MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR GRADING, AGGREGATE BASE, BITUMINOUS SURFACE AND BRIDGE NO. 55543

LOCATED ON C.S.A.H. 3 **BETWEEN** C.S.A.H. 26 & C.S.A.H. 11 **AND** AT ROCK DELL. **(GEOGRAPHIC DESCRIPTION)**

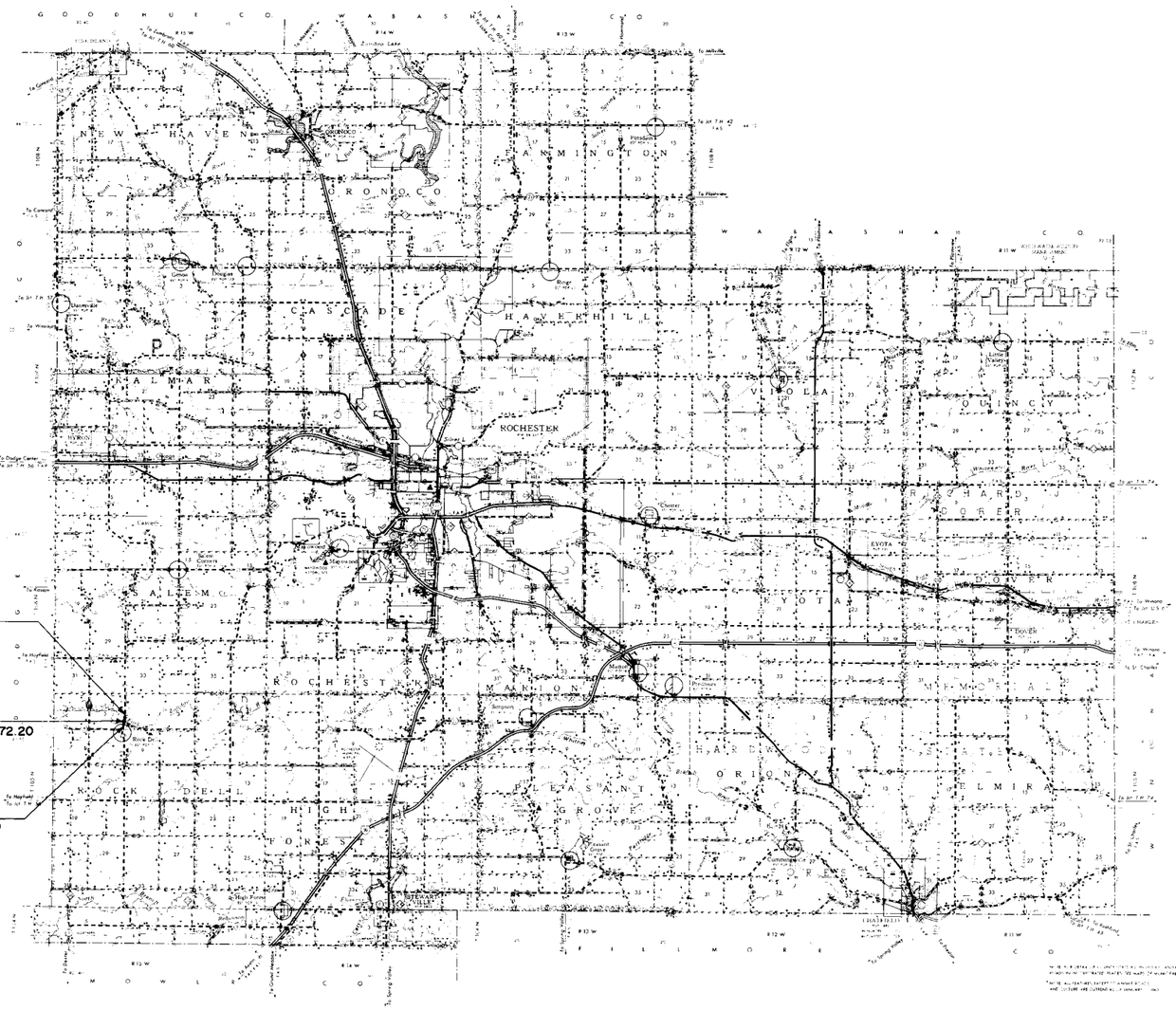
FROM 4754.92' SO. N.E. COR. SEC. 5 T105N-R15W **TO** 2554.92' SO. N.E. COR. SEC. 5 T105-R15W **(LEGAL DESCRIPTION)**

STATE PROJ. NO. 55-603-16

GROSS LENGTH	144.40	FEET	0.027 MILES
BRIDGES-LENGTH	144.40	FEET	0.027 MILES
EXCEPTIONS-LENGTH	0.0	FEET	0.0 MILES
NET LENGTH	144.40	FEET	0.027 MILES

STATE PROJ. NO. 55-603-21

GROSS LENGTH	2200.00	FEET	0.417 MILES
BRIDGES-LENGTH	144.40	FEET	0.027 MILES
EXCEPTIONS-LENGTH	144.40	FEET	0.027 MILES
NET LENGTH	2055.60	FEET	0.390 MILES



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 (TIMBER)
BRUSH
NURSERY
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)
SLOPE EASEMENT SE

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 0' 100'
PROFILE 0' 100' HOR. 0' 10' VER.
INDEX MAP 0 2 MILES
X-SECTIONS
~~GENERAL LAYOUT~~ 0 10'

STATE AID TITLE SHEET 5-27-A1 MINSON MPLS 53405

MINN. PROJ. NO. RS 6235 (4)
BRRS 6235 (3)

GOVERNING SPECIFICATIONS

The 1983 Edition of the Minnesota Department of Transportation "Standard Specifications For Construction" Shall Govern.

INDEX

SHEET NO. 1 TITLE SHEET & LAYOUT MAP.
" " 2 ESTIMATE OF QUANTITIES & TYPICAL SECTIONS.
" " 3 PLAN & PROFILE SHEET.
" " 4 TO 7 X SECTION SHEETS.
" 1 THROUGH 22 BRIDGE NO. 55543

DESIGN DESIGNATION

R
ADT (Current Year) = 414 (1985)
ADT (Future Year) = 745 (2005)
DHV (Design Hr. Vol.) =
D (Directional Distr.) = %
T (Heavy Commercial) = 15 %
SOIL FACTOR 130
9 TON DESIGN

ΣN18 (20)
Design Speed 50 MPH
Based on STOPPING Sight Distance
Height of eye 3.75' Height of object 0.5'
Design Speed not achieved at:

STA.	TO STA.	MPH
STA.	TO STA.	MPH
STA.	TO STA.	MPH

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.

DATE 7-25-84 REG. NO. 10219 ENGR. J. K. Hadden

COUNTY Olmsted

Recommended for Approval [signature] 7-26 1984
DISTRICT STATE AID ENGINEER

Recommended for Approval Delbert D. Offdahl 11-14 1984
STATE AID PLANS AND SPECS ENGINEER

Approved 11-14 1984 for Roy G. Dawson
STATE AID ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ADMINISTRATOR DATE

~~STATE AID PROJ. NO.~~ S.P. 55-603-16
STATE PROJ. NO. 55-603-21 C.S.A.H. 3 OLMSTED COUNTY **SHEET NO.** 1 **OF** 7 **SHEETS**

ESTIMATED QUANTITIES

SPECIFICATION NO.	ITEM	UNIT	MUNICIPAL	RURAL	TOTAL ESTIMATED QUANTITIES	
2101.502	CLEARING	TREE		16	16	
2101.507	GRUBBING	TREE		16	16	
2104.501	REMOVE PIPE CULVERTS	LIN. FT.		102	102	
2105.501	COMMON EXCAVATION	CU. YD.		10129	10129	(P)
2105.507	SUBGRADE EXCAVATION	CU. YD.		1221	1221	(P)
2105.523	COMMON BORROW (CV)	CU. YD.		8053	8053	(P)
2105.535	SALVAGED TOPSOIL	CU. YD.		1397	1397	(P)
① 2211.501	AGGREGATE BASE CLASS 2	TON		8193	8193	
2221.501	AGGREGATE SHOULDERING CLASS 2	TON		675	675	
2501.511	18" C.S. PIPE CULVERT	LIN. FT.		28	28	
2501.511	30" C.S. PIPE CULVERT	LIN. FT.		32	32	
2501.515	18" G.S. PIPE APRONS	EACH		2	2	
2501.515	30" G.S. PIPE APRONS	EACH		2	2	
2501.521	49" SPAN C.S. PIPE-ARCH CULVERT	LIN. FT.		92	92	
2501.525	49" SPAN G.S. PIPE-ARCH APRONS	EACH		6	6	
2575.501	ROADSIDE SEEDING	ACRE		4	4	(P)
2575.502	SEED MIXTURE 5	POUND		200	200	
2575.511	MULCH MATERIAL TYPE 1	TON		8	8	
2575.519	DISC ANCHORING	ACRE		4	4	(P)
2575.531	COMMERCIAL FERTILIZER ANALYSIS 12-12-12	TON		0.4	0.4	
2331.504	BITUMINOUS MAT'L. FOR MIXTURE	TON		78	78	
② 2331.508	WEARING COURSE MIXTURE	TON		713	713	
③ 2331.514	BASE COURSE MIXTURE	TON		673	673	
2357.502	BITUMINOUS MAT'L. FOR TACK COAT	GALLON		306	306	
2442.501	REMOVE OLD BRIDGE	LUMP SUM		1	1	
0511.602	HAND PLACED RIPRAP SPECIAL	CUBIC YARD		320	320	

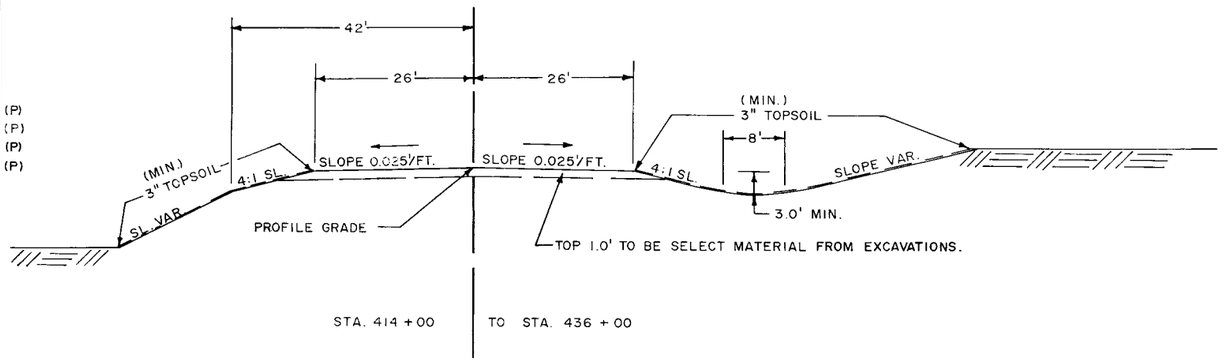
① ITEM NO. 2211.501 AGGREGATE BASE, CLASS 2 INCLUDES 300 TONS FOR 5 APPROACHES.
② ITEM NO. 2331.508 WEARING COURSE MIXTURE INCLUDES 70 TONS FOR 5 APPROACHES AND 40 TONS FOR 8' WIDE x 100' LONG SHOULDERS AT BR. NO. 55543.
③ ITEM NO. 2331.514 BASE COURSE MIXTURE INCLUDES 30 TONS FOR 3 LANES 8' WIDE x 104' LONG AND 40 TONS FOR 8' WIDE x 100' LONG SHOULDERS AT BR. NO. 55543.

STANDARD PLATES

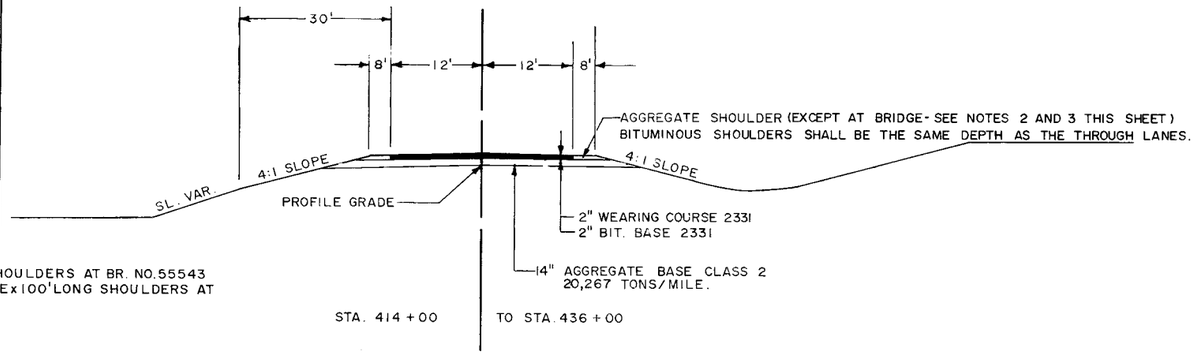
THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.

PLATE NO	DESCRIPTION
0004 A	SPECIFICATION REFERENCE TO STANDARD PLATES.
3040 F	CORRUGATED METAL PIPE CULVERT.
3122 I	METAL APRON FOR C.M. PIPE-ARCH CULVERT.
3123 H	METAL APRON FOR C.M. PIPE.
3124 B	METAL APRON CONNECTION.
3221 C	CORRUGATED STEEL PIPE COUPLING BAND.
8000 H	STANDARD BARRICADES.
9000 B	APPROACHES AND ENTRANCES.
8003 B	BREAKAWAY SIGN SUPPORT (PLASTIC)

TYPICAL GRADING SECTION



TYPICAL SURFACING SECTION



BASIS OF PLANNED QUANTITIES

BITUMINOUS WEARING COURSE

BITUMINOUS MATERIAL - 6.5% OF MIXTURE BY WEIGHT.
BITUMINOUS MIXTURE - 110 POUNDS / SQ. YD. / INCH OF DEPTH.

BITUMINOUS BASE COURSE

BITUMINOUS MATERIAL - 4.5% OF MIXTURE BY WEIGHT.
BITUMINOUS MIXTURE - 110 POUND / SQ. YD. / INCH OF DEPTH.

NOTE: CORRUGATED STEEL 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/W. TAPERS SHALL BE 50:1 IN ALL CASES.

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

ALBINSON, INC. MINNEAPOLIS 55403

Fed. Proj. No.

RES. DR. LT. 410+09
INPL. 15"x30' CMP
NO CHANGE

F.E. LT. 415+44
INPL. 15"x24' CMP.
REMOVE

18"x28' C.S. PIPE CULV.
2-18"G.S. PIPE APRONS

BEAVER DAMS

SURVEY CENTERLINE
P.I. ~~416+67.15~~
Δ LT. ~~16° 12'~~
D = ~~2° 30'~~
T = ~~328.18'~~
L = ~~648.00'~~
E = ~~23.10'~~

OFFICE CHANGE
CONST. CENTERLINE
418+40.97
17° 48'
1° 30'
598.15'
1186.67'
46.55'

RATE SUPER. 0.032'/FT.
150' TRANSITION

FARM DR. LT. 434+21
INPL. 30"x26' CMP.
REMOVE

30"x32' C.S. PIPE CULV.
2-30"G.S. PIPE APRONS

P.O.T. 410+00
P.C. 412+42.82
P.C. 413+40.32
P.I. 419+88.37
P.O.T. 423+46.90
P.T. 424+29.49
P.C. 430+53.73
P.T. 435+92.62
P.O.T. 439+22.40
EQUATION 439+22.40 P.O.T. = 439+41.16

COUNTY SHOP
GAR.
HO.
C.I.M.
SECTION LINE
CREAMERY
POWER SUB-STA.
TEMPORARY EASEMENT
SOUTH FORK
RIVER
ZUMBRO
C.R. 126
R/W
SURVEY CENTERLINE
CONST. CENTERLINE
BR. NO. 55543
BR. 3745
Quarter Corner to Sections 4 and 5 (P.K. nail in place)
North Line of S.E. 1/4 Sec. 5
North Line of S.W. 1/4 Sec. 4

BEGIN: S.P. 55-603-21
STA. 414+00

END: S.P. 55-603-21
STA. 436+00

RES. DR. RT. 411+08
NO CULV. INPL.
NO CHANGE

RES. DR. RT. 412+32
NO CULV. INPL.
NO CHANGE

CREAMERY DR. RT. 413+78
NO CHANGE

C.R. 126 RT. 415+37
NO CULV. INPL.
NO CULV. REQ'D.

BR. NO. 3745 RT. STA. 422+00
INPL. 75' LOW TRUSS SPAN
2-CONC. ABUTMENTS
REMOVE OLD BRIDGE

FARM DR. RT. 427+25
INPL. 30"x26' CMP
REMOVE

2-49"SPAN x32' C.S. PIPE-ARCH CULV.
4-49"SPAN G.S. PIPE-ARCH APRONS

F.E. RT. 434+85
INPL. 30"x26' CMP.
REMOVE

49"SPAN x28' C.S. PIPE-ARCH CULV.
2-49"SPAN G.S. PIPE APRONS

OFFICE CHANGE
CONST. CENTERLINE
P.I. 435+70.92
RT. 3° 00'
D = 0° 30'
T = 300.06'
L = 600.0'
E = 0.98'

FIELD SURVEY ALIGNMENT
P.I. 433+23.22
ΔRT. 02°41'40"
D = 00° 30'
T = 269.49'
L = 538.89'
E = 3.17'

VERTICAL CONTROL

ELEVATIONS SHOWN IN THIS PLAN ARE BASED ON MEAN SEA-LEVEL DATUM, 1929 ADJ. AND TIED TO THE U.S. LEVEL NET. B.M. NO. TT51 WM 1953 LOCATED NEAR SALEM CORNERS. ELEV. 1076.092

CLEAR 16 TREES — GRUB 16 TREES

B.M. EL. 1148.20
SPK. IN PP. LT.
18' STA. 417+14

B.M. EL. 1169.08
SPK. IN PP. RT.
32' STA. 440+20

P.I. +00
ELEV. 49.80
400' V.C.
M = 1.32

P.I. +00
ELEV. 57.00
600' V.C.
M = 2.03625

P.I. +00
ELEV. 51.90
200' V.C.
M = 0.59375

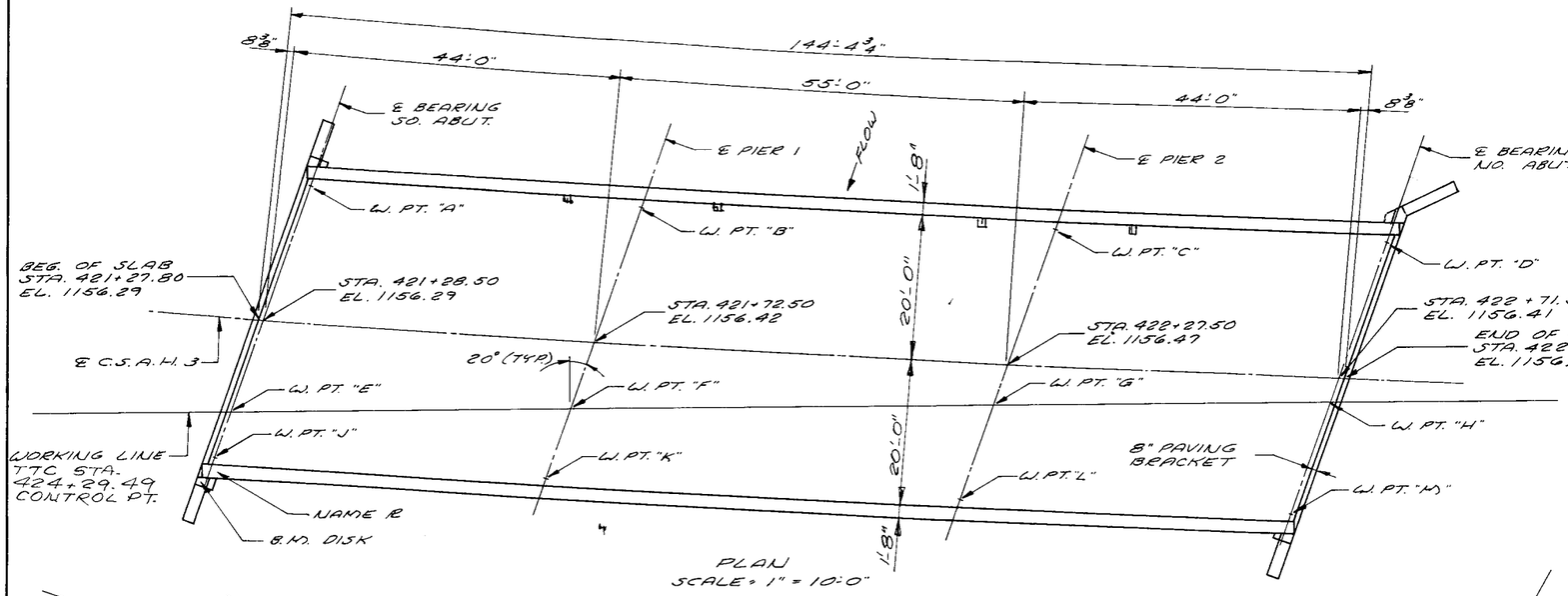
BR. NO. 55543
STA. 421+27.80 TO 422+72.20

-1.2%
+1.44%
-1.275%
+1.1%
75' LEFT
75' RIGHT

SUBGRADE TREATMENT:
EXCAVATE 1.0' BELOW PROFILE GRADE
FROM STA. 414+00 TO STA. 417+20 AND
FROM STA. 430+00 TO STA. 436+00

SALVAGE TOPSOIL	370 CU. YDS.
COMMON EXC.	1706 CU. YDS.
SUBGRADE EXC.	387 CU. YDS.
COMMON BORROW	6889 CU. YDS. (CV.)
EMB.	8588 CU. YDS.

SALVAGE TOPSOIL	1027 CU. YDS.
COMMON EXC.	8423 CU. YDS.
SUBGRADE EXC.	834 CU. YDS.
COMMON BORROW	1164 CU. YDS. (CV.)
EMB.	8256 CU. YDS.

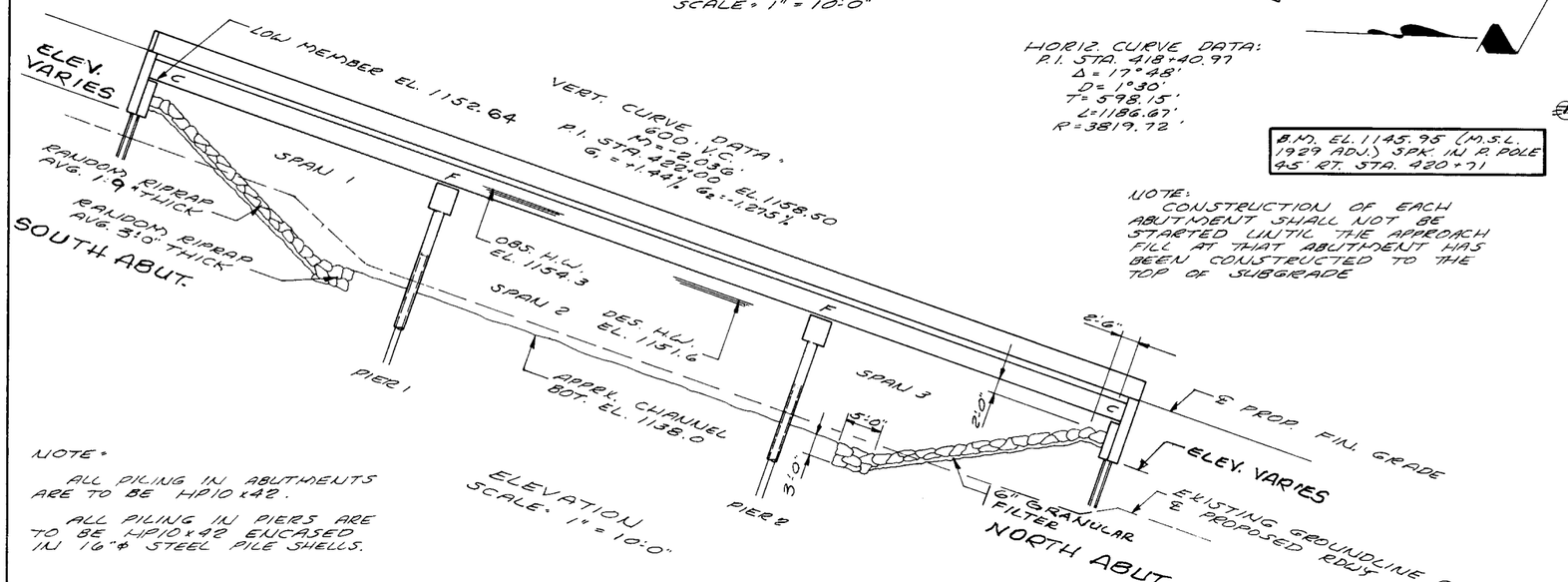


PLAN
SCALE: 1" = 10'-0"

HORIZ. CURVE DATA:
P.I. STA. 418+40.97
Δ = 17°-48'
D = 1°30'
T = 598.15'
L = 1186.67'
R = 3819.72'

B.M. EL. 1145.95 (M.S.L. 1929 ADJ.) SPK. IN R POLE 45' RT. STA. 420+71

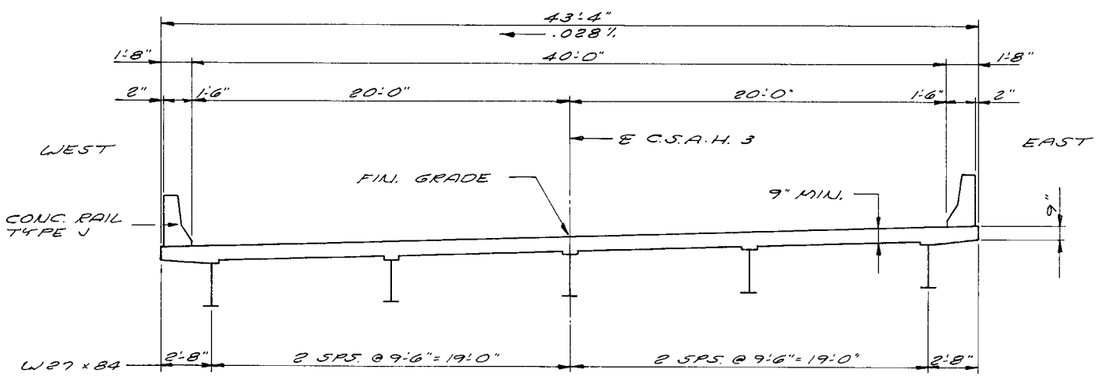
NOTE:
CONSTRUCTION OF EACH ABUTMENT SHALL NOT BE STARTED UNTIL THE APPROACH FILL AT THAT ABUTMENT HAS BEEN CONSTRUCTED TO THE TOP OF SUBGRADE



NOTE:
ALL PILING IN ABUTMENTS ARE TO BE HP10 x 42.

ALL PILING IN PIERS ARE TO BE HP10 x 42 ENCASED IN 16"ϕ STEEL PILE SHELLS.

ELEVATION
SCALE: 1" = 10'-0"



SECTION THRU DECK
SCALE: 1/4" = 1'-0"

DESIGN DATA

1977 & INTERIM A.A.S.H.T.O. DESIGN SPECIFICATIONS - LOAD FACTOR DESIGN METHOD - H S 20 LOADING INCLUDES 17 P.S.F. DL ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS.

REINFORCED CONCRETE -
f'_c = 4000 P.S.I. n = 8
fy = 60000 P.S.I. REINFORCEMENT

STRUCTURAL STEEL -
Fy = 36000 P.S.I. SPEC. 3306
Fy = 50000 P.S.I. SPEC. 3309

APPROX. DECK AREA = 6237 SQ. FT.
A.D.T. = 890 PROJECTED YEAR 2005

CONSTRUCTION NOTES

THE 1983 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

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 AND PLACING ANCHOR RODS.

THE FIRST DIGIT OR THE FIRST TWO DIGITS OF THE BAR MARK INDICATES THE BAR SIZE.

SUMMARY OF QUANTITIES FOR THE ENTIRE BRIDGE

ITEM NO.	ITEM	QUANT.	UNIT
2401.512	BRIDGE SLAB CONCRETE, (3X33)	6257 (P)	SQ. FT.
2401.501	STRUCTURE CONCRETE (3Y43)	111 (P)	CU. YD.
2401.501	STRUCTURE CONCRETE (3X46A)	29 (P)	CU. YD.
2401.541	REINFORCEMENT BARS	33780 (P)	POUND
2402.521	STRUCTURAL STEEL (3306)	550 (P)	POUND
2402.521	STRUCTURAL STEEL (3309)	81860 (P)	POUND
2402.546	FLOOR DRAINS, TYPE 1	4	EACH
0402.607	EXP. CURVED PLATE BRG. ASSEMBLY, TYPE 1	10	EACH
2402.592	ELASTOMERIC BEARING ASSEMBLY, TYPE 1	10	EACH
0401.601	STRUCTURE EXCAVATION	1	LUMP SUM
2511.501	RANDOM RIPRAP, CLASS III	280	CU. YD.
2511.511	GRANULAR FILTER	65	CU. YD.
~~2442.501~~	~~REMOVE OLD BRIDGE~~	~~1~~	~~LUMP SUM~~
2125.506	3/4 CUBIC YARD DRAGLINE	40	HOUR
2021.501	MOBILIZATION	1	LUMP SUM
0452.602	PILE TIP PROTECTION, 10"	22	EACH
0452.604	16"ϕ STEEL PILE SHELLS,	240	LIN. FT.
2452.510	STEEL H-PILING DRIVEN, 10"	630	LIN. FT.
2452.511	STEEL H-PILING DELIVERED, 10"	630	LIN. FT.
2452.520	STEEL H-TEST PILES, 30 FT. LONG, 10"	1	EACH
2452.520	STEEL H-TEST PILES, 45 FT. LONG, 10"	2	EACH
2452.520	STEEL H-TEST PILES, 60 FT. LONG, 10"	1	EACH
2401.541	REINFORCEMENT BARS (EPOXY COATED)	31840 (P)	POUND
~~0511.603~~	~~SPECIAL HAND-PLACED RIPRAP~~	~~320~~	~~CU. YD.~~

~~(F) SPA 421+85 BRIDGE NO. 3745~~

LIST OF SHEETS

NO.	TITLE
1	GENERAL PLAN & ELEVATION
2	BRIDGE LAYOUT
3&4	ABUTMENT DETAILS
5-7	ABUTMENT REINF.
8&9	PIER DETAILS
10-12	SUPERSTRUCTURE DETAILS
13	FRAMING PLAN
14	STRUCTURAL STEEL DETAILS
15	CONCRETE RAILING
16-20	DETAILS
21	BRIDGE SURVEY
22	BRIDGE SURVEY

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

Robert K. Homegah
REG. NO. 4924

DATE: 12-1-82

APPROVED:

COUNTY ENGINEER OLMSTED COUNTY

DATE: 12-8-82

PLANS PREPARED BY:

ERICKSON ENGINEERING
3338 REPUBLIC AVENUE
ST. LOUIS PARK, MN. 55426

C.S.A.H. 3 OLMSTED COUNTY
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55543

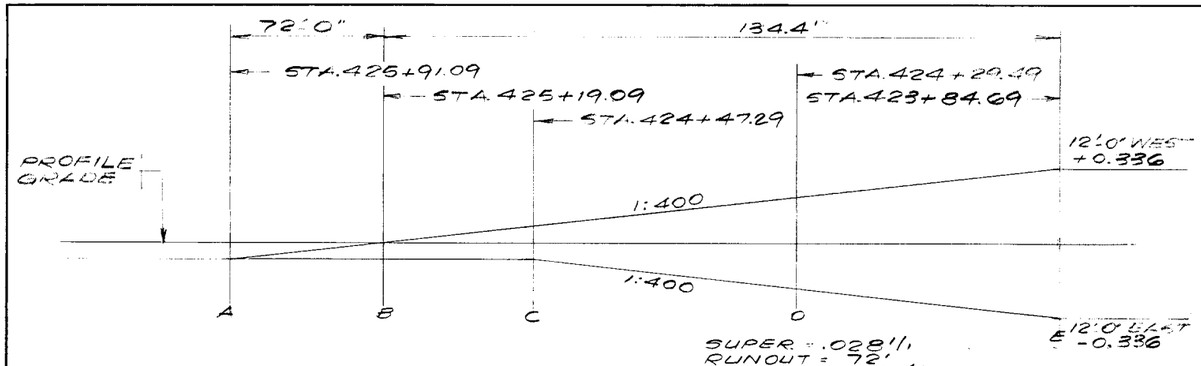
0.1 MILES NORTH OF ROCK DELL ON C.S.A.H. 3 OVER SO. FORK ZUMBRO RIVER

44'-55'-44' CONTINUOUS STEEL BEAM SPANS - 40' RDWY. 20° SKEW - 1° 30' CURVE
SPAN IDENT. NO. 401

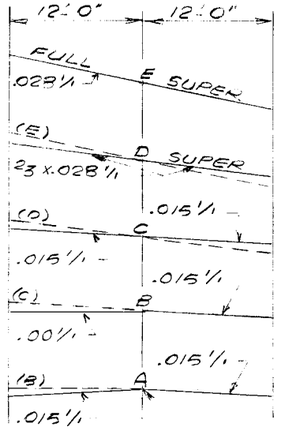
GENERAL PLAN & ELEVATION

SEC. 5 TWP 105N R15W
ROCK DELL TOWNSHIP
OLMSTED COUNTY

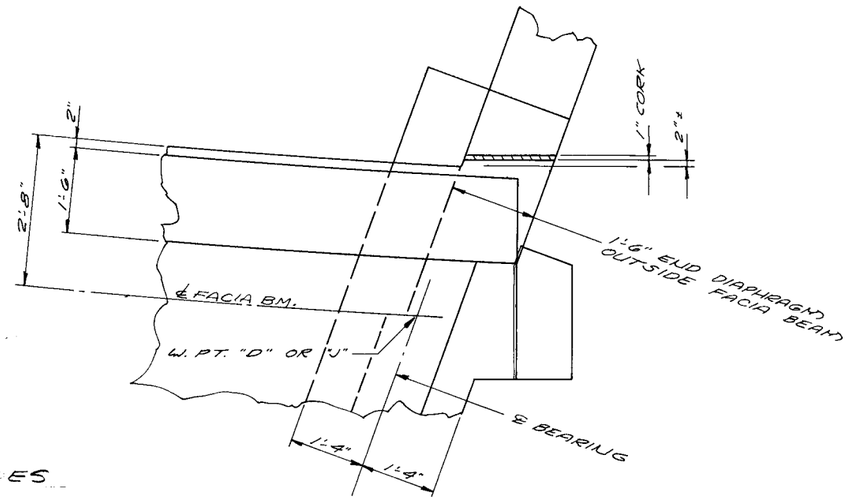
APPROVED: [signature] 11-1-84
BRIDGE ENGINEER



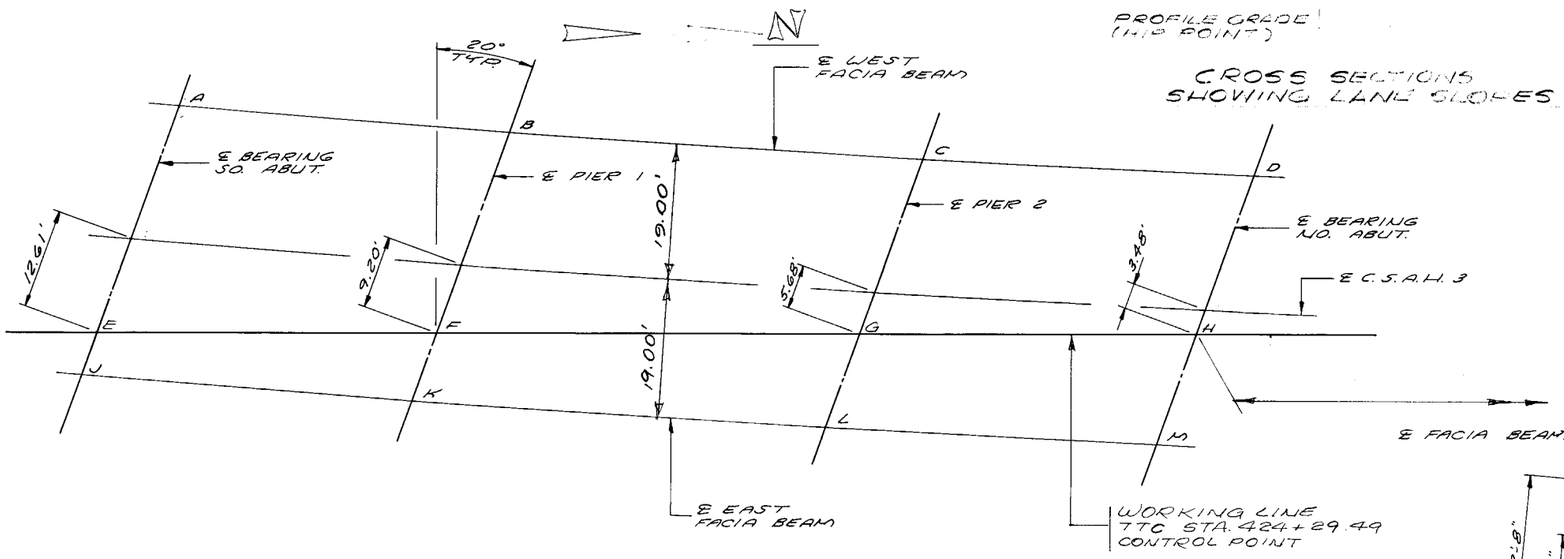
SUPERELEVATION CHART



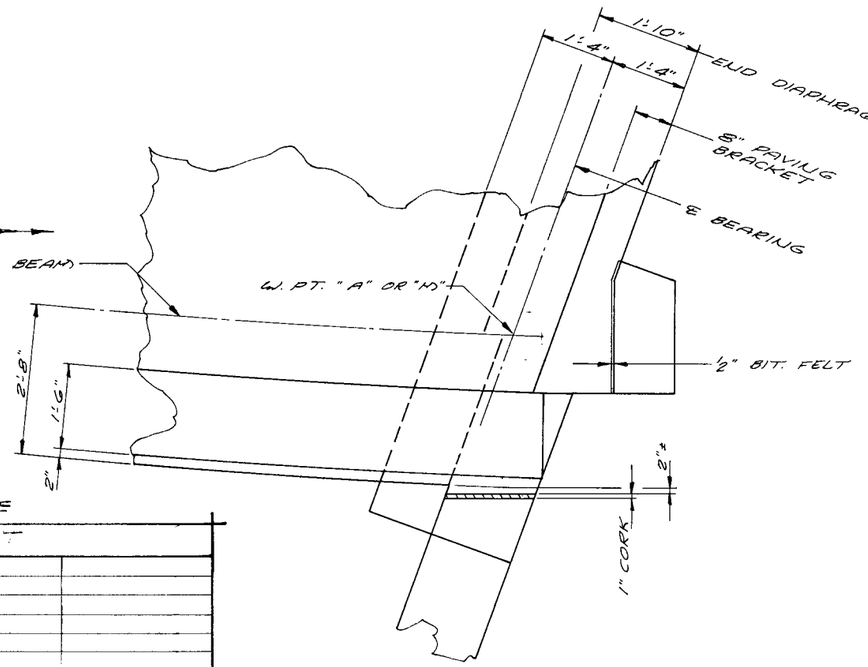
CROSS SECTIONS SHOWING LANE SLOPES



S.E. CORNER
SCALE: 3/4" = 1'-0"



LAYOUT SHOWING WORKING POINTS
SCALE: 1" = 10'-0"



N.E. & S.W. CORNERS
SCALE: 3/4" = 1'-0"

① INCLUDES COVER COAT

TOP OF SLAB TO BRIDGE SEAT

	ABUTS.	PIERS		
SLAB THICKNESS	9"	9"		
S.I.P. COPING	2"	2"		
BEARING HEIGHT	2'-2¾"	2'-2¾"		
PARAPET HEIGHT	5'-5⅝"	3" ①		
TOTAL	8'-7⅝"	8'-4¾"		

DIMENSIONS BETWEEN WORKING POINTS

POINT	STATION	A	B	C	D	E	F	G	H	J	K	L	M
A	421+33.79												
B	421+78.03	44.02'											
C	422+33.33		55.02'										
D	422+77.57			44.02'									
E	421+26.14	32.33'											
F	421+69.95	45.59'	28.98'			45.05'							
G	422+25.84	95.08'	53.62'	25.55'			56.10'						
H	422+70.45		94.89'	43.24'	23.42'			44.71'					
J	421+23.26			116.44'		7.10'							
K	421+67.03	50.48'		76.42'	116.89'	42.61'	10.58'			43.98'			
L	422+21.73	95.80'	57.91'		67.54'	97.22'	52.96'	14.18'			54.98'		
M	422+65.49		95.36'	49.79'			96.43'	42.03'	16.45'			43.99'	

ELEVATIONS

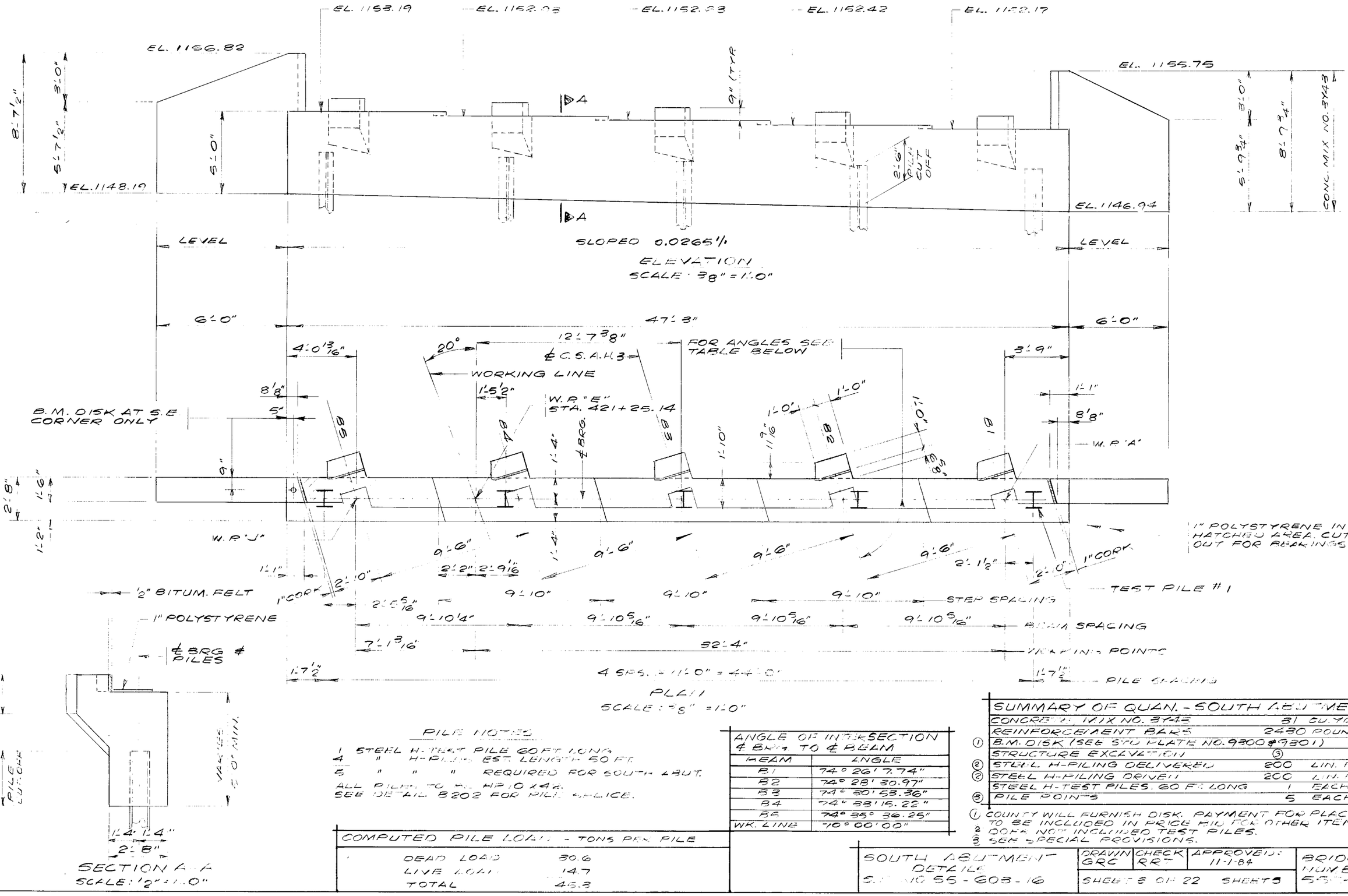
TOP OF SLAB	SLOPE TO BR. SEAT	BRIDGE SEAT	POINT
1155.78	3.61	1152.17	A
1155.90	3.40	1152.50	B
1155.93	3.40	1152.53	C
1154.86	3.61	1152.25	D
			E
			F
			G
			H
1155.20	3.01	1153.19	J
1156.94	3.40	1153.54	K
1157.00	3.40	1153.60	L
1156.95	3.01	1153.94	M

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55543

BRIDGE LAYOUT
S.P. NO. 55-602-16

APPROVED: 11-1-84
SHEET 2 OF 22 SHEETS



PILE NOTES

1 STEEL H-TEST PILE 60 FT LONG
4 " H-PILING EST. LENGTH 50 FT.
5 " " " REQUIRED FOR SOUTH ABUT.

ALL PILES TO BE HP10 X 42.
SEE DETAIL B202 FOR PILE SPLICE.

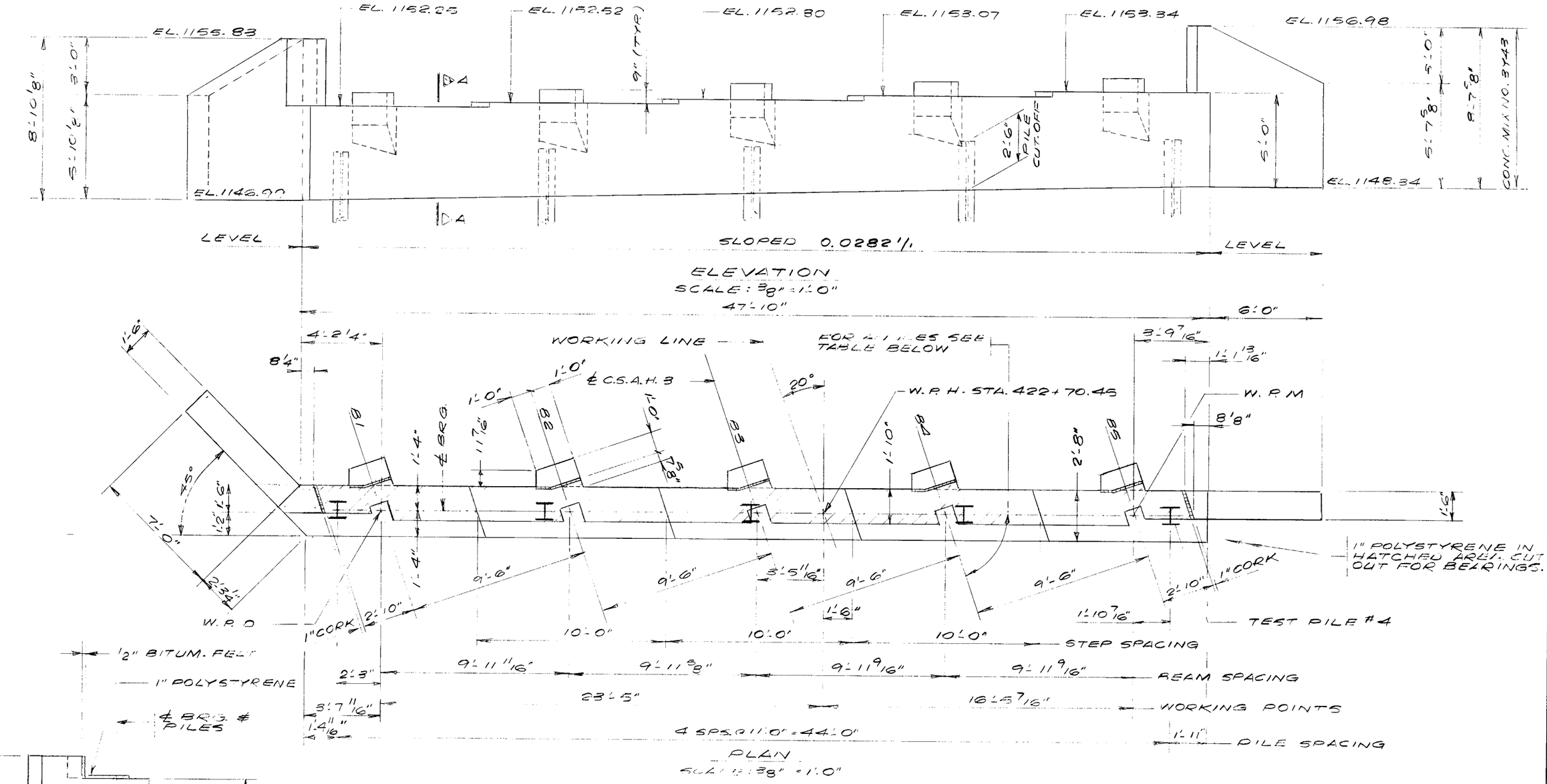
ANGLE OF INTERSECTION ℄ BRG. TO ℄ BEAM	
BEAM	ANGLE
B1	74° 26' 7.74"
B2	74° 28' 30.97"
B3	74° 30' 53.36"
B4	74° 33' 15.22"
B5	74° 35' 36.25"
WK. LINE	70° 00' 00"

COMPUTED PILE LOAD - TONS PER PILE	
DEAD LOAD	30.6
LIVE LOAD	14.7
TOTAL	45.3

SUMMARY OF QUAN. - SOUTH ABUTMENT		
CONCRETE MIX NO. 3X43	81	CU. YD.
REINFORCEMENT BARS	2430	POUND
(1) B.M. DISK (SEE STD PLATE NO. 9300 #9301)	1	
STRUCTURE EXCAVATION	(3)	
(2) STEEL H-PILING DELIVERED	200	LIN. FT.
(2) STEEL H-PILING DRIVEN	200	LIN. FT.
STEEL H-TEST PILES, 60 FT. LONG	1	EACH
(3) PILE POINTS	5	EACH

(1) COUNTY WILL FURNISH DISK. PAYMENT FOR PLACING TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
(2) DOES NOT INCLUDED TEST PILES.
(3) SEE SPECIAL PROVISIONS.

SOUTH ABUTMENT DETAILS	DRAWN GRC	CHECK RRT	APPROVED: 11-1-84	BRIDGE NUMBER 53-1112
S.N. 10 55-603-16	SHEET 5 OF 22 SHEETS			



PILE NOTES

1 STEEL H-TEST PILE 30 FT. LONG
4 " H-PILES MIN. LENGTH 20 FT.
5 " " " REQ'D. FOR NORTH ABUT.
ALL PILES TO BE HP 10 X 42.
SEE DETAIL B202 FOR PILE SPLICE.

ANGLE OF INTERSECTION ℄ BRG. TO ℄ BEAM	
BEAM	ANGLE
B1	72° 16' 42"
B2	72° 19' 28.00"
B3	72° 22' 11.46"
B4	72° 24' 54.07"
B5	72° 27' 35.83"
WK. LINE	70° 00' 00"

SUMMARY OF QUAN. - NORTH ABUTMENT		
CONCRETE, MIX NO. BY43	31	CU.YD.
REINFORCEMENT BARS	2580	POUND
STRUCTURE EXCAVATION	(2)	
(1) STEEL H-PILING DELIVERED	80	LIN. FT.
(1) STEEL H-PILING DRIVEN	80	LIN. FT.
STEEL H-TEST PILES, 30 FT. LONG	1	EACH
(2) PILE POINTS	5	EACH

(1) DOES NOT INCLUDE TEST PILES.
(2) SEE SPECIAL PROVISIONS

COMPUTED PILE LOADS - TONS PER PILE	
DEAD LOAD	30.6
LIVE LOAD	14.7
TOTAL	45.3

NORTH ABUTMENT DETAILS
S.P. NO. 55-60R-16

DRAWN: GAS | CHECKED: RRT | APPROVED: 11-1-84

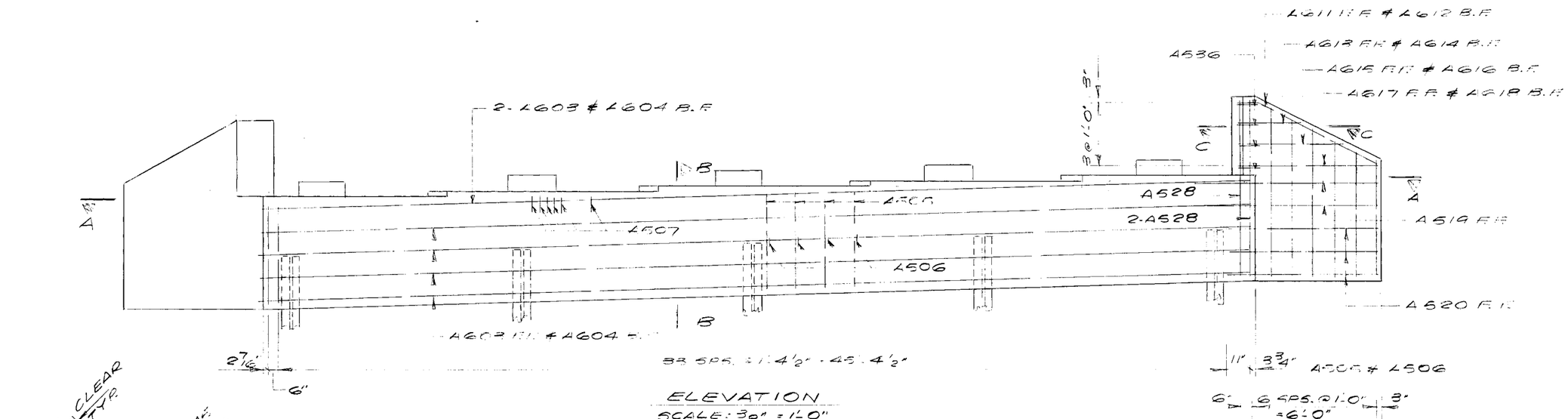
SHEET 4 OF 22 SHEETS

BOX OR NUMBER S-743

A614 F.F.
A613 B.F.
A616 F.F.
A615 B.F.
A618 F.F.
A617 B.F.
A612 F.F. # A611 B.F.
A535
2-A601 # A602 B.F.
A611 F.F. # A612 B.F.
A613 F.F. # A614 B.F.
A615 F.F. # A616 B.F.
A617 F.F. # A618 B.F.
A535
3 @ 1'-0"
C
C
B
B
A528 F.F.
A528 B.F.
A507
A505
A521 F.F.
A521 B.F.
A506
A520 F.F.
A519 F.F.
A601 F.F. # A602 B.F.
A519 F.F.
4¼"
7"
33 SPS. @ 1'-4½" = 45'-4½"
4¼"
A505 # A506
7"
ELEVATION
SCALE: ⅜" = 1'-0"
3" 6 SPS. @ 1'-0" 6"
= 6'-0"
6" 6 SPS. @ 1'-0" 3"
= 6'-0"
A529 E.F. THRU A534 E.F.
A528 E.F.
A528 E.F.
3" 3 @ 6" 3"
A608 # A509
2-A410
A410
A521 E.F.
A521 B.F.
A522 E.F. THRU A527 E.F.
3"
8"
5-A602
2" CLEAR
2" CLEAR
2-A519 # 3-A520
W.P.J
W.P.E
5-A601
A601
W.P.A
2-A519 # 3-A520
3 13/16"
2 @ 1'-4½" = 2'-9"
4 @ 6" 6 EQUAL SPS. = 7'-10¼"
4 @ 6" 6 EQUAL SPS. = 7'-10 5/16"
4 @ 6" 6 EQUAL SPS. = 7'-10 5/16"
4 @ 6" 6 EQUAL SPS. = 7'-10 5/16"
4 @ 6"
2 @ 1'-2½" = 2'-5"
4'
A507
SECTION A-A
SCALE: ⅜" = 1'-0"
A507 PULL UP TO 2" CLEAR
1'-4"
A601
A608
3"
3" MIN.
A410
A509
A506
A505
2" CLEAR
3"
3"
A602
1 - A601
5" SPS. @ 1'-1"
SECTION R-R
SCALE: ¾" = 1'-0"
A535
4" CLEAR
SECTION C-C

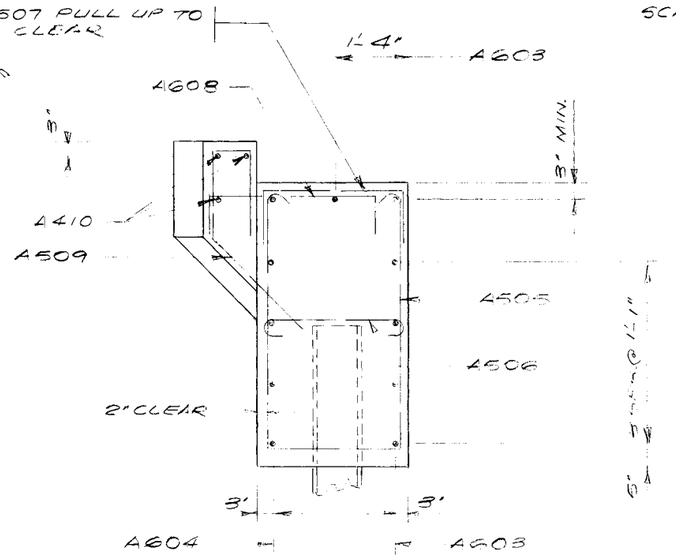
NOTE:
F.F. = FRONT FACE
B.F. = BACK FACE
E. = EACH FACE

SOUTH ABUTMENT REINFORCEMENT S.P. NO. 13-603-16	DRAWN GRC	CHECK RK	APPROVED 11-1-84
	SHEET 6 OF 22 SHEETS		BRIDGE 11-111/BCK 13



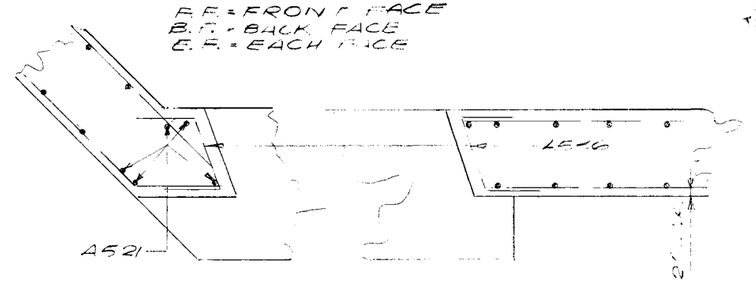
ELEVATION
SCALE: 3/8" = 1'-0"

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



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

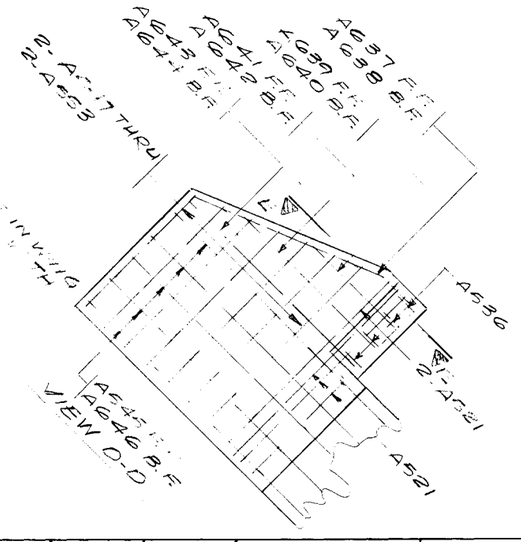
NOTE:
F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE



SECTION E-E

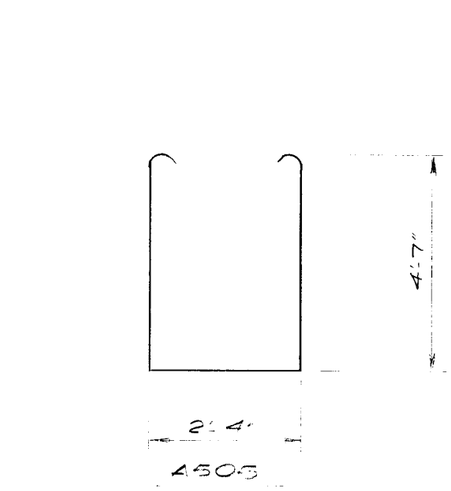
SECTION C-C

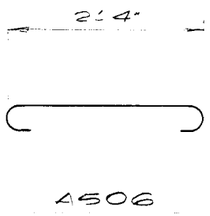
NOTE: WORK REINF. IN V-TH TOGETHER

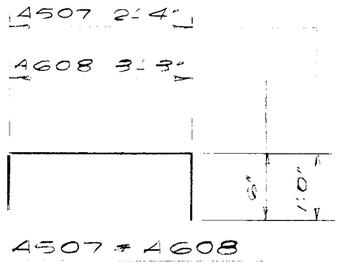


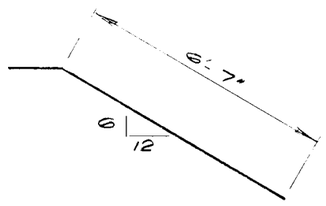
VIEW O-D

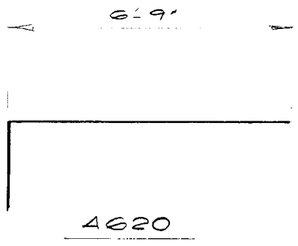
NORTH ABUTMENT REINFORCEMENT S.P. NO. 55-608-16	DRAWN GKL	CHECK RRT	APPROVED 11-1-84
	SHEET 6 OF 22 SHEETS		BRIDGE NUMBER 55045

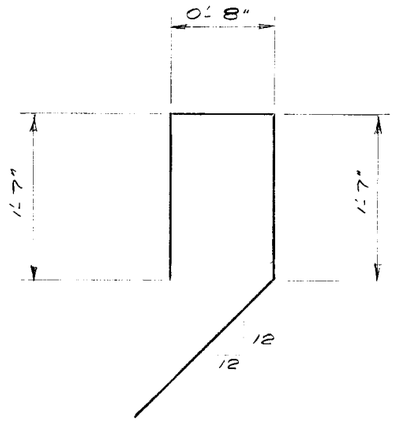


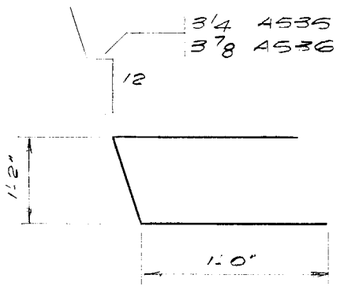


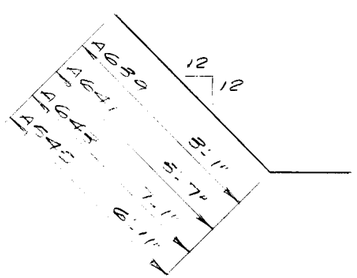


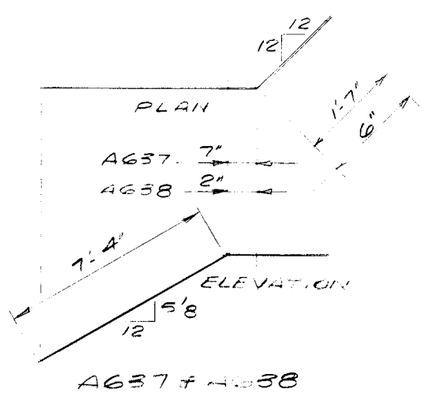












BILL OF REINFORCEMENT - NORTH & SOUTH ABUTMENTS

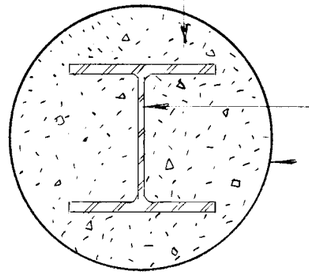
BAR	NUMBER SOUTH	NUMBER NORTH	LENGTH	SHAPE	LOCATION
A601	6	———	46'-10"	STR.	WALL - LONG. FRONT
A602	10	———	30'-7"		BACK
A603	———	6	47'-1"		FRONT
A604	———	10	28'-9"		BACK
A605	36	36	12'-5"	BENT	STIRRUPS
A606	36	36	3'-6"		TIES
A607	49	49	4'-4"		BRIDGE SEAT
A608	20	20	4'-3"		SHEAR BLOCK
A609	20	20	6'-0"		
A610	15	15	1'-9"	STR.	
A611	2	1	6'-1"	BENT	WINGWALL
A612	2	1	7'-4"	BENT	
A613	2	1	2'-7"	STR.	
A614	2	1	2'-11"		
A615	2	1	4'-6"		
A616	2	1	4'-10"		
A617	2	1	6'-4"		
A618	2	1	6'-10"		
A519	4	3	8'-3"		
A520	6	5	7'-9"	BENT	
A521	3	5	8'-5"	STR.	
A522	2	—	5'-6"		
A523	2	—	6'-0"		
A524	2	—	6'-6"		
A525	2	—	7'-0"		
A526	2	—	7'-6"		
A527	2	—	8'-0"		
A528	3	3	8'-5"		
A529	2	2	5'-4"		
A530	2	2	5'-10"		
A531	2	2	6'-4"		
A532	2	2	6'-10"		
A533	2	2	7'-4"		
A534	2	2	7'-10"		
A535	8	———	3'-3"	BENT	
A536	———	8	3'-3"	BENT	
A637	———	1	9'-6"		
A638	———	1	8'-0"		
A639	———	1	4'-7"		
A640	———	1	4'-0"	STR.	
A641	———	1	7'-1"	BENT	
A642	———	1	6'-6"	STR.	
A643	———	1	8'-7"	BENT	
A644	———	1	8'-0"	STR.	
A545	———	5	9'-3"	BENT	
A646	———	5	9'-3"	STR.	
A547	———	2	5'-7"		
A548	———	2	6'-0"		
A549	———	2	6'-5"		
A550	———	2	6'-10"		
A551	———	2	7'-3"		
A552	———	2	7'-8"		
A553	———	2	8'-2"		

ABUTMENT REINFORCEMENT S.R. NO. TF 602.16	DRAWN GRC	CHECK RRT	APPROVED: 11-1-84	BRIDGE NUMBER 02715
	SHEET 7 OF 22 SHEETS			

44'-0"
22'-0"
22'-0"
2'-2 5/8"
2'-1 5/8"
28'-11 3/4"
25'-6 5/8"
10'-6 15/16"
14'-2 1/8"
2'-2 11/16" WORKING POINTS (PIER 1)
2'-1 7/8" WORKING POINTS (PIER 2)
9'-10 11/16"
9'-11 1/4"
9'-10 11/16"
9'-11 3/16"
9'-10 11/16"
9'-11 3/16"
9'-10 5/8"
9'-11 1/8"
PIER 1
PIER 2 BEAM SPACING
7'-0"
10'-0"
10'-0"
10'-0"
7'-0" STEP SPACING
9'-2 3/8"
8 5/16" PIER 1
8 3/16" PIER 2
5'-8 3/16"
W.R.G - PIER 2 - STA. 422+25.84
W.R.F - PIER 1 - STA. 421+69.95
N.P.K - PIER 1
W.R.L - PIER 2
ANCHOR RODS (TYP.)
10"
10"
B1
B2
B3
B4
B5
P801
EAST
4-P607
2'-10"
1'-5 1/2"
WEST
W.R.B - PIER 1
W.R.C - PIER 2
SEE TABLE ON SHEET 9
WORKING LINE - PIER 1
WORKING LINE - PIER 2
PLAN OF CAP
SCALE: 3/8" = 1'-0"
SYM. ABOUT ℄ CL.
EXCEPT AS NOTED
5 1/2"
6 EQUAL SPS.
7"
20 #5 S2
6 EQUAL SPS.
7"
20 #5 S2
10"
7'
4 3/16" PIER 1
3 3/8" PIER 2
- P504
EL. 1153.54 - PIER 1
EL. 1153.60 - PIER 2
EL. 1153.28 - PIER 1
EL. 1153.34 - PIER 2
EL. 1153.02 - PIER 1
EL. 1153.07 - PIER 2
EL. 1152.76 - PIER 1
EL. 1152.80 - PIER 2
EL. 1152.50 - PIER 1
EL. 1152.53 - PIER 2
9" 5 SPS. @ 1'-0" = 5'-0" 9"
P505 & P506 TYP. BETWEEN PILES
9" 3" P505 & P506 TYP. AT ENDS
3 SPS. @ 3"
4 SPS. @ 3"
5-P801
P607
5"
3'-11"
2'-7"
3'-8 1/4"
A
A
2'-0" PILE CUT OFF
4-P703
2-P703
2-P602
5 SPS. @ 8'-0" = 40'-0"
PILE SPACING
2'-0"
2'-0"
2
12
16" ϕ STEEL PILE SHELLS 20 FT. LONG
B
B
5'-0"
5'-0"
HP10x42
BOTTOM OF CHANNEL EL. 1138.0
2
12
SEE SHEET 9 FOR SECTION B-B
ELEVATION
SCALE: 3/8" = 1'-0"
TEST PILE 3 PIER 2
TEST PILE 2 PIER 1
2'-10"
3 1/2" 6" 7 1/2" 7 1/2" 6" 3 1/2"
P504 PULL UP TO 2" CLEAR
3" MIN.
VARIES 3" MIN.
P801
P506
P602
P505
2" CLEAR
P703
P704
3 1/2" 4" 1'-7" 4" 3 1/2"
SECTION A-A
SCALE: 1" = 1'-0"

PIER DETAILS	DRAWN GRC	CHECK RRT	APPROVED: 11-1-84	BRIDGE NUMBER 51-13
S.R. NO. 50-603-16	SHEET 8 OF 22 SHEETS			

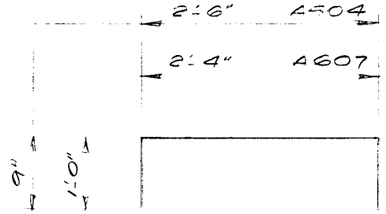
FILL WITH CONC. MIX NO. 3Y43. (SEE SPECIAL PROVISIONS.) INCLUDED IN PRICE BID FOR STEEL PILE SHELLS 16" ϕ.



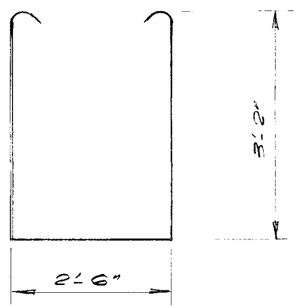
SECTION B-B
SEE SHEET

BILL OF REINFORCEMENT-2 PIERS

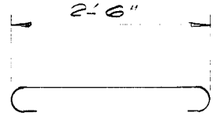
BAR	NO.	LEN.	SHAPE	LOCATION
P801	10	43'-7"	STR.	CAP-LONGIT.-TOP
P602	4	43'-7"	↓	↓
P703	12	43'-7"	↓	BOTT.
P504	94	4'-0"	BENT	BRIDGE SEAT
P505	140	9'-9"	↓	STIRRUPS
P506	140	3'-8"	↓	TIES
P607	16	4'-4"	↓	ENDS



A504 & A607



A505



A506

ANGLE OF INTERSECTION - ℄ BRG. TO ℄ BEAM

BEAM	ANGLE - PIER 1	ANGLE - PIER 2
B1	73°46'18.90"	72°56'32.73"
B2	73°48'48.57"	72°59'10.51"
B3	73°51'17.46"	73°01'47.46"
B4	73°53'45.59"	73°04'23.60"
B5	73°56'12.95"	73°06'58.94"
WK. LINE	70°00'00"	70°00'00"

PILE NOTES

2 STEEL HP TEST PILES AT P1, LOCATE
10 " " " " " LENGTH 35 FT
12 " " " REQUIRED FOR 2 PIERS
12 STEEL PILE SHELLS (6" ϕ 20'-0"
ALL HP PILES TO BE ENCASED IN STEEL PILE SHELLS (16" ϕ AS SHOWN).
STEEL PILE SHELLS TO BE PAINTED PER SPECIAL PROVISIONS
PILE DRIVING SHOWN IS FOR SOFT OR CRACKED ROCK.
END PILES TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.
FOR SPLICE & TIP REINFORCEMENT SEE DETAIL B202.

COMPUTED PILE LOADS (TONS PER PILE)

DEAD LOAD	39.9
LIVE LOAD	15.1
TOTAL	55.0

SUMMARY OF QUANTITIES - 2 PIERS

	CONCRETE MIX NO. 3Y43	34	CU.YD.
	REINFORCEMENT BARS	4950	POUND
(1)	STEEL H-PILING DELIVERED	350	LIN. FT.
(1)	STEEL H-PILING DRIVEN	350	LIN. FT.
	STEEL H-TEST PILES 45 FT LONG	2	EACH
(2)	STEEL PILE SHELLS, 16" ϕ	240	LIN. FT.
(2)	PILE POINTS	12	EACH

(1) DOES NOT INCLUDED TEST PILES.
(2) SEE SPECIAL PROVISIONS.

PIER DETAILS	DRAWN: GRC	CHECK: RT	APPROVED: 11-1-84	BRIDGE NUMBER
S.R. NO. [illegible]-16	SHEET 9 OF 22 SHEETS			55543

DEFLECTION JOINT SPACING

15'-4 7/8" | 2 SPS. @ 15'-0" = 30'-0" | 18'-4" | 145'-10 3/16" | 18'-4" | 2 SPS. @ 15'-0" = 30'-0" | 15'-5" ①

N

4-R410E | 4-R409E | 4-R408E | 4-R409E

W.P.A | W.P.B | W.P.C | W.P.D

6 3/8" | ℄ BRG. SOUTH ABUT. | 6 3/8"

10'-0" | 10'-0" | 344 SPS. @ 5" = 143'-4" | FLOOR DRAIN SPACING SEE DETAIL B702 | 10'-0" | 10'-0"

S501E TOP, S512 BOTTOM PLACED PERPENDICULAR TO ℄ ROADWAY

1'-4" TYP.

3" 6 3/8"

8" PAVING BRACKET

20'-0" | 1'-8"

℄ C.S.A.H. 3

WORKING LINE TTC STA. 424+29.49

70° TYP.

W.P.E | W.P.J | W.P.F | W.P.G | W.P.H

℄ PIER 1 | ℄ PIER 2

W.P.K | W.P.L | W.P.M

℄ BRG.- NORTH ABUT.

4" S502E TOP & BOTT.

5 1/2" | 15'-4 3/8" | 4-R409E | 2 SPS. @ 15'-0" = 30'-0" | 4-R408E | 18'-4" | 18'-3 11/16" | 4-R408E | 18'-4" | 4-R409E | 2 SPS. @ 15'-0" = 30'-0" | 4-R410E | 15'-4 1/2" ①

① DEFLECTION JT. SPACING

① MEASURED ALONG OUTSIDE EDGE OF ROADWAY

S502E T & B PARALLEL TO SKEW

PLAN OF DECK
SCALE: 3/16" = 1'-0"

PROTECTION ANGLE SEE DETAIL B551

FOR DETAILS & REINF. OF END DIAPHRAGM SEE SHEET 12

S501E TOP
S512 BOTTOM

11" | 8'-7 3/8" | 2'-2 3/4" | 5 5/8"

3-PLY JOINT WATERPROOFING

1/2" BITUM. FELT

1" POLYSTYRENE

2" POLYSTYRENE

CONTRACTION

FORM OPENING OVER BEARINGS. SEE SHEET 18

℄ BEARING

ABUTMENTS

S501E BOTT. | S501E

11" | 2'-2 3/4" | 3'-4 3/4" | 3"

COVER ℄

W27x84

FIXED

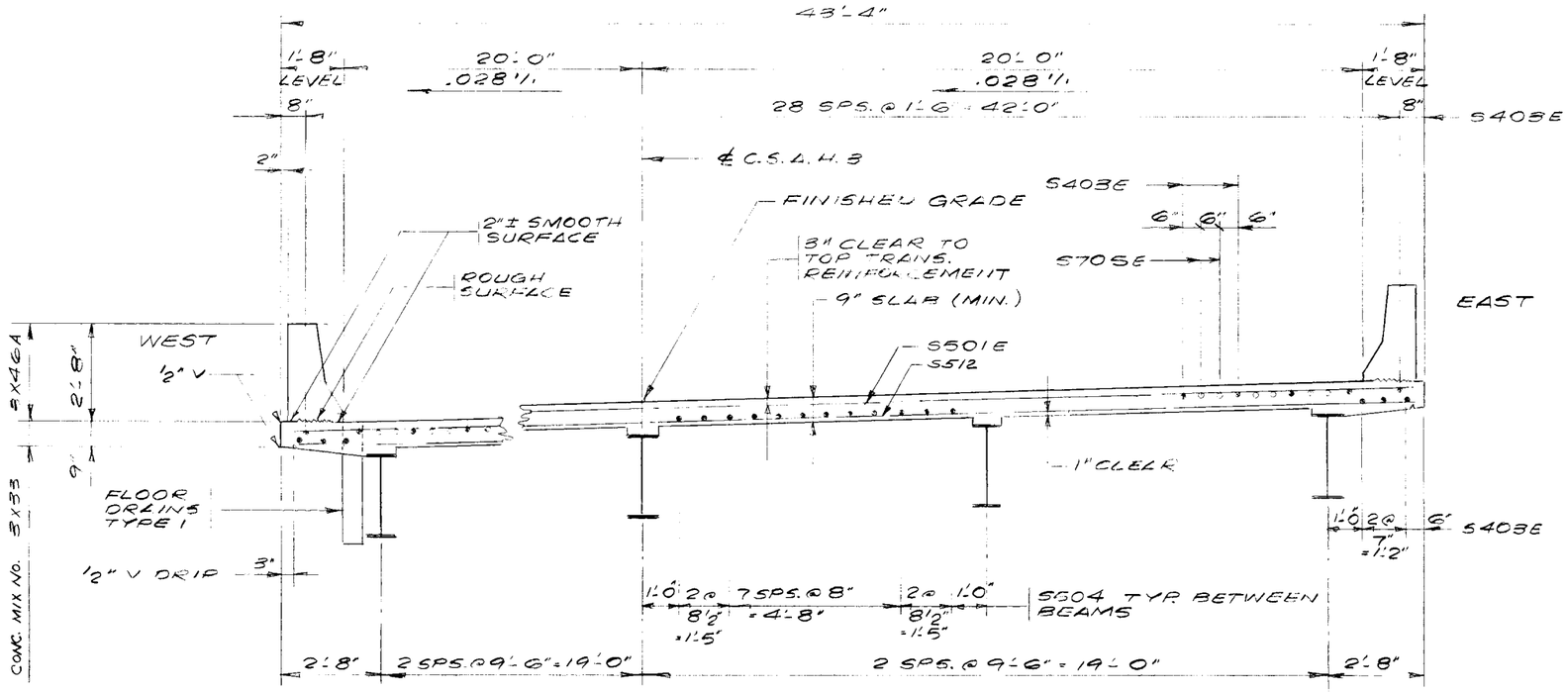
℄ BEARING

PIERS

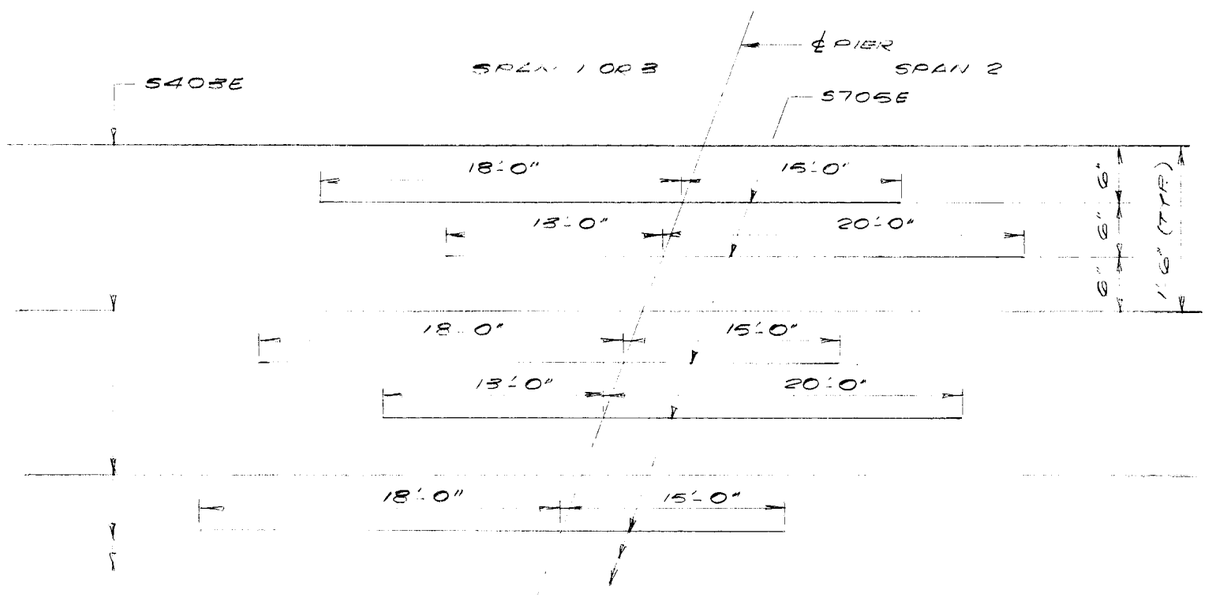
CONC. MIX NO. 3Y43 | 3X55 | 3X48

PART LONGITUDINAL SECTION
SCALE: 3/4" = 1'-0"

SUPERSTRUCTURE DETAILS S.P. NO. 55-60-16	DRAWN GRC	CHECK RRT	APPROVED: 11-1-84	BRIDGE NUMBER 55543
	SHEET 10 OF 22 SHEETS			



TRANSVERSE SECTION THRU DECK
SCALE: ½" = 1'-0"

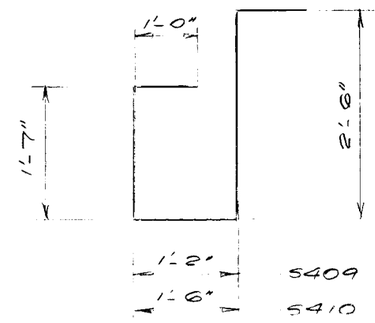


PLACING DIAGRAM FOR S705E RAILS OVER PIERS
(NO SCALE)

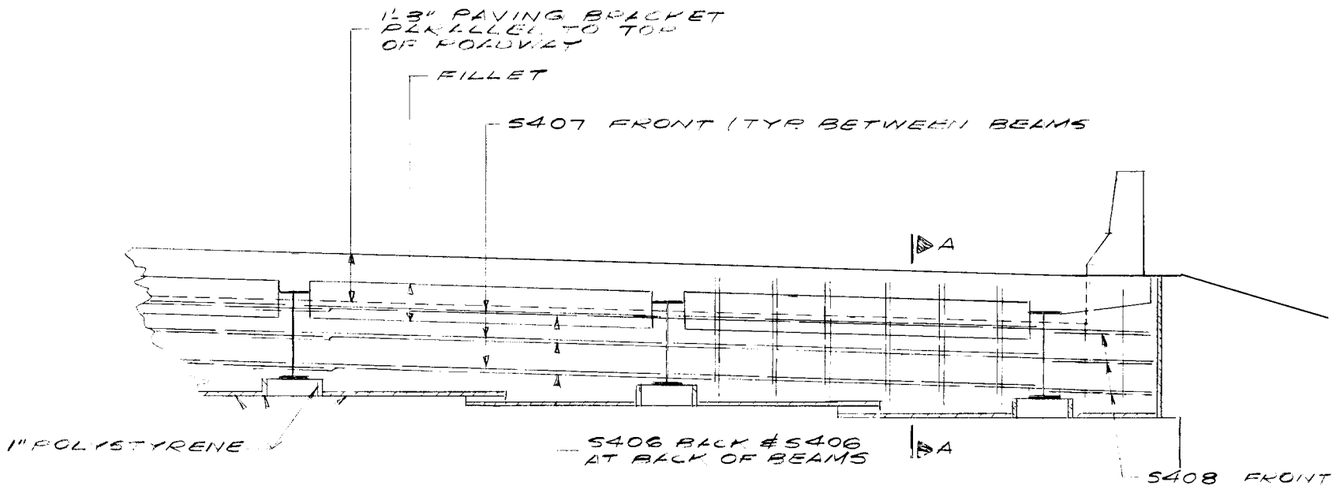
BILL OF REINF. - SUPERSTRUCTURE

	BAR	NO.	LEN.	SHAPE	LOCATION
①	S501E	345	42'-9"	STR.	SLAB - TRANS. - TOP
②	S502E	8	23'-9"		ENDS
③	S403E	176	30'-0"		LONGIT.
④	S504	192	37'-6"		LONGIT.
	S705E	104	33'-0"		OVER PIERS
⑤	S406	24	23'-6"		END DIAPHRAGM
	S407	24	7'-10"		
	S408	12	1'-6"		
	S409	8	7'-3"	BENT	
	S410	48	7'-7"		
	S411	48	5'-6"		
	S512	345	42'-9"	STR.	SLAB TRANS. - BOTTOM

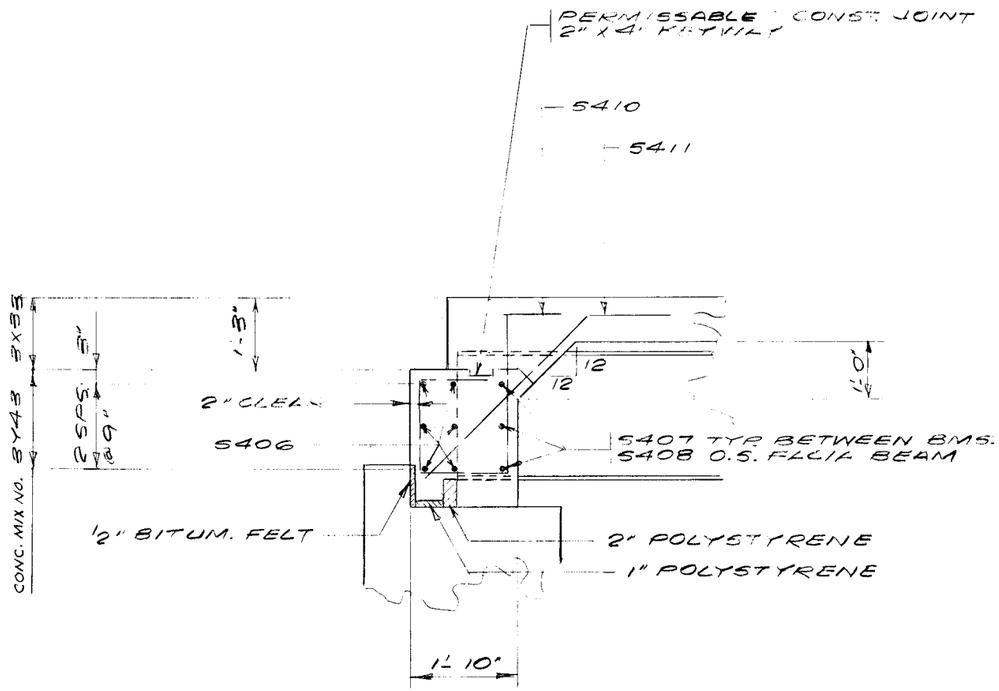
① CUT 2 FROM 1 AS NECESSARY TO FIT SKEWED ENDS OF BRIDGE.
② 1'-11" MIN. LAP
③ 5 LINES, 1'-6" MIN. LAP
④ 4 LINES, 1'-[illegible]" MIN. LAP
⑤ 1'-6" MIN. LAP



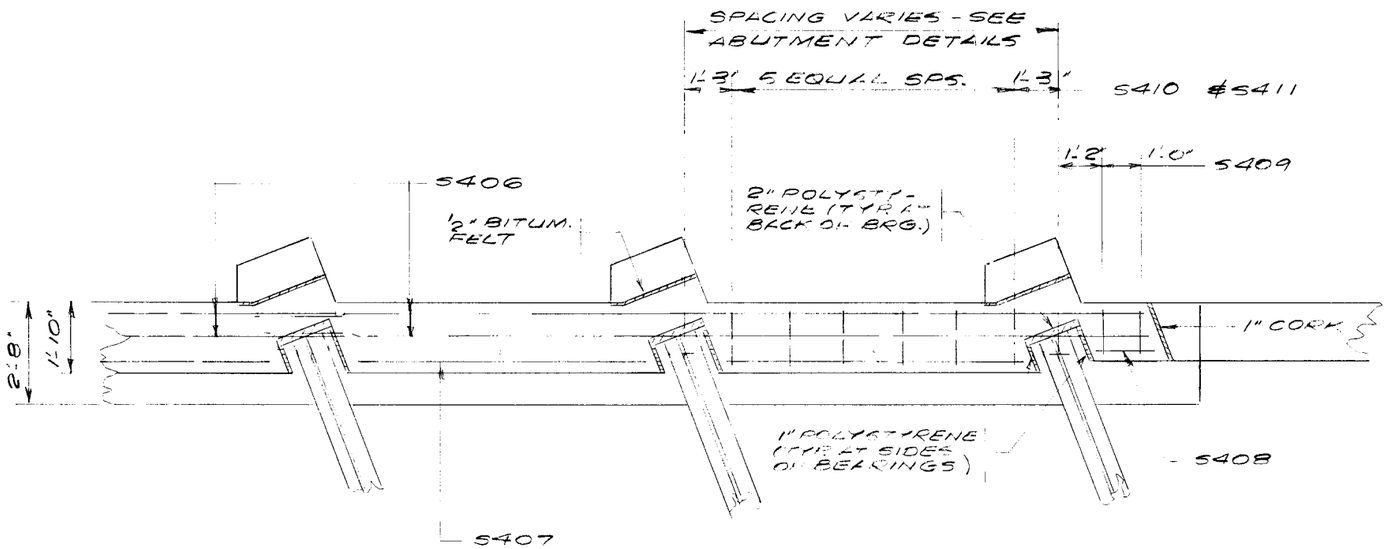
SUPERSTRUCTURE DETAILS	DRAWN: O.K.C.	CHECK: R.R.T.	APPROVED: 11-1-84	BRIDGE NUMBER 5512-5
S.P. NO. 5[illegible]-03-16	SHEET 11 OF 22 SHEETS			



HALF ELEVATION OF END DIAPHRAGM
SCALE: 1/2" = 1'-0"



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



HALF PLAN OF END DIAPHRAGM
SCALE: 1/2" = 1'-0"

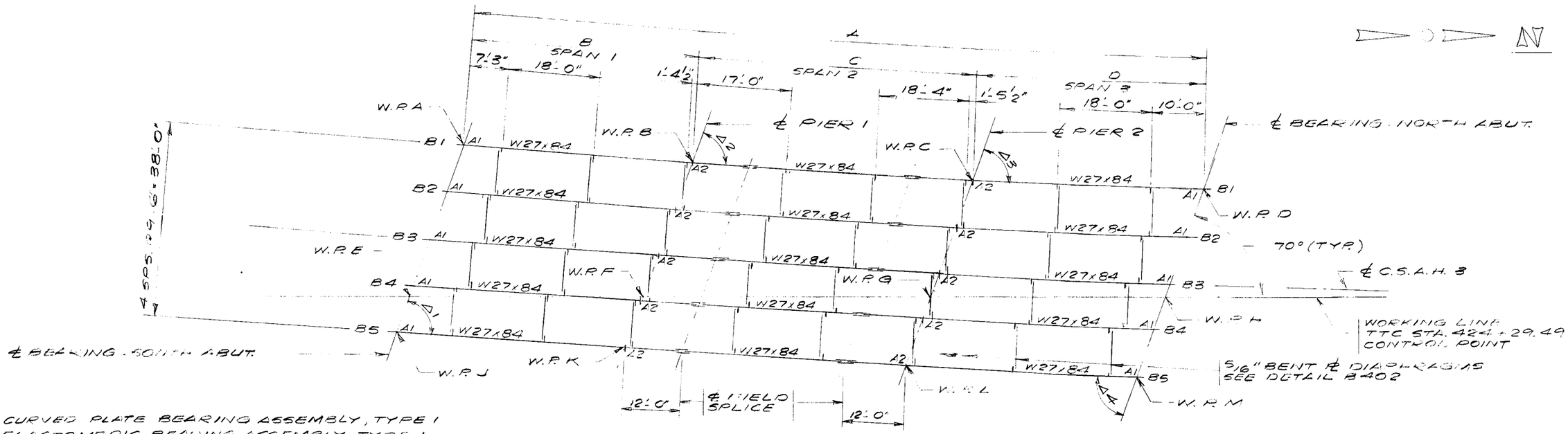
LIST OF BITUM. FELT ①
10-PCS. 9" X 1/2" X 2'-2'5" SHELF BLOCKS

LIST OF CORK ①	
16-PCS. 11" X 1" X 1'-7"	RAILING DET. JOINTS
2-PCS. 19" X 1" X 3'-7"	ABUT. RECESS
2-PCS. 19" X 1" X 3'-8"	" "

LIST OF POLYSTYRENE ①	
1-PC. 22" X 1" X 45'-9"	ABUT. BRIDGE SEAT (SOLID)
1-PC. 22" X 1" X 46'-4"	" " " (HOLES)
10-PCS. 6" X 2" X 1'-6"	BACK OF BEARINGS
10-PCS. 6" X 1" X 2'-2"	SIDES " " (CUT 2 FROM 1)

① SEE SPECIAL PROVISIONS

SUPERSTRUCTURE DETAILS S.F. NO. 55-603-16	DRAWN GRC	CHECK RRT	APPROVED: 11-1-84	BRIDGE NUMBER 55543
	SHEET 12 OF 22 SHEETS			



FRAMING PLAN
SCALE: 1" = 10'

A1 = CURVED PLATE BEARING ASSEMBLY, TYPE 1
A2 = ELASTOMERIC BEARING ASSEMBLY, TYPE 1
DIAPHRAGMS IN SPANS 1 & 2 TO FACE SOUTH
AND DIAPHRAGMS IN SPAN 3 TO FACE NORTH

CURVED BM. LENGTHS BETWEEN WORKING PT.				ANGLE OF INTERSECTION AT ℄ OF BRG.					
BEAM	A	B	C	D	Δ1	Δ2	Δ3	Δ4	RADIUS	BEAM
B1	143'-0 3/4"	44'-0 3/16"	55'-0 5/16"	44'-0 1/4"	74°26'7.74"	73°46'18.90"	72°56'32.73"	72°16'43.69"	3800.72'	B1
B2	143'-0 3/8"	44'-0 1/8"	55'-0 1/8"	44'-0 1/8"	74°28'30.97"	73°48'48.57"	72°59'10.51"	72°19'28.00"	3810.22'	B2
B3	143'-0"	44'-0"	55'-0"	44'-0"	74°30'53.36"	73°51'17.46"	73°01'47.46"	72°22'11.46"	3819.72'	B3
B4	142'-11 5/8"	43'-11 7/8"	54'-11 7/8"	43'-11 7/8"	74°33'15.22"	73°53'45.59"	73°04'23.60"	72°24'54.07"	3829.22'	B4
B5	142'-11'4"	43'-11 3/16"	54'-11 11/16"	43'-11 3/4"	74°35'36.25"	73°56'12.95"	73°06'58.94"	72°27'35.83"	3838.72'	B5

DIMENSIONS FROM BEAM TO BEAM ALONG ℄ BEARING				
	B1 TO B2	B2 TO B3	B3 TO B4	B4 TO B5
℄ SOUTH ABUTMENT	9'-10 5/16"	9'-10 5/16"	9'-10 5/16"	9'-10 1/4"
℄ PIER 1	9'-10 11/16"	9'-10 11/16"	9'-10 11/16"	9'-10 5/8"
℄ PIER 2	9'-11 1/4"	9'-11 3/16"	9'-11 3/16"	9'-11 1/8"
℄ NORTH ABUTMENT	9'-11 11/16"	9'-11 5/8"	9'-11 9/16"	9'-11 9/16"

①	SUMMARY OF QUANTITIES - SUPERSTRUCTURE		
②③	BRIDGE SLAB CONCRETE, MIX NO. 3X33	6257	SQ. FT.
③	CONCRETE, MIX NO. 3X46A	29	CU. YD.
③	CONCRETE, MIX NO. 3Y43	15	CU. YD.
	REINFORCEMENT BARS	23870	POUND
	STRUCTURAL STEEL, (3306)	550	POUND
	STRUCTURAL STEEL, (3309)	81860	POUND
	FLOOR DRAINS, TYPE 1	4	EACH
③	CURVED PLATE BEARING ASSEMBLY, TYPE 1	10	EACH
	ELASTOMERIC BEARING ASSEMBLY, TYPE 1	10	EACH
④	NAME PLATE (SEE DETAIL B103)	1	
③④	3-PLY JOINT WATERPROOFING	110	LIN. FT.
⑤	PROTECTION ANGLE (SEE DETAIL B551)		
③④	JOINT FILLER (SEE LIST SHEET 12)		
	REINFORCEMENT BAR (EPOXY COATED)	24610	POUND

1 INCLUDES RAILING QUANTITIES.
2 THE VOLUME OF CONCRETE IS APPROX. 182 CU.YD. (COMPUTED USING AN AVERAGE STOOL HEIGHT OF 1'2").
3 SEE SPECIAL PROVISIONS.
4 INCLUDED IN PRICE BID FOR OTHER ITEMS.
5 INCLUDED IN WEIGHT OF STRUCTURAL STEEL, 3306.

FRAMING PLAN	DRAWN GRC	CHECK RRT	APPROVED: 11-1-84	BRIDGE NUMBER
S.P. NO. 55-603-16	SHEET 13 OF 22 SHEETS			55043

144'-0 3/4" B1 — 144'-0 3/8" B2 — 144'-0" B3 — 143'-11 5/8" B4 — 143'-11 1/4" B5

B SPAN 1 — C SPAN 2 — D SPAN 3

6" — 29 SPS. @ 1'-1" = 31'-5" — 4 @ 7 1/2" NO SHEAR CONN. = 2'-6" — 24 SPS. @ 1'-1" = 26'-0" — 4 @ 7 1/2" NO SHEAR CONN. = 2'-6" — 29 SPS. @ 1'-1" = 31'-5" — 6" — 7/8" ϕ X 4" SHEAR CONN.

12'-6" A1 — 13'-0" A2 — 12'-0" — ℄ FIELD SPLICE SEE DETAIL B400 — 12'-0" — 13'-0" A2 — 12'-6" A1

5'-6" — 5'-6" — 9" x 1 1/2" x 11'-0" COVER ℄ TOP ϕ BOTTOM — 5'-6" — 5'-6"

℄ BEARING SOUTH ABUT.

℄ PIER 1

BEARING STIFFENERS 7" x 5/8" EXCEPT O.S. FACIA BEAM USE 11" x 5/8" ℝ OUTSIDE FACIA BEAM.

℄ PIER 2

℄ BEARING NORTH ABUT.

SEE DETAIL B402 FOR DIAPHRAGMS.

NOTE: SEE TABLE ON SHT. 13 FOR DIMENSIONS B, C ϕ D.

CLIP TOP FLANGE SEE DETAIL BELOW

W27x84 — W27x84 — W27x84

SOLE ℝ - SEE B355 — SOLE ℝ - SEE B354 — SOLE ℝ - SEE B354 — SOLE ℝ - SEE B355

5/16 TYP.

BEAM ELEVATION

10 EQUAL SPACES — 5 EQUAL SPACES

.5" — .820" — .950" — 1.05" — 1.120" — 1.160" — 1.170" — 1.160" — 1.120" — 1.05" — .950" — .820" — .5"

DEFLECTION DIAGRAM

DEFLECTIONS SHOWN ARE FOR WEIGHT OF SLAB, FUTURE WEARING COURSE, STOOLS AND RAILING

℄ BEARING - ABUTMENT — ℄ PIER — SYM. ABOUT ℄ SPAN 2

NOTE: BASELINE IS A STRAIGHT LINE FROM ℄ BRG. TO ℄ BRG. AT TOP OF BEAM.

℄ FIELD SPLICE

1/2" — 5/16" — 1 1/8" — 9/16"

BASELINE

17.6' — 7.0' — 5.0' — 5.0'

CURVED — STRAIGHT — CURVED

SPAN 1 OR 3 — SPAN 2

CAMBER DIAGRAM

1 1/2" — 2 SPS @ 3 1/2" — 1 1/2" — 7/8" ϕ X 5" SHEAR CONNECTORS

5/16 — 3/16

SHEAR CONNECTOR DETAIL

1'-6"

BEAM FLANGE — 4" — 9" — 1/2" COVER PLATE — 1/2"

9" x 1/2" x 11'-0" COVER ℝ

COVER PLATE DETAIL

STRUCTURAL STEEL NOTES:

ALL STRUCTURAL STEEL SHALL CONFORM TO SPEC. 3309 UNLESS OTHERWISE NOTED.

FIELD CONNECTIONS SHALL BE MADE USING 7/8" HIGH STRENGTH BOLTS OR 1" PIN BOLTS, EXCEPT AS NOTED.

SHEAR CONNECTORS TO BE INCLUDED IN WEIGHT OF STRUCTURAL STEEL SPEC. 5309.

SPECIAL REAMING PER SPEC. 2471.5E1d AND THE SPECIAL PROVISIONS WILL BE REQUIRED FOR THE BEAMS SPLICES.

BEARING STIFFENERS SHALL BE PERPENDICULAR TO FLANGE.

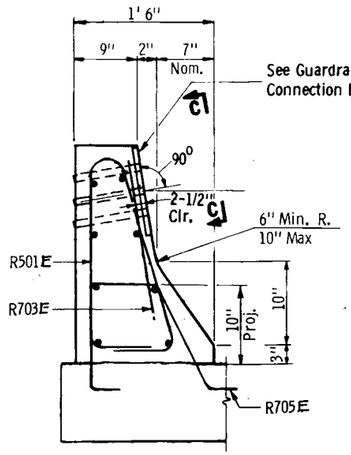
END OF BEAMS SHALL BE VERTICAL.

CAMBER DIAGRAM SHOWN IS FOR BEAMS IN UNLOADED POSITION AND PROVIDES FOR ALL DEAD LOAD DEFLECTIONS AND RESIDUAL CAMBER.

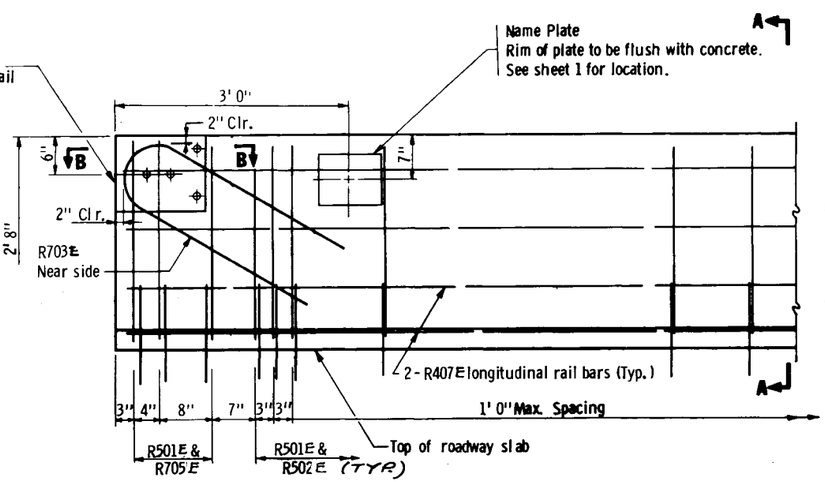
CLIP TOP FLANGE THUS TYP. BOTH ENDS

1 1/2" — 3"

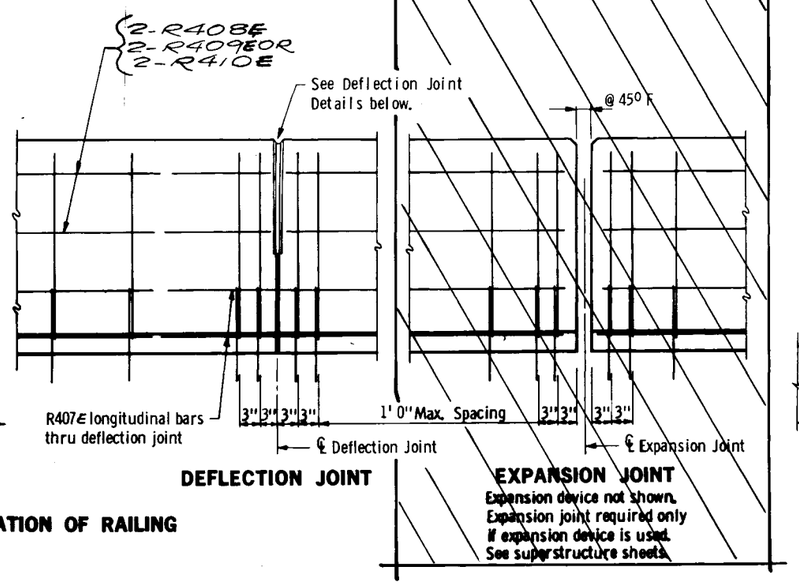
STRUCTURAL STEEL DETAILS S.P. NO. 55-603-16	DRAWN GRC / CHECK RRT	APPROVED: 11-1-84	BRIDGE NUMBER 55543
	SHEET 14 OF 22 SHEETS		



END VIEW

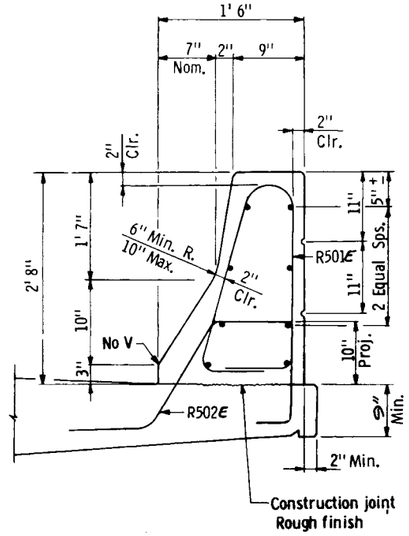


INSIDE ELEVATION OF RAILING

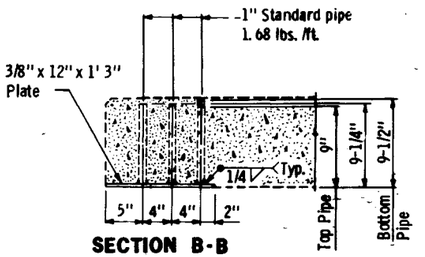


DEFLECTION JOINT

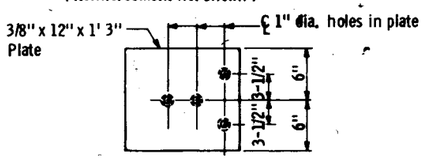
EXPANSION JOINT
Expansion device not shown.
Expansion joint required only if expansion device is used.
See superstructure sheets.



SECTION A-A

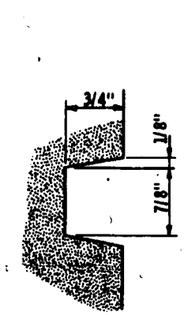


SECTION B-B
(Reinforcement not shown)

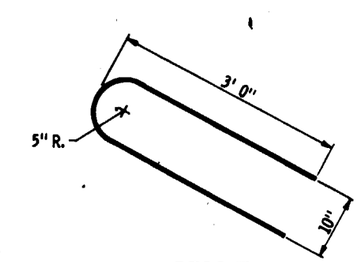


VIEW C-C

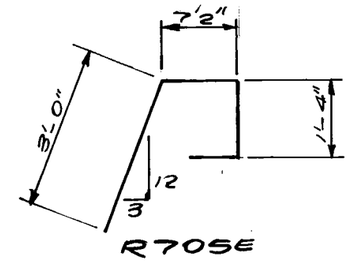
GUARDRAIL CONNECTION DETAIL
Galvanize after fabrication per Spec. 3394
Estimated Weight = 23 lbs.



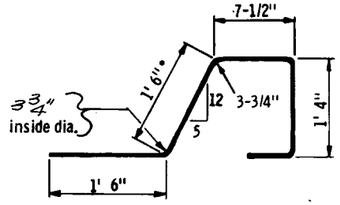
RAIL RUSTICATION



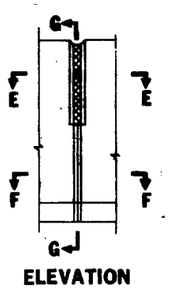
R703E



R705E



R502E



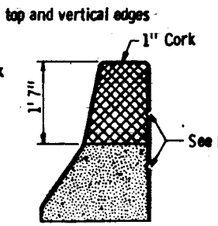
ELEVATION



SECTION E-E

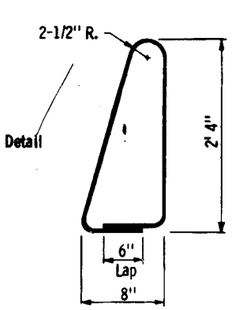


SECTION F-F



SECTION G-G

CONCRETE JOINT DEFLECTION JOINT DETAILS



R501E

BILL OF REINFORCEMENT FOR RAILING

BAR	NO.	LENGTH	SHAPE	LOCATION
R501E	242	6' 1"	Bent	Rail Vertical
R502E	330	5' 6"	Bent	Rail Vertical
R703E	4	6' 6"	Bent	End Post
R504				
R705E	12	5' 6"	Bent	End Post
R407E	40	30-3"	Str't.	Rail Long.
R408E	24	18'-0"	Str't.	Rail Long.
R409E	40	14'-8"	"	" "
R410E	8	15'-0"	"	" "

① This bar not required.
② 5 LINES, 1'-6" MIN LAP

GENERAL NOTES:

BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED.

Concrete Railing = 405 lbs. /ft.
Concrete Railing = .100 cu. yds. /ft.

Rail to be Concrete Mix No. 3X46A

Guardrail connection to be Structural Steel, Spec. 3306

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

See superstructure sheet for joint spacing.

Maximum spacing of concrete deflection joints shall be 20'-0".

Guardrail connection to be included in price bid for other items.

Rail quantities are included in summary of quantities for superstructure.

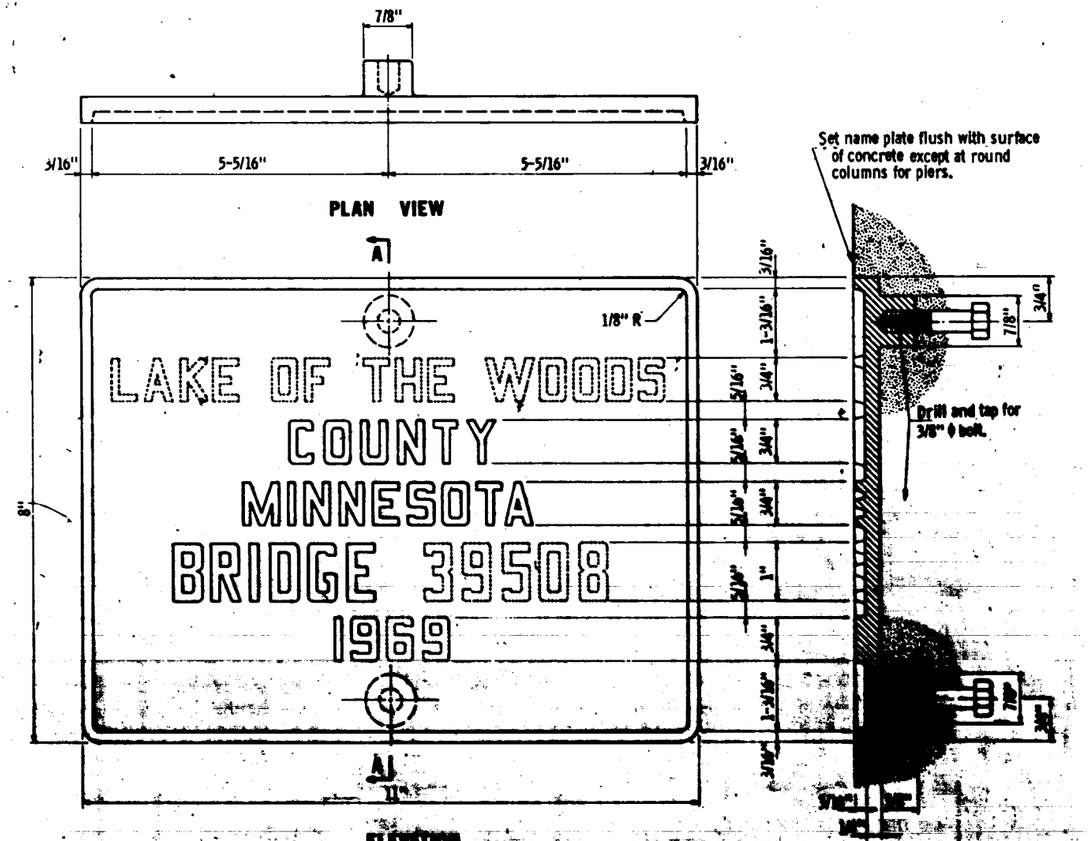
Length of railing concrete to be measured for payment between outside faces of end posts.

Fig. 5-397.115

Approved: April 23, 1980

TITLE: CONCRETE RAILING (TYPE J) WITH INTEGRAL END POST (Without Wearing Course)	DES:	DR:	APPROVED: 11-1-84	Bridge No. 55543
	CHK:	CHK:	Sheet No. 15 of 22 Sheets	

S.P. NO. 55-603-16

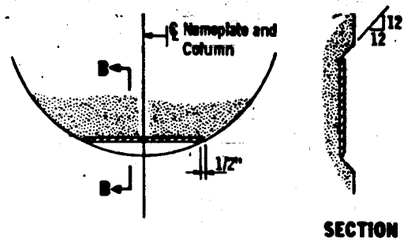


ELEVATION

The numbers shown above are for illustration. Data to be shown on name plate is as follows:

BRIDGE 55543
YEAR 1985
COUNTY OLMSTED

SECTION A - A



SECTION B-B

NAMEPLATE PLACEMENT

(Round Concrete Pier Columns)

NOTES:

No shop drawing required.
Material shall comply with ASTM. 1321.
Numbers and letters shall conform to those shown.
Draft on letters shall not be more than 3° in 1/4"
Horizontal spacing of letters shall produce a balanced layout in proportion to spacing shown.
Top surface of letters and frames shall be burnished.
Furnish 2 steel bolts 3/8" ϕ x 3" long with each plate.
All dimensions for 3/4" high letters and numbers shall be in direct proportion to those shown for the 1" high letters and numbers.

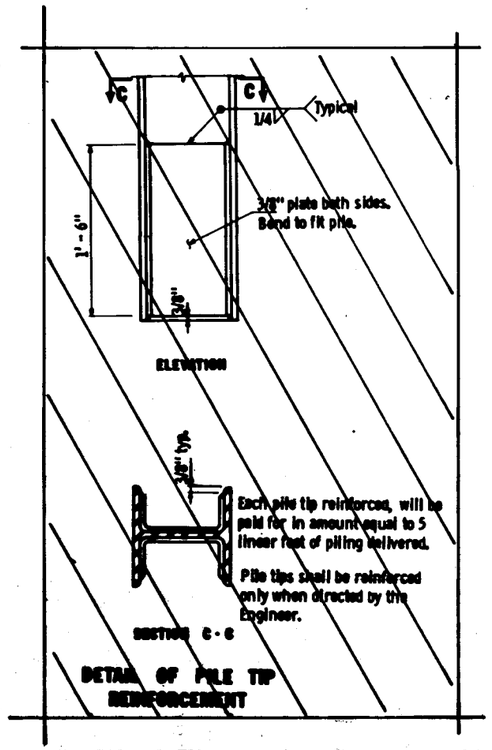
ABCDEFGHIJKLMN OPQRSTUVWXYZ

1234567890

LETTERS & NUMBERS FOR NAMEPLATES

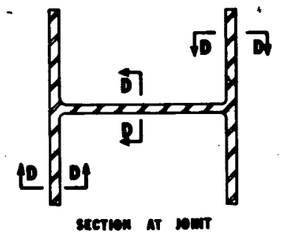
Specification reference: 2471.3H, A.S.T.M. Designation: B145 - Alloy 836.

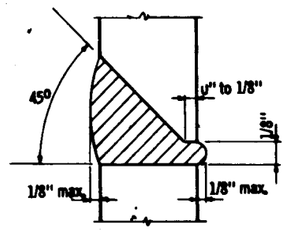
APPROVED: March 15, 1976 Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN Issued by: OFFICE OF ENGINEERING STANDARDS	MINNESOTA DEPARTMENT OF TRANSPORTATION BRIDGE NAMEPLATE COUNTY BRIDGES		DETAIL NO. B103



DETAIL OF PILE TIP REINFORCEMENT

NOTE:
PILE TIPS SHALL BE REINFORCED. SEE SPECIAL PROVISIONS.





100% BUTT WELDED PILE SPLICE

NOTES:

A. W. S. Type E7016 or E7018 (low-hydrogen) electrodes shall be used for 100% butt welded splices.

A. W. S. Type E6010, E6011 electrodes, or E7016 or E7018 (low-hydrogen) electrodes, shall be used for the alternate plate type pile splice.

Low-hydrogen electrodes shall be supplied in hermetically (air-tight) sealed containers.

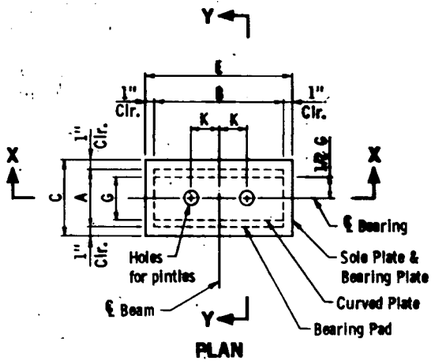
Low-hydrogen electrodes shall be stored in holding ovens at a temperature of not less than 250° F.

Low-hydrogen electrodes shall be placed in a holding oven for at least 8 hours, after having been exposed to the atmosphere for more than 2 hours.

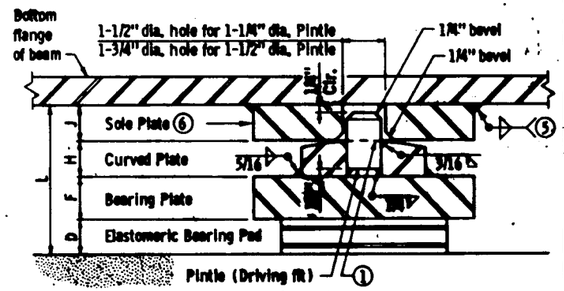
Any type electrode which has become wet, soiled, or damaged shall not be used.

Welding shall not be done when the ambient temperature is lower than 0° F. or when the pile is wet or exposed to falling rain or snow. When the pile metal temperature is below 32° F., the pile metal in the area of the weld shall be heated to a minimum temperature of 70° F. and maintained at this temperature during welding.

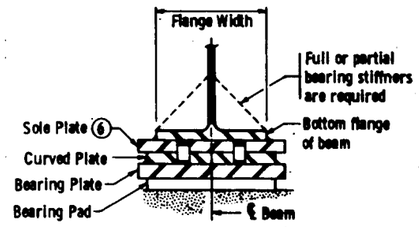
APPROVED: November 5, 1979 Developed by: BRIDGE STANDARDS & BRIDGE AND STRUCTURES SECTION Issued by: ENGINEERING STANDARDS SECTION	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION PILE SPLICE and TIP REINFORCEMENT STEEL H BEARING PILES 10" TO 14"		DETAIL NO. B202



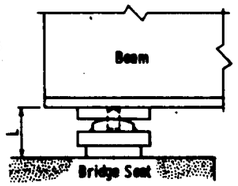
PLAN



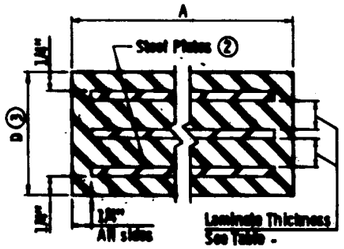
SECTION Y-Y
(ENLARGED)



SECTION X-X



END ELEVATION



SECTION THRU BEARING PAD

TABLE ④

Beam Flange Size	Bearing Pad Size A	B	D	Steel Plates No.	Thick.	Laminates No.	Thick.	Shape Factor	Bearing Plate Size C	E	F	Curved Plate Size G	B	H	Sole Plate Size		J	Pintle Size	Pintle Spacing R	Assy. HL L	Assembly Type
9" to 10-1/2"	8"	14"	25/8"	5	1/8"	4	3/8"	6.8	10"	16"	1	4-1/2"	14"	1	6"	16"	1	1 4"	4-3/8"	5 5/8"	1
11-1/2" to 12"																					
15" to 16"																					

NOTES:

For elastomeric materials and pad construction, see Spec. 3741

All steel plates shall comply with Spec. 3306, except as noted.

The plates shall be flat after fabrication and galvanizing.

Pintles shall comply with Spec. 3314, Type II

Galvanize structural steel bearing assembly after fabrication per Spec. 3394, except as noted.

Payment for bearing assembly shall include all material on this detail, except the Sole Plate.

① The radius of the curved plate shall be 1' 0" min. and 1' 6" max. Finish to 250 Micro. The finished thickness of the plate may be 1/16" less than shown.

② Do not galvanize these plates.

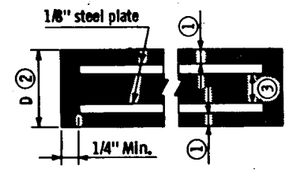
③ The total thickness shown includes the steel plates.

④ See Bridge Design Manual for design requirements.

⑤ 5/16" min. fillet weld for 3/4" up to & including 1-1/2" thick sole plates. 3/8" min. fillet weld for over 1-1/2" to 2-1/4" thick sole plates, except as noted in the plans.

⑥ Sole plate may be tapered. See superstructure details.

APPROVED: December 1, 1981	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Developed by: ENGINEERING STANDARDS & BRIDGES AND STRUCTURES OFFICES	CURVED PLATE BEARING ASSEMBLY STEEL BEAMS (EXPANSION)		B355
Issued by: OFFICE OF ENGINEERING STANDARDS			



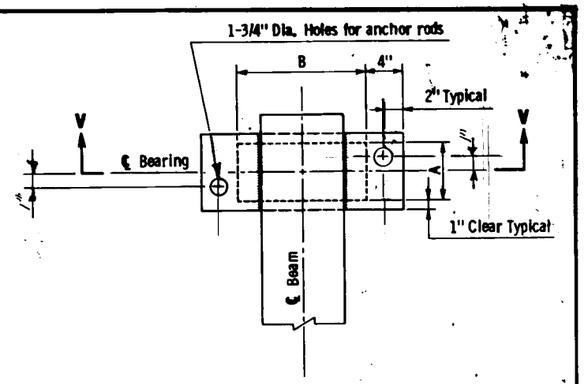
SECTION THRU PAD

① 1/8" for 1/2" and 3/4" laminate. 3/16" for 3/8" laminate.

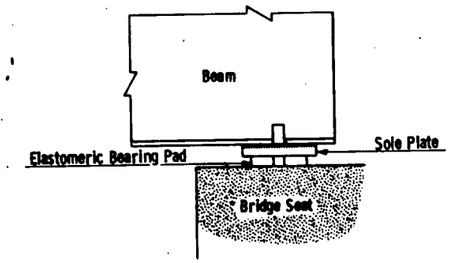
② Total thickness including the steel plates.

③ For maximum laminate thickness, see Elastomeric Pad Table

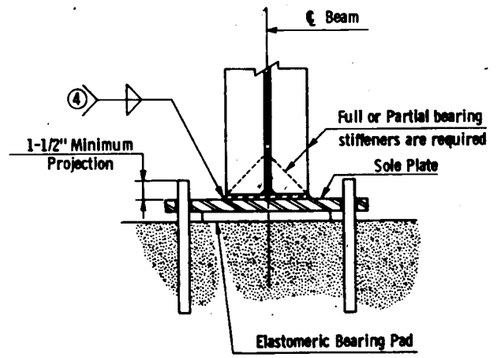
STEEL LAMINATE PAD DETAIL
(1" pad with 3/8" laminate shown)



PLAN



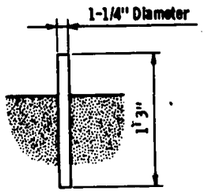
SIDE ELEVATION
(At beam end shown)



SECTION V-V

④ 5/16" minimum fillet weld for 3/4" up to and including 1-1/2" thick sole plates. 3/8" minimum fillet weld for over 1-1/2" to 2-1/4" thick sole plates.

ELASTOMERIC PAD TABLE



ANCHOR ROD DETAIL

Pad Size A	Pad Size B	D	DL + LL Min. (Kips)	DL Max. (Kips)	DL + LL Max. (Kips)	Shape Factor	Sole Plate Size For Beam Flanges 9" to 10-1/2"	For Beam Flanges 11-1/2" to 12"	For Beam Flanges 15" to 16"	Max. Lam. Thk.	Assy. Type
6"	14"	1"	17	42	67	6	8" x 22" x 1-1/4"	8" x 22" x 1"	8" x 22" x 1"	3/8"	
6"	16"	1"	19	48	77	6	8" x 24" x 1-1/2"	8" x 24" x 1-1/4"	8" x 24" x 1"	3/8"	
8"	14"	1"	22	56	90	7	10" x 22" x 1-1/4"	10" x 22" x 1"	10" x 22" x 1"	3/8"	
8"	16"	1"	26	64	102	7	10" x 24" x 1-1/2"	10" x 24" x 1-1/4"	10" x 24" x 1"	3/8"	
10"	14"	1"	28	70	112	8	12" x 22" x 1-1/4"	12" x 22" x 1"	12" x 22" x 1"	3/8"	
10"	16"	1"	32	80	128	6	12" x 24" x 1-1/2"	12" x 24" x 1-1/4"	12" x 24" x 1"	1/2"	
12"	14"	1"	34	84	134	9	14" x 22" x 1-1/4"	14" x 22" x 1"	14" x 22" x 1"	3/8"	
12"	16"	1"	38	96	154	7	14" x 24" x 1-1/2"	14" x 24" x 1-1/4"	14" x 24" x 1"	1/2"	/
14"	16"	1"	45	112	179	7	16" x 24" x 1-1/2"	16" x 24" x 1-1/4"	16" x 24" x 1"	1/2"	
16"	20"	1"	64	160	256	9	18" x 28" x 2"	18" x 28" x 1-1/2"	18" x 28" x 1-1/4"	1/2"	
18"	20"	1"	72	180	288	9	20" x 28" x 2"	20" x 28" x 1-1/2"	20" x 28" x 1-1/4"	1/2"	
20"	20"	2"	80	200	320	7	22" x 28" x 2"	22" x 28" x 1-1/2"	22" x 28" x 1-1/4"	3/4"	
22"	20"	2"	88	220	352	7	24" x 28" x 2"	24" x 28" x 1-1/2"	24" x 28" x 1-1/4"	3/4"	
24"	20"	2"	96	240	384	7	26" x 28" x 2"	26" x 28" x 1-1/2"	26" x 28" x 1-1/4"	3/4"	

NOTES:

For elastomeric materials and pad construction, see Spec. 3741.

Anchor rods shall comply with Spec 3306.

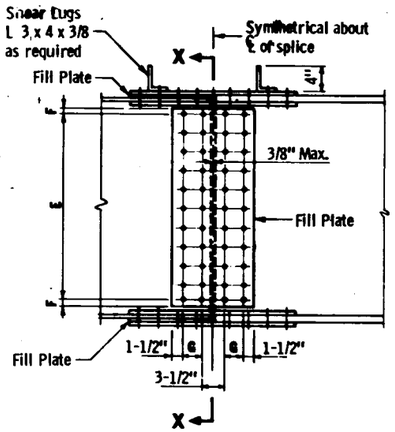
Galvanize anchor rods as per Spec 3394.

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

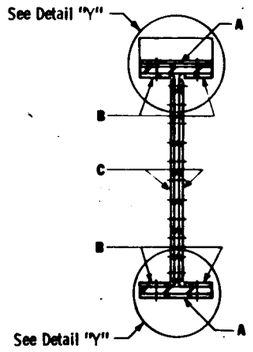
Sole Plate is to be of the same material Spec as the steel beam and is to be included in the weight of structural steel. Shop weld sole plate to the steel beam.

All bearing pads are to bear evenly on the bearing seats.

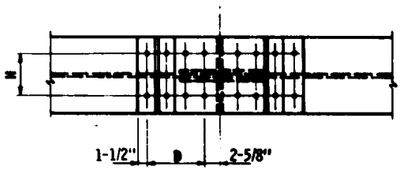
APPROVED: April 26, 1978	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION		DETAIL NO.
Developed by: ENGINEERING STANDARDS, BRIDGES AND STRUCTURES	ELASTOMERIC BEARING ASSEMBLY STEEL BEAMS (FIXED)		B354
Issued by: ENGINEERING STANDARDS			



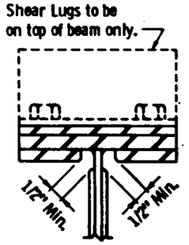
ELEVATION



SECTION X-X
(Fill Plate not shown)



PLAN VIEW



DETAIL "Y"

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

NOTES:

Splice design is for structural steel Spec. 3309.

When F = 1-1/4", top and bottom edge of plate C must be rolled or gas cut and finished as per Spec. 2471.3C4

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

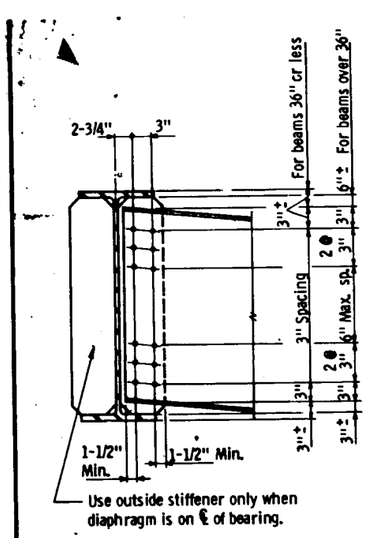
Use 7/8" high strength bolts, or 7/8" pin bolts.

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.

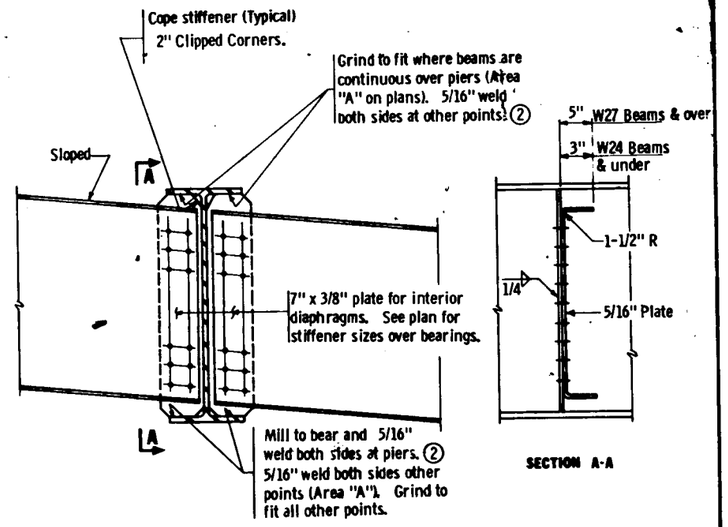
BEAM SIZE	A (In.)	B (In.)	C (In.)	D	E	F	G	H	FLANGE FILL PLATE	WEB FILL PLATE
W21 x 44	7/16 x 6-1/2 x 26-1/4	7/16 x 2-1/2 x 26-1/4	5/16 x 17-1/2 x 12-1/2	3	5 Sps. @ 3"	1-1/4"	3"	4"		
W21 x 49	7/16 x 6-1/2 x 26-1/4	7/16 x 2-1/2 x 26-1/4	5/16 x 17-1/2 x 12-1/2	3	5 Sps. @ 3"	1-1/4"	3"	4"		
* W21 x 55	7/16 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"	4"		
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"	4"		
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"	4"		
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	6 Sps. @ 2-7/8"	1-1/4"	3"	4"		
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"	4"		
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"	4"		
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"	4-1/2"		
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"	4-1/2"		
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"	4-1/2"		
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"	4-1/2"		
* 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"	4-1/2"		
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"	4-1/2"		
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"	4-1/2"		
* 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: April 24, 1979	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Developed by: ENGINEERING STANDARDS, AND BRIDGES AND STRUCTURES Issued by: ENGINEERING STANDARDS	**BEAM SPLICES FOR W BEAMS** (3309 STEEL)		**B400**



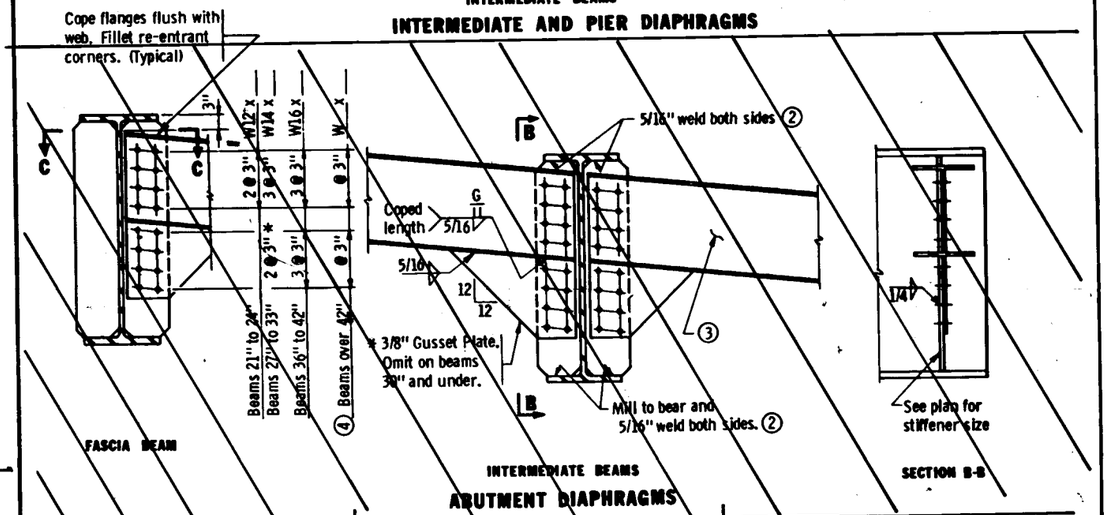
FASCIA BEAM



INTERMEDIATE BEAMS

SECTION A-A

INTERMEDIATE AND PIER DIAPHRAGMS

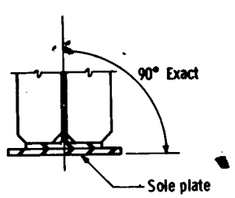


FASCIA BEAM

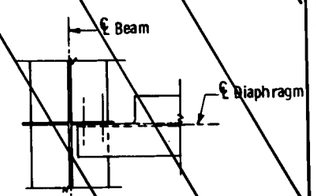
INTERMEDIATE BEAMS

SECTION B-B

ABUTMENT DIAPHRAGMS



TYPICAL DETAIL AT BEARINGS

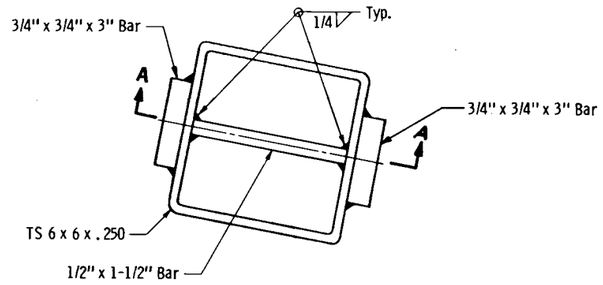


SECTION C-C

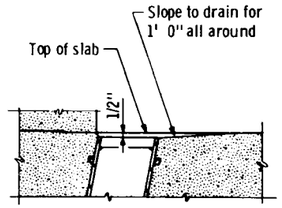
NOTES

(1) Use 7/8" high strength bolts or 7/8" pin bolts
(2) For flange material over 1-1/2" thick, use 3/8" weld.
(3) Where expansion device is bolted to end diaphragm, use W12 x 53 (for 21" to 24" beams), W14 x 61 (for 27" to 33" beams) and W16 x 71 (for 36" to 42" beams). For beam heights over 42", see framing plan for size of diaphragm.
(4) For beam heights over 42", diaphragm to be at least 1/3 the beam height.

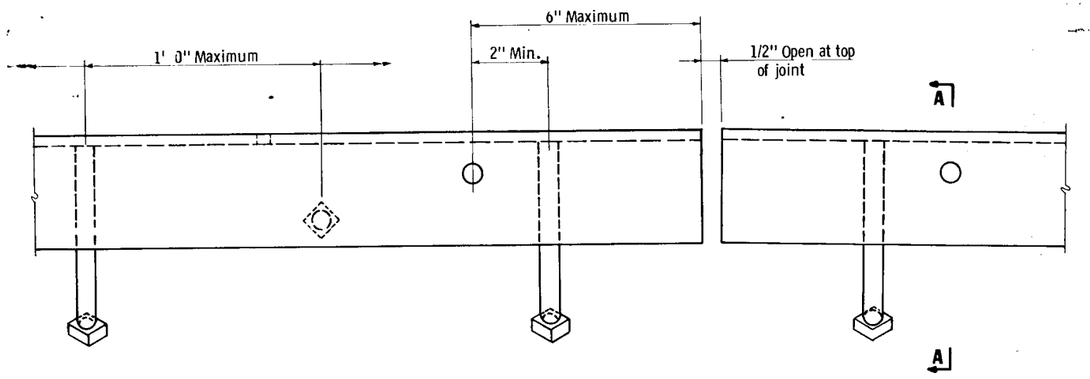
APPROVED:	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Developed by: ENGINEERING STANDARDS, AND BRIDGES AND STRUCTURES Issued by: ENGINEERING STANDARDS	**BOLTED DIAPHRAGMS FOR STEEL BEAMS**	Nov. 2, 1977	**B402**



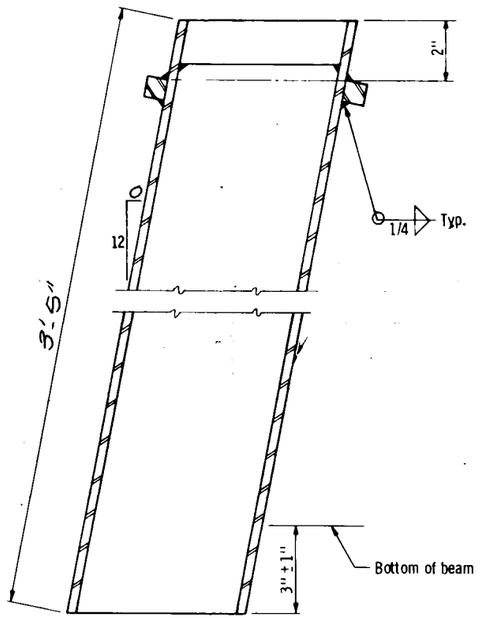
PLAN VIEW



PLACEMENT DIAGRAM



ELEVATION
(Concrete not shown)



SECTION A-A

NOTES:

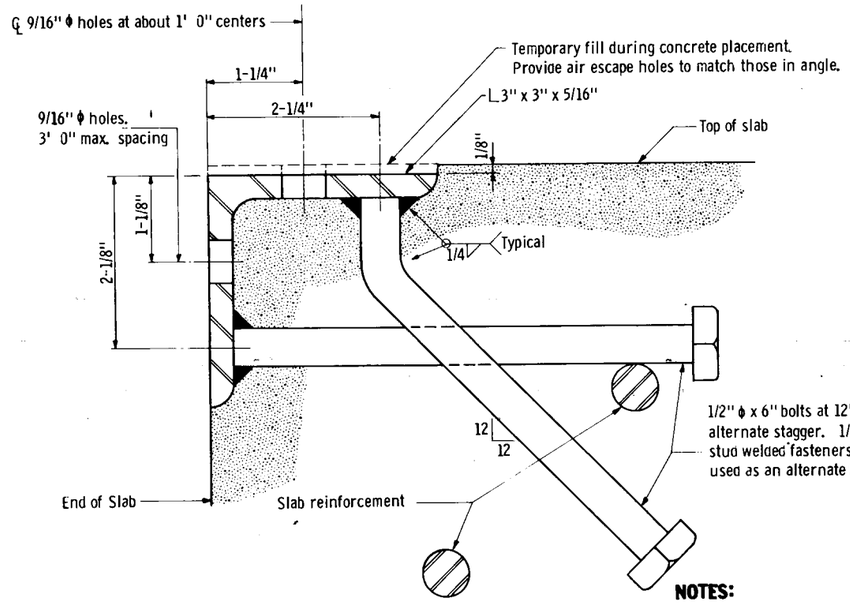
Material to be structural steel per Spec. 3306.

Galvanize bolts and washer per Spec. 3392.

Galvanize other materials per Spec. 3394 after fabrication.

Payment for Floor Drain Type 1 shall include all material shown on this detail.

PAINT ALL DRAINS PER SPECIAL PROVISIONS.



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 Spec. 3306. Galvanize after fabrication per Spec. 3394.

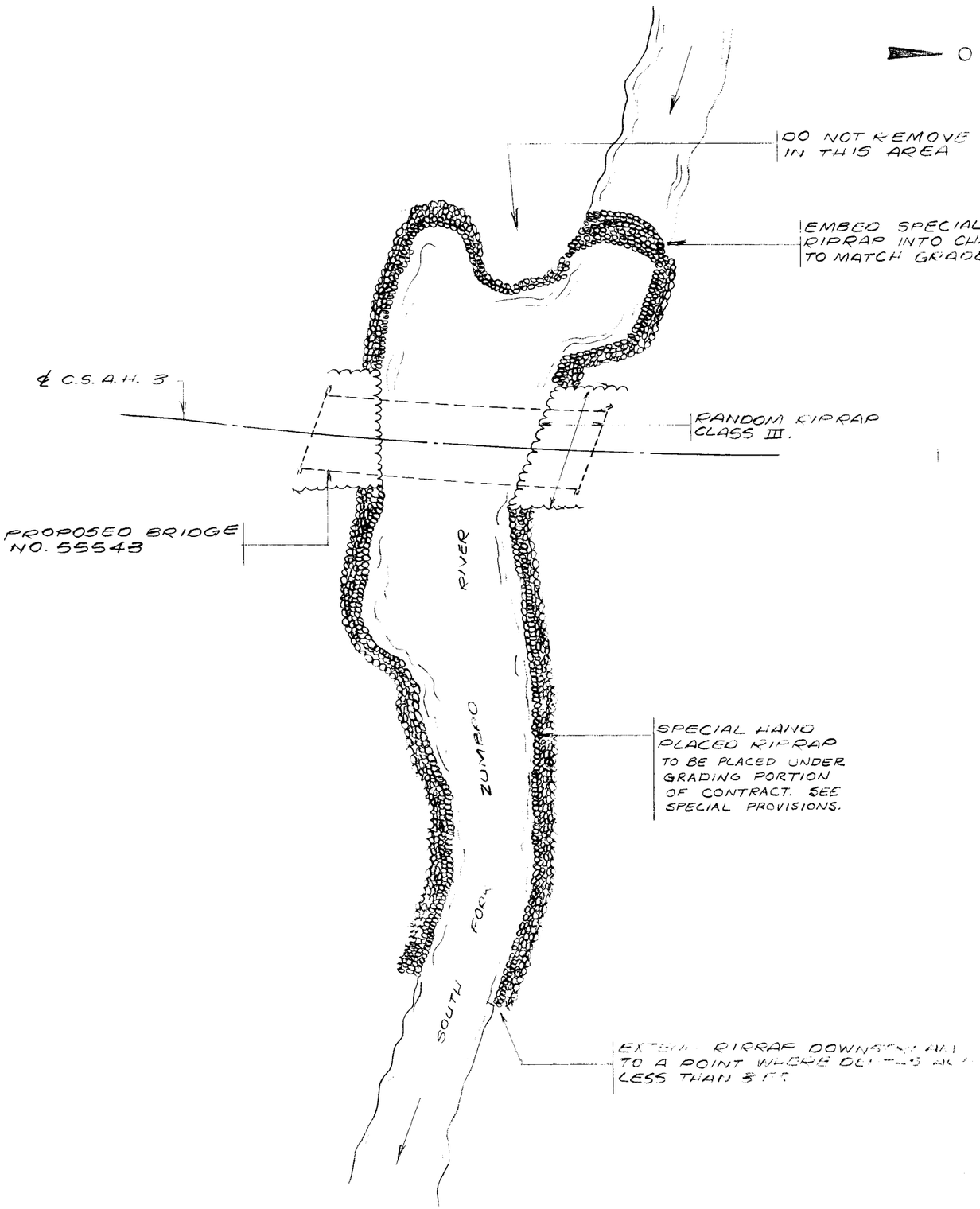
Set angle to proper grade and crown.

All material will be paid for as structural steel Spec. 3306

APPROVED: December 28, 1979 Developed by: ENGINEERING STANDARDS AND BRIDGES AND STRUCTURES OFFICES Issued by: OFFICE OF ENGINEERING STANDARDS	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION **BRIDGE FLOOR DRAIN** **STRUCTURAL TUBING**	REVISION	DETAIL NO. **B702**

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

11-1-84

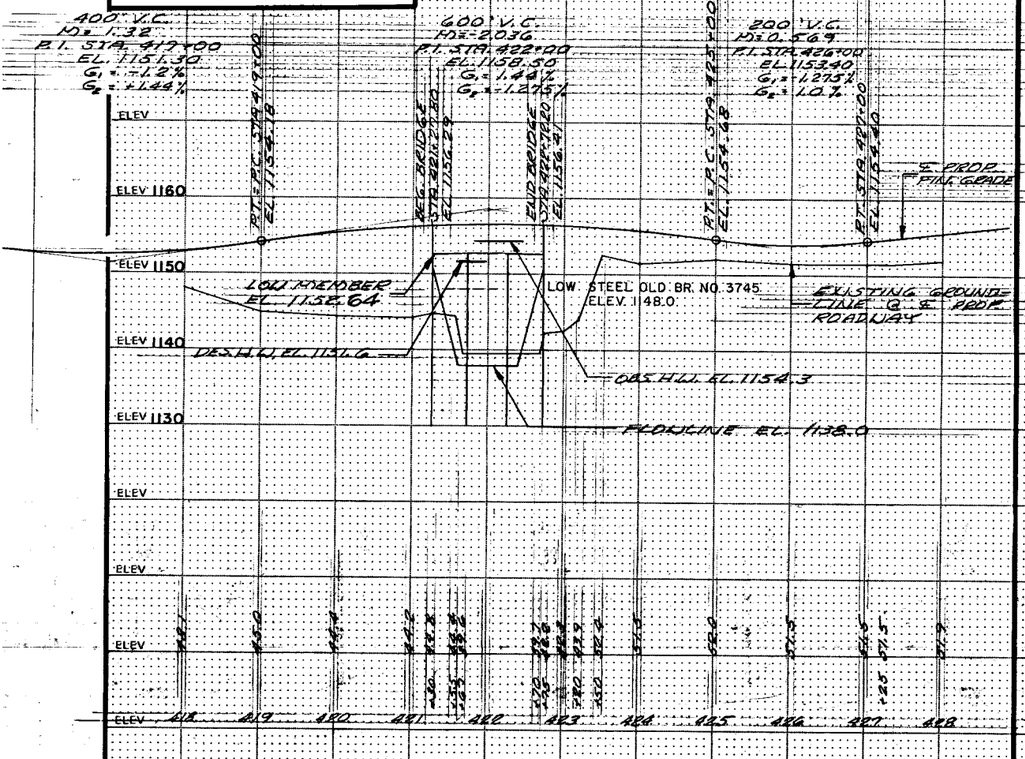


DETAILS	DRAWN	CHECK	APPROVED: 11-1-84	BRIDGE NUMBER
S.P. NO. 55-603-16	SHEET 20 OF 22 SHEETS			55543

B-1 B-2 B-3

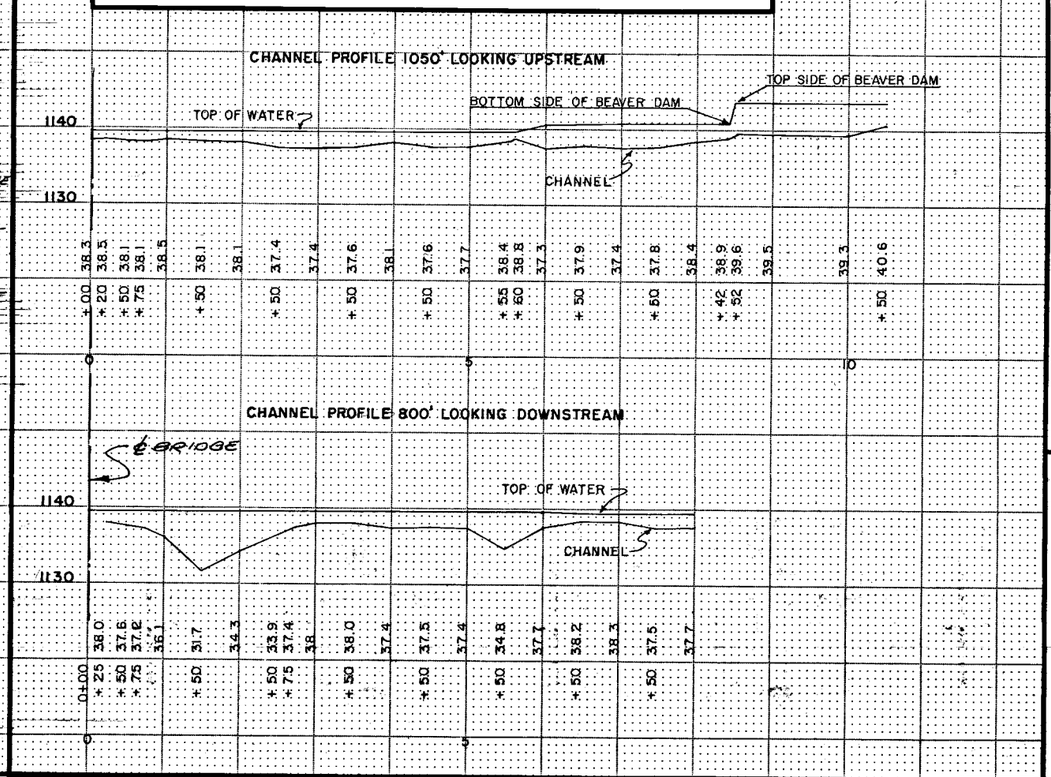
CONTRACTED PROFILE

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



TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN



Fed. Proj. No.

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating.

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.

3. Apparent highwater elevation 1148.0 Obtained from

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

HYDRAULIC ENGINEERS RECOMMENDATION

DATE 1-16-80 (REVISED)

Stream or ditch designation SO. FORK ZUMBRO RIVER
Drainage area 43.7 SQ. MILES
Max. flood on record Design flood (50 yr. freq.) 6000 C.F.S.
Max. observed highwater elevation 1154.3 Design highwater elevation 1151.6
Design mean velocity through structure 6.3 F.P.S.
Low superstructure at or above elevation 1152.7
Flowline elevation 1138.0 Skew angle 30°
Waterway area req'd. below elevation 1151.6 1320 Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 7400 C.F.S. at stage 1153.9 and mean velocity of 5.1 F.P.S. with 1.2 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.

FOUNDATION ENGINEERS RECOMMENDATION

DATE 2-15-80

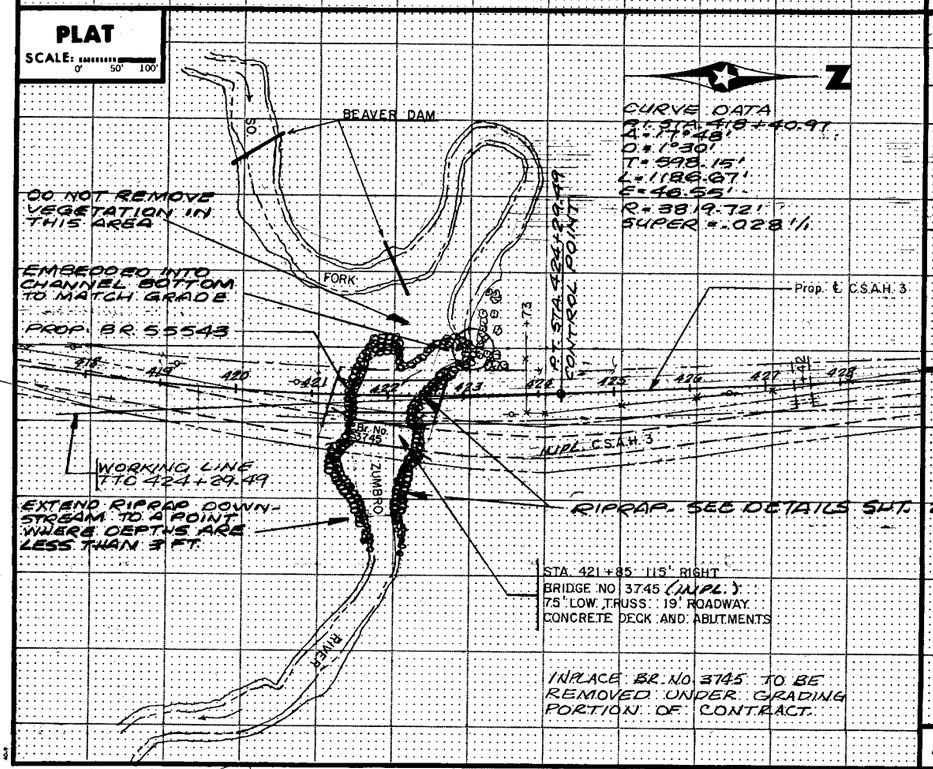
44'-55'-44' CONTINUOUS STEEL BEAMS
SPANS
40' ROADWAY
20° SKEW - 1°30' CURVE

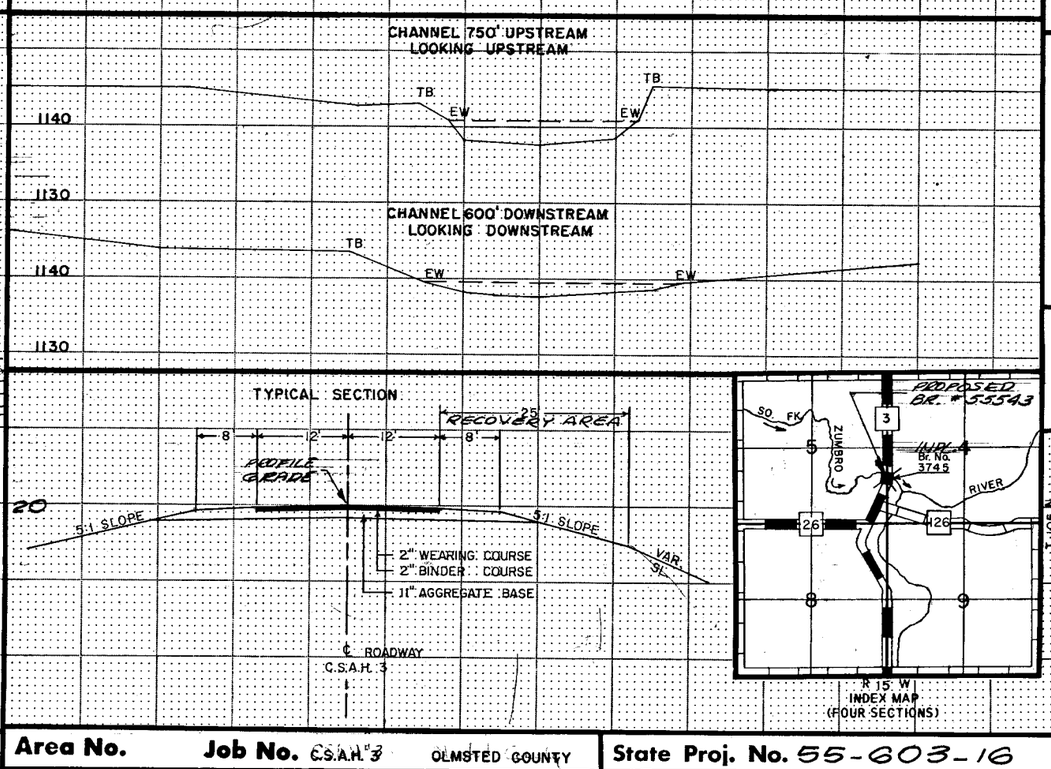
Bridge survey sheets made from: Bridge Survey Conducted By Olmsted County

Bench mark elevation 1145.95 (M.S.L. 1929 Adj.)
Location: Spk. in P. Pole 45' Rt. Sta. 420 + 71

PLAT

SCALE: 0' 50' 100'





MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

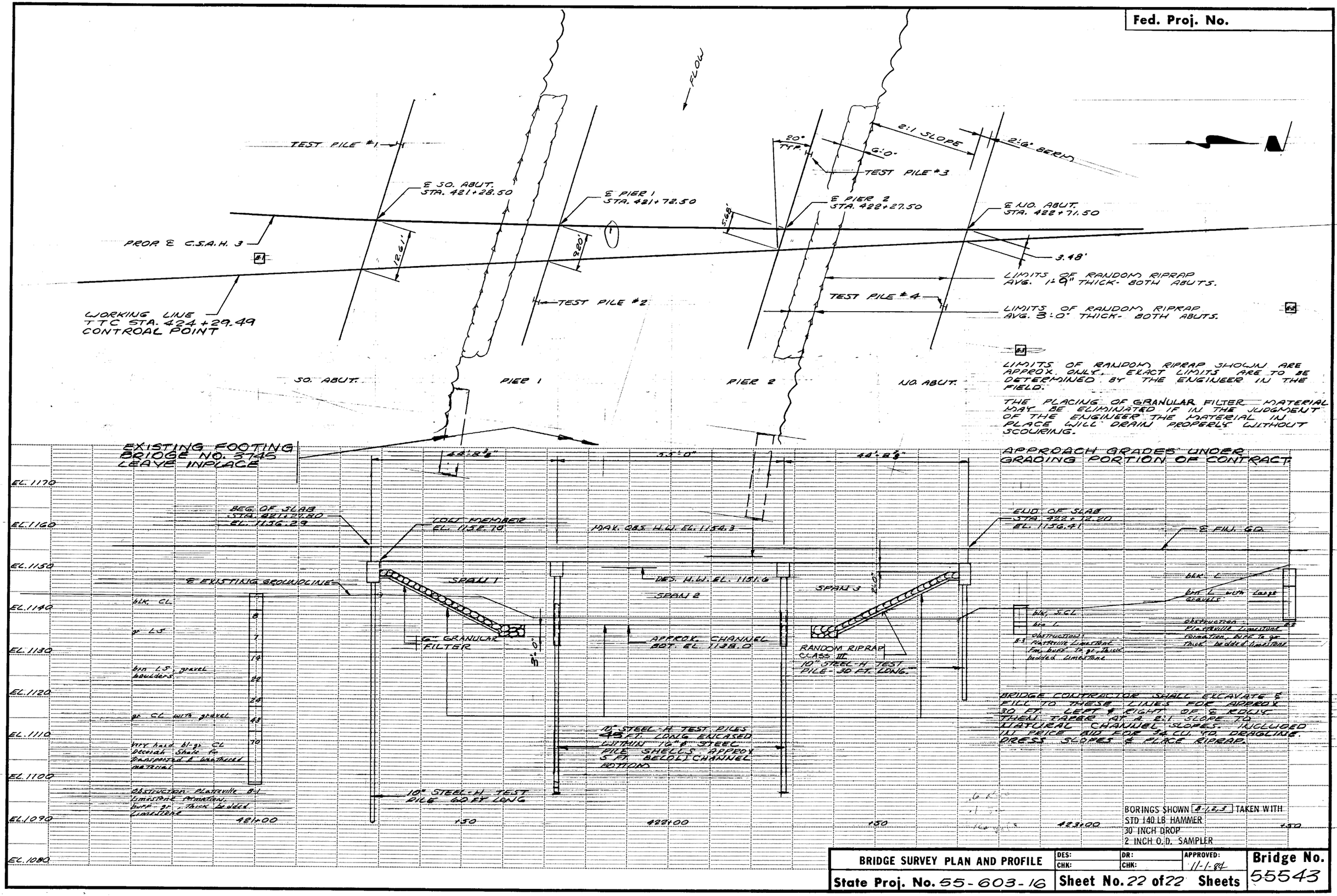
AT MILE POINT 8.1 ON C.S.A.H. 3 (T.H., C.S.A.H., C.R. etc.)
PROPOSED BRIDGE LOCATED 0.1 MILES North OF Rock Dell
SEC. 5 TWP 105 N R 15 W
TOWNSHIP Rock Dell COUNTY Olmsted
BRIDGE NO. 55543
Appr'd. 11-1-84

Area No. Job No. C.S.A.H. 3 OLMSTED COUNTY State Proj. No. 55-603-16 Sheet No. 21 of 22 Sheets

TELEDYNE POST BRIDGE SURVEY 18C-2 9/76

B of B

Fed. Proj. No.



BRIDGE SURVEY PLAN AND PROFILE	DES:	DR:	APPROVED: 11-1-84	Bridge No. 55543
State Proj. No. 55-603-16	CHK:	CHK:	Sheet No. 22 of 22 Sheets	

18C-1 9/76