FORM 100-A '65

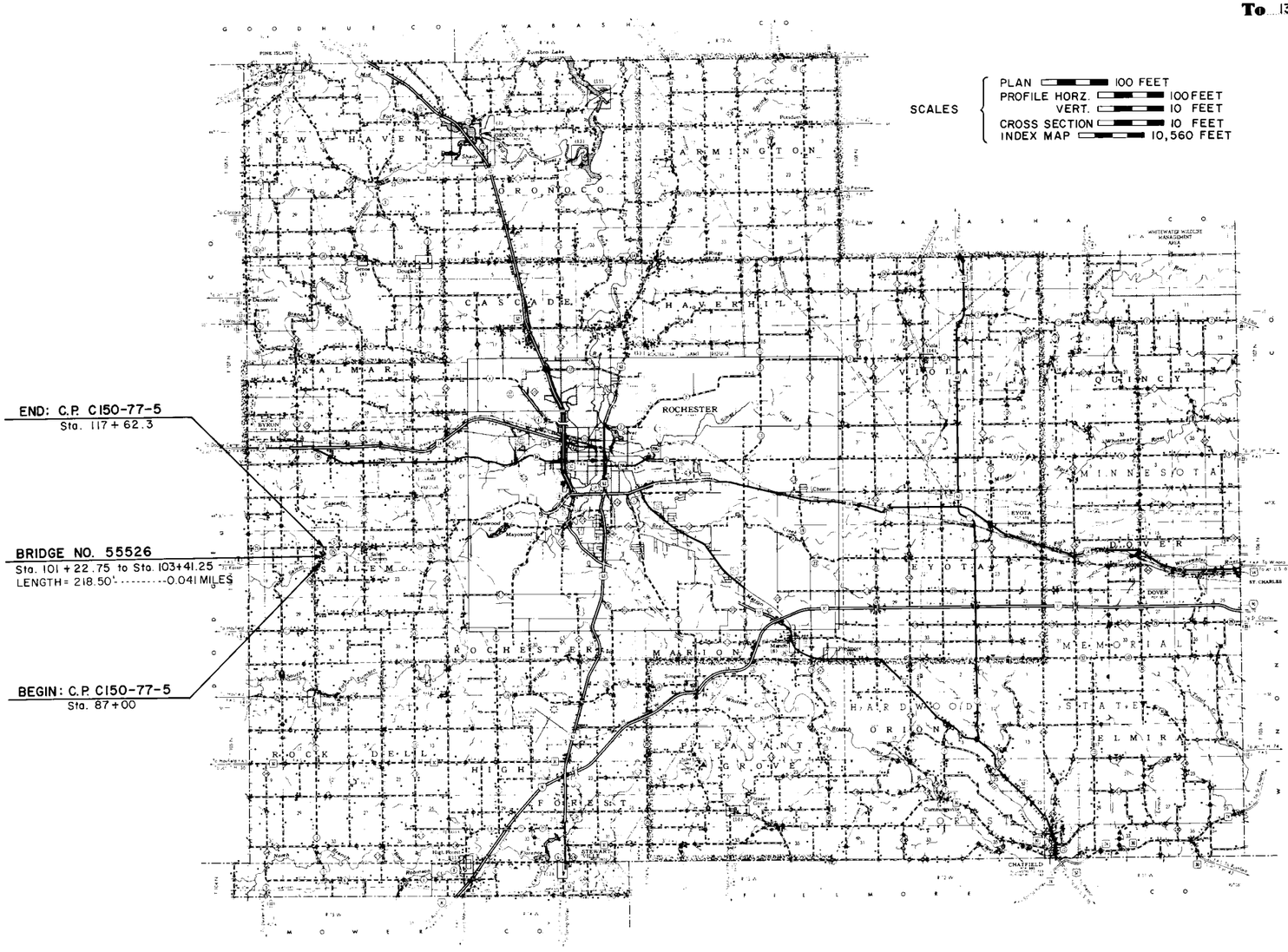
Minn. **Proj. No.** OS 9055(2)

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 (NAME)
DRY RUN
DRAINAGE DITCH (SIZE)
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 (TIMBER)
CATCH BASIN C.B.
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 (G)
SAND PIT (S)
BORROW PIT (B)
ROCK QUARRY (Q)

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 T-BUR
BURIED ELECTRIC CABLE P-BUR
AERIAL TELEPHONE CABLE T-AE
SEWER, (SANITARY OR STORM)
SEWER MANHOLE



SCALES
PLAN 100 FEET
PROFILE HORZ. 100 FEET
VERT. 10 FEET
CROSS SECTION 10 FEET
INDEX MAP 10,560 FEET

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLAN FOR Grading, Agg. Base and Br. No. 55526

COUNTY **AID HIGHWAY NO.** 150

BETWEEN C.S.A.H. 3 **AND** C.S.A.H. 25

From 1327.4' East and 3062.3' S.W. of W.1/4 Corner Sec. 16 T.106N. – R.15W.
Give proper reference to Sections, Township and Range

To 1327.4' East of W.1/4 Corner Sec. 16 T.106N. – R.15W.

GROSS LENGTH	3062.30	FEET	0.580 MILES
BRIDGES-LENGTH	218.50	FEET	0.041 MILES
EXCEPTIONS-LENGTH		FEET	MILES
NET LENGTH	3062.30	FEET	0.580 MILES

INDEX OF SHEETS

Sheet No. 1 Title Sheet & Layout Map
" No. 2 Est. Quantities & Typical Sec.
" No. 3 To 4 Plan & Profile
" No. 5 To 9 Cross Sections
" No. 1 To 17A Bridge Sheets

DESIGN SPEED 40 **M. P. H.**

PROJECTED A. D. T. 238

7 **TON DESIGN**

SOIL FACTOR 130

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

J.K. Dolan COUNTY ENGINEER DATE 7-18-77

Olmsted COUNTY REG. NO. 10219

RECOMMENDED FOR APPROVAL G.M. Maidl DISTRICT STATE AID ENGINEER 7-15 19 77

RECOMMENDED FOR APPROVAL O.A. Bhristofferson FOR BRIDGE ENGINEER 7-21 19 77

APPROVED Aug 3 19 77 Roy F. Wilson Asst. STATE AID ENGINEER

— **SPECIFICATIONS** —
MINNESOTA HIGHWAY DEPARTMENT
STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION DATED JANUARY 1, 1972
AS AMENDED BY SUPPLEMENTAL SPECIFICATIONS DATED APRIL 1, 1976 SHALL GOVERN.

Minn. Project No. S.A.P.

State Project No. 55-600-01
55-598-02

OLMSTED County, Minnesota. County Proj. No. C150-775 Plan No. Sheet 1 of 9 Sheets

ESTIMATED QUANTITIES

SPECIFICATION NO.	ITEM	UNIT		C.P. 55-600-01 RURAL	TOTAL ESTIMATED QUANTITIES	
2101.502	CLEARING	TREE		112	112	
2101.507	GRUBBING	TREE		107	107	
2104.501	REMOVE PIPE CULVERTS	LIN. FT.		128	128	
2105.501	COMMON EXCAVATION	CU. YD.		10522	10522	(P)
2105.507	SUBGRADE EXCAVATION	CU. YD.		1502	1502	(P)
2105.523	COMMON BORROW (CV)	CU. YD.		10885	10885	
(1) 2211.502	AGGREGATE BASE, CLASS 2	CU. YD.		1924	1924	
2501.511	18" C.S. PIPE CULVERT	LIN. FT.		184	184	
2501.511	30" C.S. PIPE CULVERT	LIN. FT.		84	84	
2501.511	30" R.C. PIPE CULVERT CLASS III	LIN. FT.		52	52	
2501.515	18" G.S. PIPE APRONS	EACH		12	12	
2501.515	30" G.S. PIPE APRONS	EACH		6	6	
2501.515	30" R.C. PIPE APRONS	EACH		2	2	

(P) PLAN QUANTITY

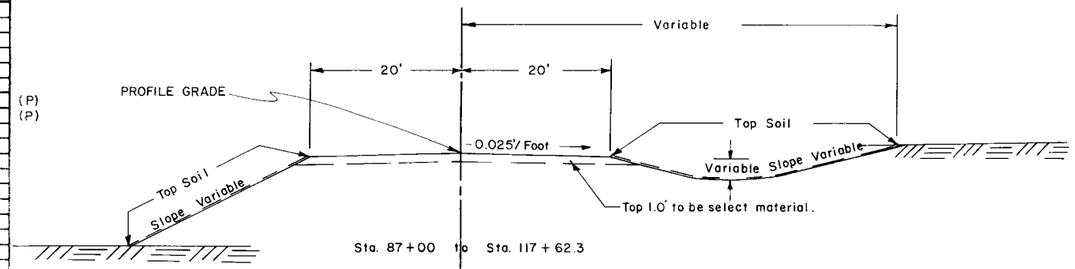
(1) ITEM 2211.502 INCLUDES 450 CU. YDS. FOR 9 APPROACHES.

STANDARD PLATES

THE FOLLOWING STANDARD PLATES, APPROVED BY THE DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.

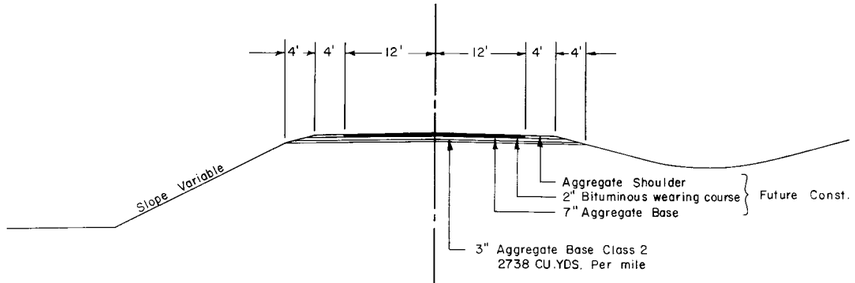
PLATE NO.	DESCRIPTION
0002 A	SPECIFICATION REFERENCE TO STANDARD PLATES
3000 G	REINFORCED CONCRETE PIPE
3040 D	CORRUGATED METAL PIPE
3100 F	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3123 G	METAL APRON FOR C.M. PIPE.
3145 A	CONCRETE PIPE JOINT TIES. EYE BOLT TIE.
8000 F	STANDARD BARRICADES
9000 B	APPROACHES AND ENTRANCES.

TYPICAL GRADING SECTIONS



Sta. 87+00 to Sta. 117+62.3

TYPICAL BASE AND SURFACE SECTION



Sta. 87+00 to Sta. 117+62.3

SPECIAL DETAILS

NOTE: MATERIAL FROM THE UPPER 1.0' OF THE NATURAL TOP SOIL SHALL NOT BE USED IN THE UPPER 1.0' OF THE ROADWAY. PART OF THIS MATERIAL SHALL BE UNIFORMLY SPREAD ON SLOPES AND DITCH BOTTOMS TO A DEPTH OF 3". NO PAYMENT IN ADDITION TO THE CONTRACT PRICE FOR COMMON EXCAVATION WILL BE MADE FOR SPREADING THE TOPSOIL AS ABOVE PROVIDED, NOR WILL ANY UNDERCUTTING MADE IN EXCAVATION PRIOR TO PLACING THE TOPSOIL BE MEASURED FOR PAYMENT.

NOTE: CORRUGATED STEEL AND REINFORCED CONCRETE PIPE CULVERT EXCAVATION WILL BE CONSIDERED INCIDENTAL, AND WILL BE INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR "PIPE CULVERT."

NOTE: SUBGRADE TREATMENT:
EXCAVATE 1.0' BELOW PROFILE GRADE FOR COMPACTION, AS SHOWN ON THE PLAN AND PROFILE SHEETS. EXCAVATION HAS BEEN COMPUTED AND IS LISTED AS SUBGRADE EXCAVATION. BACKFILL WITH SELECT MATERIAL FROM R.O.W. TAPERS SHALL BE 50:1 IN ALL CASES.

NOTE: PLACE SECTIONAL CONCRETE PIPE ON CLASS "B" AND "C" BEDDING AS DIRECTED BY THE ENGINEER. ALL BEDDING TO BE CONSIDERED AS INCIDENTAL AND NO DIRECT COMPENSATION SHALL BE MADE THERE FOR.

NOTE: ALL DIMENSIONS AND SLOPES SHOWN ON TYPICAL SECTIONS ARE APPROXIMATE.

ABINSON, INC. MINNEAPOLIS

Minn. Proj. No. _____

S.A.P. _____
State Project No. 55-600-01

Olmsted County, Minn. Proj. No. CI50-77-5 Plan No. _____ Sheet No. 2 of 9 Sheets

Fed. Proj. No.

FE. Lt. 89+36
No Culv. Inpl.

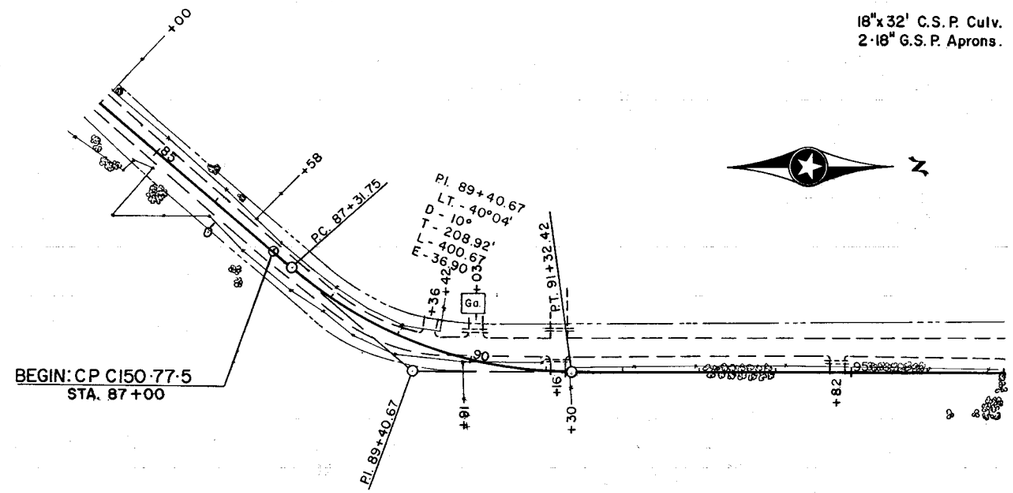
Res. Dr. Lt. 90+03
No Culv. Inpl.

18"x 28' C.S. Pipe Culv.
2-18" G.S.P. Aprons

18"x 32' C.S.P. Culv.
2-18" G.S.P. Aprons

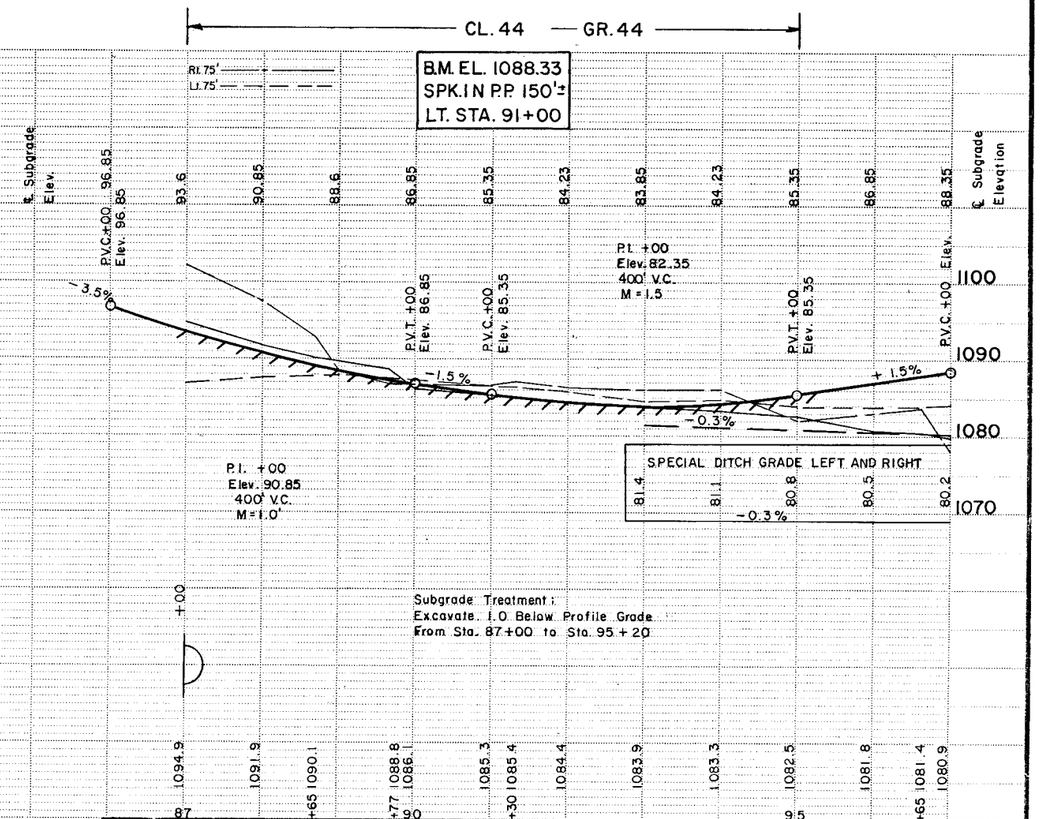
Res. Dr. Lt. Sta. 91+16
Inpl. 15" x 24' C.M.P.
Remove

18"x 32' C.S.P. Culv.
2-18" G.S.P. Aprons.



FE. Rt. 91+16
Inpl. 15"x 24' C.M.P.
Remove

30"x 28' C.S.P. Culv.
2-30" G.S.P. Aprons.



OLMSTED COUNTY, MINN.

State Proj. No. S.P. 55-600-01 C.P. C150-77-5 C.R. 150 **Sheet No.** 3 **of** 9 **Sheets**

Fed. Proj. No.

F. Ent. Lt. 98+60
No Culv. Inpl.
18"x 32' C.S. Pipe Culv.
2-18" G.S. Pipe Aprons

Res. Drive Lt. 109+18
No Culv. Inpl.
No Culv. Req'd.

E Ent. Lt. 110+67
No Culv. Inpl.
18"x 28' C.S. Pipe Culv.
2-18" G.S. Pipe Aprons

Res. Drive Lt. 111+83
No Culv. Inpl.
18"x 32' C.S. Pipe Culv.
2-18" G.S. Pipe Aprons

50' 50'

SALEM CREEK

BR. NO. L6338 (REMOVE)

POT. 103+52.85

Tele. Cable Marker

Barn Bldg.

Tele. Cable Marker

Mob. Ho.

Ho.

Tele. Cable Marker

5/8" Rod Inplace

Const. 50' Radius

17°

P.I. 91+30.00
Inplace 1/2" Rod

CONSTR. BR. NO. 55526

P.I. 117+62.30
Inplace Nail

END: CP C150-77-5
STA. 117+62.3

C.S.A.H. 25

F. Ent. Rt. 94+82
Inpl. 18"X 20' C.M.P.
Remove
30"x 28' C.S. Pipe Culv.
2-30" G.S. Pipe Aprons.

F. Ent. Rt. 101+10
No Culv. Inpl.
Move F.E. to Sta. 97+50
30"x 28' C.S. Pipe Culv.
2-30" G.S. Pipe Aprons

Br. No L6338
20' Lt. 102+52
Inpl. I Beam Span with
Concrete Deck 6" Conc. Piers
Remove Old Bridge

℄ Culv. 106+93
Inpl. 30"X30' C.M.P.
Remove
No Culv. Req'd.

F. Ent. Rt. 112+63
No Culv. Inpl.
No Culv. Req'd.

℄ Culv. 113+54
Inpl. 18"X30' C.M.P.
Remove
30"x 52" R.C. Pipe Culv. Class III
2-30" R.C. Pipe Culv. Aprons
Place Culv. on "B" Bedding.
F&I-Approved Joint Ties.

Remove F.Ent. Rt. Sta. 117+45
Move F. Ent. to 90° Rt. 117+45
No Culv. Req'd.

CL. 39 — GR. 39 | CL. 29 — GR. 24

B.M. EL. 1085.45
N.E. CORNER BR. ABUTMENT

B.M. EL. 1087.04
SPK. in P.P. 53' LT.
℄ STA. 114+96

℄ Subgrade Elevation

P.V.T. +00 Elev. 85.35
P.V.C. +00 Elev. 88.35
P.I. +00 Elev. 91.35 400' V.C. M = 1.0'
P.V.T. +00 Elev. 90.35
+22.75 Sp. End Br.
BRIDGE NO. 55526
+41.25 North End of Bridge
P.V.C. +00 Elev. 85.85
P.I. +00 Elev. 84.85 400' V.C. M= 0.8'
P.V.T. +00 Elev. 87.05
P.V.C. +00 Elev. 88.15
P.V.T. +00 Elev. 86.25

+1.5% −0.3% −0.5% +0.5% +0.3% +1.1% −0.3% 0.0%

Inlet Elev. 82.4±
Outlet Elev. 82.0

SPECIAL DITCH GRADE LEFT AND RIGHT −0.3%
SPECIAL DITCH GRADE LEFT +0.3%
SP. DIT. LT. +0.5%
SPECIAL DITCH GRADE LEFT -0.3%

P.I. +00 Elev. 89.25 200 V.C. M=0.275'

75' Left
75' Right

COMMON EXC.	7617 CU. YDS.	EMB. 9670 CU. YDS.	
COMMON BORROW	4417 CU. YDS. (C.V.)		
SUBGRADE EXC.	996 CU. YDS.		

COMMON EXC.	2905 CU.YDS.	EMB. 8426 CU.YDS.	
COMMON BORROW	6468 CU.YDS. (C.V.)		
SUBGRADE EXC.	506 CU. YDS.		

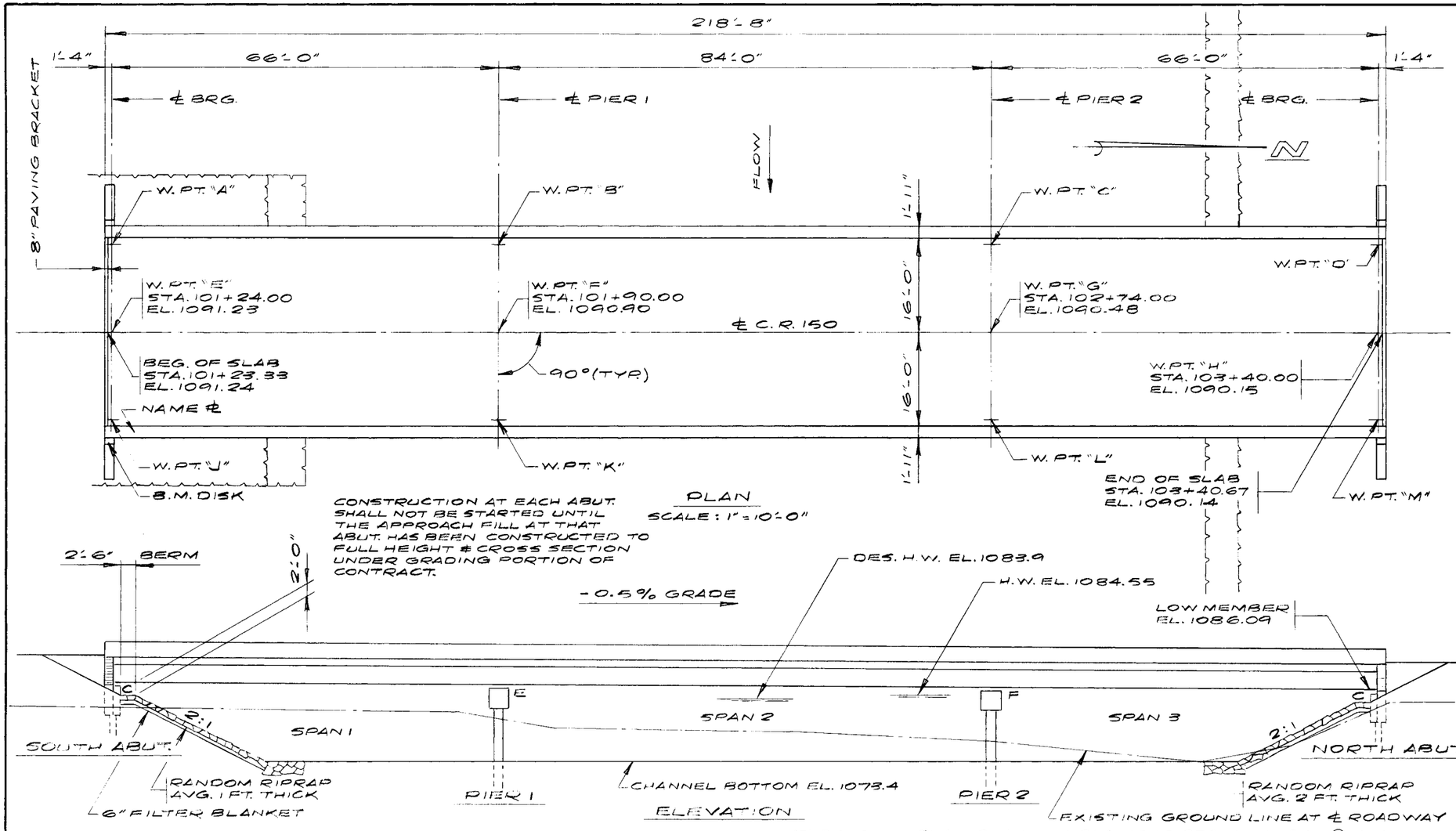
Note: Common Channel Excavation shall be incorporated into the approach fill.

Subgrade Treatment:
Excavate 1.0' Below Profile Grade
From Sta. 108+50 to Sta. 117+45

BRIDGE 55526
OLMSTED COUNTY

OLMSTED COUNTY, MINN.

State Proj. No. S.P. 55-600-01 CP C150-77-5 CR 150 Sheet No. 4 of 9 Sheets

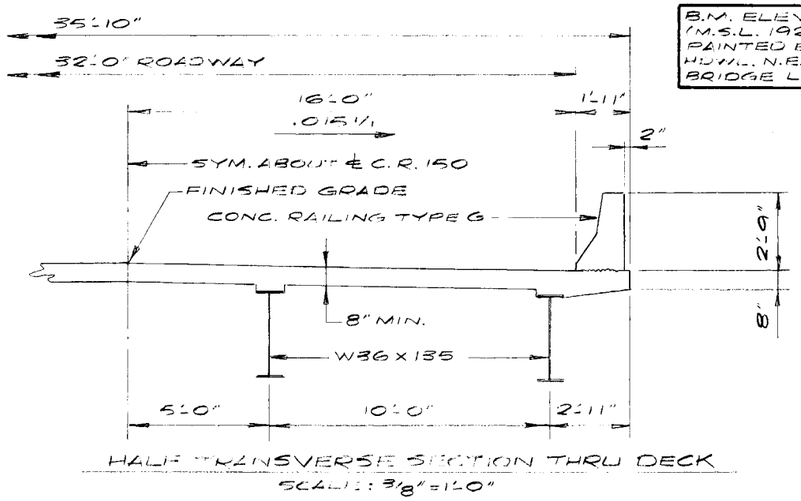


PLAN

SCALE: 1" = 10'-0"

CONSTRUCTION AT EACH ABUT. SHALL NOT BE STARTED UNTIL THE APPROACH FILL AT THAT ABUT. HAS BEEN CONSTRUCTED TO FULL HEIGHT & CROSS SECTION UNDER GRADING PORTION OF CONTRACT.

ELEVATION



HALF TRANSVERSE SECTION THRU DECK

SCALE: 3/8" = 1'-0"

B.M. ELEV. 1085.45
(M.S.L. 1929 ADJ.)
PAINTED END OF
HOWL. N.E. END OF
BRIDGE L6338

(P) DENOTES PLAN QUANTITY PAY ITEMS PER M.H.D. 1401. ① STA. 102+50

SCHEDULE OF QUANTITIES FOR ENTIRE BRIDGE

	ITEM NO.	ITEM	QUAN.	UNIT
	2401.501	CONCRETE, MIX NO. 3Y43	83 (P)	CU.YD.
	2401.501	CONCRETE, MIX NO. 3X33	220 (P)	CU.YD.
	2401.501	CONCRETE, MIX NO. 3X46A	52 (P)	CU.YD.
	401.610	STRUCTURE EXCAVATION	1	LUMP SUM
	2401.541	REINFORCEMENT BARS	66570 (P)	POUND
	2402.521	STRUCTURAL STEEL, (3306)	550 (P)	POUND
	2402.521	STRUCTURAL STEEL, (3309)	152070 (P)	POUND
	2402.546	FLOOR DRAINS, TYPE I	14	EACH
	402.625	ELASTOMERIC BEARING ASSEMBLY, TYPE I	4	EACH
	2405.511	ELASTOMERIC BEARING PAD, TYPE I	8	EACH
	2405.511	ELASTOMERIC BEARING PAD, TYPE 2	4	EACH
①	2442.501	REMOVE OLD BRIDGE	1	LUMP SUM
	2511.501	RANDOM RIPRAP, CLASS A	430	CU.YD.
	2511.504	FILTER BLANKET, TYPE II	137	CU.YD.
	2452.507	CAST-IN-PLACE CONCRETE PILING DELIVERED (12" Φ)	450	LIN. FT.
	2452.507	CAST-IN-PLACE CONCRETE PILING DELIVERED (20" Φ)	450	LIN. FT.
	2452.508	CAST-IN-PLACE CONCRETE PILING DRIVEN (12" Φ)	450	LIN. FT.
	2452.508	CAST-IN-PLACE CONCRETE PILING DRIVEN (20" Φ)	450	LIN. FT.
	2452.519	CAST-IN-PLACE CONCRETE TEST PILING, 55 FT. LONG (12" Φ)	2	EACH
	2452.519	CAST-IN-PLACE CONCRETE TEST PILES, 55 FT. LONG (20" Φ)	2	EACH
	2105.511	COMMON CHANNEL EXCAVATION	2908	CU.YD.

DESIGN DATA

1973 AASHTO DESIGN SPECIFICATIONS
LOAD FACTOR DESIGN METHOD
H520 LOADING
INCLUDES 30 PS.F. D.L. ALLOWANCE FOR FUTURE WEARING COURSE
REINFORCED CONCRETE:
f'c = 4000 P.S.I. n = 8
fy = 60000 P.S.I. REINFORCEMENT
STRUCTURAL STEEL:
fy = 36000 P.S.I. M.H.D. 3306
fy = 50000 P.S.I. M.H.D. 3309
DECK AREA = 7836 SQ. FT.
263 PROJECTED ADT FOR 1997

CONSTRUCTION NOTES

THE MINNESOTA HIGHWAY DEPARTMENT "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION" DATED JAN. 1, 1972 SHALL GOVERN AS AMENDED BY "SUPPLEMENTAL SPECIFICATIONS" DATED APRIL 1, 1976.

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.

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

LIST OF SHEETS

NO.	TITLE
1	GENERAL PLAN & ELEVATION
2	BRIDGE LAYOUT
3	ABUTMENT DETAILS
4	ABUTMENT REINFORCEMENT
5	PIER DETAILS
6 & 7	SUPERSTRUCTURE DETAILS
8	FRAMING PLAN
9	STRUCTURAL STEEL DETAILS
10	CONCRETE RAILING DETAILS
11 - 15	DETAILS
16	BRIDGE SURVEY
17	BRIDGE SURVEY-PLAN & PROFILE
17A	X SECTIONS OF CHANNEL EXCAVATION

APPROVED:

2-18-77
DATE

J.K. Nelson
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.

Tim Hopkins

DATE 2-10-77 REG. NO. 11273

PLANS PREPARED BY
ROBERT E. ERICKSON ENGR. CO.
3340 REPUBLIC AVE
ST. LOUIS PARK, MINN. 55426

C.R. 150 OLMSTED COUNTY
MINNESOTA DEPARTMENT
OF TRANSPORTATION

BRIDGE NO. 55526

1.5 MI. WEST OF SALEM CORNERS ON C.R. 150 OVER SALEM CREEK

66'-84'-66' STEEL CONTINUOUS BEAM SPAN IDENT. NO. 401

32'-0" ROADWAY

GENERAL PLAN & ELEVATION

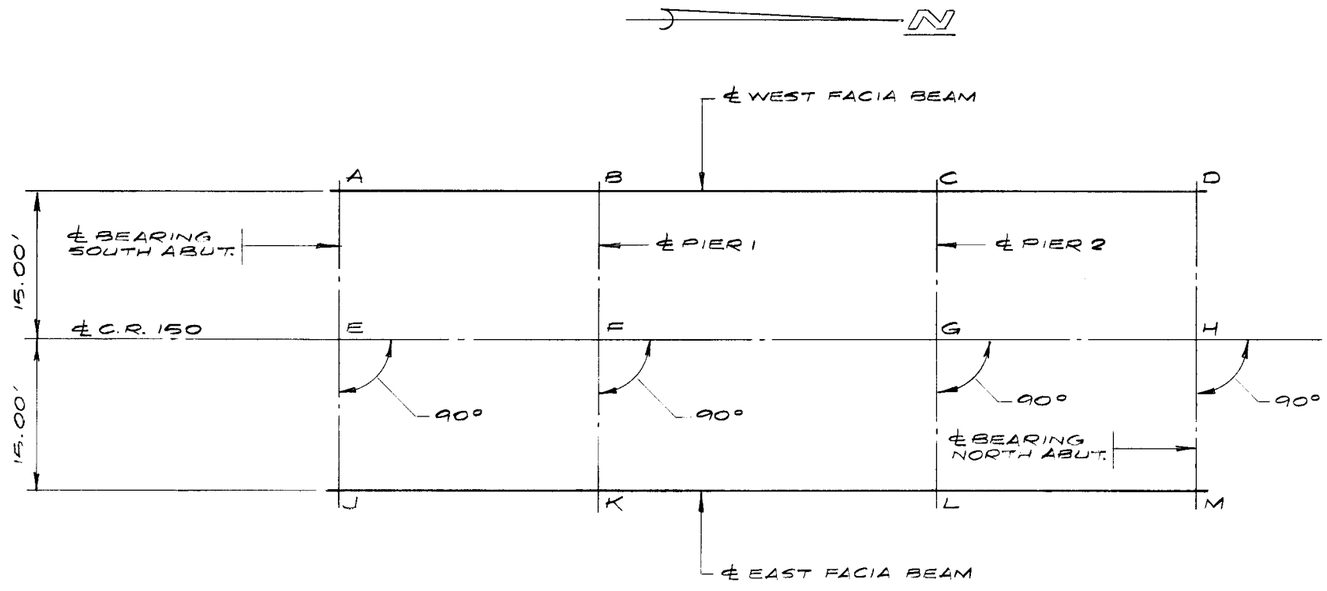
SEC. 16 T106N R15W

SALEM TWP.

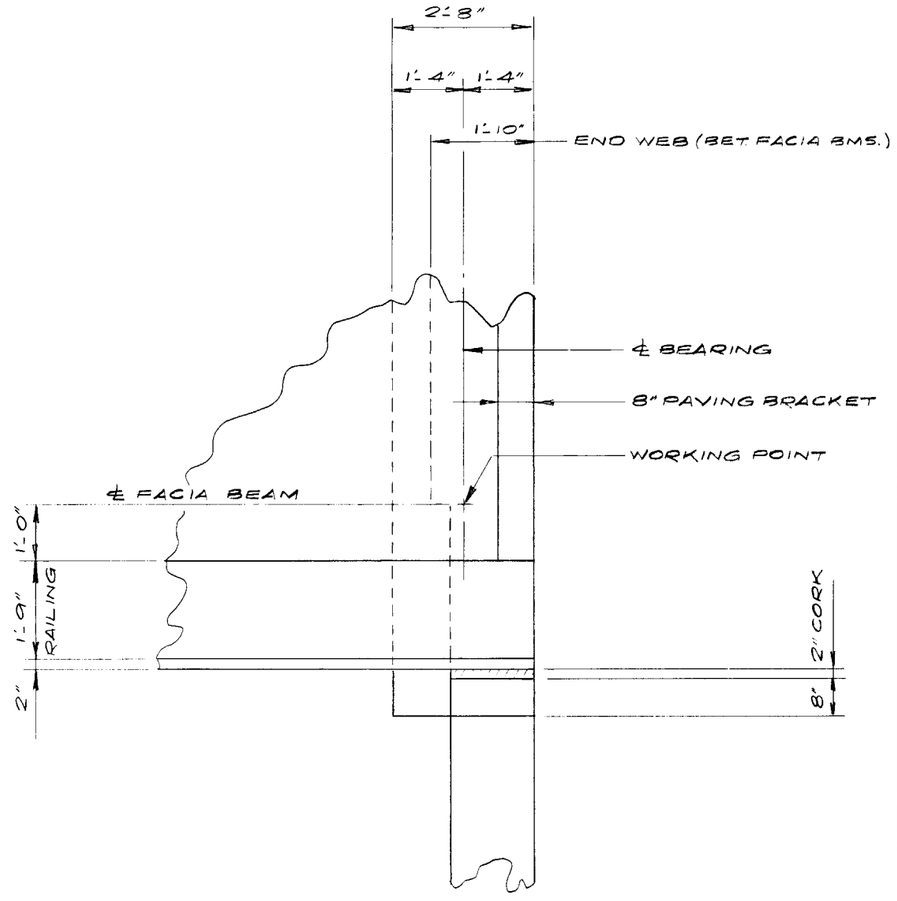
OLMSTED COUNTY

APPROVED: 7-21-77

O.A. Christopherson
FOR BRIDGE ENGINEER



LAYOUT SHOWING WORKING POINTS
(NO SCALE)



TYPICAL CORNER DETAIL
SCALE: 3/4"=1'-0"

DIMENSIONS BETWEEN WORKING POINTS													
POINT	STATION	A	B	C	D	E	F	G	H	J	K	L	M
A	101+24.00												
B	101+90.00	66.00'											
C	102+74.00		84.00'										
D	103+40.00			66.00'									
E	101+24.00	15.00'											
F	101+90.00	67.68'	15.00'			66.00'							
G	102+74.00		85.33'	15.00'			84.00'						
H	103+40.00			67.68'	15.00'			66.00'					
J	101+24.00			152.97'		15.00'							
K	101+90.00	72.50'		89.20'		67.68'	15.00'			66.00'			
L	102+74.00	152.97'	89.20'				85.33'	15.00'			84.00'		
M	103+40.00		152.97'	72.50'				67.68'	15.00'			66.00'	

ELEVATIONS			
TOP OF SLAB	SLAB TO BR SEAT	BRIDGE SEAT	POINT
1091.01	4.32	1086.69	A
1090.68	4.25	1086.43	B
1090.26	4.08	1086.18	C
1089.93	4.32	1085.61	D
1091.23			E
1090.90			F
1090.48			G
1090.15			H
1091.01	4.32	1086.69	J
1090.68	4.25	1086.43	K
1090.26	4.08	1086.18	L
1089.93	4.32	1085.61	M

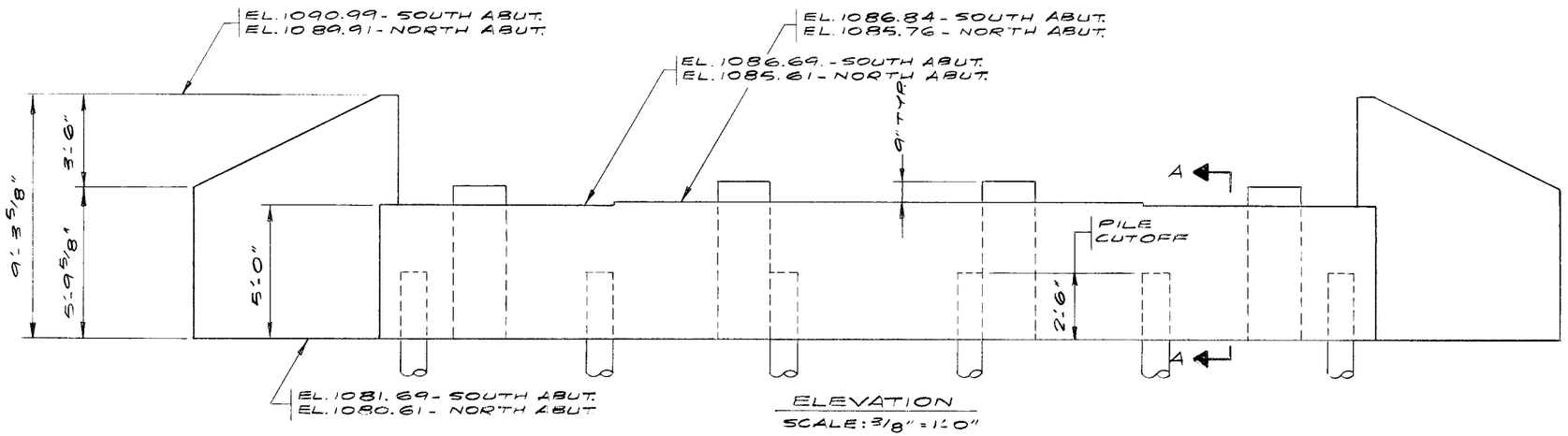
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55526

BRIDGE LAYOUT

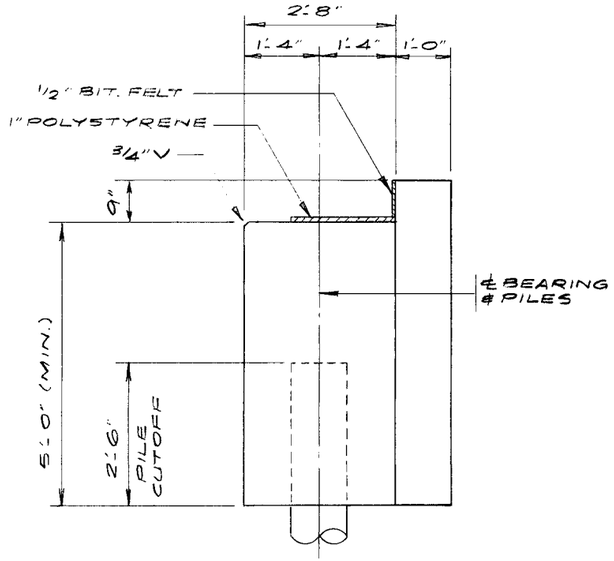
APPROVED: 7-01-77

55526 GRC NJR



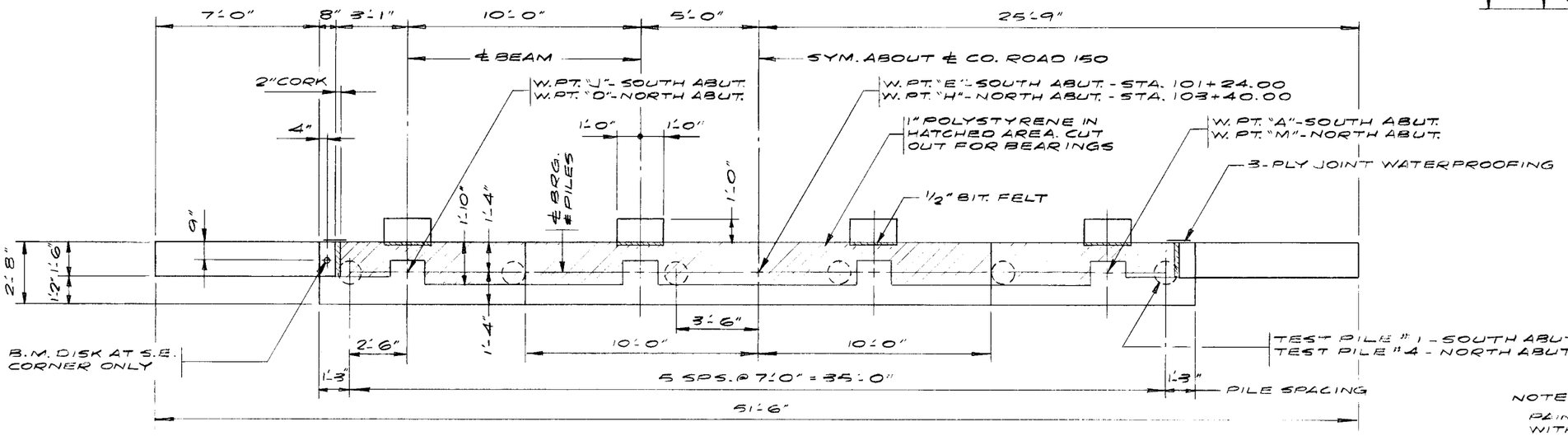
ELEVATION

SCALE: 3/8" = 1'-0"



SECTION A-A

SCALE: 3/4" = 1'-0"



PLAN

SCALE: 3/8" = 1'-0"

NOTE:

PAINT ALL EXPOSED CONC. SURFACES WITH PROTECTIVE COATING. SEE SPECIAL PROVISIONS.

PILE NOTES

2 CAST-IN-PLACE CONCRETE TEST PILES 55 FT. LONG
10 " " " " PILES EST. LENGTH 46 FT.
12 " " " " REQ'D. FOR 2 ABUTMENTS
PILES TO HAVE A NOMINAL DIAMETER OF 12".
FOR PILE SPLICE SEE DETAIL B201.

COMPUTED PILE LOADS (TONS PER PILE)	
DEAD LOAD	21.5
LIVE LOAD	13.5
TOTAL	35.0

SUMMARY OF QUANTITIES - 2 ABUTMENTS		
CONCRETE, MIX NO. 3Y43	54	CU.YD.
REINFORCEMENT BARS	4635	POUND
STRUCTURE EXCAVATION	1	LUMPSUM
(1) B.M. DISK (SEE STD. PLATE NO. 9300)	1	
CAST-IN-PLACE CONC. TEST PILES, 55'LG. (12"ϕ)	2	EACH
(2) CAST-IN-PLACE CONC. PILING DELIV. (12"ϕ)	450	LIN. FT.

(1) COUNTY WILL FURNISH DISK. PAYMENT FOR PLACING DISK TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS. SEE STD. PLATE NO. 9301 FOR PLACING.

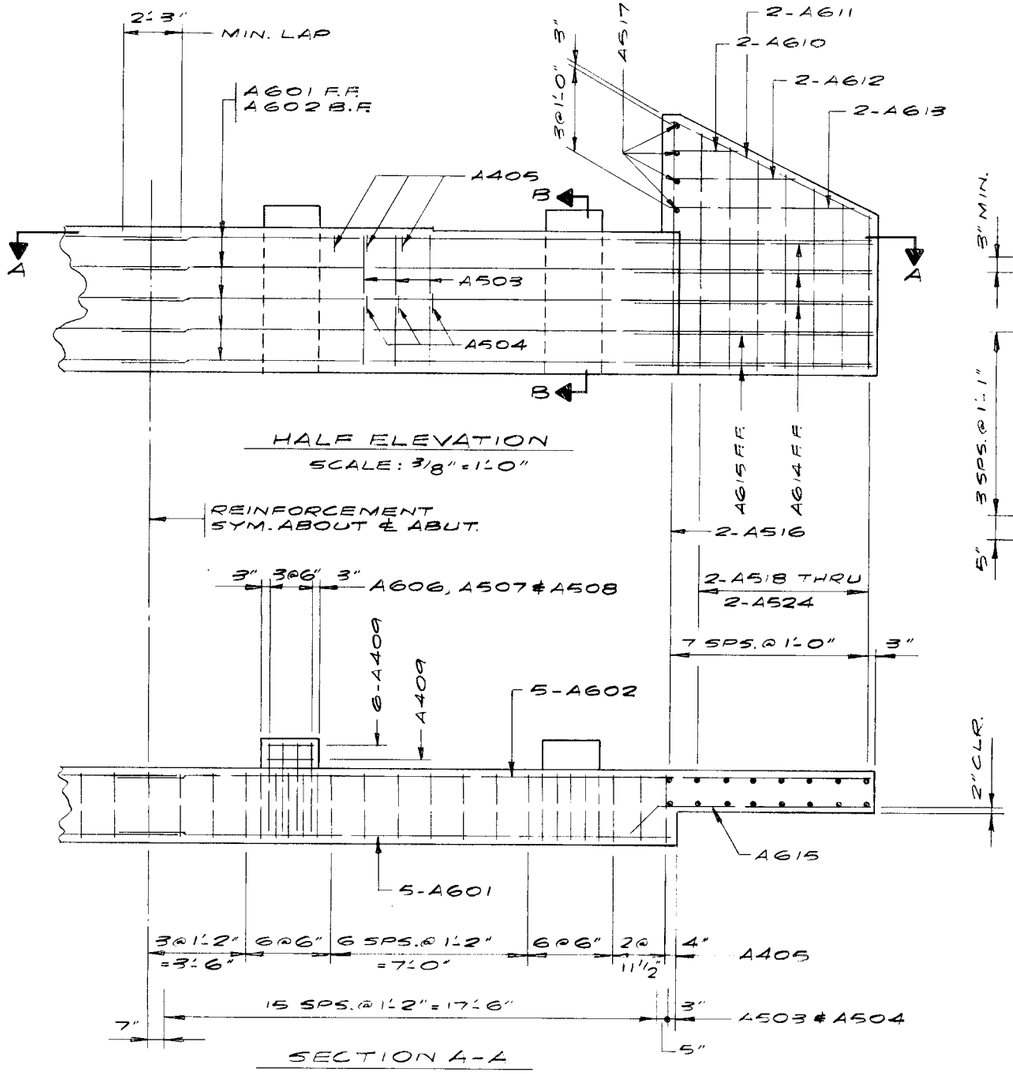
(2) DOES NOT INCLUDE TEST PILES.

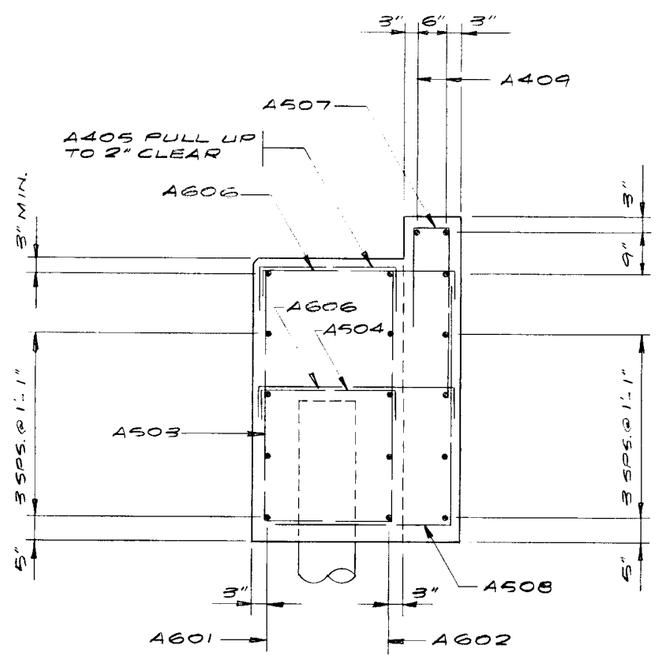
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55526

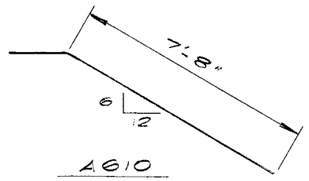
ABUTMENT DETAILS

APPROVED: 7-21-77

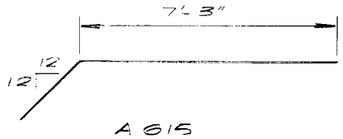


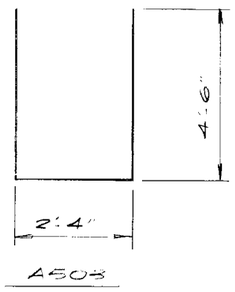


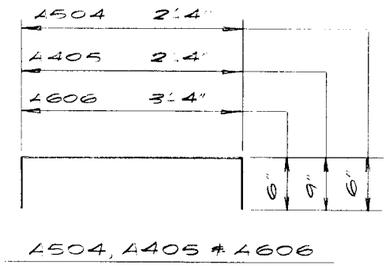
BILL OF REINFORCEMENT - 2 ABUTS.				
BAR	NO.	LEN.	SHAPE	LOCATION
A601	20	19'-9"	STR.	WALL - FRONT
A602	20	26'-9"	"	" BACK
A503	68	11'-4"	BENT	" STIRRUPS
A504	68	3'-4"	"	" TIES
A405	94	3'-10"	"	BR. SEAT TIES
A606	64	4'-4"	"	SHEAR BLOCK
A507	32	5'-9"	"	" "
A508	32	7'-9"	"	" "
A409	56	1'-8"	STR.	" "
A610	8	8'-0"	BENT	WINGWALL
A611	8	2'-4"	"	"
A612	8	4'-4"	"	"
A613	8	6'-6"	"	"
A614	12	9'-1"	"	"
A615	8	8'-9"	BENT	"
A516	8	8'-11"	STR.	"
A517	16	1'-2"	"	"
A518	8	5'-6"	"	"
A519	8	6'-0"	"	"
A520	8	6'-6"	"	"
A521	8	7'-0"	"	"
A522	8	7'-6"	"	"
A523	8	8'-0"	"	"
A524	8	8'-6"	"	"

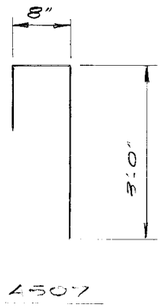


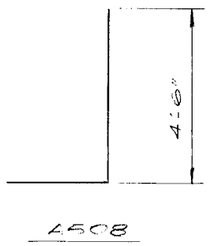
F.F. = FRONT FACE
B.F. = BACK FACE









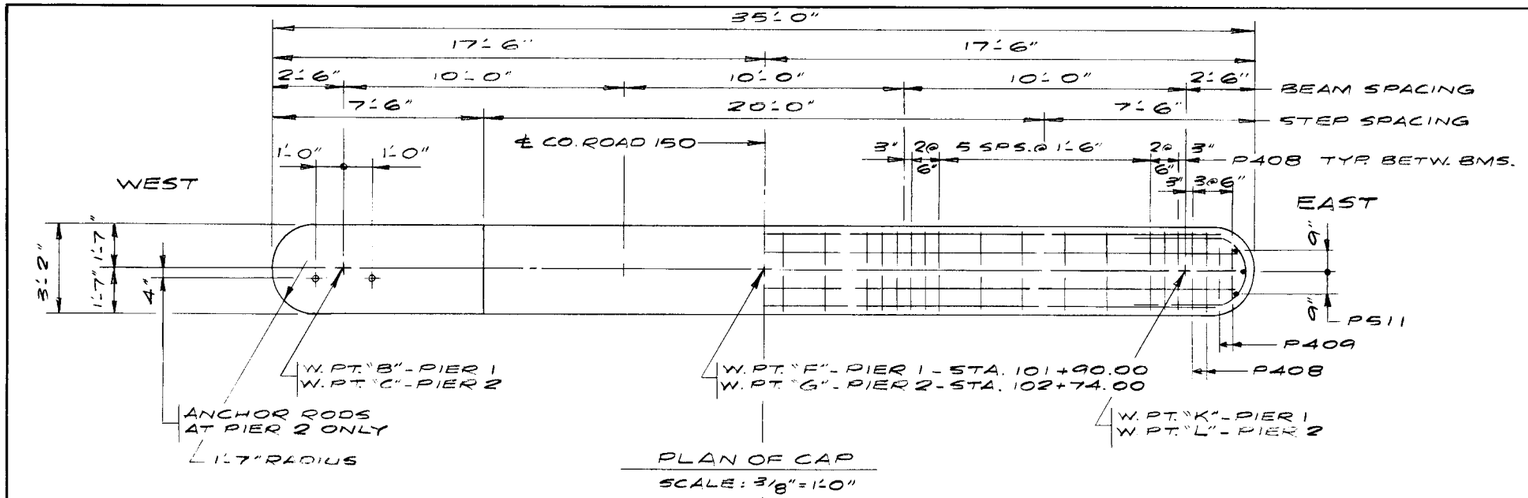


MINNESOTA DEPARTMENT OF TRANSPORTATION

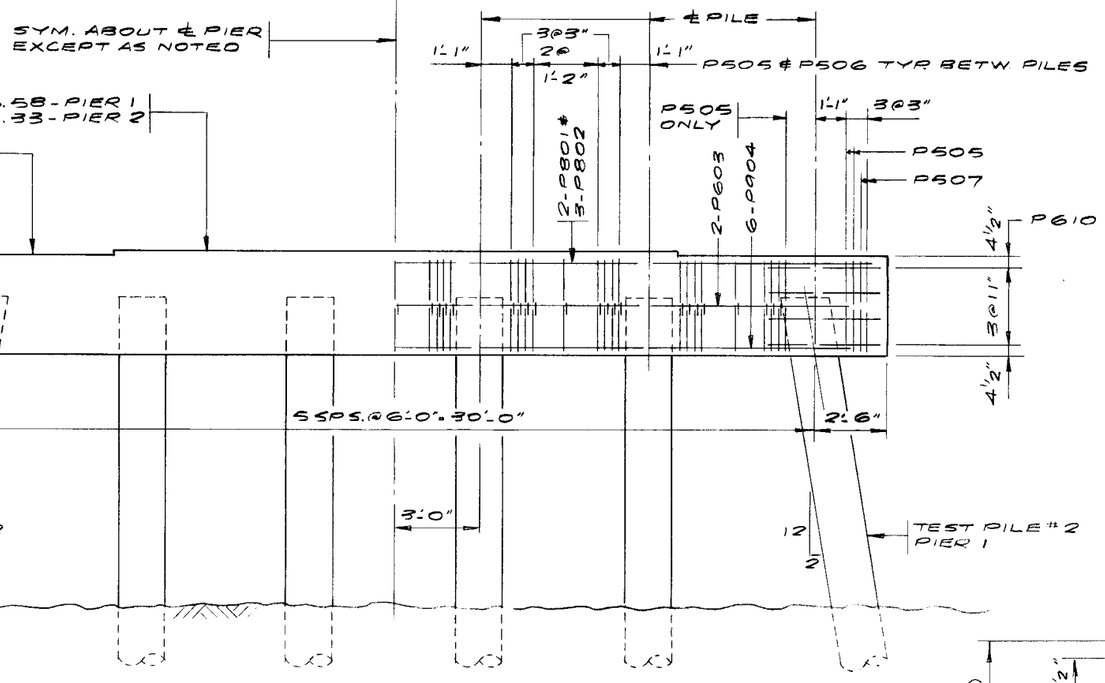
BRIDGE NO. 55526

ABUTMENT REINFORCEMENT

APPROVED: [illegible]

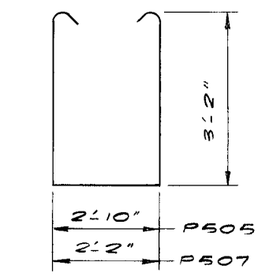


PLAN OF CAP
SCALE: 3/8"=1'-0"

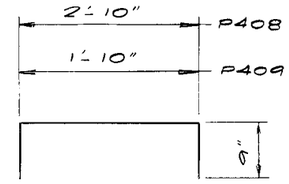


ELEVATION
SCALE: 3/8"=1'-0"

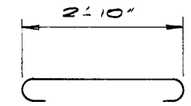
BILL OF REINFORCEMENT - 2 PIERS				
BAR	NO.	LEN.	SHAPE	LOCATION
P801	4	32'-9"	STR.	CAP - LONGIT.
P802	6	34'-4"	"	" "
P603	4	32'-9"	"	" "
P904	12	32'-9"	"	" "
P505	98	10'-1"	BENT	" STIRRUPS
P506	86	4'-0"	"	" TIES
P507	8	9'-5"	"	" STIRRUPS
P408	68	4'-4"	"	" TIES
P409	8	3'-7"	"	" "
P610	16	9'-6"	"	" ENDS
P511	12	3'-2"	STR.	" "



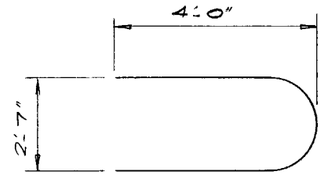
P505 & P507



P408 & P409

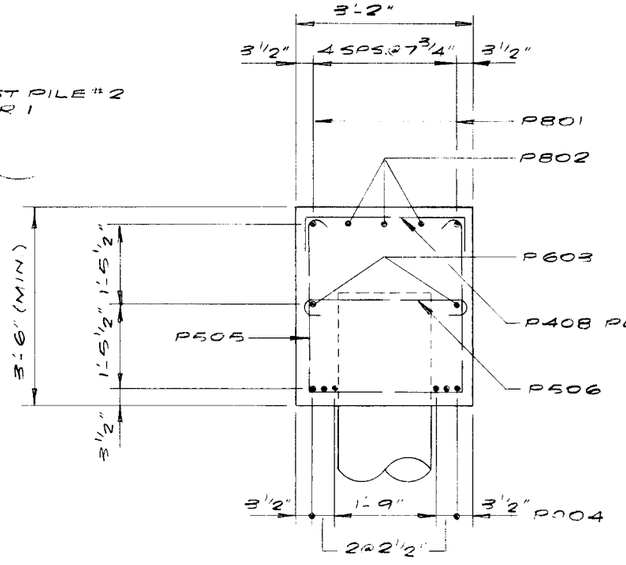


P506



P610

NOTE:
PAINT ALL EXPOSED CONCRETE SURFACES WITH PROTECTIVE COATING. SEE SPECIAL PROVS.



SECTION THRU ℄ P

SCALE: 3/4"=1'-0"

PILE NOTES

2 - CAST-IN-PLACE CONC. TEST PILES 55 FT. LONG
10 " " " " " PILES EST. LENGTH 46 FT.
12 " " " " " REQ'D. FOR 2 PIERS

PILES TO HAVE A NOMINAL DIAMETER OF 20". END PILES TO BE BATTERED 2" PER FT. AS SHOWN. PILE SPACING SHOWN IS AT BOTTOM OF CAP. PAINT PIER PILES PER M.H.D. 2452.3J AND SPECIAL PROVISIONS. FOR SPLICE SEE DETAIL B201.

COMPUTED PILE LOADS (TONS PER PILE)	
DEAD LOAD ②	56.9
LIVE LOAD	18.5
TOTAL	75.4

SUMMARY OF QUANTITIES - 2 PIERS	
CONCRETE, MIX NO. 3Y43	29 CU. YD.
REINFORCEMENT BARS	4385 POUND
CAST-IN-PLACE CONC. TEST PILES, 55' LG. (20"ϕ)	2 EACH
① CAST-IN-PLACE CONC. PILING DELIV. (20"ϕ)	450 LIN. FT.

① DOES NOT INCLUDE TEST PILES.

② INCLUDES WEIGHT OF PILE.

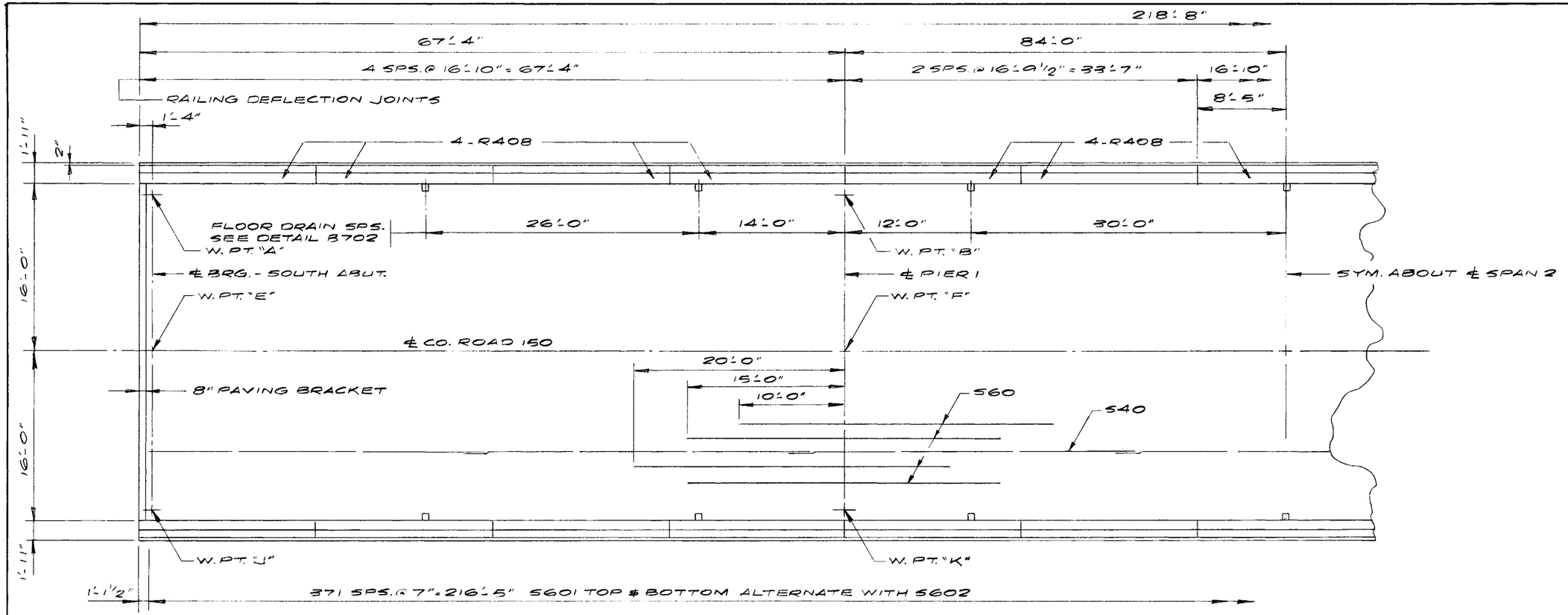
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55526

PIER DETAILS

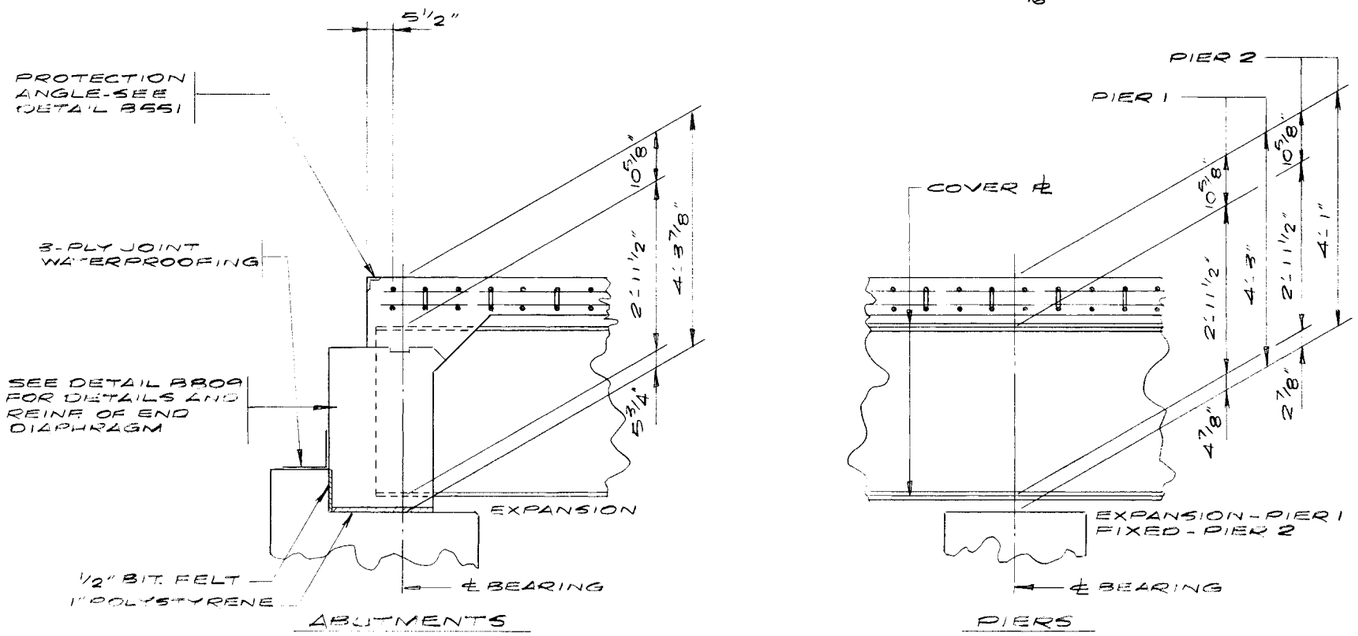
APPROVED: [illegible]

55526 | GRC | NJR



HALF PLAN OF DECK

SCALE: 3/16" = 1'-0"



PART LONGITUDINAL SECTION

SCALE: 3/4" = 1'-0"

	SUMMARY OF QUANTITIES - SUPERSTRUCTURE		
(2)	CONCRETE, MIX NO. 3X33	220	CU.YD.
(2)	CONCRETE, MIX NO. 3X46A	52	CU.YD.
	REINFORCEMENT BARS	56550	POUND
	STRUCTURAL STEEL, (3306)	550	POUND
	STRUCTURAL STEEL, (3309)	152070	POUND
	FLOOR DRAINS, TYPE 1	14	EACH
	ELASTOMERIC BEARING PAD, TYPE 1	8	EACH
	ELASTOMERIC BEARING PAD, TYPE 2	4	EACH
	ELASTOMERIC BEARING ASSEMBLY, TYPE 1	4	EACH
(3)	NAME PLATE (SEE DETAIL B103)		
(4)	PROTECTION ANGLE (SEE DETAIL B551)		
(4)	GUARDRAIL CONNECTION PLATES		
(3)	3-PLY JOINT WATERPROOFING	85	LIN. FT.

(1) INCLUDES RAILING QUANTITIES

(2) THE VOLUME OF DECK CONCRETE FOR PAYMENT SHALL BE COMPUTED USING AN AVERAGE STOOL HEIGHT OF 1 3/4".

(3) INCLUDED IN PRICE BID FOR OTHER ITEMS.

(4) INCLUDED IN WEIGHT OF STRUCTURAL STEEL 3306.

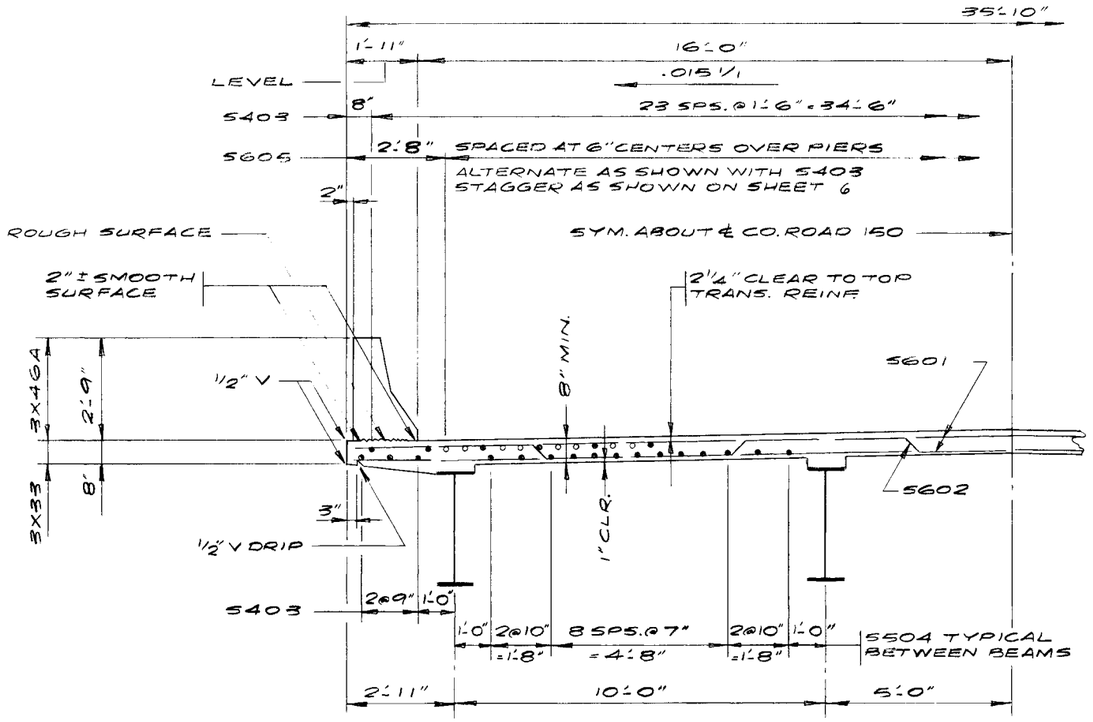
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55526

SUPERSTRUCTURE DETAILS

APPROVED:

55526 GRC NJR

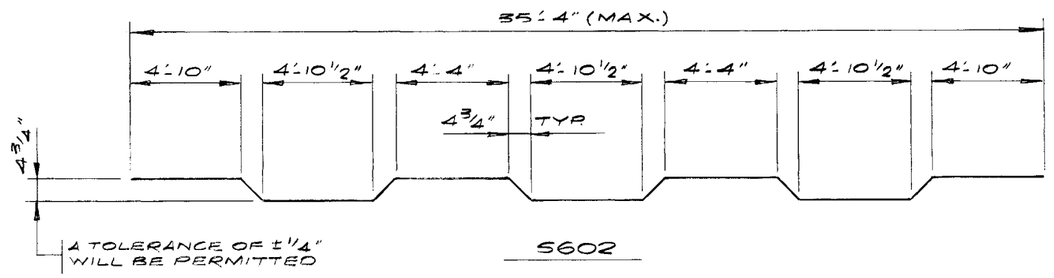


HALF TRANSVERSE SECTION THRU DECK

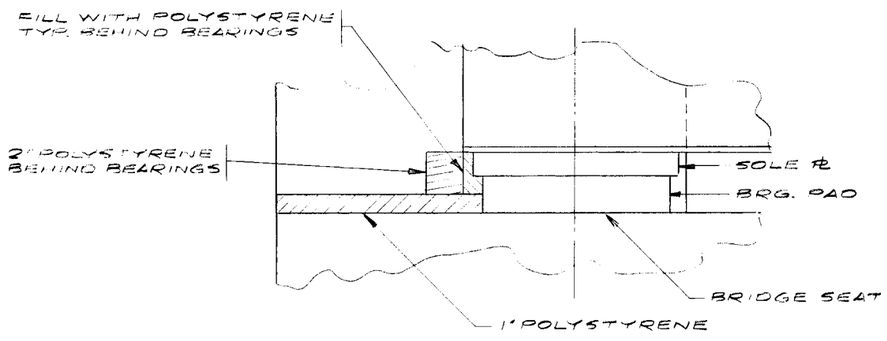
SCALE: 1/2" = 1'-0"

BILL OF REINF. - SUPERSTRUCTURE				
BAR	NO.	LEN.	SHAPE	LOCATION
5601	372	35'-4"	STR.	SLAB - TRANS.
5602	186	36'-4"	BENT	〃 〃
① 5403	210	32'-4"	STR.	〃 LONGIT.
② 5504	234	37'-9"	〃	〃 〃
5605	84	30'-0"	〃	〃 OVER PIERS
③ 5406	42	9'-9"	BENT	END DIAPHRAGM
③ 5407	12	9'-5"	〃	〃 〃
③ 5408	42	6'-4"	〃	〃 〃
5409	16	2'-7"	STR.	〃 〃
5410	24	9'-8"	〃	〃 〃
5411	16	35'-4"	〃	〃 〃

① 7 LINES, 1'-6" MIN. LAP
② 6 LINES, 1'-11" MIN. LAP
③ SEE DETAIL B809 FOR DETAILS



5602



LIST OF PREFORMED BITUM. JOINT FILLER ④
8 PCS. 9" X 1/2" X 2'-0" SHEAR BLOCKS

LIST OF PREFORMED CONC. JOINT FILLER ④
4 PCS. 18" X 2" X 4'-4" ABUTMENT RECESS
24 PCS. 12" X 1" X 1'-5" RAILING DEFL. JOINTS

LIST OF POLYSTYRENE TYPE A ④			
2 PCS. 22" X 1" X 35'-10" ABUTMENT BRIDGE SEAT			
8 PCS. 4 3/4" X 2" X 1'-7"	BACK OF BEARINGS		
8 PCS. 4 3/4" X 1" X 1'-5"	〃	〃	〃
12 PCS. 4 3/4" X 1" X 0'-11"	SIDES	〃	〃
4 PCS 4 3/4" X 1" X 0'-7"	〃	〃	〃

④ SEE SPECIAL PROVISIONS.

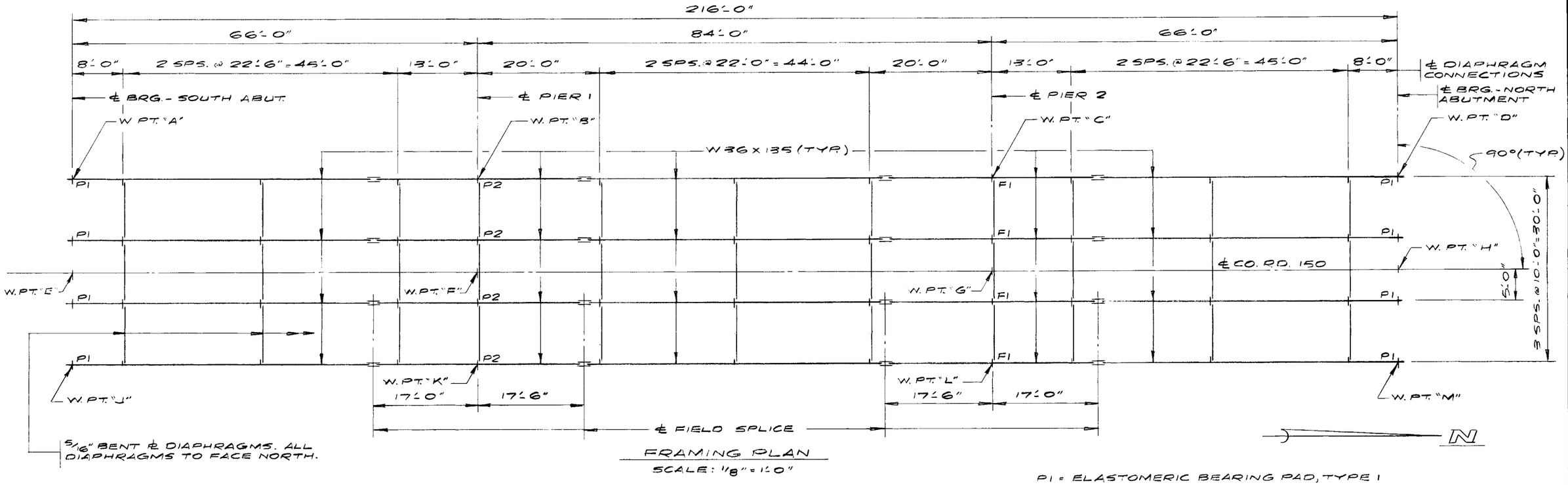
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55526

SUPERSTRUCTURE DETAILS

APPROVED: [illegible]

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5/16" BENT ℄ DIAPHRAGMS. ALL DIAPHRAGMS TO FACE NORTH.

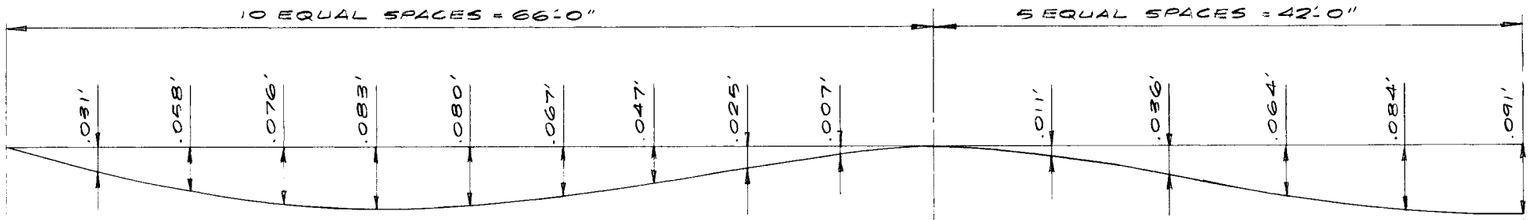
FRAMING PLAN

SCALE: 1/8" = 1'-0"

P1 = ELASTOMERIC BEARING PAD, TYPE 1

P2 = " " " " 2

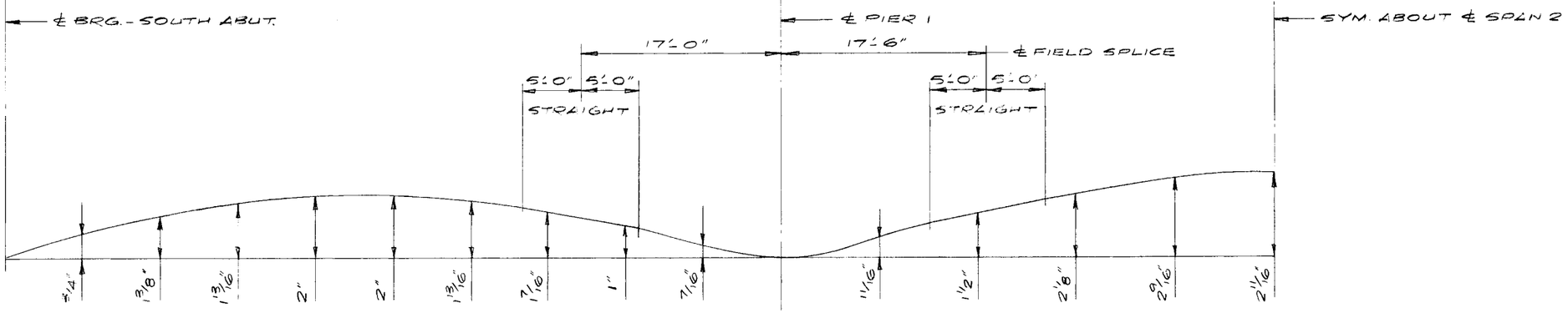
F1 = " " ASSEMBLY, TYPE 1



DEFLECTION DIAGRAM

DEFLECTIONS SHOWN ARE FOR WEIGHT OF SLAB AND RAILING

CAMBER DIAGRAM SHOWN IS FOR BEAM CAMBER WITHOUT ANY DEAD LOAD DEFLECTION. DEAD LOAD DEFLECTIONS DUE TO WEIGHT OF STEEL ARE 9 % OF DEFLECTIONS SHOWN ON DEFLECTION DIAGRAM.



CAMBER DIAGRAM

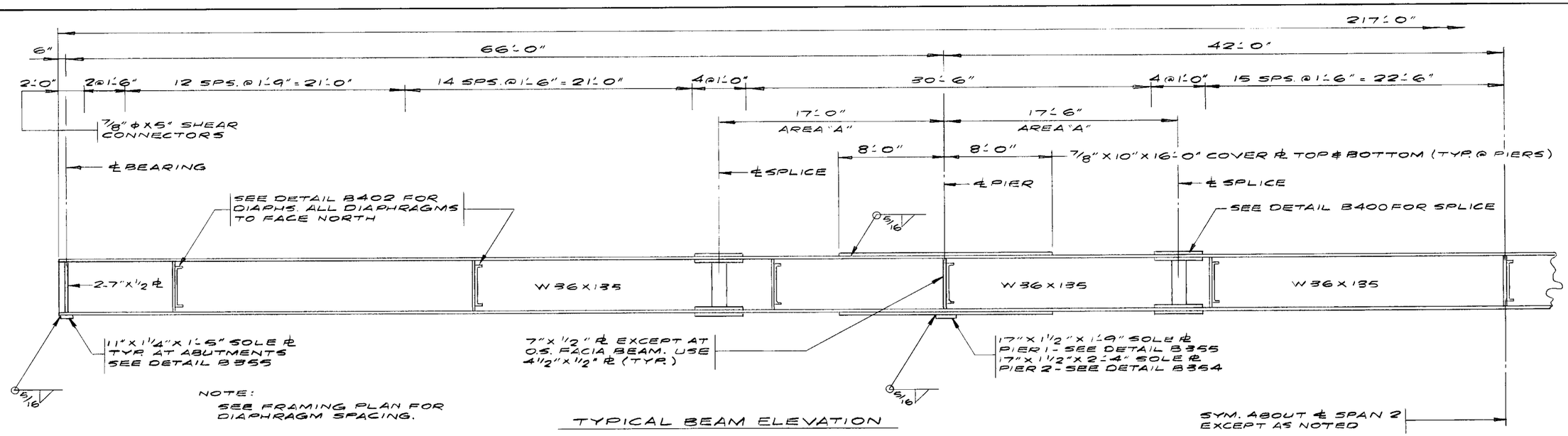
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55526

FRAMING PLAN

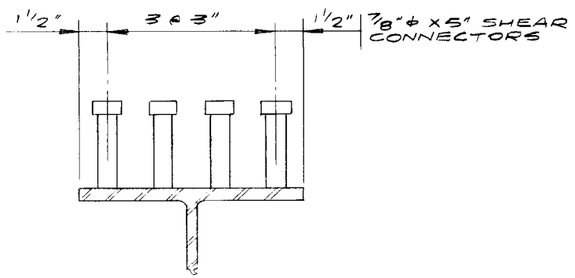
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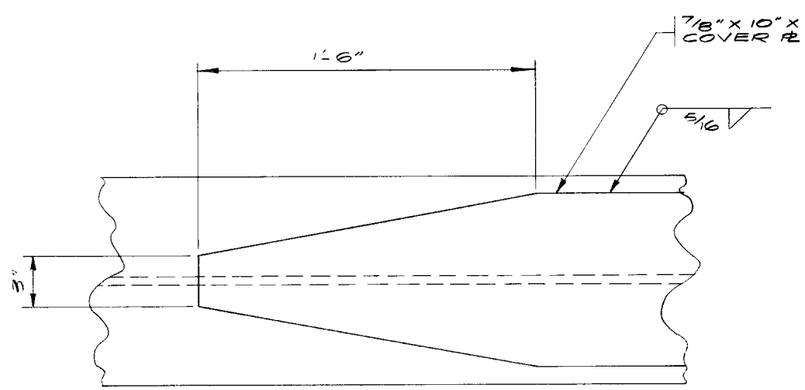


NOTE:
SEE FRAMING PLAN FOR DIAPHRAGM SPACING.

TYPICAL BEAM ELEVATION



SHEAR CONNECTOR DETAIL



COVER PL DETAIL

STRUCTURAL STEEL NOTES

ALL STRUCTURAL STEEL SHALL CONFORM TO M.H.D. 3309 UNLESS OTHERWISE NOTED.

SPECIAL REAMING PER M.H.D. 2471.3E16 WILL BE REQUIRED FOR THE BEAM SPLICES. THE SECTION TO BE ASSEMBLED FOR REAMING SHALL BE FROM ABUTMENT TO ABUTMENT.

SHEAR CONNECTORS TO BE INCLUDED IN WEIGHT OF STRUCTURAL STEEL M.H.D. 3309.

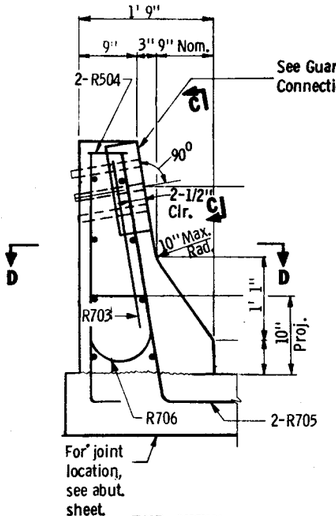
FIELD CONNECTIONS SHALL BE MADE WITH 7/8" HIGH STRENGTH BOLTS OR 7/8" PIN BOLTS, EXCEPT AS NOTED.

MINNESOTA DEPARTMENT OF TRANSPORTATION

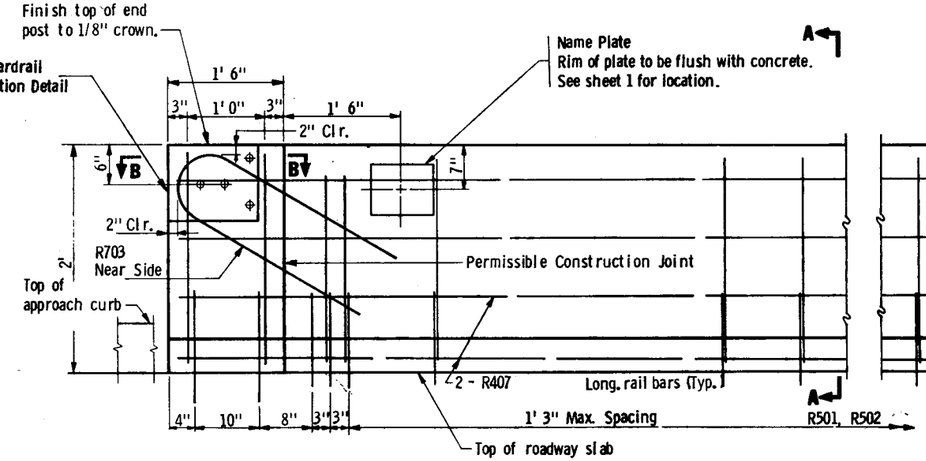
BRIDGE NO. 55526

STRUCTURAL STEEL DETAILS

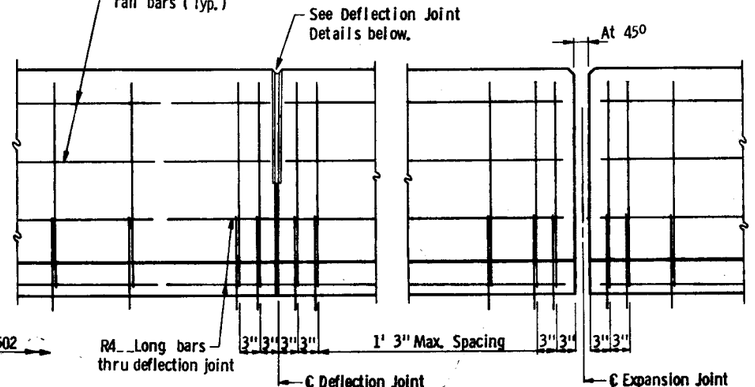
APPROVED:



END VIEW

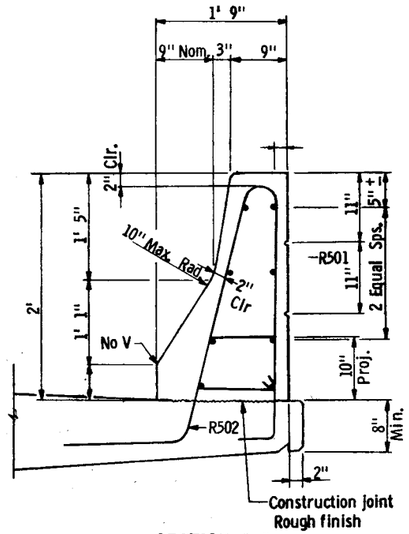


INSIDE ELEVATION OF RAILING



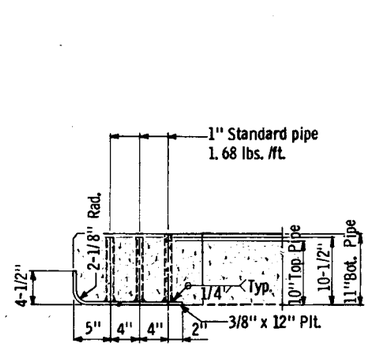
DEFLECTION JOINT

EXPANSION JOINT
Expansion device not shown.
Expansion joint required only if expansion device is used.
See superstructure sheets.

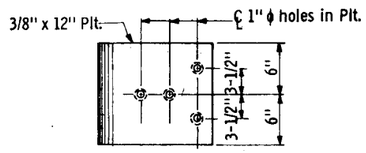


SECTION A-A

BILL OF REINFORCEMENT FOR RAILING				
BAR	NO.	LENGTH	SHAPE	LOCATION
R501		7'	Bent	Rail Vertical
R502		5' 7"	Bent	Rail Vertical
R703		6' 6"	Bent	End Post
R504		2' 3"	Bent	End Post
R705		5' 7"	Bent	End Post
R706		5'	Bent	End Post
R407			Str't.	Rail Long.
R406			Str't.	Rail Long.



SECTION B-B
(Reinf. not shown)

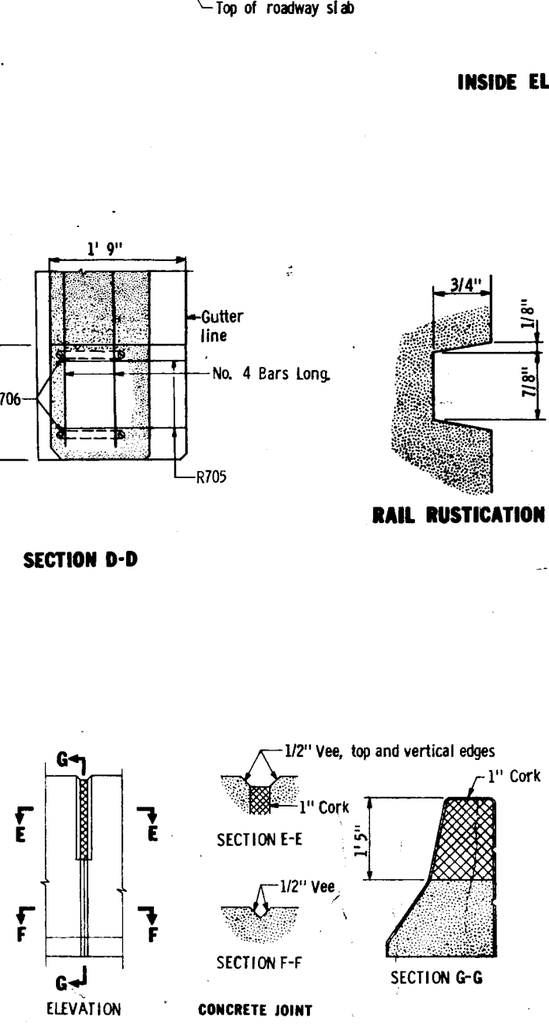


VIEW C-C

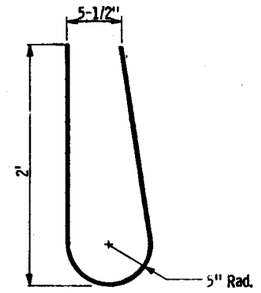
GUARDRAIL CONNECTION DETAIL
GALVANIZE AFTER FABRICATION PER M.H.D. 3394
Est. Wt. 31 Lbs.

SECTION D-D

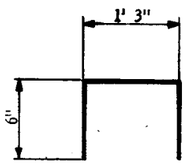
RAIL RUSTICATION



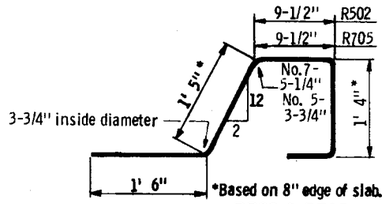
DEFLECTION JOINT DETAILS



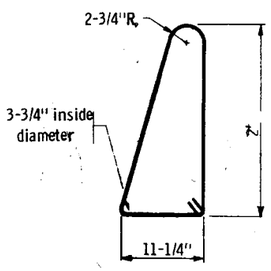
R706



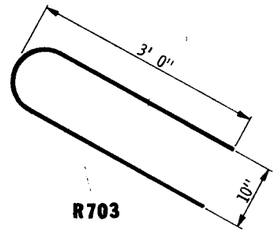
R504



R502 & R705



R501



R703

GENERAL NOTES

Conc. Railing = lbs./ft.

Conc. Railing = cu. yds./ft.

Rail and end post to be Concrete Mix No. 3 46A.

Structural steel shall comply with M.H.D. 3306.

Finish all edges of rail and end post with 1/2" vee except where otherwise noted.

See superstructure sheet for joint spacing.

Maximum spacing of concrete deflection joints shall be 0' 0"

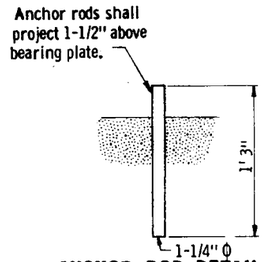
Guardrail connection to be included in weight of structural steel M.H.D. 3306.

Rail quantities are included in summary of quantities for superstructure.

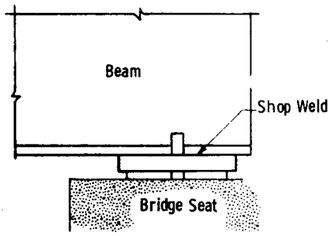
Fig. 5-397.117

March 7, 1975

TITLE: CONCRETE RAILING (TYPE G) WITH INTEGRAL END POST	DES:	DR:	APPROVED:	Bridge No.
	CHK:	CHK:		
	Sheet No.	of	Sheets	

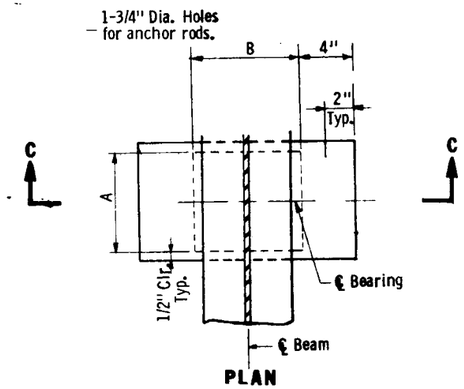


ANCHOR ROD DETAIL

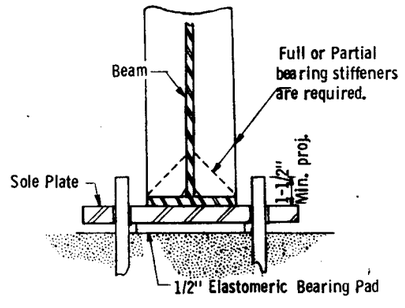


SIDE ELEVATION

(At beam end shown)



PLAN



SECTION C-C

NOTES:

For elastomeric bearing pads, see special provisions,

Anchor rods shall comply with M. H. D. 3306

Galvanize anchor rods per M. H. D. 3394.

Payment for bearing assembly shall include elastomeric bearing pad and anchor rods.

Sole plate is included in weight of structural steel.

1/2" ELASTOMERIC PAD DIMENSIONS FOR BEAMS WITH 9" TO 10-1/2" FLANGES

Pad Size A	Pad Size B	DL + LL Uplift Min.	DL Max	DL + LL Max.	Shape Factor	Sole Plt. Size	Assembly Type
10"	16"	32.0	80.0	128.0	6	11" x 24" x 1-1/2"	
12"	16"	38.4	96.0	153.6	7	13" x 24" x 1-1/2"	
14"	16"	44.8	112.0	179.2	7	15" x 24" x 1-1/2"	
16"	20"	64.0	160.0	256.0	9	17" x 28"x 2"	
18"	20"	72.0	180.0	288.0	9	19" x 28"x 2"	
20"	20"	80.0	200.0	320.0	10	21" x 28" x 2"	
22"	20"	88.0	220.0	352.0	10	23" x 28" x 2"	
24"	20"	96.0	240.0	384.0	11	25" x 28" x 2"	

1/2" ELASTOMERIC PAD DIMENSIONS FOR BEAMS WITH 11-1/2" TO 12" FLANGES

Pad Size A	Pad Size B	DL + LL Uplift Min.	DL Max	DL + LL Max.	Shape Factor	Sole Plt. Size	Assembly Type
10"	16"	32.0	80.0	128.0	6	11" x 24" x 1-1/4"	
12"	16"	38.4	96.0	153.6	7	13" x 24" x 1-1/4"	
14"	16"	44.8	112.0	179.2	7	15" x 24" x 1-1/4"	
16"	20"	64.0	160.0	256.0	9	17" x 28" x 1-1/2"	
18"	20"	72.0	180.0	288.0	9	19" x 28" x 1-1/2"	
20"	20"	80.0	200.0	320.0	10	21" x 28" x 1-1/2"	
22"	20"	88.0	220.0	352.0	10	23" x 28" x 1-1/2"	
24"	20"	96.0	240.0	384.0	11	25" x 28" x 1-1/2"	

1/2" ELASTOMERIC PAD DIMENSIONS FOR BEAMS WITH 15" TO 16" FLANGES

Pad Size A	Pad Size B	DL + LL Uplift Min.	DL Max	DL + LL Max	Shape Factor	Sole Plt. Size	Assembly Type
10"	16"	32.0	80.0	128.0	6	11" x 24" x 1"	
12"	16"	38.4	96.0	153.6	7	13" x 24" x 1"	
14"	16"	44.8	112.0	179.2	7	15" x 24" x 1"	
16"	20"	64.0	160.0	256.0	9	17" x 28" x 1-1/4"	
18"	20"	72.0	180.0	288.0	9	19" x 28" x 1-1/4"	
20"	20"	80.0	200.0	320.0	10	21" x 28" x 1-1/4"	
22"	20"	88.0	220.0	352.0	10	23" x 28" x 1-1/4"	
24"	20"	96.0	240.0	384.0	11	25" x 28" x 1-1/4"	

APPROVED: May 6, 1976

Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN

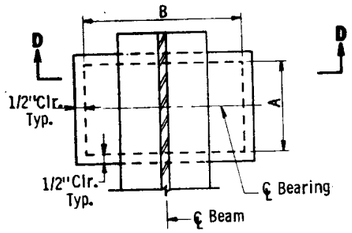
Issued by: OFFICE OF ENGINEERING STANDARDS

MINNESOTA DEPARTMENT OF

ELASTOMERIC BEARING ASSEMBLY

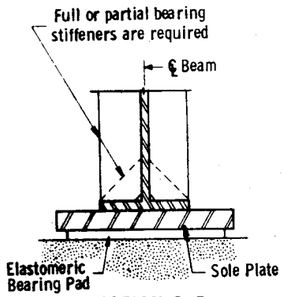
STEEL BEAMS (FIXED)

DETAIL NO. **B354**

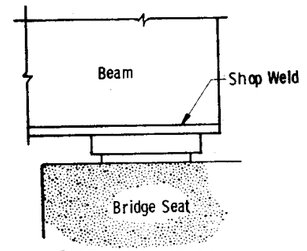


PLAN

Note: Min. A dimension shall be 3C
Min. B dimension shall be 2C

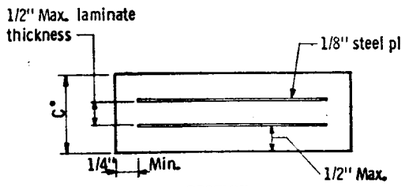


SECTION D-D



SIDE ELEVATION

(AT beam end shown)



SECTION

• Total thickness including the steel plates

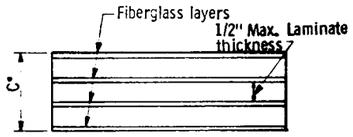
STEEL LAMINATE PAD DETAIL

(1-1/2" Pad Shown)

NOTES:

For elastomeric bearing pads, see special provisions.

Sole plate is included in weight of structural steel.



SECTION

FIBERGLASS LAMINATE PAD DETAIL

(1-1/2" Pad Shown)

MAX. MOVEMENT	PAD THICKNESS C	NO. OF LAMINATES ①	NO. OF LAMINATES ②
3/8"	1"	2	2
5/8"	1-1/2"	3	3
3/4"	2"	4	3
1"	2-1/2"	5	4
1-1/4"	3"	5	5
1-3/8"	3-1/2"	6	6
1-5/8"	4"	7	7
1-3/4"	4-1/2"	8	7
2"	5"	9	8
2-1/4"	5-1/2"	9	9
2-3/8"	6"	10	10
2-5/8"	6-1/2"	11	11
2-3/4"	7"	12	11
3"	7-1/2"	13	12
3-1/4"	8"	13	13

① Steel
② Fiberglass

ELASTOMERIC PAD DIMENSIONS FOR BEAMS WITH 9" TO 10-1/2" FLANGES

Pad Size A	Pad Size B	C	DL + LL Min.	DL Max.	DL + LL Max.	Shape Factor	Sole Plt. Size	Pad Type
10"	16"		32.0	80.0	128.0	6	11" x 17" x 1-1/2"	
12"	16"		38.4	96.0	153.6	7	13" x 17" x 1-1/2"	
14"	16"		44.8	112.0	179.2	7	15" x 17" x 1-1/2"	
16"	20"		64.0	160.0	256.0	9	17" x 21" x 2"	
18"	20"		72.0	180.0	288.0	9	19" x 21" x 2"	
20"	20"		80.0	200.0	320.0	10	21" x 21" x 2"	
22"	20"		88.0	220.0	352.0	10	23" x 21" x 2"	
24"	20"		96.0	240.0	384.0	11	25" x 21" x 2"	

ELASTOMERIC PAD DIMENSIONS FOR BEAMS WITH 11-1/2" TO 12" FLANGES

Pad Size A	Pad Size B	C	DL + LL Min.	DL Max.	DL + LL Max	Shape Factor	Sole Plt. Size	Pad Type
10"	16"		32.0	80.0	128.0	6	11" x 17" x 1-1/4"	
12"	16"		38.4	96.0	153.6	7	13" x 17" x 1-1/4"	
14"	16"		44.8	112.0	179.2	7	15" x 17" x 1-1/4"	
16"	20"		64.0	160.0	256.0	9	17" x 21" x 1-1/2"	
18"	20"		72.0	180.0	288.0	9	19" x 21" x 1-1/2"	
20"	20"		80.0	200.0	320.0	10	21" x 21" x 1-1/2"	
22"	20"		88.0	220.0	352.0	10	23" x 21" x 1-1/2"	
24"	20"		96.0	240.0	384.0	11	25" x 21" x 1-1/2"	

ELASTOMERIC PAD DIMENSIONS FOR BEAMS WITH 15" TO 16" FLANGES

Pad Size A	Pad Size B	C	DL + LL Min.	DL Max	DL + LL Max	Shape Factor	Sole Plt. Size	Pad Type
10"	16"		32.0	80.0	128.0	6	11" x 17" x 1"	
12"	16"		38.4	96.0	153.6	7	13" x 17" x 1"	
14"	16"		44.8	112.0	179.2	7	15" x 17" x 1"	
16"	20"		64.0	160.0	256.0	9	17" x 21" x 1-1/4"	
18"	20"		72.0	180.0	288.0	9	19" x 21" x 1-1/4"	
20"	20"		80.0	200.0	320.0	10	21" x 21" x 1-1/4"	
22"	20"		88.0	220.0	352.0	10	23" x 21" x 1-1/4"	
24"	20"		96.0	240.0	384.0	11	25" x 21" x 1-1/4"	

APPROVED: May 6, 1976

Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN

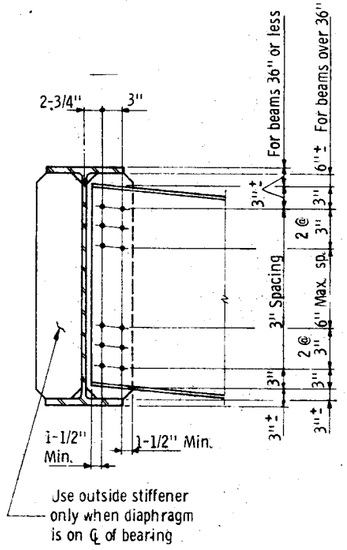
Issued by: OFFICE OF ENGINEERING STANDARDS

STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS

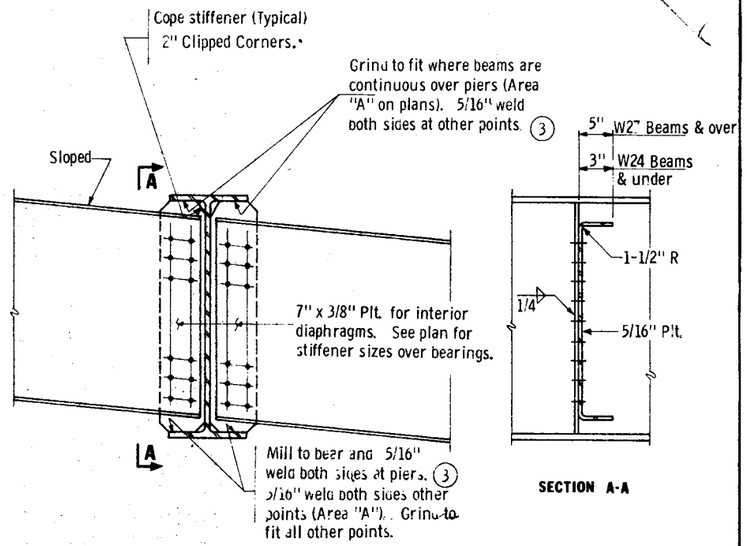
ELASTOMERIC BEARING PAD

STEEL BEAMS (EXPANSION)

DETAIL NO. **B355**



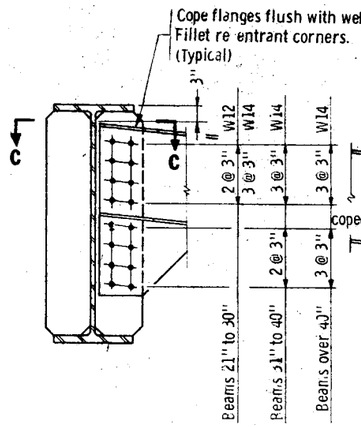
FASCIA BEAM



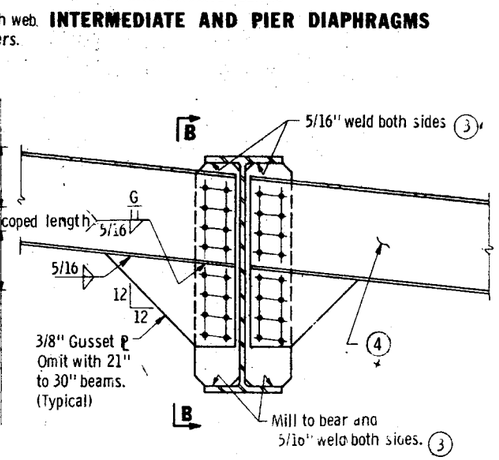
INTERMEDIATE BEAMS

SECTION A-A

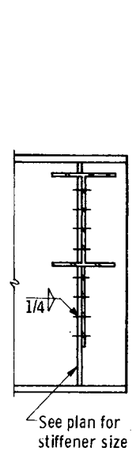
INTERMEDIATE AND PIER DIAPHRAGMS



FASCIA BEAM

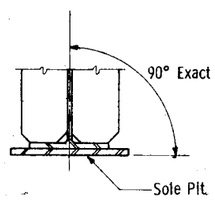


INTERMEDIATE BEAMS

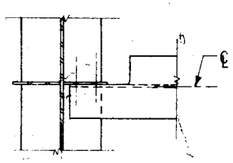


SECTION B-B

ABUTMENT DIAPHRAGMS



TYPICAL DETAIL AT BEARINGS

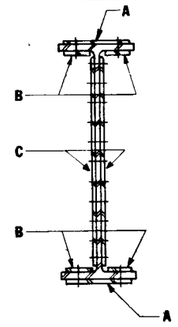


SECTION C-C

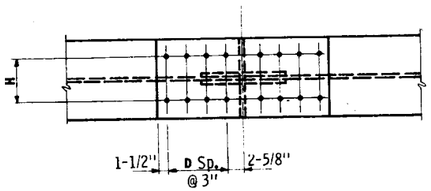
NOTES

1. Use 7/8" high strength bolts or 7/8" pin bolts.
2. Point toe of bent plate diaphragm down grade.
3. For flange material over 1-1/2" thick, use 3/8" weld.
4. Where expansion device is bolted to end diaphragm, use W12 x 53 (for 21" and 24" beams) and W14 x 61 (for all other beams). Where there is no expansion device fastened to end diaphragm see framing plan for size of diaphragm.

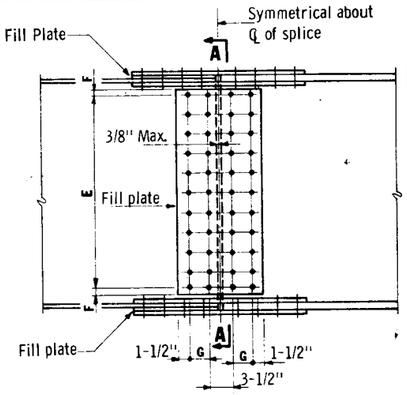
APPROVED: March 15, 1976	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS		DETAIL NO.
Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN	**BOLTED DIAPHRAGMS FOR STEEL BEAMS**		**B402**
Issued by: OFFICE OF ENGINEERING STANDARDS			



SECTION A - A
(Fill ℄ not shown)



PLAN VIEW



ELEVATION

NOTES:

Splice design is for structural steel M.H.D. 3309.

When F = 1-1/4", top and bottom edge of plate C must be machined.

When beams are of unequal weight, use design for lighter beam.

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

Fills shall be structural steel, minimum thickness 1/16". Where the difference in web thickness is 1/8" or more, place fills of same thickness on both sides of thinner web. Where difference in web thickness is less than 1/16" omit fills.

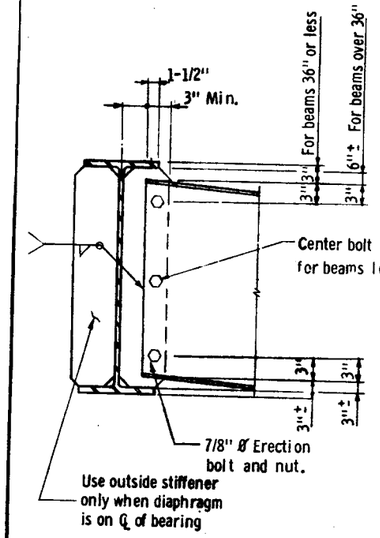
DESIGN DATA:

Load Factor Design Method
F_y = 50 k.s.i.
12.6^K allowable "shear" per bolt at DL + $\frac{5}{3}$(L + I)
Splice develops ult. moment M_u simultaneously with ult. shear V_u.
$M_u = F_y S_x$ noncompact sec., $M_u = F_y Z_x$ compact sec.
$V_u = .55 F_y dt_w$
Area of holes in excess of 15% of gross area are deducted

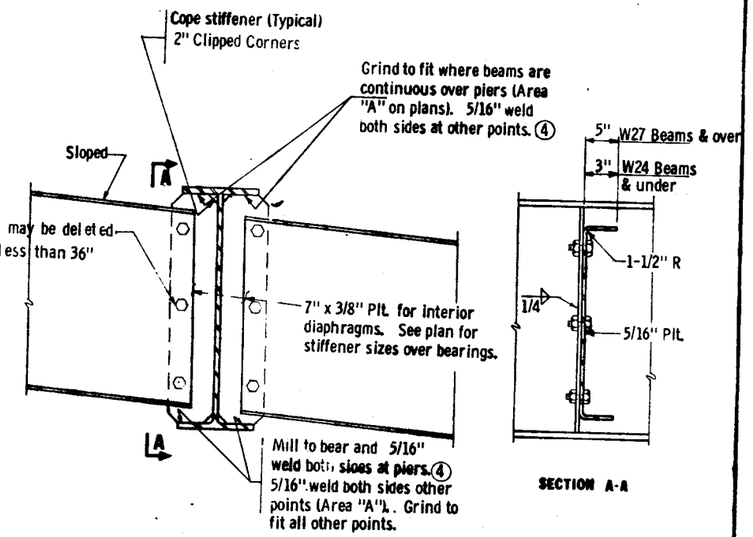
SIZE	A (In.)	B (In.)	C (In.)	D	E	F	G	H	Flange Fill ℄	Web Fill ℄
W21 x 44	7/16 x 6-1/2 x 26-1/4	7/16 x 2-1/2 x 26-1/4	5/16 x 17-1/2 x 12-1/2	3	5 Sps. @ 3"	1-1/4"	3"	4"		
W21 x 49	7/16 x 6-1/2 x 26-1/4	7/16 x 2-1/2 x 26-1/4	5/16 x 17-1/2 x 12-1/2	3	5 Sps. @ 3"	1-1/4"	3"	4"		
*W21 x 55	7/16 x 8-1/4 x 26-1/4	1/2 x 3-1/4 x 26-1/4	5/16 x 17-1/2 x 12-1/2	3	5 Sps. @ 3"	1-1/4"	3"	5-1/2"		
W21 x 62	7/16 x 8-1/4 x 32-1/4	1/2 x 3-1/4 x 32-1/4	5/16 x 17-1/2 x 12-1/2	4	5 Sps. @ 3"	1-1/4"	3"	5-1/2"		
W21 x 68	7/16 x 8-1/4 x 32-1/4	11/16 x 3-1/4 x 32-1/4	5/16 x 17-1/2 x 12-1/2	4	5 Sps. @ 3"	1-1/4"	3"	5-1/2"		
W21 x 73	1/2 x 8-1/4 x 38-1/4	3/4 x 3-1/4 x 38-1/4	5/16 x 16-7/8 x 12-1/2	5	5 Sps. @ 2-7/8"	1-1/4"	3"	5-1/2"		
W21 x 82	1/2 x 9 x 44-1/4	13/16 x 3-1/2 x 44-1/4	5/16 x 16-7/8 x 12-1/2	6	5 Sps. @ 2-7/8"	1-1/4"	3"	5-1/2"		
W21 x 93	11/16 x 9 x 56-1/4	15/16 x 3-1/2 x 56-1/4	5/16 x 16-1/4 x 12-1/2	8	5 Sps. @ 2-3/4"	1-1/4"	3"	5-1/2"		
W24 x 55	7/16 x 7 x 26-1/4	7/16 x 2-1/2 x 26-1/4	5/16 x 20-1/2 x 12-1/2	3	6 Sps. @ 3"	1-1/4"	3"	4-1/2"		
W24 x 61	1/2 x 7 x 32-1/4	1/2 x 2-1/2 x 32-1/4	5/16 x 20-1/2 x 12-1/2	4	6 Sps. @ 3"	1-1/4"	3"	4-1/2"		
*W24 x 68	7/16 x 9 x 32-1/4	1/2 x 3-1/2 x 32-1/4	5/16 x 20-1/2 x 12-1/2	4	6 Sps. @ 3"	1-1/4"	3"	5-1/2"		
W24 x 76	7/16 x 9 x 38-1/4	5/8 x 3-1/2 x 38-1/4	5/16 x 20-1/2 x 12-1/2	5	6 Sps. @ 3"	1-1/4"	3"	5-1/2"		
W24 x 84	1/2 x 9 x 44-1/4	3/4 x 3-1/2 x 44-1/4	5/16 x 19-3/4 x 12-1/2	6	6 Sps. @ 2-7/8"	1-1/4"	3"	5-1/2"		
W24 x 94	9/16 x 9 x 50-1/4	15/16 x 3-1/2 x 50-1/4	5/16 x 19-3/4 x 12-1/2	7	6 Sps. @ 2-7/8"	1-1/4"	3"	5-1/2"		
*W24 x 100	7/16 x 12 x 50-1/4	9/16 x 5 x 50-1/4	5/16 x 19-3/4 x 12-1/2	7	6 Sps. @ 2-7/8"	1-1/4"	3"	6-1/2"		
W24 x 110	9/16 x 12 x 62-1/4	13/16 x 5 x 62-1/4	5/16 x 19-3/4 x 12-1/2	9	6 Sps. @ 2-7/8"	1-1/4"	3"	6-1/2"		
W24 x 120	5/8 x 12 x 68-1/4	15/16 x 5 x 68-1/4	5/16 x 19-3/4 x 12-1/2	10	6 Sps. @ 2-7/8"	1-1/4"	3"	6-1/2"		
*W27 x 84	7/16 x 10 x 38-1/4	1/2 x 4 x 38-1/4	5/16 x 23-1/2 x 12-1/2	5	7 Sps. @ 3"	1-1/4"	3"	5-1/2"		
W27 x 94	1/2 x 10 x 50-1/4	13/16 x 4 x 50-1/4	5/16 x 22-5/8 x 12-1/2	7	7 Sps. @ 2-7/8"	1-1/4"	3"	5-1/2"		
W27 x 102	9/16 x 10 x 50-1/4	7/8 x 4 x 50-1/4	5/16 x 22-5/8 x 12-1/2	7	7 Sps. @ 2-7/8"	1-1/4"	3"	5-1/2"		
W27 x 114	5/8 x 10 x 56-1/4	15/16 x 4 x 56-1/4	5/16 x 21-3/4 x 18-1/2	8	5 Sps. @ 3-3/4"	1-1/2"	2 Sps. @ 3"	5-1/2"		
*W30 x 99	7/16 x 10 x 38-1/4	9/16 x 4-1/4 x 38-1/4	5/16 x 26 x 12-1/2	5	8 Sps. @ 2-7/8"	1-1/2"	3"	5-1/2"		
W30 x 108	9/16 x 10 x 50-1/4	3/4 x 4-1/4 x 50-1/4	5/16 x 25-1/2 x 12-1/2	7	8 Sps. @ 2-7/8"	1-1/4"	3"	5-1/2"		
W30 x 116	9/16 x 10 x 62-1/4	7/8 x 4-1/4 x 62-1/4	5/16 x 24 x 18-1/2	9	6 Sps. @ 3-1/2"	1-1/2"	2 Sps. @ 3"	5-1/2"		
W30 x 124	5/8 x 10 x 62-1/4	15/16 x 4-1/4 x 62-1/4	5/16 x 24 x 18-1/2	9	6 Sps. @ 3-1/2"	1-1/2"	2 Sps. @ 3"	5-1/2"		
W30 x 132	11/16 x 10 x 68-1/4	1 x 4-1/4 x 68-1/4	5/16 x 24 x 18-1/2	10	6 Sps. @ 3-1/2"	1-1/2"	2 Sps. @ 3"	5-1/2"		
*W33 x 118	7/16 x 11 x 50-1/4	5/8 x 4-1/2 x 50-1/4	5/16 x 27-3/4 x 18-1/2	7	6 Sps. @ 4-1/8"	1-1/2"	2 Sps. @ 3"	6-1/2"		
W33 x 130	5/8 x 11 x 68-1/4	13/16 x 4-1/2 x 68-1/4	5/16 x 27 x 18-1/2	10	6 Sps. @ 4"	1-1/2"	2 Sps. @ 3"	6-1/2"		
W33 x 141	11/16 x 11 x 68-1/4	1 x 4-1/2 x 68-1/4	5/16 x 27 x 18-1/2	10	6 Sps. @ 4"	1-1/2"	2 Sps. @ 3"	6-1/2"		
W33 x 152	3/4 x 11 x 74-1/4	15/16 x 4-3/4 x 74-1/4	3/8 x 27-1/2 x 18-1/2	11	7 Sps. @ 3-1/2"	1-1/2"	2 Sps. @ 3"	6-1/2"		
W36 x 135	9/16 x 12 x 62-1/4	3/4 x 4-3/4 x 62-1/4	3/8 x 31 x 18-1/2	9	8 Sps. @ 3-1/2"	1-1/2"	2 Sps. @ 3"	6-1/2"		
W36 x 150	5/8 x 12 x 68-1/4	7/8 x 4-3/4 x 68-1/4	3/8 x 31 x 18-1/2	10	8 Sps. @ 3-1/2"	1-1/2"	2 Sps. @ 3"	6-1/2"		
W36 x 160	3/4 x 12 x 80-1/4	1 x 4-3/4 x 80-1/4	3/8 x 30-1/2 x 18-1/2	12	8 Sps. @ 3-1/2"	1-1/4"	2 Sps. @ 3"	6-1/2"		
W36 x 170	3/4 x 12 x 86-1/4	1 x 4-3/4 x 86-1/4	3/8 x 30 x 18-1/2	13	8 Sps. @ 3-3/8"	1-1/2"	2 Sps. @ 3"	6-1/2"		
W36 x 182	13/16 x 12 x 92-1/4	1-1/8 x 4-3/4 x 92-1/4	3/8 x 29 x 18-1/2	14	8 Sps. @ 3-1/4"	1-1/2"	2 Sps. @ 3"	6-1/2"		
W36 x 194	13/16 x 12 x 98-1/4	1-5/16 x 4-3/4 x 98-1/4	3/8 x 30 x 18-1/2	15	9 Sps. @ 3"	1-1/2"	2 Sps. @ 3"	6-1/2"		

*Non-Compact Section

APPROVED: December 29, 1976	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION		DETAIL NO.
Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN	**BEAM SPLICES** (3309 STEEL)		**B400**
Issued by: OFFICE OF ENGINEERING STANDARDS			



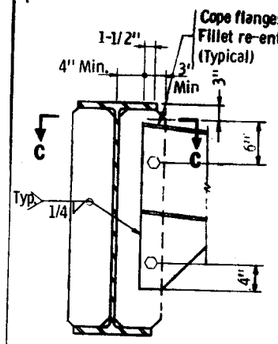
FASCIA BEAM



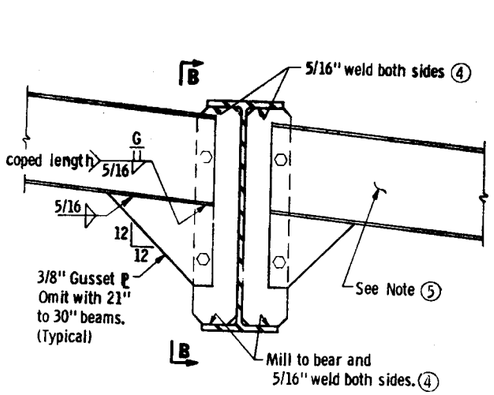
INTERMEDIATE BEAMS

SECTION A-A

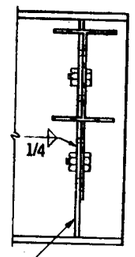
INTERMEDIATE AND PIER DIAPHRAGMS



FASCIA BEAM

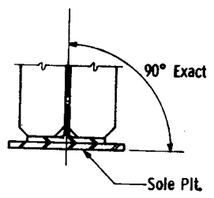


INTERMEDIATE BEAMS

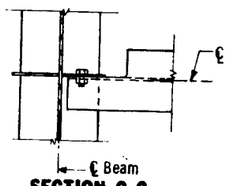


SECTION B-B

ABUTMENT DIAPHRAGMS



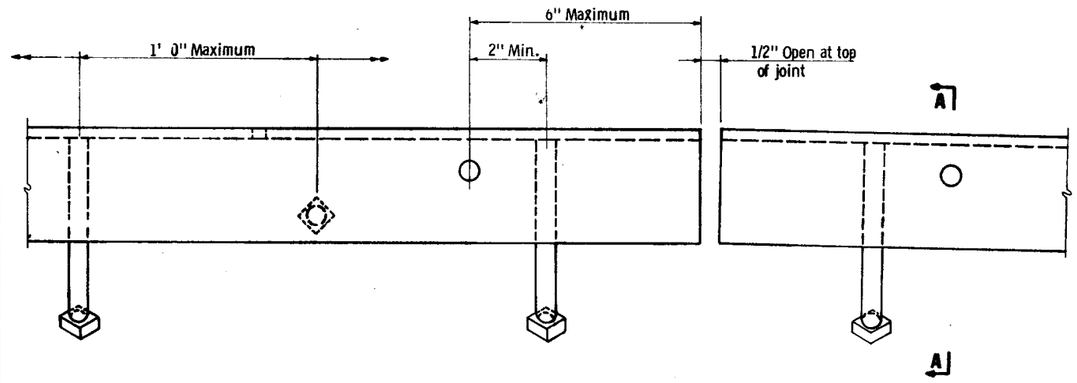
TYPICAL DETAIL AT BEARINGS



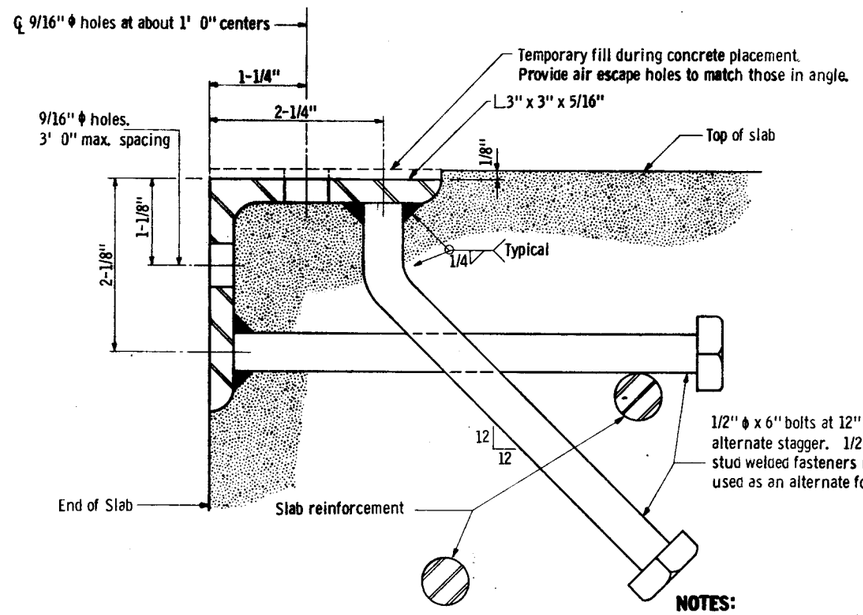
SECTION C-C

① Diaphragm quantities are based on the "Bolted Diaphragm" B402 option and are included in the superstructure quantities.
② Use 7/8" high strength bolts or 7/8" pin bolts.
③ Point toe of bent plate diaphragm down grade.
④ For flange material over 1-1/2" thick, use 3/8" weld.
⑤ Where expansion device is bolted to end diaphragm, use W12 x 53 (for 21" and 24" beams) and W14 x 61 (for all other beams). Where there is no expansion device fastened to end diaphragm, see framing plan for size of diaphragm.

APPROVED: March 15, 1976 Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN Issued by: OFFICE OF ENGINEERING STANDARDS	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS **WELDED DIAPHRAGMS (ALTERNATE) FOR STEEL BEAMS**		DETAIL NO. **B404**



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. Maximum length 22 feet.

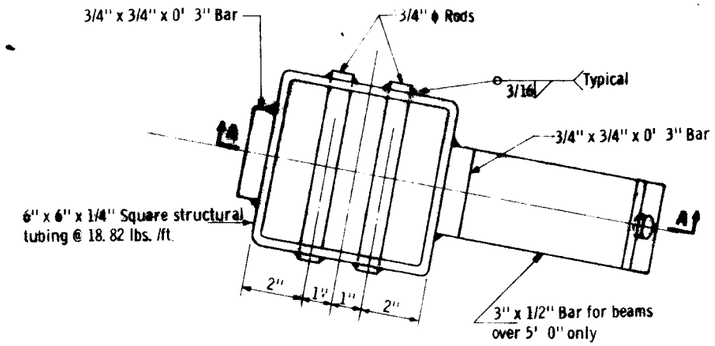
Angles shall be straightened to a tolerance of 1/16" in 10 feet after galvanizing

Material: Structural steel per M. H. D. 3306. Galvanize after fabrication per M. H. D. 3394

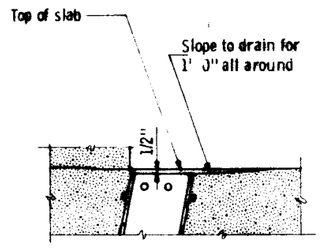
Set angle to proper grade and crown.

All material will be paid for as structural steel M. H. D. 3306

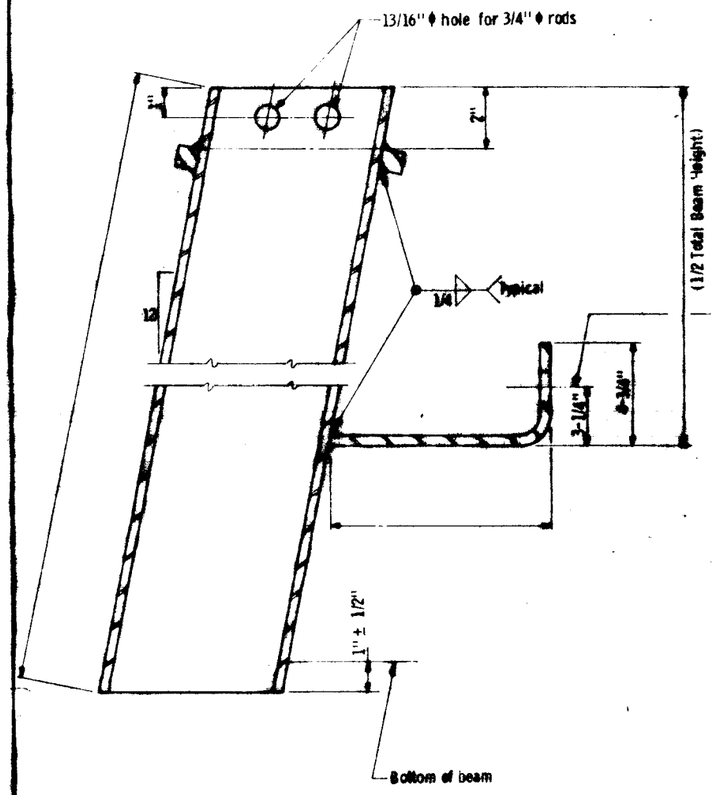
APPROVED May 26, 1972 Douglas Differt Engineering Standards Engineer RESEARCH AND STANDARDS DIVISION	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS **PROTECTION ANGLE FOR END OF SLAB**		DETAIL NO. **B551**



PLAN VIEW



PLACEMENT DIAGRAM



SECTION A - A

NOTES:

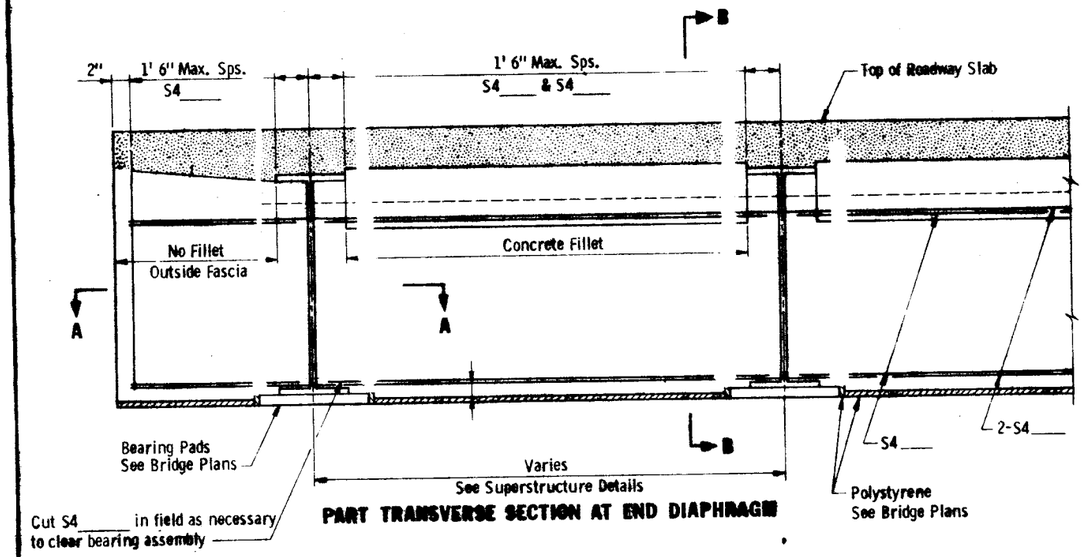
Material to be structural steel per M. H. D. 3306.

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

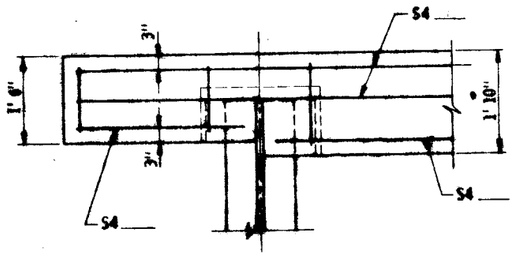
Galvanize other materials per M. H. D. 3394 after fabrication.

Payment for Floor Drain Type _____ shall include all material shown on this detail.

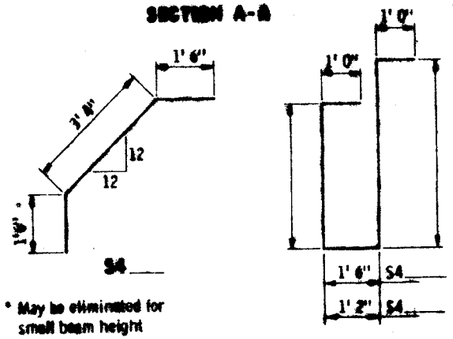
APPROVED: Aug. 12, 1975 Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN Issued by: OFFICE OF ENGINEERING STANDARDS	STATE OF MINNESOTA DEPARTMENT OF HIGHWAYS **BRIDGE FLOOR DRAIN** **STRUCTURAL TUBING**		DETAIL NO. **B702**



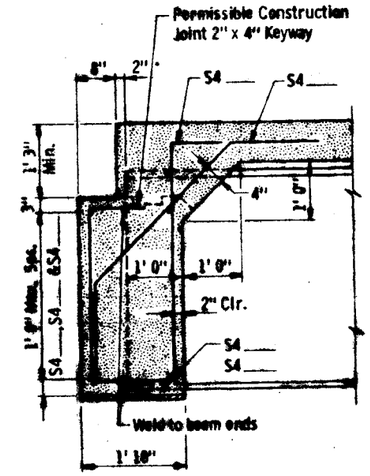
PART TRANSVERSE SECTION AT END DIAPHRAGM



SECTION A-A



* May be eliminated for small beam height



SECTION B-B

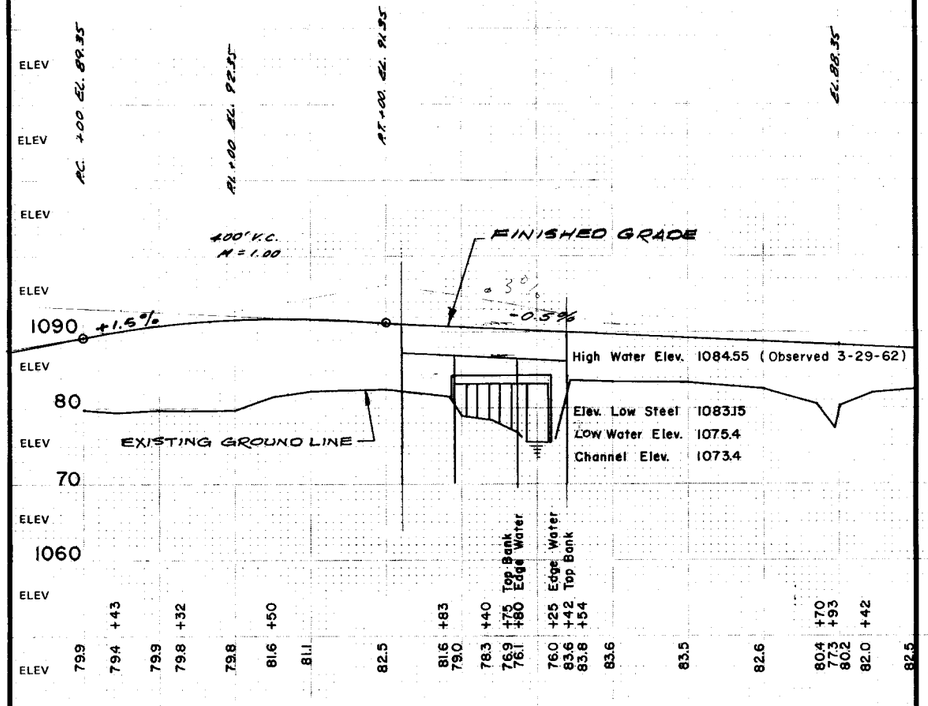
All diaphragm bars shown are listed with the superstructure reinforcement. Diaphragm concrete and reinforcement quantities are included in superstructure quantities.

APPROVED: Oct. 20, 1976 Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN Issued by: OFFICE OF ENGINEERING STANDARDS	MINNESOTA DEPARTMENT OF **CONCRETE END DIAPHRAGM** **(FOR STEEL BEAMS WITH PILE BENT ABUTMENT)**		DETAIL NO. **B809**

Minn. **Proj. No.** 05 9055 (2)

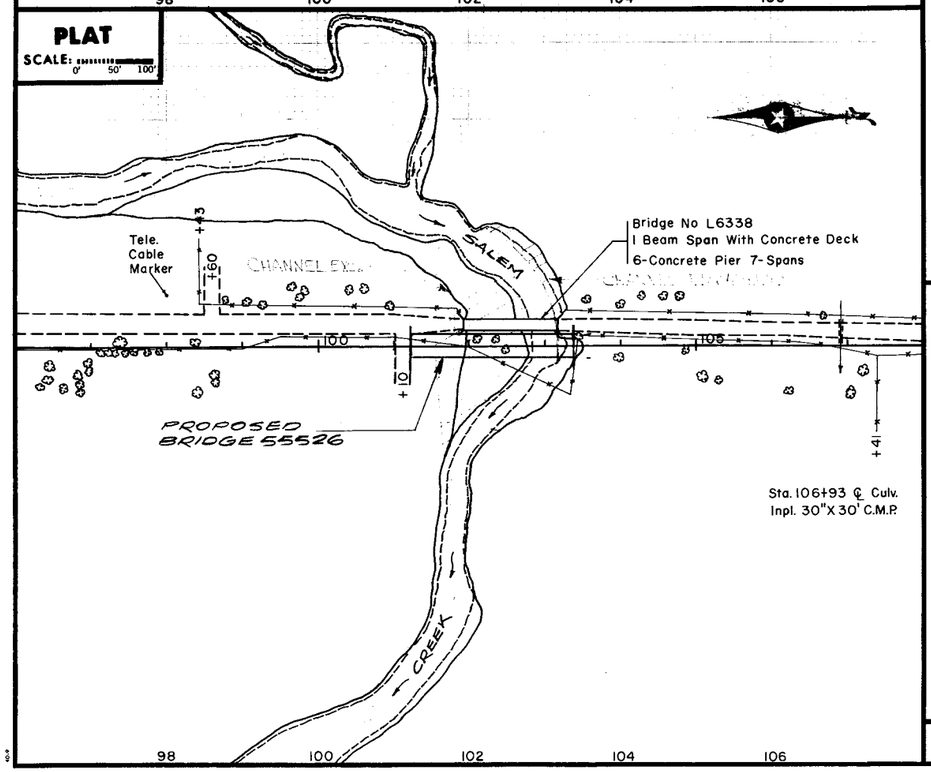
CONTRACTED PROFILE

SCALE: HOR. 0' 50' 100' VER. 0' 5' 10'



PLAT

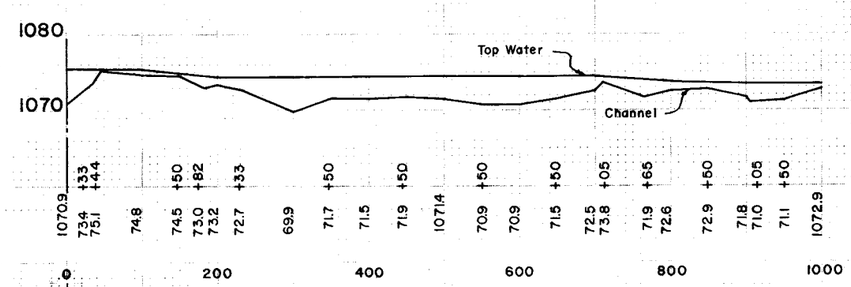
SCALE: 0' 50' 100'



TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN

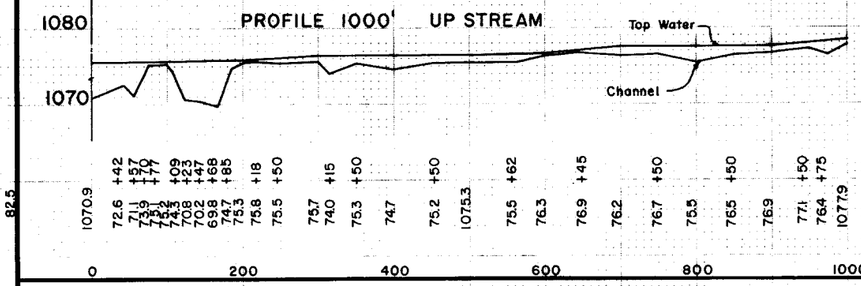
PROFILE 1000' DOWN STREAM



℄ BRIDGE

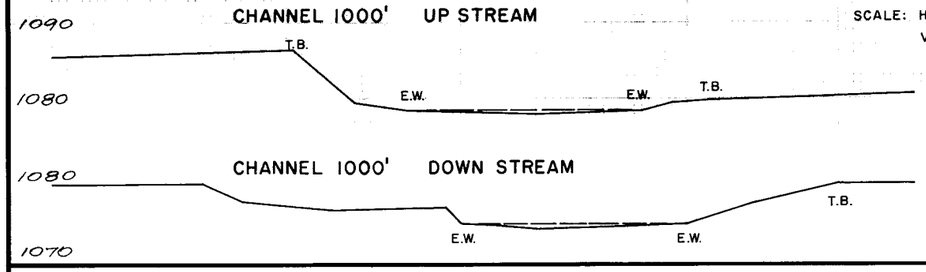
SCALE: HOR. 1" = 100'
VER. 1" = 10'

PROFILE 1000' UP STREAM

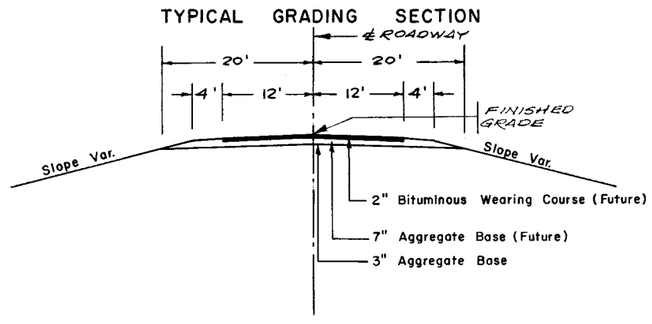


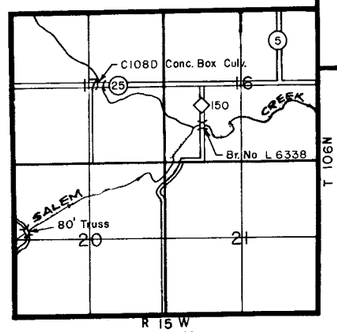
CHANNEL 1000' UP STREAM

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



TYPICAL GRADING SECTION





R 15 W
INDEX MAP
(FOUR SECTIONS)

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating.
Subject to driftwood and ice jams.

2. Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway) :Given location, type, length, height above high water, cross-sectional area etc.
Down Stream 1¼ Miles 3 Spans, Total length 139', Continuous Steel Beam, Low Steel 3' above Highwater, Highwater Elev. 10678 and 12.5' Waterway. Upstream ½ Miles 1 - Span Truss, Total length 80', Highwater 3.6' below low Steel and 750 Sq. Feet Waterway. Up Stream ¾ Mile C108D Conc. Box Culv.

3. Apparent highwater elevation 1084.55 Obtained from Flood on 3-29-62

4. Other data: Approx. velocity of water at time of survey.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE 7/27/76

Stream or ditch designation SALEM CREEK
Drainage area 56.5 Sq. MILES.
Max. discharge on record ——— Design discharge (50 yr. freq.) 8370 C.F.S.
Max. observed highwater elevation 1084.55 Design highwater elevation 1083.9
Design mean velocity through structure 4.5 F.P.S.
Low superstructure at or above elevation 1085.9
Flowline elevation 1073.4 Skew angle 0
Waterway area req'd. below elevation 10839 = 1860 Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 10275 C.F.S. at stage 1084.8 and mean velocity of 5.3 F.P.S. with 1.5 Ft. swellhead. The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources.

BRIDGE DATA

66'-84'-66' CONT. BEAM SPANS (STEEL)
32'-0" ROADWAY
NO SKEW

Bridge survey sheets made from:

Bench mark elevation 1085.45 (M.S.L. 1929 Adj.)
Location Painted End of HDWL N.E. End Bridge L6338

MINNESOTA
DEPARTMENT OF TRANS.

BRIDGE SURVEY

AT MILE POINT ON C.R. 150 (T.H., C.S.A.H., C.R. etc.)
PROPOSED BRIDGE LOCATED 1.5 MILES West OF SALEM CORNERS
SEC. 16 TWP T106N R R15W
TOWNSHIP SALEM COUNTY OLMSTED
BRIDGE NO. 55526

Area No. **Job No.** CR 150 | **State Proj. No.** 55-598-02 | **Sheet No.** 16 of 17 Sheets

Minn. Proj. No. OS 9055(2)

SCALE: 1" = 10'

TEST PILE #1

℄ PIER 2 - STA. 102+74

TEST PILE #3

℄ PIER 1 - STA. 101+90.00

℄ BRG. - NORTH ABUT. STA. 103+40.00

CENTER LINE OF LAYOUT

℄ BRG. SOUTH ABUTMENT STA. 101+24.00

TEST PILE #2

FLOW

160 FT. (RIPRAP)

150 FT. (RIPRAP)

LIMITS OF RANDOM RIPRAP AVG. 1 FT. THICK

LIMITS OF RANDOM RIPRAP AVG. 2 FT. THICK

TEST PILE #4

LIMITS OF RANDOM RIPRAP SHOWN ARE APPROX. ONLY. EXACT LIMITS TO BE DETERMINED BY ENGINEER IN FIELD.

66'-0"

84'-0"

66'-0"

20' LEFT

20' RIGHT

FINISHED GRADE EL. 1091.23

-0.5% GRADE

FINISHED GRADE EL. 1090.15

LOW MEMBER EL. 1086.09

ELEV 90'

ELEV 1080

ELEV 70

ELEV 60

ELEV 50

ELEV 40

ELEV 30

ELEV 20

ELEV 10

ELEV 1000

High Water Elev. 1084.55

Low Steel Elev. 1083.15

Low Water Elev. 1075.4

DES. H.W. EL. 1083.9

CHANNEL BOTTOM EL. 1073.4

FILL BRN. 2.

BRN. Cr. S. & G.

6" FILTER BLANKET

NOTE: BRIDGE CONTRACTOR TO REMOVE OLD BRIDGE, DRESS SLOPES & PLACE RIPRAP. SEE SPECIAL PROVISIONS.

APPROACH FILLS TO BE PLACED UNDER GRADING PORTION OF CONTRACT.

SHAKOPEE LIMESTONE FORM. BUFF WHITE 100/1"

SHAKOPEE LIMESTONE FORM. BUFF WHITE 100/6"

SHAKOPEE LIMESTONE FORM. BUFF WHITE 100/5"

SHAKOPEE LIMESTONE FORM. BUFF WHITE

55 FT. C.I.P. CONC. TEST PILE (12" ϕ)

55 FT. C.I.P. CONC. TEST PILES (20" ϕ)

55 FT. C.I.P. CONC. TEST PILE (12" ϕ)

B1 B2 B3 B4

BRIDGE CONTRACTOR SHALL EXCAVATE & FILL TO THESE LINES BETWEEN NEW ABUTMENTS FOR APPROX. 140 FT. UPSTREAM & 100 FT. DOWNSTREAM ON THE SOUTH SIDE & 150 FT. UP & DOWNSTREAM ON THE NORTH SIDE FROM THE ℄ OF COUNTY ROAD 150. INCLUDED IN PRICE BID FOR COMMON CHANNEL EXCAVATION. SEE SHEET 11A FOR DETAILED X-SECTIONS.

B.M. ELEV. (M.S.L. 19 ADJ.) 1082.5

81.6 +83

79.0

78.3 +40

76.9 +75

76.1 +80

76.0 +25

83.6 +42

83.8 +54

83.6

101 +20 +40 +60 +80 102 +20 +40 +60 +80 103 +20 +40 +60 +80 104

BORINGS SHOWN (B) TAKEN WITH
STD. 140 LB. HAMMER
30 INCH DROP
2 INCH O.D. SAMPLER

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN

For the design of the structure foundation, to obtain relative data concerning the character of material in and upon which the foundation might be built, borings and/or soundings were made at points approximately as indicated on this drawing with the log of such exploration data as interpreted for such design purpose as shown. The explorations were made by ordinary and conventional methods and care deemed adequate for such purpose. However, since it is a matter of common knowledge that the exact character of any material and its reaction is difficult to determine from such subsurface exploration and that the kind and character of material at the site where the foundations are built may vary substantially from that indicated by the log they are made available to the bidders simply for what they are worth, without any warranty, expressed or implied that the material to be encountered in building the foundation will conform therewith. If the log is used by the contractor in making his bid, it is hereby expressly stipulated that the Highway Department accepts no responsibility for said use.

MINNESOTA DEPARTMENT OF TRANS.

BRIDGE NO. 55526

BRIDGE SURVEY

PLAN AND PROFILE

SEE SHEET NO. 16 FOR ADDITIONAL INFORMATION

State Proj. No. 55-598-02 CR 150

Sheet No. 17 of 17 Sheets

Bridge Survey Sheet (Sheet 2 of 2)