Design Data

1969 A.A.S.H.O. Design Specifications
4 Lanes H 20 Loading With Impact
f_c = 1600 P.S.I. n = 8
f_s = 24000 P.S.I. Reinforcement
f_s = 27000 P.S.I. Struct. Steel M.H.D. 3309
Deck Area = 5854 Sq Ft.

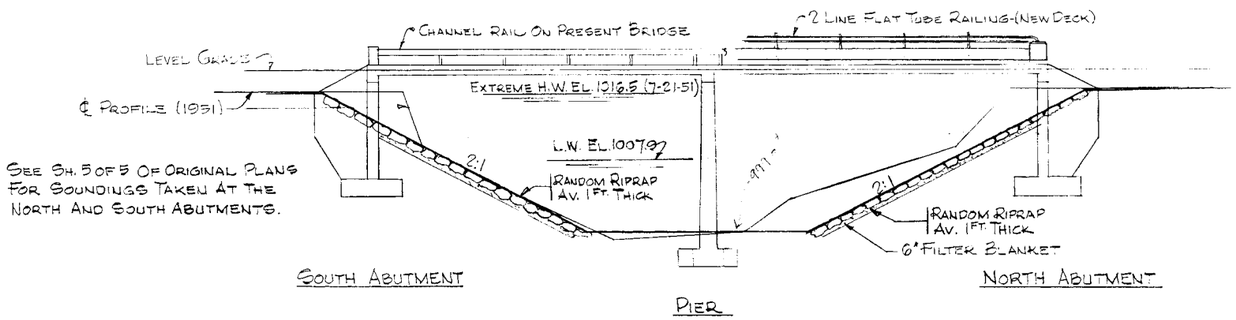
Construction Notes

The Minnesota Highway Department "Standard Specification For Highway Con-Struction" Dated January 1, 1972 Shall Govern.

Reinforcement Bars Shall Be Deformed Billet Steel Bars Conforming To A.S.T.M. A615 Grade 60.

The First Digit Or The First Two Digit Each Bar Mark Indicate Bar Size.

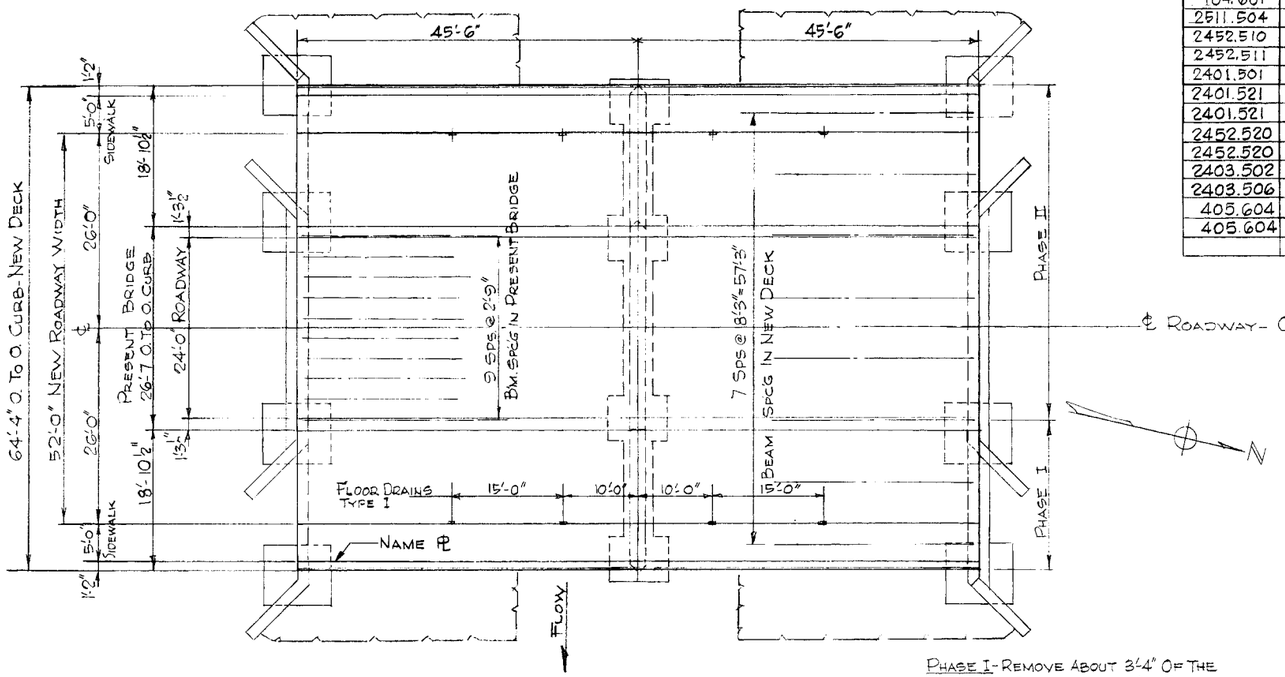
Bridge Seat Reinforcement Shall Be Carefully Placed To Avoid Interference With Drilling Holes For Anchor Rods. The Superstructure Beams Shall Be Erected In Final Position Prior To Drilling Holes For And Placing Anchor Rods.



See Sh. 5 of 5 Of Original Plans For Soundings Taken At The North And South Abutments.

Elevation

Scale 1"=10'



Plan

Of Present Bridge Showing Widening To 64'-4" O. To O. Curb

Phase I- Remove About 3'-4" Of The E. Side Of Bridge Deck Of Present Bridge And Cut Back On The E. Side Of The Abutments And Pier So These Can Be Extended. Traffic To Be Carried Over The Remaining Portion Of Present Bridge As Shown On Sh.

Phase II- Move Traffic Across Deck On Phase I And Then Remove The Remaining Portion Of Deck Of Present Bridge And Cut Back On The W. Side Of The Abutments And Pier So Widening Can Be Completed.

(P) Denotes Plan Quantity Pay Items Per M.H.D. 1901

Summary Of Quantities For Bridge Widening

Item №	Item	Quant.	Unit
2401.501	Concrete, Mix № 3Y43	308	Cu. Yd.
2401.501	Concrete, Mix № 3Y46A	46	Cu. Yd.
2402.521	Structural Steel, (3300)	4290	Pound
2402.521	Structural Steel, (3309)	77810	Pound
2401.541	Reinforcement Bars	57870	Pound
2402.546	Floor Drains, Type 1	8	Each
2402.583	Ornamental Metal Railing	181	Lin. Ft.
2511.501	Random Riprap, Class A	210	Cu. Yd.
104.601	Remove Portion Of Old Bridge	1	Lump Sum
2511.504	Filter Blanket, Type 1	105	Cu. Yd.
2452.510	Steel H-Piling Driven	1250	Lin. Ft.
2452.511	Steel H-Piling Delivered	1250	Lin. Ft.
2401.501	Concrete, Mix №1A43	45	Cu. Yd.
2401.521	Structure Excavation, Class E	250	Cu. Yd.
2401.521	Structure Excavation, Class W.E.	85	Cu. Yd.
2452.520	Steel H-Test Piles, 20 Feet Long	2	Each
2452.520	Steel H-Test Piles, 30 Feet Long	4	Each
2403.502	Treated Timber	2.21	M.B.M.
2403.506	Hardware	283	Pound
405.604	Bearing Pad, Type 1	16	Unit
405.604	Bearing Pad, Type 2	16	Unit

List Of Sheets

№	Title
1	General Plan & Elevation
2	Widening Of Abutments
3	Pier Widening
4	Roadway Cross-Section
5	Phase I & II Of Deck Widening
6	Framing Plan
7	Reinforcement Schedule For Pier & Abuts.
8	2-Line Flat Tube Steel Rail
9-11	Detail Sheets

Plans Of Present Bridge №7092
5 Sheets- Approved Sept. 18, 1951

Approved:

1/9/73 Date

Cyle Schildhammer
County Engineer
Olmsted County

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 E. Erickson Co.

Date 1/9/73 Reg. No. 2817

Plans Prepared By
Robert E. Erickson Engineering Co.
3340 Republic Avenue
St. Louis Park, Minnesota

C.S.A.H. №1 Olmsted County
State Of Minnesota
Department Of Highways

Bridge №7092

South Corporate Limits Of Rochester Over Willow Creek

Widening Of Present Bridge-2-45 Ft. Beam Spans With 24 Ft. Roadway With New Deck-52 Ft. Roadway-2-5 Ft. Sidewalks On Extended Abutments And Pier

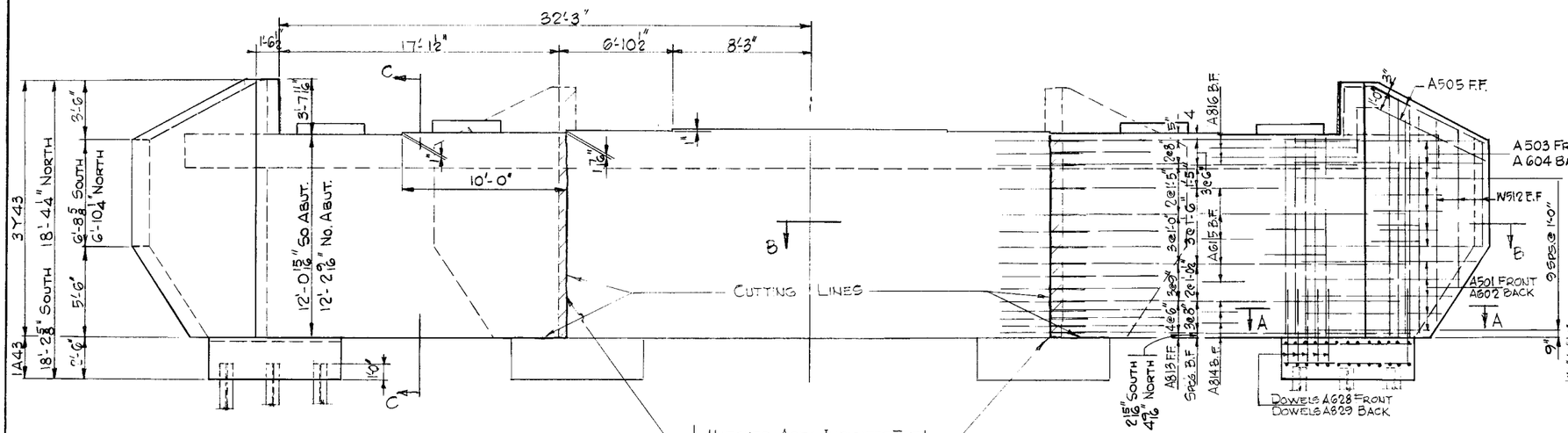
General Plan & Elevation

Sec. 13 Twp. 106N R. 14 W.

Rochester Twp. Olmsted County

Approved:

7092 J.M.G.



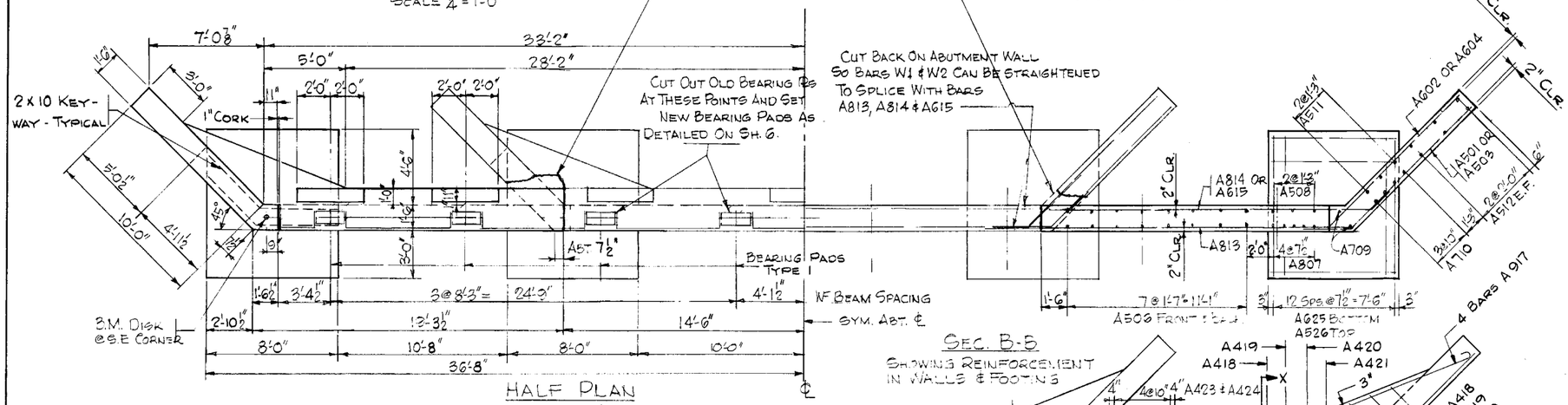
HALF FRONT ELEVATION
SHOWING ABUTMENT EXTENSION
SCALE ¼" = 1'-0"

HATCHED AREA INDICATES THAT PORTION OF ORIGINAL ABUTMENT TO BE REMOVED.

HALF FRONT ELEVATION
SHOWING REINFORCEMENT IN ABUTMENT EXTENSION

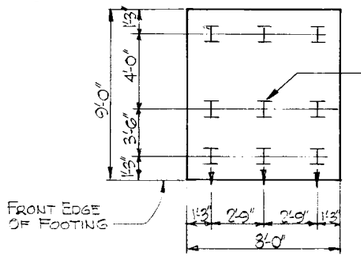
SECTION SHOWING CUTBACK ON ABUTMENT WINGWALL FOR EXTENSION

SEC. C-C



HALF PLAN
SCALE ¼" = 1'-0"

NOTE: EXTENSIONS ON BOTH SIDES OF ORIGINAL ABUTMENT ARE IDENTICAL.

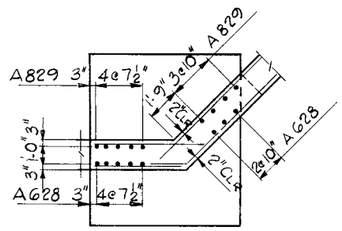


TYPICAL PILE SPACING

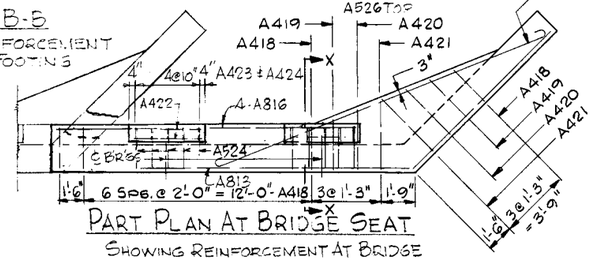
Test Pile # 1 S.W. Ftg.
" " #2 S.E. "
" " #5 N.W. "
" " #6 NE "

Summary Of Quantities For Widening Abutments		
Structure Excavation Class E	250	Cu Yd.
Concrete, Mix No. 1A43	27	Cu. Yd.
Concrete, Mix No. 3Y43	93	Cu. Yd.
Reinforcement Bars	15040	Pound
H-Piling Delivered	800	Lin. Ft.
① B.M. Disk (See Std. R No. 9300)	One	
② 16- Bearing Pads-Type 1		

① County Will Furnish Disk. Payment For Placing To Be Included In Price Bid For Other Items. See Std. Plate No. 9301 For Placing.
② Included In Structural Steel (3306)

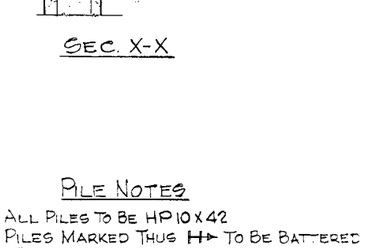


SECTION A-A



PART PLAN AT BRIDGE SEAT
SHOWING REINFORCEMENT AT BRIDGE SEAT AND SHEAR BLOCKS

SEC. B-B
SHOWING REINFORCEMENT IN WALLS & FOOTING



SEC. X-X

Pile Notes

All Piles To Be HP 10 x 42
Piles Marked Thus H► To Be Battered 2" Per Ft. In Direction Shown.
Pile Spacing Is Shown At Bottom Of Footing.
For Splicing See Bridge Detail B202.

4 - Steel Test Piles 30 Ft. Long
32- " Piles Est. Length 25 Ft.
36- " " Req'd For Two Abutments

Cutting Note

Removal And Reconstruction Shall Conform To M.H.C. 2468. No Cutting Of Concrete Will Be Permitted Until The Cutting Limits Have Been Outline On The Present Structure By The Contractor & Approved By The Engineer.

Note:
For Reinforcement Schedule For Widening Of Abutments See Sh. No. 7.

State Of Minnesota
Department Of Highways

Bridge No. 7092

Widening Of Abutments

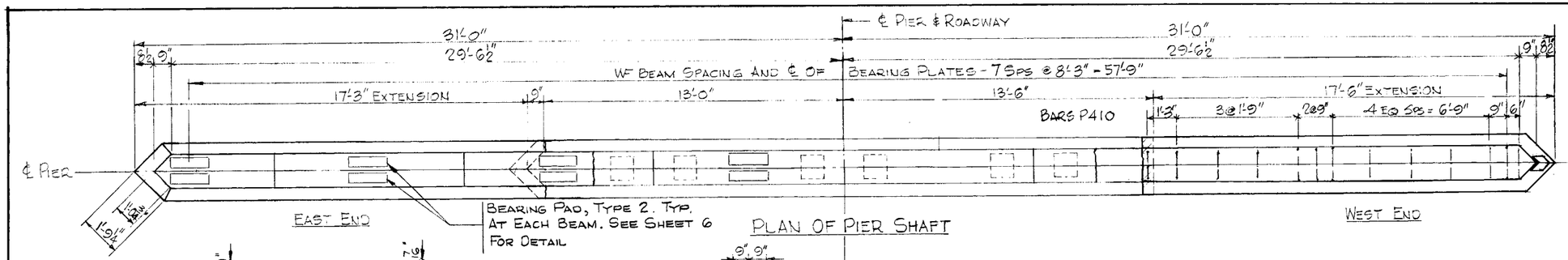
Approved:

Cutting Note:-

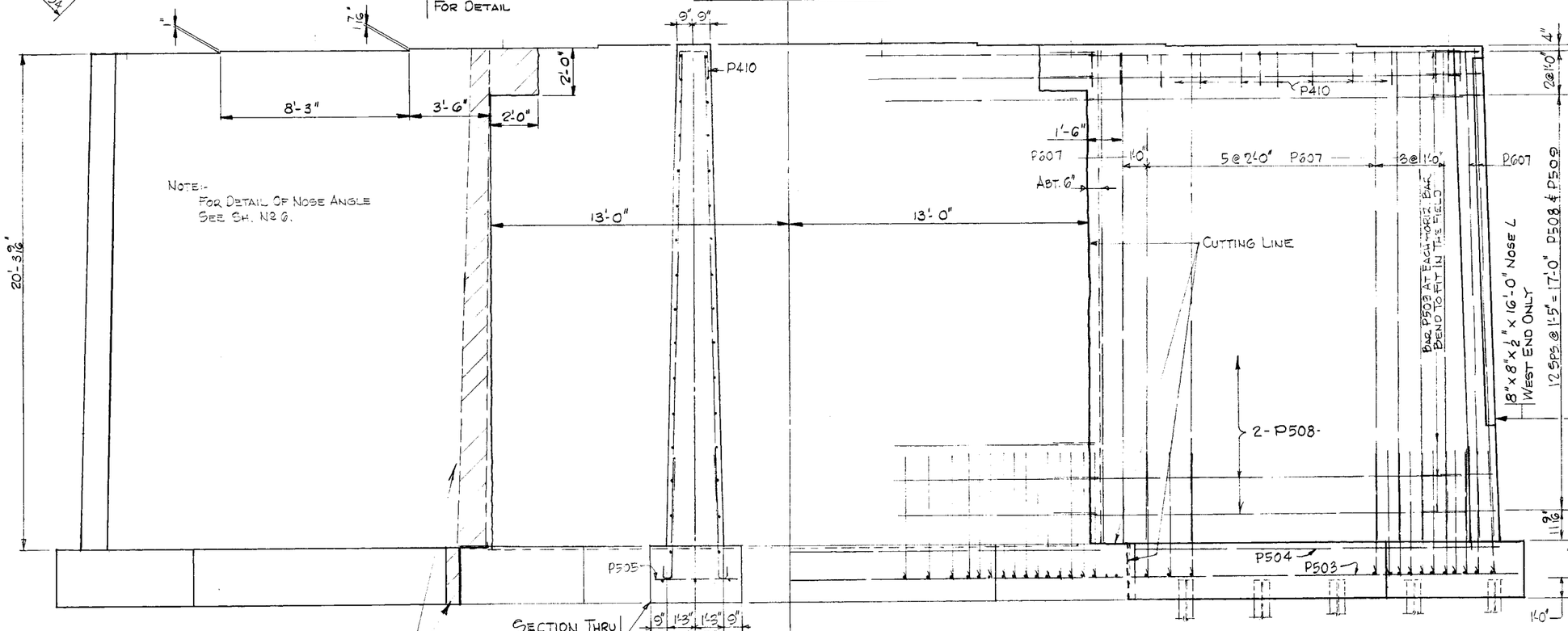
Removal And Construction Shall Conform To M.H.D. 2433. No Cutting Of Concrete Will Be Permitted Until The Cutting Limits Have Been Outlined On The Present Structure By The Contractor & Approved By The Engineer.

Note:

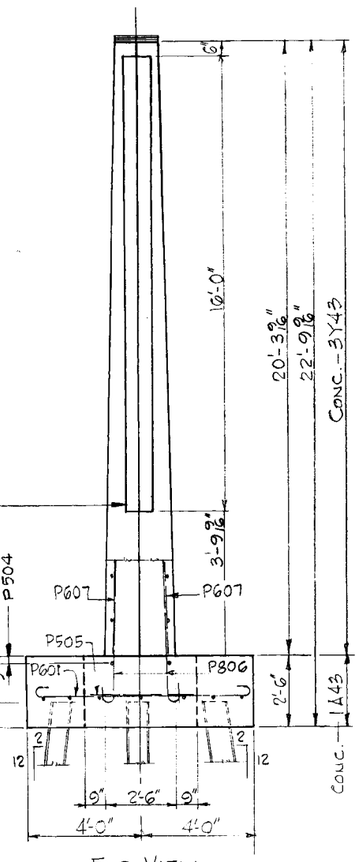
For Summary Of Quantities For Widening Of Pier See Sh. N2 7.
For Reinforcement Schedule See Sh. N2 7.



Plan Of Pier Shaft



End View



Section Thru Present Pier

Side Elevation

Horizontal Section At Top Of Footing

Scale 3/8" = 1'-0"

Pile Notes

All Piles To Be HP10x42
Piles Marked Thus ⟶ To Be Battered 2" Per Ft. In Direction Shown.
Pile Spacing Is Shown At Bottom Of Footing.
For Splices See Bridge Detail B202

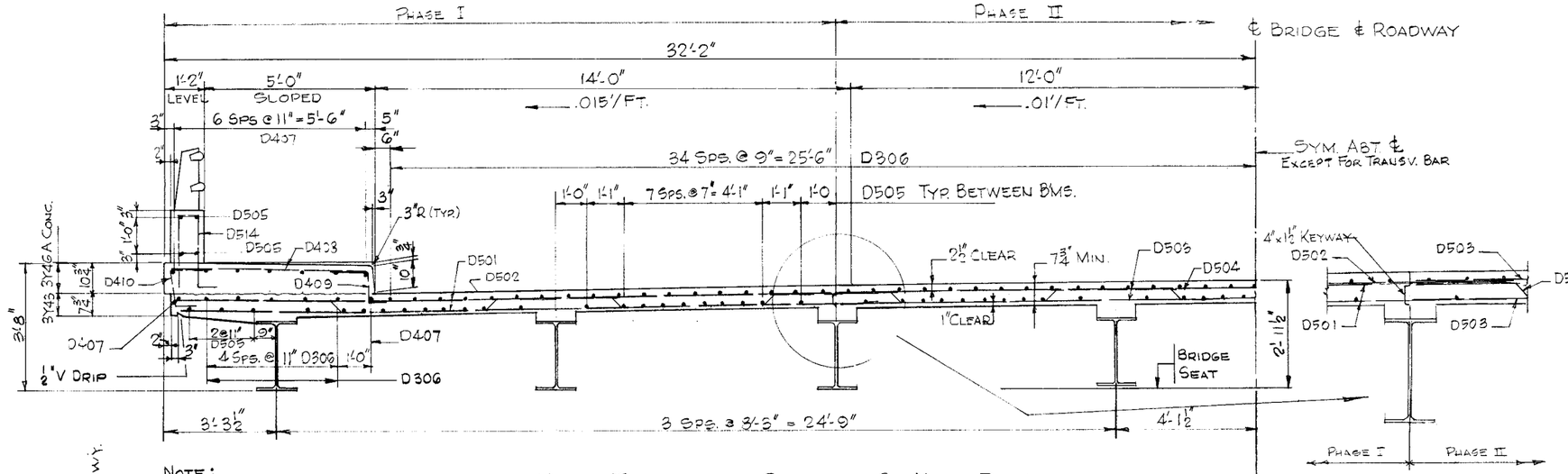
2 - Steel Test Piles 20 Ft. Long
16 - " Piles Est. Length 15 Ft.
18 - " " Req'd For One Pier

State Of Minnesota
Department Of Highways

Bridge No 7092

Pier Widening

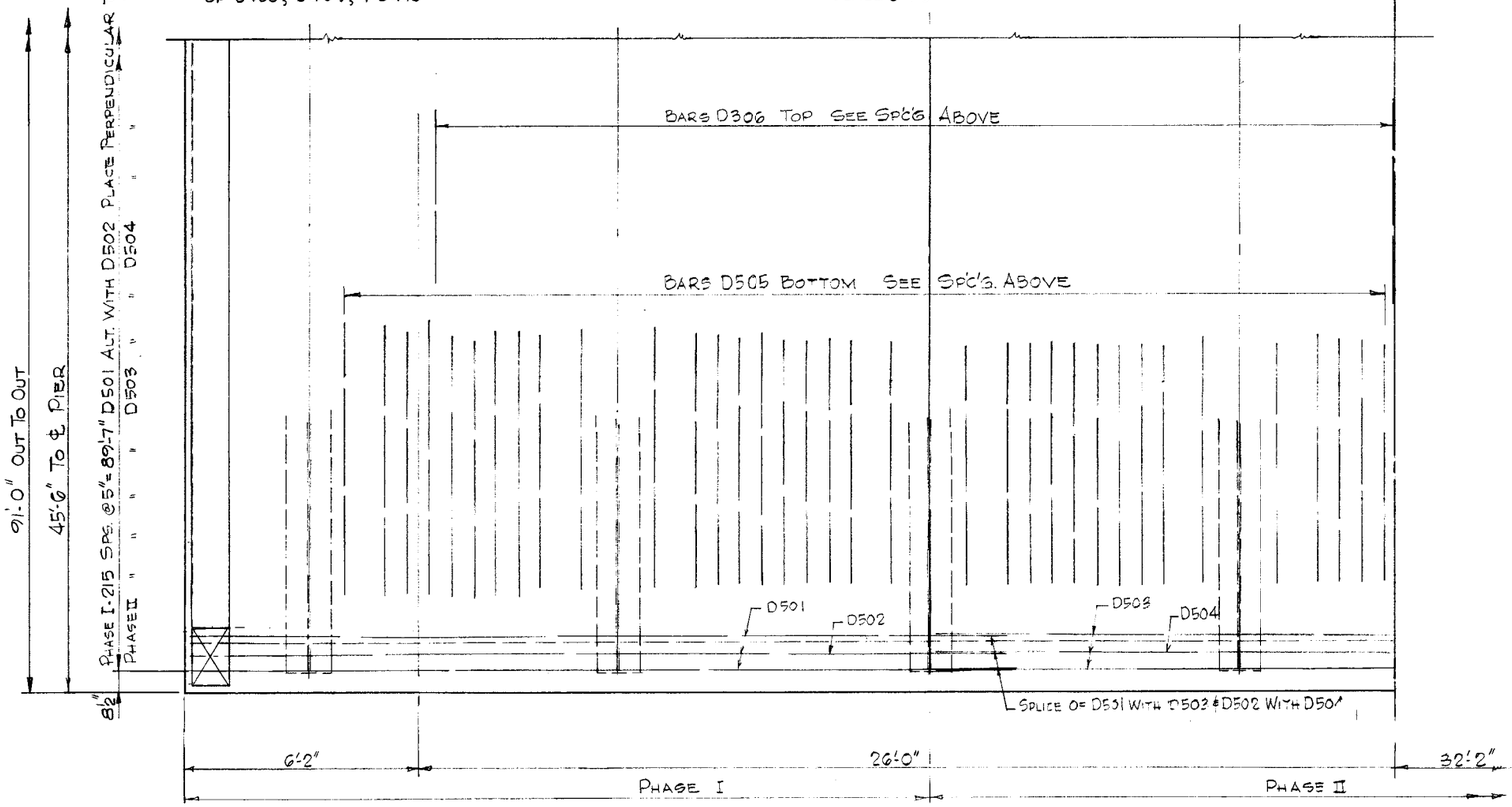
Approved:



NOTE:
SEE SHEET 8 FOR SPACING OF D408, D409, & D410

HALF TRANSVERSE SECTION - OF NEW DECK

SCALE ½" = 1'-0"

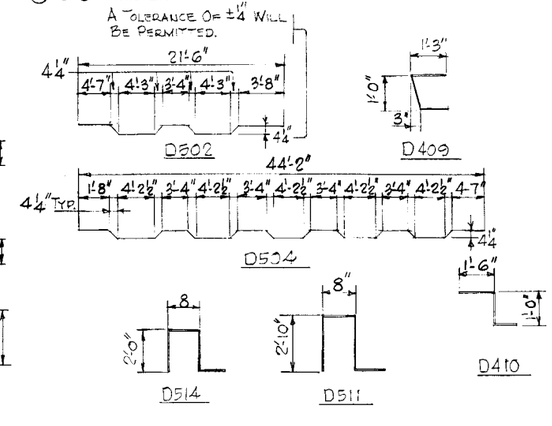


BILL OF REINFORCEMENT FOR SUPERSTRUCTURE

	BAR	SIZE	NO	LENGTH	SHAPE	LOCATION
⑥	D501	5	216	21'-6"	—	PHASE I - SLAB - TRANSV. T&B
⑥	D502	5	108	22'-1"	⌇	" " " " "
⑥	D503	5	216	44'-2"	—	" II " " " "
⑥	D504	5	108	45'-8"	⌇	" " " " "
	D505	5	152	44'-9"	—	SLAB - LONGIT. - BOTT
⑦	D306	3	316	28'-5"	—	" - " - TOP
⑧	D407	4	72	23'-7"	—	" - " TOP - S.WALK - TOP
	D408	4	124	5'-9"	—	SIDEWALK - TRANSV. - TOP
	D409	4	124	3'-6"	⊏	"
	D410	4	124	3'-6"	⌙	"
	D511	5	8	7'-2"	⊓	RAIL BASE & END - VERT
	D512	5	28	4'-5"	⊐	" " & TOP
	D514	5	248	5'-6"	⊓	RAIL BASE - VERT.
⑨	D715	7	6	22'-0"	—	END DIAPHRAGM
⑨	D716	7	6	44'-2"	—	" "
	D517	5	82	1'-6"	⌐	" "
	D518	5	82	5'-3"	⊔	" "
	D519	5	16	23'-1"	—	RAILBASE LONGIT.
	D520	5	16	21'-5"	—	" "

⑥ 1'-11" MIN. LAP ⑦ 1'-2" MIN. LAP ⑧ 1'-6" MIN. LAP
⑨ 2'-8" MIN LAP

A TOLERANCE OF ±¼" WILL BE PERMITTED.



⑤ SEE SPEC. PROVISIONS

LIST OF PREFORMED CORK JOINT FILLER ⑤	
2 PCS - 10½ x 1" x 6'-2"	SIDEWALK
4 PCS. - 25 x 1" x 18-1"	SLAB & DIAPHRAGM @ PIER
14 PCS - 9" x 1" x 4'-0"	SHEAR BLOCK

LIST OF PREFORMED BITUMINOUS JOINT FILLER ⑤	
4 PCS - 16" x ½" x 3'-7⅜"	ABUTMENT RECESS

LIST OF POLYSTYRENE ⑤	
2 - PCS 16" x 1" x 64'-6" (TYPE A)	- ABUT BRIDGE SEAT
16 - PCS 6" x ¾" x 1'-8" (TYPE A)	- OPENING IN END WEBS
32 - PCS 6" x ¾" x 1'-0½" (TYPE A)	- " " " "

① THE VOLUME OF DECK CONCRETE FOR PAYMENT SHALL BE COMPUTED USING AN AVERAGE STOOL HEIGHT OF 1½"
② BRIDGE NO 7092 DATED 1973
③ INCLUDED IN PRICE BID FOR OTHER ITEMS.
④ INCLUDED IN WEIGHT OF STRUCTURAL STEEL M.H.D. 3306.

SUMMARY OF QUANTITIES - SUPER-ST.		
①	CONCRETE, MIX NO 3Y43	162 CU.YD.
	CONCRETE, MIX NO 3Y46A	46 CU.YD.
	REINFORCEMENT BARS	38270 LB.
	STRUCTURAL STEEL, (3306)	3840 LB.
	STRUCTURAL STEEL, (3309)	77810 LB.
	ORNAMENTAL METAL RAILING	181 LIN.FT.
②③	NAME PLATE (SEE DETAIL B108)	ONE
④	PROTECTION ANGLE	
④	GUARD RAIL CONNECTION	4 EACH
③	3-PLY JOINT WATERPROOFING	137 LIN. FT.
	FLOOR DRAINS, TYPE I	8 EACH
	TREATED TIMBER	2208 F.B.M.
	HARDWARE	283 LB.

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE NO 7092

ROADWAY CROSS-SECTION

APPROVED:

N

64'-4" O TO O

PHASE I 19'-9½"

12'-4½"

1'-4" END CONC. DIAPHRAGM

PRESENT PIER

10½" WIDE CONC. DIAPH.

1'-0" | 4 SPS. @ 5'-6" = 22'-0" | 1'-0" | 1'-0" | 4 SPS. @ 5'-0" = 20'-0" | 1'-0" | 1'-0"

12"X12"X24'-0"

12"X12"X22'-0"

PART PLAN

SEE SH. 4 FOR FOR FINAL X-SECTION OF DECK AND REINFORCEMENT OF DECK & SIDEWALK.

12"x12" CURB TIMBERS BOLTED THRU DECK WITH 1"Øx24" BOLTS WITH SQ. H'D. & NUTS & 2-MALL. WASHERS SPACED AS SHOWN.

1½" POLYSTYRENE AT BACK OF BRG'S
¾" POLY. AT SIDES OF BEARINGS

B
℄ BEAM
1'-4"
ENDWEB
B

SECTION A-A

FORM OPENING OVER BEARINGS

1½" POLYSTYRENE AT BACK OF BEARINGS

6"

SECTION B-B

6'-2"
2" 1'-0" 5'-0" SIDEWALK TO BE PLACED AFTER ROADWAY IS COMPLETE OVER THE NEW DECK.
12'-8½"
26'-0"
13'-3½"
℄ ROADWAY & BRIDGE

17'-9½" ROADWAY WHILE PHASE II IS BEING CONSTRUCTED

21'-0" ROADWAY WHILE PHASE I IS BEING CONSTRUCTED

1'-3½" 3'-0" 9'-0" 12'-0" 1'-3½"

2"

4 SPS @ 2'-9" = 11'-0"
1'-4½"
3'-3½"
3 SPS. @ 8'-3" = 24'-9"
4'-1½"
32'-2"

19'-9½" - PHASE I
44'-6½" - PHASE II (FOR COMPLETION OF PHASE II SEE SH. 4)

CONSTRUCT THIS PORTION (E. SIDE) AFTER WIDENING CENTER PIER & 2 ABUTMENTS ON THE E. SIDE

TRANSVERSE SECTION - SHOWING PHASE II
SCALE ½" = 1'-0"

℄ BRIDGE & C.S.A.H. Nº1

2 LINE FLAT TUBE RAIL NOT SHOWN SEE DETAIL SHEET 8

1" CORK JOINT FILLER TO BE SECURED TO CONCRETE WITH COPPER NAILS SPACED AT ABOUT 12" CENTERS.

END POST
TOP OF SIDEWALK
3"
4"
PROT. ANGLE SEE DETAIL B551
1'-0" SIDEWALK
CURB
TUBE RAILING
D517
CORK JOINT FILLER 1"x9"x4'-0" LUGS
PERMISSIBLE CONST. JOINT 2"x4" KEYWAY
D518
1" POLYSTYRENE
1'-4"
22'-3"
℄ BEARING

FINISH VERTICAL & TOP EDGES OF CURB JOINT WITH ½" V STRIP CUT CORK TO BOTTOM OF V. FINISH EDGES OF ROADWAY JOINT WITH SIDEWALK EDGER. CUT CORK TO ½" BELOW SURFACE AND FILL JOINT WITH ASPHALT.

D501 & D503
D502 & D504
D506
D505
PERMISSIBLE CONST. JOINT

2" OPENING
1"
1"
℄ PIER
10½"
10½"
2"
6" 22"
15" Ø HOLES FOR TIE RODS T1
5"
9"
3½"
3½"
℄ OF BRG.
SYM. ABT ℄ PIER

PART LONGITUDINAL SECTION
SCALE ¾" = 1'-0"

2" 1'-0"
D511
2'-4"
3Y46A

D715 - PHASE I
D716 - PHASE II
SEE SHEET 8 FOR SPACING OF D512 BARS

THESE BARS TO BE BENT DOWN TIGHT AGAINST ROUGHEN SLAB & SIDEWALK SO TRAFFIC CAN USE SURFACE IN PHASE I COMPLETION.

D408
D409
D410
18"x1"x3'-7¾" CORK
3-PLY JOINT WATERPROOFING
T2
T1
2'-6 11/16"
1'-1½" 1'-1½" 4 SPS @ 1'-6" = 6'-0" 1'-1½"

D517 & D518 TYP. BETWEEN BEAMS

REINFORCEMENT DETAILS OF END WEB

26'-0"
A
A
1'-4"x½"x34'-4" BIT. FELT.

1" POLYSTYRENE ON BRIDGE SEAT CUT OUT FOR BEARING PADS

℄ POST
3" 12" 3" 1'-6"
D511
D519
D514
1'-6"
10½"
2'-1" PROJ. D511
D517
D518
2'-8" D715 4D716
3"

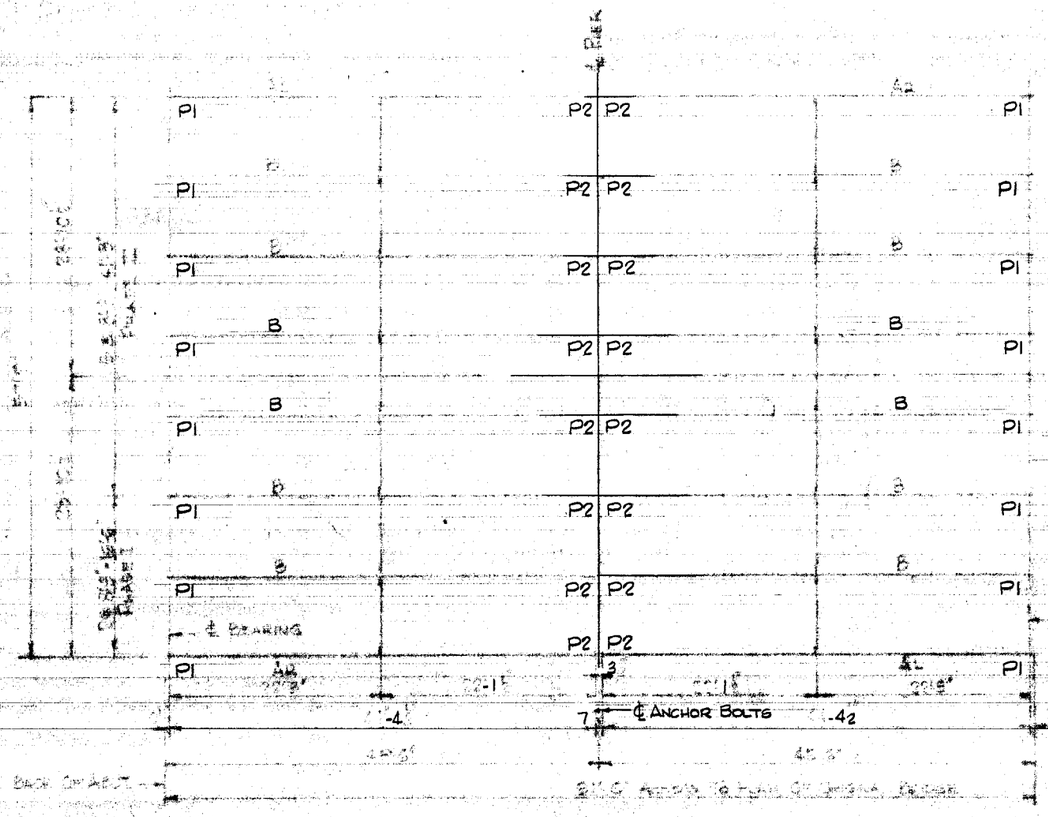
LONGITUDINAL SECTION NEAR CURB

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE Nº7092

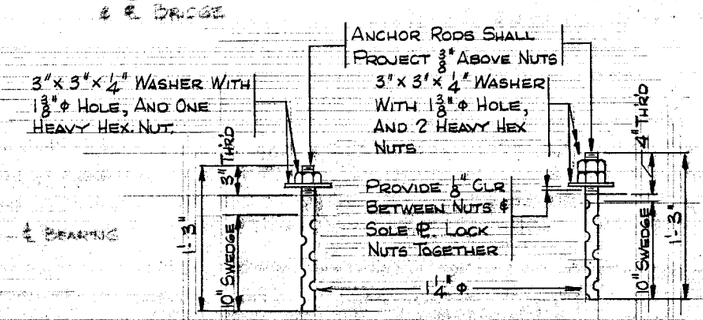
PHASE I & II OF DECK WIDENING

APPROVED:



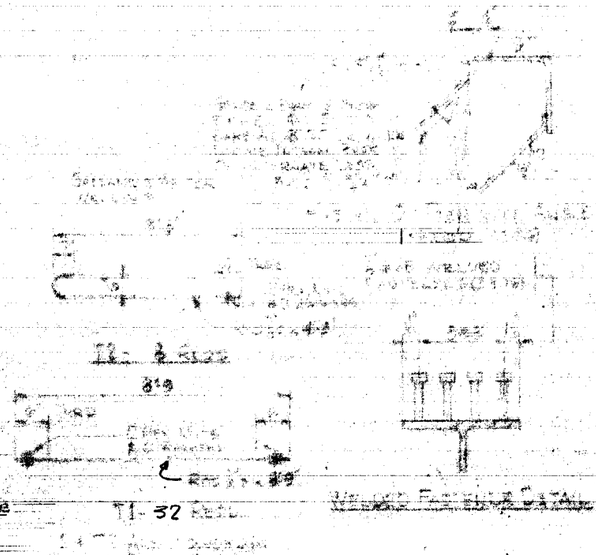
Framing Plan

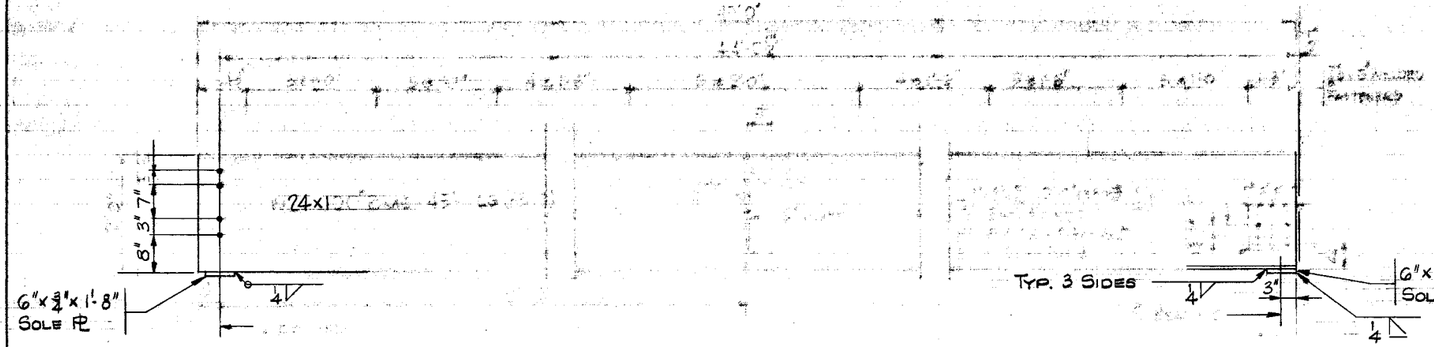
P1 = Bearing Pad, Type 1
P2 = " " , " 2



Pier Anchor Rod Detail
32 - Req'd
Galv. Per M.H.D. 3392 (3306)

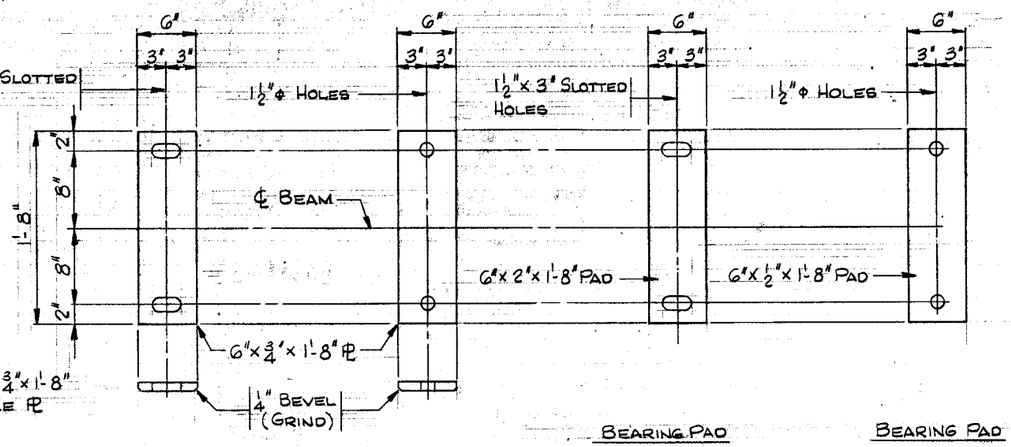
Abut. Anchor Rod Details
32 - Req'd
Galv. Per M.H.D. 3392 (3306)





Typical Beam Details

12 B Req'd



Abut Sole Pl	Pier Sole Pl	Bearing Pad Type 1	Bearing Pad Type 2
16 - Req'd	16 - Req'd	16 - Req'd	16 - Req'd

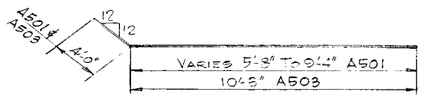
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Framing Plan

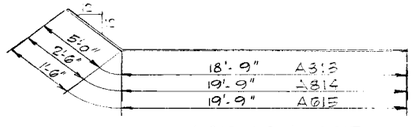
Bill Of Reinforcement For Abutment Widening

	Bar	Size	No	Length	Shape	Location
*	A501	5	10	23'-0"		Wing Wall - Horiz.
*	A602	6	10	17'-2"		" " - "
	A503	5	28	14'-3"		" " - "
	A604	6	28	11'-3"		" " - "
Δ	A505	5	16	16'-6"		" " - Top
	A506	5	64	12'-0"		Front Wall - Vert.
	A807	8	20	12'-0"		" " - "
	A508	5	12	12'-0"		" " - "
	A709	7	8	15'-5"		Corner
	A710	7	16	14'-0"		Wing Wall - Vert.
	A511	5	12	14'-0"		" " - "
*	A512	5	24	10'-9"		" " - "
	A813	8	60	23'-9"		Front Wall - Horiz.
	A814	8	16	22'-3"		" " - "
	A615	6	20	21'-3"		" " - "
	A816	8	16	20'-0"		" " - "
	A917	9	16	21'-2"		Corner Fillet
	A418	4	36	7'-0"		" " - Stirrup
	A419	4	8	7'-6"		" " - "
	A420	4	8	7'-10"		" " - "
	A421	4	8	8'-4"		" " - "
	A422	4	16	3'-8"		Shear Block
	A423	4	40	5'-5"		" "
	A524	5	40	4'-3"		" "
	A625	6	52	9'-10"		Footing - Longit.
	A526	5	52	9'-8"		" - "
	A427	4	56	7'-7"		" - "
	A628	6	32	4'-8"		" - Dowels
	A829	8	36	5'-11"		" - "

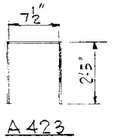
* Cut Two Bars From Each, One Long And One Short To Fit Slope. Bars A501 To Be Bent After Cutting
Δ Bend To Fit In Field As Shown On Details



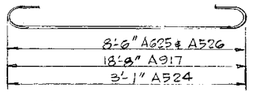
A501 & A503



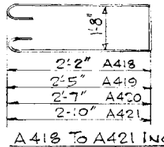
A813, A814 & A615



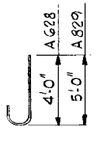
A423



A917, A524, A625 & A526



A418 To A421 Incl.

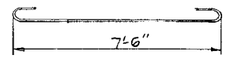


A628 & A829

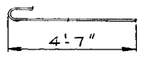
Bill Of Reinforcement For Pier Widening

	Bar	Size	No	Length	Shape	Location
	P601	6	24	8'-10"		Footing - Transv.
	P502	5	8	5'-8"		" - Longit.
	P503	5	6	17'-3"		" - "
	P504	5	4	10'-6"		" - "
	P505	5	22	3'-9"		" - Transv.
	P806	8	82	5'-6"		" - Dowels
	P607	6	46	20'-3"		Wall - Vert.
	P508	5	60	16'-6"		" - Horiz.
*	P509	5	30	6'-0"		" Ends - "
	P410	4	26	5'-0"		Bridge Seat Stirrups

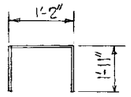
* Bend In Field



P601



P806



P410

Treated Timber For Superstructure

Item	No.	Fin	Size	Length	F.B.M.
Curb	4	R	12x12	22'-0"	1056
Curb	4	R	12x12	24'-0"	1152
Total Hardware For Superstructure					2208

Bill Of Hardware For Superstructure

Unit Wt.	No.	Item	Total Wt.
5.62	40	1"Φ x 24 Bolts	225
.73	80	Mall. Wash. For 1"Φ Bolt	58
Total Hardware For Superstructure			283 Lb.

Summary Of Quantities For Pier Widening

Concrete, Mix No 1 A43	18 Cu.Yd.
Concrete, Mix No 3 Y43	53 Cu.Yd.
Reinforcement Bars	4560 Pound
H-Piling Delivered	450 Lin. Ft.
Structural Steel (3306)	450 Pound
① 1 - Nose Angle	
① 16 - Pier Bearing Pads-Type 2	
Class W.E. Excavation	85 Cu.Yd.

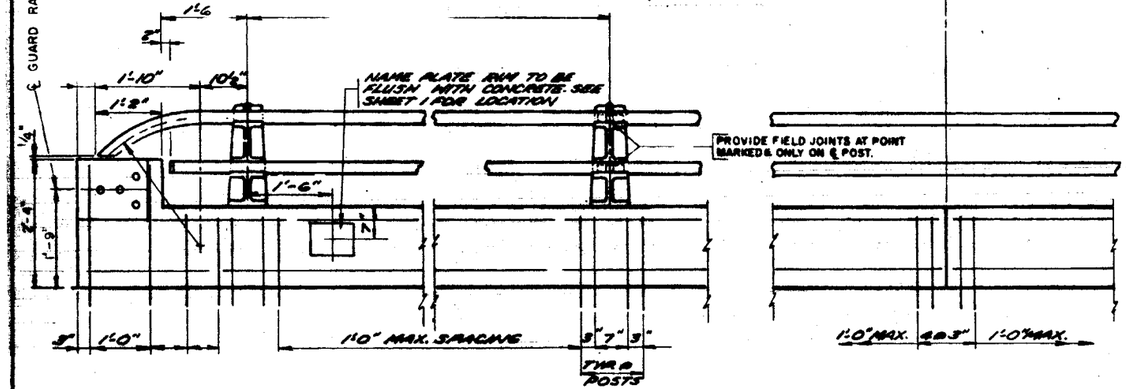
① Included In Structural Steel (3306) See Detail On Sh. No 6

State Of Minnesota
Department Of Highways

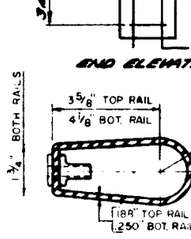
Bridge No 7092

Reinforcement Schedule
For Pier & Abutments

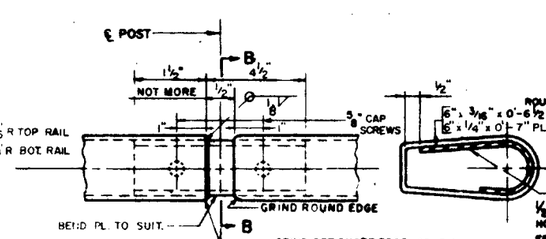
Approved:



PART INSIDE ELEVATION

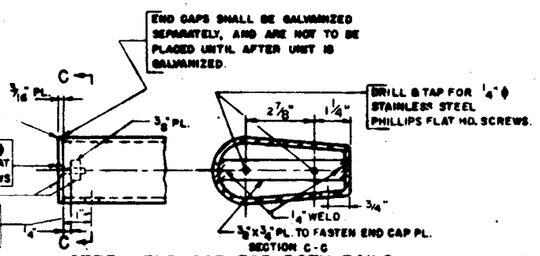


RAILING SECTION



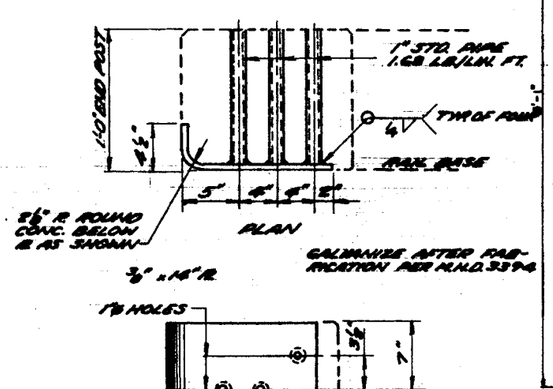
FIELD SPLICE AT POSTS MARKED "E"

SCALE: 4½" = 1'-0"



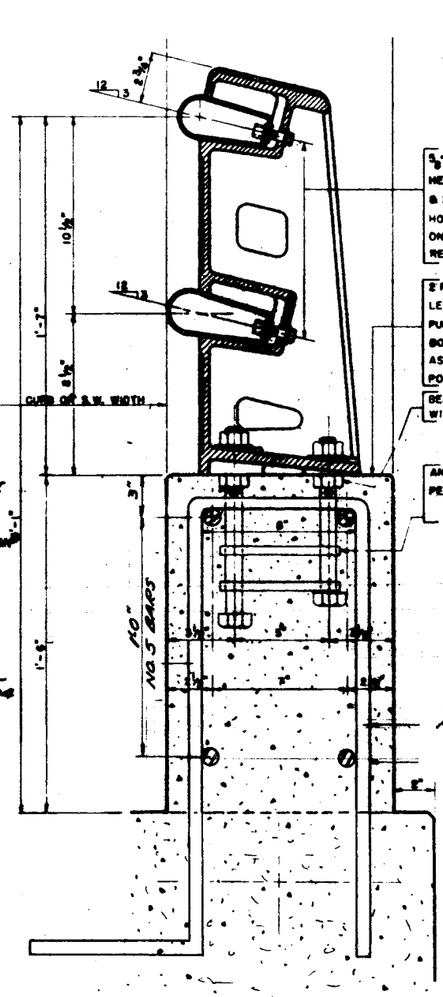
STEEL END CAP FOR BOTH RAILS

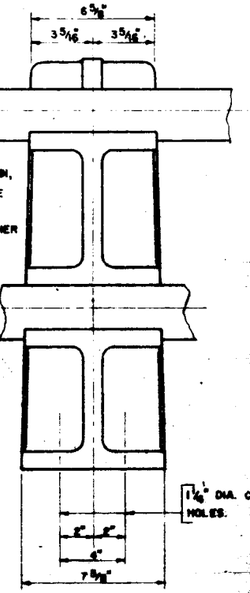
SCALE: 4½" = 1'-0"



GUARD RAIL CONNECTION

EST. WT. 33 LBS.





FRONT ELEVATION

MALLEABLE IRON RAIL POST (BRP-9R-S)

DETAIL NO B32

MAXIMUM SPACING OF RAILPOSTS = 9'-0"

SEE ALTERNATE RAIL POST

DETAIL NO. B39

SECTION THROUGH RAILING

SCALE: 3" = 1'-0"

¼" STAINLESS STEEL PHILLIPS FLAT HD SCREWS - A.S.T.M. A 276 TYPE 302, 303, 304 OR 305.

RAILING TO BE INTERMEDIATE STRENGTH MANGANESE COPPER-BEARING STEEL M.H.D. 3317 EXCEPT AS NOTED.

MALLEABLE IRON POSTS TO BE NORMAL TO GRADE.

PARAPETS AND RAILINGS TO BE PARALLEL TO GRADE.

DIMENSIONS ARE ON GRADE, NOT HORIZONTAL.

PART ELEVATION IS SHOWN FOR LEVEL GRADE.

CONCRETE POSTS AND CONCRETE BASE TO BE MIX NO. 3146A INCL. IN S.JPERST. CONC.

ALL RAILING, METAL RAILPOSTS, FASTENINGS, ANCHOR BOLT ASSEMBLIES, SHEAR DOWEL ASSEMBLIES, CAPS, AND SHEET LEAD TO BE INCLUDED IN PRICE BID FOR ORNAMENTAL METAL RAILING

FINISH EDGES OF CONCRETE RAIL BASE TO A ½" V EXCEPT AS NOTED.

FOR CONSTRUCTION REQUIREMENTS SEE SPECIAL PROVISIONS.

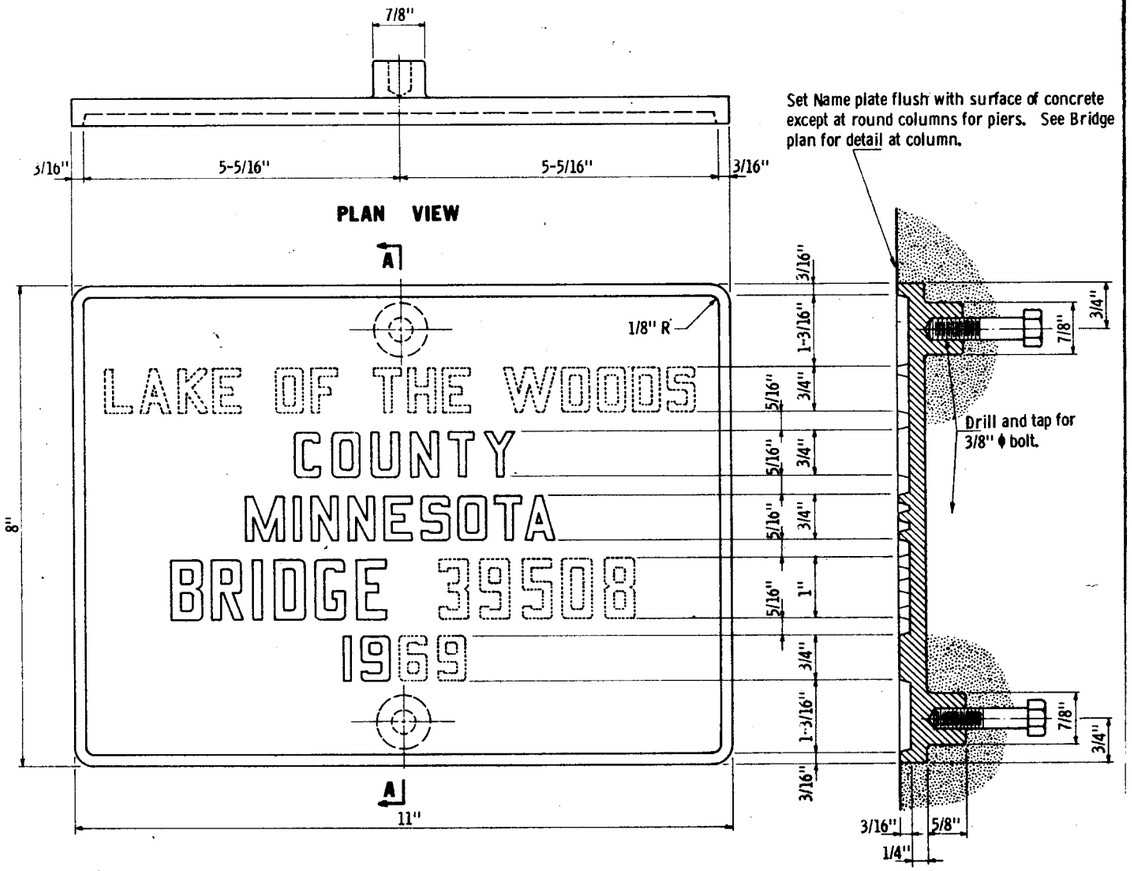
RAILING TO BE GALVANIZED IN ONE DIP

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE NO.

2-LINE FLAT TUBE STEEL RAIL

APPROVED



ELEVATION

SECTION A - A

ABCDEFGHIJKLMN

OPQRSTUVWXYZ

1"

1234567890

1"

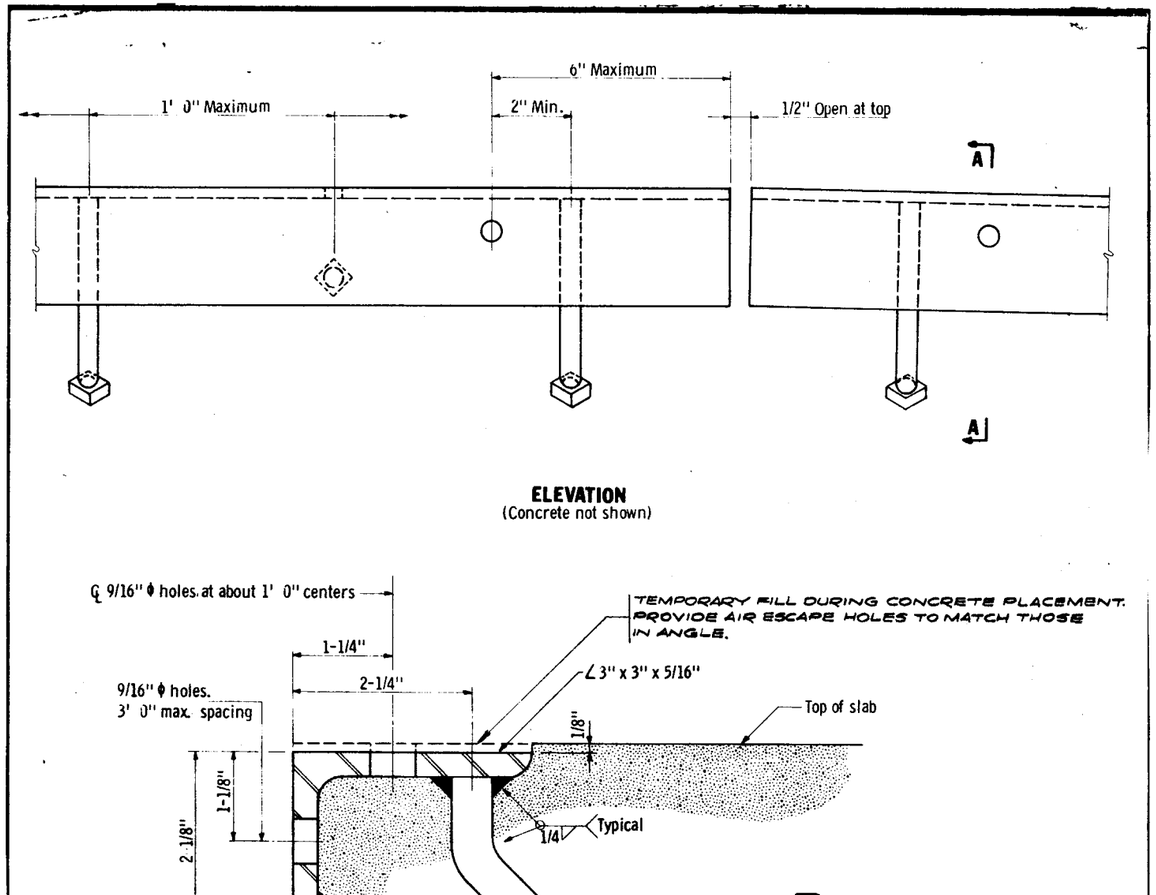
LETTERS FOR NAME PLATES

NOTES:

Numbers and letters shall conform to those shown.
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" ϕ 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.
All dimensions for 3/4" high letters and numbers shall be in direct proportion to those shown for the 1" high letters and numbers.

Specification reference:
2471.3H, 3327 (Bronze castings)

APPROVED July 1, 1969 Design Standards Engineer ENGINEERING STANDARDS DIVISION	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS **BRIDGE NAME PLATE** **COUNTY BRIDGES** **(STATE AID)**	REVISION	DETAIL NO. **B103**



ELEVATION
(Concrete not shown)

SECTION A - A

NOTES:

ANGLES SHALL EXTEND FULL WIDTH OF ROADWAY BETWEEN CURBS WITH A 1/2" OPEN JOINT AT EACH BREAK IN CROWN PROFILE. MAX. LENGTH 22 FEET.

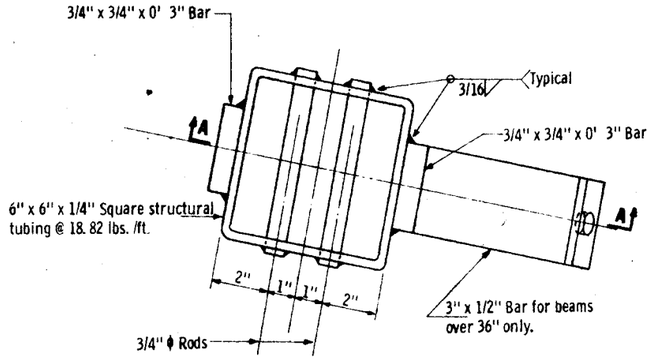
ANGLES SHALL BE STRAIGHTENED TO A TOLERANCE OF 1/16" IN 10 FEET AFTER GALVANIZING.

MATERIAL: STRUCTURAL STEEL PER M.H.O. 3306, GALV. AFTER FABRICATION PER M.H.O. 3394.

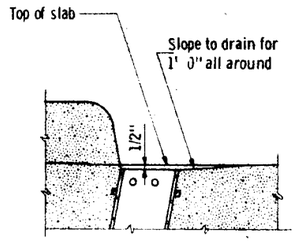
SET ANGLE TO PROPER GRADE AND CROWN.

ALL MATERIAL WILL BE PAID FOR AS STRUCTURAL STEEL M.H.O. 3306

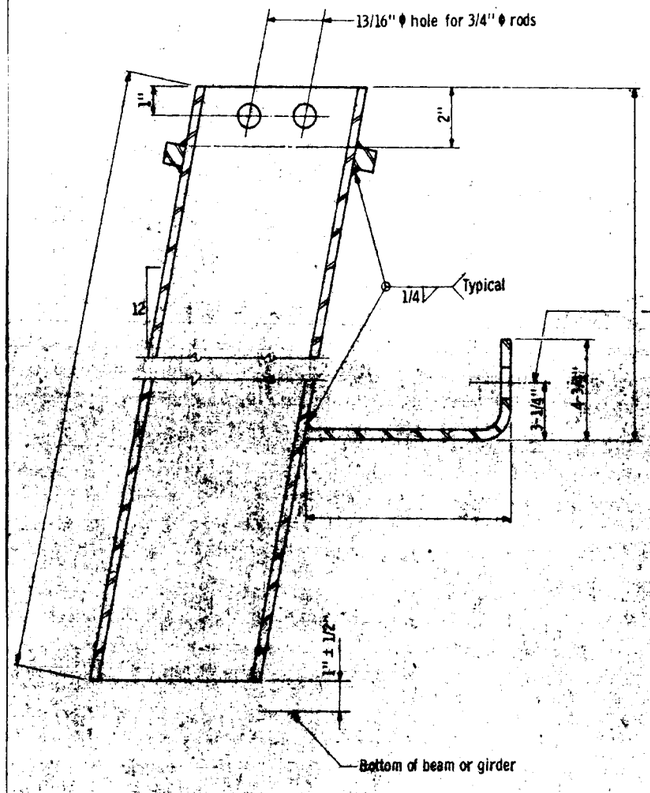
APPROVED MAY 26, 1972 Design Standards Engineer ENGINEERING STANDARDS DIVISION	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS **PROTECTION ANGLE** **FOR END OF SLAB**	REVISION	DETAIL NO. **B551**



PLAN VIEW



PLACEMENT DIAGRAM



SECTION A - A

11/16" x 1-1/2" Slotted holes for 5/8" bolts for steel beams and 5/8" cap screws for prestressed concrete girders. An approved steel or malleable iron concrete insert shall be cast in prestressed concrete girders. Inserts to be included in price bid for the girders. Lock washer and 3 cut washer fills for each bolt or cap screw. Holes in beams to be drilled in shop.

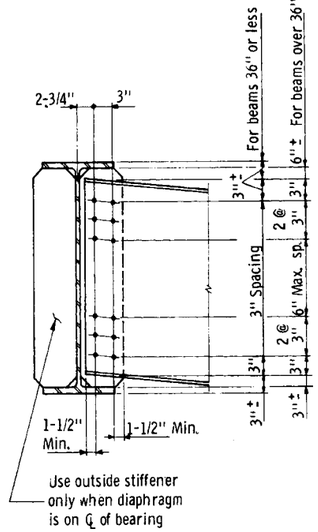
NOTES:

Material for drain per M. H. D. 3306.

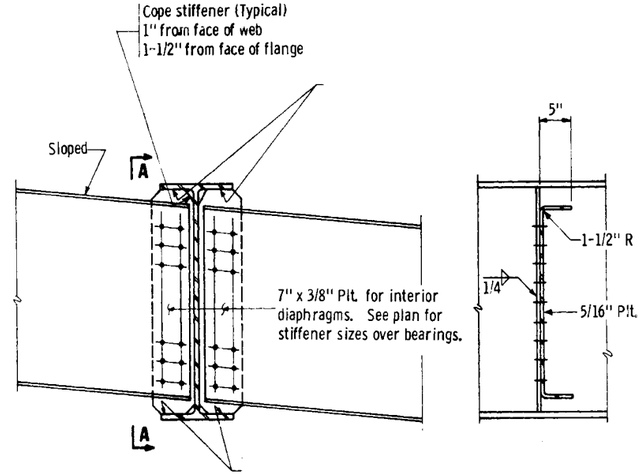
Galvanize bolts, inserts and washer per M. H. D. 3392.

Galvanize other materials per M. H. D. 3394 after fabrication.

APPROVED July 1, 1969	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS	REVISION	DETAIL NO.
Design Standards Engineer ENGINEERING STANDARDS DIVISION	**BRIDGE FLOOR DRAIN** STRUCTURAL TUBING		**B702**



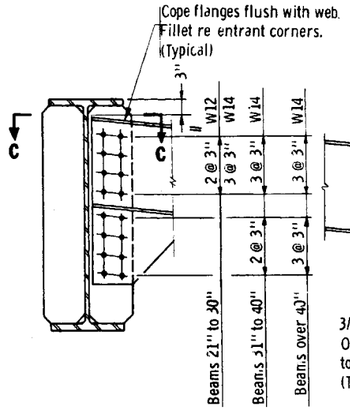
FASCIA BEAM



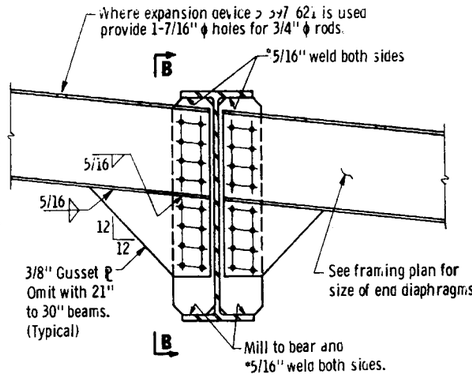
INTERMEDIATE BEAMS

SECTION A-A

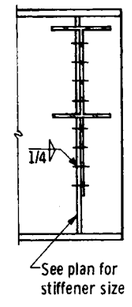
DIAPHRAGMS



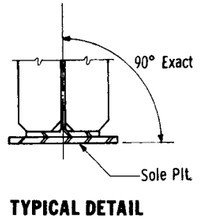
FASCIA BEAM



INTERMEDIATE BEAMS



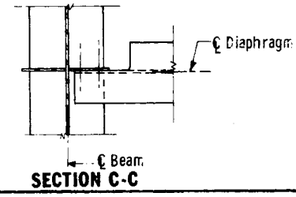
SECTION B-B



TYPICAL DETAIL AT BEARINGS

ABUTMENT DIAPHRAGMS

Use W12 x 53 for 21" & 24" beams.
Use W14 x 61 for all other beams.



SECTION C-C

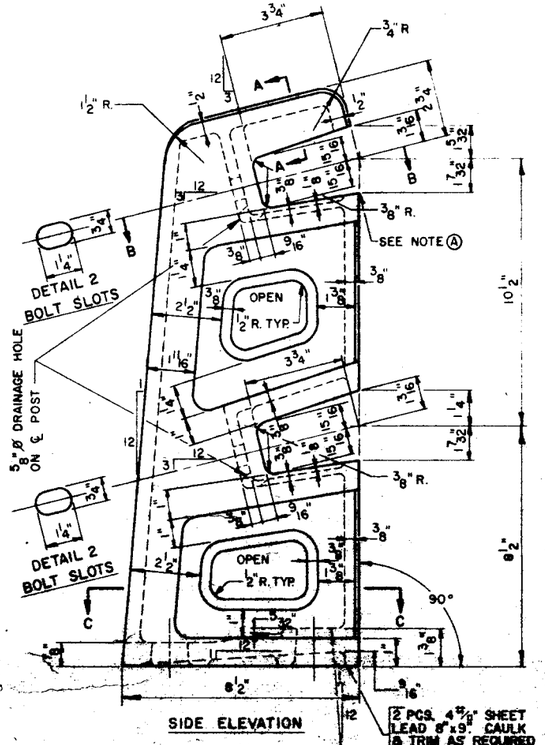
NOTES

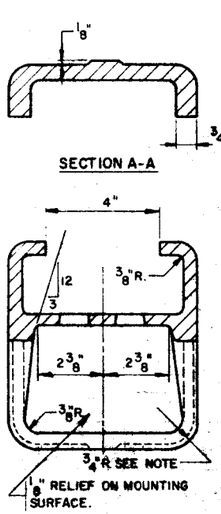
Use 7/8" high strength bolts or 7/8" pin bolts.

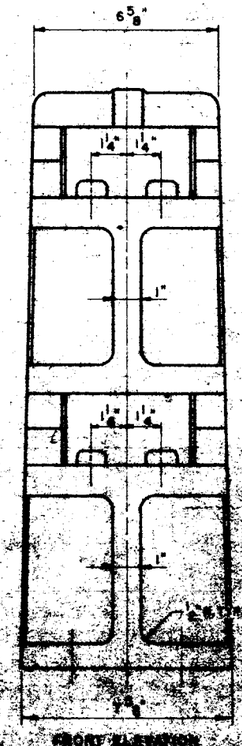
For W24 beams a C18 x 42.7 and for W21 beams a C15 x 33.9 may be used as an alternate for the 5/16" gent plate.

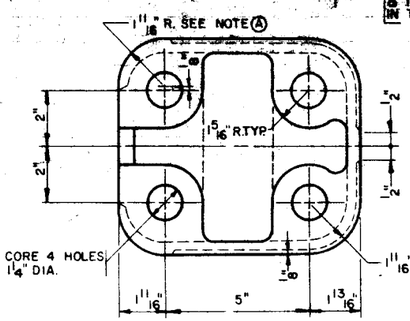
* For flange material over 1-1/2" thick, use 3/8" weld.

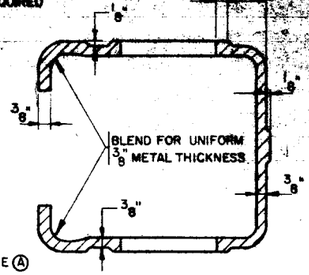
APPROVED Feb. 17, 1972	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS		DETAIL NO.
Engineering Standards Engineer RESEARCH AND STANDARDS DIVISION	**DIAPHRAGMS STEEL BEAM**		**B402**











MATERIAL FOR CASTING:
MALLEABLE IRON M.H.D. 5524 GRADE NO. 35018, AS MODIFIED.
GALVANIZE PER M.H.D. 3394.
WORKMANSHIP:
M.H.D. 2471.
ALL FILLETS TO BE 1/4" UNLESS OTHERWISE NOTED.

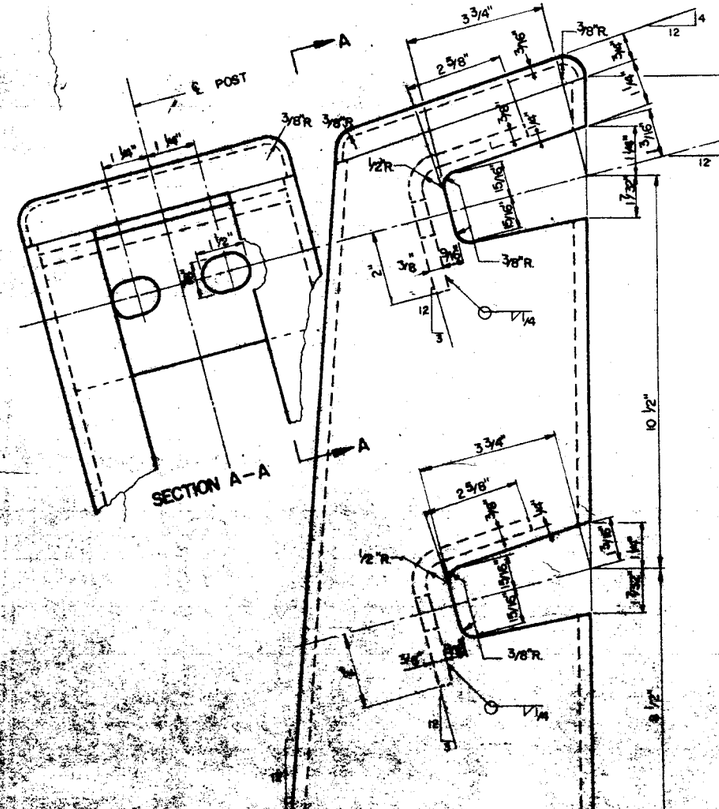
APPROVED 8-28 1961

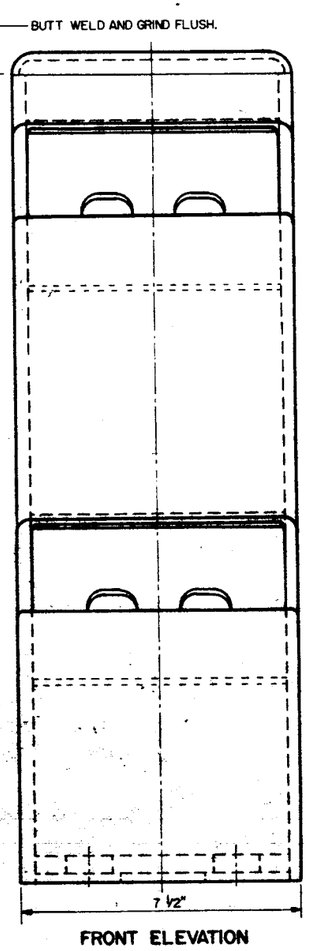
L. E. La Conte
BRIDGE ENGINEER

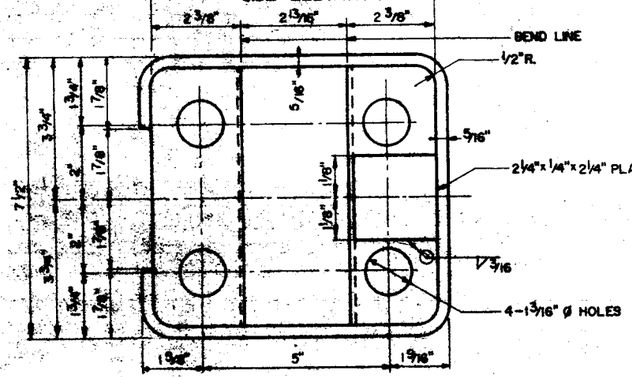
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
MALLEABLE IRON RAIL POST
TYPE-BRP-58-5
FOR 2-LINE FLAT TUBE RAIL

REVISIONS
4/30/59-A
10/1/59 -B
7/10/61
11/16/64
12/28/64

DETAIL NO.
B 32







ALL WELDS 1/4" FILLET ALL AROUND WHERE POSSIBLE.

ALL OTHER JOINTS TO BE COMPLETELY "SEAL-WELDED" FOR GALVANIZING.

ALL MATERIAL SHALL BE STRUCTURAL STEEL PER MHD 3306.

GALVANIZING PER MHD 3394.

APPROVED 6-14 1965

R. C. La Bonte
BRIDGE ENGINEER

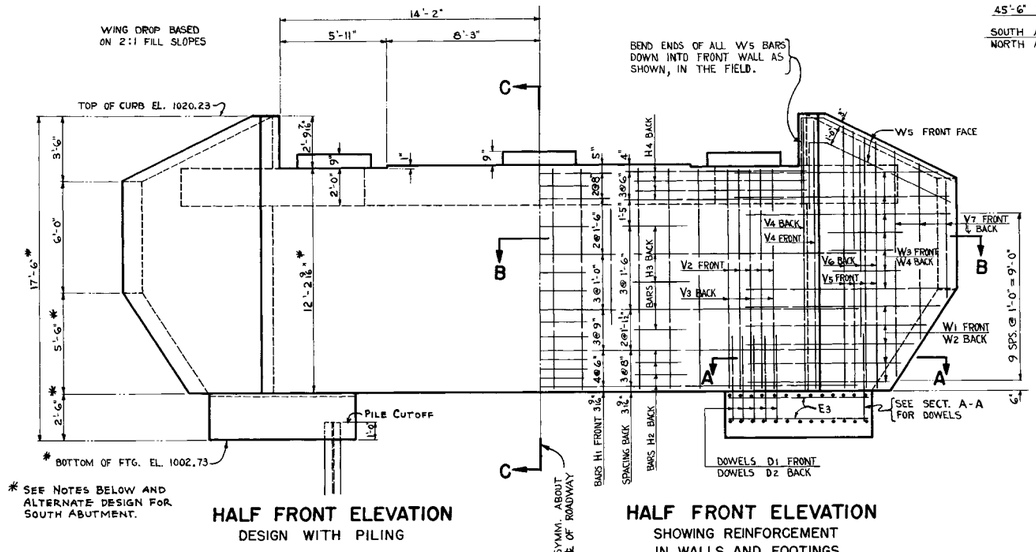
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
WELDED RAIL POST
FOR 2-LINE FLAT TUBE RAIL

REVISIONS
10-20-66
10-24-66

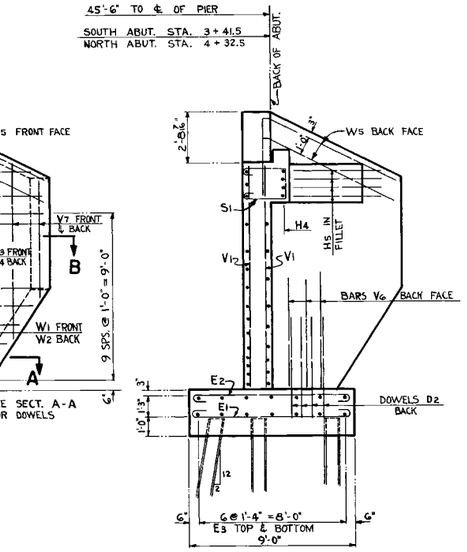
DETAIL NO.
B 39

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS
Bridge No.
DETAILS
APPROVED
Sheet No. of Sheets

RDC

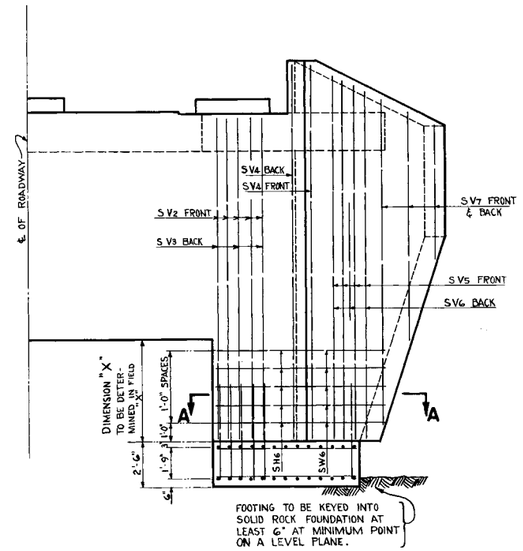


HALF FRONT ELEVATION
DESIGN WITH PILING



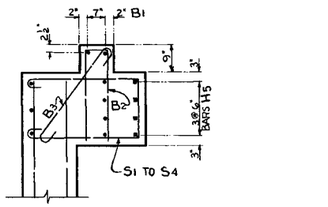
HALF FRONT ELEVATION
SHOWING REINFORCEMENT IN WALLS AND FOOTINGS

SECTION C-C

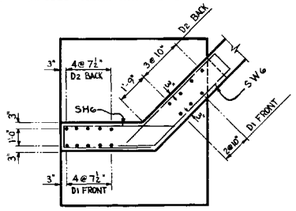


HALF FRONT ELEVATION OF ALTERNATE DESIGN FOR SOUTH ABUTMENT

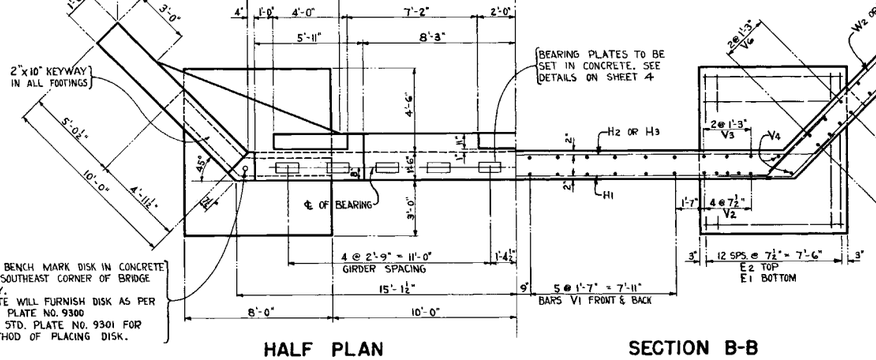
ALL DETAILS NOT SHOWN ARE SAME AS SHOWN FOR PROPOSED DESIGN WITH PILING



SECTION X-X

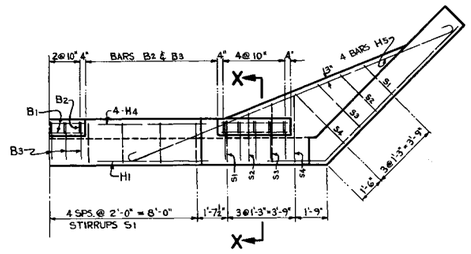


SECTION A-A
SPACING OF DOWELS IS SAME FOR EITHER ABUTMENT DESIGN

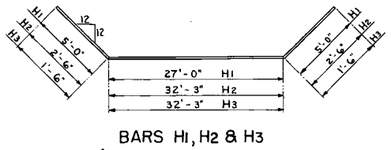


HALF PLAN

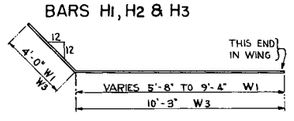
SECTION B-B
SHOWING REINFORCEMENT IN WALLS AND FOOTINGS



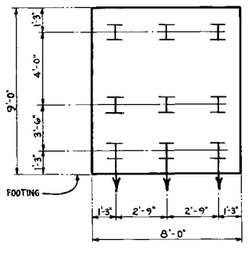
HALF PLAN AT BRIDGE SEAT
SHOWING REINFORCEMENT IN CORNER FILLET AND SHEAR BLOCKS



BARS H1, H2 & H3



BARS W1 & W3



TYPICAL PILE SPACING

PILE NOTE:

9 PILES SPACED AS SHOWN ARE TO BE DRIVEN IN EACH FOOTING IF POSSIBLE. CERTAIN ALTERNATE FOOTING DESIGNS MAY BE USED AS DETERMINED BY ACTUAL PILE DRIVING CONDITIONS.

FOR NORTH ABUTMENT:
UNTREATED TIMBER PILES MAY BE USED IF AT LEAST 12 FT. OF PENETRATION BELOW BOTTOM OF FOOTINGS CAN BE ATTAINED. OTHERWISE STEEL PILES OF ADEQUATE SECTION SHALL BE USED, AND DRIVEN TO REFUSAL IN THE ROCK STRATA. SUFFICIENT PENETRATION TO INSURE ANCHORAGE AND STABILITY OF THE PILES WILL BE REQUIRED.

FOR SOUTH ABUTMENT:
STEEL PILES SHALL BE USED IF POSSIBLE AND A PENETRATION OF AT LEAST 10 FT. BELOW BOTTOM OF FOOTING WILL BE REQUIRED. IF SATISFACTORY PENETRATION OF THE STEEL PILES CANNOT BE ATTAINED, THE FOOTINGS SHALL BE LOWERED TO BEAR ON FIRM ROCK FOUNDATIONS. SEE "ALTERNATE" DETAILS FOR ABUTMENT IF FOOTINGS ARE LOWERED AND PILES OMITTED.

CALCULATED PILE LOADS

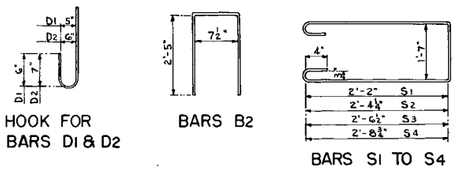
DEAD LOAD VERTICAL	11.5	TONS PER PILE
LIVE LOAD	1.5	" " "
TOTAL	13.0	" " "

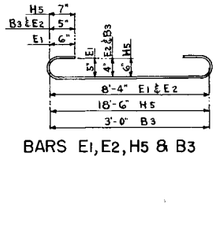
FRONT ROW PILES SHALL BE DRIVEN ON 2" TO 12" BATTER AS SHOWN IN DIRECTION INDICATED THUS ⫪

PILE SPECIFICATIONS

UNTREATED TIMBER PILES FOR NORTH ABUTMENT SHALL BE IN ACCORDANCE WITH M.H.D. 3471 AND SHALL PREFERRABLY BE OF HARDWOOD TO WITHSTAND HARD DRIVING.

STEEL PILES SHALL BE 10" @ 42 # STEEL BEARING PILES IF OBTAINABLE. IF SUBSTITUTE SECTIONS ARE USED THEY SHALL HAVE SUFFICIENT CROSS SECTIONAL AREA AND STIFFNESS TO WITHSTAND HARD DRIVING INTO ROCK STRATAS.





BARS E1, E2, H5 & B3

BILL OF REINFORCEMENT BARS FOR 2 ABUTS.

	BAR	No. REQD.	SIZE No.	LENGTH	SHAPE	LOCATION
	E1	52	6	10'-0"	2 HKS.	FOOTING – LONGITUDINAL
	E2	52	5	9'-9"	2 HKS.	" "
	E3	56	4	7'-9"	STRT.	" – TRANSVERSE
	D1	32	6	5'-6"	1 HOOK	FOOTING – DOWELS
	D2	36	8	6'-6"	1 HOOK	" "
	H1	30	8	37'-0"	BENT	FRONT WALL HORIZONTAL
	H2	8	6	37'-3"	BENT	" " "
	H3	10	6	35'-3"	BENT	" " "
	H4	8	8	28'-0"	STRT.	" " "
	H5	16	9	20'-6"	2 HKS.	CORNER FILLET "
*	W1	10	5	23'-0"	BENT	WING WALL – HORIZONTAL
*	W2	10	6	17'-2"	STRT.	" " "
	W3	28	5	14'-3"	BENT	" " "
	W4	28	6	11'-3"	STRT.	" " "
Δ	W5	16	5	16'-6"	STRT.	" " – TOP
	V1	48	5	12'-0"	STRT.	FRONT WALL – VERTICAL
	V2	20	8	12'-0"	STRT.	" " "
	V3	12	5	12'-0"	STRT.	" " "
	V4	8	5	14'-9"	STRT.	CORNER "
	V5	16	7	13'-4"	STRT.	WING WALL "
	V6	12	5	13'-4"	STRT.	" " "
*	V7	12	5	18'-8"	STRT.	" " "
	S1	26	4	7'-0"	BENT	CORNER FILLET STIRRUPS
	S2	8	4	7'-4"	BENT	" " "
	S3	8	4	7'-9"	BENT	" " "
	S4	8	4	8'-1"	BENT	" " "
	B1	12	4	3'-9"	STRT.	SHEAR BLOCK
	B2	30	4	5'-5"	BENT.	" "
	B3	30	5	4'-4"	2 HKS.	" "

SUPPLEMENTARY BILL OF BARS FOR SOUTH ABUTMENT IF FOOTINGS ARE LOWERED

	BAR	No. REQD.	SIZE No.	LENGTH	SHAPE	LOCATION
	SH6	2 X	5	11'-10"	BENT	FRONT WALL HORIZONTAL
	SW6	2 X	5	16'-0"	BENT	WING " "
	SV2	10	8	12'-0"+ X	STRT.	FRONT " VERTICAL
	SV3	6	5	12'-0"+ X	STRT.	" " "
	SV4	4	5	14'-9"+ X	STRT.	CORNER VERTICAL
	SV5	8	7	13'-4"+ X	STRT.	WING WALL VERTICAL
	SV6	6	5	13'-4"+ X	STRT.	" " "
*	SV7	6	5	18'-8"+ X	STRT.	" " "

NOTE: BARS IN SUPPLEMENTARY BILL ARE NOT TO BE FURNISHED UNLESS SOUTH ABUTMENT FOOTINGS ARE LOWERED.

SEE DETAIL FOR VARIABLE DIMENSION "X"

IF BARS IN SUPPLEMENTARY BILL ARE FURNISHED, THE NUMBER OF SIMILARLY MARKED BARS IN THE REGULAR BILL SHALL BE REDUCED BY THE NUMBERS OF EACH BAR ORDERED IN THE SUPPLEMENTARY BILL.

* CUT TWO BARS FROM EACH, ONE LONG AND ONE SHORT TO FIT SLOPE. BARS W1 TO BE BENT AFTER CUTTING.

Δ BEND TO FIT IN FIELD AS SHOWN ON DETAILS.

○ SUMMARY OF QUANTITIES FOR TWO ABUTS.

CONCRETE MIX No. 1A6	103.1 CU. YDS.
REINFORCEMENT BARS	13,025 LBS.
CLASS WE EXCAVATION	125 CU. YDS.
" DE EXCAVATION	240 CU. YDS.
PILING AS REQUIRED – SEE PILE NOTE	

○ QUANTITIES SHOWN ABOVE ARE FOR 17'-6" HIGH ABUTMENTS WITH PILING.

NOTE FOR HELD APART TYPE ABUTMENTS

FILL BEHIND ABUTMENTS MUST NOT BE MADE UNTIL DECK IS IN PLACE WITH CONCRETE SLAB AND END WEBS COMPLETED. PLACE FILL IN SIMULTANEOUS LIFTS AT BOTH ABUTMENTS.

MICRO-FILMED

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.

Clarence F. Bertram

DATE 9-4-51 REG. NO. 1505

BENCH MARK: ELEV. 1018.09 # ON N.W. CORNER BASE FLOODLIGHT ON N. SIDE OF E. & W. RUNWAY

STATE AID ROAD No. 22
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE No. 7092
OVER WILLOW CREEK

DETAILS OF ABUTMENTS
2-45 FT. STEEL BEAM SPANS - 24 FT. RDWY.
CONCRETE SLAB - STEEL RAILING

SEC. 13 T 106 N R 14 W

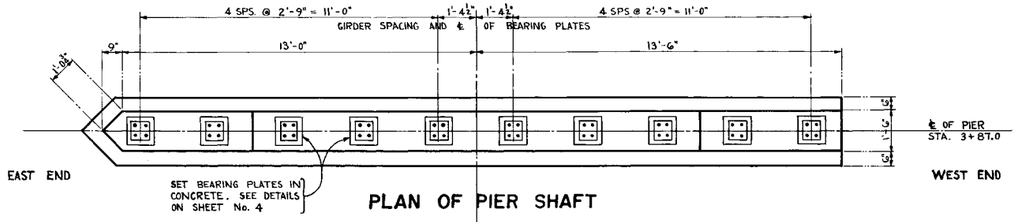
ROCHESTER TWP. OLMSTED COUNTY

APPROVED: SEP. 18, 1951

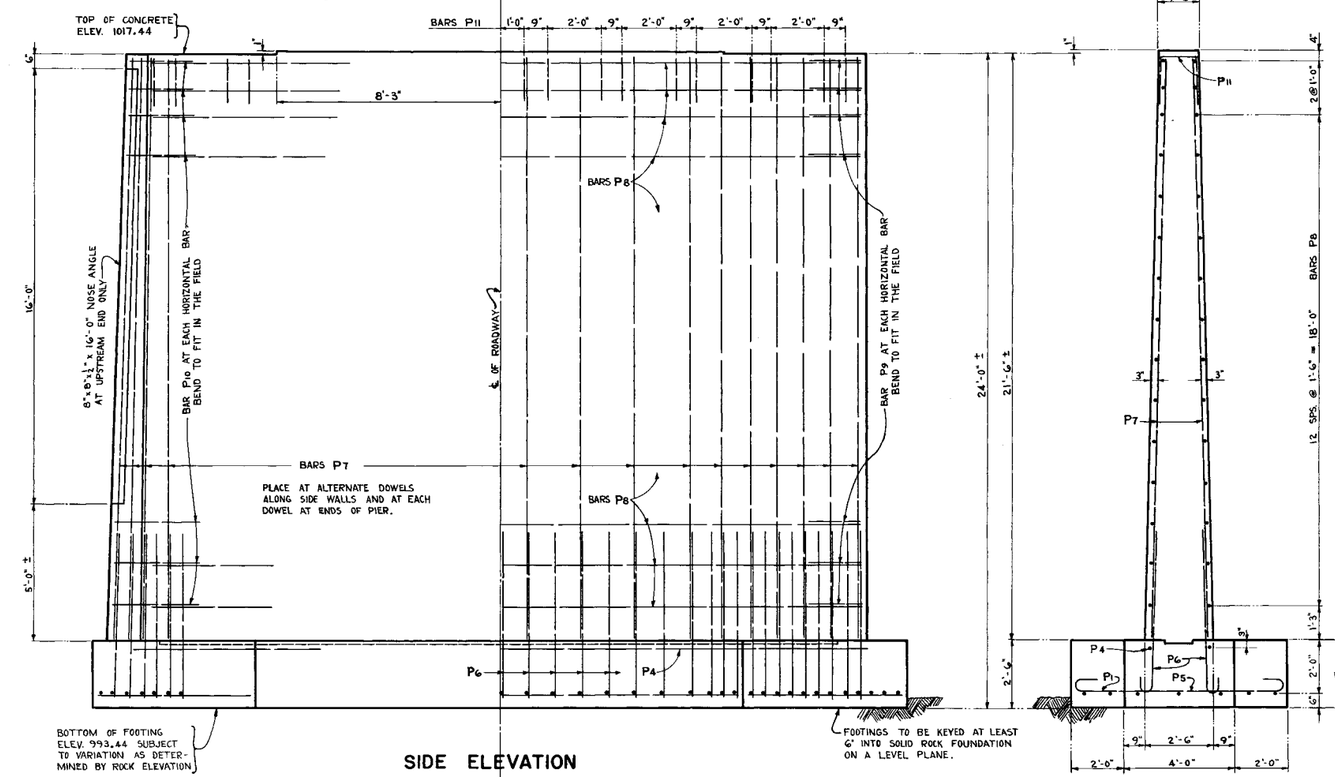
M. O. Kiertsen
BRIDGE ENGINEER

7092

DR.	CFB
TR.	KCB
CK.	KCB

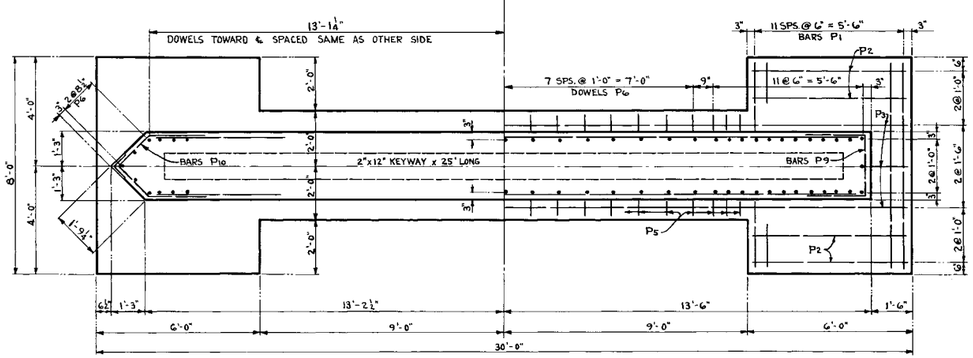


PLAN OF PIER SHAFT

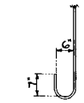


SIDE ELEVATION

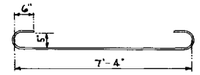
SECTION AT ℄ OF ROADWAY



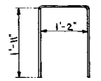
HORIZONTAL SECTION AT TOP OF FOOTING



HOOK FOR P6



BARS P1



BARS P11

BILL OF REINFORCEMENT BARS FOR PIER

	BAR	No. REQD.	SIZE No.	LENGTH	SHAPE	LOCATION	
	P1	24	6	9'-0"	2 HKS.	FOOTING	TRANSVERSE
	P2	8	5	5'-9"	STRT.	"	LONGITUDINAL
	P3	3	5	29'-9"	STRT.	"	"
	P4	2	5	27'-0"	STRT.	"	"
	P5	21	5	3'-9"	STRT.	"	TRANSVERSE
	P6	62	8	7'-0"	1 HOOK	"	DOWELS
*	P7	44	6	21'-4"	STRT.	WALL	VERTICAL
	P8	30	5	26'-0"	STRT.	"	HORIZONTAL
	P9	15	5	6'-0"	BEND IN	" ENDS	"
	P10	15	5	7'-0"	FIELD	" "	"
	P11	20	4	5'-0"	BENT	BRIDGE SEAT	STIRRUPS

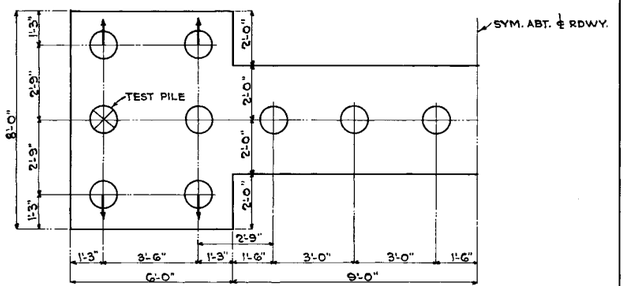
* BARS P7 ARE NOT TO BE CUT TO LENGTH UNTIL EXACT PIER HEIGHT HAS BEEN DETERMINED IN THE FIELD.

SUMMARY OF QUANTITIES FOR PIER

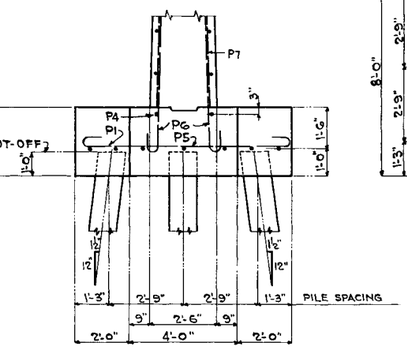
	CONCRETE MIX No. 1A6	58.8	CU. YD.
	REINFORCEMENT BARS	4630	LB.
o	STRUCTURAL STEEL NOSE ANGLE	455	LB.
	EXCAVATION CLASS U	62	CU. YD.

o FOR DETAILS OF NOSE ANGLE SEE SHEET No. 4

PILE NOTES:
16 UNTREATED TIMBER PILES REQUIRED- EST. LENGTH 25 FT.
2 UNTREATED TIMBER TEST PILES REQUIRED - 30 FT. LONG.
18 UNTREATED TIMBER PILES REQUIRED FOR 1 PIER
MINIMUM BEARING ON ALL PILES 18 TONS EACH.
DEAD LOAD ONLY = 15 TONS PER PILE.
ESTIMATED PENETRATION 2 FT. LESS THAN LENGTHS GIVEN.
PILES MARKED THUS ⓘ TO BE BATTERED 1½":12" IN DIRECTION INDICATED BY ARROW.



ALTERNATE HALF-PLAN OF FOOTING FOR USE WITH PILING



ALTERNATE SECT. AT ℄ OF ROADWAY FOR USE WITH PILING

MICRO-FILMED

MICRO-FILMED

REV. 10/10/51 BY G.F.W. ALTERNATE DETAILS FOR USE WITH PILING ADDED.

STATE AID ROAD No. 22
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE No. 7092
OVER WILLOW CREEK

DETAILS OF PIER

2-45 FT. STEEL BEAM SPANS- 24 FT. RDWY.
CONCRETE SLAB - STEEL RAILING

APPROVED: SEP. 18. 1951

M. O. Hjertsen
BRIDGE ENGINEER

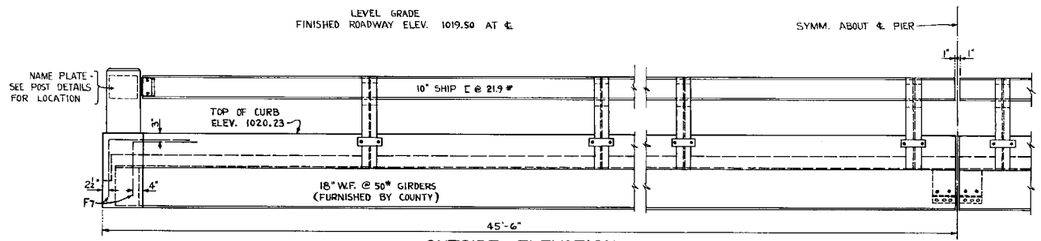
7092

DR CFB
TR KCB
CK KCB

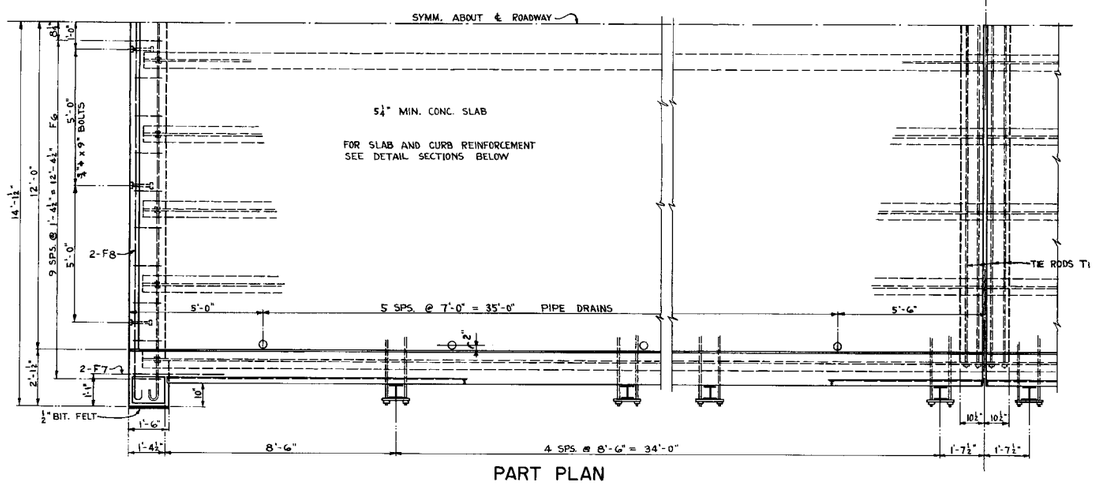
DESIGN DATA

1949 A.A.S.H.O. DESIGN SPECIFICATIONS
2 LANES H15 LOADING WITH IMPACT
$f_s = 18000$ #/□" $f_c = 1200$ #/□" $n = 10$

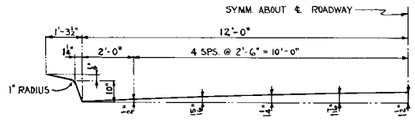
LEVEL GRADE
FINISHED ROADWAY ELEV. 1019.50 AT ℄



OUTSIDE ELEVATION



PART PLAN

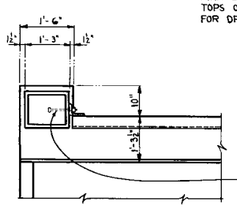


HALF PROFILE OF FINISHED FLOOR SURFACE

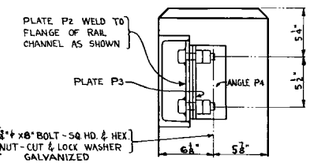
CONSTRUCTION NOTES

THE MINNESOTA DEPARTMENT OF HIGHWAYS "SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" DATED JULY 1, 1947 AND SUBMITTED FOR APPROVAL BY THE DIVISION ENGINEER OF THE PUBLIC ROADS ADMINISTRATION OCT. 15, 1947 SHALL APPLY.
PAINT ALL STRUCTURAL STEEL, POSTS, RAILS AND DRAINS AS PER M.H.D. SPECIFICATIONS AS FOLLOWS:
FIRST COAT - RED LEAD IN SHOP
SECOND COAT - GRAY
THIRD COAT - ALUMINUM
END 12" OF ALL THREADED RODS TO BE GIVEN ONE COAT OF RED LEAD BEFORE PLACING IN CONCRETE.

VERTICAL EDGES OF CONCRETE RAIL POSTS TO BE FINISHED TO A ½" RADIUS OR A ½" BEVEL USING FINISHED WOOD STRIPS IN FORMS.
TOPS OF POSTS TO BE FINISHED TO ⅛" CROWN FOR DRAINAGE.

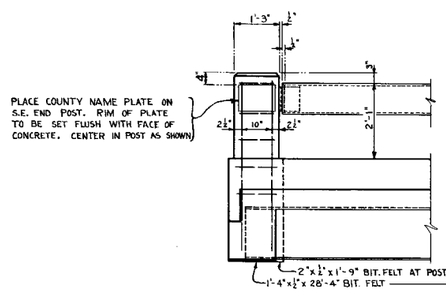


PLAN AT CORNER

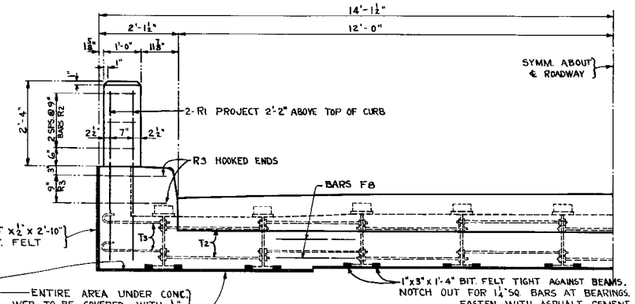


DETAIL OF RAIL CONNECTION TO CONCRETE END POST

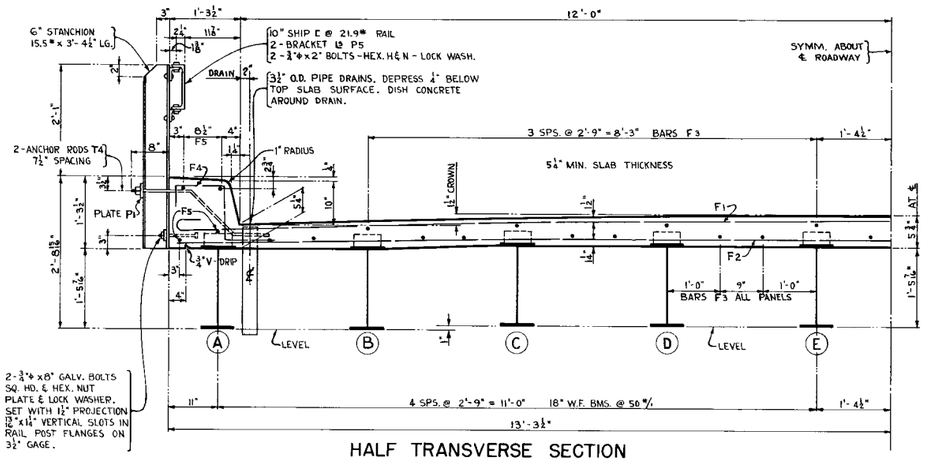
FOR BILL OF REINFORCEMENT BARS, SUMMARY OF QUANTITIES AND ALL STRUCTURAL STEEL DETAILS SEE SHEET NO. 4.



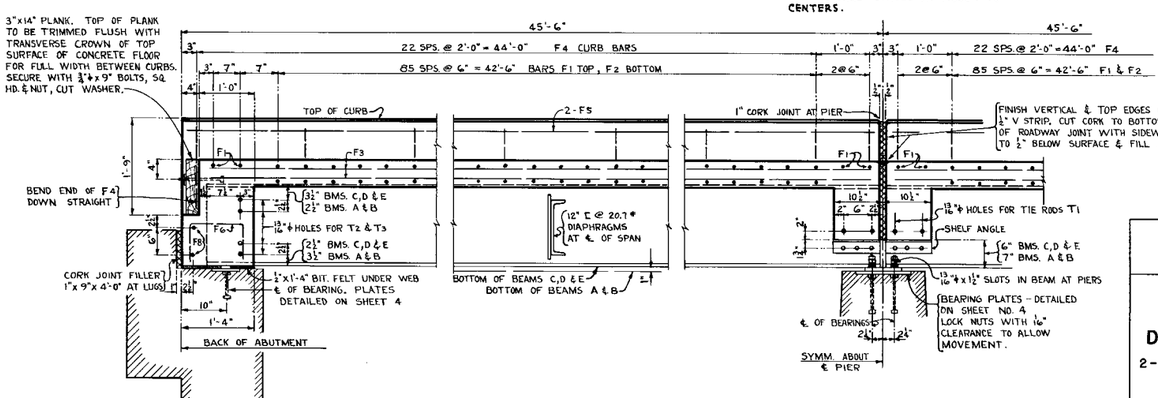
LONGITUDINAL SECTION NEAR CURB



HALF END ELEVATION



HALF TRANSVERSE SECTION



PART LONGITUDINAL SECTION NEAR ℄ ROADWAY

STATE AID ROAD No. 22
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE No. 7092
OVER WILLOW CREEK

DETAILS OF SUPERSTRUCTURE

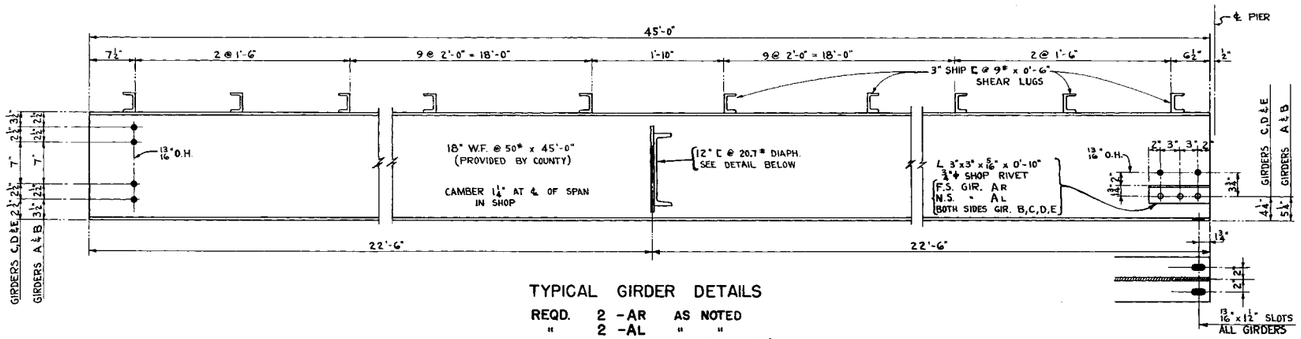
2-45 FT. STEEL BEAM SPANS - 24 FT. RDWY.
CONCRETE SLAB - STEEL RAILING

APPROVED: SEP. 18, 1951

M. A. Gjertsen
BRIDGE ENGINEER

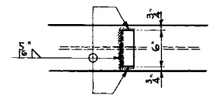
7092

DR KCB
TR KCB
CK C.F.B.



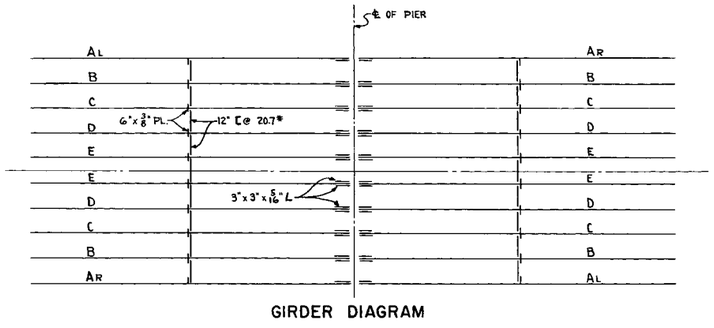
TYPICAL GIRDER DETAILS

REQD. 2 - AR AS NOTED
" 2 - AL " "
" 16 - (4 EACH B,C,D,E)

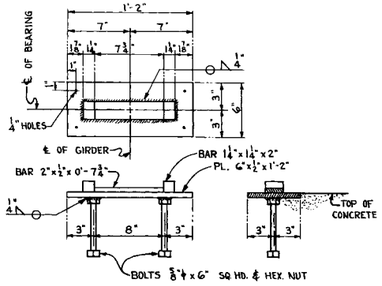


SHEAR LUG DETAIL

LEGS OF SHEAR LUG ⊏ TO POINT TOWARD NEAREST END

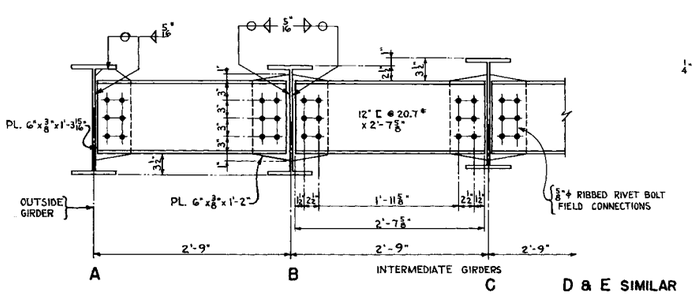


GIRDER DIAGRAM

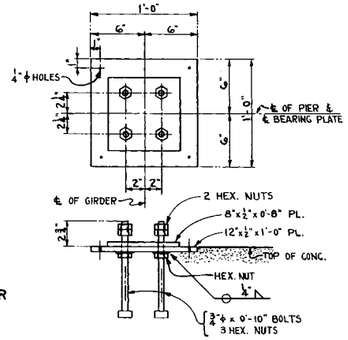


ABUTMENT BEARING PLATES
20 REQD. THUS

PLATES TO BE TRUE AFTER WELDING

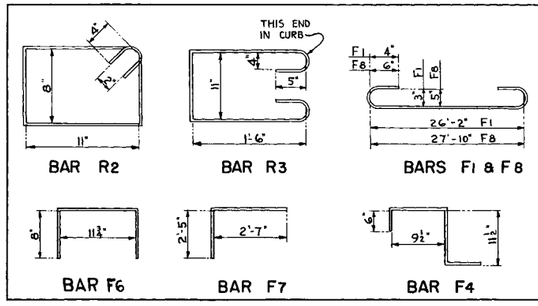


TYPICAL DIAPHRAGM DETAILS
AT ℄ OF BOTH SPANS
18 - DIAPHRAGMS REQD.



PIER BEARING PLATES
10 - REQD. THUS

PLATES TO BE TRUE AFTER WELDING NUTS



BILL OF REINFORCEMENT FOR SUPER-STRUCT.

BAR	No. REQD.	SIZE No.	LENGTH	SHAPE	LOCATION
F1	180	4	27'-3"	2-HKS.	FLOOR SLAB TRANSVERSE
F2	172	4	26'-3"	STRT.	" " "
F3	104	4	23'-6"	STRT.	" " LONGITUDINAL
F4	96	4	3'-3"	BENT	CURB STIRRUPS
F5	32	5	24'-0"	STRT.	" LONGITUDINAL
F6	40	4	2'-4"	BENT	END WEB STIRRUPS
F7	8	5	5'-0"	BENT	END OF CURB
F8	4	6	29'-6"	2-HKS.	END WEB - LONGITUDINAL
R1	16	6	4'-9"	STRT.	END POST VERTICAL
R2	12	3	4'-0"	BENT	" " TIES
R3	8	5	5'-4"	BENT	" CURB STRRUPS

LIST OF MISCELLANEOUS BOLTS

No.	DESCRIPTION	LOCATION
12	¾" ϕ x 9" SQ. HD. & NUT - 1 CUT WASHER	TIMBER END PLANKS
* 48	¾" ϕ x 8" SQ. HD. & HEX. NUT - 1 CUT WASH. - 1 LOCK WASH.	RAIL POSTS & ANGLE P4
40	¾" ϕ x 2" HEX. HD. & NUT - 1 LOCK WASHER	RAIL C TO POSTS
216	⅝" ϕ x 1 1/16" GRIP RIBBED RIVET BOLTS	DIAPHRAGM CONNECTIONS

* THIS ITEM TO BE GALVANIZED AS PER M.H.D. 3392

SUMMARY OF QUANTITIES FOR SUPER-STRUCT.

CONCRETE, MIX No. 1 A 6	53.6	CU. YDS.
REINFORCEMENT BARS	9,395	LBS.
STRUCTURAL STEEL (NEW)	11,260	LBS.
3-PLY JOINT WATERPROOFING	75	LIN. FT.

MISCELLANEOUS ITEMS

1 - BRONZE COUNTY NAME PLATE - SEE STD. PL. # 8225
4 - PCS. 3" x 14" x 12'-0" WOOD PLANK
1 - PC. CORK JOINT FILLER 1'-6" x 1" x 24'-9"
2 - PCS. " " " 1'-4" x 1" x 1'-4"
6 - PCS. " " " 9" x 1" x 4'-0"

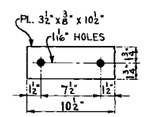
2 - PCS. BITUM. FELT 1'-4" x ½" x 28'-4"
4 - PCS. " " 2" x ½" x 1'-9"
40 - PCS. " " 3" x 1" x 1'-4"
4 - PCS. " " 1'-6" x ½" x 2'-10"

CORK JOINT FILLER SHALL COMPLY WITH A.A.S.H.O. SPECIFICATION M 55 - 48.
BITUMINOUS JOINT FILLER SHALL COMPLY WITH A.A.S.H.O. SPECIFICATION M 33 - 48.

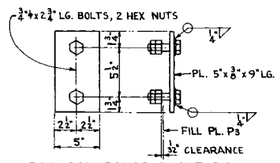
ALL STRUCTURAL STEEL EXCEPT THOSE ITEMS NOTED FOR GALVANIZING SHALL BE GIVEN ONE COAT OF RED LEAD BRIDGE PAINT IN THE SHOP.

SECOND HAND GIRDERS SHALL BE THOROUGHLY CLEANED AND STRAIGHTENED IF NECESSARY BEFORE RED LEAD SHOP COAT IS APPLIED.

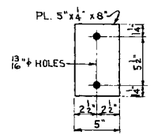
ALL PAINTING SHALL BE DONE IN ACCORDANCE WITH M.H.D. SPECIFICATIONS NO. 2476.



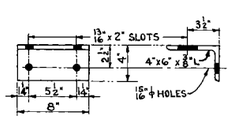
RAIL POST PLATE P1
20-REQD.



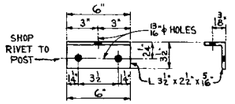
RAIL CONNECTOR PLATE P2
4-REQD.
WELD TO RAIL PANEL IN SHOP



RAIL CONNECTOR PLATE P3
4-REQD.

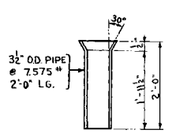


RAIL CONNECTOR ANGLE P4
(GALVANIZED) 4-REQD.

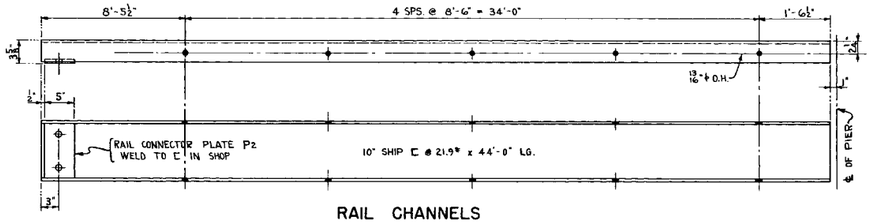


IF RAIL CHANNELS ARE SPLICED PROVIDE 2 HOLES IN BRACKET AT SPLICES ONLY.

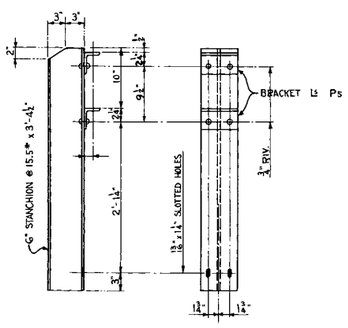
RAILING BRACKET ANGLE P5
40-REQD.



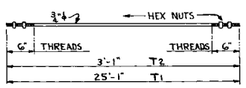
PIPE DRAINS
24-REQD.



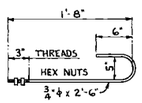
RAIL CHANNELS
4-REQD. THUS



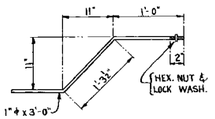
RAIL POSTS
20-REQD. THUS



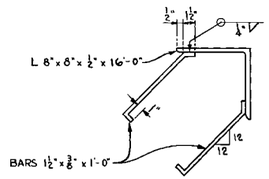
TIE RODS T1, 4-REQD.
" " T2, 36-REQD.



TIE RODS T3, 8-REQD.



RAIL POST ANCHORS T4
40-REQD.



SPACE 2 BARS 6" FROM EACH END AND SINGLE BARS AT 18" O.C. BETWEEN. LOCATE INTERMEDIATE BARS ON ALTERNATE LEGS.

DETAIL OF NOSE ANGLE
1 - REQUIRED

GALVANIZE AS PER M.H.D. 3394 AFTER WELDING. NOSE ANGLES COMPLETE TO BE FURNISHED AND PAID FOR AS STRUCTURAL STEEL.

STATE AID ROAD No. 22
STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE No. 7092
OVER WILLOW CREEK

DETAILS OF STRUCT. STEEL & SUPERSTRUCT. MATERIALS

2-45 FT. STEEL BEAM SPANS - 24 FT. RDWY.
CONCRETE SLAB - STEEL RAILING

APPROVED SEP 18 1951

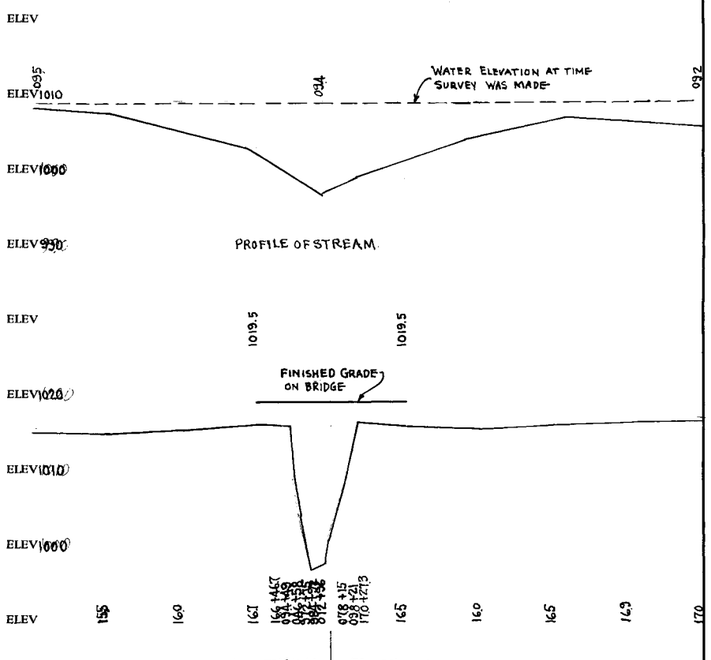
M O Sjerven
BRIDGE ENGINEER

7092

DD	C.F.B.
TD	K.C.B.
CK	K.C.B.

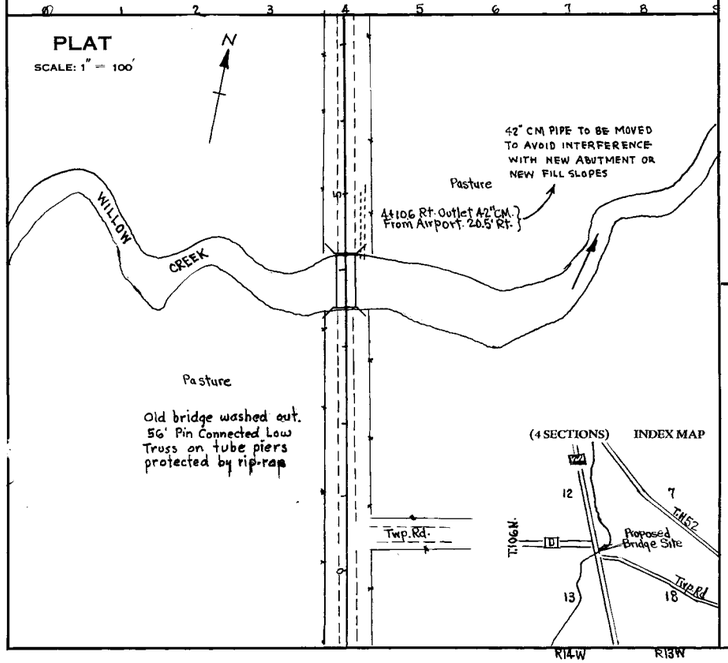
CONTRACTED PROFILE

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



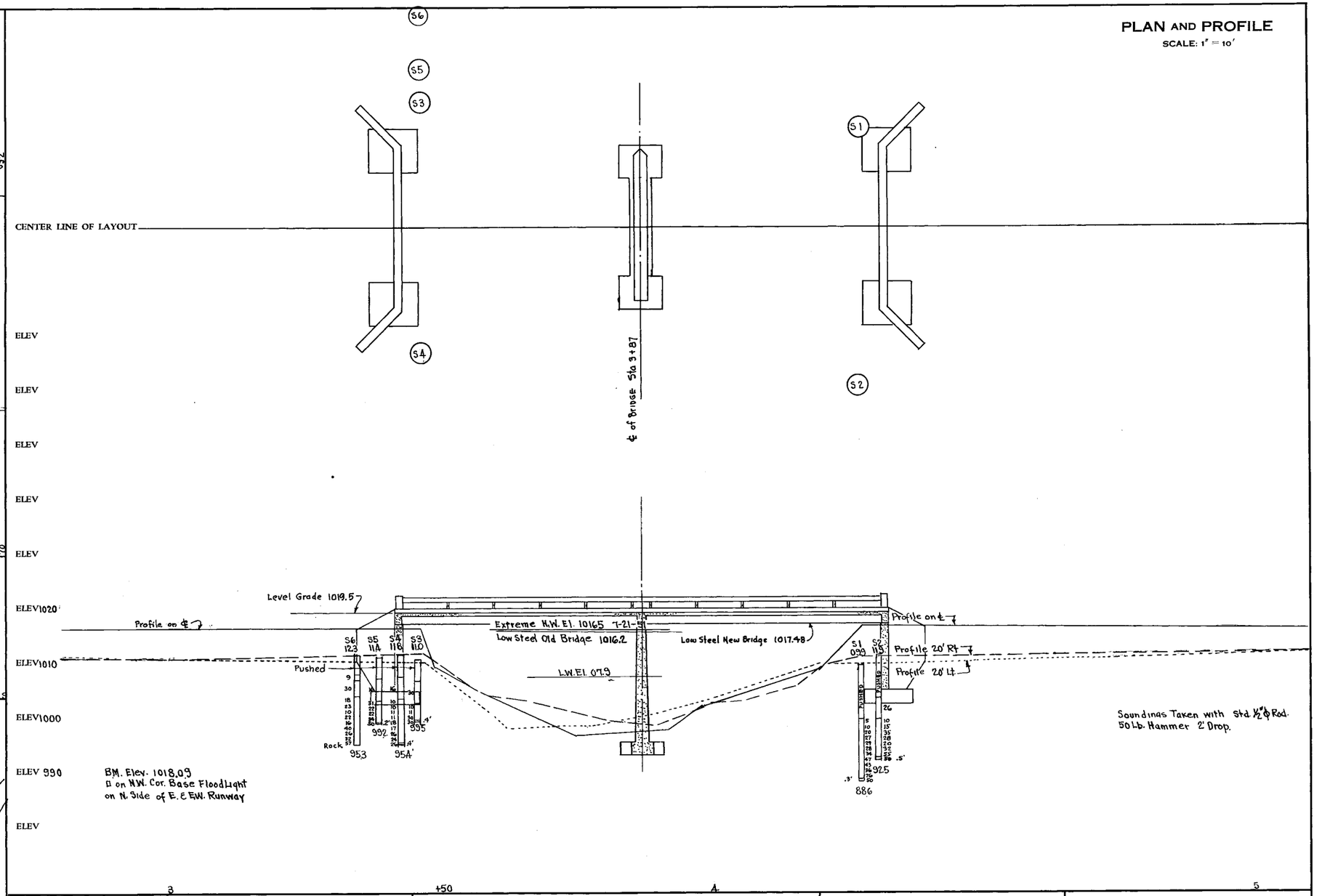
PLAT

SCALE: 1" = 100'



PLAN AND PROFILE

SCALE: 1" = 10'



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

DATA

1. Preliminary recommendations of Engineer in charge of Bridge Survey:
   - a. Net Span Length and Type of Bridge: 2-45' Steel Beam Spans
   - b. Width of Roadway on Bridge: 24'
   - c. Number and width of Sidewalks, if any: None
   - d. Locate center of Bridge at Station: 3 + 87
   - e. If a skew bridge is recommended, the angle of skew should be
   - f. Is piling required? No Steel Piles proposed
2. Special features: Waterfalls, dams, exceptional floods, ice, driftwood, sliding banks, logging, etc.: Old bridge washed out by flood in July, 1951
3. Changes: In height or length from that of old bridge, and reasons why: Raise grade to clear extreme high water and increase length to 86' clear span to provide additional waterway area

DATA (Contd.)

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: Br. # 5162 on T.H. 63 - 3 Mi. South of Rochester - 50' I. Bm Span 800 Sq. Ft opening. Built 1932
   - 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? Proposed bridge should be longer because of additional drainage feeding into Willow Creek
5. If structure is over a drainage ditch, is ditch gradient liable to be altered?
6. State navigation or boating clearances required, if any: None
7. Information and evidence in regard to high water stages was obtained as follows: From high water marks in vicinity of Bridge
8. Must contractor provide for traffic during construction of proposed bridge? No
   If so, by what means?

MATERIAL

Proposed Bridge is at South ~~miles~~ Corp. limits of * Rochester, which is the nearest Railroad shipping point.

*(Give name of town, station or siding)

7-31-1951 Date	L. J. Sullivan Project or County Engineer
Date	District Engineer
Date	Bridge Engineer

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE SURVEY

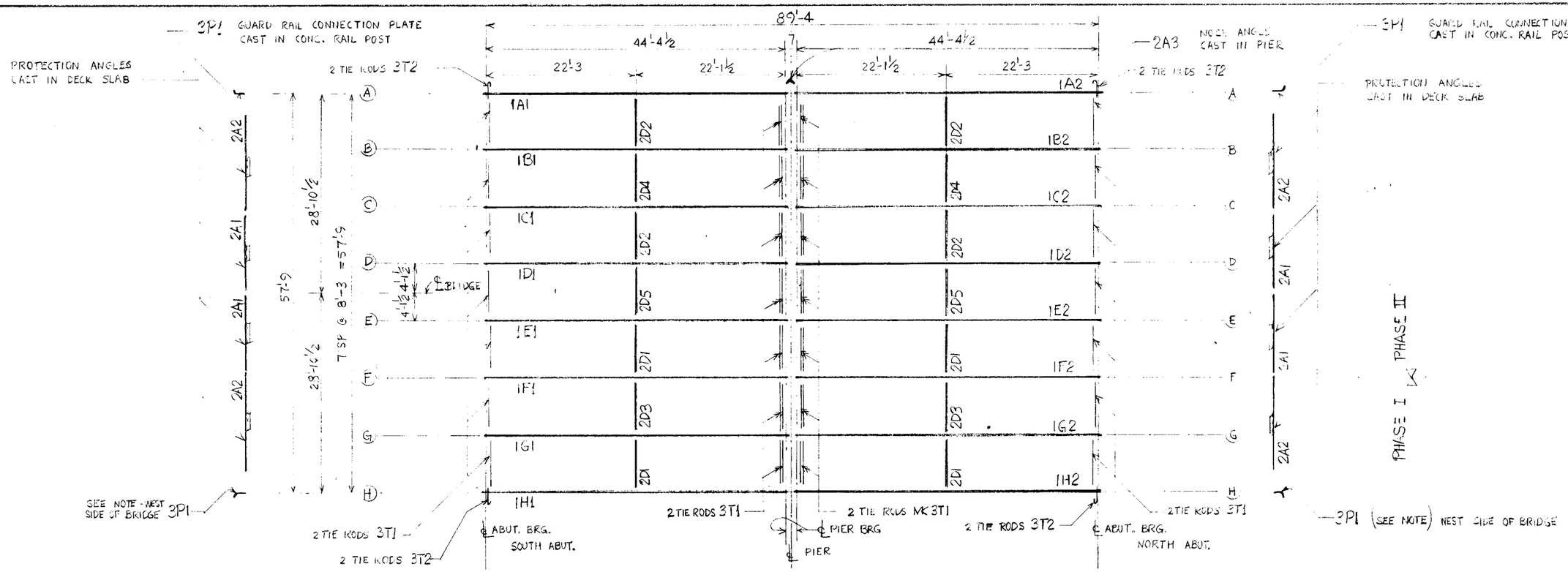
ON

S.A.R. 22
(DESIGNATE COUNTY AID — STATE AID OR TRUNK HIGHWAY NUMBER)

SEC. 13 TWP. 106 N. R. 14 W.
Rochester TOWNSHIP
Olmsted COUNTY
SURVEY MADE DURING MONTH OF July 1951
SURVEY MADE BY H. Peterson
BRIDGE NO. 7092

State Proj. No.

Sheet No. 5 of 5 Sheets



ERECTION PLAN

NORTH

SHEET INDEX	
E1	ERECTION PLAN
S1	GIRDERS
S2	DIAPHRAGMS, PROTECTION ANGLES
S3	TIE RODS, GUARD RAIL ℄, ANCH. BOLTS

SHOP FABRICATION NOTES

1. WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH MHD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION DATED JAN. 1, 1972, AND THE SPECIAL PROVISIONS.
2. ALL STEEL FOR STRUCTURAL ITEMS PER MHD 3309 (ASTM A588) UNLESS NOTED OTHERWISE.
3. ALL HOLES SHALL BE 15/16"ϕ, BOLTS 7/8"ϕ HIGH STRENGTH (WEATHERING) UNLESS NOTED OTHERWISE
4. WELDING PER MHD 2471.3J4b. WELDING ELECTRODES SHALL CONFORM TO REQUIREMENTS OF MHD 3909. ELECTRODES SHALL BE OF COMPATIBLE MATERIAL.
5. MAGNETIC PARTICLE INSPECTION PER MHD 2471.3J4d2 WILL BE REQUIRED.
6. EDGE FINISH PER MHD 2471.3C4 AND 2471.3D4 WILL BE REQUIRED.
7. MHD INSPECTION BY MINNESOTA HIGHWAY DEPARTMENT.
8. GALVANIZED ITEMS WILL BE INSPECTED BEFORE AND AFTER GALVANIZING.

FIELD ERECTION NOTES

1. CORRECT DIRECTIONAL ORIENTATION OF GIRDERS AND BEAMS WILL BE OBTAINED BY LOCATING THE PIECE MARK ON TOP FLANGE AT THE SAME END AS SHOWN ON ERECTION PLAN.
2. ALL FIELD CONNECTIONS SHALL BE BOLTED WITH 7/8"ϕ HS BOLTS W/ ONE HARD. WASHER.
3. ANCHOR BOLT HOLES SHALL BE DRILLED IN THE CONCRETE BRIDGE SEATS, AND BOLTS SET, AFTER GIRDERS ARE IN PLACE.

FIELD BOLTS (ACTUAL COUNT)

280-7/8"ϕ x 2¼ HS BOLT (A325 W/ONE HARD. WASH. (WEATH'G)

STATE AID PROJ. NO.

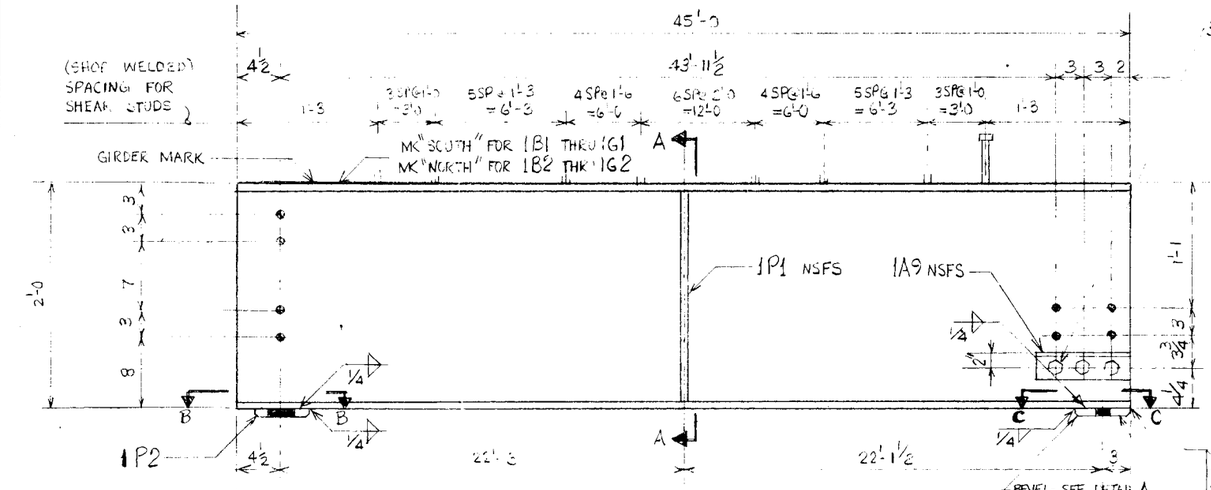
NOTES:
OPEN HOLES UNLESS NOTED
RIVETS UNLESS NOTED
SHOP COAT PAINT
CHECKED BY: MM

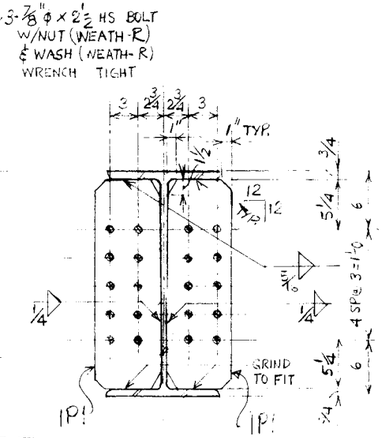
PACAL STEEL **PAPER, CALMENSON & CO.**
HIGHWAY 280 AT HIGHWAY 36 • SAINT PAUL, MINNESOTA 55165

ERECTION PLAN
JOB: MHD BR. NO. 7092 C.S.A.H. NO. 1 OVER WILLOW CREEK
LOCATION: ROCHESTER, MINN.
CONTRACTOR: OLMSTED COUNTY
ARCHITECT: OLMSTED COUNTY

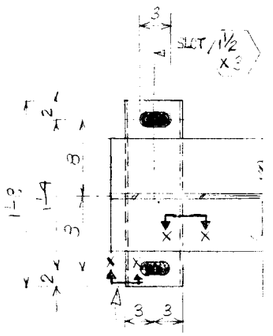
REVISIONS:
DRAWN BY: WH
DATE:
APPROVED:
JOB NO.: 73-3012

SHEET NO. E1 OF 1

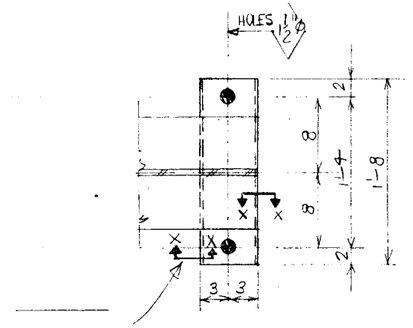




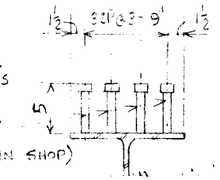
SECTION AA



SECTION BB



SECTION C-C



⅞ x 5 NELSON S3L SHEAR CONNECTOR STUDS W/TYPE 27G-⅞ FERRULE (124 REQ'D. PER GIRDER (WELD TO BEAMS IN SHOP)

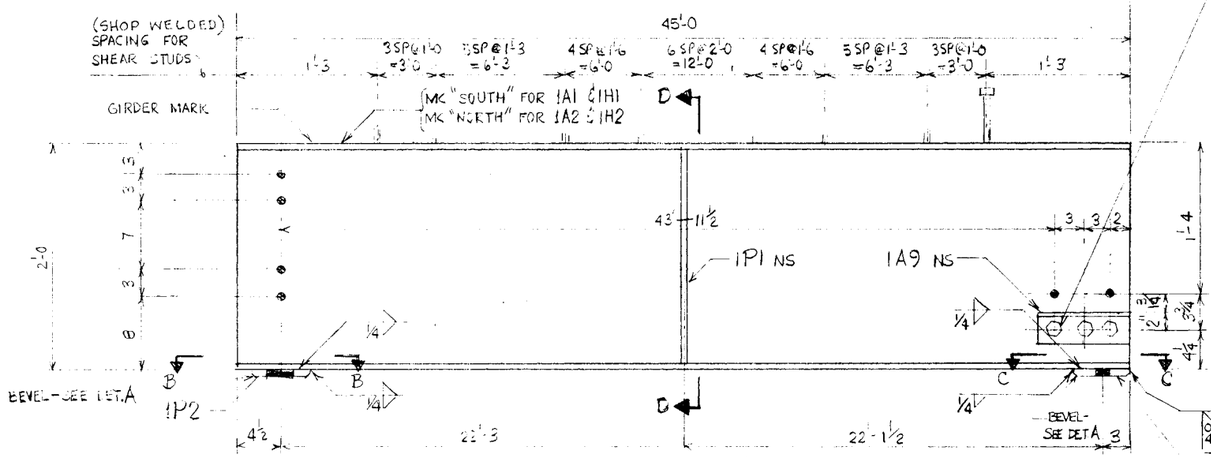
SHEAR STUD DETAIL

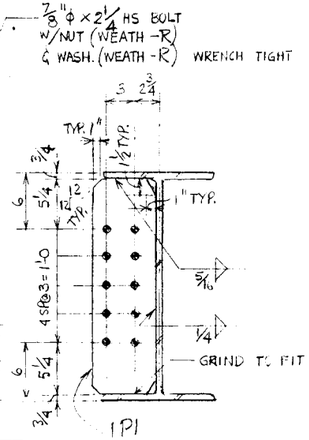
SEC. X-X
TYP. BEVEL

ONE GIRDER A.N. MK 1B1
do 1C1
do 1D1
do 1E1
do 1F1
do 1G1

ONE GIRDER A.N. MK 1B2
do 1C2
do 1D2
do 1E2
do 1F2
do 1G2

6 GIRDERS 1B1-1G1 AND 6 GIRDERS 1B2-1G2 ALIKE EXCEPT FOR MARK





SECTION DD

ONE GIRDER A.N. MK 1A1
do 1H2

A.N.G. EXCEPT FOR MARK

ONE GIRDER REV. MK 1A2
do 1H1

ALIKE EXCEPT FOR MARK

NOTES

1. ALL MATERIAL SHALL BE AS PER MHD 3309 (ASTM A36)
2. SEE SHEET NO. E1 FOR SHOP FABRICATION NOTES

MARK	NO	DESCRIPTION	MHD SPEC.
1E2	1	W24 x100 x 45'-0	3309
1F2	1	do	
1G2	1	do	
1H2	1	do	
1P1	28	⅜x7 HR FLT x 1'-10⅝	
1P2	16	¾x6 HR FLT x 1'-8	
1P3	16	¾ x6 HR FLT x 1'-5	
*1A9	28	L3x3x⅜ x 0'-10	
—	1994	⅞ x 5" NELSON STUDS	
PAY WT. → *1A9	28	L-3x3x5/16 x 0-10	3309

MARK	NO.	DESCRIPTION	MHD SPEC
1A1	1	W24 x100 x 45'-0	3309
1B1	1		
1C1	1		
1D1	1		
1E1	1		
1F1	1		
1G1	1		
1H1	1		
1A2	1		
1B2	1		
1C2	1		
1D2	1		

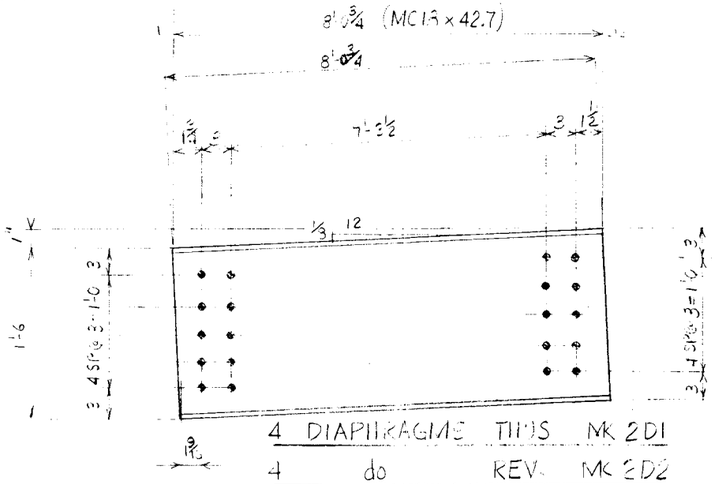
STATE AID PROJ. NO.

NOTES:
15/16 OPEN HOLES UNLESS NOTED
RIVETS UNLESS NOTED
SHOP COAT PAINT
CHECKED BY: MM

PACAL STEEL
PAPER, CALMENSON & CO.
HIGHWAY 280 AT HIGHWAY 36 • SAINT PAUL, MINNESOTA 55165

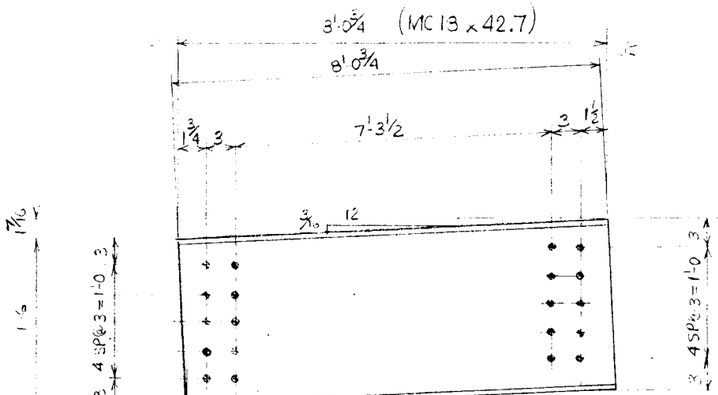
GIRDERS
JOB: MHD BR. NO. 7092 C.S. A.H. NO. 1 OVER WILLOW CREEK
LOCATION: ROCHESTER, MINN.
CONTRACTOR: OLMSTED COUNTY
ARCHITECT: OLMSTED COUNTY

REVISIONS:
DRAWN BY: WHG
DATE:
APPROVED: 4-20-73
JOB NO.: 73-3012
SHEET NO. S1 OF 3



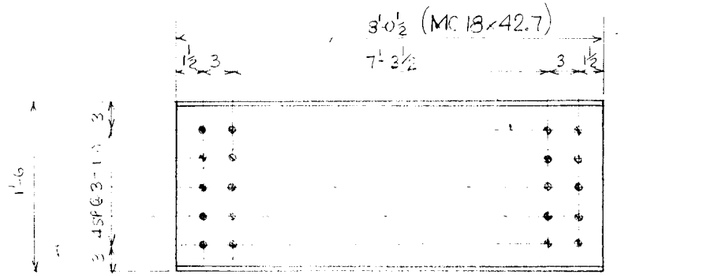
4 DIAPHRAGME THIS MK 2D1

4 do REV. MK 2D2



2 DIAPHRAGMS THIS MK 2D3

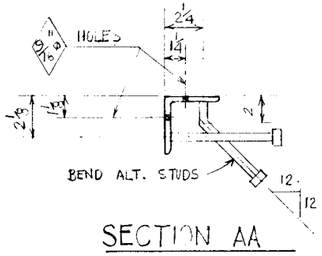
2 do REV. MK 2D4

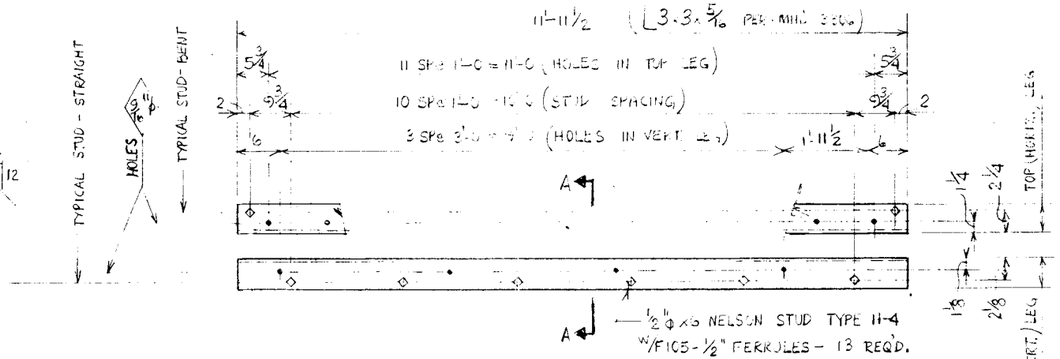


2 DIAPHRAGMS THIS MK 2D5

NOTES

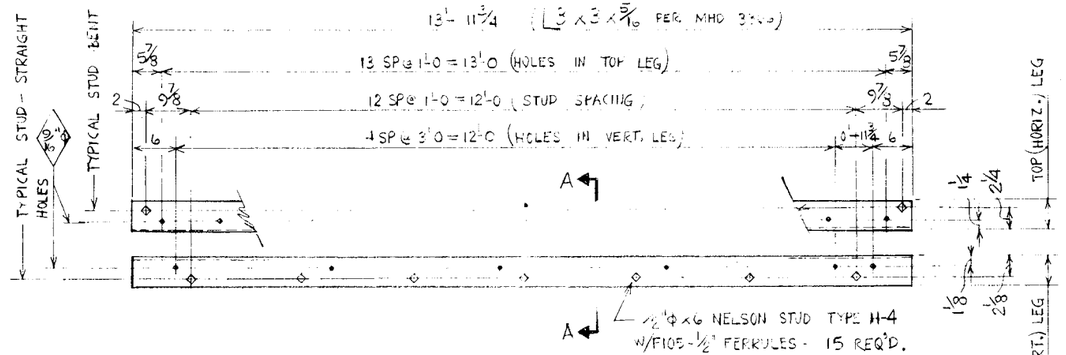
1. ALL MATERIAL SHALL BE AS PER MHD 3309 (ASTM A36) UNLESS NOTED OTHERWISE.
2. SEE SHEET NO. E! FOR SHOP FABRICATION NOTES.
3. NO INSPECTION BY MHD BEFORE AND AFTER GALVANIZING.





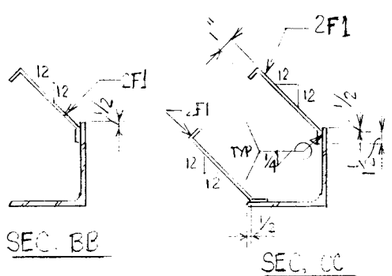
4 PROTECTION ANGLES THUS MK 2A1

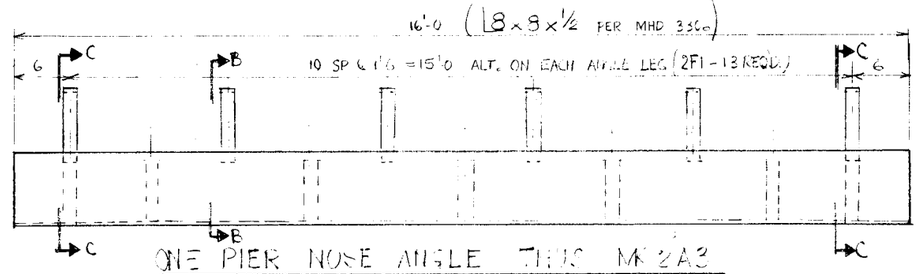
GALVANIZE PER MHD 3394 AFTER FABRICATION



4 PROTECTION ANGLES THUS MK 2A2

GALVANIZE PER MHD 3394 AFTER FABRICATION





ONE PIER NOSE ANGLE THUS MK 2A3

GALVANIZE PER MHD 3394 AFTER FABRICATION

MARK	NO.	DESCRIPTION	MHD SPEC
2D1	4	MC18x42.7 x 8'-0¾	3309
2D2	4	x 8'-0¾	
2D3	2	x 8'-0½	
2D4	2	x 8'-0¾	
2D5	2	x 8'-0½	
2A1	4	L3x3x5/16 x 11'-11½	3306
2A2	4	do x 13'-11¾	3306
–	112	½"Φx6 NELSON STUDS	
2A3	1	L8x8x½ x 16'-0	3306
2F1	13	⅜x1½ HRFLT x 1'-0	3306

STATE AID PROJ. NO.

NOTES:

15/16 OPEN HOLES UNLESS NOTED

RIVETS UNLESS NOTED

NONE SHOP COAT PAINT

CHECKED BY: MM

PACAL STEEL **PAPER, CALMENSON & CO.**
HIGHWAY 280 AT HIGHWAY 36 • SAINT PAUL, MINNESOTA 55165

DIAPHRAGMS & PROT./NOSE ANGLES

JOB: MHD BR. NO. 7052 S.A.H. NO. 7 OVER WILLOW CREEK

LOCATION: ROCHESTER, MINN.

CONTRACTOR: OLMSTED COUNTY

ARCHITECT: OLMSTED COUNTY

REVISIONS:

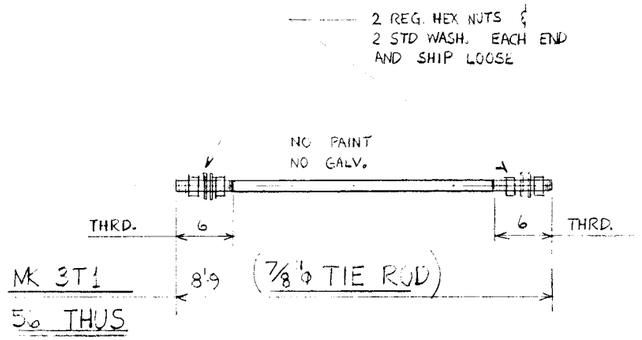
DRAWN BY: WHG

DATE:

APPROVED: 4-23-73

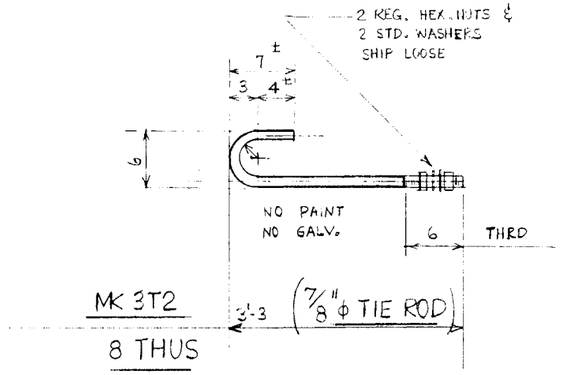
JOB NO.: 72-312

SHEET NO. 32 OF 3



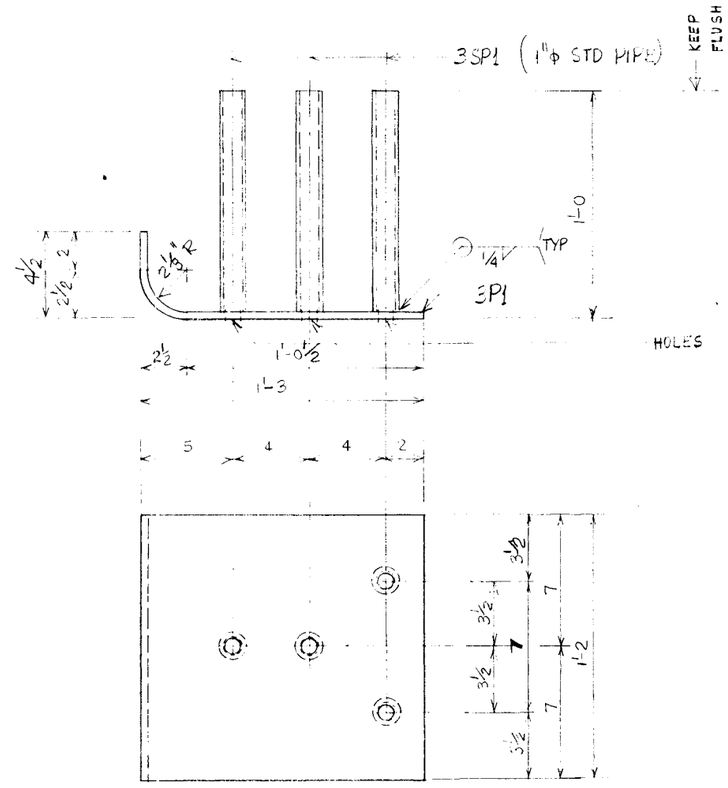
MK 3T1

5 THUS



MK 3T2

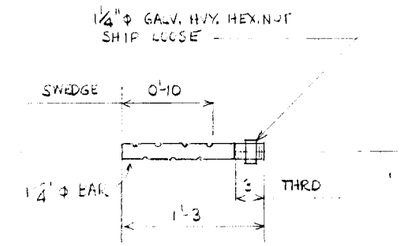
8 THUS



4 GUARD RAIL PLATES

THUS MK 3P1

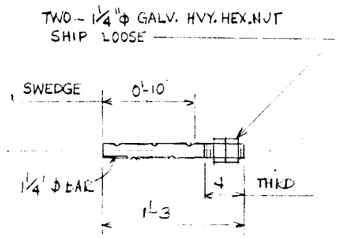
GALVANIZE PER MHD 3394 AFTER FABRICATION



32 ANCHOR BOLTS

THUS MK 3AB1

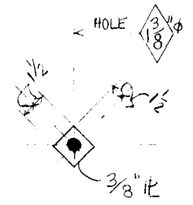
GALVANIZE AS PER MHD 3392
AFTER FABRICATION



32 ANCHOR BOLTS

THUS MK 3AB2

GALVANIZE AS PER MHD 3392
AFTER FABRICATION



64 WASHERS

THUS MK 3W1

GALVANIZE AS PER MHD 3392
AFTER FABRICATION

PLAIN MATERIAL

32: 7/8 x 2¼ HS BOLT (A325)
32: 7/8" ϕ HARD WASHERS (WEATH R)

NOTES

1. ALL MATERIAL SHALL BE AS PER MHD 3306 (ASTM A36)
2. SEE SHEET NO. E1 FOR SHOP FABRICATION NOTES
3. ALLOW FOR GALVANIZE IN THREADS

MARK	NO.	DESCRIPTION	MHD SPEC
3P1	4	PL 3/8 x 14 x 1'-6 1/8	3306
3SP1	16	1" ϕ STD. PIPE x 0'-11 5/8	3306
3T1	56	7/8" ϕ HR. RD x 8'-9	3306
3T2	8	do x 4'-2	3306
—	240	7/8" ϕ STD WASHERS	—
—	240	7/8" ϕ REG. HEX NUT	—
3AB1	32	1¼" ϕ HR. RD. x 1'-6	3306
3AB2	32	do x 1'-3	3306
—	96	1¼" ϕ GALV. HVY. HEX NUT	—
3W1	64	3/8 x 3 HR PLT x 0'-3	3306

STATE AID PROJ. NO.

NOTES:

15/16 OPEN HOLES UNLESS NOTED

RIVETS UNLESS NOTED

NONE SHOP COAT PAINT

CHECKED BY: MJM

PACAL STEEL **PAPER, CALMENSON & CO.**
HIGHWAY 280 AT HIGHWAY 36 • SAINT PAUL, MINNESOTA 55165

TIE RODS, ANCH. BOLTS, GUARD RAIL PL

JOB: MHD BR. NO. 7092 C.S.A.H. NO. OTHER WILSON WEEKS

LOCATION: ROCHESTER, MINN.

CONTRACTOR: OLMSTED COUNTY

ARCHITECT: OLMSTED COUNTY

REVISIONS:

DRAWN BY: WHG
DATE:
APPROVED: 4-26-73
JOB NO.: 73-3012

SHEET NO. S3 OF 3