

PLANS SYMBOLS

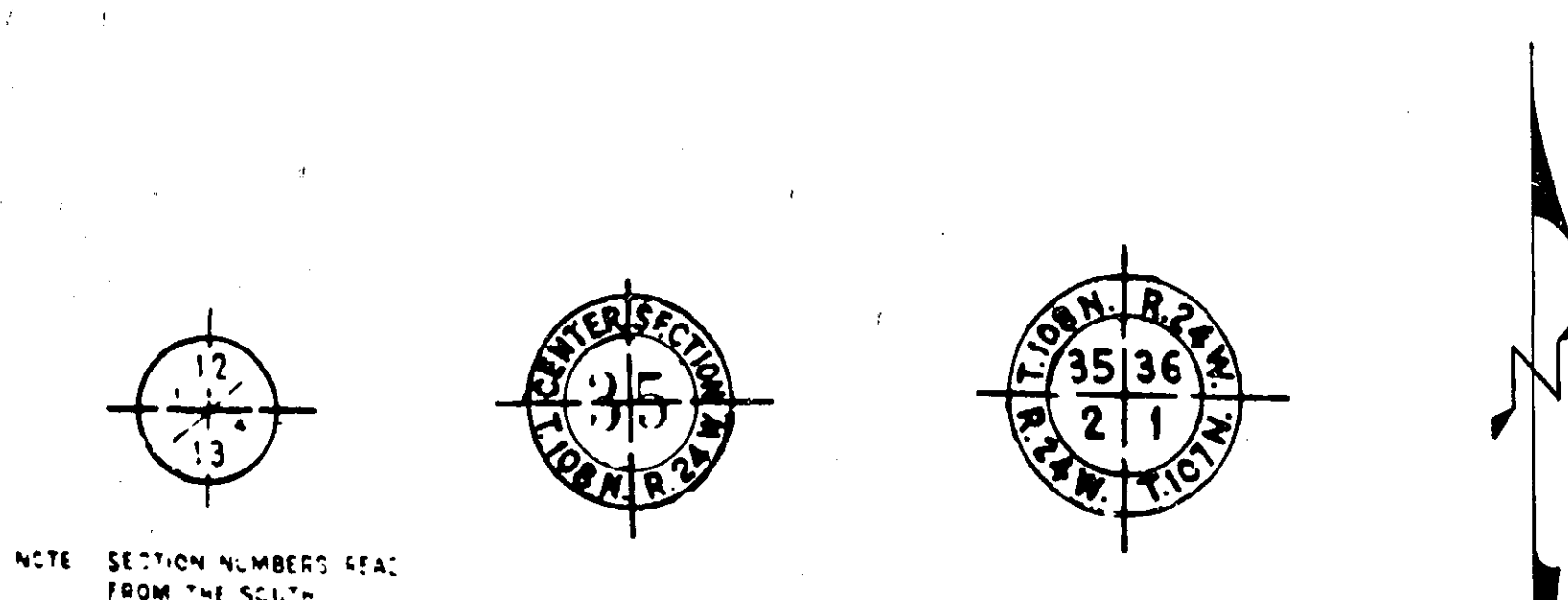
STATE LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
RIGHT OF WAY LINE
PRESENT RIGHT OF WAY LINE
CONTROL OF ACCESS LINE
PROPERTY LINE (Except Land Lines)
VACATED PLATTED PROPERTY
CORPORATE OR CITY LIMITS
TRUNK HIGHWAY CENTER LINE
RETAINING WALL
RAILROAD
RAILROAD RIGHT OF WAY LINE
RIVER OR CREEK
DRY RUN
DRAINAGE DITCH
DRAIN TILE
CULVERT
DROP INLET
GUARD RAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
RAILROAD SNOW FENCE
STONE WALL OR FENCE
HEDGE
RAILROAD CROSSING SIGN
RAILROAD CROSSING BELL
ELECTRIC WARNING SIGN
CROSSING GATE
MEANDER CORNER

SPRINGS
MARSH
TIMBER
ORCHARD
BRUSH
NURSERY
CATCH BASIN
FIRE HYDRANT
CATTLE GUARD
OVERPASS (Highway Over)
UNDERPASS (Highway Under)
BRIDGE
BUILDING (One Story Frame)
F FRAME C CONCRETE
S STONE T TILE
B BRICK ST STUCCO
IRON PIPE OR ROD
MONUMENT (STONE, CONCRETE, OR METAL)
WOODEN HUB
GRAVEL PIT
SAND PIT
BORROW PIT
ROCK QUARRY

UTILITIES SYMBOLS

POWER POLE LINE
TELEPHONE OR TELEGRAPH
POLE LINE
JOINT TELEPHONE AND POWER
ON POWER POLES
ON TELEPHONE POLES
ANCHOR
STEEL TOWER
STREET LIGHT
PEDESTAL TELEPHONE CABLE
TERMINAL
GAS MAIN
WATER MAIN

CONDUIT
TELEPHONE CABLE IN CONDUIT
ELECTRIC CABLE IN CONDUIT
TELEPHONE MANHOLE
ELECTRIC MANHOLE
BURIED TELEPHONE CABLE
BURIED ELECTRIC CABLE
AERIAL TELEPHONE CABLE
SEWER, (SANITARY OR STORM)
SEWER MANHOLE

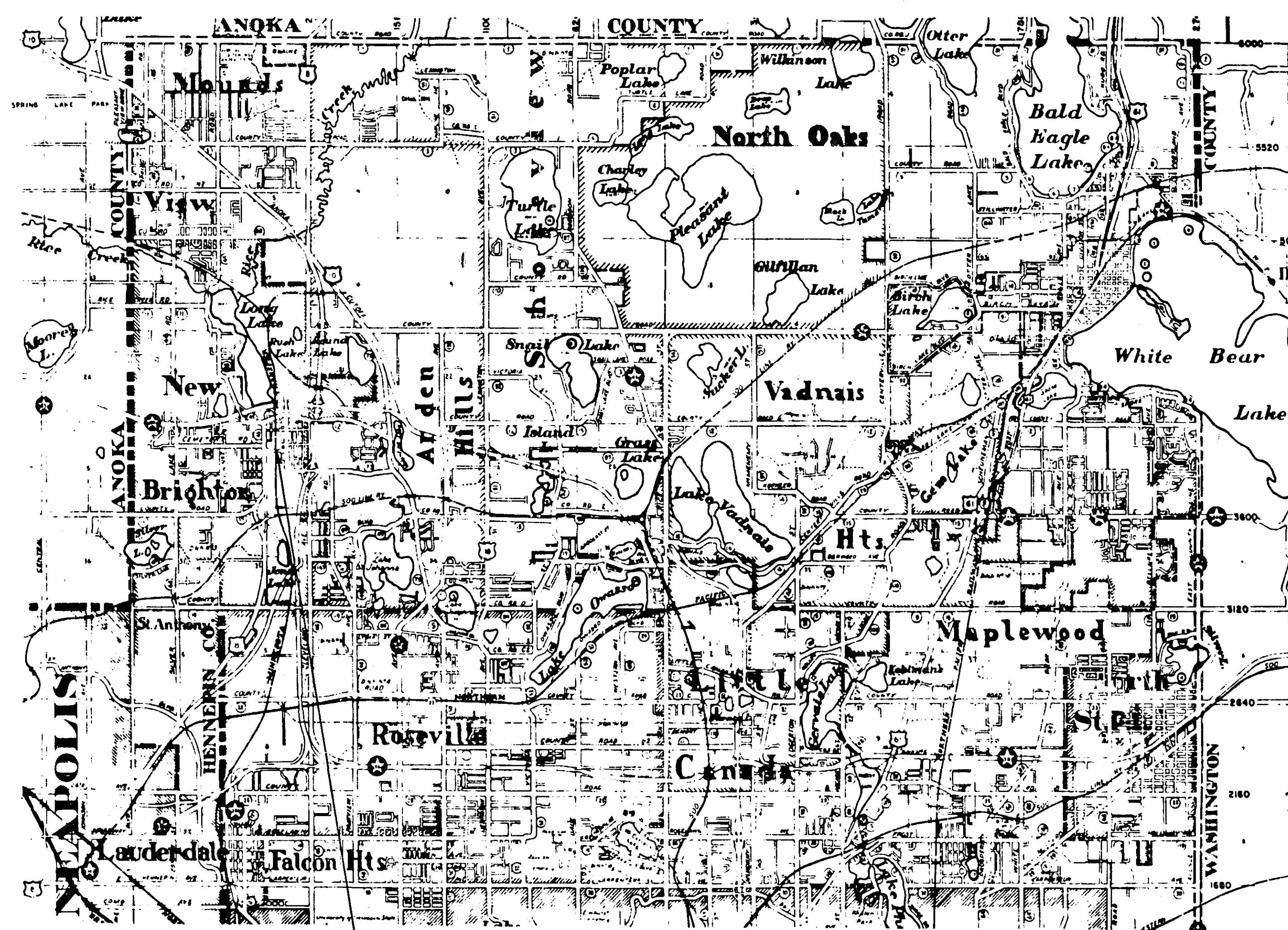


NOTE: SECTION NUMBERS READ FROM "THE SOUTH"

PIT DATA

PIT NO. _____ Located in _____
Dead Haul _____
PIT NO. _____ Located in _____
Dead Haul _____

GROSS LENGTH	FEET	MILES
BRIDGES LENGTH	99.75 FEET	0.0189 MILES
EXCEPTIONS LENGTH	FEET	MILES
NET LENGTH	FEET	MILES



CITY OF ST. PAUL

BRIDGE NO. 4533
S.A.P. NO. 62-677-03 C.T.B.

THE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
DATED JANUARY 1, 1972 SHALL GOVERN.

OFFICE OF COUNTY ENGINEER RAMSEY COUNTY

CONSTRUCTION PLAN FOR

BRIDGE NO. 4533

C.S.A.H. NO. 77 OVER THE MINNESOTA TRANSFER RAILROAD

NEW BRIGHTON, MINNESOTA

SCALE
LAYOUT MAP 3/4 IN. = 5280 FT.

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

RECOMMENDED FOR APPROVAL *Dean R. Ankla* DATE 12-15-70
COUNTY ENGINEER

APPROVED *[Signature]* DATE 9-11-70
VICE-CHAIRMAN OF THE RAMSEY COUNTY BOARD

APPROVED *Loyle C. Burmester* DATE 10-12-72
MAYOR OF NEW BRIGHTON

APPROVED _____ DATE _____

MINNESOTA STATE HIGHWAY DEPARTMENT

RECOMMENDED FOR APPROVAL *B. D. Lawrence* DATE 10-13-72
BRIDGE DESIGN & PLANNING ENGINEER

RECOMMENDED FOR APPROVAL *J. J. [Signature]* DATE 2-1-71
DISTRICT STATE AID ENGINEER

APPROVAL *[Signature]* DATE 10/12/72
STATE AID ENGINEER

S.A.P. NO. 62-677-03 C.T.B.

MICROFILMED
RAMSEY CO. ENG.

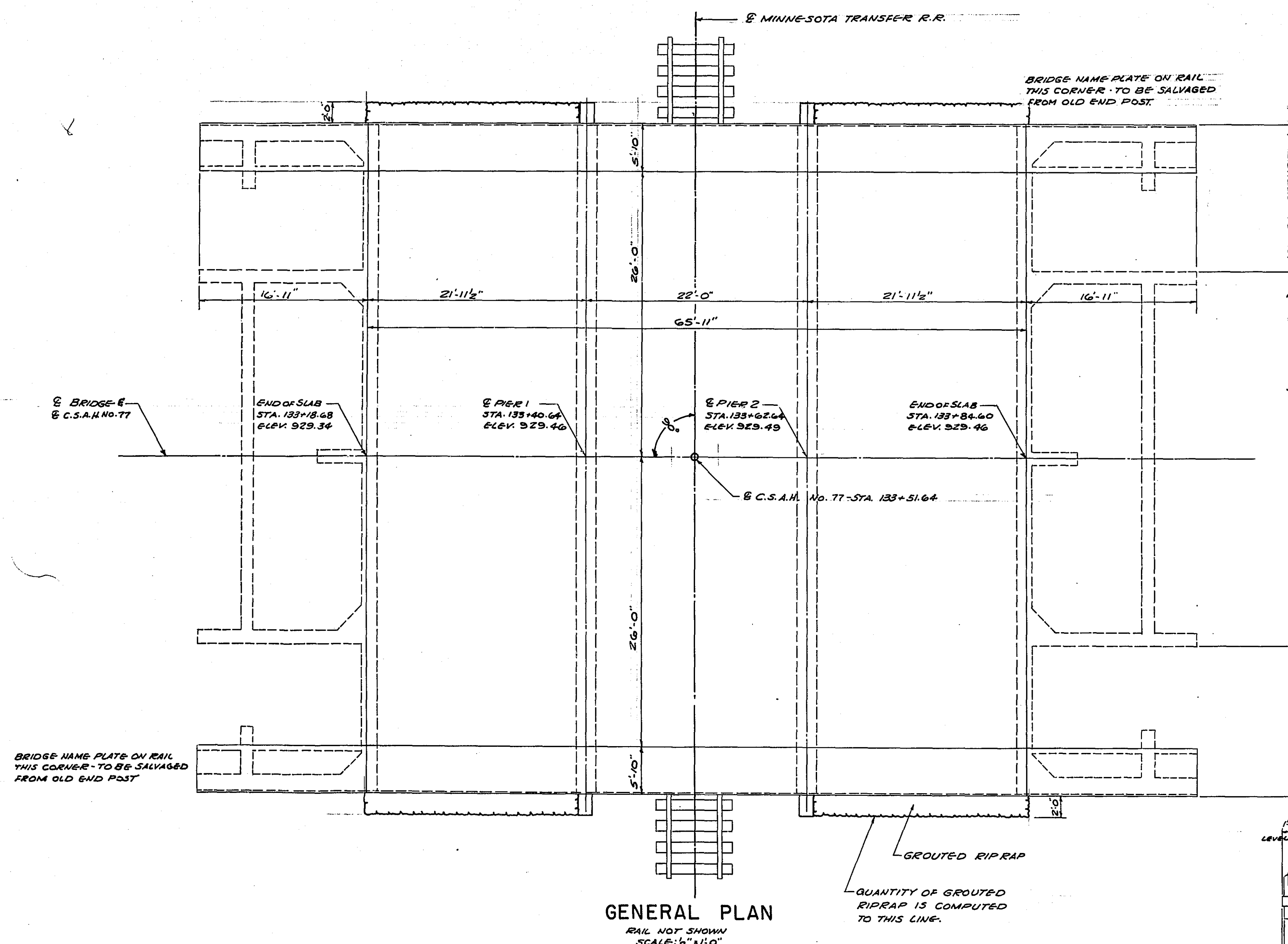
Sheet No. 1 of 12 Sheets

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DESIGN DATA

1969 A.A.S.H.O. DESIGN SPECIFICATIONS
DESIGN LOADINGS HS20
MAXIMUM ALLOWABLE DESIGN STRESSES:
fc = 2000 psi n=6 PRECAST CONCRETE CHANNELS
fc = 1600 psi n=8 OTHER CONCRETE
fs = 24000 psi REINFORCEMENT
fs = 20000 psi STRUCTURAL STEEL M.N.D. 3306
DECK AREA = 4197 SQ. FT.

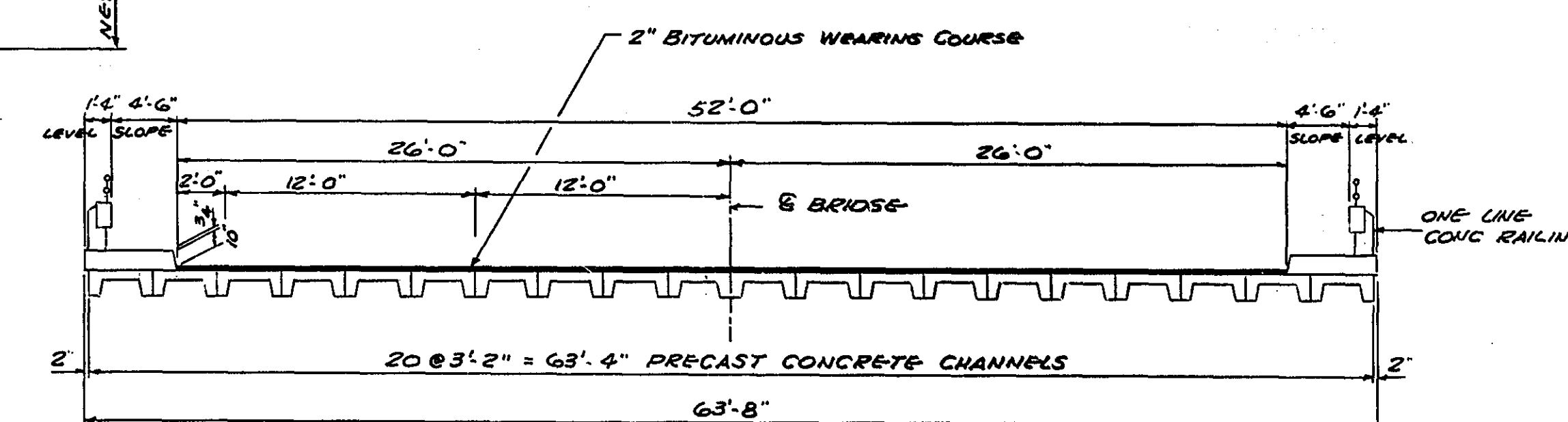
LIST OF SHEETS

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GENERAL PLAN

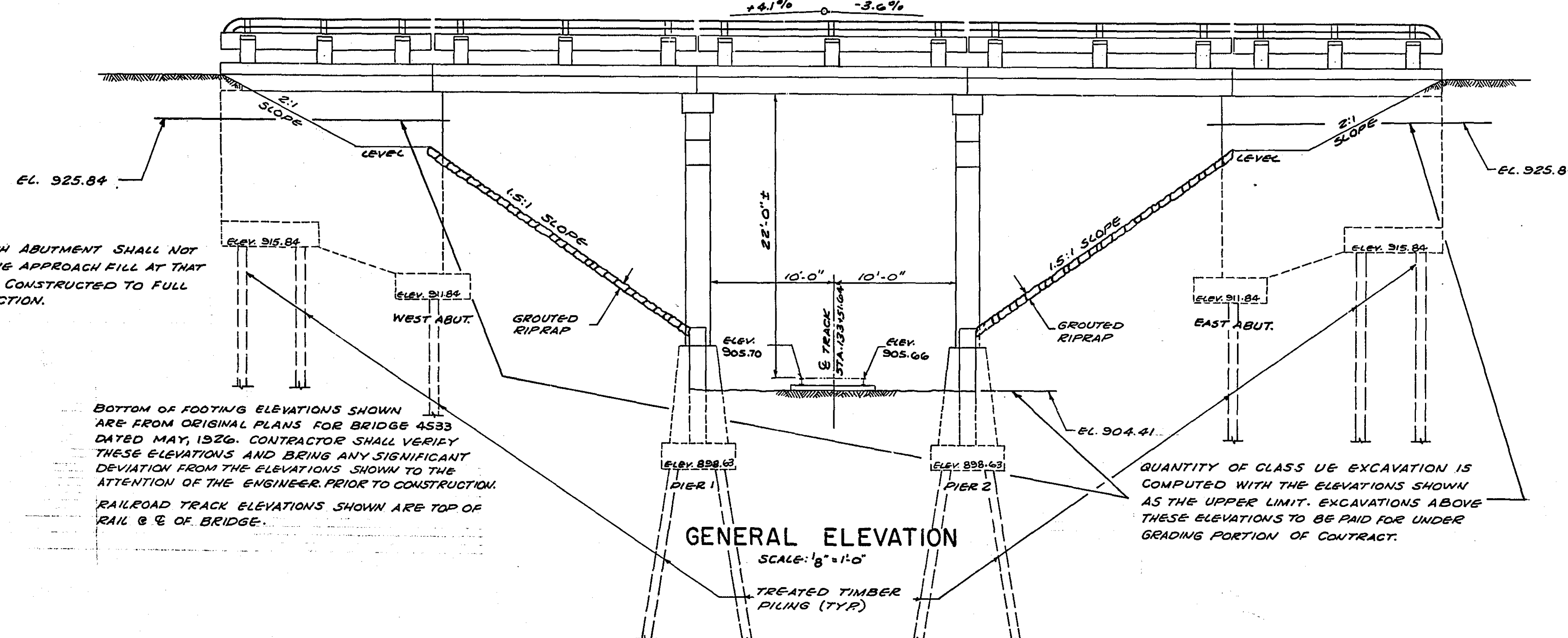
RAIL NOT SHOWN
SCALE: 1/2" = 1'-0"

P.I. STA. 133+47.00
500' V.C.
ELEV. 934.46



TRANSVERSE SECTION THRU DECK

SCALE: 'A' 3/1-C



GENERAL ELEVATION

SCALE: $\frac{1}{8}'' = 1'-0''$

TREATED TIME

QUANTITY OF GLASS UE EXCAVATION IS COMPUTED WITH THE ELEVATIONS SHOWN AS THE UPPER LIMIT. EXCAVATIONS ABOVE THESE ELEVATIONS TO BE PAID FOR UNDER GRADING PORTION OF CONTRACT.

SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE

SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE																				
ITEM NO.	2401.501	2401.501	2401.501	2401.521	2401.541	2402.521	2402.583	2404.501	2433.501	511.603	2452.503	2452.504	2452.517	2452.517	2404.501	2404.501	2481.501	2341.504	2341.508	2357.502
ITEM	CONCRETE, MIX NO. 1A43	CONCRETE, MIX NO. 3Y43	CONCRETE, MIX NO. 3Y46-A	STRUCTURE EXCAVATION, CLASS B	REINFORCEMENT BARS	STRUCTURAL STEEL, (MAX.D. 3306)	ORNAMENTAL METAL RAILING	PRECAST CONC. CHANNELS TYPE A1	LUMP SUM REMOVAL	GROUTED RIPRAP	TREATED TIMBER DELIVERED	TREATED TIMBER DRIVEN	TREATED TIMBER TEST PILES 40 FT. LONG	TREATED TIMBER TEST PILES 70 FT. LONG	PRECAST CONC. CHANNELS TYPE B1	PRECAST CONC. CHANNELS TYPE C1	THREE-PLY JOINT WATERPROOFING	BITUMINOUS MATERIAL FOR MIXTURE	WEARING COURSE MIXTURE	BITUMINOUS MATERIAL FOR TACK COAT
UNIT	CU. YD.	CU. YD.	CU. YD.	CU. YD.	LB.	LB.	LIN. FT.	EACH	LUMP SUM	SQ. YD.	LIN. FT.	LIN. FT.	EACH	EACH	EACH	EACH	LIN. FT.	TON	TON	GALLON
QUANTITY	53	206	52	50	28700	1270	48	1	375	2040	1944	4	4	4	4	4	1344	4	64	30

CONSTRUCTION NOTES
THE "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION"
DATED JANUARY 1, 1972 SHALL GOVERN.

REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS
CONFORMING TO A.S.T.M. A16 GRADE 60.
THE FIRST DIGIT OR THE FIRST TWO DIGITS OF EACH BAR MARK
INDICATE THE BAR SIZE.
ALL EXISTING CONCRETE ABOVE BRIDGE SEAT IS TO
BE REMOVED.
CONTRACTOR SHALL DRESS SLOPES AND PLACE RIPRAP IN
APPROXIMATE AREAS SHOWN, AS DIRECTED BY THE
ENGINEER. GRUNTED RIPRAP, AVERAGE THICKNESS 1:0"

APPROVED: Dean R. Ankian DATE 10/12/72
DEANE R. ANKIAN P.E. REG. NO. 5031
RAMSEY COUNTY ENGINEER

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNED W.E. Dwyer
DATE 8-6-70 REG. NO. 4982

AGNEBERG DIVISION OF KIRKHAM, MICHAEL & ASSOCIATES
REGISTERED ENGINEERS
MINNEAPOLIS, MINNESOTA

C.S.A.H. No. 77
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

Bridge No. 4533
C. S. A. H. No 77
OVER MINNESOTA TRANSFER RAILWAY
IN THE VILLAGE OF NEW BRIGHTON
WIDENING OF EXISTING BRIDGE
2-4'-6" SIDEWALKS 52' ROADWAY
3-21"11" PRECAST CHANNEL SPANS
GENERAL PLAN AND ELEVATION

SEC. 29 T. 30 N. R. 23 W.
MOUNDVIEW TOWNSHIP RAMSEY COUNTY

APPROVED: 10-18-72

E. H. K. R. R. R.
BRIDGE DESIGN & PLANNING ENGINEER

DES. <i>L.S.B.</i>	DR. <i>D.T.</i>	4533
CHK.	CHK.	

Sheet No. 2 of 12 Sheets

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Area No. **Job No.**

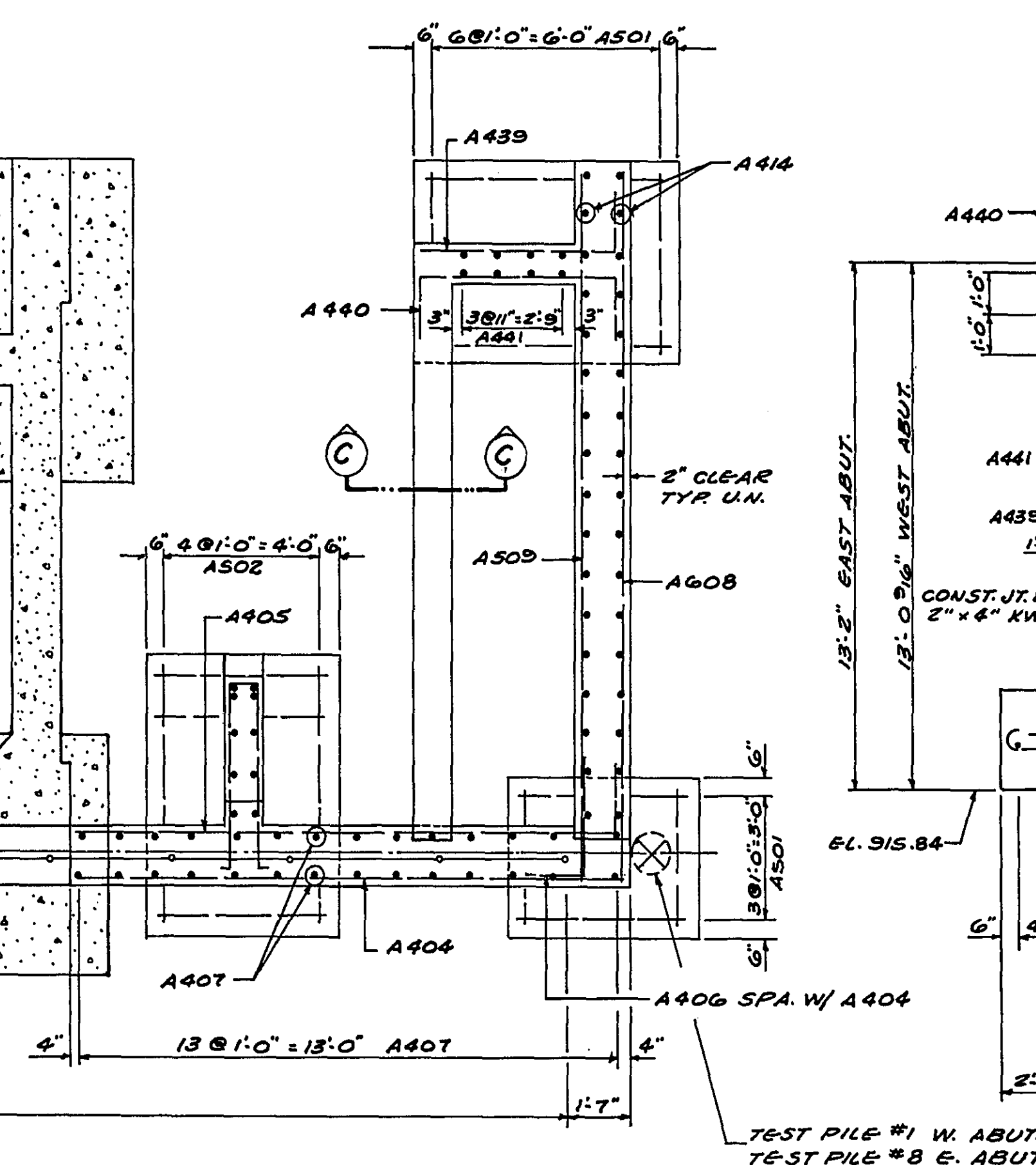
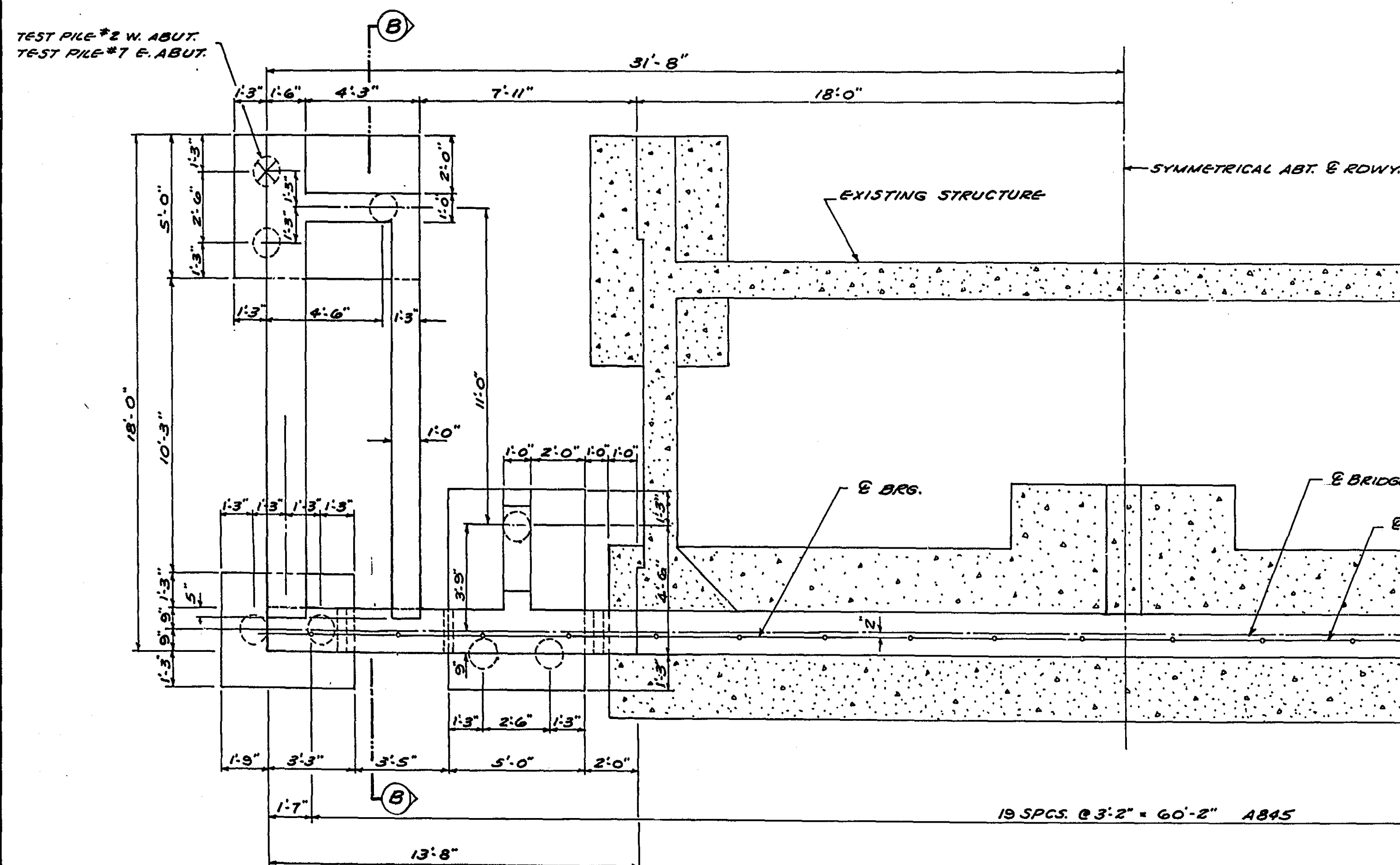
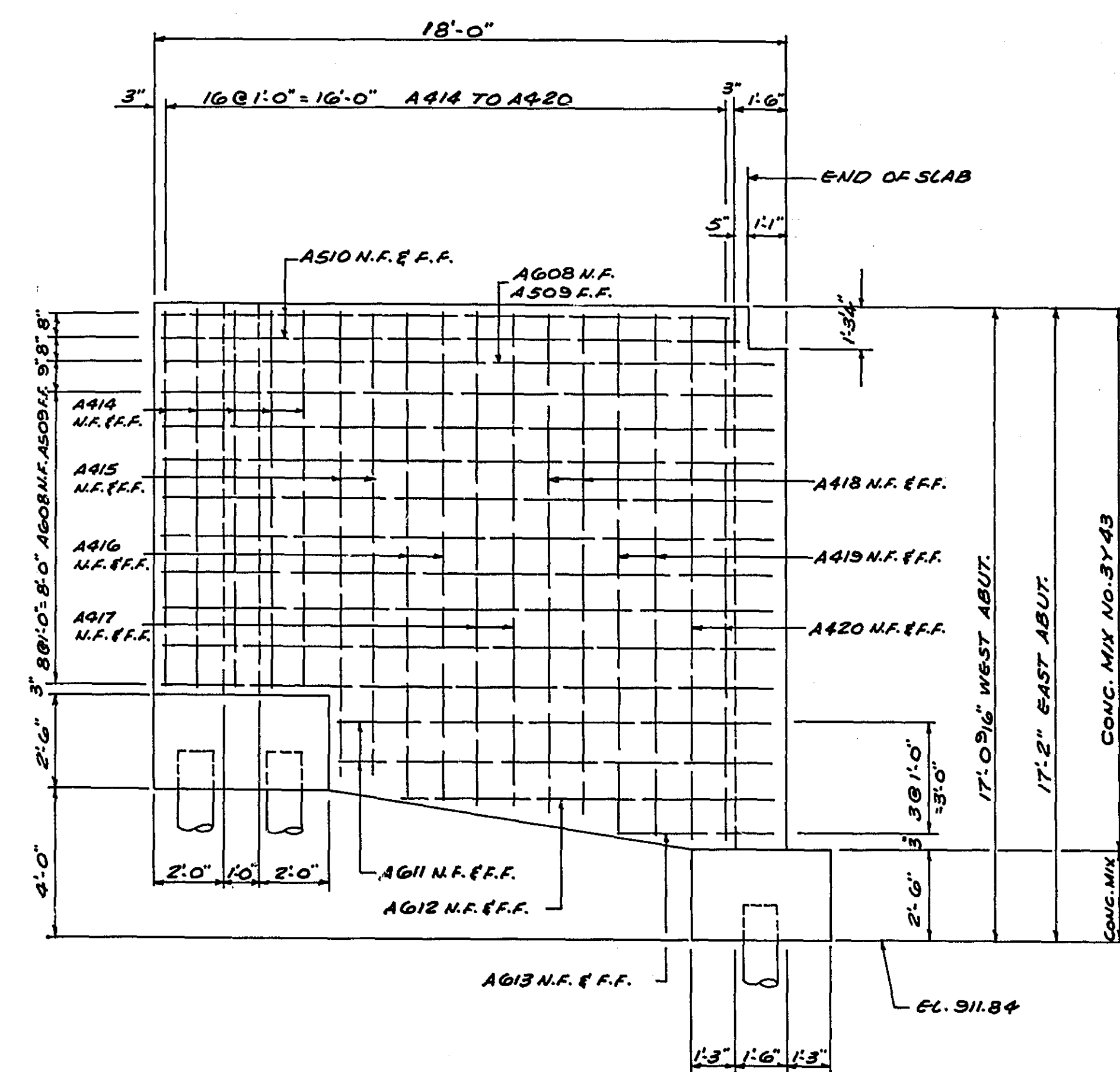
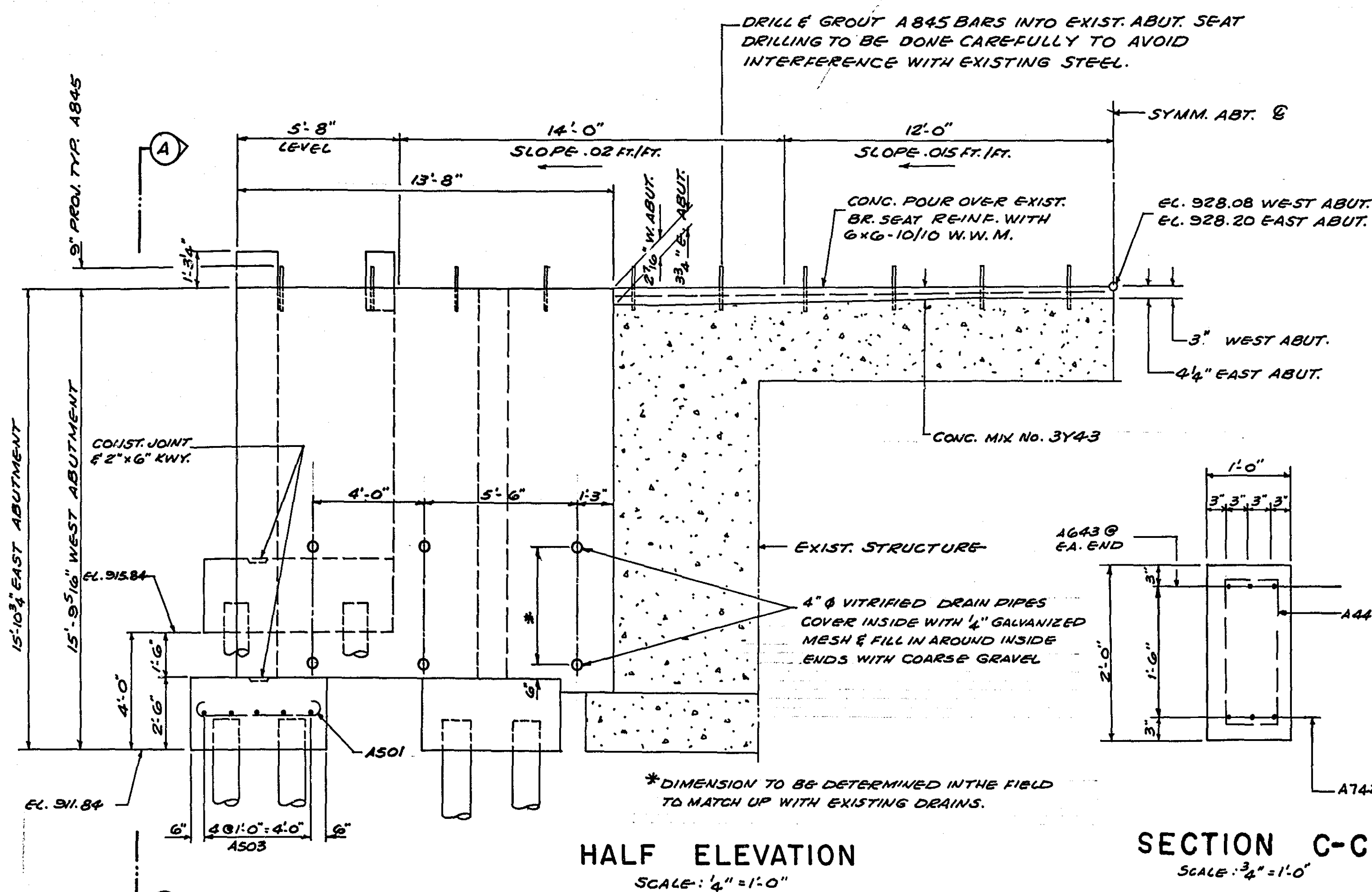
Design Squad

S A P NO. 62-677-03 C.T.B.

MICROFILMED
RAMSEY CO. ENG

Sheet No. 2 of 12 Sheets

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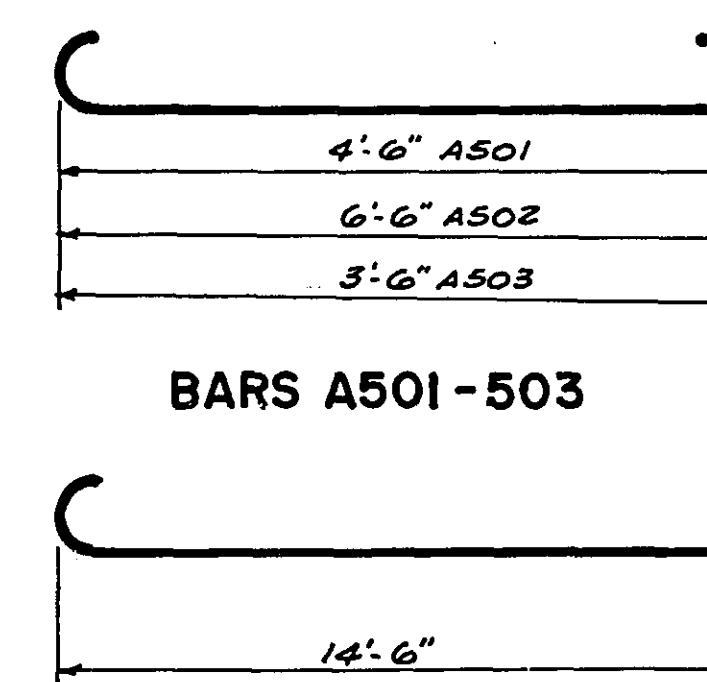
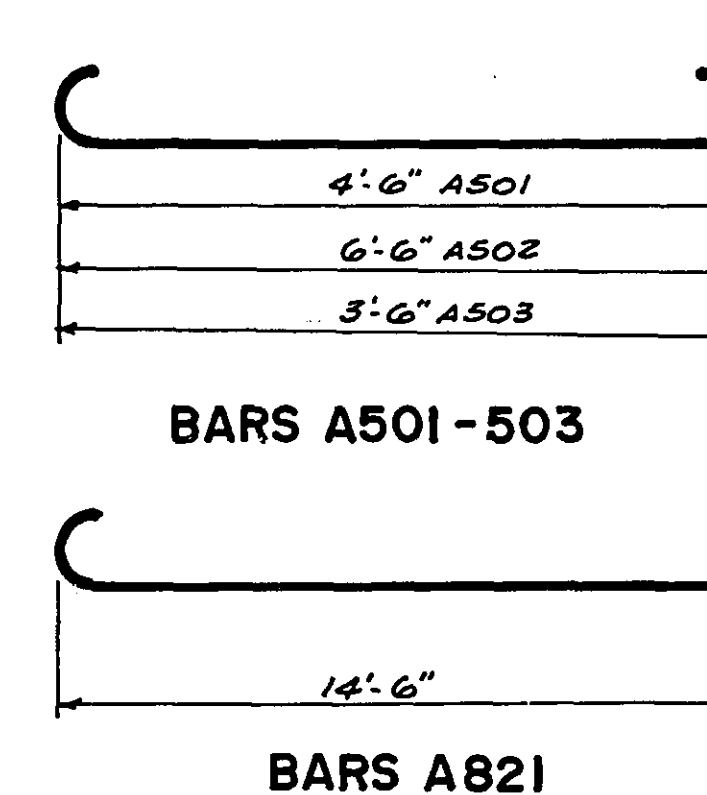
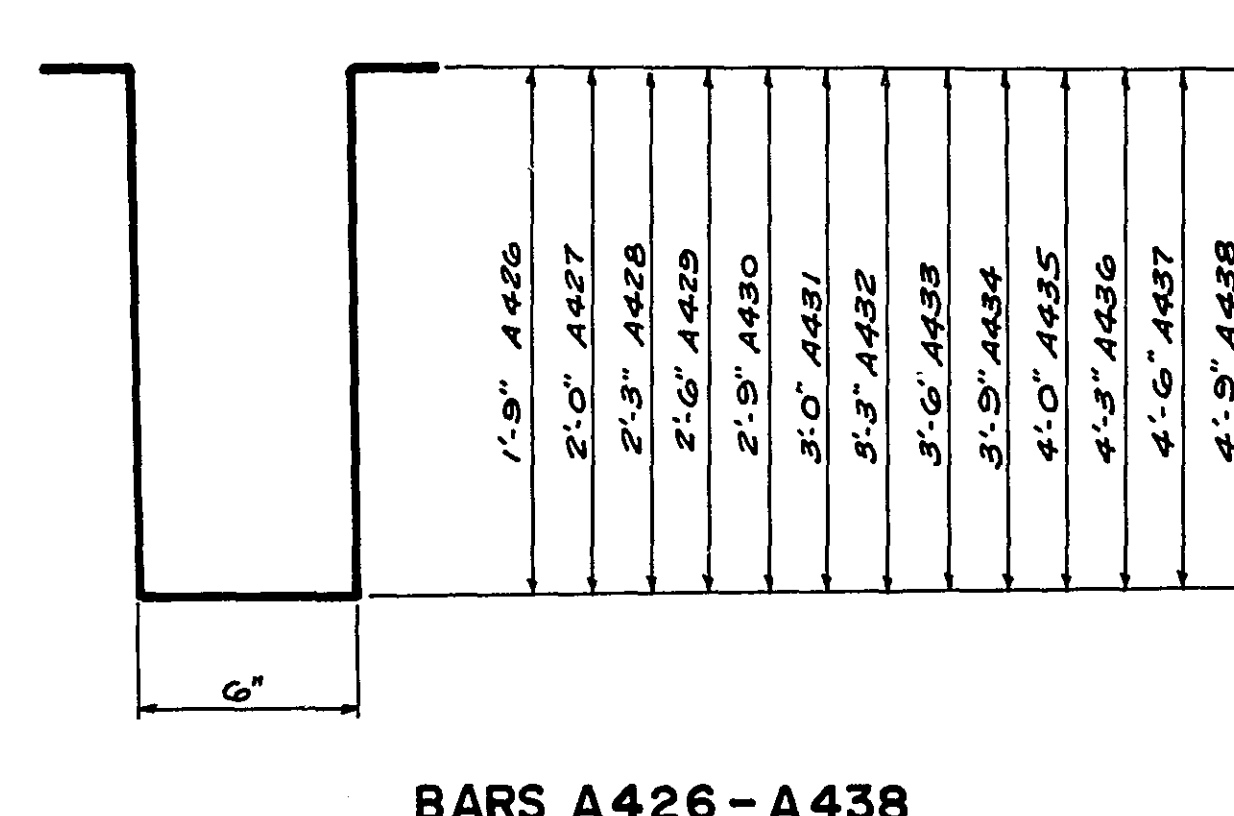
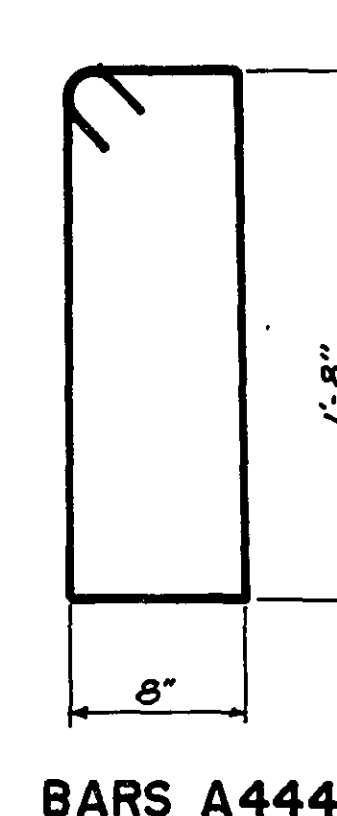
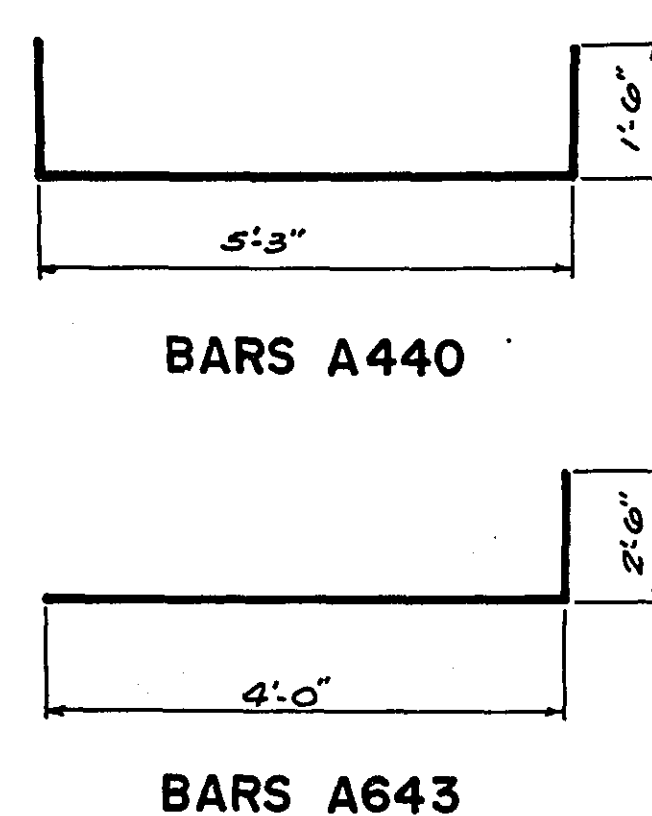
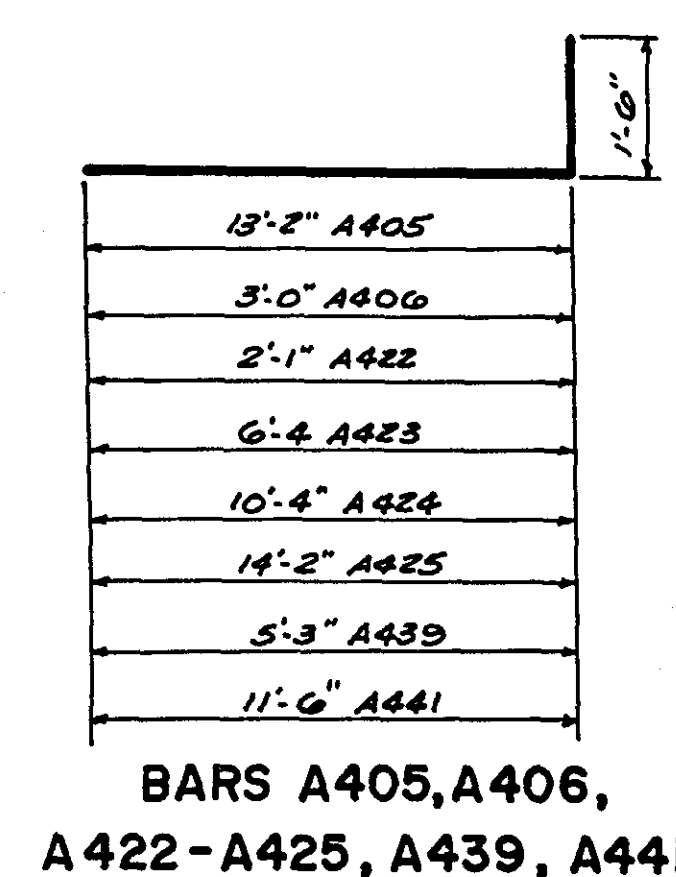


NOTE: DO NOT ORDER ABUTMENT REINFORCE-
MENT UNTIL EXACT FOOTING SIZES AND
ELEVATIONS HAVE BEEN DETERMINED BY
THE ENGINEER IN THE FIELD.

COMPUTED PILE LOADS		TONS / PILE	BILL OF REINFORCEMENT FOR TWO ABUTS.					
DEAD LOAD		14.7	MARK	SIZE	NO.	LENGTH	SHAPE	LOCATION
LIVE LOAD		6.5	A501	#5	72	5'-8"	BENT	FOOTING
OVERTURNING		2.0	A502	#5	40	7'-8"	BENT	FOOTING
TOTAL		23.2	A503	#5	20	4'-8"	BENT	FOOTING
			A404	#4	56	13'-2"	STR.	FRONT WALL HORIZ.
			A405	#4	56	14'-8"	BENT	FRONT WALL HORIZ.
			A406	#4	56	4'-6"	BENT	FRONT WALL HORIZ.
			A407	#4	112	13'-0"	STR.	FRONT WALL VERT.
			A408	#6	40	17'-6"	STR.	SIDE WALL HORIZ.
			A509	#5	40	17'-6"	STR.	SIDE WALL HORIZ.
			A510	#5	16	16'-5"	STR.	SIDE WALL HORIZ.
			A611	#6	16	12'-6"	STR.	SIDE WALL HORIZ.
			A612	#6	8	11'-0"	STR.	SIDE WALL HORIZ.
			A613	#6	8	4'-6"	STR.	SIDE WALL HORIZ.
			A414	#4	40	10'-3"	STR.	SIDE WALL VERT.
			A415	#4	16	12'-9"	STR.	SIDE WALL VERT.
			A416	#4	16	13'-0"	STR.	SIDE WALL VERT.
			A417	#4	16	13'-4"	STR.	SIDE WALL VERT.
			A418	#4	16	13'-8"	STR.	SIDE WALL VERT.
			A419	#4	16	14'-0"	STR.	SIDE WALL VERT.
			A420	#4	16	14'-3"	STR.	SIDE WALL VERT.
			A821	#8	8	15'-5"	BENT	COUNTERFORT
			A422	#4	8	3'-7"	BENT	COUNTERFORT
			A423	#4	8	7'-10"	BENT	COUNTERFORT
			A424	#4	8	11'-10"	BENT	COUNTERFORT
			A425	#4	8	15'-8"	BENT	COUNTERFORT
			A426	#4	4	4'-6"	BENT	COUNTERFORT
			A427	#4	4	5'-0"	BENT	COUNTERFORT
			A428	#4	4	5'-6"	BENT	COUNTERFORT
			A429	#4	4	6'-0"	BENT	COUNTERFORT
			A430	#4	4	6'-6"	BENT	COUNTERFORT
			A431	#4	4	7'-0"	BENT	COUNTERFORT
			A432	#4	4	7'-6"	BENT	COUNTERFORT
			A433	#4	4	8'-0"	BENT	COUNTERFORT
			A434	#4	4	8'-6"	BENT	COUNTERFORT
			A435	#4	4	9'-0"	BENT	COUNTERFORT
			A436	#4	4	9'-6"	BENT	COUNTERFORT
			A437	#4	4	10'-0"	BENT	COUNTERFORT
			A438	#4	4	10'-6"	BENT	COUNTERFORT
			A439	#4	80	6'-9"	BENT	BACK WALL HORIZ.
			A440	#4	8	8'-3"	BENT	BACK WALL HORIZ.
			A441	#4	32	13'-0"	BENT	BACK WALL VERT.
			A742	#7	12	15'-6"	STR.	SIDEWALK BEAM
			A643	#6	24	6'-6"	BENT	SIDEWALK BEAM
			A444	#4	24	5'-2"	BENT	S.W. BEAM SPIRAL
			A845	#8	40	1'-6"	STR.	DOWELS

SUMMARY OF QUANTITIES FOR TWO ABUTS	
CLASS & EXCAVATION	470 CU.YD.
CONC. MIX NO. 1A43	34 CU. YD.
CONC. MIX NO. 3743	106 CU. YD.
REINFORCEMENT BARS	5050 LB.
4 TREATED TIMBER	TEST PILLS 40 FT LONG
TREATED TIMBER	PILING DELIVERED 840 UM.FT
4" VITRIFIED DRAIN PIPE	24 PCS.

NOTE: PILE SPACING IS GIVEN AT
BOTTOM OF FOOTING.



FILE NOTES

4 TREATED TIMBER TEST PILES 40 FT. LONG
28 TREATED TIMBER PILES EST. LENGTH 30 FT.
32 TREATED TIMBER PILES FOR 2 ABUTMENTS

ESTIMATED PENETRATION 2 FEET LESS THAN LENGTH GIVEN

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

Bridge No. 4533

ABUTMENT DETAILS

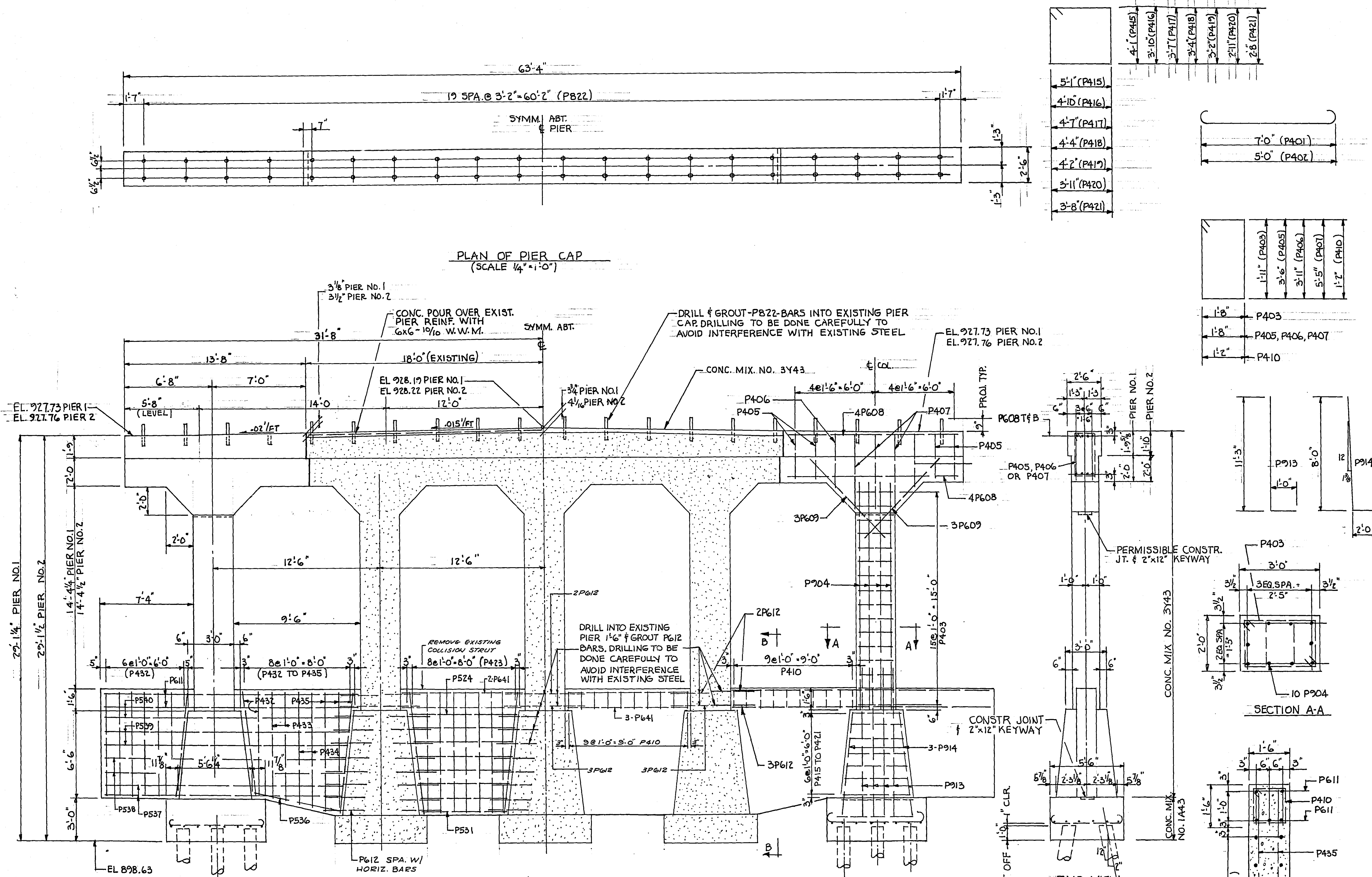
APPROVED: 10-13-72

DES. R. H.	DR. D.T
CHK. D.T.	CHK. R. H.

4533

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MARK	SIZE	NO.	LGTH.	SHAPE	LOCATION
P401	#4	24	8'-0"	BENT	FOOTING
P402	#4	32	6'-0"	BENT	"
P403	#4	128	7'-8"	BENT	COL. TIES
P404	#9	40	16'-0"	STRT	COL. VERTICAL
P405	#4	16	10'-10"	BENT	CAP. STIRRUPS
P406	#4	8	11'-8"	"	"
P407	#4	12	14'-8"	"	"
P608	#6	32	13'-4"	STRT.	PIER CAP LONGIT.
P609	#6	24	8'-0"	"	PIER CAP DIAG.
P410	#4	80	5'-0"	BENT	COL. STRUT TIES
P611	#6	20	19'-6"	STRT.	COL. STRUT
P612	#6	252	3'-0"	STRT.	COL. STRUT DOWELS
P913	#9	32	12'-3"	BENT	COL. DOWELS
P914	#9	24	10'-0"	"	"
P415	#4	4	18'-10"	"	PEDESTAL TIES
P416	"	"	17'-10"	"	"
P417	"	"	16'-10"	"	"
P418	"	"	15'-10"	"	"
P419	"	"	15'-2"	"	"
P420	"	"	14'-2"	"	"
P421	"	"	13'-2"	"	"
P822	#8	80	1'-6"	STRT.	PIER CAP DOWELS
P423	#4	12	8'-6"	"	RET. WALL VERTICAL
P524	#5	8	8'-0"	"	RET. WALL HORIZ.
P525	"	"	7'-9"	"	"
P526	"	"	7'-6"	"	"
P527	"	"	7'-3"	"	"
P528	"	"	7'-0"	"	"
P529	"	"	6'-9"	"	"
P530	"	"	6'-6"	"	"
P531	"	"	6'-3"	"	"
P432	#4	72	7'-6"	"	RET. WALL VERT.
P433	"	"	7'-10"	"	"
P434	"	"	8'-2"	"	"
P435	"	"	8'-6"	"	"
P536	#5	8	6'-5"	"	RET. WALL HORIZ.
P537	"	"	17'-11"	"	"
P538	"	"	18'-3"	"	"
P539	"	"	18'-7"	"	"
P540	"	"	18'-10"	"	"
P641	#6	20	9'-4"	STRT.	"

DEAD LOAD	11.2
LIVE LOAD	4.4
OVERTURNING	14.0
TOTAL	29.6
29.6/1.25 = 23.7 REDUCTION PER AASHO L2.22	

NOTE:
DO NOT ORDER PIER REINFORCEMENT UNTIL
EXACT FOOTING SIZES AND ELEVATIONS HAVE
BEEN DETERMINED BY THE ENGINEER IN THE
FIELD.

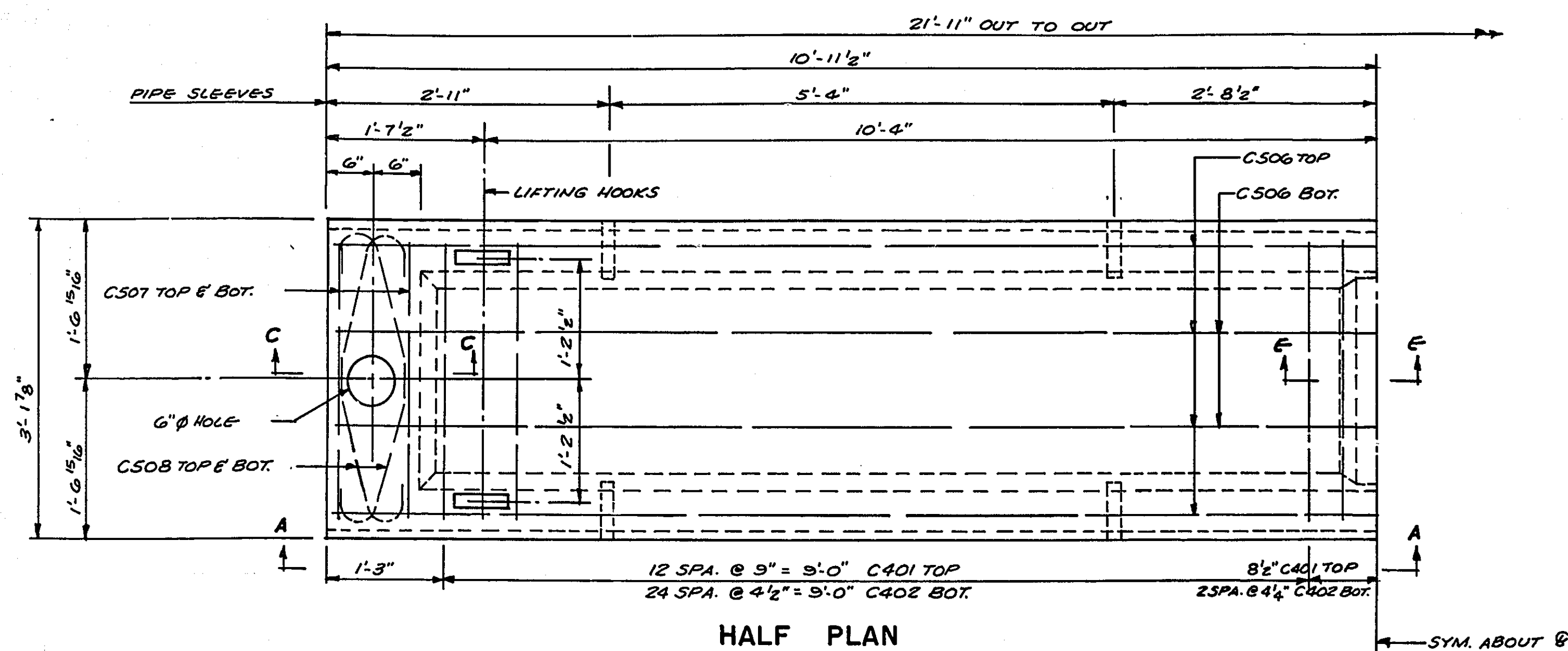
CLASS E EXCAVATION	110 CU.YD.
CONC. MIX NO. 1443	19 CU.YD.
CONC. MIX NO. 3Y43	98 CU.YD.
REINFORCEMENT BARS	12030 LB.
4 TREATED TIMBER TEST PILES 70 FT. LONG	
TREATED TIMBER PILES DELIVERED	1200 LIN.FT.

PILE NOTES:
4 TREATED TIMBER TEST PILES 70 LONG
20 TREATED TIMBER PILES EST. LGTH. 60 FT.
24 TREATED TIMBER PILES FOR 2- PIERS

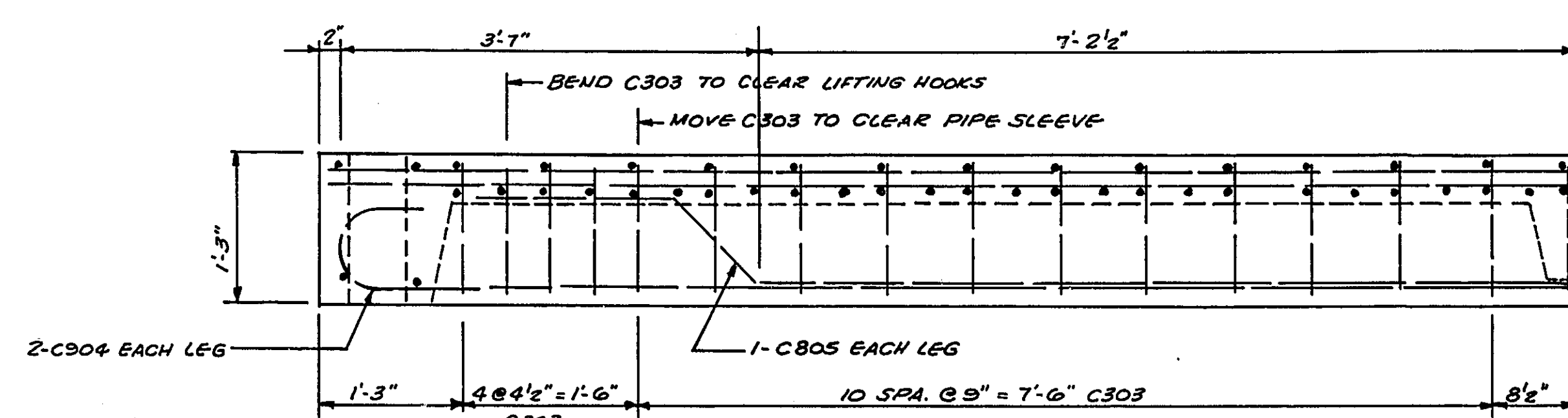
ESTIMATED PENETRATION 2- FT. LESS THAN LGTH. GIVEN.
PILES MARKED THUS O- TO BE BATTERED 2" PER FOOT
IN DIRECTION SHOWN.

STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS		
Bridge No. 4533		
PIER DETAILS		
APPROVED: 10-13-72		
DES. R.A.H.	DR. R.A.H.	4533
CHK. D.T.	CHK. D.T.	
Sheet No. 4 of 12 Sheets		

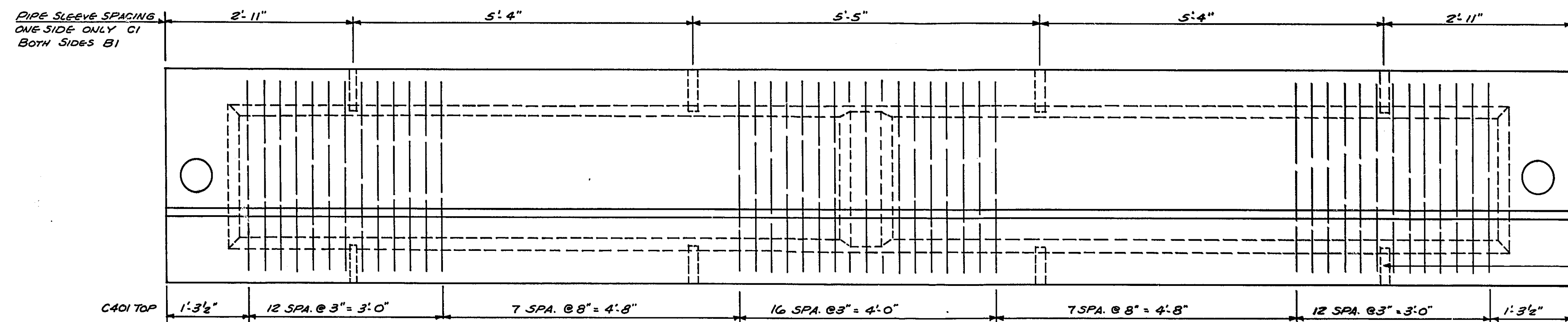
MICROFILMED
RAMSEY CO. 5NCR.



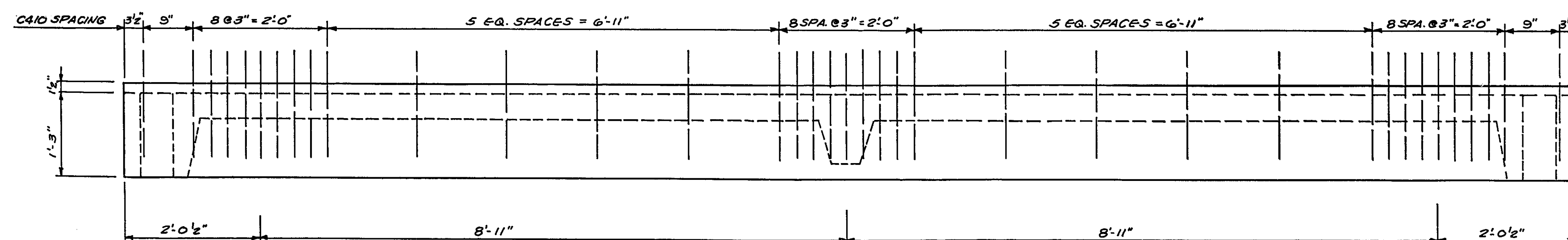
HALF PLAN



ELEVATION A-A
INTERIOR CHANNELS
MARK A1 AS SHOWN



PLAN VIEW

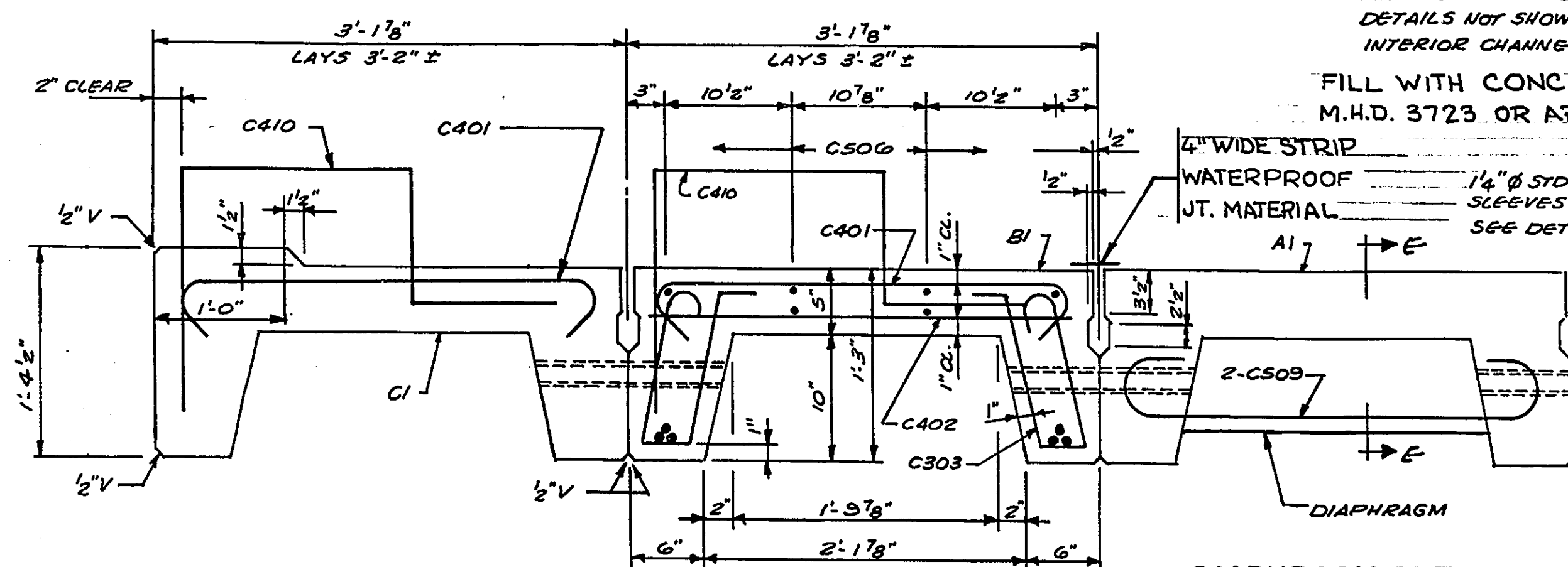


ELEVATION

FACIA CHANNELS

MARK B1 OR C1 AS SHOWN
DETAILS NOT SHOWN ARE SAME AS
INTERIOR CHANNEL DETAILS

FILL WITH CONC. JT. SEALER
M.H.D. 3723 OR APPROVED EQUAL



PART SECTION THRU CURB AND CHANNELS

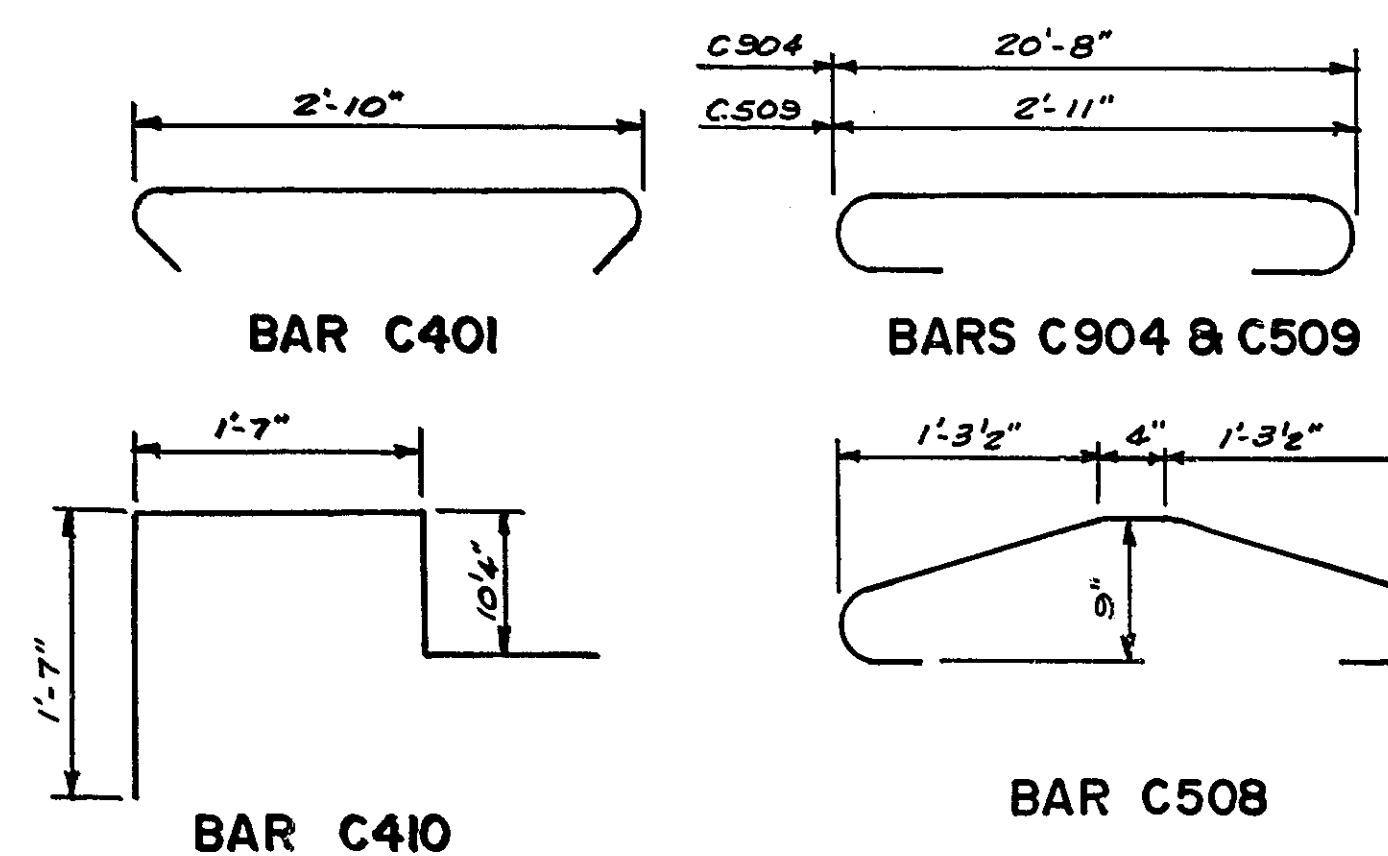
DIAPHRAGM DETAIL

CHANNEL BOLTING DETAIL

*INCLUDED IN THE WEIGHT
OF STRUCTURAL STEEL

BILL OF REINFORCEMENT FOR ONE PRECAST CONC. CHANNEL						
MARK	NO. OF BARS PER CHANNEL			LENGTH	SHAPE	LOCATION
A1	E1	C1				
C401	27	55	55	3'-7"	BENT	TOP TRANSV.
C402	53	53	53	2'-8"	STR.	TOP TRANSV.
C303	62	62	62	3'-4"	BENT	LEG STIRRUP
C904	4	4	4	22'-4"	BENT	LEG LONGIT.
C805	2	2	2	18'-6"	BENT	LEG LONGIT.
C506	6	6	6	20'-8"	STR.	TOP LONGIT.
C507	8	8	8	2'-9"	STR.	END TRANSV.
C508	8	8	8	4'-4"	BENT	END TIE
C509	2	2	2	4'-1"	BENT	DIAPHRAGM
C410		37	37	5'-0"	BENT	CURB TIE

2-C904 AND 1-C805 TO BE TIED TOGETHER INTO A BUNDLE
SEE DETAIL AT RIGHT



BAR C401

BARS C904 & C509

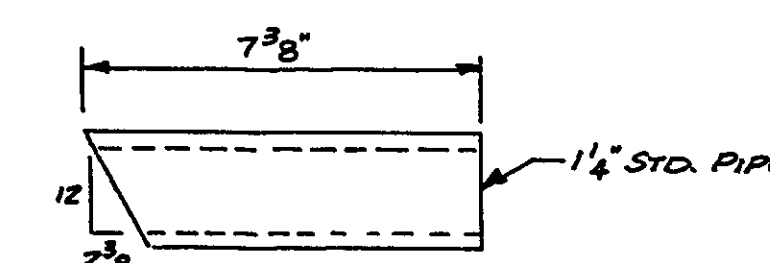
BAR C410

BAR C508

BARS C303

BAR C805

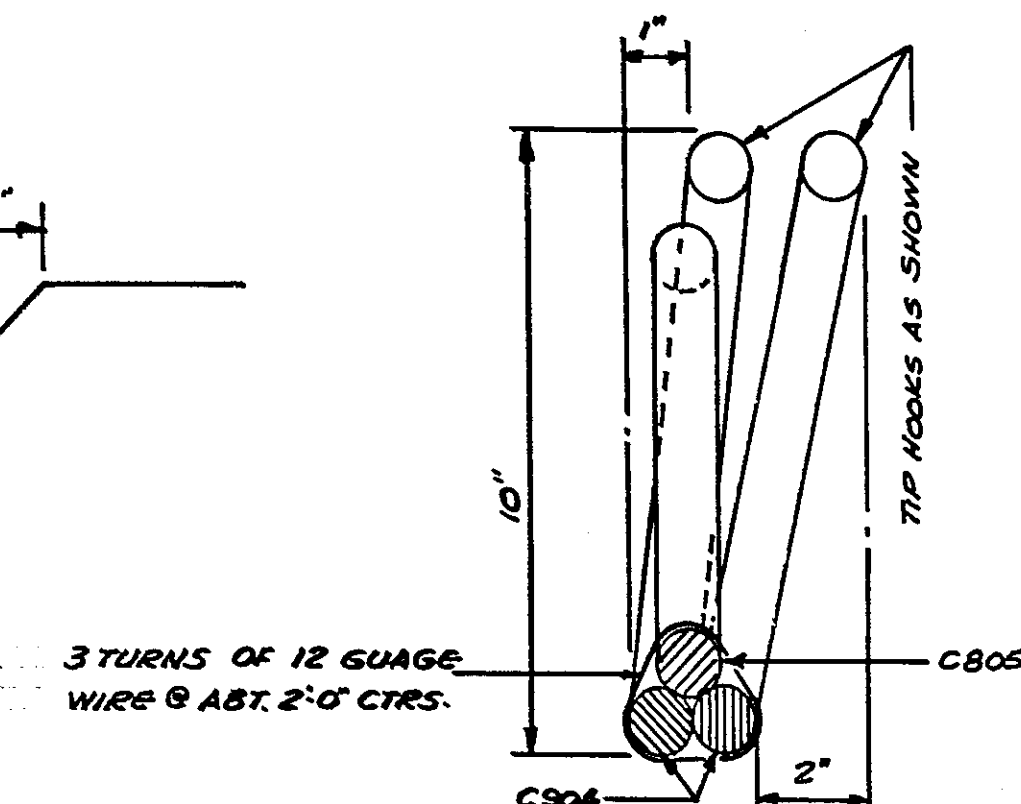
SUMMARY OF CHANNELS	
MARK	NUMBER
A1	48
B1	6
C1	6



PIPE SLEEVE DETAIL
GALVANIZE PER M.H.D. 3394
AFTER FABRICATION

SUMMARY OF QUANTITIES FOR ONE CHANNEL

ITEM	CHANNEL			UNIT
	A1	B1	C1	
CONCRETE MIX NO. 3W26	1.97	1.97	2.10	CU. YD.
REINFORCEMENT BARS	836	1026	959	LB.
1 1/2" STD. PIPE SLEEVES	8	8	4	EA.
3/8" LIFTING HOOKS	4	4	4	EA.



DETAIL OF BAR BUNDLE

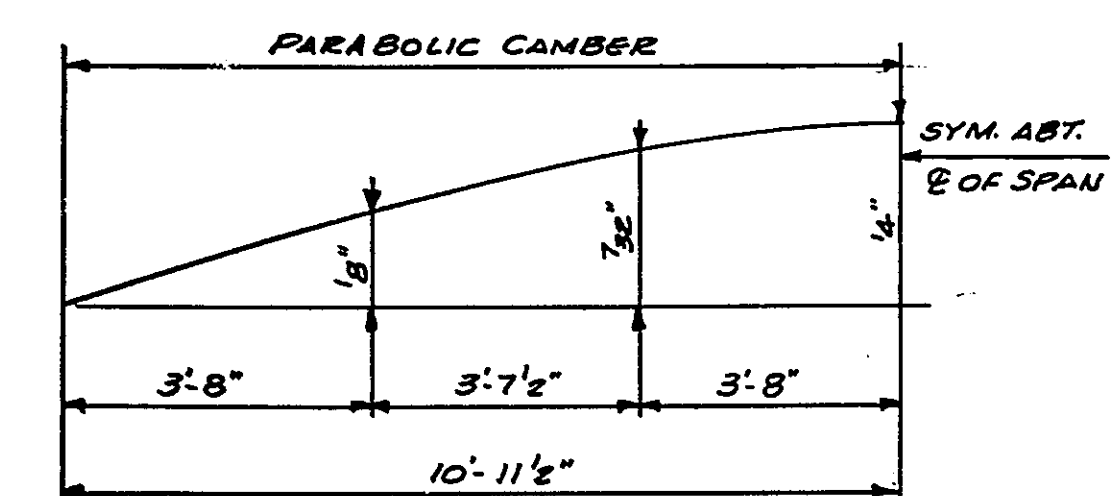
NOTES:

THE FIRST DIGIT OR THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR SIZE.

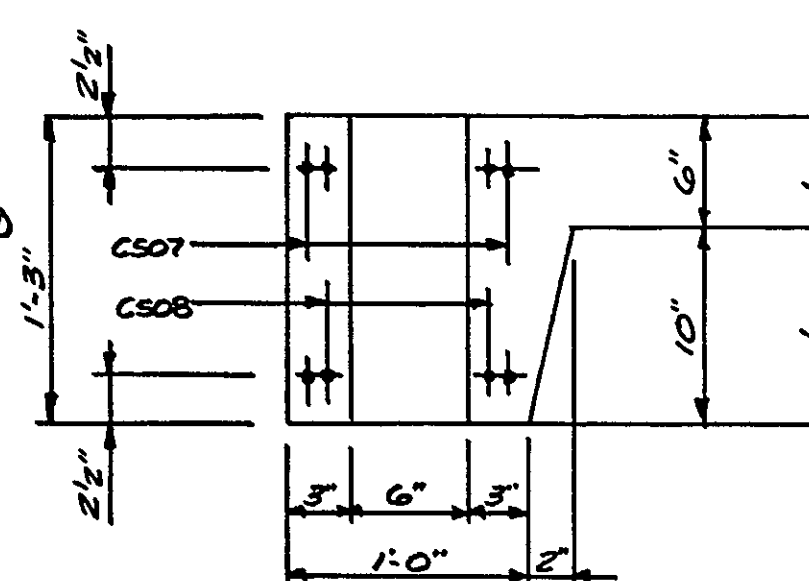
FOR PRECAST CONCRETE CHANNELS, SEE M.H.D. 2404.

THE CENTER CHANNEL SHALL BE ERECTED FIRST IN EACH BAY OF THE STRUCTURE. OTHER CHANNELS SHALL BE ERECTED OUTWARD FROM CENTER. CHANNELS TO BE LAID UP TIGHT.

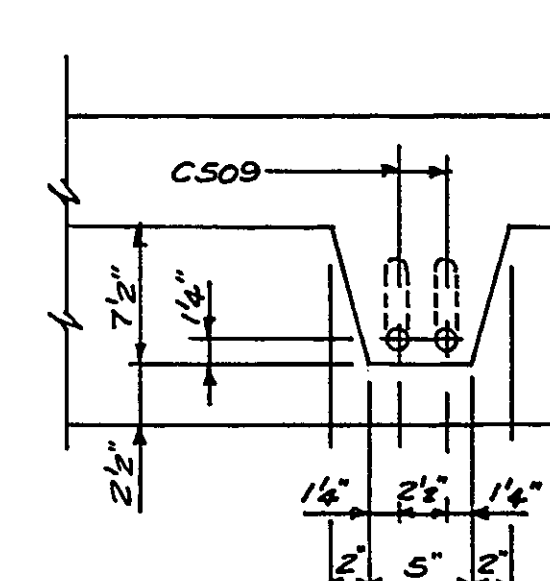
GROUT FOR KEYWAYS AND ALL OTHER SPECIFIED JOINTS OR RECESSES SHALL CONSIST OF 1 PART PORTLAND CEMENT AND 3 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 4" AND BE TAMPED IN PLACE. PAYMENT TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.



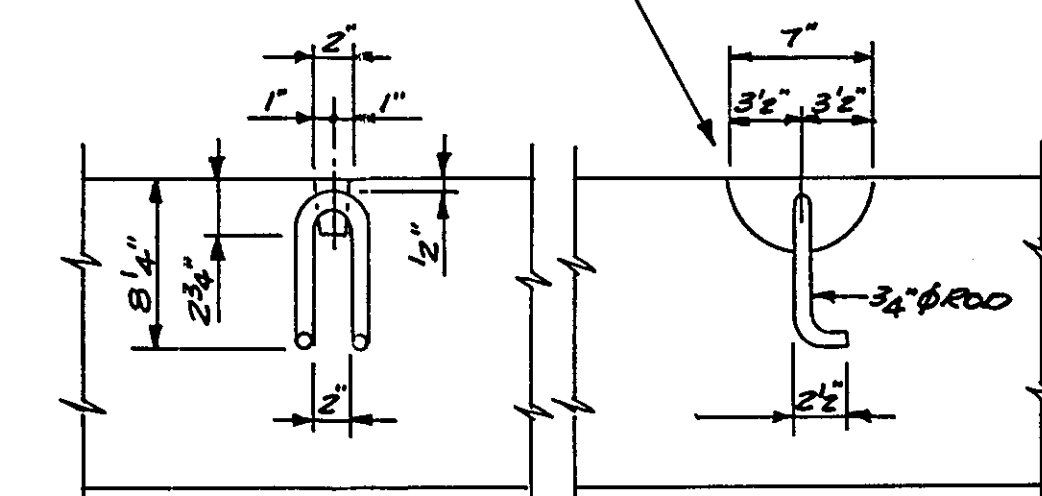
CAMBER DIAGRAM



SECTION C-C



SECTION E-E



LIFTING HOOK DETAIL

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RAMSEY CO. ENGR.

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

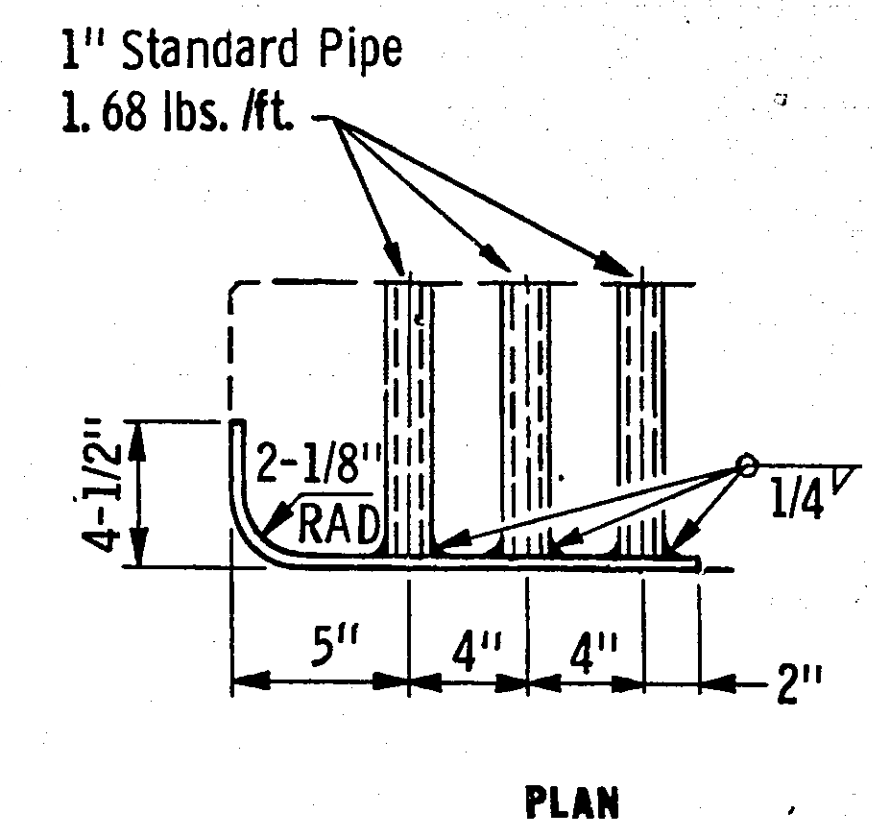
Bridge No. 4533

21'-11" LONG PRECAST
CONCRETE CHANNEL

APPROVED: 10-13-72

DES. R.A.H. DR. D.T. 4533
CHK. D.T. CHK. R.A.H.

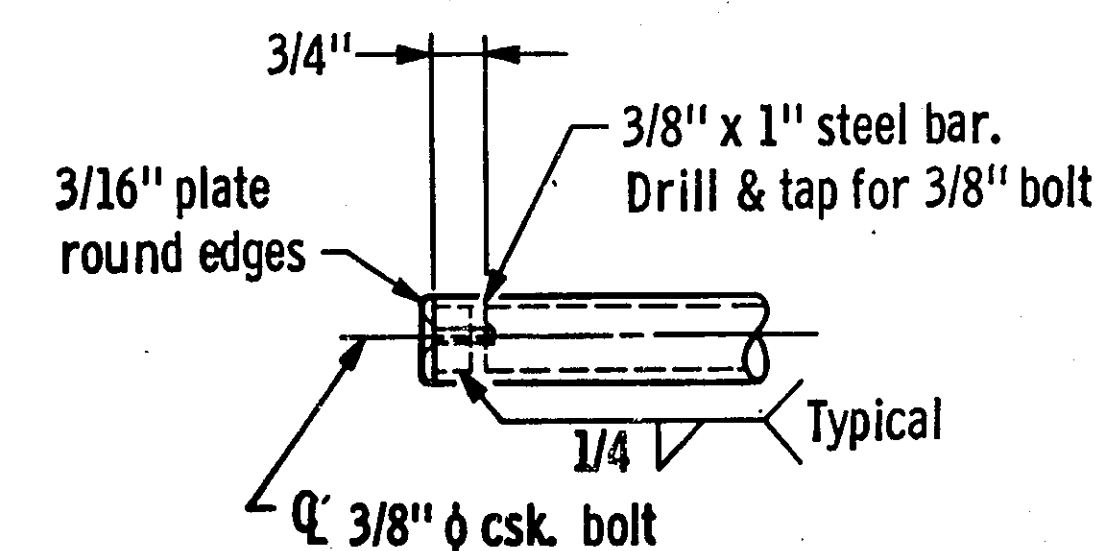
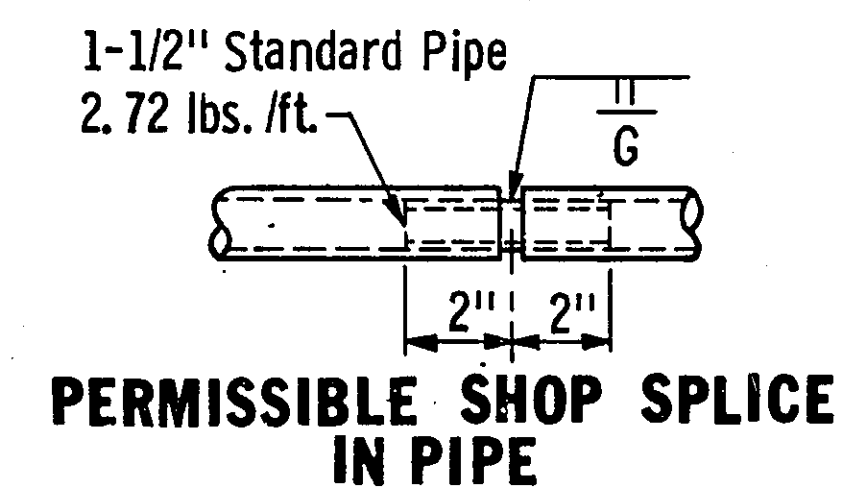
Sheet No. 6 of 12 Sheets



GUARDRAIL CONNECTION DETAIL
GALVANIZE AFTER FABRICATION PER M. H. D. 3394
Est. Wt. 37 Lbs.

BILL OF REINFORCEMENT FOR RAILING				
MARK	NO	LENGTH	SHAPE	LOCATION
R701	120	3' 11"	Bent	Railpost
R602	60	3' 9"	"	"
R303	90	3' 9"	"	"
R304	90	3' 4"	"	"
R205	540	3' 6"	"	Railing
R606	30	3' 6"	Str.	Curb
R607	32	16' 6"	"	RAILING
R608	48	21' 5"	"	"

See special provisions for railing ties alternate.



DETAIL OF END CLOSURE PLATE

GENERAL NOTES

All concrete shall be Concrete Mix No. 3Y46A.

All railposts shall be normal to grade, except as noted.

Finish all edges of concrete to a 1/2" V unless otherwise noted.

Special care shall be exercised in finishing the surface of the concrete slab in the area of the posts so that the vertical reinforcement for the posts can be properly placed with respect to depth of anchorage.

No. 2 reinforcement bars shall comply with A. S. T. M. A306.

Pipe shall comply with M. H. D. 3362, Grade A or B, or M. H. D. 3306. All other structural material except springs and cable fittings shall be structural steel per M. H. D. 3306. Cable and fittings shall comply with M. H. D. 2554, M. H. D. 3381, except as noted.

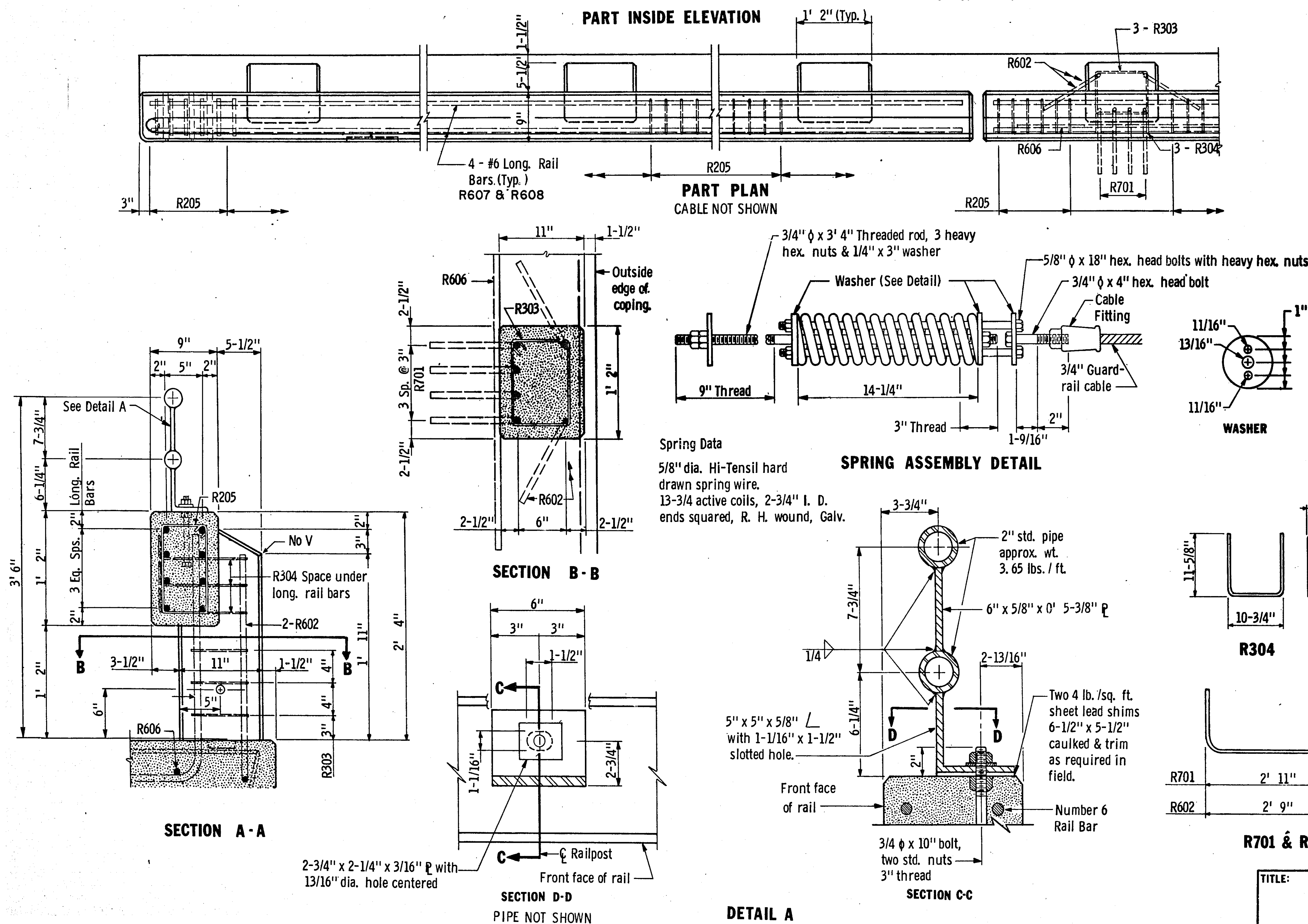
Galvanize bolts, rods, nuts, spring assemblies and cable fittings per M. H. D. 3392. Galvanize all structural material per M. H. D. 3394 after fabrication.

Guard rail connection to be included in weight of structural steel M. H. D. 3306.

Railing quantities are included in Summary of Quantities for Superstructure.

Length of "Ornamental Metal Railing" for payment will be measured end to end of concrete rail, with no deduction for open joints. Cable shall be accurately cut so there will be no sag before tightening spring nuts.

Price bid for ornamental metal railing includes the cable, spring assemblies, plastic sleeves, 3/4" ϕ x 10" bolts, and all material above the concrete rail.

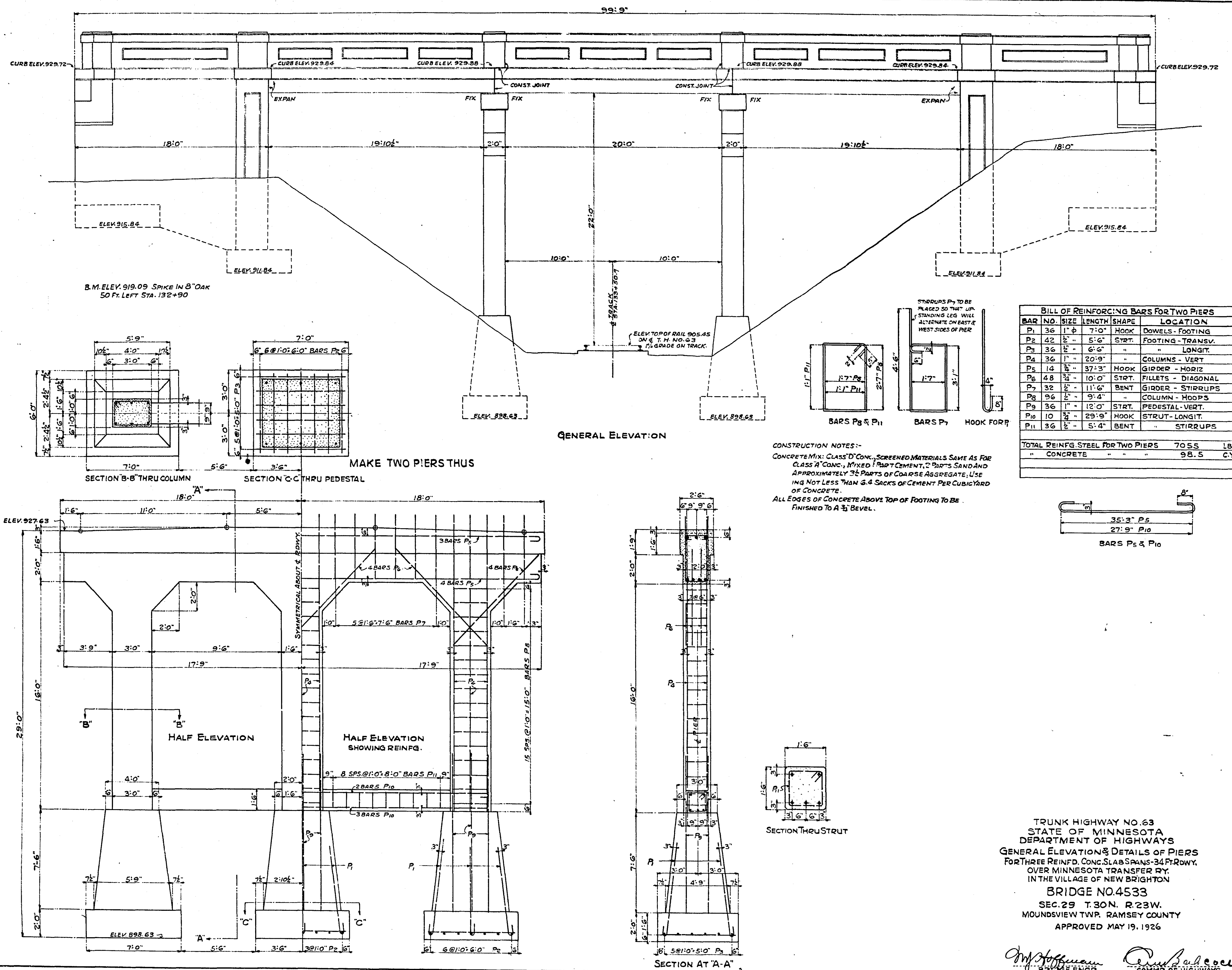


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RAMSEY CO. ENGR!**

Fig. 5-397.103
Feb. 23, 1970

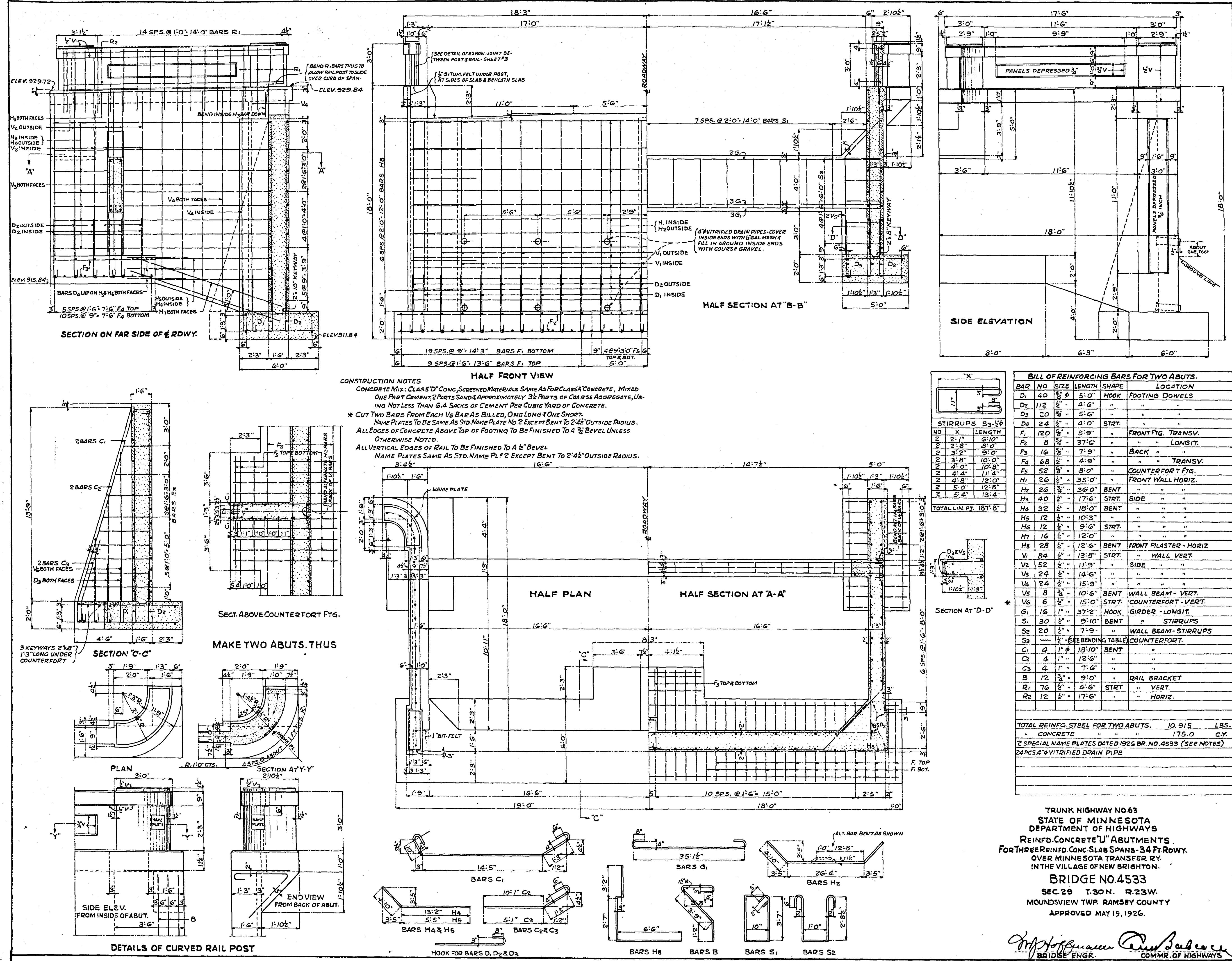
TITLE:	CONCRETE RAILING WITH CABLES AND PIPES (WITHOUT END POST)	DES: R.A.H.	DR: R.A.H.	APPROVED:	Bridge No. 4533
		CHK: D.T.	CHK: D.T.	10-13-72	
		Sheet No. 7 of 12 Sheets			

70-102



STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS		
Bridge No. 4533		
EXISTING PIER DETAILS		
APPROVED: <u>10-13-72</u>		
DES.	DR.	4533
CHK.	CHK.	
Sheet No. 8 of 12 Sheets		

MICROFILMED
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STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

Bridge No. 4533

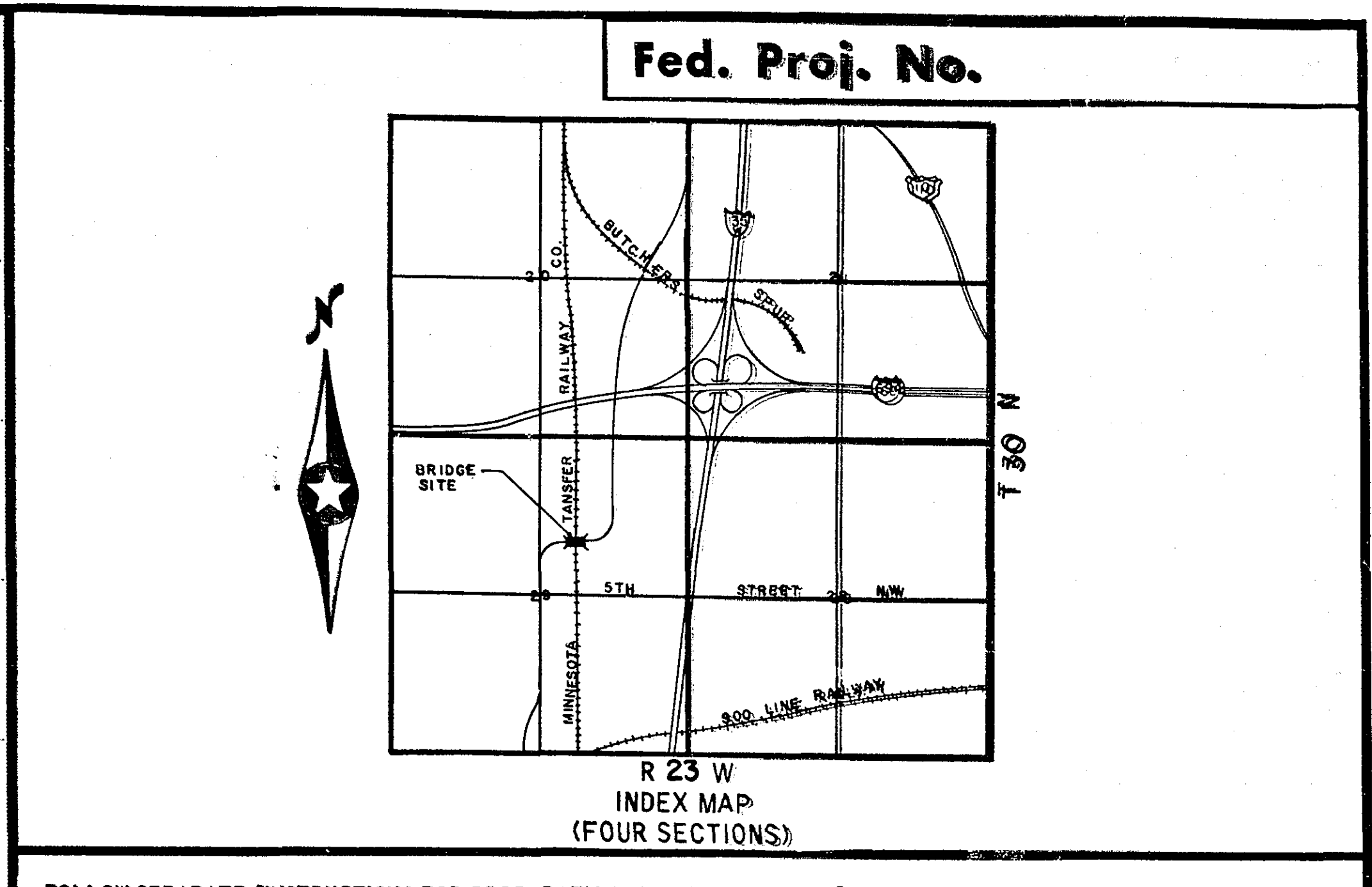
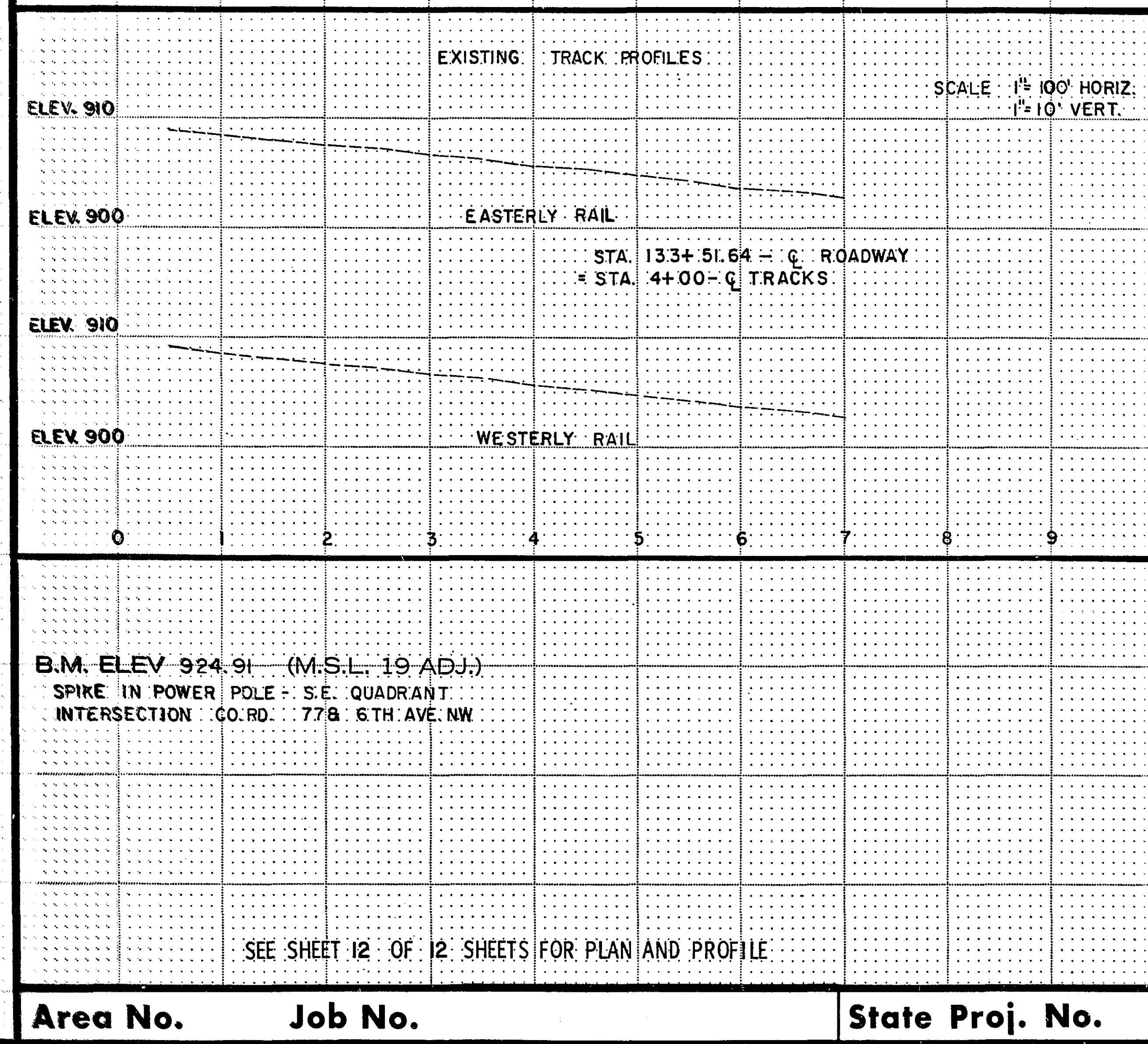
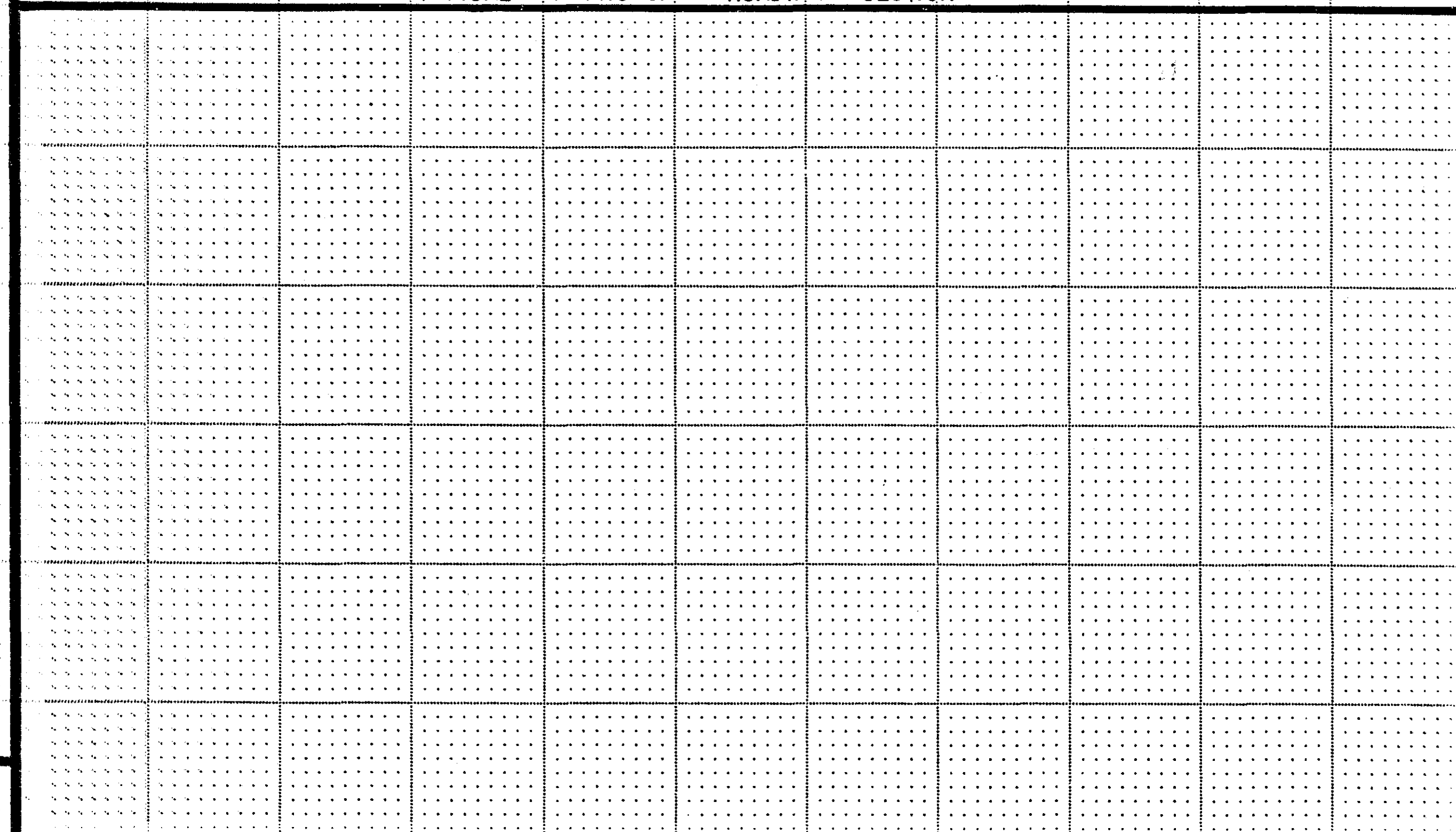
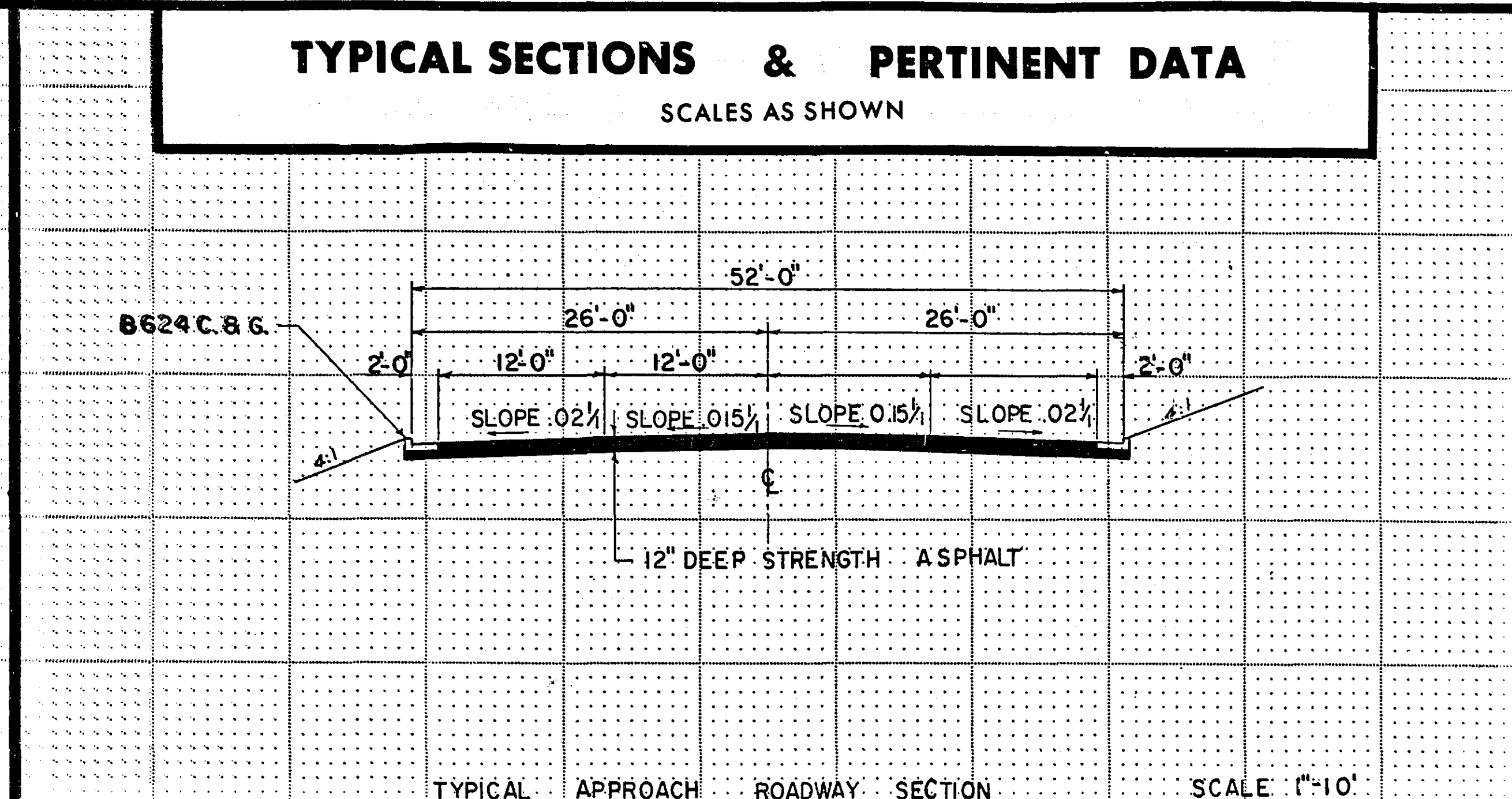
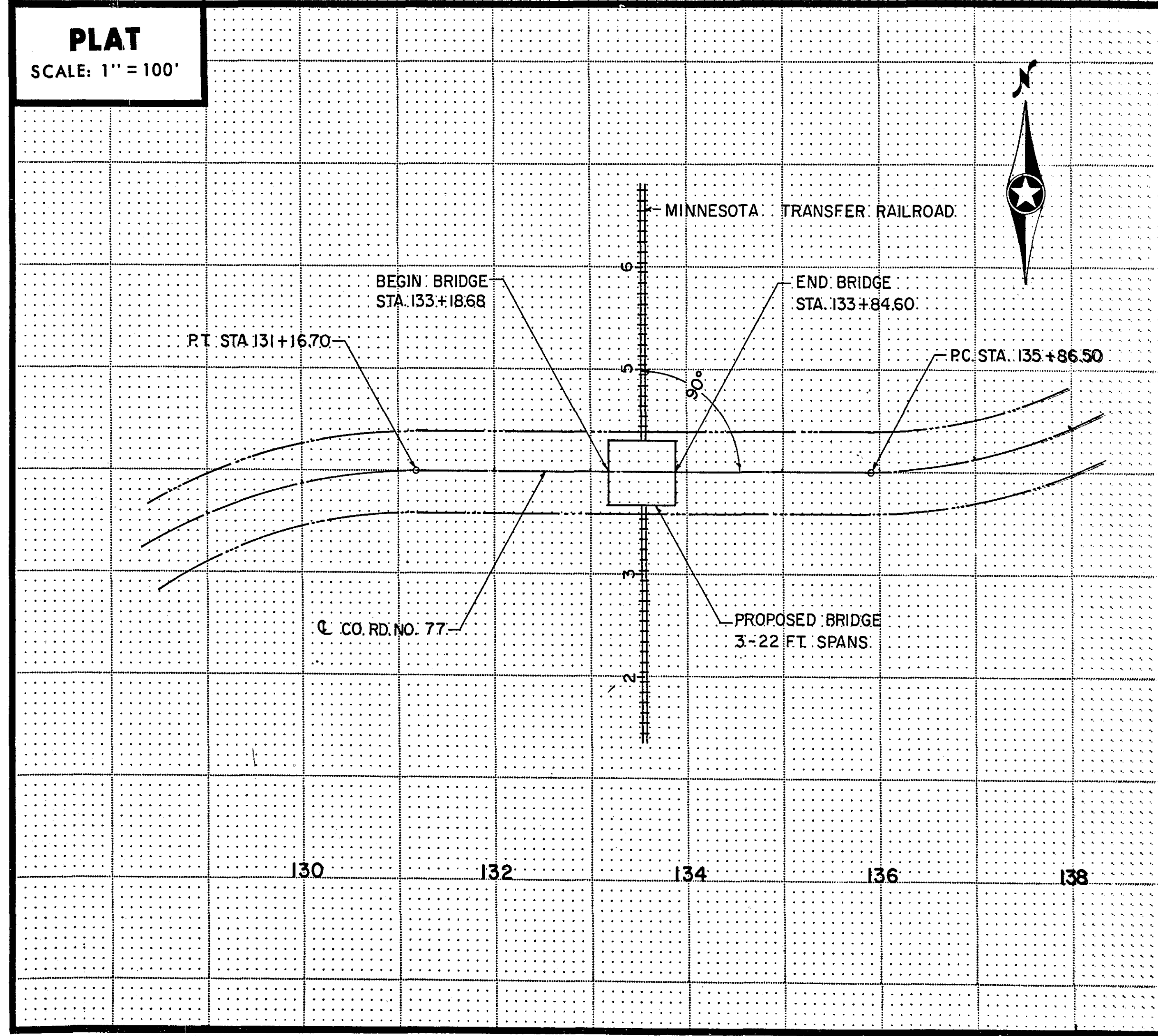
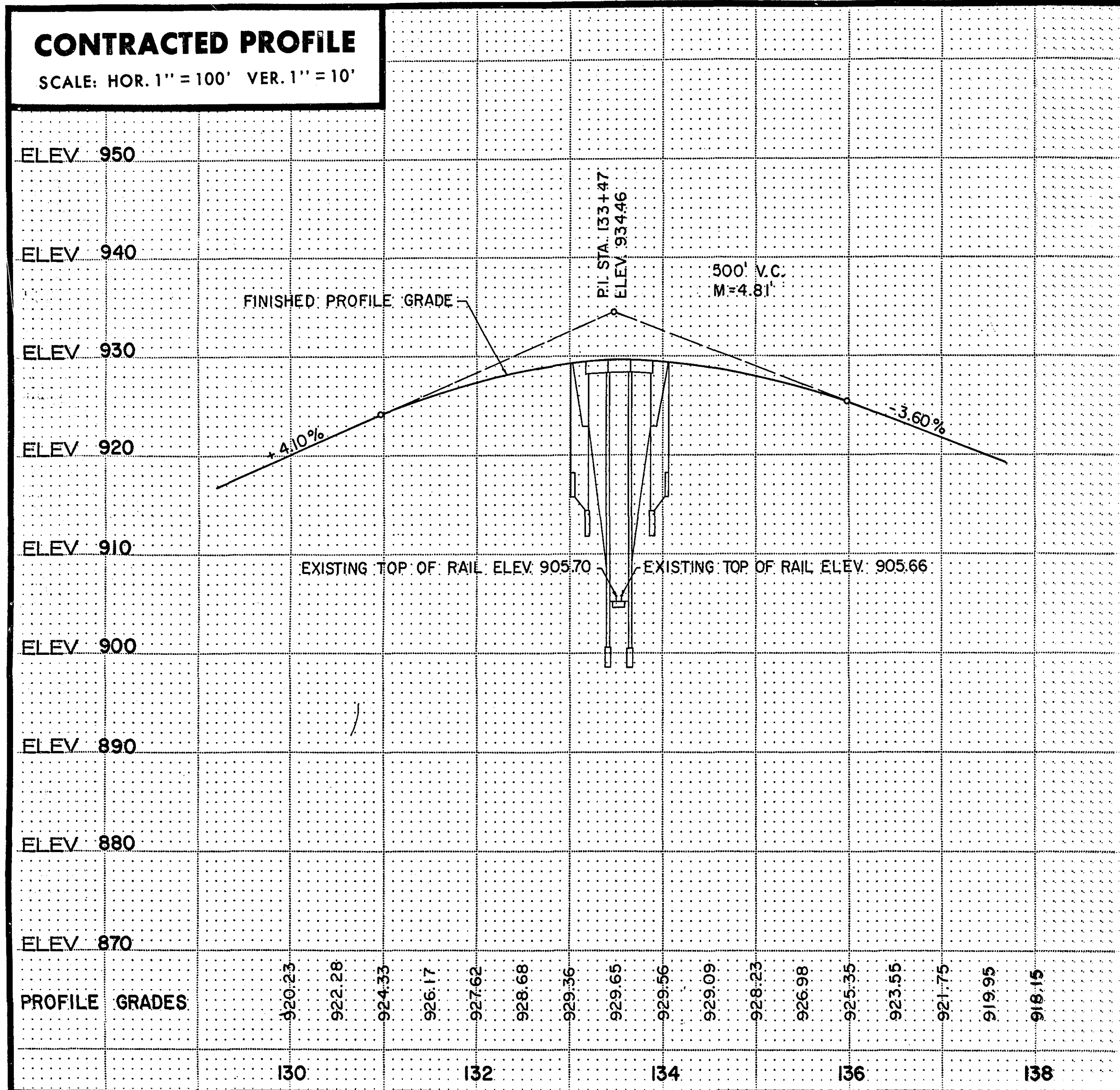
**EXISTING ABUTMENT
DETAILS**

APPROVED: 10-13-72

DES.	DR.	4533
CHK.	CHK.	

SHEET NO. 9 OF 12 SHEETS

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

DATA

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

- a. Net span length and type of bridge... 3-22' PRECAST CONCRETE CHANNEL SPANS
- b. Width of roadway on bridge... 52'-0"
- c. Number and width of sidewalks, if any... 2'-4"-6" SIDEWALKS
- d. Locate center of bridge at station... 133+ 51.64
- e. If a skew bridge is recommended, the angle of skew should be... 0°
- f. Is piling required? YES, TREATED TIMBER PILING

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

3. Changes: In height or length from that of old bridge, and reasons why... NO CHANGE IN HEIGHT OR LENGTH. BRIDGE IS BEING WIDENED TO ACCOMMODATE WIDER ROADWAY

4. 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 R.R. BRIDGE OVER C.S.A.H. 77 APPROX. 1.0 MILE SOUTH OF BRIDGE 4844. RR BRIDGE IS 72 FT. LONG, 37 FT. HORIZ. CLEARANCE, 14' VERT. CLEARANCE, APPROX. 40 YEARS OLD
- c. Reasons why these bridges are, or are not, fair indications of what length the proposed bridge should be BRIDGE 4844 IS A HIGHWAY BRIDGE OVER THE MINN. TRANSFER R.R. WHILE THE ABOVE REFERENCED BRIDGE CARRIES THE SOO LINE R.R. OVER C.S.A.H. 77

5. If structure is over a drainage ditch, is ditch gradient liable to be altered?

6. Navigation clearances required, if any... NONE

7. Information and evidence in regard to high water stages was obtained as follows... DOES NOT APPLY

8. Must contractor provide for traffic during construction of proposed bridge? NO
If so, by what means?

HYDRAULIC ENGINEERS RECOMMENDATION

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

SHIPPING POINT
Proposed Bridge is miles of which is the nearest Railroad shipping point.
(Give name of town, station or siding)

**STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
BRIDGE SURVEY**
FOR
PROPOSED BRIDGE LOCATED IN
NEW BRIGHTON ON C.S.A.H. 77
(TOWN OR CITY) (T.M., C.S.A.H. OR C.A.R. NUMBER)
SEC. 23 TWP. 30 R. 23
TOWNSHIP MOUNDSVIEW COUNTY RAMSEY CO.
SURVEY MADE DURING MONTH OF APRIL 1966
SURVEY MADE BY ARNEBERG DIVISION OF MINNESOTA HIGHWAY & BRIDGE
BRIDGE NO. 4533

Date Project or County Engineer
Date District Engineer

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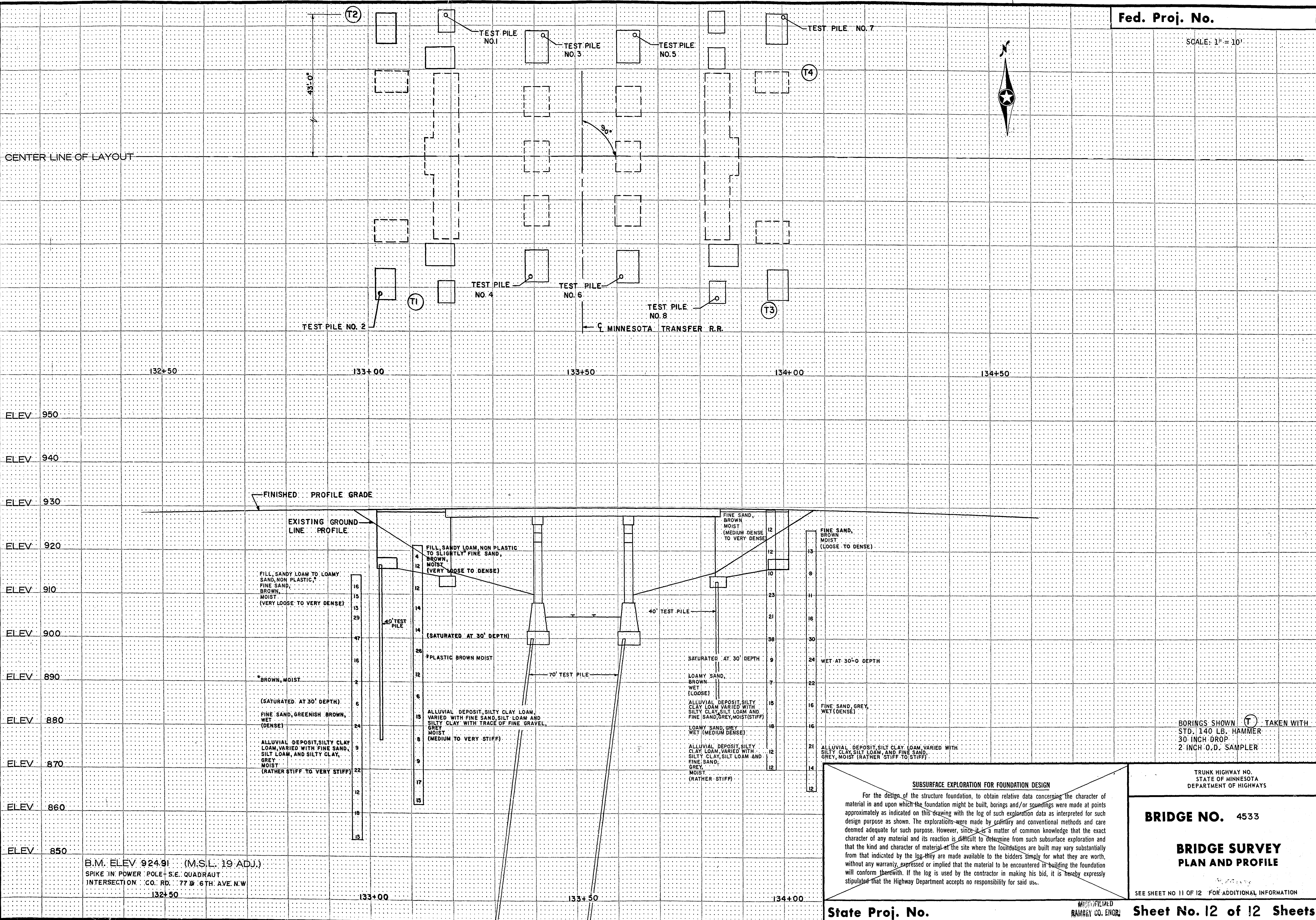
Sheet No. 11 of 12 Sheets

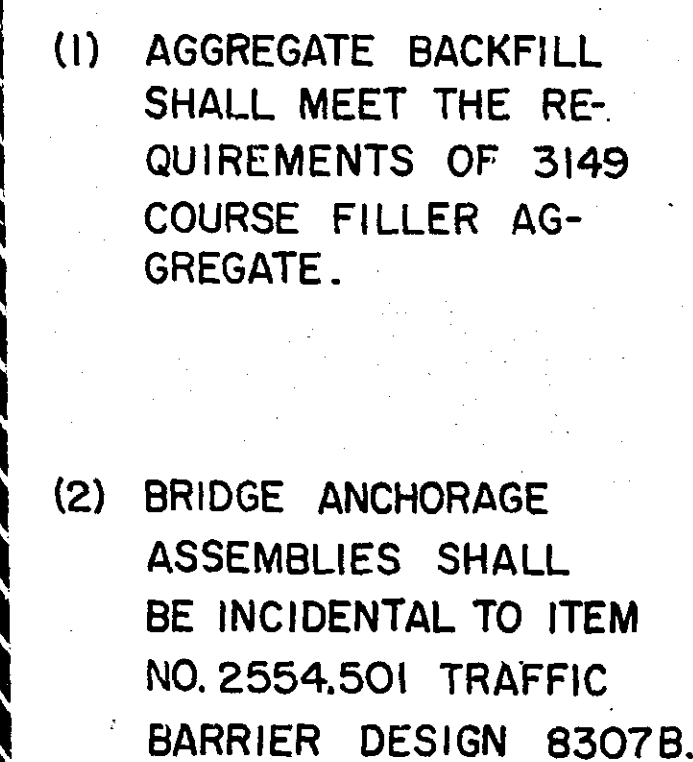
Fed. Proj. No.

SCALE: 1" = 10'



CENTER LINE OF LAYOUT



REVISÉ 5-29-73