

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
CONSTRUCTION PLANS FOR BRIDGE NO. 62503
RAMSEY COUNTY

LOCATED ABOUT 400' NORTH OF SOUTH QUARTER-CORNER, SEC. 31, T 30N, R 23W

OFFICE OF COUNTY ENGINEER
RAMSEY COUNTY

CONVENTIONAL SIGNS

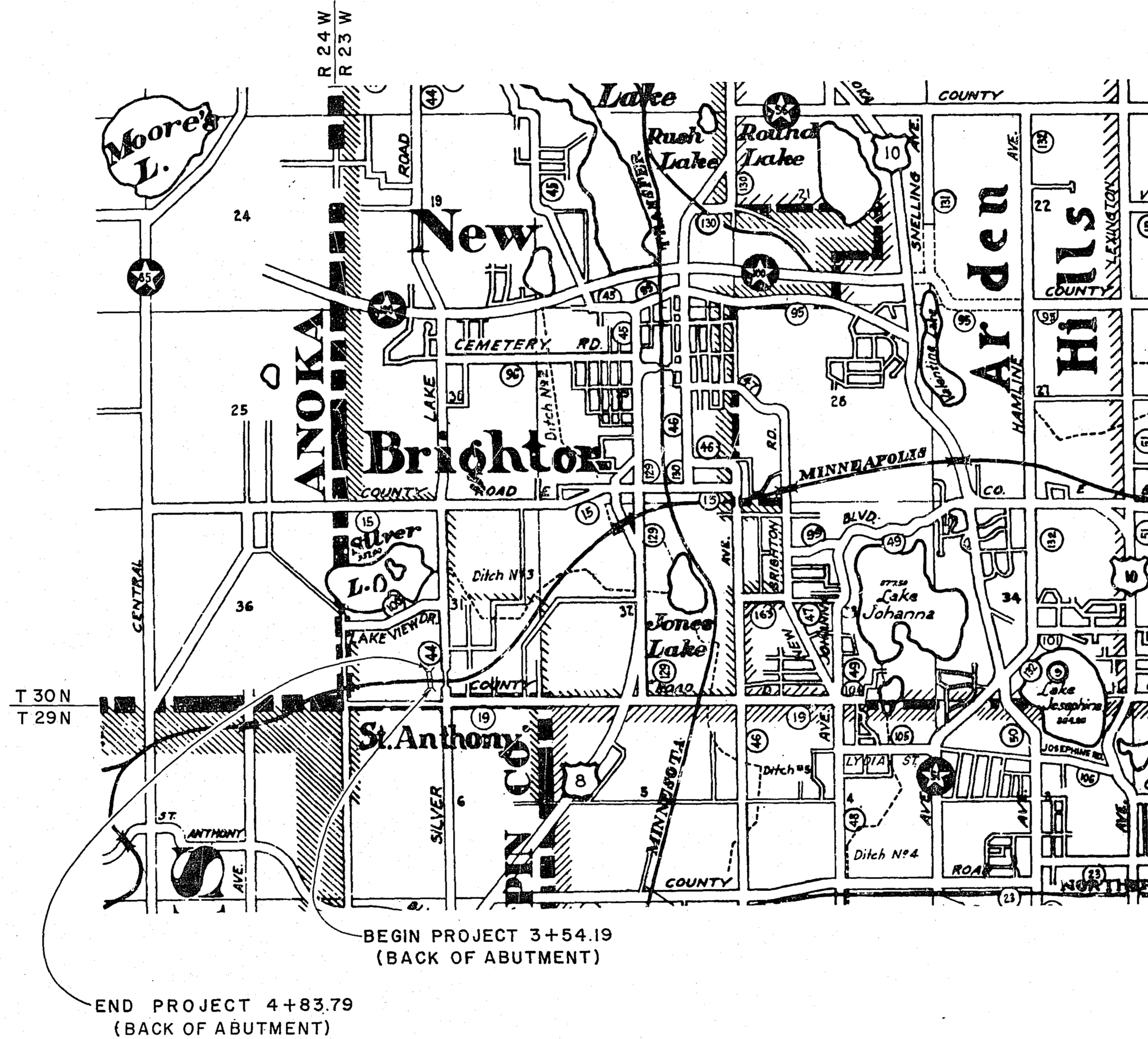
STATE LINE	-----	TIMBER	-----
COUNTY LINE	-----	BRUSH	-----
TOWNSHIP OR RANGE LINE	-----	ORCHARD	-----
SECTION LINE	-----	ROCK LEDGE	-----
QUARTER LINE	-----	SAND	-----
SIXTEENTH LINE	-----	EDGE OF CUT	-----
RIGHT-OF-WAY LINE	-----	TOE OF EMBANKMENT	-----
PRESENT ROAD 1/2 W. LINE	-----	CATCH BASIN	-----
LIMITED ACCESS	-----	MANHOLE	-----
PROPERTY LINE (Except Land Lines)	-----	DROP INLET	-----
VACATED PLATTED PROPERTY	-----	FIRE HYDRANT	-----
CORPORATE OR CITY LIMITS	-----	ARC LAMP	-----
TRUNK HIGHWAY CENTER LINE	-----	OTHER LAMPS (Tide Kind)	-----
RETAINING WALL	-----	RAILROAD CROSSING SIGN	-----
STEAM RAILROAD	-----	RAILROAD CROSSING BELL	-----
ELECTRIC RAILROAD	-----	ELECTRIC WARNING SIGN	-----
RAILROAD RIGHT-OF-WAY LINE	-----	CROSSING GATE	-----
CREEK	-----	CATTLE GUARD	-----
RAPIDS OR WATERFALL	-----	OVERHEAD (Highway Over)	-----
DRY RUN	-----	UNDERPASS (Highway Under)	-----
DRAINAGE DITCH	-----	ABUTMENT, WALL & PIER	-----
HIGH TENSION LINE	-----	BRIDGE	-----
POWER POLE LINE	-----	CULVERT	-----
TELEPHONE OR TELEGRAPH LINE	-----	BUILDING (One Story Frame)	-----
TELEPHONE CONDUIT	-----	C-CONCRETE S-STONE T-TILE B-BRICK ST-STUCCO	-----
GUARD RAIL	-----	HEDGE	-----
WIRE FENCE	-----	IRON PIPE	-----
RAILROAD SNOW FENCE	-----	STONE MONUMENT	-----
BOARD OR HIGHWAY SNOW FENCE	-----	WOOD STAKE OR HUB	-----
STONE WALL OR FENCE	-----	MEANDER CORNER	-----
GAS MAIN	-----		
WATER PIPE	-----		
SEWER PIPE	-----		
DRAIN TILE	-----		
GRAVEL PIT	-----		
SAND PIT	-----		
CLAY PIT	-----		
ROCK QUARRY	-----		
SPRINGS	-----		
MARSH	-----		

S.A.P. NO. 62-644-01

GROSS LENGTH	-----	FEET	-----	MILES
BRIDGES-LENGTH	129.60	FEET	0.025	MILES
EXCEPTIONS-LENGTH	-----	FEET	-----	MILES
NET LENGTH	129.60	FEET	0.025	MILES

SHEET NO. _____

INDEX	DESCRIPTION
1	GEN. PLAN & ELEV.
2	GEN. NOTES, EST. QUANT.
3	MANHOLE REVISIONS
4	ABUTMENT 1
5	ABUTMENT 2
6	PIERS
7	SUPERSTRUCTURE
8	PRECAST SLABS
9	BILL OF REINF. BARS
10	BRIDGE SURVEY
11	MINN. HWY. DEPT. STD. PLATES



LOCATION PLAN
SCALE: 1"=2640'

PIT DATA

PIT NO. _____	Located in _____
PIT NO. _____	Located in _____
PIT NO. _____	Located in _____
PIT NO. _____	Located in _____

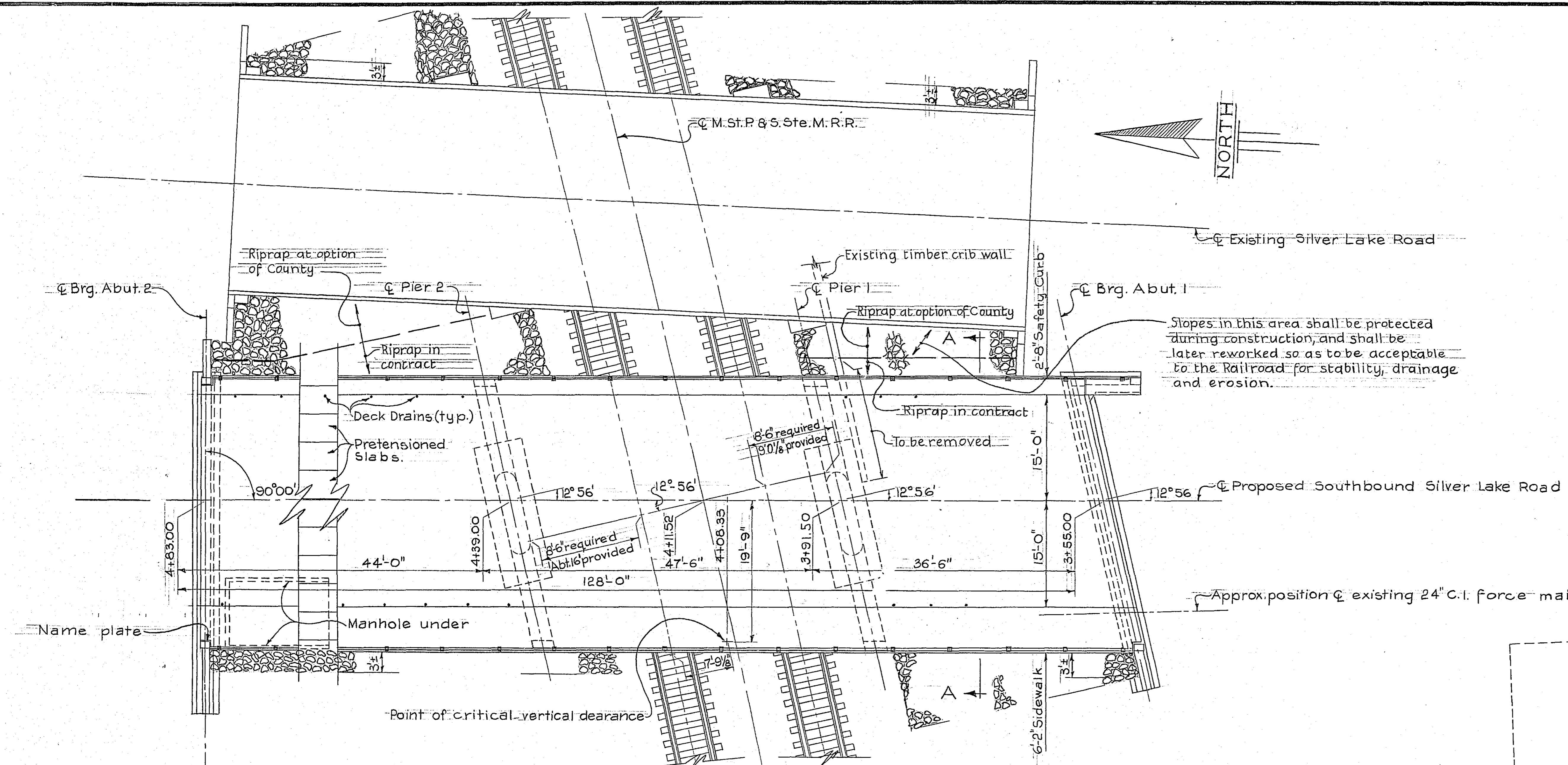
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Robert J. McFarlin REG. NO. 6452 DATE 4/22/61

RECOMMENDED FOR APPROVAL *Dennis R. Andell* DATE 4/24/61
COUNTY ENGINEER
APPROVED *Geo. J. Swanson* DATE 5/1/61
CHAIRMAN OF RAMSEY COUNTY BOARD

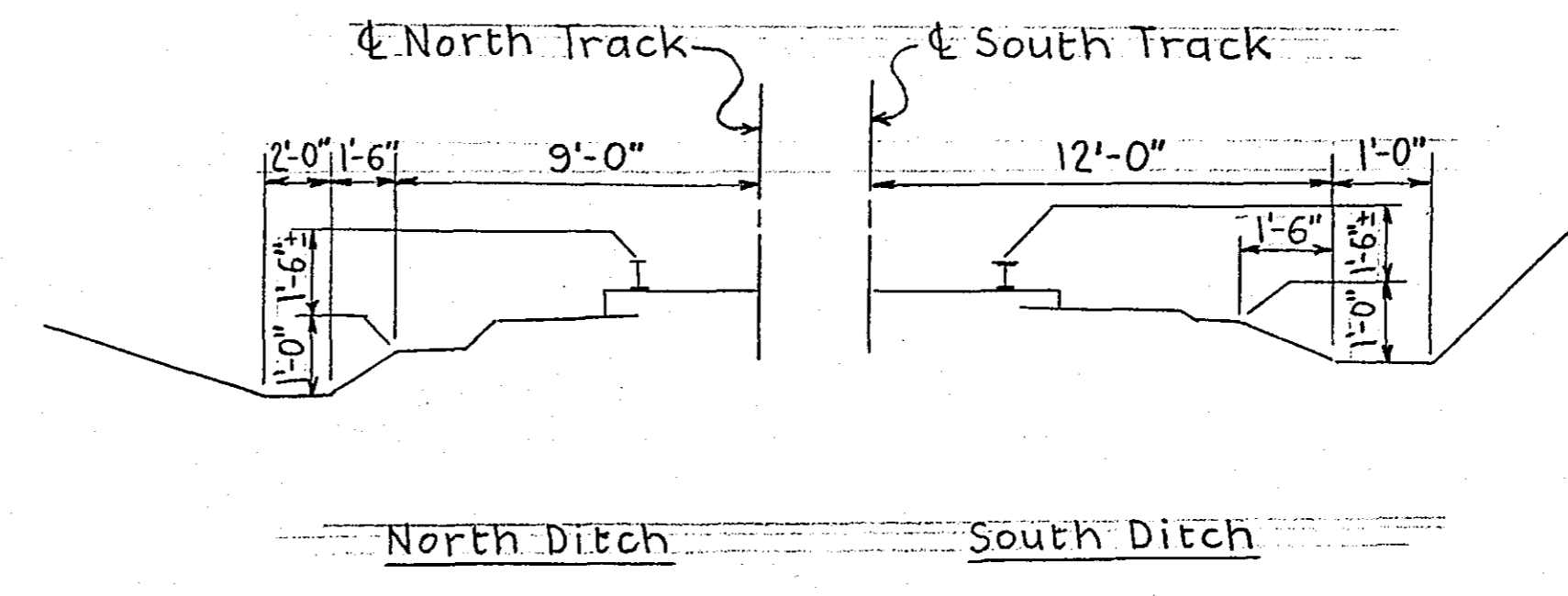
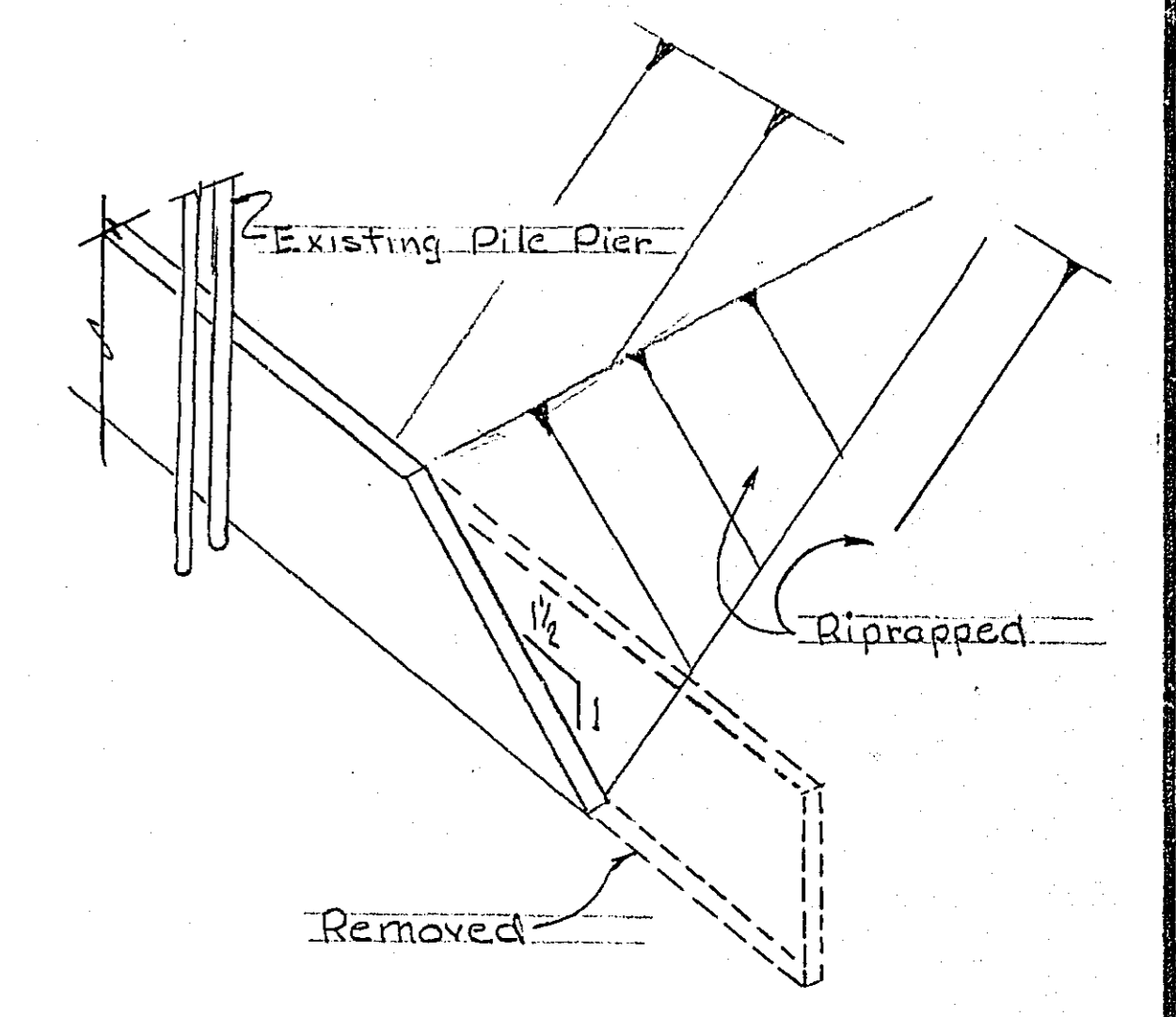
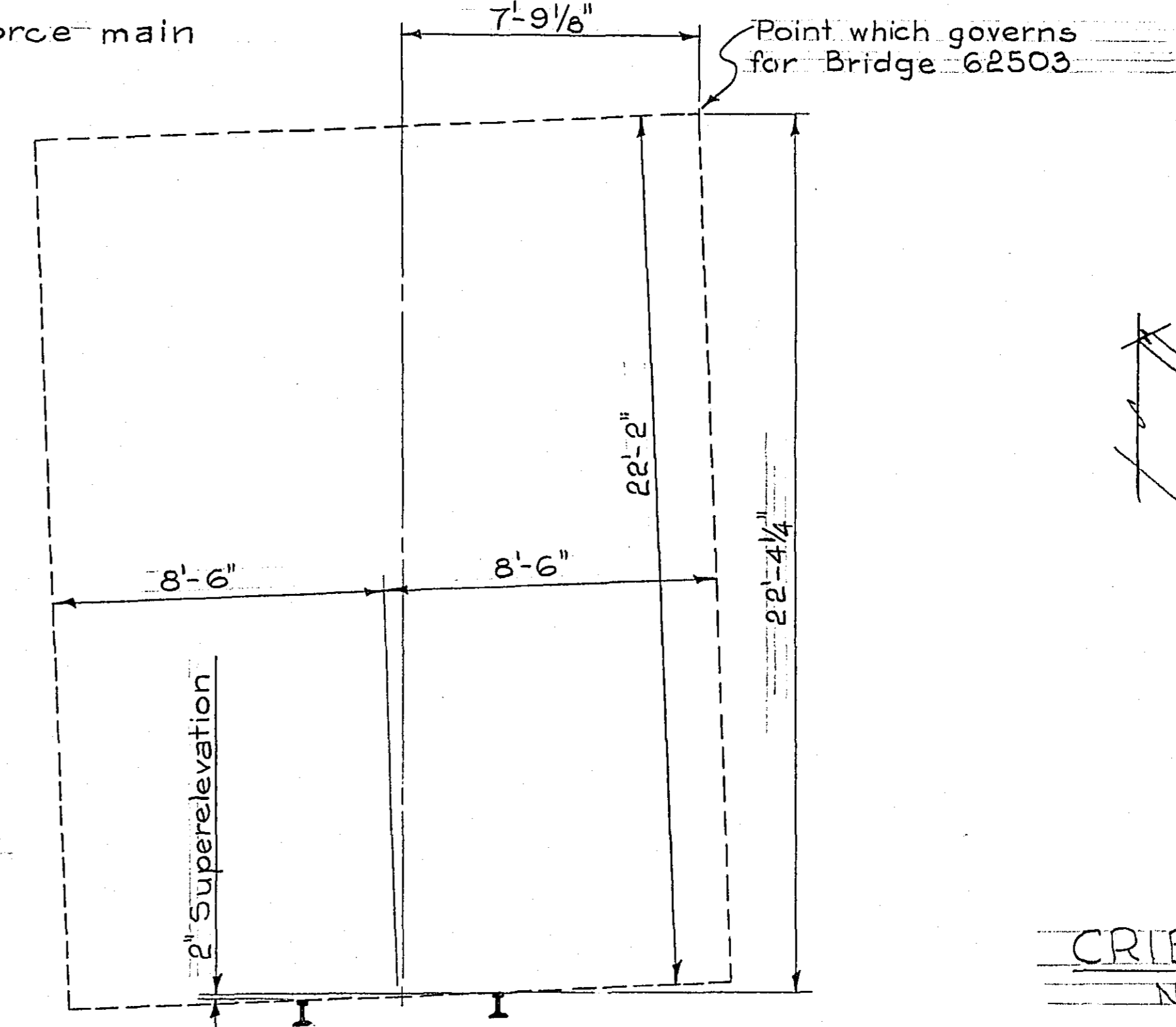
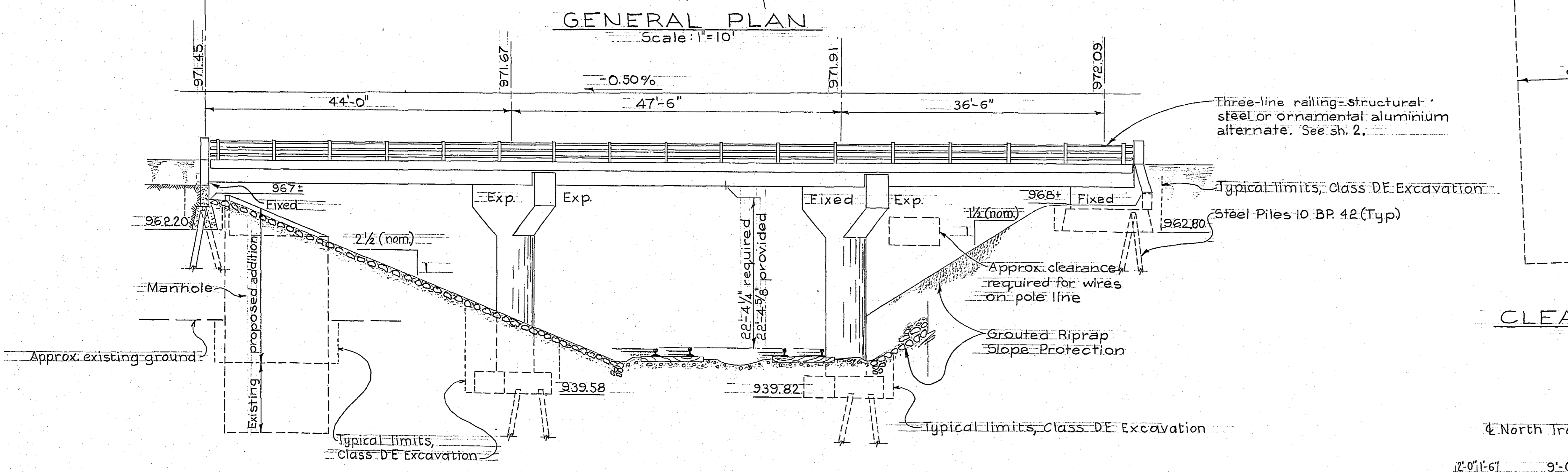
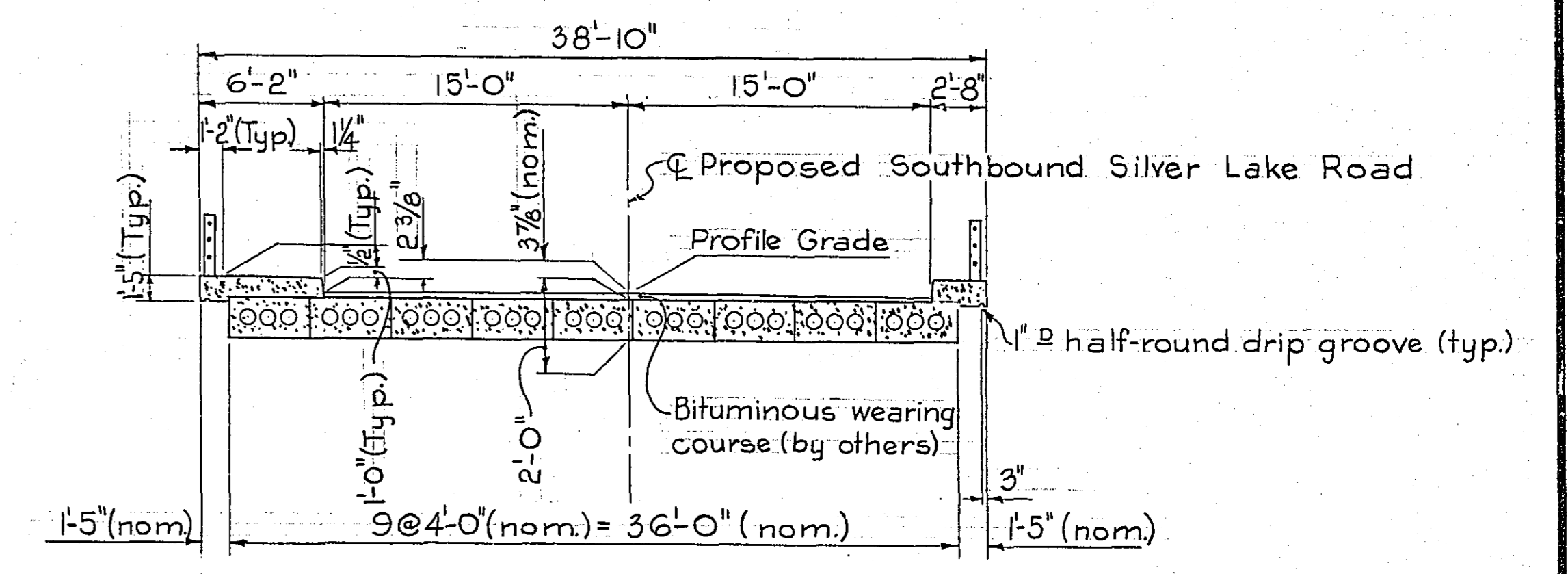
MINNESOTA STATE HIGHWAY DEPARTMENT
RECOMMENDED FOR APPROVAL *James Brock* DATE 4-27-61
ASSISTANT DISTRICT ENGINEER
RECOMMENDED FOR APPROVAL *W. C. Stasley* DATE 5-3-61
ASSISTANT BRIDGE ENGINEER
APPROVED *W. J. Mason* DATE 5-3-61
ASSISTANT STATE HIGHWAY ENGINEER

M.S.T.P. & S.STE.M. R.R.
APPROVED *A. D. Alderson* DATE 5-1-61
BRIDGE ENGINEER

MICRO-FILMED



Slopes in this area shall be protected during construction, and shall be later reworked so as to be acceptable to the Railroad for stability, drainage and erosion.



DESIGNED BY
TOLTZ, KING, DUVALL, ANDERSON
AND ASSOCIATES, INC.
ENGINEERS AND ARCHITECTS
ST. PAUL MINNESOTA

SILVER LAKE ROAD
RAMSEY COUNTY, MINNESOTA

BRIDGE NO. 62503

PROPOSED SOUTHBOUND SILVER LAKE ROAD OVER
M.S.T.P. & S.STE.M.R.R.
0.1 MI. N. OF COUNTY ROAD "D"

44'-47'-3" SIMPLE SLAB SPANS
30' ROADWAY, 5'-0" SIDE WALK, 1'-6" CURB

GENERAL PLAN & ELEVATION

SEC. 31 T 30N R 23W
ST. ANTHONY VILLAGE RAMSEY COUNTY
APPROVED *W.C. Matney*
ASST. BRIDGE ENGINEER

5-3-1961

GENERAL NOTES

Scope of Project:
 1. Addition to existing manhole (Property of U.S. Army, Corps of Eng'rs)
 2. Construction of Bridge No. 62503.
 3. Protection of slopes under Bridge No. 62503, and (at County's option) under existing adjacent unnumbered Br. (Property of M. St. P. & S. Ste. M. RR.)

Exclusions from Project:
 1. Approach fills
 2. Bituminous wearing course on bridge.

Design Specifications: "Standard Specifications for Highway Bridges," American Association of State Highway Officials, 1957.

Supplementary Design Specifications:
 1. "Criteria for Prestressed Concrete Bridges," U.S. Department of Commerce, Bureau of Public Roads, 1954.
 2. "Tentative Recommendations for Prestressed Concrete," Joint Committee of A.C.I. and A.S.C.E., 1958.
 3. "Tentative Specifications," A.A.S.H.O., 1958-1959.

Construction Specifications: "Specifications for Highway Construction" Minnesota Department of Highways, dated May 1, 1959, and submitted for approval by the Division Engineer of the Bureau of Public Roads on March 26, 1959; supplemented by the Special Provisions.

Design Data:
 1. Live Load, H20-S16=44
 2. Unit stresses:
 a. Concrete, Mix No. 3A8
 Ultimate, $f'_c = 3000$ psi (net 0)
 Compression, $f_c = 1200$ psi
 Bearing, $f_b = 700$ psi
 b. Concrete, Mix No's 3Y6 & 3Y60 & 1A6
 Ultimate, $f'_c = 4000$ psi (net 8)
 Compression, $f_c = 1600$ psi
 Bearing, $f_b = 525$ psi
 c. Concrete, Mix No. 3W24 (slabs)
 Ultimate, $f'_c = 3000$ psi
 Compression, $f_c = 2000$ psi
 Tension, $f_t = 0$
 d. Reinforcement bars
 Tension, $f_s = 20,000$ psi
 Compression, $f'_s = 16,000$ psi
 e. Steel piles
 Axial, $P = 30$ tons/pile (Abuts.)
 $P = 35$ tons/pile (Piers)
 f. Prestressing strand
 Ultimate, $f'_s = 250,000$ psi
 Initial $f_s = 175,000$ psi
 Working $f_s = 140,000$ psi

Piles: For all substructure units, piles shall be steel H, 10" BP42.
 Concrete Cover for Reinforcement:
 1. Bottoms of footing, 3"
 2. Precast slabs, 1 1/2"
 3. Other locations, 2"

Abbreviations on Plans:
 1. For Reinforcement Bar Locations
 T, top
 B or Bot., Bottom
 E.F., Each Face
 F.F., Far Face
 2. For Dimensions
 Nom., Nominal
 N.T.S., Not to Scale
 3. General
 Brg., Bearing
 K, Kip = 1000 lb. = 1/2 Ton
 Typ., Typical
 U.N., Unless Noted
 D, Diameter
 M.H.D., Minnesota Dept. of Highways

SUMMARY OF ESTIMATED QUANTITIES									
ITEM NO.	DESCRIPTION	UNIT	ABUT. 1	ABUT. 2	PIER 1	PIER 2	SUPERST.	GENERAL	TOTAL
401.681	Precast Concrete slabs	Lump Sum							one
2401.501	Concrete Mix No. 1A6	Cu. Yd.	19.3	18.0	27.1	27.1			91.5
2401.501	Concrete Mix No. 3A8	Cu. Yd.			48.5	48.5			97.0
2401.501	Concrete Mix No. 3Y6	Cu. Yd.	13.2	13.7					26.9
2401.501	Concrete Mix No. 3Y60	Cu. Yd.	2.8	1.5			53.2		57.5
2401.541	Reinforcement Bars	Lb.	3273	3045	6644	6644	2491		22,097
2402.577	Std. Name Plate	Ea.							one
2402.583	Ornamental Metal Railing (Steel alternate)	Lin. Ft.	6				256		262
2402.583	Ornamental Metal Railing (Aluminum alternate)	Lin. Ft.	6				256		262
2451.501	Class DE Excavation	Cu. Yd.	75	69	64	64		(Note 7)	272
2452.509	Steel Piling, delivered	Lb.	16,800	16,800	21,504	21,504			76,608
2452.510	Steel Piling, driven	Lin. Ft.	392	392	480	480			1744
2452.520	Steel Test Pile in Place, 55 ft. long	Each	1	1					2
2452.520	Steel Test Pile in Place, 35 ft. long	Each			1	1			2
2506.511	Manhole reconstruction	Lump Sum						1	one
2513.501	Grouted Riprap	Cu. Yd.						294	294
2481.501	3-Ply Joint waterproofing	Lin. Ft.	4	4					8
2452.526	Loading Tests	Pile			1				one

* See Special Provisions.

QUANTITY NOTES:

- The Provisions of 1404 shall not apply to Item 2451.501, Class DE Excavation, to Items 2452.509 and 2452.510, Steel Piling, to Item 2513.501 Grouted Riprap, or to Item 2452.526, Loading Tests.
- The County reserves the right to select either of the alternates for Item 2402.583, Ornamental Metal Railing, regardless of which has the lower bid price.
- For the scope of Item 401.681, Precast Slabs, and Item 2506.511, Manhole Reconstruction, reference shall be made to the Special Provisions.
- 1/4" bituminous felt on abutment seats, conforming to 3701, shall be included for payment with Item 2401.501, Concrete, Mix No. 3Y6.
- 1/4" bituminous felt on pier seats, conforming to 3701, shall be included for payment with Item 2401.501, Concrete, Mix No. 3A8.
- For the scope of Item 2402.583, Ornamental Metal Railing, see the details, this sheet, and the Special Provisions.
- Excavation required at manhole will be measured and paid for under Item 2451.501, Class DE Excavation.
- 1" cork joint filler in curbs and sidewalks, and at terminal posts, conforming to 3702, shall be included for payment with Item 2401.501, Concrete, Mix No. 3Y60. (Approx. 32 sq.ft.)
- Pre-drilling of holes for piles shall be included for payment with Item 2452.510, Steel Piling driven, and with Item 2452.520, Steel Test Pile in Place.
- The estimated quantity listed for Item 2513.501, Grouted Riprap, is for slopes under both bridges. The County reserves the right to omit this item under the existing bridge.

RAILING NOTES:

- All posts shall be vertical; all rails shall be parallel to grade.
- Shop detail drawings of railing shall be submitted for the Engineer's approval, in accordance with 2471.3.
- Reference shall be made to the Special Provisions.

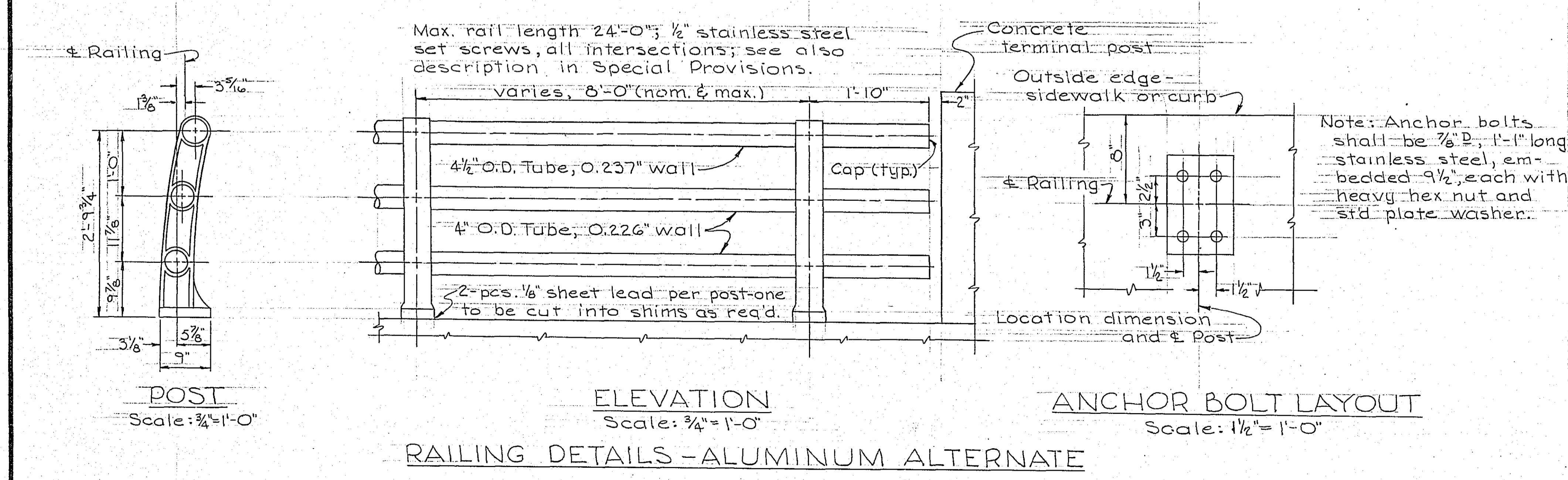
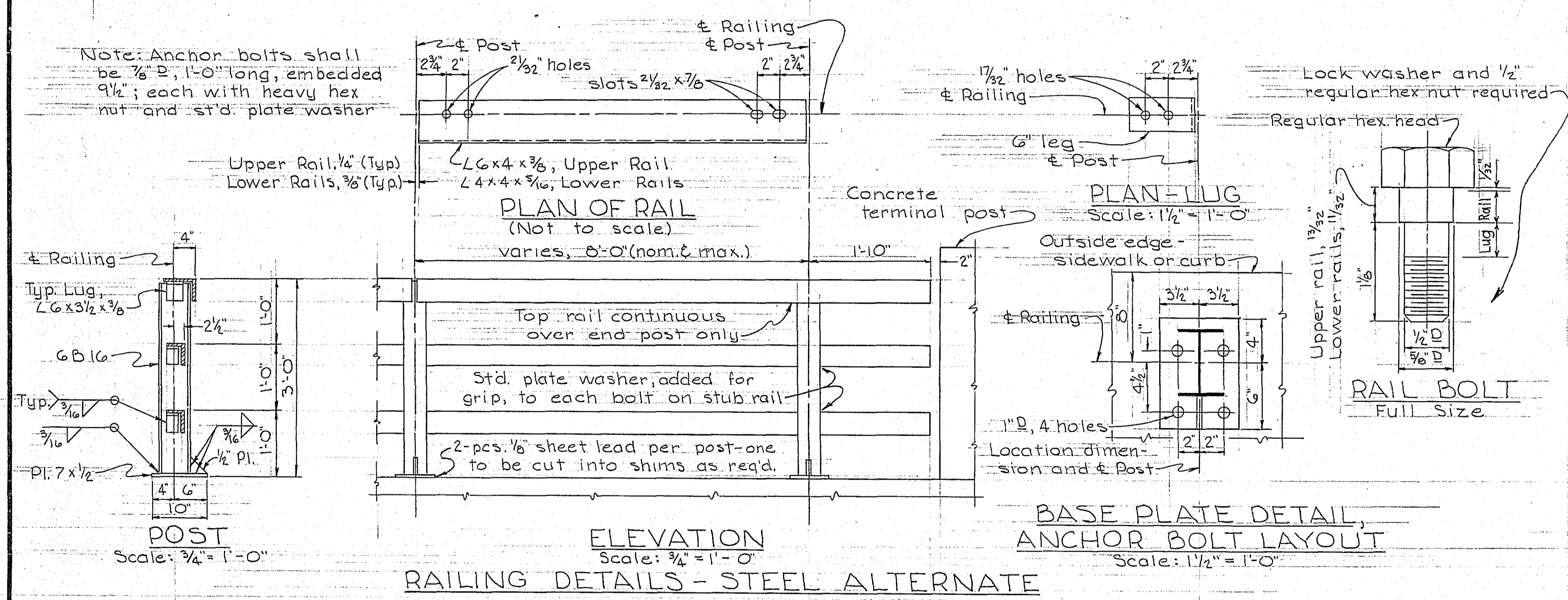
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 AND ASSOCIATES, INC.
 ENGINEERS AND ARCHITECTS
 ST. PAUL MINNESOTA

SILVER LAKE ROAD
 RAMSEY COUNTY, MINNESOTA

BRIDGE NO. 62503

GENERAL NOTES, RAILING DETAILS,
 ESTIMATED QUANTITIES.

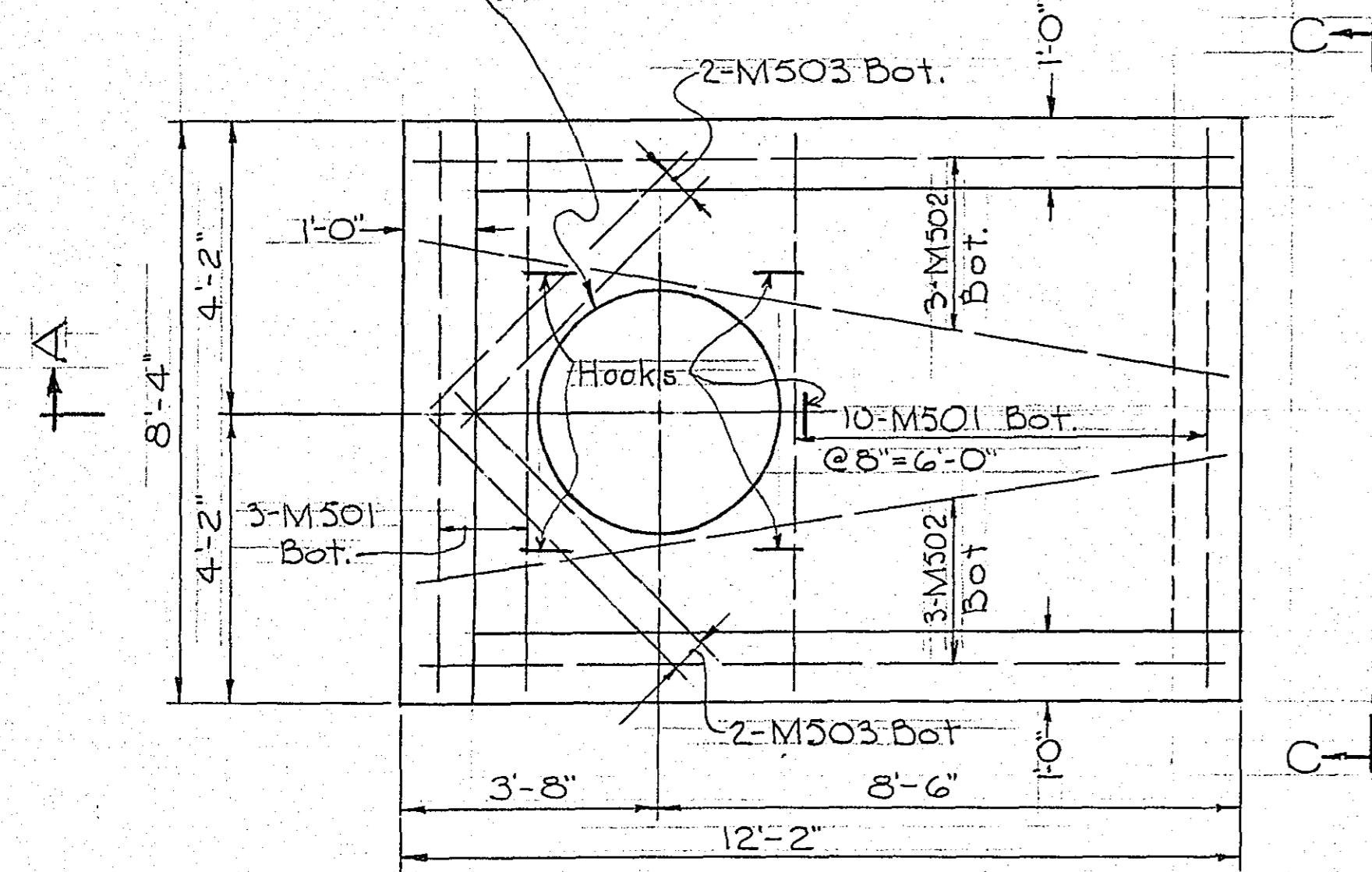
APPROVED 5-3-61



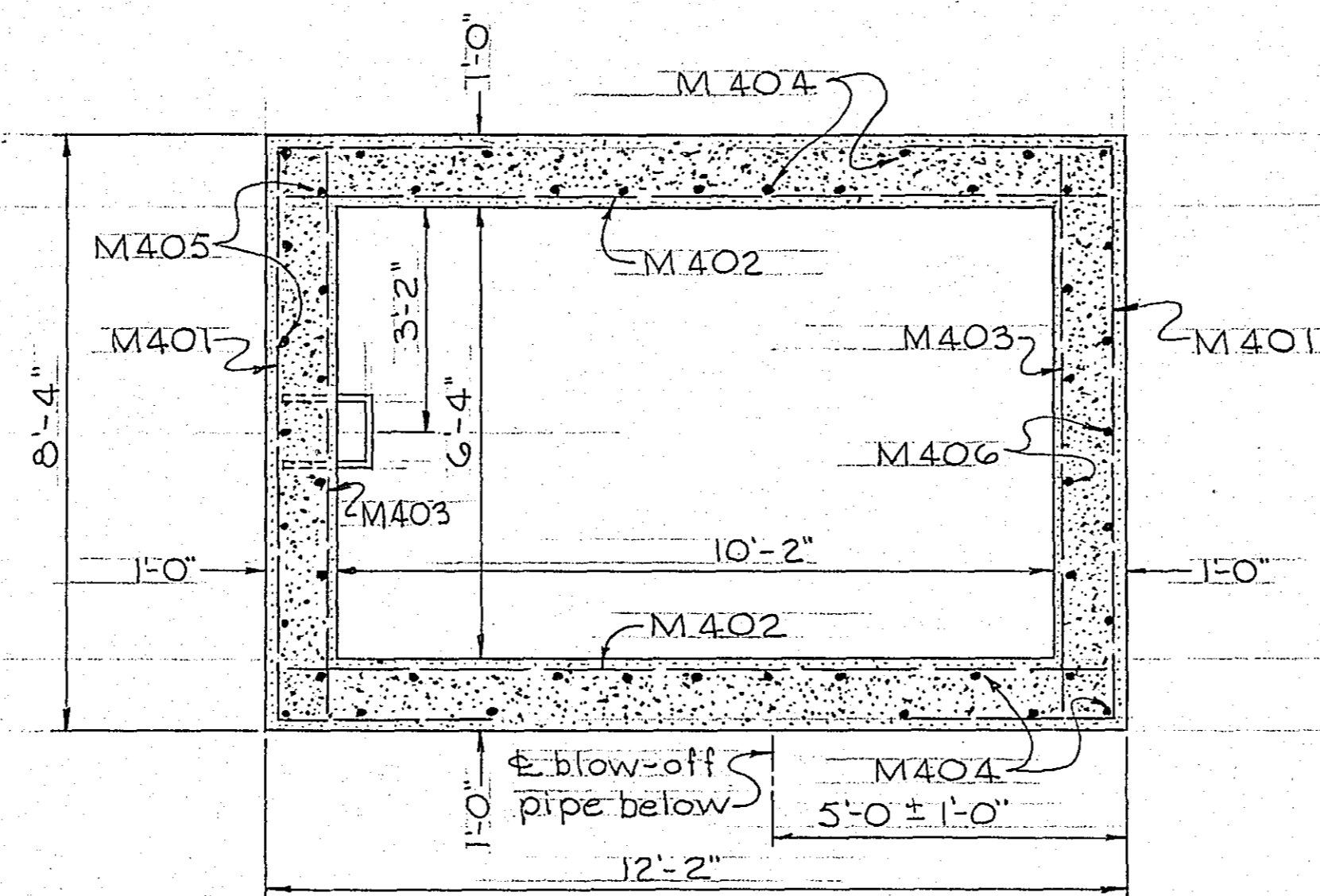
PILE SUMMARY									
Loc'n	Test Piles	Lengths, ft.				Loads, tons			
		No. of Piles	Est. Req'd. penetration	Est. Lgth. driven	Est. Lgth. ordered	Dead Load	Live Load & Impact	max. over-turning	Sum
Abut. 1	1 @ 55	8	46.5	49	50	17.5	5.0	3.2	25.7
Abut. 2	1 @ 55	8	46.5	49	50	19.0	6.5	6.0	31.5
Pier 1	1 @ 35	16	29	30	32	22.0	4.5	14.5	41.0
Pier 2	1 @ 35	16	29	30	32	24.0	4.5	14.5	43.0

Note: All pile loads listed are for A.A.S.H.O. Group III, under which a 25% overstress is permitted

Hole to fit manhole cover.
Anchor bolts, frame and
cover not shown



PLAN
Scale: 3/8" = 1'-0"



SECTION B-B
Scale: 3/8" = 1'-0"

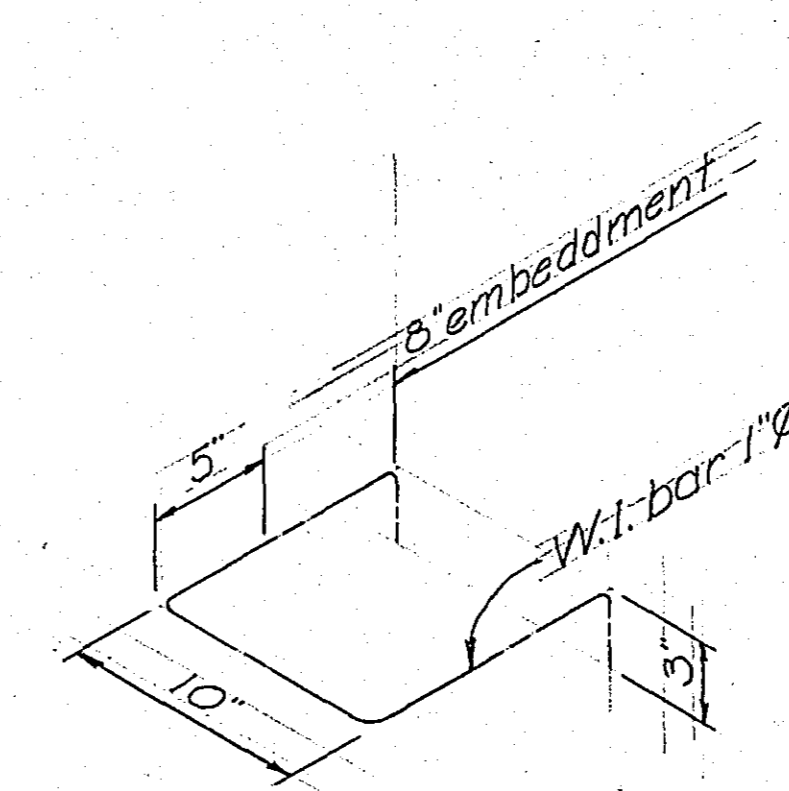
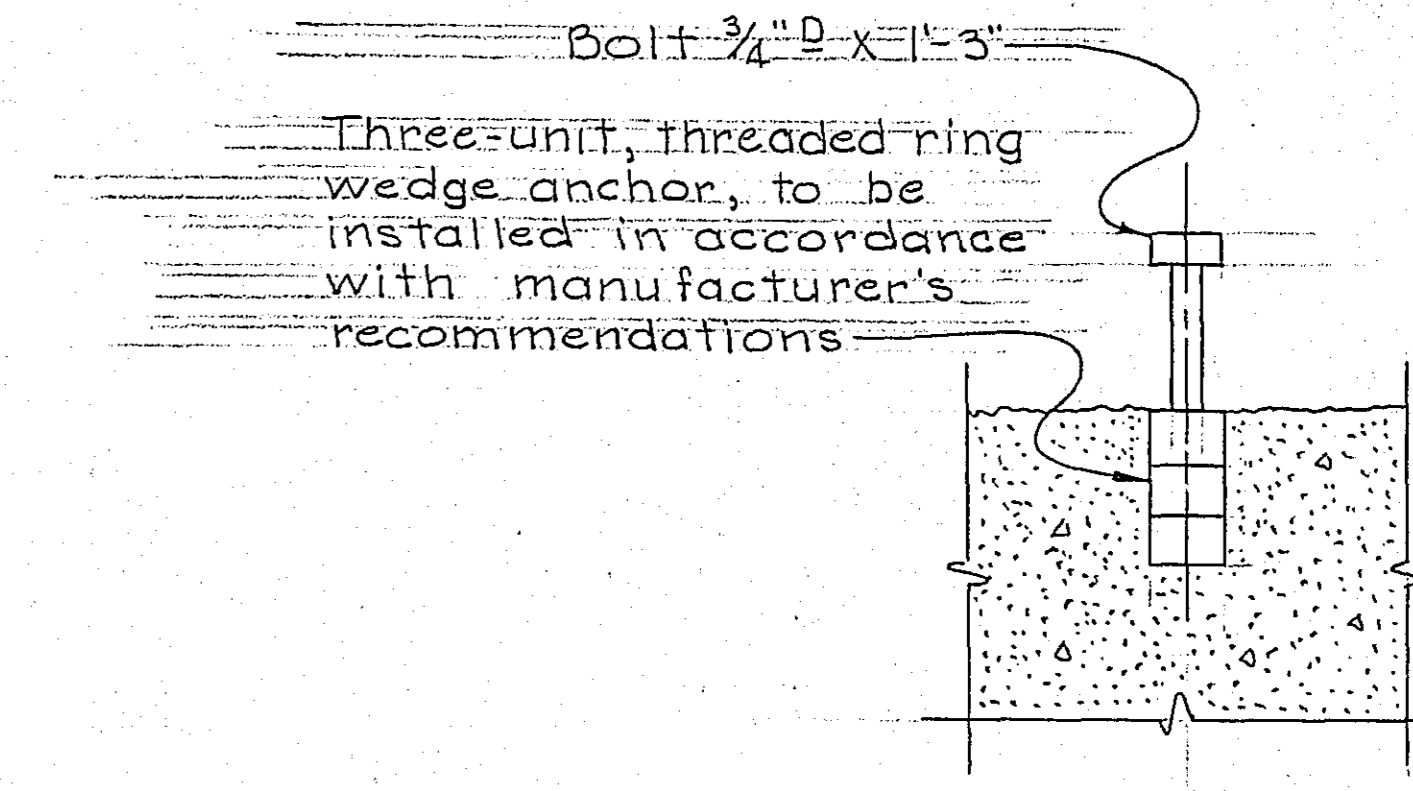
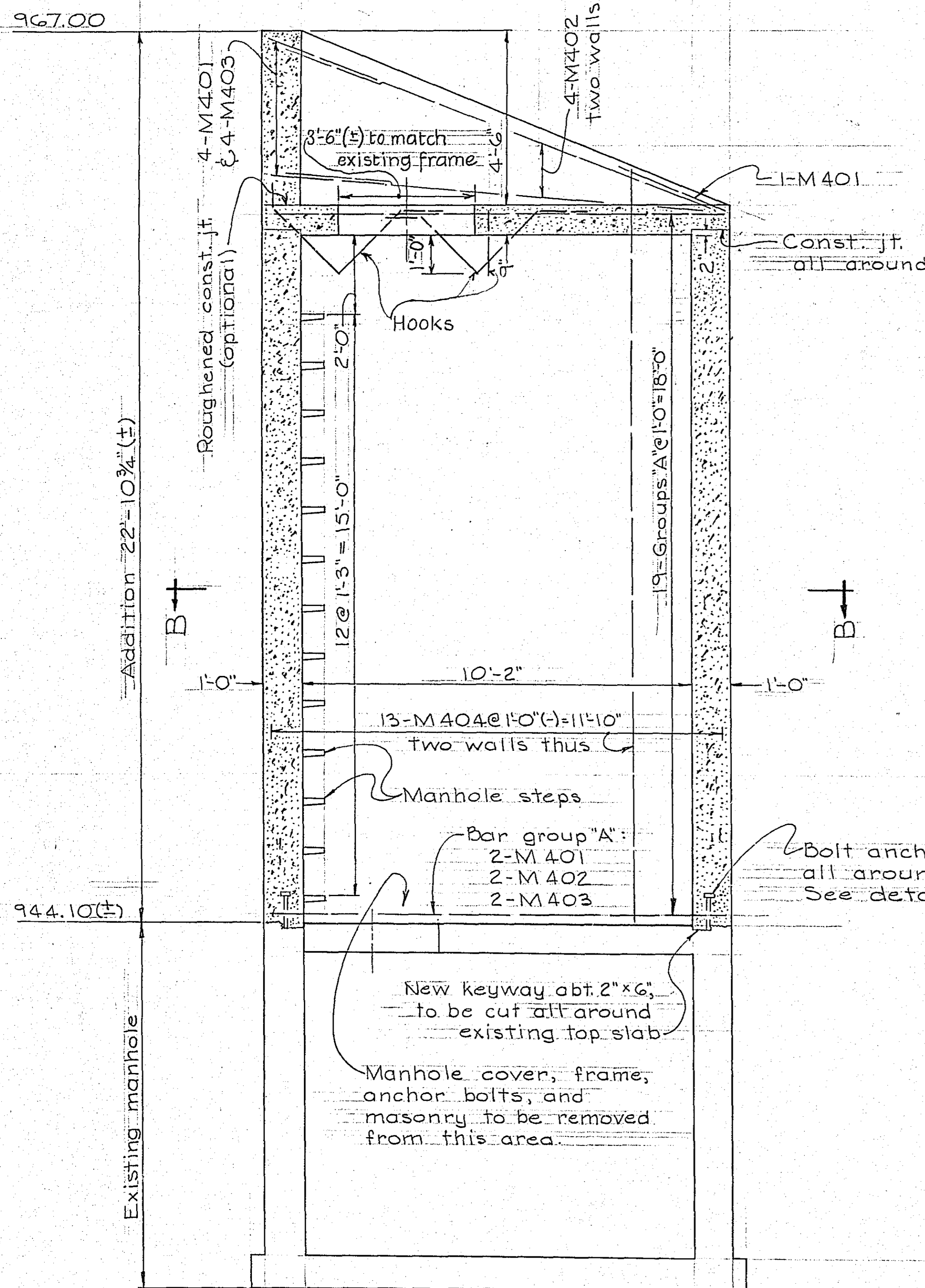


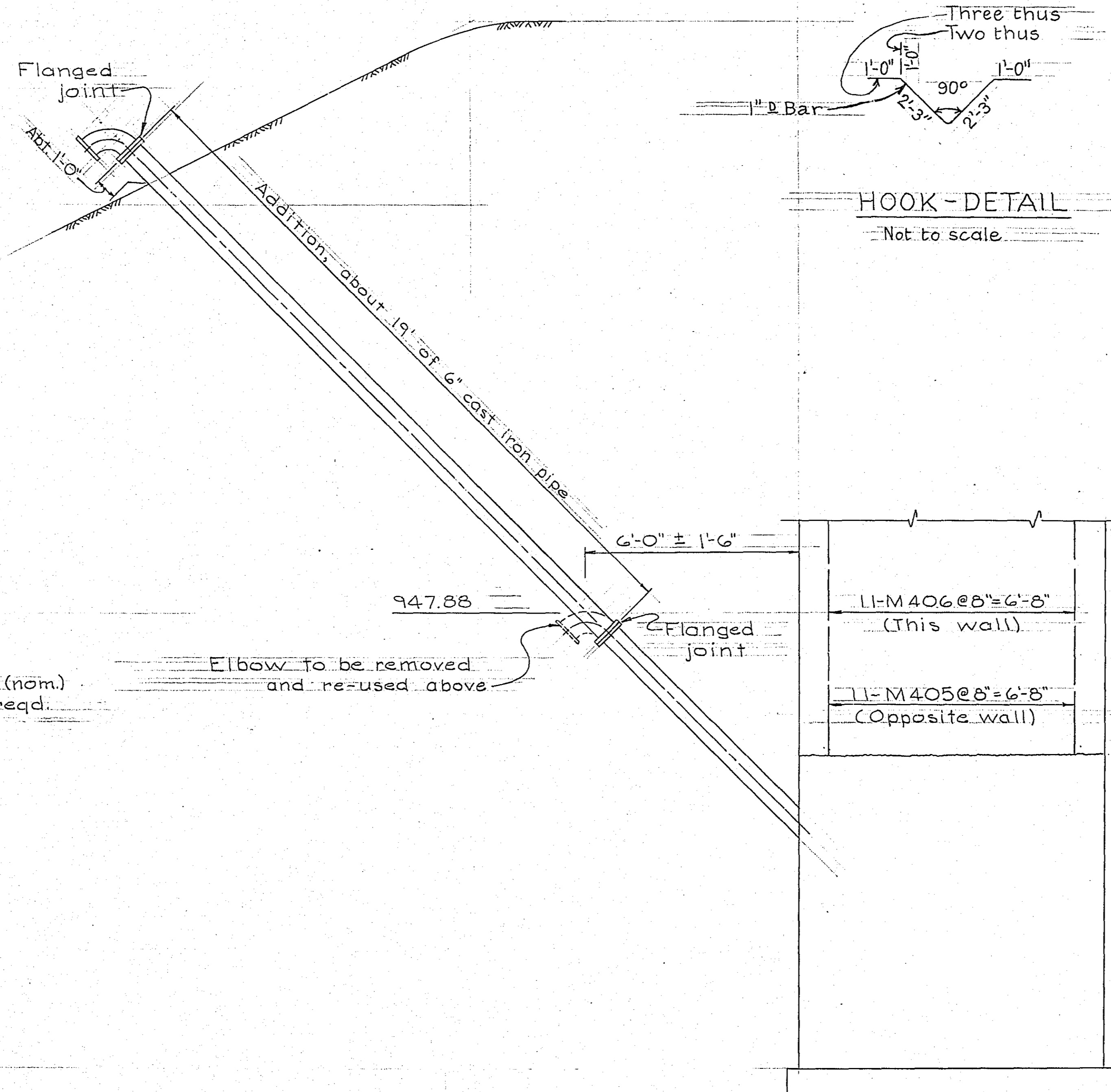
DIAGRAM-MANHOLE STEP
Not to scale



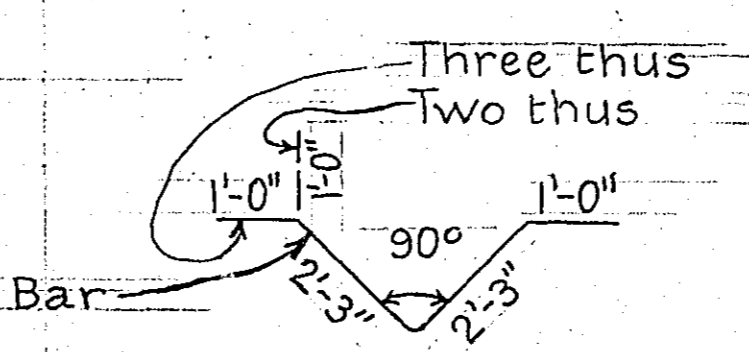
ANCHORAGE
Not to scale



SECTION A-A
Scale: 3/8" = 1'-0"



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



HOOK-DETAIL
Not to scale

NOTES:

- 1 Reference shall be made to Quantity Notes, Sh. 2, and to the Special Provisions, for the basis of payment for the addition to this manhole.
- 2 The Estimate of Quantities given below is for information only; it is not a list of pay items.
- 3 Elevations are referenced to the bench mark noted on Sh. 10.
- 4 Reinforcement bars are detailed on Sh. 9.
- 5 Concrete cover for reinforcement bars shall be 2" min.
- 6 The existing manhole cover and frame shall be re-used on the new top slab. Existing anchor bolts may be re-used if in good condition.

ESTIMATED MATERIAL QUANTITIES

ITEM	M.H.D. MAT'L SPEC	UNIT	QUANT.
Concrete, Mix No. TAG	2461	Cu. Yd.	31
Reinf. bars	3301	Lb.	1845
Wrought iron (Steps)	3311	Lb.	120
Anchorage	3387	Each	42
6" C.I. Pipe	A21.85 B16.1 (A.S.A.)	Lin. Ft.	19
Anchor bolts (if necessary)	2471.3 E11e	Each	4
Hooks	3311	Each	5

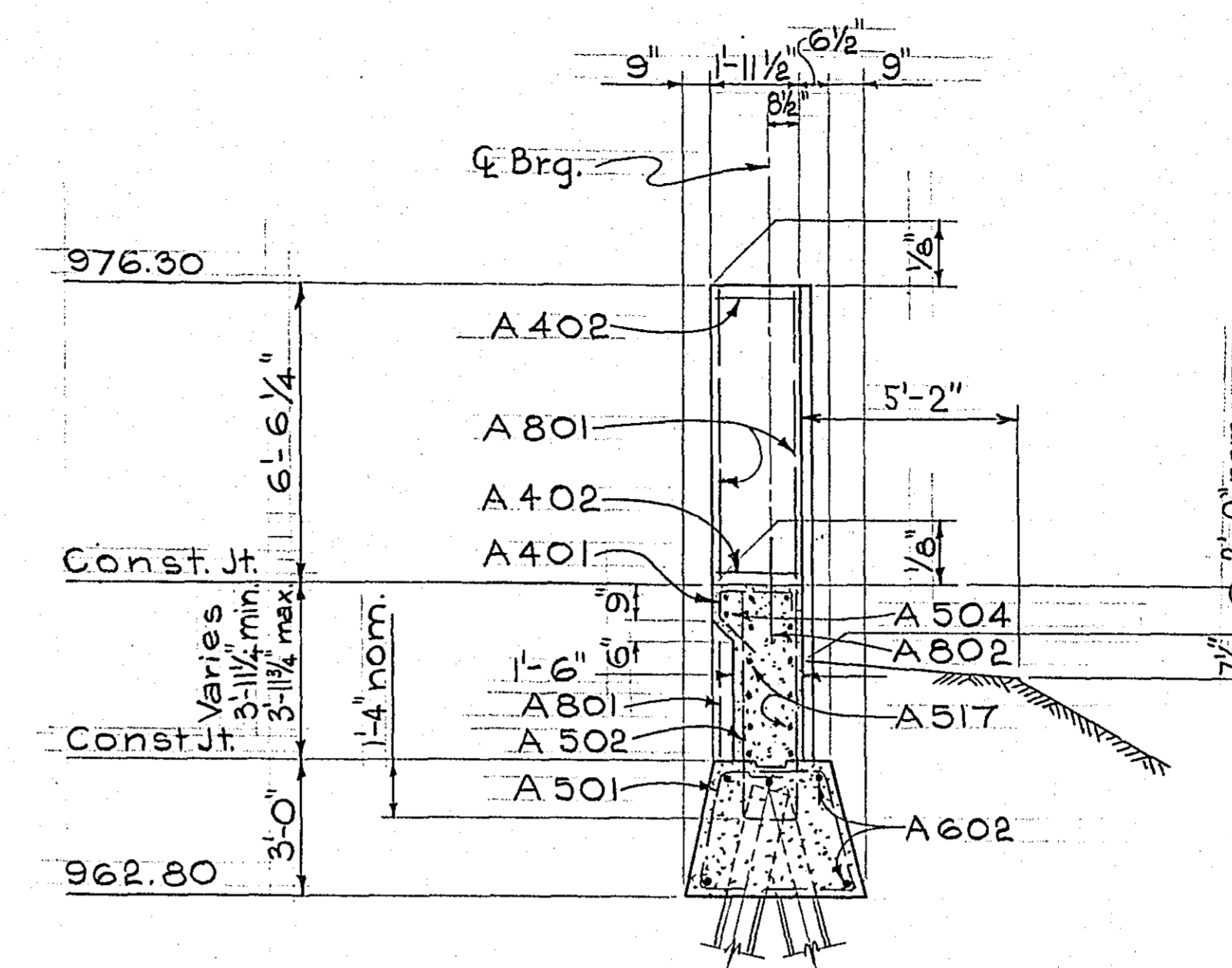
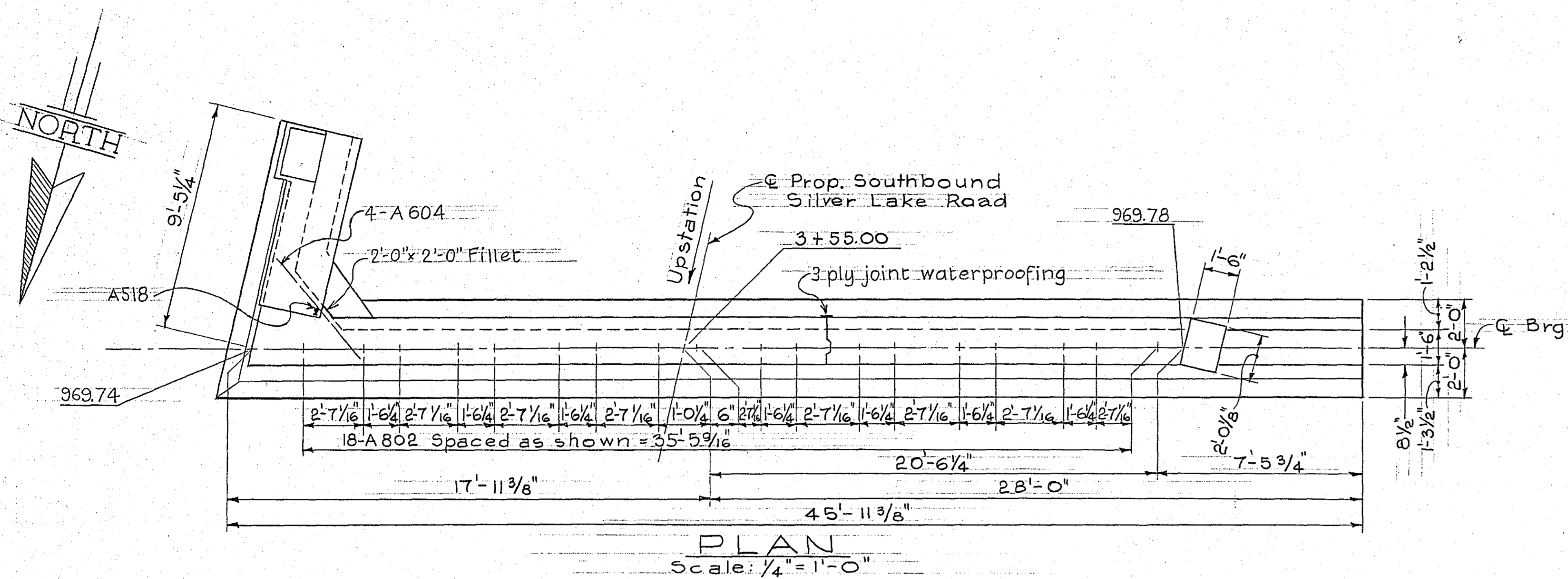
DESIGNED BY
TOLTZ, KING, DUVALL, ANDERSON
AND ASSOCIATES, INC.
ENGINEERS AND ARCHITECTS
ST. PAUL MINNESOTA

SILVER LAKE ROAD
RAMSEY COUNTY, MINNESOTA

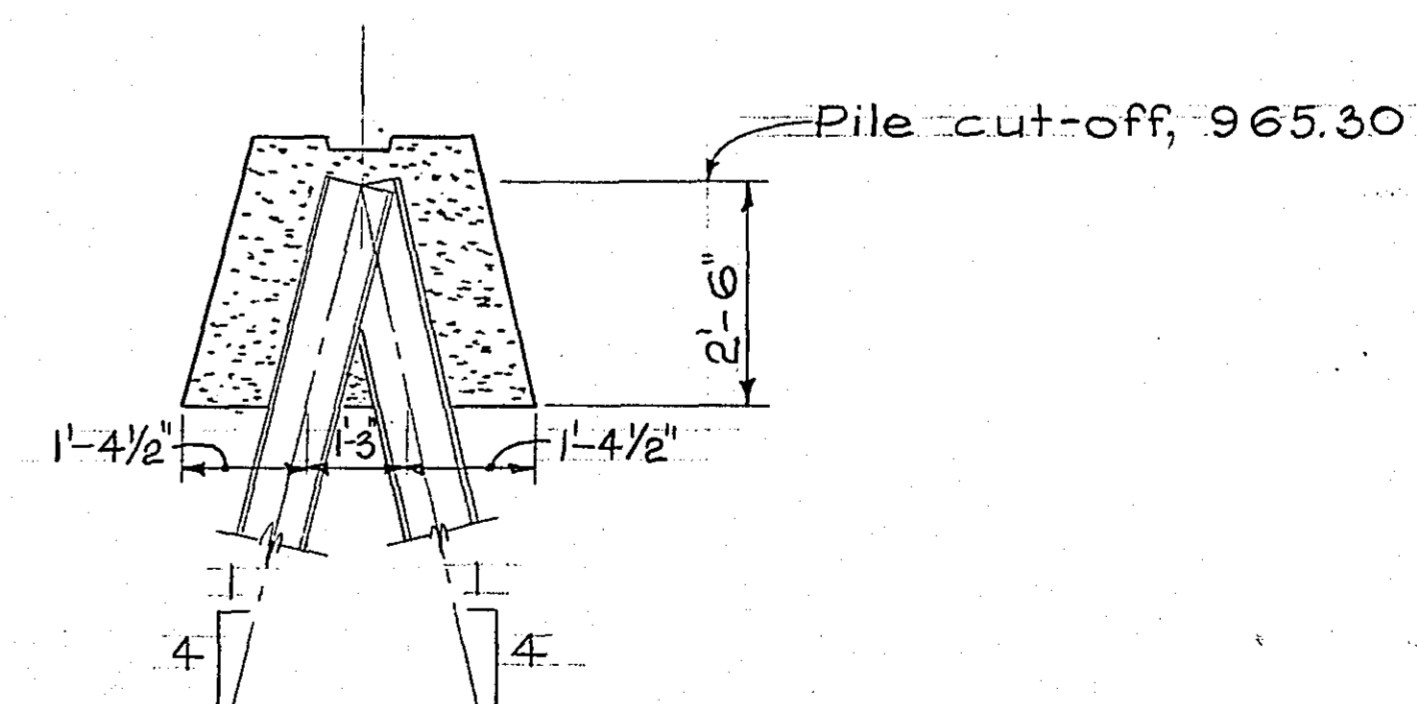
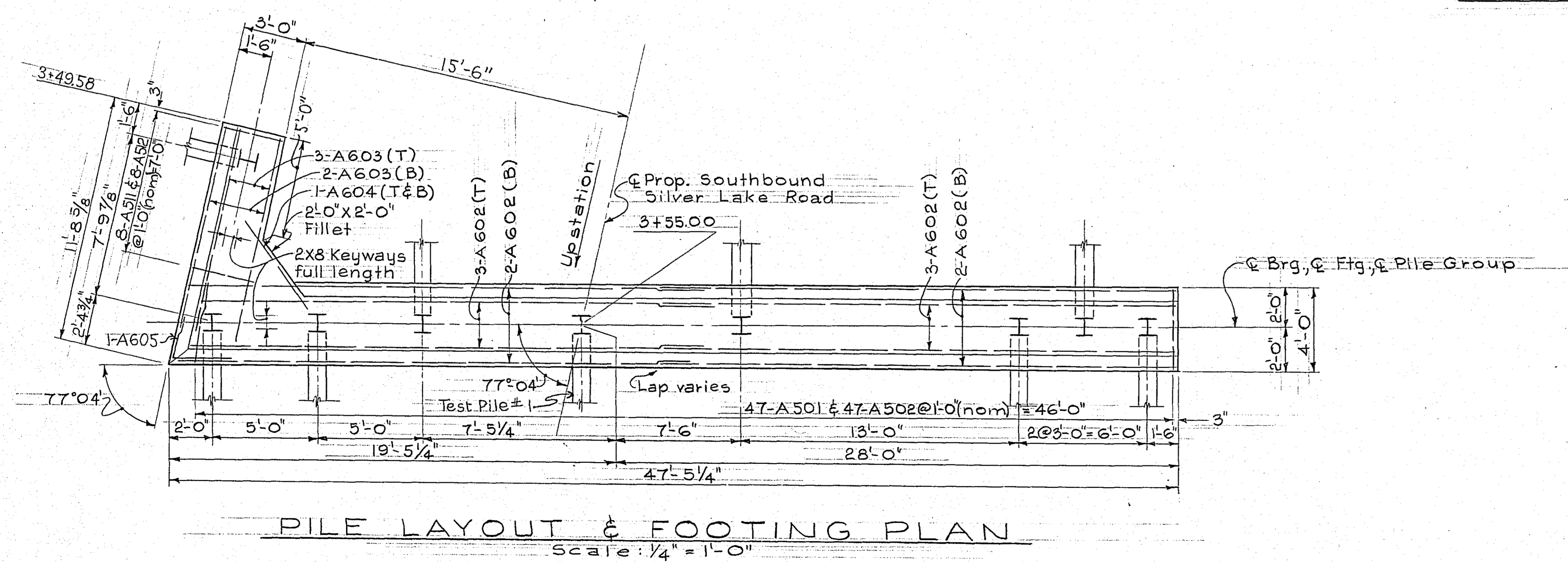
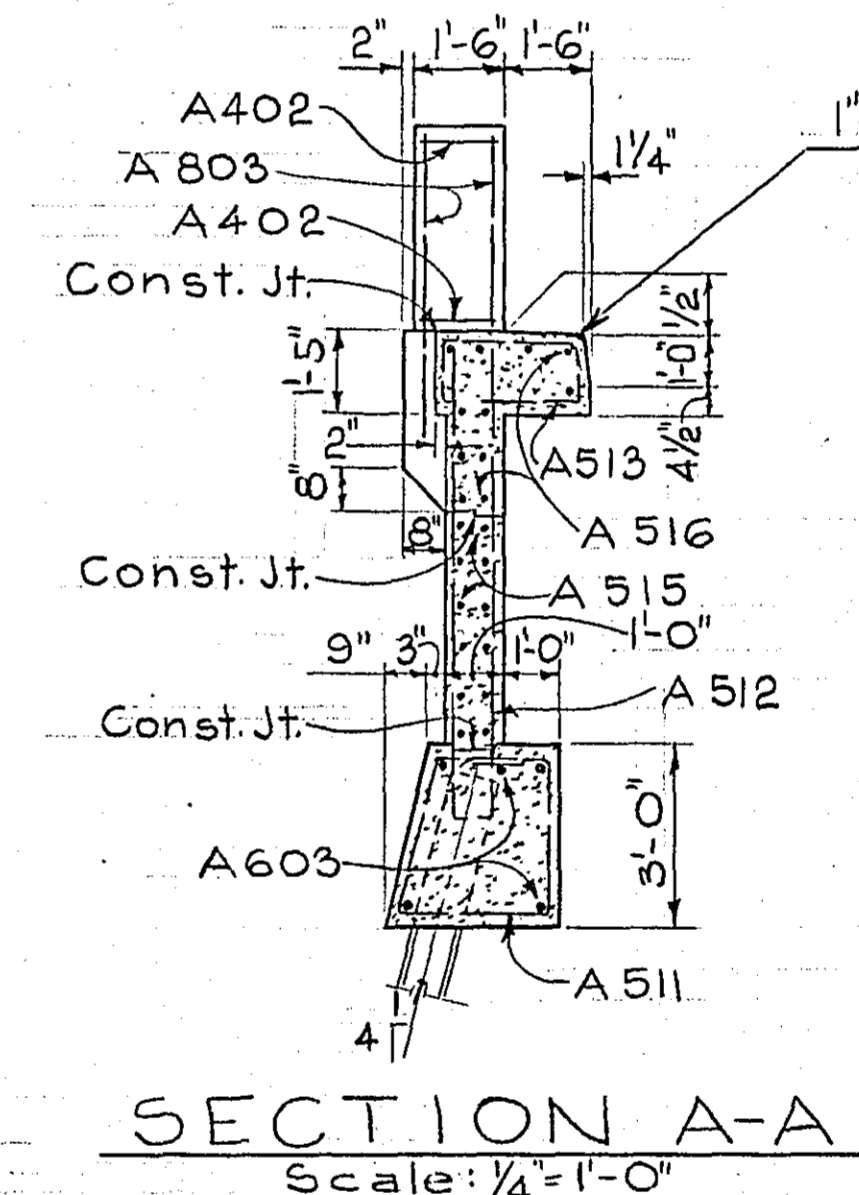
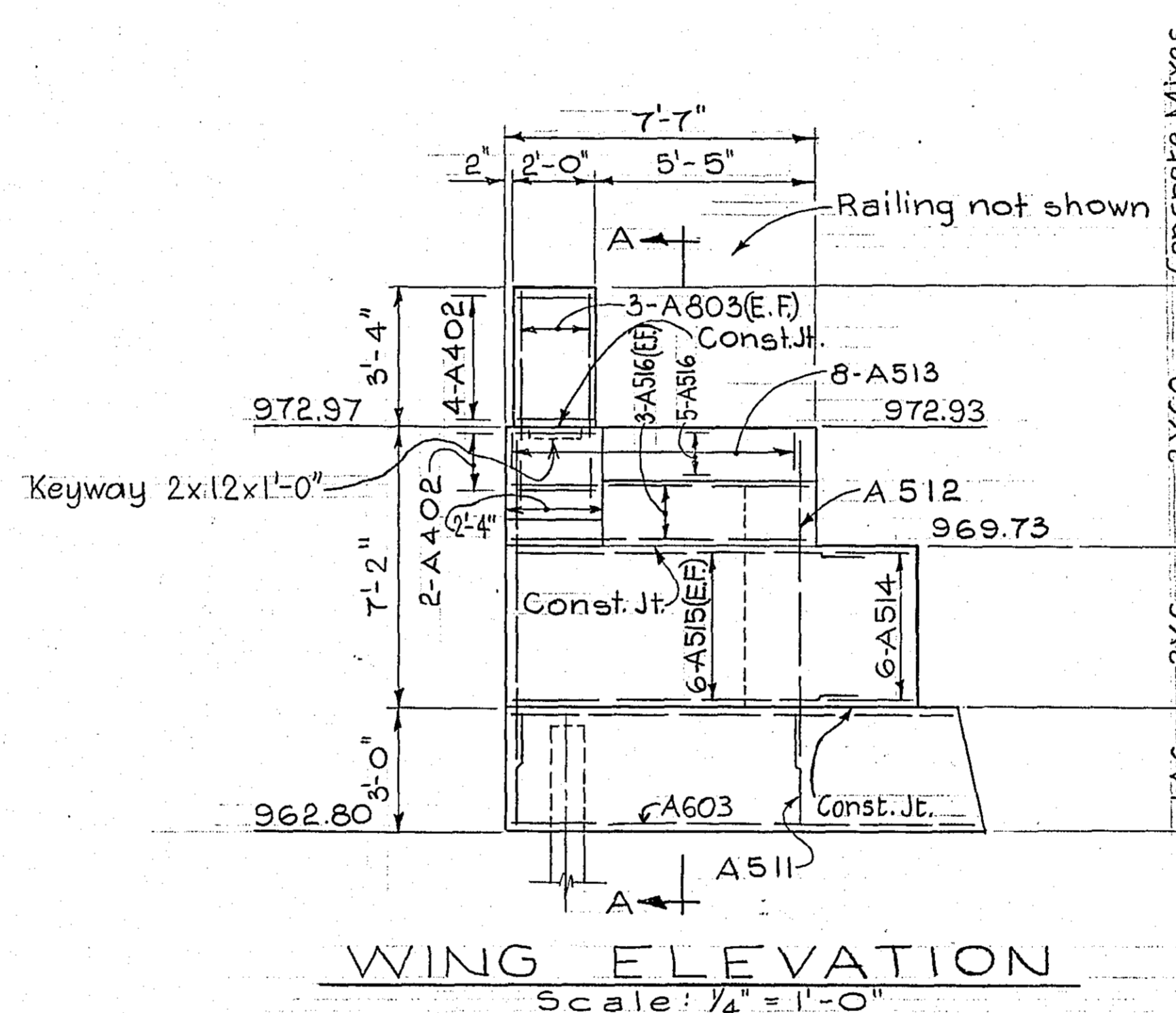
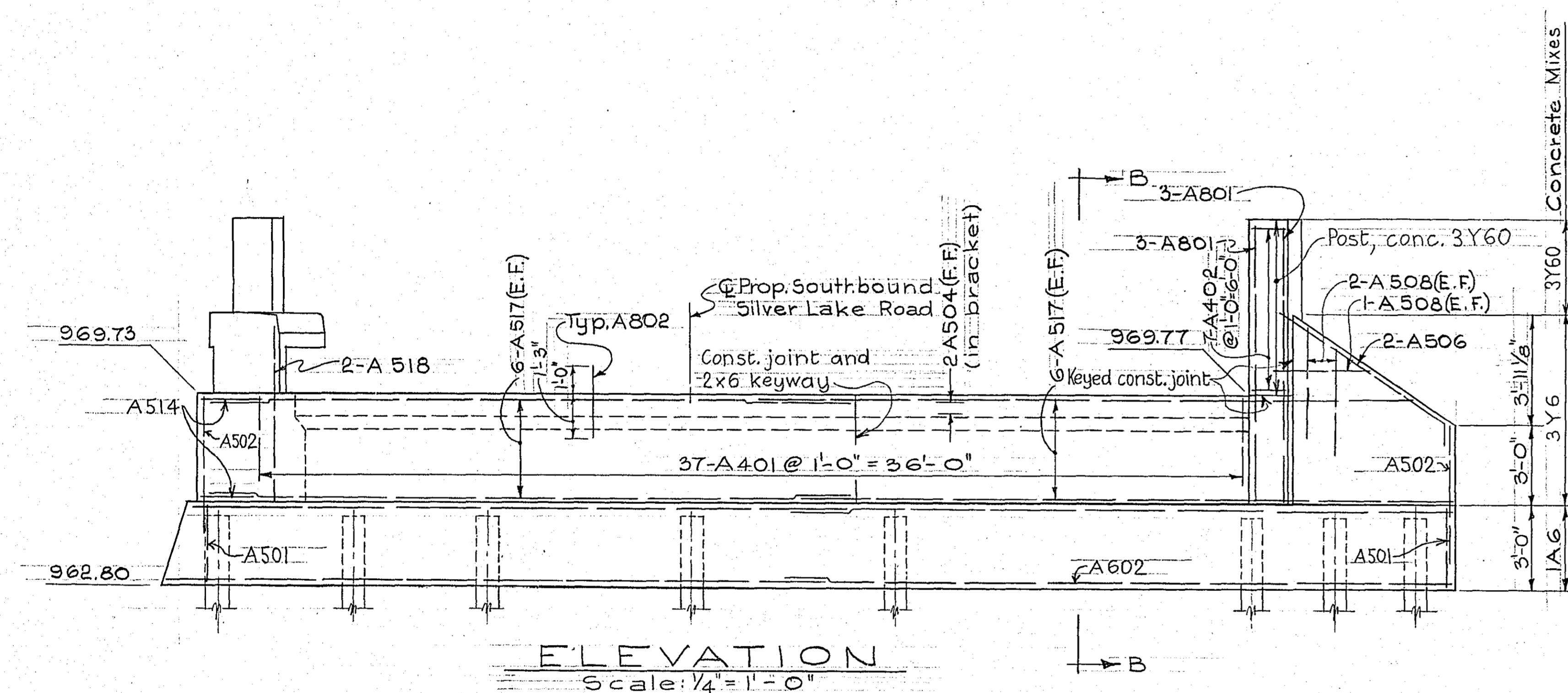
BRIDGE NO. 62503

MANHOLE REVISIONS

APPROVED 5-3-61



- Notes:
1. Bars A501, A502, A511 and A512 in footings may be shifted slightly to miss tops of piles.
 2. Reinforcement bars are detailed on Sh. 9.
 3. Piles are steel "H" 10 BP 42, driven to a minimum bearing of 30 tons per pile.
 4. 1'-0" diam. holes shall be pre-drilled for the placement of piles; to elev. 995.0 for the westernmost six piles, and through the fill for the easternmost three.
 5. Pile summary is on sh. 2.
 6. Tops of terminal posts shall be slightly crowned for drainage.



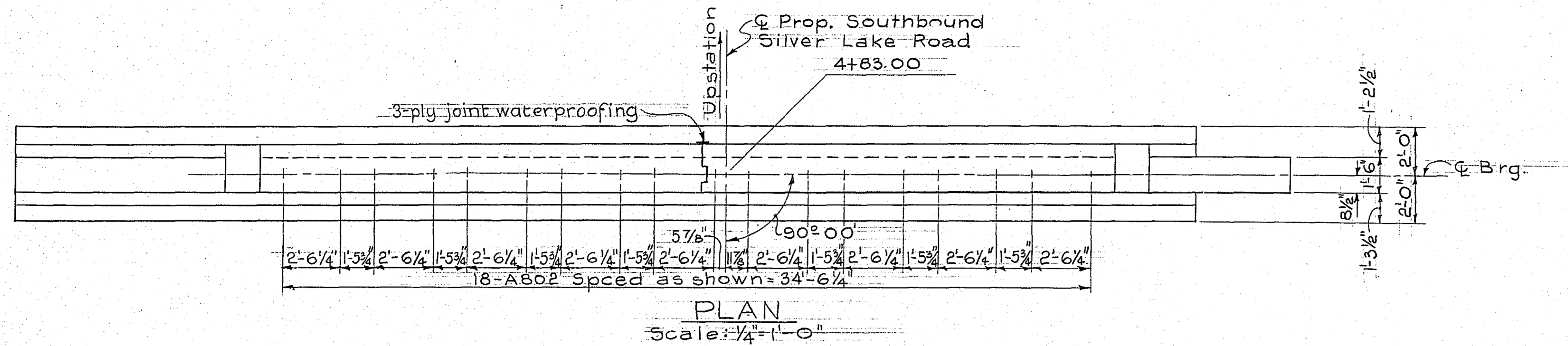
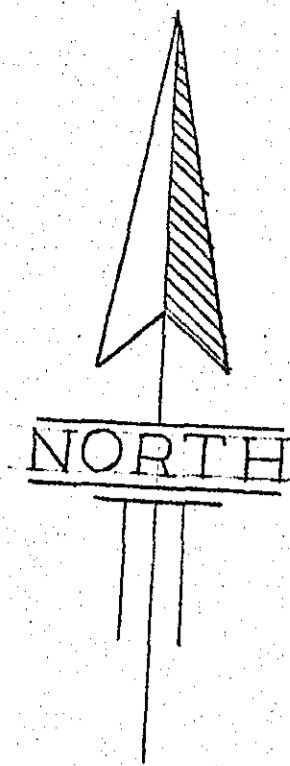
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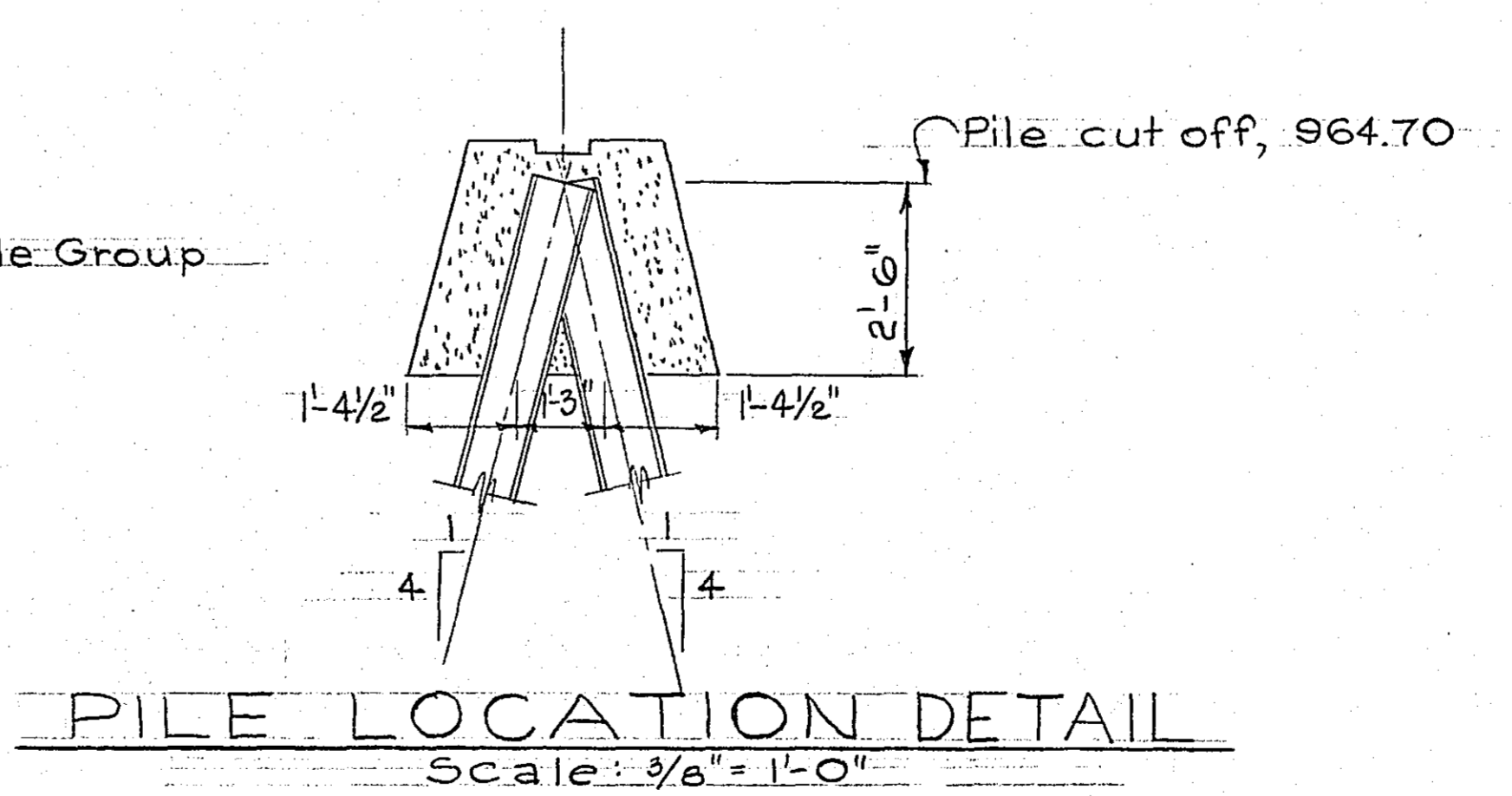
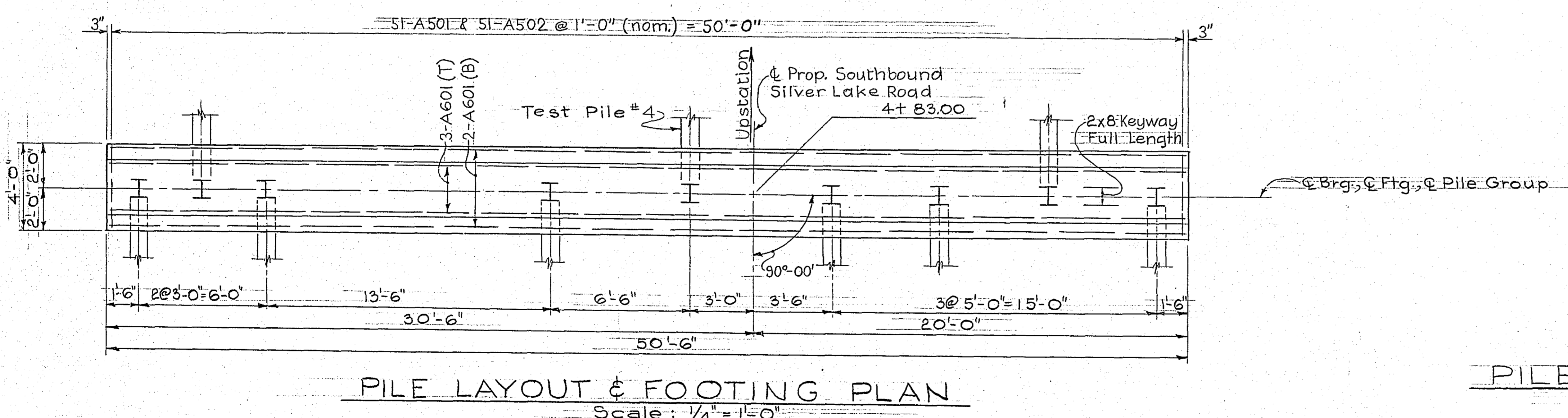
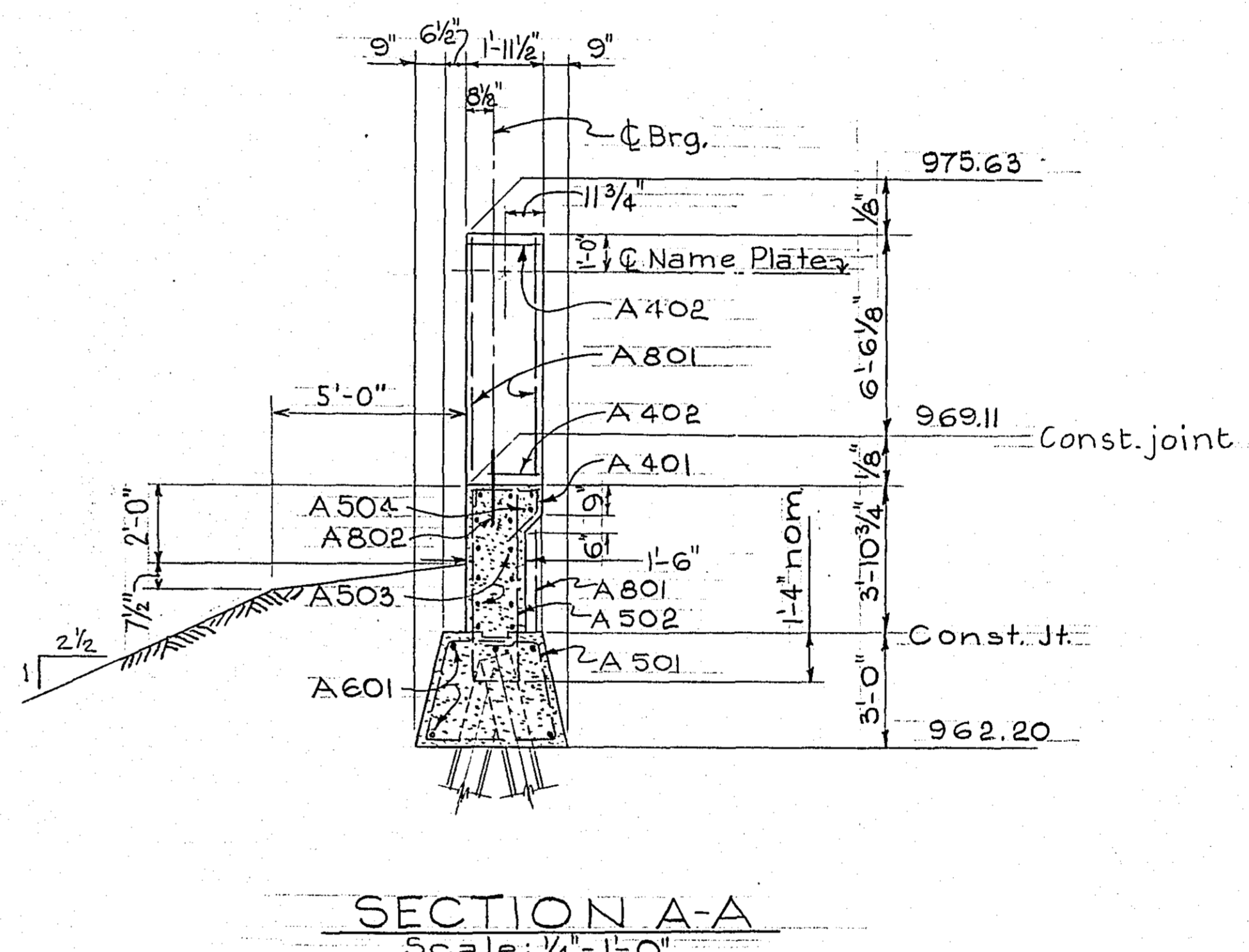
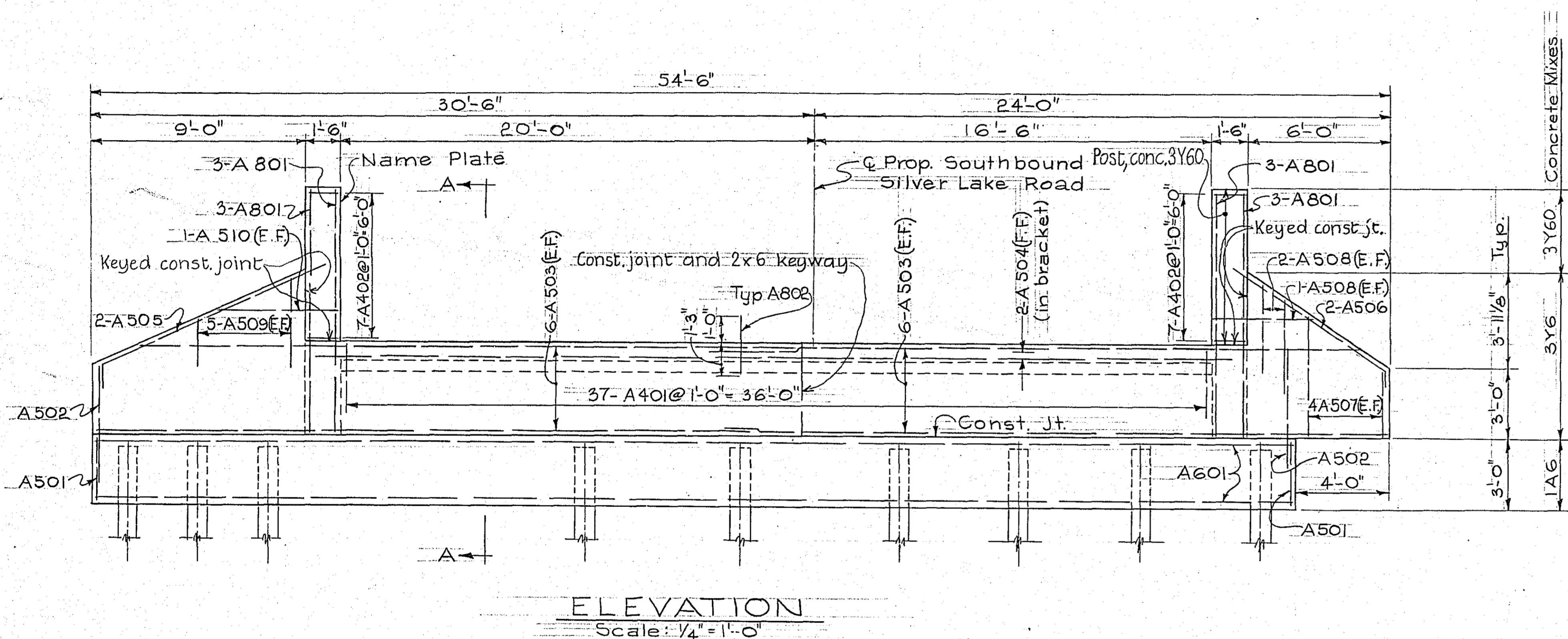
BRIDGE NO. 62503

ABUTMENT 1

APPROVED 5-3-61



- Notes:
1. Bars A501 and A502 in footings may be shifted slightly to miss tops of piles.
 2. Reinforcement bars are detailed on Sh. 9.
 3. Piles are steel "H", 10 BP 42, driven to a min. brg. of 30 tons per pile.
 4. 1'-0" diam. holes shall be pre-drilled for the placement of piles; to elev. 935.0 for the westernmost six piles, and through the fill for the easternmost three.
 5. Name plate is detailed on Sh. 11.
 6. Pile summary is on sh. 2.
 7. Tops of terminal posts shall be slightly crowned for drainage.



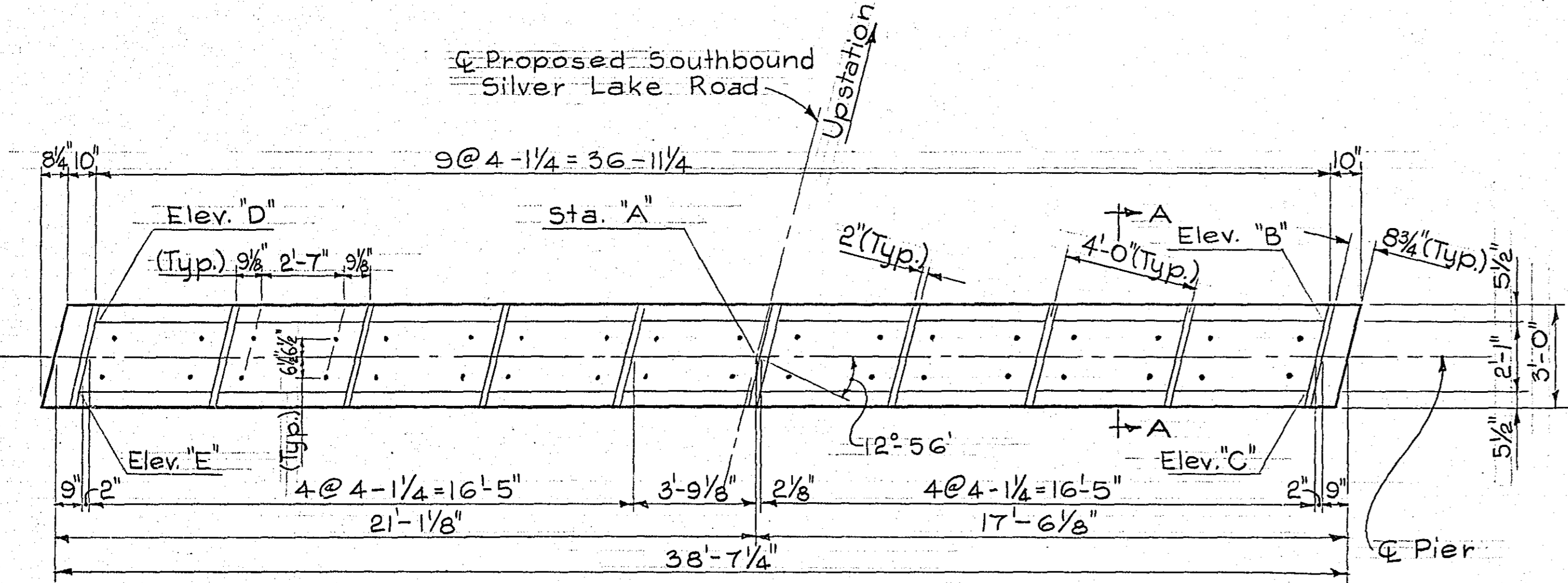
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SILVER LAKE ROAD
RAMSEY COUNTY, MINNESOTA

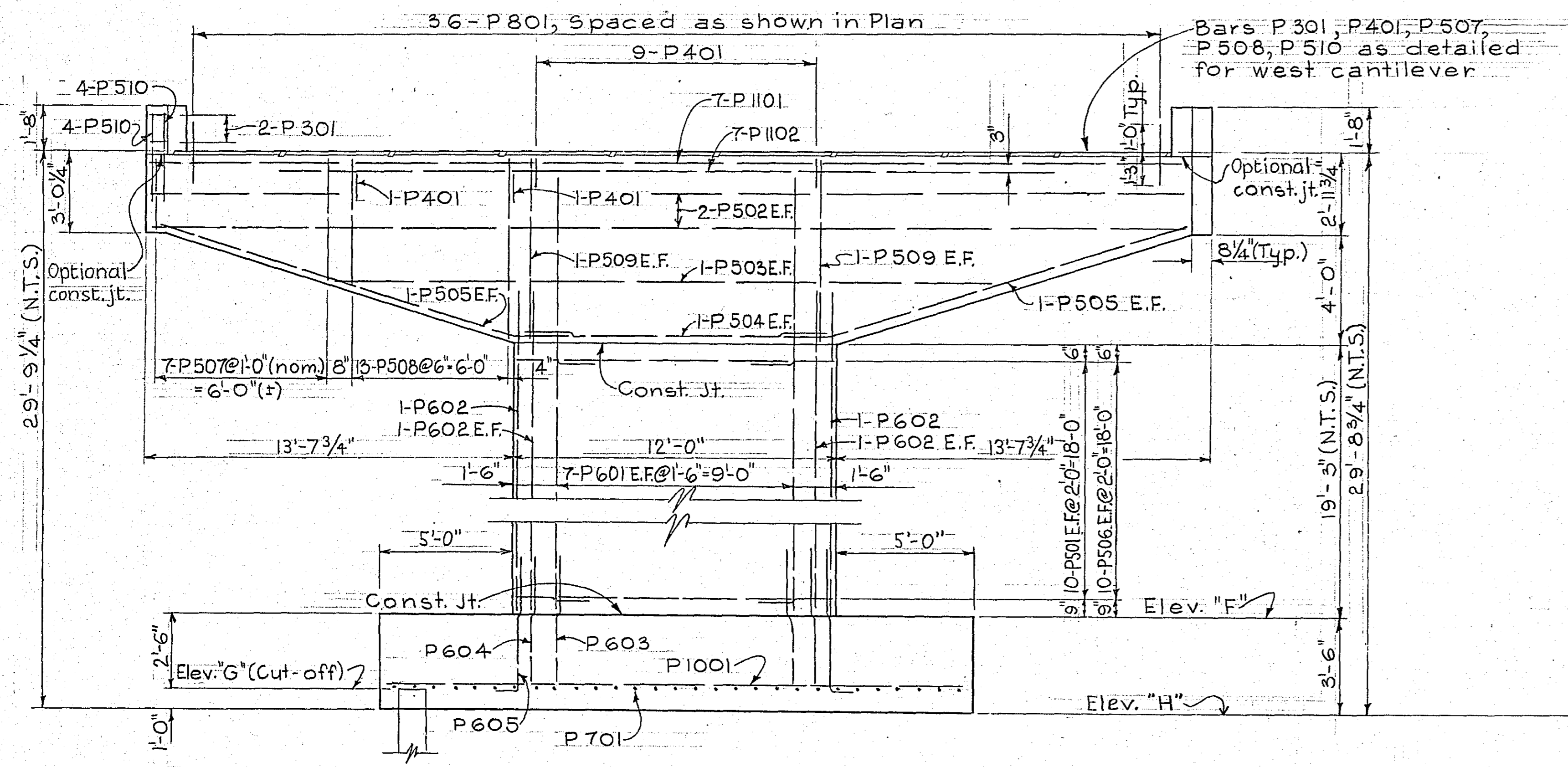
BRIDGE NO. 62503

ABUTMENT 2

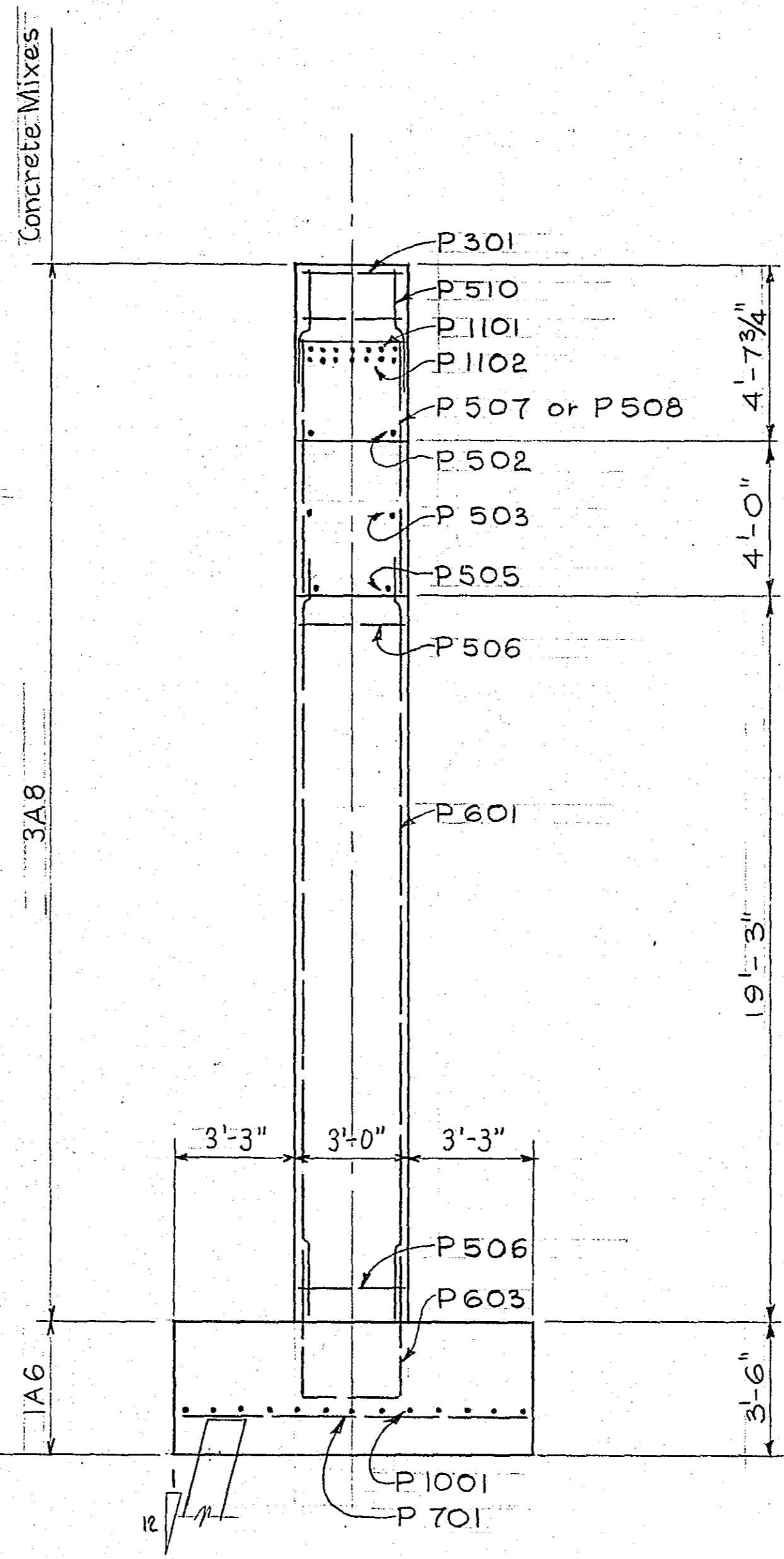
APPROVED 5-3-61



PLAN
Scale: 1/4" = 1'-0"



ELEVATION
Scale: 1/4" = 1'-0"

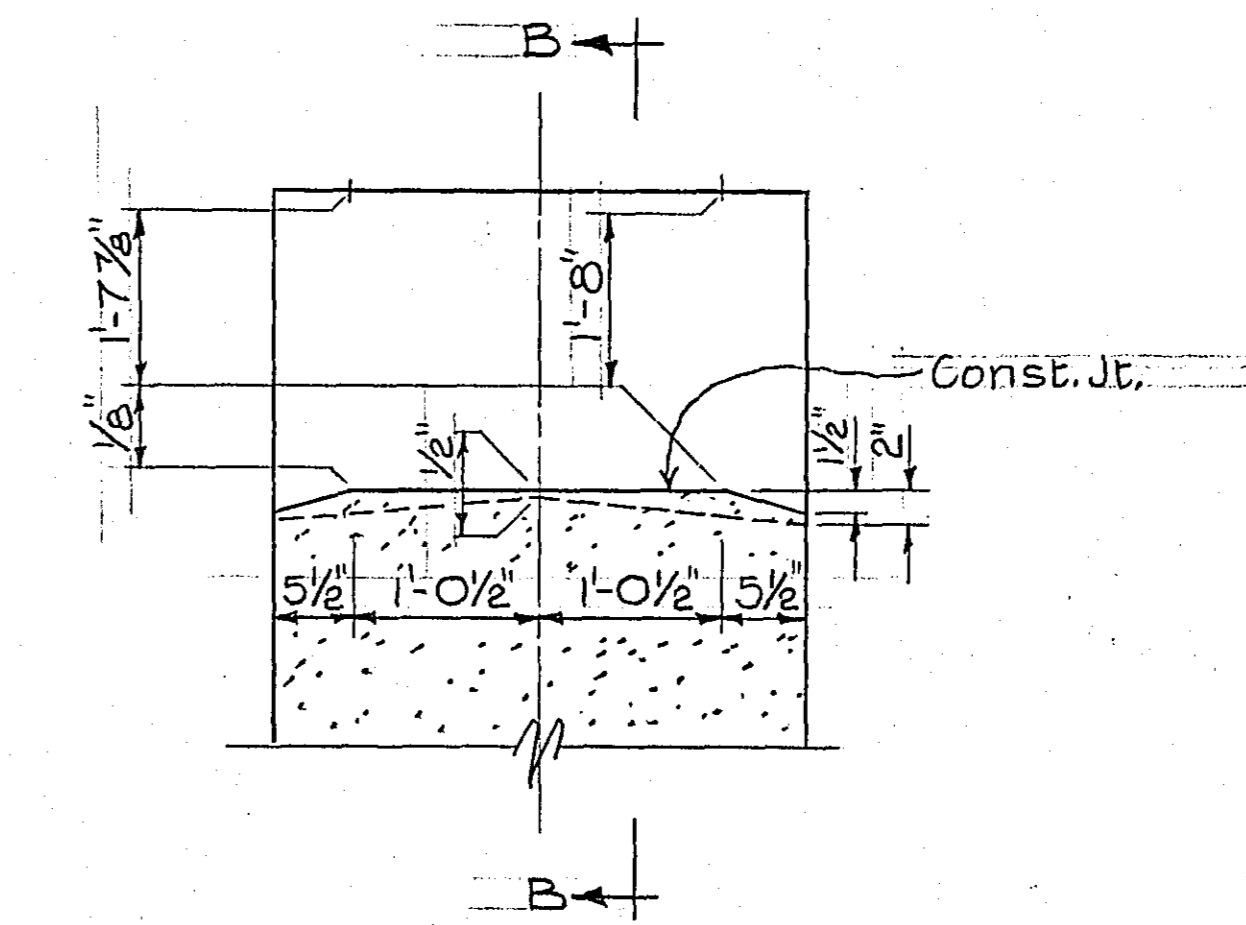


ELEVATION
Scale: 1/4" = 1'-0"

Notes:

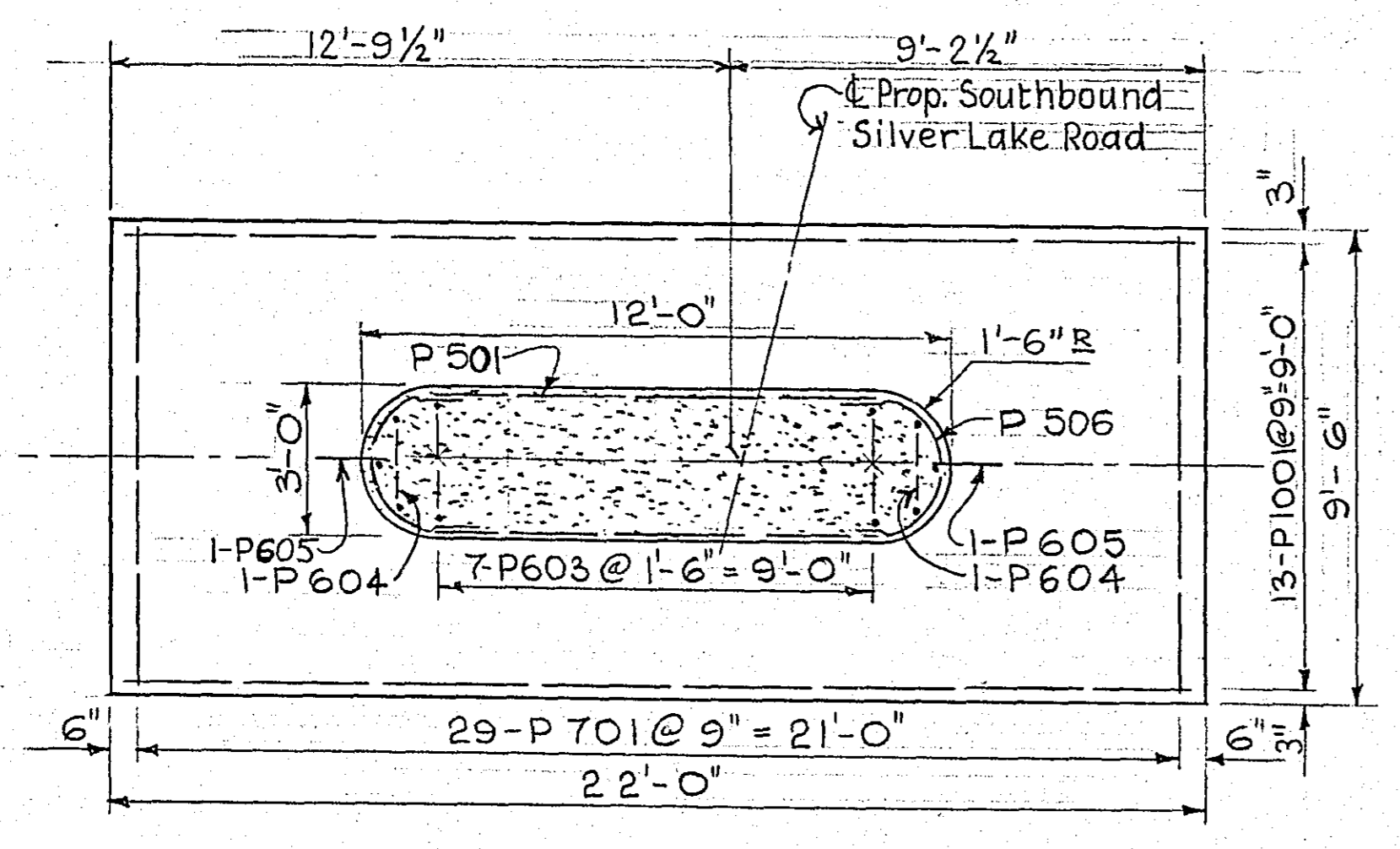
1. Bars P 1101, P 1102, P 401, P 507 and P 508 may be shifted slightly to miss anchor bars P 801.
2. Reinforcement bars are detailed on Sh. 9.
3. Piles are steel "H", 10 BP 42, driven to a min. brg. of 35 tons per pile.
4. 1'-0" diam. holes shall be pre-drilled to elev. 935.0, for the placement of piles.
5. The 1:12 batter shown for piles may be decreased if necessary, to protect the temporary sheeting in the excavation, or to maintain Railroad clearances.
6. Load Test - Test Pile Pier 1. See Special Provisions.

DIMENSIONS & DATA		
ITEM	PIER 1	PIER 2
Sta. "A"	3+91.50	4+39.00
Elev. "B"	969.54	969.30
Elev. "C"	969.55	969.31
Elev. "D"	969.58	969.34
Elev. "E"	969.59	969.35
Elev. "F"	943.32	943.06
Elev. "G"	940.82	940.58
Elev. "H"	939.82	939.58

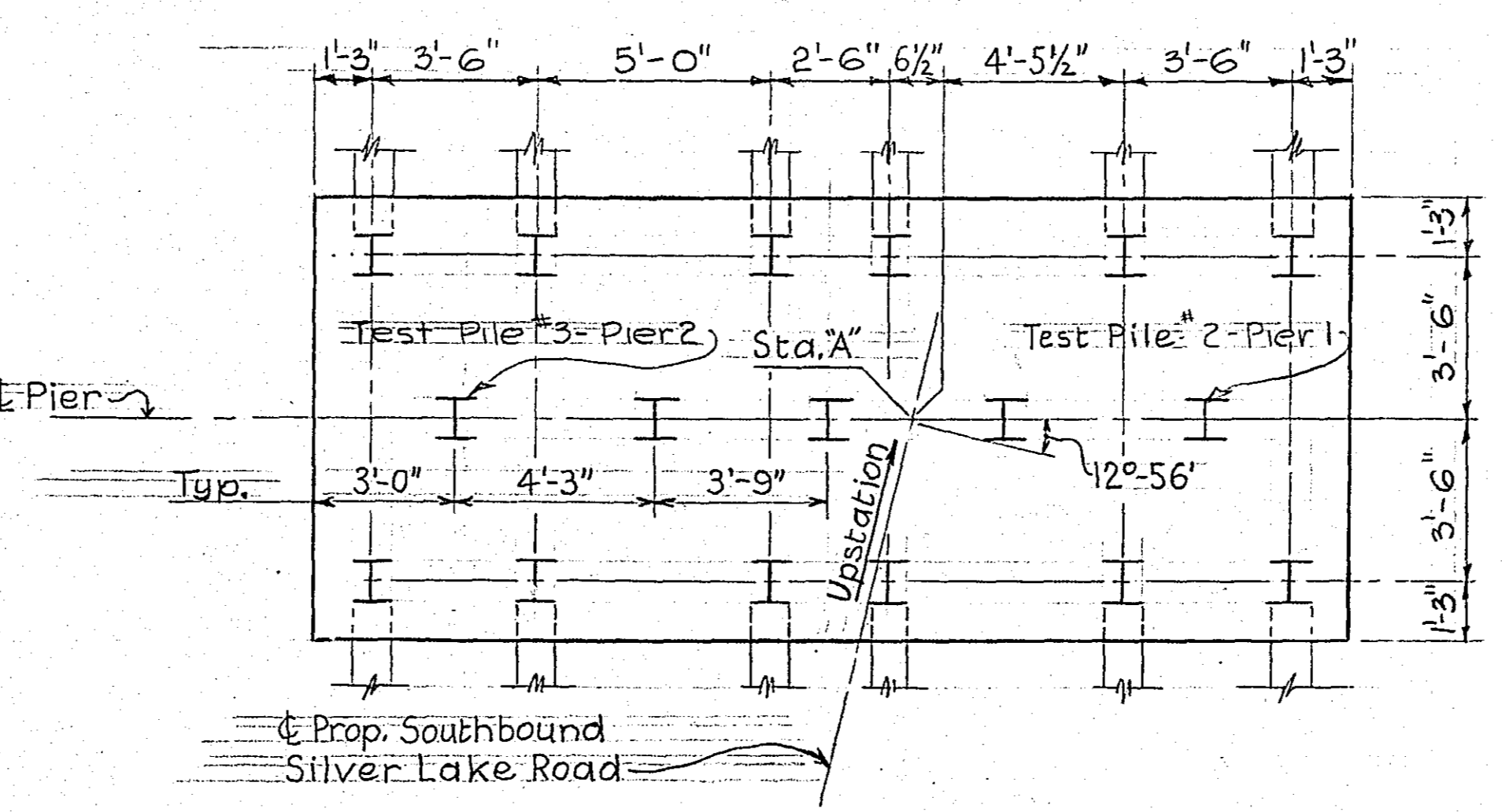


SECTION A-A
Scale: 3/4" = 1'-0"

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



FOOTING PLAN
Scale: 1/4" = 1'-0"



PILE LAYOUT
Scale: 1/4" = 1'-0"

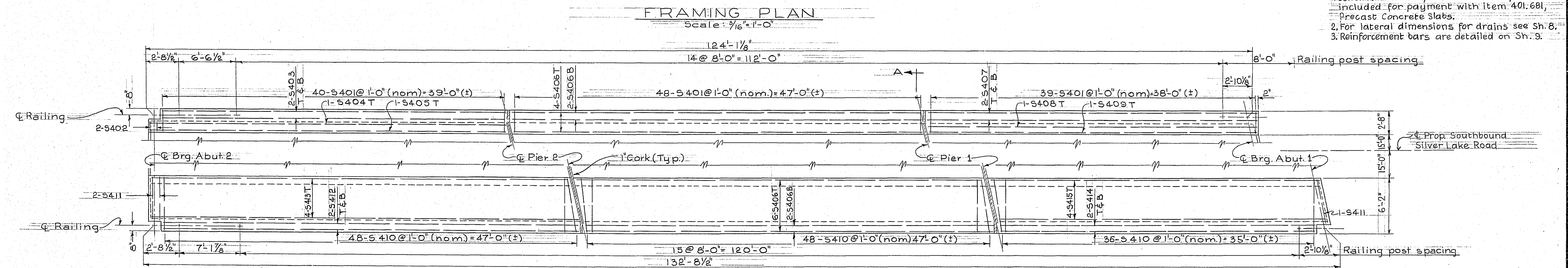
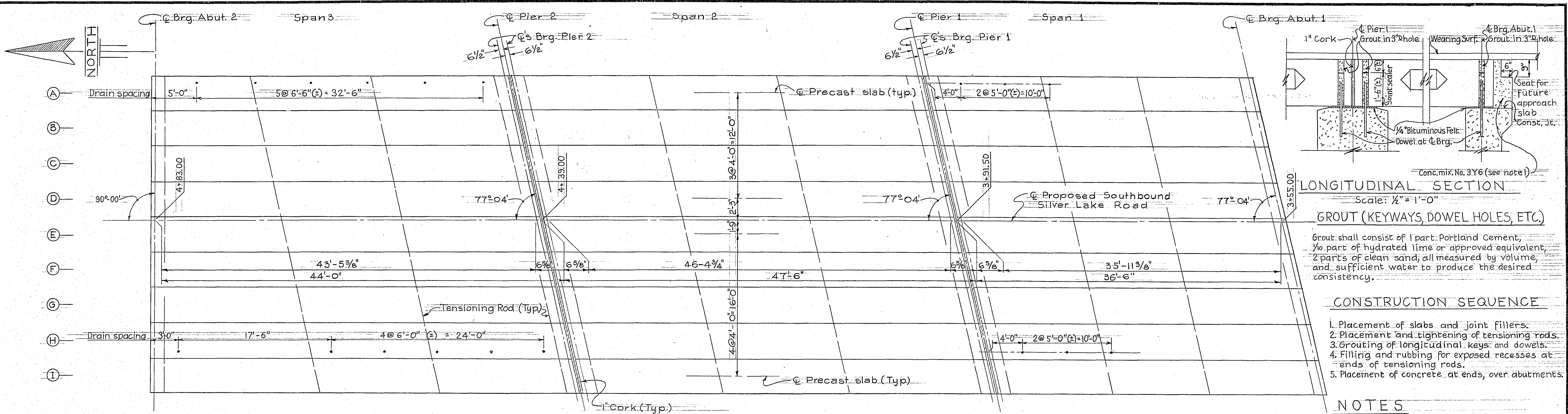
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ST. PAUL MINNESOTA

SILVER LAKE ROAD
RAMSEY COUNTY, MINNESOTA

BRIDGE NO. 62503

PIERS

APPROVED 5-3-61



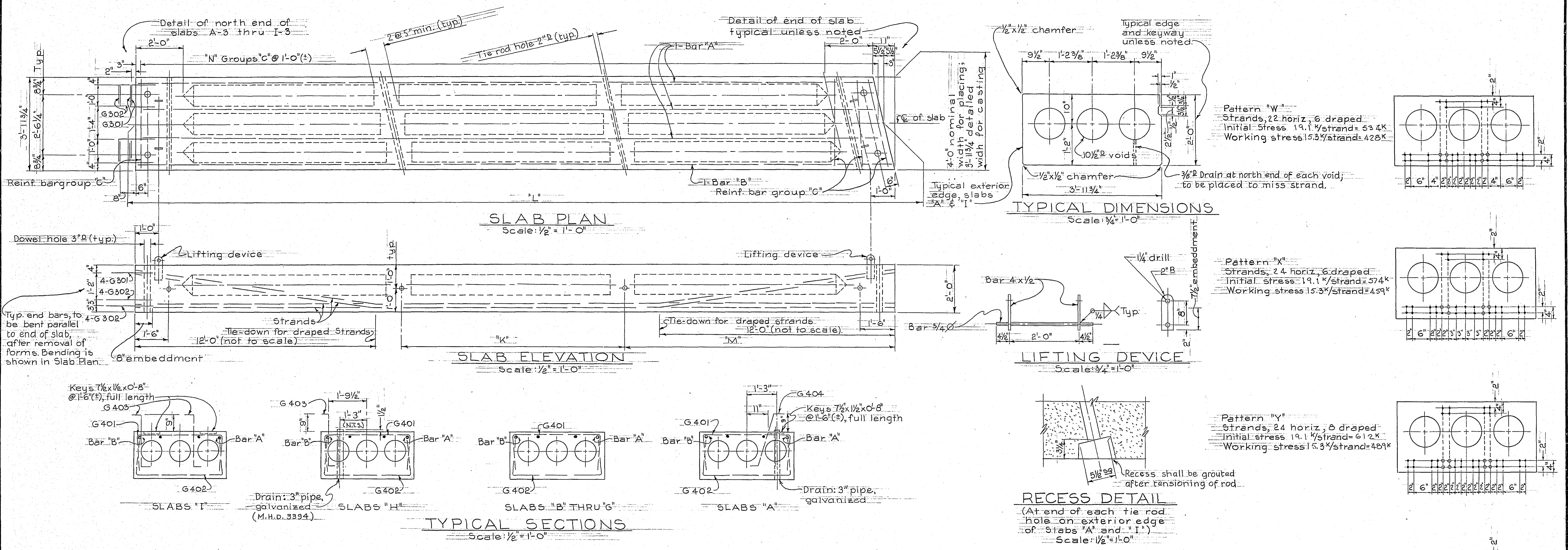
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RAMSEY COUNTY, MINNESOTA

BRIDGE NO. 62503

SUPERSTRUCTURE

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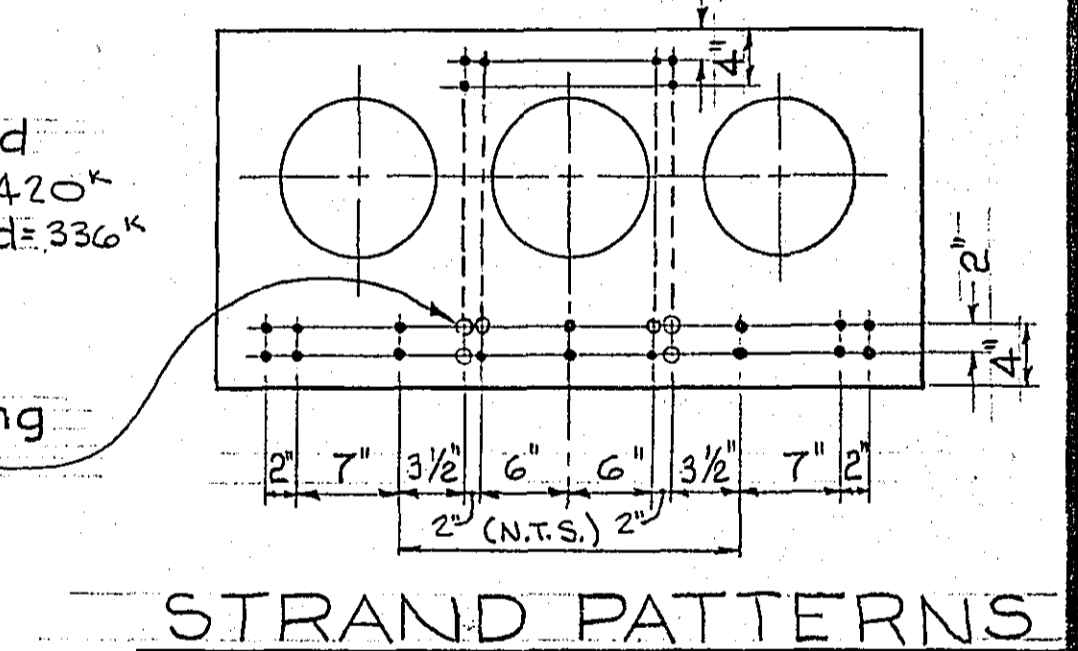
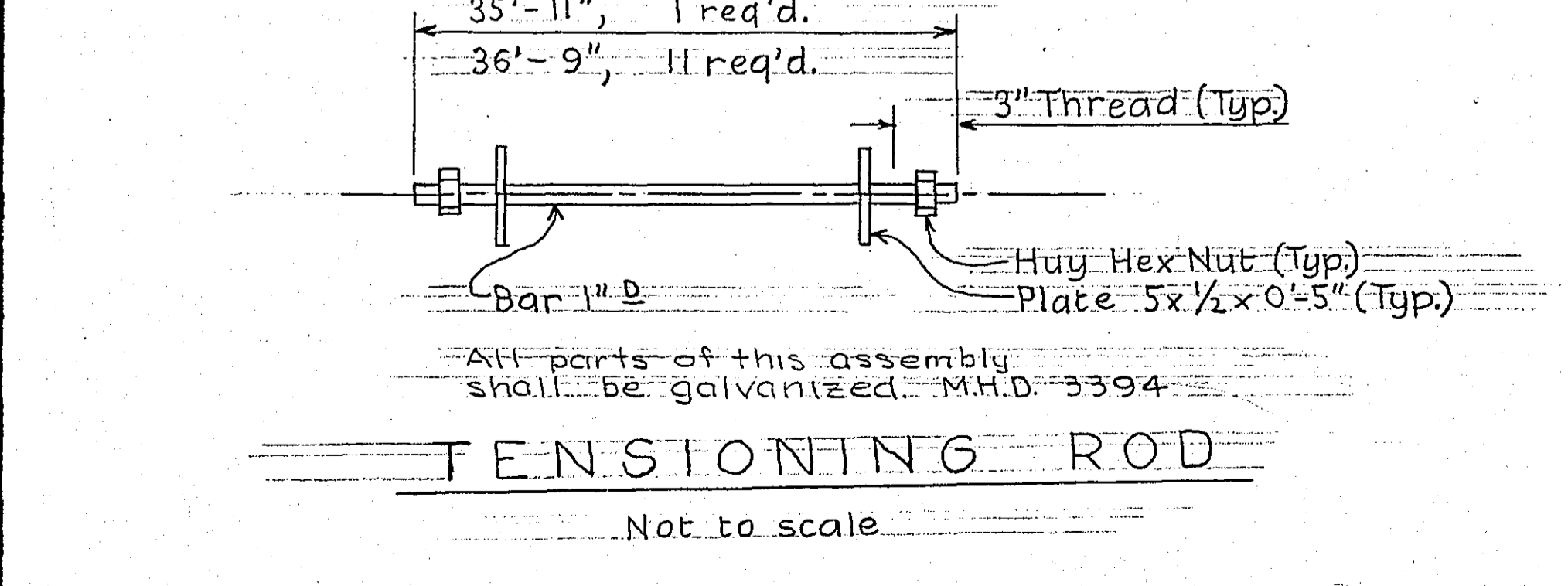


PRECAST SLAB TABULATION

General Data				Prestress	Reinforcement Bar Data					Approx. Quantity Data				
Slab No.	Dim. "L"	Dim. "M"	Dim. "K"	Strands	Bars "A"	Bar "B"	Reinf. bar group "C"	Number "N"	End bars	Conc. Mix. No. 3W24	Reinf. Bars	Strand	Struct. Steel	Pipe
A-3	41'-2 1/4"	15'-8"	13'-8"	W	G 501	G 502	1-G 401, 1-G 402, 1-G 404	42	North end	9.7 cuyd.		430 LB.	36 LB.	96 LB.
B-3	42'-1 1/4"	15'-8"	13'-8"	W	G 502	G 503	1-G 401, 1-G 402	43		9.9		440		
C-3	43'-0 1/4"	15'-8"	13'-8"	W	G 503	G 504		4.4		10.2		450		
D-3	43'-11 1/4"	15'-8"	13'-8"	X	G 504	G 505		4.5		10.4		491		
E-3	44'-10 3/8"	15'-8"	13'-8"	X	G 505	G 506		4.6		10.6		502		
F-3	45'-9 3/8"	15'-8"	13'-8"	X	G 506	G 507		4.7		10.8		513		
G-3	46'-8 3/8"	15'-8"	13'-8"	Y	G 507	G 508	1-G 401, 1-G 402	4.8		11.0		558		
H-3	47'-7 3/8"	15'-8"	13'-8"	Y	G 508	G 509	1-G 401, 1-G 402, 1-G 403	4.9		11.2		568		96 LB.
I-3	48'-6 3/8"	15'-8"	13'-8"	Y	G 509	G 510	1-G 401, 1-G 402, 2-G 403	5.0	North end	11.4		580		
A-2	47'-5"	16'-4"	14'-3"	Y	G 511	G 511		4.8	None	11.2		565		
B-2	47'-5"	16'-4"	14'-3"	Y										
C-2	47'-5"	16'-4"	14'-3"	Y										
D-2	47'-5"	16'-4"	14'-3"	Y										
E-2	47'-5"	16'-4"	14'-3"	Y										
F-2	47'-5"	16'-4"	14'-3"	Y										
G-2	47'-5"	16'-4"	14'-3"	Y										
H-2	47'-5"	16'-4"	14'-3"	Y										
I-2	47'-5"	16'-4"	14'-3"	Y	G 511	G 511		4.8	None	11.2		565		
A-1	36'-11 1/2"	13'-2"	11'-1 1/2"	Z	G 512	G 512		3.8	South end	8.8		303		48 LB.
B-1	36'-11 1/2"	13'-2"	11'-1 1/2"	Z										
C-1	36'-11 1/2"	13'-2"	11'-1 1/2"	Z										
D-1	36'-11 1/2"	13'-2"	11'-1 1/2"	Z										
E-1	36'-11 1/2"	13'-2"	11'-1 1/2"	Z										
F-1	36'-11 1/2"	13'-2"	11'-1 1/2"	Z										
G-1	36'-11 1/2"	13'-2"	11'-1 1/2"	Z										
H-1	36'-11 1/2"	13'-2"	11'-1 1/2"	Z										
I-1	36'-11 1/2"	13'-2"	11'-1 1/2"	Z	G 512	G 512		3.8	South end	8.8 cuyd.		303 LB.	36 LB.	

Notes:

- All strand shall be 7/8" nom. diameter, conforming to 3348.
- Reference shall be made to general notes, sheet 2.
- Reinforcement bars are detailed on sheet 9.
- Drains and longitudinal keys shall be provided for all slabs, as shown on "Typical Dimensions" view.
- Bars G 401 and G 402 shall enclose the strand group in each slab.
- Reference shall be made to Framing Plan, sheet 7, for slab notation. Slab A1 is in span 1, on line A, etc.
- Reference shall be made to the Special Provisions for the scope of item 401.681, precast concrete slabs, and for material specifications.
- Reference shall be made to sheet 7 for pipe drain spacing.
- Bars G 404 may be shifted slightly to miss drains.
- Exposed portion of lifting device shall be removed after erection.
- Galvanizing of pipe drains and tensioning rods shall be in accordance with 2471.3 L & 3394.



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SILVER LAKE ROAD
RAMSEY COUNTY, MINNESOTA

BRIDGE NO. 62503

PRECAST SLABS

APPROVED 5-3-61

BILL OF REINFORCEMENT BARS.

MANHOLE						SUPERSTRUCTURE						ABUTMENT 2						PIERS									
MARK	SIZE	LENGTH	SHAPE	NO.	WEIGHT	LOCATION	MARK	SIZE	LENGTH	SHAPE	NO.	WEIGHT	LOCATION	MARK	SIZE	LENGTH	SHAPE	NO.	WEIGHT	LOCATION	MARK	SIZE	LENGTH	SHAPE	NO.	WEIGHT	LOCATION
M401	4	13'-10"	BENT	43	397	HORIZ, WALLS	S401	4	5'-8"	BENT	127	467	SAFETY CURB, TRANSVERSE	A401	4	3'-4"	BENT	37	62	TOP OF BACKWALL	P301	3	6'-4"	BENT	8	19	POST TIES
M402	4	11'-10"	STR	46	364	DO	S402	4	3'-3"	BENT	2	4	DO	A402	4	6'-1"	BENT	14	57	TERMINAL POSTS							
M403	4	8'-0"	STR	42	224	DO	S403	4	39'-1"	STR	4	104	SAFETY CURB, LONG														
M404	4	TABLE	STR	TABLE	355	VERT. WALLS	S404	4	40'-8"	STR	1	27	DO														
M405	4	22'-8"	STR	11	167	DO	S405	4	40'-10"	STR	1	27	DO	A501	5	11'-2"	BENT	51	594	TRANS. FTG.	P401	4	4'-6"	BENT	26	78	TIES, TOP PIER CAP
M406	4	18'-2"	STR	11	133	DO	S406	4	47'-1"	STR	14	440	SAFETY CURB & SIDEWALK, LONG	A502	5	11'-0"	BENT	51	585	ABUT DOWELS	P501	5	9'-0"	STR	40	375	HORIZ, PIER STEM
							S407	4	37'-7"	STR	4	100	SAFETY CURB, LONG	A503	5	28'-0"	STR	24	701	LONG, ABUT	P502	5	38'-2"	STR	8	319	HORIZ, CAP
M501	5	8'-0"	STR	13	108	BOT. OF TOP SLAB	S408	4	37'-6"	STR	1	25	DO	A504	5	38'-6"	STR	2	80	LONG, TOP BACKWALL	P503	5	25'-0"	STR	4	104	DO
M502	5	11'-10"	STR	6	74	DO	S409	4	37'-4"	STR	1	25	DO	A505	5	11'-6"	BENT	2	24	WEST WING	P504	5	12'-0"	STR	4	50	DO
M503	5	5'-6"	STR	4	23	DO	S410	4	9'-2"	BENT	32	808	SIDEWALK, TRANSVERSE	A506	5	8'-6"	BENT	2	18	EAST WING	P505	5	15'-0"	BENT	8	125	BOT. CANTILEVER
							S411	4	6'-11"	BENT	3	14	DO	A507	5	TABLE	STR	TABLE	31	VERT. EAST WING	P506	5	7'-2"	BENT	40	299	TIES, STEM
							S412	4	47'-3"	STR	4	126	SIDEWALK, LONG	A508	5	4'-0"	STR	6	25	VERT. & HORIZ, EAST WING	P507	5	TABLE	BENT	TABLE	277	STIRRUPS
							S413	4	TABLE	STR	TABLE	130	DO	A509	5	TABLE	STR	TABLE	31	VERT. WEST WING	P508	5	TABLE	BENT	TABLE	732	DO
							S414	4	35'-6"	STR	4	95	DO	A510	5	4'-6"	STR	2	9	HORIZ, WEST WING	P509	5	6'-8"	STR	8	56	VERT. CAP
							S415	4	37'-0"	STR	4	99	DO	A601	6	49'-6"	STR	5	372	LONG. FTG.	P510	5	3'-6"	STR	32	117	VERT. POST

Note: "M" Series of bars shall be included for payment with Item 2506.511, Manhole Reconstruction

PRECAST SLABS

G301	3	1'-10"	STR	72	50	ENDS OF SLABS @ ABUTS
G302	3	2'-4"	STR	144	126	DO
G401	4	6'-6"	BENT	1188	5158	UPPER STIRRUP
G402	4	6'-7"	BENT	1188	5224	LOWER STIRRUP
G403	4	2'-7"	BENT	407	702	SIDEWALK DOWELS
G404	4	2'-8"	BENT	128	225	SAFETY CURB DOWELS
G501	5	40'-5"	STR	3	126	LONG, SLAB A-3
G502	5	41'-4"	STR	4	172	LONG, SLABS A-3 & B-3
G503	5	42'-3"	STR	4	176	LONG, SLABS B-3 & C-3
G504	5	43'-2"	STR	4	180	LONG, SLABS C-3 & D-3
G505	5	44'-1"	STR	4	184	LONG, SLABS D-3 & E-3
G506	5	45'-0"	STR	4	188	LONG, SLABS E-3 & F-3
G507	5	45'-11"	STR	4	192	LONG, SLABS F-3 & G-3
G508	5	46'-10"	STR	4	195	LONG, SLABS G-3 & H-3
G509	5	47'-9"	STR	4	199	LONG, SLABS H-3 & I-3
G510	5	48'-8"	STR	1	51	LONG, SLAB I-3
G511	5	47'-11"	STR	36	1768	LONG, SLABS A-2 THRU I-2
G512	5	36'-7"	STR	36	1374	LONG, SLABS A-1 THRU I-1

Note: "G" Series of bars shall be included for payment with Item 401.601 Precast Concrete Slabs

ABUTMENT 1

A401	4	3'-4"	BENT	37	62	TOP OF BACKWALL
A402	4	6'-1"	BENT	13	53	TERMINAL POSTS
A501	5	11'-2"	BENT	47	547	TRANS. FTG.
A502	5	11'-0"	BENT	47	539	ABUT DOWELS
A504	5	38'-6"	STR	2	80	LONG, TOP BACKWALL
A506	5	8'-6"	BENT	2	18	WEST WING
A508	5	4'-0"	STR	6	25	VERT. & HORIZ, WEST WING
A511	5	9'-7"	BENT	8	80	TRANS. WING FTG.
A512	5	15'-6"	BENT	8	129	WING DOWELS
A513	5	6'-5"	BENT	8	54	WING CURB
A514	5	3'-11"	BENT	6	25	ABUT. CORNER
A515	5	8'-6"	STR	12	106	HORIZ. WING
A516	5	7'-3"	STR	11	83	HORIZ. WING & CURB
A517	5	23'-9"	STR	24	595	LONG, ABUT
A518	5	6'-6"	STR	2	14	VERT. WING
A602	6	24'-2"	STR	10	363	LONG. FTG.
A603	6	9'-6"	STR	5	71	LONG, WING FTG.
A604	6	5'-0"	STR	6	45	FILLETS
A605	6	7'-10"	BENT	1	12	FTG. CORNER
A801	8	10'-3"	STR	6	164	TERMINAL POST
A802	8	2'-3"	STR	18	108	SLAB DOWELS
A803	8	5'-0"	STR	6	80	TERMINAL POST ON WING

BENDING DIAGRAMS

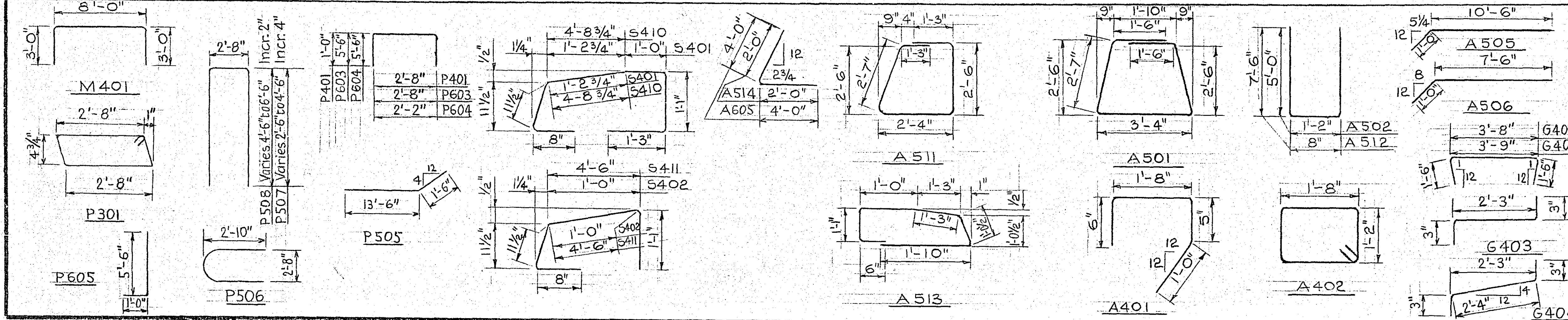


TABLE-VARIABLE LENGTH BARS

MARK	MAX.	MIN.	INCR.	NUMBER
M404	22-8	18-2	4 1/2"	2 SERIES OF 13
S413	49-7	47-7	8"	1 SERIES OF 4
A507	4-8	2-8	8"	2 SERIES OF 4
A509	4-0	2-0	6"	2 SERIES OF 5
P507	11-6	7-6	8"	4 SERIES OF 7
P508	15-6	11-6	4"	4 SERIES OF 13

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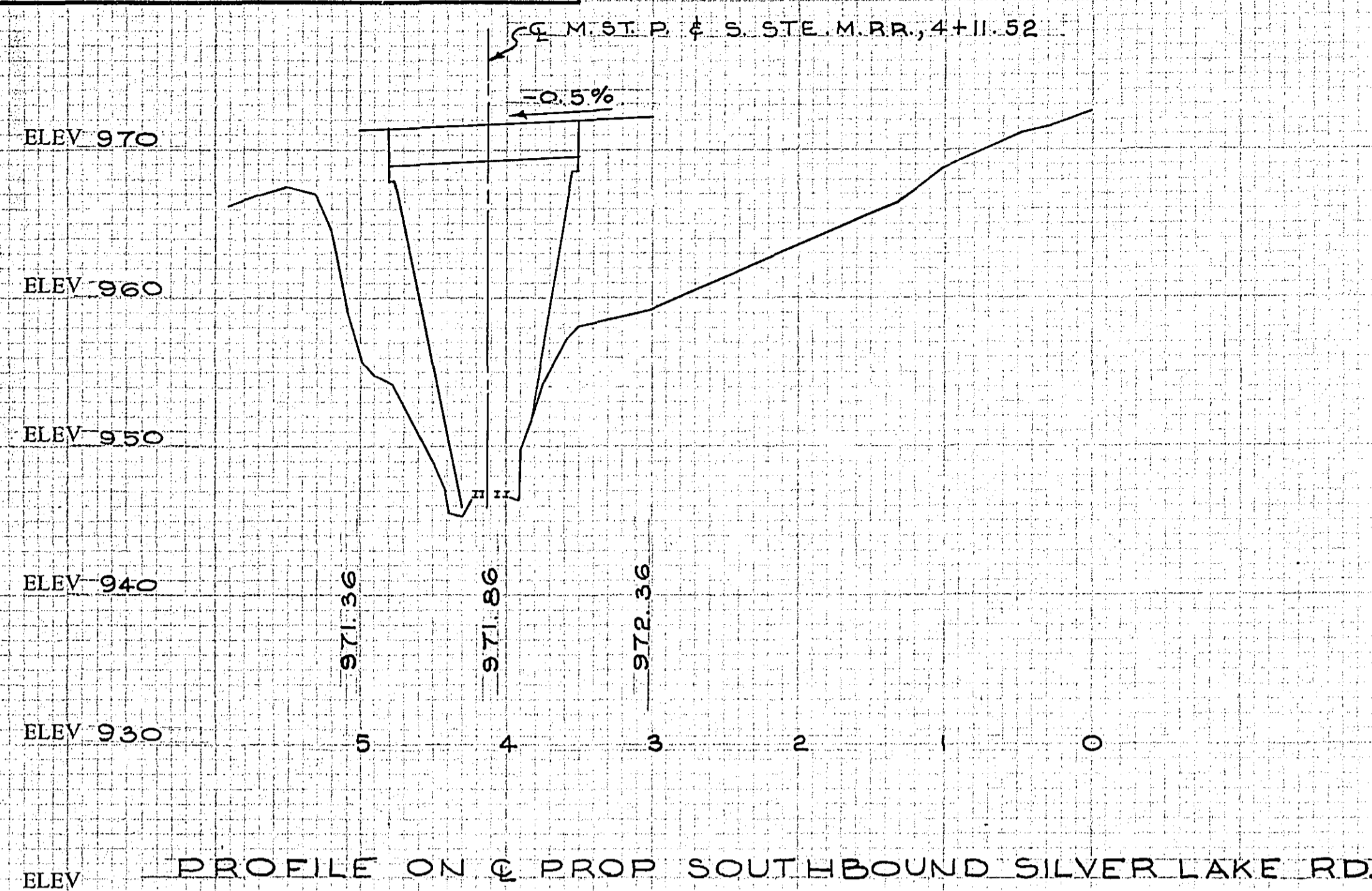
BRIDGE NO. 62503

BILL OF REINFORCEMENT BARS

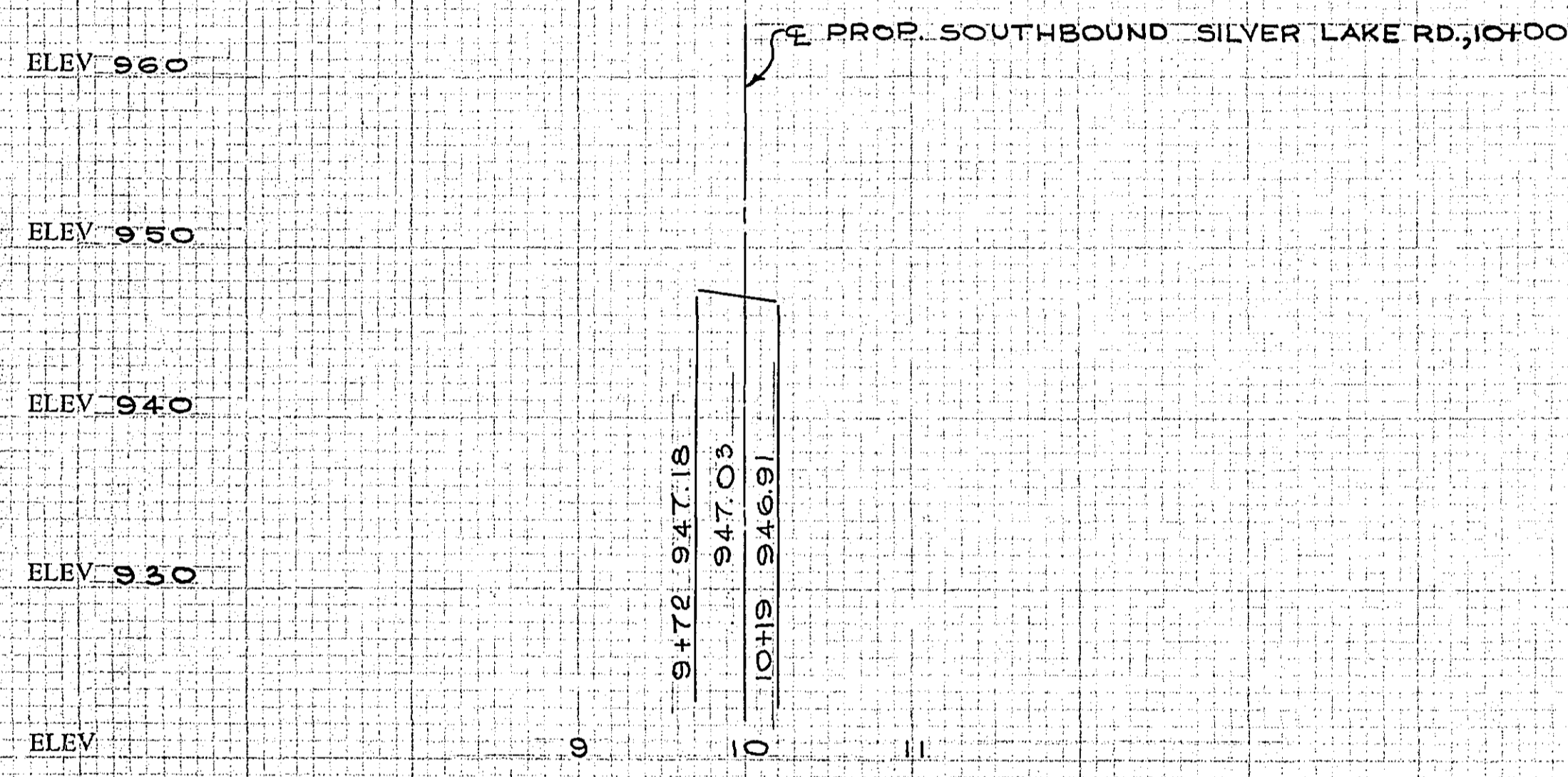
APPROVED 5-3-61

CONTRACTED PROFILE

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



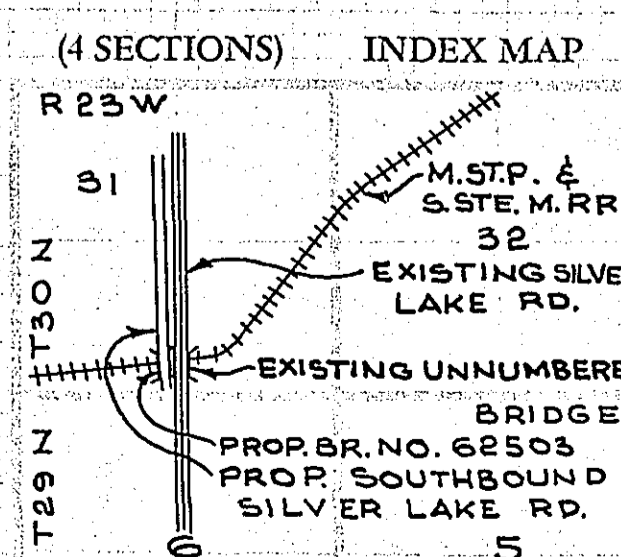
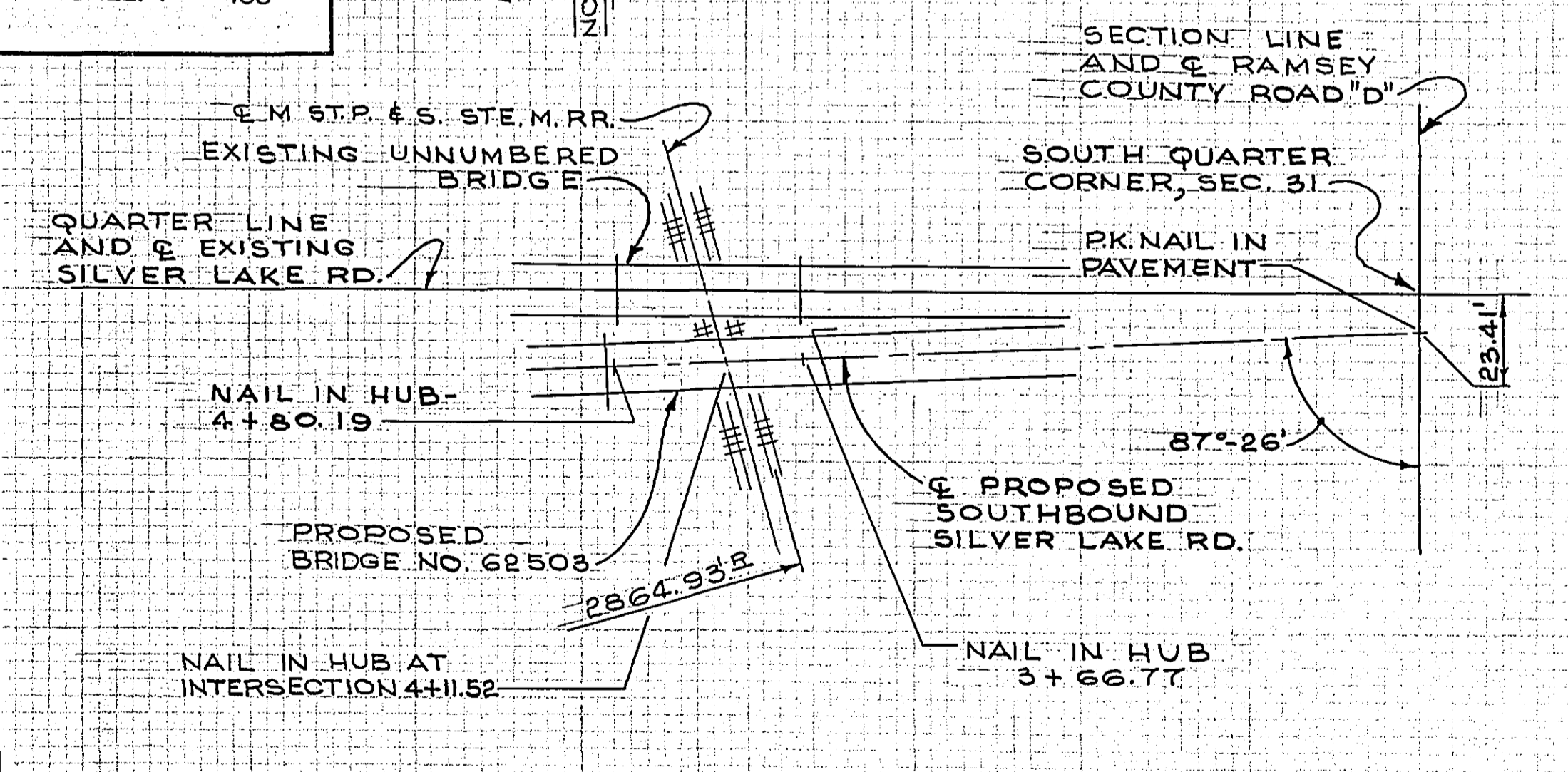
PROFILE ON & PROP SOUTHBOUND SILVER LAKE RD.



PROFILE ON TOP SOUTH RAIL, EASTBOUND TRACK

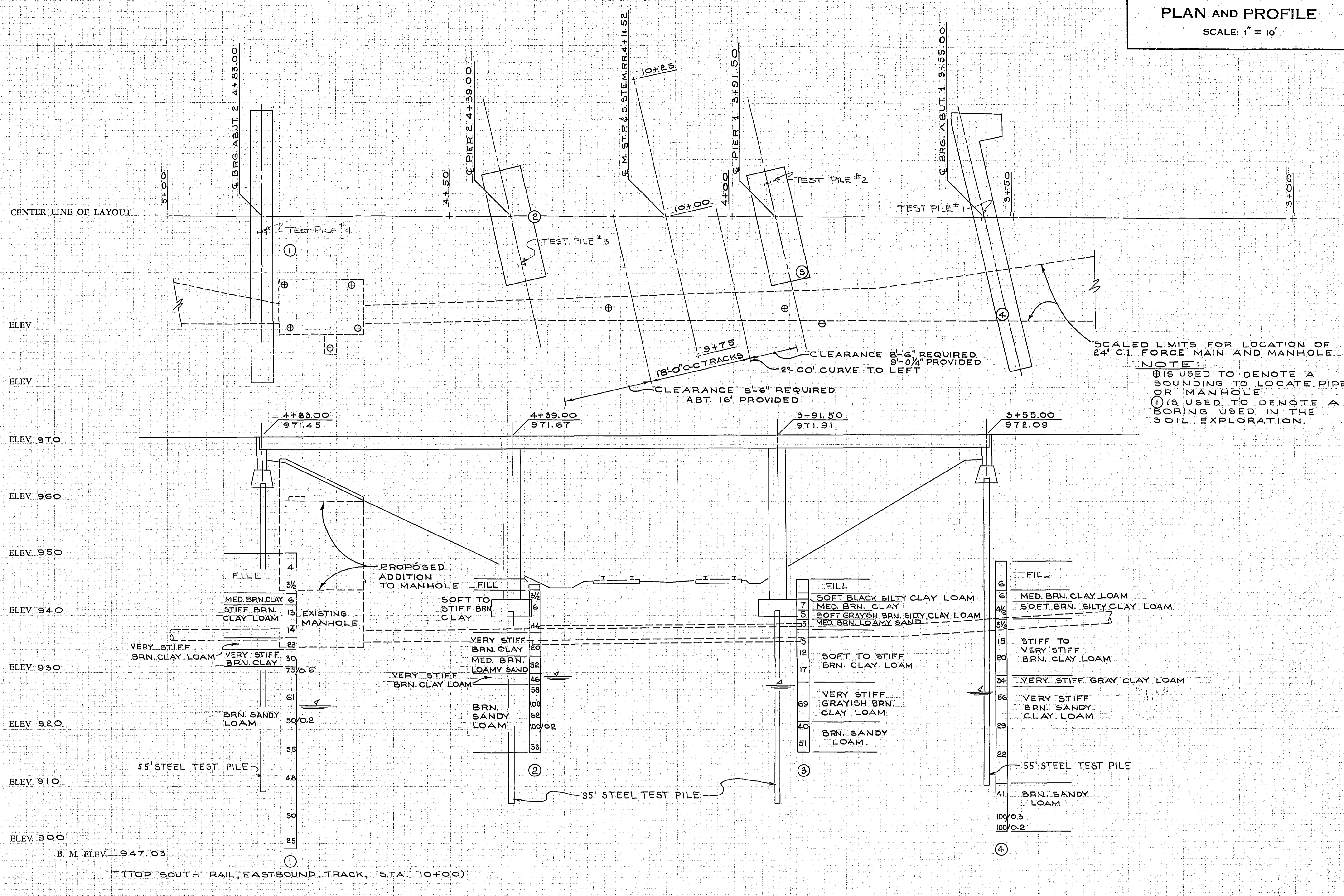
PLAT

SCALE: 1" = 100'



PLAN AND PROFILE

SCALE: 1" = 10'



SCALED LIMITS FOR LOCATION OF 24" C.I. FORCE MAIN AND MANHOLE
 NOTE:
 (M) IS USED TO DENOTE A SOUNDING TO LOCATE PIPE OR MANHOLE
 (S) IS USED TO DENOTE A BORING USED IN THE SOIL EXPLORATION.

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

DATA

- Preliminary recommendations of Engineer in charge of Bridge Survey:
 - Net span length and type of bridge... 3 SPANS @ ABT. 45'; PRESTRESSED SLABS
 - Width of roadway on bridge... 30'-0"
 - Number and width of sidewalks, if any... 1 @ 5'-0"
 - Locate center of bridge at station... 4+11.52
 - If a skew bridge is recommended, the angle of skew should be... 12°-56' EXCEPT ABUT. 2
 - Is piling required?... YES
- Special features: Waterfalls, dams, exceptional floods, ice, driftwood, sliding banks, logging, etc. MANHOLE NEAR NORTH ABUTMENT
- Changes: In height or length from that of old bridge, and reasons why.

DATA (Cont.)

- Other bridges in vicinity:
 - 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.
 - Over or under same highway or railroad; give location, length, horizontal and vertical clearances and estimated age. ABOUT 50' EAST OF THIS SITE, 115' LONG, 22'-2" VERT. CL., 8'-8 1/2" HOR. CL. FR. RAIL, FOUR YEARS OLD
 - Reasons why these bridges are, or are not, fair indications of what length the proposed bridge should be... MANHOLE DESCRIBED IN (2) ABOVE
- If structure is over a drainage ditch, is ditch gradient liable to be altered?
- Navigation 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? RAILWAY ONLY. If so, by what means? MAINTAINING CLEARANCES

HIGH AND LOW WATER ELEVATIONS

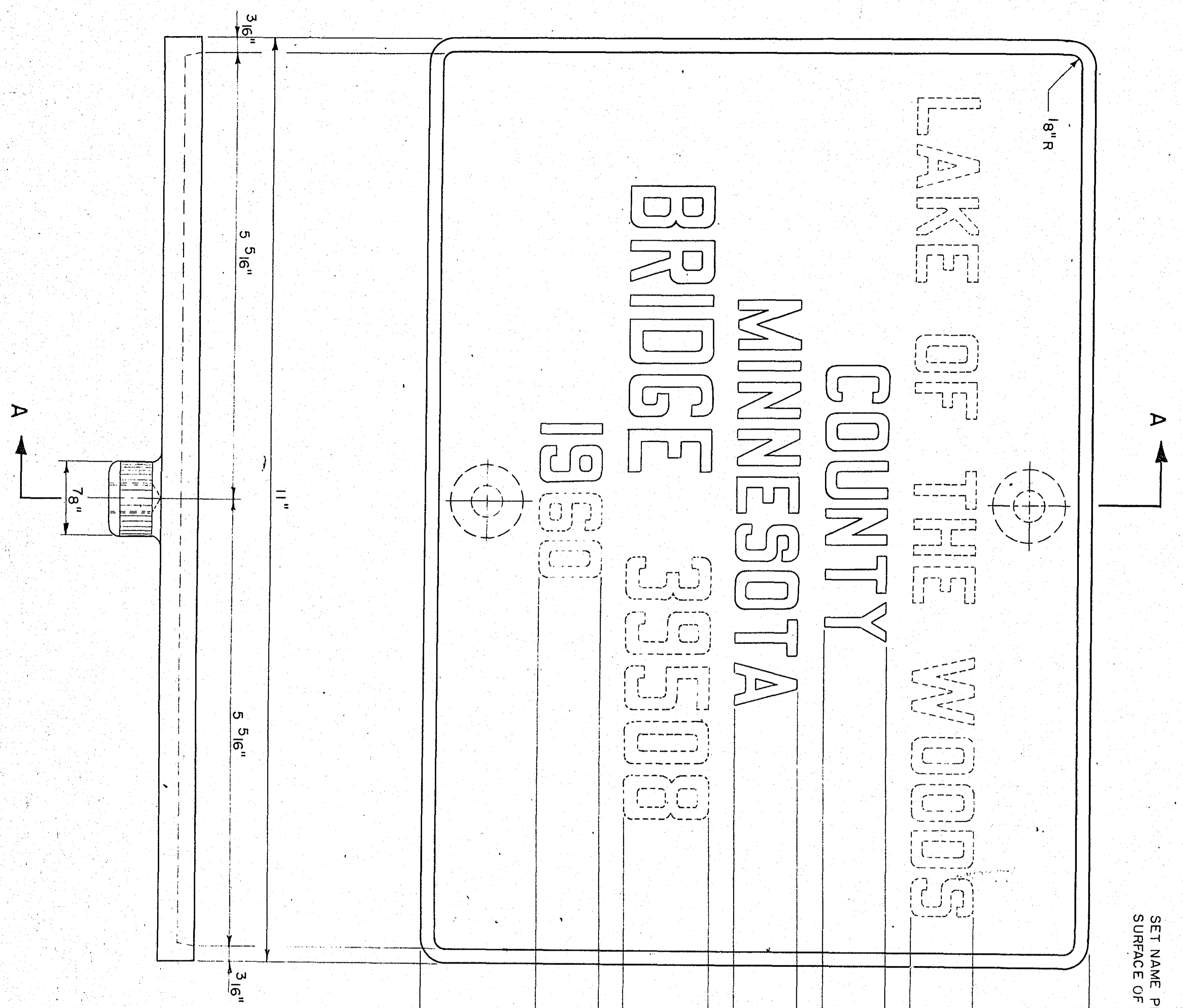
Data obtained from _____ reflects highest water elevation in the area of this construction to be _____ and the lowest water elevation to be _____. The above figures are for informational purposes only. The state neither warrants nor represents that these figures for high water and low water are in any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

SHIPPING POINT

Proposed Bridge is _____ miles SOUTHWEST of _____ NEW BRIGHTON _____ which is the nearest Railroad shipping point.
 *(Give name of town, station or siding)

Date _____ Date _____
 District Engineer

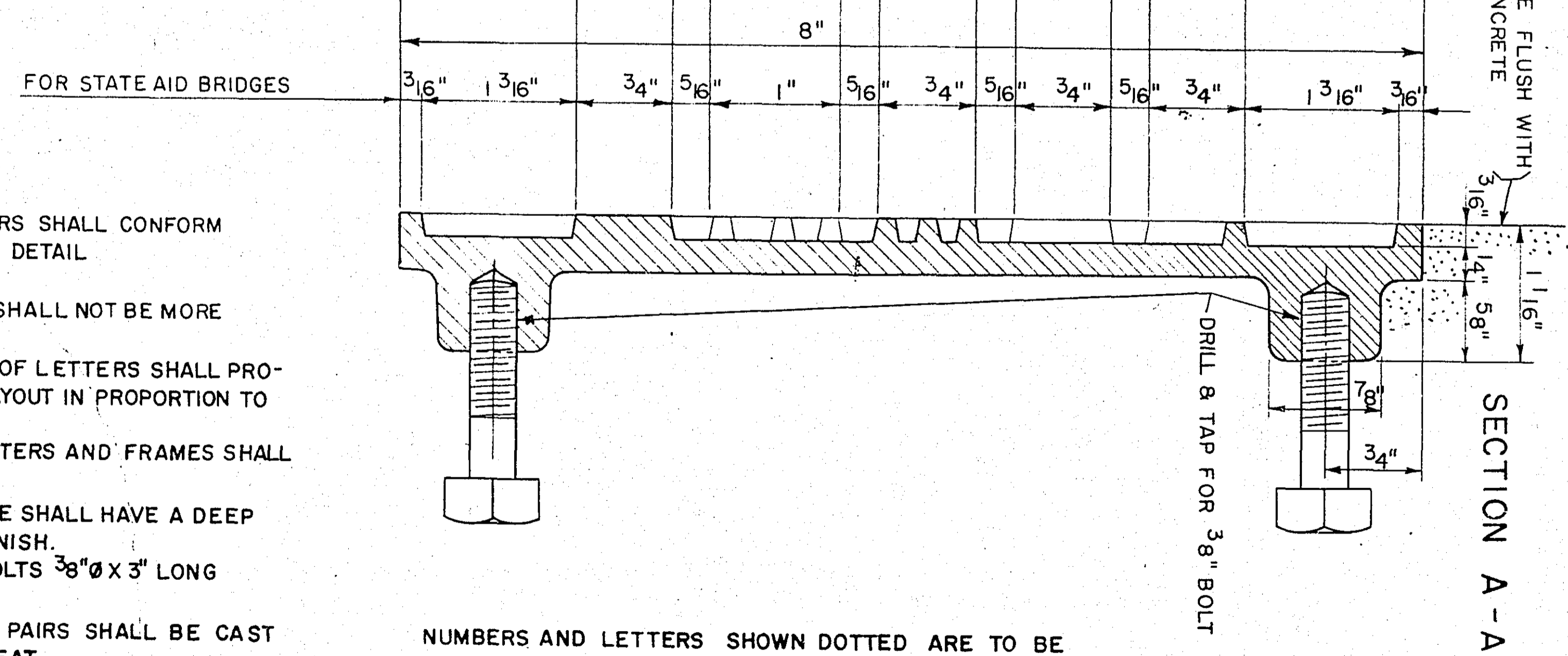
STATE OF MINNESOTA
 DEPARTMENT OF HIGHWAYS
BRIDGE SURVEY
 FOR
 PROPOSED BRIDGE LOCATED IN _____ MILES OF
 ST. ANTHONY _____ ON C.S.A.H. NO. 44
 (TOWN OR CITY) (T.H., S.A.R. OR C.A.R. NUMBER)
 SEC. 31 TWP. 30 N. R. 23 W
 TOWNSHIP _____ COUNTY RAMSEY
 SURVEY MADE DURING MONTH OF NOV. 1960
 SURVEY MADE BY RAMSEY CO. ENG'G. DEPT. FRANK KVIDERA, SURV.
 BRIDGE No. 62503



A B C D E F G H I J K L M N
 O P Q R S T U V W X Y Z
 1 2 3 4 5 6 7 8 9 0

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

APPROVED 7/3 1959 <i>A. E. LaBonte</i> BRIDGE ENGINEER	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS LETTERS FOR BRIDGE NAME PLATES	REVISIONS	DETAIL NO. 2102
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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 _____ 1959 BRIDGE ENGINEER	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS BRIDGE NAME PLATE FOR COUNTY BRIDGES	REVISIONS	DETAIL NO. 2104
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STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS
BRIDGE NO. 62503
STANDARD DETAILS
APPROVED: 5-3-61