MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR REPLACE OLD BRIDGE 5605 WITH NEW BRIDGE 55554 & REALIGN THE APPROACH ROAD

LOCATED ON C.S.A.H. 3 OVER NORTH BRANCH OF ROOTRIVER, 7 MILES WEST OF STEWARTVILLE, MN. **(GEOGRAPHIC DESCRIPTION)**

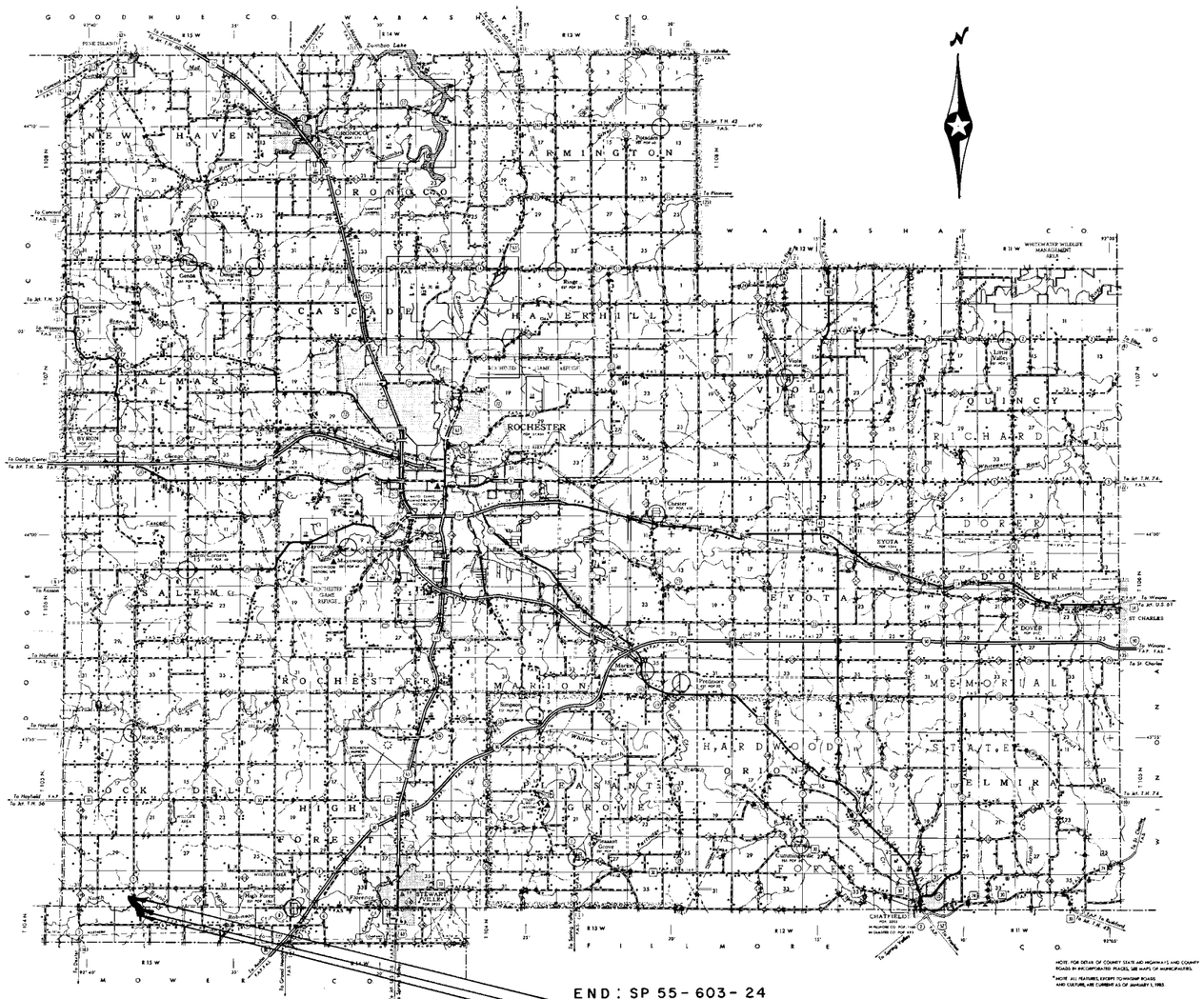
FROM 1592' NORTH OF E-W 1/4 LINE SEC. 4 T-104-N R-15-W **TO** A PIONT 1500' SO. OF 1/4 COR. 32-33 T-105-N R-15-W **(LEGAL DESCRIPTION)**

STATE PROJ. NO. _____

GROSS LENGTH	FEET		MILES
BRIDGES-LENGTH	FEET		MILES
EXCEPTIONS-LENGTH	FEET		MILES
NET LENGTH	FEET		MILES

STATE PROJ. NO. 55-603-24

GROSS LENGTH	3,100.00	FEET	0.587 MILES
BRIDGES-LENGTH	129.58	FEET	0.024 MILES
EXCEPTIONS-LENGTH	0.00	FEET	0.000 MILES
NET LENGTH	3,100.00	FEET	0.587 MILES



END: SP 55-603-24
STA. 162+50
PROPOSED BR. 55554

BEGIN: SP 55-603-24
STA. 131+50

SCALES

PLAN 0 100'

PROFILE 0 100' HORIZONTAL & 0 10' VERTICAL

INDEX MAP 0 10,560'

CROSS SECTIONS 0 10'

PLANS SYMBOLS

STATE LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
RIGHT-OF-WAY LINE
PRESENT RIGHT-OF-WAY LINE
CONTROL OF ACCESS LINE
PROPERTY LINE (Except Land Lines)
VACATED PLATTED PROPERTY
CORPORATE OR CITY LIMITS
TRUNK HIGHWAY CENTER LINE
RETAINING WALL
RAILROAD
RAILROAD RIGHT-OF-WAY LINE
RIVER OR CREEK (NAME)
DRY RUN
DRAINAGE DITCH (SIZE)
DRAIN TILE
CULVERT
DROP INLET
GUARD RAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE (W)
CHAIN LINK FENCE (C.L.)
RAILROAD SNOW FENCE
STONE WALL OR FENCE
HEDGE
RAILROAD CROSSING SIGN
RAILROAD CROSSING BELL
ELECTRIC WARNING SIGN
CROSSING GATE
MEANDER CORNER
SPRINGS
MARSH
TIMBER
ORCHARD
BRUSH
NURSERY
(TIMBER)
CATCH BASIN (C.B.)
FIRE HYDRANT
CATTLE GUARD
OVERPASS (Highway Over)
UNDERPASS (Highway Under)
BRIDGE
BUILDING (One Story Frame) 1-S-F 75'
F - FRAME C - CONCRETE
S - STONE T - TILE
B - BRICK ST - STUCCO
IRON PIPE OR ROD
MONUMENT (STONE, CONCRETE, OR METAL)
WOODEN HUB
GRAVEL PIT (G)
SAND PIT (S)
BORROW PIT (B)
ROCK QUARRY (Q)
SLOPE EASEMENT SE

UTILITIES SYMBOLS

POWER POLE LINE
TELEPHONE OR TELEGRAPH POLE LINE
JOINT TELEPHONE AND POWER ON POWER POLES
ON TELEPHONE POLES
ANCHOR
STEEL TOWER
STREET LIGHT
PEDESTAL (TELEPHONE CABLE TERMINAL)
GAS MAIN (G)
WATER MAIN (W)
CONDUIT
TELEPHONE CABLE IN CONDUIT (T)
ELECTRICAL CABLE IN CONDUIT (P)
TELEPHONE MANHOLE (T)
ELECTRIC MANHOLE (P)
BURIED TELEPHONE CABLE P-BUR
BURIED ELECTRICAL CABLE P-BUR
AERIAL TELEPHONE CABLE T-AE
SEWER, (SANITARY OR STORM)
SEWER MANHOLE

ALBINSON-MPLS 55405

72065

MINN. PROJ. NO. 5595 (251)

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	NO. 2	ESTIMATE OF QUANTITIES
SHEET	NO. 2	TYPICAL SECTIONS & DETAIL
SHEET	NO. 3	TRAFFIC CONTROL PLAN
SHEETS	NO. 4 & 5	PLAN & PROFILE
SHEETS	NO. 6 & 7	GUARDRAIL INSTALLATION
SHEETS	NO. 7A - 7D	EROSION CONTROL
SHEETS	NO. 8 - 12	CROSS SECTIONS
SHEETS	NO. 13 - 29	BRIDGE PLANS

THIS PLAN CONTAINS 33 SHEETS.

DESIGN DESIGNATION

2 - 12' TRAFFIC LANES

R _____ ΣN18(20)

ADT (Current Year)	=	259 (1996)	Design Speed 55 MPH
ADT (Future Year)	=	389 (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)	=	5 %	STA. TO STA. MPH
SOIL FACTOR		130	STA. TO STA. MPH
			STA. TO STA. MPH

ULT. 9 TON DESIGN
SHOULDER WIDTH 4'
FUNCTIONAL CLASSIFICATION: RURAL MINOR COLLECTOR

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 12/22/95 REG. NO. 10397 ENGR. Michael Steichen

COUNTY Olmsted

Recommended for Approval _____ 1/9 1996
DISTRICT STATE AID ENGINEER

Recommended for Approval _____ 6-18 1996
FOR STATE AID DIVISION

Approved 6-18 1996 _____
STATE AID ENGINEER

Recommended for Approval _____ 6-13 1996
STATE BRIDGE ENGINEER

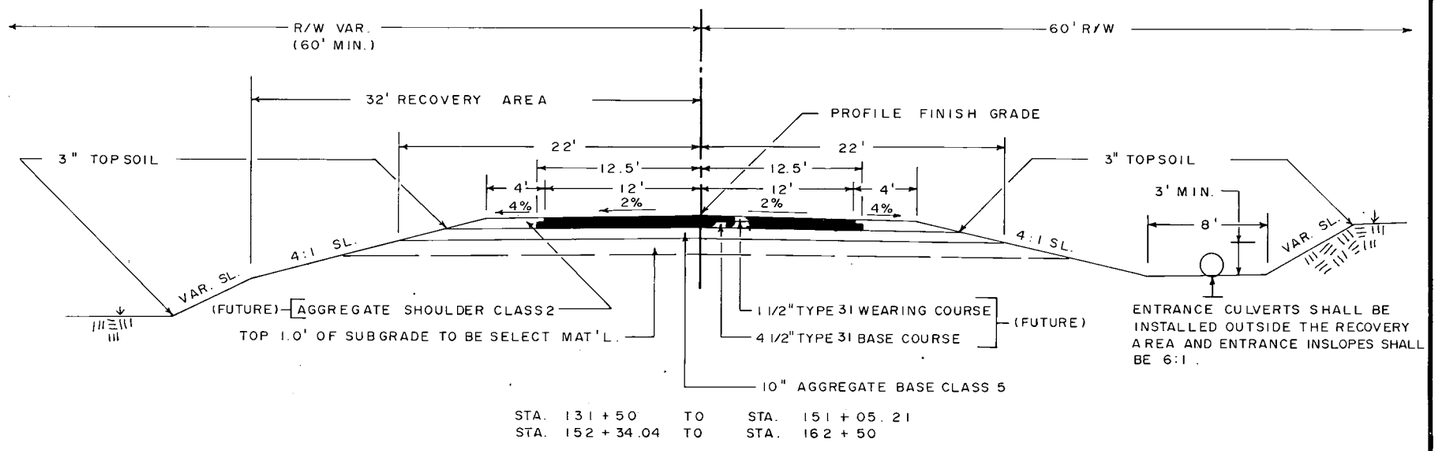
~~STATE AID PROJ. NO.~~

STATE PROJ. NO. 55-603-24 **SHEET NO.** 1 **OF** 29 **SHEETS**

ESTIMATED QUANTITIES (13)

	SPECIFICATION NO.	ITEM	UNIT	PARTICIPATING	NON PARTICIPATING	TOTAL ESTIMATED QUANTITIES
	2031 . 501	FIELD OFFICE TYPE D	EACH		1	1
	2101 . 502	CLEARING	TREE		72	72
	2101 . 507	GRUBBING	TREE		88	88
	2104 . 501	REMOVE FENCE	LIN. FT.		840	840
	2104 . 501	REMOVE PIPE CULVERTS	LIN. FT.		205	205
	2104 . 513	SAWING BITUMINOUS PAVEMENT	LIN. FT.		48	48
(1)	2105 . 515 (P)	UNCLASSIFIED EXCAVATION	CU. YD.		17,953	17,953
	2105 . 523	COMMON BORROW (LV)	CU. YD.		8,641	8,641
(2)	2130 . 501	WATER	(M) GAL.		15	15
(3)	2211 . 501	AGGREGATE BASE CLASS 5 (MOD.)	TON		7,500	7,500
	2501 . 511	18" C.S. PIPE CULVERT	LIN. FT.		218	218
	2501 . 511	24" C.S. PIPE CULVERT	LIN. FT.		66	66
	2501 . 511	36" C.S. PIPE CULVERT	LIN. FT.		54	54
	2501 . 567	18" C.S. SAFETY APRON	EACH		8	8
	2501 . 567	24" C.S. SAFETY APRON	EACH		2	2
	2501 . 567	36" C.S. SAFETY APRON	EACH		2	2
(4)	2554 . 501	TRAFFIC BARRIER DESIGN B8307	LIN. FT		400	400
(5)	0554 . 602	T-BARRIER BRIDGE CONN. DES. 8318	EACH		4	4
(6)	0554 . 602	ECCENTRIC LOADER BCT	EACH		4	4
	0563 . 601	TRAFFIC CONTROL	LUMP SUM		1	1
(7)	2573 . 501	BALE CHECK	EACH		40	40
(8)	2573 . 502	SILT FENCE, TYPE HEAVY DUTY	LIN. FT.		800	800
(8)	2573 . 502	SILT FENCE, TYPE PREASSEMBLED	LIN. FT.		600	600
	2575 . 501 (P)	SEEDING	ACRE		4.6	4.6
(9)	2575 . 502	SEED, MIXTURE 500	POUND		230	230
(10)	2575 . 502	SEED, MIXTURE 1100	POUND		276	276
(11)	2575 . 511	MULCH MATERIAL TYPE 1	TON		10	10
	2575 . 519 (P)	DISK ANCHORING	ACRE		4.4	4.4
(12)	2575 . 532	COMMERCIAL FERTILIZER ANALYSIS 12-12-12	POUND		920	920

TYPICAL GRADING & SURFACING SECTION

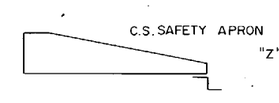


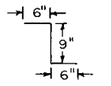
ENTRANCE CULVERTS SHALL BE INSTALLED OUTSIDE THE RECOVERY AREA AND ENTRANCE INSLOPES SHALL BE 6:1.

STA. 131 + 50 TO STA. 151 + 05.21
STA. 152 + 34.04 TO STA. 162 + 50

NOTE: ALL UTILITY POLES AND UNYIELDING OBJECTS SHALL BE RELOCATED OUTSIDE THE 32' RECOVERY AREA. (BY OTHERS)
NOTE: ALL DIMENSIONS AND SLOPES SHOWN ON TYPICAL SECTION ARE APPROXIMATE.

"Z" ANCHOR DETAIL FOR C.S. SAFETY APRON





CONSTRUCTION NOTES:
"Z" ANCHOR TO BE PLACED ON ALL C.S. SAFETY APRONS AT INLET END.
"Z" ANCHOR MAY BE EITHER BOLTED WITH 3-1/2" DIA. GALVANIZED BOLTS OR WELDED TO THE APRON AND PAINTED (SPEC. 3505).
"Z" ANCHOR SHALL BE MIN. 1/8" THICK AND GALVANIZED AS PER MN/DOT (SPEC. 3392)



NOTE:
FURNISHING AND INSTALLING OF "Z" ANCHOR IS CONSIDERED INCIDENTAL FOR WHICH NO DIRECT PAYMENT WILL BE MADE.

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.
3040 F	CORRUGATED METAL PIPE CULVERT.
3128 F	SAFETY APRON
3221 C	CORRUGATED STEEL PIPE COUPLING.
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 C	APPROACHES AND ENTRANCES.

(1) UNCLASSIFIED EXCAVATION INCLUDES SUBGRADE TREATMENT AS SHOWN IN PLANS. 1,833 CU. YDS. UNCLASSIFIED EXCAVATION TO BE USED AS SALVAGED TOPSOIL AND PLACED AS SHOWN IN PLANS.

(2) WATER TO BE USED AS A DUST PREVENTATIVE AS DIRECTED BY THE ENGINEER.

(3) INCLUDES 187 TONS AGG. BASE CL. 5 FOR 6 ENTRANCES.

(4) INCLUDES ALL MATERIAL, EQUIPMENT, AND LABOR TO FURNISH AND INSTALL 400 LIN. FT. OF TYPICAL GUARDRAIL B8307.

(5) INCLUDES ALL MATERIAL, EQUIPMENT, AND LABOR TO FURNISH AND INSTALL GUARDRAIL ANCHORAGE PLATES FOR BRIDGE.

(6) INCLUDES ALL MATERIAL, EQUIPMENT, AND LABOR TO FURNISH AND INSTALL ECCENTRIC LOADER BREAKAWAY CABLE TERMINAL (ELT) 37.5 LIN. FT. EACH.

(7) HAY OR STRAW BALES TO BE USED FOR EROSION CONTROL AS DIRECTED BY THE ENGINEER.

(8) SILT FENCE TO BE PLACED AS SHOWN IN PLANS, AND AS DIRECTED BY THE ENGINEER, ALSO INCLUDES MAINTENANCE AND REMOVAL.

(9) APPLICATION RATE 50 POUNDS PER ACRE.

(10) APPLICATION RATE 60 POUNDS PER ACRE

(11) APPLICATION RATE 2 TONS PER ACRE.

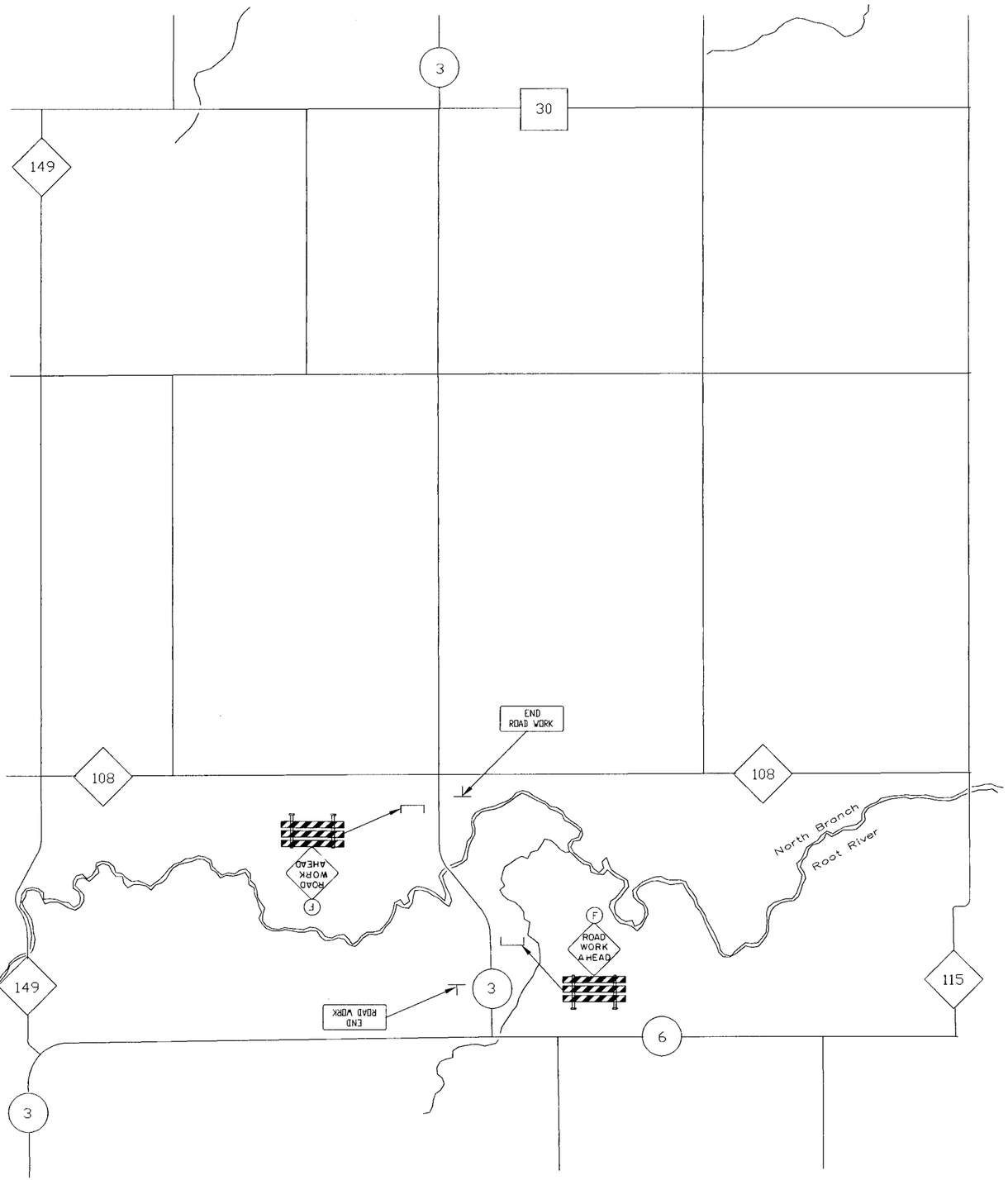
(12) APPLICATION RATE 200 POUNDS PER ACRE.

(13) SEE BRIDGE PLAN SHEET 13 FOR BRIDGE QUANTITIES.

CERTIFIED BY Kaye M Bruneh (PROFESSIONAL ENGINEER) REG. NO. 19917 12/19 1995

State Proj. No. 55-603-24 **Sheet No.** 2 **of** 29 **Sheets**

ALBINSON, INC. MINNEAPOLIS 55455





ESTIMATE OF TRAFFIC CONTROL DEVICES

DEVICE	NUMBER	SIZE	COLOR	QUANTITY	DEVICE	NUMBER	SIZE	COLOR	QUANTITY
END ROAD WORK	G20-2A	48 x 24	BLK/OR	2		TYPE III	MIN. 6'	OR & BLK	2
ROAD WORK AHEAD	W20-1	36 x 36	BLK/OR	2	(F)	TYPE A	FLASHING LAMP	AMBER	2

TRAFFIC CONTROL LEGEND

⊥ POST OR STAND MOUNTED SIGN

└┘ TYPE III BARRICADE

(F) TYPE "A" AMBER FLASHING LAMP

TRAFFIC CONTROL NOTES

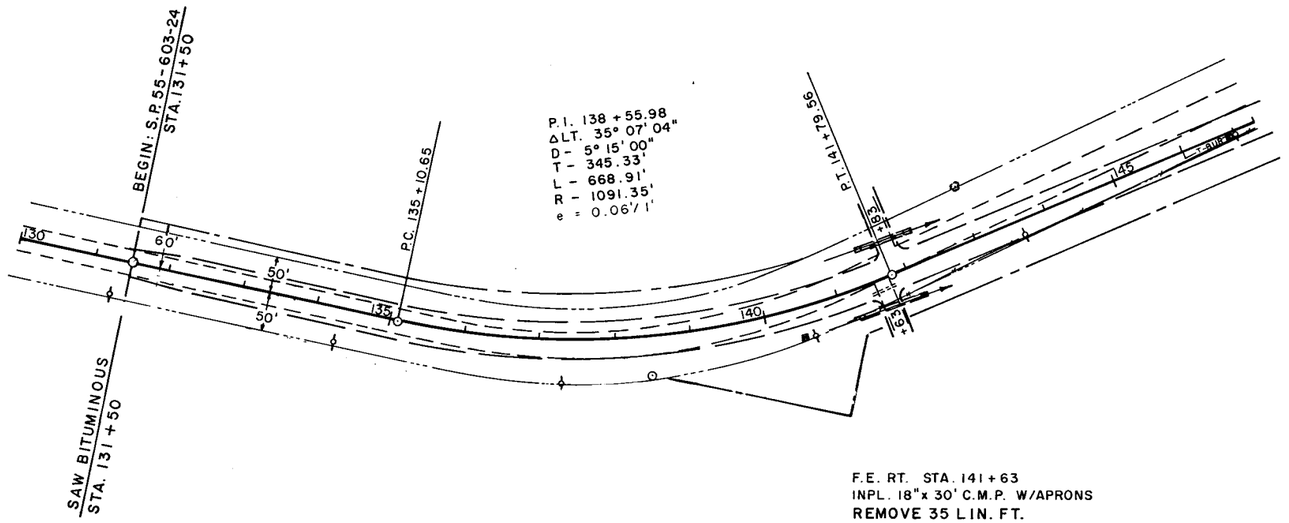
1. THE LOCATION OF SIGNS AND DEVICES WILL BE STAKED BY THE ENGINEER IN THE FIELD.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL ON THIS PROJECT.
3. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS FIELD MANUAL DATED APRIL 1995.
4. CONSTRUCTION ZONE SIGNING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND WILL INCLUDE, BUT NOT BE LIMITED TO SIGNS FOR LANE CLOSURE, MACHINARY AHEAD, BUMP, DIP, LOOSE GRAVEL, ECT. THE NUMBER AND LOCATION WILL BE DETERMINED BY THE CONTRACTORS OPERATION.
5. ALL BARRICADES ON THIS PROJECT SHALL BE REFLECTORIZED ON BOTH SIDES.

CERTIFIED BY Gary M Brienick PROFESSIONAL ENGINEER REG. NO. 19317 12/19 19 95

S.A.P. NO. 55-603-24

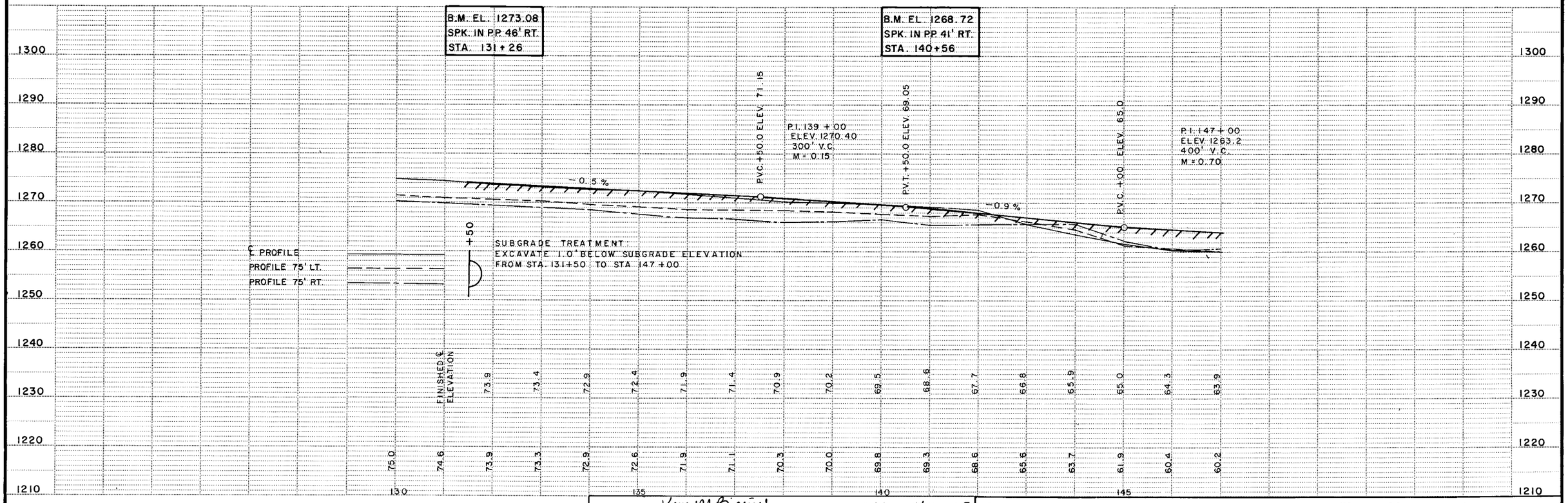
F.E. LT. STA. 141+83
INPL. 18"x30' C.M.P. W/APRONS
REMOVE 35 LIN. FT.

18"x38' C.S. PIPE CULVERT
2-18" C.S. PIPE SAFETY APRONS



F.E. RT. STA. 141+63
INPL. 18"x30' C.M.P. W/APRONS
REMOVE 35 LIN. FT.

18"x38' C.S. PIPE CULVERT
2-18" C.S. PIPE SAFETY APRONS



CERTIFIED BY Kaye M Bierwirth (PROFESSIONAL ENGINEER) REG. NO. 19917 12/19 1995

State Proj. No. 55-603-24

Sheet No. 4 **of** 29 **Sheets**

F.E. LT. 149 + 74 MOVE TO STA. 149 + 00
INPL. 36"x 26' C.M.P. W/APRONS
REMOVE 36 LIN. FT.

36"x 54' C.S. PIPE CULVERT
2 - 36" C.S. PIPE SAFETY APRONS

F.E. LT. 160 + 18
INPL. 18"x 28' C.M.P. W/APRONS
REMOVE 33 LIN. FT.

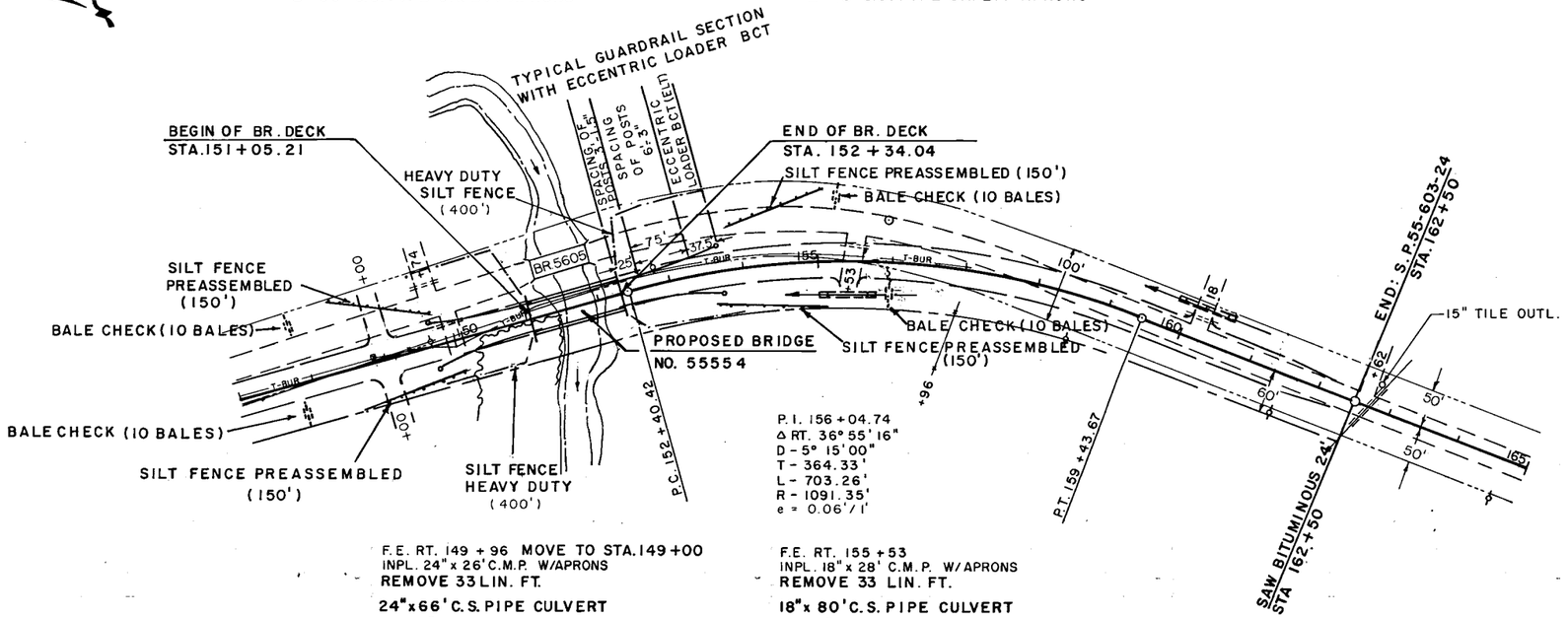
18"x 62' C.S. PIPE CULVERT
2 - 18" C.S. PIPE SAFETY APRONS

F.E. LT. 162 + 62
NO CULV.
NO CHANGE

℄ CULV. 162 + 70
INPL. 90"x 54' S.C. SPAN W/APRONS
NO CHANGE

CONST. GUARDRAIL :

4 - T-BARRIER BRIDGE CONNECTION DESIGN 8313
4 - 100 LIN. FT. OF TRAFFIC BARRIER DESIGN B8307
4 - 37.5 LIN. FT. OF ECCENTRIC LOADER BREAKAWAY CABLE TERMINAL (ELT) END TREATMENT. DESIGN 8329.

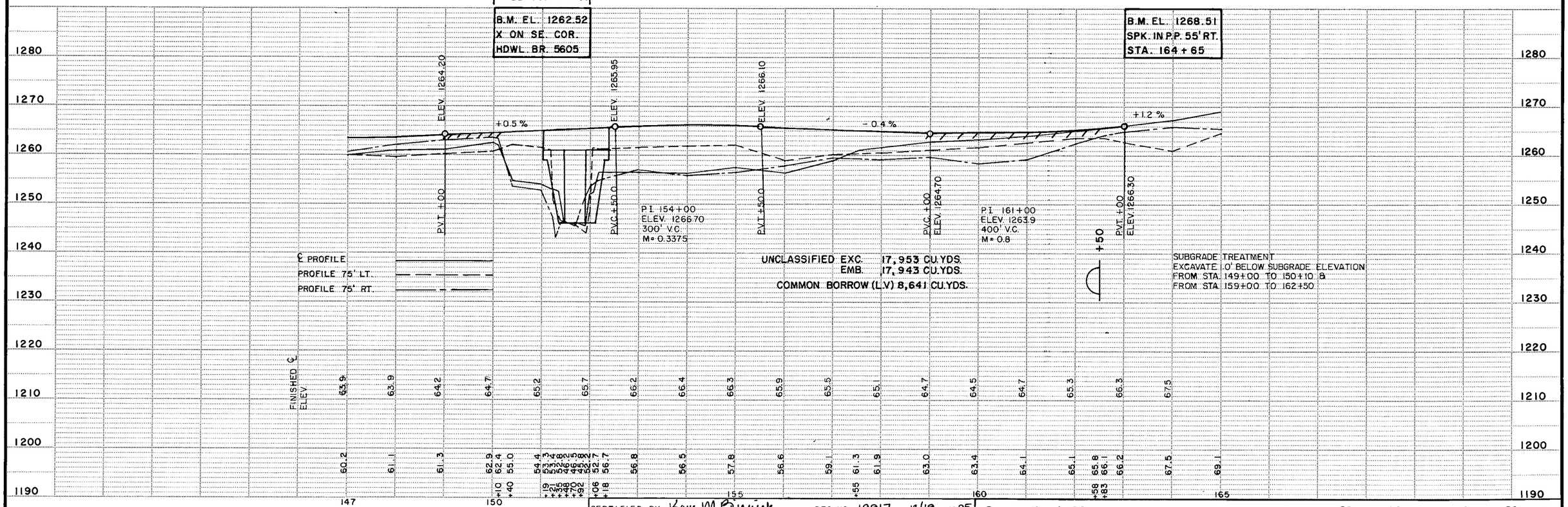


F.E. RT. 149 + 96 MOVE TO STA. 149 + 00
INPL. 24"x 26' C.M.P. W/APRONS
REMOVE 33 LIN. FT.

24"x 66' C.S. PIPE CULVERT
2 - 24" C.S. PIPE SAFETY APRONS

F.E. RT. 155 + 53
INPL. 18"x 28' C.M.P. W/APRONS
REMOVE 33 LIN. FT.

18"x 80' C.S. PIPE CULVERT
2 - 18" C.S. PIPE SAFETY APRONS



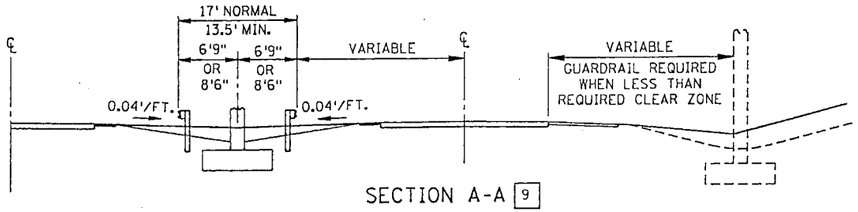
UNCLASSIFIED EXC. 17,953 CU.YDS.
EMB. 17,943 CU.YDS.
COMMON BORROW (L.V) 8,641 CU.YDS.

SUBGRADE TREATMENT
EXCAVATE .0' BELOW SUBGRADE ELEVATION
FROM STA. 149+00 TO 150+10 &
FROM STA. 159+00 TO 162+50

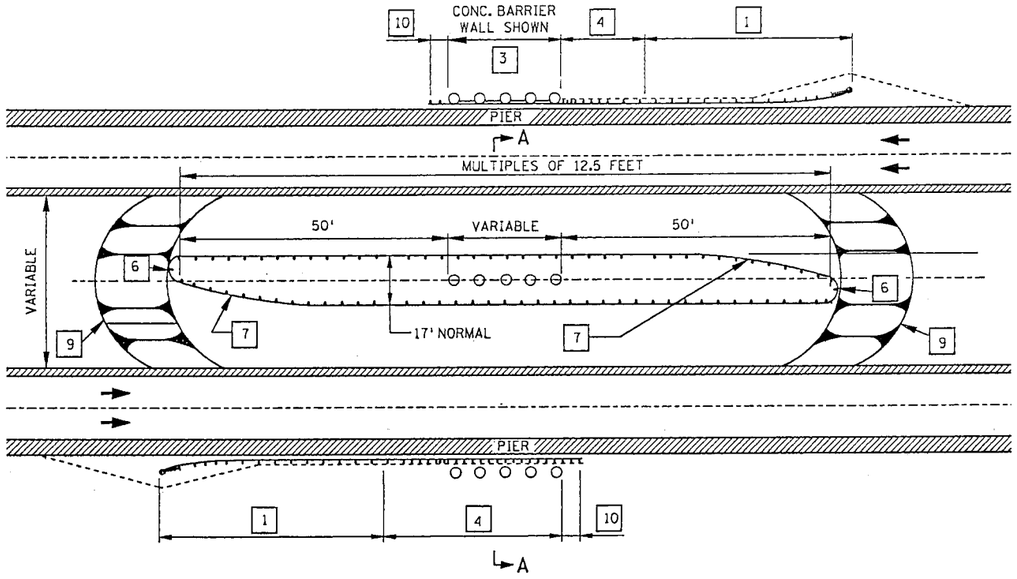
CERTIFIED BY Kaye M Bruneck (PROFESSIONAL ENGINEER) REG. NO. 19917 12/19 1995

State Proj. No. 55-603-24

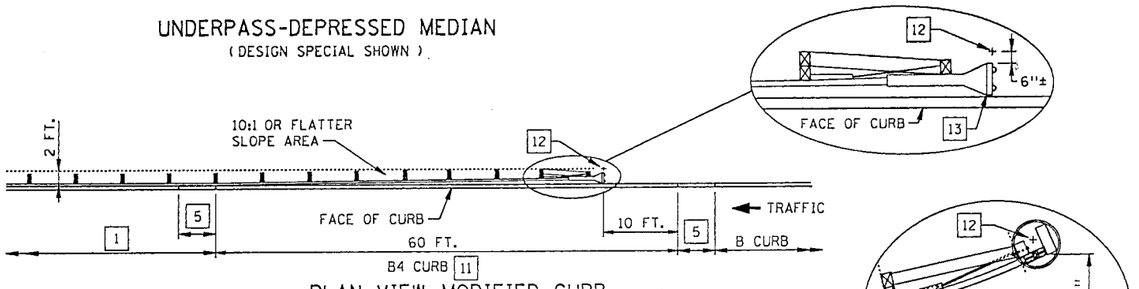
Sheet No. 5 **of** 29, **Sheets**



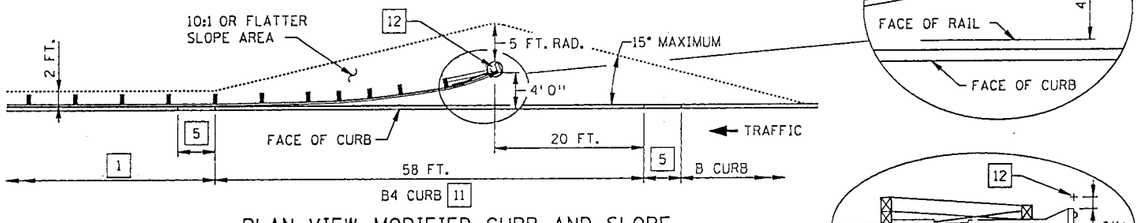
SECTION A-A [9]



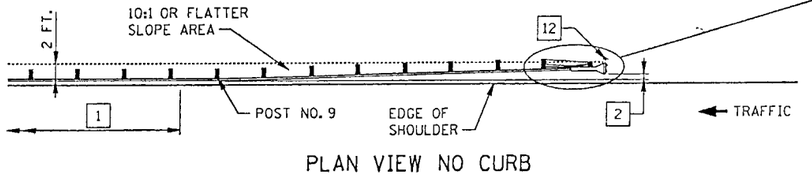
UNDERPASS-DEPRESSED MEDIAN
(DESIGN SPECIAL SHOWN)



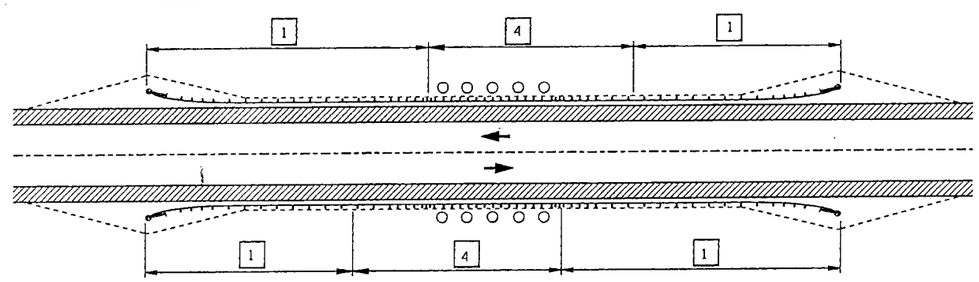
PLAN VIEW MODIFIED CURB



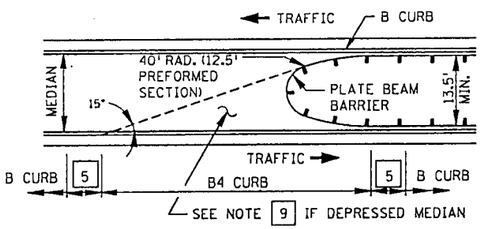
PLAN VIEW MODIFIED CURB AND SLOPE



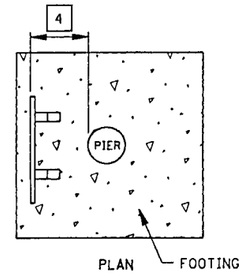
PLAN VIEW NO CURB

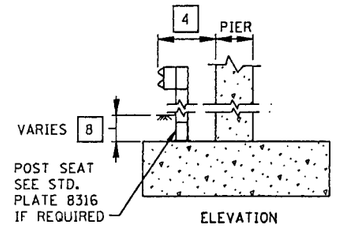


TWO-WAY UNDERPASS
(DESIGN SPECIAL SHOWN)



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.

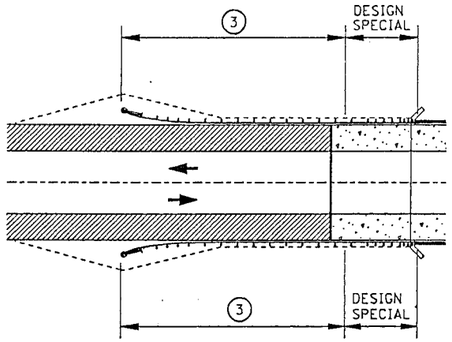
[11] IF 6"+ HIGH CURB, MILL TO 3" HEIGHT. NEW: CONSTRUCT 4" HIGH CURB.

[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.

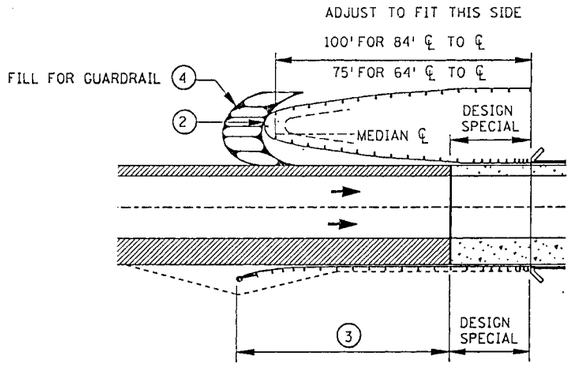
[13] SET EDGE OF EXTRUDER BOX 9" FROM FACE OF CURB.

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. 55-603-24	SHEET NO. 6 OF 29 SHEETS

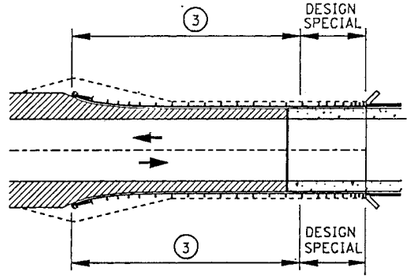
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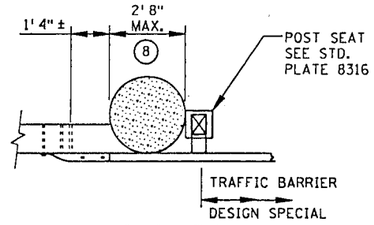
TWO - WAY BRIDGE
WITH FULL SHOULDERS



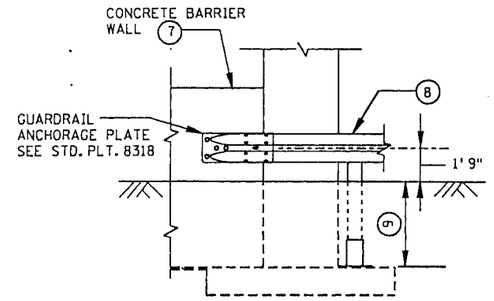
ONE - WAY BRIDGE
WITH FULL RIGHT SHOULDER



TWO - WAY BRIDGE
WITHOUT FULL SHOULDERS

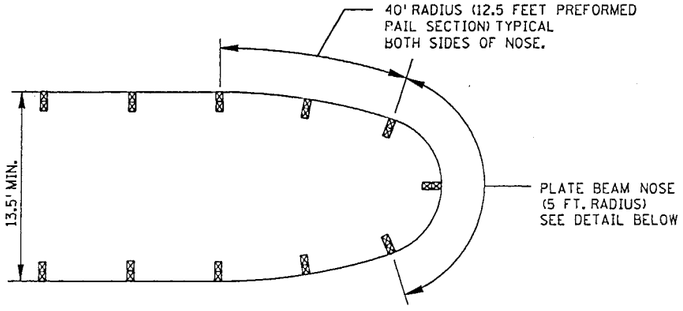


PLAN VIEW



ELEVATION

GUARDRAIL POST TO CONCRETE
BARRIER WALL CONNECTION (6)



OPTIONAL GUARDRAIL INSTALLATION (1)

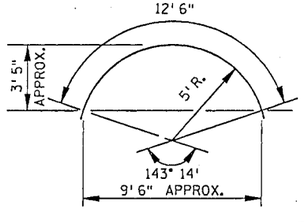
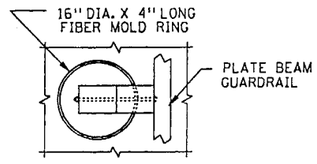
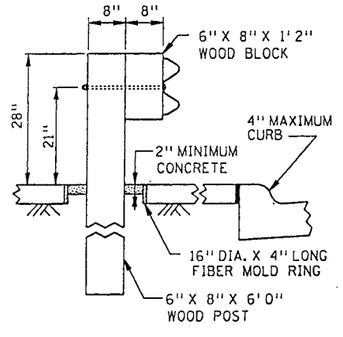


PLATE BEAM NOSE (5)
(5 FOOT RADIUS)



PLAN VIEW



ELEVATION

TYPICAL SECTION AT POST
SET IN CONCRETE

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. ____.

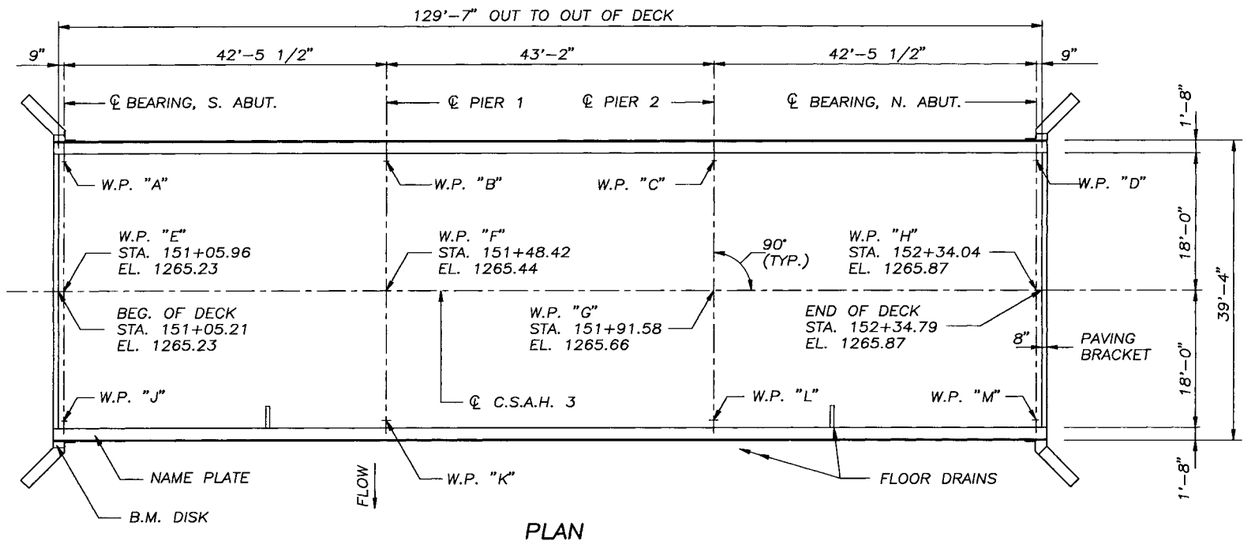
(7) CONCRETE BARRIER WALL BETWEEN BRIDGE PIER COLUMNS . SEE SHEET NO. ____. FOR WALL DETAILS.

(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. 5-297.601 (2 OF 2)	TITLE: GUARDRAIL INSTALLATIONS AT MEDIANS AND END TREATMENTS
STANDARD APPROVED: OCTOBER 13, 1995	
STATE PROJ. NO. 55-603-24	SHEET NO. 7 OF 29 SHEETS

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



PLAN
SCALE: 1"=10'-0"

B.M. ELEV. 1262.52 (M.S.L. 1929 ADJ.)

LOCATION: 'X' ON S.E. CORNER OF INPL. BR. HEADWALL.

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
- STRUCTURAL STEEL:
  - fy = 36000 PSI SPEC. 3306

DECK AREA = 5097 S.F. A.D.T. = 389 (2016)
OPERATING RATING = HS 41

CONSTRUCTION NOTES

THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AS AMENDED BY THE THE MAY 2, 1994 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 OF EACH ABUTMENT SHALL NOT BE STARTED UNTIL THE APPROACH FILL AT THAT ABUTMENT HAS BEEN CONSTRUCTED TO THE FULL HEIGHT AND CROSS-SECTION.

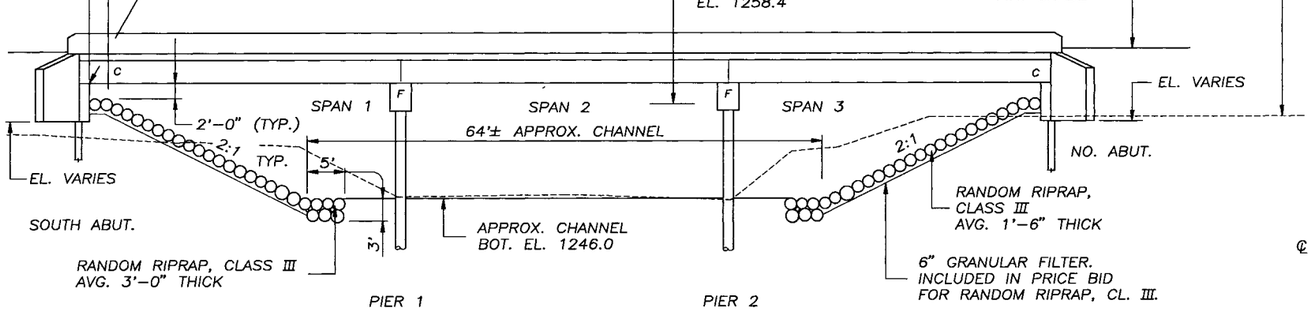
LIST OF SHEETS

NO.	TITLE
1	TITLE SHEET
13	GENERAL PLAN & ELEVATION
14	BRIDGE LAYOUT
15&16	ABUTMENT DETAILS
17	PIER DETAILS
18&19	SUPERSTRUCTURE DETAILS
20	PRESTR. CONC. BEAM DETAILS
21	CONC. RAIL DETAILS (TYPE J)
22&27	DETAILS
28	BRIDGE SURVEY
29	BRIDGE SURVEY PLAN & PROFILE

APPROVED:
Michael Sheehan
COUNTY ENGINEER
OLMSTED COUNTY
DATE: 12/22/95

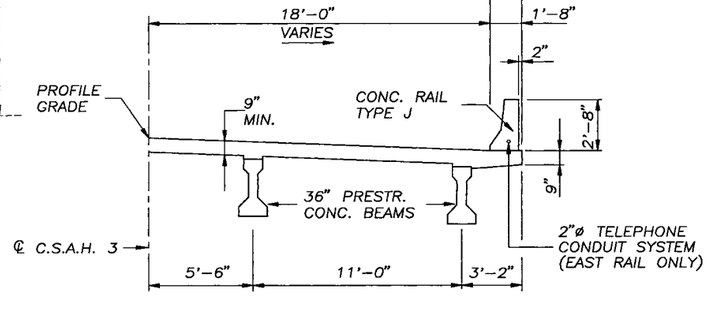
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dale Drawer
REG. NO. 20666
DATE: 5-9-95

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



ELEVATION
SCALE: 1"=10'-0"

NOTE:
ABUTMENT PILES ARE TO BE 12"ø C.I.P. CONCRETE PILES. PIER PILES ARE TO BE 16"ø C.I.P. CONCRETE PILES.



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

(1) STA. 151+70 ~ NON-PARTICIPATING

SCHEDULE OF QUANTITIES FOR THE ENTIRE BRIDGE

ITEM NO.	2401.501	2401.512	2401.513	2401.541	2402.521	2405.502	2405.511	2402.546	2402.595	2452.507	2452.508	2452.519	2452.507	2452.508	2452.519
ITEM	STRUCTURE CONCRETE (3Y43)	BRIDGE SLAB CONCRETE (3Y33A)	TYPE J RAILING CONCRETE (3Y46A)	REIN-FORCEMENT BARS (EPOXY COATED)	STRUCTURAL STEEL (3306)	PRESTR. CONCRETE BEAMS 36	DIAPHRAGMS FOR TYPE 36 PRESTR. BEAMS	FLOOR DRAINS, TYPE B702 (MODIFIED)	BEARING ASSEMBLY	C.I.P. CONC. PILING DELIVERED 12"ø	C.I.P. CONC. PILING DRIVEN 12"ø	C.I.P. CONC. TEST PILES, 60 FT. LONG 12"ø	C.I.P. CONC. PILING DELIVERED 16"ø	C.I.P. CONC. PILING DRIVEN 16"ø	C.I.P. CONC. TEST PILES, 60 FT. LONG 16"ø
QUANTITY	114 (P)	5097 (P)	262 (P)	61,550 (P)	600 (P)	516	132 (P)	2	24	400	400	2	400	400	2
UNIT	CU. YD.	SQ. FT.	LIN. FT.	POUND	POUND	LIN. FT.	LIN. FT.	EACH	EACH	LIN. FT.	LIN. FT.	EACH	LIN. FT.	LIN. FT.	EACH

ITEM NO.	2021.501	0401.601	2442.501	0401.601	2511.501	2545.509
ITEM	MOBILIZATION	STRUCTURE EXCAVATION	REMOVE OLD BRIDGE (1)	SLOPE PREPARATION	RANDOM RIPRAP, CLASS III	CONDUIT SYSTEM (TELEPHONE) (1)
QUANTITY	1	1	1	1	280 (P)	1
UNIT	LUMP SUM	LUMP SUM	LUMP SUM	LUMP SUM	CU. YD.	LUMP SUM

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

BRIDGE NO. 55554

LOCATED 4 MILES WEST OF HIGH FOREST ON C.S.A.H. 3 OVER THE NORTH BRANCH ROOT RIVER.

3 - 43 FT. PRESTRESSED CONCRETE BEAM SPANS ~ 36 FT. RDWY.
SPAN IDENTIFICATION NO. 501

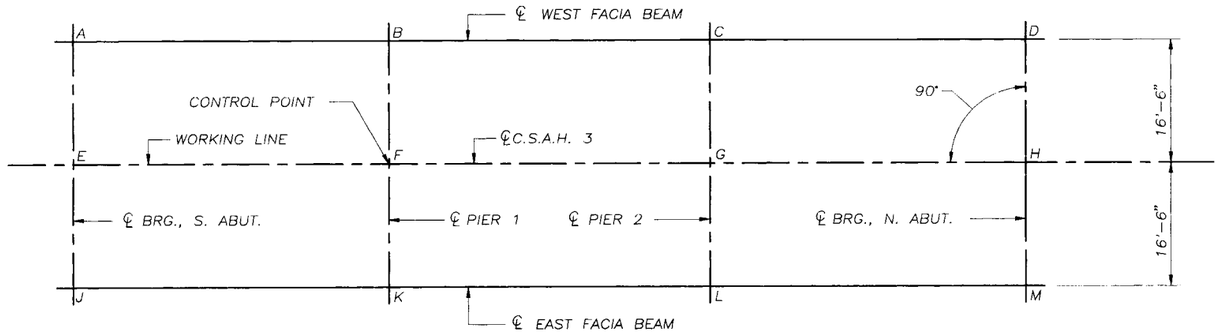
GENERAL PLAN & ELEVATION

SEC. 33 TWP. 105N R 15W

TOWNSHIP: ROCK DELL
COUNTY: OLMSTED

APPROVED: Donald J. Flemming
6-13-96 STATE BRIDGE ENGINEER

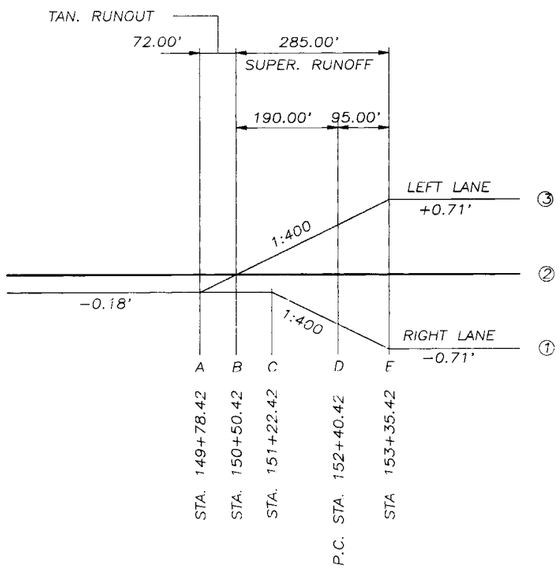
S.P. 55-603-24	55554	RMT
SHEET 13 OF 29 SHEETS		DAD



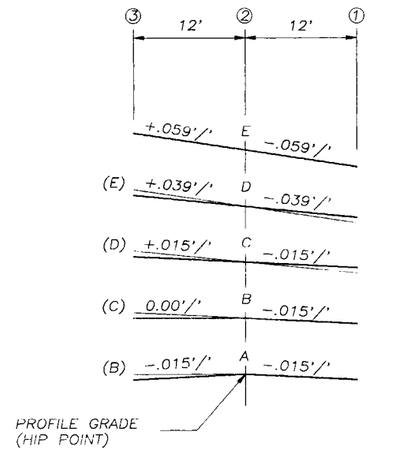
LAYOUT SHOWING WORKING POINTS

SCALE: 1"=10'-0"

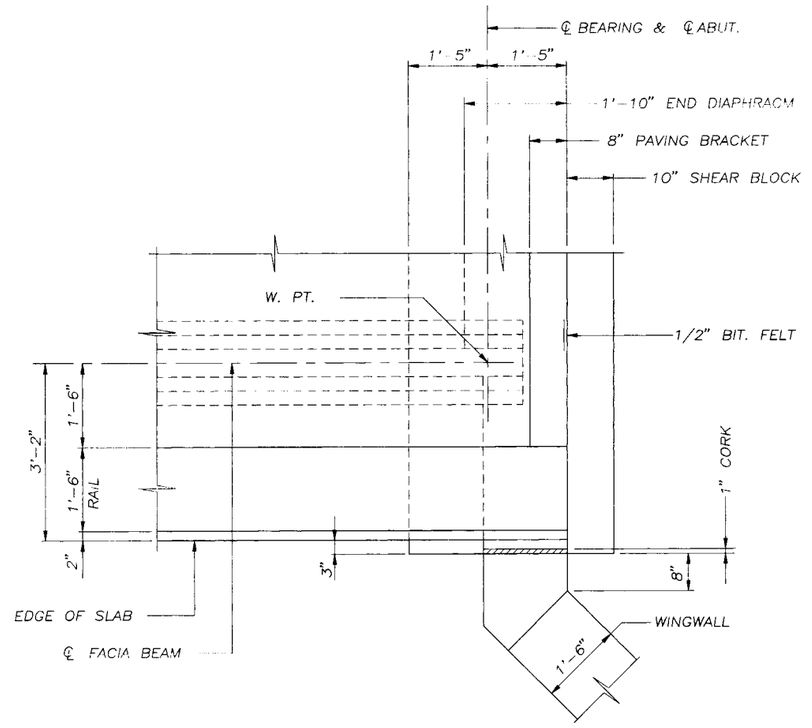
TOP OF SLAB TO BRIDGE SEAT	S. ABUT.	PIER 1	PIER 2	N. ABUT.
SLAB THICKNESS	9"	9"	9"	9"
STOOL HEIGHT	2"	2"	2"	2"
BEAM	3'-0"	3'-0"	3'-0"	3'-0"
BEARING HEIGHT	3 3/4"	3"	3"	3 3/4"
TOTAL	4'-2 3/4"	4'-2"	4'-2"	4'-2 3/4"



SUPERELEVATION CHART



SUPERELEVATION CHART



TYPICAL CORNER DETAIL

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

DIMENSIONS BETWEEN WORKING POINTS													
POINT	STATION	A	B	C	D	E	F	G	H	J	K	L	M
A	151+05.96		42.46			16.50	45.55	87.20			53.78	91.76	
B	151+48.42			43.16		45.55	16.50	46.21	87.20	53.78		54.33	
C	151+91.58				42.46	87.20	46.21	16.50	45.55		54.33		53.78
D	152+34.04						87.20	45.55	16.50			53.78	
E	151+05.96						42.46			16.50	45.55	87.20	
F	151+48.42							43.16		45.55	16.50	46.21	87.20
G	151+91.58								42.46	87.20	46.21	16.50	45.55
H	152+34.04										87.20	45.55	16.50
J	151+05.96										42.46		
K	151+48.42											43.16	
L	151+91.58												42.46
M	152+34.04												

ELEVATIONS			
TOP OF SLAB	SLAB TO BRIDGE SEAT	BRIDGE SEAT	POINT
1265.42	4.23	1261.19	A
1265.78	4.17	1261.61	B
1266.14	4.17	1261.97	C
1266.49	4.23	1262.26	D
1265.23			E
1265.44			F
1265.66			G
1265.87			H
1264.98	4.23	1260.75	J
1265.11	4.17	1260.94	K
1265.18	4.17	1261.01	L
1265.25	4.23	1261.02	M

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.

Dale Drawe

5-5-12

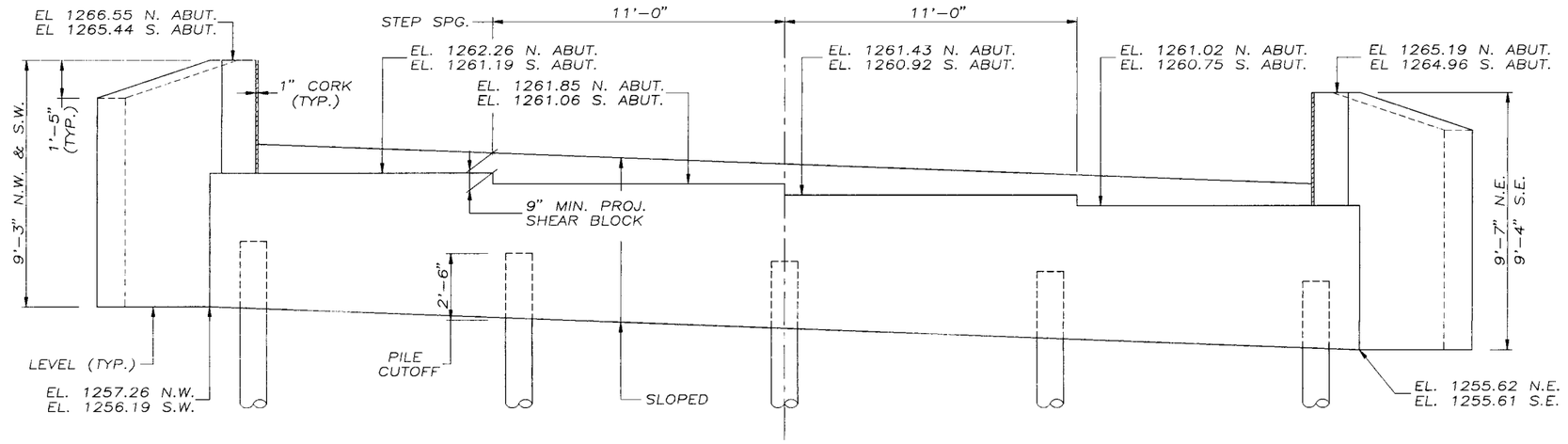
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55554

BRIDGE LAYOUT

APPROVED: 6-13-96

S.P. 55-603-24	55554	RMT
SHEET 14 OF 29 SHEETS		DAD



ELEVATION (N. ABUT. SHOWN)

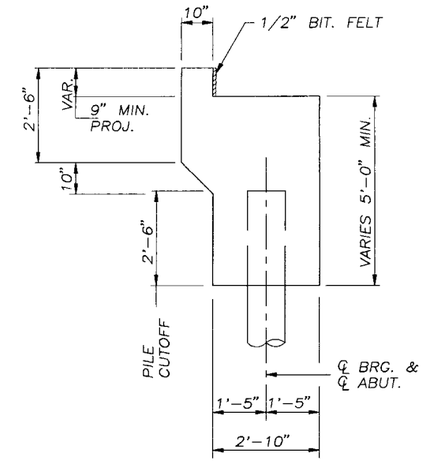
SOUTH ABUT. IS MIRROR IMAGE
SCALE: 3/8" = 1'-0"

SUMMARY OF QUANTITIES ~ 2 ABUTMENTS		
	STRUCTURE CONCRETE (3Y43)	66 CU. YD.
	REINF. BARS (EPOXY COATED)	5660 POUND
(4)	STRUCTURE EXCAVATION	1 L. SUM
(2)	B.M. DISK (STD. ℄ NO. 9300)	1
(3)	C.I.P. CONC. PILING DELIVERED, 12"	400 LIN. FT.
(3)	C.I.P. CONC. PILING DRIVEN, 12"	400 LIN. FT.
	C.I.P. CONC. TEST PILE, 60' LONG, 12"	2 EACH

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

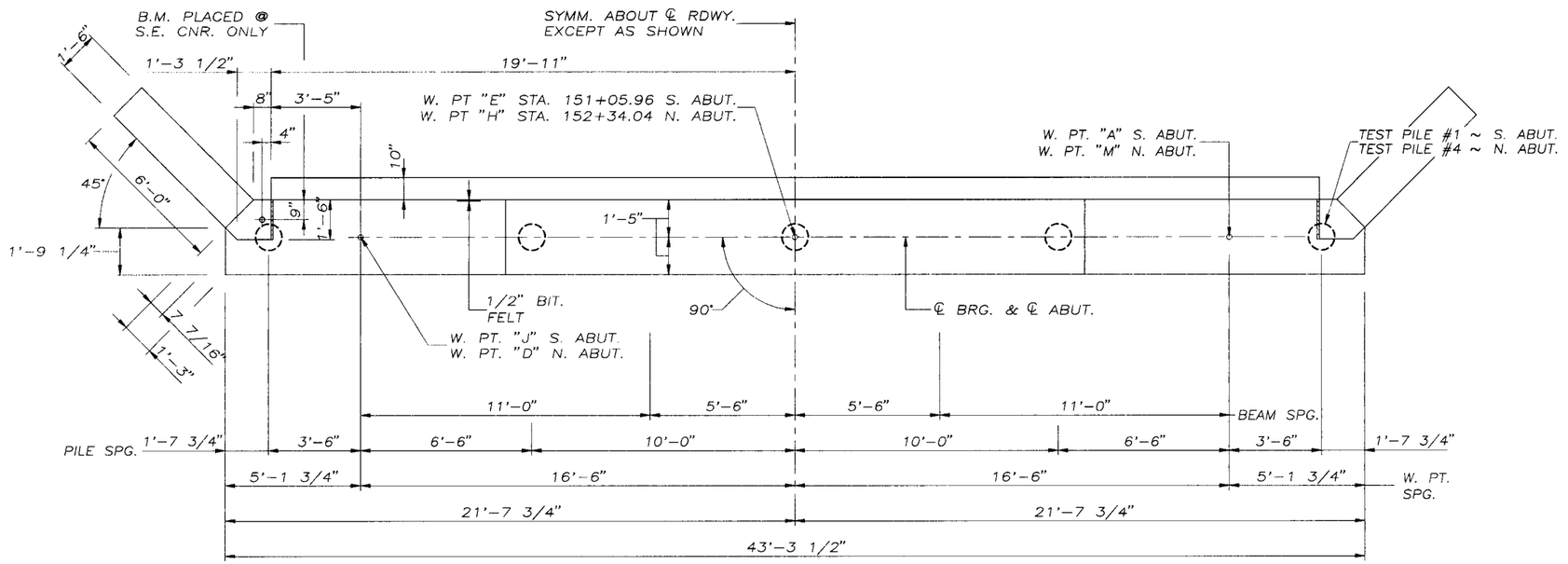
(3) DOES NOT INCLUDE TEST PILES.

(4) SEE SPECIAL PROVISIONS.



SECT. THRU ABUT.

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



PLAN

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

COMPUTED PILE LOADS TONS/PILE @ ABUTS.	
DEAD LOAD	32.7
LIVE LOAD	18.9
TOTAL	51.6

PILE NOTES:

2 C.I.P. CONC. TEST PILES 60' LG.
8 C.I.P. CONC. PILES, EST. 50' LG.
10 C.I.P. CONC. PILES REQ'D FOR 2 ABUTS.

ALL PILES TO HAVE A NOMINAL DIAMETER OF 12"
SEE DETAIL B201 FOR SPLICES.
SEE SURVEY SHEET FOR TEST PILE LOCATIONS.

Dale Drew

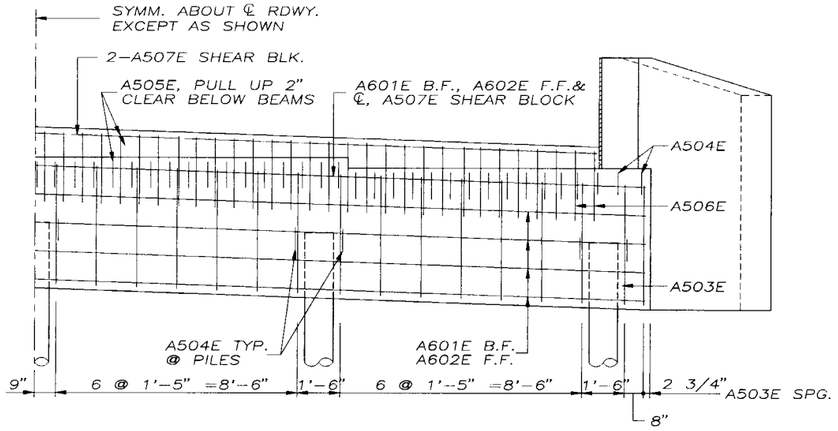
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55554

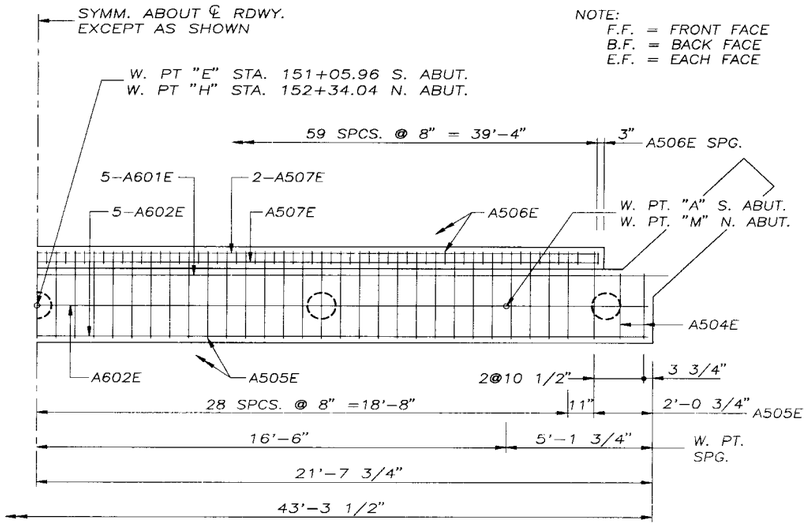
ABUTMENT DETAILS

APPROVED: 6-13-96

S.P. 55-603-24	55554	DDP
SHEET 15 OF 29 SHEETS		DAD

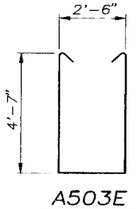


HALF ELEVATION
SCALE: 3/8" = 1'–0"

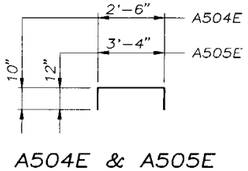


HALF PLAN
SCALE: 3/8" = 1'–0"

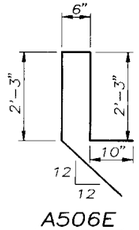
NOTE:
F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE



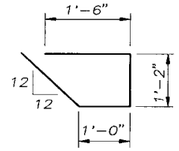
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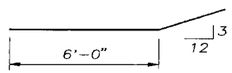
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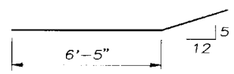
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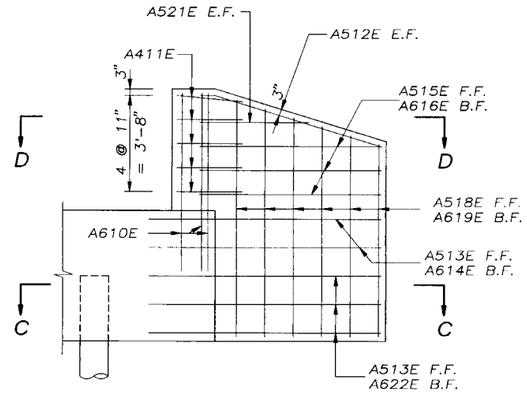
A411E



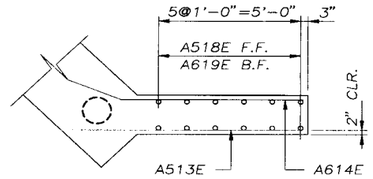
A512E



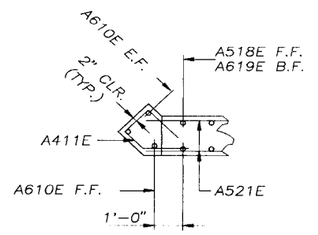
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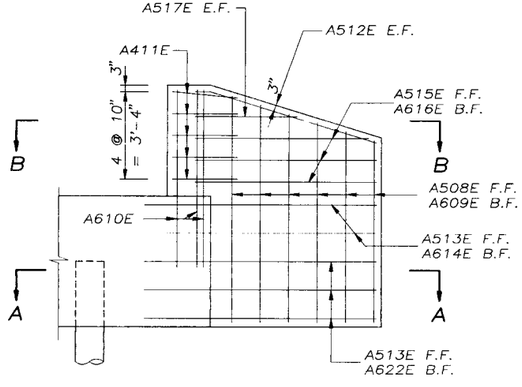
NE WINGWALL ELEVATION
SCALE: 3/8" = 1'–0"



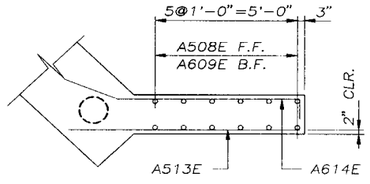
SECTION C–C
SCALE: 3/8" = 1'–0"



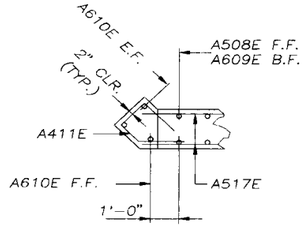
SECTION D–D
SCALE: 3/8" = 1'–0"



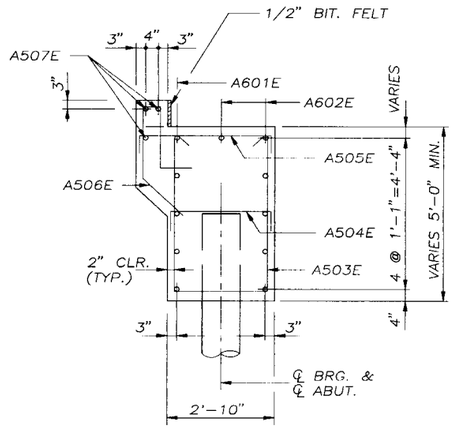
NW, SW, & SE WINGWALL ELEVATION
SCALE: 3/8" = 1'–0"



SECTION A–A
SCALE: 3/8" = 1'–0"



SECTION B–B
SCALE: 3/8" = 1'–0"



SECT. THRU ABUT.
SCALE: 1/2" = 1'–0"

BILL OF REINFORCEMENT ~ 2 ABUTMENTS

	BAR	NO.	LGTH.	SHAPE	LOCATION
	A601E	10	44'–2"	STRT.	CAP ~ HORIZ.
	A602E	12	42'–11"	"	" "
	A503E	64	12'–7"	BENT	" ~ STIRRUP
	A504E	28	4'–2"	"	" ~ PILE TIE
	A505E	118	5'–4"	"	" ~ BR. SEAT TIE
	A506E	120	7'–8"	"	SHEAR BLOCK ~ TIE
	A507E	6	39'–6"	STRT.	" " ~ HORIZ.
(1)	A508E	9	16'–4"	"	WINGWALL ~ VERTICAL
(1)	A609E	9	16'–4"	"	" "
	A610E	12	6'–9"	"	" "
	A411E	20	5'–2"	BENT	" ~ TIE
	A512E	8	6'–6"	"	" ~ DIAG.
	A513E	20	8'–2"	STRT.	" ~ HORIZ.
	A614E	8	8'–2"	"	" "
	A515E	12	6'–4"	"	" "
	A616E	12	6'–4"	"	" "
	A517E	6	4'–0"	"	" "
(1)	A518E	3	17'–0"	"	NE WINGWALL ~ VERTICAL
(1)	A619E	3	17'–0"	"	" " "
	A521E	2	4'–4"	"	" " "
	A622E	12	8'–10"	BENT	WINGWALL ~ HORIZ.

(1) CUT 2 FROM 1.

Dale Drawe
5-9-95

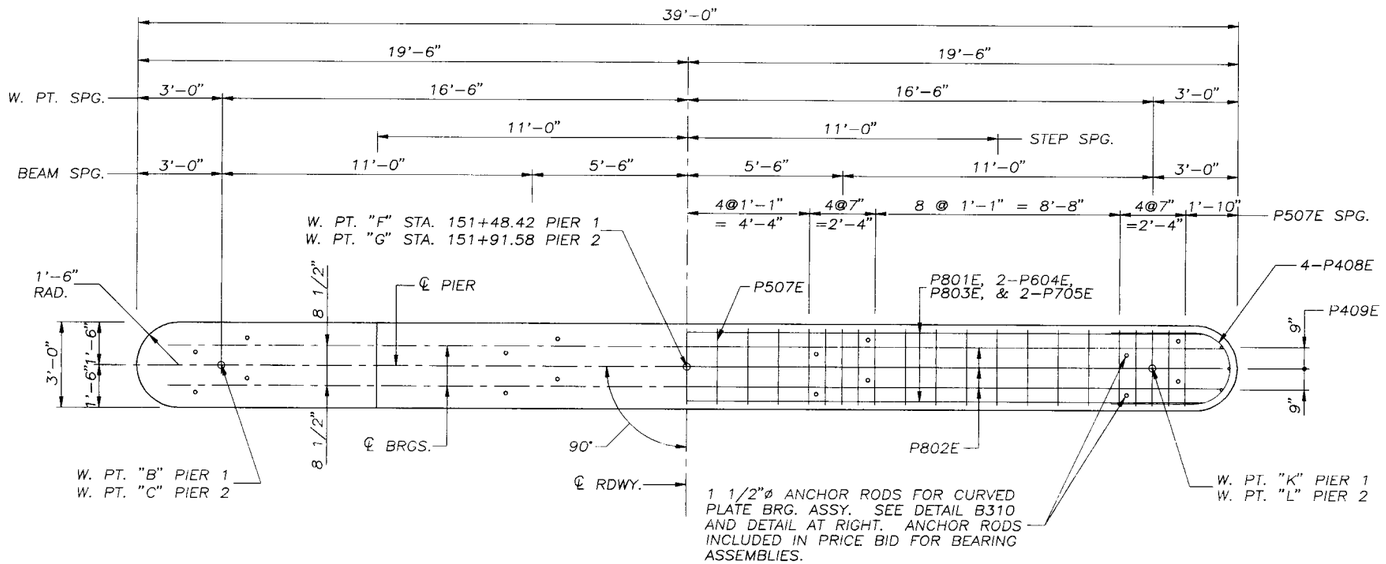
MINNESOTA DEPARTMENT
OF TRANSPORTATION

BRIDGE NO. 55554

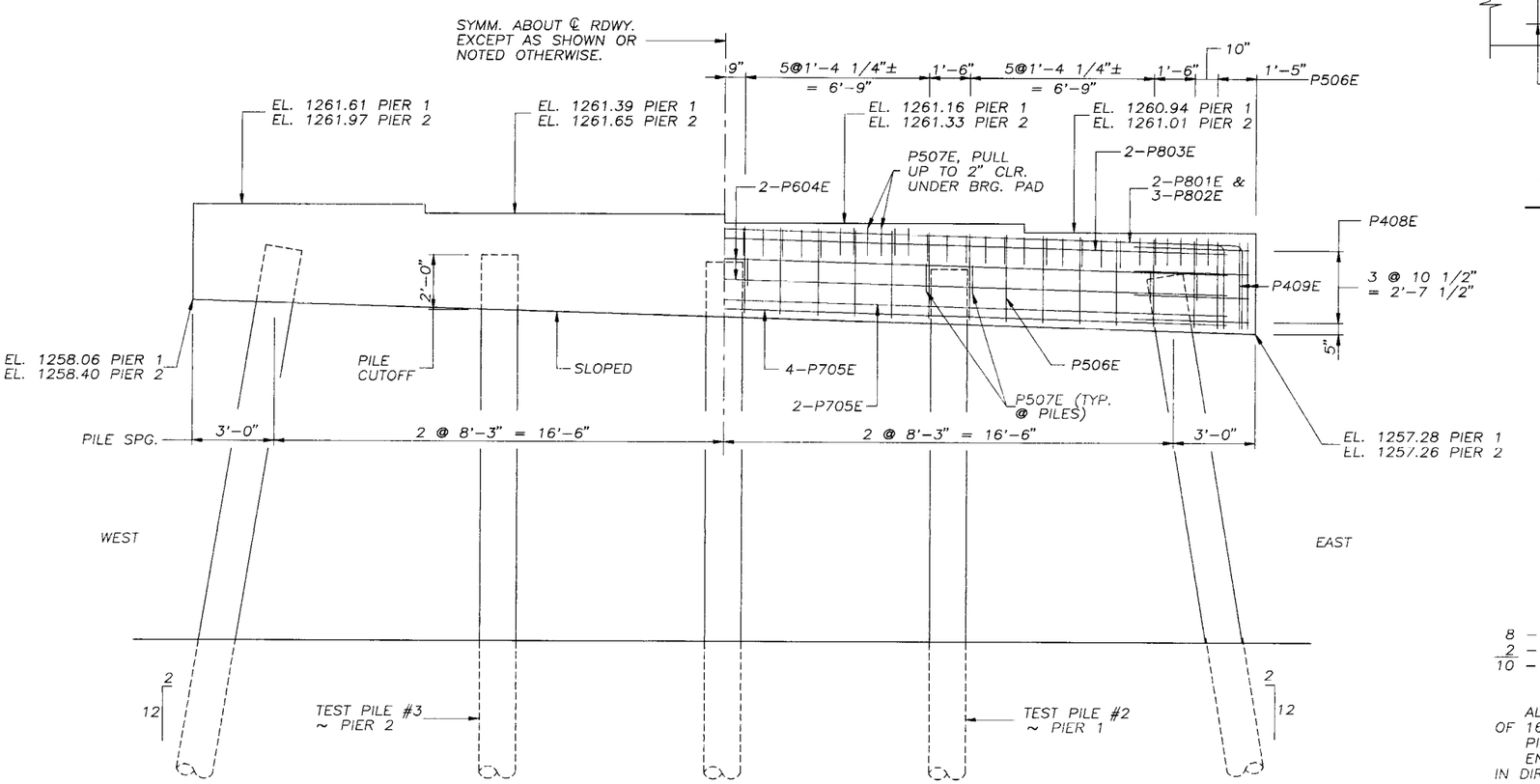
ABUTMENT REINFORCEMENT

APPROVED: 6-13-96

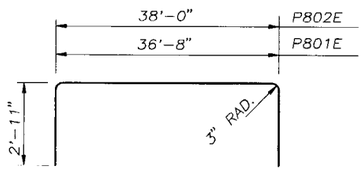
S.P. 55–603–24	55554	DDP
SHEET 16 OF 29 SHEETS		DAD



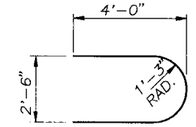
PLAN
SCALE: 3/8" = 1'-0"



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



P801E & P802E



P408E

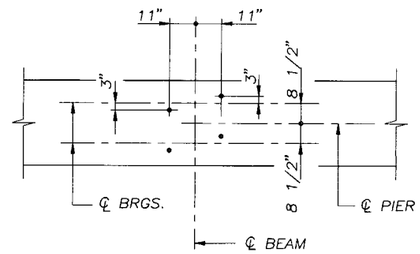
BILL OF REINFORCEMENT ~ 2 PIERS

BAR	NO.	LENGTH	SHAPE	LOCATION
P801E	4	42'-3"	BENT	CAP ~ LONGITUDINAL
P802E	6	43'-7"	"	" ~ "
P803E	4	36'-4"	STRT.	" ~ "
P604E	8	36'-4"	"	" ~ "
P705E	12	36'-4"	"	" ~ "
P506E	56	9'-11"	BENT	" ~ STIRRUP
P507E	102	4'-8"	"	" ~ TIE
P408E	16	9'-6"	"	" ~ TIE @ ENDS
P409E	12	3'-2"	STRT.	" ~ VERT. @ ENDS

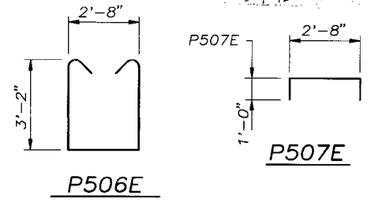
SUMMARY OF QUANTITIES ~ 2 PIERS

	STRUCTURE CONCRETE (3Y43)	32 CU. YD.
	REINFORCEMENT BARS, EPOXY COATED	4070 POUND
①	C.I.P. CONC. PILING DRIVEN, 16"ø	400 LIN. FT.
①	C.I.P. CONC. PILING DELIVERED, 16"ø	400 LIN. FT.
	C.I.P. CONC. TEST PILES, 60' LONG, 16"ø	2 EACH

① DOES NOT INCLUDE TEST PILES.



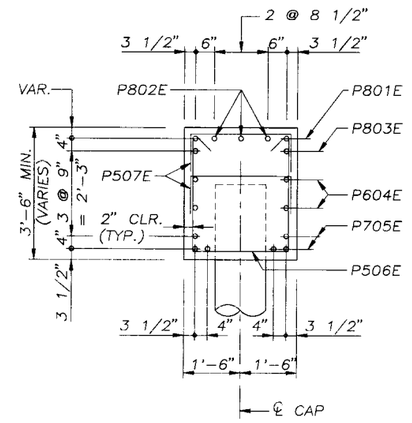
ANCHOR ROD LAYOUT
SCALE: 3/8"=1'-0"



P506E

Dale Drawe 5-9-95

P507E



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

COMPUTED PILE LOADS TONS PER PILE ~ PIERS

DEAD LOAD	39.8
LIVE LOAD	18.9
TOTAL	58.7

PILE NOTES

8 – C.I.P. CONCRETE PILES, EST. LENGTH 50'
2 – C.I.P. CONCRETE TEST PILES, 60' LONG
10 – C.I.P. CONCRETE PILES REQ'D ~ 2 PIERS

ALL PILES ARE TO HAVE A NOMINAL DIAMETER OF 16".
PILE SPACING SHOWN IS AT BOTTOM OF CAP.
END PILES ARE TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN.
SEE DETAIL B201 FOR SPLICES.
SEE SURVEY SHEET FOR TEST PILE LOCATIONS.
ALL PIER PILES SHALL BE DRIVEN TO EL. 1026.0 OR BELOW.

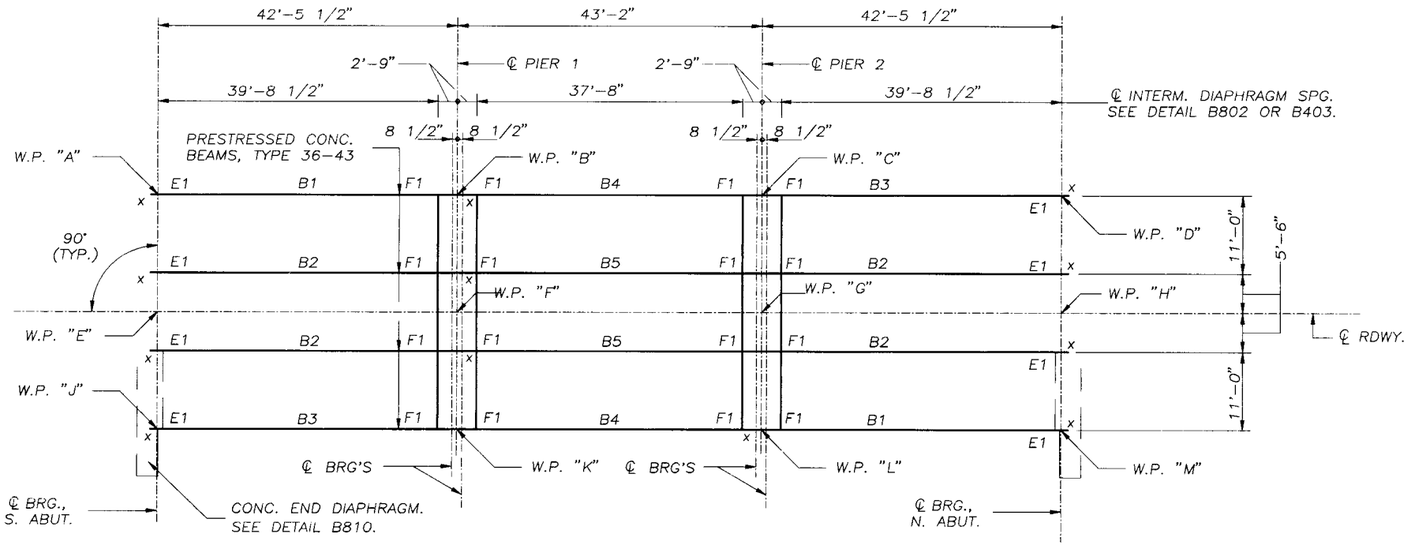
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55554

PIER DETAILS

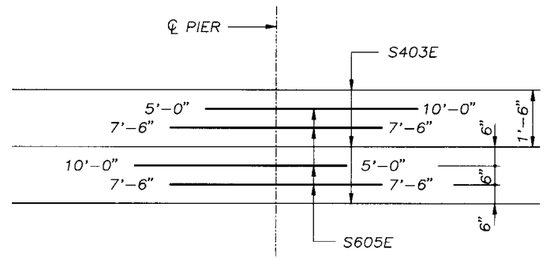
APPROVED: 6-13-96

S.P. 55-603-24	55554	DDP
SHEET 17 OF 29 SHEETS		DAD

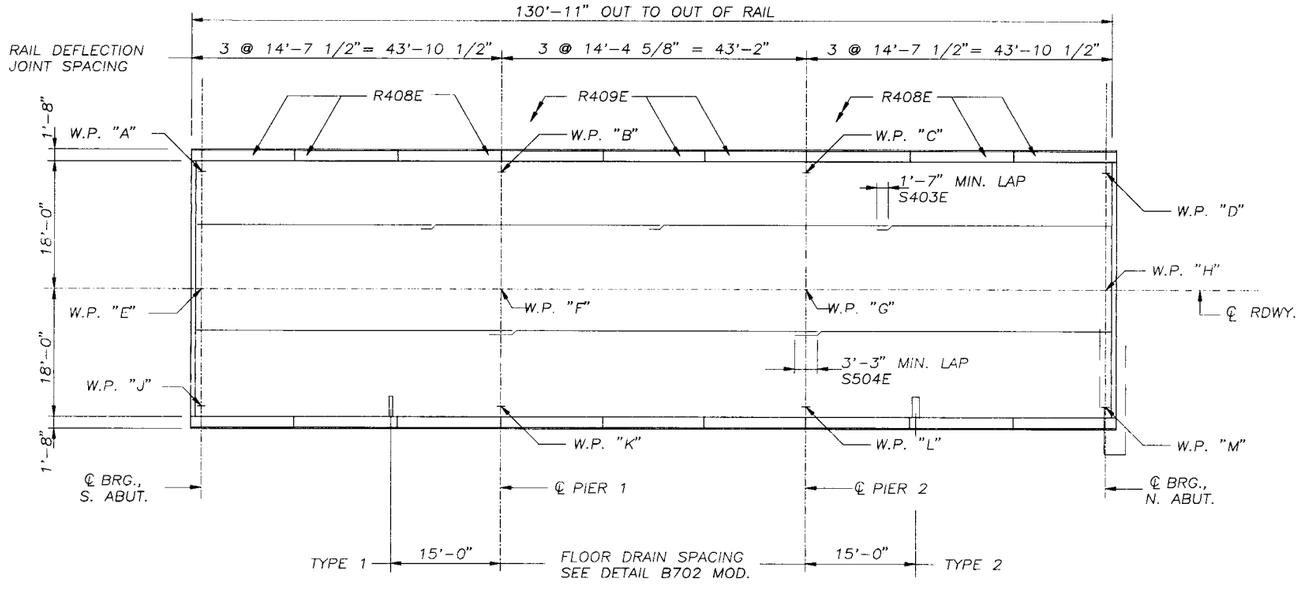


FRAMING PLAN
SCALE: 3/32" = 1'-0"

NOTE:
E1 = EXPANSION CURVED PLATE BEARING ASSEMBLY, TYPE 1. SEE DETAIL B311.
F1 = FIXED CURVED PLATE BEARING ASSEMBLY, TYPE 2. SEE DETAIL B310.



S605E PLACEMENT DIAGRAM



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

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55554

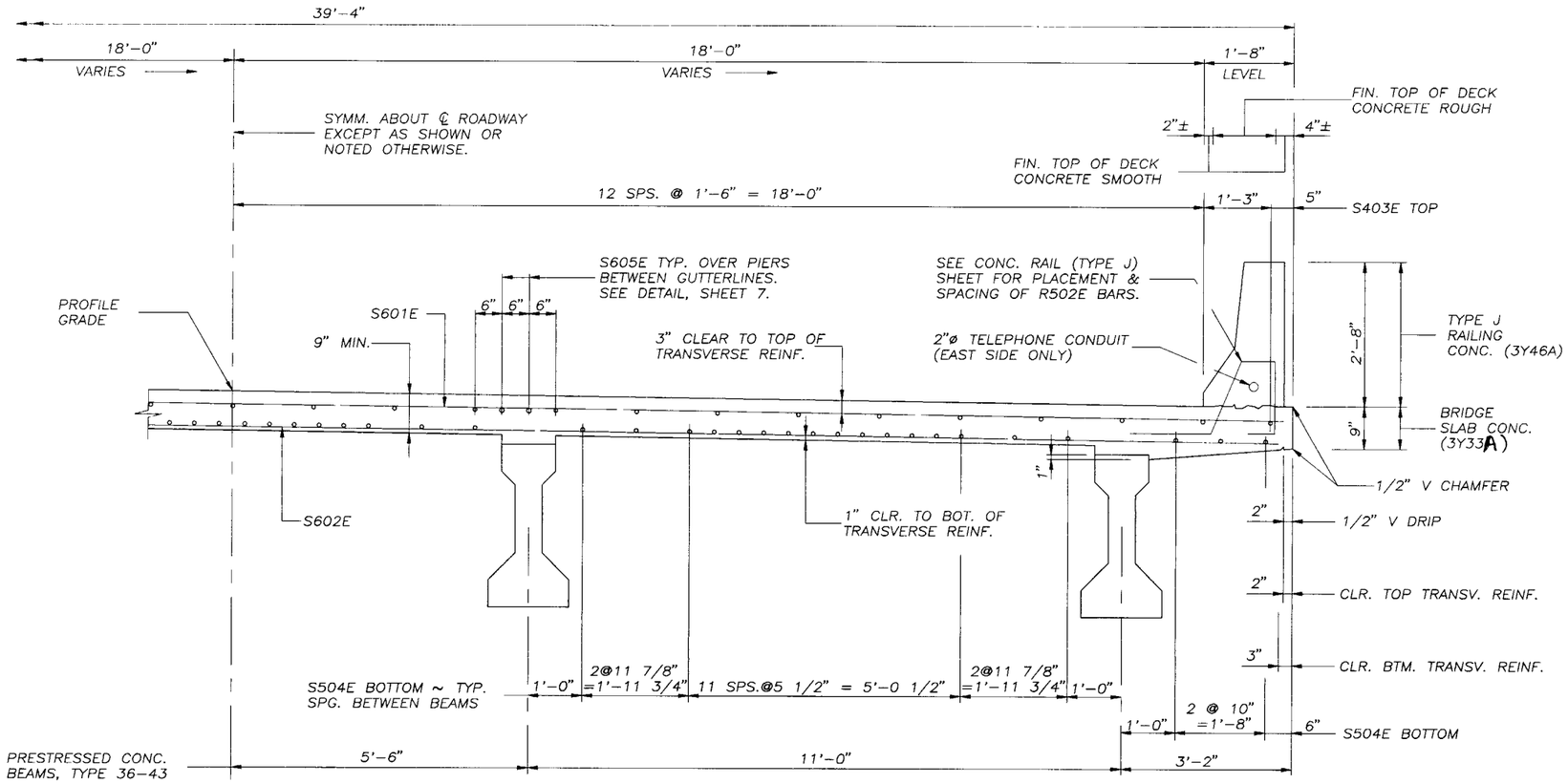
SUPERSTRUCTURE DETAILS

APPROVED: 6-13-96

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.

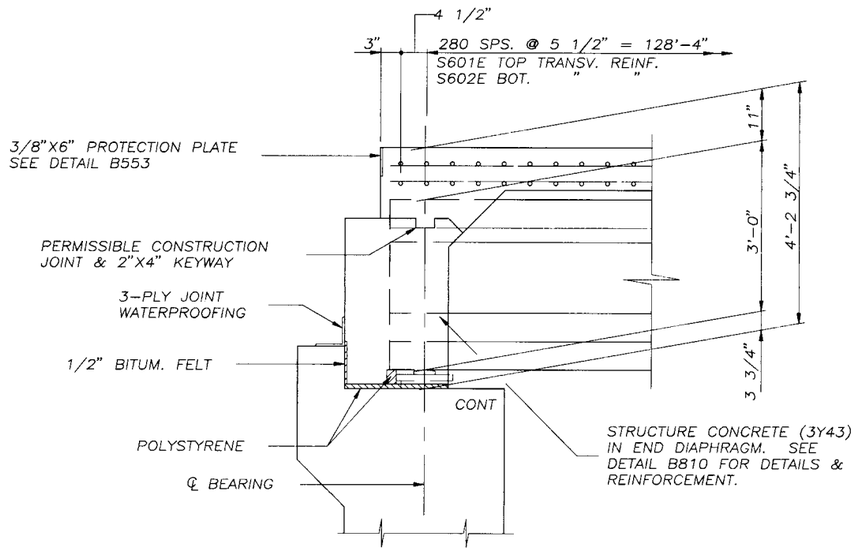
Date 5-6-96 Reg. No. 20...

S.P. 55-603-24	55554	WNJ
SHEET 18 OF 29 SHEETS		DAD



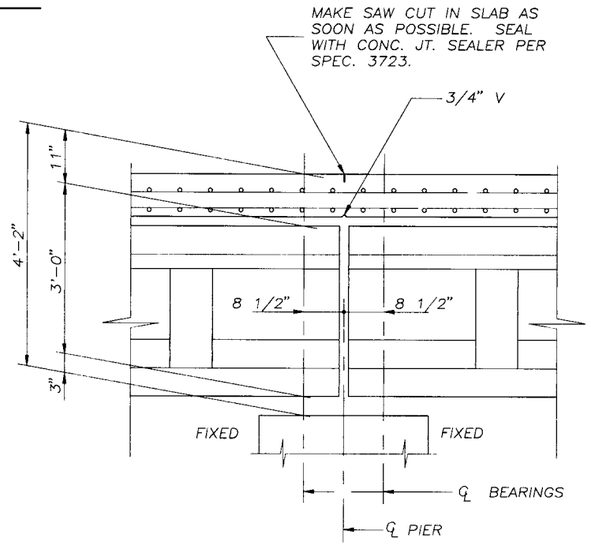
PART TRANSV. SECTION THRU DECK

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



LONGITUDINAL SECTION AT ABUTMENT

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



LONGITUDINAL SECTION AT PIERS

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

BILL OF REINFORCEMENT ~ SUPERSTRUCTURE

	BAR	NO.	LENGTH	SHAPE	LOCATION
	S601E	283	39'-0"	STRT.	SLAB ~ TRANSVERSE
	S602E	283	38'-10"	STRT.	" ~ "
②	S403E	108	33'-6"	STRT.	" ~ LONGITUDINAL
③	S504E	162	45'-3"	STRT.	" ~ "
	S605E	96	15'-0"	STRT.	" ~ " @ PIERS
	S406E	8	39'-4"	STRT.	END DIAPHRAGM
	S407E	24	9'-0"	STRT.	" "
	S408E	8	2'-2"	STRT.	" "
	S409E	12	10'-2"	STRT.	" "
	S510E	8	5'-0"	STRT.	" "
	S511E	8	5'-8"	STRT.	" "
①	S412E	42	6'-4"	BENT	" "
①	S413E	42	9'-3"	BENT	" "
①	S414E	4	8'-11"	BENT	" "
①	S415E	8	10'-2"	BENT	" "
	S416E	4	1'-6"	STRT.	" "

① SEE DETAIL B810 FOR BAR DETAILS.

② 4 LINES WITH 1'-7" MINIMUM LAP.

③ 3 LINES WITH 3'-3" MINIMUM LAP.

④ SUMMARY OF QUANTITIES ~ SUPERSTRUCTURE

⑫	STRUCTURE CONCRETE (3Y43)	16	CU. YD.
⑥	BRIDGE SLAB CONCRETE (3Y33)	5097	SQ. FT.
⑪	TYPE J RAILING CONCRETE (3Y46A)	262	LIN. FT.
	REINFORCEMENT BARS, EPOXY COATED	51820	POUND
⑨	PRESTRESSED CONCRETE BEAMS, TYPE 36	12	EACH
	PRESTRESSED CONCRETE BEAMS, TYPE 36	516	LIN. FT.
	DIAPH. FOR TYPE 36 PRESTR. CONC. BEAMS	132	LIN. FT.
	STRUCTURAL STEEL (3306)	600	POUND
	FLOOR DRAINS, TYPE B702 MOD.	2	EACH
⑦	NAME PLATE (SEE DETAIL B103)	1	
⑩	PROTECTION PLATE (SEE DETAIL B553)		
	BEARING ASSEMBLY	24	EACH
⑧	EXP. CURVED PLATE BRG. ASSEMBLY, TYPE 1	8	EACH
⑧	FIXED CURVED PLATE BRG. ASSEMBLY, TYPE 2	16	EACH
⑤ ⑦	CORK ~ 1"X18" (ABUT. WINGWALLS)	17	LIN. FT.
⑤ ⑦	CORK ~ 1"X11" (RAILING)	27	LIN. FT.
⑤ ⑦	POLYSTYRENE TYPE A 1"X22" (ABUT. BR. SEAT)	85	LIN. FT.
⑤ ⑦	POLYSTYRENE TYPE A 1"X4" (BEARING PLATES SIDES)	20	LIN. FT.
⑤ ⑦	POLYSTYRENE TYPE A 2"X4" (BEARING PLATES BACK)	15	LIN. FT.
⑤ ⑦	BITUMINOUS FELT ~ 1/2"X14" (ABUTMENTS)	85	LIN. FT.
⑤ ⑦	3-PLY JOINT WATERPROOFING	100	LIN. FT.
⑤ ⑬	CONDUIT SYSTEM, TELEPHONE	1	L. SUM

④ INCLUDES RAILING AND END DIAPHRAGM QUANTITIES.

⑤ SEE SPECIAL PROVISIONS.

⑥ APPROX. VOLUME = 148 CU YDS. BASED ON AN AVERAGE STOOL HEIGHT OF 1 1/2".

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 36 PER LINEAR FOOT.

⑩ INCLUDED IN STRUCTURAL STEEL (3306).

⑪ APPROX. VOLUME = 27 CU. YDS.

⑫ END DIAPHRAGM CONCRETE

⑬ INCLUDES 132 L.F. 2"ø R.S.CONDUIT AND 2 END CAPS (LAST 3" OF CONDUIT SHALL BE THREADED). ALL MATERIALS ARE TO BE F&I BY THE BRIDGE CONTRACTOR.

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 55554

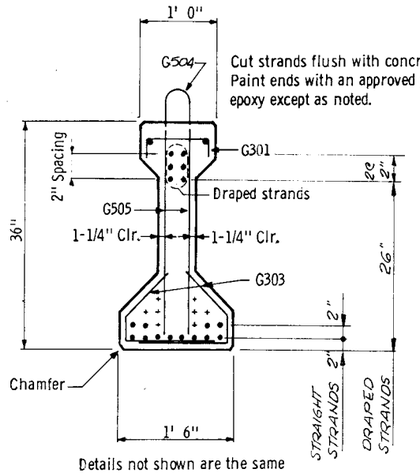
SUPERSTRUCTURE DETAILS

APPROVED: 6-13-96

Dale Braun

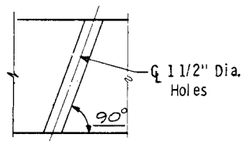
S.P. 55-603-24 | 55554 | WNJ

SHEET 19 OF 29 SHEETS | DAD



Details not shown are the same as the SECTION AT ℄ BEAM

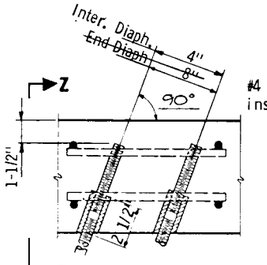
END VIEW



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

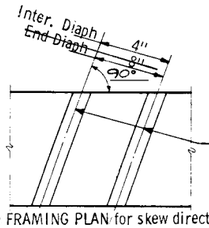
SECTION Y-Y

FOR USE WITH CONCRETE END DIAPHRAGMS WITH PILE BENT ABUTMENTS



SECTION X-X

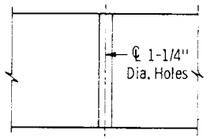
USE AT FASCIA BEAM AND INTERIOR BEAM WITH STAGGERED DIAPHRAGMS



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

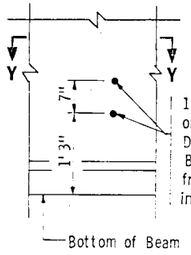
USE AT INTERIOR BEAM WITH CONTINUOUS CONCRETE DIAPHRAGM



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

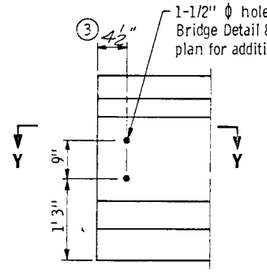
SECTION Y-Y

USE AT INTERIOR BEAM WITH STEEL DIAPHRAGM



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

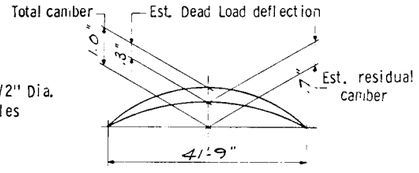
FOR USE WITH STEEL INTERMEDIATE DIAPHRAGM



CONCRETE END DIAPHRAGMS PILE BENT ABUTMENT

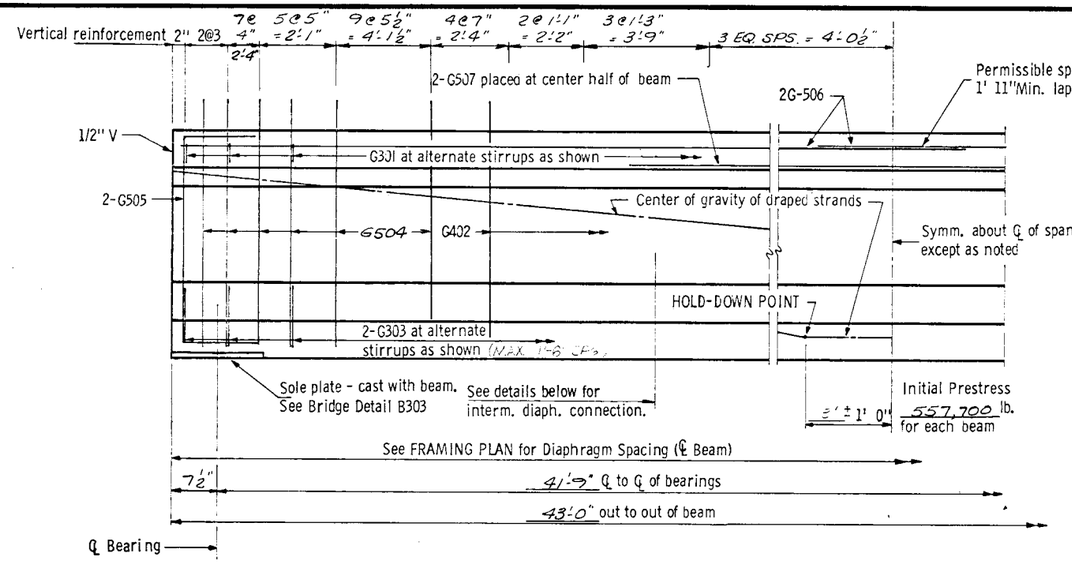
Nuts and rods per Spec. 3306. No paint

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



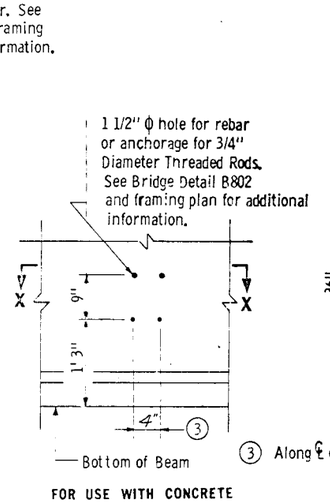
HALF ELEVATION

Bar	Wt.
G 301	.44 lb.
G 402	3.56 lb.
G 303	.78 lb.
G 505	4.87 lb.
G 506	
G 507	
G504	B.F.S.A.

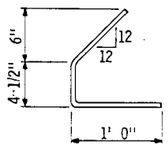
Girder Section Data
Wt./Ft. = 397 lbs.
Cross sec. area at ℄ of span = 369 in.²
C. G. (from bottom) = 15.83 in.
I = 50,980 in.⁴
S_b = 3,221 in.³
1/2" ϕ 270k strand wt./ft. = .525 lb.
1/2" ϕ 270k strand area = .1531 sq. in.

ALL REINFORCING STEEL TO BE EPOXY COATED.

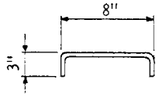
Dale Olson 5-6-96



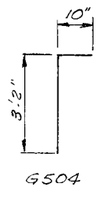
SECTION AT ℄ BEAM



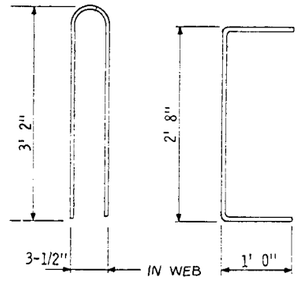
G303



G301



G504



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	12	2.67	
Draped strands	6	10.00	28.00 °
Total strands	18	5.11	

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" ϕ 270 kip, ultimate strength, low relax.

° A tolerance of ± 2" will be permitted in this dimension.

S.P. 55-603-24

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.

A post-tensioned beam may be used as an alternate for the pretensioned design shown. Mn/DOT will provide plans for the post-tensioned alternate on request.

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. Fascia beams shall be marked on an inside face. All markings shall be stenciled 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 8.5 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.

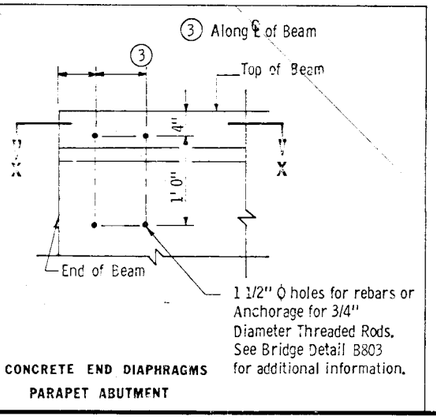
MINIMUM CONCRETE STRENGTH - P.S.:	① f'ci	② f'c
Required min. Concrete Strength	4700	7000

① Minimum concrete strength at time of prestress transfer.

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

Fig. 5-397.502

Revised: SEPT. 11, 1981 Approved: May 18, 1977



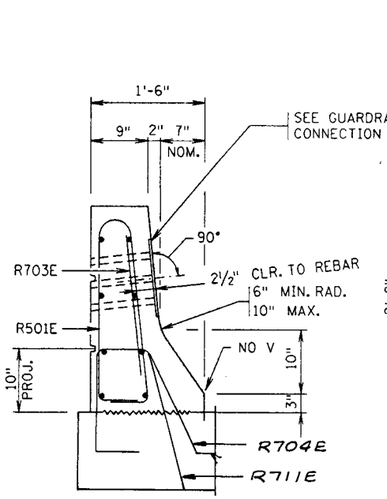
CONCRETE END DIAPHRAGMS PARAPET ABUTMENT

FOR USE WITH CONCRETE INTERMEDIATE DIAPHRAGM

1 1/2" ϕ holes for rebars or Anchorage for 3/4" Diameter Threaded Rods. See Bridge Detail B803 for additional information.

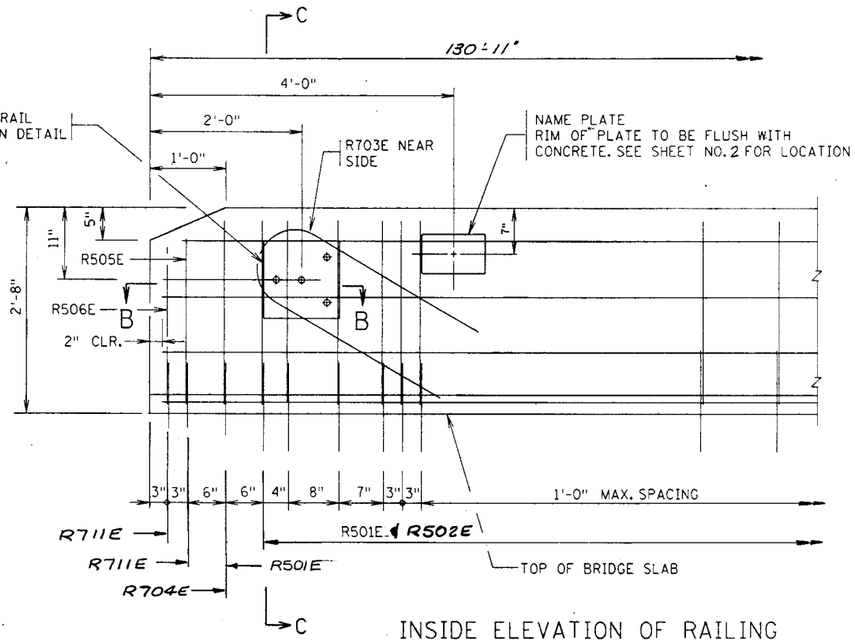
BEAMS B1-B5

TITLE:	DES:	CHK:	APPROVED:	
36" PRESTRESSED CONCRETE BEAM (PRETENSIONED) TYPE 36 - 43	DRN:	CHK:	6-13-96	Bridge No. 55554
	Sheet No. 20 of 29 Sheets			

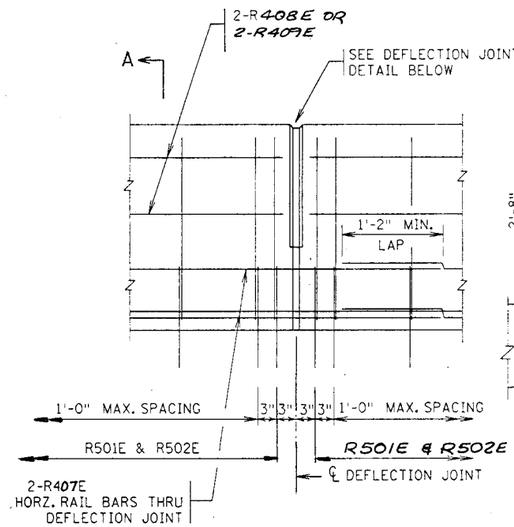


SECTION C-C

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

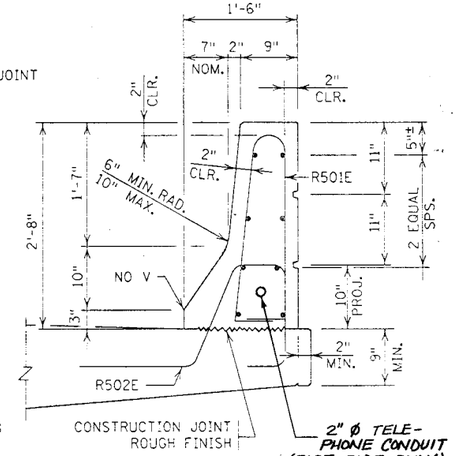


INSIDE ELEVATION OF RAILING



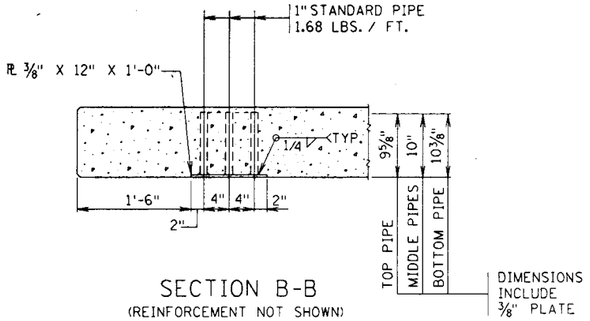
EXPANSION JOINT
EXPANSION DEVICE NOT SHOWN

A DEFLECTION JOINT A

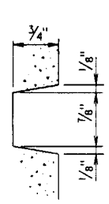


SECTION A-A

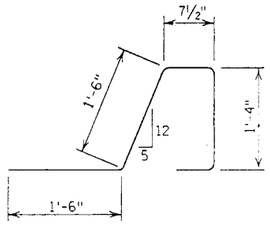
BILL OF REINFORCEMENT FOR RAILING				
BAR	NO.	LENGTH	SHAPE	LOCATION
R501E	314	6'-3"	BENT	RAIL VERT.
R502E	310	5'-6"	BENT	RAIL VERT.
R703E	4	6'-7"	BENT	RAIL VERT.
R704E	4	5'-6"	BENT	" "
R505E	4	5'-10"	BENT	RAIL VERT.
R506E	4	5'-7"	BENT	RAIL VERT.
R407E	32	33'-6"	STR'T.	RAIL HORZ.
R408E	48	14'-3"	STR'T.	RAIL HORZ.
R409E	24	14'-0"	STR'T.	RAIL HORZ.
~~R410E~~			~~STR'T.~~	~~RAIL HORZ.~~
R711E	8	5'-0"	BENT	RAIL VERT



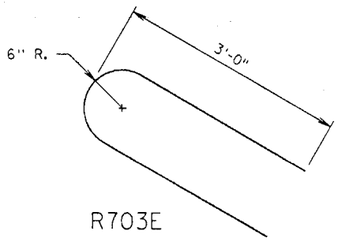
SECTION B-B
(REINFORCEMENT NOT SHOWN)



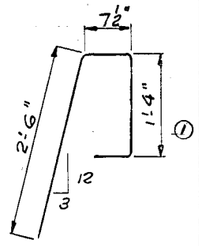
RAIL RUSTICATION



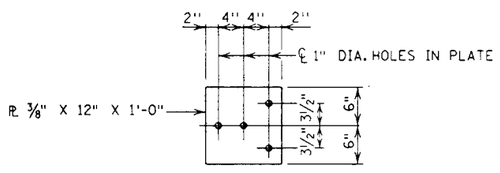
R502E & R704E



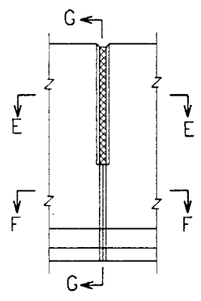
R703E



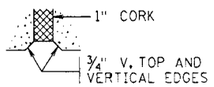
R711E ① 4 LINES W/MIN. 1'-2" LAP



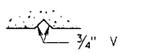
GUARDRAIL CONNECTION DETAIL
GALVANIZE AFTER FABRICATION PER SPEC. 3394
ESTIMATED WEIGHT = 20 LBS.



ELEVATION

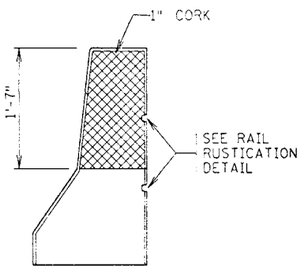


SECTION E-E

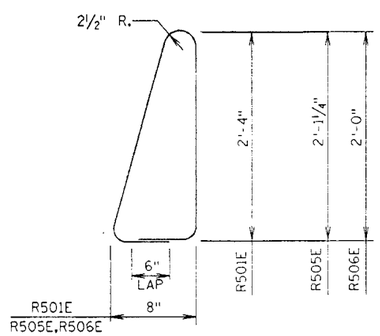


SECTION F-F

DEFLECTION JOINT



SECTION G-G



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".

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 5-9-95 Reg. No. 20666

S.P. 55-603-34

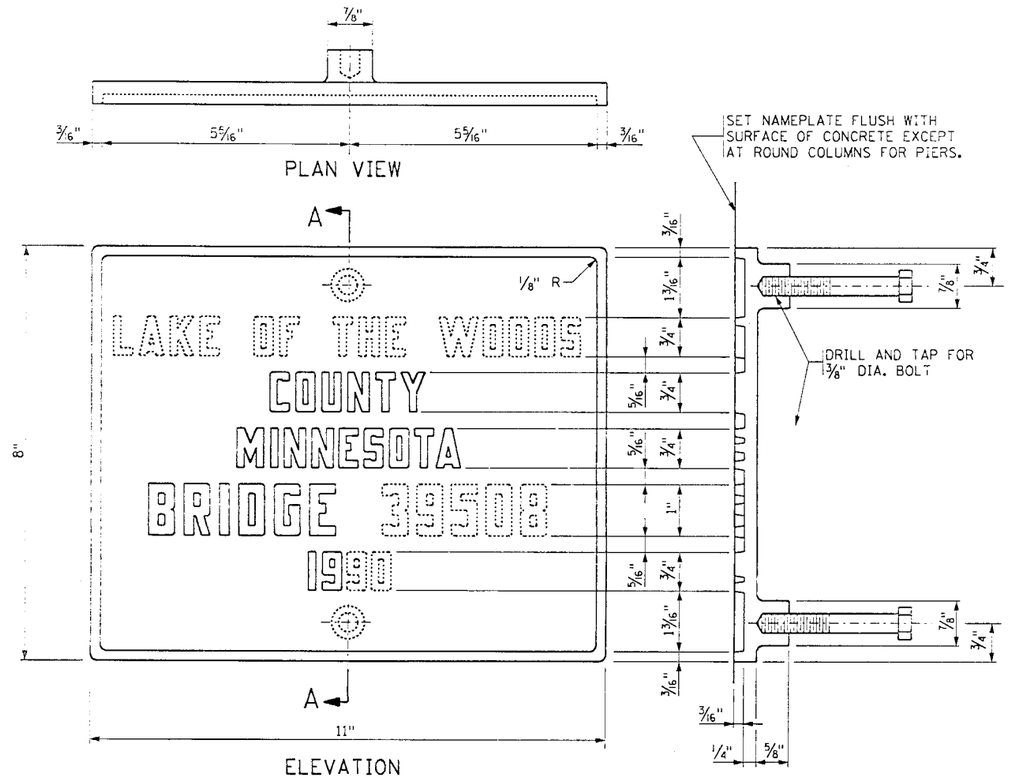
APPROVED: 8/31/91 FIG. 5-397.115

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

DES: DR: CHK: CHK: APPROVED: 6-13-96

Sheet No. 210 of 29 Sheets

Bridge No. 55554

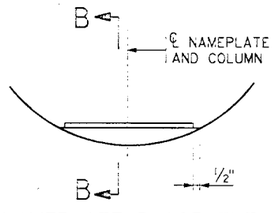


THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION.
DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

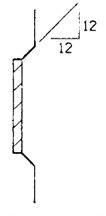
COUNTY OLMSTED
BRIDGE 55554
YEAR 1995



LETTERS AND NUMBERS FOR NAMEPLATE



NAMEPLATE PLACEMENT
(ROUND CONCRETE PIER COLUMNS)



SECTION B-B

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".

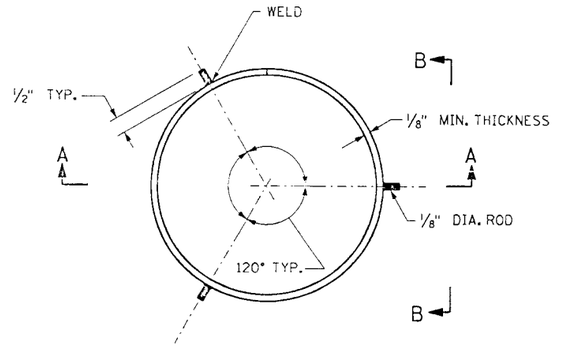
HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.

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

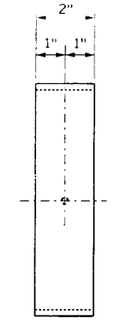
FURNISH 2 STEEL BOLTS ⅜" DIA. x 3" LONG WITH EACH PLATE.

ALL DIMENSIONS FOR ¾" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR THE 1" HIGH LETTERS AND NUMBERS.

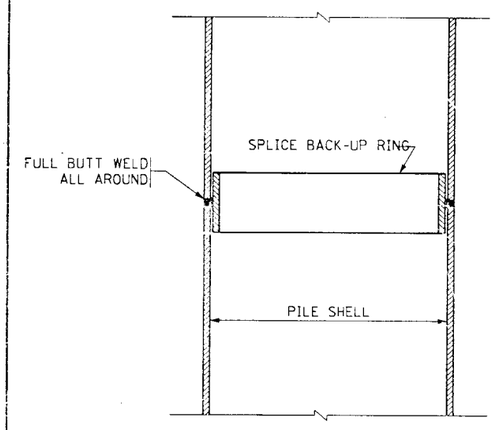
APPROVED: SEPT. 8, 1992	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	DATE:	DETAIL NO.
OFFICE of BRIDGES and STRUCTURES	BRIDGE NAMEPLATE COUNTY BRIDGES	DR:	B103
		CHK:	



PLAN VIEW SPLICE
(PILE NOT SHOWN)



SECTION B-B
(PILE NOT SHOWN)



SECTION A-A

NOTES:

APPROVED BACK-UP RING MAY BE USED IN LIEU OF THE TYPE DETAILED. BACK-UP RING SHALL HAVE A TIGHT FIT.

WELDING ELECTRODE SHALL BE A.W.S. TYPE E7016 OR E7018 (LOW-HYDROGEN).

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.

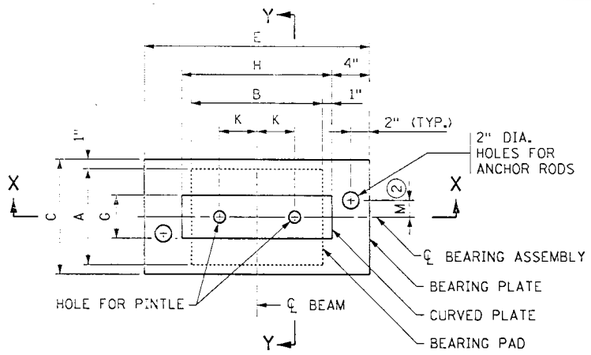
LOW-HYDROGEN ELECTRODES SHALL BE PLACED IN A HOLDING OVEN FOR AT LEAST 8 HOURS IF THEY HAVE BEEN EXPOSED TO THE ATMOSPHERE FOR MORE THAN 2 HOURS.

ELECTRODES WHICH HAVE BECOME WET, SOILED OR DAMAGED SHALL NOT BE USED.

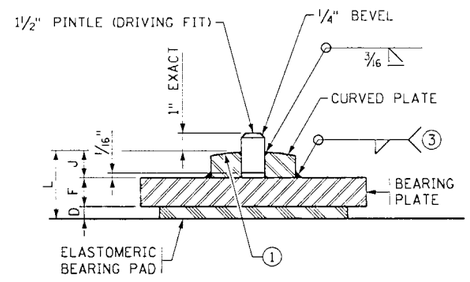
WELDING SHALL NOT BE DONE WHEN THE AMBIENT TEMPERATURE IS LOWER THAN 0° F. OR WHEN THE PILE IS WET OR EXPOSED TO FALLING RAIN OR SNOW. WHEN THE PILE METAL TEMPERATURE IS BELOW 32° F., THE PILE METAL IN THE AREA OF THE WELD SHALL BE HEATED TO A MINIMUM TEMPERATURE OF 70° F. AND MAINTAINED AT THIS TEMPERATURE DURING WELDING.

APPROVED: SEPT. 8, 1992	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	DATE:	DETAIL NO.
OFFICE of BRIDGES and STRUCTURES	PILE SPLICE CAST-IN-PLACE CONCRETE PILES	DR:	B201
		CHK:	

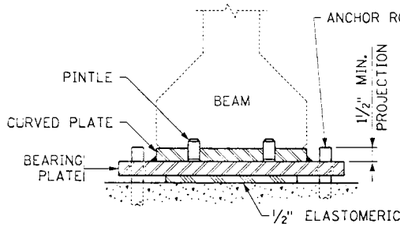
TITLE:	DRWN.: CAD	APPROVED: 6-13-96	BRIDGE NO.
MISC. BRIDGE DETAILS	CHK.: DAD	S.P. 55-603-24	55554
		SHEET 22 OF 29 SHEETS	



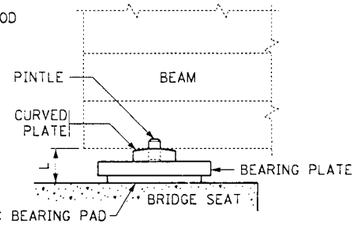
PLAN



SECTION Y-Y



SECTION X-X



END ELEVATION
(ANCHOR RODS NOT SHOWN)



ANCHOR ROD DETAIL

TABLE																
ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			SHAPE FACTOR	BEARING PLATE SIZE			CURVED PLATE SIZE			PINTLE DIA.	PINTLE DISTANCE	ANCHOR ROD OFFSET	ASSY. HEIGHT
			A	B	D		C	E	F	G	H	J		K ④	M ②	L
2	PIERS	36"	12"	16"	½"	6.9	14"	26"	1¼"	4½"	18"	1¼"	1½"	6"	3"	3"

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.

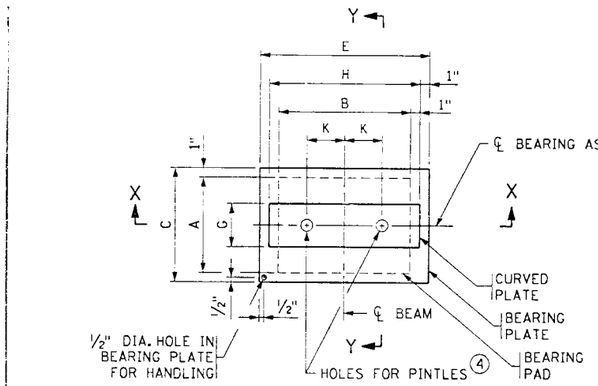
③ WELDING PER SPEC. 2471.

④ SEE DETAIL B303 FOR PINTLE DISTANCE K.

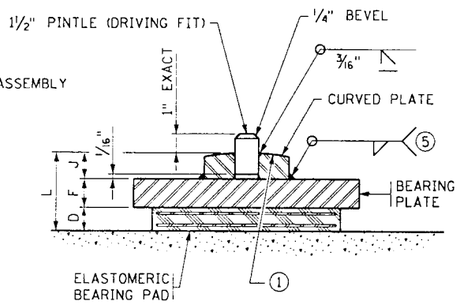
DESIGN DATA:

MAXIMUM HORIZONTAL LOAD IS 70 KIPS FOR 1½" PINTLES.

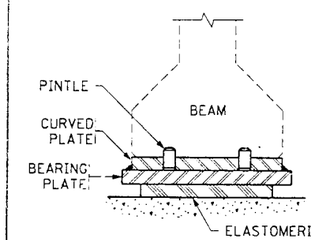
APPROVED: JANUARY 12, 1993	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
OFFICE of BRIDGES and STRUCTURES	CURVED PLATE BEARING ASSEMBLY PRESTRESSED CONCRETE BEAMS (FIXED)	4/12/94 NKL	B310



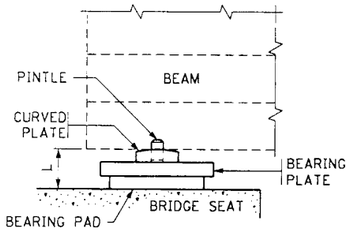
PLAN



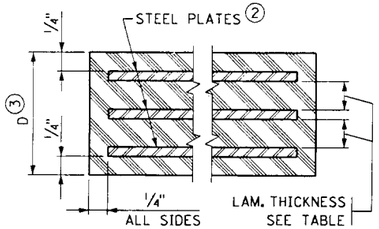
SECTION Y-Y
(ENLARGED BEARING ASSEMBLY)



SECTION X-X



END ELEVATION



SECTION THRU BEARING PAD

TABLE																		
ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE			STEEL PLATES		LAMINATES		SHAPE FACTOR	BEARING PLATE SIZE			CURVED PLATE SIZE			PINTLE DIA.	PINTLE DISTANCE	ASSY. HEIGHT
			A	B	D	NO.	THICK.	NO.	THICK.		C	E	F	G	H	J		K ⑥	L
1	ABUTMENTS	36"	12"	16"	1¼"	2	⅛"	1	½"	6.9	14"	20"	1¼"	4½"	18"	1¼"	1½"	6"	3⅞"

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. 3314, TYPE II.

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

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

① THE RADIUS OF THE CURVED PLATE SHALL BE 1'-0" MINIMUM AND 1'-6" MAXIMUM. FINISH TO 250 MICRO. THE FINISHED THICKNESS OF THE PLATE MAY BE 1/16" LESS THAN SHOWN.

② DO NOT GALVANIZE THESE PLATES.

③ THE TOTAL THICKNESS SHOWN INCLUDES THE STEEL PLATES.

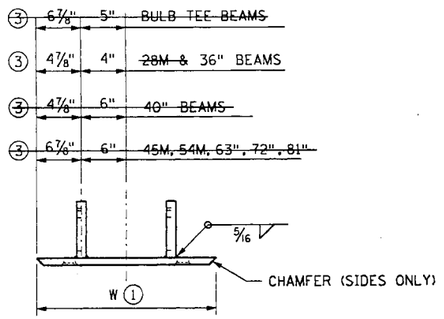
④ 2 PINTLES, 1½" DIA. FOR TOTAL LOADS TO 390 KIPS.

⑤ FOR BEARING AND CURVED PLATE THICKNESSES UP TO 1½" USE 5/16" FILLET WELDS; FOR THICKNESSES OVER 1½" TO 2¼" USE ⅜" FILLET WELDS; FOR THICKNESSES OVER 2¼" USE ½" FILLET WELDS. USE MINIMUM PREHEAT OF 300°F.

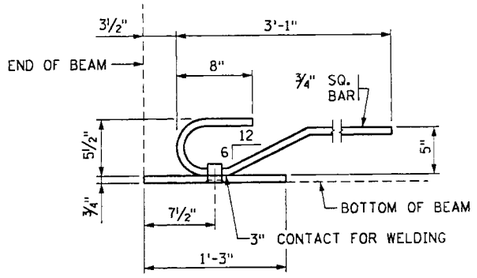
⑥ SEE DETAIL B303 FOR PINTLE DISTANCE K.

APPROVED: AUGUST 4, 1992	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	DATE:	DETAIL NO.
OFFICE of BRIDGES and STRUCTURES	CURVED PLATE BEARING ASSEMBLY PRESTRESSED CONCRETE BEAMS (EXPANSION)	DR: CHK:	B311

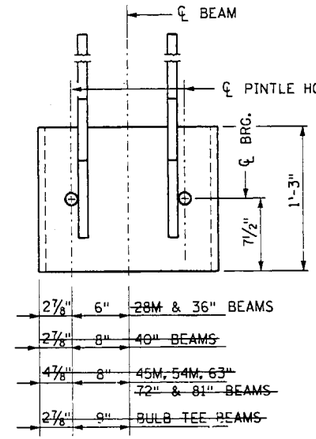
TITLE:	DRWN: CAD	APPROVED: 6-13-96	BRIDGE NO.
MISC. BRIDGE DETAILS	CHK.: DAD	S.P. 55-603-24	55554
		SHEET 23 OF 29 SHEETS	



FRONT VIEW

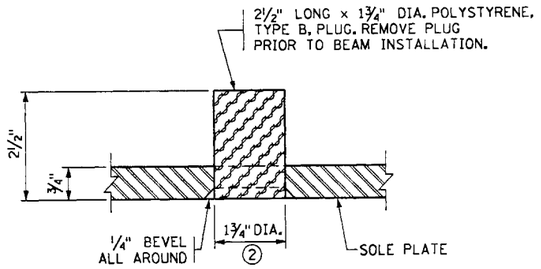


SIDE VIEW



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.

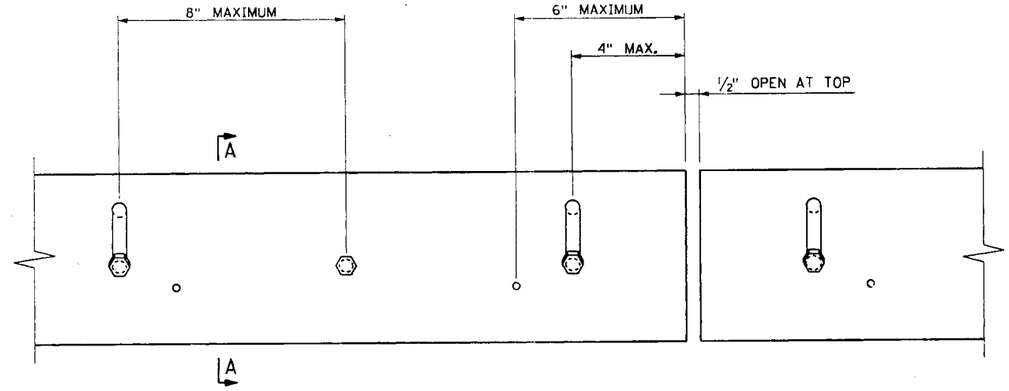
PAYMENT FOR SOLE PLATES TO BE INCLUDED IN PRICE BID FOR PRESTRESSED CONCRETE BEAMS.

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

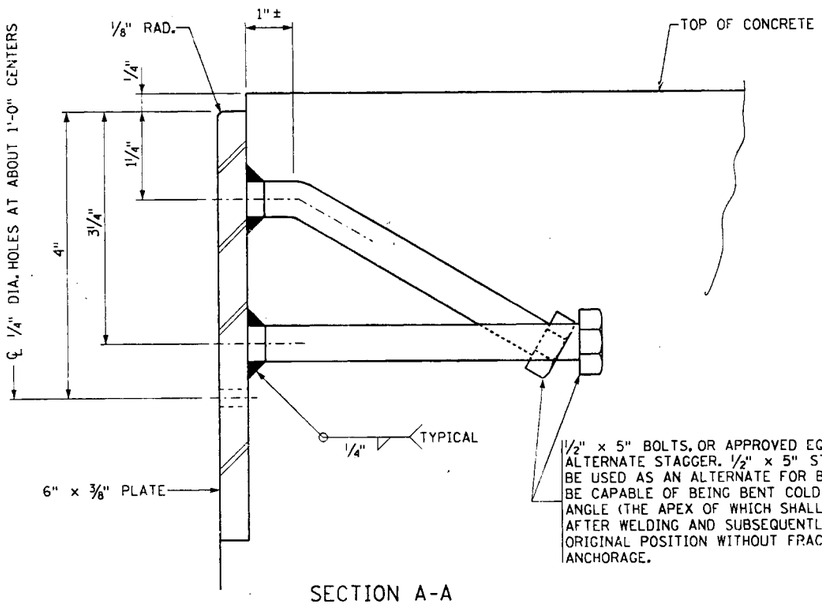
(2) FOR 1½" DIA. PINTLES.

(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



ELEVATION
(CONCRETE NOT SHOWN)



SECTION A-A

NOTES:

PLATES SHALL EXTEND FULL WIDTH OF ROADWAY BETWEEN GUTTER LINES WITH A ½" OPEN JOINT AT EACH BREAK IN CROWN PROFILE. MAXIMUM LENGTH 22 FEET.

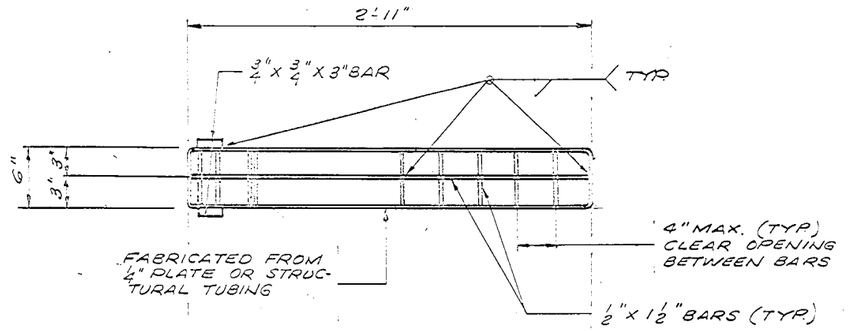
MATERIALS: STRUCTURAL STEEL PER SPEC. 3306. GALVANIZE AFTER FABRICATION PER SPEC. 3394

SET PLATE TO PROPER GRADE AND CROWN. PLATES SHALL BE STRAIGHTENED TO A TOLERANCE OF 1/16" IN 10 FEET AFTER GALVANIZING.

APPROVED: AUGUST 4, 1992	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	DATE:	DETAIL NO.
OFFICE of BRIDGES and STRUCTURES	PROTECTION PLATE FOR END OF SLAB	DR: CHK:	B553

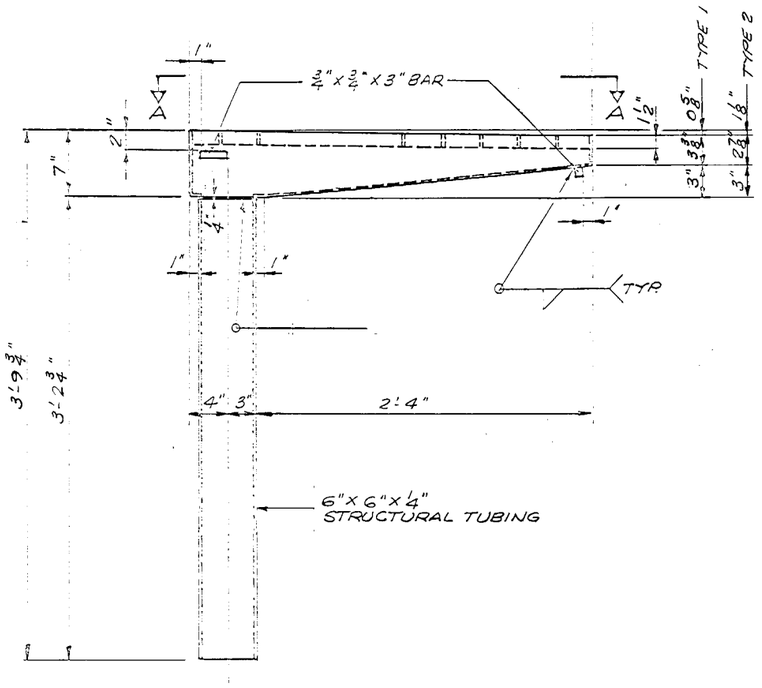
Dale Graves 5-9-95

TITLE:	DRWN.: CAD	APPROVED: 6-13-96	BRIDGE NO.
MISC. BRIDGE DETAILS	CHK.: DAD	S.P. 55-603-24	55554
		SHEET 24 OF 29 SHEETS	



VIEW A-A

NO SCALE

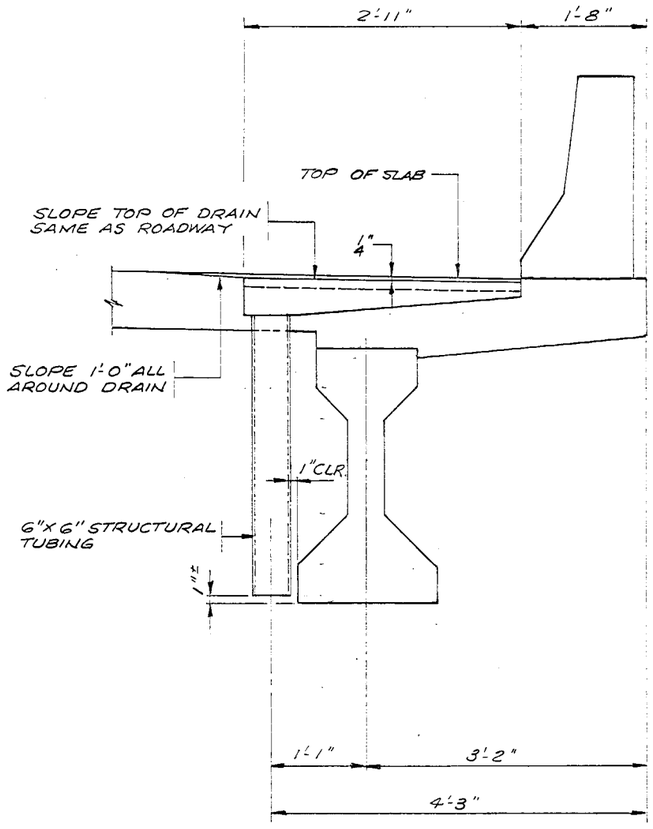


ELEVATION - 8702 MOD.

NO SCALE

GALVANIZE AFTER FABRICATION PER MN. SPEC. 3394.

TYPE 1 - SPAN 1
TYPE 2 - SPAN 3



FLOOR DRAIN PLACEMENT DIAGRAM

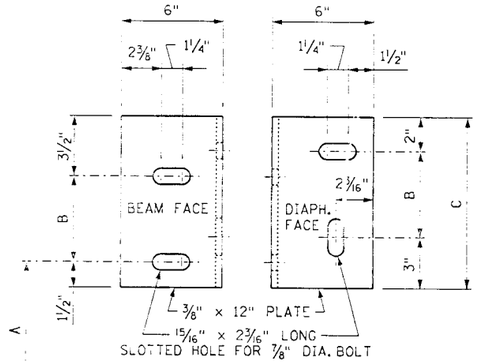
Del. Draw
5-7-15

S.P. 55-603-24

FLOOR DRAIN DETAIL (8702 MODIFIED)	DRAWN W.N.J.	CHECKED	APPROVED 6-13-96	BRIDGE NO. 55554
	SHEET 25 OF 29 SHEETS			

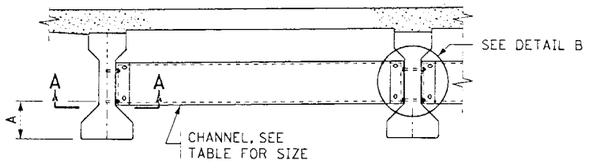
TABLE

BEAM HEIGHT	DISTANCE A	DISTANCE B	DISTANCE C	CHANNEL SIZE
~~28M~~ ~~BULB TEE~~	~~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~~

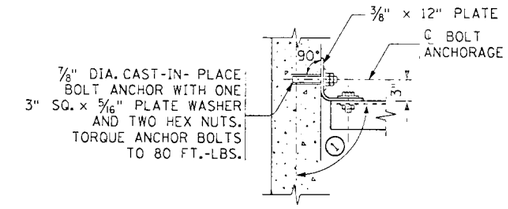


DIAPHRAGM CONNECTION FOR BEAMS

BOTTOM OF BEAM

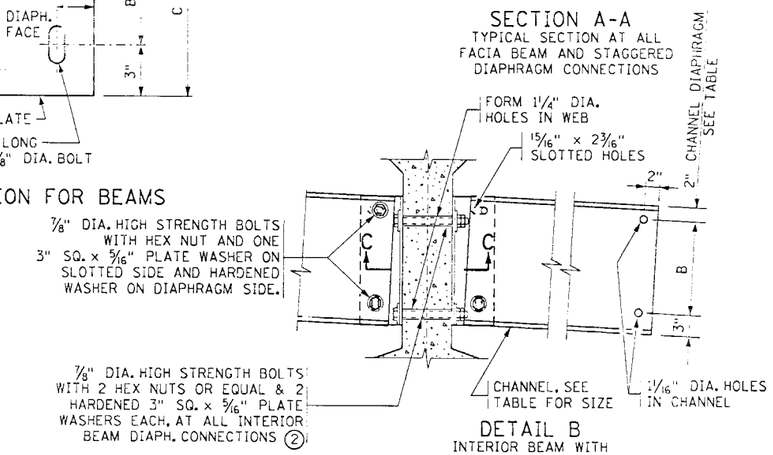


PART TRANSVERSE SECTION AT DIAPHRAGM



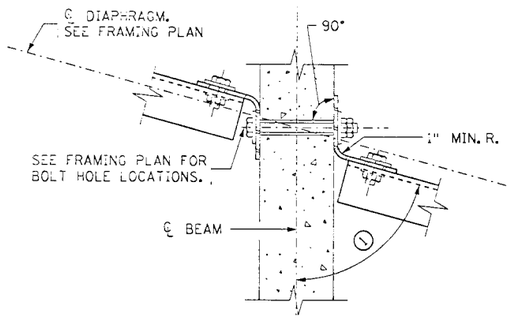
SECTION A-A

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

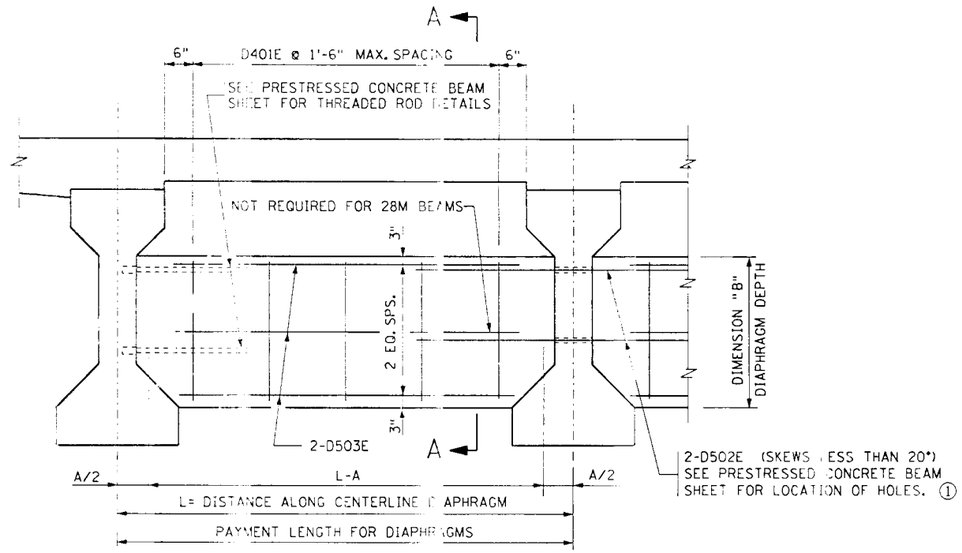
THE LEG OF THE 12" PLATE SHALL BE SHOP BENT TO CONFORM TO THE DIAPHRAGM. A ⅜" x 6" x 6" ANGLE MAY BE USED FOR DIAPHRAGMS PERPENDICULAR TO BEAMS.

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

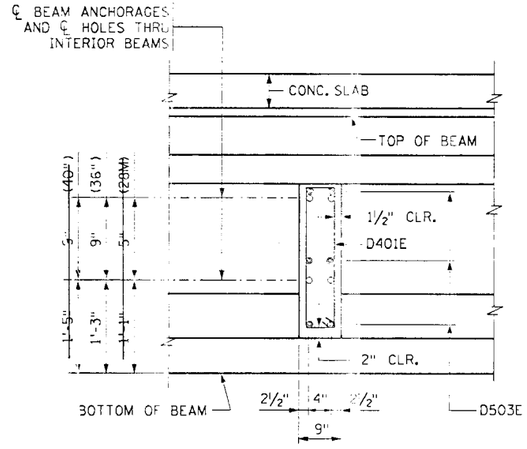
ALL STRUCTURAL STEEL SHOWN ON THIS DETAIL, INCLUDING BOLTS AND WASHERS, SHALL BE INCLUDED IN THE PAYMENT FOR DIAPHRAGMS FOR PRESTRESSED BEAMS.

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

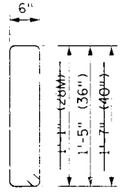
BEAM HEIGHT	DIM. "A" VOLUME COMP.	DIM. "B" DIAPHRAGM DEPTH	D401E LENGTH
~~28M~~	~~8"~~	~~1'-5"~~	~~3'-11"~~
36"	7¾"	1'-9"	4'-7"
~~40"~~	~~8¾"~~	~~1'-11"~~	~~4'-11"~~

CONCRETE VOLUME PER DIAPHRAGM

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

BILL OF REINFORCEMENT FOR DIAPHRAGMS

BAR	NO.	LENGTH	SHAPE	LOCATION
D401E	84	4'-7"		TIE-VERTICAL
D502E	32	5'-0"		HORIZONTAL-THRU BEAM
D503E	72	9'-6"		HORIZONTAL



D401E

NOTES:

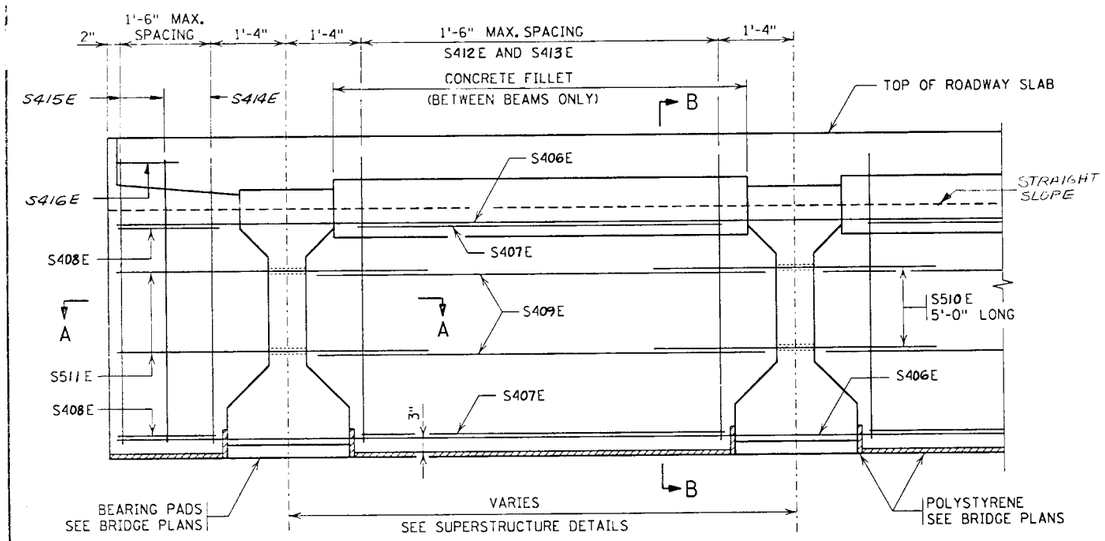
DIAPHRAGM CONCRETE TO BE MIX NO. 3Y43.

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.

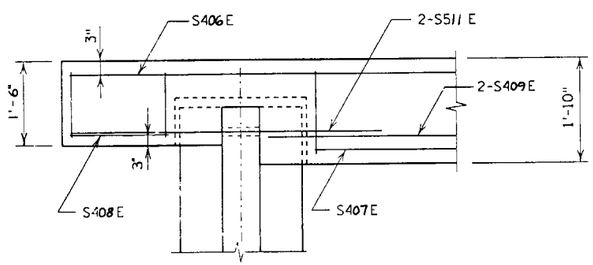
(1) FOR DIAPHRAGM SKEWS 20° AND OVER, USE THREADED RODS AS SHOWN ON PRESTRESSED CONCRETE BEAM SHEETS.

APPROVED: AUGUST 4,1992	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	DATE:	DETAIL NO.
OFFICE of BRIDGES and STRUCTURES	CONCRETE INTERMEDIATE DIAPHRAGM (28M - 40" PRESTRESSED CONCRETE BEAM SPANS)	DR: CHK:	B802

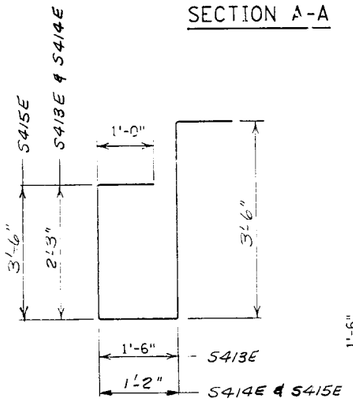
TITLE:	DRWN: CAD	APPROVED:
MISC. BRIDGE DETAILS	CHK: DAD	6-13-96
	S.P. 55-603-24	
	SHEET 26 OF 29 SHEETS	BRIDGE NO. 55554



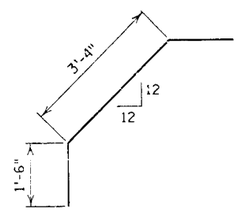
PART TRANSVERSE SECTION AT END DIAPHRAGM



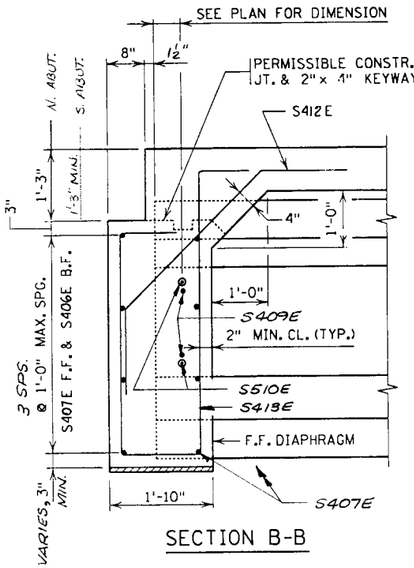
SECTION A-A



S413E, S414E, & S415E



S412E



SECTION B-B

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.

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	DETAIL NO. MODIFIED
DR: NKL	B810
CHK: ~~BENNETT~~	

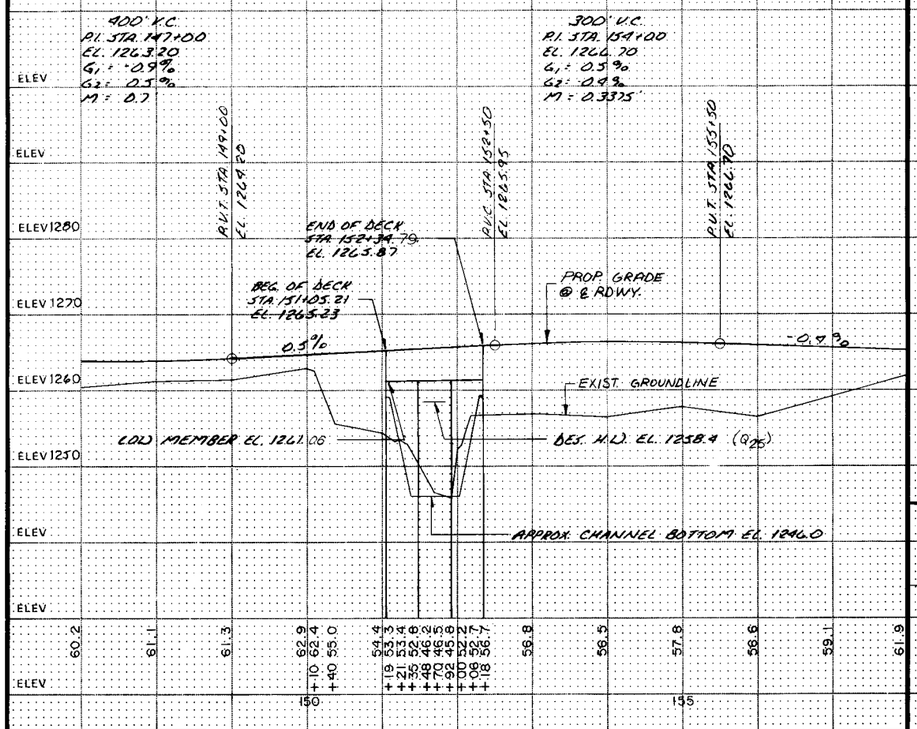
TITLE: MISC. BRIDGE DETAILS

DRWN.: CAD	APPROVED: 6-13-96
CHK.: DAD	
S.P. 55-603-24	
SHEET 27 OF 29 SHEETS	

BRIDGE NO. 55554

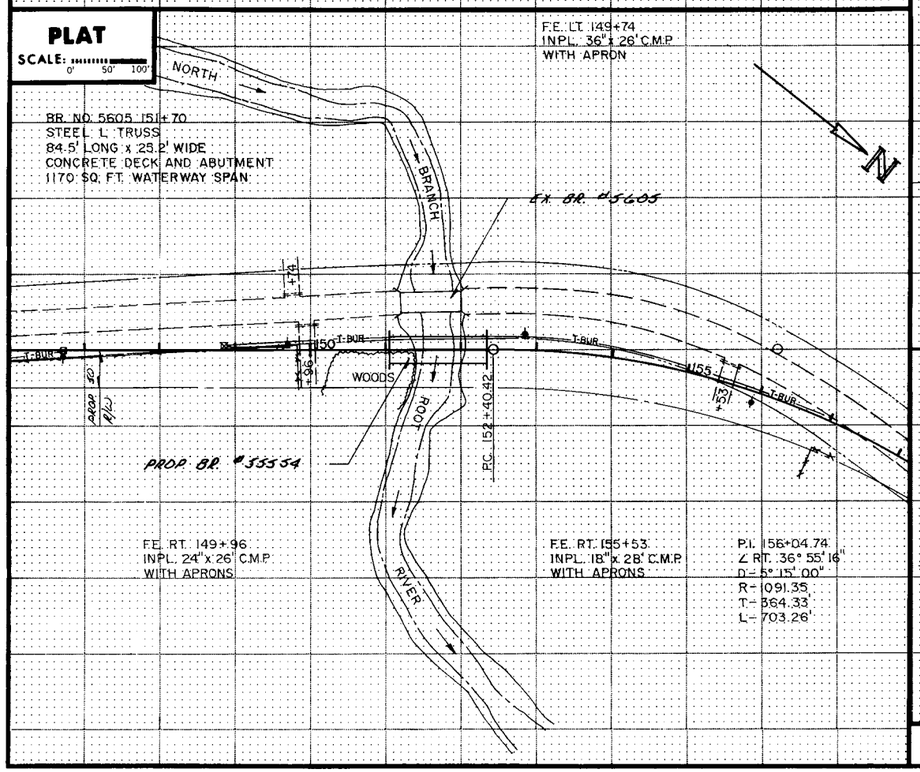
CONTRACTED PROFILE

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



PLAT

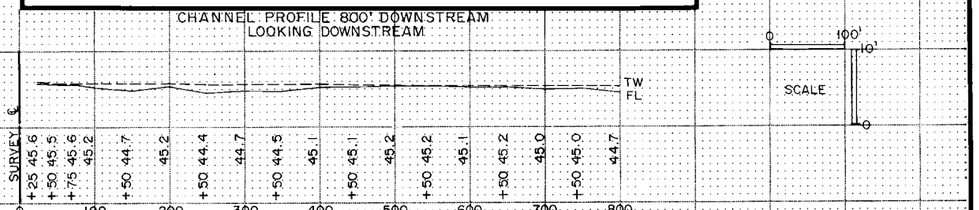
SCALE: 0' 50' 100'



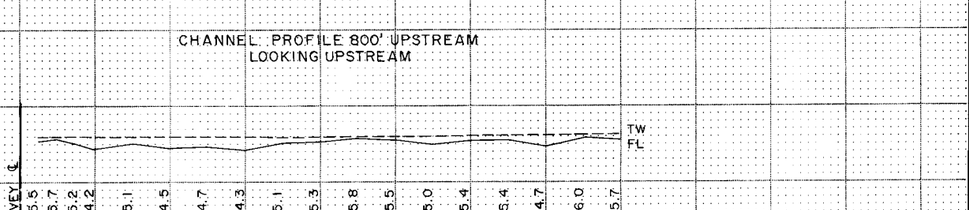
TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN

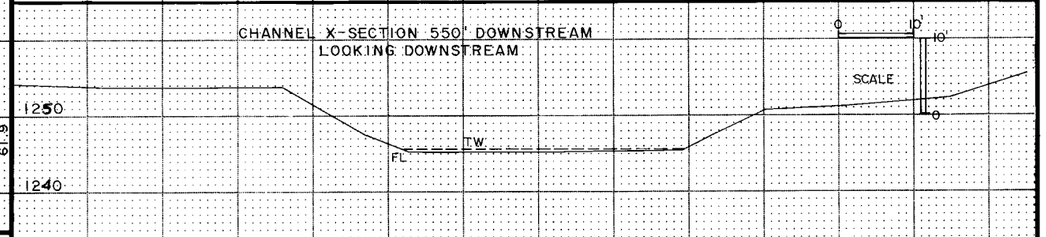
CHANNEL PROFILE 800' DOWNSTREAM
LOOKING DOWNSTREAM



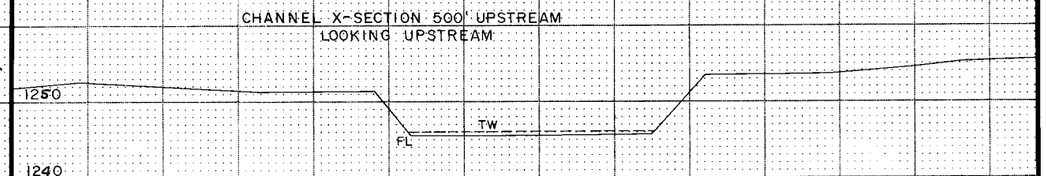
CHANNEL PROFILE 800' UPSTREAM
LOOKING UPSTREAM



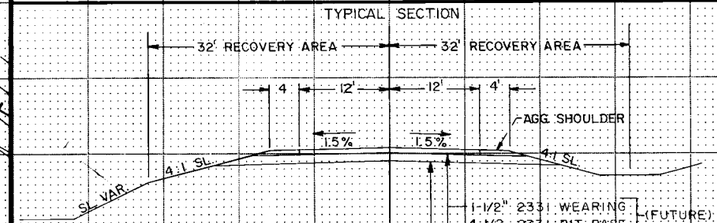
CHANNEL X-SECTION 550' DOWNSTREAM
LOOKING DOWNSTREAM



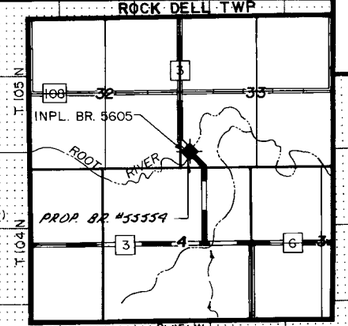
CHANNEL X-SECTION 500' UPSTREAM
LOOKING UPSTREAM



TYPICAL SECTION



ROCK DELL TWP



Dale Omdal
5-9-95

Fed. Proj. No.

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

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

2. Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway) :Given location, type, length, height above high water, cross-sectional area etc.

3. Apparent highwater elevation..... Obtained from.....

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

HYDRAULIC ENGINEERS RECOMMENDATION

DATE 4/16/89

Stream or ditch designation NORTH BRANCH ROOT RIVER
Drainage area 400.0 SQ. MI.
Max. flood on record UNK. Design flood (25 yr. freq.) 5500 C.F.S.
Max. observed highwater elevation UNK Design highwater elevation 1258.4
Design mean velocity through structure 7.0 F.P.S.
Low superstructure at or above elevation 1261.0
Flowline elevation 1246.0 Skew angle 0°
Waterway area req'd. below elevation 1258.4 = 1170 Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 8000 C.F.S. at stage 1259.6 and mean velocity of 6.3 F.P.S. with 0.7 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. 1036.0

ENGINEERS RECOMMENDATION

DATE .....

Bridge survey sheets made from: Bridge survey conducted by Olmsted County

Bench mark elevation 1262.52 (M.S.L. 1929 Adj.)
Location: X on S.E. cor. bridge headwall

MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

AT MILE POINT..... ON C.S.A.H. 3 (T.H., C.S.A.H., C.R. etc.)
PROPOSED BRIDGE LOCATED 4 MILES WEST OF HIGH FOREST
SEC. 33 TWP 105N R 15W
TOWNSHIP ROCK DELL COUNTY OLMSTED
BRIDGE NO. 55554

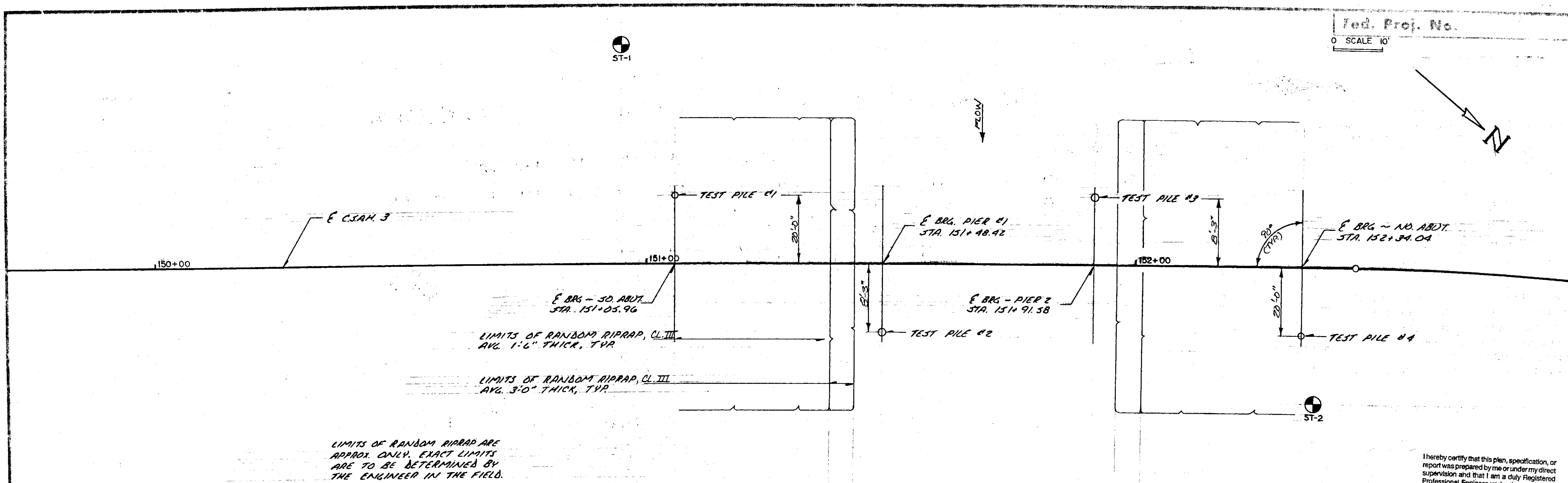
6-13-96

Area No. Job No.

State Proj. No. 55-603-24

Sheet No. 28 of 29 Sheets

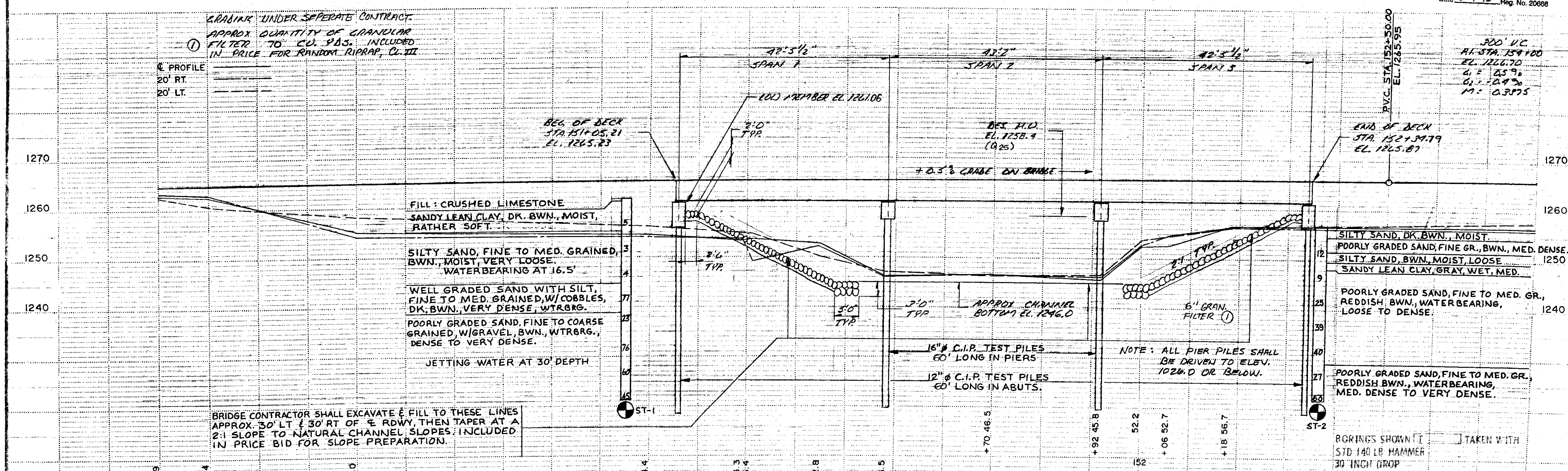
Fed. Proj. No.



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.

Dale Draves

Date 5-9-95 Reg. No. 20666



BORINGS SHOWN [I] TAKEN WITH
STD 140 LB HAMMER
30 INCH DROP
2 INCH O.D. SAMPLER

BRIDGE SURVEY PLAN AND PROFILE	DES: / CHK:	DR: / CHK:	APPROVED: 6-13-96	Bridge No.
State Proj. No. 55-603-24	Sheet No. 29 of 29 Sheets			55554