER STRUCTURAL STEEL TO BE AS PER M.H.D. 3305.  
 ALL RIVETS TO BE 3/8" UNLESS OTHERWISE NOTED.  
 ALL HOLES 1/8" UNLESS OTHERWISE NOTED.  
 ALL FIELD CONNECTIONS TO BE RIVETED EXCEPT AS NOTED.  
 SPECIAL REAMING WILL BE REQUIRED FOR THE RIVETED BEAM SPLICES AS PER M.H.D. 2411.3E1b. HOLES SHALL BE SUBPUNCHED OR DRILLED 1/8" AND REAMED TO 1/8" IN ASSEMBLED POSITION. THE SECTION TO BE ASSEMBLED FOR REAMING SHALL BE FROM ABUT. TO ABUT.  
 PAINT ALL STRUCTURAL STEEL EXCEPT GALVANIZED OR METALLIZED MATERIALS AS FOLLOWS:  
 SHOP COAT, RED LEAD M.H.D. 3506  
 FIRST FIELD COAT, ALUMINUM M.H.D. 3527  
 SECOND FIELD COAT, ALUMINUM M.H.D. 3528

RADIOGRAPHIC INSPECTION OF BUTT WELDS OF ALL FLANGES, BUTT WELDS OF WEB PLATES FROM THE TENSION FLANGE TO THE MIDPOINT BETWEEN FLANGES, AND BUTT WELDS OF WEB PLATES AT THE JUNCTURE OF THE WEB WITH THE COMPRESSION FLANGES WILL BE REQUIRED. SEE SPECIAL PROVISIONS. TENSION FLANGE IS TOP FLANGE IN AREA "A" AND BOTTOM FLANGE OUTSIDE AREA "A".  
 WELDED FLANGES AND WEB SPLICES SHALL BE FULL BUTT WELDS USING LOW HYDROGEN PROCESS OR APPROVED EQUAL.  
 BUTT WELDS IN FLANGE AND WEB SHALL BE GROUND FLUSH. FOR WELD PROCEDURE TESTS, SEE SPECIAL PROVISIONS.  
 SYM. ABUT. & EXCEPT FOR SPLICES AND STIFFENERS NEAR PIER NO. 2 AS SHOWN.



DESCRIPTION OF BEARINGS

MARK	TYPE	CODE	DEPTH (H)
A	EXP. TYPE - WITH GUIDE BARS	3141-140	42"
B	" " " " " " " "	3144-260	63"
C	FIXED TYPE	3143-260	34"

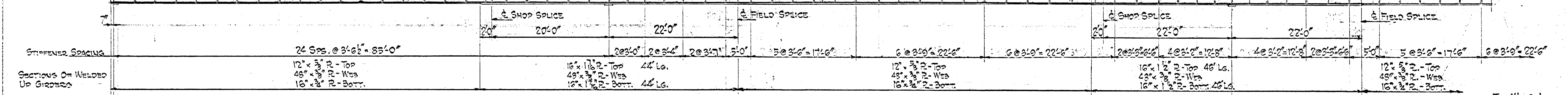
**HALF FRAMING PLAN**  
 SCALE 3/8" = 1'-0"

NOTE:  
 ALL ANCHOR BOLTS @ PIERS TO BE 1 1/2"

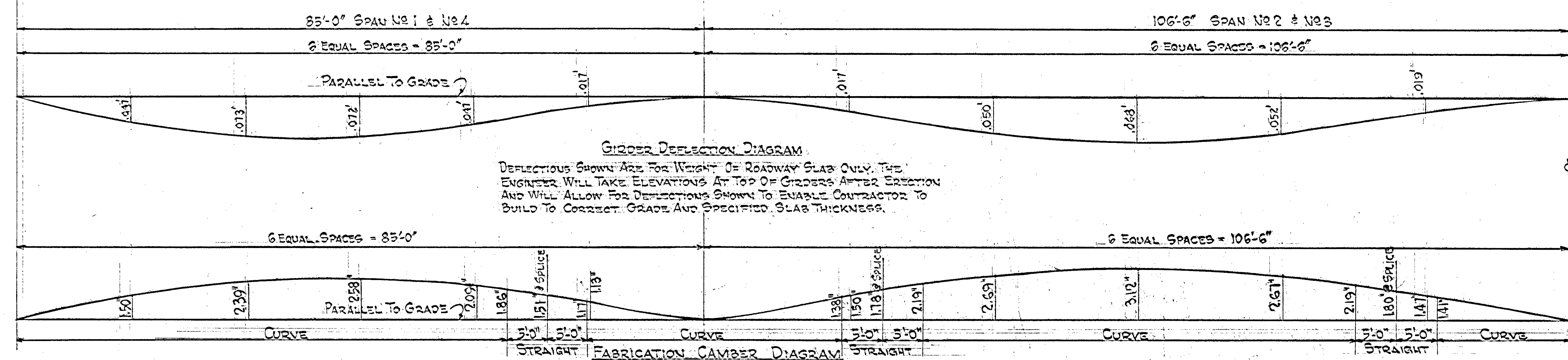
SUMMARY OF BEARINGS REQUIRED

LOCATION	BEAR. A	BEAR. B	BEAR. C
West Abut.	4		
EAST		4	
PIER NO. 1		4	
PIER NO. 2			4
PIER NO. 3		4	
TOTAL REQD.	8	8	4

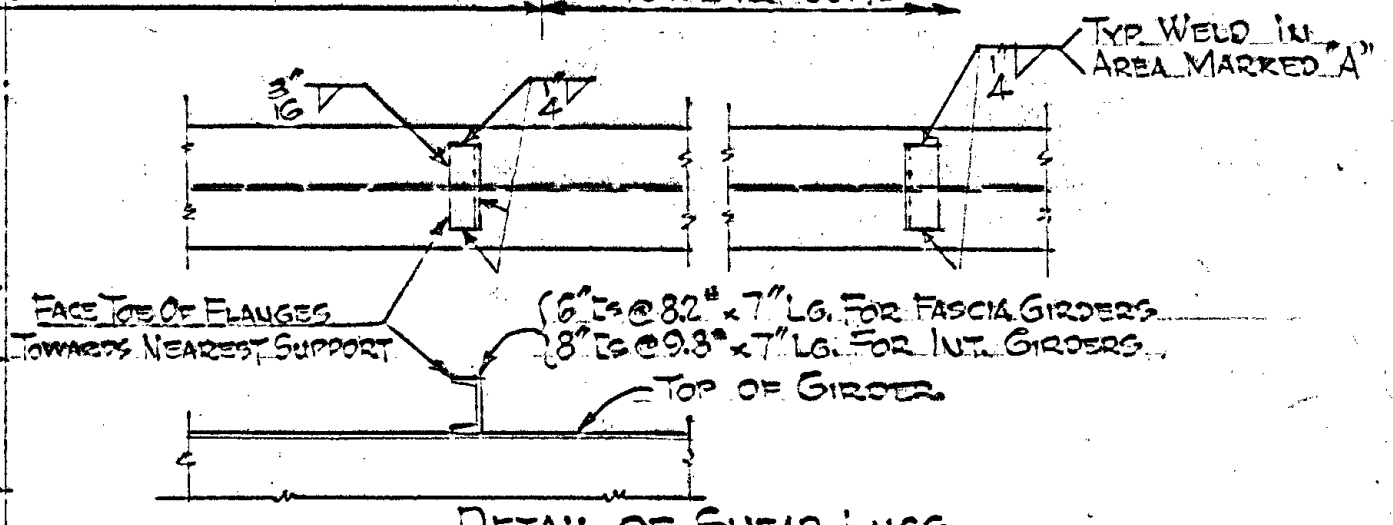
SHEAR LUG SPACING  
 6" @ 8.2' x 7" FASCIA GIRDERS  
 7" @ 9.3' x 7" INT. GIRDERS  
 EXCEPT FIELD SPLICES  
 5" @ 3' x 3" @ 4' ARE USED



**HALF ELEVATION OF INT. GIRDERS**



**GIRDER DEFLECTION DIAGRAM**  
 DEFLECTIONS SHOWN ARE FOR WEIGHT OF ROADWAY SLAB ONLY. THE ENGINEER WILL TAKE ELEVATIONS AT TOP OF GIRDERS AFTER ERECTION AND WILL ALLOW FOR DEFLECTIONS SHOWN TO ENABLE CONTRACTOR TO BUILD TO CORRECT GRADE AND SPECIFIED SLAB THICKNESS.



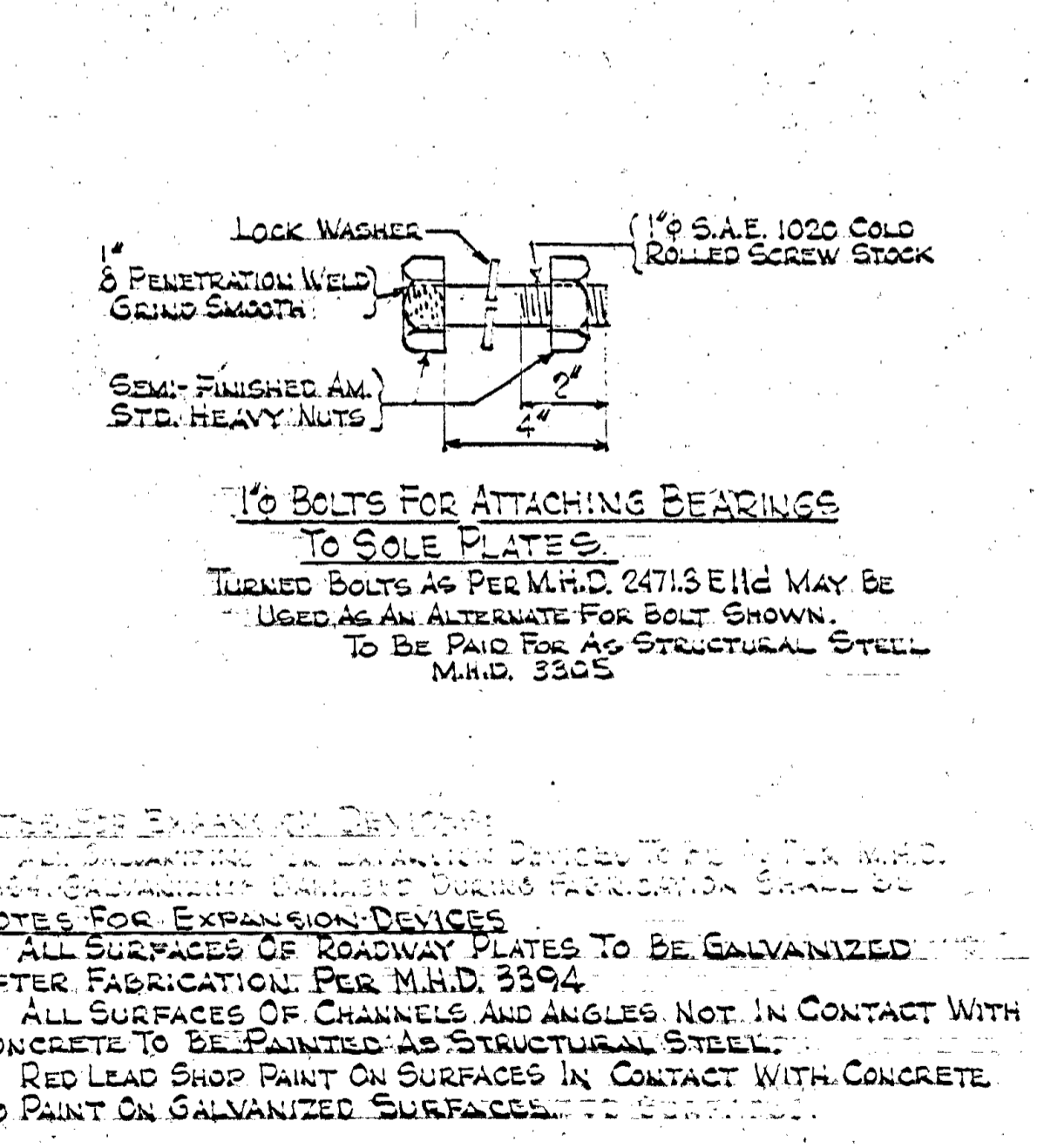
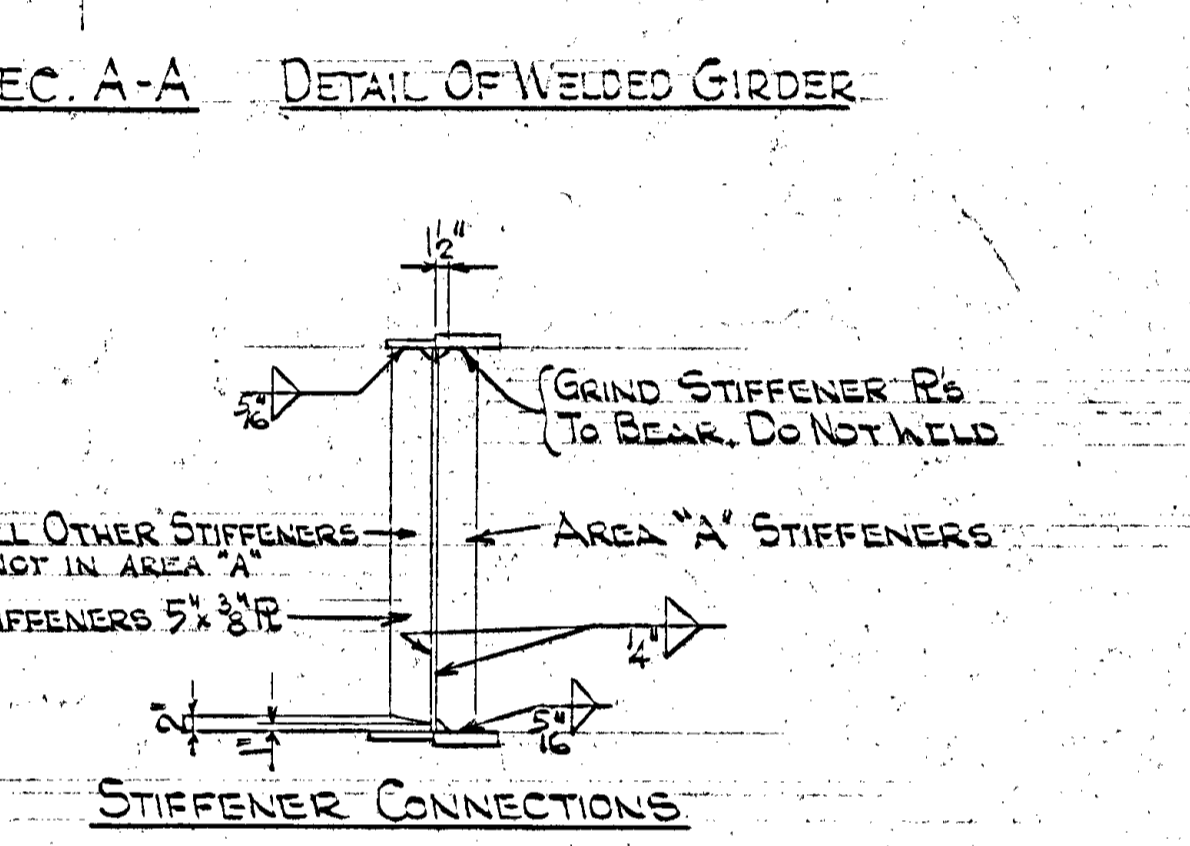
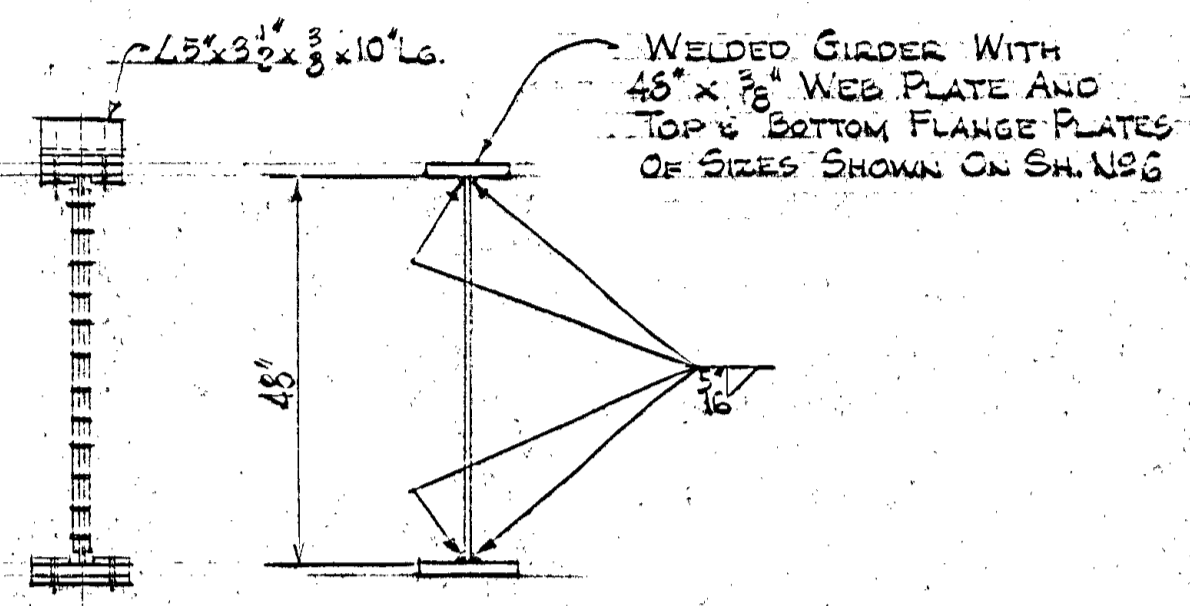
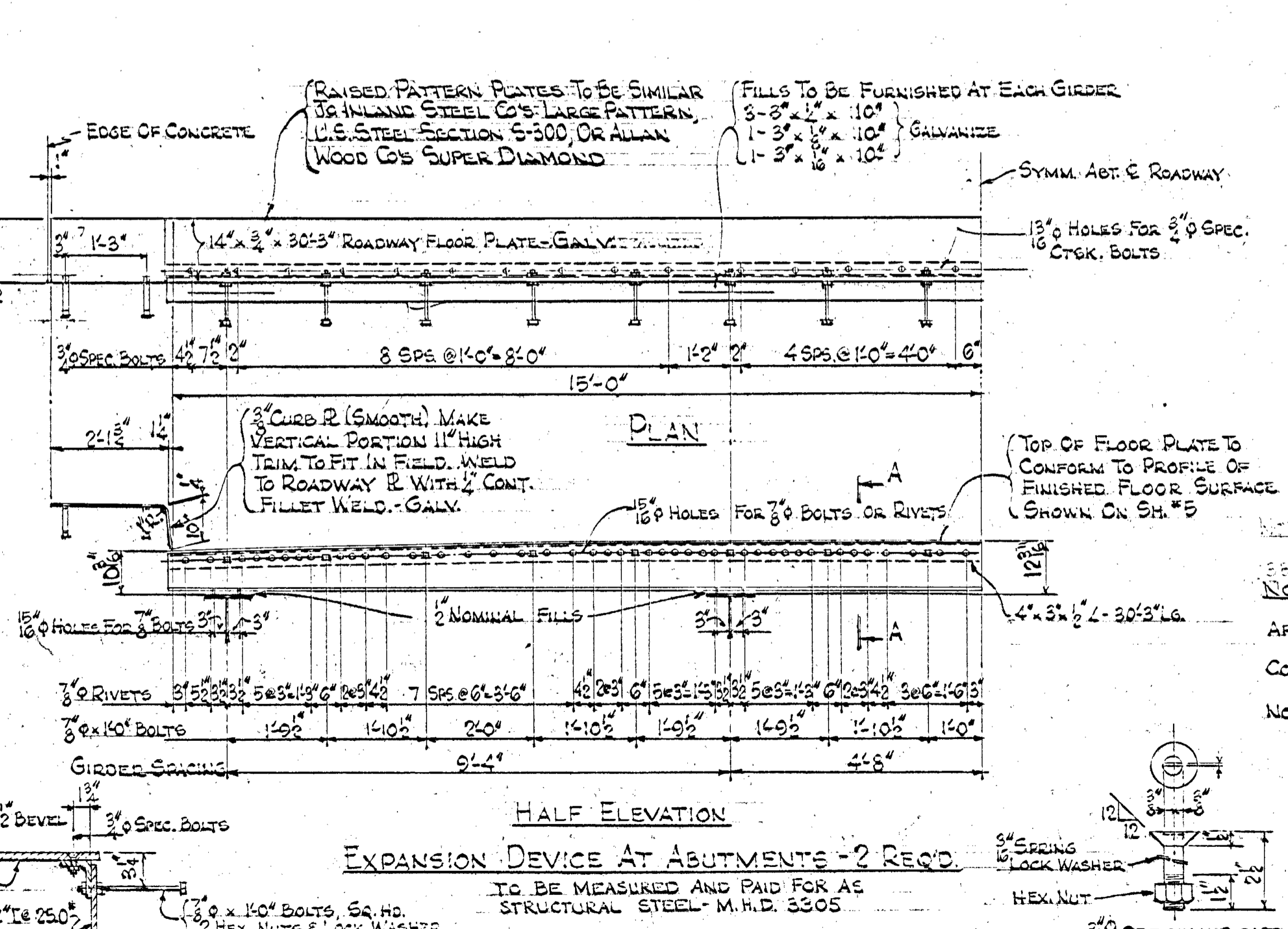
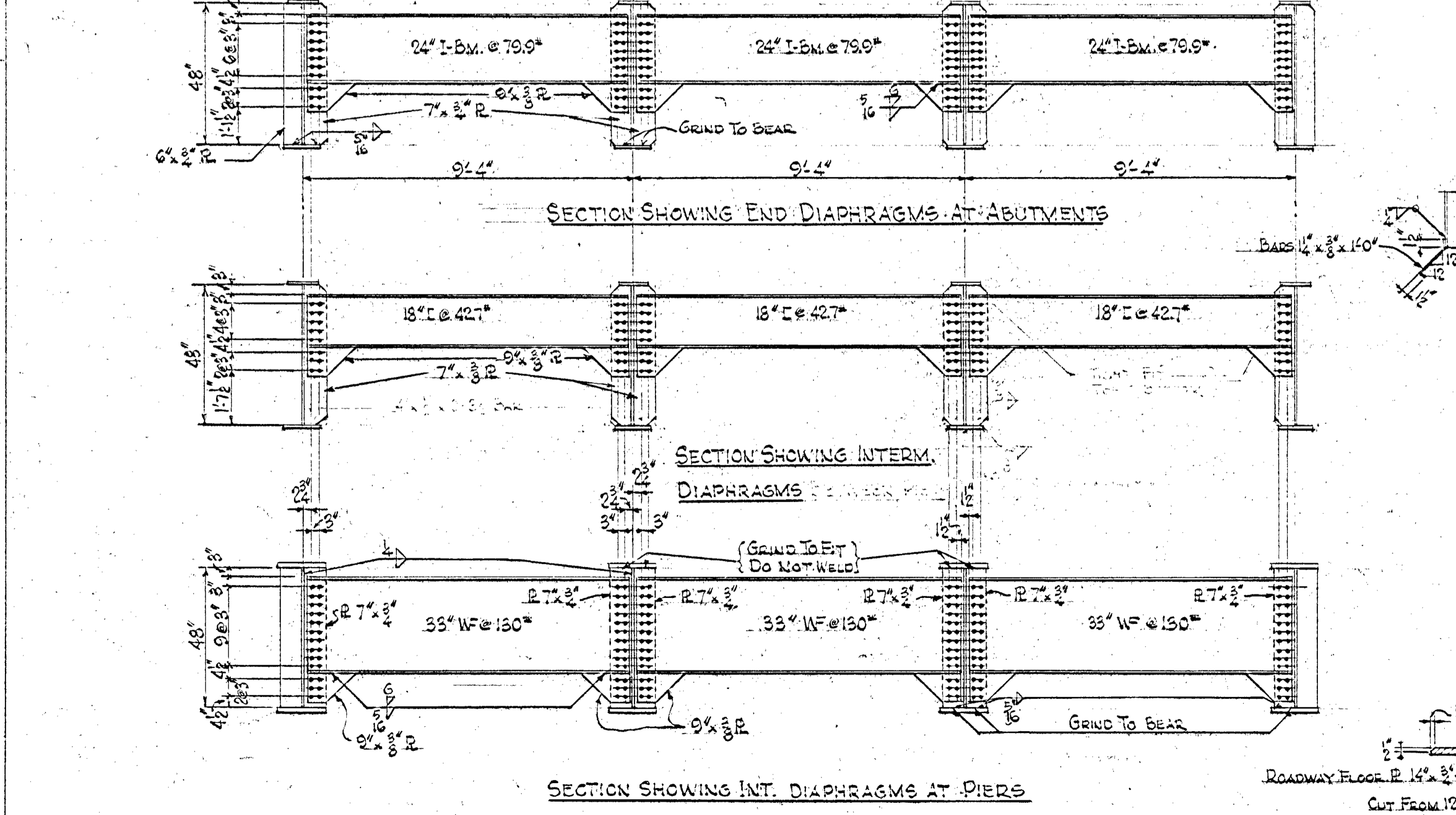
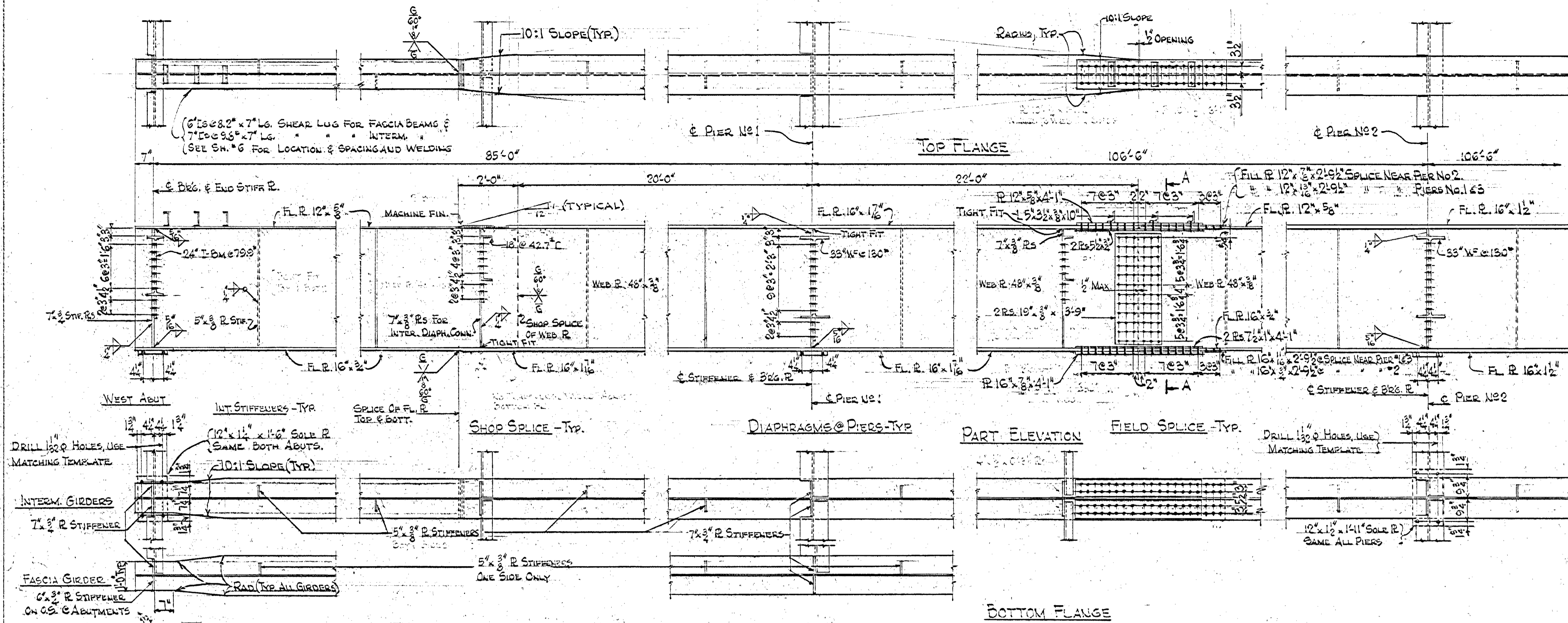
**DETAIL OF SHEAR LUGS**  
 NOTE: FOR DETAILS SEE SH. #1  
 FOR SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE SEE SH. #5  
 FOR DETAILS OF BEARINGS SEE DETAIL PLATES

APPROVED: 5-3-63

BRIDGE NO 0250!  
 FRAMING PLAN  
 & ELEVATION OF GIRDERS

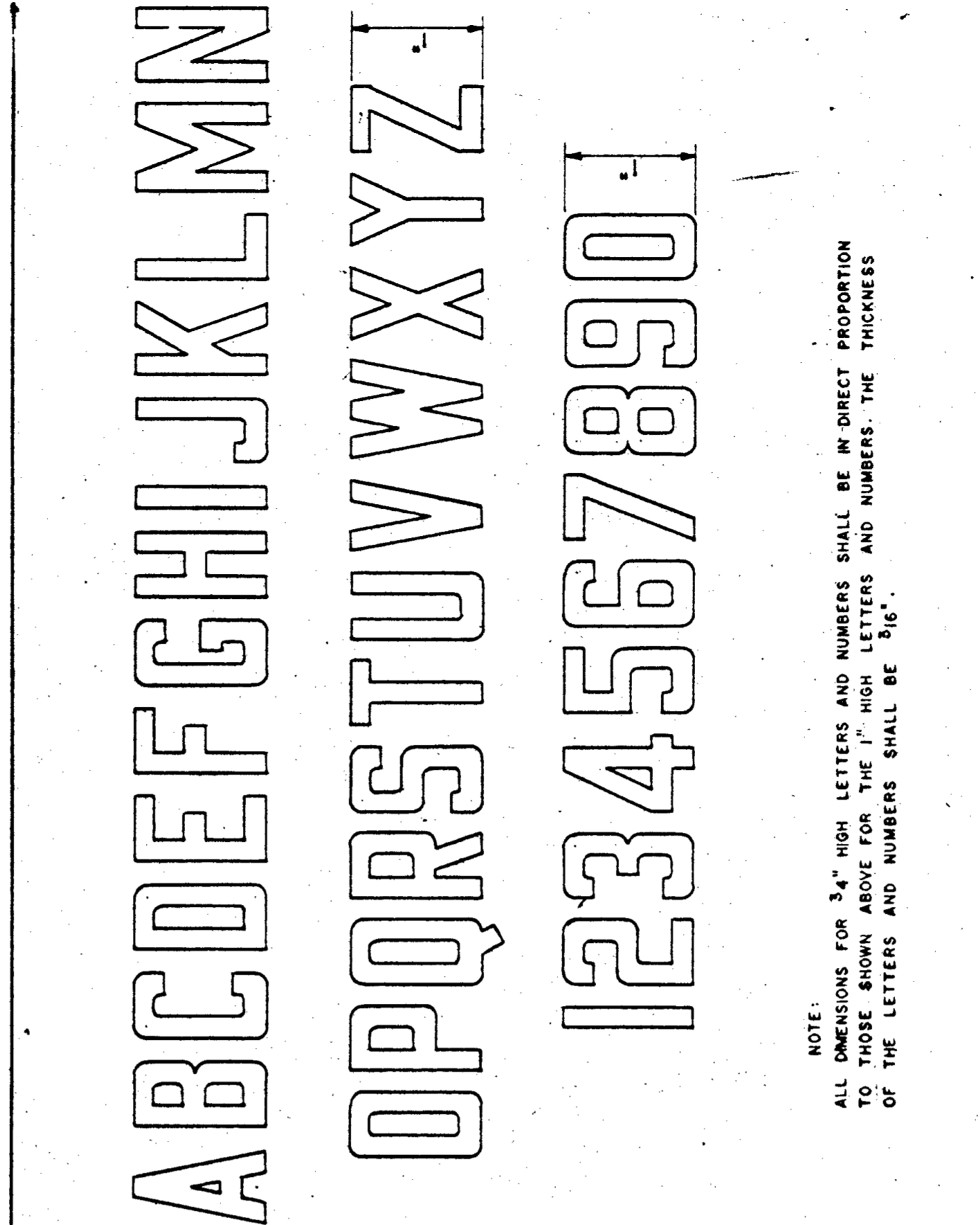
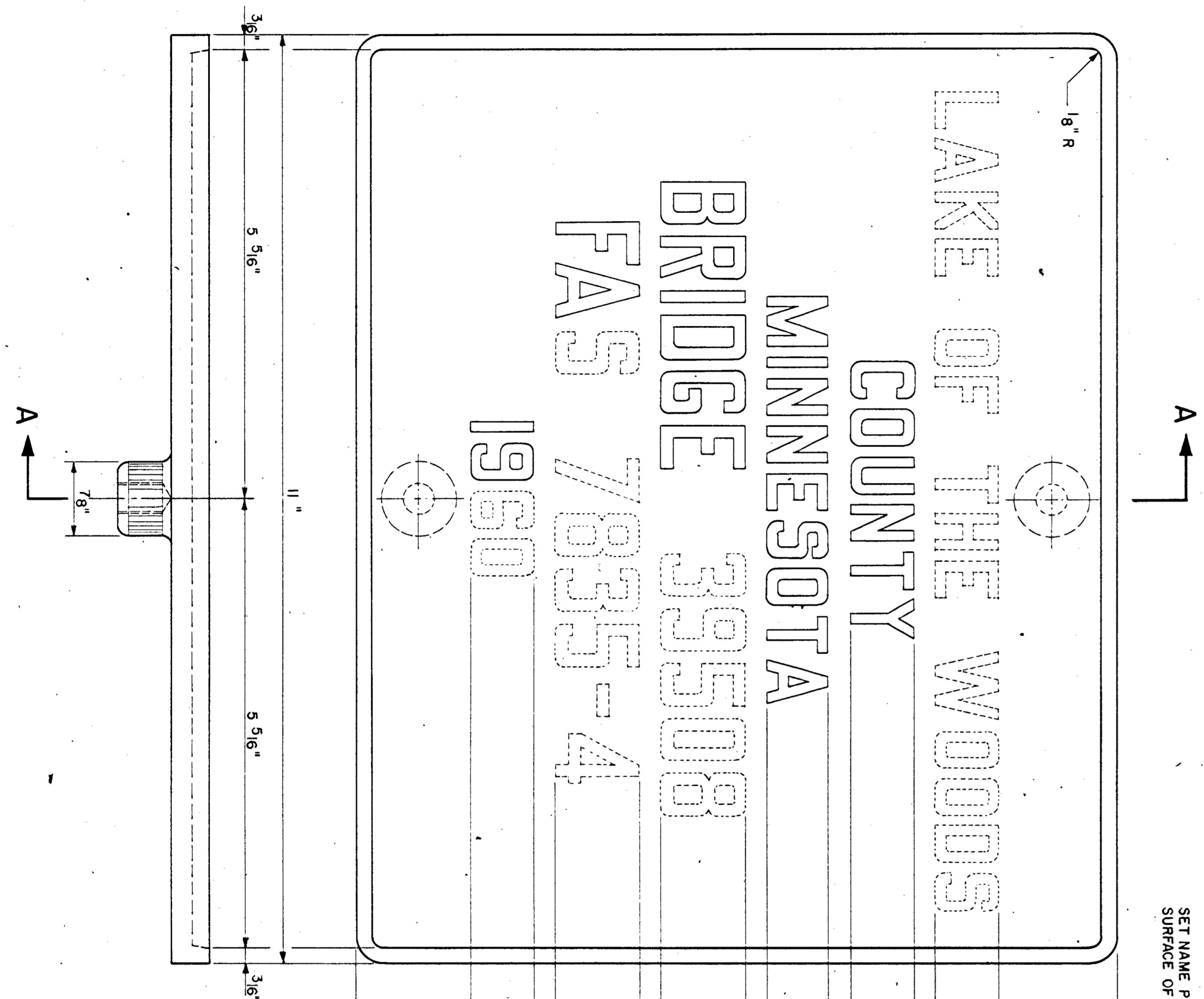


CONSTRUCTION NOTES  
 ALL DIMENSIONS TO BE SHOWN UNLESS OTHERWISE NOTED.  
 ALL FIELD CONNECTIONS TO BE MADE IN ACCORDANCE WITH THE  
 AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, EDITION 1959.  
 ALL SURFACES OF ROADWAY PLATES TO BE GALVANIZED.  
 AFTER FABRICATION PER M.H.D. 3394.  
 ALL SURFACES OF CHANNELS AND ANGLES NOT IN CONTACT WITH  
 CONCRETE TO BE PAINTED AS STRUCTURAL STEEL.  
 RED LEAD SHOP PAINT ON SURFACES IN CONTACT WITH CONCRETE.  
 NO PAINT ON GALVANIZED SURFACES TO BE PAINTED.

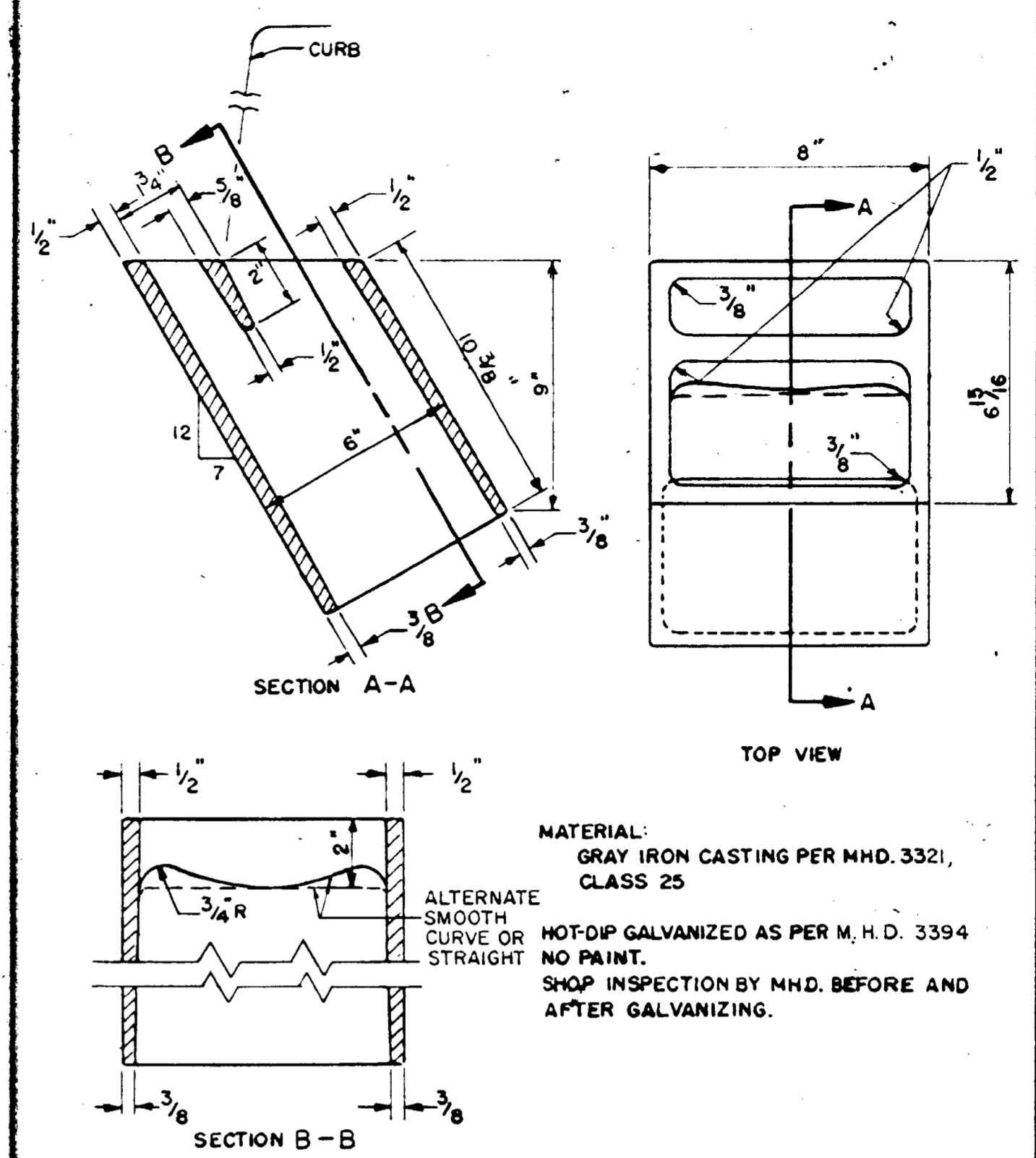


PLANS PREPARED BY  
 ROBERT E. ERICKSON ENGINEERING CO.  
 3840 REPUBLIC AVE. ST. LOUIS PARK, MINN.  
 C.S.A.H. No. 24  
 BRIDGE No. 0250!  
 STRUCTURAL DETAILS & EXPAN. DEVICE  
 APPROVED 5-3-63





NOTE: ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN ABOVE FOR THE 1" HIGH LETTERS AND NUMBERS. THE THICKNESS OF THE LETTERS AND NUMBERS SHALL BE 5/16".

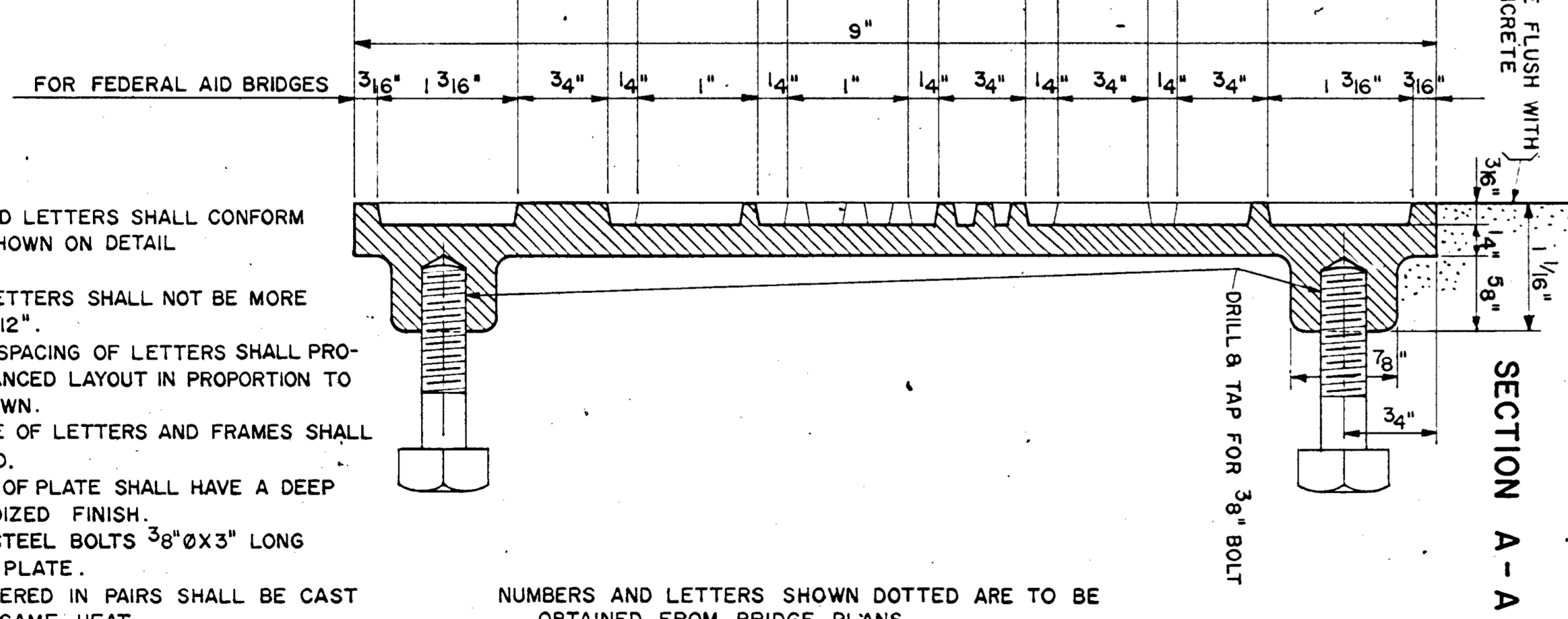


MATERIAL: GRAY IRON CASTING PER MHD. 3321, CLASS 25  
HOT-DIP GALVANIZED AS PER M. H. D. 3394  
NO PAINT.  
SHOP INSPECTION BY MHD. BEFORE AND AFTER GALVANIZING.

BOX CASTING BD-13

APPROVED: 7/2/1959 <i>A. E. LaBonte</i> BRIDGE ENGINEER	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS	REVISIONS	DETAIL NO. 2102	APPROVED: 10-23-58 <i>A. E. LaBonte</i> BRIDGE ENGINEER	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS	REVISIONS 4/10/59-A 9/7/62-B	DETAIL NO. B 13 B
LETTERS FOR BRIDGE NAME PLATES				CAST IRON FLOOR DRAIN STANDARD DRAIN FOR BRIDGES			

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



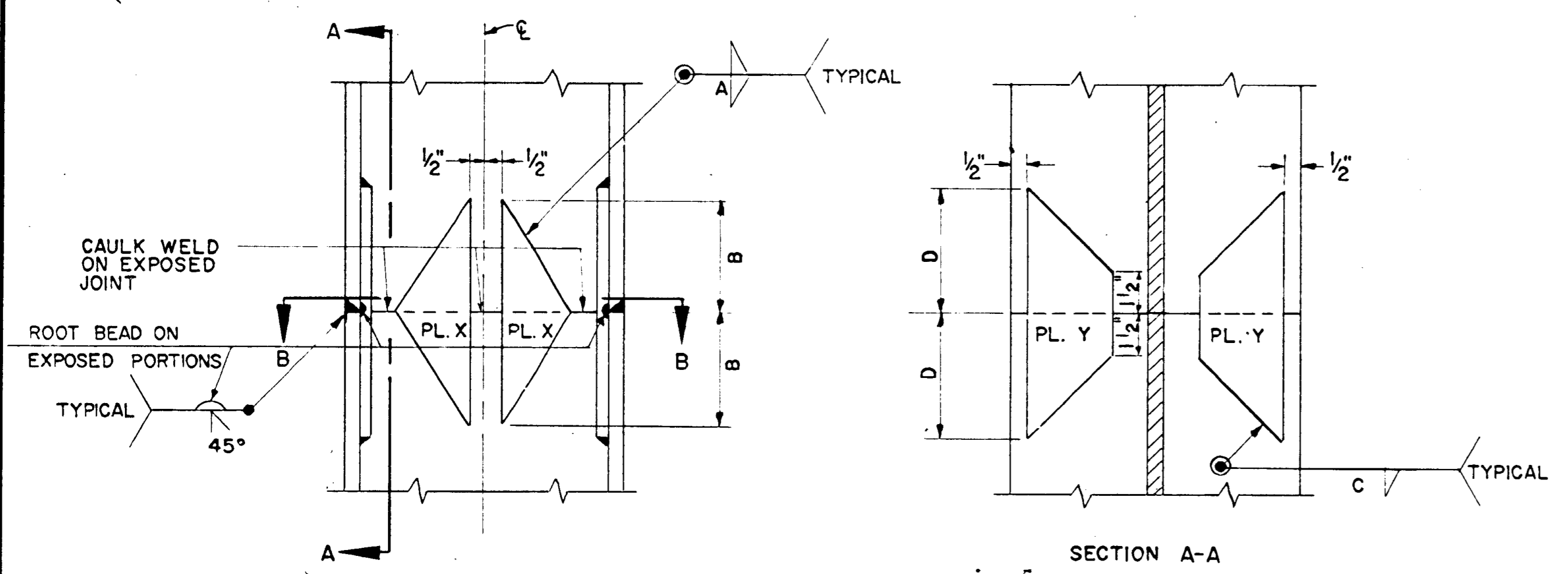
NUMBERS AND LETTERS SHOWN DOTTED ARE TO BE OBTAINED FROM BRIDGE PLANS.

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

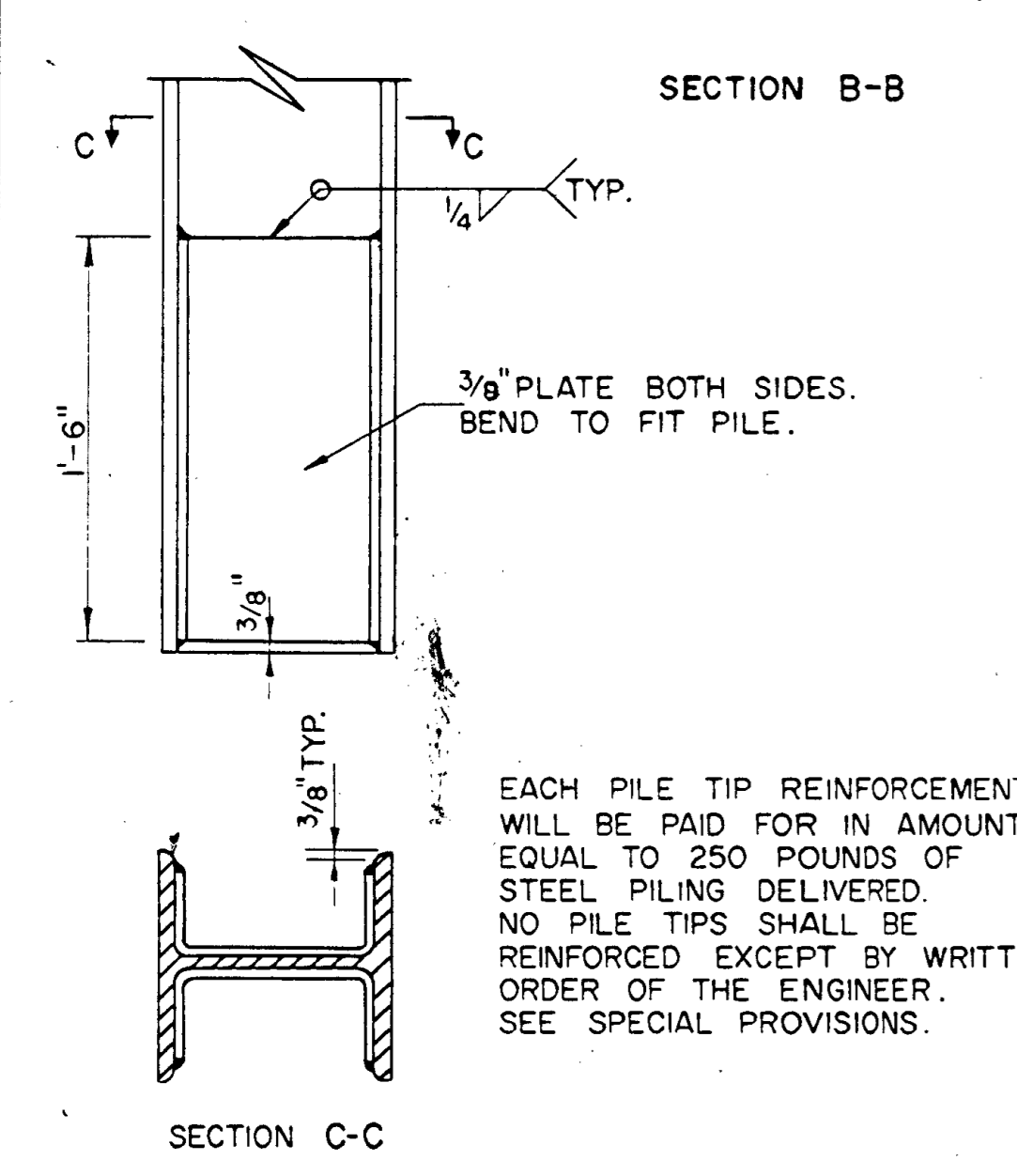
APPROVED: JULY 3 1959 <i>A. E. LaBonte</i> BRIDGE ENGINEER	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS	REVISIONS	DETAIL NO. 2101
BRIDGE NAME PLATE FOR COUNTY BRIDGES			

STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS
BRIDGE NO. 02501
MICRO-FILMED DETAILS
APPROVED: 5-3-63





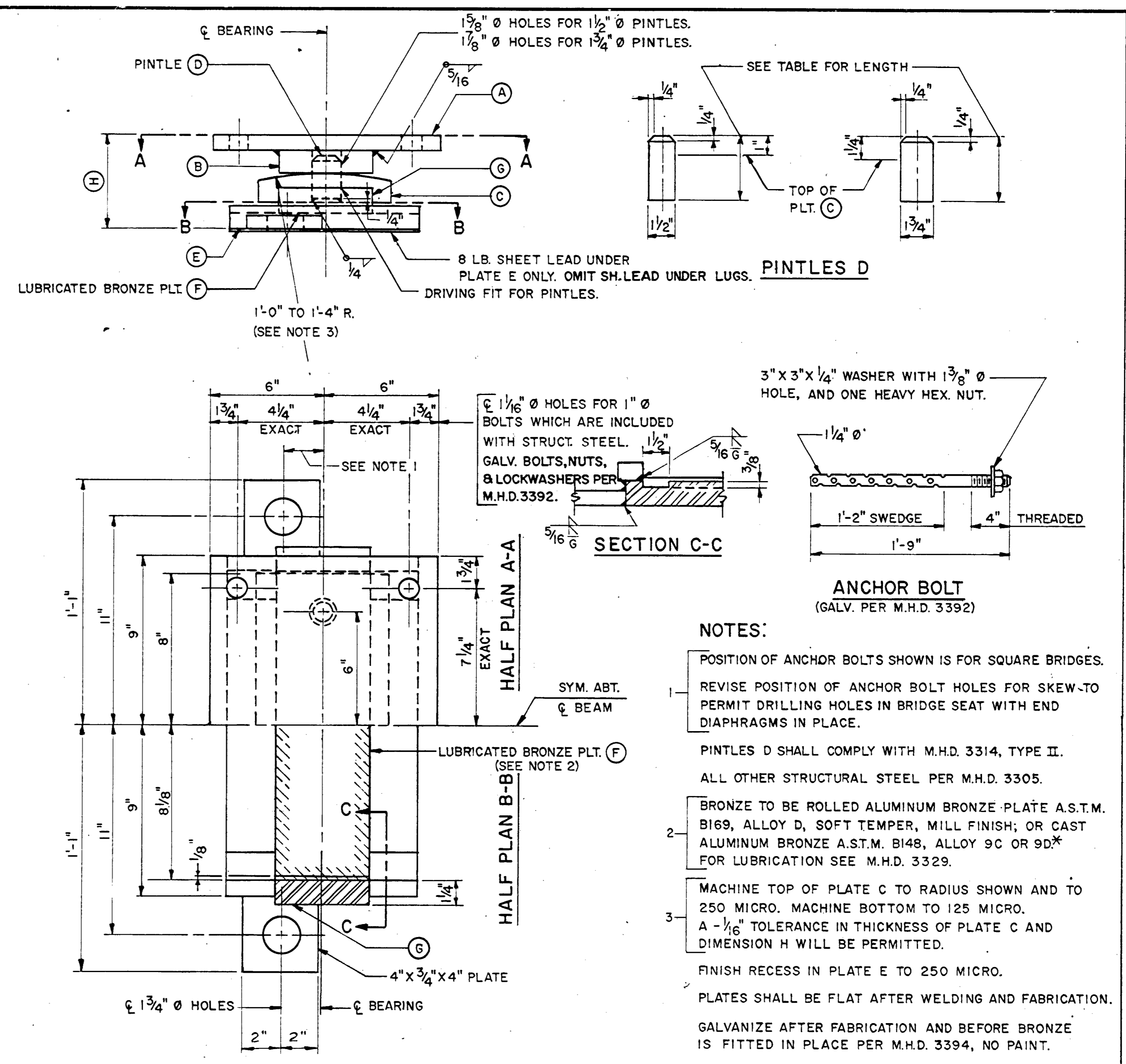
PILE SECTION	PLATE X				PLATE Y			
	SIZE	A	B	SIZE	C	D		
10BP42	2 1/2 x 3/8	4	4	3 x 3/8	5	16	4	
10BP57	2 1/2 x 1/2	5	16	4	3 x 1/2	5	16	5
12BP53	3 1/2 x 3/8	4	5	4 x 3/8	5	16	5	
12BP74	3 1/2 x 1/2	5	16	6	4 x 1/2	5	16	6
14BP73	4 1/2 x 3/8	4	7	5 x 3/8	5	16	6	
14BP89	4 1/2 x 7/16	5	16	7	5 x 1/2	5	16	7
14BP102	4 1/2 x 1/2	5	16	7	5 x 9/16	3	8	7
14BP117	4 1/2 x 9/16	3	8	7	5 x 5/8	3	8	8



NOTES:  
 PILE ENDS AT SPLICE TO BE SQUARE.  
 WELDING SEQUENCE:  
 A. PILES SPLICED ON SKIDS BEFORE DRIVING.  
 1. BUTT WELD FLANGES.  
 2. WELD WEB SPLICE PLATES.  
 3. WELD FLANGE SPLICE PLATES.  
 4. MAKE CAULK WELDS & ROOT BEADS.  
 B. PILES SPLICED IN LEADS.  
 1. WELD SPLICE PLATES TO EXTENSION BEFORE ASSEMBLY.  
 2. CLAMP SECTIONS TOGETHER AND HOLD RIGID.  
 BUTT WELD FLANGES.  
 3. WELD SPLICE PLATES TO DRIVEN SECTION.  
 4. MAKE CAULK WELDS & ROOT BEADS.  
 WELDING ELECTRODE M.H.D. 3339.  
 CLASSIFICATION A.S.T.M. E 6010.  
 FOR USE WITH DC. REVERSE POLARITY (ELECTRODE POSITIVE) ONLY.  
 CLASSIFICATION A.S.T.M. E 6012.  
 FOR USE WITH DC STRAIGHT POLARITY (ELECTRODE NEGATIVE), OR AC.  
 ALL WELDING AS PER M.H.D. 2471.3J  
 ALL MATERIAL SHALL CONFORM TO M.H.D. 3305.

DETAIL OF PILE TIP REINFORCEMENT

APPROVED - 12-12-1958	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS	REVISIONS 6-2-59 7-31-62	DETAIL NO. B 221
SPLICES FOR STEEL H BEARING PILES & PILE TIP REINFORCEMENT 10" TO 14"			



LOAD KIPS	A	B	C	D	E	F*	G	H	CODE
220	12"x1"x1'-6"	6"x1 1/2"x1'-4"	9"x2"x1'-4"	1 3/4"Ø x 3"	12"x1 1/2"x1'-6"	7"x1 1/2"x1'-4"	1 1/4"x1"x7"	6 1/8"	B141-220
180	12"x1"x1'-6"	6"x1 1/2"x1'-4"	8"x1 3/4"x1'-4"	1 3/4"Ø x 2 3/4"	10"x1 1/2"x1'-6"	6"x1 1/2"x1'-4"	1 1/4"x1"x6"	5 5/8"	B141-180
140	12"x1 1/2"x1'-6"	5"x1 1/4"x1'-4"	7"x1 1/4"x1'-4"	1 1/2"Ø x 2"	8"x1"x1'-6"	5"x1 1/2"x1'-4"	1 1/4"x1"x5"	4 1/2"	B141-140

\* CAST BRONZE SHALL HAVE MACHINE-FINISHED EDGES TO WIDTH AND LENGTH SHOWN. BOTTOM SURFACE TO BE MACHINED TO 250 MICRO AND TOP SURFACE TO 125 MICRO. WIDTH AND LENGTH OF CAST OR WROUGHT BRONZE SHALL BE HELD TO +0.000 AND -0.050 INCH TOLERANCE.

BRONZE BEARING PLATES SHALL BE BOXED FOR SHIPMENT PER M.H.D. 2471.3K.  
 PAYMENT FOR BEARING ASSEMBLY SHALL INCLUDE ALL MATERIAL SHOWN ON THIS DETAIL.

APPROVED - MAY 17 - 1960	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS	REVISIONS 5/11/60-A 9/26/61-B	DETAIL NO. B141B
EXPANSION BEARING ASSEMBLY FOR BEAMS WITH 11 1/2" OR 12" FLANGE WITH GUIDE BARS			

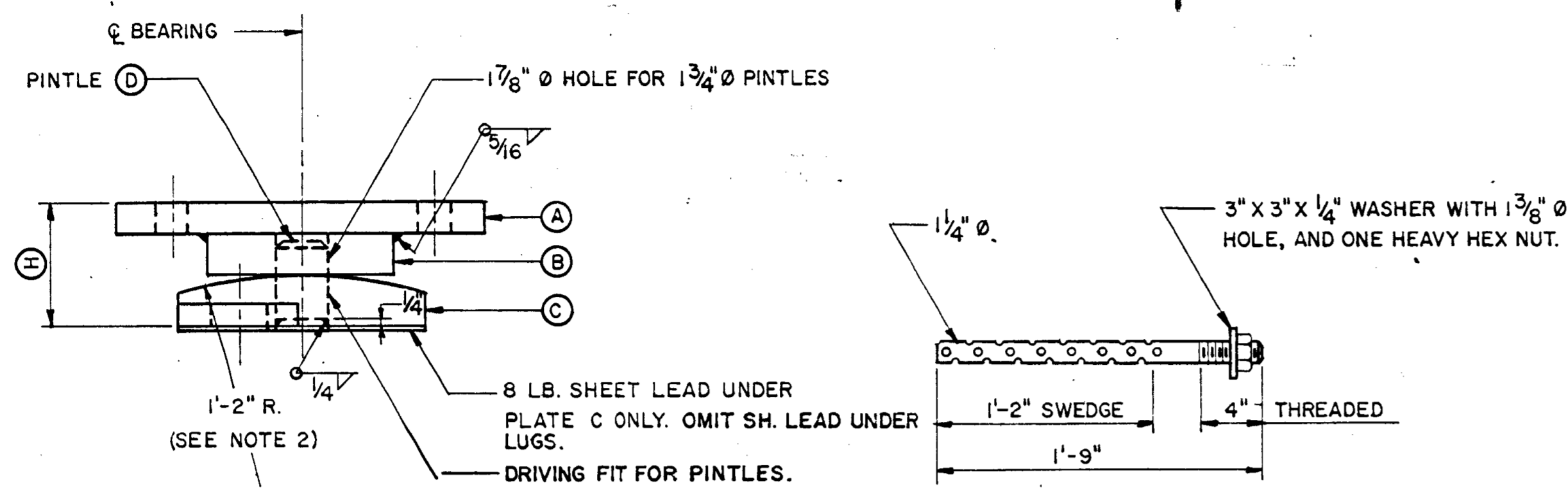
STATE OF MINNESOTA  
DEPARTMENT OF HIGHWAYS

BRIDGE NO. 02501

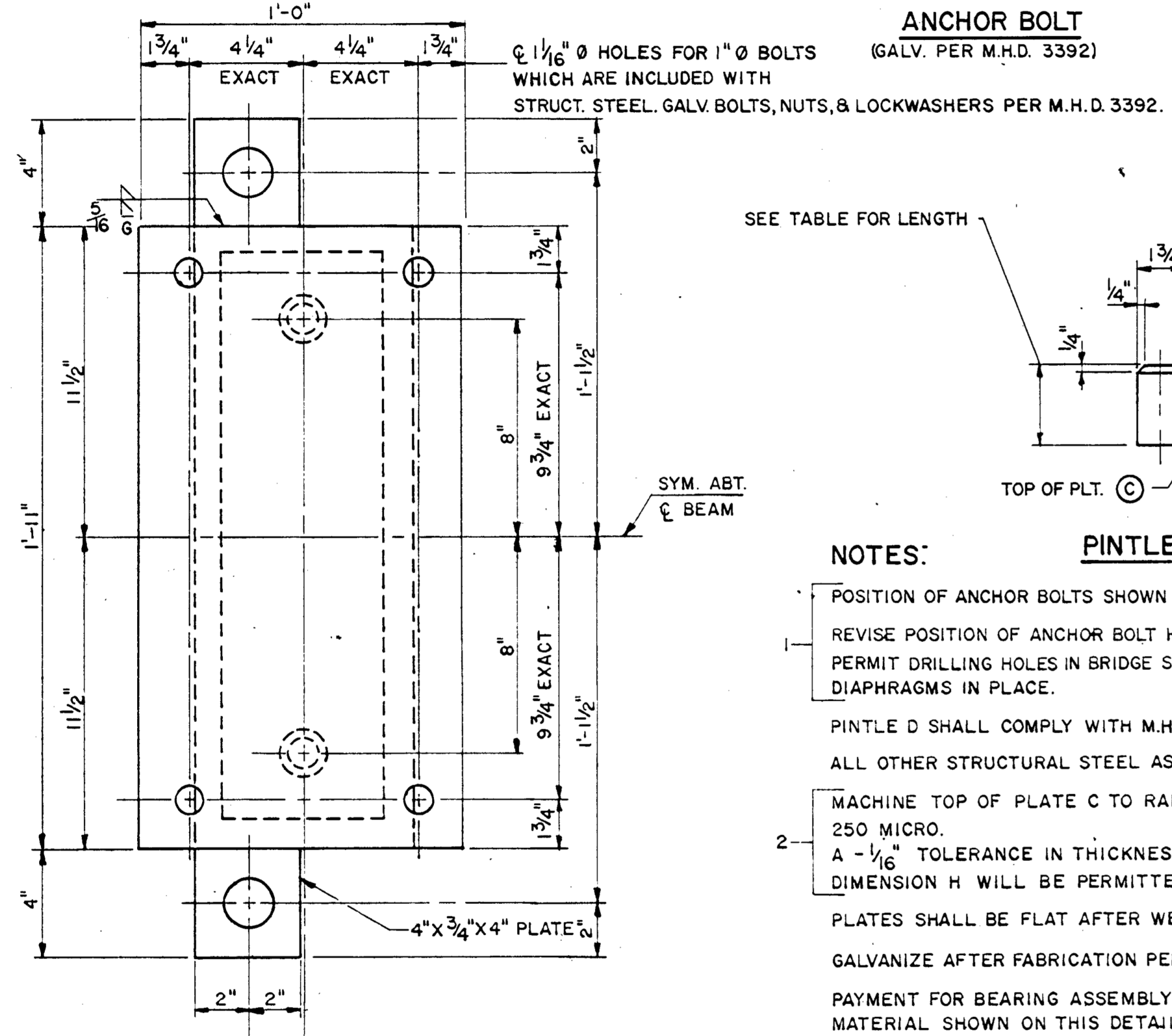
DETAILS

APPROVED: 5-3-63





**ANCHOR BOLT**  
(GALV. PER M.H.D. 3392)



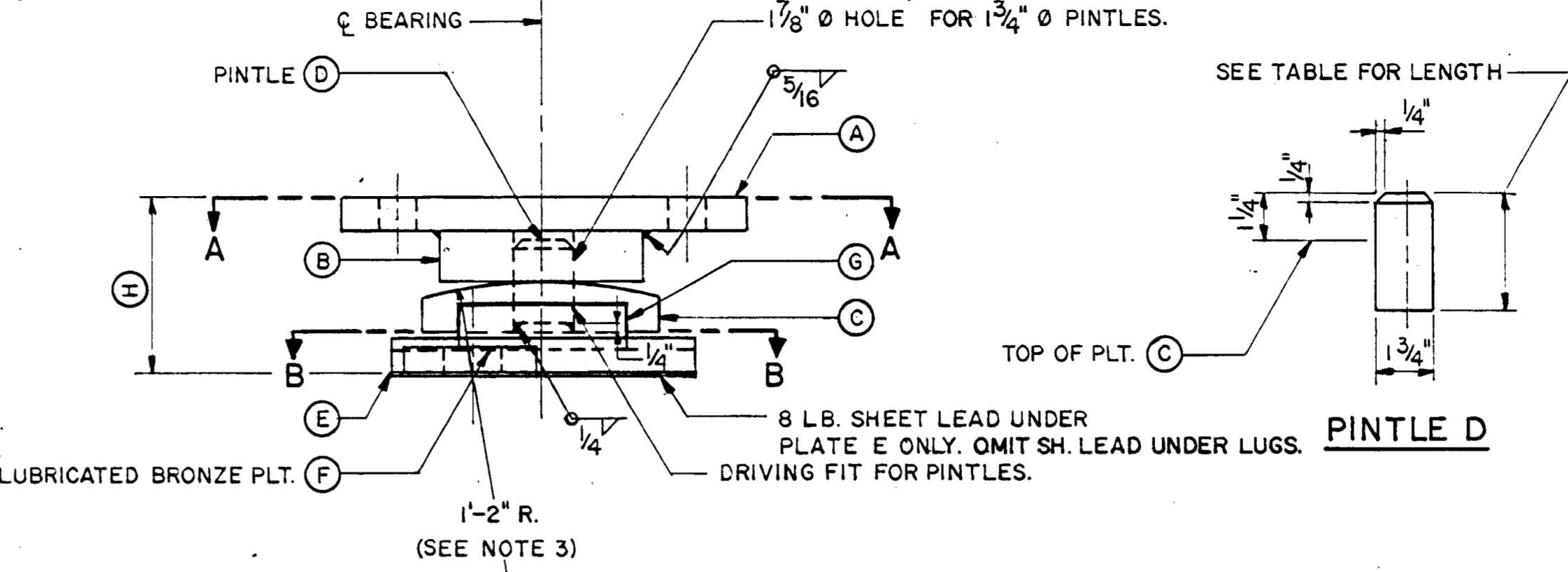
**PINTLE D**

**NOTES:**

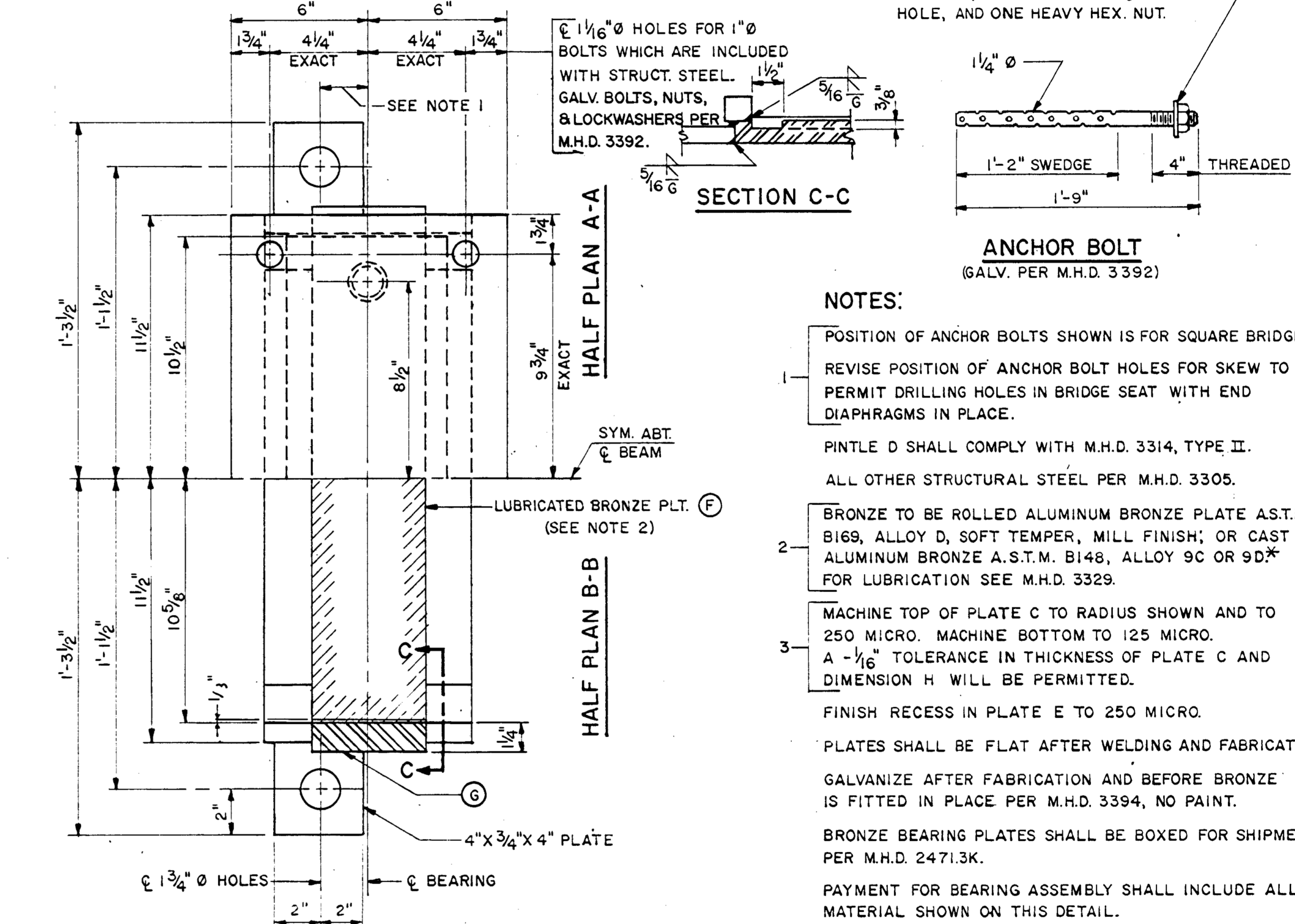
- POSITION OF ANCHOR BOLTS SHOWN IS FOR SQUARE BRIDGES. REVISE POSITION OF ANCHOR BOLT HOLES FOR SKEW TO PERMIT DRILLING HOLES IN BRIDGE SEAT WITH END DIAPHRAGMS IN PLACE.
- PINTLE D SHALL COMPLY WITH M.H.D. 3314, TYPE II. ALL OTHER STRUCTURAL STEEL AS PER M.H.D. 3305.
- MACHINE TOP OF PLATE C TO RADIUS SHOWN AND TO 250 MICRO. A  $-\frac{1}{16}$ " TOLERANCE IN THICKNESS OF PLATE C AND DIMENSION H WILL BE PERMITTED.

PLATES SHALL BE FLAT AFTER WELDING AND FABRICATION. GALVANIZE AFTER FABRICATION PER M.H.D. 3394, NO PAINT. PAYMENT FOR BEARING ASSEMBLY SHALL INCLUDE ALL MATERIAL SHOWN ON THIS DETAIL.

LOAD KIPS	A	B	C	D	H	CODE
260	12"x1 1/4"x1'-11"	6"x1 1/2"x1'-9"	12"x2 1/2"x1'-11"	1 3/4" x 3 1/2"	5 1/4"	BI43-260
220	12"x1 1/4"x1'-11"	6"x1 1/2"x1'-9"	10"x2"x1'-11"	1 3/4" x 3"	4 3/4"	BI43-220
180	12"x1"x1'-11"	6"x1 1/2"x1'-9"	8"x1 3/4"x1'-11"	1 3/4" x 2 3/4"	4 1/4"	BI43-180
150	12"x1"x1'-11"	6"x1 1/2"x1'-9"	8"x1 1/2"x1'-11"	1 3/4" x 2 1/2"	4"	BI43-150



**PINTLE D**



**NOTES:**

- POSITION OF ANCHOR BOLTS SHOWN IS FOR SQUARE BRIDGES. REVISE POSITION OF ANCHOR BOLT HOLES FOR SKEW TO PERMIT DRILLING HOLES IN BRIDGE SEAT WITH END DIAPHRAGMS IN PLACE.
- PINTLE D SHALL COMPLY WITH M.H.D. 3314, TYPE II. ALL OTHER STRUCTURAL STEEL PER M.H.D. 3305.
- BRONZE TO BE ROLLED ALUMINUM BRONZE PLATE A.S.T.M. B169, ALLOY D, SOFT TEMPER, MILL FINISH; OR CAST ALUMINUM BRONZE A.S.T.M. B148, ALLOY 9C OR 9D\* FOR LUBRICATION SEE M.H.D. 3329.
- MACHINE TOP OF PLATE C TO RADIUS SHOWN AND TO 250 MICRO. MACHINE BOTTOM TO 125 MICRO. A  $-\frac{1}{16}$ " TOLERANCE IN THICKNESS OF PLATE C AND DIMENSION H WILL BE PERMITTED.

FINISH RECESS IN PLATE E TO 250 MICRO. PLATES SHALL BE FLAT AFTER WELDING AND FABRICATION. GALVANIZE AFTER FABRICATION AND BEFORE BRONZE IS FITTED IN PLACE PER M.H.D. 3394, NO PAINT. BRONZE BEARING PLATES SHALL BE BOXED FOR SHIPMENT PER M.H.D. 2471.3K. PAYMENT FOR BEARING ASSEMBLY SHALL INCLUDE ALL MATERIAL SHOWN ON THIS DETAIL.

LOAD KIPS	A	B	C	D	E	F*	G	H	CODE
260	12"x1 1/4"x1'-11"	6"x1 1/2"x1'-9"	9"x2"x1'-9"	1 3/4" x 3"	11"x1 1/4"x1'-11"	7"x1 1/2"x1'-9"	1 1/4"x1"x7"	6 1/8"	BI44-260
240	12"x1 1/4"x1'-11"	6"x1 1/2"x1'-9"	8"x1 3/4"x1'-9"	1 3/4" x 2 3/4"	10"x1 1/4"x1'-11"	6"x1 1/2"x1'-9"	1 1/4"x1"x6"	5 7/8"	BI44-240
200	12"x1"x1'-11"	6"x1 1/2"x1'-9"	7"x1 1/2"x1'-9"	1 3/4" x 2 1/2"	9"x1"x1'-11"	5"x1 1/2"x1'-9"	1 1/4"x1"x5"	5 1/8"	BI44-200
160	12"x1"x1'-11"	6"x1 1/2"x1'-9"	6"x1 1/4"x1'-9"	1 3/4" x 2 1/4"	8"x1"x1'-11"	4"x1 1/2"x1'-9"	1 1/4"x1"x4"	4 7/8"	BI44-160

\* CAST BRONZE SHALL HAVE MACHINE-FINISHED EDGES TO WIDTH AND LENGTH SHOWN. BOTTOM SURFACE TO BE MACHINED TO 250 MICRO AND TOP SURFACE TO 125 MICRO. WIDTH AND LENGTH OF CAST OR WROUGHT BRONZE SHALL BE HELD TO  $\pm 0.001$  AND  $-0.050$  INCH TOLERANCE.

APPROVED MAY 17, 1960

STATE OF MINNESOTA  
DEPARTMENT OF HIGHWAYS

FIXED BEARING ASSEMBLY FOR  
BEAMS WITH 15" TO 16 1/2" FLANGE

REVISIONS  
5/11/60-A  
9/26/61-B

DETAIL NO.  
BI43B

*A. C. LaBonte*  
BRIDGE ENGINEER

APPROVED MAY 17, 1960

STATE OF MINNESOTA  
DEPARTMENT OF HIGHWAYS

EXPANSION BEARING ASSEMBLY FOR BEAMS  
WITH 15" TO 16 1/2" FLANGE WITH GUIDE BARS

REVISIONS  
5/11/60-A  
9/26/61-B

DETAIL NO.  
BI44B

*A. C. LaBonte*  
BRIDGE ENGINEER

STATE OF MINNESOTA  
DEPARTMENT OF HIGHWAYS

BRIDGE NO. 02501

DETAILS

APPROVED 5-3-63

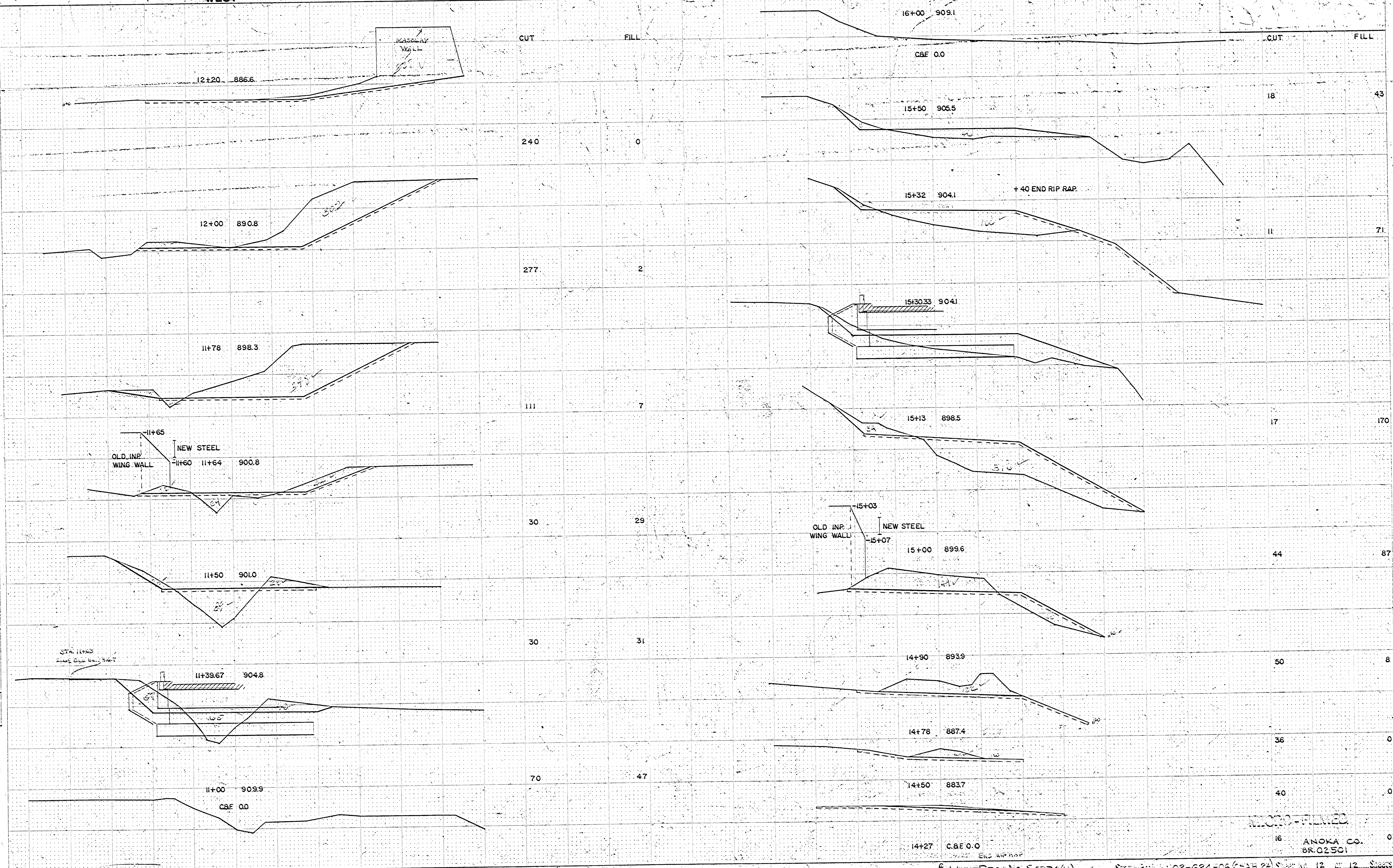


WEST

EAST

DATE	
BY	
REVISION	
NO.	

DATE	
BY	
REVISION	
NO.	



WOOD-PAVED  
 16 ANOKA CO.  
 BR. 02501