

CONVENTIONAL SIGNS

STATE LINE	=====	HEDGE	
COUNTY LINE	=====	TIMBER	
TOWNSHIP OR RANGE LINE	=====	BRUSH	
SECTION LINE	=====	ORCHARD	
QUARTER LINE	=====	ROCK LEDGE	
SECTION LINE	=====	SAND	
1/4 CORNER LINE	=====	EDGE OF CUT	
PROPERTY LINE (E. OR LAND LINE)	=====	LINE OF EMBANKMENT	
VACATED PLATTED PROPERTY	=====	CATCH BASIN	
CORPORATE OR CITY LIMITS	=====	MANHOLE OR DRAINILET	
TOWNSHIP OR RANGE CENTER LINE	=====	PIPE HYDRANT	
BEARING WALL	=====	SW. LAMP	
STEAM RAILROAD	=====	OTHER LAMPS (SHOW SIGN)	
ELECTRIC RAILROAD	=====	RAILROAD CROSSING SIGN	
RAILROAD RIGHT OF WAY LINE	=====	ELECTRIC WARNING SIGN	
COKE	=====	CROSSING GATE	
WATERFALL	=====	CATTLE GUARD	
DYKE	=====	OVERHEAD (SHOW SIGN)	
RAILROAD SWITCH	=====	UNDERPASS (SHOW SIGN)	
RAILROAD TENSION LINE	=====	ABUTMENT WALL & PIER	
POWER POLE LINE	=====	BRIDGE	
TELEPHONE OR TELEGRAPH LINE	=====	RAILROAD (SHOW SIGN, TOWER)	
TELEPHONE CONC.	=====	1 STONE 1 TILE	
GAS MAIN	=====	2 STONE 2 STUCCO	
SEWER MAIN	=====	IRON PIPE	
WATER PIPE	=====	STONE MONUMENT	
SEWER TILE	=====	WOOD STAKE OR NAIL	
SEWER TILE	=====	WOODEN CORNER	
SAND PIT	=====		
CLAY PIT	=====		
ARCH BRIDGE	=====		
SPURGE	=====		
BRIDGE	=====		
TRUCK HEADWAY	=====		
RAILROAD	=====		
PROBABLE ROAD	=====		
LIMITED ACCESS	=====		

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
CONSTRUCTION PLAN FOR BRIDGE NO. 6402
TRUNK HIGHWAY NO. 36=118
BETWEEN TRUNK HIGHWAY NO. 61 AND NORTH SAINT PAUL
AT A POINT 858.65' EAST AND 730.70' SOUTH OF THE S.W. CORNER OF THE N.W. QUARTER OF SECT. 10 T.29N. R.22W.

MINNESOTA PROJECT NO. UG 921(4) STATE PROJECT NO. 6211-05
GROSS LENGTH FEET MILES
BRIDGES LENGTH 2-36' BM SP. FEET MILES
EXCEPTIONS LENGTH 0.00 FEET 0.00 MILES
NET LENGTH FEET MILES

SCALES: PLAN 1" = 100' FEET
PROFILE 1" = 10' VERT. 1" = 10' HORIZ.

LAYOUT
SCALE 1" = 5280' FEET

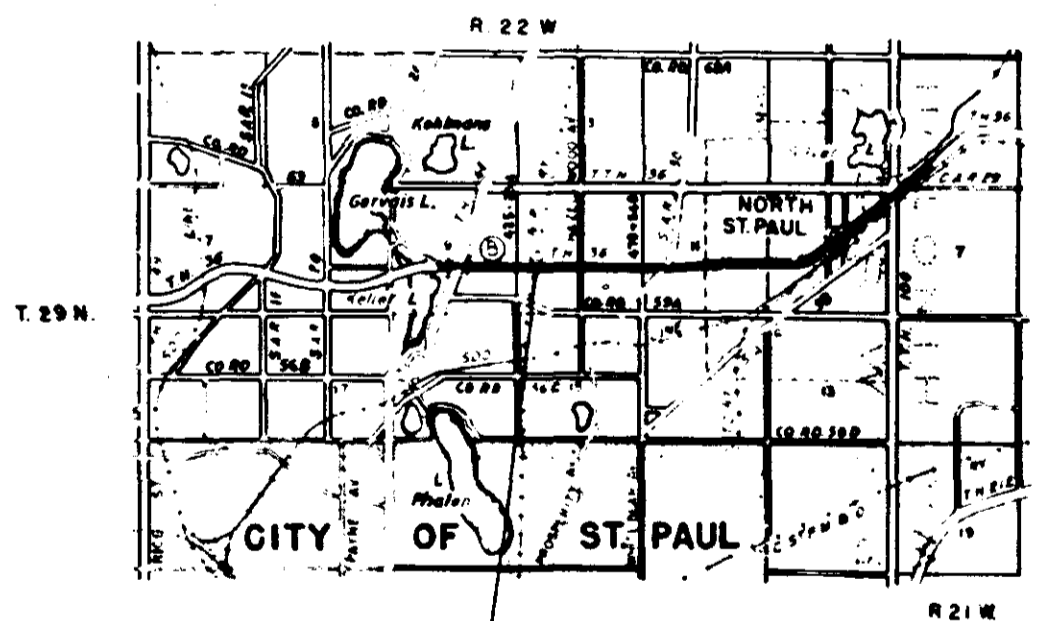
SPECIFICATIONS
"SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
DATED JULY 1947, AND SUBMITTED FOR APPROVAL
BY THE DIVISION ENGINEER OF THE BUREAU OF
PUBLIC ROADS ON OCTOBER 15, 1947, AS MODIFIED
BY SUPPLEMENT I THEREIN DATED APRIL
5, 1948 AND SUBMITTED FOR APPROVAL BY
THE DIVISION ENGINEER OF THE BUREAU OF
PUBLIC ROADS ON MARCH 25, 1953, SHALL
GOVERN



NOTE: SECTION NUMBERS READ FROM THE SOUTH

PIT DATA

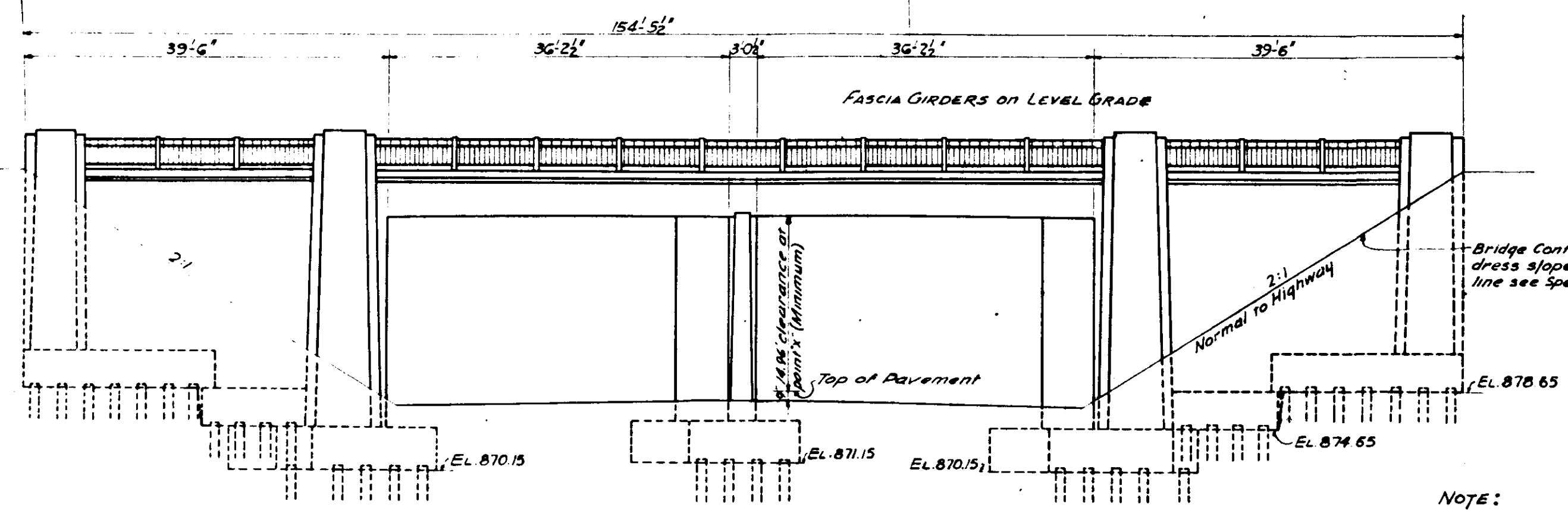
PIT NO.	Location in Dead Map
PIT NO.	Location in Dead Map
PIT NO.	Location in Dead Map
PIT NO.	Location in Dead Map



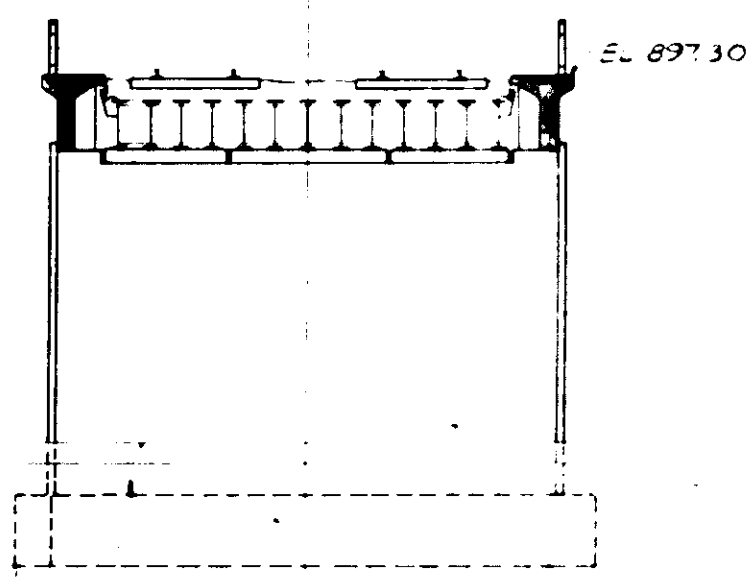
BR. NO. 6402
T.H. 36 UNDER N.P. RR.
STA. 434+09.75

Special Agent in Charge W. D. Dittler 7-21-52
Recommended for Approval W. A. Gustafson 7-21-52
Recommended for Approval G. J. Mahony 7-21-52
Recommended for Approval W. S. Larson 7-21-52
Approved W. S. Larson 7-21-52

MICRO-FILMED
DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
RECOMMENDED FOR APPROVAL
DISTRICT ENGINEER DATE
APPROVED
DIVISION ENGINEER DATE



ELEVATION



SECTION A-A

NOTE:
DRAINAGE SYSTEM COMPLETE TO INCLUDE DECK DRAINS AS DETAILED, 6" LEADER PIPES, 6" PERFORATED PIPE INSIDE SIDE WALLS, 12" PERFORATED PIPE INSIDE FRONT WALL, 12" PIPE & METAL APRON OUTSIDE ABUTMENTS & ALL NECESSARY CONNECTIONS, FITTINGS & FASTENERS.

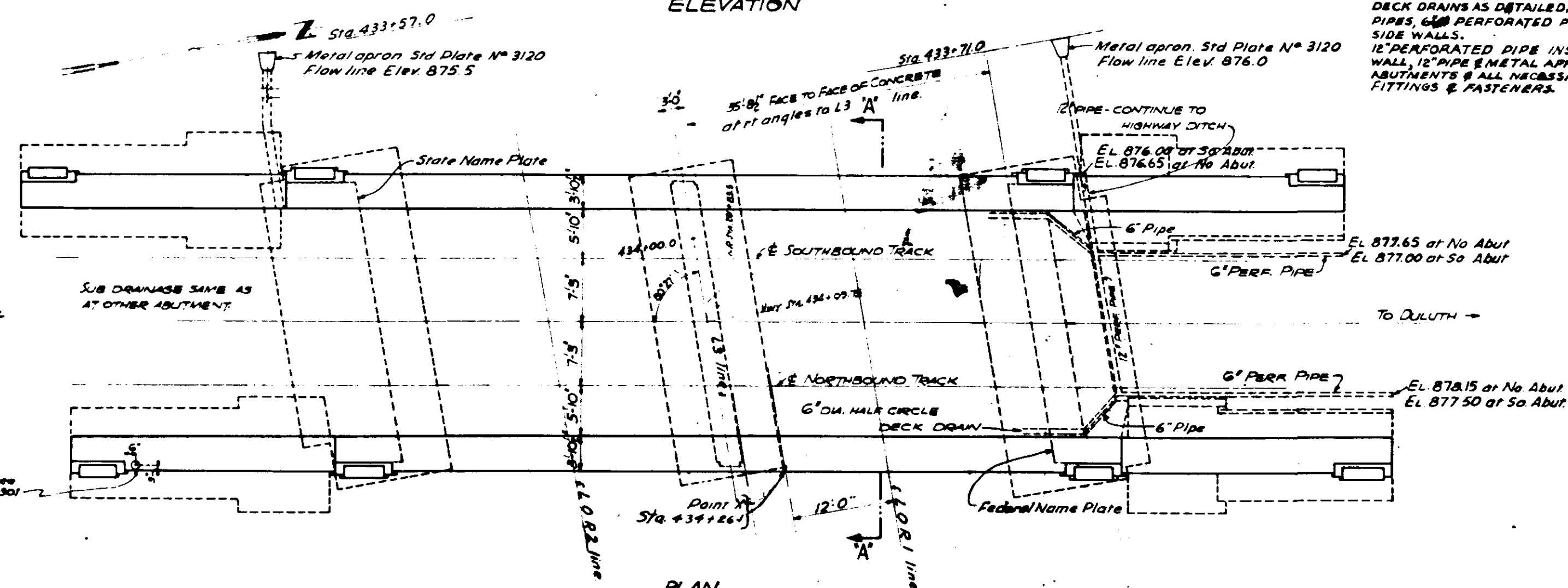
GENERAL NOTES

ELEVATIONS ARE HIGHWAY DATUM BASED ON BENCH MARK IN TELEGRAPH POLE TO RIGHT OF HWY SA 433+44 E. 2003
CONCRETE NOTES ON INDEX 23240
STRUCTURAL STEEL NOTES ON INDEX 23236
DRAINAGE WITHIN THE ABUTMENT WALL AREA SHALL BE PROVIDED AS SHOWN ALL PIPE SHALL BE CORR. BATED SA. ENO. 33A OR OVER WITH PERFORATED SIDE OF PIPE DOWN ALL PIPE TO BE ASPHALT COATED
STD. CONSTRUCTION PIPE FITTINGS SHALL BE USED.

CONSTRUCTION NOTES

THE SPECIFICATIONS FOR HIGHWAY CONSTRUCTION DATED JULY 1927 AND SUBMITTED FOR APPROVAL BY THE DIVISION ENGINEER OF THE BUREAU OF PUBLIC ROADS ON OCTOBER 8, 1947, AS MODIFIED BY SUPPLEMENT 1 THERE TO DATED APRIL 15, 1953 AND SUBMITTED FOR APPROVAL BY THE DIVISION ENGINEER OF THE BUREAU OF PUBLIC ROADS ON MARCH 25, 1953, SHALL GOVERN.
SHOP PAINT BALLAST PLATES AND ALL STRUCTURAL STEEL ONE COAT OF RED LEAD AS PER M.H.D. 3506
FIELD PAINT UNDER SIDE OF BALLAST PLATES, STRUCTURAL STEEL AND ALL EXPOSED STEEL EXCEPT RAILING.
1st FIELD COAT OF GRAY AS PER M.H.D. 3522
2nd FIELD COAT OF ALUMINUM AS PER M.H.D. 3527
WHEREVER BIT FELT IS CALLED FOR USE IT SHALL BE 3 TUMINOUS JOINT FILLER AS PER AASHO SPECIFICATIONS M33-89
LISTS OF JOINT FILLER ON PLANS ARE IN TENDERS CONTRACTOR CONVENIENCE ONLY ANY ADULT QUAL FILLER MATERIALS REQUIRED SHALL BE FURNISHED BY THE CONTRACTOR AT HIS OWN COST.

BENCH MARK EL. 890.63
MSL 1929 ADJ. SPIRE IN
TEL. POLE TO RT. STA. 433+44



PLAN

SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE

ITEM NO.	2401.525	2401.501	2401.501	2401.501	2402.521	2402.523	2402.583	2402.524	2402.577	2452.503	2452.504
ITEM	CLASS U CONCRETE	CONCRETE REINFORCE- STRUCTURAL	CONCRETE REINFORCE- STRUCTURAL	REINFORCE- STRUCTURAL	REINFORCE- STRUCTURAL	REINFORCE- STRUCTURAL	REINFORCE- STRUCTURAL	REINFORCE- STRUCTURAL	REINFORCE- STRUCTURAL	REINFORCE- STRUCTURAL	REINFORCE- STRUCTURAL
UNIT	CU YD	CU YD	CU YD	CU YD	LB	LB	LB	LN. FT.	LB	LN. FT.	LN. FT.
QUANTITY	1440	242.3	1120.5	42,430	283,300	51,440	255.08	50	2	12,580	12,020

SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE

ITEM NO.	2401.530	2401.533	2401.501	2401.502	2401.504	502.551
ITEM	ROADS	SELECTED	BACKFILL	BACKFILL	BACKFILL	BACKFILL
UNIT	CU YD	CU YD	LN. FT.	LN. FT.	LN. FT.	LN. FT.
QUANTITY	590	240	87	3140	18,940	One

LIST OF DRAWINGS

SHEET NO.	N.R. NO.	TITLE OF SHEET
1	23285	GENERAL PLAN
2	23286	STEEL DECK
3	23287	BEARINGS
4	23288	FASCIA GIRDERS
5	23289	RAILING
6	23290	PIER
7	23291	ABUTMENT FRAMING
8	23292	ABUTMENT REINFORCING
9	23293	N.E. & S.W. WING WALLS
10	23294	N.W. & S.E. WING WALLS
11	23295	SHOOFLY AND PROFILES
12		SURVEY

I hereby certify that this plan was prepared under my direct supervision and that I am a duly registered professional engineer in the laws of the State of Minnesota.

2824 C. E. Ehberg

NORTHERN PACIFIC RAILWAY
ST. PAUL DIV. WHITE BEAR LINE
PROP. N.P. BRIDGE NO. 5
GLOSTER, MINN.
Office of Bridge Engineer
St. Paul, Minn. Mar. 1, 1947
Scale 1/4" = 1'-0"
INDEX 23286

MICRO-FILMED

TRUNK HIGHWAY No 36
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE No 6402
OVER TH. No 36 1.0 MI. NORTH OF GLOSTER

GENERAL PLAN

SEC 10 T 29 N R 22 W
NEW CANADA TWP RAMSEY CO.

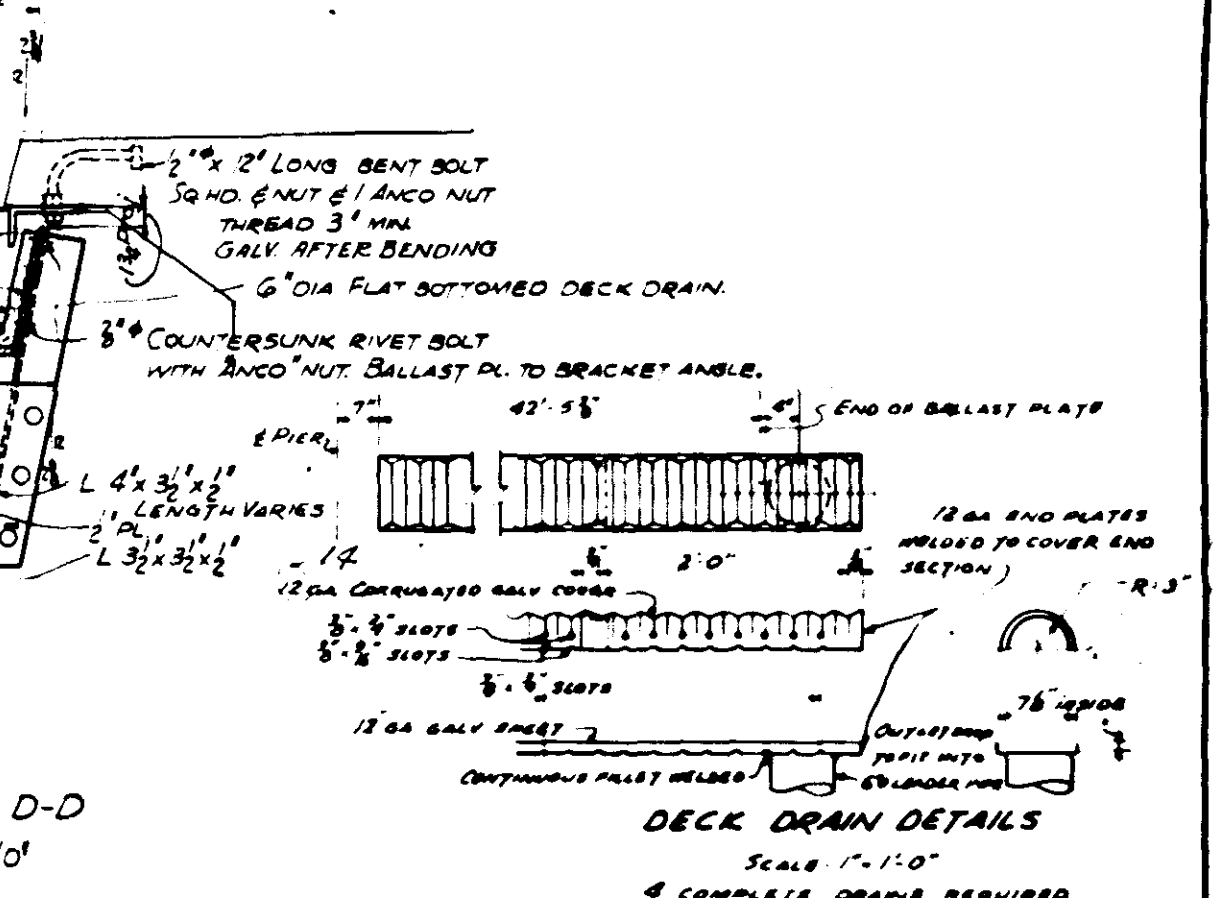
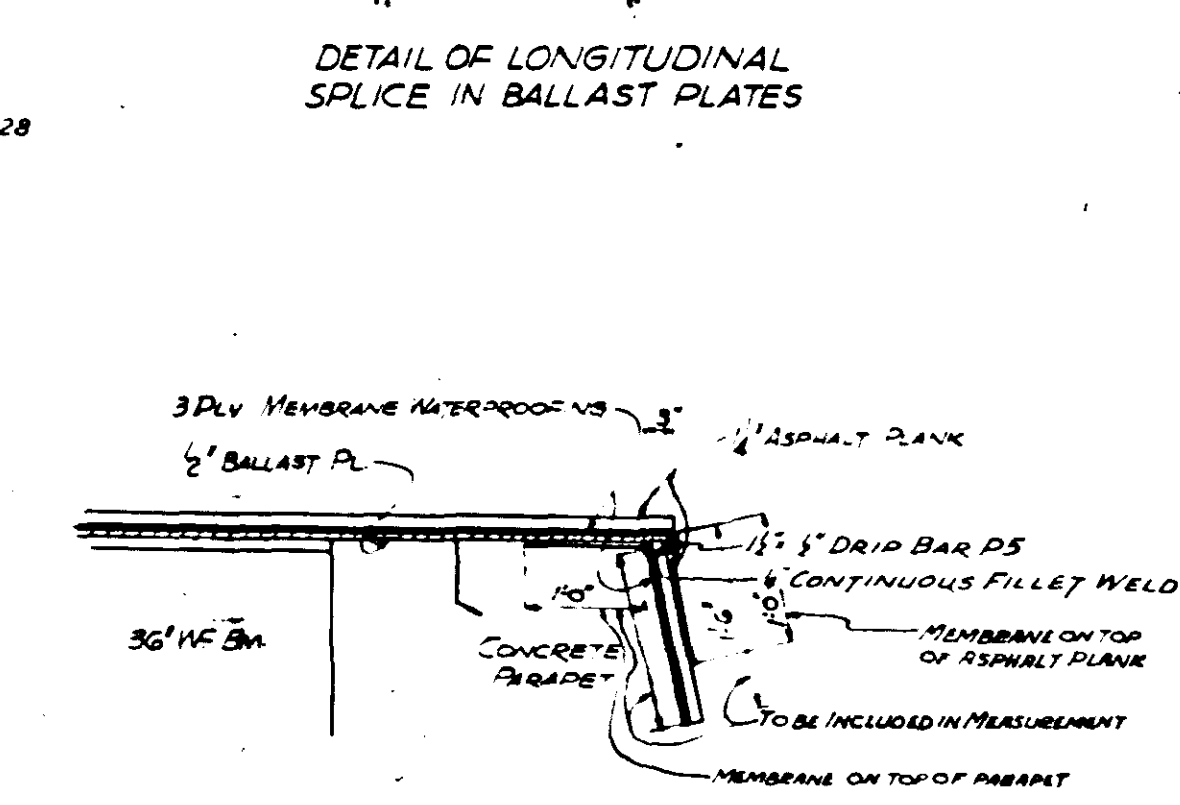
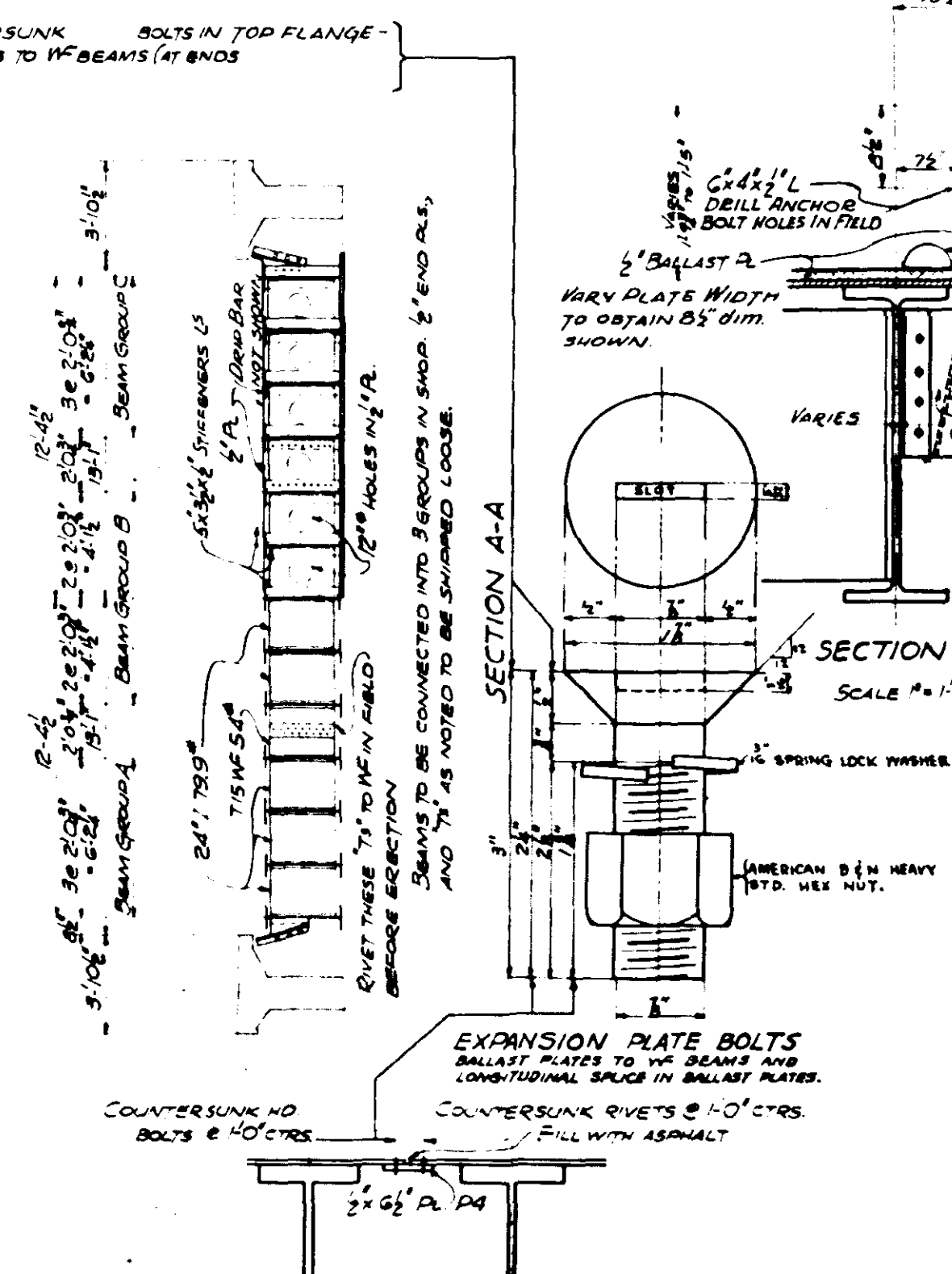
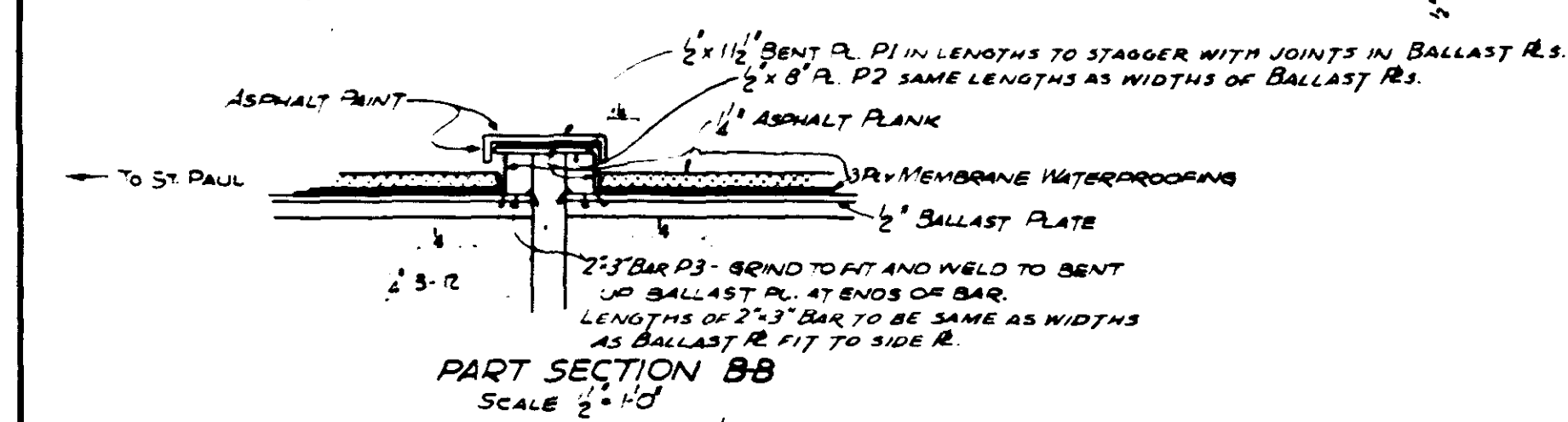
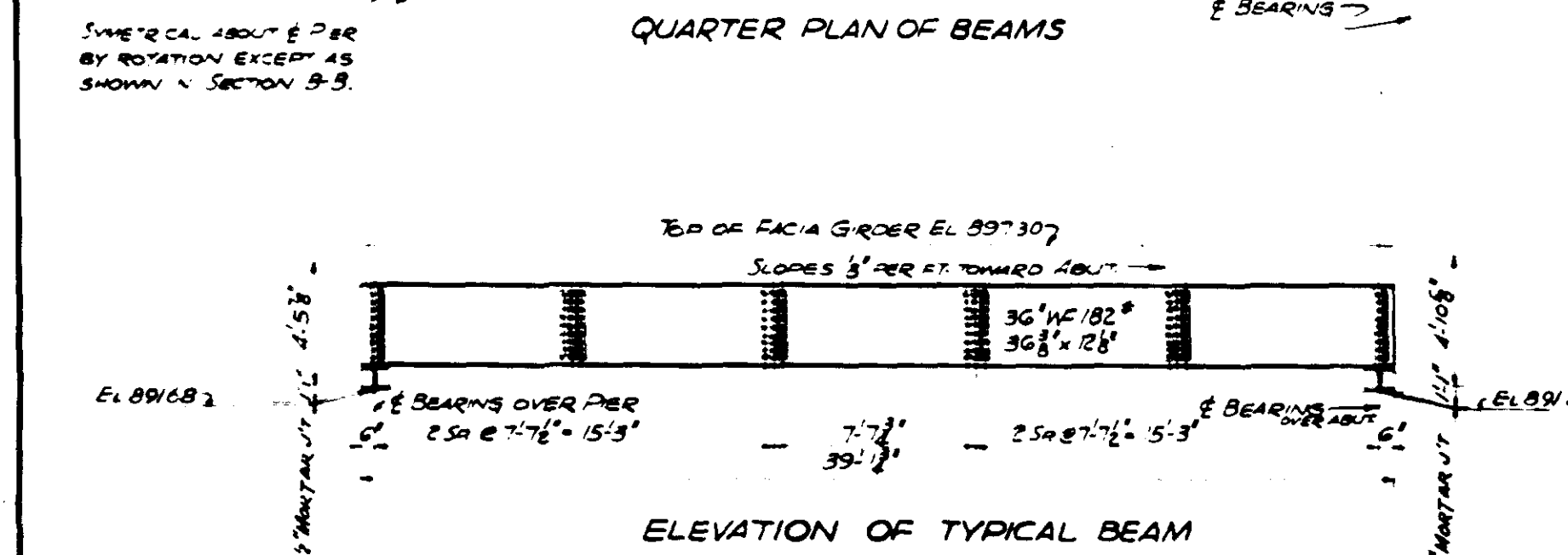
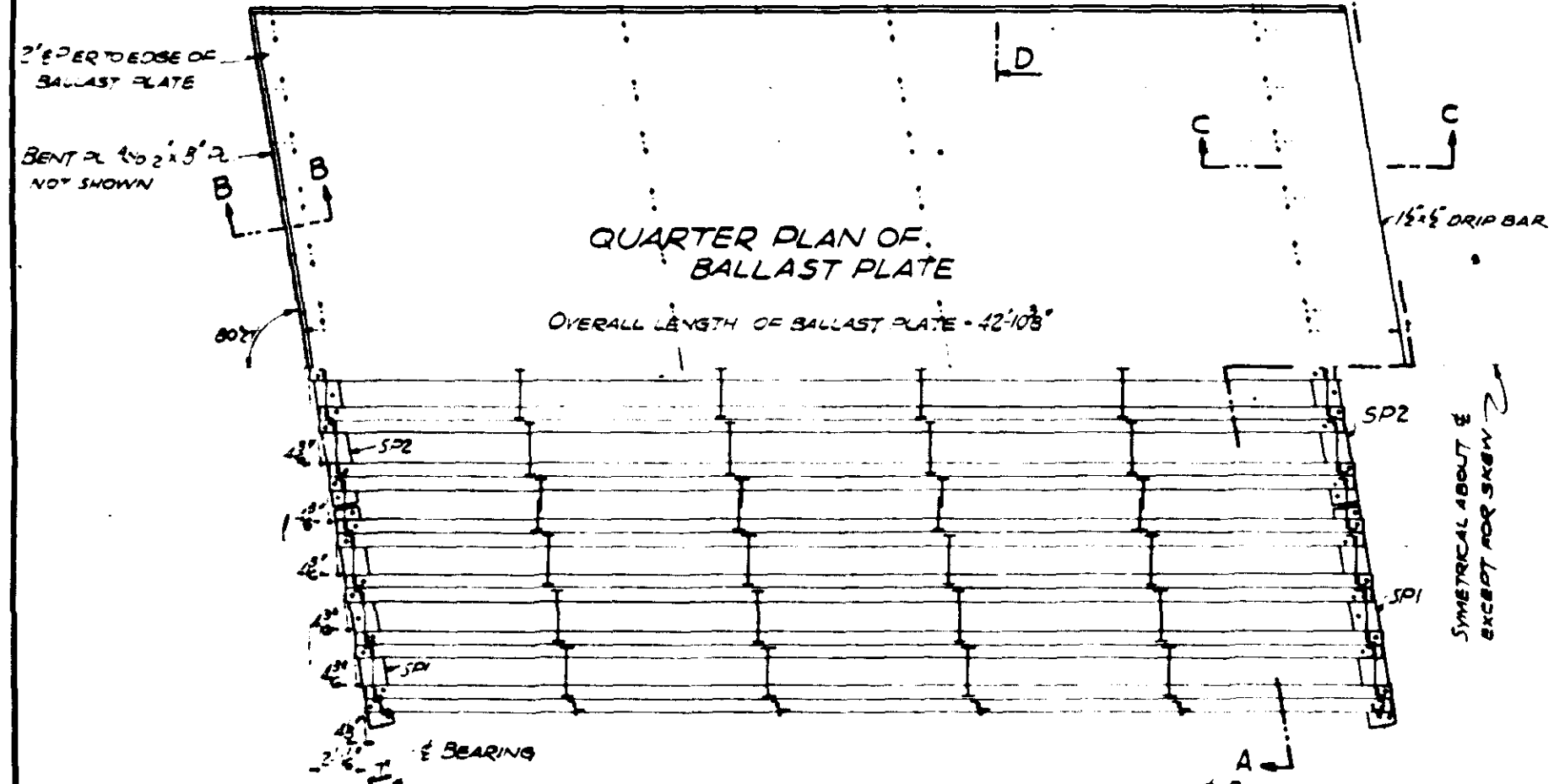
Approved April 20, 1953

Bridge Engineer

APPROVED FOR NORTHERN PACIFIC RY. CO.
N.P. Peterson
CHIEF ENGINEER
JUNE 21 1953

See Sheet 7 for material specification

5/16" HOLES FOR 3/8" COUNTERSUNK BOLTS IN TOP FLANGE - FOR BOLTING BALLAST PLATES TO W/ BEAMS (AT ENDS AND CENTERS AS SHOWN)



BALLAST PLATES (PLATES P1 TO P5) SHALL BE PHOSPHOROUS CHROMIUM STEEL. PLATES MAY BE BUTT WELDED AS REQ'D TO OBTAIN PIECES FOR FIELD INSTALLATION. SEE NOTE BELOW.

6" DIA. FLAT BOTTOMED CORRUGATED TOP SECTION OF DECK DRAIN TO BE ASPHALT COATED. TOP SECTION TO BE PERFORATED NEAR BASE VERTICAL L/D ON PAN SECTION TO BE PERFORATED.

ALL METAL TO BE AT LEAST 12 GA. GALVANIZED AND ASPHALT COATED.

ENTIRE DECK TO BE WATERPROOFED AS FOLLOWS:

1. BALLAST PLATE TO BE COMPLETELY COVERED WITH FABRIC WATERPROOFING CONSISTING OF 3 LAYERS OF FABRIC LAID IN 4 SWABINGS OF ASPHALT.
2. ASPHALT PLANK WILL BE PLACED AS SHOWN TO PROTECT THE FABRIC WATERPROOFING.

STRUCTURAL STEEL NOTES

DESIGN TO COMPLY WITH THE 1949 SPECIFICATIONS OF THE AMERICAN RAILWAY ENGINEERING ASSOCIATION FOR E72 LOADINGS.

ALL STEEL TO BE OPEN HEARTH STRUCTURAL A57M SPEC A7 UNLESS NOTED.

RIVETS TO BE RIVET STEEL A57M SPEC A141 UNLESS NOTED.

RIVETS TO BE 3/8" WITH 5/16" HOLES UNLESS NOTED.

SHOP DETAILS TO BE APPROVED BY THE V.P.R.V. BEFORE FABRICATION. SHOP DRAWINGS TO COMPLY WITH MINNESOTA DEPT. OF HIGHWAYS SPEC 2471.39 AND SHALL BECOME THE PROPERTY OF THE V.P.R.V. CO. WHEN WORK IS COMPLETE.

SHOP INSPECTION BY DEPT. OF HIGHWAYS.

WORKMANSHIP MATERIAL TO COMPLY WITH MHD SPECIFICATIONS.

WELDING LOW ALLOY STEEL: WELDING OF PHOSPHOROUS CHROMIUM STEEL (ASTM A-242) SHALL BE BY ELECTRIC ARC USING LOW HYDROGEN PROCESS FOR MANUAL ARC WELDING LINCOLN ELECTRODE LH70 OR APPROVED EQUAL SHALL BE USED.

WELD TESTS OF PROCESS AND WORKMANSHIP WILL BE REQUIRED DURING FABRICATION. COPIES OF REPORTS ENUMERATED IN MHD 2471.39 WILL BE REQUIRED.

ALL FIELD CONNECTIONS EXCEPT IN DECK PLATES TO BE 3/8" HIGH TENSILE BOLTS WITH JAM NUTS. BOLTS TO BE TIGHTENED TO 32,400 LB BOLT TENSION. BOLT MATERIAL TO COMPLY WITH ASTM A325-51T.

GENERAL REAMING INCLUDING ALL DIAPHRAGMS, SOLE PLATES & BOLSTERS WILL BE REQUIRED AS PER MHD 2471.

BEAM GROUPS TO BE ASSEMBLED IN SHOP WITH SOLE PLATES IN PLACE BEFORE RIVETING DIAPHRAGMS, SOLE PLATES & BOLSTERS TO BE FITTED IN SHOP AND MATCH MARKED.

SHIM AS NECESSARY BETWEEN BEAMS & SOLE PLATES TO INSURE TRUE AND LEVEL BEARING OF BEAM GROUPS ON BOLSTERS.

MICRO-FILMED

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE No 6402

STEEL DECK

Approved: April 20, 1953

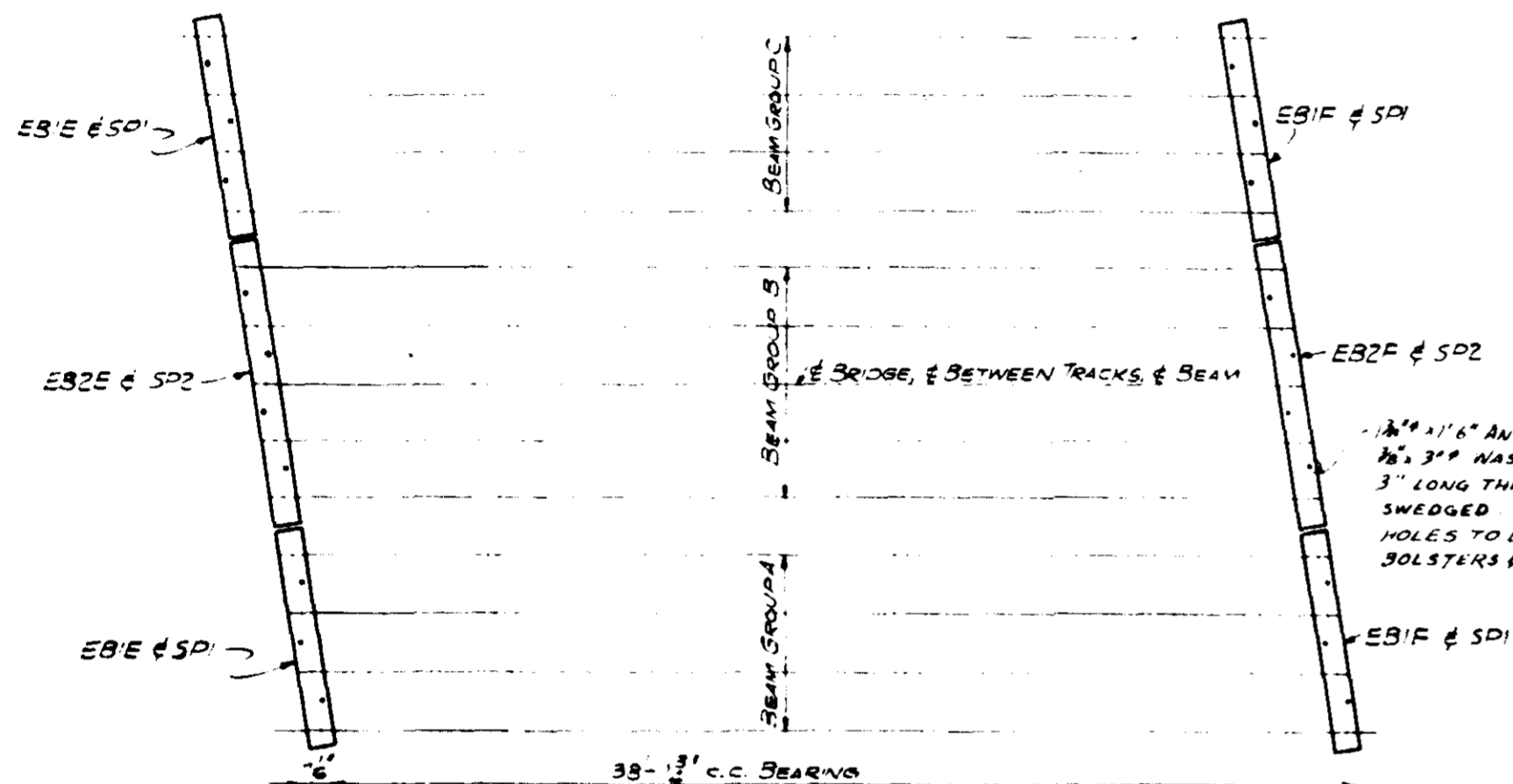
W. L. ...
Bridge Engineer

NORTHERN PACIFIC RAILWAY
St. Paul Div. White Bear Line
PROP'N BRIDGE NO. 5
GLOSTER, MINN.

Office of Bridge Engr.
St. Paul, Minn. Mar. 1, 1947
Scale 1/2" = 1'-0" unless noted

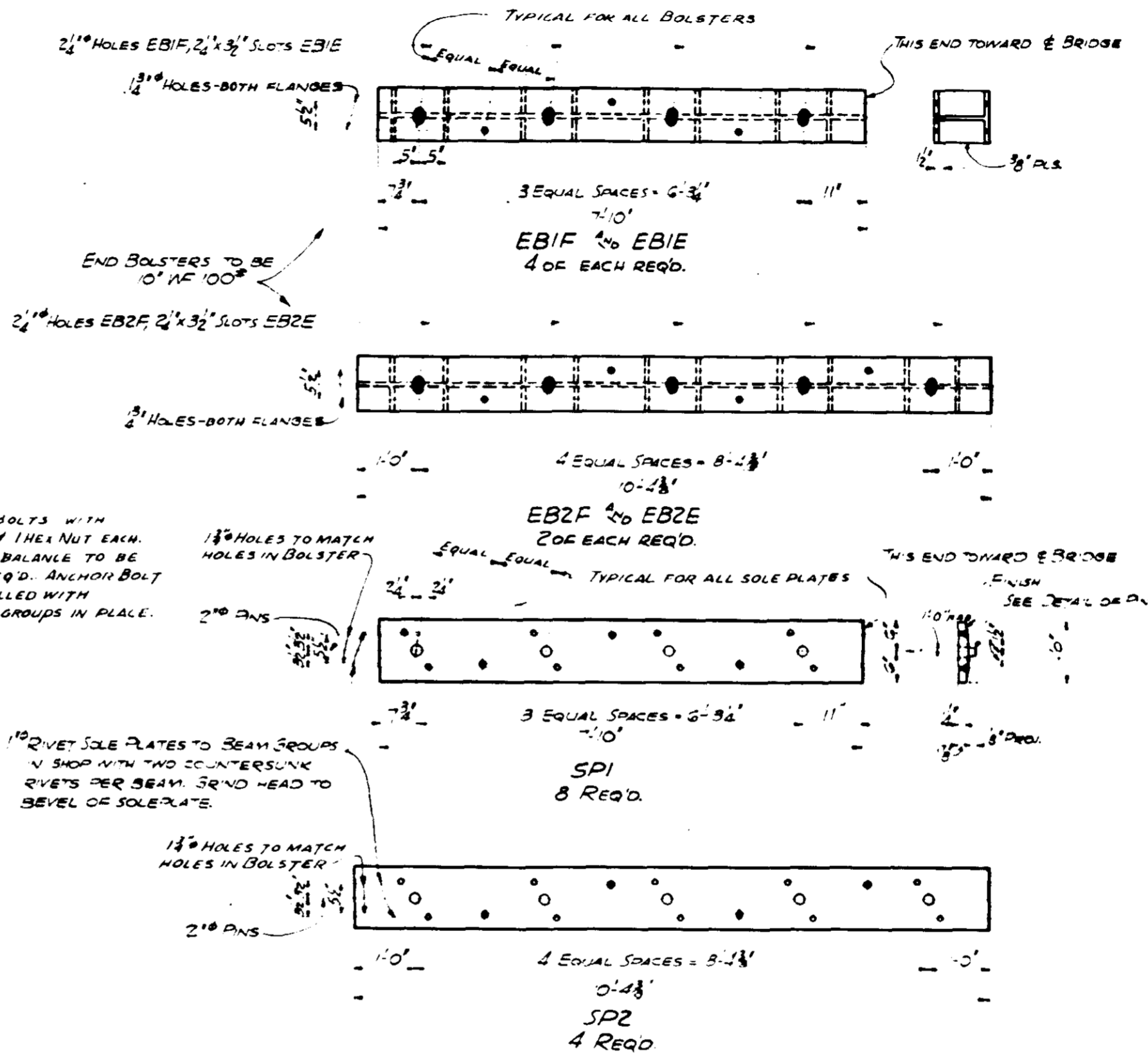
No. 23234

Sheet 2 of 12 Sheets

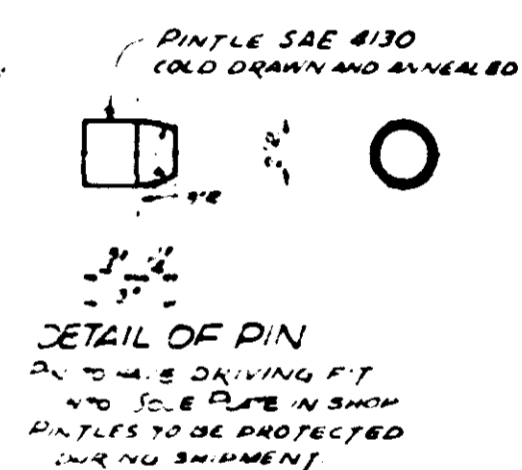


ASYMMETRICAL ABOUT \bar{E}
PER BY ROTATION

LAYOUT OF SOLE PLATES AND BOLSTERS



RIVET SOLE PLATES TO BEAM GROUPS
IN SHOP WITH TWO COUNTERSUNK
RIVETS PER BEAM. GRIND HEAD TO
BEVEL OF SOLE PLATE.

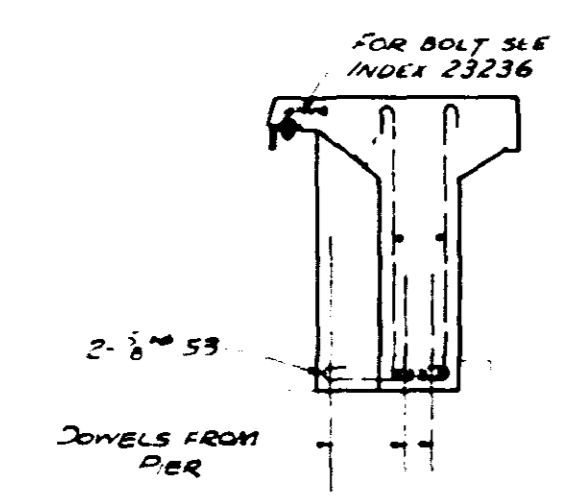
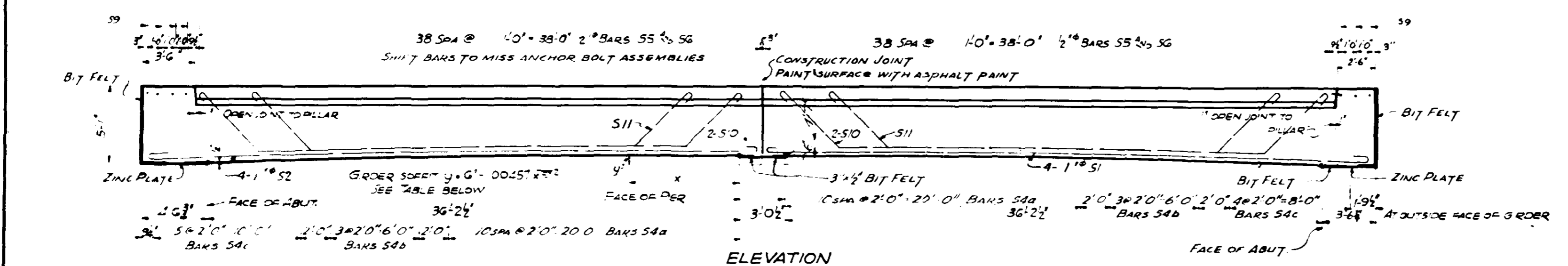
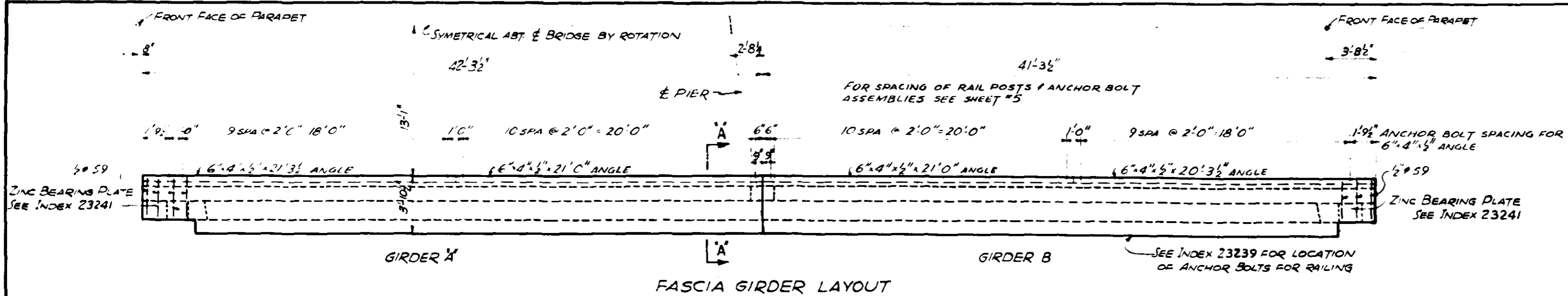


SEE STEEL DECK DETAILS AND STRUCTURAL STEEL NOTES
ON PAGE 25236

MICRO-FILMED

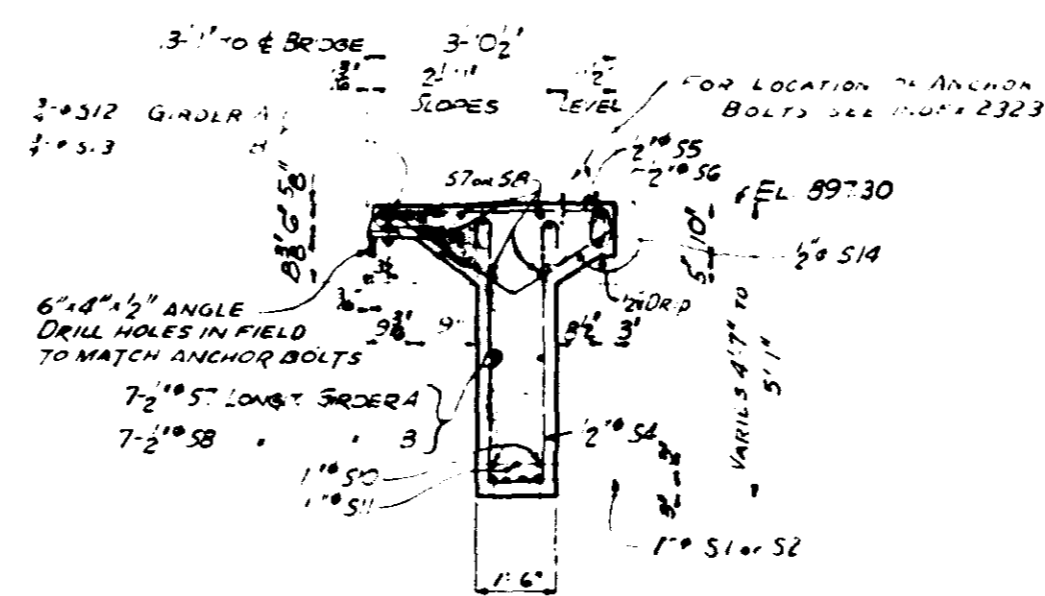
NORTHERN PACIFIC RAILWAY
ST. PAUL DIV. WHITE BEAR L
PROP NP BRIDGE NO 5
GLOSTER, MINN.
Office of Bridge Engr
St Paul, Minn Mar 1, 1947
Scale 3/4\"/>

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
BRIDGE N^o 6402
BEARINGS
Approved: April 20, 1953
NICK...
Bridge Engineer



SECTION DIMENSIONS

X	Y	X	Y
2'-0"	6"	20'-0"	4 1/2"
2'-5"	5 1/2"	22'-0"	3 1/2"
6'-0"	5 1/2"	24'-0"	3 1/2"
9'-0"	5 1/2"	26'-0"	2 1/2"
10'-0"	5 1/2"	28'-0"	2 1/2"
12'-0"	5 1/2"	30'-0"	1 1/2"
14'-0"	5 1/2"	32'-0"	1 1/2"
16'-0"	4 1/2"	34'-0"	1 1/2"
18'-0"	4 1/2"	36'-2 1/2"	0



BILL OF BARS FOR 4 GIRDERS

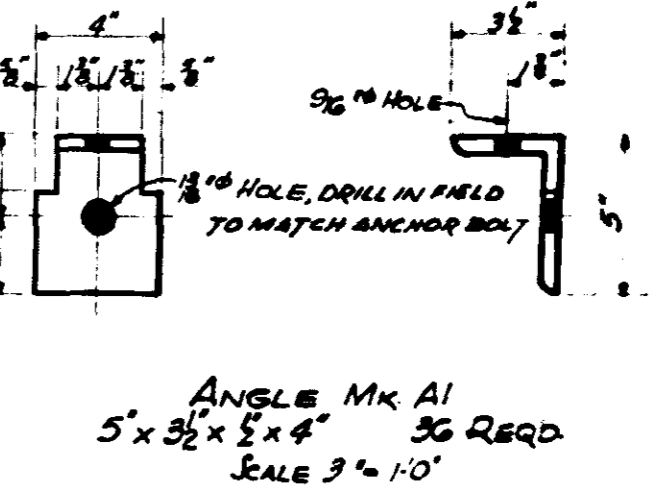
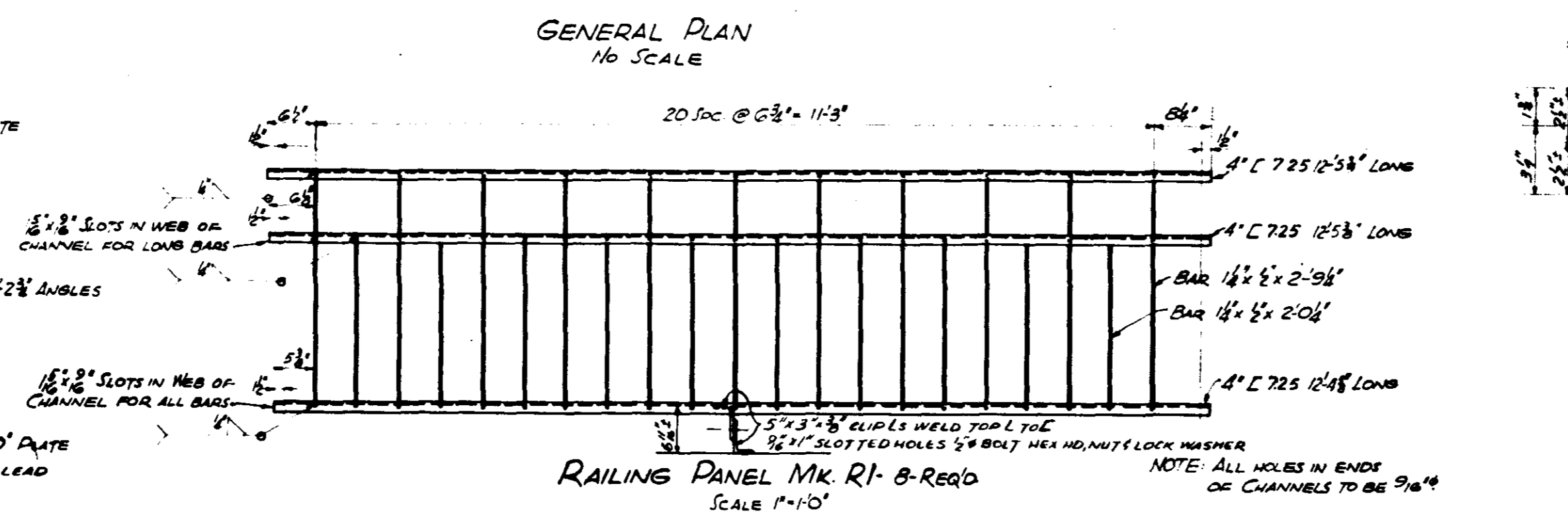
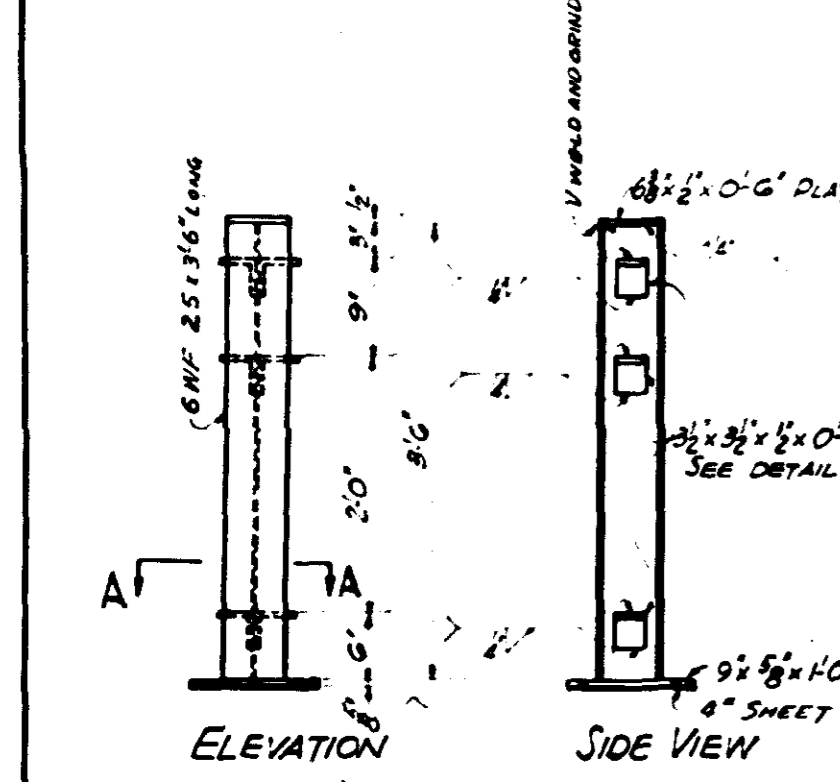
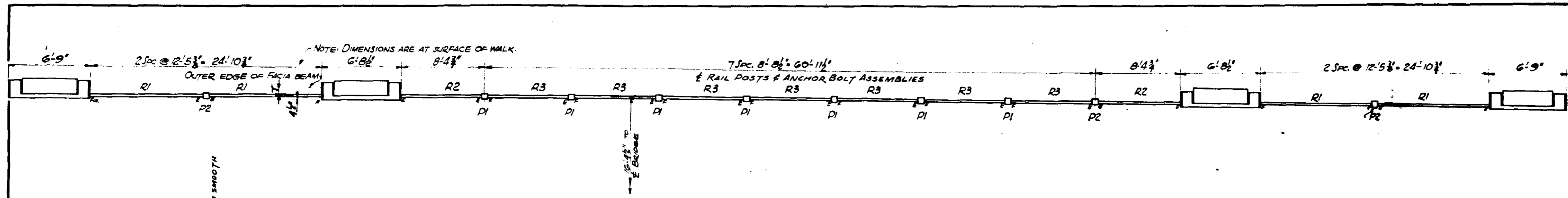
MR	NO	SIZE	LENGTH	DETAIL	QTY
S1	8	1"	43'-2"		8
S2	8	1"	43'-2"		8
S3	8	5/8"	3'-4"		5
S4a	48	10#	10'-8"		4
S4b	16	2"	11'-0"		4
S4c	22	1"	11'-4"		4
S5	156	1"	5'-7"		4
S6	156	1"	4'-0"		4
S7	14	2"	12'-0"		4
S8	14	1"	11'-0"		4
S9	14	2"	3'-2"		4
S10	8	1"	41'-6"		8
S11	4	1"	35'-0"		8
S12	2	1"	42'-0"	STRAIGHT	6
S13	2	1"	41'-0"		6
S14	8	1"	38'-6"		4

BARS ARE DIMENSIONED IN TO IN OF BENDS
CONCRETE NOTES ARE ON INDEX 23240

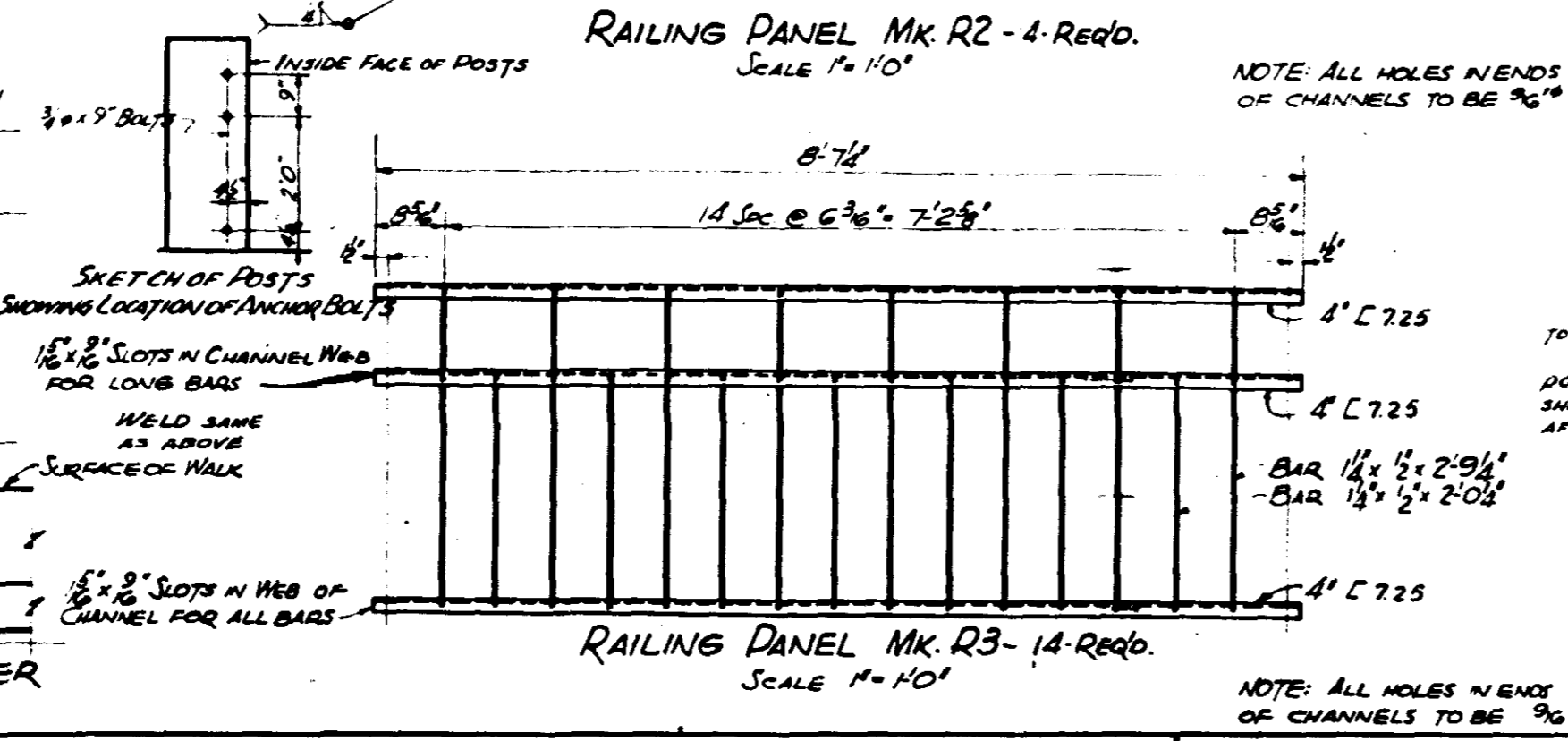
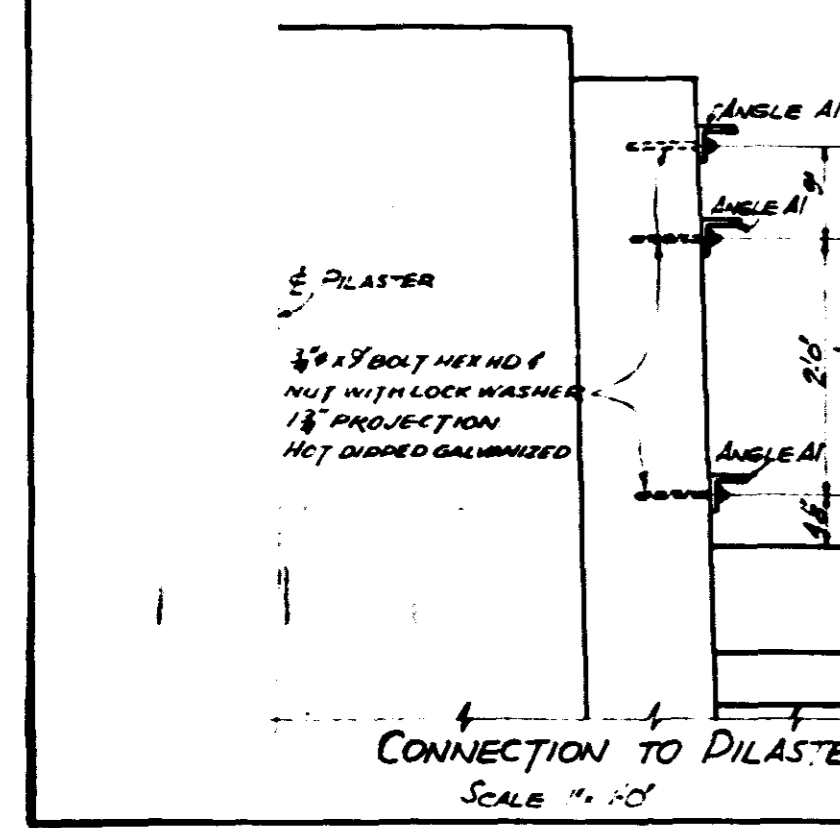
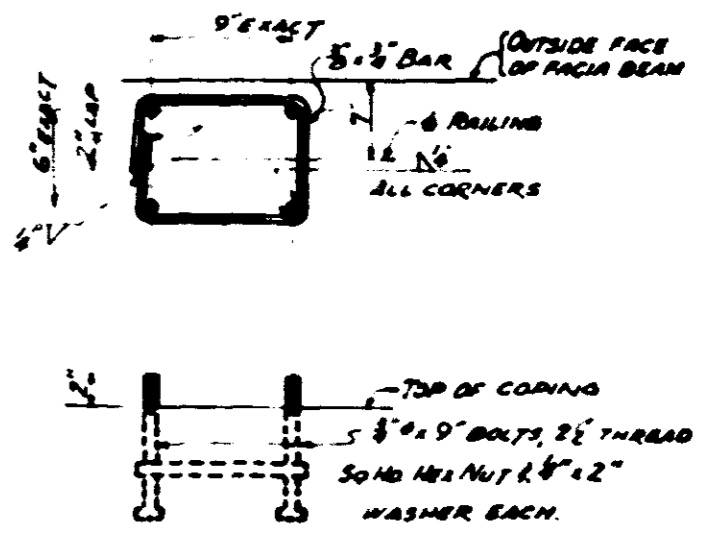
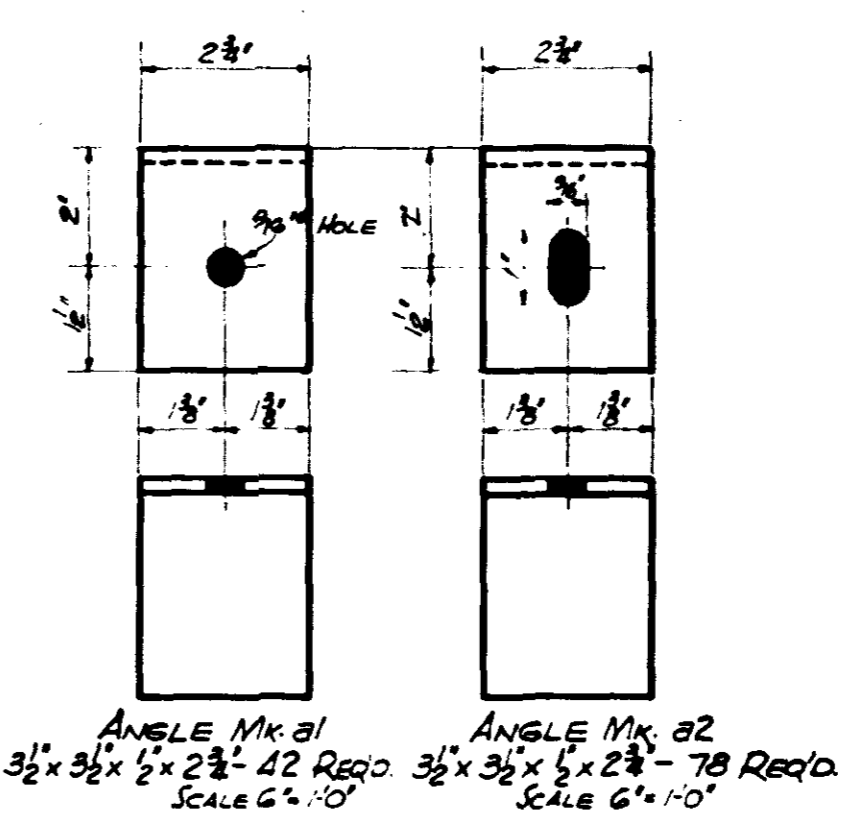
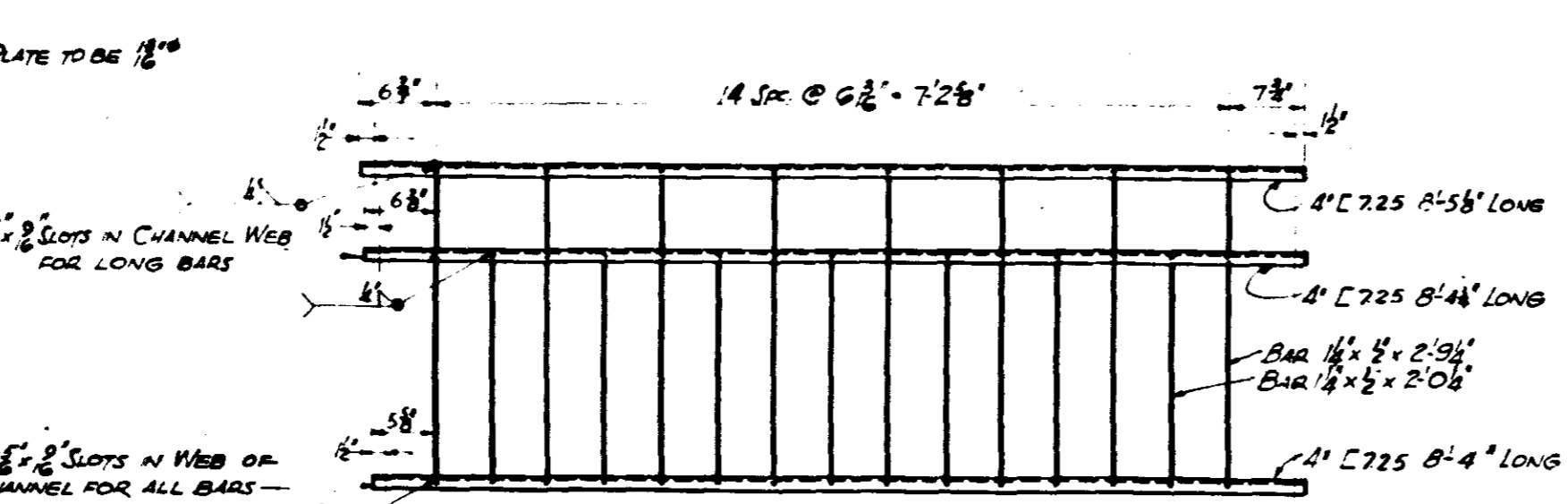
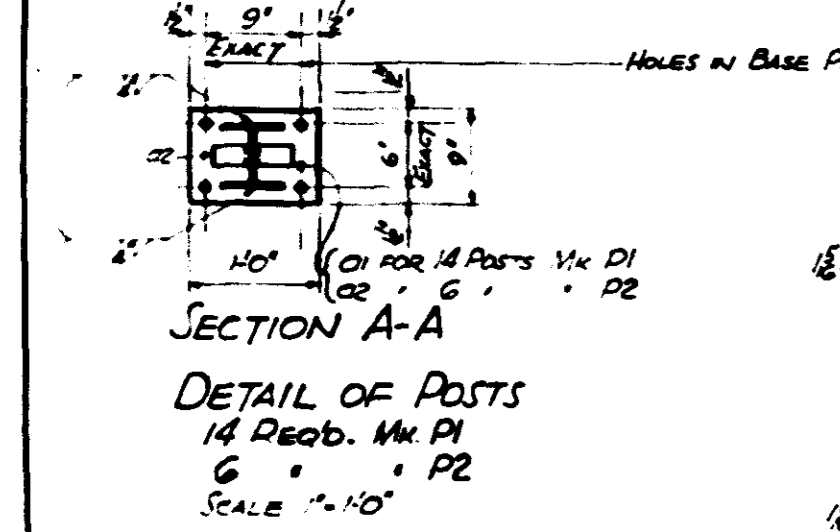
- SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE
- CONCRETE M & N (FASCIA GIRDERS) 182.3 CU YD
 - REINFORCEMENT BARS (FASCIA GIRDERS) 5750 LBS
 - STRUCTURAL STEEL 282100 LBS
 - STRUCTURAL PHOSPHOROUS CHROMIUM STEEL 51910 LBS
 - ORNAMENTAL METAL RAILING 255.00 LBS
 - 3 PLY MEMBRANE WATERPROOFING 2510.00 SQ FT
 - SHEET ZINC 50.0 LBS
 - ASPHALT PLANK - (AS REQ'D SEE DETAILS)
 - PREFORMED BITUMINOUS JOINT FILLER 8.00 LBS
 - BENCH MARK DISK SEE STD R N 9300
- TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS
 - INCLUDED IN PRICE BID FOR 3 PLY MEMBRANE WATERPROOFING
 - STATE WILL FURNISH DISK PAYMENT FOR READING DISK INCLUDED IN PRICE BID FOR OTHER ITEMS
 - IF HAS BEEN ADDED ACCORDING TO RFD 2062.442

NORTHERN PACIFIC RY
ST PAUL DIV. WHITE BEAR LINE
PROP. P. BRIDGE NO. 5
GLOSTER, MINN.
Office of Bridge Engr
St Paul Minn. Mar 1, 1947
Scale as noted

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
BRIDGE N° 6402
FASCIA GIRDERS
Approved: April 20, 1953
H. G. [Signature]
Bridge Engineer



BILL OF MATERIAL				
NO.	MK.	SIZE	LENGTH	DESCRIPTION
14	P1	As per detail	24'	
6	P2			
8	R1			8' long panel
4	R2			
14	R3			
36	A1	5" x 3 1/2" x 1/2" x 4"		Angle
36		1/2" x 1/2" x 2'-0 1/4"		Hex Hd & Nut
156		3/16" x 3/8" x 12"		Lock Washer & Thread
20		Anchor Bolt Assemblies As Detailed		Bolts with Anchor

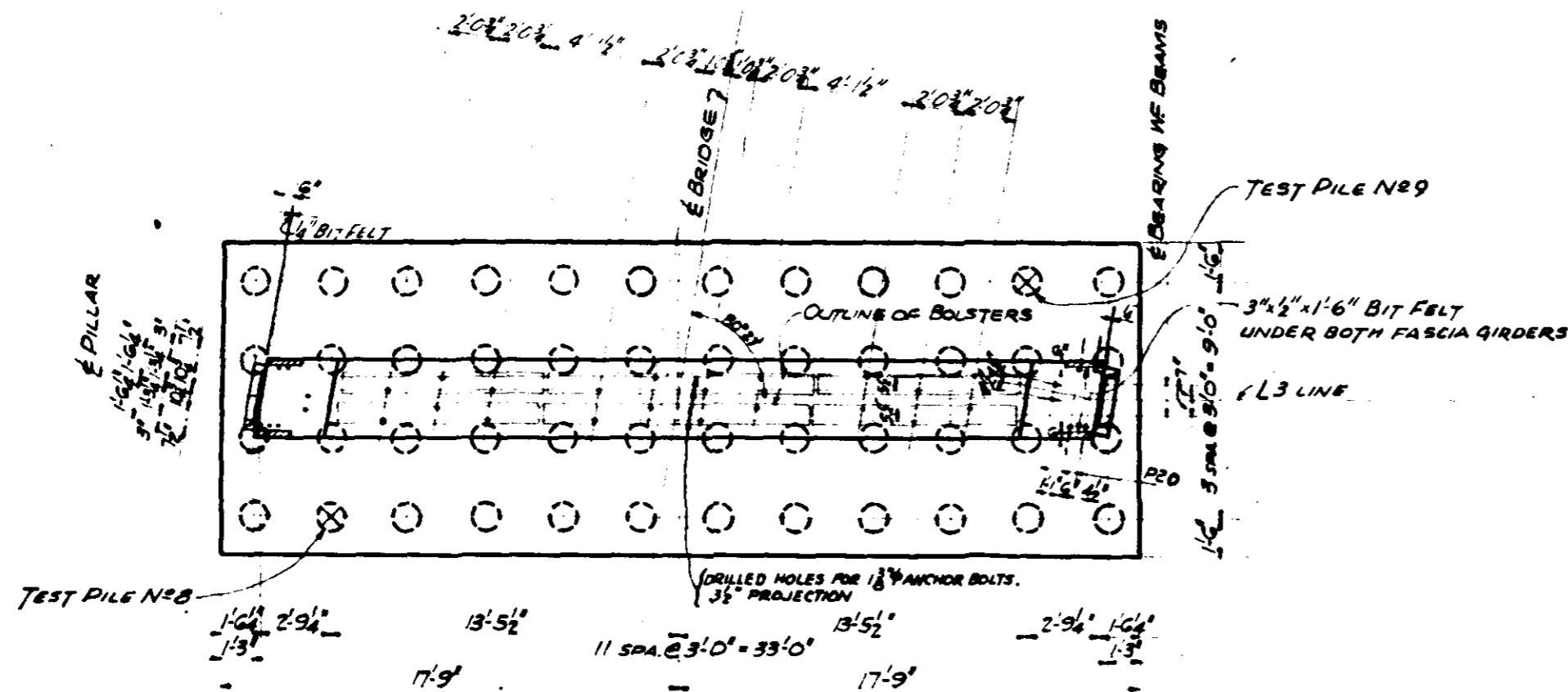


RAILING NOTES
 THE PAY LENGTH FOR RAILING IS MEASURED FACE TO FACE OF CONCRETE POSTS AT SURFACE OF WALK = 255'-11"
 PAYMENT FOR ORNAMENTAL METAL RAILING INCLUDES POSTS, RAIL PANELS, CONNECTIONS, ANGLES, ANCHOR BOLTS, SHEET LEAD, BOLTS & NUTS. COMPLETE RAILING TO BE GALVANIZED AFTER FABRICATION AS PER M. D. H. 3394.

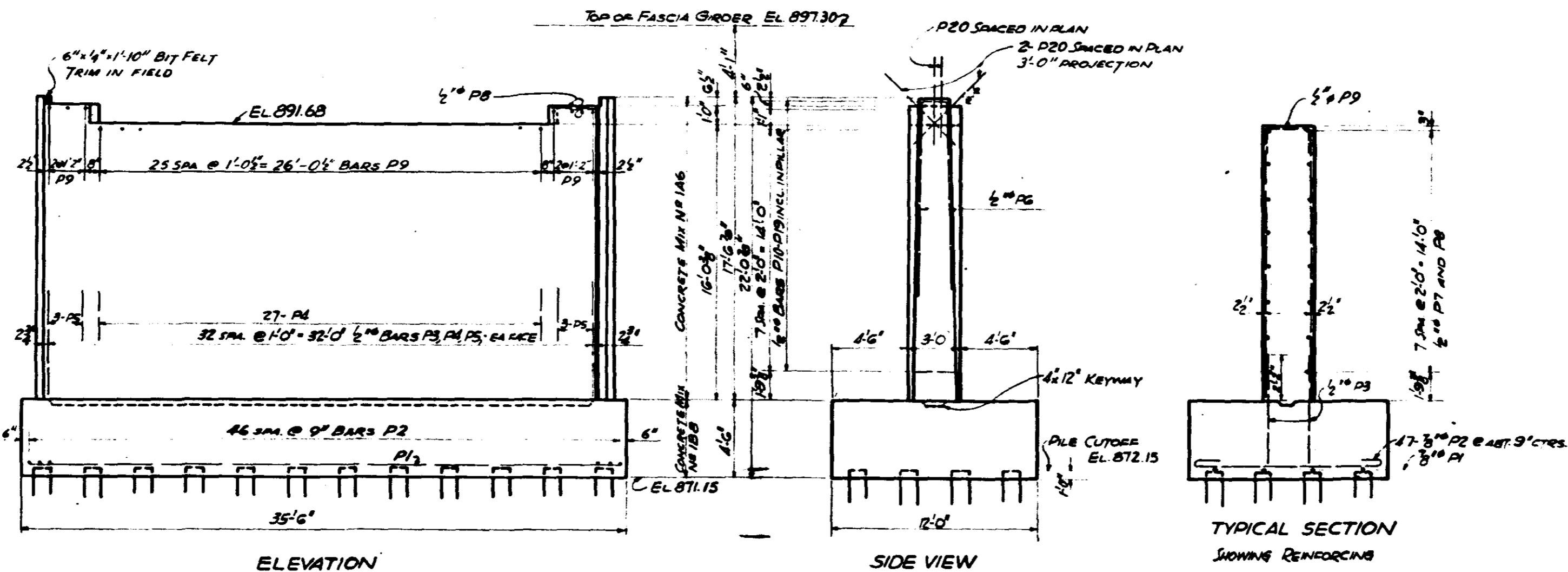
NORTHERN PACIFIC RAILWAY
 ST. PAUL DIV. WHITE BEAR LINE
 PROP. N.P. BRIDGE NO. 5
 GLOSTER, MINN.
 Office of Bridge Eng'r.
 St. Paul, Minn. Mar. 1, 1947
 Scale: as shown

STATE OF MINNESOTA
 DEPARTMENT OF HIGHWAYS
BRIDGE NO. 6402
RAILINGS
 Approved: April 20, 1953
 Bridge Engineer

DATE	REVISIONS	BY
3-31-53	Anchor Bolt Assembly	A.L.



PLAN



ELEVATION

SIDE VIEW

TYPICAL SECTION
SHOWING REINFORCING

BILL OF BARS				
MR. NO.	SIZE	LENGTH	DETAIL	NUMBER
P1	4"	35'-0"	STRAIGHT	7
P2	47"	13'-4"	SEE DETAIL	7
P3	66"	5'-8"	STRAIGHT	4
P4	54"	5'-10"		4
P5	12"	6'-10"		4
P6	4"	17'-5"		4
P7	16"	32'-0"		4
P8	20"	5'-1"	SEE DETAIL	4
P9	31"	5'-1"	SEE DETAIL	4
P10	2"	4'-7"		4
P11	2"	4'-6"		4
P12	2"	4'-5"		4
P13	2"	4'-4"		4
P14	2"	4'-3"		4
P15	2"	4'-2"		4
P16	2"	4'-1"		4
P17	2"	4'-0"		4
P18	2"	3'-11"		4
P19	2"	2'-7"		4
P20	12"	5'-0"	STRAIGHT	4

BARRE DIMENSIONED W TO V OF BENDS

CONCRETE NOTES

CONCRETE SHALL COMPLY WITH V.H.D. SPEC 24013.
 FASCIA GIRDERS AND DECK SLAB SHALL BE MIX N° 1A6
 ALL OTHER CONCRETE SHALL BE MIX N° 1B8
 REINFORCEMENT SHALL COMPLY WITH M.H.D. 3301
 AND UNLESS NOTED SHALL BE PLACED 2" CLEAR OF
 FACE OF CONCRETE AND 3" CLEAR OF CONCRETE
 SURFACES TO BE IN CONTACT WITH BARTH.

SUMMARY OF QUANTITIES FOR ONE PIER

CONCRETE MIX 1B8	65.5	CU YDS
CONCRETE MIX 1A6	60.0	CU YDS
REINFORCEMENT BARS	3193	LB
TREATED TIMBER PILING	2190	LN FT
CLASS U EXCAVATION	125	CU YDS

- 20" x 6" SWEDGE BOLT 1/2" HEX NUT 1/2" W/ WASHER
- 2 PCS BIT FELT 6" x 10" 3/8" x 1/2" x 1/2"

CALCULATED PILE LOAD 215 TONS (OL LL TRAIL)
 INCLUDED IN WEIGHT OF STRUCTURAL STEEL
 TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS

PILE NOTE FOR PIER

36 TREATED TIMBER PILES EST LENGTH 95 FT
 2 TREATED TIMBER TEST PILES 60 FT LONG
 48 TREATED TIMBER PILES REQUIRED FOR 1 PIER
 ESTIMATED PENETRATION 2 FT LESS THAN LENGTH
 GIVEN
 PILES TO BE TREATED AS PER M.H.D. 3491
 PILES TO BE DRIVEN TO 23 TONS MIN BEARING
 PER PILE
 MATERIAL AS PER M.H.D. 3471 EXCEPT AS
 FOLLOWS
 MINIMUM DIAMETERS FOR ALL PILES AT TIPS
 DOUGLAS FIR OR
 YELLOW PINE
 UNDER 40' - 10" 40' TO 50' - 9" 50' TO 60' - 8" OVER 60' - 6"
 MINIMUM DIAMETER 3' FROM BUTT - 16"

MICRO-FILMED

STATE OF MINNESOTA
 DEPARTMENT OF HIGHWAYS

BRIDGE N° 6402

PIER

Approved: April 20, 1947

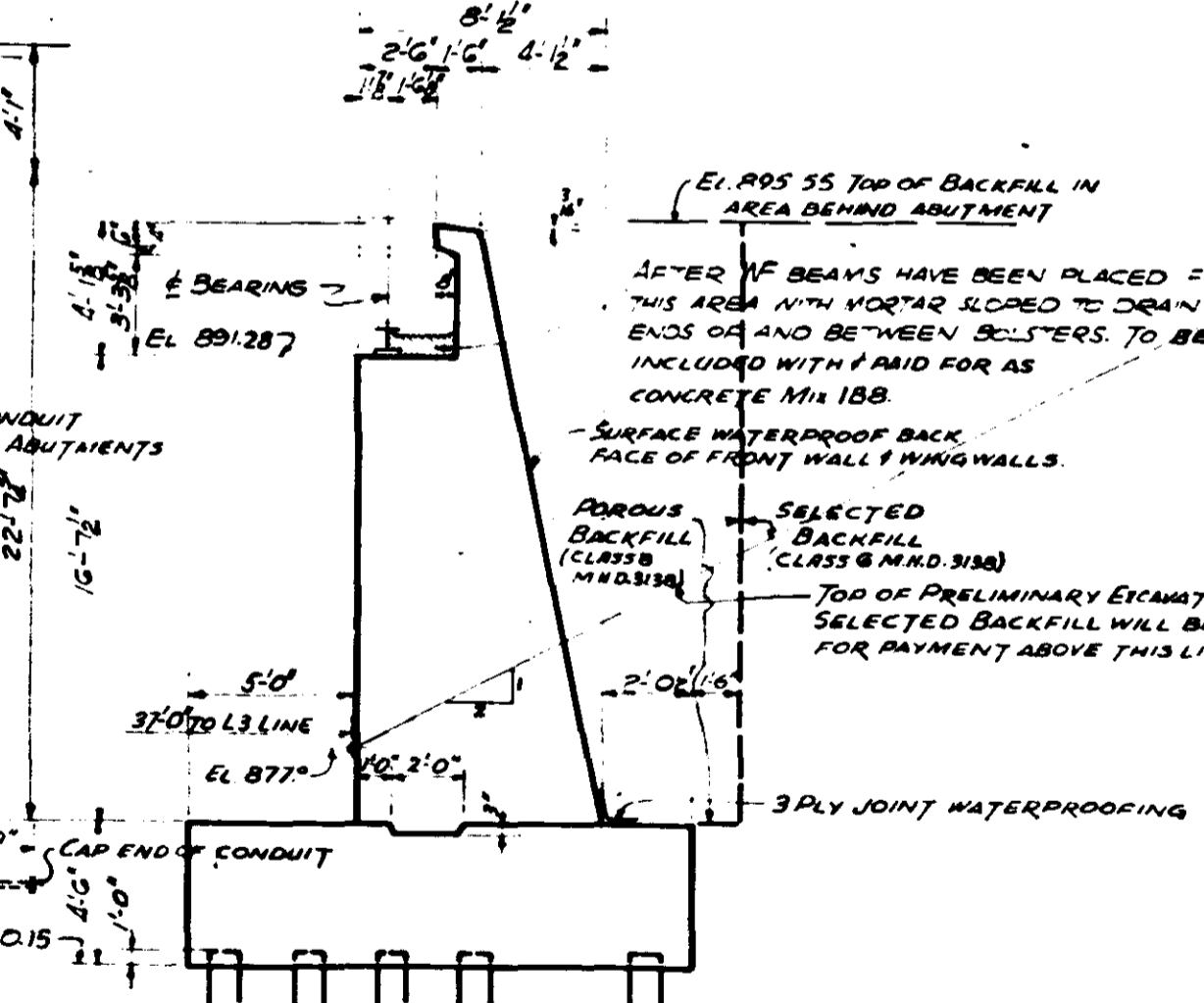
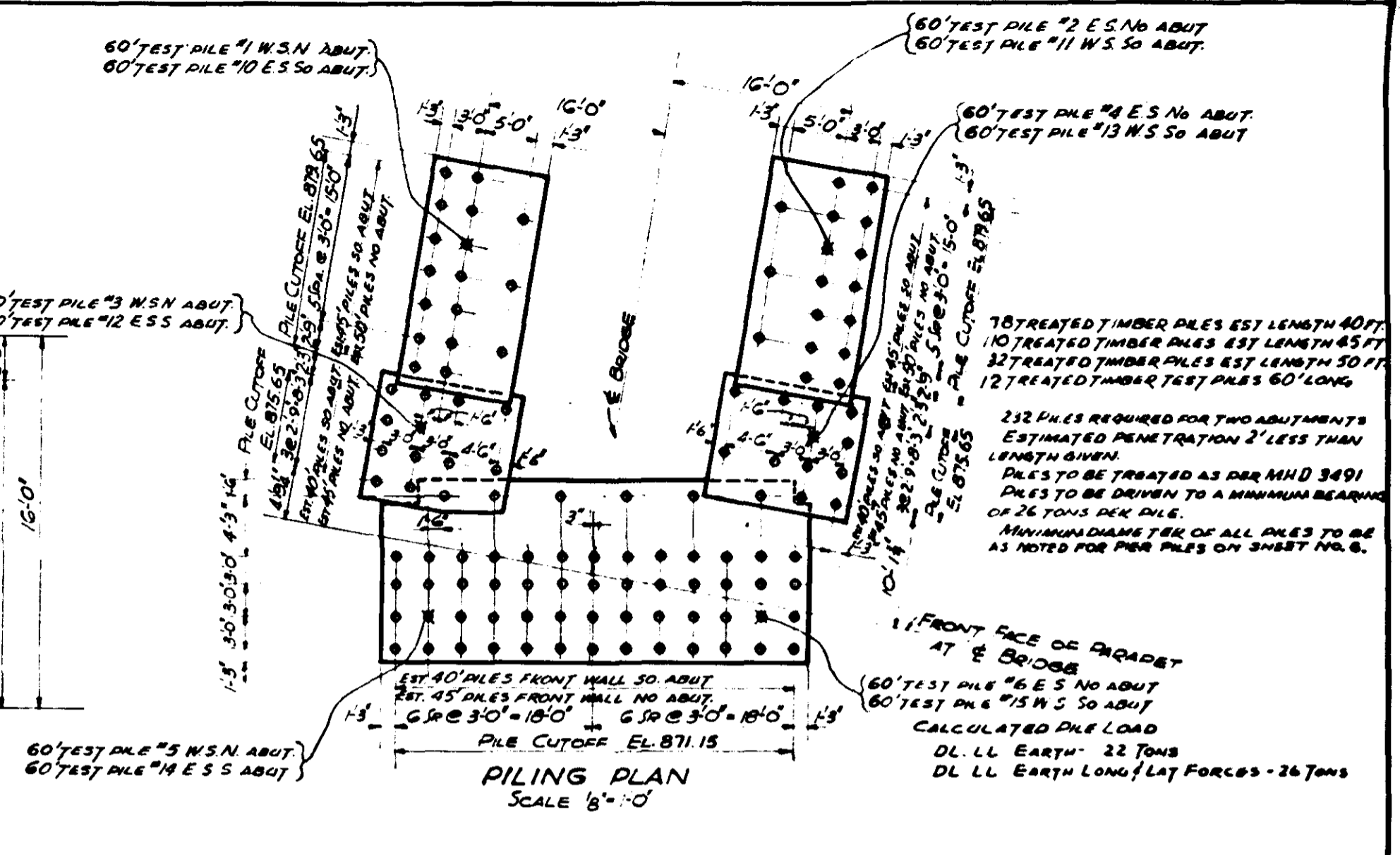
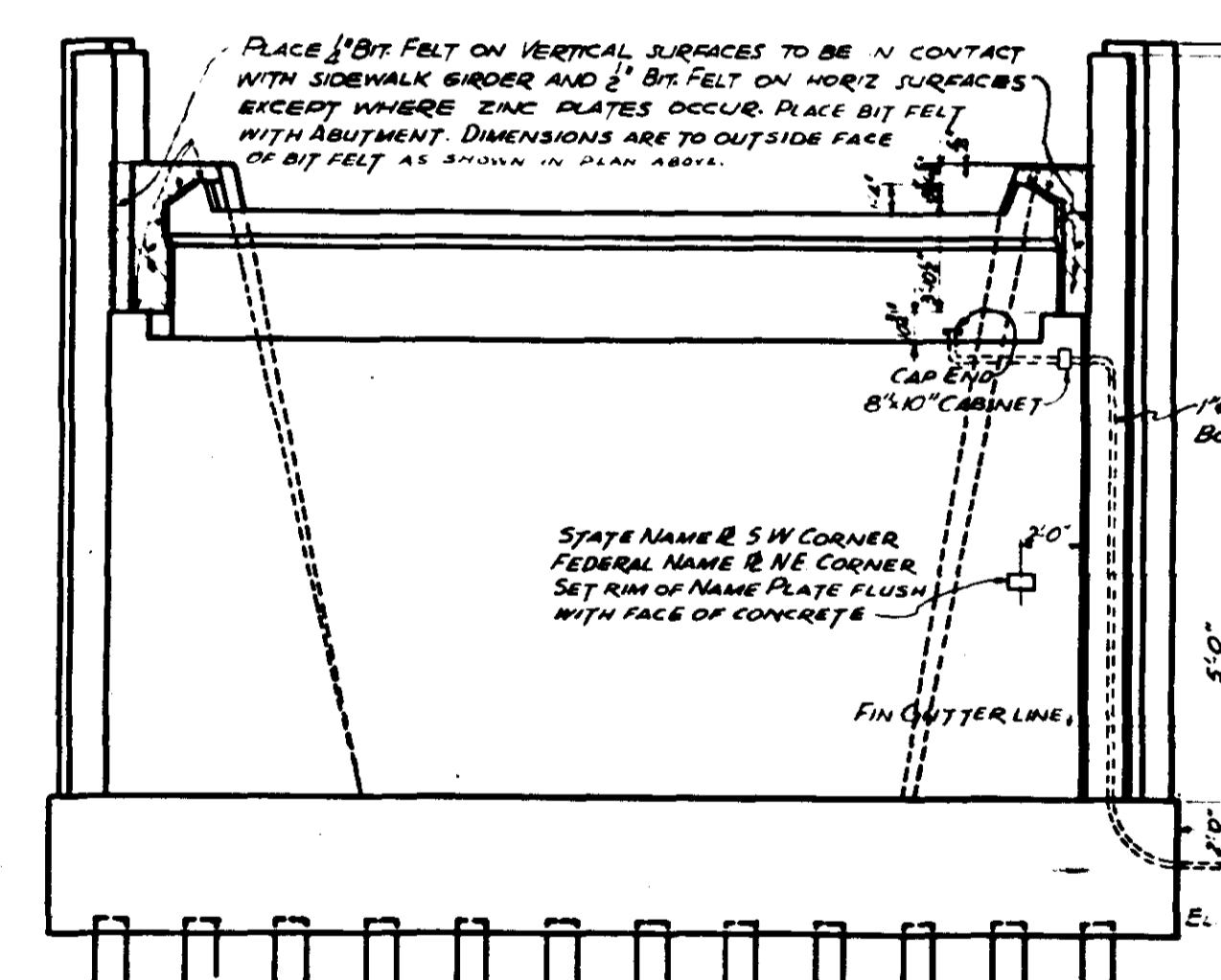
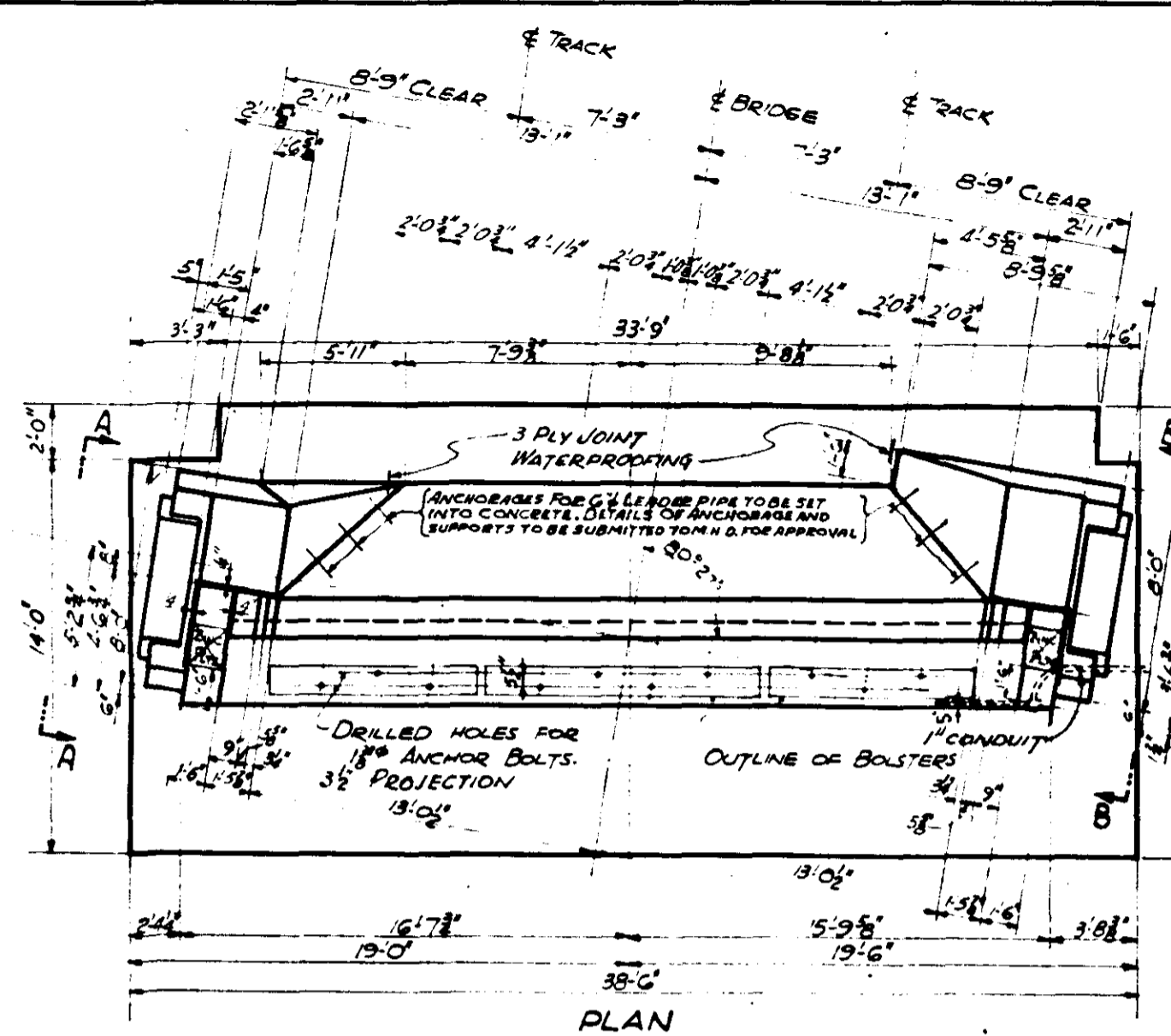
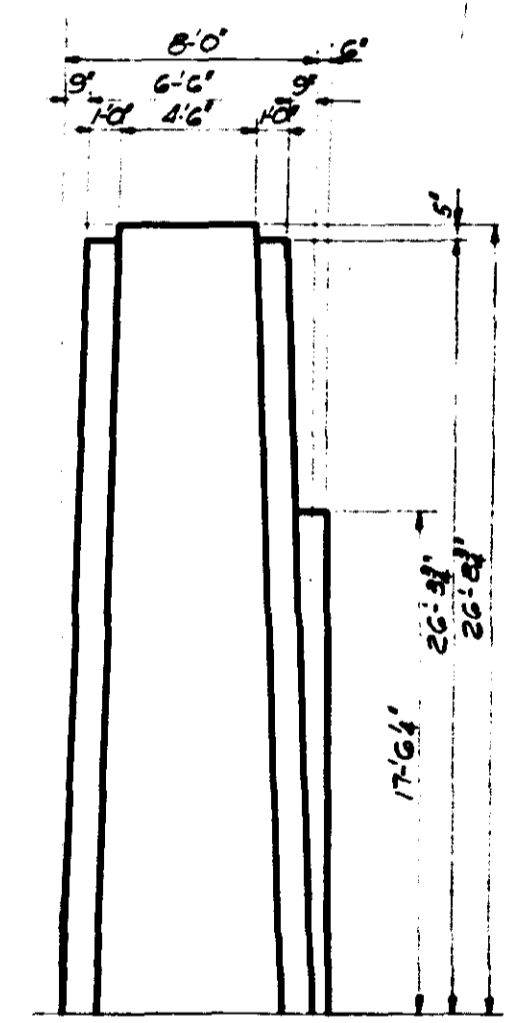
Bridge Engineer

NORTHERN PACIFIC RAILWAY
 St Paul Div White Bear Line
 PROP N° BRIDGE N° 5
 GLOSTER, MINN.
 Office of Bridge Engineer
 St Paul, Minn Mar 1, 1947
 Scale 1/4" = 1'-0"
 Book No 23240

Sheet 6 of 12 Sheets

6402

ZINC BEARING RS. BETWEEN FASCIA GIRDER & ABUTMENT
 8 REQD
 MATERIAL #MGA ZINC (AMERICAN ZINC GAUGE) HALF-HARD



CONDUIT TO BE LOCATED BY ENGINEER IN FIELD AT WHICHEVER SIDE OF ABUTMENTS IS NEAREST SOURCE OF POWER. COST OF FURNISHING & PLACING CONDUIT & CABINETS INCLUDED IN PRICE BID FOR OTHER ITEMS. CONDUIT SYSTEM TO CONFORM TO M.H.D. 2432 METAL CONDUIT TO BE USED.

78 TREATED TIMBER PILES EST LENGTH 40 FT
 10 TREATED TIMBER PILES EST LENGTH 45 FT
 32 TREATED TIMBER PILES EST LENGTH 50 FT
 12 TREATED TIMBER TEST PILES 60' LONG

232 PILES REQUIRED FOR TWO ABUTMENTS ESTIMATED PENETRATION 2' LESS THAN LENGTH GIVEN.
 PILES TO BE TREATED AS PER M.H.D. 3491
 PILES TO BE DRIVEN TO A MINIMUM BEARING OF 26 TONS PER PILE.
 MINIMUM DIAMETER OF ALL PILES TO BE AS NOTED FOR PILE PILES ON SHEET NO. 6.

SUMMARY OF QUANTITIES FOR TWO ABUTS

CONCRETE MIX #188	1053	CU YDS
REINFORCEMENT BARS	33979	LB.
CLASS C BACKFILL	1315	CU YD
TREATED TIMBER PILING	10390	LN FT.
POROUS BACKFILL	590	CU YD V.M.
3 PLY JOINT WATERPROOFING	87	LN FT.
SURFACE WATERPROOFING	3140	SQ FT.
1 1/2" LIVE PLATE #8220 DATED 1934 - BRONZE		
FEDERAL NAME PLATE #8222 (BRONZE)		
10" DIA. 6" LONG BOLTS #4 1/2" LONG 25 TIMBER PILES		
SELECTED BACKFILL	240	CU YD V.M.
BITUMINOUS JOINT FILLER		

* INCLUDED IN WEIGHT OF STRUCTURAL STEEL
 * INCLUDED IN PRICE BID FOR OTHER ITEMS

LIST OF BITUMINOUS JOINT FILLER

4	15	1/4	3	C
2	16	1/4	3	10"
4	18	1/4	3	10"
2	21	1/4	3	10"
2	31	1/4	5	2"
2	43	1/4	5	2"
2	6	1/2	3	2" 1pc CUTS 2
2	13	1/2	3	2" 1pc CUTS 2
2	18	1/2	5	6" 1pc CUTS 4

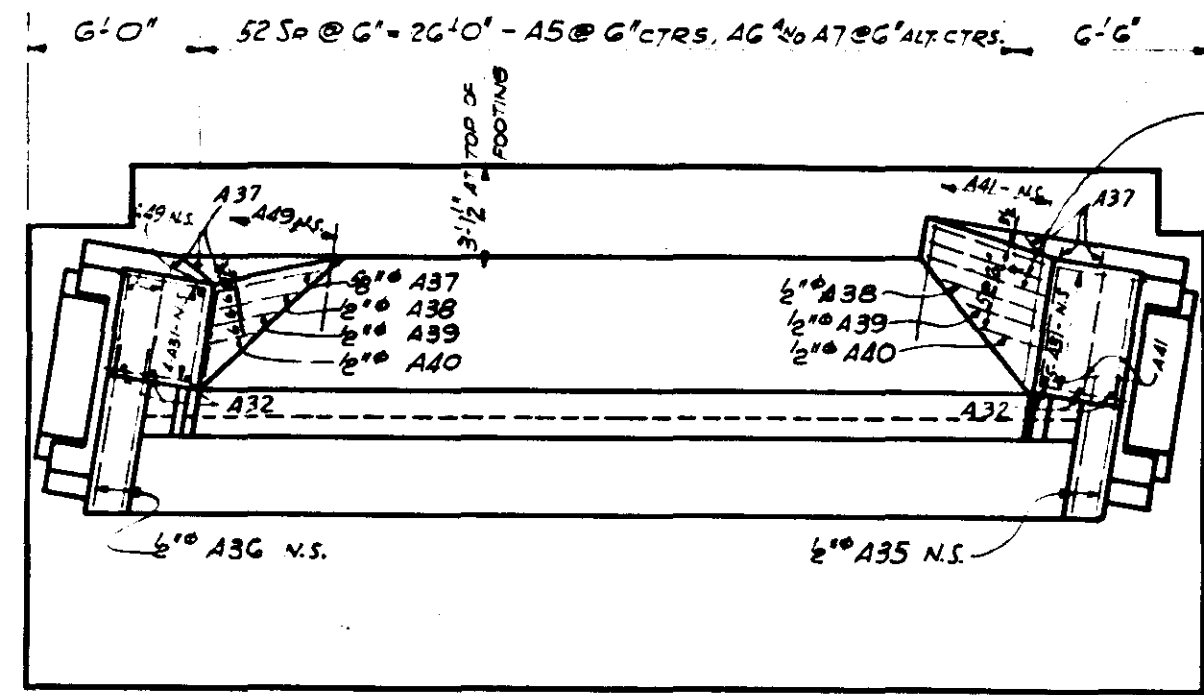
NORTHERN PACIFIC RAILWAY
 ST. PAUL DIV. WHITE BEAR LIND
 PROP. N.P. BRIDGE NO. 5
 GLOSTER, MINN.
 Office of Bridge Engr
 ST. PAUL MINN. MAR. 1937
 SCALE 1/4" = 1'-0"

MICRO-FILMED

STATE OF MINNESOTA
 DEPARTMENT OF HIGHWAYS

BRIDGE No 6402
 ABUTMENT FRAMING
 Approved: April 30, 1937

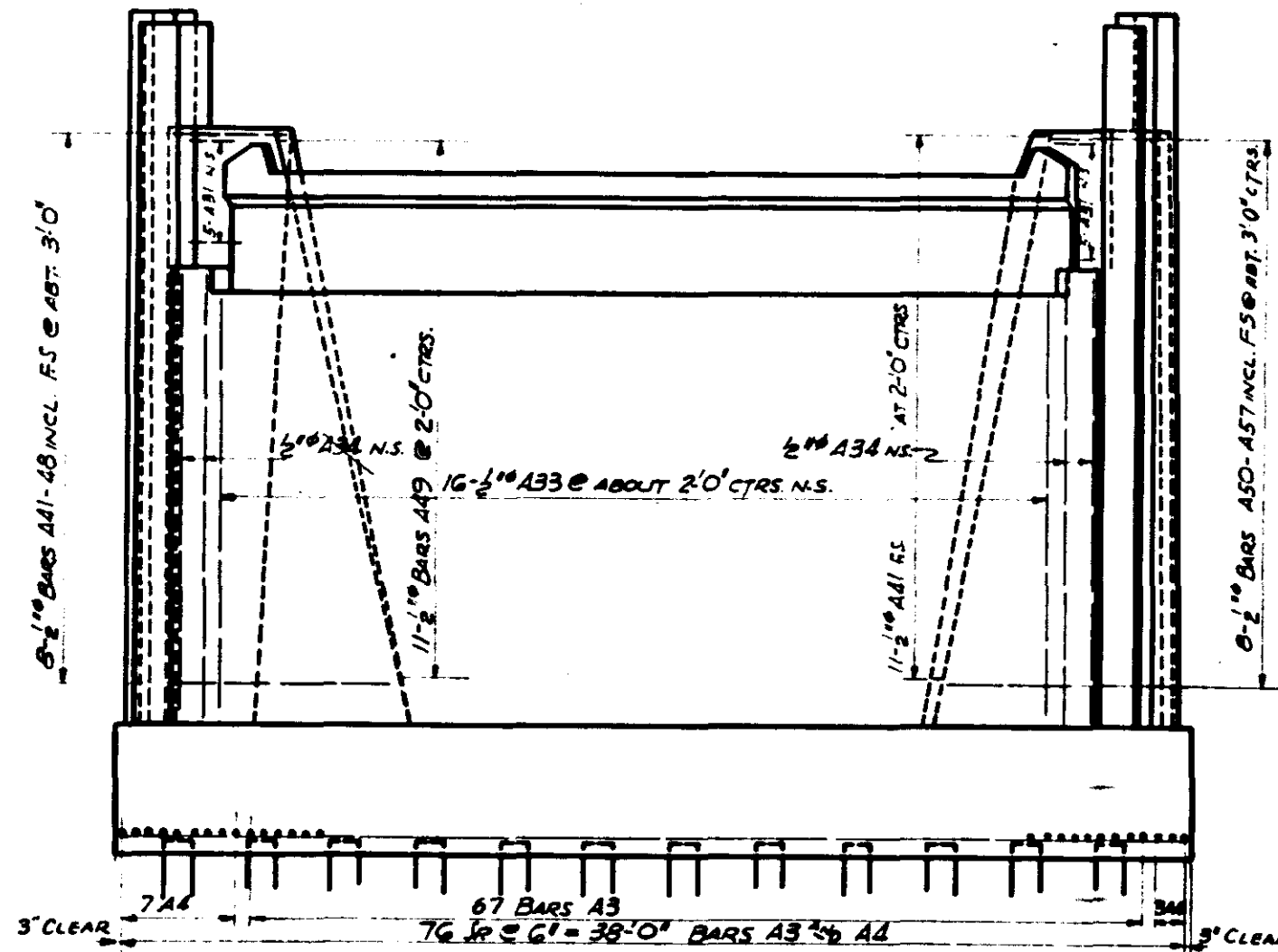
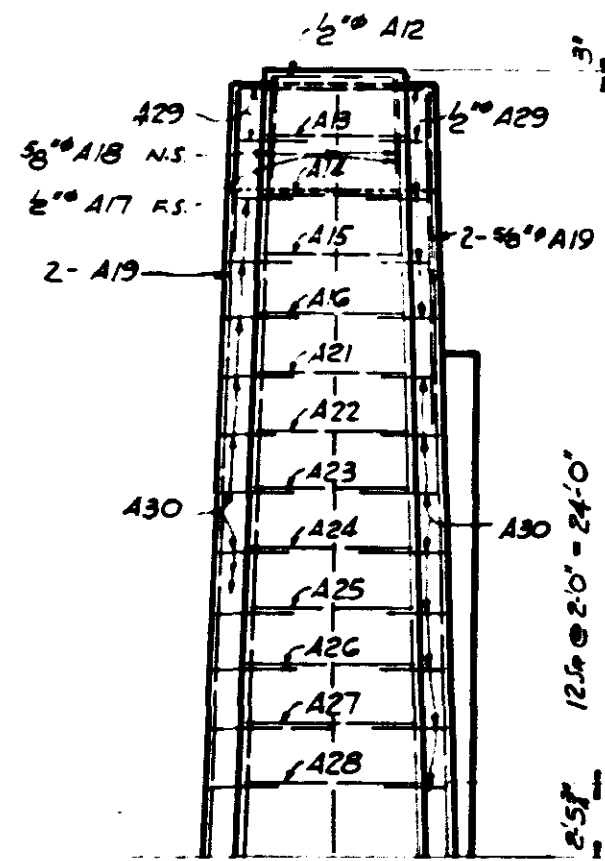
Bridge Engineer



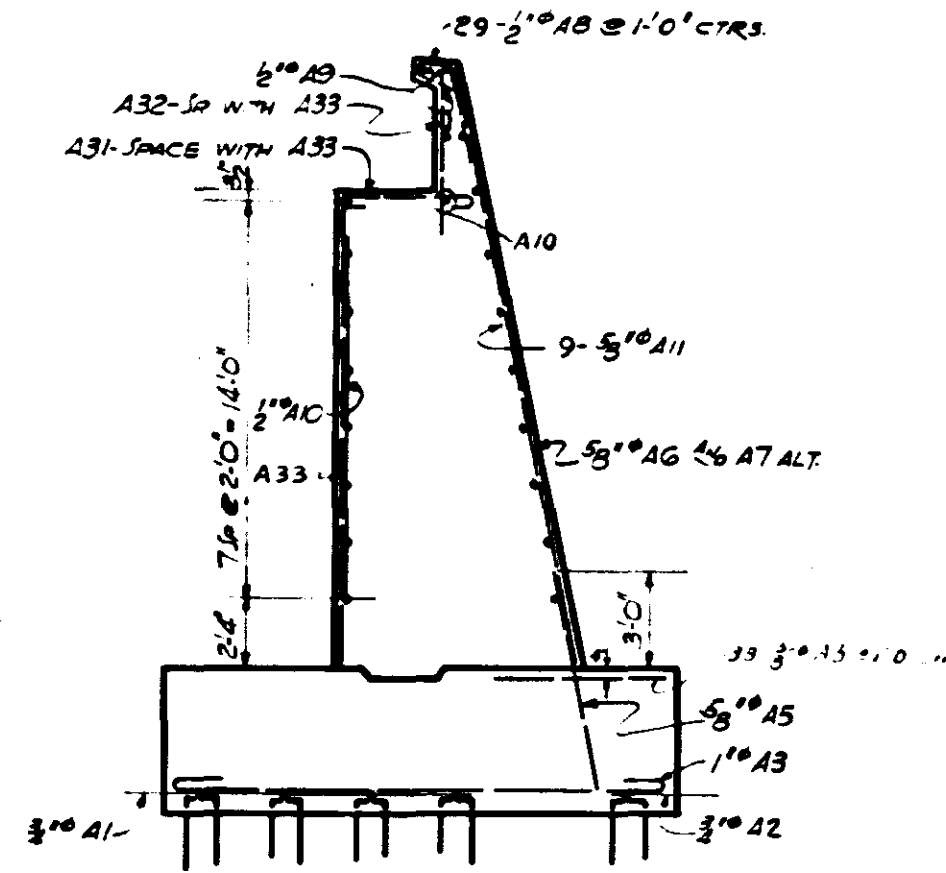
PLAN

BILL OF BARS-TWO ABUTMENTS										
MARK SIZE	MK.	NO.	SIZE	LENGTH	DETAIL	MK.	NO.	SIZE	LENGTH	DETAIL
4	A31	70	2"	4'-0"		A1	8	3/4"	30'-0"	STRAIGHT
4	A32	44	1"	5'-0"	STRAIGHT	A2	2	3/4"	33'-0"	STRAIGHT
4	A33	32	1"	16'-5"		A3	134	1"	17'-6"	
4	A34	8	1"	17'-2"		A4	20	1"	15'-6"	
4	A35	4	1"	6'-0"		A5	189	5/8"	6'-0"	STRAIGHT
4	A36	4	1"	7'-0"		A6	54	1"	21'-0"	
5	A37	18	5/8"	22'-0"	STRAIGHT	A7	52	1"	14'-0"	
4	A38	4	1"	20'-0"		A8	58	2"	5'-0"	
4	A39	4	1"	17'-0"		A9	8	1"	29'-0"	STRAIGHT
4	A40	4	1"	14'-0"		A10	18	5/8"	32'-0"	
4	A41	30	1"	2'-0"		A11	18	5/8"	27'-0"	
4	A42	2	1"	4'-6"		A12	4	5/8"	11'-4"	
4	A43	2	1"	5'-1"		A13	4	5/8"	12'-3"	
4	A44	2	1"	5'-8"		A14	4	5/8"	12'-6"	
4	A45	2	1"	5'-3"		A15	4	5/8"	12'-9"	
4	A46	2	1"	6'-11"		A16	4	5/8"	13'-0"	
4	A47	2	1"	7'-6"		A17	12	1"	3'-0"	STRAIGHT
4	A48	2	1"	8'-2"		A18	12	5/8"	26'-0"	
4	A49	28	1"	3'-0"	STRAIGHT	A19	16	1"	26'-1"	
4	A50	2	1"	3'-10"		A21	4	1"	9'-8"	
4	A51	2	1"	4'-0"		A22	4	1"	9'-9"	
4	A52	2	1"	5'-11"		A23	4	1"	9'-11"	
4	A53	2	1"	5'-9"		A24	4	1"	10'-0"	
4	A54	2	1"	6'-4"		A25	4	1"	10'-0"	
4	A55	2	1"	7'-0"		A26	4	1"	10'-2"	
4	A56	2	1"	7'-7"		A27	4	1"	10'-3"	
4	A57	2	1"	8'-3"		A28	4	1"	10'-4"	
						A29	28	1"	6'-0"	
						A30	76	1"	5'-4"	

BARS DETAILED IN TO IN OF HOOKS AND BENDS



ELEVATION



TYPICAL SECTION

ABUTMENT FRAMING ON INDEX No. 23241

NORTHERN PACIFIC RAILWAY
ST. PAUL DIV. WANTS BOARDING
PROP. N.P. BRIDGE NO. 5
GLOSTER, MINN.
OFFICE OF BRIDGE ENGR.
ST. PAUL, MINN. MAR. 1, 1947
SCALE 1/4" = 1'-0"
INDEX No. 23242

MICRO-FILMED

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE No. 6402

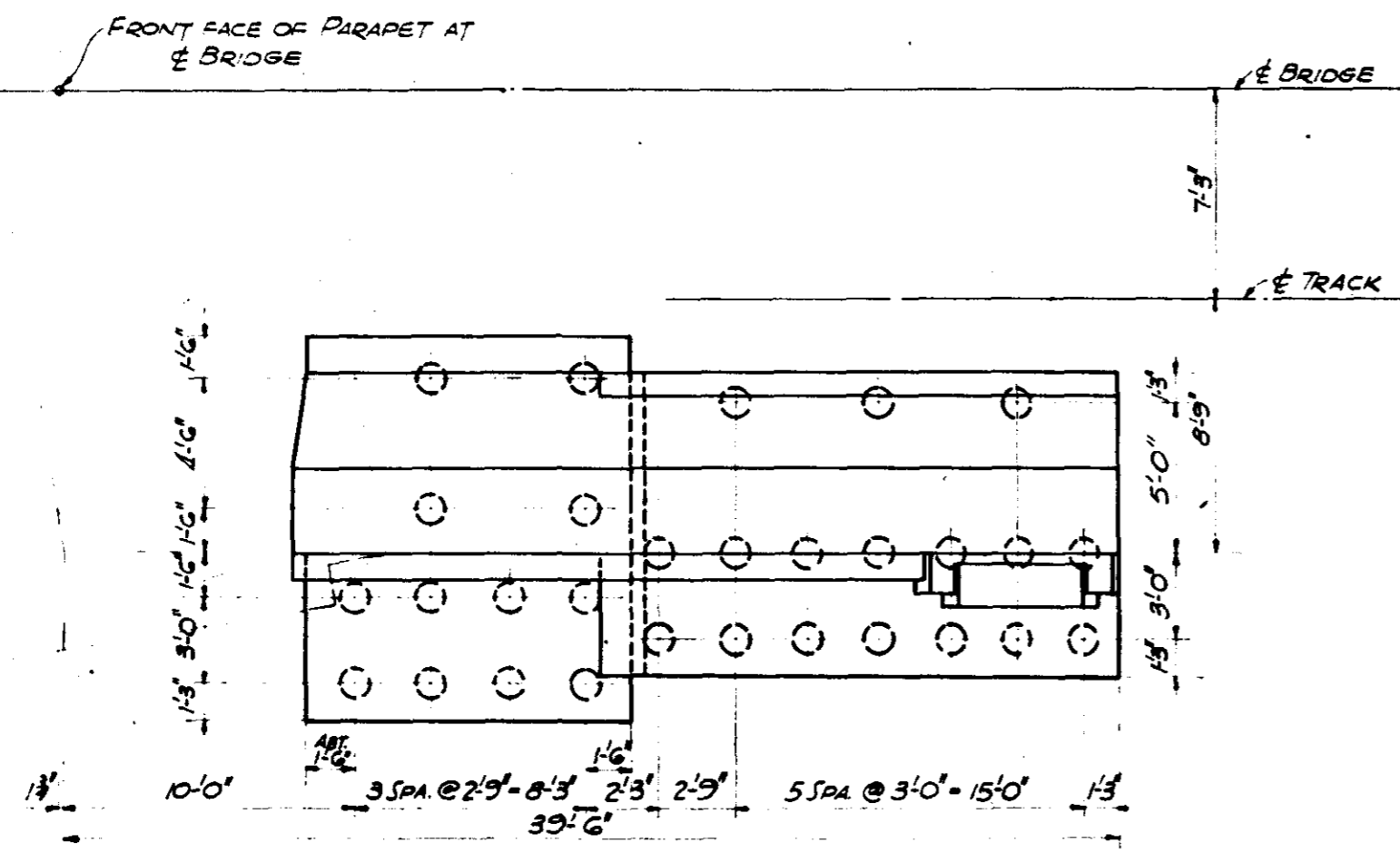
ABUTMENT REINFORCING

Approved: April 20, 1953

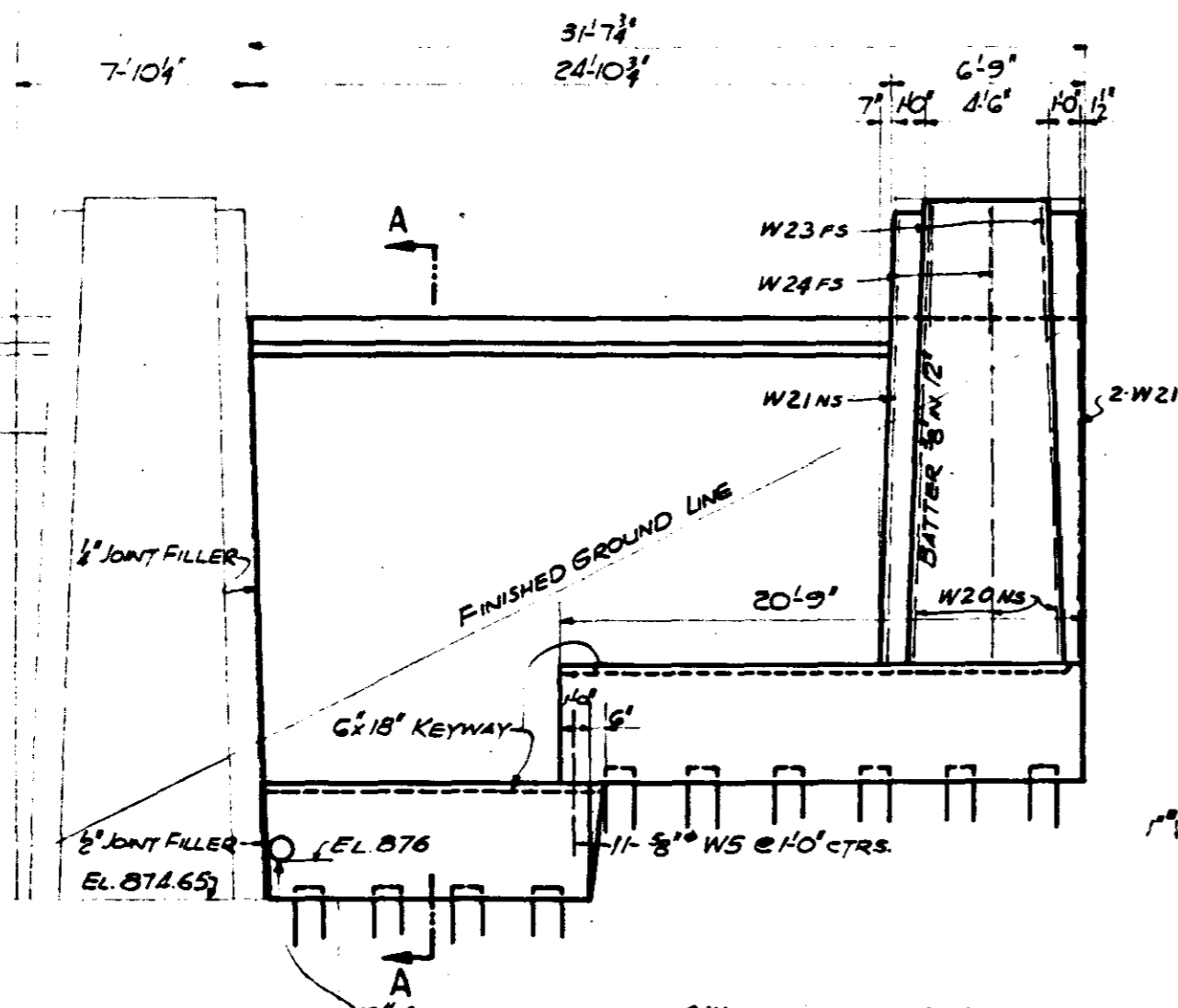
Bridge Engineer

Sheet 8 of 12 Sheets

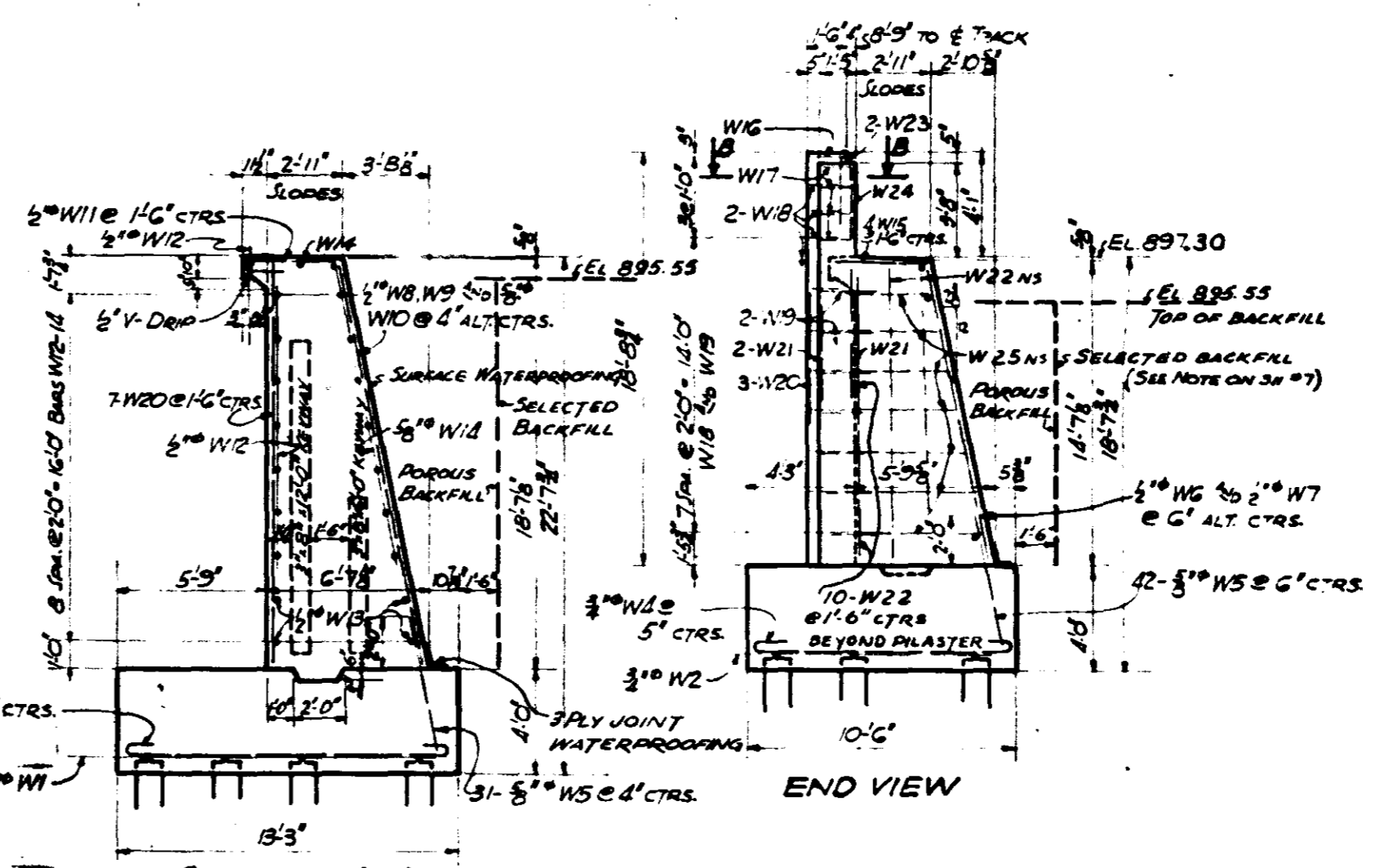
6402



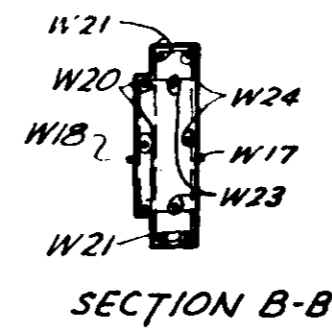
PLAN



ELEVATION



SECTION A-A



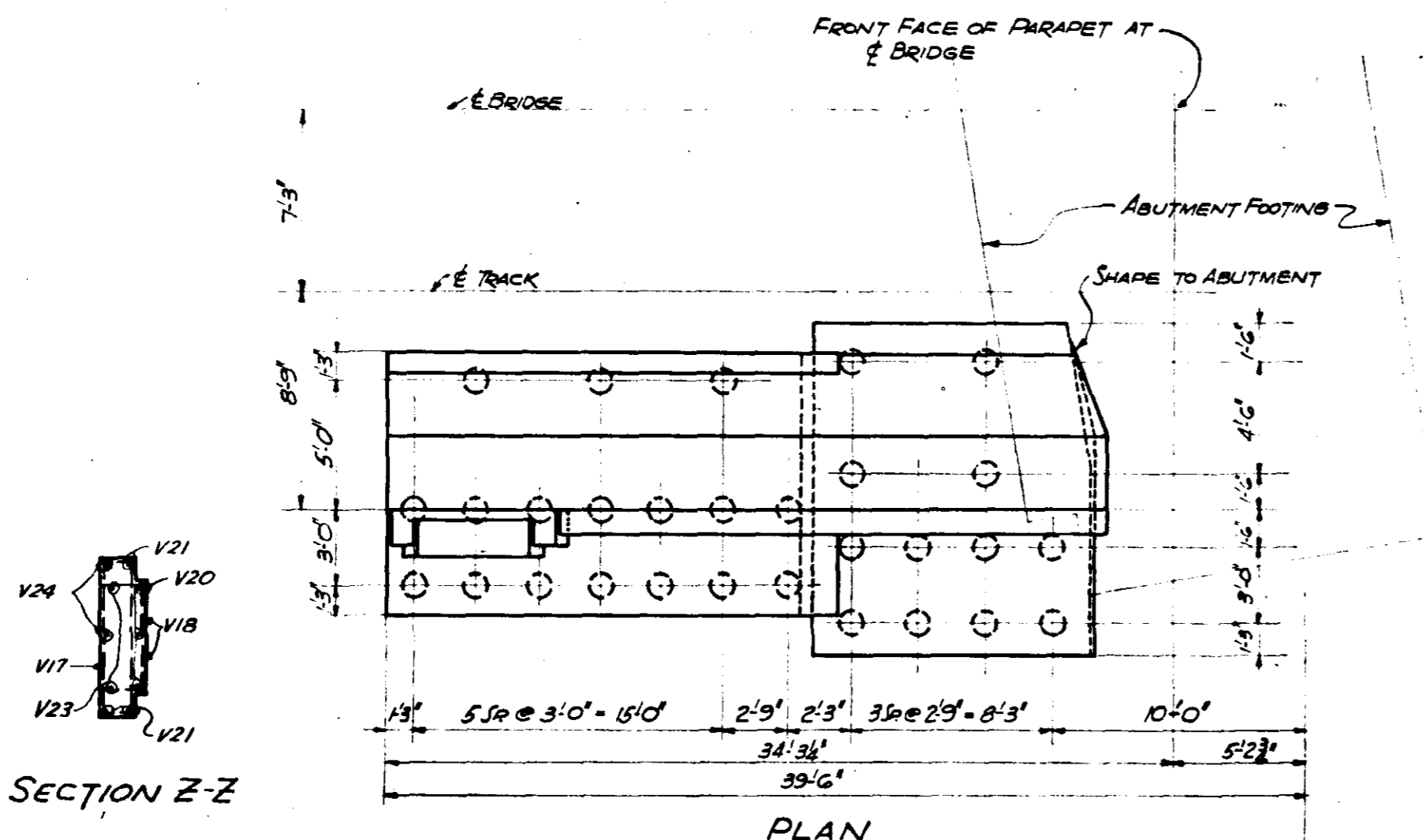
SECTION B-B

BILL OF BARS-TWO WINGWALLS						
MR.	NO.	SIZE	LENGTH	DETAIL	NUMBER	SIZE
W1	8	3/4"	10'-9"	STRAIGHT	6	6
W2	6	3/4"	20'-3"		6	6
W3	54	1/2"	12'-0"	SEE DETAIL	9	9
W4	100	3/8"	11'-8"	SEE DETAIL	6	6
W5	168	3/8"	5'-3"	STRAIGHT	5	5
W6	42	2"	2'-8"		4	4
W7	42	2"	8'-0"		4	4
W8	22	2"	8'-9"		4	4
W9	20	3/8"	7'-0"		4	4
W10	20	3/8"	7'-0"		5	5
W11	34	1/2"	5'-4"	SEE DETAIL	4	4
W12	18	2"	25'-0"	STRAIGHT	4	4
W13	8	3/8"	0'-0"		4	4
W14	18	3/8"	31'-0"		5	5
W15	8	2"	3'-6"		4	4
W16	2	2"	1'-4"		4	4
W17	8	2"	5'-2"		4	4
W18	40	2"	4'-6"		4	4
W19	28	2"	4'-0"		4	4
W20	20	2"	8'-6"	STRAIGHT	4	4
W21	6	2"	18'-7"		4	4
W22	24	2"	14'-5"		4	4
W23	4	2"	3'-0"		4	4
W24	4	2"	5'-9"		4	4
W25	7	2"	10'-6"		4	4

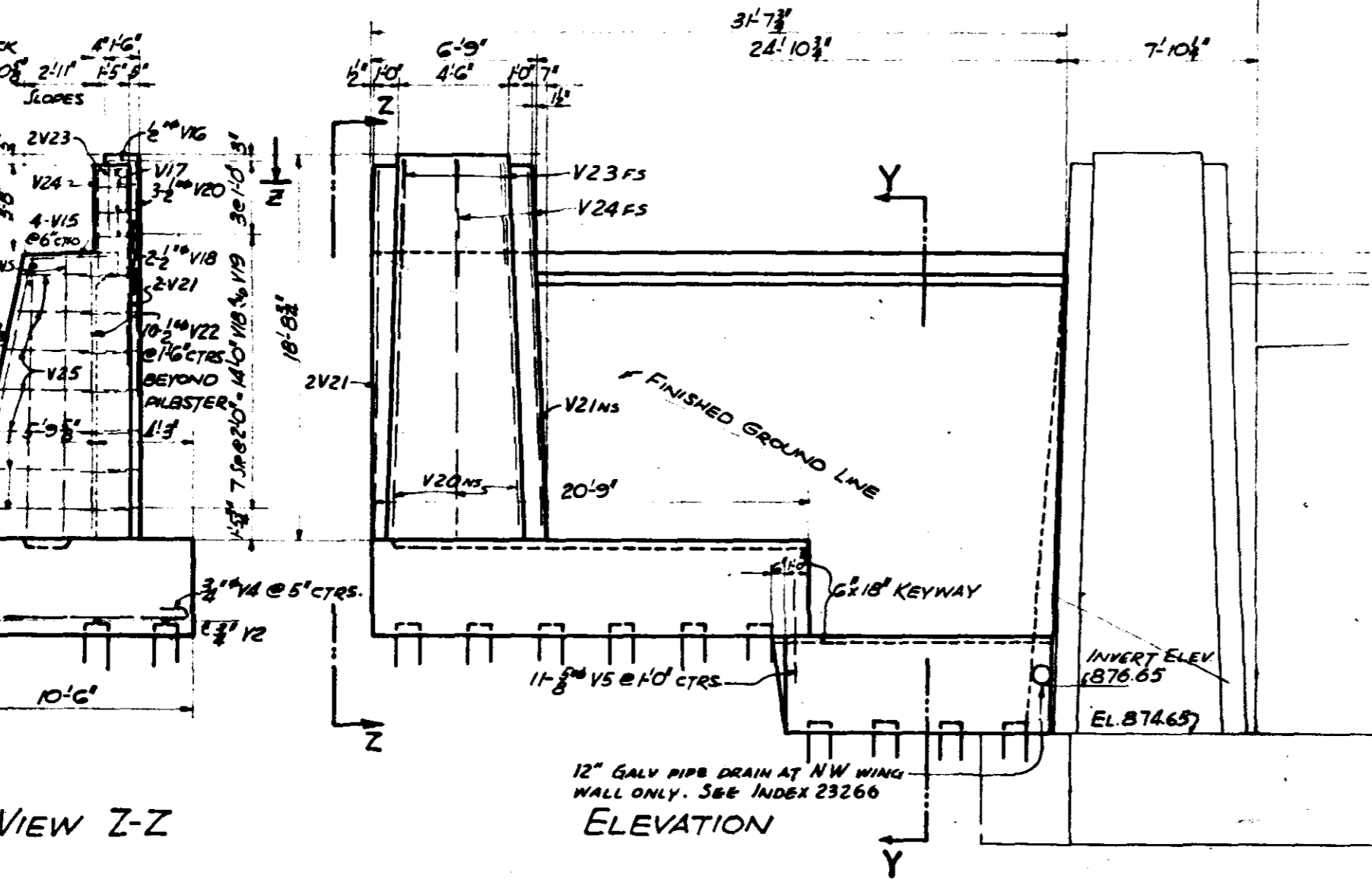
BARS ARE DIMENSIONED N TO IN OF BENDS
 * CUT 2 - 1 LONG AND 1 SHORT
 CALCULATED PILE LOAD 25 TONS

NORTHERN PACIFIC RAILWAY
 ST. PAUL DIV. WHITE BEAR LINE
 PROP. N.P. BRIDGE NO. 5
 GLOSTER, MINN.
 Office of Bridge Engineer
 St. Paul, Minn. Mar. 1, 1947
 Scale 1/4" = 1'-0"

MICRO-FILMED
 STATE OF MINNESOTA
 DEPARTMENT OF HIGHWAYS
 BRIDGE N° 6402
 NE. & SW. WINGWALLS
 Approved: April 20, 1953
 Bridge Engineer

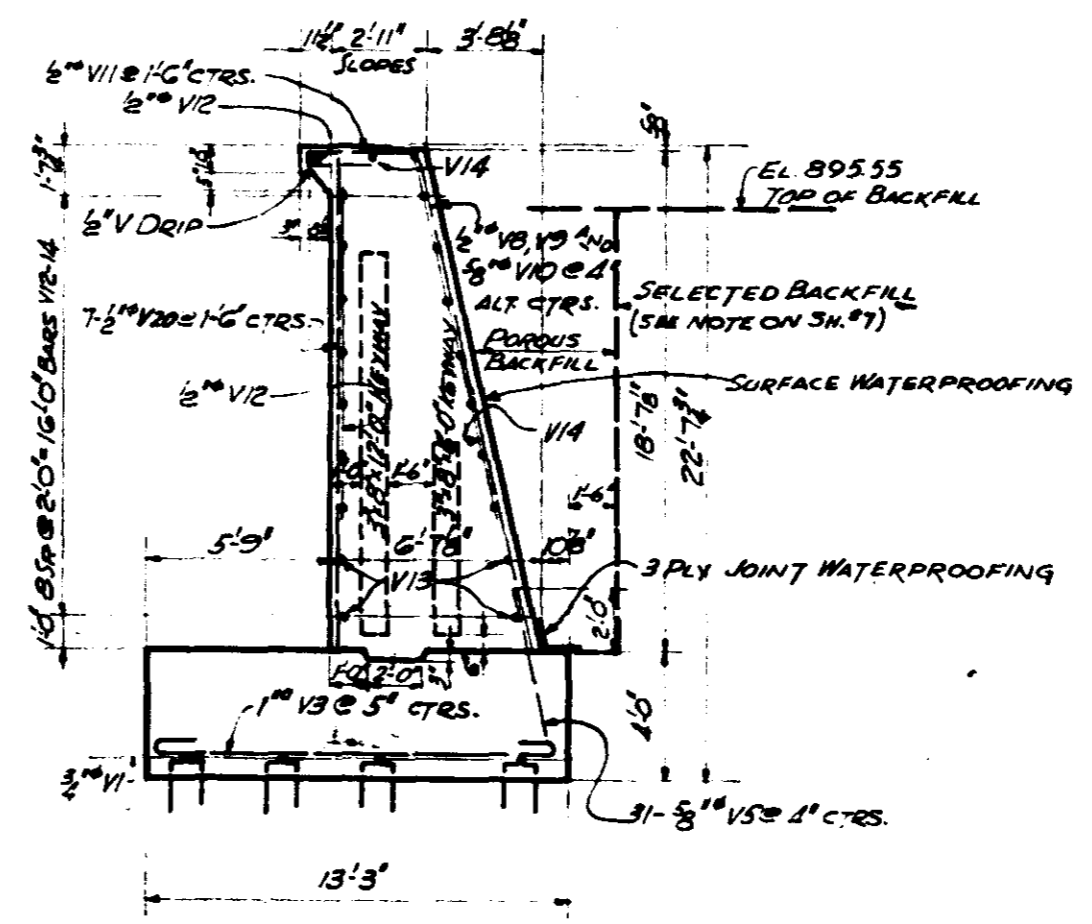


SECTION Z-Z



VIEW Z-Z

ELEVATION



SECTION Y-Y

BILL OF BARS-TWO WINGWALLS					
MARK	NO.	SIZE	LENGTH	DETAIL	QUANTITY
V1	8	3/4"	10'-9"	STRAIGHT	6
V2	6	"	20'-9"	"	6
V3	54	7/8"	14'-10 1/2"	"	9
V4	100	3/4"	11'-8"	"	6
V5	168	5/8"	5'-3"	STRAIGHT	5
V6	42	3/4"	14'-8"	"	4
V7	42	"	8'-0"	"	4
V8	22	"	18'-9"	"	4
V9	20	"	11'-0"	"	4
V10	20	3/4"	7'-0"	"	5
V11	34	2"	5'-4"	"	4
V12	18	2"	25'-0"	STRAIGHT	4
V13	8	"	10'-0"	"	4
V14	42	3/4"	31'-0"	"	5
V15	8	2"	3'-6"	"	4
V16	2	"	11'-4"	"	4
V17	8	"	5'-2"	"	4
V18	40	"	4'-6"	"	4
V19	28	"	4'-0"	"	4
V20	20	"	18'-6"	STRAIGHT	4
V21	6	"	18'-1"	"	4
V22	24	"	14'-5"	"	4
V23	4	"	3'-0"	"	4
V24	4	"	5'-9"	"	4
V25	7	"	10'-6"	"	4

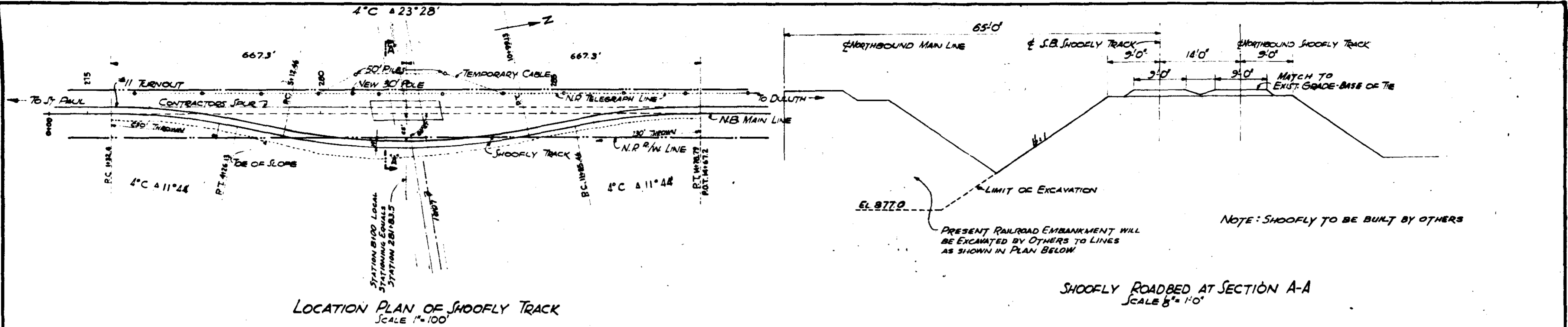
* CUT 2 - 1 LONG AND 1 SHORT BARS ARE DIMENSIONED IN TO BENDS

CALCULATED PILE LOAD 25 TONS

NORTHERN PACIFIC RAILWAY
ST. PAUL DIV. WHITE BEAR LINE
PROP. N.P. BRIDGE NO. 5
GLOSTER, MINN.
OFFICE OF BRIDGE ENGINEER
ST. PAUL, MINN. MARCH 1907
SCALE 1/4" = 1'-0"
INDEX NO. 23244

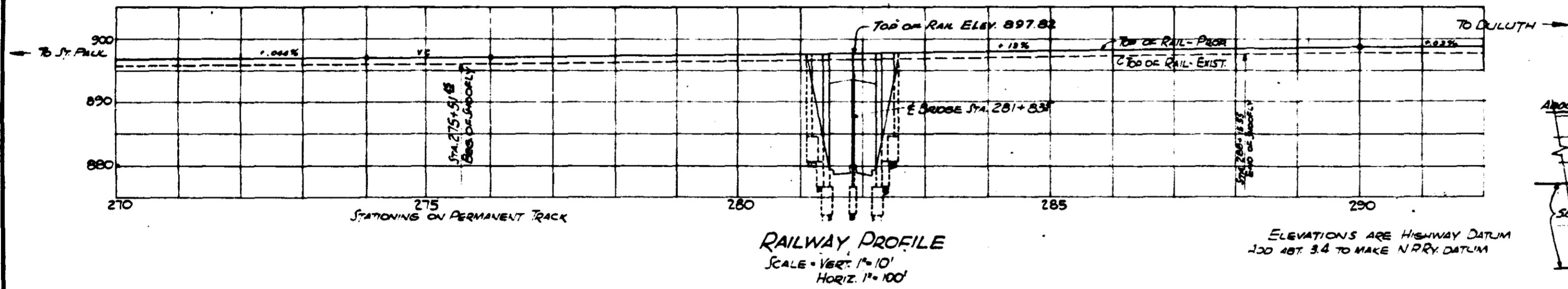
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
BRIDGE No 6402
N.W. & S.E. WINGWALLS
Approved: April 20, 1933
Bridge Engineer

MICRO-FILMED



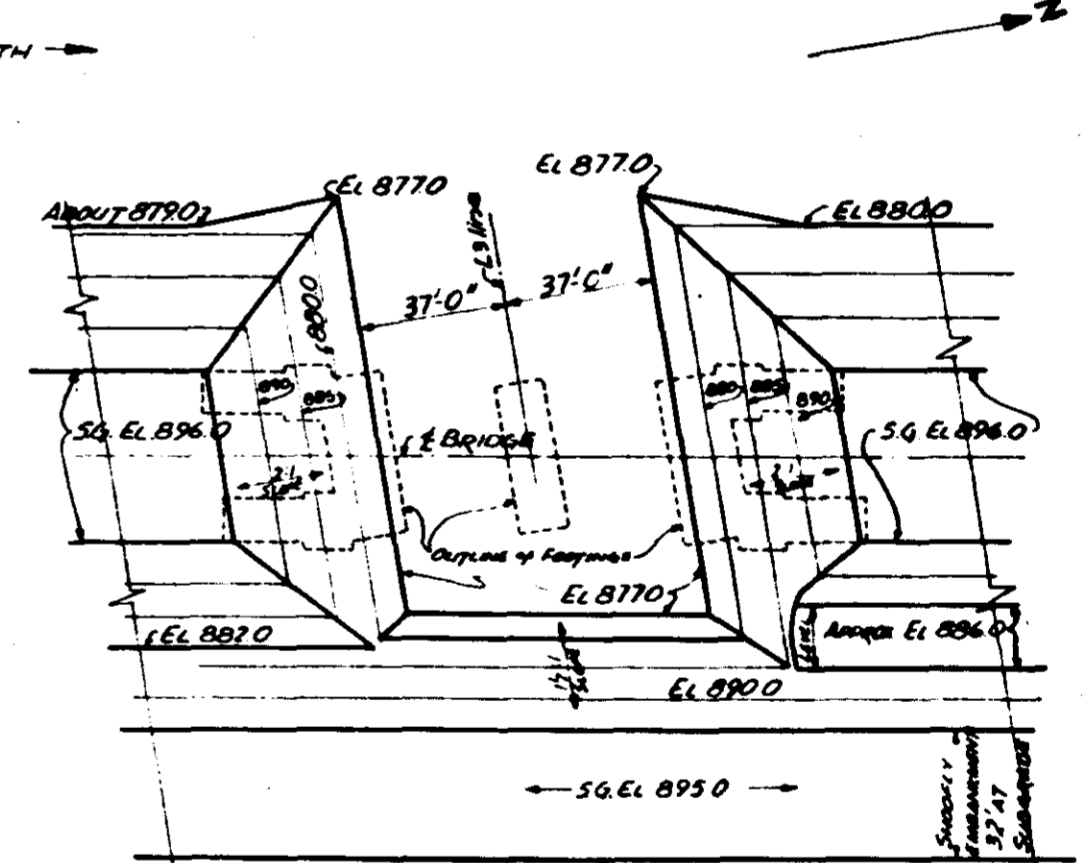
LOCATION PLAN OF SHOOFLY TRACK
SCALE 1" = 100'

SHOOFLY ROADBED AT SECTION A-A
SCALE 5" = 1' 0"

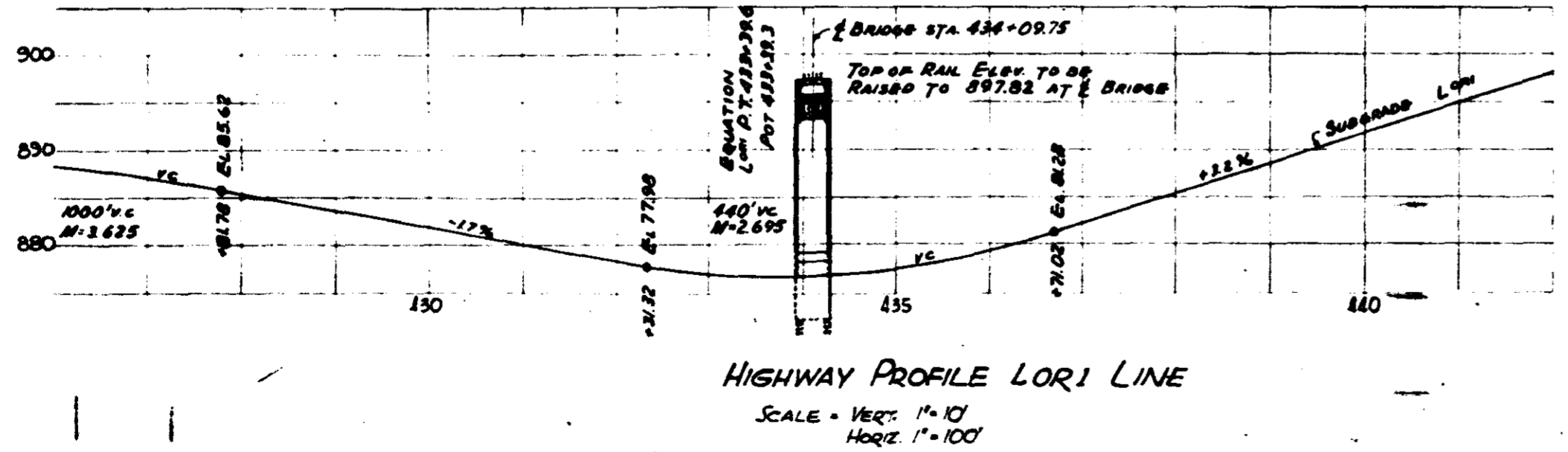


RAILWAY PROFILE
SCALE - VERT. 1" = 10'
HORIZ. 1" = 100'

ELEVATIONS ARE HIGHWAY DATUM
100 ABT. 3.4 TO MAKE N.P.R.Y. DATUM



PLAN OF UPPER LIMITS OF CLASS U EXCAVATION
SCALE 1" = 30'



HIGHWAY PROFILE LOR1 LINE
SCALE - VERT. 1" = 10'
HORIZ. 1" = 100'

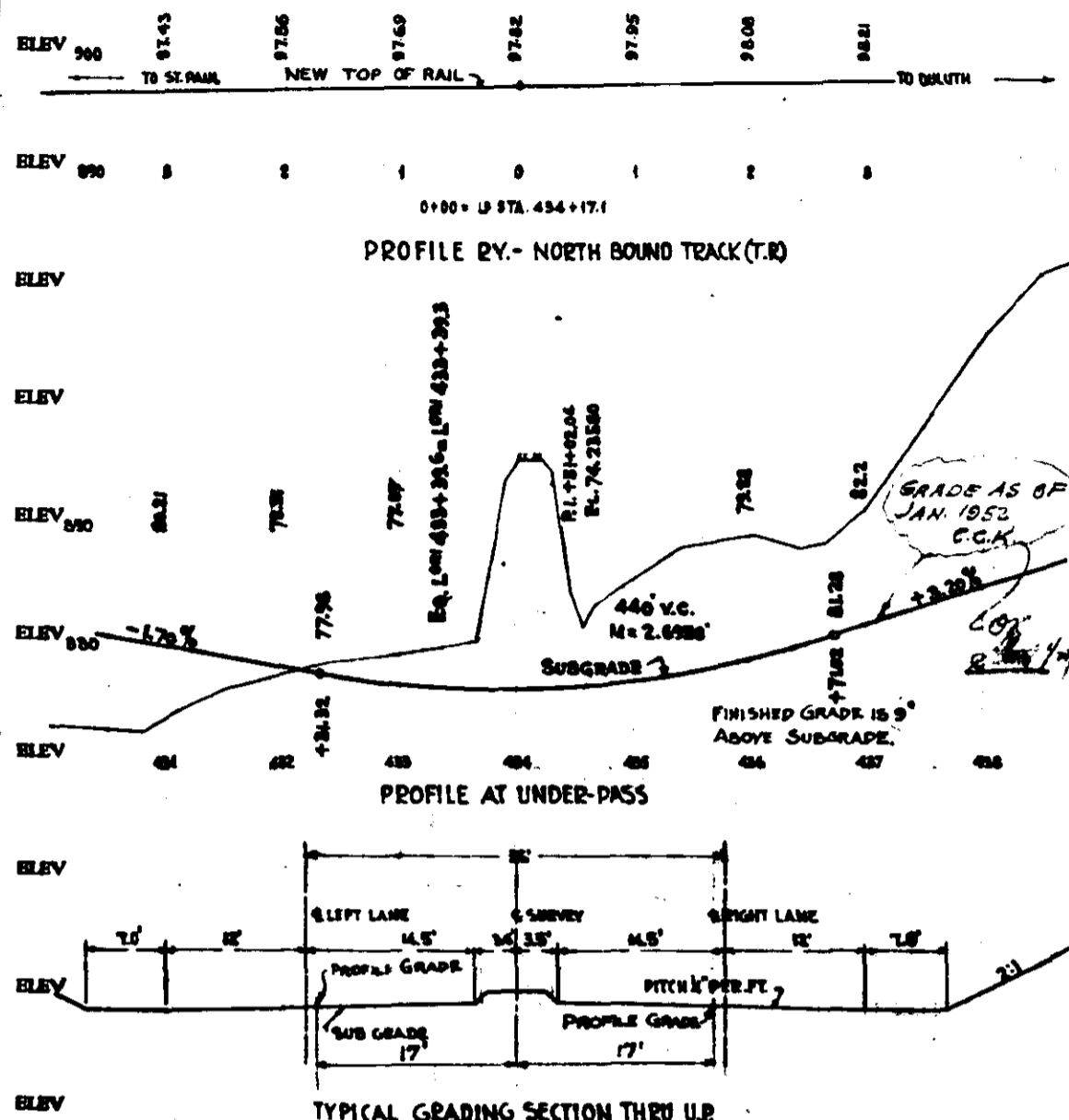
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NORTHERN PACIFIC RAILWAY
ST. PAUL DIV. WHITE BEAR LINE
PROP. N.P. BRIDGE NO. 5
GLOSTER, MINN.
OFFICE OF BRIDGE ENGINEER
ST. PAUL, MINN.
SCALE: AS SHOWN
INDEX NO. 23245

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
BRIDGE N° 6402
SHOOFLY^{AS} PROFILES
Approved: April 20, 1953
W. L. ...
Bridge Engineer

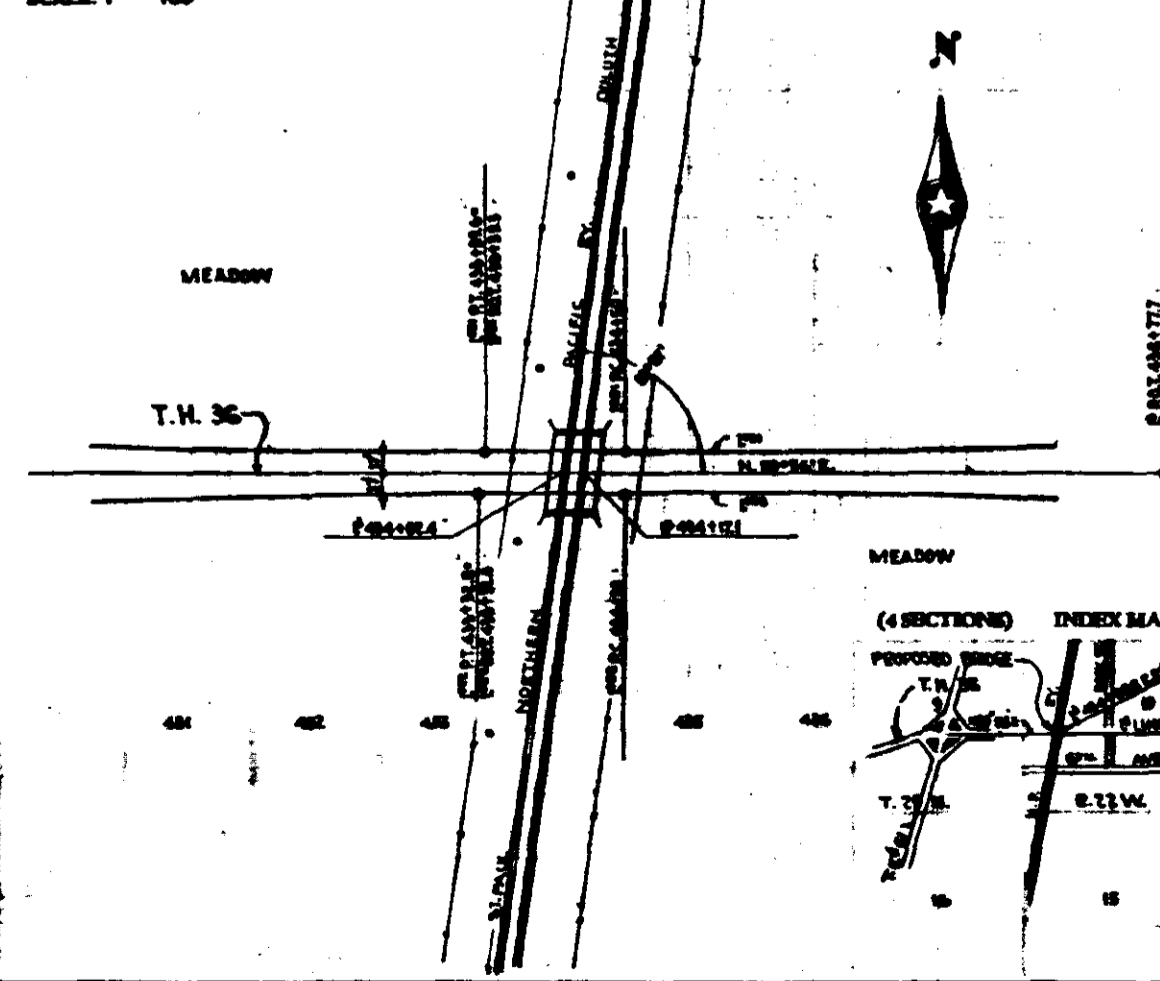
CONTRACTED PROFILE

SCALE: HOR. 1" = 100', VERT. 1" = 10'



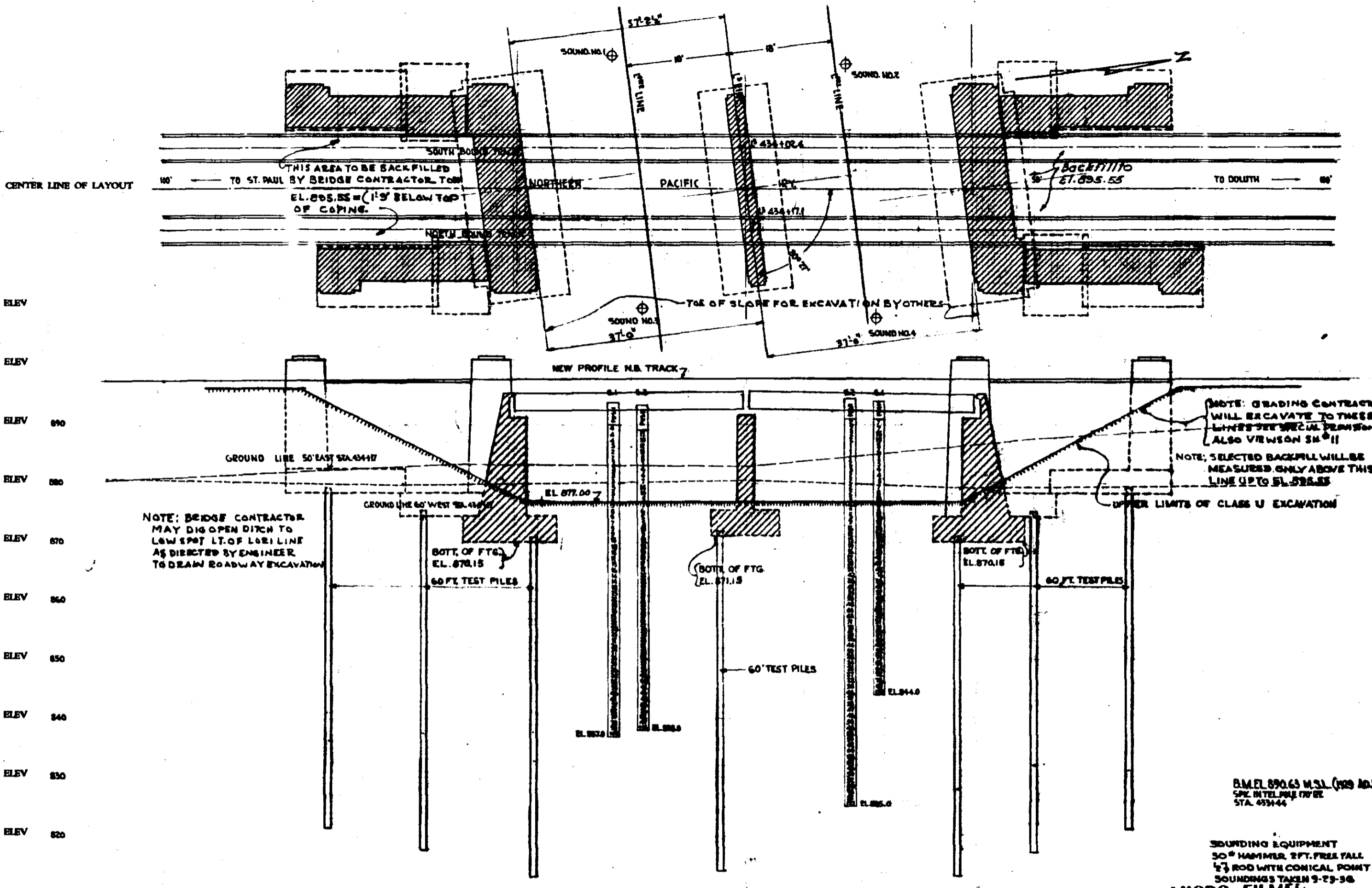
PLAT

SCALE: 1" = 100'



PLAN AND PROFILE

SCALE: 1" = 10'



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

DATA

- Preliminary recommendations of Engineer in charge of Bridge Survey:
 - a. Net Span Length and Type of Bridge: 2 @ 28'-8" (CLEAR FOR T.H. 36)
 - b. Width of Roadway on Bridge: _____
 - c. Number and width of Sidewalks, if any: _____
 - d. Locate center of Bridge at Station: _____
 - e. If a skew bridge is recommended, the angle of skew should be: 90°-21'
 - f. Is piling required? YES
- Special features: Wetlands, dams, exceptional floods, ice, driftwood, sliding banks, logging, etc.
- Changes: In height or length from that of old bridge, and reasons why.

DATA (Contd.)

- Other bridges in vicinity:
 - a. Over same stream (particularly structures which carry high water without overflow of roadway); give location, length, height above water, net cross-sectional area at high water stage and estimated age: _____
 - b. Over or under same highway or railroad; give location, length, horizontal and vertical clearances and estimated age: _____
 - c. Reasons why these bridges are, or are not, fair indications of what length the proposed bridge should be? _____
- If structure is over a drainage ditch, is ditch gradient liable to be altered? _____
- State navigation or boating clearances required, if any: _____
- Information and evidence in regard to high water stages was obtained as follows: _____
- Must contractor provide for traffic during construction of proposed bridge? NO
If so, by what means? _____

MATERIAL

Proposed Bridge is 1.6 miles NORTH of GLOSTER which is the nearest Railroad shipping point.

(Give name of town, station or siding)

Date: 3-17-53
Project or County Engineer: W. J. Schultze
Date: _____
Bridge Engineer: _____

MICRO-FILMED

MICROFILMED

BRIDGE SURVEY

ON S.P. 6211-05 T.H. 36 & 118

(SEPARATE COUNTY AND STATE AND OR TOWN BRIDGE NUMBERS)

SEC. 10 TWP. 29N R. 22W

NEW CANADA TOWNSHIP

RAMSEY COUNTY

DRAWN IN CENTRAL OFFICE DURING MONTH OF JANUARY 1953

SURVEY MADE BY WALTER SCHULTZ

BRIDGE NO. 6402