MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR GRADING, AGGREGATE BASE, & BR. L6158 REPLACEMENT

LOCATED ON C.R. 104 BETWEEN C.R. 117 AND C.S.A.H. 25 4 MILES W. OF ROCHESTER (GEOGRAPHIC DESCRIPTION)

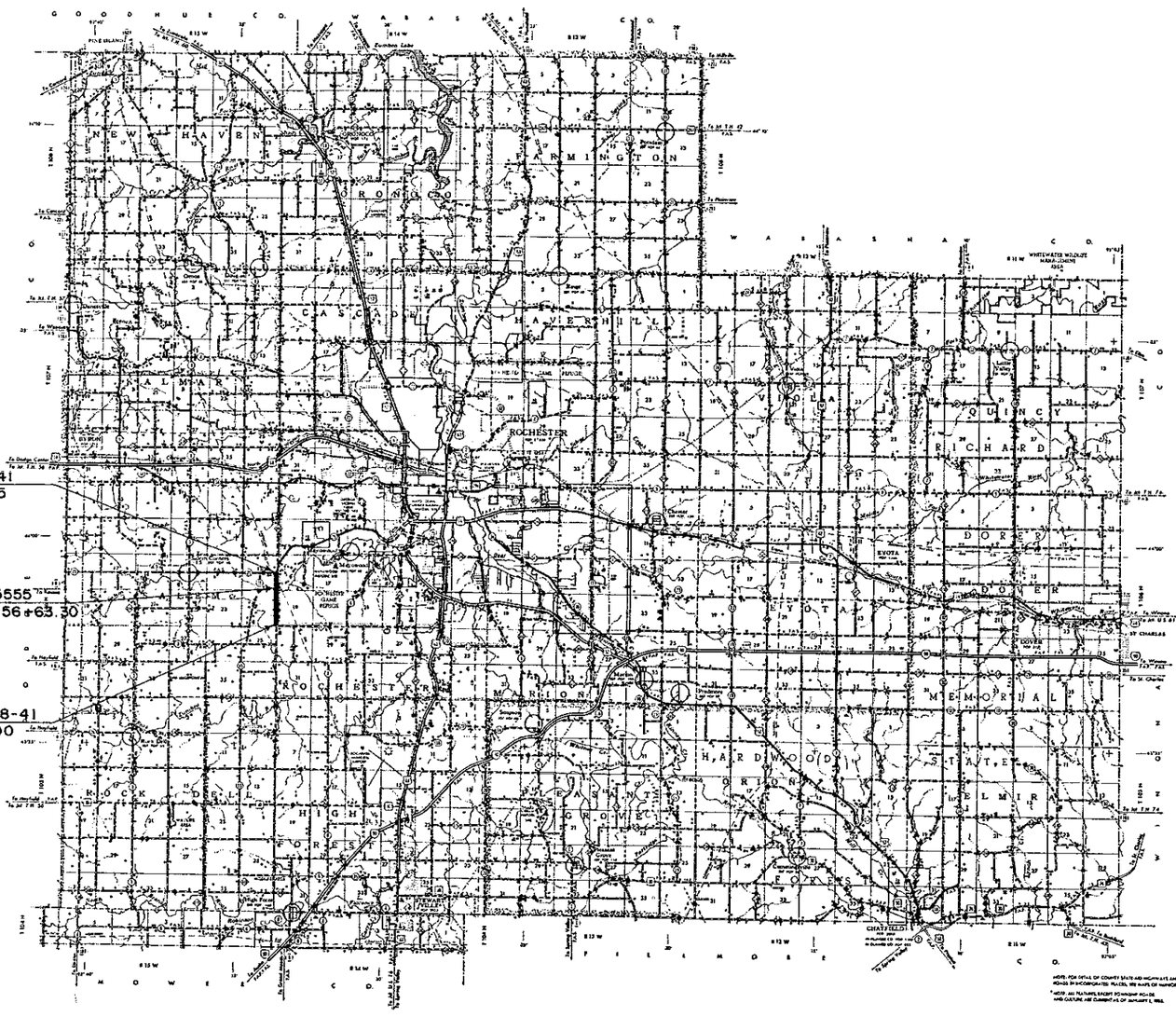
FROM W. SEC. COR. 19-30 ROCHESTER T106N R14W TO 683.30' N. NW. OF W. CENT. SEC. 18 ROCHESTER T106N-R14W (LEGAL DESCRIPTION)

~~STATE PROJ. NO.~~ S.A.P. 55-598-41

GROSS LENGTH	8592.95	FEET	1.627 MILES
BRIDGES-LENGTH	216.59	FEET	.041 MILES
EXCEPTIONS-LENGTH	0.00	FEET	0.000 MILES
NET LENGTH	8592.95	FEET	1.627 MILES

STATE PROJ. NO. _____

GROSS LENGTH		FEET	MILES
BRIDGES-LENGTH		FEET	MILES
EXCEPTIONS-LENGTH		FEET	MILES
NET LENGTH		FEET	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
DRY RUN
DRAINAGE DITCH
DRAIN TILE
CULVERT
DROP INLET
GUARD RAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
RAILROAD SNOW FENCE
STONE WALL OR FENCE
HEDGE
RAILROAD CROSSING SIGN
RAILROAD CROSSING BELL
ELECTRIC WARNING SIGN
CROSSING GATE
MEANDER CORNER
SPRINGS
MARSH
TIMBER
ORCHARD
BRUSH
NURSERY
CATCH BASIN
FIRE HYDRANT
CATTLE GUARD
OVERPASS (Highway Over)
UNDERPASS (Highway Under)
BRIDGE
BUILDING (One Story Frame)
F - FRAME C - CONCRETE
S - STONE T - TILE
B - BRICK ST - STUCCO
IRON PIPE OR ROD
MONUMENT (STONE, CONCRETE, OR METAL)
WOODEN HUB
GRAVEL PIT
SAND PIT
BORROW PIT
ROCK QUARRY
SLOPE EASEMENT

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

SCALES

PLAN 0 100'
PROFILE 0 100' HOR. 0 10' VERT.
INDEX MAP 0 2 MILES
CROSS SECTIONS 0 10'

ALBINSON MPLS 55405

MINN. PROJ. NO. _____

GOVERNING SPECIFICATIONS

THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AS AMENDED BY THE MAY 2, 1994 SUPPLEMENTAL SPECIFICATIONS SHALL GOVERN

INDEX

SHEET NO. 1 TITLE SHEET AND LAYOUT MAP
SHEET NO. 2 ESTIMATE OF QUANTITIES & TYPICAL SECTIONS
SHEET NO. 3-6 PLAN AND PROFILE
SHEET NO. 7 TRAFFIC CONTROL PLAN
SHEET NO. 8-25 CROSS SECTIONS
SHEET NO. 26-27 GUARDRAIL INSTALLATION
SHEET NO. 27A-27D EROSION CONTROL PLAN
SHEET NO. 28-47 BRIDGE SHEETS

THIS PLAN CONTAINS 51 SHEETS

BM
1055.55

DESIGN DESIGNATION

R _____ EN18 [20]

ADT (Current Year)	=	292 (1996)	Design Speed 55 MPH
ADT (Future Year)	=	438 (2016)	Based on STOPPING Sight Distance
DHV (Design Hr. Vol.)	=	_____	Height of eye 3.5' Height of object 0.5'
D (Directional Distr.)	=	____ %	Design Speed not achieved at:
T (Heavy Commercial)	=	____ %	STA. 82+22.41 TO STA. 85+08.77 MPH < 30
SOIL FACTOR		130	STOP SITUATION

SHOULDER WIDTH ULT. 4'

ULTIMATE 7-9 TON DESIGN

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 5/17/96 REG. NO. 19917 ENGR Gayle M Brunick

APPROVED 5/17/96 (DATE) Michael D Sheehan COUNTY ENGINEER

COUNTY Olmsted

Recommended for Approval _____ DISTRICT STATE AID ENGINEER 5/19 1996

Recommended for Approval Donald L Flemming 5-30 1996 STATE BRIDGE ENGR

Approved 5/30 1996 David Skallman ASST STATE AID ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
_____ _____
DIVISION ADMINISTRATOR DATE

STATE AID PROJ. NO. _____

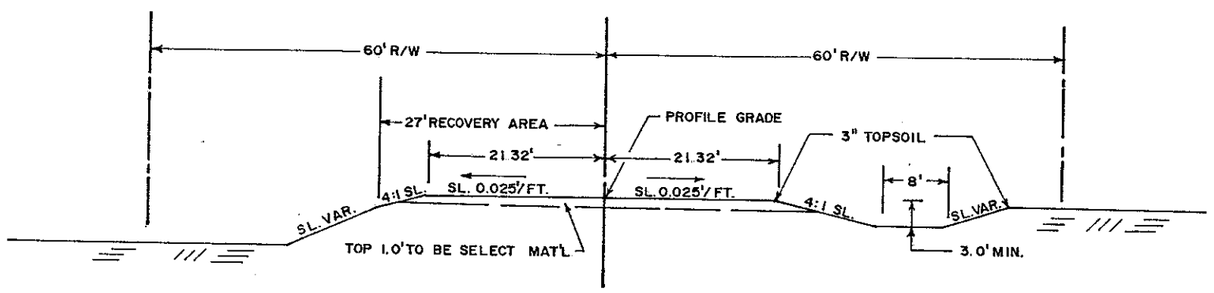
~~STATE PROJ. NO.~~ S.A.P. 55-598-41 OLMSTED COUNTY C.R. 104 SHEET NO. 1 OF 51 SHEETS

ESTIMATED QUANTITIES

	SPECIFICATION NO.	ITEM	UNIT	NON PARTICIPATING	PARTICIPATING	TOTAL ESTIMATED QUANTITIES
	2031.501	FIELD OFFICE TYPE D	EACH	1		1
①	2101.511	CLEARING AND GRUBBING	LUMP SUM	1		1
②	2104.501	REMOVE PIPE CULVERTS	LIN. FT.	366		366
	2104.513	SAWING BITUMINOUS PAVEMENT	LIN. FT.	60		60
③	2105.515	UNCLASSIFIED EXCAVATION	CU. YD.	(P) 51,130		(P) 51,130
	2105.523	COMMON BORROW (CV)	CU. YD.	(P) 17,801		(P) 17,801
④	2130.501	WATER	(M) GAL.	35		35
⑤	2211.501	AGGREGATE BASE CLASS 2	TON	7,605		7,605
⑥	2211.501	AGGREGATE BASE CLASS 5 (MODIFIED)	TON	5,881		5,881
	2501.511	18" C.S. PIPE CULVERT	LIN.FT.	192		192
	2501.511	24" C.S. PIPE CULVERT	LIN.FT.	148		148
	2501.511	30" C.S. PIPE CULVERT	LIN.FT.	42		42
	2501.511	24" R.C. PIPE CULVERT CLASS III	LIN.FT.	54		54
	2501.515	18" G.S. PIPE APRON	EACH	12		12
	2501.515	24" G.S. PIPE APRON	EACH	6		6
	2501.515	30" G.S. PIPE APRON	EACH	2		2
	2501.515	24" R.C. PIPE APRON	EACH	2		2
	2501.521	28" SPAN C.S. PIPE-ARCH CULVERT	LIN. FT.	84		84
	2501.521	29" SPAN R.C. PIPE-ARCH CULVERT CLASS IIIA	LIN. FT.	50		50
	2501.525	28" SPAN G.S. PIPE-ARCH APRON	EACH	6		6
	2501.525	29" SPAN R.C. PIPE-ARCH APRON	EACH	2		2
⑦	2554.501	TRAFFIC BARRIER DESIGN B8307	LIN. FT.	400		400
⑧	0554.602	T-BARRIER BRIDGE CONN. DES. 8318	EACH	4		4
⑨	0554.602	ECCENTRIC LOADER BCT	EACH	4		4
	0563.601	TRAFFIC CONTROL	LUMP SUM	1		1
⑩	2573.503	SILT FENCE, PREASSEMBLED	LIN. FT.	2,300		2,300
	2575.501	SEEDING	ACRE	(P) 13		(P) 13
⑪	2575.502	SEED, MIXTURE 500	POUND	650		650
⑫	2575.502	SEED, MIXTURE 1100	POUND	1,040		1,040
	2575.505	SODDING, TYPE EROSION	SQ.YD.	4,930		4,930
⑬	2575.511	MULCH MATERIAL, TYPE 1	TON	26		26
	2575.519	DISK ANCHORING	ACRE	(P) 13		(P) 13
⑭	2575.531	COMMERCIAL FERTILIZER, ANALYSIS 12-12-12	TON	1.3		1.3

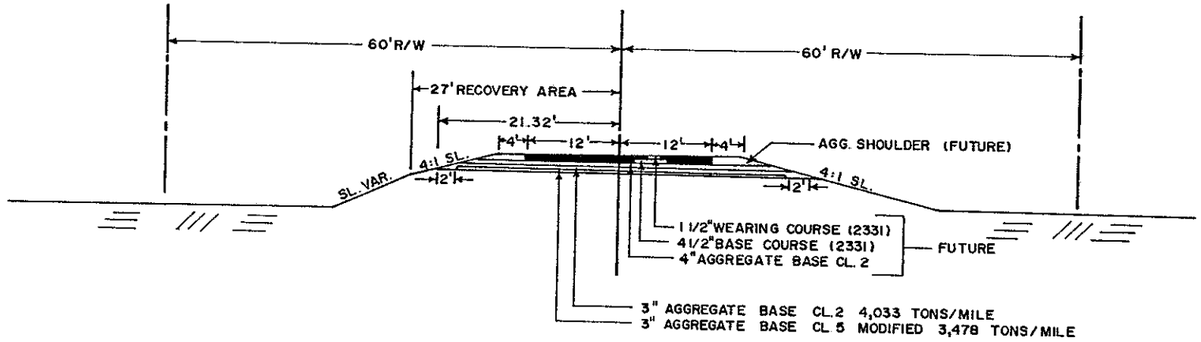
① INCLUDES APPROXIMATELY 1.1 ACRES OF WOODS AND 155 TREES.
② REMOVAL OF CONCRETE HEADWALLS SHALL BE CONSIDERED INCIDENTAL TO REMOVAL OF PIPE CULVERTS
③ UNCLASSIFIED EXCAVATION INCLUDES SUBGRADE TREATMENT AS SHOWN IN THE PLANS.
5,088 CU.YDS. UNCLASSIFIED EXCAVATION TO BE USED AS SALVAGED TOPSOIL, AND PLACED AS SHOWN IN THE PLANS.
④ WATER TO BE USED AS A DUST PREVENTATIVE AS DIRECTED BY THE ENGINEER.
⑤ INCLUDES 760 TONS FOR 19 APPROACHES AND ENTRANCES, AND 300 TONS FOR TEMPORARY CONNECTIONS.
⑥ INCLUDES 250 TONS FOR TEMPORARY CONNECTIONS.
⑦ INCLUDES ALL MATERIAL, EQUIPMENT, AND LABOR TO FURNISH AND INSTALL 400 LIN.FT OF TYPICAL GUARDRAIL B8307.
⑧ INCLUDES ALL MATERIAL, EQUIPMENT, AND LABOR TO FURNISH AND INSTALL GUARDRAIL ANCHORAGE PLATES FOR BRIDGE
⑨ INCLUDES ALL MATERIAL, EQUIPMENT, AND LABOR TO FURNISH AND INSTALL ECCENTRIC LOADER BREAKAWAY CABLE TERMINAL (ELT) 37.5 LIN FT. EACH.
⑩ SILT FENCE TO BE PLACED AS SHOWN IN THE PLANS, AND AS DIRECTED BY THE ENGINEER.
⑪ APPLICATION RATE 50 POUNDS PER ACRE
⑫ APPLICATION RATE 80 POUNDS PER ACRE
⑬ APPLICATION RATE 2 TONS PER ACRE.
⑭ APPLICATION RATE 200 POUNDS PER ACRE

TYPICAL GRADING SECTION



STA. 0+00.00 TO STA 54+46.71
STA. 56+63.30 TO STA. 85+92.95

TYPICAL SURFACING SECTION

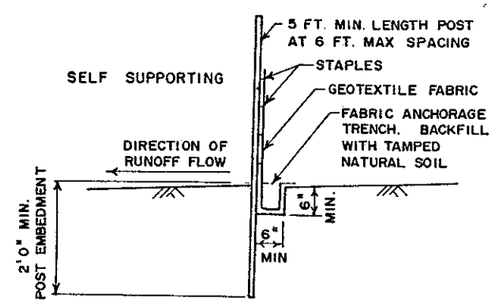


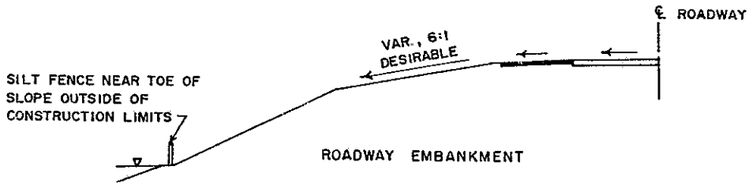
STA. 0+00.00 TO STA. 54+46.71
STA 56+63.30 TO STA 85+92.95

SILT FENCE DETAILS

TO PROTECT AREAS FROM SHEET FLOW
(SEE SPEC. 3886)

DESIGN CRITERIA:
MAXIMUM CONTRIBUTING AREA: 3 ACRES





STANDARD PLATES

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

PLATE NO.	DESCRIPTION
	SPECIFICATION REFERENCE TO STANDARD PLATES.
3000 L	REINFORCED CONCRETE PIPE.
3007 B	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES.
3014 J	REINFORCED CONCRETE PIPE-ARCH.
3040 F	CORRUGATED METAL PIPE CULVERT.
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE.
3110 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE-ARCH.
3145 E	CONCRETE PIPE TIES. (EYE BOLT TIE)
3221 C	CORRUGATED STEEL PIPE COUPLING BAND.
8000 I	STANDARD BARRICADES.
8307 P	STEEL PLATE BEAM GUARDRAIL.
8318 C	GUARDRAIL ANCHORAGE PLATE FOR BRIDGES AND BCT'S.
8329 F	ECCENTRIC LOADER BREAKAWAY CABLE TERMINAL (ELT).
9000 B	APPROACHES AND ENTRANCES.

NOTE: ALL UTILITY POLES AND UNYIELDING OBJECTS SHALL BE RELOCATED OUTSIDE THE 27' RECOVERY AREA (BY OTHERS)

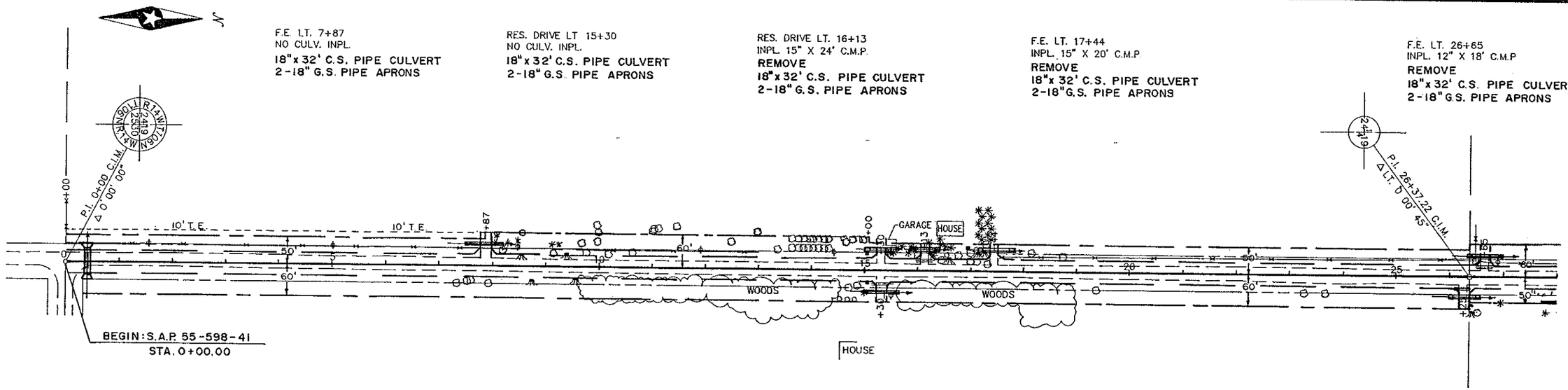
NOTE: ALL DIMENSIONS AND SLOPES SHOWN ON TYPICAL SECTIONS ARE APPROXIMATE.

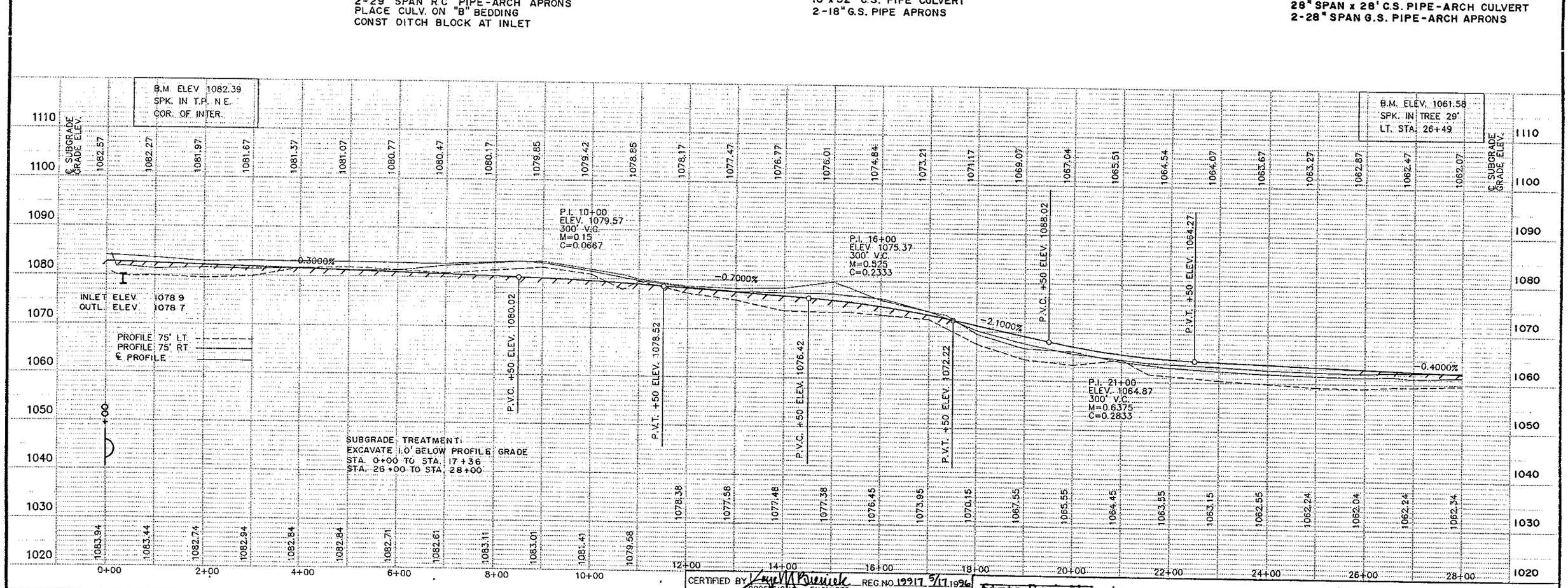
NOTE: ℄ CULVERT EXCAVATION WILL BE CONSIDERED INCIDENTAL AND NO COMPENSATION WILL BE MADE THEREFOR

SODDING LOCATIONS			SQ. YDS.
DITCH & SLOPES	LT.	STA. 15+00 TO STA. 17+50	722
" "	RT.	STA. 13+80 TO STA. 15+80	867
" "	RT.	STA. 36+32 TO STA. 41+27	1,595
" "	LT.	STA. 72+10 TO STA. 75+50	1,009
" "	RT.	STA. 78+10 TO STA. 79+50	737
		TOTAL SQ. YDS.	4,930

CERTIFIED BY Lowell M. Reinink REG NO. 19917 9/17/1996
PROFESSIONAL ENGINEER

S.A.P. 55-598-41 OLMSTED COUNTY C.P. 104 SHEET NO. 2 OF 25 SHEETS





CERTIFIED BY [signature] PROFESSIONAL ENGINEER REG. NO. 19917 5/17 1996

~~State Proj. No.~~ S.A.P. 55-598-41

Sheet No. 3 of 51 Sheets

RES. DR. LT 43+20
INPL. 24" X 24' C.M.P
REMOVE
24"x 46' C.S. PIPE CULVERT
2-24" G.S. PIPE APRONS

F.E. LT 50+17
NO CULV. INPL.
NO CULV. REQ'D.

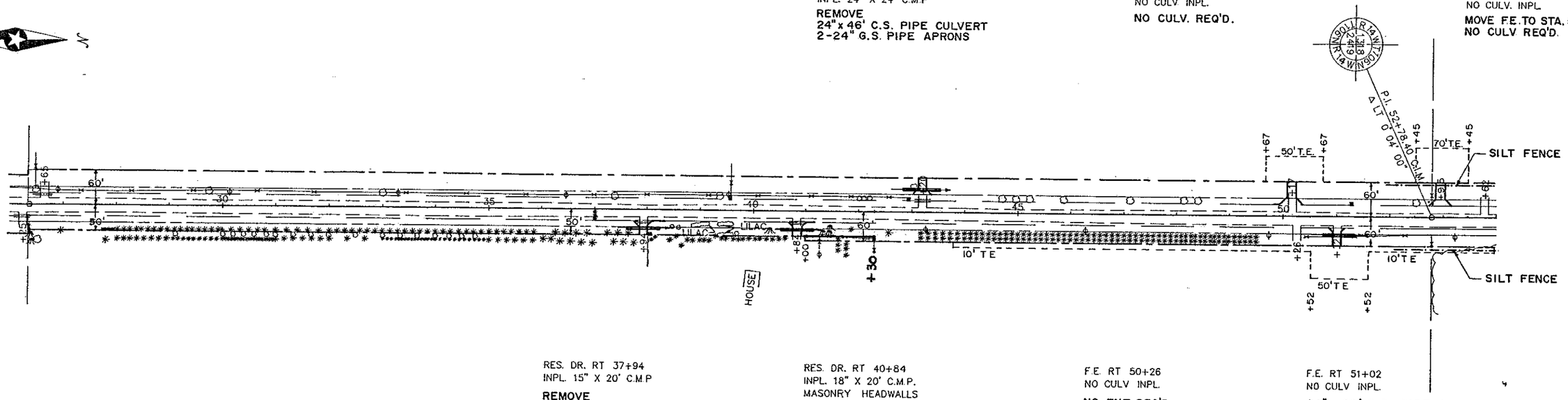
F.E. LT 53+78
NO CULV. INPL.
MOVE F.E. TO STA. 52+95
NO CULV REQ'D.

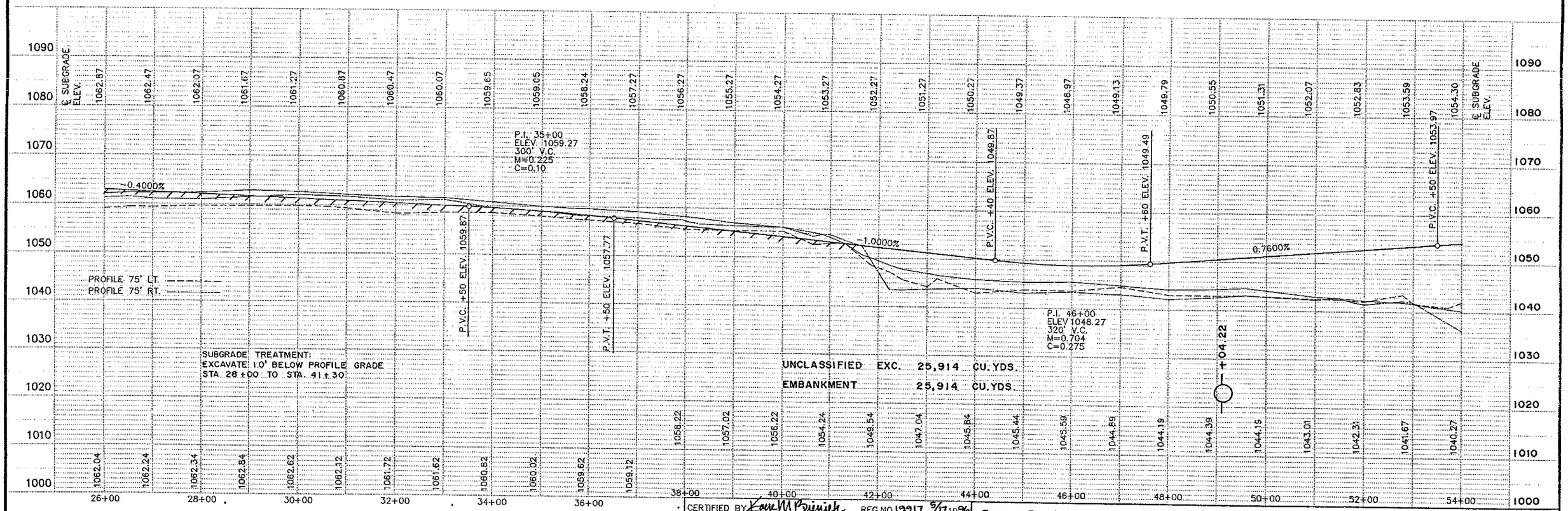
RES. DR. RT 37+94
INPL. 15" X 20' C.M.P
REMOVE
28" SPAN x 28' C.S. PIPE-ARCH CULVERT
2-28" SPAN G.S. PIPE-ARCH APRONS

RES. DR. RT 40+84
INPL. 18" X 20' C.M.P.
MASONRY HEADWALLS
REMOVE
28" SPAN x 28' C.S. PIPE-ARCH CULVERT
2-28" SPAN G.S. PIPE-ARCH APRONS

F.E. RT 50+26
NO CULV INPL.
NO ENT. REQ'D.

F.E. RT 51+02
NO CULV INPL.
24"x 60' C.S. PIPE CULVERT
2-24" G.S. PIPE APRONS

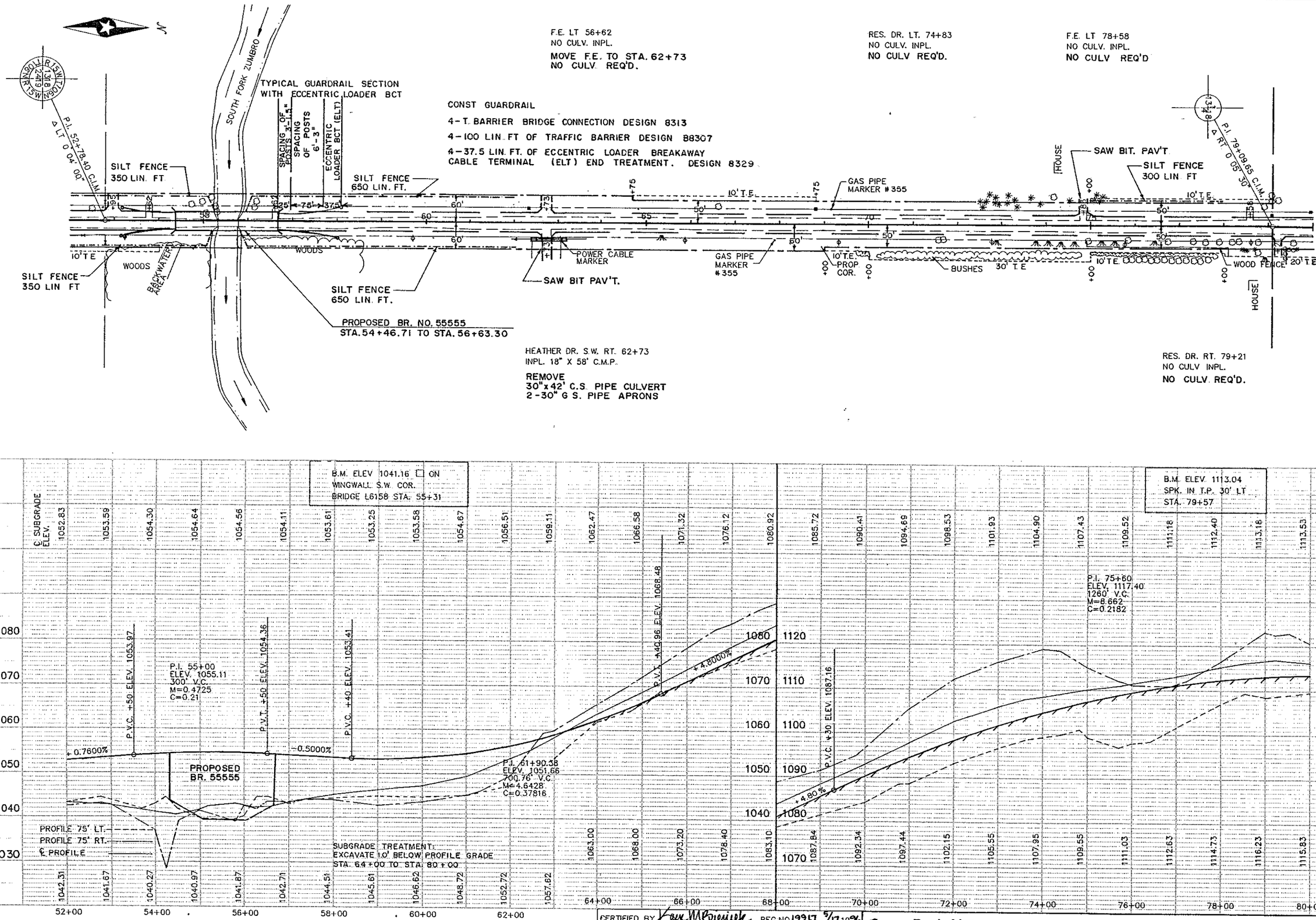




UNCLASSIFIED EXC.	25,914	CU. YDS.
EMBANKMENT	25,914	CU. YDS.

CERTIFIED BY Kayle M Brinich PROFESSIONAL ENGINEER REG. NO. 19917 5/11/96

~~State Proj. No.~~ S.A.P. 55-598-41



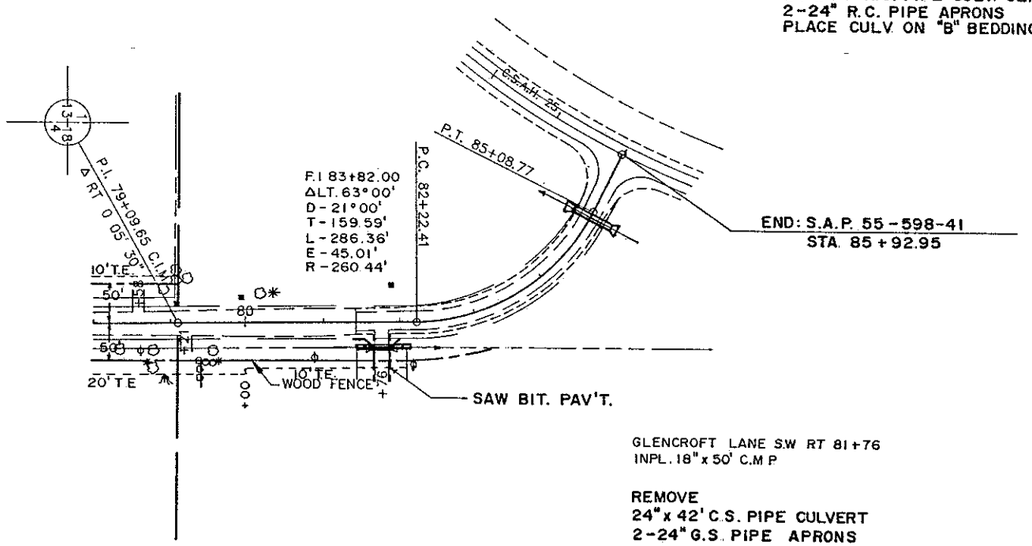
CERTIFIED BY [signature] PROFESSIONAL ENGINEER REG. NO. 19917 5/17/19

~~State Proj. No.~~ S.A.P. 55-598-41

Sheet No. 5 of 51 Sheets

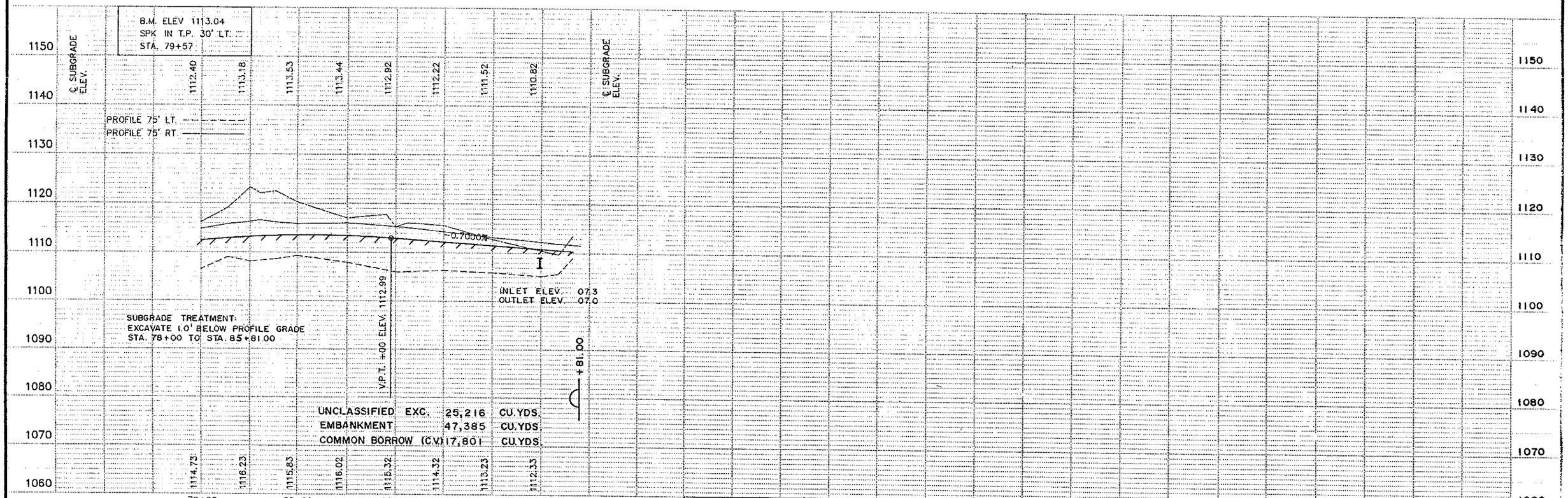
℄ CULV. 84 + 98
INPL. 24"x 58' C.M P W/APRONS

REMOVE 64 LIN. FT.
24"x 54' R.C. PIPE CULV. CL. II.
2-24" R.C. PIPE APRONS
PLACE CULV. ON "B" BEDDING



GLENCROFT LANE S.W RT 81+76
INPL. 18"x 50' C.M P

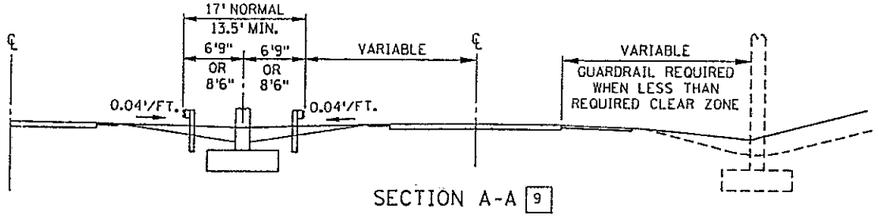
REMOVE
24"x 42' C.S. PIPE CULVERT
2-24" G.S. PIPE APRONS



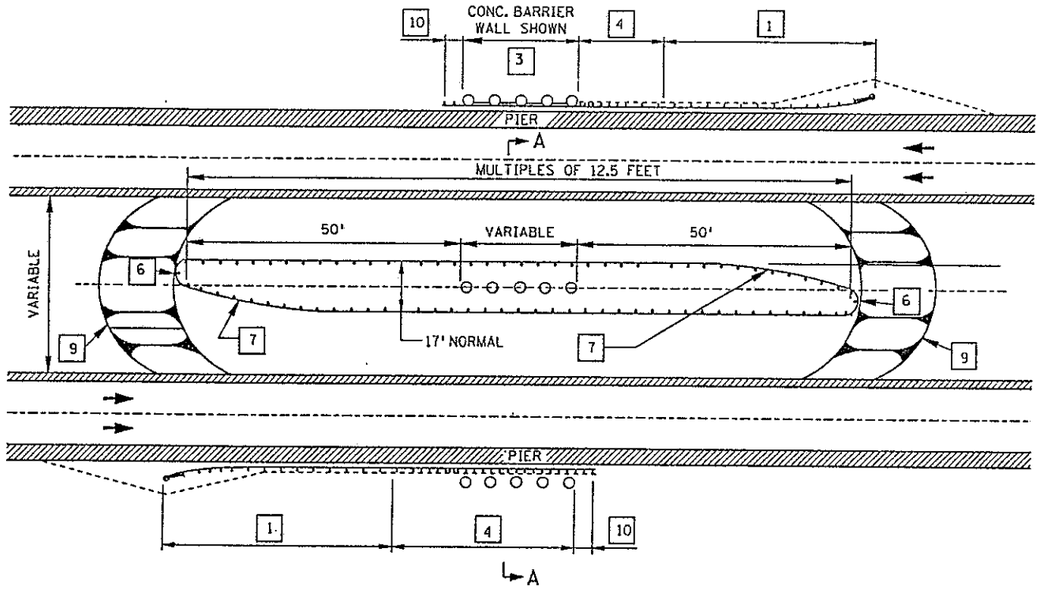
UNCLASSIFIED EXC.	25,216	CU.YDS.
EMBANKMENT	47,385	CU.YDS
COMMON BORROW (C.V.)	17,801	CU.YDS.

CERTIFIED BY Lowell M Bennett (PROFESSIONAL ENGINEER) REG. NO. 19917 5/7/1996

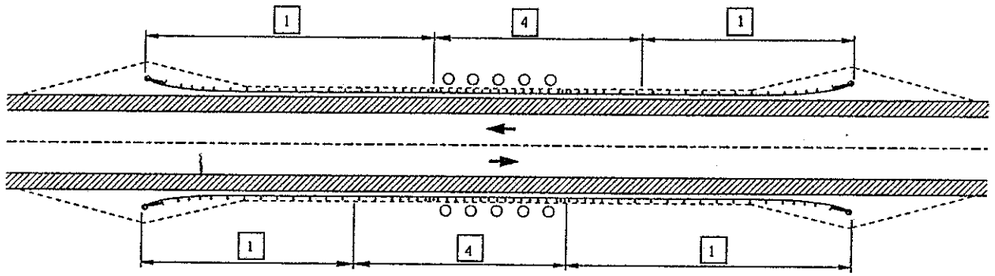
~~State Proj. No.~~ S.A.P. 55-598-41



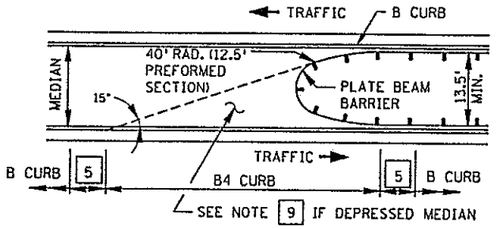
SECTION A-A [9]



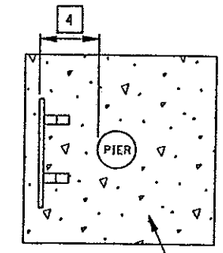
UNDERPASS-DEPRESSED MEDIAN
(DESIGN SPECIAL SHOWN)

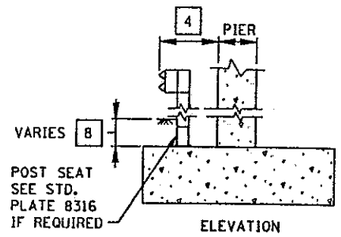


TWO-WAY UNDERPASS
(DESIGN SPECIAL SHOWN)

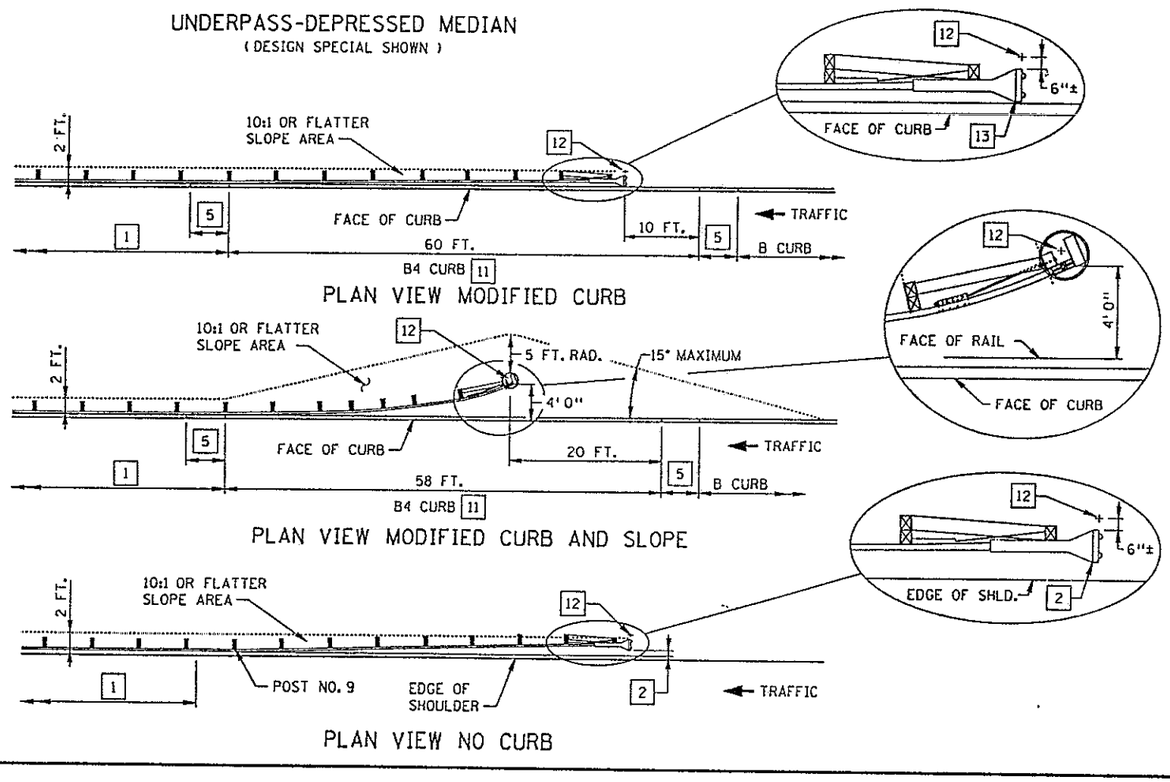


MODIFIED CURB AT MEDIAN
(OPTIONAL GUARDRAIL PLACEMENT SHOWN)





POST REQUIREMENTS



NOTES:

ALL GUARDRAIL POSTS SHALL BE 6'3" CTR. TO CTR., EXCEPT WHERE NOTED.

THE LATEST APPROVED VERSION OF STANDARD PLATES SHOWN OR AS INDICATED IN THE PLANS SHALL APPLY.

WHEN THE APPROACHING PLATE BEAM FLARE CAN BE BURIED IN THE BACKSLOPE ELIMINATE THE END TREATMENT AND ADD REQUIRED RAIL LENGTH TO REACH BACKSLOPE.

[1] FOR REQUIRED L LENGTH SEE DESIGN MANUAL 10-7.03 FOR DESIGN PARAMETERS SEE STD. PLATE 8329 FOR END TREATMENT SHOWN.

[2] SET EDGE OF EXTRUDER BOX 9" FROM FACE OF RAIL EXTENDED FROM POST NO. 9.

[3] CONCRETE BARRIER WALL BETWEEN PIER COLUMNS MAY BE USED . SEE SHEET NO. __ OF __ FOR WALL DETAILS. CONNECT GUARDRAIL TO BARRIER WALL ANCHORAGE PLATE SEE SHEET NO. 2 FOR DETAILS.

[4]

DISTANCE FROM FACE OF RAIL TO HAZARD	GUARDRAIL POST SPACING
OVER 4 FT.	6'3"
4 FT. TO 2 FT.	3'1-1/2"
LESS THAN 2 FT.	DESIGN SPECIAL & [3]

[5] 5 FT. CURB TRANSITION, USE IF ADJACENT CURB IS A DIFFERENT TYPE OR HEIGHT.

[6] 5 FOOT RADIUS NOSE SECTION (12.5' PREFORMED CURVED RAIL SECTION, SEE DETAIL, ON SHEET 2 OF 2).

[7] 25 FT. OF PREFORMED (40' RADIUS) RAIL SECTIONS.

[8] IF EMBEDMENT IS GREATER THAN 3'0" OR IF EMBEDMENT IS 2'6" TO 3'0" AND ADJACENT POSTS ARE EMBEDDED 3'0" OR MORE, POST SEAT IS NOT REQUIRED.

[9] THE MEDIAN DITCH SHALL BE FILLED TO PROVIDE AN ELEVATION OF GUARDRAIL APPROXIMATELY (WITHIN 6" ±) THE SAME AS IF INSTALLED ON THE SHOULDER. EXTEND FILL TO GUARDRAIL NOSE AND TAPER TO MEDIAN DITCH ON 10:1 SLOPE.

[10] 12'6" MINIMUM, IF ONE WAY TRAFFIC.

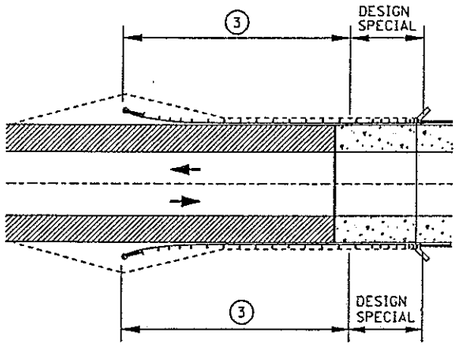
[11] IF 6"+ HIGH CURB, MILL TO 3" HEIGHT. NEW: CONSTRUCT 4" HIGH CURB.

[12] SNOW PLOW MARKER (X4-5) WITH A 2 LB. / FT. DELINEATOR POST 8 FT. LG. (SPEC. 3401) DRIVEN INTO GROUND. EXTEND 3 FT. ABOVE TERMINAL.

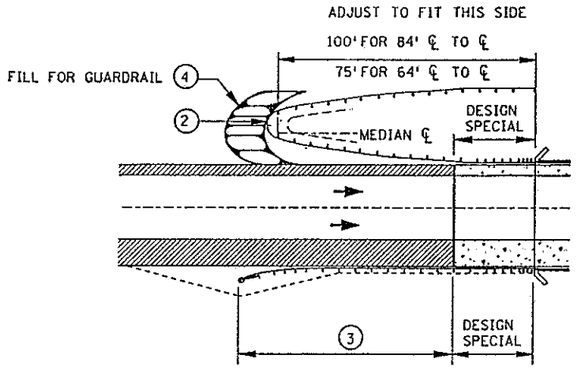
[13] SET EDGE OF EXTRUDER BOX 9" FROM FACE OF CURB.

STANDARD SHEET NO. 5-297.601 (1 OF 2)	TITLE: GUARDRAIL INSTALLATIONS AT MEDIANS AND END TREATMENTS
STANDARD APPROVED: OCTOBER 13, 1995	
~~STATE PROJ. NO.~~ S.A.P. 55-598-41	SHEET NO. 26 OF 51 SHEETS

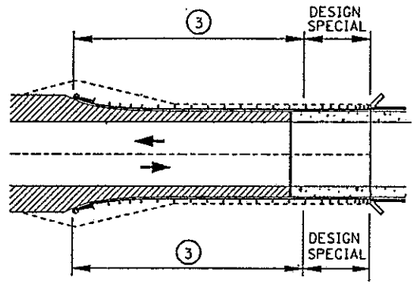
SERVER CA64S1:/USR/STANDARDS FILE NAME S6011095.SPN



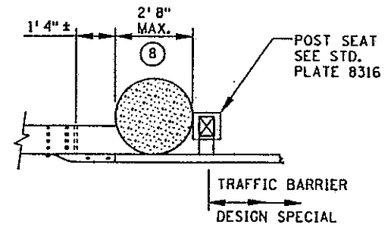
TWO - WAY BRIDGE
WITH FULL SHOULDERS



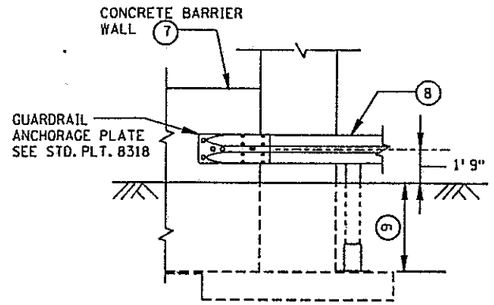
ONE - WAY BRIDGE
WITH FULL RIGHT SHOULDER



TWO - WAY BRIDGE
WITHOUT FULL SHOULDERS

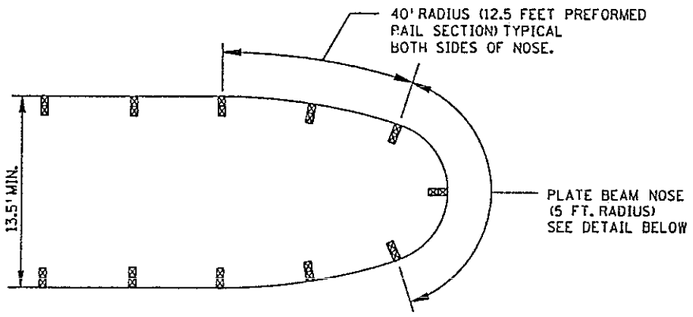


PLAN VIEW

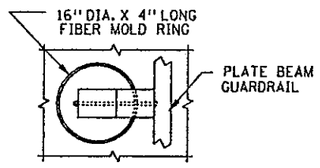


ELEVATION

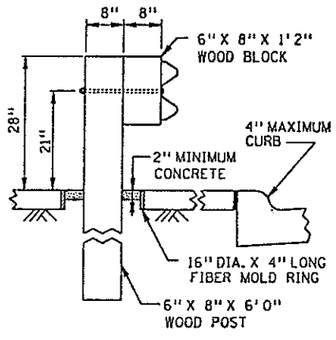
GUARDRAIL POST TO CONCRETE
BARRIER WALL CONNECTION (6)



OPTIONAL GUARDRAIL INSTALLATION (1)



PLAN VIEW



ELEVATION

TYPICAL SECTION AT POST
SET IN CONCRETE

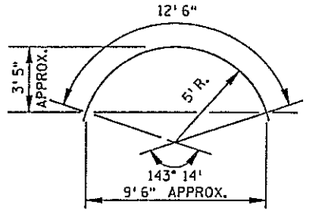


PLATE BEAM NOSE (5)
(5 FOOT RADIUS)

NOTES:

ALL GUARDRAIL POSTS SHALL BE 6' 3" CTR. TO CTR., EXCEPT WHERE NOTED.

WHEN THE APPROACHING PLATE BEAM FLARE CAN BE BURIED IN THE BACKSLOPE ELIMINATE THE END TREATMENT AND ADD REQUIRED RAIL LENGTH TO REACH BACKSLOPE.

THE LATEST APPROVED VERSION OF STANDARD PLATES SHOWN OR AS INDICATED IN THE PLANS SHALL APPLY.

(1) OPTIONAL GUARDRAIL AS DETERMINED BY THE DESIGNER AND SPECIFIED ON SHEET NO. ____ OF ____.

(2) 5 FOOT RADIUS NOSE SECTION (12.5' PREFORMED CURVED RAIL SECTION, SEE DETAIL).

(3) FOR THE REQUIRED L LENGTH SEE ROAD DESIGN MANUAL 10-7.03 FOR DESIGN PARAMETERS. SEE STANDARD PLATE 8329 FOR END TREATMENT SHOWN.

(4) THE MEDIAN DITCH SHALL BE FILLED TO PROVIDE AN ELEVATION OF GUARDRAIL APPROXIMATELY (WITHIN 6" ±) THE SAME AS IF INSTALLED ON THE SHOULDER. EXTEND FILL TO GUARDRAIL NOSE AND TAPER TO MEDIAN DITCH ON 10:1 SLOPE.

(5) STANDARD PLATE BEAM GUARDRAIL SECTION HAVING STANDARD PUNCHING AT BOTH ENDS WITH INTERMEDIATE 3/4" X 2-1/2" SLOT. SEE STANDARD PLATE 8307.

(6) NOTE (7), AND ALTERNATE GUARDRAIL AS DETERMINED BY THE DESIGNER AND SPECIFIED ON SHEET NO. ____.

(7) CONCRETE BARRIER WALL BETWEEN BRIDGE PIER COLUMNS . SEE SHEET NO. ____ FOR WALL DETAILS.

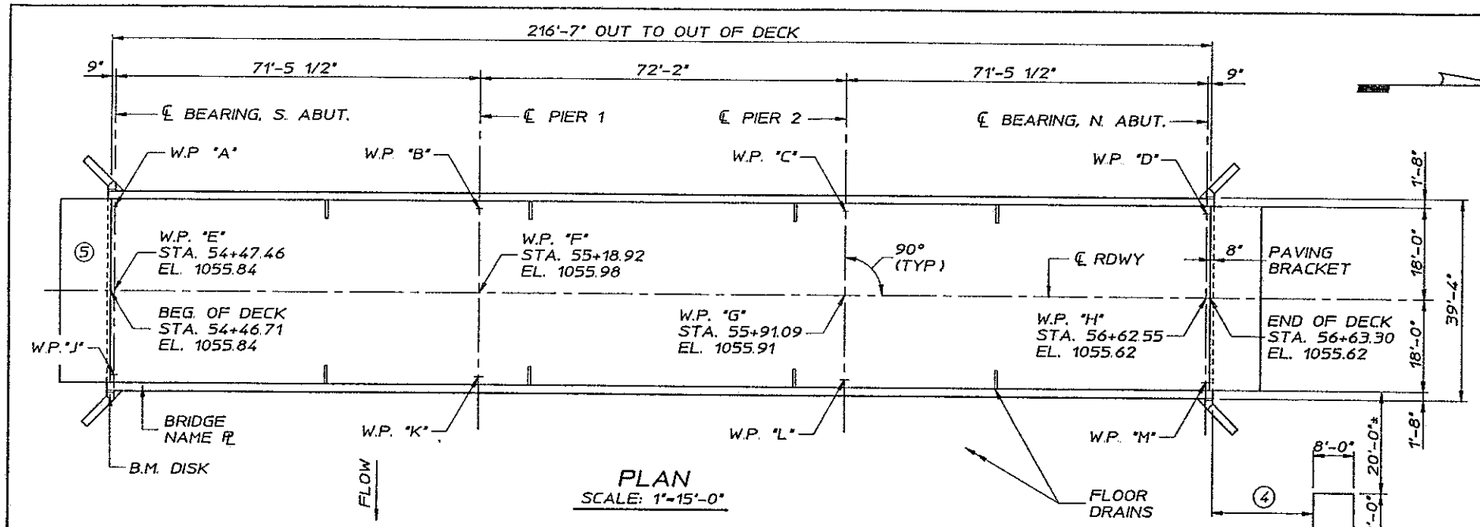
(8) FOR COLUMN DIAMETERS LARGER THAN 2' 8", FIELD PUNCH THE GUARDRAIL FOR THE FIRST POST AS SHOWN.

(9) IF EMBEDMENT IS GREATER THAN 3' 0" OR IF EMBEDMENT IS 2' 6" TO 3' 0" AND ADJACENT POSTS ARE EMBEDDED 3' 0" OR MORE, POST SEAT IS NOT REQUIRED.

STANDARD SHEET NO.	TITLE:
5-297.601 (2 OF 2)	GUARDRAIL INSTALLATIONS AT MEDIANS AND END TREATMENTS
STANDARD APPROVED: OCTOBER 13, 1995	

~~STATE PROJ. NO.~~ S.A.P. 55-598-41 SHEET NO. 27 OF 51 SHEETS

SERVER CA64S1:/USR/STANDARDS FILE NAME S6012J95.SPN

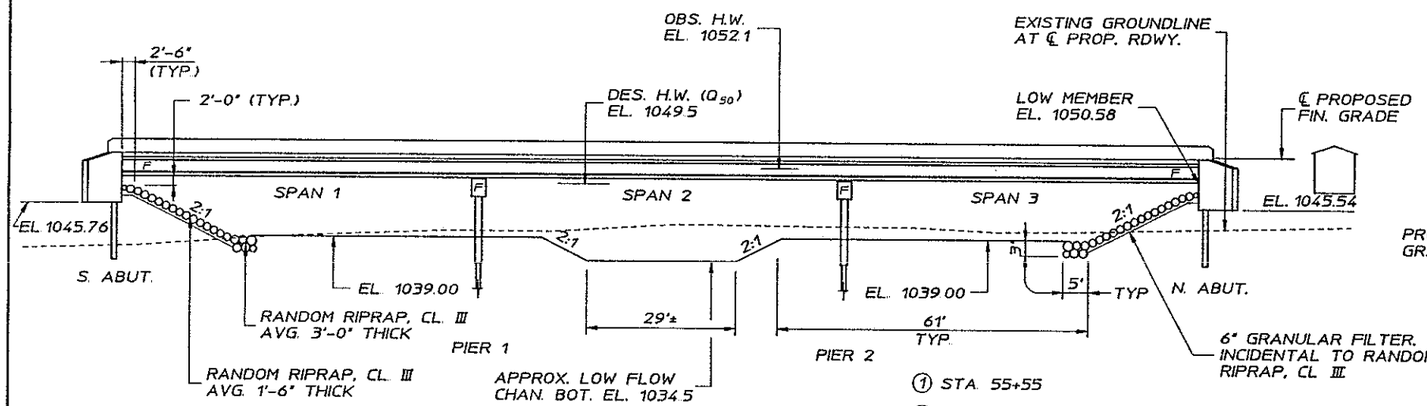


PLAN
SCALE: 1"=15'-0"

⑤ 10'-0" APPROACH PANEL ~ TYP. AT EACH END OF DECK.

VERTICAL CURVE DATA:
P.V.I. STA. 55+00
EL. 1056.44
L =300'
G_1=0.76%
G_2=-0.5%
M =-0.47'

④ SEE DETAIL, SHEET 44. EXACT LOCATION TO BE DETERMINED IN THE FIELD, SEE SPECIAL PROVISIONS.



ELEVATION
SCALE: 1"=15'-0"

NOTE:
ABUT. PILES ARE TO BE HP12X53 STEEL H-PILES.
PIER PILES ARE TO BE HP10X57 STEEL H-PILES ENCASED IN 16" STEEL SHELLS.

① STA. 55+55

② SEE SHEET 31 FOR WORK AND QUANTITIES INCLUDED.

③ BID ITEM NO. 0914.602, INSTRUMENTATION PER LUMP SUM SHALL INCLUDE ALL COSTS INCURRED RESULTING FROM THE INSTALLATION OF THE INSTRUMENTATION (GAGES, SENSORS, WIRES, ETC.), INCLUDING THE SHED, AS SHOWN ON THESE PLANS AND DESCRIBED IN THE SPECIAL PROVISIONS. COST WILL INCLUDE TIME (DELAYS), LABOR, AND MATERIALS. FOR EXACT REQUIREMENTS AND RESPONSIBILITIES OF THE CONTRACTOR, SEE SPECIAL PROVISIONS.

B.M. ELEV. 1041.16 (M.S.L. 1929 ADJ.)

LOCATION:
'X' ON SOUTHWEST WALL OF INPLACE BRIDGE L-6158.

CONSTRUCTION NOTES

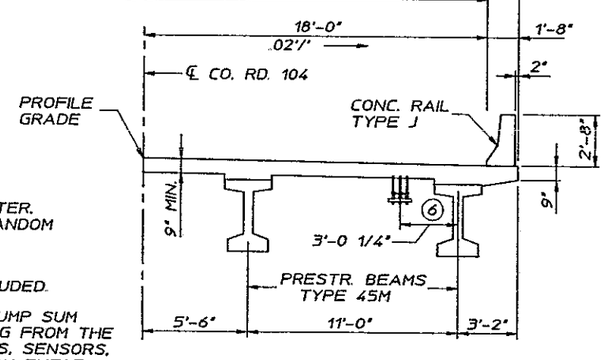
THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AS AMMENDED BY THE MAY 2, 1994 SUPPLEMENTAL SPECIFICATIONS SHALL GOVERN.

THE FIRST DIGIT OR THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR SIZE. BARS MARKED WITH THE SUFFIX 'E' SHALL BE EPOXY COATED.

BRIDGE SEAT REINFORCEMENT SHALL BE CAREFULLY PLACED TO AVOID INTERFERENCE WITH DRILLING HOLES FOR ANCHOR RODS. THE SUPERSTRUCTURE BEAMS SHALL BE PLACED IN THEIR FINAL POSITION PRIOR TO DRILLING HOLES FOR ANCHOR RODS.

CONSTRUCTION AT EACH ABUTMENT SHALL NOT BE STARTED UNTIL THE APPROACH FILL AT THAT ABUTMENT HAS BEEN CONSTRUCTED TO FULL HEIGHT AND CROSS-SECTION.

⑥ 3"ø TELEPHONE AND GAGE WIRE CONDUIT ON EAST SIDE ONLY SEE SHEET 35.



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

DESIGN DATA

1992 & INTERIM A.A.S.H.T.O. DESIGN SPECS.
LOAD FACTOR DESIGN METHOD ~ HS25 LOADING
INCLUDES 17 PSF DEAD LOAD ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS.

MAXIMUM ALLOWABLE DESIGN STRESSES:
REINFORCED CONCRETE:
f'c = 4000 PSI n = 8
fy = 60000 PSI REINFORCEMENT
PRESTRESSED CONCRETE:
f'c = 7000 PSI n = 6
f's = 270000 PSI STRANDS (LOW RELAX)

DECK AREA = 8519 SQ. FT. A.D.T = 292 (1996)
OPERATING RATING = H.S. 45.

LIST OF SHEETS

NO.	TITLE
28	GENERAL PLAN & ELEVATION
29	BRIDGE LAYOUT
30-31	ABUTMENT DETAILS
32-33	PIER DETAILS
34-35	SUPERSTRUCTURE DETAILS
36	FRAMING PLAN
37	PRESTRESSED BEAM DETAILS
38	CONCRETE RAIL DETAILS
39	BRIDGE APPROACH PANEL
40-45	BRIDGE DETAILS
46	BRIDGE SURVEY
47	BRIDGE SURVEY ~ PLAN & PROFILE

APPROVED:
Michael Gladbach
COUNTY ENGINEER
OLMSTED COUNTY

DATE: 5-24-96

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.

Dale Drawe
REG. NO. 20666

DATE: 5-23-96

PLANS PREPARED BY:
ERICKSON ENGINEERING
3340 REPUBLIC AVENUE
ST.LOUIS PARK, MN 55426

C.R. 104 OLMSTED COUNTY
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55555

LOCATED 0.5 MILES SOUTH OF CSAH 25 ON C.R. 104 OVER THE SOUTH FORK OF THE ZUMBRO RIVER.

3-72 FT. PRESTR. CONCRETE BEAM SPANS ~ 36 FT. RDWY.
SPAN IDENTIFICATION NO. 501

GENERAL PLAN & ELEVATION

SEC. 18 TWP. 106N R 14W

TOWNSHIP: ROCHESTER
COUNTY: OLMSTED

APPROVED: Donald J. Flemming
STATE BRIDGE ENGINEER

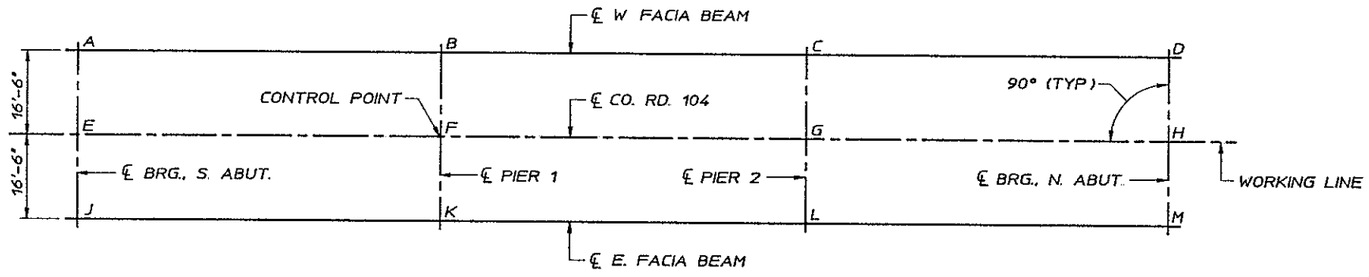
S.A.P. 55-598-41
SHEET 28 OF 51 SHEETS

DES:	RAB	DRW:	WNJ	55555
CHK:	DAD	CHK:	RAB	

SCHEDULE OF QUANTITIES FOR THE ENTIRE BRIDGE

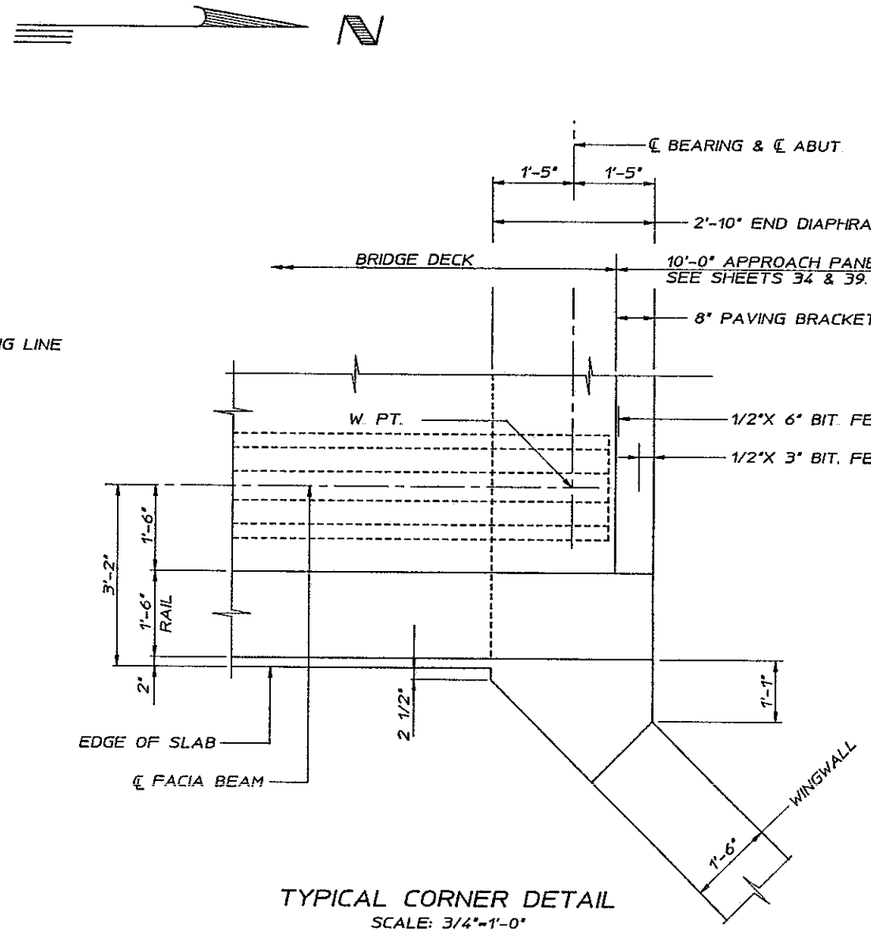
ITEM NO.	2021.501	2401.501	2401.512	2401.513	2401.541	2402.546	2402.595	2405.502	2405.511	2442.501	2452.510	2452.510	2452.511	2452.511	2452.520
ITEM	MOBILIZATION	STRUCTURAL CONCRETE (3Y43)	BRIDGE SLAB CONCRETE (3Y33A)	TYPE J RAILING CONCRETE (3Y46A)	REIN-FORCEMENT BARS (EPOXY COATED)	FLOOR DRAINS, TYPE B702 (MOD.)	BEARING ASSEMBLY	PRESTR. CONCRETE BEAMS 45M	DIAPH. FOR TYPE 45M PRESTR. BEAMS	REMOVE OLD BRIDGE ①	STEEL H-PILING DRIVEN 12X53	STEEL H-PILING DRIVEN 10X57	STEEL H-PILING DELIVERED 12X53	STEEL H-PILING DELIVERED 10X57	STEEL H-TEST PILES, 80 FT. LONG 12X53
QUANTITY	1	85 (P)	8519 (P)	436 (P)	87830 (P)	8	24	864 (P)	231 (P)	1	700	700	700	700	2
UNIT	LUMP SUM	CU.YD.	SQ. FT.	LIN. FT.	POUND	EACH	EACH	LIN. FT.	LIN. FT.	LUMP SUM	LIN. FT.	LIN. FT.	LIN. FT.	LIN. FT.	EACH

ITEM NO.	2452.520	2511.501	2545.509	0401.601	0401.601	0452.602	0452.602	0452.604	0914.602
ITEM	STEEL H-TEST PILES, 80 FT. LONG 10X57	RANDOM RIPRAP, CLASS III	CONDUIT SYSTEM (TELEPHONE)	STRUCTURE EXCAVATION ②	SLOPE PREP-ARATION	PILE TIP PROTECTION 10"	PILE TIP PROTECTION 12"	16" STEEL PILE SHELLS	INSTRUMEN-TATION ③
QUANTITY	2	230 (P)	1	1	1	12	12	160	1
UNIT	EACH	CU. YD.	LUMP SUM	LUMP SUM	LUMP SUM	EACH	EACH	LIN. FT.	LUMP SUM



LAYOUT SHOWING WORKING POINTS

SCALE: 1"=15'-0"



TYPICAL CORNER DETAIL

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

TOP OF SLAB TO BRIDGE SEAT

	S. ABUT.	PIER 1	PIER 2	N. ABUT.
SLAB THICKNESS	9"	9"	9"	9"
STOOL HEIGHT	2 1/2"	2 1/2"	2 1/2"	2 1/2"
BEAM	3'-9"	3'-9"	3'-9"	3'-9"
BEARING HEIGHT	0 1/2"	2 1/2"	2 1/2"	0 1/2"
TOTAL	4'-9"	4'-11"	4'-11"	4'-9"

DIMENSIONS BETWEEN WORKING POINTS

POINT	STATION	A	B	C	D	E	F	G	H	J	K	L	M
A	54+47.46		71.46			16.50	73.34	144.57			78.71		
B	55+18.92			72.16		73.34	16.50	74.02	144.57	78.71		79.35	
C	55+91.09				71.46	144.57	74.02	16.50	73.34		79.35		78.71
D	56+62.55						144.57	73.34	16.50			78.71	
E	54+47.46						71.46			16.50	73.34	144.57	
F	55+18.92							72.16		73.34	16.50	74.02	144.57
G	55+91.09								71.46	144.57	74.02	16.50	73.34
H	56+62.55										144.57	73.34	16.50
J	54+47.46										71.46		
K	55+18.92											72.16	
L	55+91.09												71.46
M	56+62.55												

ELEVATIONS

TOP OF SLAB	SLAB TO BRIDGE SEAT	BRIDGE SEAT	POINT
1055.51	4.75	1050.76	A
1055.65	4.92	1050.73	B
1055.58	4.92	1050.66	C
1055.29	4.75	1050.54	D
1055.84			E
1055.98			F
1055.91			G
1055.62			H
1055.51	4.75	1050.76	J
1055.65	4.92	1050.73	K
1055.58	4.92	1050.66	L
1055.29	4.75	1050.54	M

CERTIFIED BY Dale Draws
PROFESSIONAL ENGINEER
REG. NO. 20666 1996

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55555

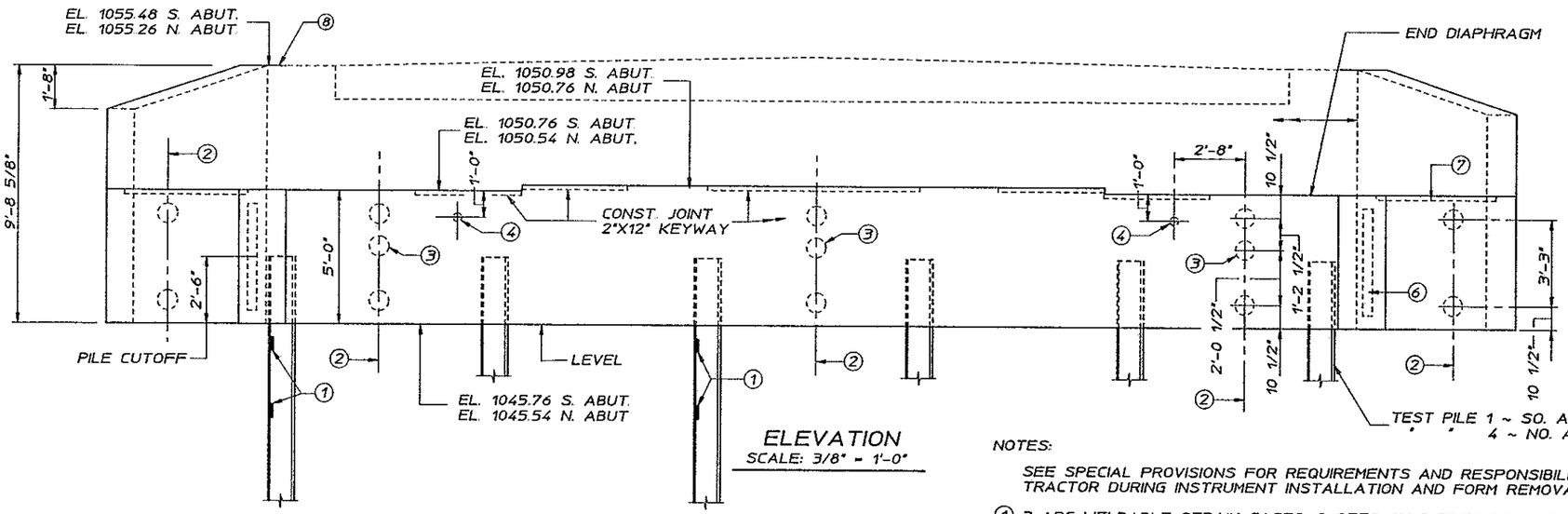
BRIDGE LAYOUT

APPROVED:

S.A.P. 55-598-41

SHEET 29 OF 51 SHEETS

DES: RAB	DRWN: WNJ	55555
CHK: DAD	CHK: RAB	



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

NOTES:

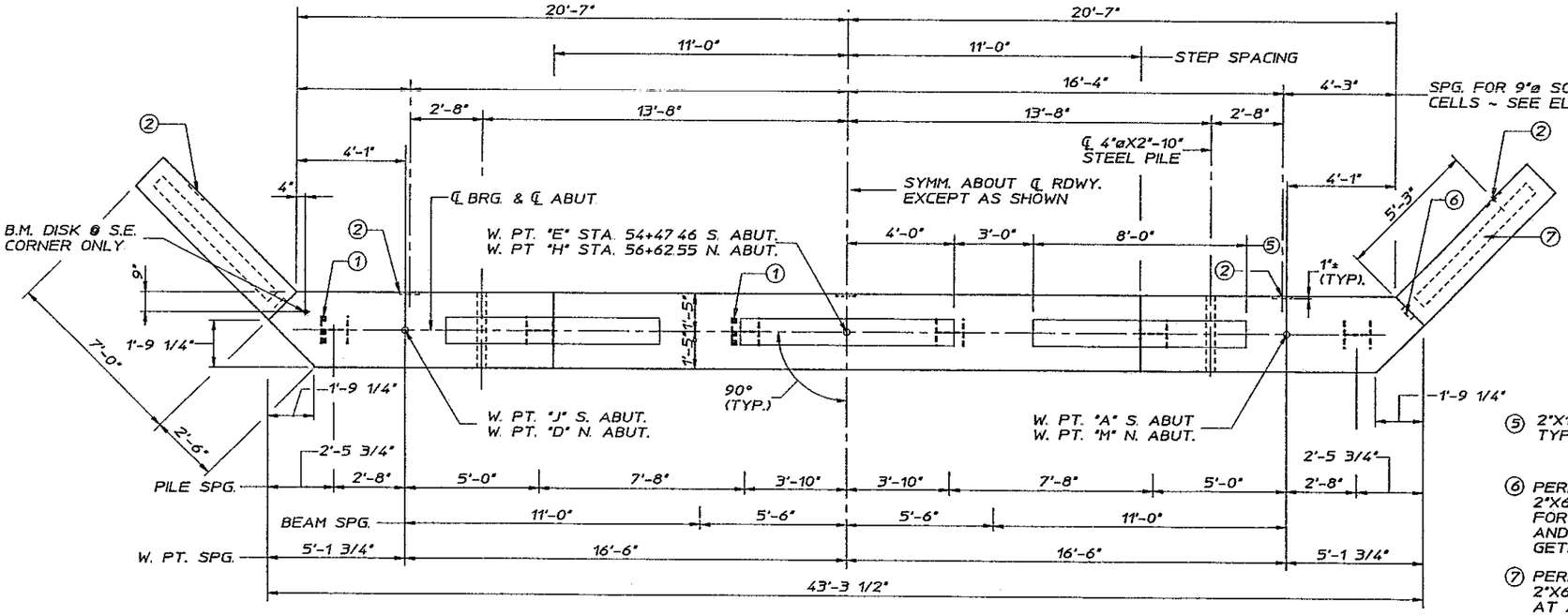
SEE SPECIAL PROVISIONS FOR REQUIREMENTS AND RESPONSIBILITIES OF CONTRACTOR DURING INSTRUMENT INSTALLATION AND FORM REMOVAL.

(1) 3-ARC WELDABLE STRAIN GAGES, 2 SETS ON 2 PILES PER ABUTMENT, SUPPLIED BY OTHERS AND INSTALLED BY CONTRACTOR. INSTALLATION TO BE DONE AFTER PILES ARE DRIVEN AND BEFORE ABUTMENT CONSTRUCTION IS COMMENCED.

(2) 9" DIAMETER SOIL PRESSURE CELLS, SUPPLIED AND INSTALLED BY OTHERS ON FORM WORK. BOTH ABUTMENTS EXCEPT AS NOTED.

(3) NORTH ABUTMENT ONLY.

(4) 4" DIAMETER X 2'-10" STEEL PIPE CONFORMING TO MnDOT. SPEC. 3306 AND GALVANIZED PER SPEC. 3394. FURNISHED & INSTALLED BY CONTRACTOR.



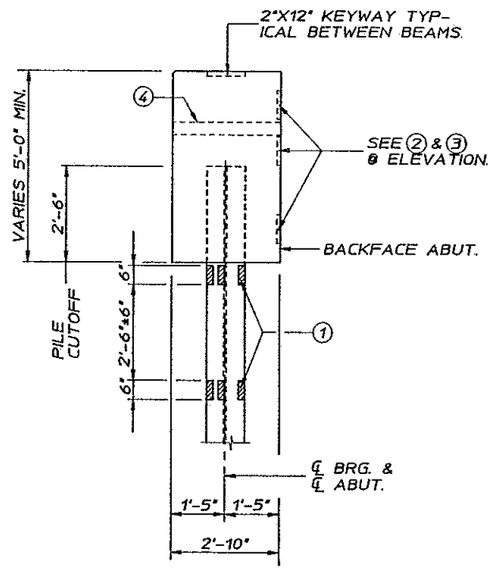
PLAN
SCALE: 3/8" = 1'-0"

(5) 2"X12" KEYWAY SPACING ~ TYPICAL BETWEEN BEAMS.

(6) PERMISSIBLE CONST. JOINT 2"X6" KEYWAY. ALLOWS CONC. FOR ALL OF WING, DIAPHRAGM AND SLAB TO BE POURED TOGETHER.

(7) PERMISSIBLE CONST. JOINT 2"X6" KEYWAY. ALLOWS CONC. AT ABUTMENT AND LOWER PART OF WINGWALL TO BE POURED TOGETHER. THEREAFTER END DIAPHRAGM, SLAB, & TOP OF WING TO BE POURED.

(8) B.M. DISK ø S.E. ø CORNER ONLY



SECT. THRU ABUT.
SCALE: 1/2" = 1'-0"

COMPUTED PILE LOADS TONS/PILE ø ABUTS.	
DEAD LOAD	49.8
LIVE LOAD	17.6
TOTAL	67.4

* INCLUDES 5 TON NEGATIVE SOIL LOAD.

PILE NOTES:

2 STEEL H-TEST PILES, 80' LG.

10 STEEL H-PILES, EST. LGTH. 70'

12 STEEL H-PILES REQ'D FOR 2 ABUTS.

ALL PILES TO BE HP12X53 STEEL H-PILES.

SEE DETAIL B202 FOR SPLICES.

SEE SURVEY SHEET FOR TEST PILE LOCATIONS.

ALL PILES TO HAVE PILE TIP PROTECTION.

CERTIFIED BY Dale Drawz
PROFESSIONAL ENGINEER
REG. NO. 20666 1996

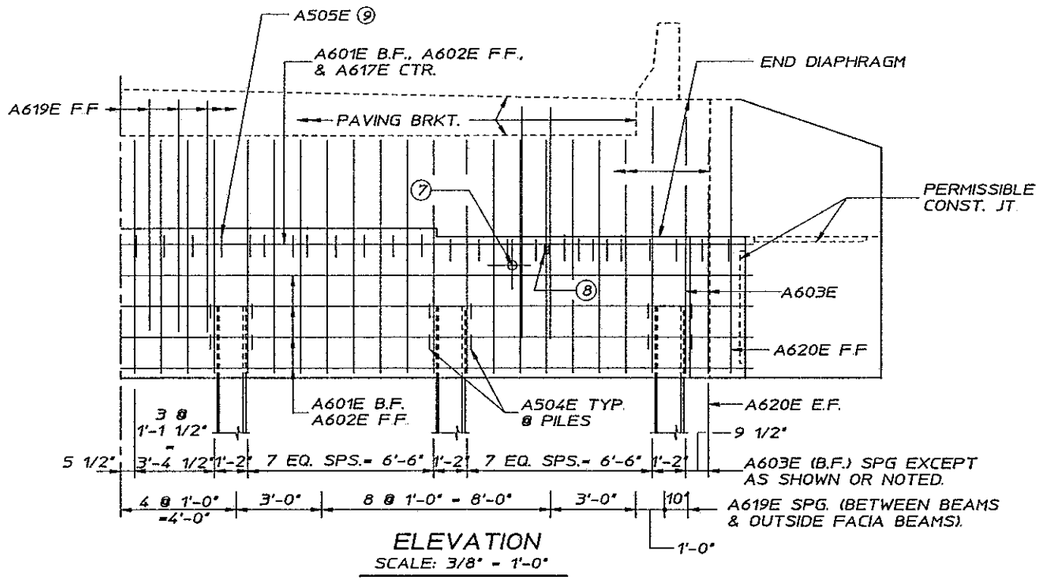
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55555

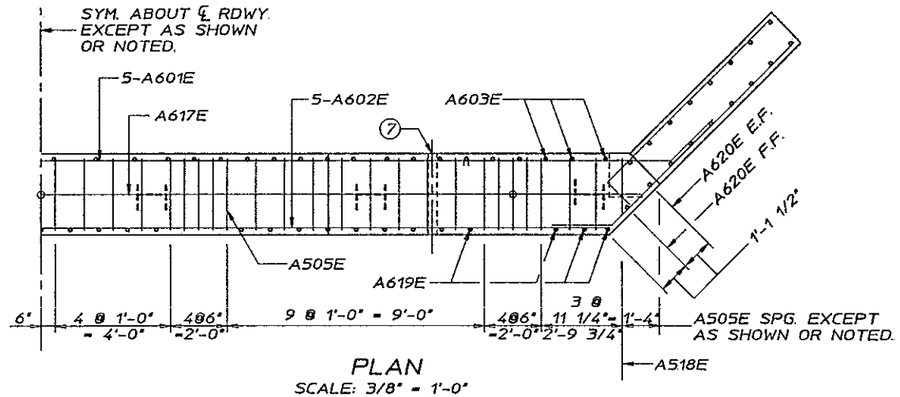
ABUTMENT DETAILS

APPROVED:

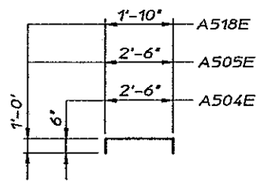
S.A.P. 55-598-41			
SHEET 30 OF 51 SHEETS			
DES: RAB	DRWN: WNJ		55555
CHK: DAD	CHK: RAB		



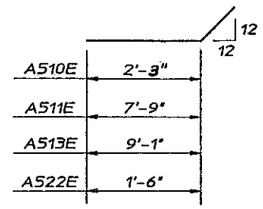
ELEVATION
SCALE: 3/8" = 1'-0"



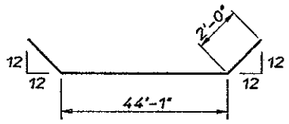
PLAN
SCALE: 3/8" = 1'-0"



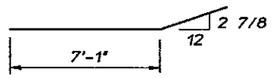
A504E, A505E, & A518E



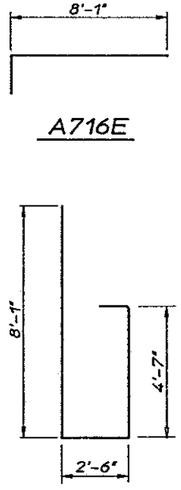
A510E, A511E A513E. & A522E



A601E



A509E & A521E

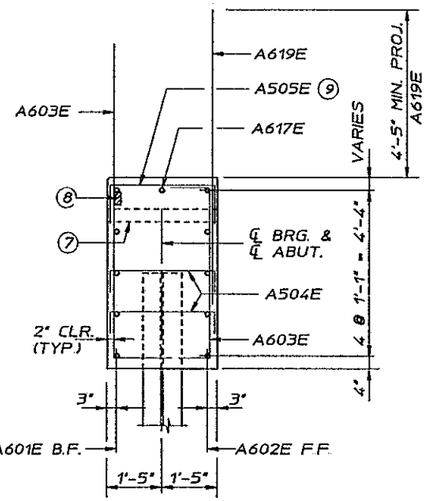


A603E

BILL OF REINFORCEMENT ~ 2 ABUTMENTS

	BAR	NO.	LGTH.	SHAPE	LOCATION
	A601E	10	48'-1"	BENT	CAP ~ HORIZONTAL
	A602E	10	39'-9"	STRT	" "
	A603E	84	16'-2"	BENT	" ~ STIRRUP
	A504E	48	3'-6"	BENT	" ~ PILE TIE
	A505E	96	4'-6"	BENT	" ~ BR. SEAT TIE
(1)	A506E	14	16'-10"	STRT.	WINGWALL ~ VERTICAL
(1)	A607E	14	16'-10"	STRT	" "
	A509E	4	10'-3"	BENT	" ~ HORIZ.
	A510E	4	4'-6"	BENT.	" "
	A511E	4	9'-9"	BENT	" "
	A612E	4	7'-7"	STRT.	" "
	A513E	32	11'-1"	BENT	" "
	A614E	12	8'-7"	STRT	" "
	A715E	8	9'-1"	STRT	" "
	A716E	12	9'-3"	BENT	" "
	A617E	2	42'-1"	STRT	" "
	A518E	4	3'-10"	BENT	CAP ~ BR. SEAT TIE
	A619E	66	8'-1"	STRT.	" ~ VERTICAL
	A620E	12	9'-4"	STRT.	" "
	A521E	4	9'-3"	BENT	WINGWALL ~ HORIZ.
	A522E	8	3'-0"	BENT	" "
	A523E	4	4'-9"	STRT.	" "

(1) CUT 2 FROM 1. ~ PLACE CUT END DOWN.



SECT. THRU ABUT.
SCALE: 1/2" = 1'-0"

NOTE:
BACKFILL BEHIND ABUTMENTS SHALL BE SELECT GRANULAR BORROW TO CONFORM TO MnDOT SPEC 3149.2B FOR SELECT GRANULAR BORROW, MODIFIED TO HAVE LESS THAN 7% PASSING THE 200 SIEVE.
INCLUDE IN PRICE BID FOR STRUCTURE EXCAVATION (SEE SHEET 47 FOR PLACEMENT LIMITS), APPROX. QUANTITY 650 CU. YDS.
BACKFILLING SHALL BE COORDINATED WITH INSTALLATION OF BOREHOLE EXTENSOMETERS AND FROST PROBES. SEE SHEET 47 AND SPECIAL PROVISIONS.

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

SUMMARY OF QUANTITIES ~ 2 ABUTMENTS

(5)	STRUCTURAL CONCRETE (3Y43)	54 CU. YD.
	REINF. BARS (EPOXY COATED)	6830 POUND
(4)	STRUCTURE EXCAVATION	1 L. SUM
(2)	B.M. DISK (STD. ℙ NO. 9300)	1
(3)	STEEL H-PILING DELIVERED, 12X53	700 LIN. FT.
(3)	STEEL H-PILING DRIVEN, 12X53	700 LIN. FT.
	STEEL H-TEST PILE, 80' LG., 12X53	2 EACH
	PILE TIP PROTECTION, 12"	12 EACH
(6)	STEEL PIPE (3306) 4ø X 2'-10"	4 EACH

(2) COUNTY WILL FURNISH DISK. PAYMENT FOR PLACING IS TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

(3) DOES NOT INCLUDE TEST PILES.

(4) SEE SPECIAL PROVISIONS AND NOTE AT LEFT

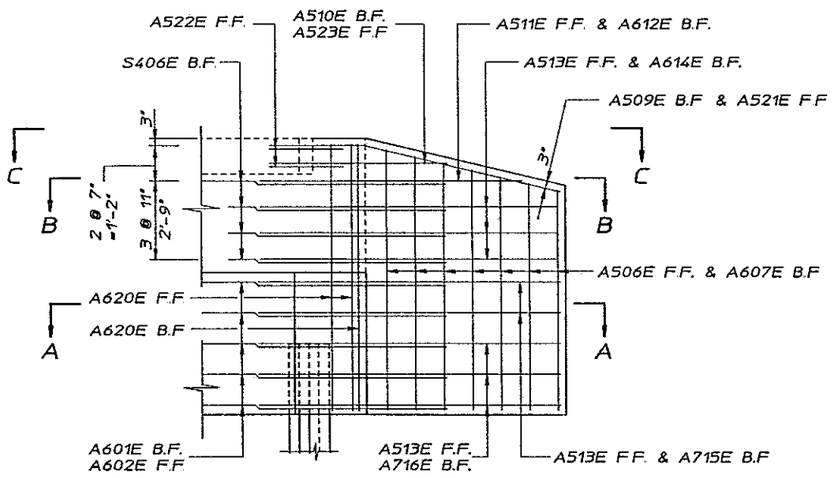
(5) INCLUDES MAIN BODY OF ABUTMENT AND PORTION OF WINGWALL BELOW HORIZONTAL PERMISSIBLE CONSTRUCTION JOINT AT SAME ELEVATION AS BRIDGE SEAT.

(6) INCLUDED IN PRICE BID FOR INSTRUMENTATION

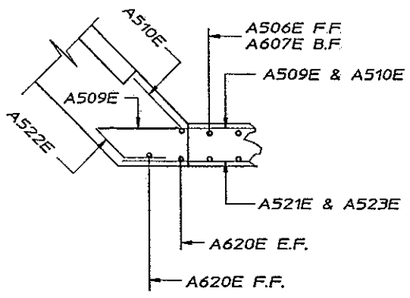
(7) 4"ø STEEL PIPE, SEE SHEET 30.

(8) SPOT WELDABLE STRAIN GAGE, NORTH ABUTMENT ONLY, (2-TOTAL). SUPPLIED AND INSTALLED BY OTHERS. INSTALLED AFTER REINFORCING IS FULLY INSTALLED. SEE SPECIAL PROVISIONS FOR REQUIREMENTS AND RESONSIBILITIES OF CONTRACTOR.

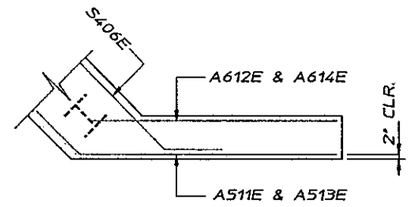
(9) PULL UP TO 2" CLEAR (TYP).



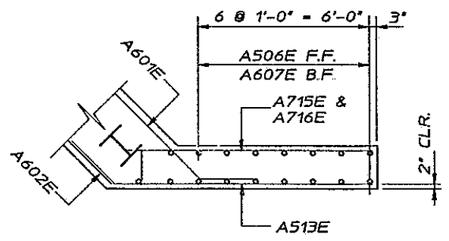
WINGWALL ELEVATION
SCALE: 3/8" = 1'-0"



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



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



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

CERTIFIED BY Dale A. Drown PROFESSIONAL ENGINEER
REG. NO. 20666 · 1996

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55555

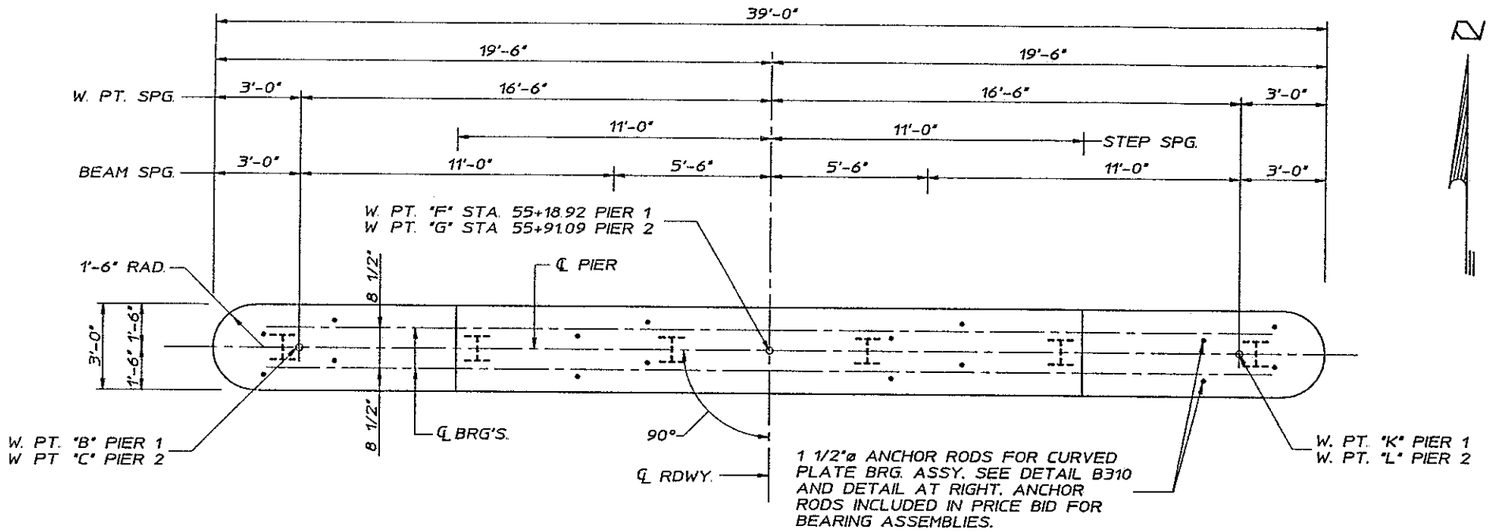
ABUTMENT DETAILS

APPROVED:

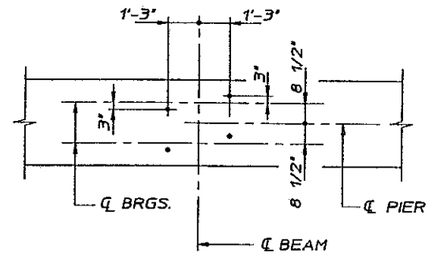
S.A.P. 55-598-41

SHEET 31 OF 51 SHEETS

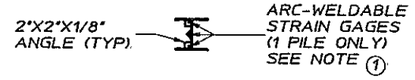
DES: RAB	DRWN: WNJ		55555
CHK: DAD	CHK: RAB		



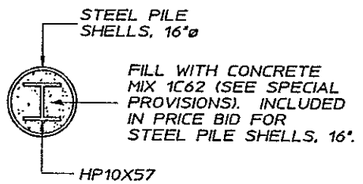
PLAN
SCALE: 3/8" = 1'-0"



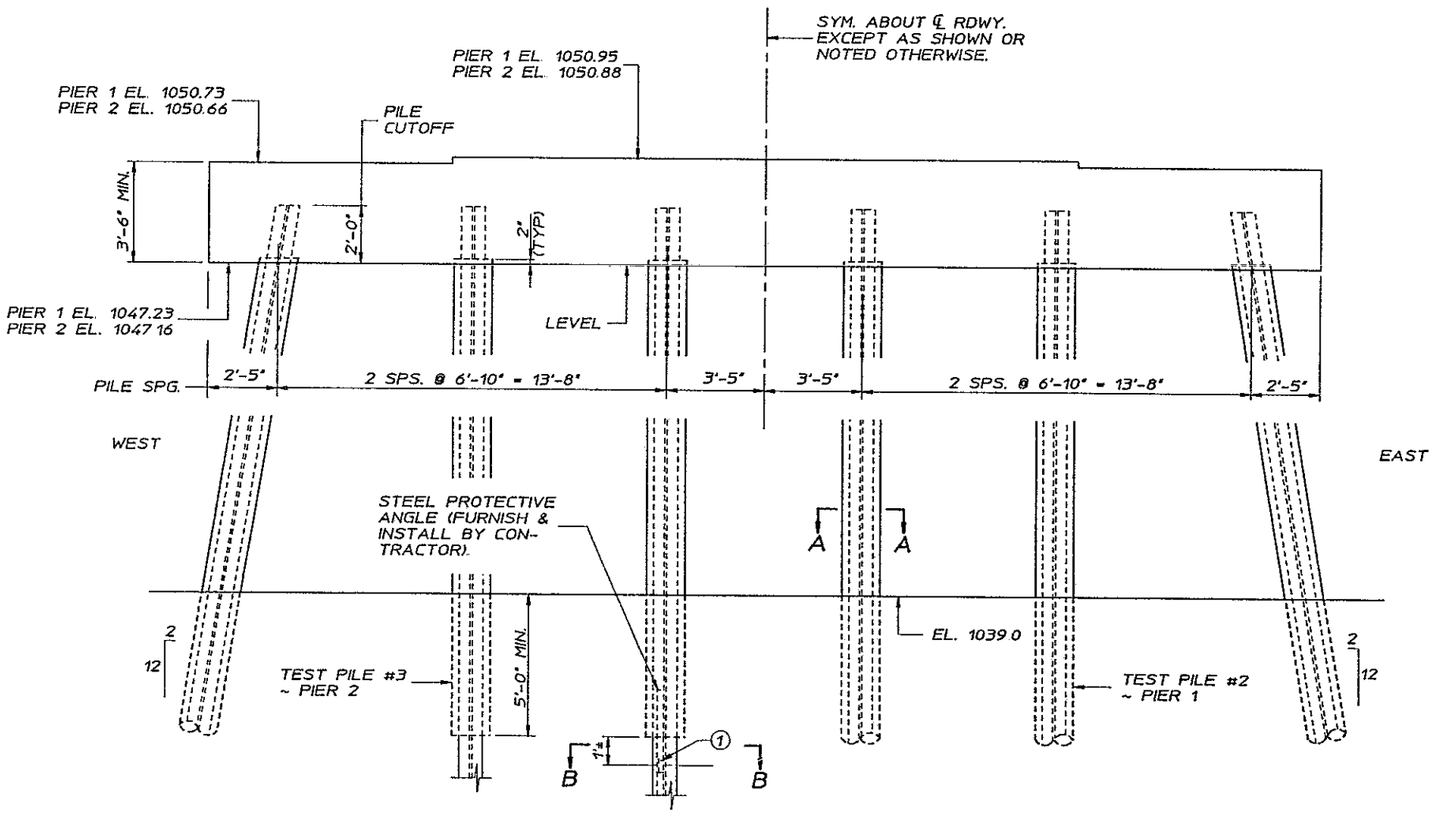
ANCHOR ROD LAYOUT
SCALE: 3/8"=1'-0"



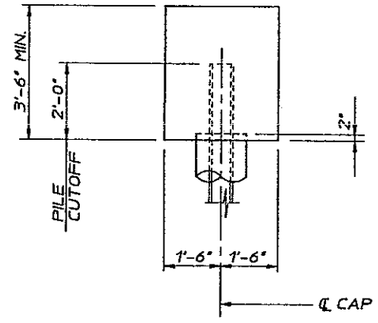
SECTION B-B
SCALE: 1/2"=1'-0"



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



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



SECTION THRU CAP
SCALE: 1/2" = 1'-0"

COMPUTED PILE LOADS TONS PER PILE ~ PIERS	
DEAD LOAD	60.1
LIVE LOAD	17.6
TOTAL	77.7

PILE NOTES

10 - STEEL H-PILES, 70' EST. LGTH.
2 - STEEL H-TEST PILES, 80' LONG
12 - STEEL H-PILES REQ'D FOR 2 PIERS

12 - STEEL H-PILE SHELLS (16ø)

ALL PILES ARE TO BE HP10X57 STEEL H-PILES ENCASED IN 16ø STEEL PILE SHELLS AS SHOWN.
PILE SPACING SHOWN IS AT BOTTOM OF CAP.
END PILES ARE TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.
SEE DETAIL B202 FOR SPLICES.
STEEL PILE SHELLS ARE TO BE PAINTED PER SPEC. 2452.3.
ALL PILES TO HAVE PILE TIP PROTECTION. SEE SPECIAL PROVISIONS.
SEE SURVEY SHEET FOR TEST PILE LOCATIONS.
ALL PIER PILES SHALL BE DRIVEN TO EL. 1004.8 OR BELOW.

① 3-ARC-WELDABLE STRAIN GAGES ON 1 PILE PER PIER, SUPPLIED BY OTHERS AND INSTALLED BY CONTRACTOR. SEE SPECIAL PROVISIONS FOR REQUIREMENTS AND OTHER DETAILS PERTAINING TO GAGE AND STEEL ANGLE INSTALLATION.

CERTIFIED BY Dale Drawz
PROFESSIONAL ENGINEER
REG. NO. 20666 1996

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55555

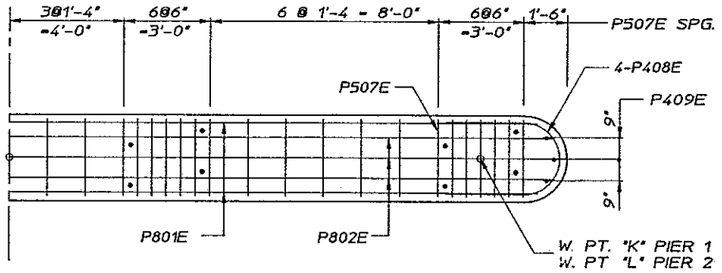
PIER DETAILS

APPROVED:

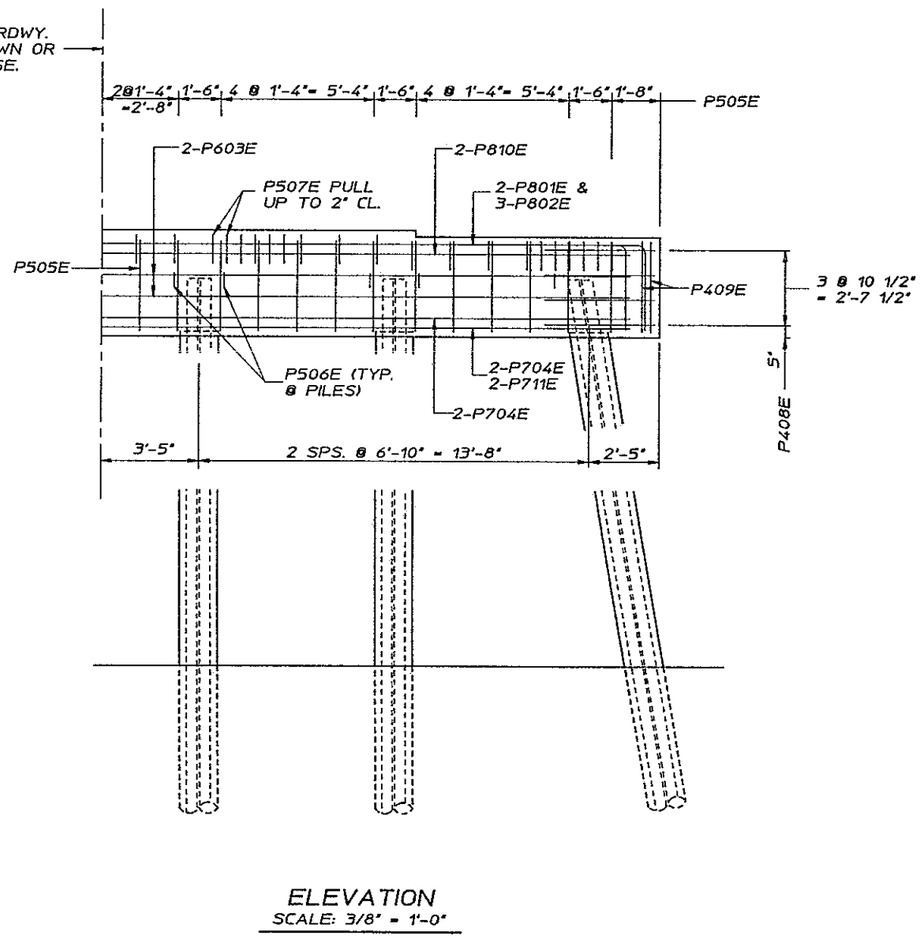
S.A.P. 55-598-41

SHEET 32 OF 51 SHEETS

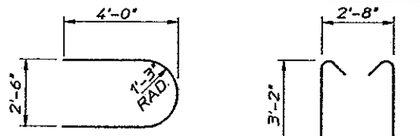
DES: RAB	DRWN: WNJ	55555
CHK: DAD	CHK: RAB	

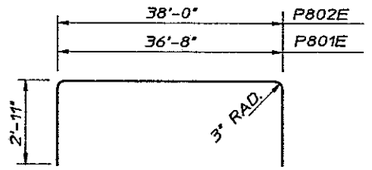


PLAN
SCALE: 3/8" = 1'-0"

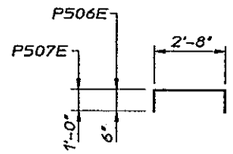


ELEVATION
SCALE: 3/8" = 1'-0"

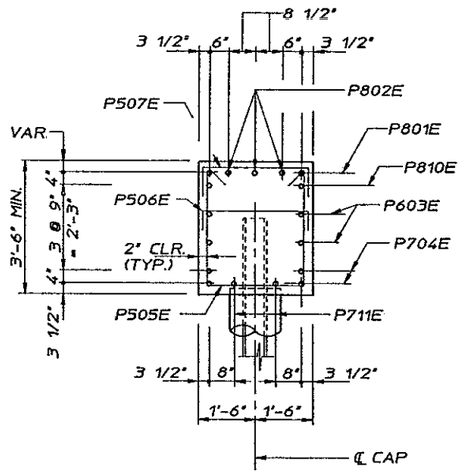




P801E & P802E



P506E & P507E



SECTION THRU CAP
SCALE: 1/2" = 1'-0"

BILL OF REINFORCEMENT ~ 2 PIERS

BAR	NO.	LENGTH	SHAPE	LOCATION
P801E	4	42'-3"	BENT.	CAP ~ LONGITUDINAL
P802E	6	43'-7"	BENT.	CAP ~ LONGITUDINAL
P603E	8	36'-8"	STRT.	CAP ~ LONGITUDINAL
P704E	8	36'-8"	STRT.	CAP ~ LONGITUDINAL
P505E	54	9'-11"	BENT	CAP ~ STIRRUP
P506E	24	3'-8"	BENT	CAP ~ TIE @ PILES
P507E	86	4'-8"	BENT	CAP ~ TIE @ BR. SEAT
P408E	16	9'-6"	BENT	CAP ~ TIE AT ENDS
P409E	12	3'-2"	STRT.	CAP ~ VERT. AT ENDS
P810E	4	36'-8"	STRT.	CAP ~ LONGITUDINAL
P711E	4	38'-0"	STRT.	CAP ~ LONGITUDINAL

SUMMARY OF QUANTITIES ~ 2 PIERS

	STRUCTURAL CONCRETE (3Y43)	31	CU. YD.
	REINFORCEMENT BARS, EPOXY COATED	4090	POUND
①	STEEL H-PILING DELIVERED, 10X57	700	LIN. FT.
①	STEEL H-PILING DRIVEN, 10X57	700	LIN. FT.
	STEEL H-TEST PILES 80' LONG, 10X57	2	EACH
	STEEL PILE SHELLS, 16"@	160	LIN. FT.
	PILE TIP PROTECTION, 10"	12	EACH
②	STEEL ANGLE (3306) 2"X2"X1/8"X12'-0"	6	EACH

① DOES NOT INCLUDE TEST PILES.

② INCLUDED IN PRICE BID INSTRUMENTATION

CERTIFIED BY Dale Drawe
PROFESSIONAL ENGINEER
REG. NO. 20666 1996

MINNESOTA DEPARTMENT OF TRANSPORTATION

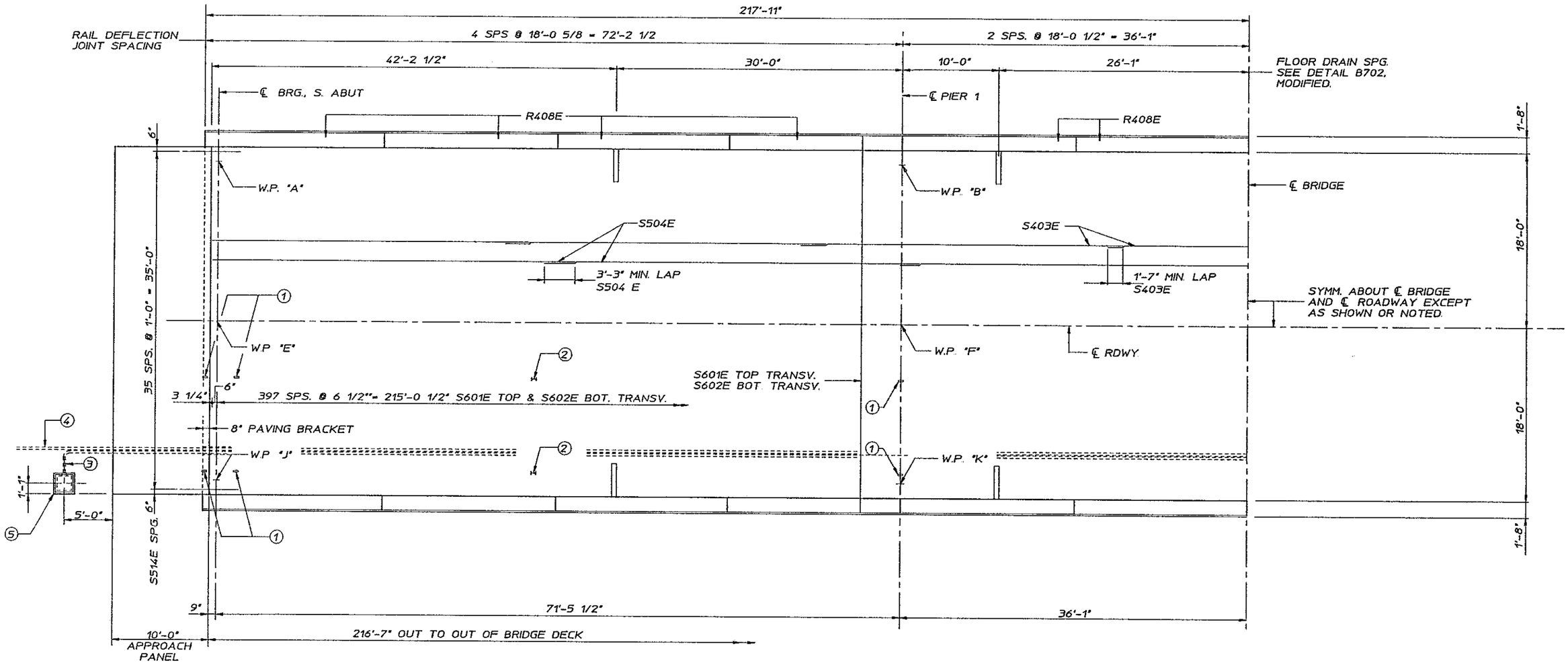
BRIDGE NO. 55555

PIER DETAILS

APPROVED:

S.A.P. 55-598-41
SHEET 33 OF 51 SHEETS

DES: RAB	DRWN: WNJ	55555
CHK: DAD	CHK: RAB	

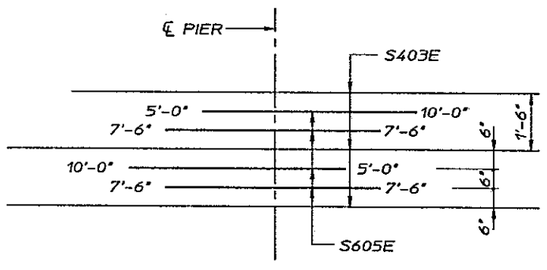


PART DECK PLAN
SCALE: 3/16" = 1'-0"

③ 3"ø TELEPHONE CONDUIT (TYP).

④ 3"ø GAGE WIRE CONDUIT. FIELD DETERMINE ACTUAL LENGTH AND TERMINATION POINT. SEE SHEET 44 FOR PLACEMENT AT NORTH END OF BRIDGE.

⑤ HANDHOLE ~ STD. PLATE 8117F. (WITH VEHICLE LOAD).



S605E PLACEMENT DIAGRAM OVER PIERS

NOTE: ALL GAGES TO BE INSTALLED BY OTHERS AFTER REINFORCING IS PLACED. SEE SPECIAL PROVISIONS FOR REQUIREMENTS AND RESPONSIBILITIES OF CONTRACTOR.

① SPOT WELDABLE STRAIN GAGES. FURNISH AND INSTALL BY OTHERS.

② CONCRETE EMBEDMENT STRAIN GAGES. FURNISH AND INSTALL BY OTHERS.

CERTIFIED BY Dale Drake
PROFESSIONAL ENGINEER
REG. NO. 20666 1996

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55555

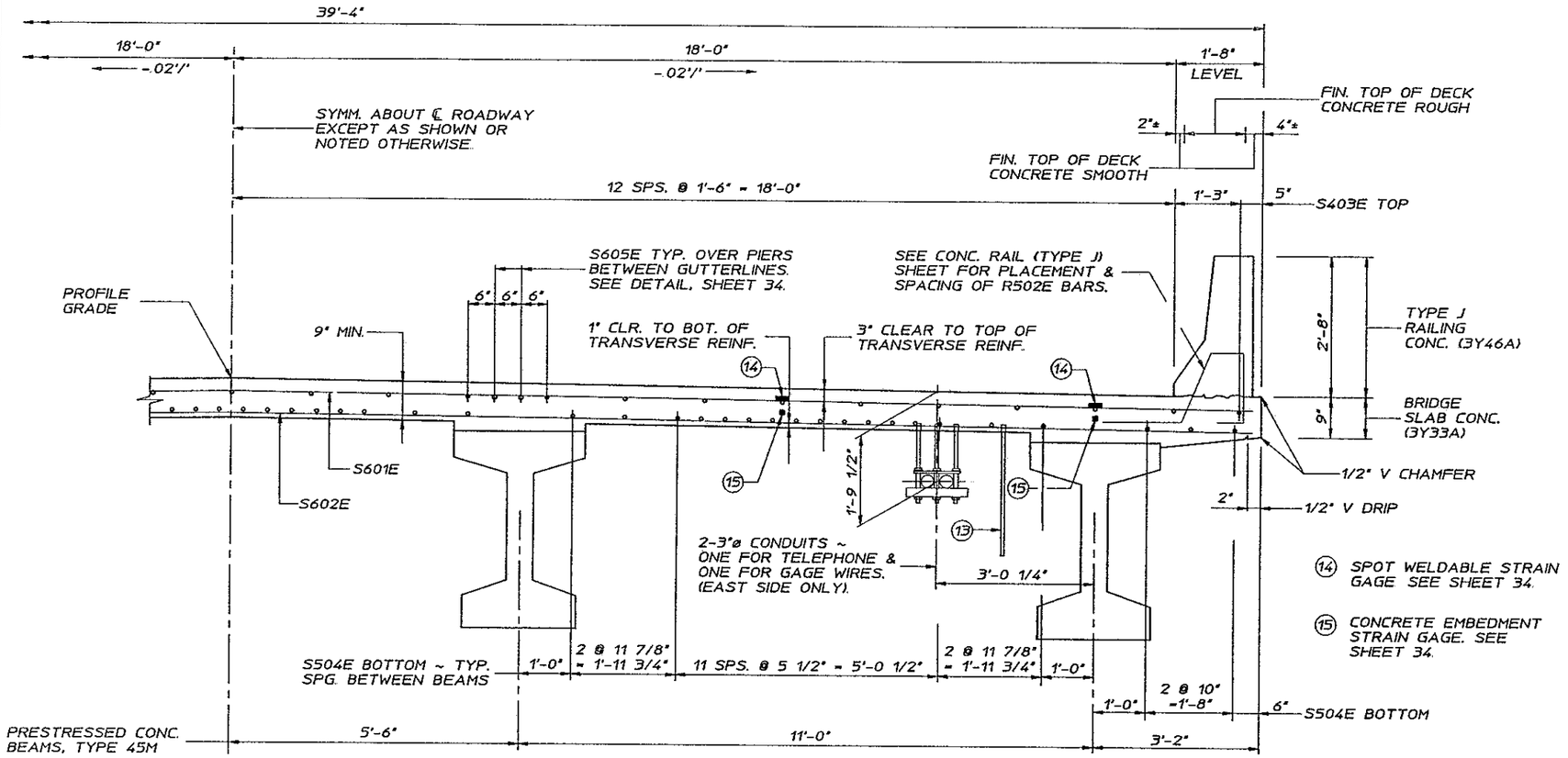
SUPERSTRUCTURE DETAILS

APPROVED:

S.A.P. 55-598-41

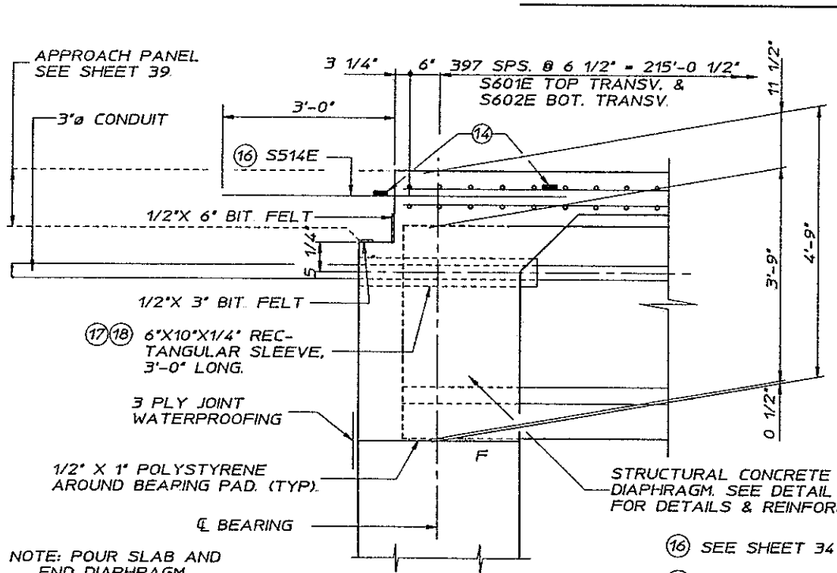
SHEET 34 OF 51 SHEETS

DES: RAB	DRWN: WNJ	55555
CHK: DAD	CHK: RAB	



PART TRANSV. SECTION THRU DECK

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



NOTE: POUR SLAB AND END DIAPHRAGM TOGETHER.

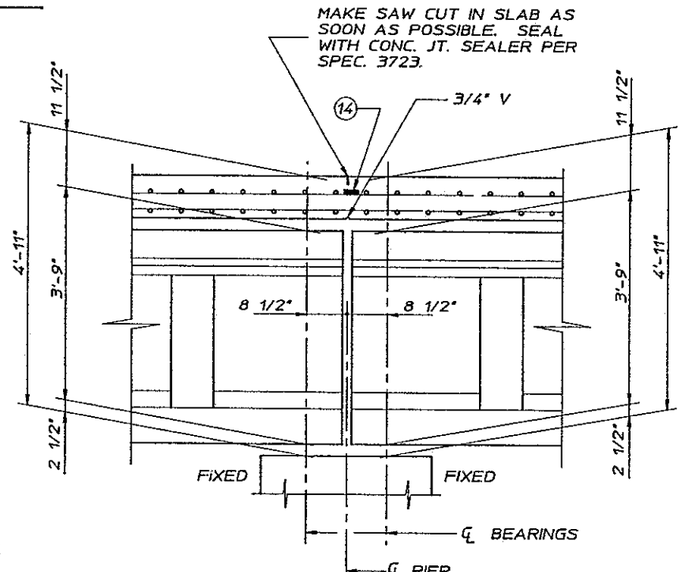
LONGITUDINAL SECTION AT ABUTMENTS

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

⑯ SEE SHEET 34 FOR S514E SPACING.

⑰ RECTANGULAR SLEEVE SHALL BE MnDOT 3306 STEEL, GALVANIZED PER SPEC. 3394.

⑱ FILL VOIDS BETWEEN CONDUITS AND SLEEVE WITH GROUT AFTER CONDUITS ARE INSTALLED.



LONGITUDINAL SECTION AT PIERS

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

BILL OF REINFORCEMENT ~ SUPERSTRUCTURE

	BAR	NO.	LENGTH	SHAPE	LOCATION
	S601E	400	39'-0"	STRT.	SLAB ~ TRANSVERSE
	S602E	400	38'-10"	STRT.	" "
②	S403E	189	32'-3"	STRT.	" ~ LONGITUDINAL
③	S504E	324	38'-9"	STRT.	" ~ "
	S605E	96	15'-0"	STRT.	" ~ " @ PIERS
①	S406E	8	48'-1"	BENT	END DIAPHRAGM
①	S407E	24	8'-4"	STRT.	" "
①	S408E	12	10'-2"	STRT.	" "
①	S509E	16	5'-0"	STRT.	" "
①	S610E	42	4'-2"	BENT	" "
①	S611E	42	5'-0"	BENT	" "
①	S612E	42	7'-0"	BENT	" "
①	S413E	8	3'-8"	STRT.	" "
①	S514E	72	6'-0"	STRT.	SLAB & APPR. PANEL ~ LONG.

① SEE DETAIL B810 MOD. FOR BAR DETAILS AND PLACEMENT.

② 7 LINES WITH 1'-7" MINIMUM LAP.

③ 6 LINES WITH 3'-3" MINIMUM LAP.

SUMMARY OF QUANTITIES ~ SUPERSTRUCTURE

⑥	BRIDGE SLAB CONCRETE (3Y33A)	8519	SQ. FT.
⑩	TYPE J RAILING CONCRETE (3Y46A)	436	LIN. FT.
	REINFORCEMENT BARS, EPOXY COATED	76910	POUND
⑨	PRESTRESSED CONCRETE BEAMS, TYPE 45-72	12	EACH
	PRESTRESSED CONCRETE BEAMS 45M	864	LIN. FT.
	DIAPH. FOR TYPE 45M PRESTR. CONC. BEAMS	231	LIN. FT.
	FLOOR DRAIN, TYPE B702 MODIFIED	8	EACH
⑦	NAME PLATE (SEE DETAIL B103)	1	
	BEARING ASSEMBLY	24	EACH
⑧	FIXED CURVED PLATE BRG. ASSEMBLY, TYPE 1	16	EACH
⑧	FIXED BRG. ASSEMBLY, TYPE 2	8	EACH
⑤ ⑦	CORK ~ 1"X11" (RAILING)	40	LIN. FT.
⑤ ⑦	POLYSTYRENE TYPE A 1/2"X22" (ABUT. BR. SEAT)	80	LIN. FT.
⑤ ⑦	BITUMINOUS FELT ~ 1/2"X3" (PAVING BRACKET)	80	LIN. FT.
⑤ ⑦	BITUMINOUS FELT ~ 1/2"X6" (PAVING BRACKET)	80	LIN. FT.
⑤ ⑦	3-PLY JOINT WATERPROOFING	110	LIN. FT.
⑤ ⑪	CONDUIT SYSTEM (TELEPHONE)	1	L. SUM
⑤ ⑫	3"ø FIBERGLASS CONDUIT (INCLUDES EXPANSION FITTINGS AND ELBOWS)	350	LIN FT
⑤ ⑫	3/4"øX2'-6" THREADED RODS, ONE INSERT AND 2 NUTS PER ROD (GALVANIZED).	6	EACH

④ INCLUDES RAILING AND END DIAPHRAGM QUANTITIES.

⑤ SEE SPECIAL PROVISIONS.

⑥ APPROX. VOLUME = 289 CU YDS. BASED ON AN AVERAGE STOOL HEIGHT OF 1 3/4". INCLUDES END DIAPHRAGM AND TOP PORTION OF WINGWALL, SEE SHEET 31.

⑦ INCLUDED IN PRICE BID FOR OTHER ITEMS.

⑧ PAYMENT FOR BEARINGS INCLUDED IN ITEM BEARING ASSEMBLIES PER EACH. SEE SPECIAL PROVISIONS.

⑨ PAYMENT FOR BEAMS INCLUDED IN ITEM PRESTRESSED CONCRETE BEAMS 45 PER LINEAR FOOT

⑩ APPROX. VOLUME = 44 CU. YDS.

⑪ INCLUDES 250 L.F. 3"ø FIBERGLASS CONDUIT, INSERTS, HANGERS, EXPANSION FITTINGS, REQUIRED ELBOWS, 2-6"X10"X 1/4" RECT. SLEEVES X 3'-0" LG., ⑰ AND 2-PRECAST CONC. HANDHOLES STD. PLATE NO. 8117F (WITH VEHICLE LOAD). ALL MATERIALS ARE TO BE FURNISHED AND INSTALLED BY THE BRIDGE CONTRACTOR. INCLUDED IN ITEM "CONDUIT SYSTEM (TELEPHONE)"

⑫ INCLUDED IN PRICE BID FOR INSTRUMENTATION.

⑬ 3/4"øX2'-6" LONG THREADED RODS SUPPLIED BY CONTRACTOR AND INSTALLED BY OTHERS. 1 PER PIER, 4 @ SOUTH ABUTMENT EAST BAY ONLY (FOR MULTI-PLEXERS INSTALLED BY OTHERS).

CERTIFIED BY Dale Draver
PROFESSIONAL ENGINEER
REG. NO. 20666 1996

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55555

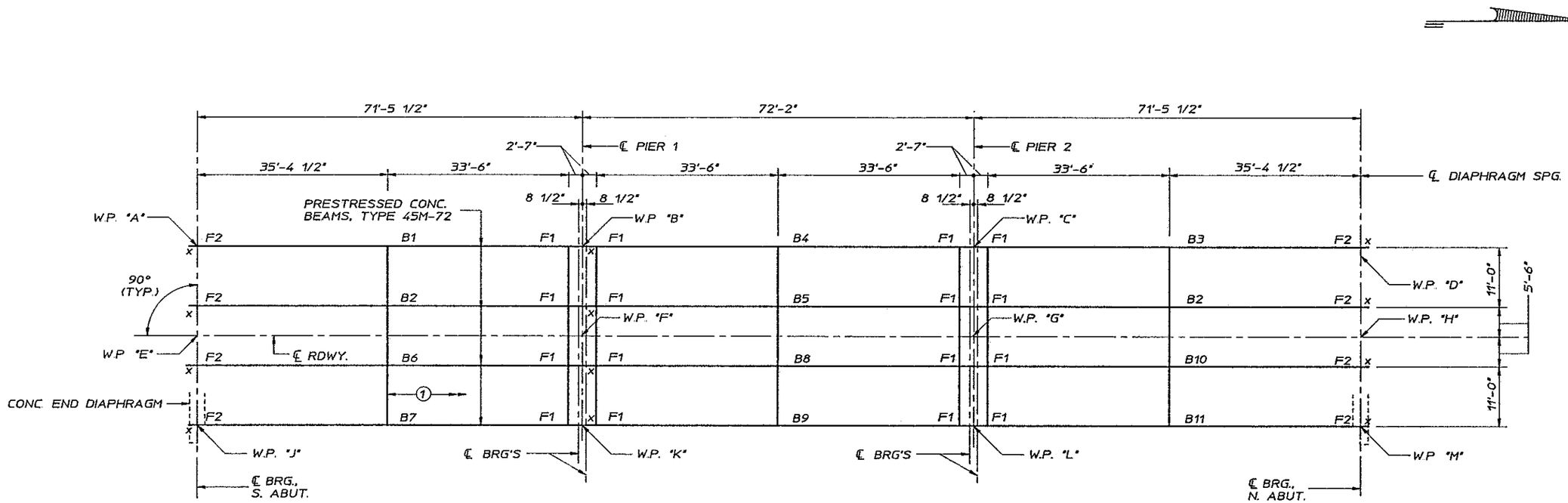
SUPERSTRUCTURE DETAILS

APPROVED:

S.A.P. 55-598-41

SHEET 35 OF 51 SHEETS

DES: RAB	DRWN: WNJ	55555
CHK: DAD	CHK: RAB	



FRAMING PLAN
SCALE: 3/32" = 1'-0"

NOTE:
F1 - FIXED CURVED PLATE BEARING ASSEMBLY, TYPE 1. SEE DETAIL B310.
F2 - FIXED BEARING ASSEMBLY, TYPE 2. SEE DETAIL B310.

NOTE:
SEE DETAIL B810 MOD. FOR END DIAPHRAGM DETAILS.
SEE DETAIL B813 OR B403 FOR INTERMEDIATE DIAPHRAGM DETAILS.

① INTERMEDIATE DIAPHRAGMS IN EAST BAY SHALL BE STEEL (DETAIL B403).

CERTIFIED BY Dale Drawe
PROFESSIONAL ENGINEER
REG. NO. 20666 1996

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55555

FRAMING PLAN

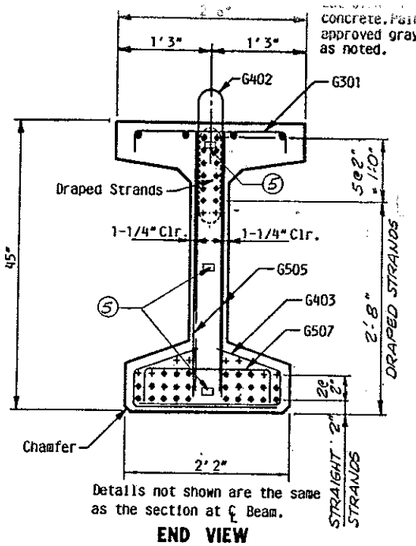
APPROVED:

S.A.P. 55-598-41

SHEET 36 OF 51 SHEETS

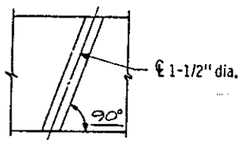
DES: RAB	DRWN: WNJ	55555
CHK: DAD	CHK: RAB	

concrete. Paint ends with an approved gray epoxy except as noted.



Details not shown are the same as the section at ℄ Beam.

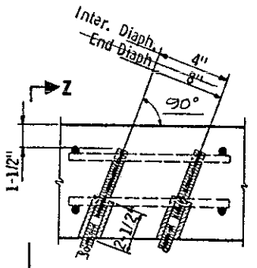
END VIEW



See FRAMING PLAN for skew direction. Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.

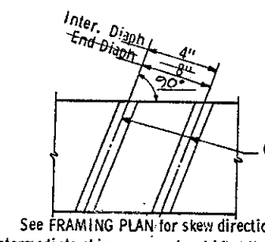
SECTION Y-Y

FOR USE WITH CONCRETE END DIAPHRAGMS WITH PILE BENT ABUTMENTS



SECTION X-X

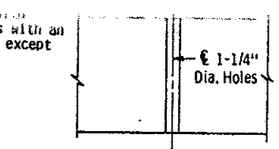
USE AT FACIA BEAM AND INTERIOR BEAM WITH STAGGERED DIAPHRAGMS



See FRAMING PLAN for skew direction. Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.

SECTION X-X

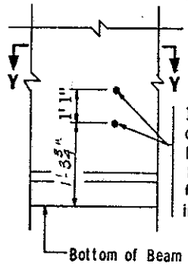
USE AT INTERIOR BEAM WITH CONTINUOUS CONCRETE DIAPHRAGM



Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.

SECTION Y-Y

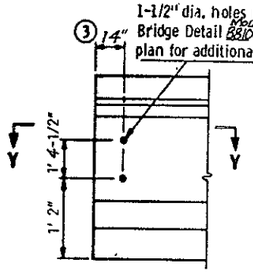
USE AT INTERIOR BEAM WITH STEEL DIAPHRAGM



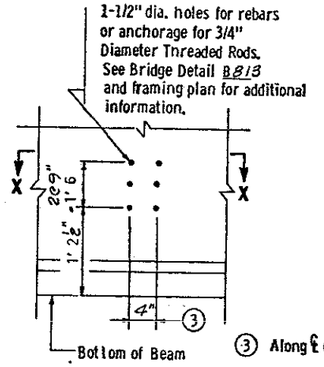
1-1/4" dia. holes for 7/8" bolts or Anchorage for 7/8" Diameter Bolts. See Bridge Detail B403 and framing plan for additional information.

Bottom of Beam

FOR USE WITH STEEL INTERMEDIATE DIAPHRAGM

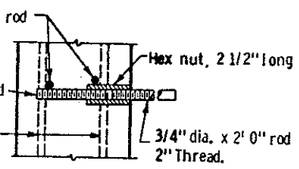


CONCRETE END DIAPHRAGMS PILE BENT ABUTMENT



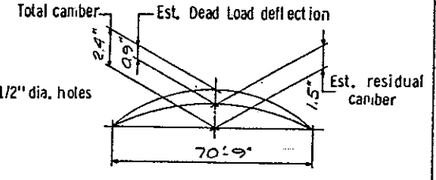
Bottom of Beam

FOR USE WITH CONCRETE INTERMEDIATE DIAPHRAGM



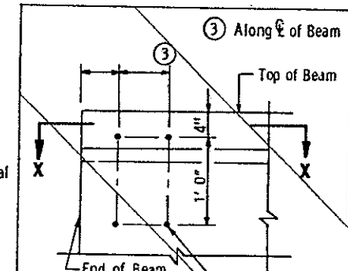
Nuts and rods per Spec. 3306. No paint

SECTION Z-Z



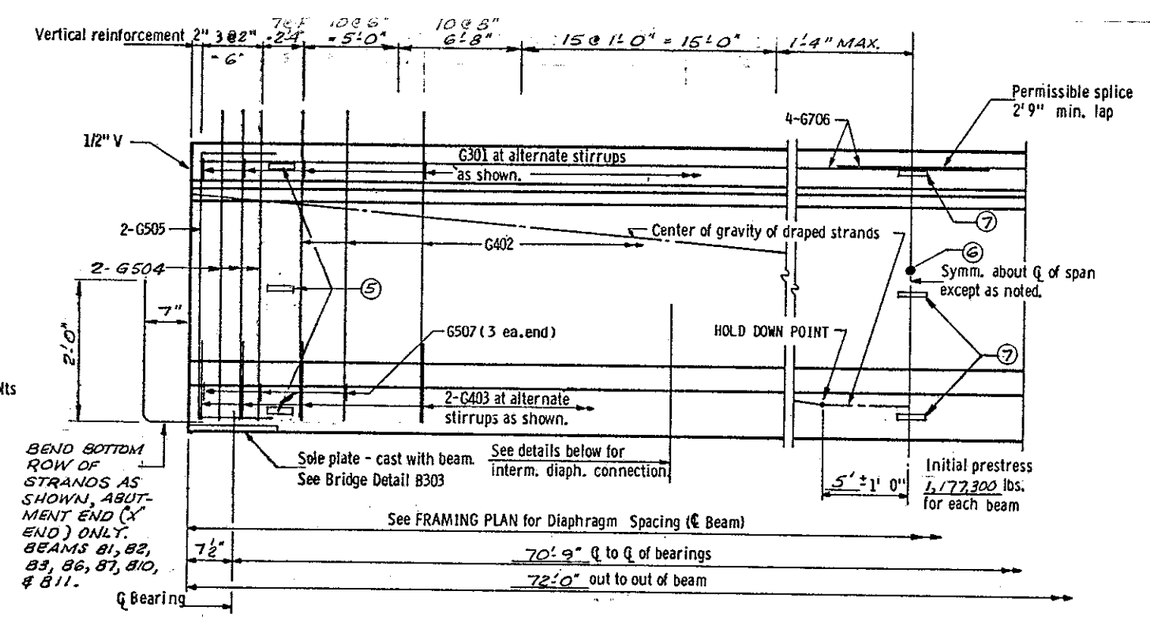
Deflections shown are for weight of slab, wearing course, railing, sidewalk, median and diaphragms only. Engineer will take elevations at top of beams after erection and will allow for deflections shown to enable contractor to build forms to correct grade and specified slab thickness.

CAMBER DIAGRAM

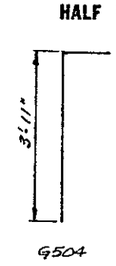


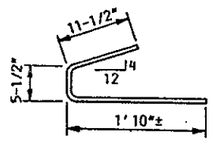
1-1/2" dia. holes for rebars or Anchorage for 3/4" Diameter Threaded Rods. See Bridge Detail B for additional information.

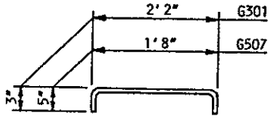
CONCRETE END DIAPHRAGMS PARAPET ABUTMENT



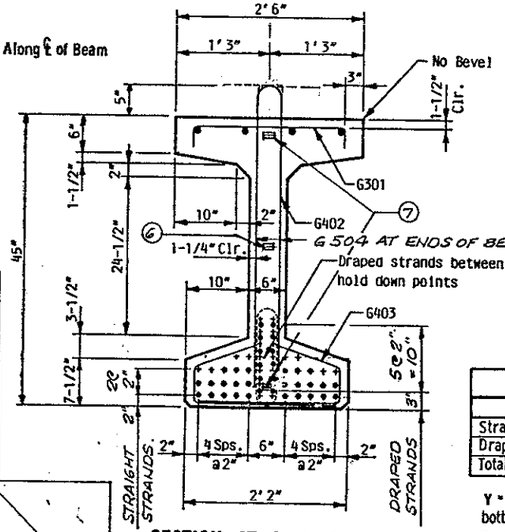
HALF ELEVATION



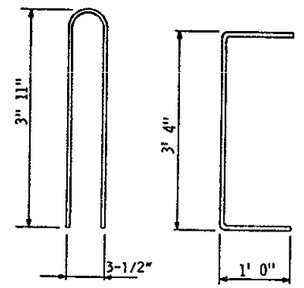




G301 & G507



SECTION AT ℄ BEAM



G402 G505

First digit of bar mark indicates bar size. All bar dimensions are out-to-out.

Y DISTANCES (IN INCHES)			
	NO.	℄ SPAN	END
Straight strands	26	3.69	
Draped strands	12	8.00	37.00 [D]
Total strands	38	5.05	

Y = distance of Center of Gravity of strands from bottom of beam. All strands spaced 2" c-c, horizontally and vertically except as noted.

All strands 1/2" dia. 270 kip, ultimate strength.

[D] A tolerance of ± 2" will be permitted in this dimension.

Bar	Wt.
G301	1.001b.
G402	5.341b.
G403	2.171b.
G505	5.561b.
G706	
G507	2.611b.
G504	4.95 lb

Girder Section Data
Wt./ft. = 672 lbs.
Cross sec. area at ℄ of span = 624 in.^{2}
C. G. (from bottom) = 22.34
I = 167,048 in.^{4}
S_B = 7,476 in.^{3}
1/2" dia. 270k strand wt./ft. = .525 lb.
1/2" dia. 270k strand area = .1531 sq. in.

ALL REINFORCING STEEL TO BE EPOXY COATED.

(5) CONCRETE EMBEDMENT STRAIN GAGES, ABUTMENT END ("X" END) OF GIRDERS B6, B7, B10, & B11 ONLY.

(6) CONCRETE STRESS CELL, CENTER OF GIRDERS B7, B9, & B11 ONLY.

(7) CONCRETE EMBEDMENT STRAIN GAGES, CENTER OF GIRDERS B6, B7, B8, B9, B10, & B11 ONLY.

GAGES & STRESS CELLS WILL BE FURNISHED AND INSTALLED BY OTHERS. SEE SPECIAL PROVISIONS FOR REQUIREMENTS AND RESPONSIBILITIES OF BEAM FABRICATOR.

I hereby certify that this plan, specification, or report 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 Maryland.

Date 5-23-96 Reg. No. 20688

GENERAL NOTES:

Tops of beams shall be rough floated and broomed transversely for bond.

Provide handling hooks or devices as required by Contractor. ~~Hooks or devices provided will be subject to approval of Engineer and shall be installed within 4' 0" of the end of beam.~~

A modified strand pattern or a bundled strand pattern which does not change center of gravity of strands may be submitted to the Engineer for approval.

Each beam shall be marked, showing bridge number, casting date, and individual identification letters and numbers. Markings shall be made on the face of the beam, near the end, so located that they will be exposed after the end diaphragms have been cast. Facia beams shall be marked on an inside face. All markings shall be stencilled and be clearly legible. For location of beams, see framing plan.

All material and work shown or noted on this sheet shall be included in unit price bid for prestressed concrete beams. See Spec. 2405.

See framing plan for beam ends marked "X".

Approximate weight of beam 24.2 tons.

As an alternate to the diaphragm anchorages shown, the contractor may submit details of a cast - in - place anchorage to the engineer for approval. Anchorage must provide an ultimate pull out strength of 15 kips per anchorage.

MINIMUM CONCRETE STRENGTH - P.S.I.		
	(1) f'ci	(2) f'c
Required min. Concrete Strength	5900	7000

(1) Minimum concrete strength at time of prestress transfer.

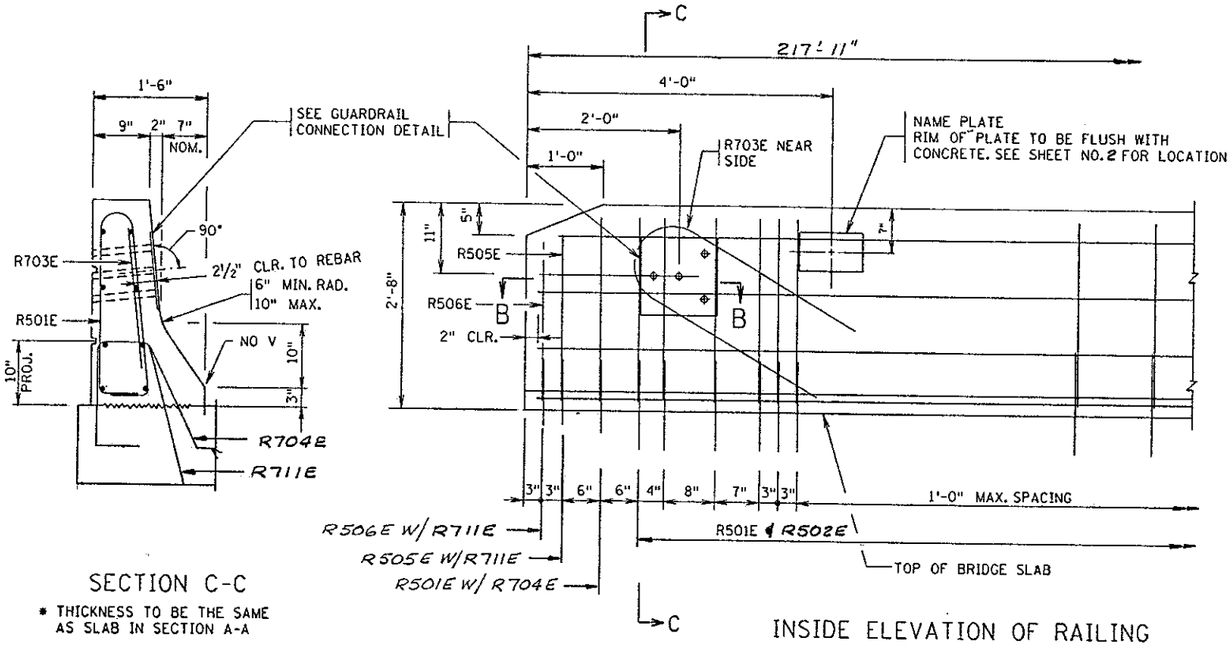
(2) Minimum concrete strength when curing can be discontinued and beam transported and installed.

S.A.P. 55-598-41

REVISED:	APPROVED: May 27, 1986	FIG.5-397.514

TITLE: 45" PRESTRESSED CONCRETE BEAM (PRETENSIONED) TYPE 45M-72	DES: R.A.B	DR: WNJ	APPROVED:	Bridge No. 55555
	CHK: DAD	CHK: RAB.		
	Sheet No. 37 of 51 Sheets			

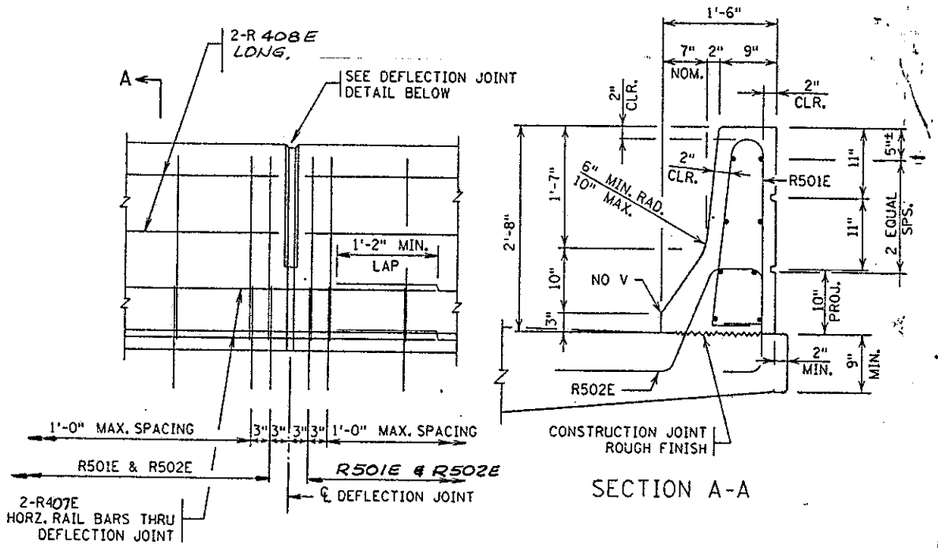
BEAMS B1-B11



SECTION C-C

* THICKNESS TO BE THE SAME AS SLAB IN SECTION A-A

INSIDE ELEVATION OF RAILING



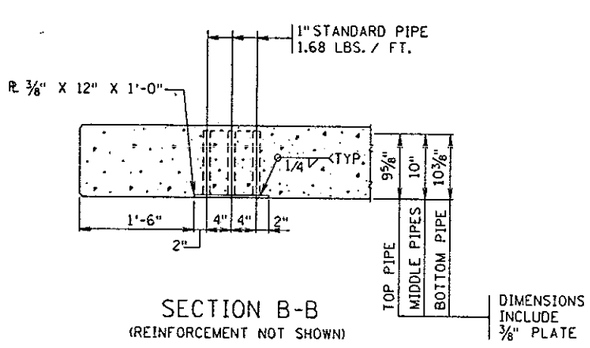
EXPANSION JOINT
EXPANSION DEVICE NOT SHOWN

A DEFLECTION JOINT

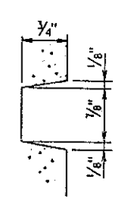
SECTION A-A

BILL OF REINFORCEMENT FOR RAILING				
BAR	NO.	LENGTH	SHAPE	LOCATION
R501E	508	6'-3"	BENT	RAIL VERT.
R502E	504	5'-6"	BENT	RAIL VERT.
R703E	4	6'-7"	BENT	RAIL VERT.
R704E	4	5'-6"	BENT	" "
R505E	4	5'-10"	BENT	RAIL VERT.
R506E	4	5'-7"	BENT	RAIL VERT.
① R407E	56	32'-2"	STR'T.	RAIL HORZ.
R408E	96	17'-8"	STR'T.	RAIL HORZ.
~~R409E~~	~~-~~		~~STR'T.~~	~~RAIL HORZ.~~
~~R410E~~	~~-~~		~~STR'T.~~	~~RAIL HORZ.~~
R711E	8	5'-0"	BENT	RAIL VERT

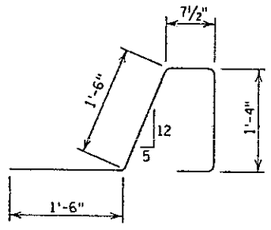
① 7 LINES WITH 1'-2" MIN LAP



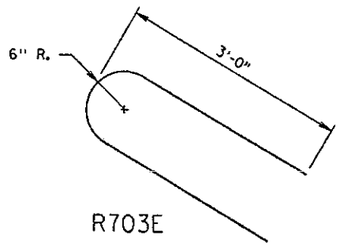
SECTION B-B
(REINFORCEMENT NOT SHOWN)



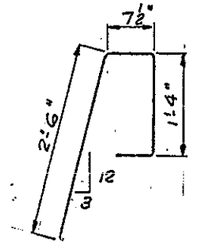
RAIL RUSTICATION



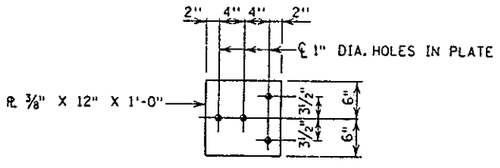
R502E & R704E



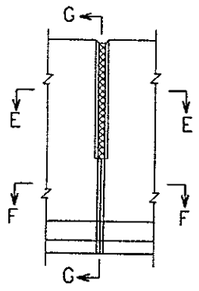
R703E



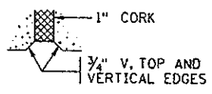
R711E



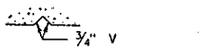
GUARDRAIL CONNECTION DETAIL
CALVANIZE AFTER FABRICATION PER SPEC. 3394
ESTIMATED WEIGHT = 20 LBS.



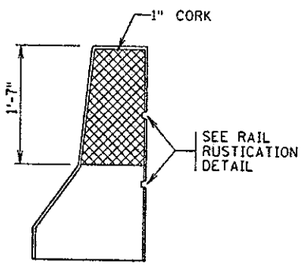
ELEVATION



SECTION E-E

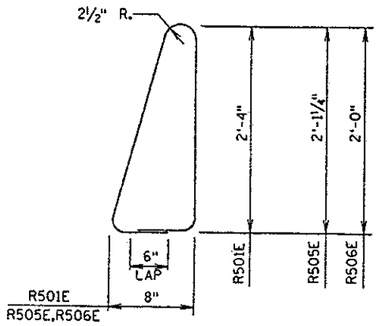


SECTION F-F



SECTION G-G

DEFLECTION JOINT



R501E, R505E & R506E

GENERAL NOTES:

CONCRETE RAILING = 403 LBS./FT. (.100 CU. YDS./FT.)

GUARDRAIL CONNECTION TO BE STRUCTURAL STEEL, SPEC. 3306.

FINISH ALL EDGES OF RAIL WITH ½" VEE, EXCEPT WHERE OTHERWISE NOTED.

SEE SUPERSTRUCTURE SHEET FOR JOINT SPACING.

GUARDRAIL CONNECTION TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

RAIL QUANTITIES ARE INCLUDED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.

MAXIMUM SPACING OF CONCRETE DEFLECTION JOINTS SHALL BE 20'-0".

S.A.P. 55-598-41

CERTIFIED BY Dale Draver PROFESSIONAL ENGINEER
REG. NO. 20666 1996

TITLE: CONCRETE RAILING (TYPE J) WITH INTEGRAL END POST

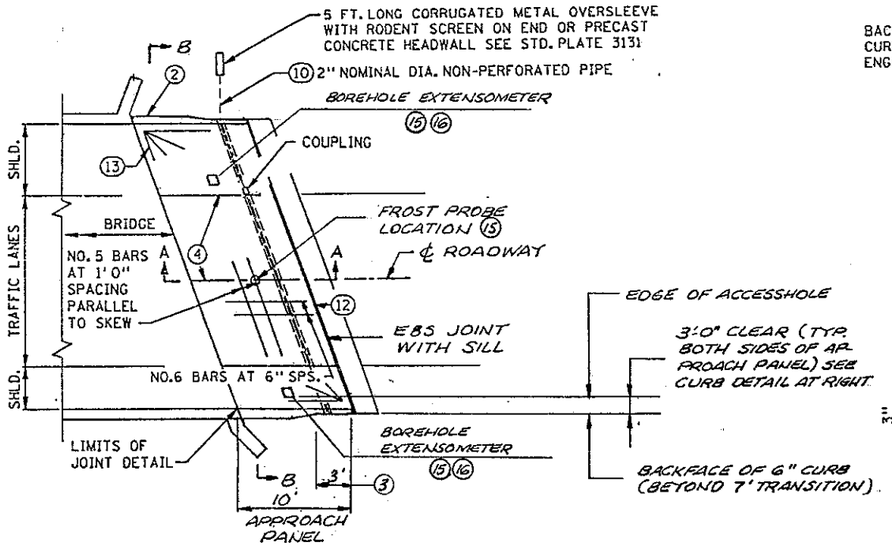
DES: R.A.B. DR: W.N.J. CHK: D.A.D CHK: R.A.B. APPROVED:

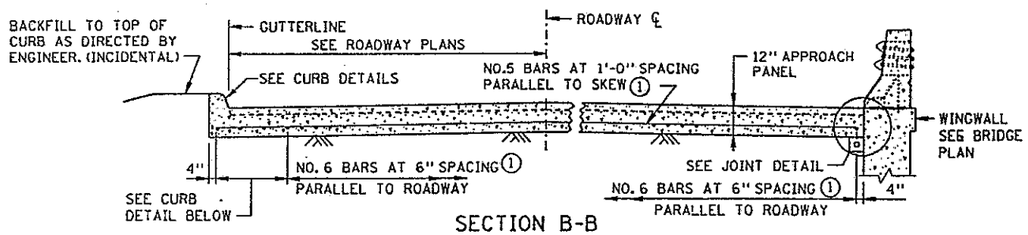
APPROVED: 8/31/91

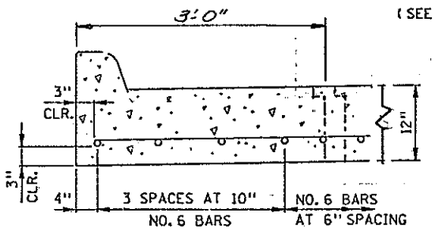
FIG. 5-397.115

Sheet No. 38 of 51 Sheets

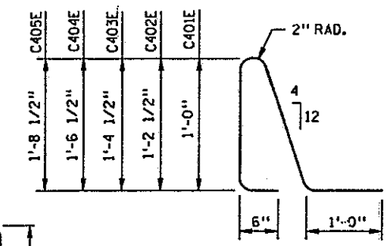
Bridge No. 55555



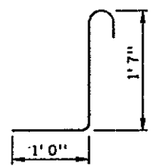




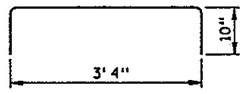
CURB DETAIL
(B4 INTEGRANT CURB)



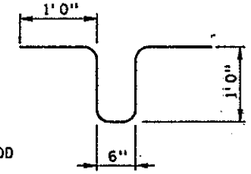
C401E- C405E①



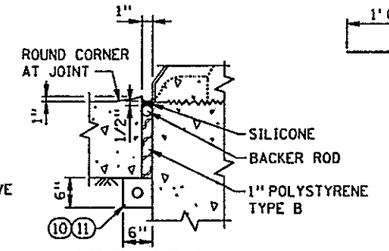
S406E



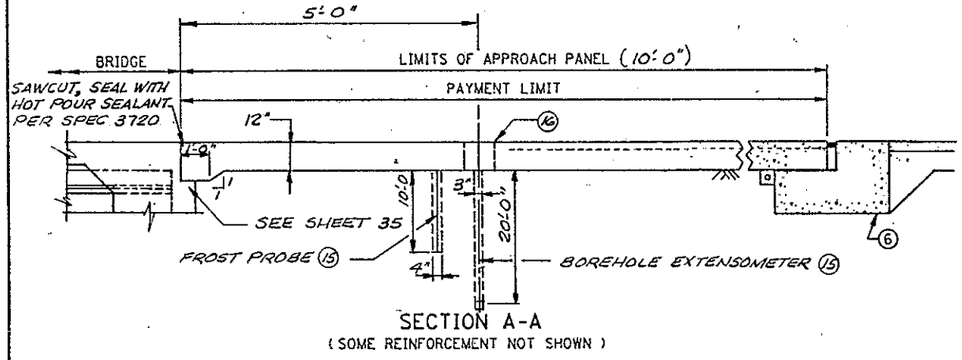
S407E



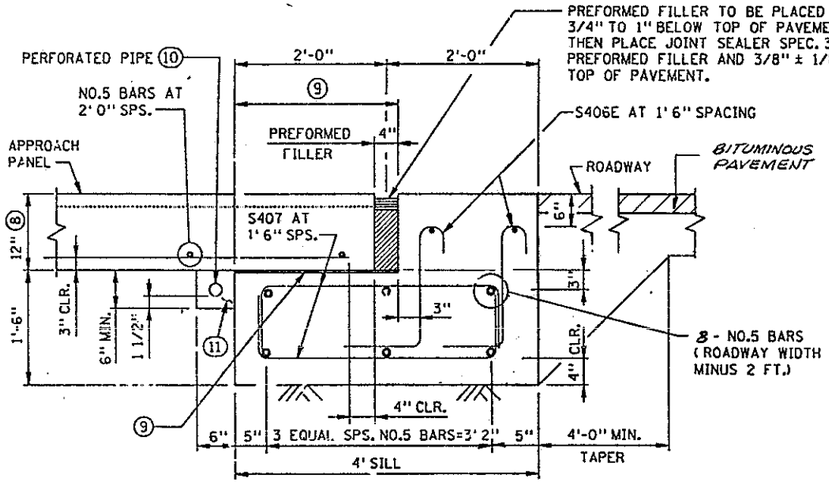
S408E



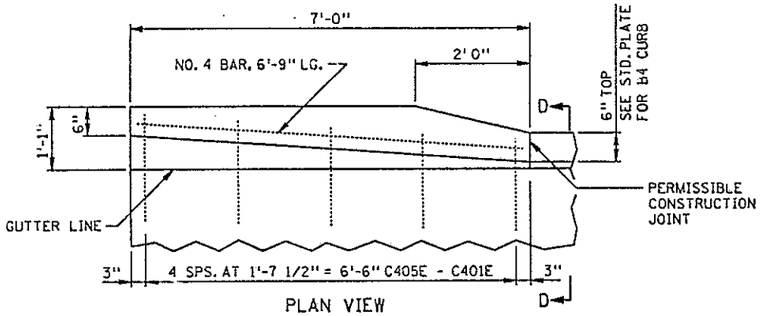
JOINT DETAIL
(AT PARALLEL WINGWALLS)



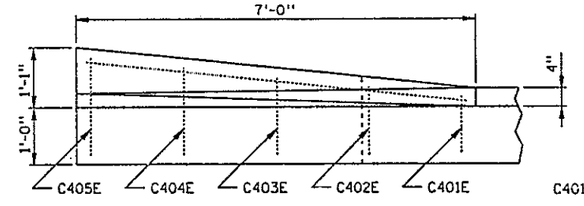
SECTION A-A
(SOME REINFORCEMENT NOT SHOWN)



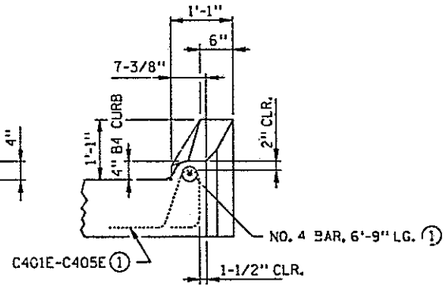
E8S JOINT DETAIL ⑥



PLAN VIEW



INSIDE ELEVATION



SECTION D-D

CURB TRANSITION DETAILS

⑮ *INSTRUMENTS TO BE INSTALLED AFTER BACKFILLING UP TO SUBGRADE, BEFORE WORK ON APPROACH PANEL INSTALLATION IS COMMENCED. INSTRUMENTS WILL BE FURNISHED AND INSTALLED BY OTHERS. FOR REQUIREMENTS AND RESPONSIBILITIES OF CONTRACTOR. SEE SPECIAL PROVISIONS.*

⑯ *MINIMUM 12" CLEAR OPENING (SQ. OR CIRCULAR) IN APPROACH PANEL CONCRETE SLAB. CONTRACTOR SHALL PROVIDE AND INSTALL AN APPROVED METAL FRAME & LID ADEQUATE FOR HIGHWAY LOADINGS AND CAST INTO SLAB. SEE SPECIAL PROVISIONS.*

NOTES:

① ALL REINFORCEMENT IN APPROACH PANEL, SILL AND CURB SHALL BE GRADE 60 AND EPOXY COATED AS PER SPEC. 3301.

② TRANSITION FACE OF 4" CURB INTO PROFILE OF BRIDGE RAILING. SEE CURB TRANSITION DETAILS.

③ TRANSITION APPROACH PANEL CURB HEIGHT 4" TO 0" WHERE THERE IS NO ROADWAY CURB.

④ L2KT JR LIT LONGITUDINAL JOINTS AS REQUIRED SEE STANDARD PAVEMENT JOINT SHEET FOR DETAILS.

⑥ ~~1'6" X 4' CONCRETE SILL UNDER TRAFFIC LANES ONLY WHEN MAINLINE ROADWAY PAVEMENT IS CONCRETE. CONCRETE SILL AND CURBING IF REQUIRED IS INCLUDED IN APPROACH PANEL PAY ITEM.~~

⑦ LOCATION MAY BE ON OR OFF THE APPROACH PANEL AS DETERMINED BY THE DESIGNER. SEE ROAD DESIGN MANUAL CHAPTER 7 FOR CATCH BASIN INFORMATION.

⑨ 1/8" THICK PLASTIC SHEETING SPEC. 3756 TO BREAK BOND. COVER AREA SHOWN IN DETAIL.

⑩ 2" NOMINAL DIA. THERMOPLASTIC PIPE, AS PER ASTM 1785, 1120, OR 2120, SCHEDULE 80. SLOPE PIPE TO DITCH ON LOW SIDE. FURNISHING AND INSTALLING DRAIN SYSTEM SHALL BE INCIDENTAL, WITH NO DIRECT PAYMENT. WRAP PERFORATED PIPE WITH GEOTEXTILE AS PER SPEC. 3733. 1/8" PER FT. MINIMUM SLOPE.

⑪ BACKFILL WITH FINE AGGREGATE, SPEC. 3149, MODIFIED TO 0-3% PASSING A NO. 200 SIEVE.

⑫ ~~CONTRACTION JOINT C2B-D WITH 1-1/2" DIA. X 1'6" LG. EPOXY COATED DOWEL BARS AT 1'0" SPACING PARALLEL TO ℄ OF ROADWAY. CAGES NOT REQUIRED.~~

⑬ FAN 4 - NO.5 BARS 8 FEET LONG AS SHOWN FOR SKEWS OVER 45°.

⑭ ~~SEE STANDARD PLAN SHEET _____ FOR BRIDGE APPROACH TRANSITION INFORMATION.~~

CERTIFIED BY Dale Drawe
PROFESSIONAL ENGINEER
REG. NO. 20666 1996

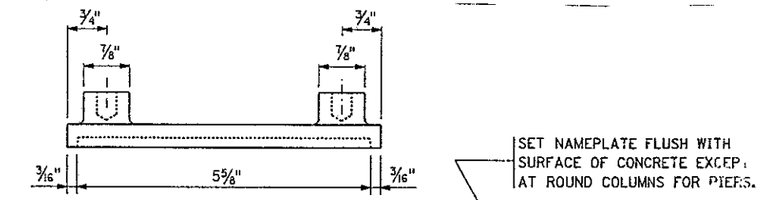
STANDARD SHEET NO. 5-297.223
STANDARD APPROVED: FEBRUARY 24, 1994

TITLE: BRIDGE APPROACH PANEL ~~WITH OR WITHOUT CONCRETE OVERLAY CONCRETE ROADWAY~~

BRIDGE NO. 55555

STATE AID PROJ. 55-598-41 SHEET NO. 39 OF 51 SHEETS

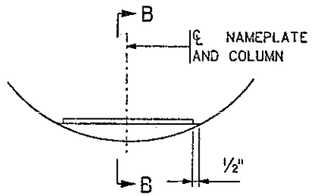
SERVER CA64S1:/USR/STANDAROS FILE NAME S223B94.SPN



THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION.
DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

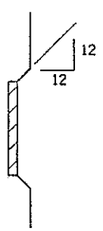
BRIDGE 55555

YEAR 1996

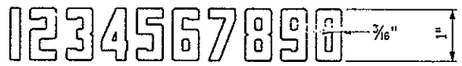


NAMEPLATE PLACEMENT

(ROUND CONCRETE PIER COLUMNS)



SECTION B-B



NUMBERS FOR NAMEPLATE

NOTES:

NO SHOP DRAWING REQUIRED.

MATERIAL SHALL COMPLY WITH SPEC. 3327.

LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.

DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".

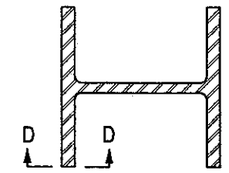
HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.

TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.

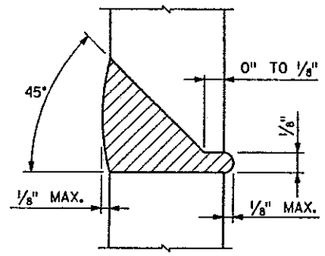
FURNISH 2 STEEL BOLTS 3/8" DIA. x 3" LONG WITH EACH PLATE.

ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR THE 1" HIGH LETTERS AND NUMBERS.

APPROVED: JUNE 5, 1995 OFFICE of BRIDGES and STRUCTURES	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION BRIDGE NAMEPLATE (FOR NEW BRIDGES)	REVISION	DETAIL NO. B101



SECTION AT JOINT



SECTION D-D

100% BUTT WELDED
PILE SPLICE

NOTES:

A.W.S. TYPE E7016 OR E7018 (LOW-HYDROGEN) ELECTRODES SHALL BE USED FOR 100% BUTT WELDED SPLICES.

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 IF THEY HAVE BEEN EXPOSED TO THE ATMOSPHERE FOR MORE THAN 2 HOURS.

ELECTRODES WHICH HAVE 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.

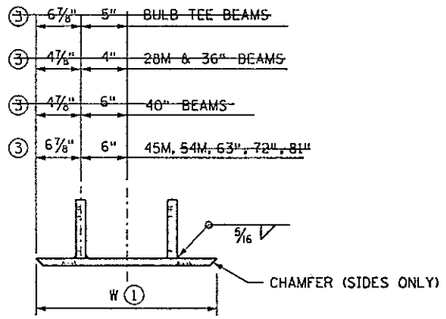
APPROVED: JUNE 5, 1995 OFFICE of BRIDGES and STRUCTURES	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION PILE SPLICE (STEEL H BEARING PILES 10" TO 14")	REVISION	DETAIL NO. B202

CERTIFIED BY Dale Draves
PROFESSIONAL ENGINEER
REG. NO. 20666 1996

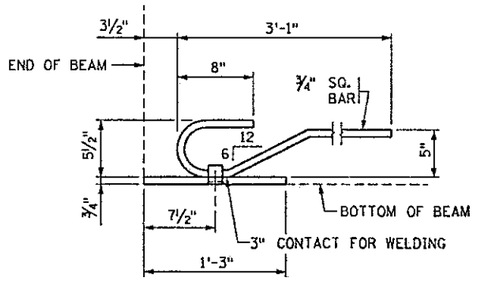
TITLE: MISC. BRIDGE DETAILS

DES.: RAB	DRWN.: WNJ	APPROVED:
CHK.: DAD	CHK.: RAB	
S.A.P. 55-598-41		
SHEET 40 OF 51 SHEETS		

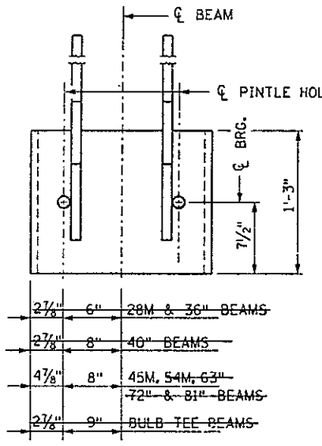
BRIDGE NO. 55555



FRONT VIEW

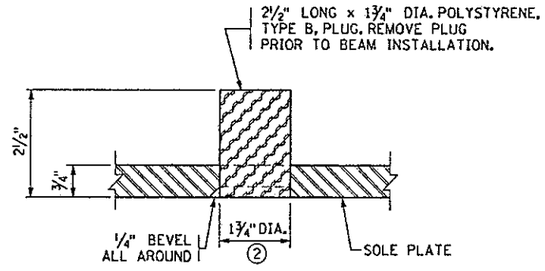


SIDE VIEW



TOP VIEW

BEAM SIZE	W VALUE
~~28M,36"~~	~~1'-5¾"~~
~~40"~~	~~1'-9¾"~~
~~45M,54M 63",72",81"~~	2'-1¾"
~~BULB TEES~~	~~1'-11¾"~~



PINTLE HOLE DETAIL

NOTES:

MATERIAL TO BE STRUCTURAL STEEL PER SPEC. 3306.

SOLE PLATE FOR BEARING ASSEMBLY TO BE HOT DIPPED GALVANIZED PER SPEC. 3394 AFTER FABRICATION.

PINTLE HOLES SHALL BE FREE OF ZINC BUILD UP FROM GALVANIZING.

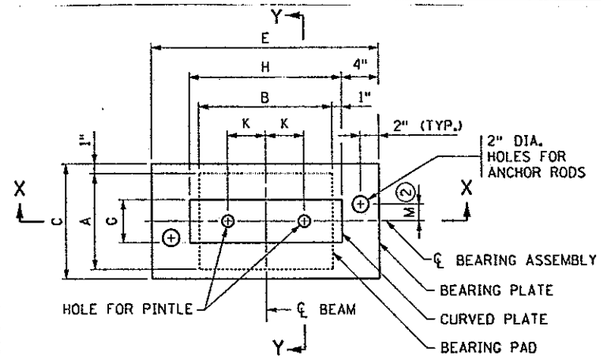
PAYMENT FOR SOLE PLATES TO BE INCLUDED IN PRICE BID FOR PRESTRESSED CONCRETE BEAMS.

(1) DIMENSION "W" TO BE THE WIDTH AT THE BOTTOM FLANGE OF THE BEAM MINUS ¼".

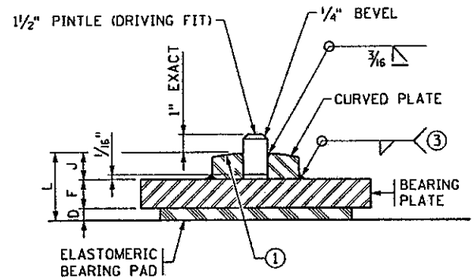
(2) FOR 1½" DIA. PINTLES.

(3) THESE DIMENSIONS MAY BE MODIFIED TO CLEAR PRESTRESSED STRANDS. HOWEVER, CHANGES MUST BE APPROVED BY THE ENGINEER.

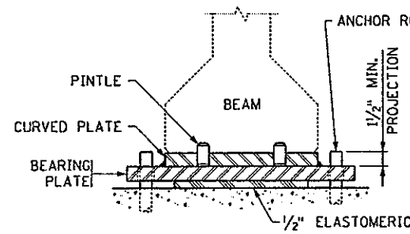
APPROVED: SEPT. 8, 1992	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
OFFICE of BRIDGES and STRUCTURES	SOLE PLATE PRESTRESSED CONCRETE BEAMS (FOR BEARINGS WITH PINTLES)	11/19/92 KLW	B303



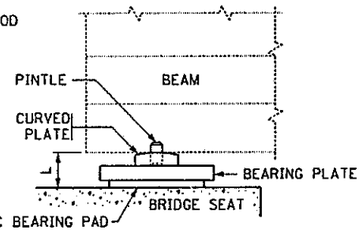
PLAN



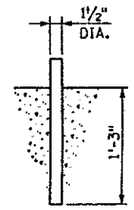
SECTION Y-Y



SECTION X-X



END ELEVATION
(ANCHOR RODS NOT SHOWN)



ANCHOR ROD DETAIL

TABLE

ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE A	BEARING PAD SIZE B	BEARING PAD SIZE D	SHAPE FACTOR	BEARING PLATE SIZE C	BEARING PLATE SIZE E	BEARING PLATE SIZE F	CURVED PLATE SIZE G	CURVED PLATE SIZE H	CURVED PLATE SIZE J	PINTLE DIA.	PINTLE DISTANCE K (4)	ANCHOR ROD OFFSET M (2)	ASSY. HEIGHT L
1	PIER	45M	10"	24"	1½"	7.1	12"	34"	1	4½"	26"	1"	1½"	8	3"	2½"
2	ABUT. *	45M	12"	24"	1½"	8.0										0'½"

* BEAM BEARS DIRECTLY ON ELASTOMERIC PAD AT ABUTMENTS

NOTES:

ELASTOMERIC MATERIALS & PAD CONSTRUCTION SHALL COMPLY WITH SPEC. 3741.

ALL STEEL PLATES SHALL COMPLY WITH SPEC. 3306

ALL PLATES SHALL BE FLAT AFTER FABRICATION AND GALVANIZING. WELDING DISTORTION OF BEARING PLATES SHALL BE STRAIGHTENED TO WITHIN 1/16" OF FLATNESS BY MECHANICAL MEANS WITHOUT DAMAGE TO THE ZINC COATING.

PINTLES SHALL COMPLY WITH SPEC. 3309.

GALVANIZE STRUCTURAL STEEL BEARING ASSEMBLY AFTER FABRICATION PER SPEC. 3394, EXCEPT AS NOTED.

PAYMENT FOR BEARING ASSEMBLY SHALL INCLUDE ALL MATERIAL ON THIS DETAIL.

(1) THE RADIUS OF THE CURVED PLATE SHALL BE 1'-4" MINIMUM AND 2'-0" MAXIMUM. FINISH TO 250 MICRO. THE FINISHED THICKNESS OF THE PLATE MAY BE 1/16" LESS THAN SHOWN.

(2) OFFSET MAY BE OPPOSITE OF THAT SHOWN. SEE ANCHOR ROD LAYOUT FOR DETAILS.

(3) WELDING PER SPEC. 2471.

(4) SEE DETAIL B303 FOR PINTLE DISTANCE K.

DESIGN DATA:

MAXIMUM HORIZONTAL LOAD IS 70 KIPS FOR 1½" PINTLES.

APPROVED: JANUARY 12, 1993	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
OFFICE of BRIDGES and STRUCTURES	CURVED PLATE BEARING ASSEMBLY PRESTRESSED CONCRETE BEAMS (FIXED)	4/12/94 NKL	B310

CERTIFIED BY Dale Draves PROFESSIONAL ENGINEER
REG. NO. 20666 1996

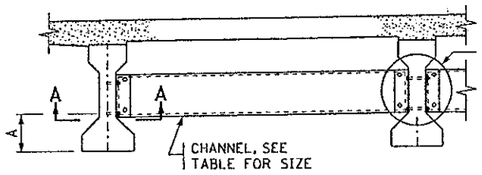
TITLE: MISC. BRIDGE DETAILS

DRWN: CAD CHK: DAD APPROVED:
S.A.P 55-598-41
SHEET 41 OF 51 SHEETS

BRIDGE NO. 55555

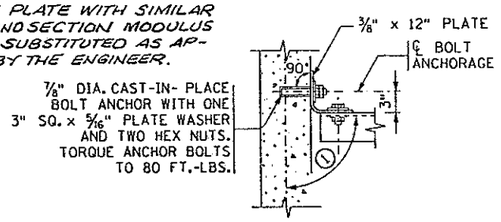
TABLE

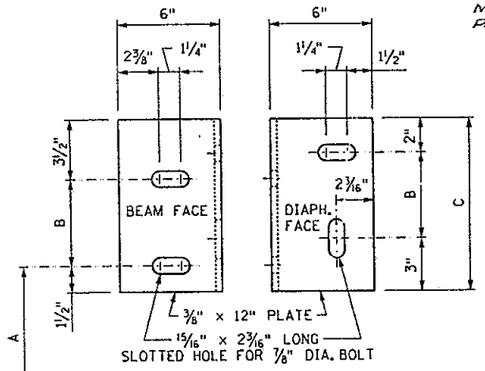
BEAM HEIGHT	DISTANCE A	DISTANCE B	DISTANCE C	CHANNEL SIZE
~~BULB TEE 28M~~	~~1'-0"~~	~~5"~~	~~10"~~	~~C10x15.3~~
~~30"~~	~~1'-2"~~	~~7"~~	~~1'-0"~~	~~C12x20.7~~
~~36"~~	~~1'-3"~~	~~7"~~	~~1'-0"~~	~~C12x20.7~~
~~40"~~	~~1'-5"~~	~~7"~~	~~1'-0"~~	~~C12x20.7~~
45M	1'-3¾"	1'-1"	1'-6"	MC18x42.7 ③



PART TRANSVERSE SECTION AT DIAPHRAGM

③ 5/16" BENT PLATE WITH SIMILAR DEPTH AND SECTION MODULUS MAY BE SUBSTITUTED AS APPROVED BY THE ENGINEER.

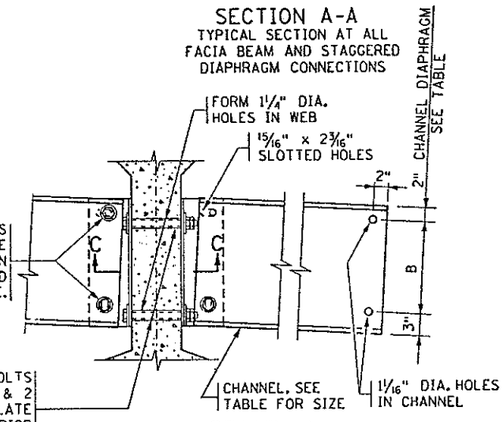




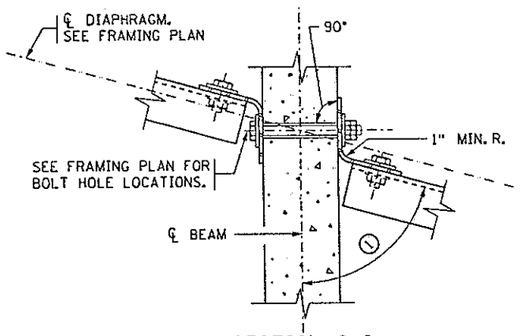
DIAPHRAGM CONNECTION FOR BEAMS

BOTTOM OF BEAM

SECTION A-A
TYPICAL SECTION AT ALL FACIA BEAM AND STAGGERED DIAPHRAGM CONNECTIONS



DETAIL B
INTERIOR BEAM WITH CONTINUOUS LINE OF DIAPHRAGMS



SECTION C-C
TYPICAL SECTION AT CONTINUOUS INTERIOR DIAPHRAGMS

① FOR SKEW ANGLES UNDER 20°, USE 90° LESS THE SKEW ANGLE. FOR SKEW ANGLES OVER 20°, USE 90°.

② AS AN ALTERNATIVE TO THE ⅞" BOLT CONNECTION THE CONTRACTOR MAY SUBMIT DETAILS OF A CAST-IN-PLACE ANCHORAGE TO THE ENGINEER FOR APPROVAL.

GENERAL NOTES:

SEE SPEC. 2405.3M FOR INSTALLATION

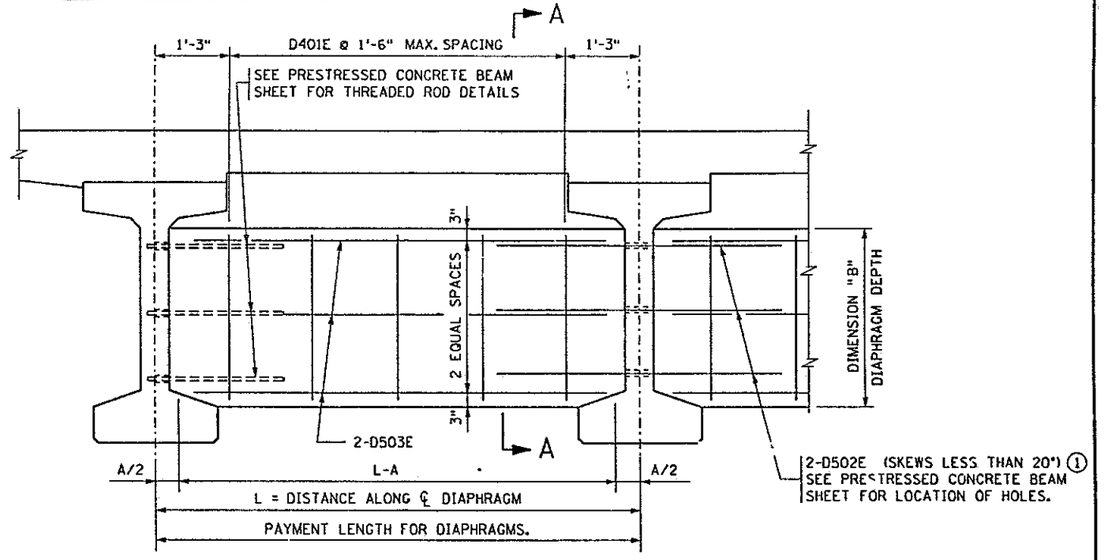
THE LEG OF THE 12" PLATE SHALL BE SHOP BENT TO CONFORM TO THE DIAPHRAGM. A ⅜" x 6" x 6" ANGLE MAY BE USED FOR DIAPHRAGMS PERPENDICULAR TO BEAMS.

FOR BOLT LENGTHS GREATER THAN 9", USE HIGH STRENGTH BOLTS PER SPEC. SAE GRADE 5 OR BETTER.

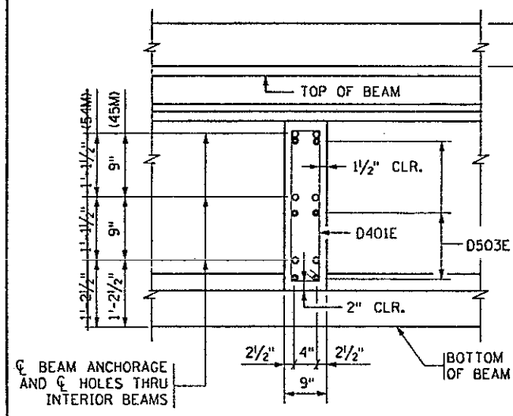
ALL STRUCTURAL STEEL SHOWN ON THIS DETAIL, INCLUDING BOLTS AND WASHERS, SHALL BE INCLUDED IN THE PAYMENT FOR DIAPHRAGMS FOR PRESTRESSED BEAMS.

DIAPHRAGMS OVER THE PIERS ARE CONSIDERED TO BE INTERMEDIATE IF THE SLAB IS CONTINUOUS.

APPROVED: AUGUST 4,1992	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION		DETAIL NO.
OFFICE of BRIDGES and STRUCTURES	STEEL INTERMEDIATE DIAPHRAGM (FOR 28M - 45M PRESTRESSED CONC. BEAM SPANS AND 30" BULB TEE BEAMS)		B403



PART TRANSVERSE SECTION

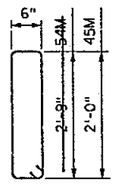


SECTION A-A

BEAM HEIGHT	DIM. "A" VOLUME COMP.	DIM. "B" DIAPHRAGM DEPTH	D401E LENGTH
45M-45"	7¼"	2'-4"	5'-9"
~~54M-54"~~	~~6⅞"~~	~~3'-1"~~	~~7'-3"~~

CONCRETE VOLUME PER DIAPHRAGM

$\frac{(L-A) \times B \times 0.75}{27}$ = CUBIC YARDS



D401E

BILL OF REINFORCEMENT FOR DIAPHRAGMS

BAR	NO.	LENGTH	SHAPE	LOCATION
D401E	147	5'-9"		TIE-VERTICAL
D502E	84	5'-0"		HORIZONTAL-THRU BEAM
D503E	126	9'-8"		HORIZONTAL

GENERAL NOTES

DIAPHRAGMS TO BE CONCRETE MIX NO. 3Y43

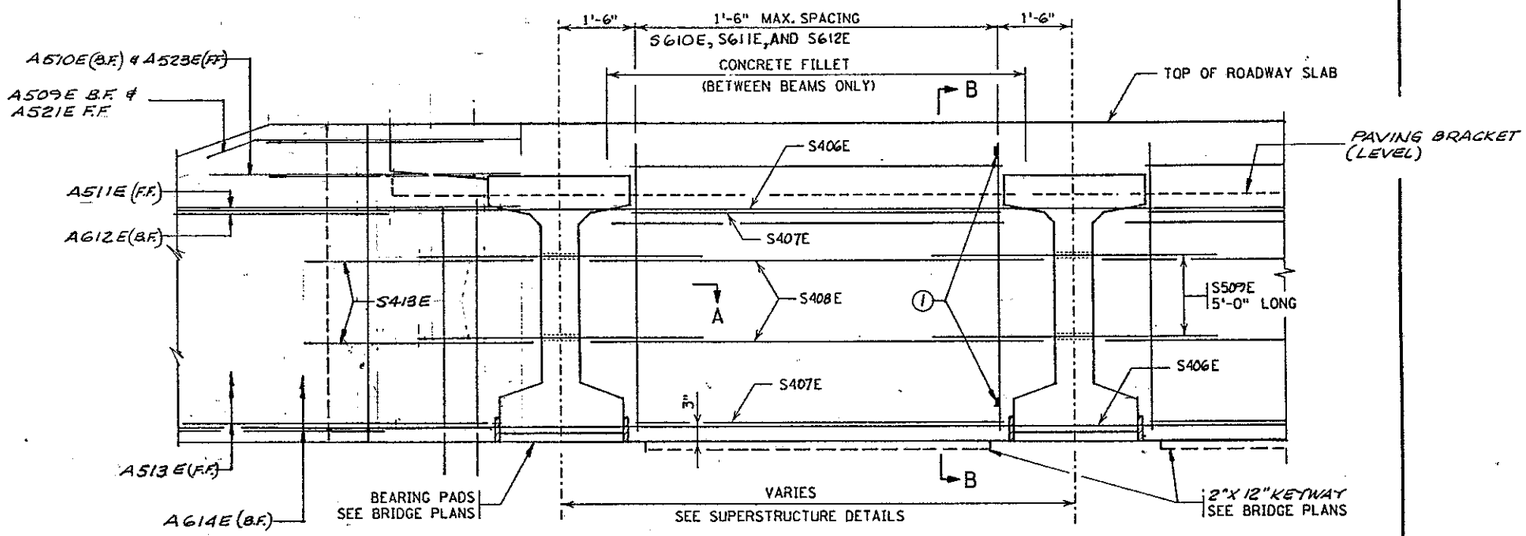
ALL DIAPHRAGM CONCRETE AND REINFORCEMENT BARS SHOWN ON THIS DETAIL TO BE INCLUDED IN PAYMENT FOR DIAPHRAGMS FOR PRESTRESSED BEAMS. THREADED RODS ARE INCLUDED IN PAYMENT FOR PRESTRESSED CONCRETE BEAMS.

① FOR DIAPHRAGMS 20° AND OVER, USE THREADED RODS AS SHOWN ON STANDARD PRESTRESSED CONCRETE BEAM SHEET.

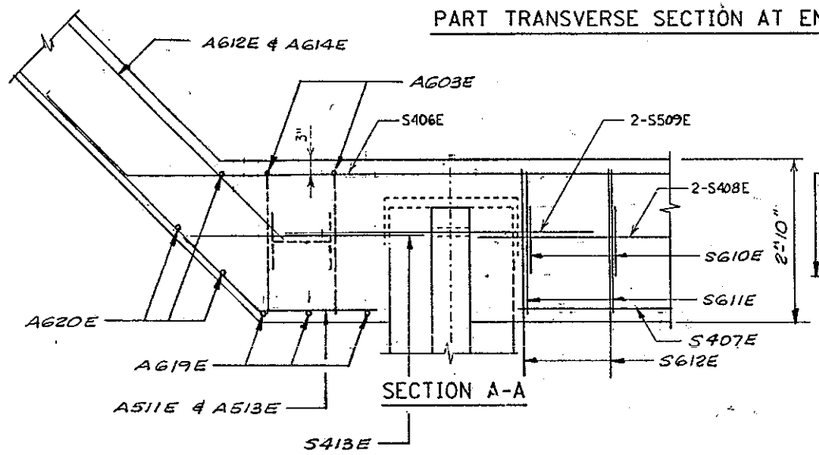
DIAPHRAGMS IN EAST BAY SHALL BE STEEL (DETAIL B403)

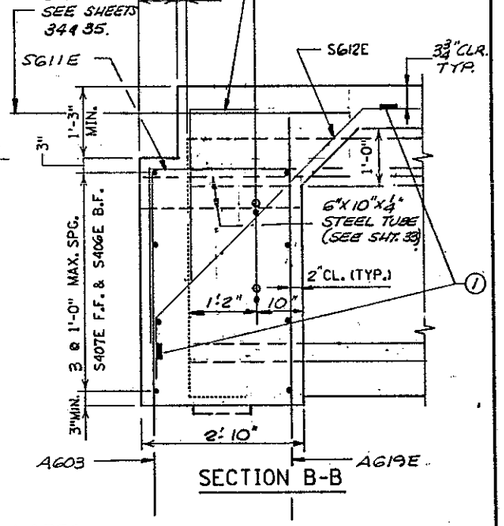
APPROVED: AUGUST 4,1992	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	DATE: / DR: / CHK:	DETAIL NO.
OFFICE of BRIDGES and STRUCTURES	CONCRETE INTERMEDIATE DIAPHRAGM (45M - 54M PRESTRESSED CONCRETE BEAM SPANS)		B813

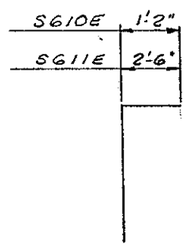
CERTIFIED BY Dale Dravis PROFESSIONAL ENGINEER REG. NO. 20666 1996	TITLE: MISC. BRIDGE DETAILS	DRWN: CAD CHK: DAD APPROVED:	BRIDGE NO. 55555
		S.A.P. 55-598-41 SHEET 42 OF 51 SHEETS	



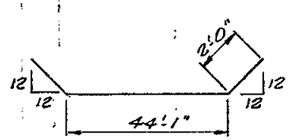
PART TRANSVERSE SECTION AT END DIAPHRAGM



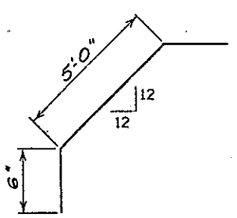




S610E & S611E



S406E



S612E

NOTES

ALL DIAPHRAGM BARS SHOWN ARE LISTED WITH THE SUPERSTRUCTURE REINFORCEMENT. DIAPHRAGM CONCRETE AND REINFORCEMENT QUANTITIES ARE INCLUDED IN THE SUPERSTRUCTURE QUANTITIES.

DIAPHRAGM TO BE USED AT ABUTMENT END ONLY.

① SPOT WELDABLE STRAIN GAGES, 2 TOTAL ON 2 DIFFERENT S612E BARS PER END DIAPHRAGM. FURNISHED AND INSTALLED BY OTHERS. INSTALLATION OF S612E BARS AFFECTED SHALL BE COORDINATED WITH GAGE INSTALLATION. FOR OTHER REQUIREMENTS AND RESPONSIBILITIES OF CONTRACTOR. SEE SPECIAL PROVISIONS.

I hereby certify that this plan, specification, or report 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 5-23-96 Reg. No. 20868

APPROVED: _____

OFFICE of BRIDGES and STRUCTURES

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

CONCRETE END DIAPHRAGM
(28M - 54" PRESTRESSED CONCRETE BEAM SPAN WITH PILE BENT ABUTMENT)

DATE: 11/8/91
DR: NKL
CHK: ~~BENNETT~~

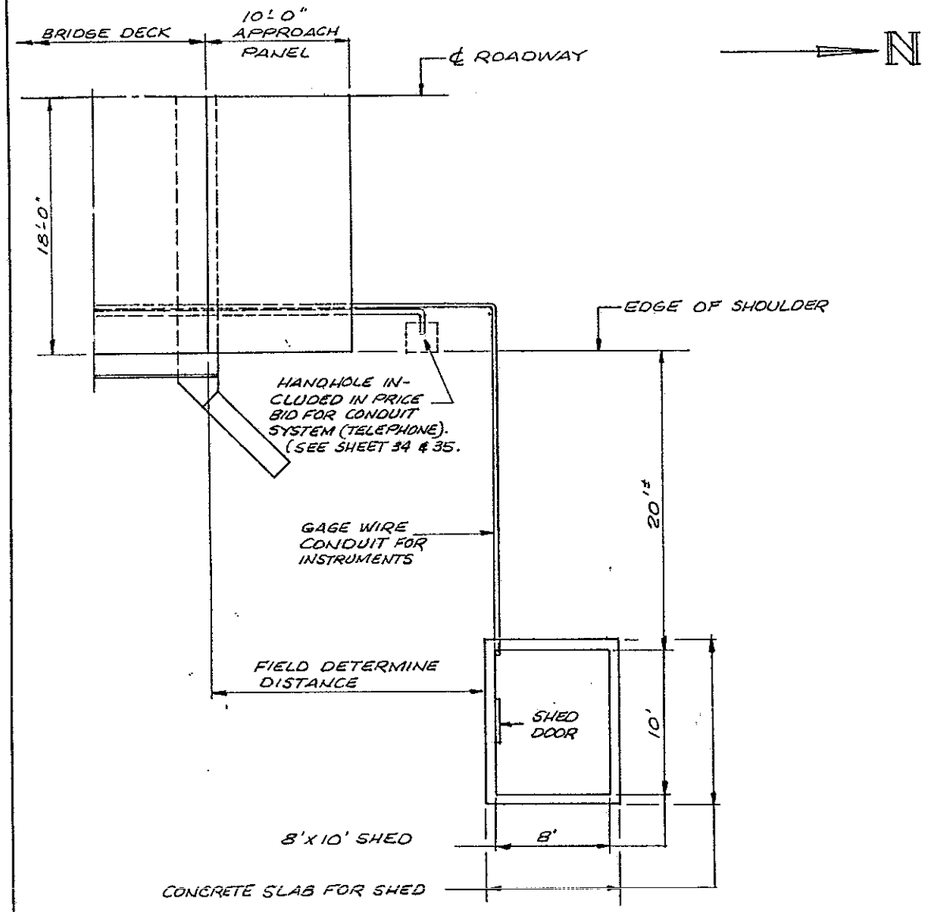
DETAIL NO. MODIFIED
B810

TITLE: MISC. BRIDGE DETAILS

DRWN: CAD
CHK: DAD
APPROVED:

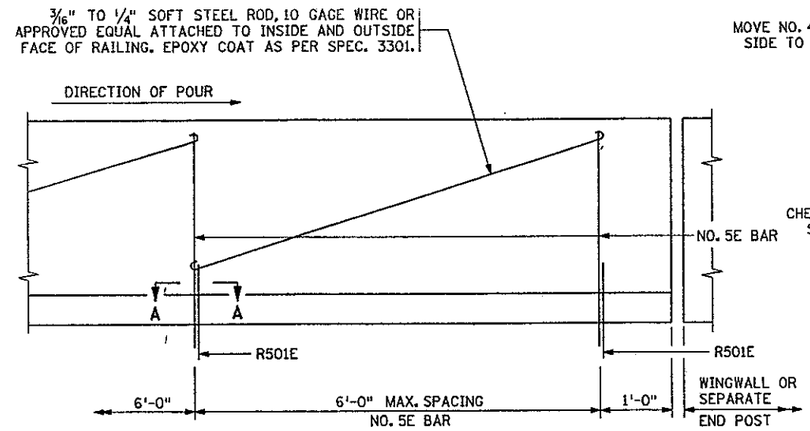
S.A.P. 55-598-41
SHEET 43 OF 51 SHEETS

BRIDGE NO.
55555

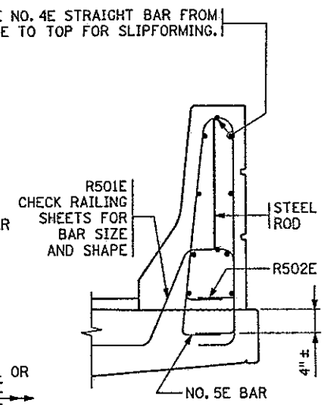


SHED LAYOUT (NORTH END ONLY)

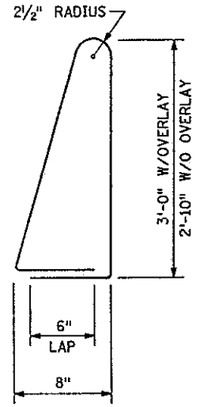
ALL WORK AND MATERIALS SHOWN (GAGE WIRE CONDUIT, SLAB & SHED) EXCEPT AS NOTED INCLUDED IN PRICE BID FOR INSTRUMENTATION. SEE SPECIAL PROVISIONS FOR OTHER REQUIREMENTS.



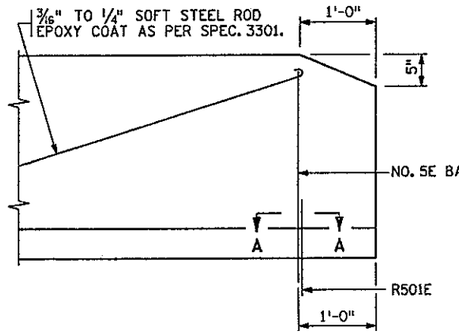
INSIDE ELEVATION OF RAILING



RAILING SECTION



NO. 5E BAR



INSIDE ELEVATION OF RAILING
AT END OF WINGWALL

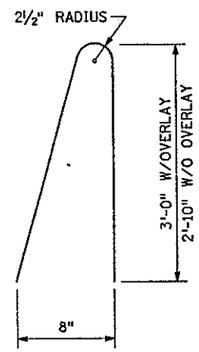
NOTES:

CONTRACTOR WILL TOOL V-GROOVE AT DEFLECTION JOINTS AT TIME RAIL IS CAST AND SHALL EXTEND V-GROOVE AROUND ENTIRE PERIMETER OF RAIL.

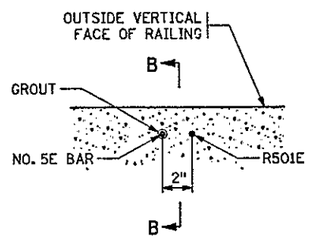
FOR ADDITIONAL DIMENSIONS, DETAILS, REINFORCEMENT AND NOTES SEE RAILIN SHEET.

FORM RAIL FOR A MINIMUM OF 4' ON EACH SIDE OF EXPANSION DEVICES, LIGH STANDARDS AND DECK DRAIN BOX OUTS

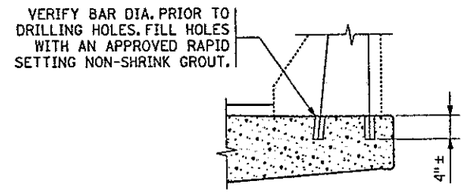
PAY QUANTITIES WILL NOT BE ADJUSTED AS A RESULT OF SELECTING THIS ALTERNATE.



NO. 5E BAR
DRILLED IN ALTERNATE



SECTION A-A



SECTION B-B

INSTALLATION DETAILS
FOR NO. 5E (DRILLED IN ALTERNATE)

ROVED: MAY 23, 1995

OFFICE of
IDGES and STRUCTURES

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

CONCRETE RAILING (TYPE J)
(SLIPFORM ALTERNATE)

REVISION

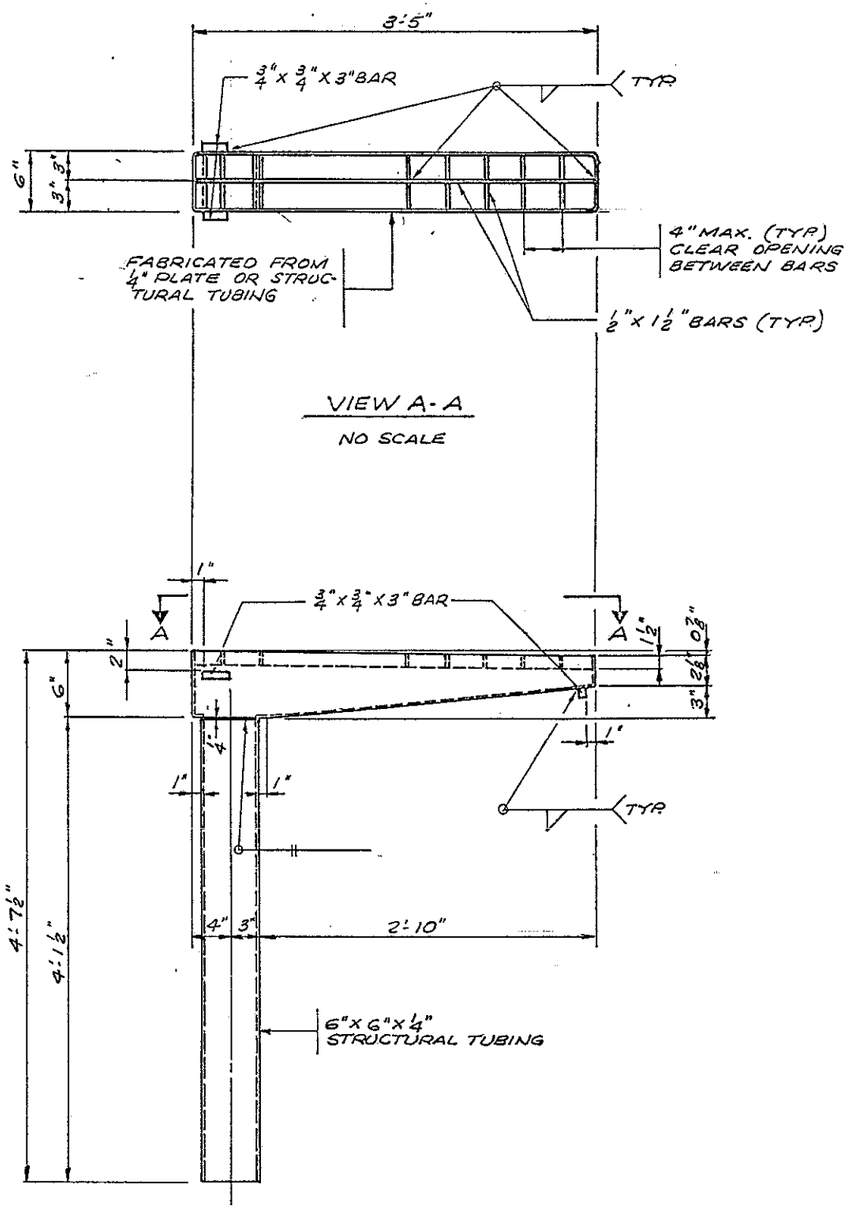
DETAIL NO. B830

CERTIFIED BY Dale Drawer
PROFESSIONAL ENGINEER
REG. NO. 20666 1996

TITLE: MISC. BRIDGE DETAILS

DES.: RAB | DRWN.: WNJ. | APPROVED:
CHK.: DAO | CHK.: RAB
S.A.P. 55-598-41
SHEET 44 OF 51 SHEETS

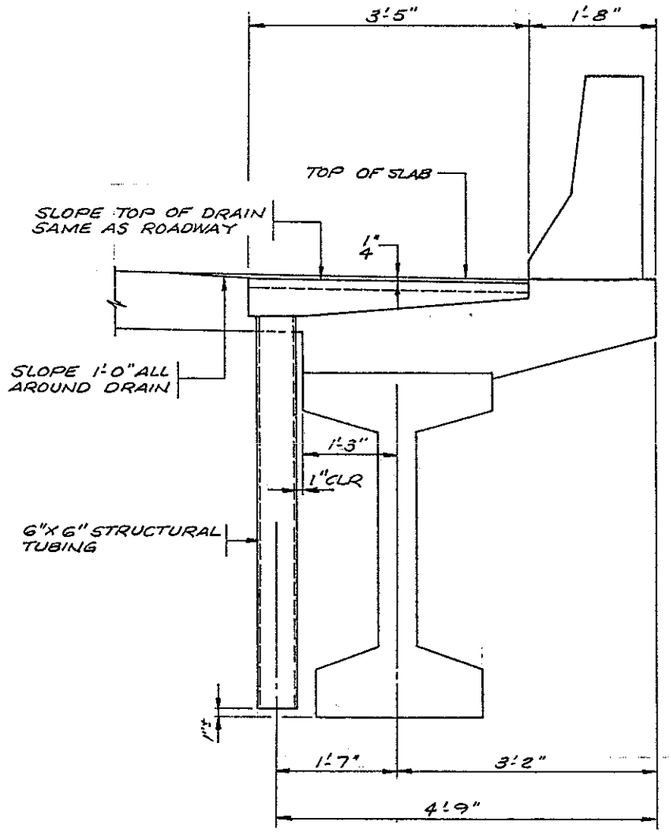
BRIDGE NO. 55555



ELEVATION - B702 MOD.

NO SCALE

GALVANIZE AFTER FABRICATION PER MN. SPEC. 3394.



FLOOR DRAIN PLACEMENT DIAGRAM

I hereby certify that this plan, specification, or report 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 5-23-96 Reg. No. 20688

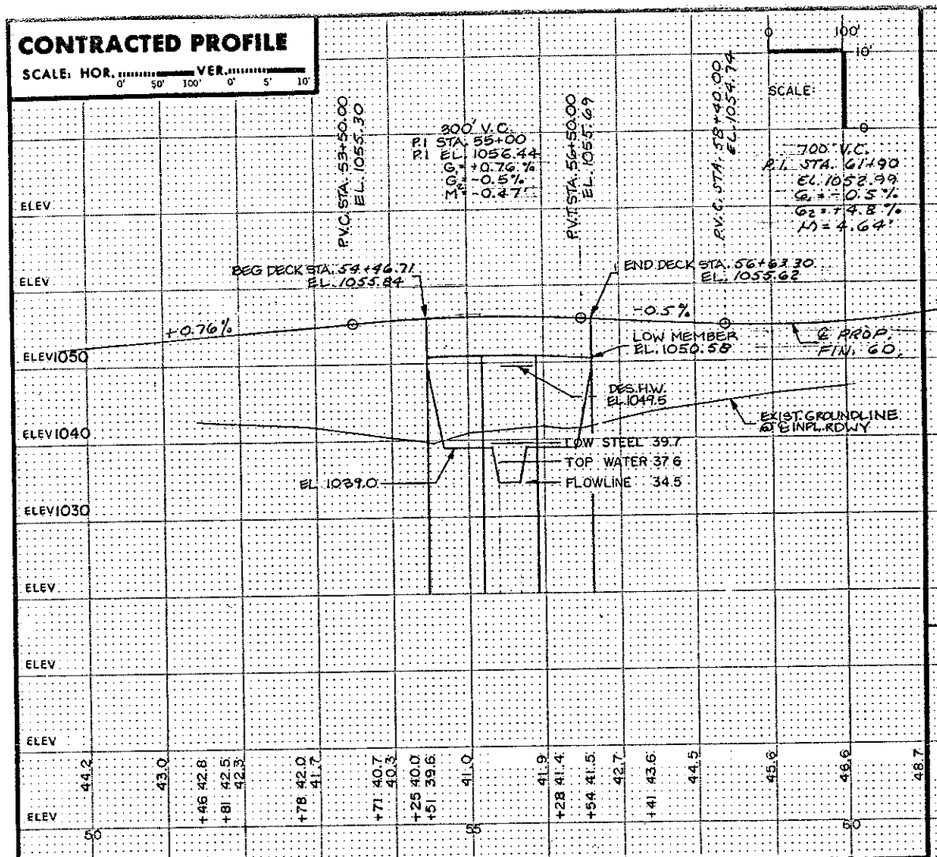
S.A.P. 55-598-41

FLOOR DRAIN DETAIL (B702 MODIFIED)	DRAWN W.N.J.	CHECKED D.A.D.	APPROVED	BRIDGE NO. 55555
	SHEET 45 OF 51 SHEETS			

Fed. Proj. No.

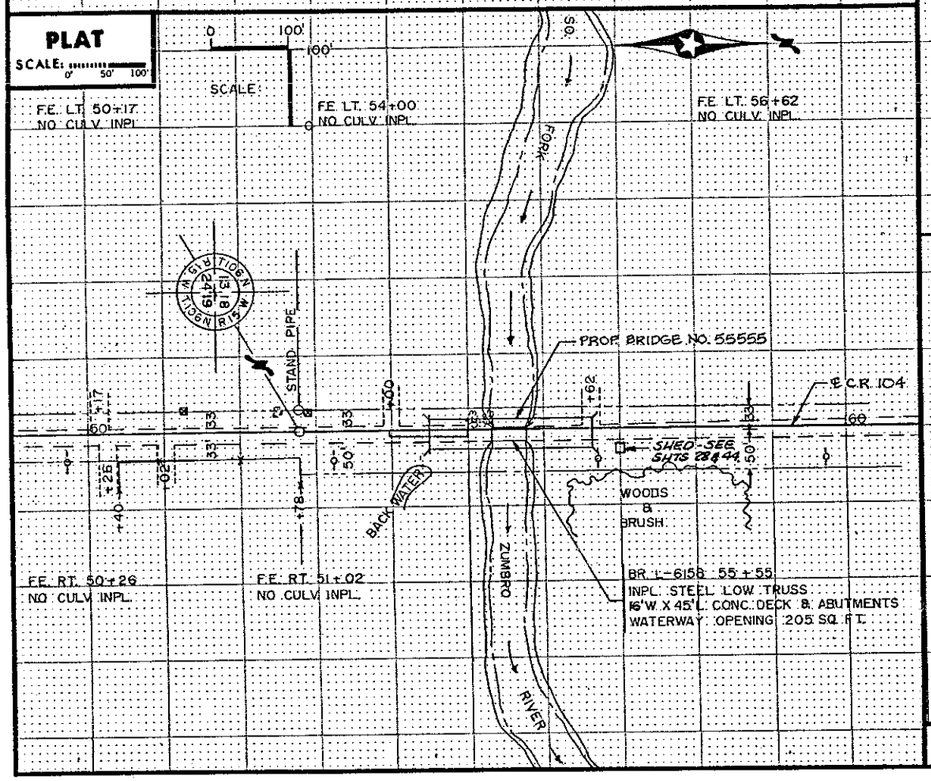
CONTRACTED PROFILE

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



PLAT

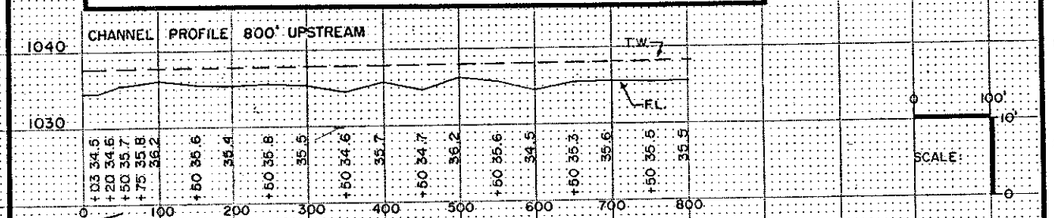
SCALE: 0' 50' 100'



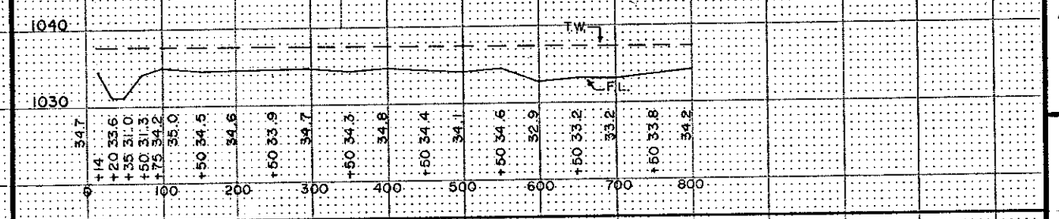
TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN

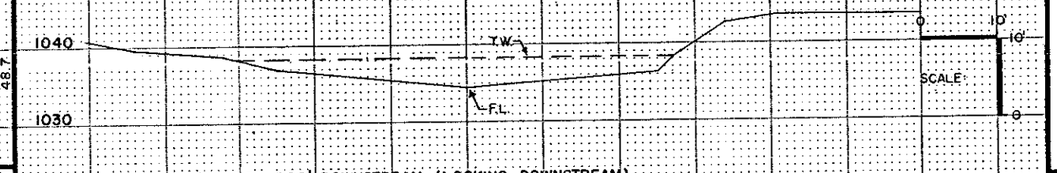
CHANNEL PROFILE 800' UPSTREAM



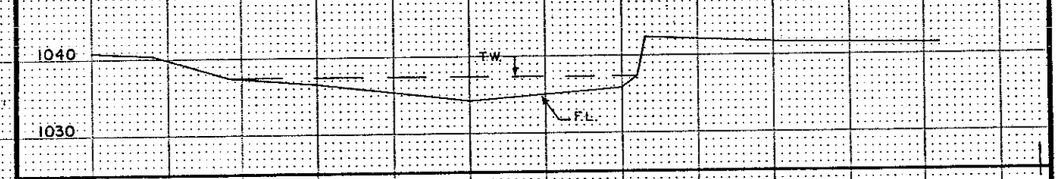
CHANNEL PROFILE 800' DOWNSTREAM



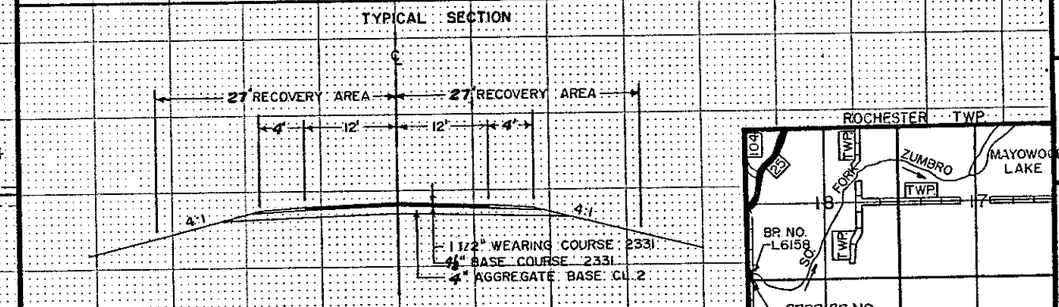
CHANNEL X-SECTION 600' UPSTREAM (LOOKING UPSTREAM)



CHANNEL X-SECTION 500' DOWNSTREAM (LOOKING DOWNSTREAM)



TYPICAL SECTION



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 1052.1 Obtained from COUNTY SURVEY

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

HYDRAULIC ENGINEERS RECOMMENDATION

DATE 7-13-94

Stream or ditch designation SOUTH FORK ZUMBRO RIVER

Drainage area 109 SQ. MI.

Max. flood on record UNKNOWN Design flood (50 yr. freq.) 9395 C.F.S.

Max. observed highwater elevation 1052.1 Design highwater elevation 1049.5

Design mean velocity through structure 4.4 F.P.S.

Low superstructure at or above elevation 1050.5

Flowline elevation 1034.5 Skew angle NONE

Waterway area req'd. below elevation 1049.5 2150 Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 11325 C.F.S. at stage 1050.4 and mean velocity of 4.6 F.P.S. with 0.9 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.

EST. PIER SCOUR EL. (100-YR FLOOD) 1014.8.

ENGINEERS RECOMMENDATION

DATE 10-13-94

3-72 FT. PRESTR. CONC. BEAM SPANS

36 FT. ROADWAY

Bridge survey sheets made from: SURVEY CONDUCTED BY OLMSTED COUNTY

Bench mark elevation 1041.16 (M.S.L. 1929 Adj.)

Location: X ON S.W. WALL, BR. NO. L6158

MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

AT MILE POINT 1.0 ON C.R. 104 (T.H., C.S.A.H., C.R. etc.)

PROPOSED BRIDGE LOCATED 0.5 MILES SO. OF OLMSTED COUNTY C.S.A.H. 25

SEC. 18 TWP. 106N R. 14W

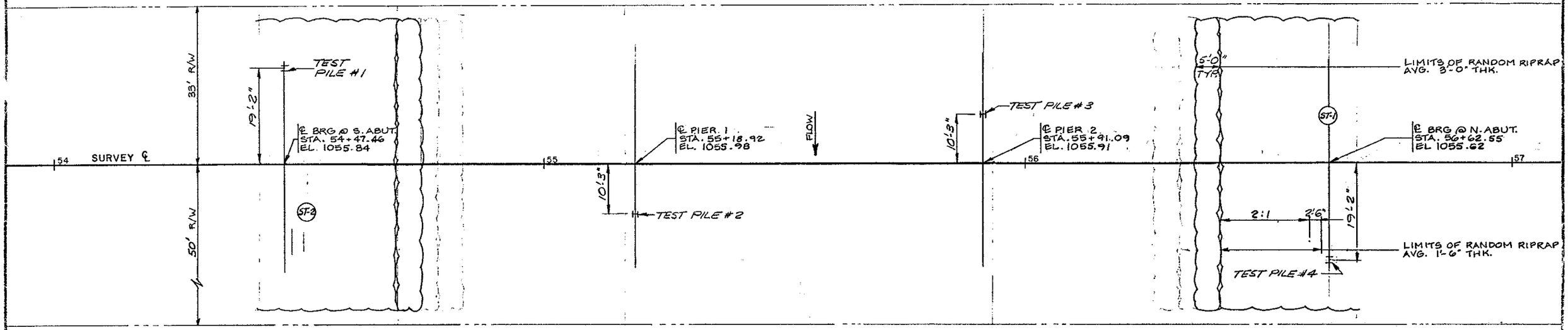
TOWNSHIP ROCHESTER COUNTY OLMSTED

BRIDGE NO. 55555

Area No. Job No. State Proj. No. 55-598-41 Sheet No. 46 of 51 Sheets

Fed. Proj. No.

SCALE: 0 10' 10'



PLAN

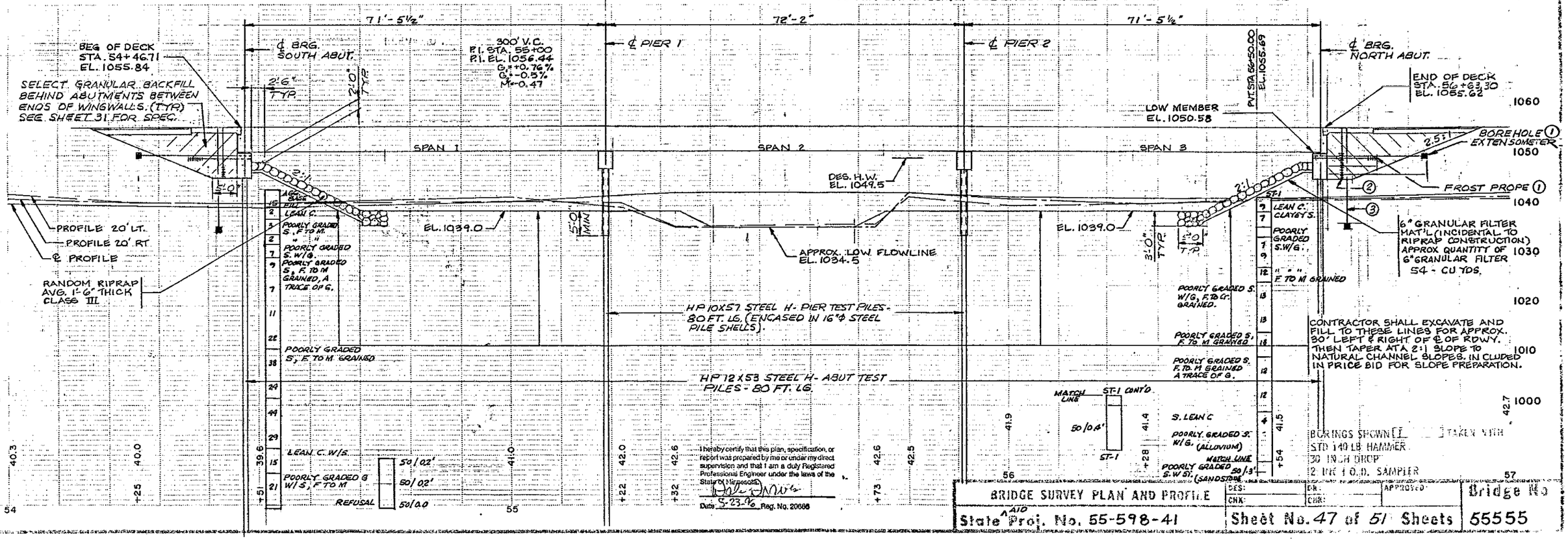
APPROACH GRADING BY BRIDGE CONTRACTOR

① TYPICAL EACH ABUTMENT, SUPPLIED AND INSTALLED BY OTHERS. INSTALLED DURING THE BACKFILLING PROCESS. SEE SPECIAL PROVISIONS.

② FROST PROBE, TYPICAL EACH ABUTMENT. INSTALLED BY OTHERS AFTER BACKFILLING. SEE SHEET 39.

③ BOREHOLE EXTENSOMETER, TYPICAL EACH ABUTMENT. INSTALLED BY OTHERS AFTER BACKFILLING. SEE SHEET 39.

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



I hereby certify that this plan, specification, or report 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 5-23-96 Reg. No. 20668

BRIDGE SURVEY PLAN AND PROFILE	DES:	DR:	APPROVED:
	CHK:	CHR:	Bridge No. 55555
State Aid Proj. No. 55-598-41	Sheet No. 47 of 51 Sheets		