

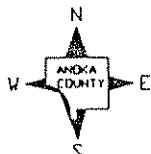
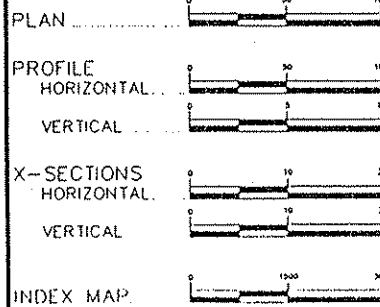
PLAN SYMBOLS

COUNTY LINE	---
TOWNSHIP OR RANGE LINE	---
SECTION LINE	---
QUARTER LINE	---
SIXTEENTH LINE	---
RIGHT OF WAY LINE	---
SLOPE EASEMENT	---
PRESENT RIGHT OF WAY	---
PROPERTY LINE	---
CORPORATE OR CITY LIMITS	---
RETAINING WALL	---
RAILROAD	---
RAILROAD RIGHT OF WAY	---
RIVER OR CREEK	---
DRAINAGE DITCH	---
CULVERT	---
DROP INLET	---
GAUGE RAIL	---
BARBED WIRE FENCE	---
WOVEN WIRE FENCE	---
CHAIN LINK FENCE	---
WOOD FENCE	---
STONE WALL OR FENCE	---
HEDGE	---
LOWLAND	---
TIMBER	---
ORCHARD	---
BRUSH	---
NURSERY	---
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	---
RAILROAD CROSSING BELL	---
RAILROAD CROSSING GATE	---
MANHOLE	---
CATCH BASIN	---
FIRE HYDRANT	---
CAST IRON WORKMENT	---
IRON PILE	---
GRAVEL PIT	---
SAND PIT	---
BORROW PIT	---
ROCK QUARRY	---

UTILITY SYMBOLS

POWER POLE LINE	---
TELEPHONE OR TELEGRAPH POLE LINE	---
JOINT TELEPHONE & POWER ON POWER POLES	---
ON TELEPHONE POLES	---
ANCHOR	---
STEEL TOWER	---
STREET LIGHT	---
PEDESTAL (Cable Terminal)	---
GAS MAIN	---
WATER MAIN	---
TELEPHONE CABLE IN CONDUIT	---
ELECTRIC CABLE IN CONDUIT	---
TELEPHONE MANHOLE	---
ELECTRIC MANHOLE	---
BURIED TELEPHONE CABLE	---
BURIED ELECTRIC CABLE	---
AERIAL TELEPHONE CABLE	---
SEWER (Sanitary or Storm)	---
SEWER MANHOLE	---

SCALES



MINNESOTA DEPARTMENT OF TRANSPORTATION

ANOKA COUNTY

CONSTRUCTION PLAN FOR GRADING, AGGREGATE BASE, BITUMINOUS SURFACING AND BRIDGE NO. 02536

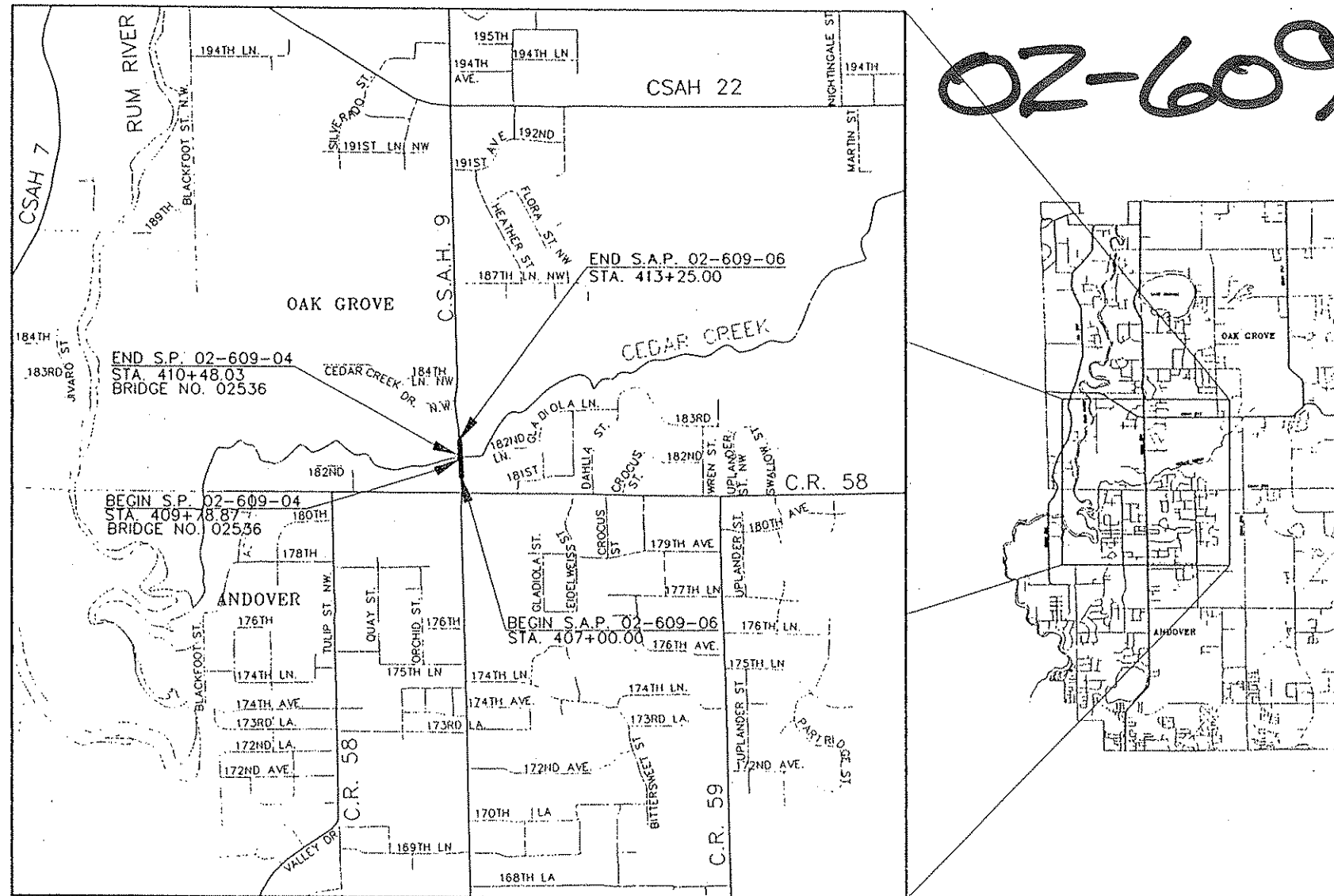
LOCATED ON C.S.A.H. 9 AT CEDAR CREEK, APPROXIMATELY 5.3 MILES NORTH OF ANOKA (Geographic Description)

FROM A POINT 1,071.9' N. OF THE S.W. COR. OF SECTION 33, R 24 W, T 33 N. TO A POINT 1,696.9' N. OF THE S.W. COR. OF SECTION 33, R 24 W, T 33 N. (Legal Description)

STATE PROJ. NO. 02-609-04 STATE AID PROJ. NO. 02-609-06

MN PROJ. NO. BR STP0295(167)

GROSS LENGTH	69.16 FEET	0.013 MILES	GROSS LENGTH	625.00 FEET	0.118 MILES
BRIDGES-LENGTH	69.16 FEET	0.013 MILES	BRIDGES-LENGTH	0.00 FEET	0.00 MILES
EXCEPTIONS-LENGTH	FEET	MILES	EXCEPTIONS-LENGTH	69.16 FEET	0.013 MILES
NET LENGTH	69.16 FEET	0.013 MILES	NET LENGTH	555.84 FEET	0.105 MILES



02-609-04

MINN. PROJ. NO. [REDACTED]
MINN. PROJ. NO. BR STP0295(167)

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.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATED QUANTITIES AND TABULATION CHARTS
3	TYPICAL SECTIONS & DETAILS
4	PLAN & PROFILE
5	STORM SEWER & EROSION CONTROL
6-8	EROSION CONTROL DETAILS
9	GUARDRAIL/CURB DETAILS
10-11	CROSS SECTIONS
12-13	DETOUR LAYOUT
1-20	BRIDGE NO. 02536 PLANS

THIS PLAN CONTAINS 33 SHEETS DESIGN DESIGNATION

ΣN18 ₂₀	1,348,798
R VALUE	70
ADT (1995)	= 6806
Proj. ADT (2015)	= 11,570
Proj. HADT (2015)	= 868
Soil Factor	N/A
Design	10 TON DESIGN
Shoulder Width	10 ft.
Functional Classification	N/A (RURAL)
No. of Traffic Lanes	2
No. of Parking Lanes	0
Design Speed	55 MPH
Based on Stopping Sight Distance	
Height of eye	3.5
Height of object	0.5
Design Speed not achieved at	NA
STA. TO STA.	MPH
STA. TO STA.	MPH
STA. TO STA.	MPH

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

DATE 3/16/95 REG. NO. 20235 ENGR. Douglas W. Fischer DESIGN ENGINEER
DESIGN SQUAD J. CARLSON
Recommended for Approval Michael R. Kelly 3/16/95
Recommended for Approval [Signature] 3/16/95
Recommended for Approval [Signature] 3/16/95
Approved 3/16/95 [Signature] ANOKA COUNTY ENGINEER
Recommended for Approval [Signature] 3/16/95
Recommended for Approval [Signature] 5-18-1995
Recommended for Approval [Signature] 5/12/95
Approved 5-19-1995 [Signature] STATE AID ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED _____
DIVISION ADMINISTRATOR DATE

STATEMENT OF ESTIMATED QUANTITIES

NOTE	CHART	ITEM NO.	ITEM	UNIT	SAP 02-609-06	
					ESTIMATED	FINAL
		0013.601	CELLULAR MOBILE TELEPHONE	LUMP SUM	1	
		0015.601	COMPUTER EQUIPMENT	LUMP SUM	1	
		2021.501	MOBILIZATION	LUMP SUM	0.33	
		2031.501	FIELD OFFICE TYPE D	EACH	1	
	A	2101.501	CLEARING	ACRE	0.15	
	A	2101.502	CLEARING TREE	TREE	8	
	A	2101.506	GRUBBING	ACRE	0.15	
	A	2101.507	GRUBBING TREE	TREE	8	
	D	2104.501	REMOVE CABLE GUARD RAIL	LIN FT	328	
①		2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	1958	
		2104.513	SAWING BITUMINOUS PAVEMENT	LIN FT	70	
	B	2104.521	SALVAGE FENCE	LIN FT	220	
		2105.501	COMMON EXCAVATION	CU YD	569 (P)	
		2105.522	SELECT GRANULAR BORROW MOD. 10% (LV)	CU YD	2230	
		2105.523	COMMON BORROW (LV)	CU YD	2148	
②		2130.501	WATER	M GAL	5	
		2211.503	AGGREGATE BASE (CV) CLASS 5A	CU YD	298	
④		2301.553	BRIDGE APPROACH PANELS	SQ YD	204	
⑤		0331.601	2" THICK BITUMINOUS WEARING COURSE	SQ YD	23	
⑥		2340.508	TYPE 41 WEARING COURSE MIXTURE	TON	179	
		2340.510	TYPE 41 BINDER COURSE MIXTURE	TON	158	
		2340.514	TYPE 31 BASE COURSE MIXTURE	TON	164	
		2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GAL	143	
		2442.501	REMOVE OLD BRIDGE	LUMP SUM	1	
		2501.515	18" RC PIPE APRON	EACH	2	
		2503.541	18" RC PIPE SEWER DES. 3008	LIN FT	148	
		2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN F	LIN FT	9.3	
		2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN H	LIN FT	3.0	
		2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN LP 4-9	EACH	1	
		2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN LP 4-4	EACH	1	
	C	2506.516	CASTING ASSEMBLY	EACH	4	
		2511.501	RANDOM RIPRAP, CLASS 3	CU YD	12	
	D	2554.501	TRAFFIC BARRIER-DESIGN BB307	LIN FT	100	
		0554.602	ECCENTRIC LOADER BCT	EACH	4	
		0554.603	GUARD RAIL TRANSITION CONNECTION	LIN FT	100	
	B	0557.603	INSTALL FENCE	LIN FT	220	
		0563.601	DETOUR SIGNING	LUMP SUM	1	
⑦		2573.501	BALE CHECK	EACH	80	
		2573.503	SILT FENCE, PREASSEMBLED	LIN FT	1290	
		2573.505	FLOTATION SILT CURTAIN	LIN FT	25	
		2575.501	SEEDING	ACRE	0.61 (P)	
		2575.502	SEED MIXTURE 500	POUND	27	
		2575.523	WOOD FIBER BLANKET, TYPE REGULAR	SQ YD	2984	
		2575.532	COMMERCIAL FERTILIZER ANALYSIS 10-10-10	POUND	305	
		2580.501	TEMPORARY LANE MARKING	RD STA	40	

- ① INCLUDES 23 S.Y. FOR DRIVEWAY STA. 407+56 LT. & 21 S.Y. FOR BIT. FLUMES.
- ② INCLUDES ALL BIT. PAVEMENTS IRRESPECTIVE OF DEPTH. IN PLACE PAVEMENT ASSUMED TO BE 6" IN DEPTH. CONTRACTOR SHALL INVESTIGATE AND MAKE OWN DETERMINATION OF ACTUAL DEPTH.
- ③ TO BE USED, AT THE DIRECTION OF THE ENGINEER, FOR DUST CONTROL.
- ④ PAY ITEM INCLUDES INTEGRAL CURB AND TRANSITION CURB.
- ⑤ PROVIDED FOR DRIVEWAY RESTORATION, PAYMENT BY THE S.Y. INCLUDES BITUMINOUS MATERIAL FOR MIXTURE & 3" THICK (COMPACTED THICKNESS) AGGREGATE BASE.
- ⑥ INCLUDES 7.4 TONS OF MATERIAL FOR INTEGRAL BITUMINOUS CURB.
- ⑦ MEASUREMENT AND PAYMENT SHALL BE MADE FOR EACH INDIVIDUAL BALE FURNISHED AND INSTALLED.

EARTHWORK SUMMARY

EXCAVATION (CU.YD.).....569 C.Y.	TOPSOIL.....302 C.Y.
	SUBCUT.....267 C.Y.
EMBANKMENT CONST. (CV)	TOPSOIL.....242 C.Y.
	SUBCUT.....267 C.Y.
	SEL. GRAN.....1,832 C.Y.
	REGULAR.....1,790 C.Y.
BALANCE:	
TOPSOIL: T.S. DRESSING (CV) - [T.S. STRIPPING(EV) X S.F.]	
= 242 - (302 X 0.85) = -15 C.Y. (EXCESS)	
SEL. GRAN.: [SEL. FILL (CV) + (SUBCUT FILL - (SUBCUT EXC. X S.F.))] X S.F.	
= [1832 + (267 - (267 X 0.90))] X 1.2	
= 2230 C.Y. BORROW (LV)	
COMMON MATL.: REG FILL (CV) X S.F.	
= 1790 X 1.2	
= 2148 C.Y. COMMON BORROW (LV)	
SOIL FACTORS:	
REGULAR GRADING (EV TO CV) : 85% SHRINKAGE	
SUBCUT COMPACTION (EV TO CV) : 90% SHRINKAGE	
BORROW MATERIAL (CV TO LV) : 120% SWELL	

CLEARING AND GRUBBING (A)

STA. - STA.	LOC.	CLEARING		GRUBBING	
		TREE	ACRE	TREE	ACRE
409+04	40' LT.	1		1	
409+14	40' LT.	1		1	
409+24	40' LT.	1		1	
409+35-409+90	60'-64' RT.		0.05		0.05
409+57	40' LT.	1		1	
409+87	25' LT.	2		2	
410+00	24' LT.	1		1	
410+49	22' LT.	1		1	
410+57-412+50	54'-65' RT.		0.10		0.10
TOTALS		8	0.15	8	0.15

FENCE CONSTRUCTION (B)

STA.-STA.	LOC.	SALVAGE	INSTALL	REMARKS
408+50-409+90	RT.	140	140	BARBED WIRE
408+81-409+61	LT.	80	80	SPLIT RAIL
TOTAL (LIN. FT.)		220	220	

STANDARD PLATES

THESE STANDARD PLATES AS APPROVED BY THE FHWA SHALL APPLY

PLATE NO.	DESCRIPTION
3000 L	REINFORCED CONCRETE PIPE
3006 G	GASKET JOINT FOR R.C. PIPE
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3133 B	RIPRAP AT RCP OUTLET
3145 E	CONCRETE PIPE TIES
4005 K	MANHOLE OR CATCH BASIN (DESIGN F)
4006 K	MANHOLE OR CATCH BASIN (DESIGN G AND DESIGN H)
4021 D	PRECAST CURB OPENING CATCH BASIN
4108 F	ADJUSTING RINGS FOR MANHOLES AND CATCH BASINS
4110 E	COVER CASTING FOR MANHOLE
4126 F	CATCH BASIN FRAME CASTING
4149 C	GRATE CASTING FOR CATCH BASIN
4161 F	CURB BOX CASTING FOR CATCH BASIN
4180 H	MANHOLE OR CATCH BASIN STEP
7102 I	CONCRETE CURB AND GUTTER
8000 J	STANDARD BARRICADES
8302 P	STEEL PLATE BEAM GUARDRAIL
8318 C	GUARDRAIL ANCHORAGE PLATE FOR BRIDGES & BCT'S.
8329 F	ECCENTRIC LOADER BREAKAWAY CABLE TERMINAL
9000 B	APPROACHES AND ENTRANCES

CASTINGS (C)

NUMBER REQUIRED	FRAME CASTING	GRATE CASTING	CURB BOX CASTING	RING CASTING	COVER CASTING
2	801	810	821-D	790-2	712

GUARD RAIL CONSTRUCTION (D)

STA.-STA.	LOC.	REMOVE	F & I	REMARKS
409+12-410+00	LT	88		THREE CABLE
409+12-410+00	RT	88		THREE CABLE
410+52-411+28	LT	76		THREE CABLE
410+52-411+28	RT	76		THREE CABLE
409+28-409+78	LT		50	PLATE BEAM
409+28-409+78	RT		50	PLATE BEAM
410+48-410+98	LT		50	PLATE BEAM
410+48-410+98	RT		50	PLATE BEAM
TOTALS		328 L.F.	200 L.F.	
408+91-409+28	LT & RT		2	E.L.T.
410+98-411+35	LT & RT		2	E.L.T.
TOTALS			4 EA.	

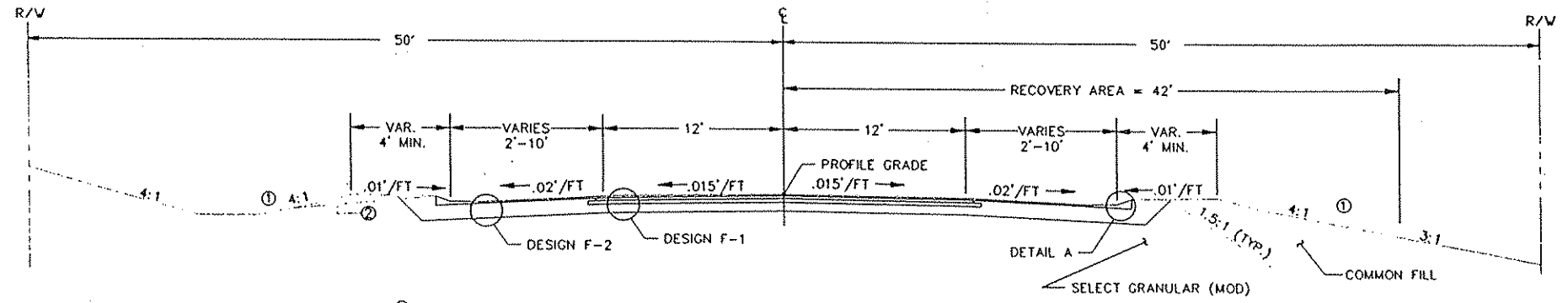
BASIS OF PLANNED QUANTITIES

- 2340 TYPE 31 PLANT MIXED BASE & BINDER COURSE BITUMINOUS MATERIAL 110 LBS./SQ. YD./ 1" THICK
- 2340 TYPE 41 PLANT MIXED WEARING COURSE BITUMINOUS MIXTURE 110 LBS./SQ.YD./ 1" THICK
- 2357 BITUMINOUS MATERIAL FOR TACK COAT 0.05 GAL./SQ.YD./LAYER APPLIED
- 2575 COMMERCIAL FERTILIZER ANALYSIS 10-10-10, 500 POUNDS/ACRE ON ALL SEED AND SOD AREAS.
- 2575 SEED APPLICATION RATE OF 50 POUNDS/ACRE.
- 2575 SEEDING AREA BASED ON HORIZONTAL MEASUREMENT +10%

STATEMENT OF ESTIMATED QUANTITIES TABULATION CHARTS

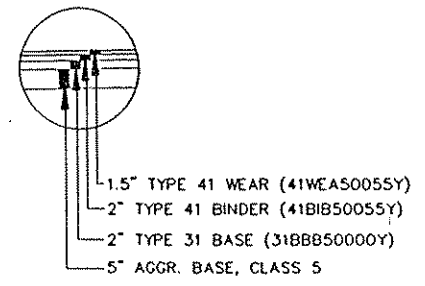
REVISIONS	DATE	BY

C.S.A.H. 9
STA. 407+00 TO STA. 413+25

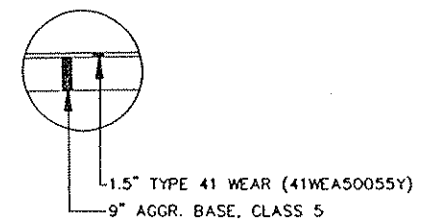


- ① 2:1 MAX. SLOPE BEHIND GUARD RAIL.
- ② 0.1'/FT SLOPE IN GUARD RAIL SECTION (TYP.)

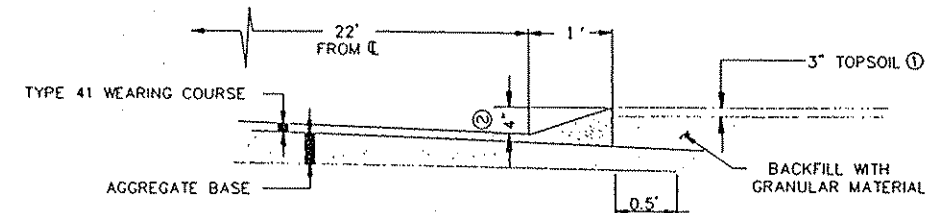
DESIGN F-1



DESIGN F-2

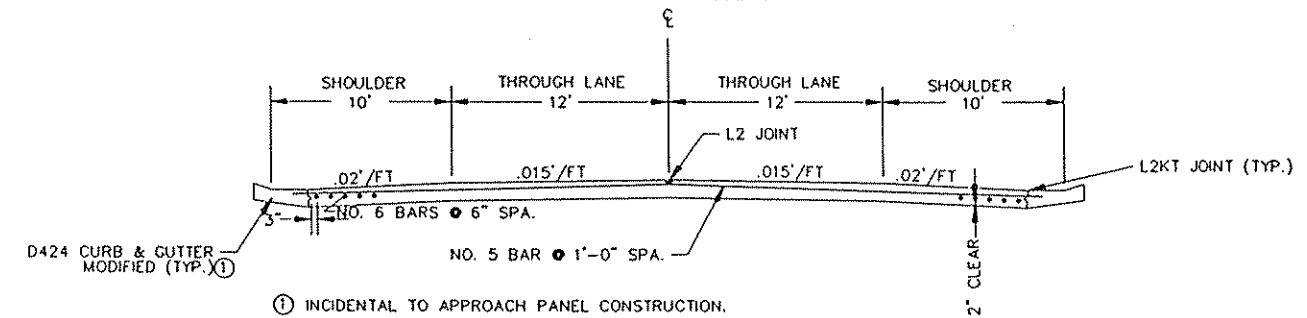


DETAIL A
INTEGRAL BITUMINOUS CURB DETAIL

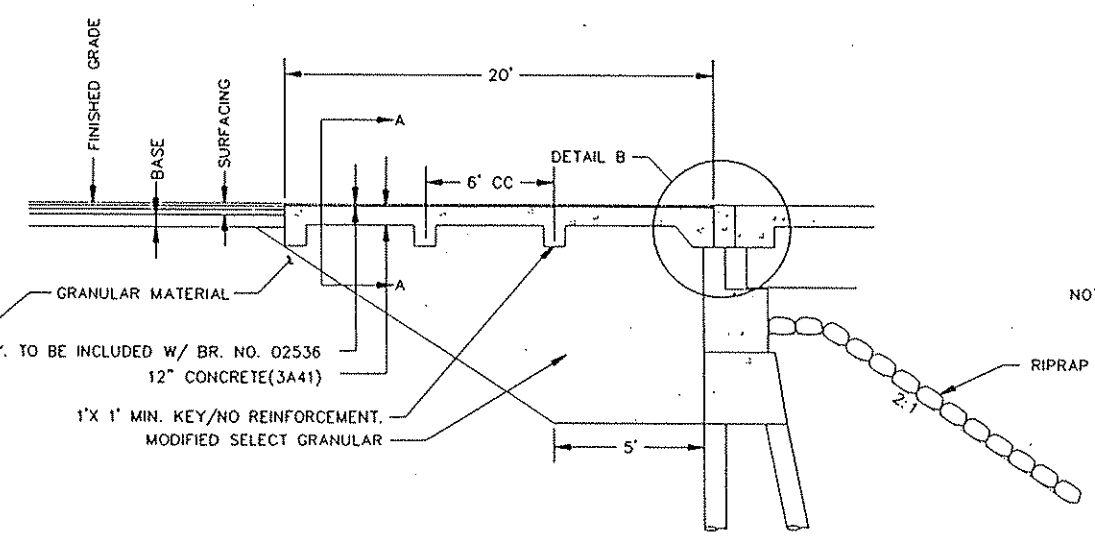


- ① TOPSOIL, FERTILIZE, SEED (TYPE 500) AND BLANKET ALL DISTURBED AREAS.
- ② TRANSITION 10' EACH SIDE OF DRAINAGE STRUCTURES TO MATCH.

SECTION A-A



- ① INCIDENTAL TO APPROACH PANEL CONSTRUCTION.

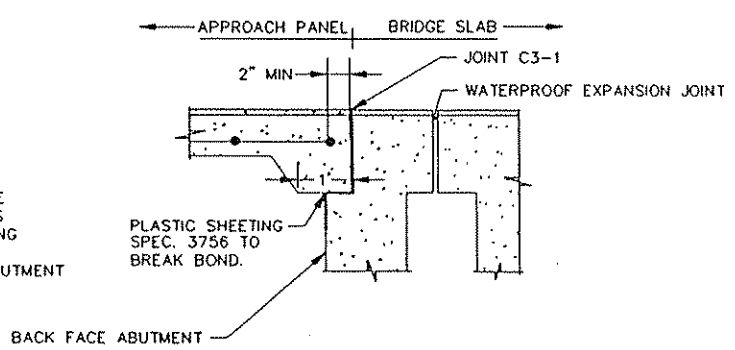


1.5" OR 2" OVERLAY SPECIAL QTY. TO BE INCLUDED W/ BR. NO. 02536
12" CONCRETE(3A41)

1' x 1' MIN. KEY/NO REINFORCEMENT.
MODIFIED SELECT GRANULAR

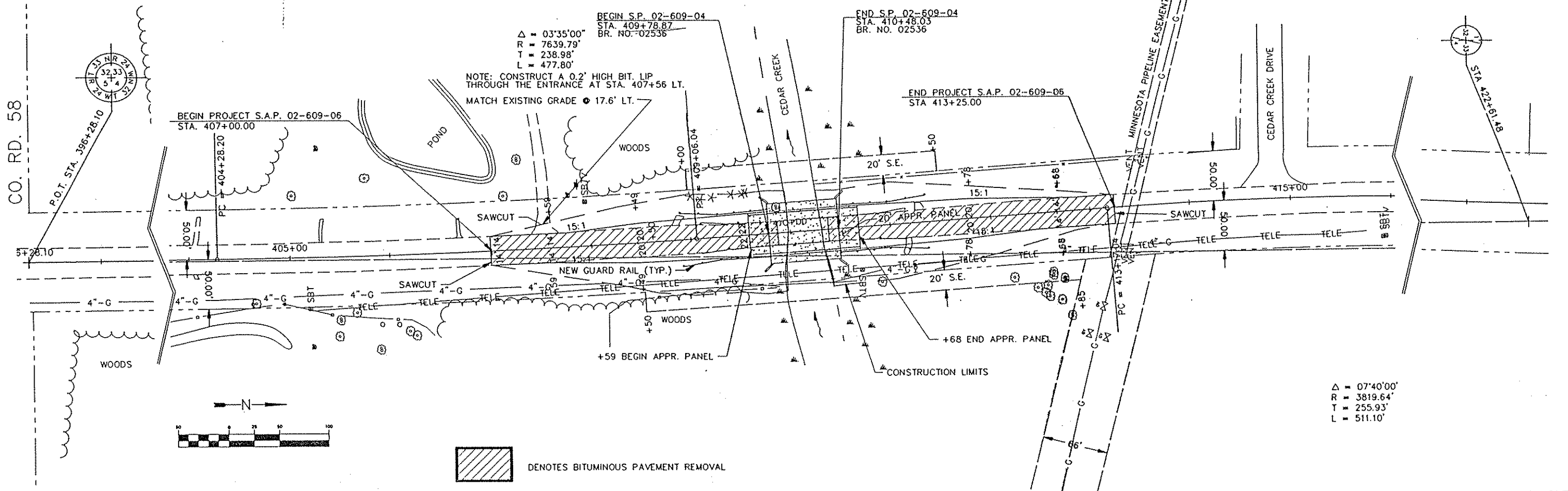
NOTE: ALL RIPRAP SHALL BE PLACED ON SLOPE BEFORE ANY WORK IS COMMENCED, INCLUDING APPROACH GRADING, PILE DRIVING AND ABUTMENT EXCAVATION.

DETAIL B

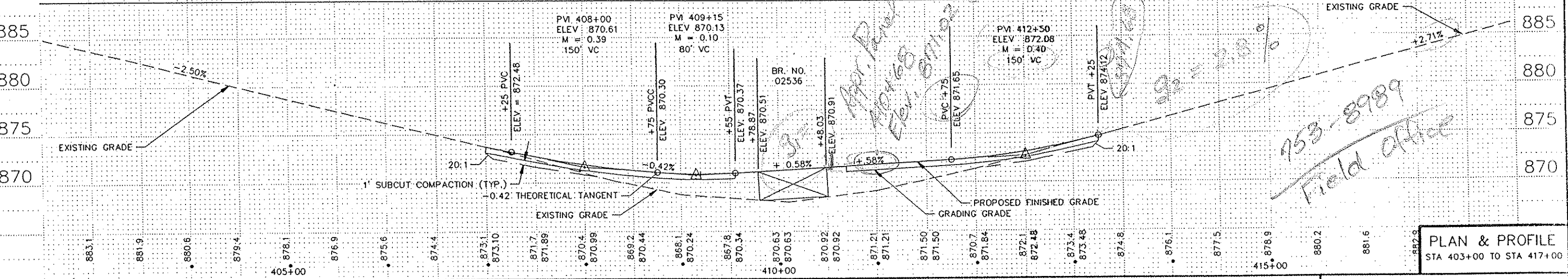
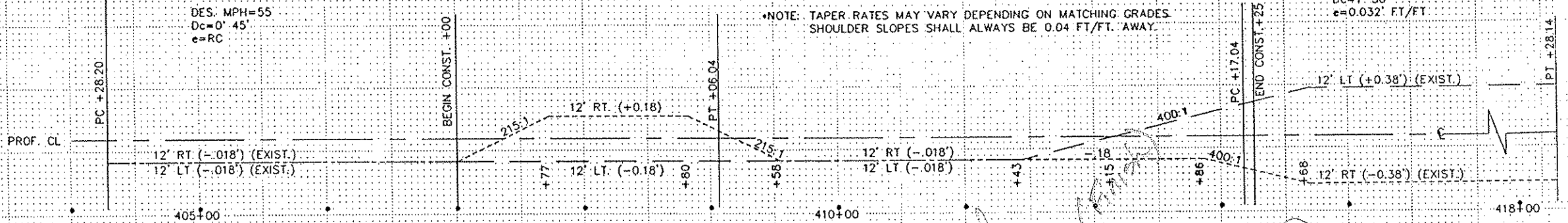


TYPICAL SECTIONS
APPROACH PANEL DETAILS

REV.	BY	DATE



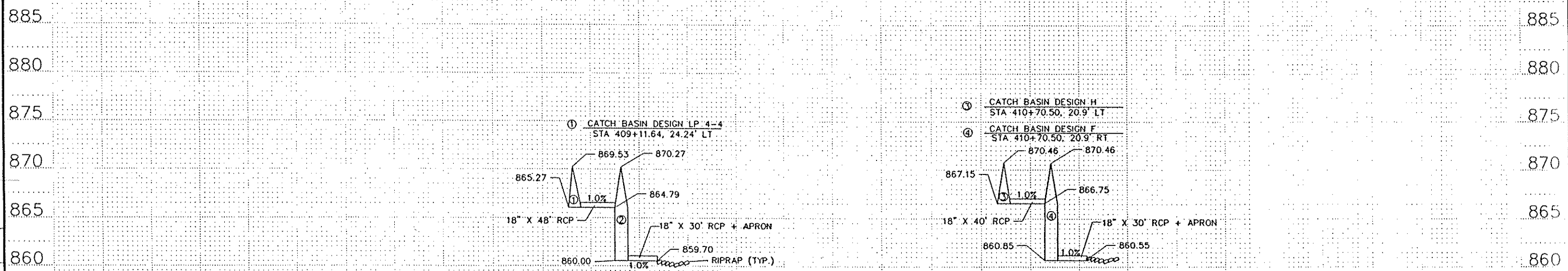
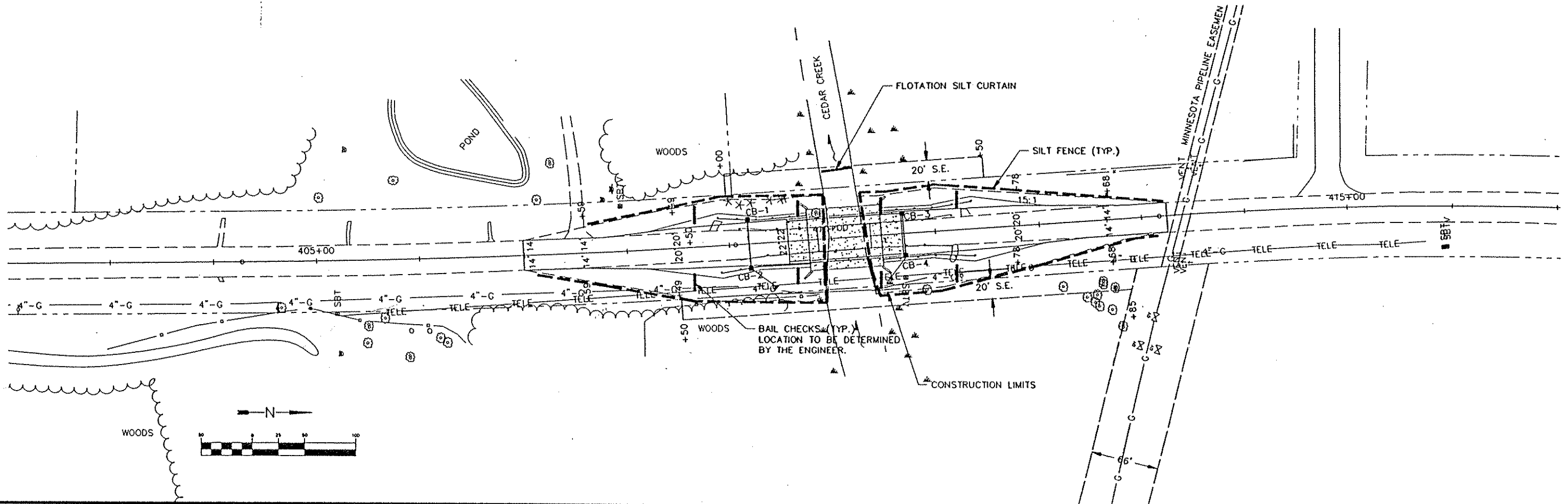
SUPERELEVATION CHART



*753-8989
Field office*

REVISIONS

DATE	BY	DATE	BY



405+00 410+00 415+00

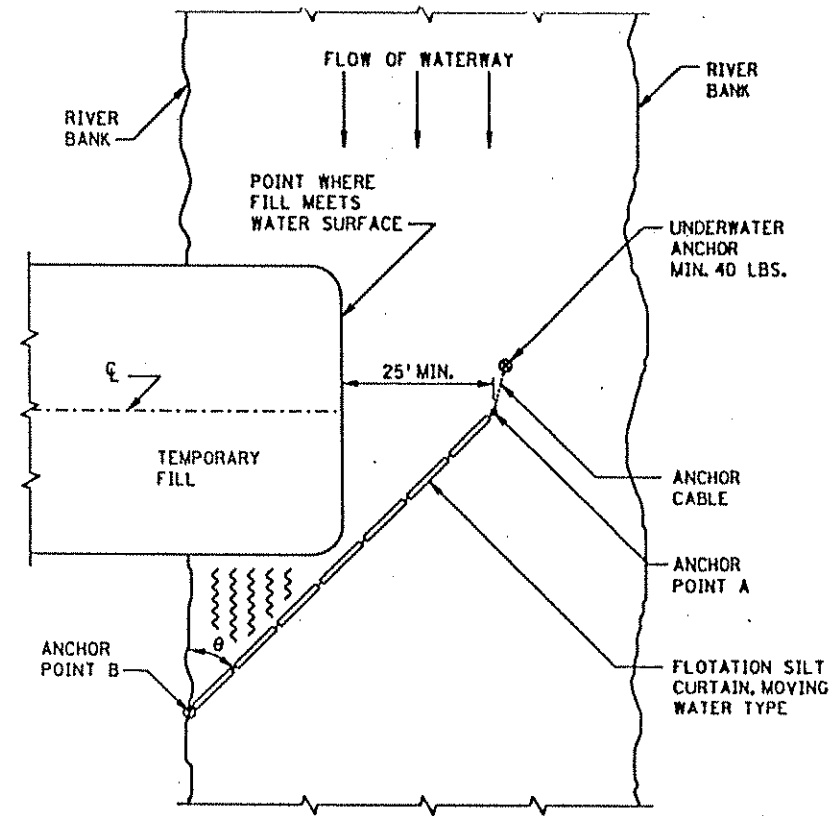
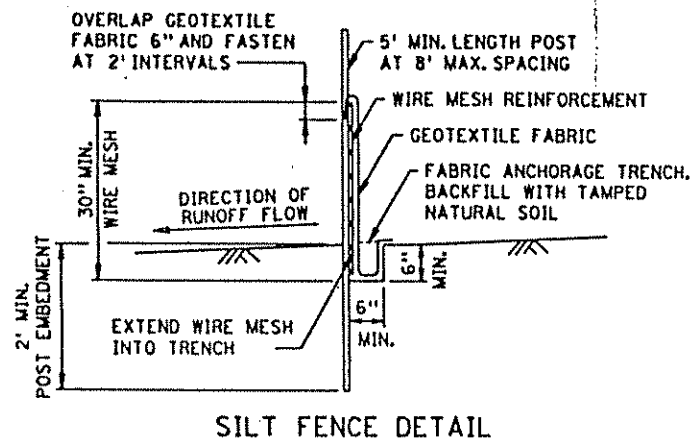
STORM SEWER & EROSION CONTROL

DATE BY DATE BY

CERTIFIED BY August H. Virena P.E. REG NO. 20235 3/14 19 95

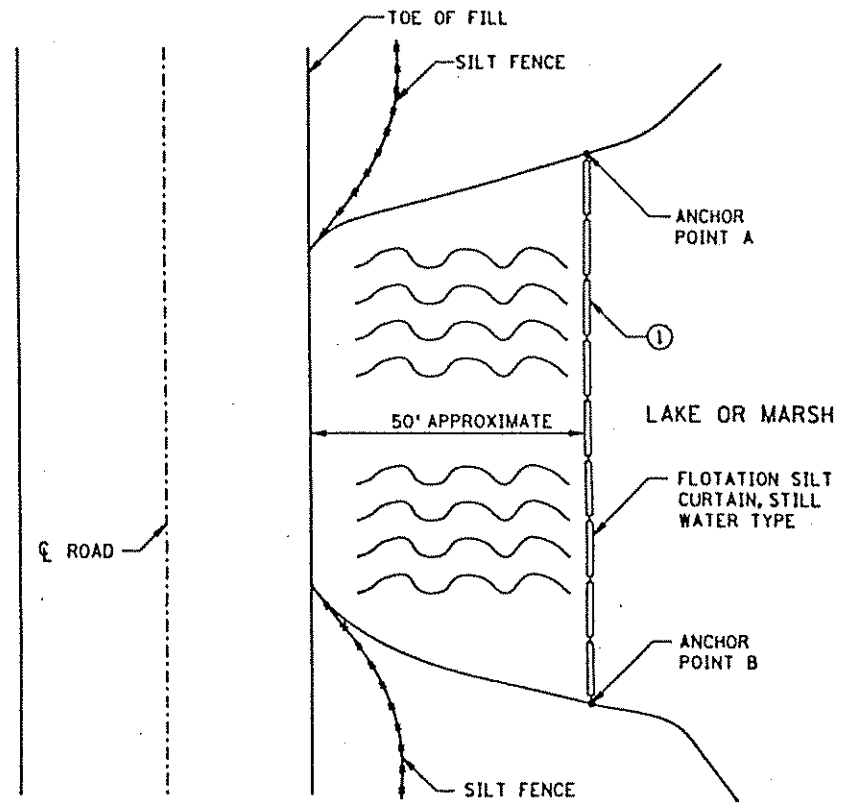
S.P. 02-609-04 S.A.P. 02-609-06 C.P. _____

Sheet No. 5 of 13 Sheets

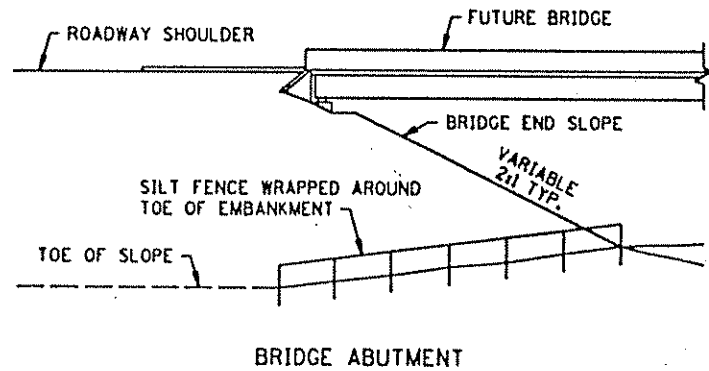
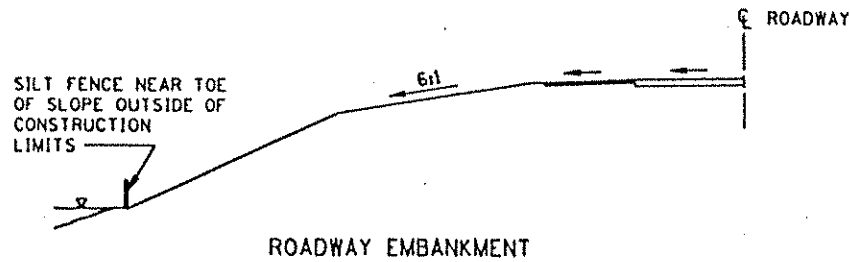


$\angle \theta$	RIVER VELOCITY
45°	SLOW, LESS THAN 5 FT./SEC.
35°	MODERATE, 5 TO 7 FT./SEC.

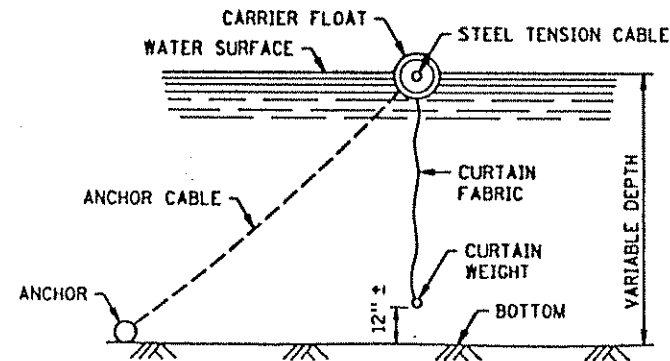
PLAN VIEW OF SILT CURTAIN - MOVING WATER



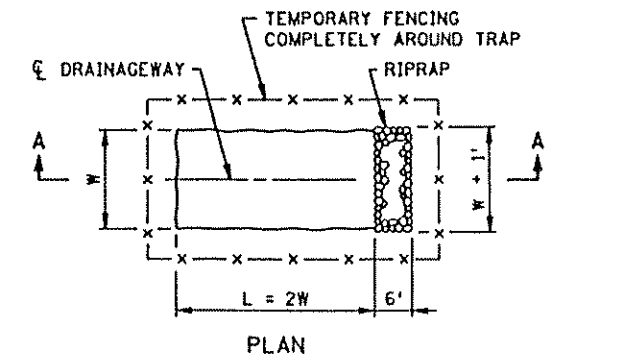
PLAN VIEW OF SILT CURTAIN - STILL WATER
① CURTAIN 1 FT. FROM BOTTOM



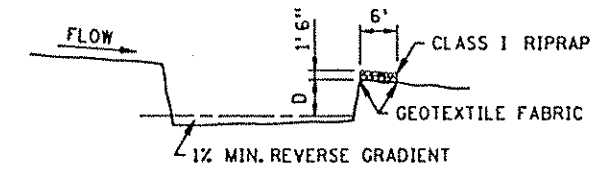
BRIDGE ABUTMENT
SILT FENCE OR BALE CHECK TO PROTECT ADJACENT CRITICAL AREAS



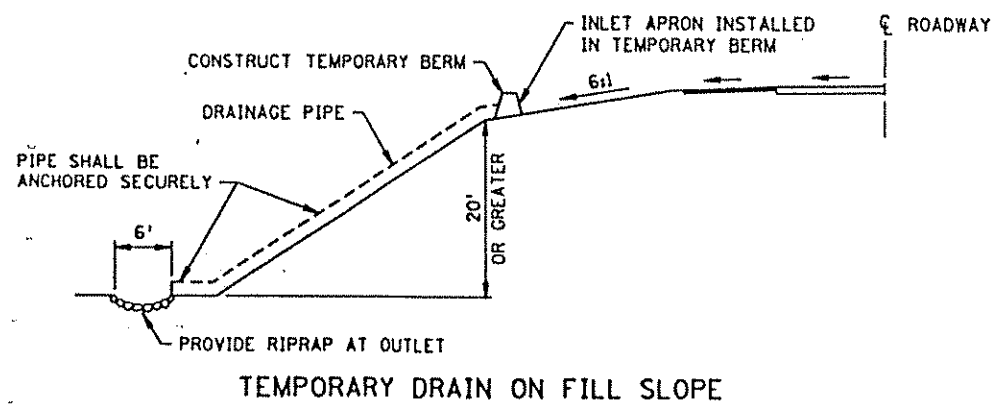
FLOTATION SILT CURTAIN



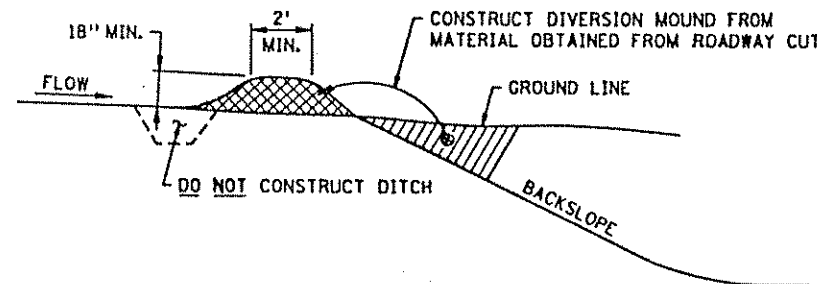
PLAN



SECTION A-A
TEMPORARY SEDIMENT TRAP



TEMPORARY DRAIN ON FILL SLOPE



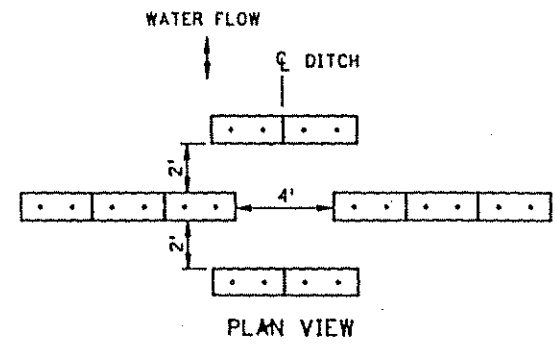
DIVERSION MOUND

STANDARD SHEET NO.
5-297.405 (1 OF 2)
STANDARD APPROVED:
AUGUST 2, 1993

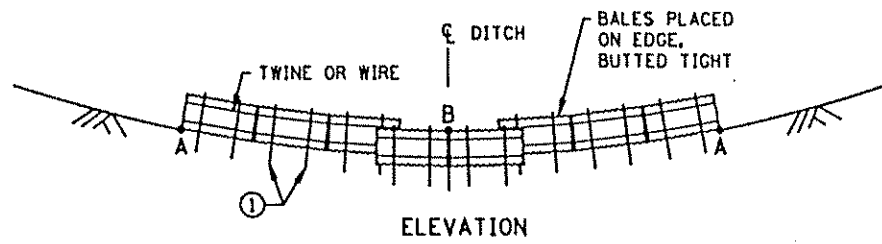
TITLE:

TEMPORARY EROSION CONTROL

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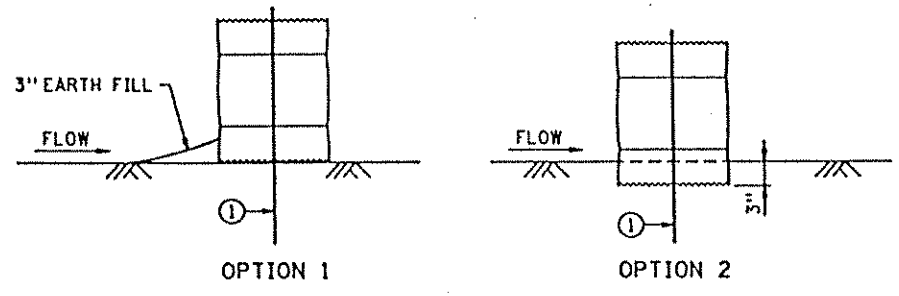


PLAN VIEW

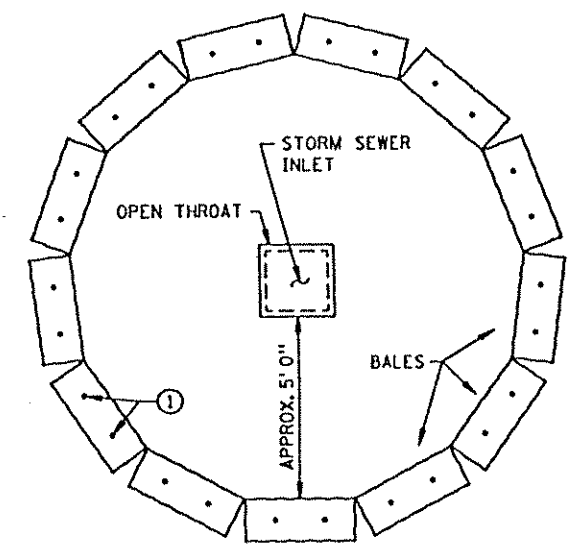


ELEVATION

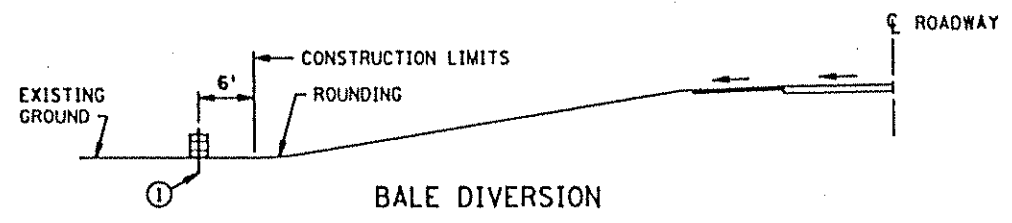
NOTE:
POINT A MUST BE HIGHER THAN POINT B
BALE DITCH VELOCITY CHECKS
(WILL REQUIRE A MINIMUM OF 10 BALES PER SITE)



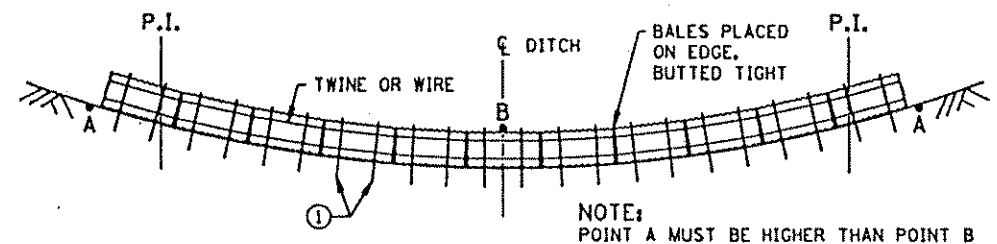
BALE CHECK DETAILS



BALE CHECK TO PROTECT STORM SEWER INLETS



BALE DIVERSION



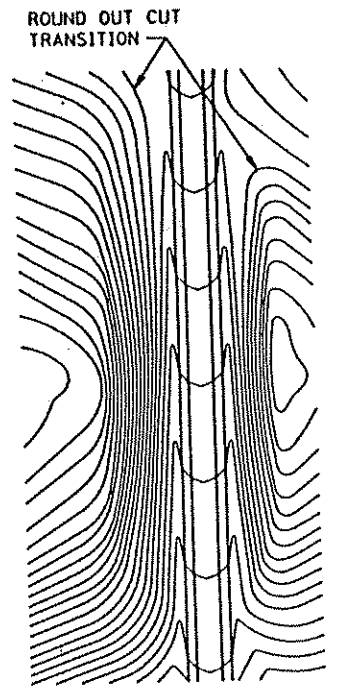
BALE DITCH SEDIMENT CHECK

NOTE:
POINT A MUST BE HIGHER THAN POINT B

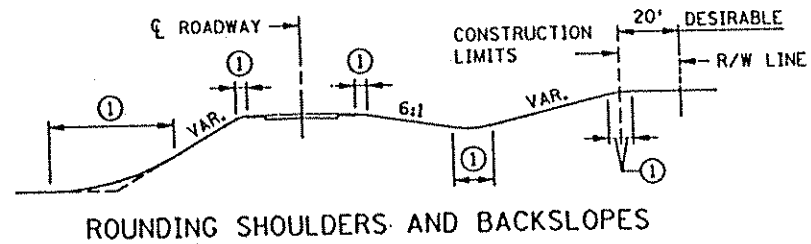
RECOMMENDED SPACING BETWEEN BALE DITCH CHECKS	
DITCH GRADE (%)	SPACING (FT.)
2	100
4	75
6	50
8	40
10	25

NOTE:
① TWO 2" X 2" WOOD STAKES OR REINFORCING BARS IN EACH BALE AND EMBEDDED IN THE GROUND 10" MINIMUM.

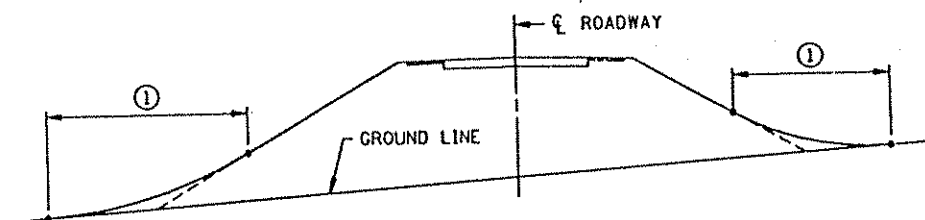
STANDARD SHEET NO. 5-297.405 (2 OF 2)	TITLE: TEMPORARY EROSION CONTROL
STANDARD APPROVED: AUGUST 2, 1993	
STATE PROJ. NO. Q2-609-04/SAP_Q2-609-06 SHEET NO. 7 OF 13 SHEETS	



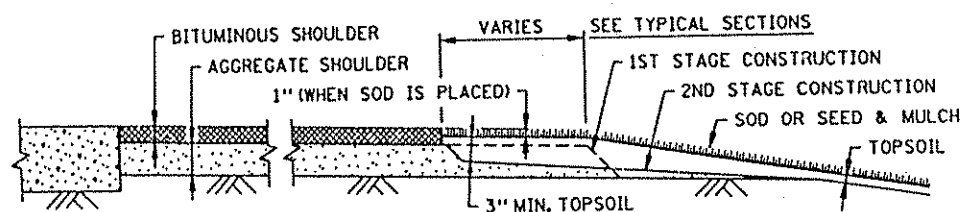
CONTOURING ROAD CUTS



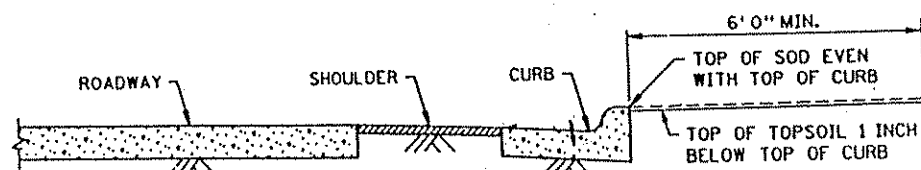
ROUNDING SHOULDERS AND BACKSLOPES



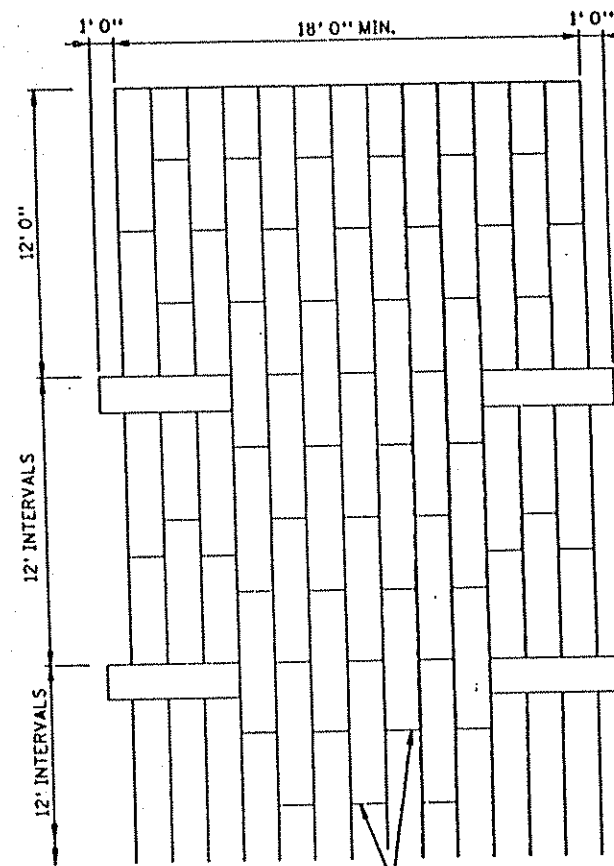
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



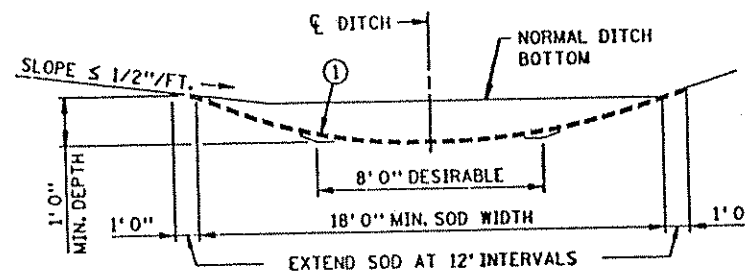
SHAPING AND TOPSOILING INSLOPES



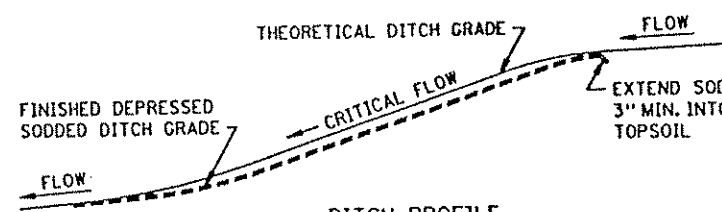
SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED



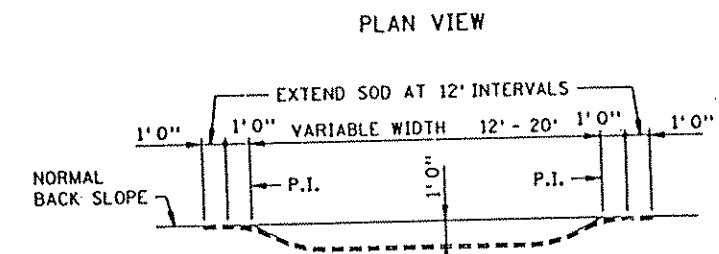
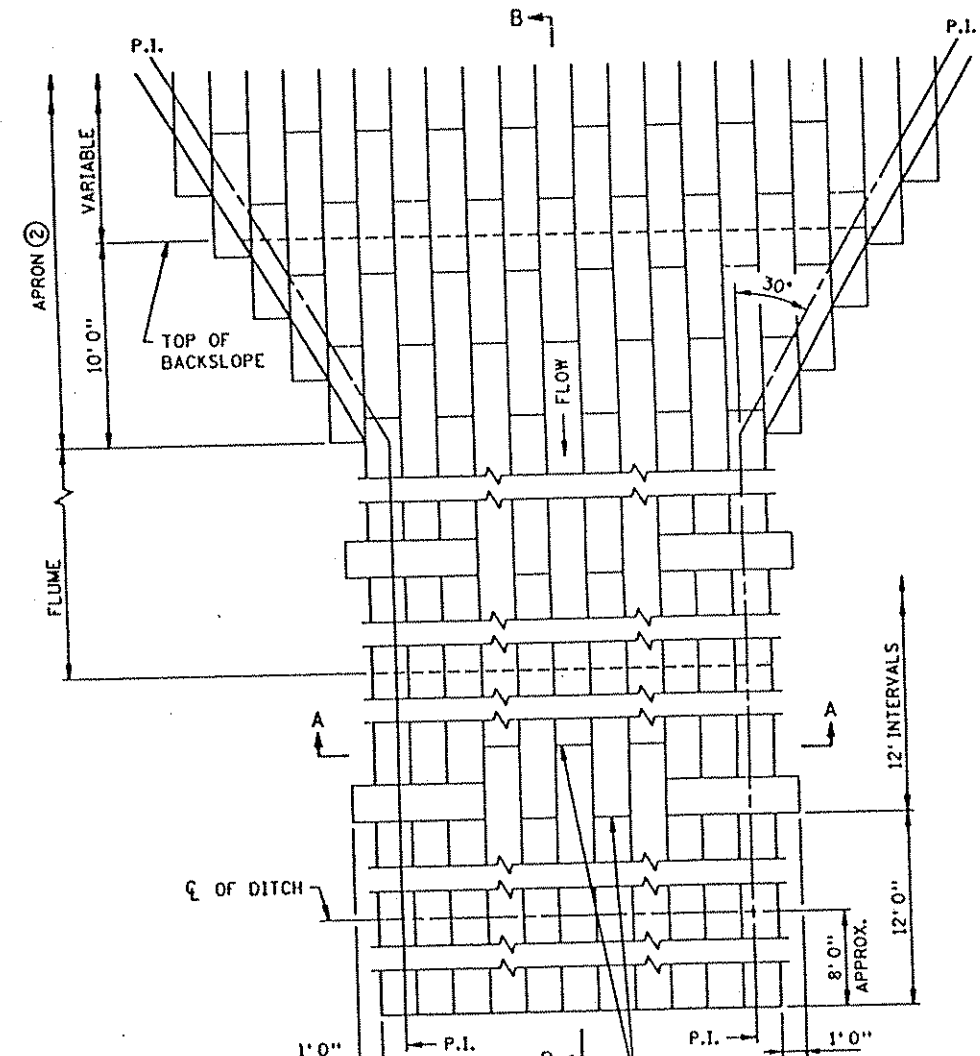
PLAN VIEW



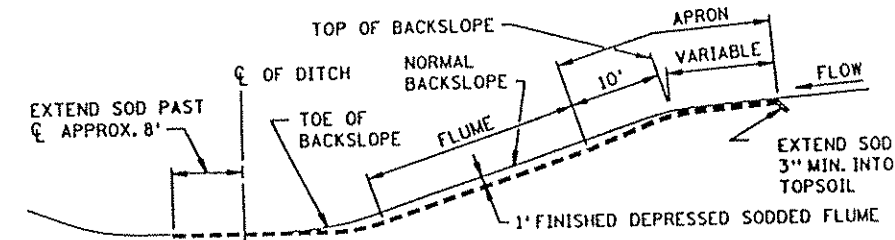
SODDED DITCH CROSS SECTION
WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.



DITCH PROFILE
SODDED DITCH DETAILS



SECTION A-A

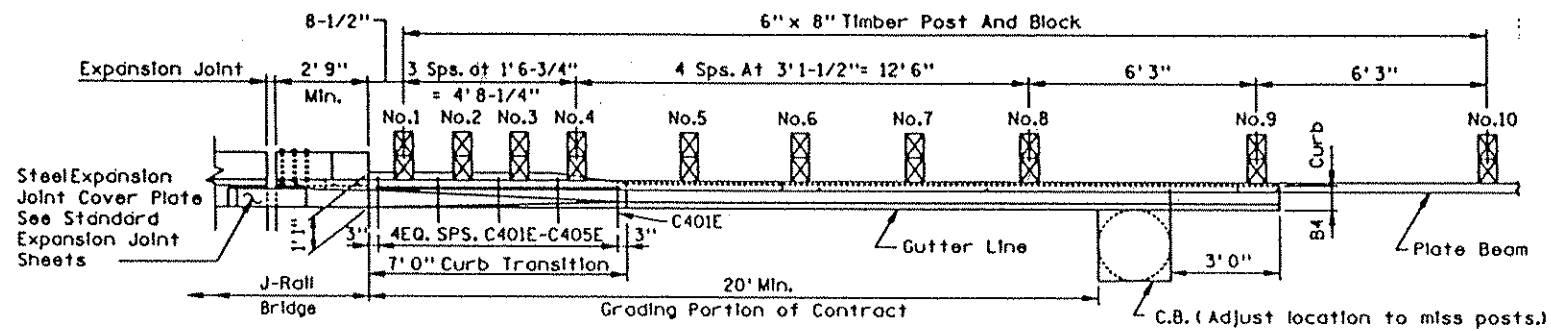


SECTION B-B
SODDED FLUME DETAILS

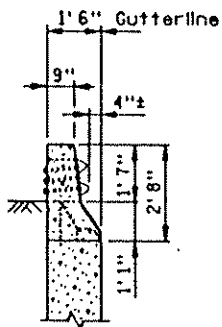
- NOTES:
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.
① FOR ROUNDING, SEE ROAD DESIGN MANUAL.
② CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

STANDARD SHEET NO. 5-297.404	TITLE: PERMANENT EROSION CONTROL ALONG ROADWAYS, DITCHES AND FLUMES
STANDARD APPROVED: DECEMBER 19, 1990	
STATE PROJ. NO. Q2-609-04/SAP Q2-609-06 SHEET NO. 8 OF 13 SHEETS	

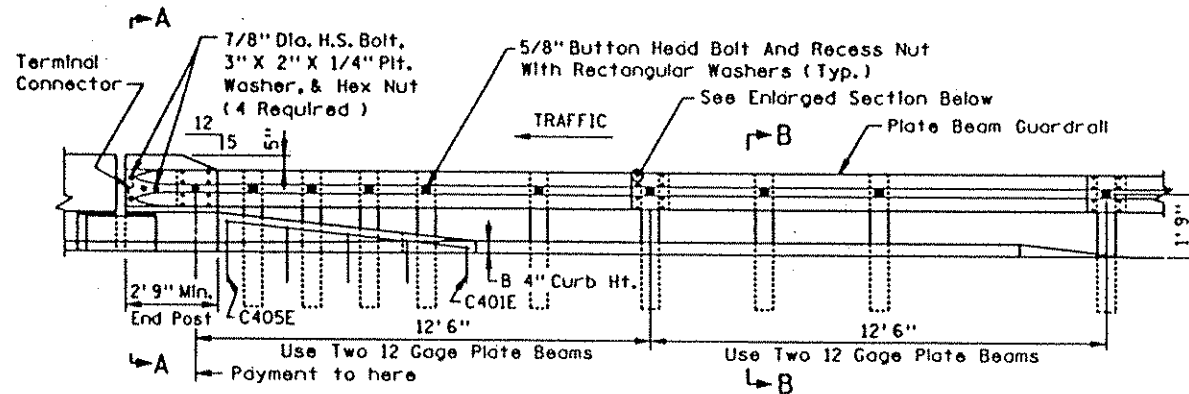
AXT80 05A3: [45,100] FILE NAME S404L90.SPN



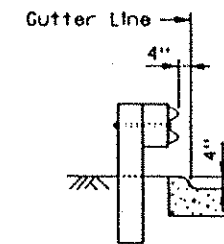
PLAN



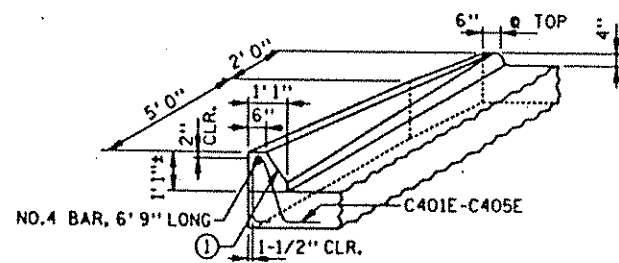
SECTION A-A (WINGWALL)



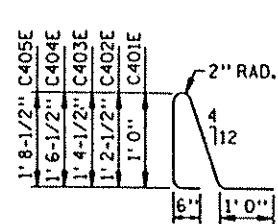
ELEVATION



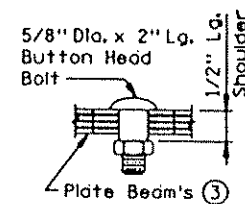
SECTION B-B



CURB TRANSITION DETAIL



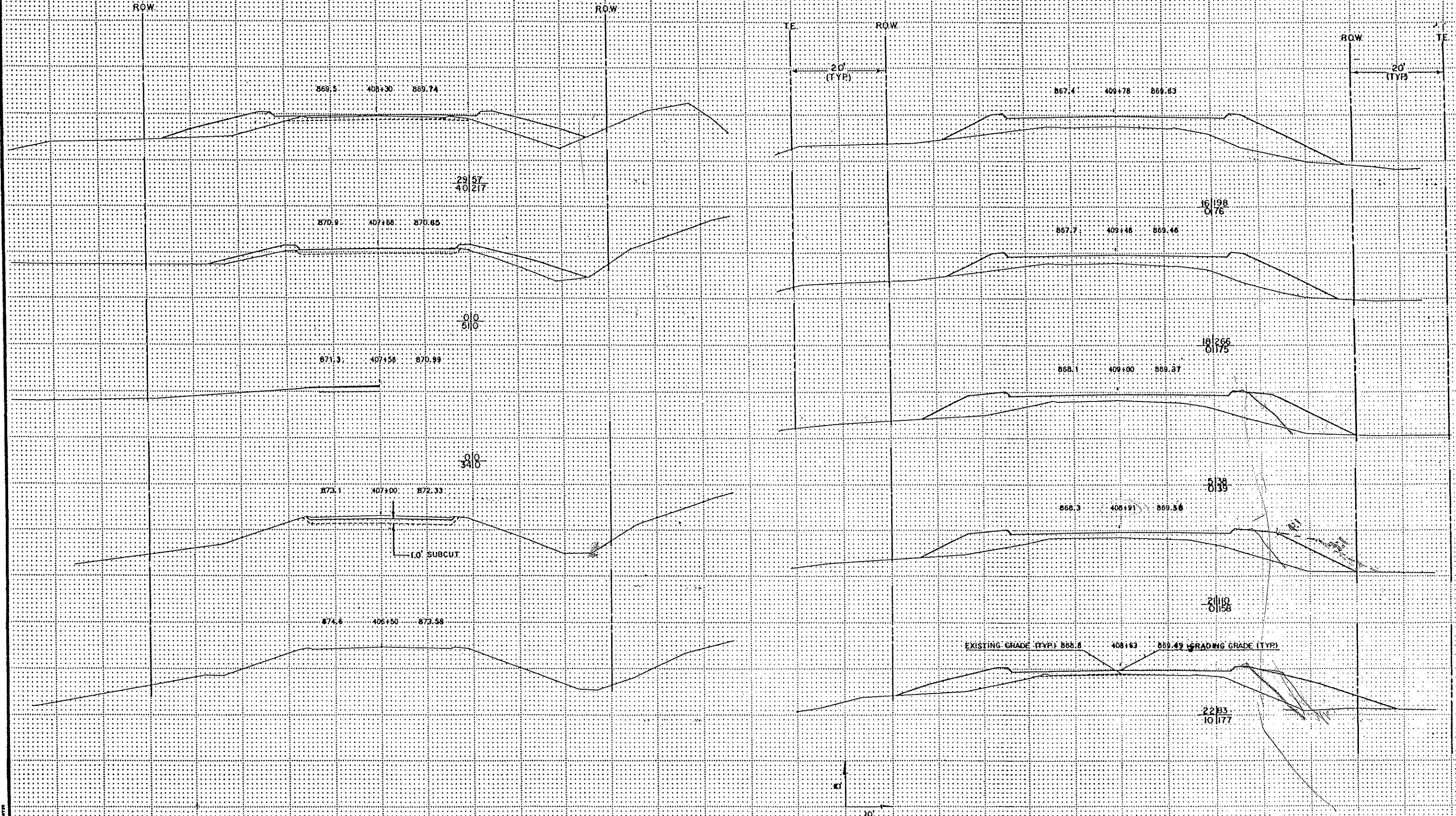
C401E-C405E



ENLARGED SECTION

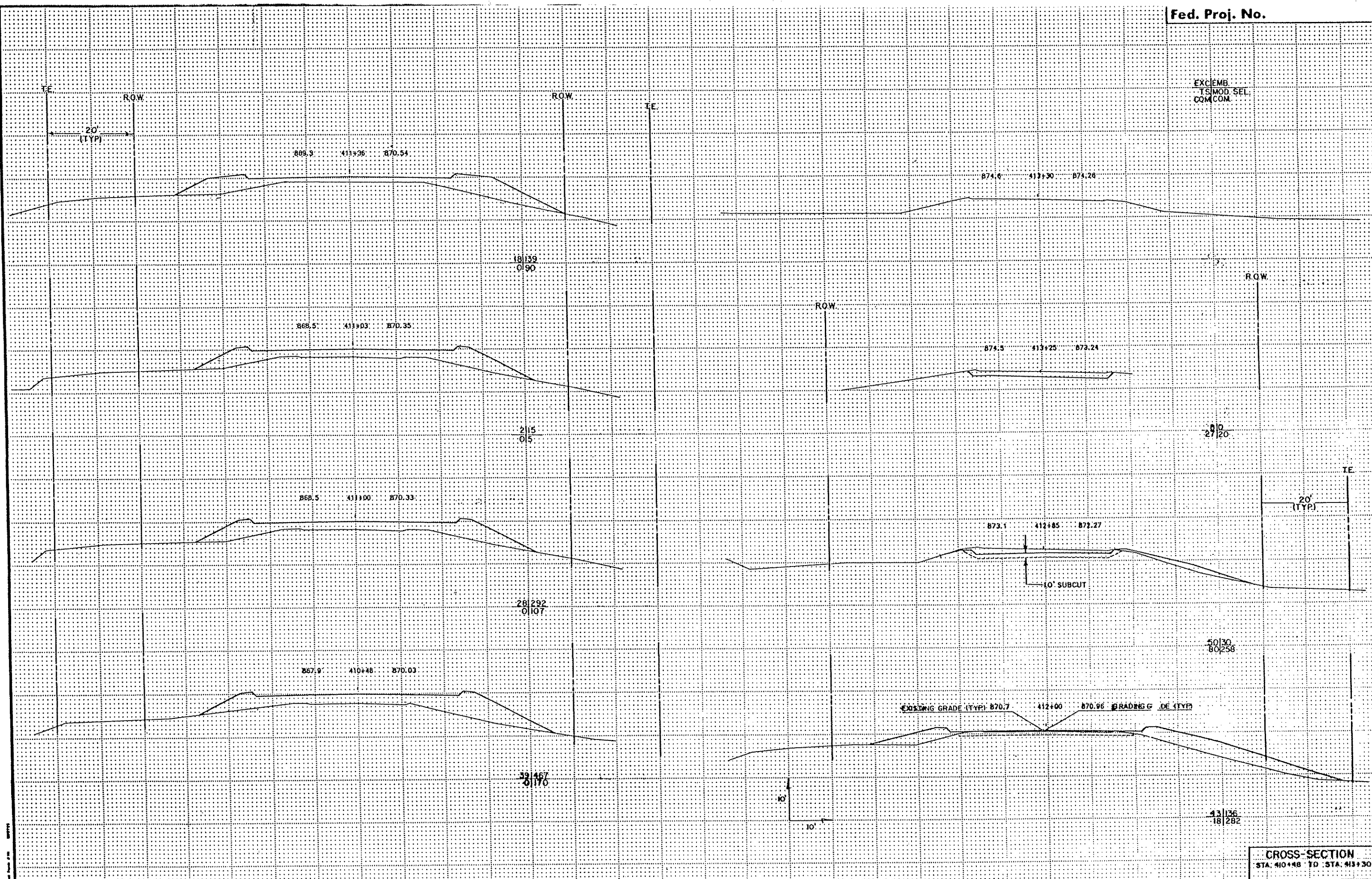
- ① End of transition to match Bridge Roll surface.
2. Pay length is 25 feet.
- ③ Use at splice locations when more than two plates are lapped together.

Exc. EMB
T.S. MOD. SEL.
COM. COM.



CROSS-SECTION
STA. 406+50 TO STA. 409+78

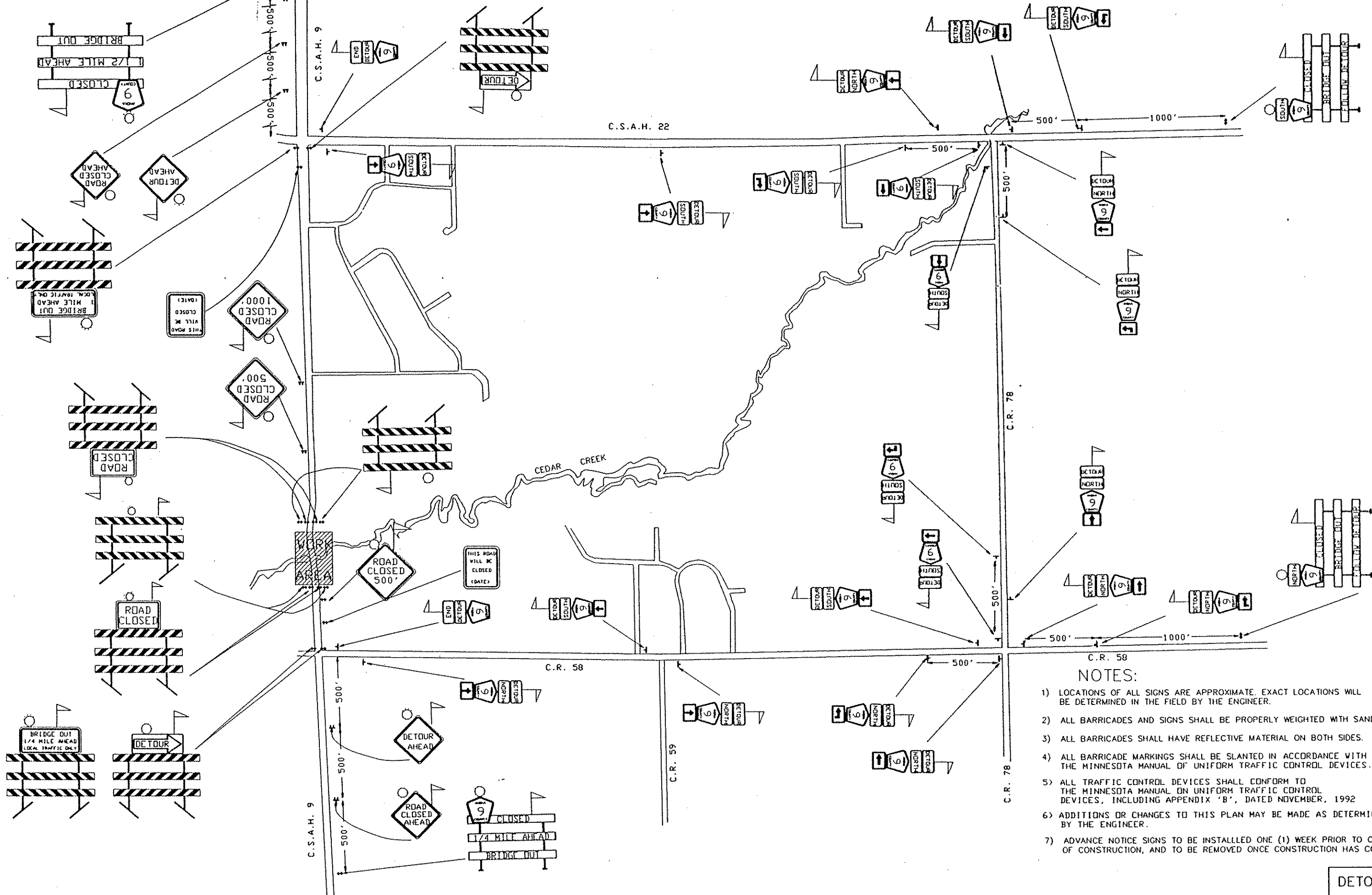
EXCEMB
TSMOD SEL
COMCOM



50|30
80|258

43|136
18|282

CROSS-SECTION
STA. 410+48 TO STA. 413+30



- NOTES:**
- 1) LOCATIONS OF ALL SIGNS ARE APPROXIMATE. EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 - 2) ALL BARRICADES AND SIGNS SHALL BE PROPERLY WEIGHTED WITH SANDBAGS.
 - 3) ALL BARRICADES SHALL HAVE REFLECTIVE MATERIAL ON BOTH SIDES.
 - 4) ALL BARRICADE MARKINGS SHALL BE SLANTED IN ACCORDANCE WITH THE MINNESOTA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
 - 5) ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING APPENDIX 'B', DATED NOVEMBER, 1992
 - 6) ADDITIONS OR CHANGES TO THIS PLAN MAY BE MADE AS DETERMINED BY THE ENGINEER.
 - 7) ADVANCE NOTICE SIGNS TO BE INSTALLED ONE (1) WEEK PRIOR TO COMMENCEMENT OF CONSTRUCTION, AND TO BE REMOVED ONCE CONSTRUCTION HAS COMMENCED.

DETOUR LAYOUT

REVISIONS	BY	DATE

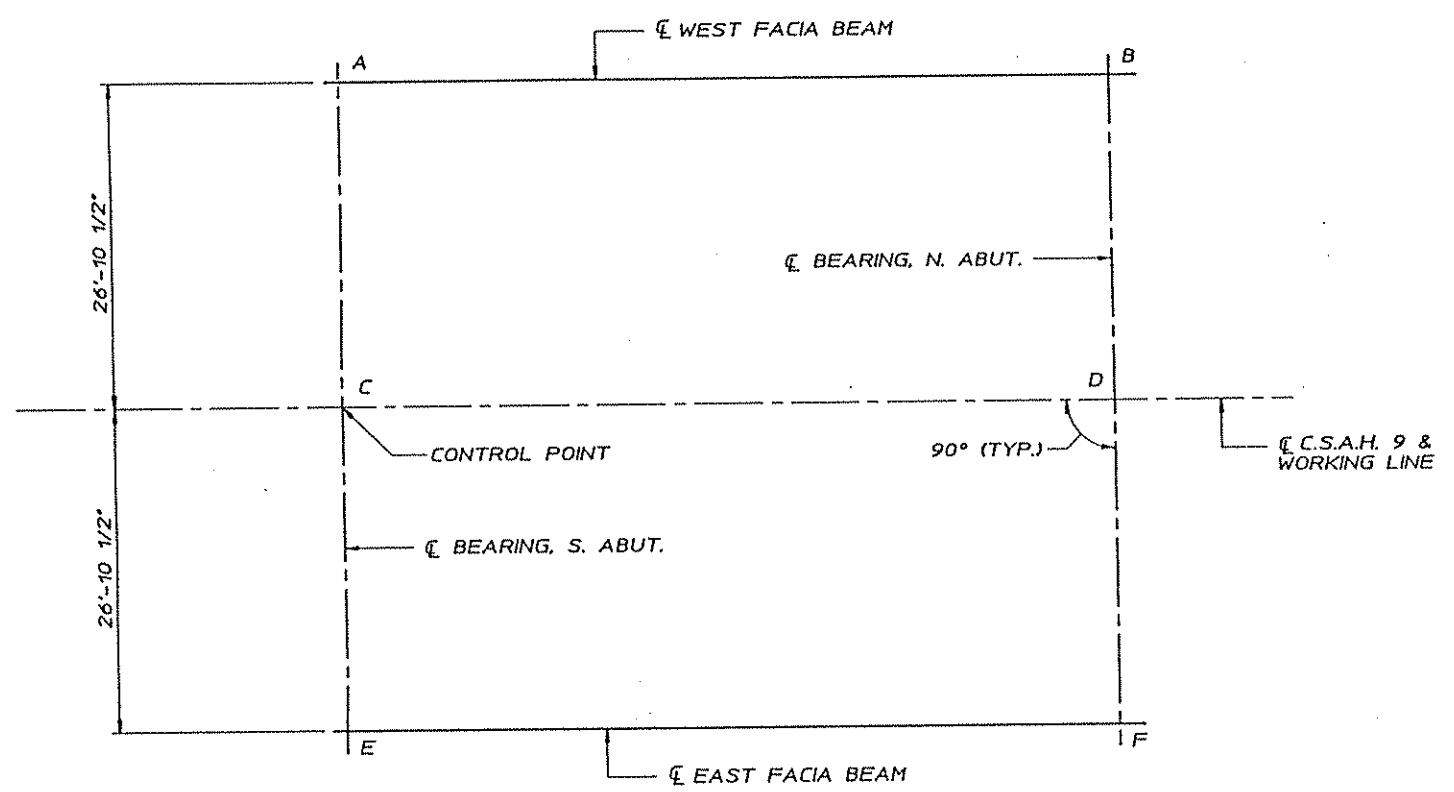
M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY	M.U.T.C.D. CODE	SIZE	INSERT	QUANTITY
FLASHER W20-3	48'x48'		• 2 • 2 • 1	FLASHER M3-1 M1-6 TYPE III	24x12 24x24 8 FT.		• 1	M4-6 M3-3 M1-6	24x12 24x12 24x24		• 2
FLASHER W20-2	48'x48'		• 2	FLASHER M3-3 M1-6 TYPE III	24x12 24x24 8 FT.		• 1	G20-X1	60'x48'		• 2
FLASHER M4-10 R TYPE III	48'x18' 8 FT.		• 1	FLASHER M1-6 TYPE III	24x24 8 FT.		• 1				
FLASHER M4-10 L TYPE III	48'x18' 8 FT.		• 1	FLASHER M1-6 TYPE III	24x24 8 FT.		• 1				
FLASHER R11-2 TYPE III	48x30 8 FT.		• 4	FLASHER TYPE III	8 FT.		• 4				
FLASHER R11-3A TYPE III	72x30 8 FT.		• 1	M4-8 M3-1 M1-6	24x12 24x12 24x24 24x15		• 1 • 2 • 2 • 4				
FLASHER R11-3A TYPE III	72x30 8 FT.		• 1	M4-8 M4-8 M1-6	24x12 24x12 24x24 24x15		• 2 • 1 • 2 • 1 • 5				

- NOTES:**
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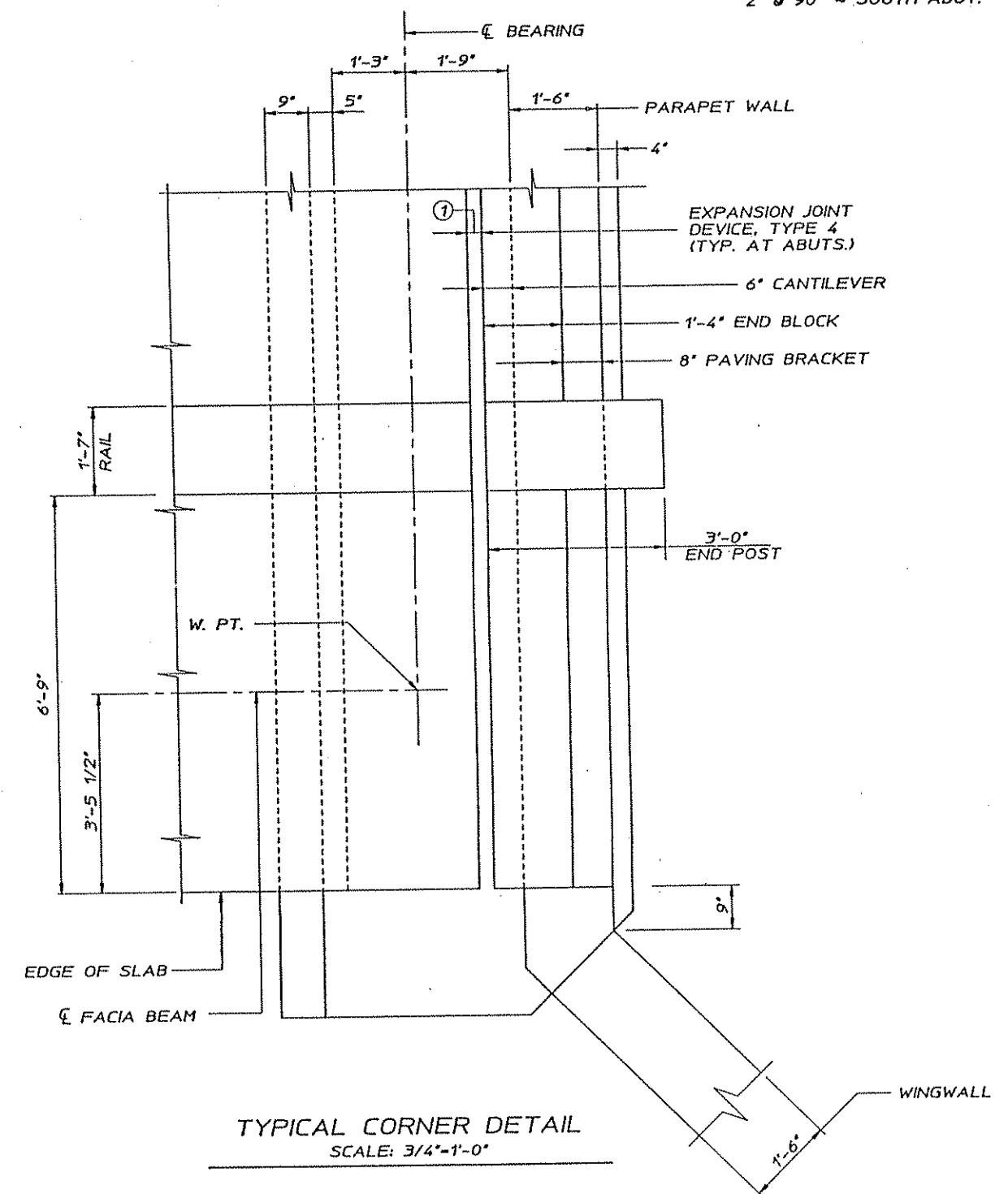
REVISIONS
DATE BY

DETOUR LAYOUT

① 1 3/4" @ 90° ~ NORTH ABUT.
2" @ 90° ~ SOUTH ABUT.



LAYOUT SHOWING WORKING POINTS
SCALE: 1/8" = 1'-0"



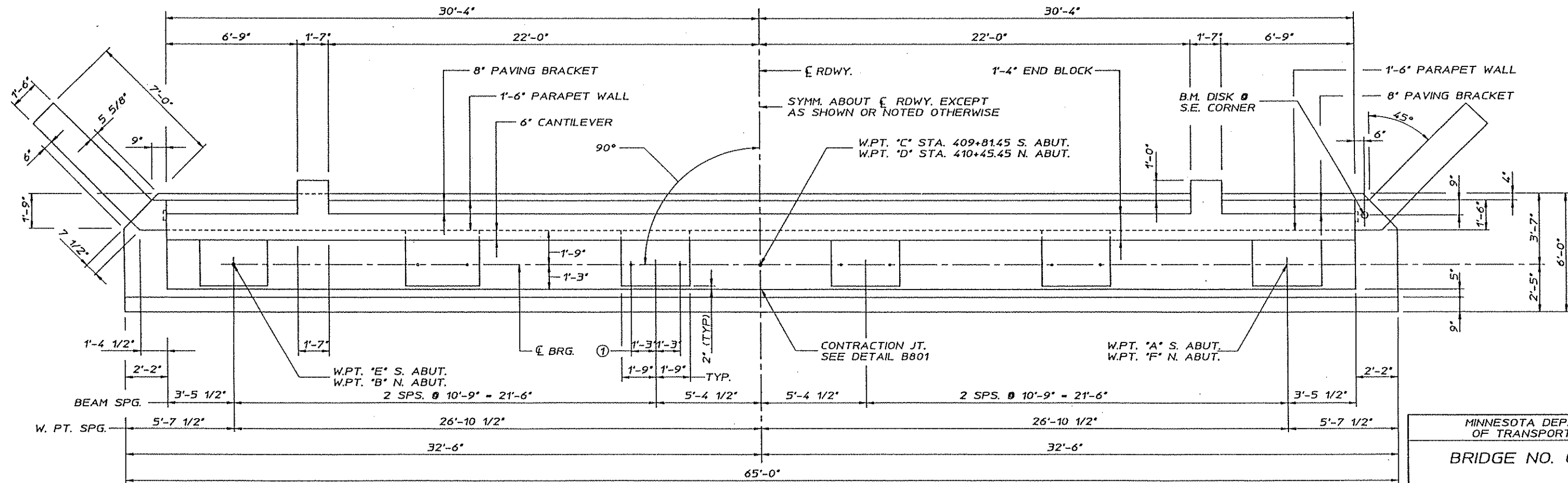
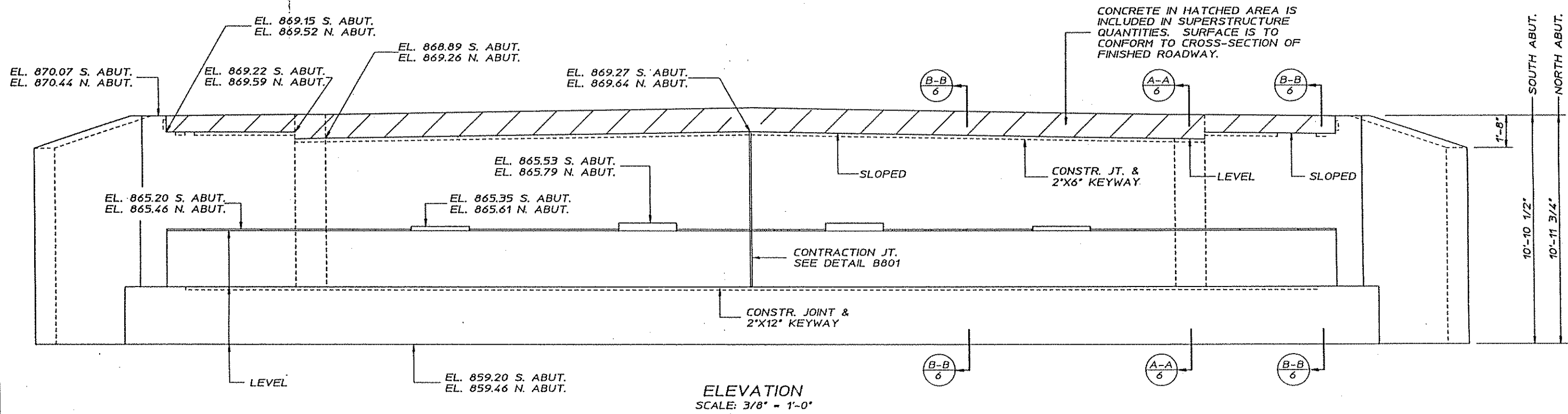
TYPICAL CORNER DETAIL
SCALE: 3/4" = 1'-0"

DIMENSIONS BETWEEN WORKING POINTS								ELEVATIONS			
POINT	STATION	A	B	C	D	E	F	TOP OF SLAB	SLAB TO BRIDGE SEAT	BRIDGE SEAT	POINT
A	409+81.45		64.00	26.88	69.41		83.58	870.11	4.91	865.20	A
B	410+45.45			69.41	26.88	83.58		870.48	5.02	865.46	B
C	409+81.45				64.00	26.88	69.41	870.53			C
D	410+45.45					69.41	26.88	870.90			D
E	409+81.45						64.00	870.11	4.91	865.20	E
F	410+45.45							870.48	5.02	865.46	F

	TOP OF SLAB TO BRIDGE SEAT	
	S. ABUT.	N. ABUT.
SLAB THICKNESS	9"	9"
STOOL HEIGHT	2 3/8"	2 3/8"
BEAM	3'-9"	3'-9"
BEARING HEIGHT	2 1/2"	3 7/8"
TOTAL	4'-10 7/8"	5'-0 1/4"

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.
Ronald Benum
Date 1/23/75 Reg. No. 22737

MINNESOTA DEPARTMENT OF TRANSPORTATION
BRIDGE NO. 02536
BRIDGE LAYOUT
APPROVED: 5-18-95
S.P. 02-609-04
SHEET 2 OF 20 SHEETS 02536 WNJ DAD



① 1 1/2" ANCHOR RODS FOR CURVED PLATE BEARING ASSEMBLY- SOUTH ABUT. ONLY AS SHOWN. INCLUDED IN PRICE BID FOR BEARING ASSEMBLIES. SEE DETAIL B310.

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

Ronald Benson

Date 1/23/95 Reg. No. 22737

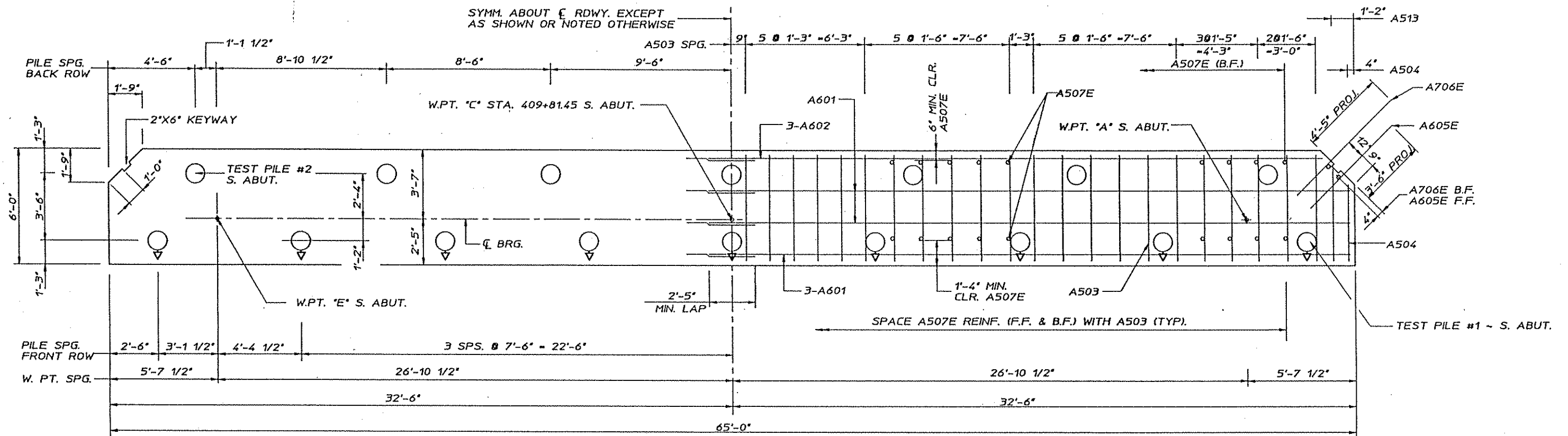
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 02536

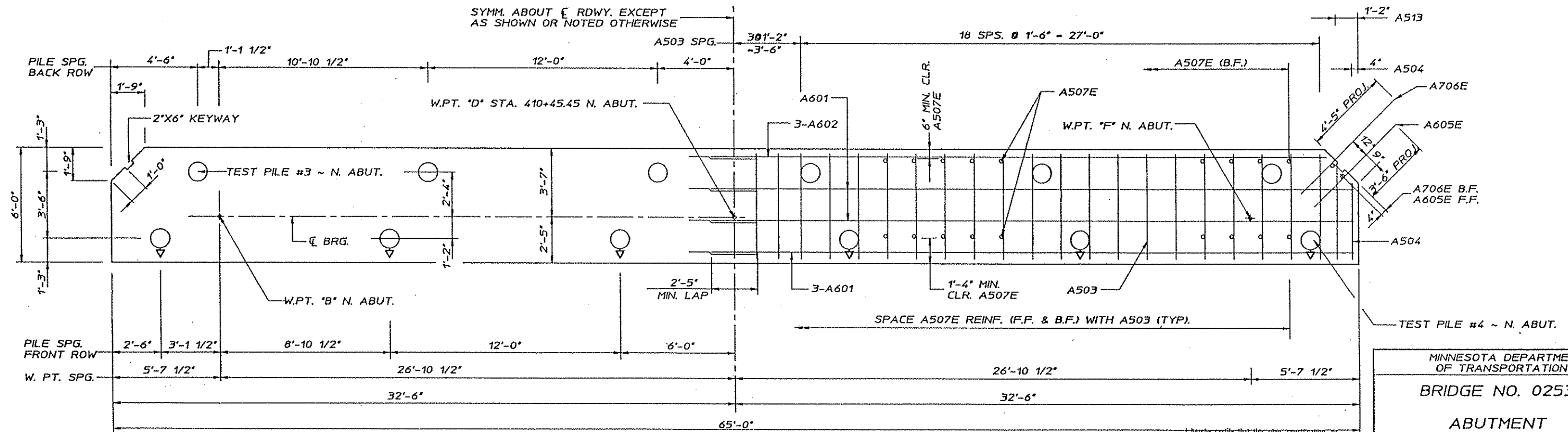
ABUTMENT DETAILS

APPROVED: 5-18-95

S.P. 02-609-04
 SHEET 3 OF 20 SHEETS 02536 WND/DAI



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



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

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Ronald Benson

Date 1/23/15 Reg No 32737

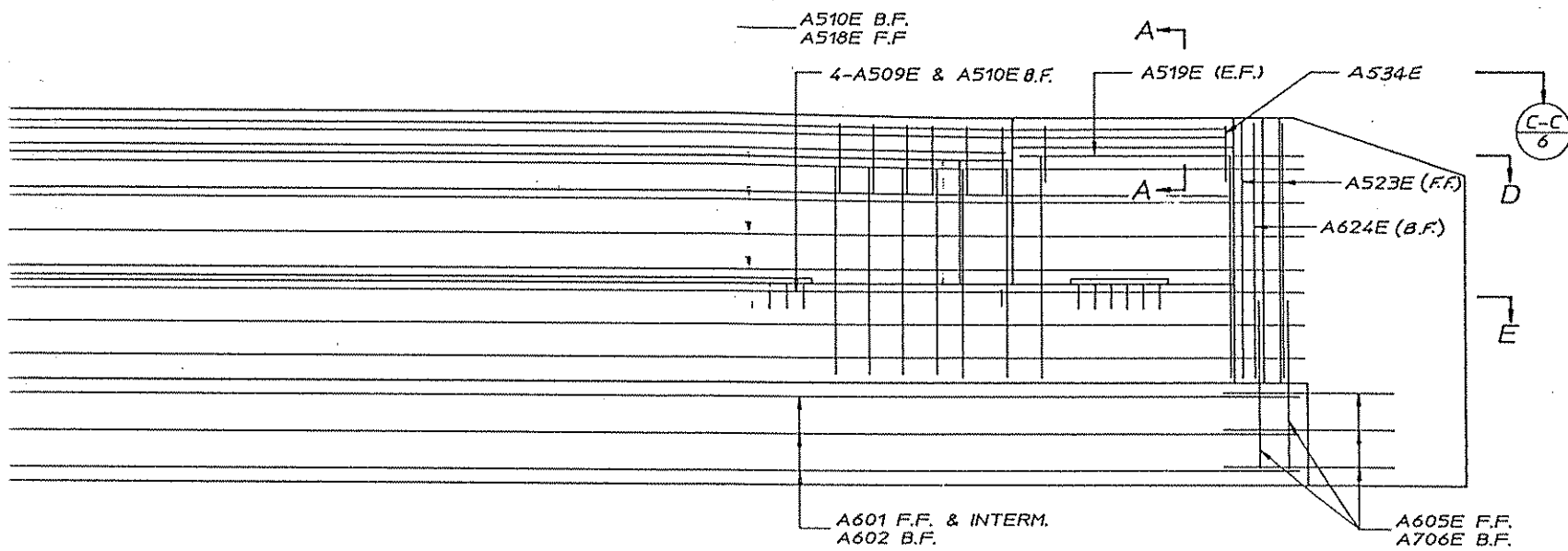
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 02536

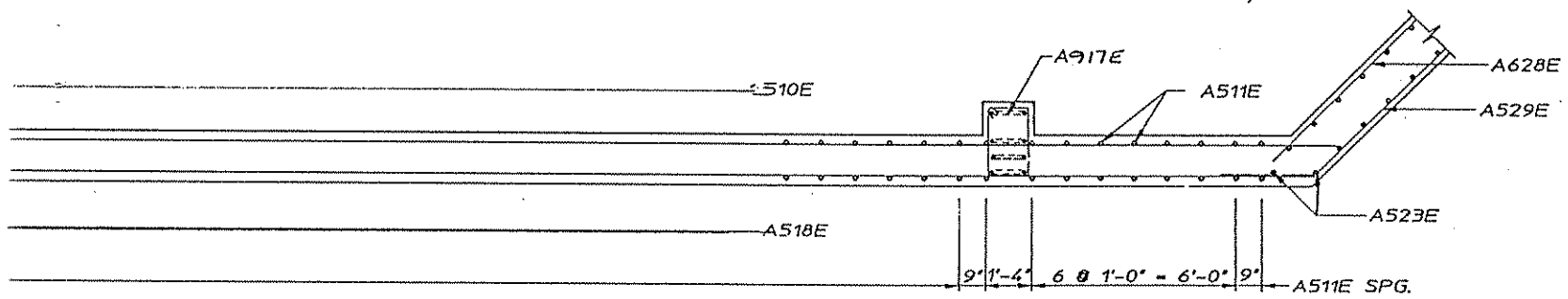
ABUTMENT REINFORCEMENT

APPROVED: 5-18-95

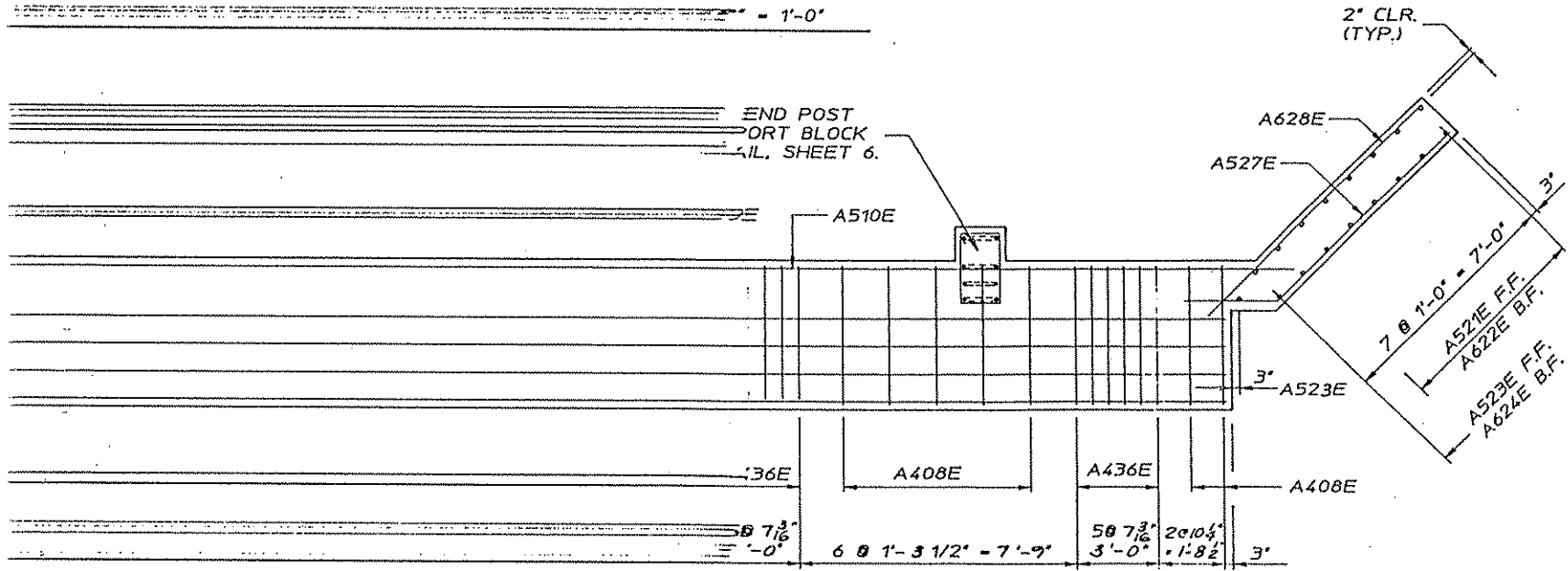
S.P. 02-609-04 SHEET 4 OF 20 SHEETS 02536 WNJ/DAI



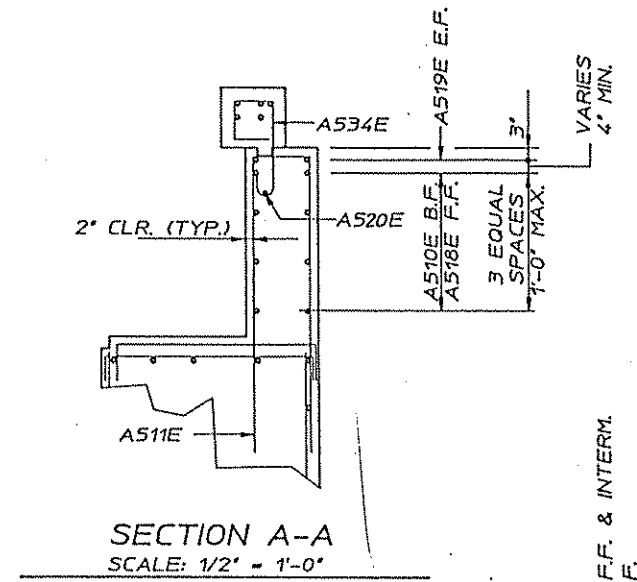
ELEVATION
SCALE: 3/8" = 1'-0"



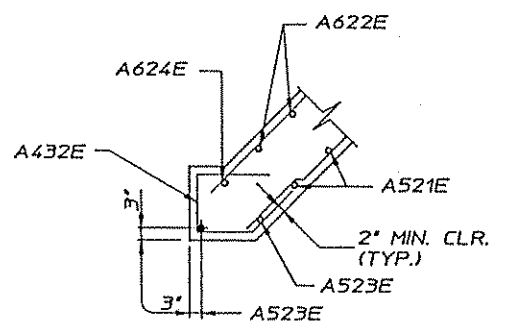
ELEVATION D-D
SCALE: 3/8" = 1'-0"



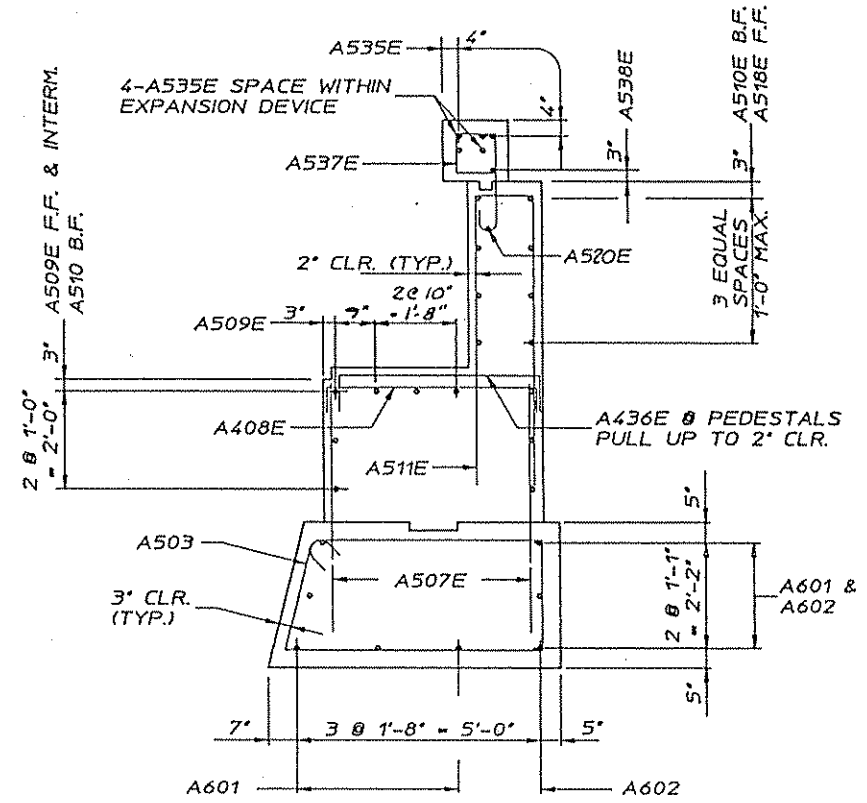
ELEVATION E-E
SCALE: 3/8" = 1'-0"



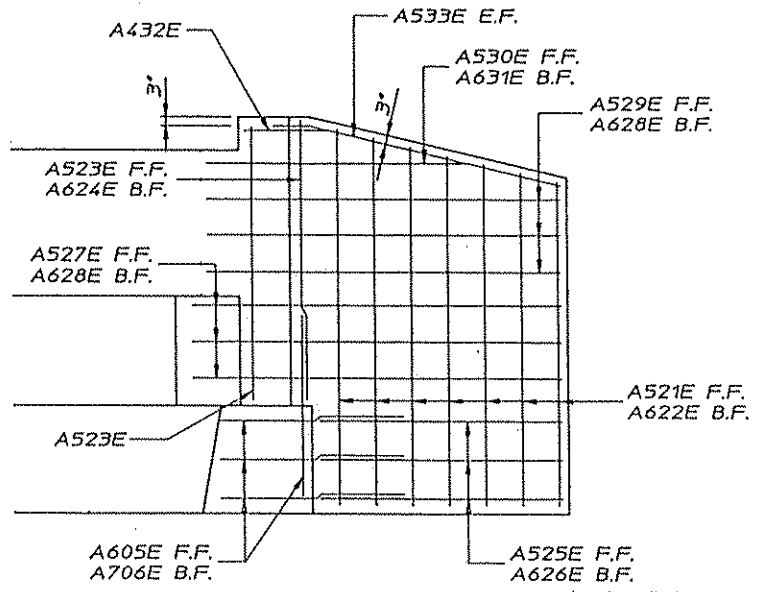
SECTION A-A
SCALE: 1/2" = 1'-0"



DETAIL @ TOP OF WING
SCALE: 1/2" = 1'-0"



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



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

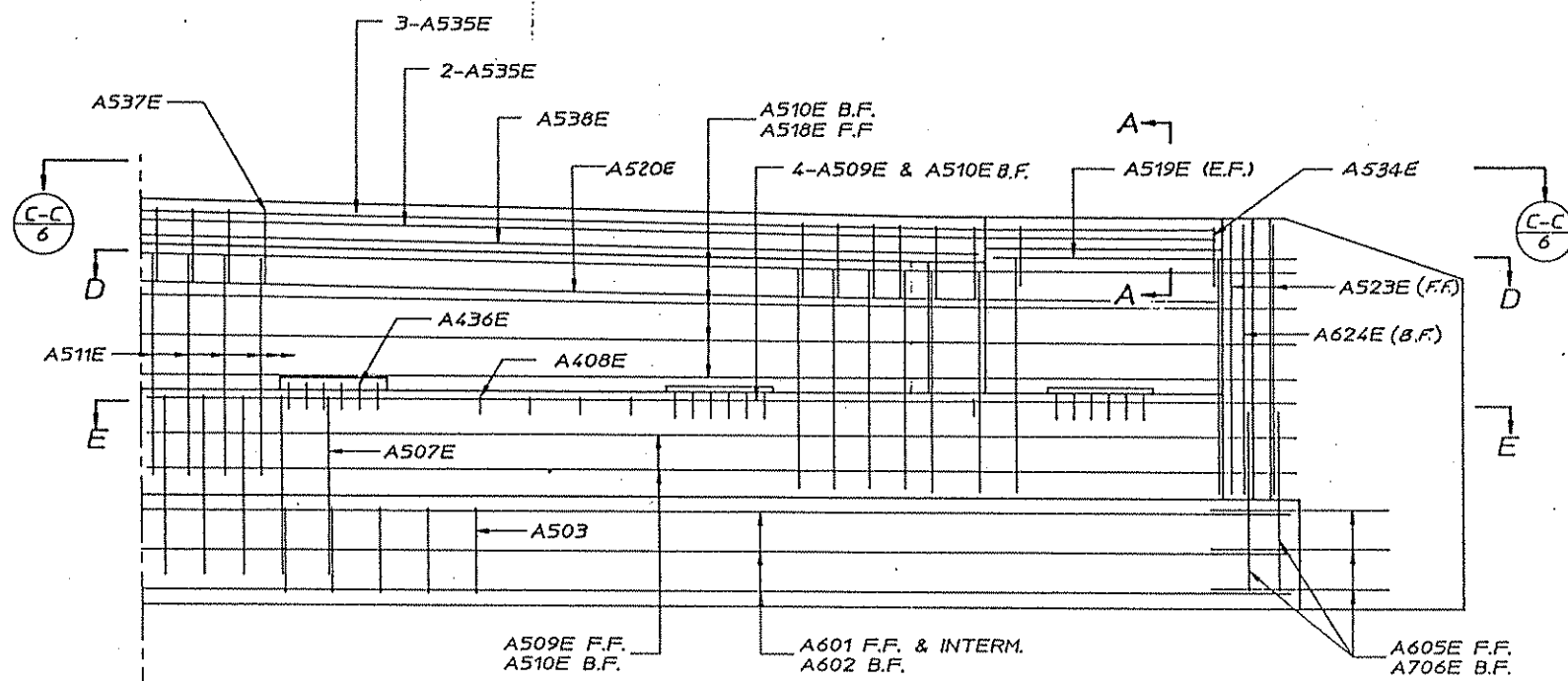
NOTE:
F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE

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Ronald Benson

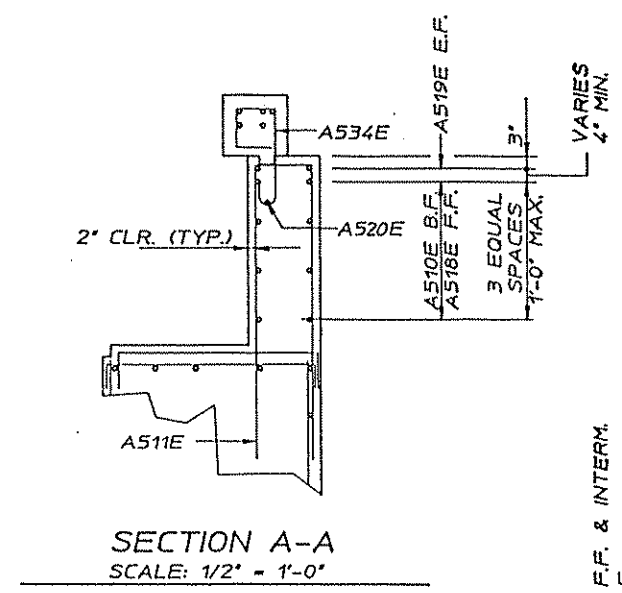
MINNESOTA DEPARTMENT OF TRANSPORTATION
BRIDGE NO. 02536
ABUTMENT REINFORCEMENT
APPROVED: 5-18-95
S.P. 02-609-04
SHEET 5 OF 20 SHEETS

02536	WNJ DAD
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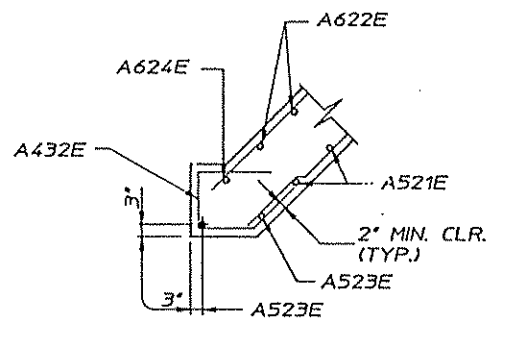
1/23/95



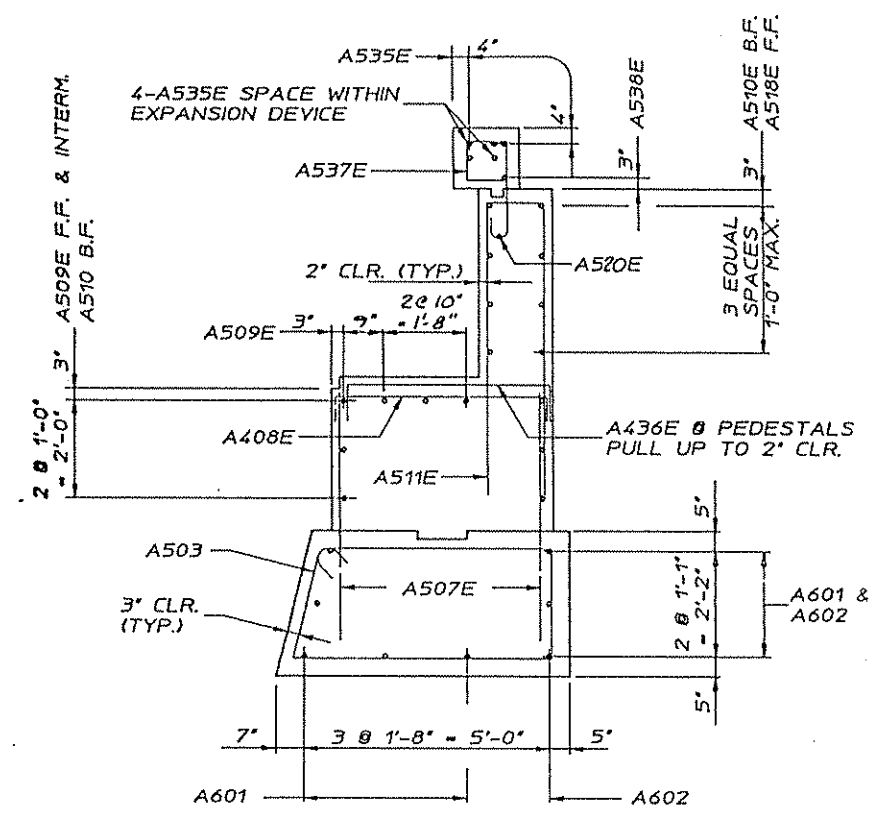
SYMM. ABOUT
 C-ROADWAY &
 CONTRACTION JT.
ELEVATION
 SCALE: 3/8" = 1'-0"



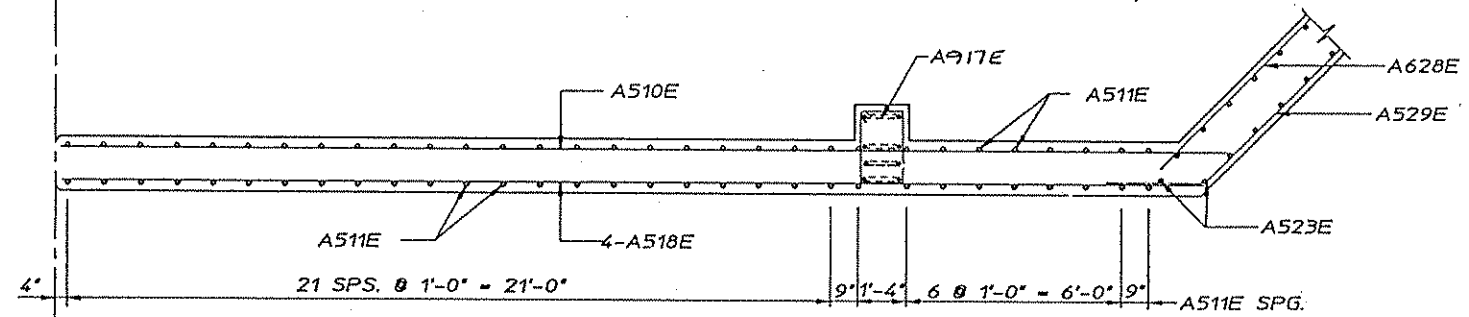
SECTION A-A
 SCALE: 1/2" = 1'-0"



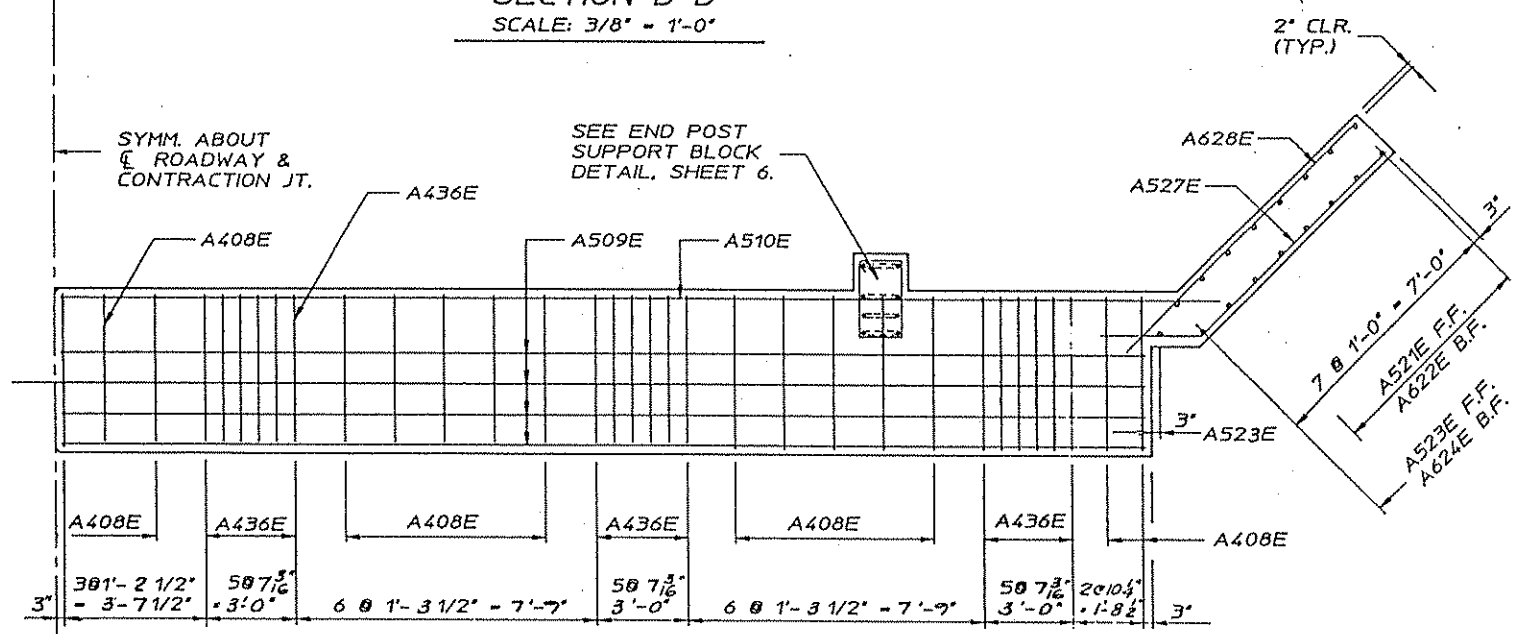
DETAIL @ TOP OF WING
 SCALE: 1/2" = 1'-0"



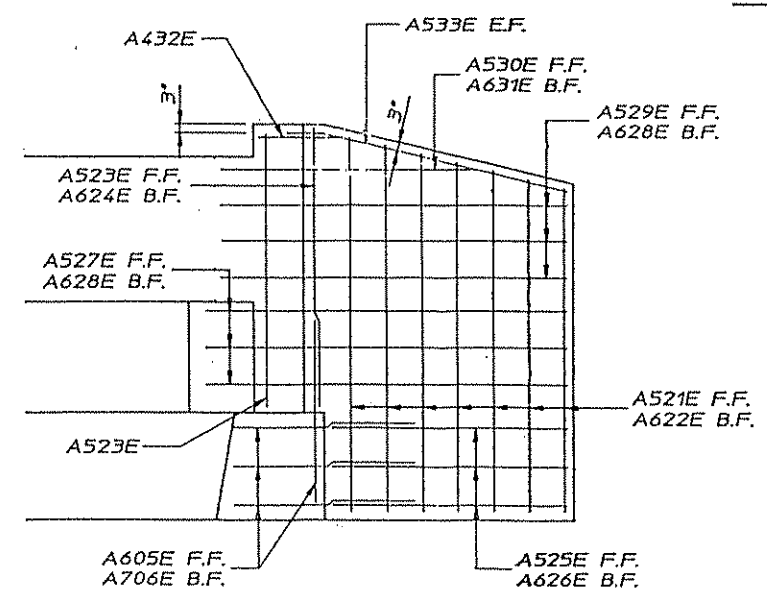
SECTION THRU ABUT.
 SCALE: 1/2" = 1'-0"



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



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



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

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

MINNESOTA DEPARTMENT OF TRANSPORTATION
BRIDGE NO. 02536
ABUTMENT REINFORCEMENT
 APPROVED: 5-18-95
 S.P. 02-609-04
 SHEET 5 OF 20 SHEETS

1/23/95

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Ronald B. ...
 1/23/95

COMPUTED PILE LOADS ~ TONS PER PILE		
	NO. ABUT.	SO. ABUT.
DEAD LOAD + OVERTURNING	48.3	52.2 *
LIVE LOAD	11.5	7.7
TOTAL	59.8	59.9

* INCLUDES 20 TON NEGATIVE SOIL LOAD.

PILE NOTES:

- 14 - C.I.P. CONC. PILES, EST. LGTH 90' - SOUTH ABUT.
- 2 - C.I.P. CONC. TEST PILES 100' LONG -
- 10 - C.I.P. CONC. PILES, EST. LGTH 70' - NORTH ABUT.
- 2 - C.I.P. CONC. TEST PILES 80' LONG -
- 28 - C.I.P. CONC. PILES REQ'D FOR 2 ABUTMENTS.

ALL PILES ARE TO HAVE A NOMINAL DIAMETER OF 12".
SEE DETAIL B201 FOR SPLICES.

PILES MARKED THUS \circ ARE TO BE BATTERED 3' PER FOOT IN DIRECTION SHOWN.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.

SEE SHEET 20 FOR TEST PILE LOCATIONS.

ABUTMENT NOTE:

BACKFILL BEHIND ABUTMENTS SHALL BE GRANULAR BORROW. INCLUDED IN PRICE BID FOR STRUCTURE EXCAVATION (SEE SHEET 20 FOR PLACEMENT LIMITS). APPROX. QUANTITY OF GRANULAR BORROW - 650 CU. YDS.

BILL OF REINFORCEMENT ~ 2 ABUTMENTS

BAR	NO.	LENGTH	SHAPE	LOCATION
A601	20	33'-6"	STRT.	FOOTING ~ LONGIT. F.F. & INTERM.
A602	12	31'-11"	STRT.	" " " " B.F.
A503	87	15'-5"	BENT	" " ~ TIE
A504	4	12'-7"	BENT	" " " " " "
A605E	16	5'-3"	STRT.	" " ~ DOWEL TO WING
A706E	16	6'-8"	STRT.	" " " " " "
A507E	166	5'-0"	STRT.	" " ~ DOWEL TO BR. SEAT
A408E	60	5'-8"	BENT	BRIDGE SEAT ~ TIE
A509E	24	30'-1"	STRT.	" " ~ LONGIT.
A510E	28	32'-6"	STRT.	" " ~ LONGIT.
A511E	124	13'-6"	BENT	" " ~ VERTICAL
A513	4	14'-3"	BENT	FOOTING ~ TIE
A514E	8	4'-8"	BENT	PARAPET @ END POST SUPPORT
A515E	8	3'-4"	STRT.	" " " " " "
A516E	24	7'-3"	BENT	" " " " " "
A917E	16	16'-0"	BENT	" " " " " "
A518E	16	31'-7"	STRT.	" " ~ LONGIT.
A519E	8	7'-10"	STRT.	" " ~ LONGIT.
A520E	4	30'-1"	STRT.	" " ~ LONGIT.
A521E	14	19'-3"	STRT.	WINGWALL ~ VERTICAL
A622E	14	19'-3"	STRT.	" " " " " "
A523E	8	7'-7"	STRT.	" " " " " "
A624E	4	7'-7"	STRT.	" " " " " "
A525E	12	6'-10"	STRT.	" " ~ HORIZ.
A626E	12	6'-10"	STRT.	" " " " " "
A527E	12	10'-2"	BENT	" " " " " "
A628E	24	8'-6"	STRT.	" " " " " "
A529E	12	9'-4"	BENT	" " " " " "
A530E	4	7'-9"	BENT	" " " " " "
A631E	4	5'-4"	STRT.	" " " " " "
A432E	4	5'-10"	BENT	" " ~ TIE
A533E	8	7'-5"	BENT	" " ~ LONGIT.
A534E	28	4'-8"	BENT	ROADWAY SLAB
A535E	20	31'-11"	STRT.	ROADWAY SLAB
A436E	72	6'-0"	BENT	BRIDGE SEAT ~ TIE @ PEDESTAL
A537E	88	5'-0"	BENT	ROADWAY SLAB
A538E	2	46'-10"	STRT	ROADWAY SLAB

- ① CUT 2 FROM 1. ③ 44 BARS S. ABUT. & 43 BARS N. ABUT.
- ② 2'-5" MIN LAP ④ 84 BARS S. ABUT. & 82 BARS N. ABUT.
- ⑤ 3'-6" MIN LAP

SUMMARY OF QUANTITIES ~ 2 ABUTMENTS

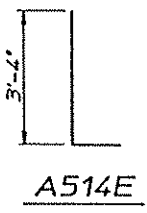
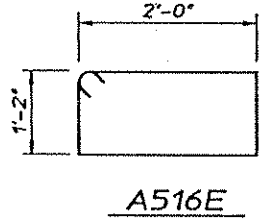
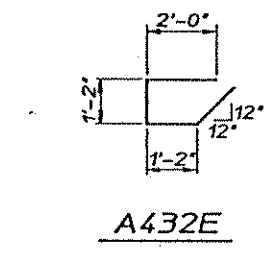
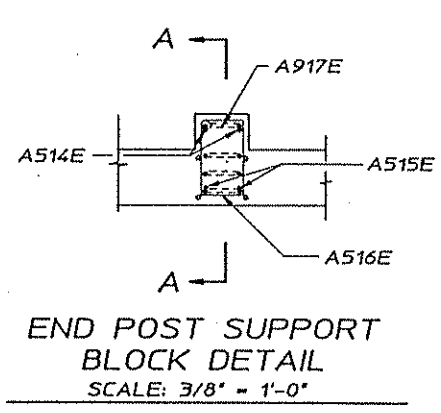
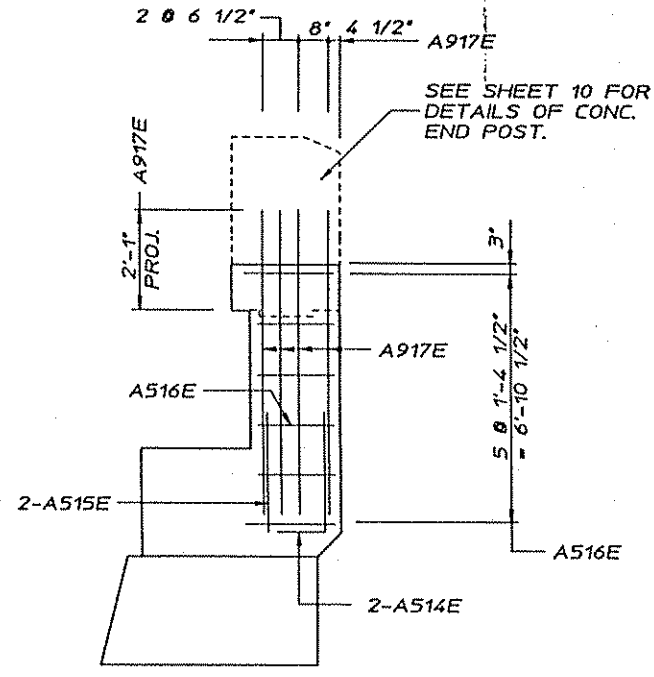
STRUCTURE CONCRETE (1A43)	82 CU. YD.
STRUCTURE CONCRETE (3Y43)	108 CU. YD.
REINFORCEMENT BARS	3100 POUND
REINFORCEMENT BARS, EPOXY COATED	10070 POUND
STRUCTURE EXCAVATION	1 LUMP SUM
B.M. DISK	1
C.I.P. CONC. TEST PILES, 80 FT. LONG, 12"	2 EACH
C.I.P. CONC. PILING DRIVEN, 12"	1960 LIN. FT.
C.I.P. CONC. PILING DELIVERED, 12"	1960 LIN. FT.
C.I.P. CONC. TEST PILES, 100 FT. LONG, 12"	2 EACH

- ⑤ COUNTY WILL FURNISH DISK. PAYMENT FOR PLACING IS TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.
- ⑥ SEE SPECIAL PROVISIONS.
- ⑦ DOES NOT INCLUDE TEST PILES.

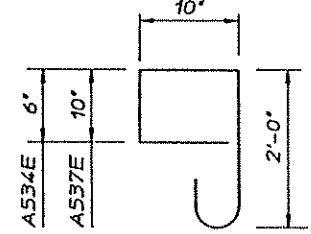
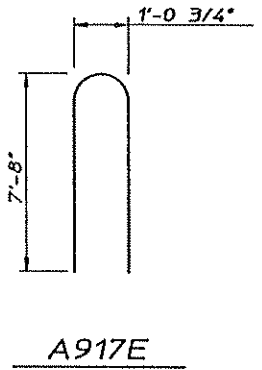
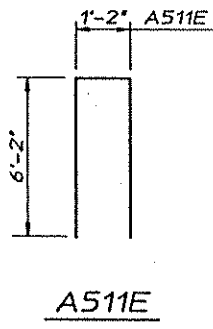
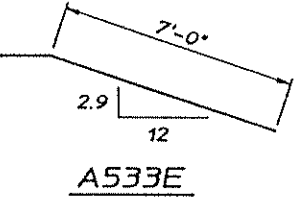
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Ronald Benson
Date 1/23/95 Reg No 22137

MINNESOTA DEPARTMENT OF TRANSPORTATION
BRIDGE NO. 02536
ABUTMENT REINFORCEMENT

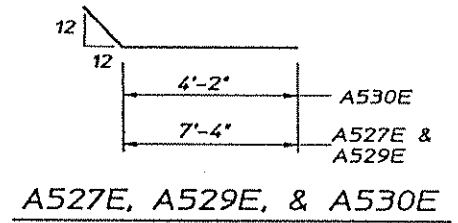
APPROVED: 5-18-95



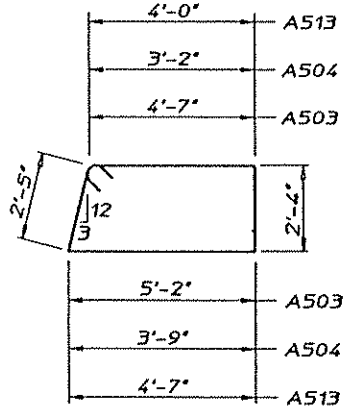
SECTION A-A SCALE: 3/8" = 1'-0"



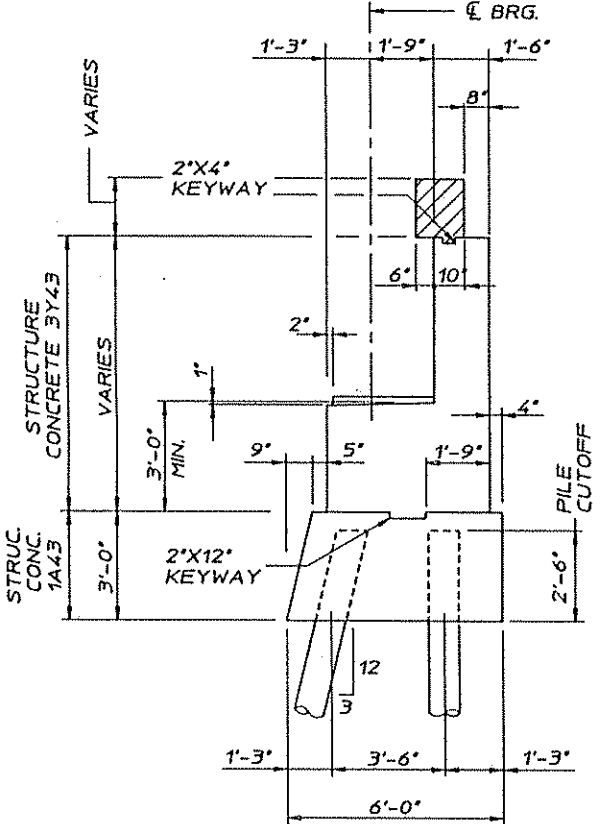
A534E & A537E



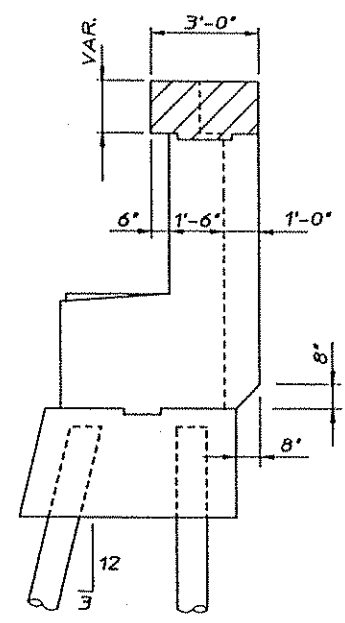
A527E, A529E, & A530E



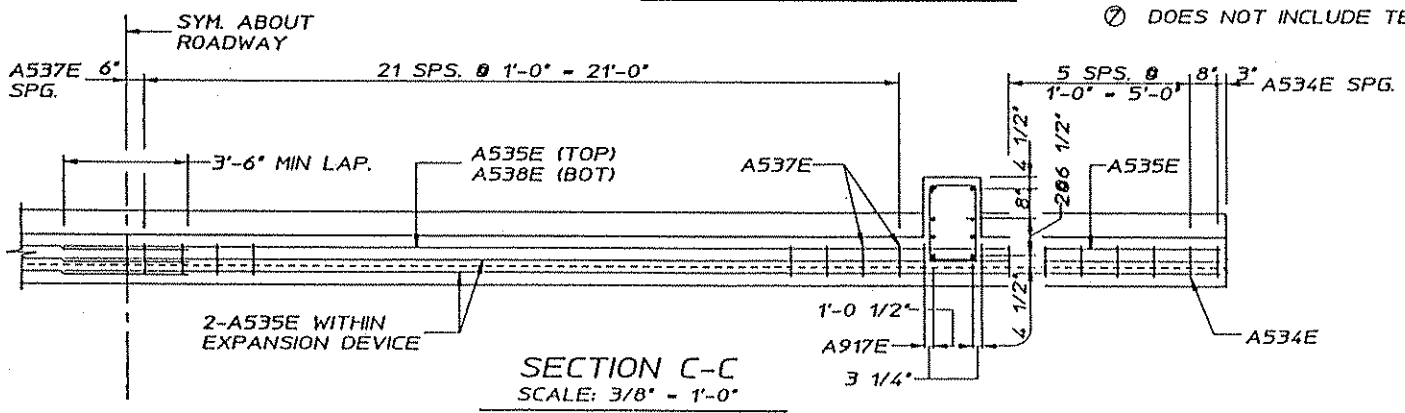
A503, A504, & A513



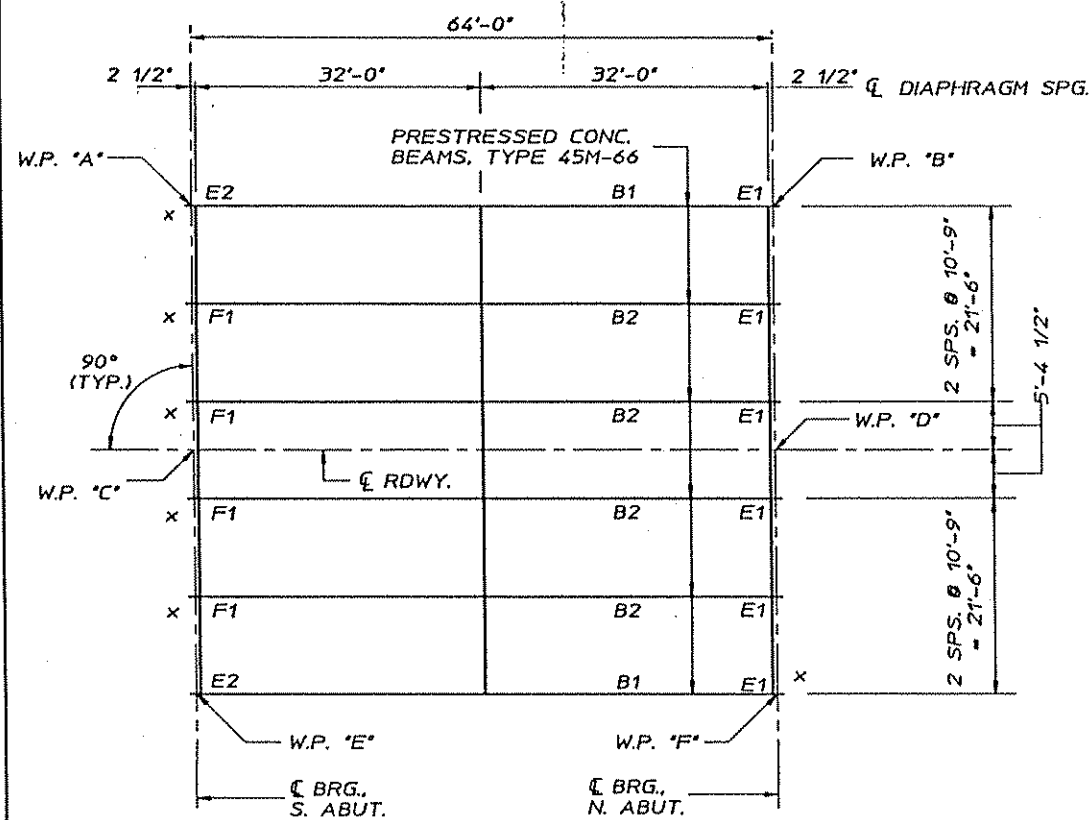
SECTION B-B SCALE: 3/8" = 1'-0"



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



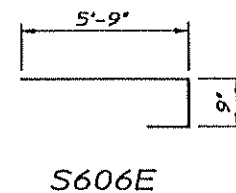
SECTION C-C SCALE: 3/8" = 1'-0"



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

NOTE:
SEE DETAIL B814 FOR END DIAPHRAGM
DETAILS & REINF. BAR LIST.
SEE DETAIL B813 OR B403 FOR
INTERMEDIATE DIAPHRAGM DETAILS.

NOTE:
E1 - EXPANSION CURVED PLATE BEARING
ASSEMBLY, TYPE 1. SEE DETAIL B311.
E2 - EXPANSION CURVED PLATE BEARING
ASSEMBLY, TYPE 2. SEE DETAIL B311
F1 - FIXED CURVED PLATE BEARING
ASSEMBLY, TYPE 3. SEE DETAIL B310

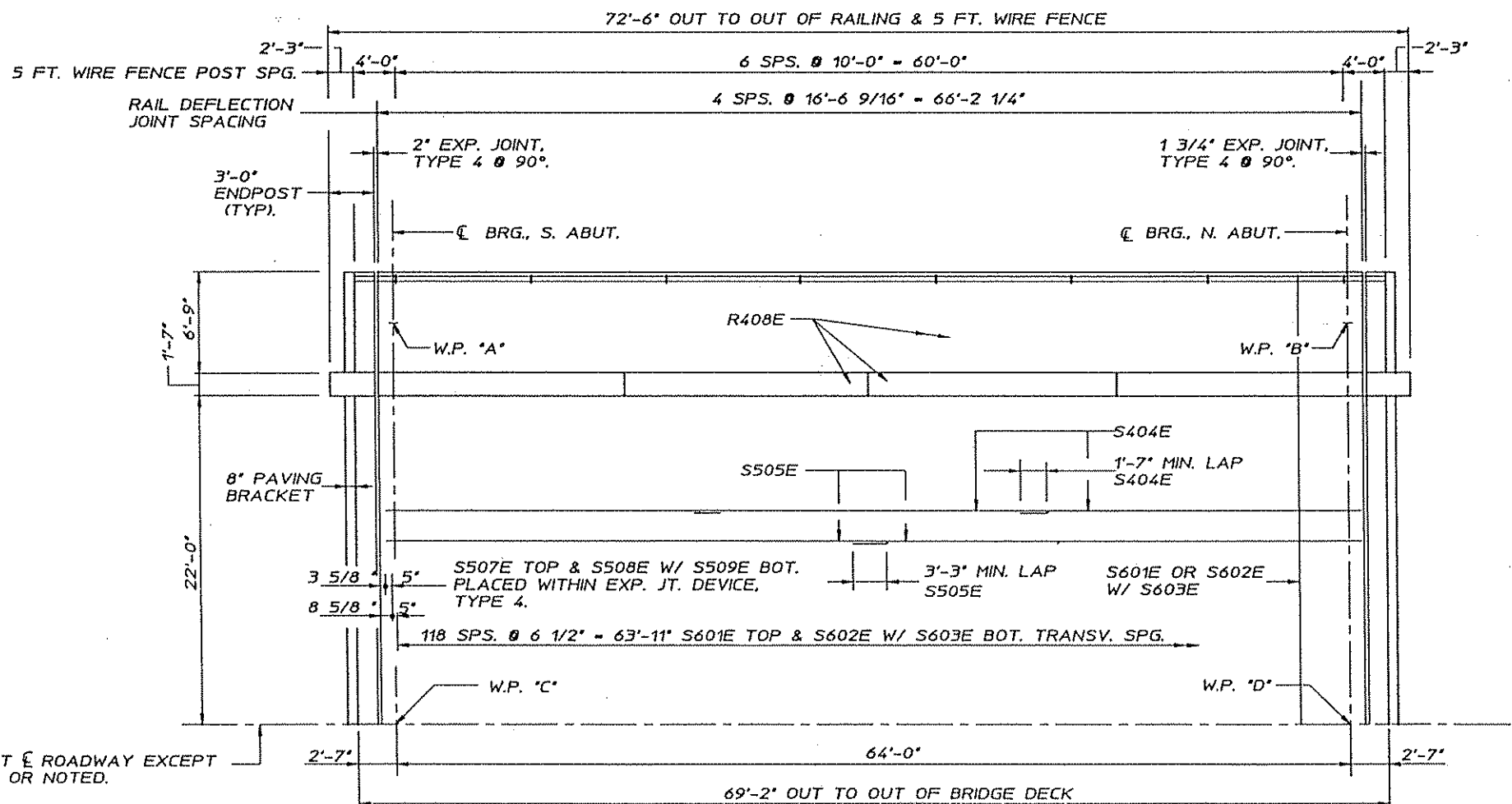


BILL OF REINFORCEMENT ~ SUPERSTRUCTURE					
BAR	NO.	LENGTH	SHAPE	LOCATION	
①	S601E	238	31'-5"	STRT.	SLAB ~ TRANSV.
②	S602E	119	26'-4"	STRT.	SLAB ~ TRANSV.
③	S603E	119	37'-0"	STRT.	SLAB ~ TRANSV.
④	S404E	123	23'-0"	STRT.	SLAB ~ LONG.
⑤	S505E	172	34'-7"	STRT.	SLAB ~ LONG.
⑥	S606E	70	7'-11"	BENT	SLAB ~ TIE @ END DIAPH.
⑦	S507E	8	31'-5"	STRT.	SLAB ~ TRANSV.
⑧	S508E	4	26'-0"	STRT.	SLAB ~ TRANSV.
⑨	S509E	4	36'-9"	STRT.	SLAB ~ TRANSV.

- ① 2 BARS PER LINE WITH 2'-5" MINIMUM LAP.
- ② S602E WITH S603E ~ 3'-1" MINIMUM LAP.
- ③ 3 BARS PER LINE WITH 1'-7" MINIMUM LAP.
- ④ 2 BARS PER LINE WITH 3'-3" MINIMUM LAP.
- ⑤ 2 BARS PER LINE WITH 2'-6" MINIMUM LAP.
- ⑥ S508E WITH S509E ~ 2'-6" MINIMUM LAP.

SUMMARY OF QUANTITIES ~ SUPERSTRUCTURE		
⑤	STRUCTURE CONCRETE (3Y43)	10 CU. YD.
⑦	BRIDGE SLAB CONCRETE (3Y36)	4196 SQ. FT.
⑪	TYPE J RAILING CONCRETE (3Y46)	145 LIN. FT.
	REINFORCEMENT BARS, EPOXY COATED	36750 POUND
⑩	PRESTRESSED CONCRETE BEAMS, TYPE 45M-66	6 EACH
	PRESTRESSED CONCRETE BEAMS 45M	392 LIN. FT.
	DIAPH. FOR TYPE 45M PRESTR. CONC. BEAMS	54 LIN. FT.
⑫	CONCRETE OVERLAY, TYPE SPECIAL	4804 SQ. FT.
	WIRE FENCE, DESIGN S-1	145 LIN. FT.
⑧	NAME PLATE (SEE DETAIL B103)	1
	BEARING ASSEMBLY	12 EACH
⑨	EXP. CURVED PLATE BRG. ASSEMBLY, TYPE 1	6 EACH
④	EXPANSION JOINT DEVICE, TYPE 4	115 LIN. FT.
⑥	CORK ~ 1"X11" (RAILING)	15 LIN. FT.
⑩	EXP. CURVED PLATE BRG. ASSEMBLY, TYPE 2	2 EACH
⑨	FIXED CURVED PLATE BRG. ASSEMBLY, TYPE 3	4 EACH

- ⑤ INCLUDES RAILING AND END DIAPHRAGM QUANTITIES.
- ⑥ SEE SPECIAL PROVISIONS.
- ⑦ APPROX. VOLUME = 104 CU. YDS. BASED ON AN AVERAGE STOOL HEIGHT OF 1 3/4'.
- ⑧ INCLUDED IN PRICE BID FOR OTHER ITEMS.
- ⑨ PAYMENT FOR BEARINGS INCLUDED IN ITEM BEARING ASSEMBLIES PER EACH. SEE SPECIAL PROVISIONS.
- ⑩ PAYMENT FOR BEAMS INCLUDED IN ITEM PRESTRESSED CONCRETE BEAMS 45M PER LINEAR FOOT.
- ⑪ APPROX. VOLUME = 20 CU. YDS.
- ⑫ END DIAPHRAGM CONCRETE
- ⑬ INCLUDES WEIGHT OF END DIAPHRAGM REINFORCEMENT.
- ⑭ APPROX. VOLUME = 30 CU. YDS. BASED ON 2', INCLUDES QUANTITY ON OVERLAY FOR APPROACH PANELS.



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

SYM. ABOUT \bar{C} ROADWAY EXCEPT
AS SHOWN OR NOTED.

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.
Ronald Benen
Date 1/23/95 Reg. No. 22737

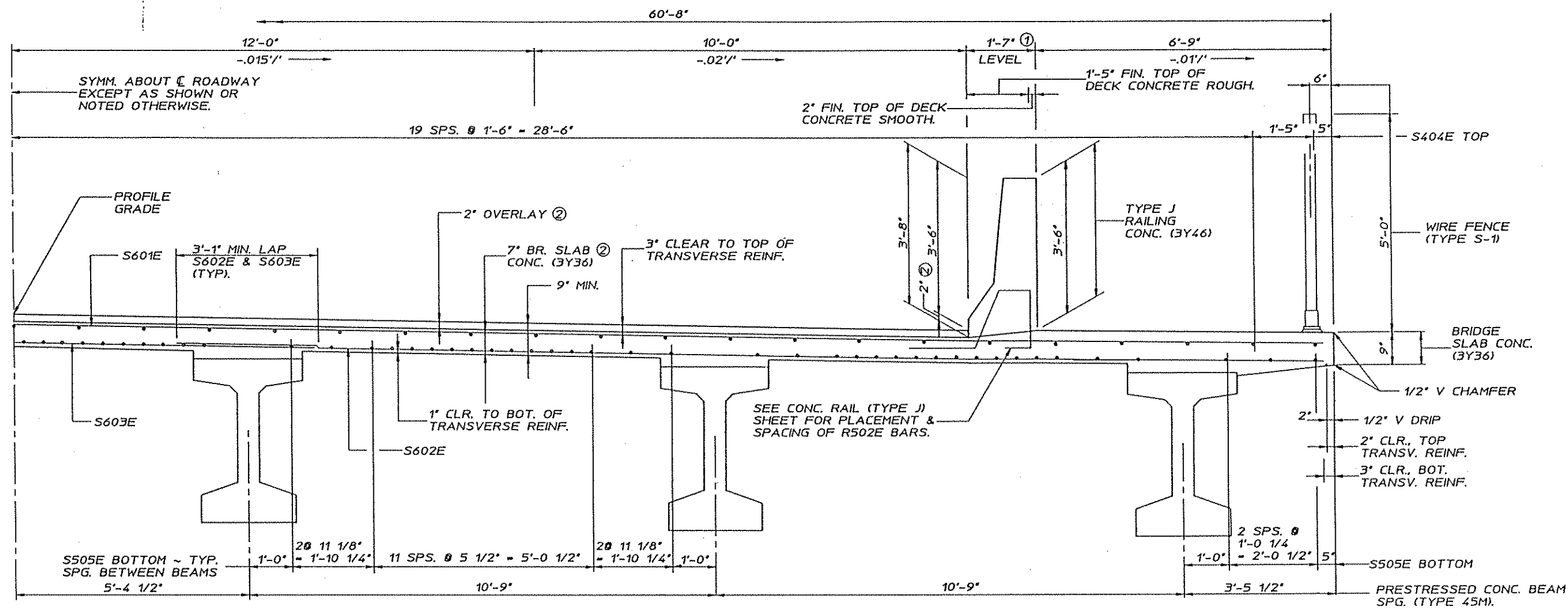
MINNESOTA DEPARTMENT
OF TRANSPORTATION

BRIDGE NO. 02536

SUPERSTRUCTURE
DETAILS

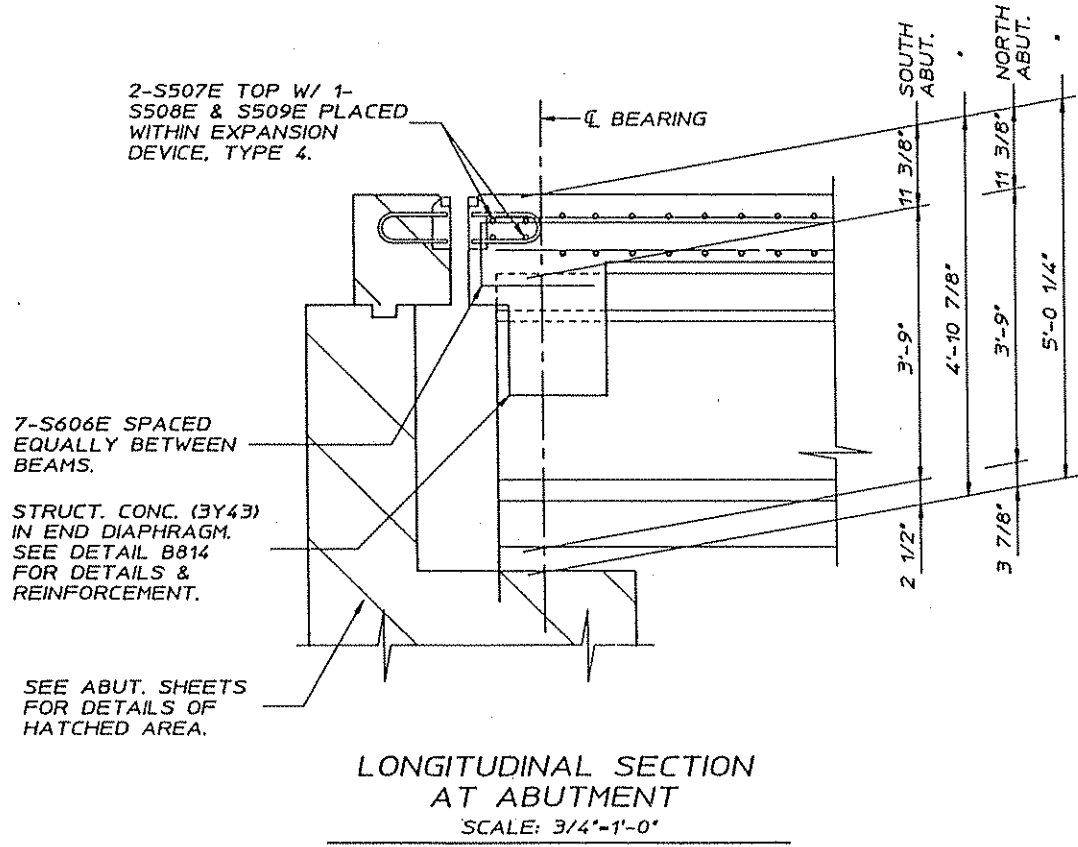
APPROVED: 5-18-95

S.P. 02-609-04 02536 WNJ
SHEET 7 OF 20 SHEETS DAD



PART TRANSV. SECTION THRU DECK
SCALE: 3/4" = 1'-0"

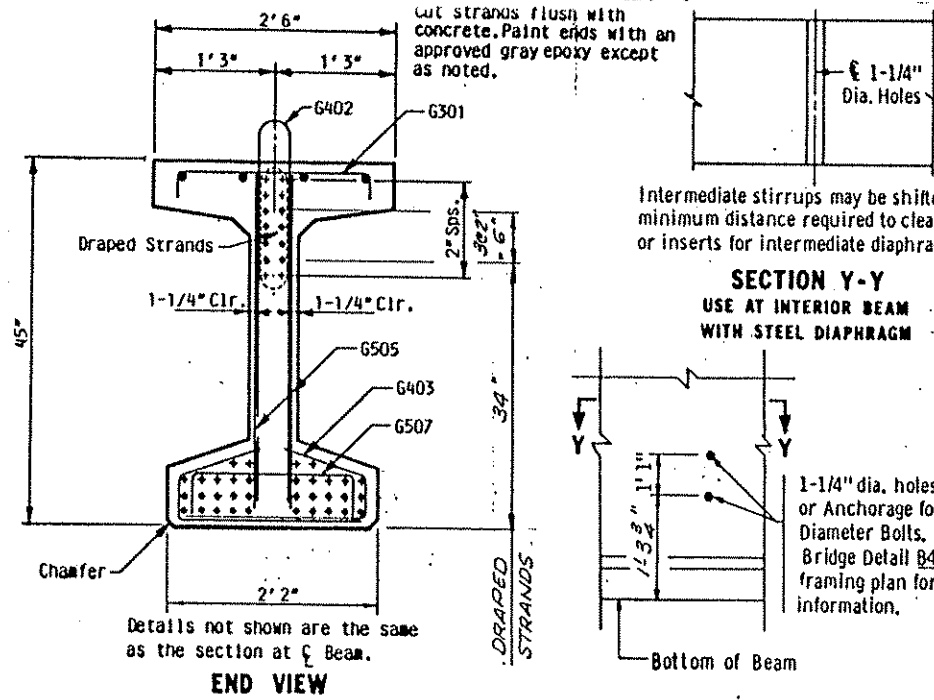
- ① BOTTOM OF DECK IS LEVEL, ROUGH FINISH ON TOP OF DECK IS SLOPED AS SHOWN
- ② DIMENSIONS BASED ON 2" LOW SLUMP OVERLAY.



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

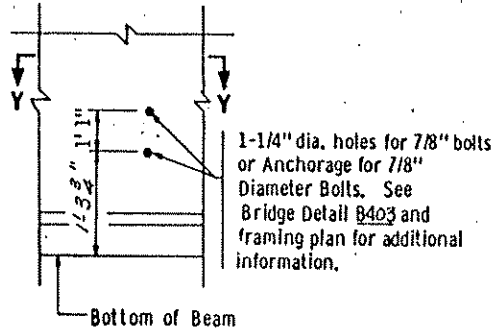
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Ronald Benson
Date 1/23/95 Reg No 22737

MINNESOTA DEPARTMENT OF TRANSPORTATION	
BRIDGE NO. 02536	
SUPERSTRUCTURE DETAILS	
APPROVED: 5-18-95	
S.P. 02-609-04	02536 WNJ/DAD
SHEET 8 OF 20 SHEETS	

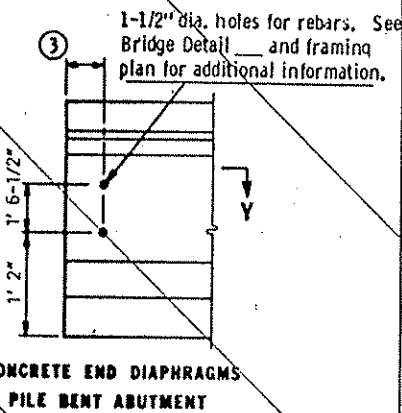


Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.

SECTION Y-Y
USE AT INTERIOR BEAM WITH STEEL DIAPHRAGM



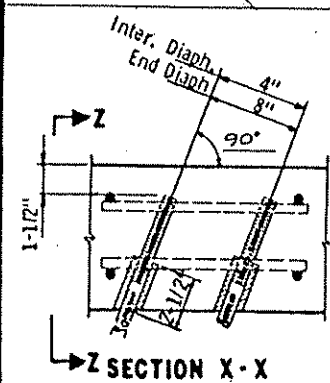
FOR USE WITH STEEL INTERMEDIATE DIAPHRAGM



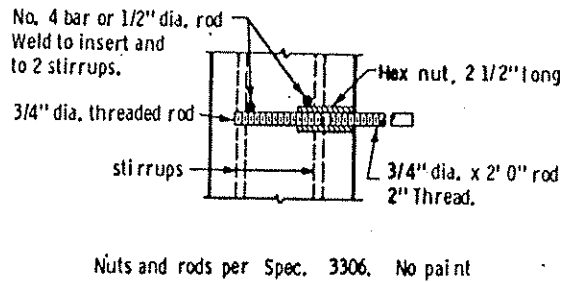
CONCRETE END DIAPHRAGMS PILE BENT ABUTMENT

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

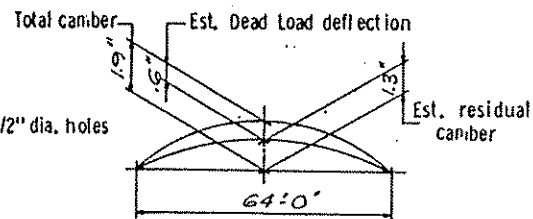
SECTION Y-Y
FOR USE WITH CONCRETE END DIAPHRAGMS WITH PILE BENT ABUTMENTS



SECTION X-X
USE AT FACIA BEAM AND INTERIOR BEAM WITH STAGGERED DIAPHRAGMS



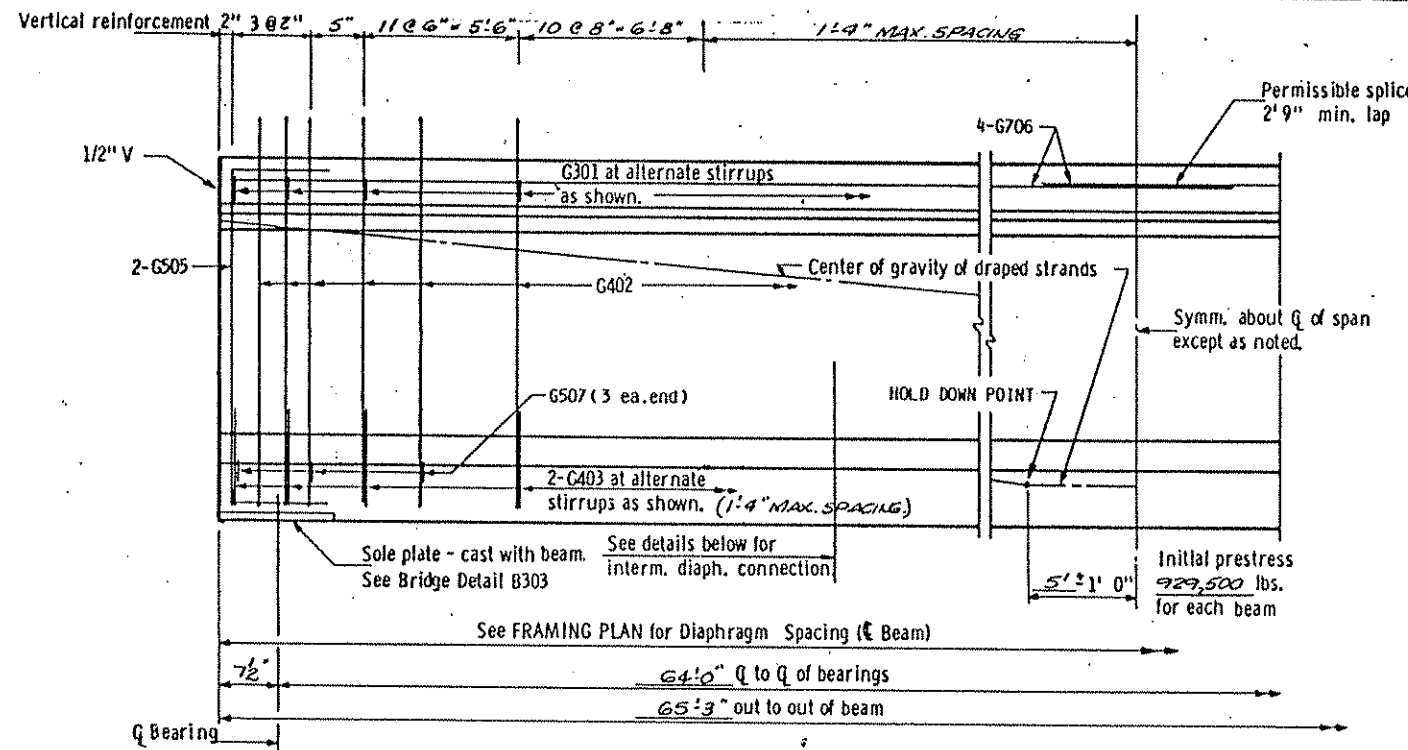
SECTION Z-Z



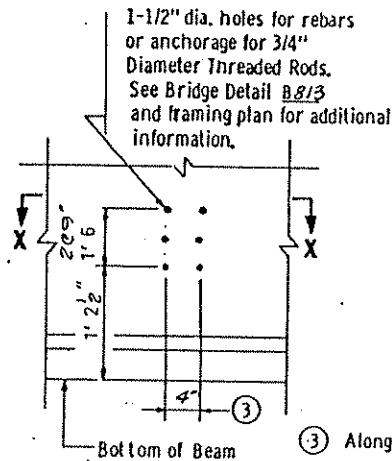
CAMBER DIAGRAM

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.

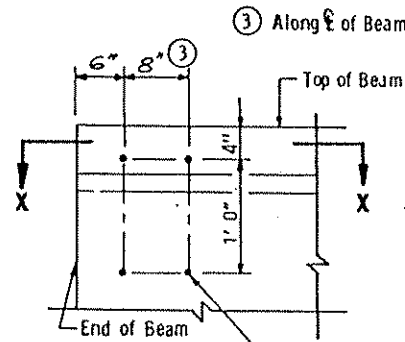
SECTION X-X
USE AT INTERIOR BEAM WITH CONTINUOUS CONCRETE DIAPHRAGM



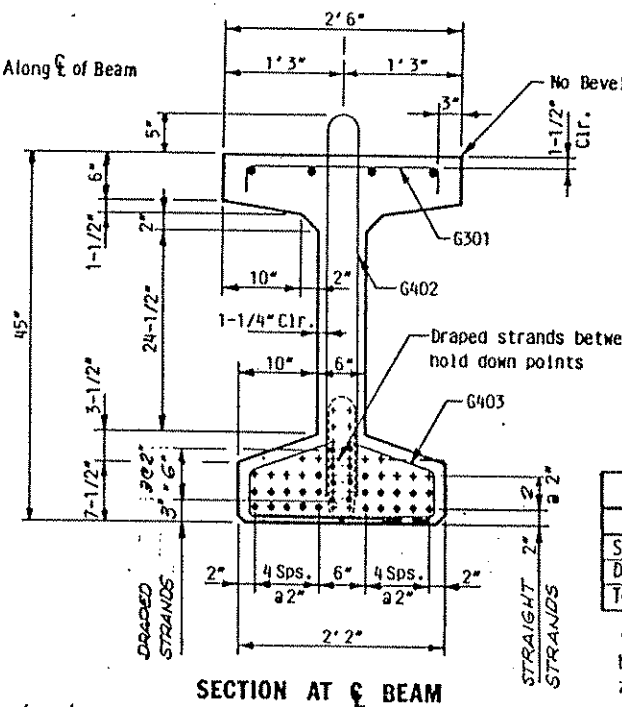
HALF ELEVATION



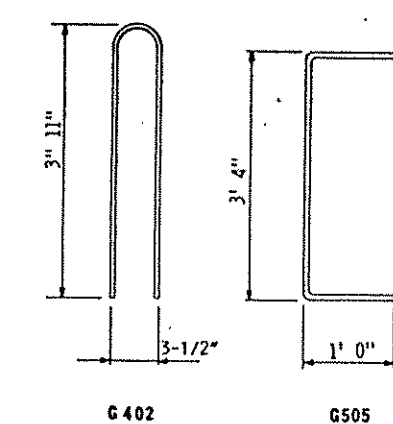
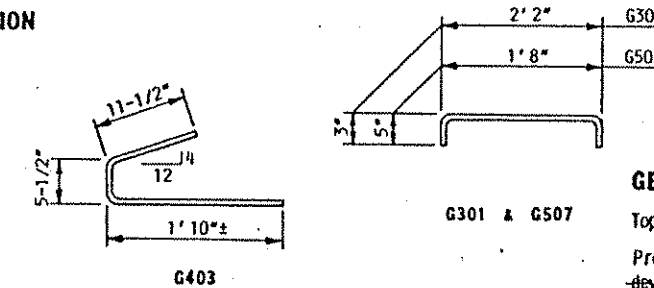
FOR USE WITH CONCRETE INTERMEDIATE DIAPHRAGM



CONCRETE END DIAPHRAGMS PARAPET ABUTMENT



SECTION AT Q BEAM



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

Y DISTANCES (IN INCHES)			
	NO.	Q SPAN	END
Straight strands	22	3.27	
Draped strands	8	6.00	37.0
Total strands	30	4.00	

Y = distance of Center of Gravity of strands from bottom of beam. All strands spaced 2\"/>

All strands 1/2\"/>

A tolerance of ± 2\"/>

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

Girder Section Data	
Wt./ft. = 672 lbs.	
Cross sec. area at Q of span = 624 in. ²	
C.G. (from bottom) = 22.34	
I ^x = 167,048 in. ⁴	
S _x = 7,476 in. ³	
1/2\"/>	
1/2\"/>	

ALL REINFORCING STEEL TO BE EPOXY COATED.

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.
Ronald Benson
Date 1/23/95 Reg. No. 22737

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\"/>

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".

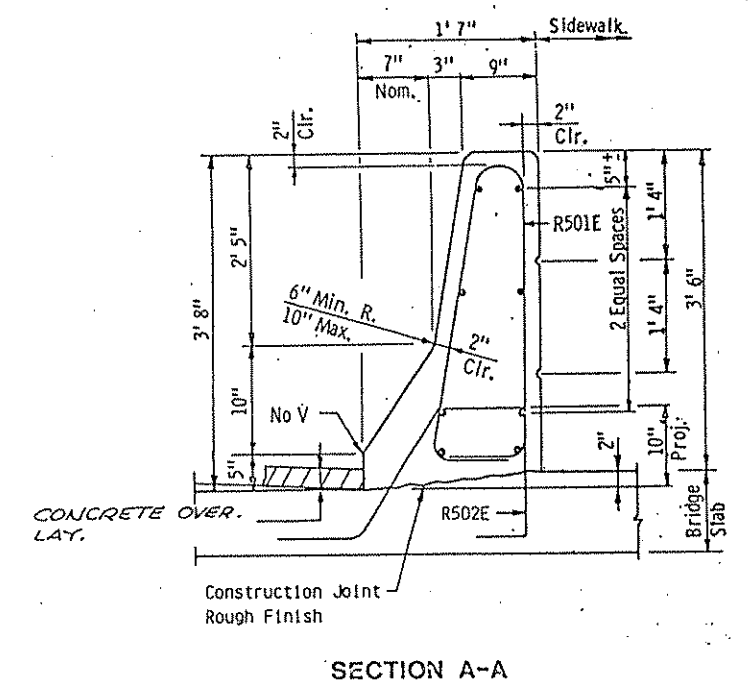
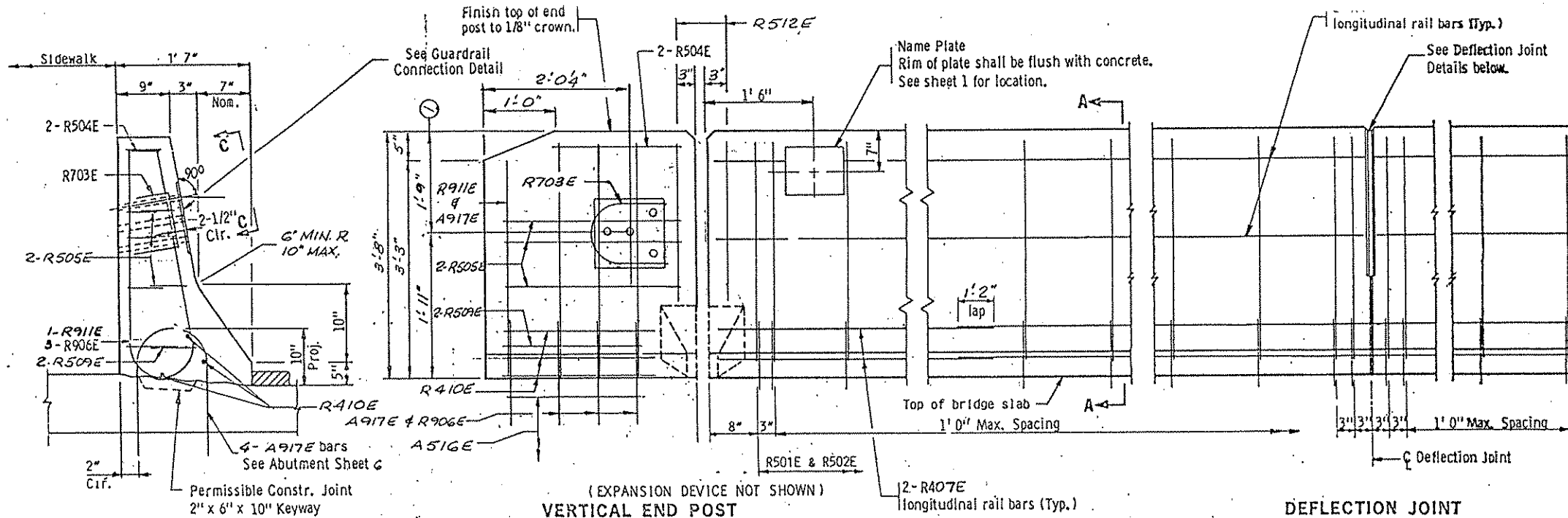
Approximate weight of beam 22.0 tons.

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	5000	7000

- ① Minimum concrete strength at time of prestress transfer.
- ② Minimum concrete strength when curing can be discontinued and beam transported and installed.

REVISIONS: _____ APPROVED: May 27, 1986
 TITLE: **45\"/>**

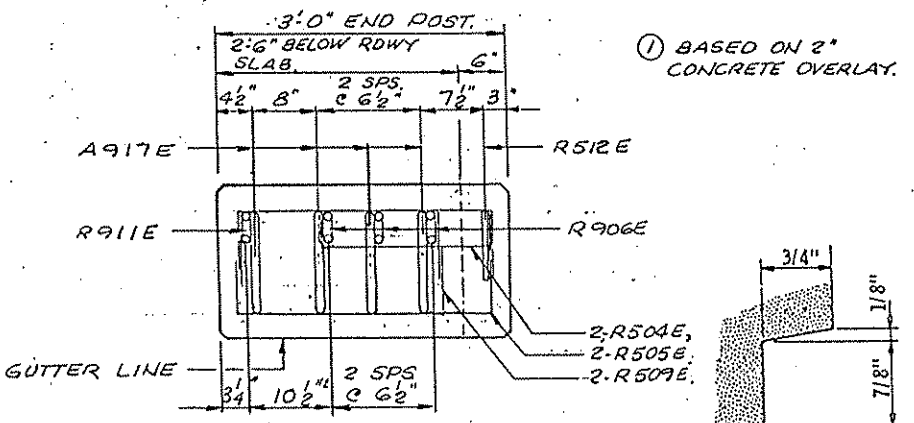


END VIEW

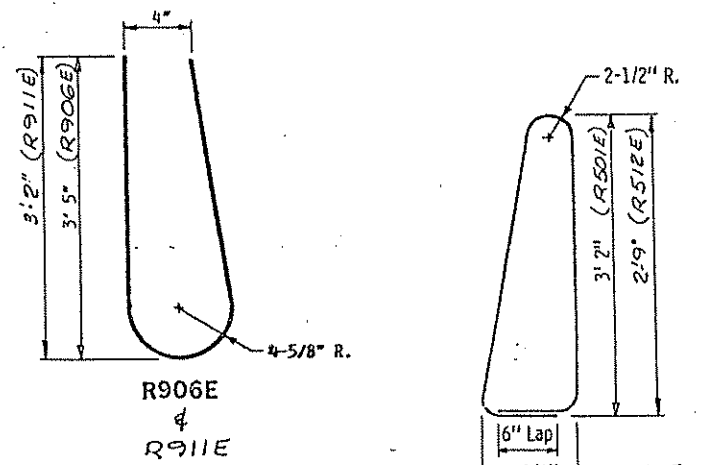
VERTICAL END POST

DEFLECTION JOINT

SECTION A-A



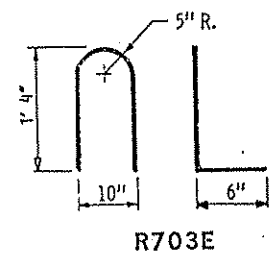
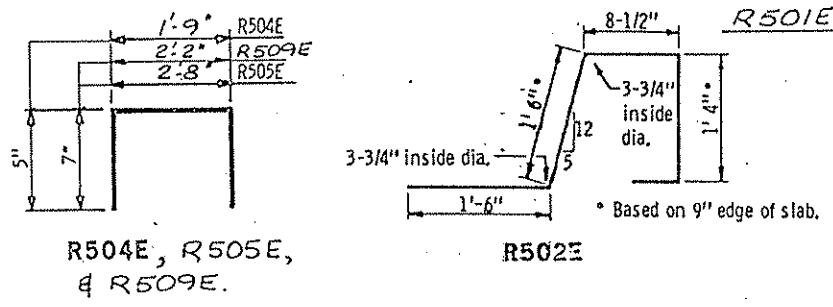
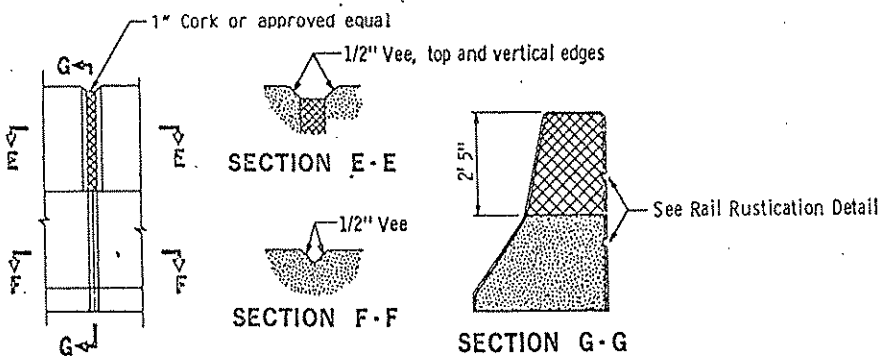
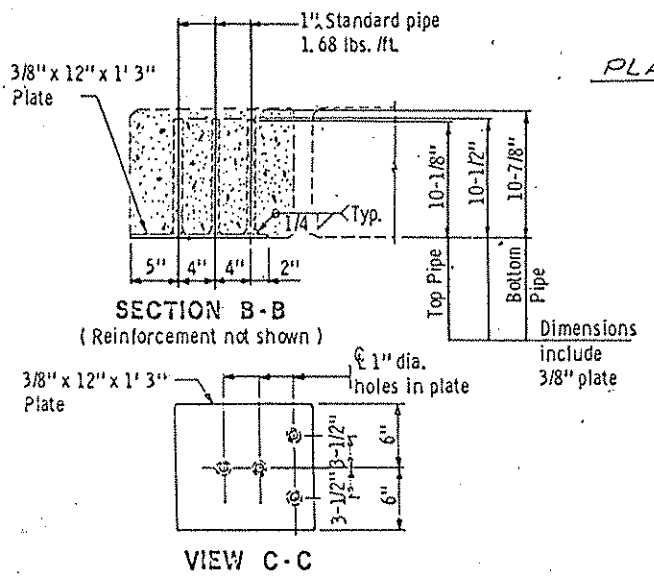
INSIDE ELEVATION OF RAILING
(WEARING COURSE NOT SHOWN)



BILL OF REINFORCEMENT FOR RAILING				
BAR NO.	LENGTH	SHAPE	LOCATION	
R501E	152	7' 10"	Bent	Rail Vertical
R502E	152	5' 7"	Bent	Rail Vertical
R703E	4	4' 2"	Bent	End Post
R504E	8	2' 7"	Bent	End Post
R505E	24	3' 10"	Bent	End Post
R906E	12	7' 3"	Bent	End Post
R407E	16	33' 6"	Str.	Rail Long.
R408E	32	16' 2"	Str.	Rail Long.
R509E	8	3' 4"	BENT	END POST
R410E	12	2' 3"	STR.	" "
R911E	4	6' 9"	BENT	" "
R512E	8	7' 0"	BENT	" "

GENERAL NOTES:

- Conc. Railing = 560 lbs./ft.
- Conc. Railing = .138 cu. yds./ft.
- Rail and end post to be Concrete Mix No. 3746
- Guardrail connection to be Structural Steel, Spec. 3306
- Finish all edges of rail and end post with 1/2" vee except where otherwise noted.
- See superstructure sheet for joint spacing.
- Maximum spacing of concrete deflection joints shall be 20' 0"
- Guardrail connection to be included in price bid for other items.
- Rail quantities are included in summary of quantities for superstructure.
- Length of railing concrete to be measured for payment between outside faces of end posts.
- Bars marked with the suffix "E" shall be epoxy coated in accordance with Spec. 3301



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.
Ronald Benson
 Date 1/23/95 Reg. No. 22737

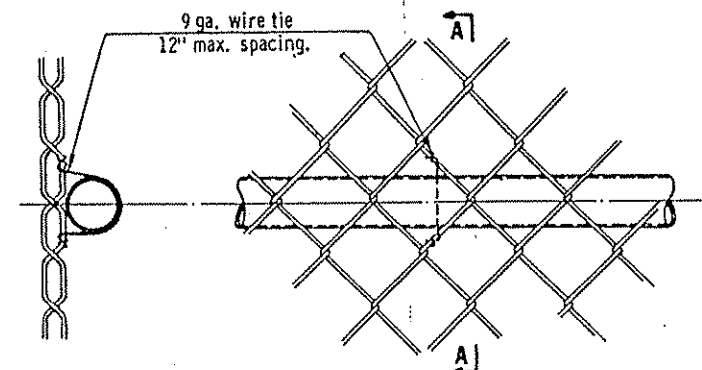
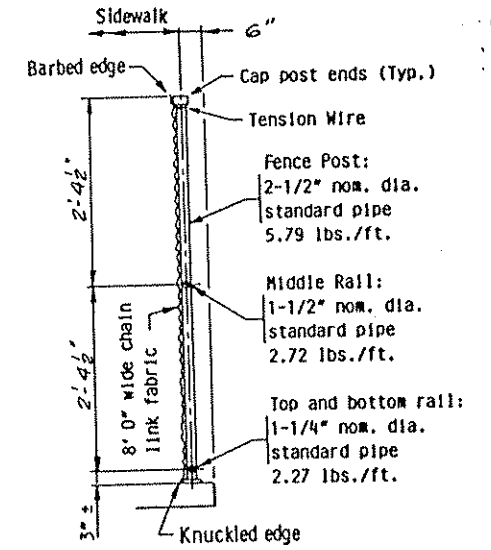
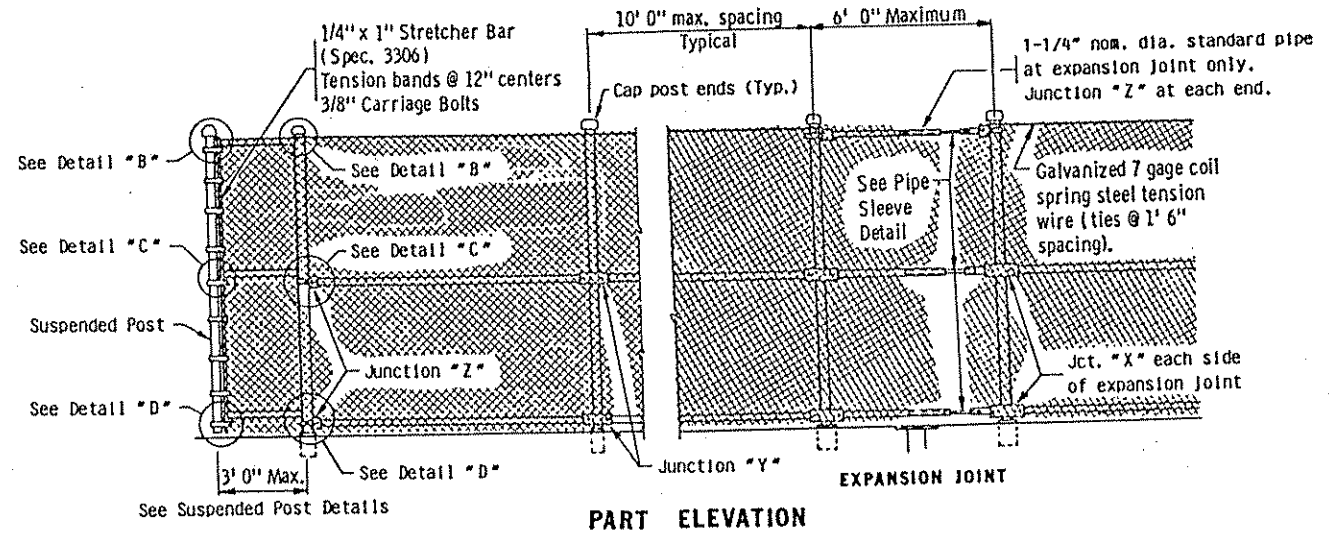
GUARDRAIL CONNECTION DETAIL
Galvanize after fabrication per Spec. 3394
Estimated Weight = 24 lbs.

DEFLECTION JOINT DETAILS

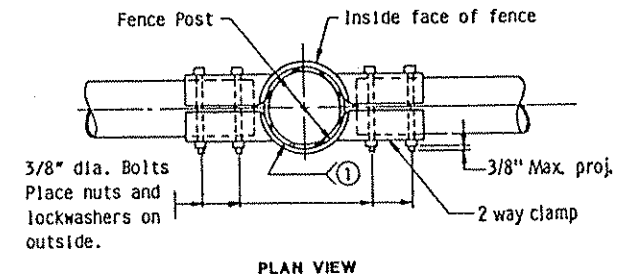
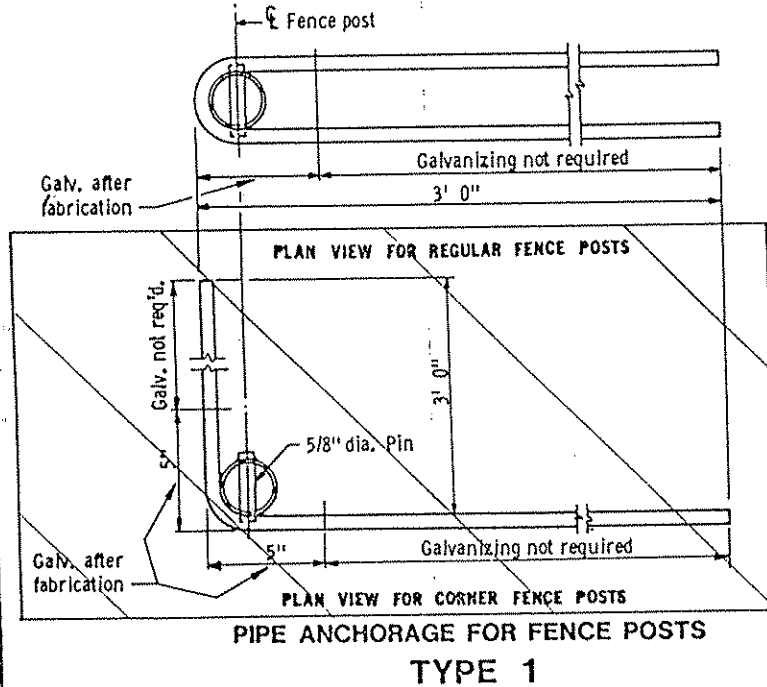
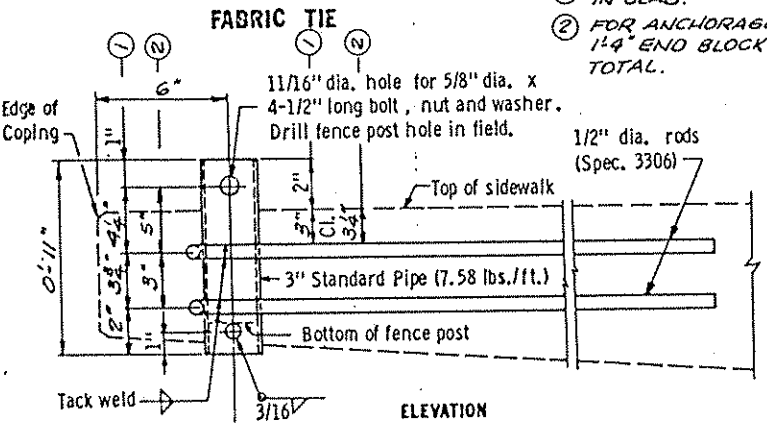
TITLE: **CONCRETE RAILING (TYPE J)**
WITH BRIDGE SLAB SIDEWALK AND SEPARATE END POST

REVISED:	APPROVED: Nov. 26, 1985	FIG. 5-397.121
DES:	DC:	APPROVED: 5-18-95
CHK:	CHK:	Bridge No. 02536

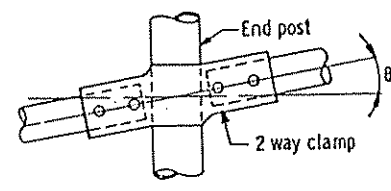
SP 02-609-04



SECTION A-A PART ELEVATION



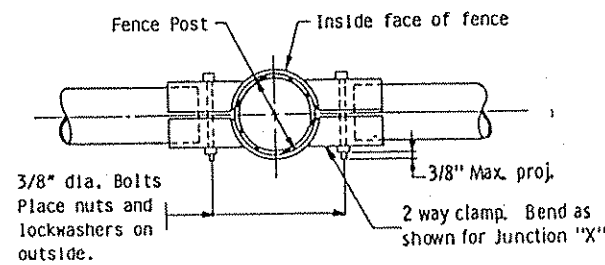
PLAN VIEW



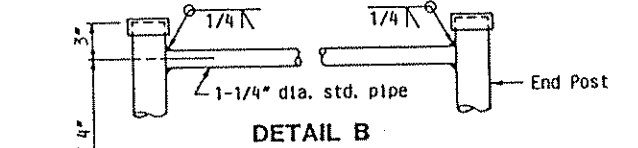
ELEVATION JUNCTION "X"

2-WAY CLAMP BENDING TABLE

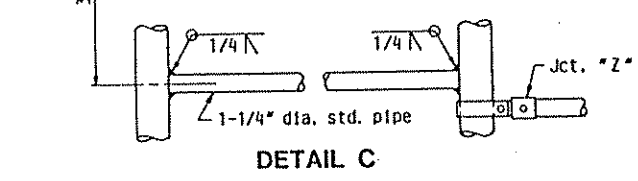
GRADE OF FENCE	θ
0° to 2°	0°
2° to 6°	4°
6° to 10°	8°



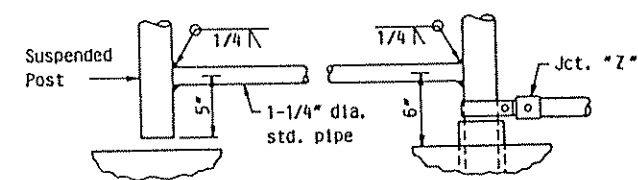
JUNCTION "Y"



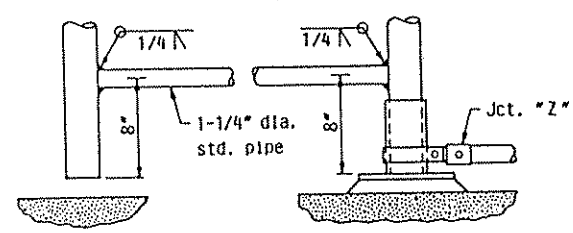
DETAIL B



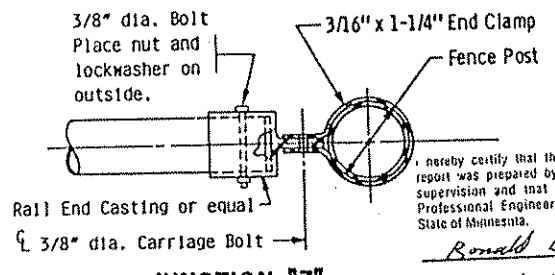
DETAIL C



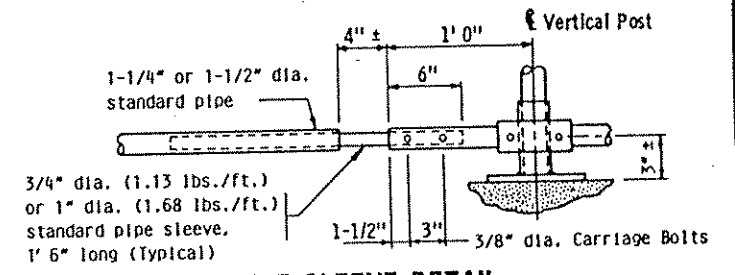
DETAIL D USE WITH TYPE 1 ANCHORAGE



DETAIL D USE WITH ALTERNATE ANCHORAGE SUSPENDED POST DETAILS



JUNCTION "Z"



PIPE SLEEVE DETAIL For 4\"/>

GENERAL NOTES:

- For alternate to Type 1 anchorages, see Detail No. B905, Type A End Posts.
- For post spacing, location, type of anchorages & other details, see sheet no. 7
- Maximum spacing for 2-1/2\"/>
- Fence posts and anchorages shall be set vertical, unless otherwise noted.
- See special provisions for requirements not included on this sheet and for basis of payment.
- All posts shall have a means to securely hold the top tension wire in position and allow for the removal and replacement of a post without damaging the top wire.
- Wire ties may be 9 gage galvanized steel or 0.179\"/>

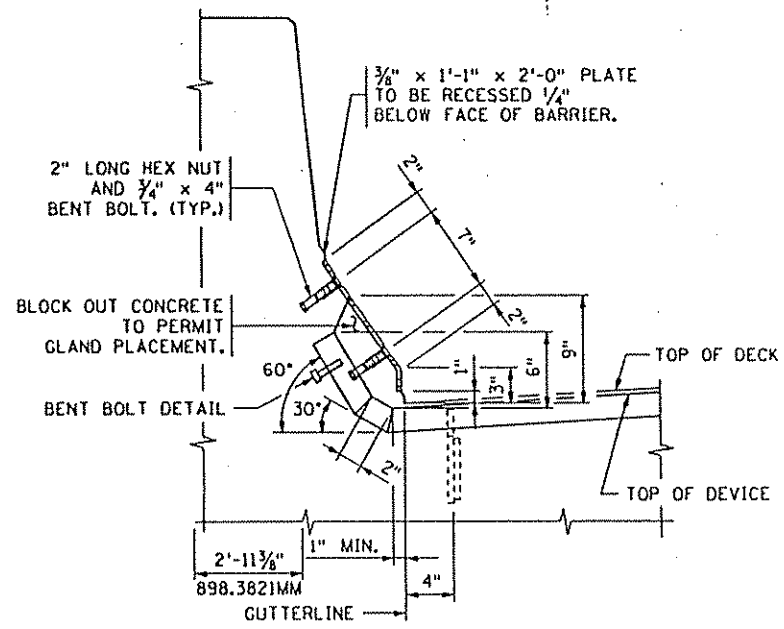
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Ronald Benson
 Date 1/23/95 Reg. No. 22737

S.R. 02-609-04

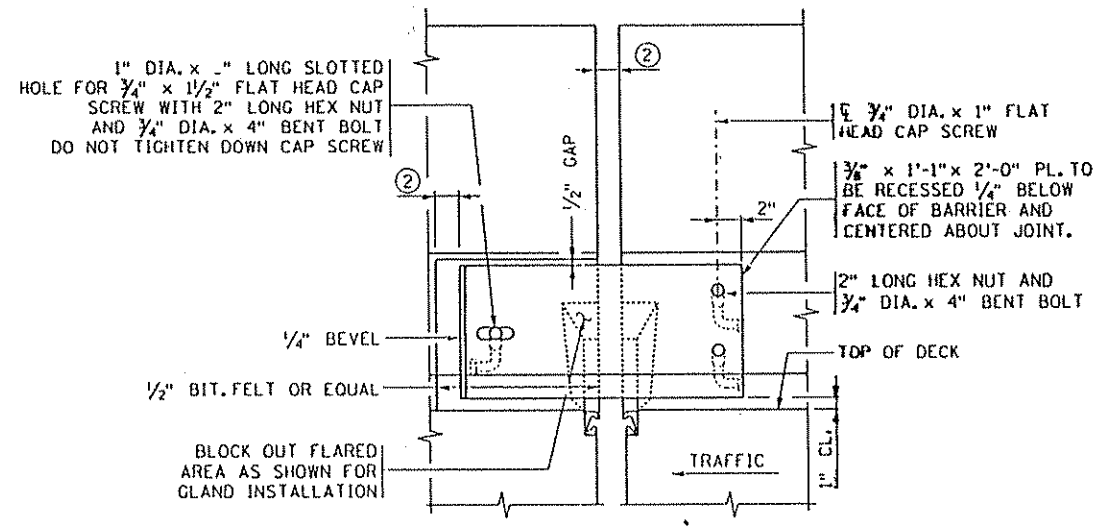
REVISED:	APPROVED: Nov. 26, 1985	FIG. 5-397.205
DES:	DR:	APPROVED: 5-18-95
CHK:	CHK:	Sheet No. 11 of 20 Sheets

TITLE: 5 FT. WIRE FENCE FOR PEDESTRIAN WALKS (USE WITH TYPE J RAILING)

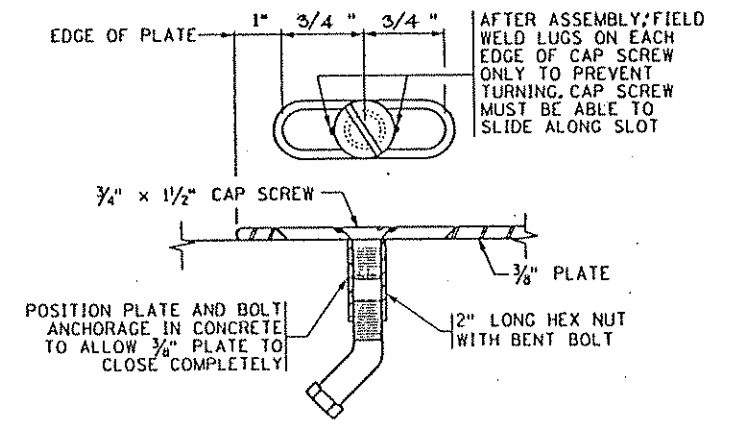
Bridge No. 02536



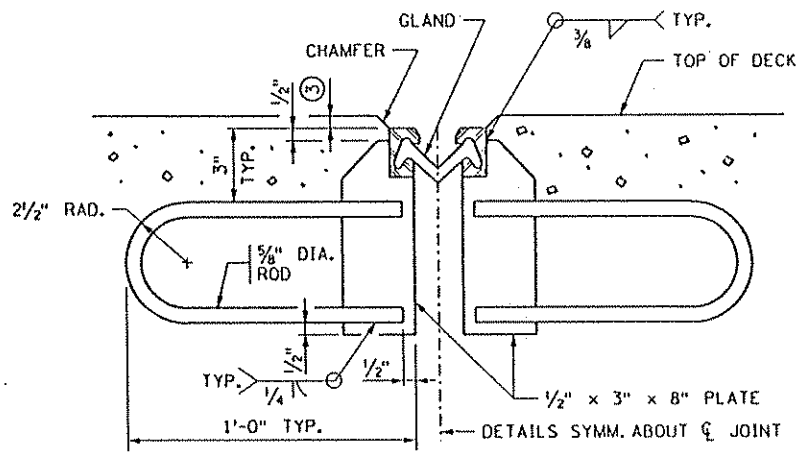
SECTION THROUGH RAILING
(TYPE J RAILING)



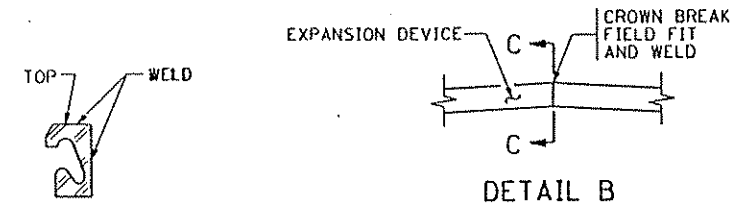
RAILING ELEVATION



DETAIL "A"

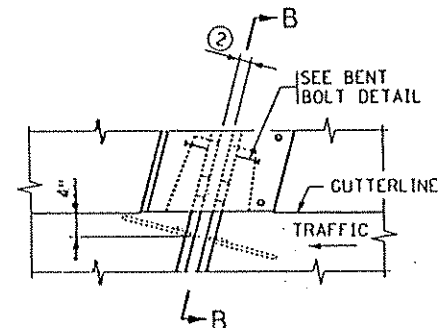


SECTION A-A

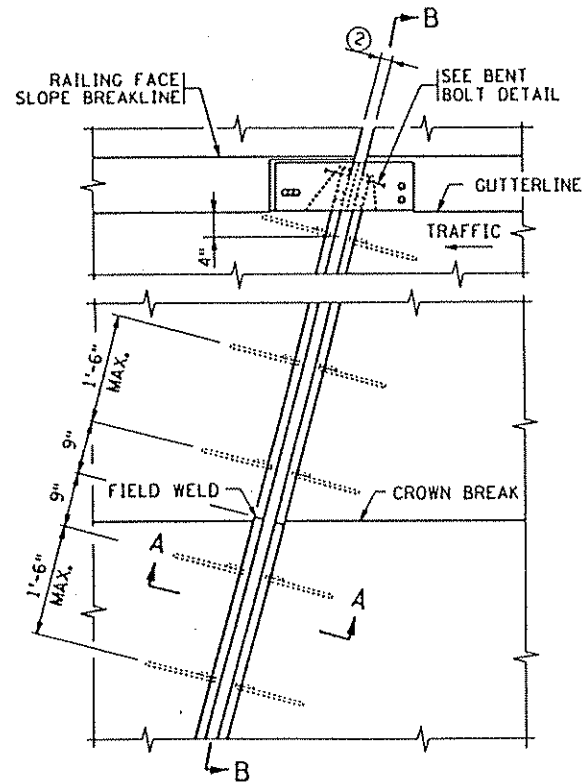


DETAIL B

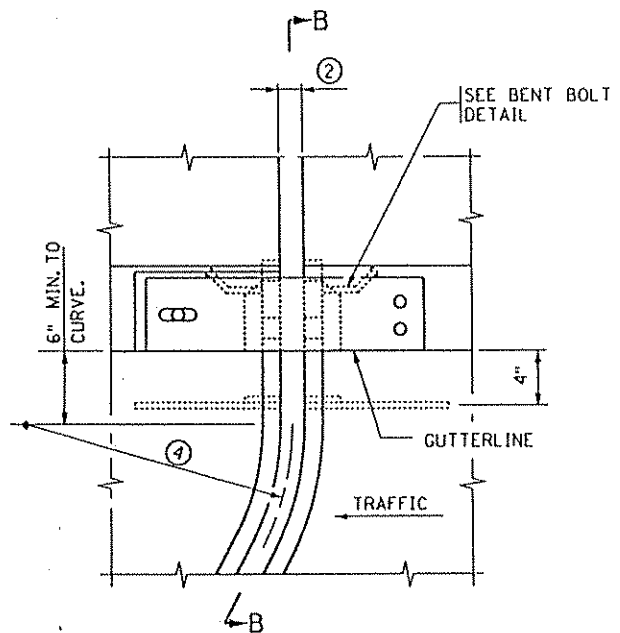
SECTION C-C



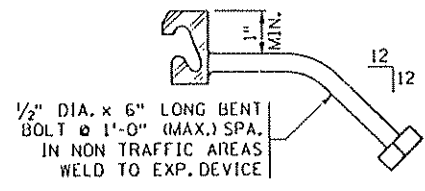
PLAN VIEW @ EXP. DEVICE
(MEDIAN OR SIDEWALK ALTERNATE)



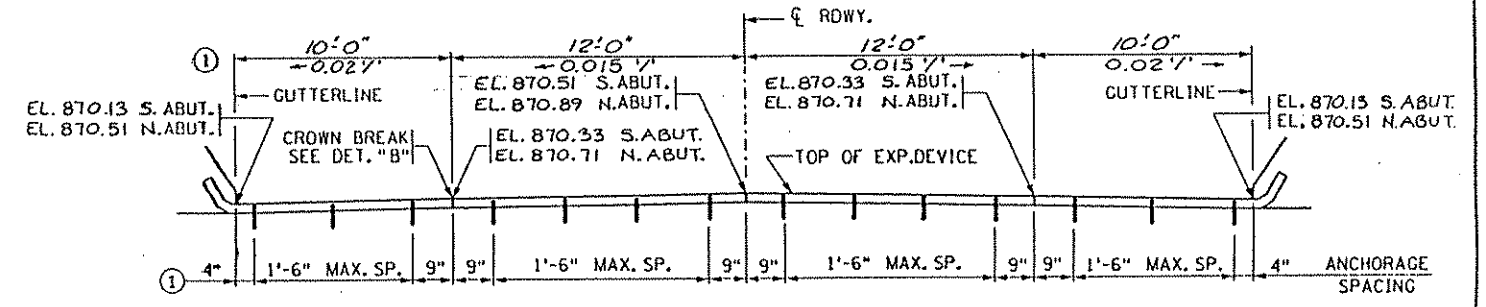
PLAN VIEW @ EXP. DEVICE
(WITH STRAIGHT DEVICE)



PLAN VIEW @ EXP. DEVICE
(WITH CURVED DEVICE ALTERNATE)



BENT BOLT DETAIL



SECTION B-B ~ ALONG @ JOINT

(ELEVATIONS SHOWN ARE 1/8" BELOW TOP OF SLAB @ @ JT.)
(ELEVATIONS SHOWN ARE 1/2" BELOW TOP OF SLAB @ @ JT.)

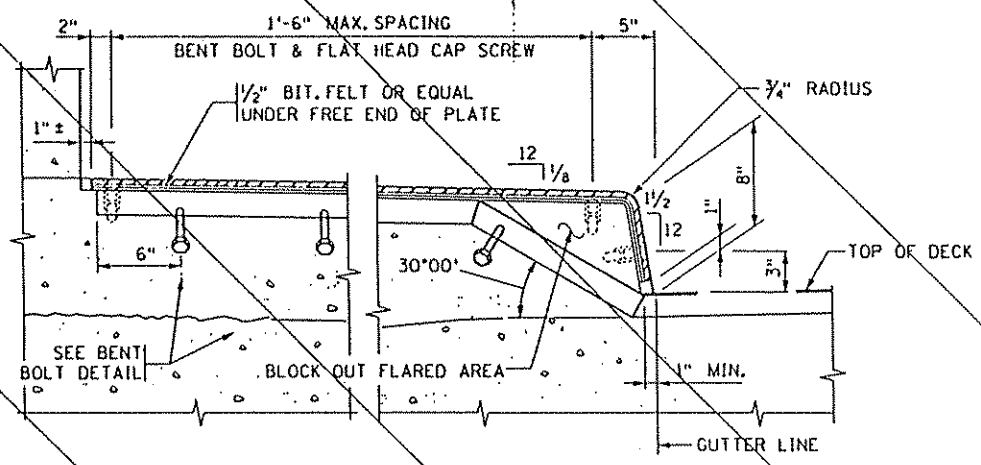
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Missouri.
Ronald Benson
Date: 1/23/15 Reg. No. 22737

NOTES

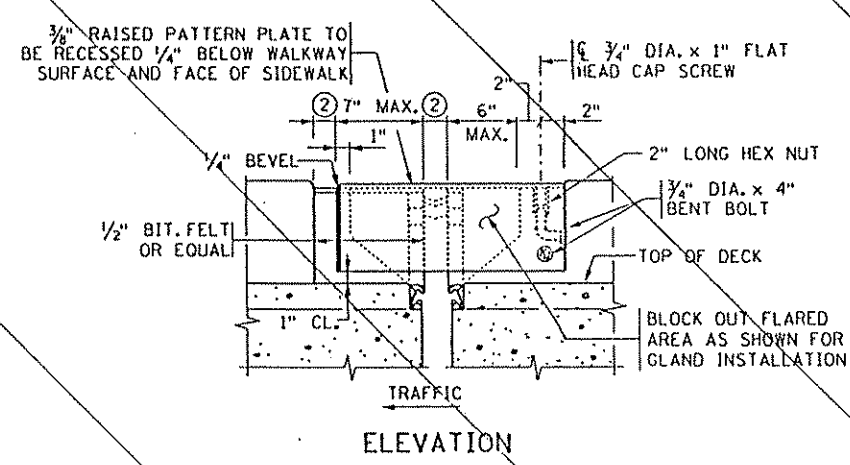
- GALVANIZE STRUCTURAL STEEL AFTER FABRICATION AS PER SPEC. 3394.
- JOINTS IN ROADWAY PLATE OR EXTRUSION SHALL BE LOCATED AT BREAKS IN TRANSVERSE PROFILE AND AS OTHERWISE REQUIRED. JOINTS SHALL BE CLOSE FIT AND WELDED. REPAIR AFTER WELDING AS PER SPEC. 2471.3L.
- STRUCTURAL STEEL SHALL COMPLY WITH SPEC. 3306, SPEC. 3307, OR SPEC. 3309.
- EXPANSION DEVICE SHALL BE STRAIGHTENED TO A TOLERANCE OF 1/8" IN 10 FEET.
- CAP SCREWS SHALL BE COUNTERSUNK 1/16" BELOW TOP OF PLATE.
- LENGTH OF PAYMENT FOR DEVICE IS FROM GUTTERLINE TO GUTTERLINE.
- ① DIMENSIONS ARE ALONG CENTERLINE OF JOINT.
- ② 2" AT 45°; 1 1/2" AT 90° - N. ABUT.
2" CONSTANT - S. ABUT.
- ③ 1/8" (1/4" MAX.)
1/2" (5/8" MAX.) WHEN SNOWPLOW FINGERS ARE USED.
- ④ SEE SUPERSTRUCTURE DETAILS FOR RADIUS.

APPROVED: MODIFIED		FIG. 5-397.627	
TITLE: WATERPROOF EXPANSION DEVICE (WITH TYPE J BARRIER)	DES: CHK:	DR: CHK:	APPROVED: 5-18-95
Sheet No. 12 of 20 Sheets		Bridge No. 02536	

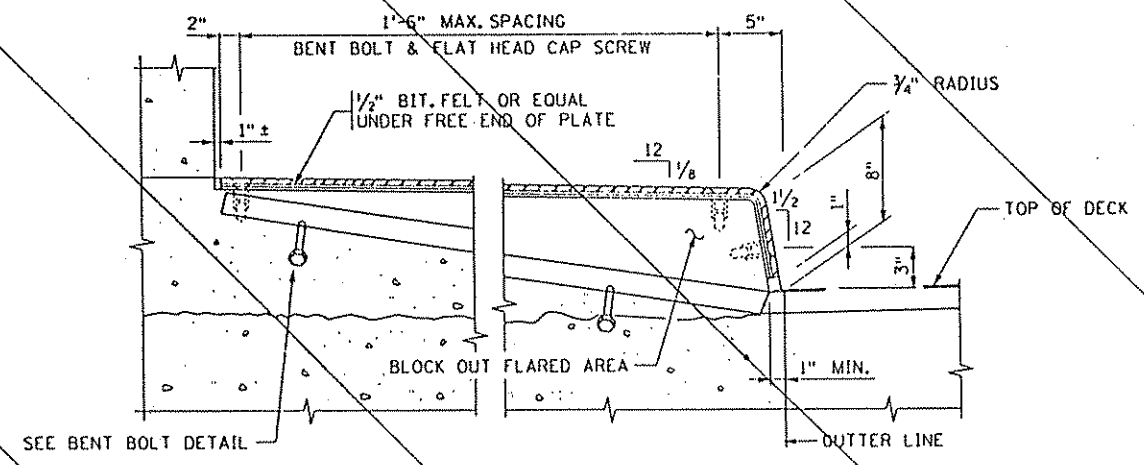
5A 02-609-04



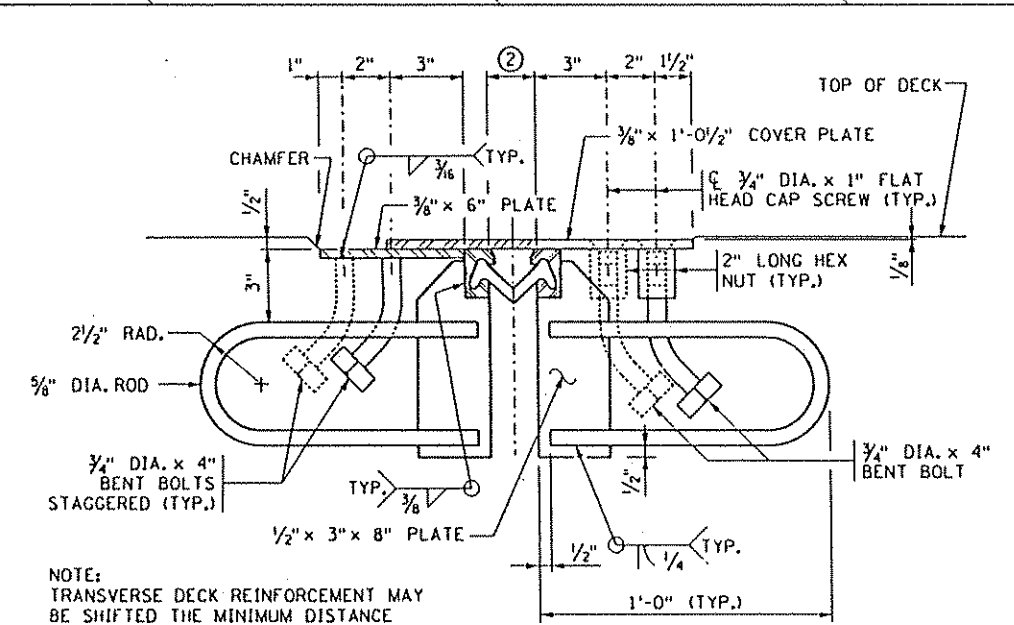
SECTION THRU SIDEWALK - OPTION 1



ELEVATION
SIDEWALK DETAILS

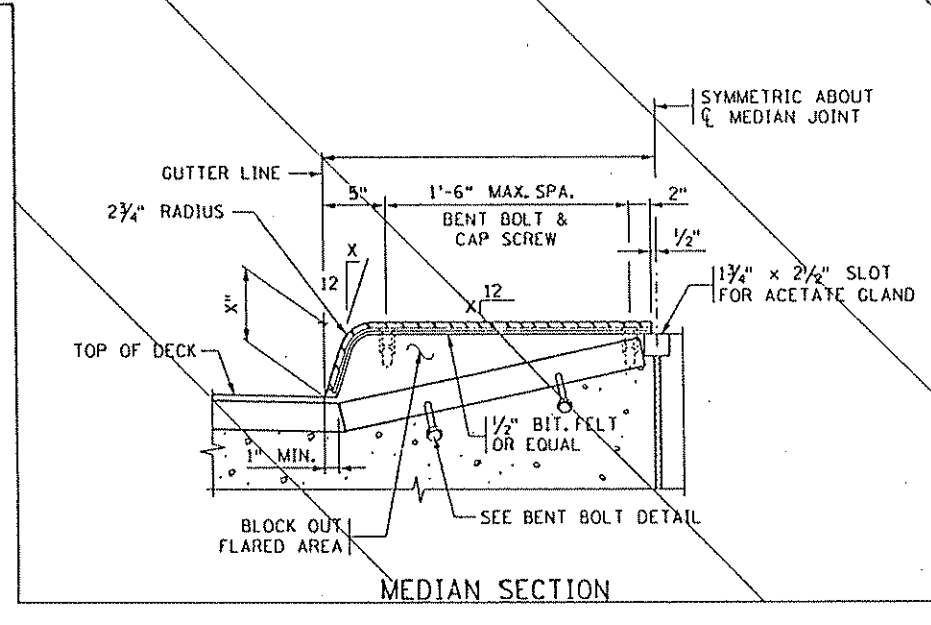


SECTION THRU SIDEWALK - OPTION 2

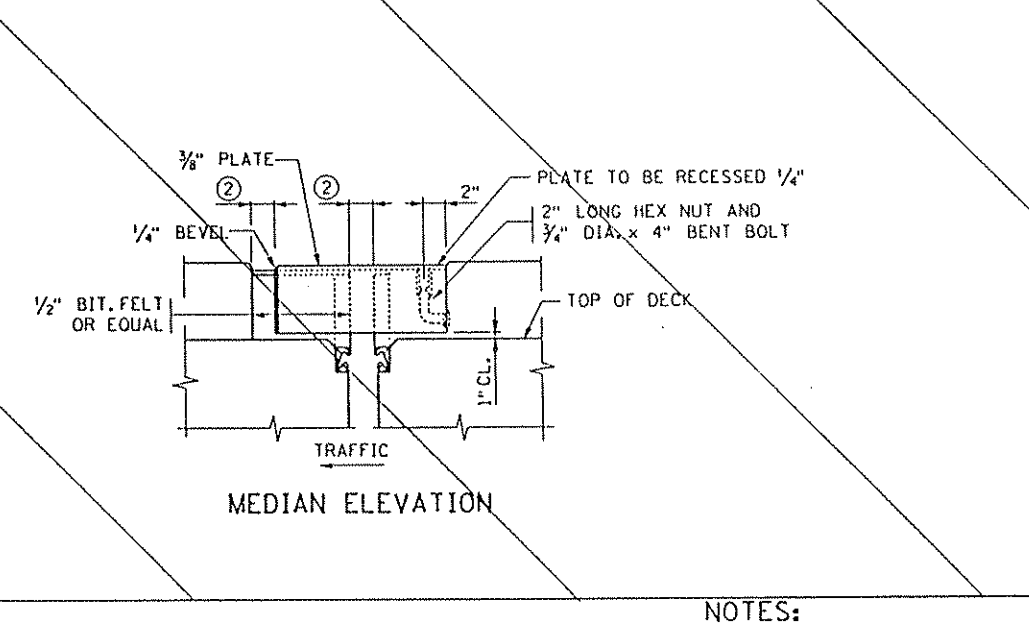


NOTE:
TRANSVERSE DECK REINFORCEMENT MAY BE SHIFTED THE MINIMUM DISTANCE REQUIRED FOR EXPANSION DEVICE PLACEMENT
ALL PLATES INCLUDED IN PRICE BID FOR EXPANSION DEVICE, TYPE 4.

SECTION D-D

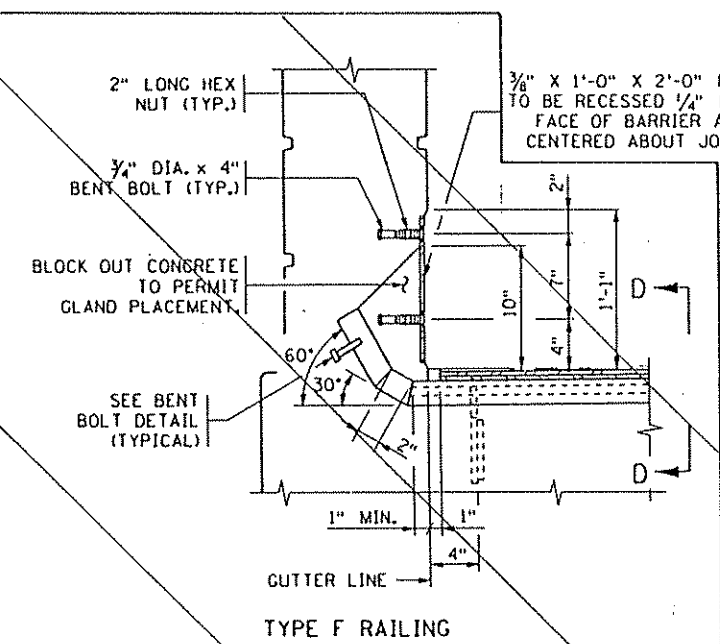


MEDIAN SECTION

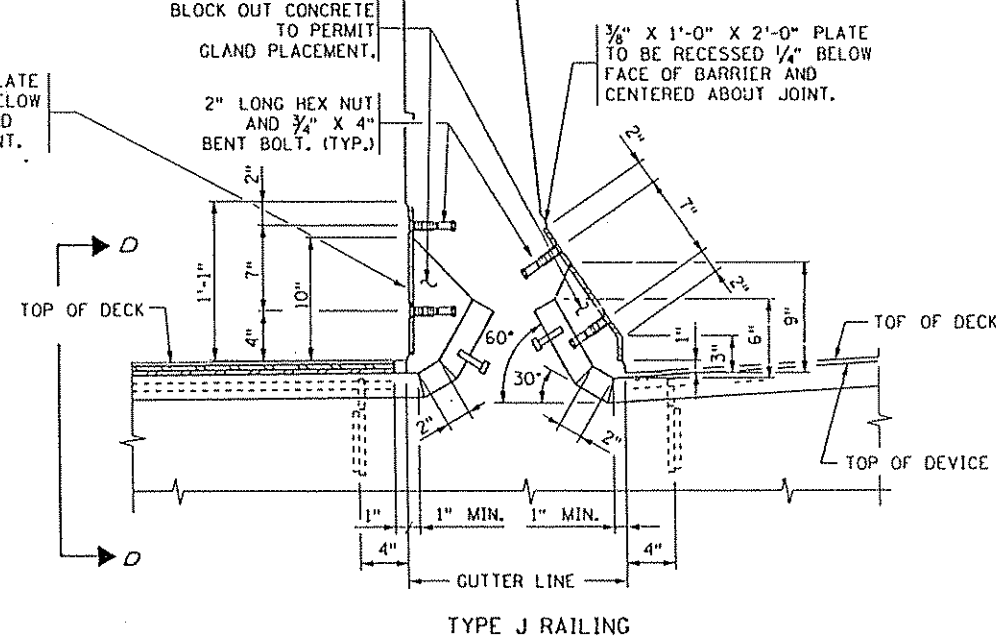


MEDIAN ELEVATION

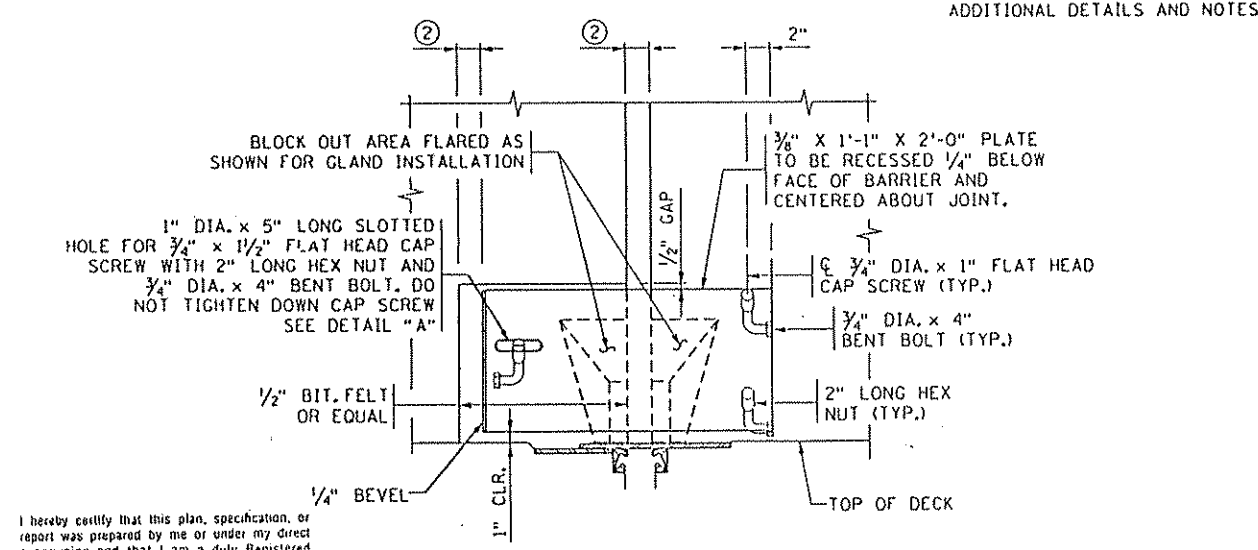
NOTES:
SEE DETAIL 5-397.627 FOR ADDITIONAL DETAILS AND NOTES.



SECTION THROUGH RAILINGS - INTEGRAL SIDEWALK



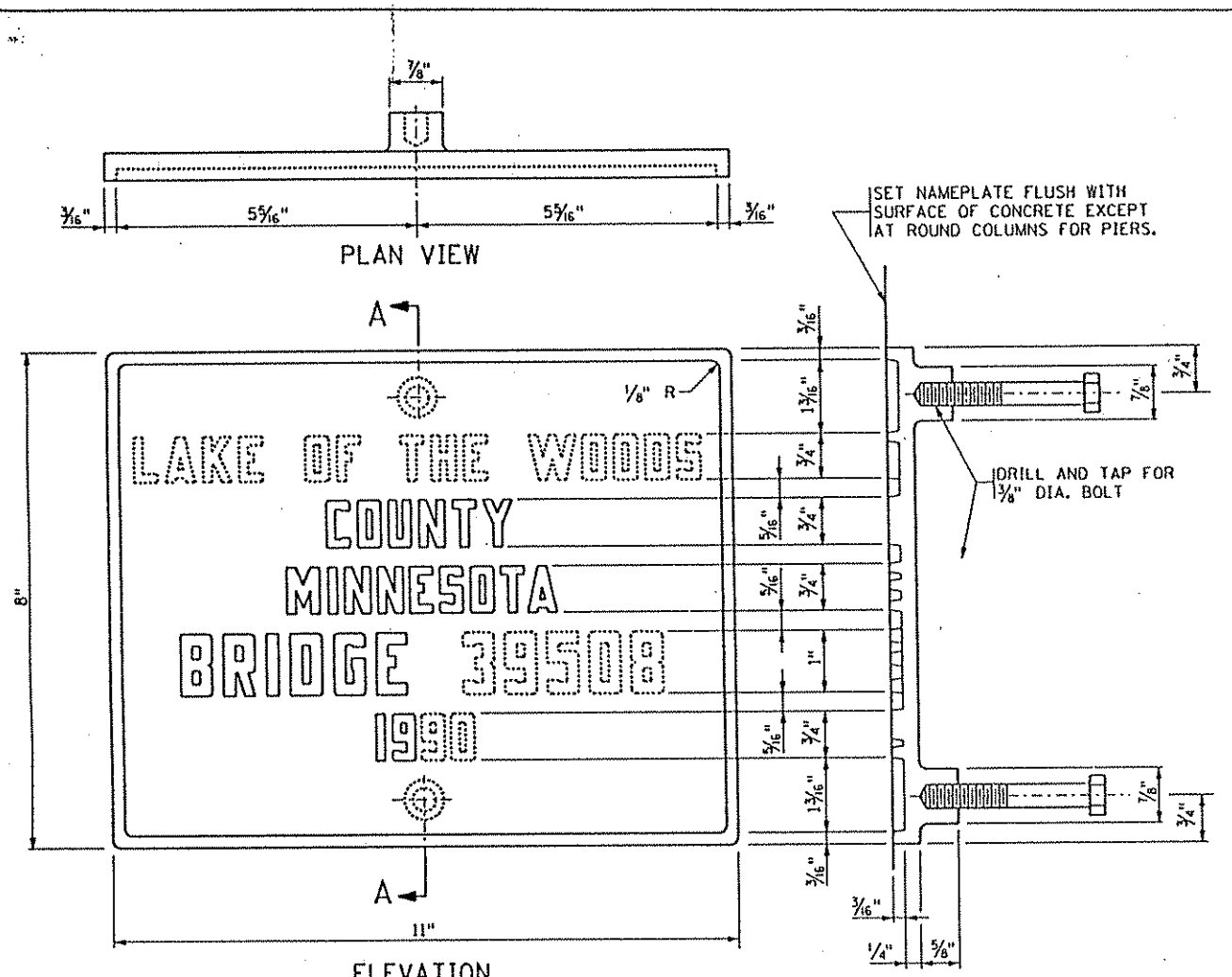
TYPE J RAILING



INSIDE ELEVATION
(TYPE F RAILING & BACK OF TYPE J RAIL)

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.
Ronald Benson
Date 1/23/95 Reg. No. 22737

S.P. 02-609-04		APPROVED: MODIFIED	FIG. 5-397.630
TITLE: WATERPROOF EXPANSION DEVICE (WITH RAISED MEDIAN OR SIDEWALK)	DESIGNED BY: CHKD BY:	DATE: 5-18-95	Bridge No. 02536
Sheet No. 13 of 20 Sheets			



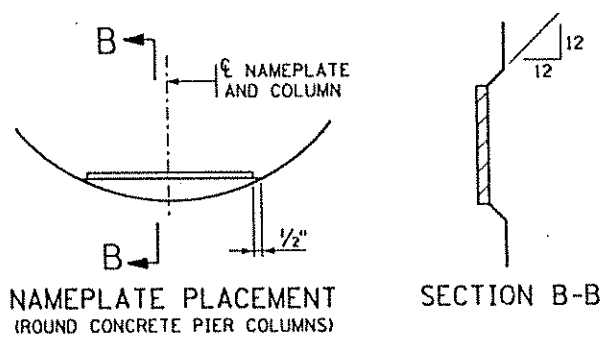
THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION. DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

COUNTY ANOKA
 BRIDGE 02536
 YEAR 1995

1234567890

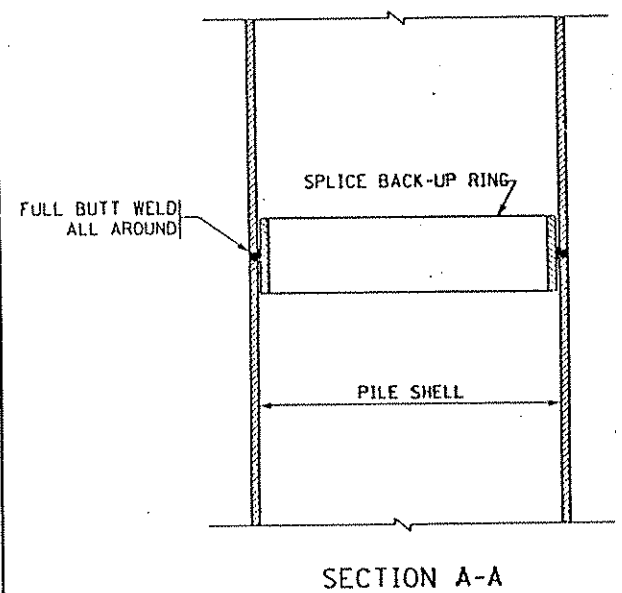
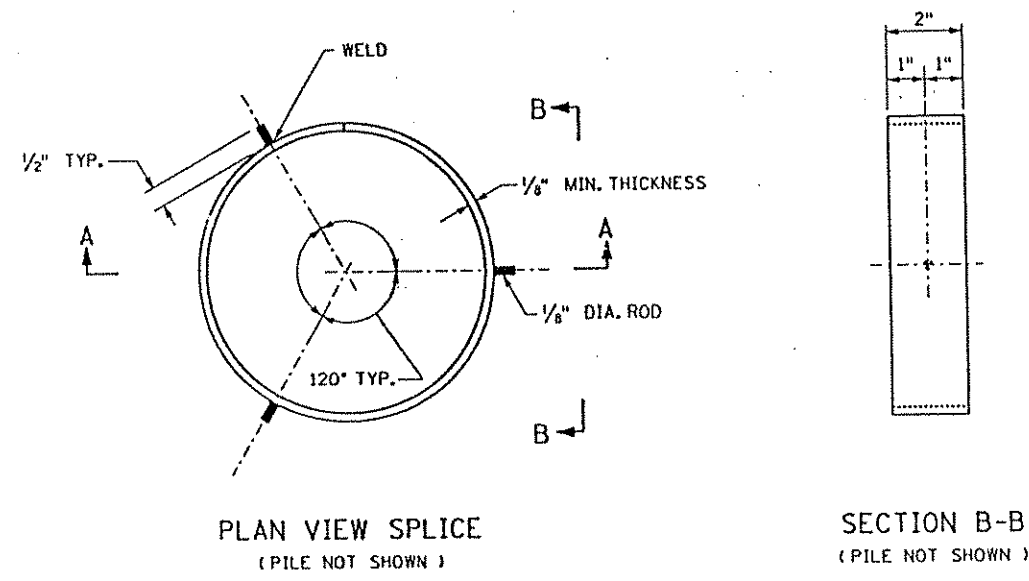
ABCDEFGHIJKLMNOPQRSTUVWXYZ

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

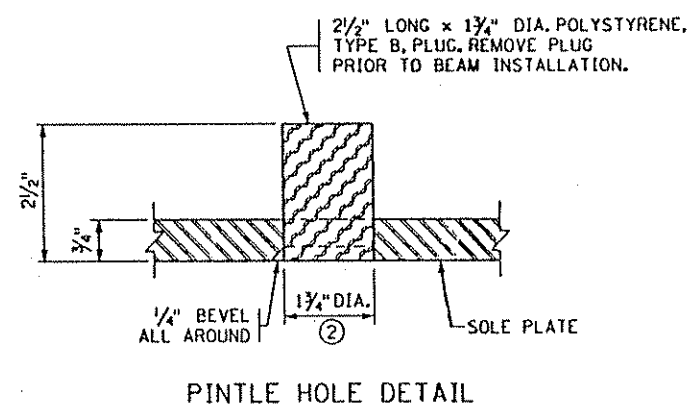
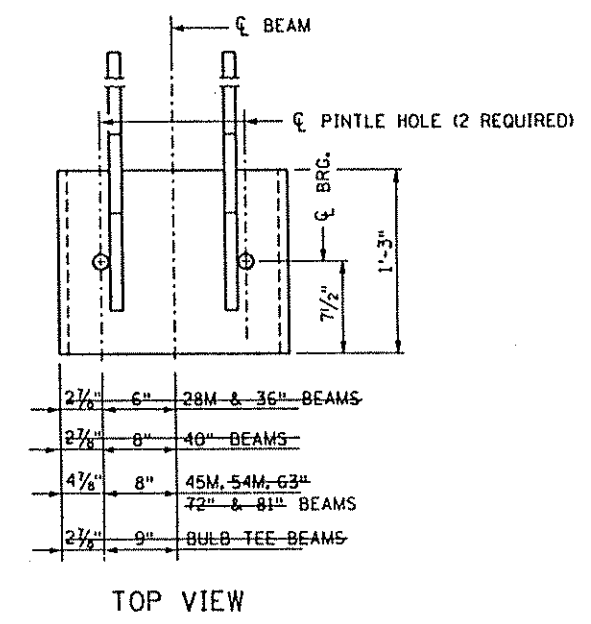
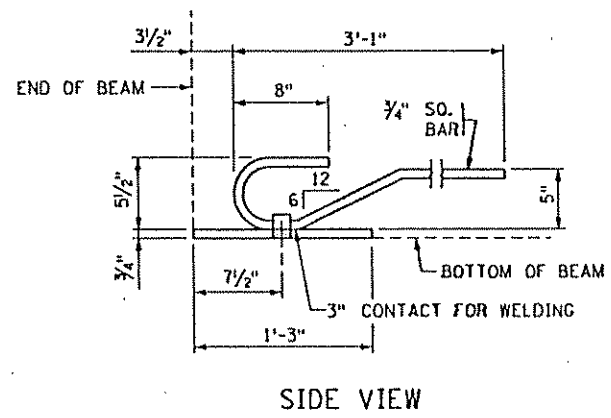
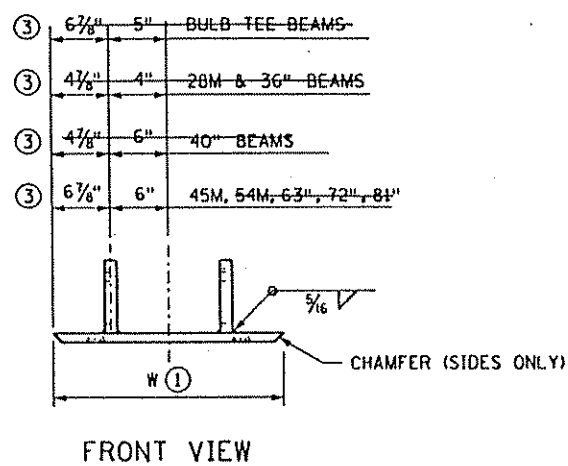


NOTES:
 APPROVED COMMERCIAL PILE SPLICE BACK-UP RING MAY BE USED IN LIEU OF THE TYPE DETAILED. BACK-UP RING SHALL HAVE A TIGHT FIT.
 WELDING ELECTRODE SHALL BE A.W.S. TYPE E7016 OR E7018 (LOW-HYDROGEN).
 LOW-HYDROGEN ELECTRODES SHALL BE SUPPLIED IN HERMETICALLY (AIR-TIGHT) SEALED CONTAINERS.
 LOW-HYDROGEN 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.

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.
Ronald Benson
 Date 1/23/95 Reg. No. 22737

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

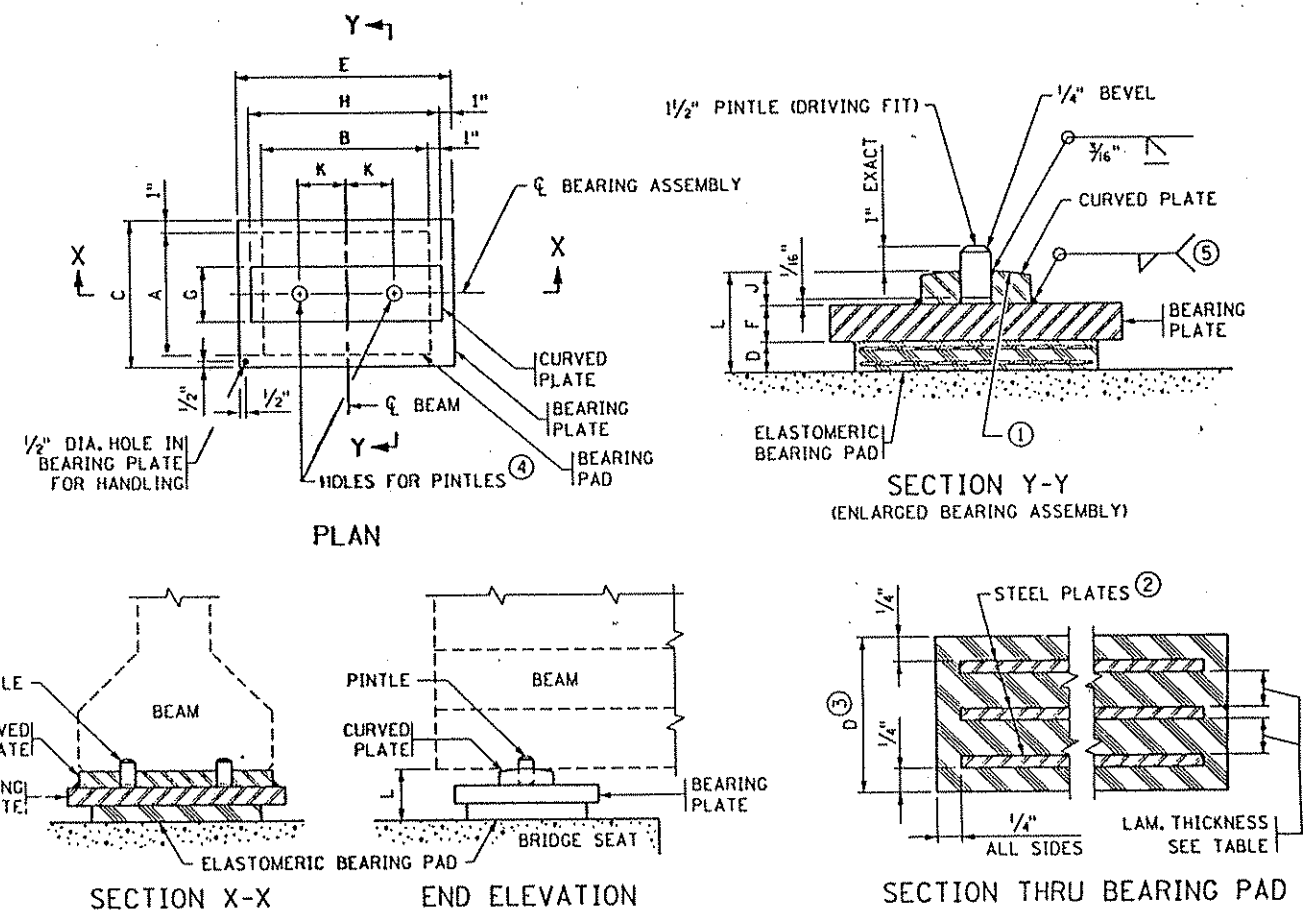
TITLE: MISC. BRIDGE DETAILS	DRWN: CAD CHK: DAD	APPROVED: 5-18-95	BRIDGE NO. 02536
	S.P. 02-609-04		
	SHEET 14 OF 20 SHEETS		



BEAM SIZE	W VALUE
28M, 36"	1'-5 3/4"
40"	1'-9 3/4"
45M, 54M, 63", 72", 81"	2'-1 3/4"
BULB TEES	1'-11 3/4"

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 1/4".
 ② FOR 1 1/2" DIA. PINTLES.
 ③ THESE DIMENSIONS MAY BE MODIFIED TO CLEAR PRESTRESSED STRANDS, HOWEVER, CHANGES MUST BE APPROVED BY THE ENGINEER.



ASSEMBLY TYPE	LOCATION	BEAM SIZE	BEARING PAD SIZE		STEEL PLATES		LAMINATES		SHAPE FACTOR	BEARING PLATE SIZE			CURVED PLATE SIZE			PINTLE DIA.	PINTLE DISTANCE K (6)	ASSY. HEIGHT L	
			A	B	D	NO.	THICK.	NO.		THICK.	C	E	F	G	H				J
1	N. ABUT.	45M	10"	24"	1 1/2"	3	1/8"	2	1/2"	7.1	12"	28"	1"	4 1/2"	26"	1"	1 1/2"	8"	3 1/2"
2	S. ABUT.	45M	10"	24"	1 1/2"	—	—	—	—	7.1	12"	28"	1"	4 1/2"	26"	1"	1 1/2"	8"	2 1/2"

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.

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.
Ronald Burton
 Date 1/23/95 Reg. No. 22737

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, 1 1/2" DIA. FOR TOTAL LOADS TO 390 KIPS.
 ⑤ FOR BEARING AND CURVED PLATE THICKNESSES UP TO 1 1/2" USE 3/16" FILLET WELDS; FOR THICKNESSES OVER 1 1/2" TO 2 1/4" USE 3/8" FILLET WELDS; FOR THICKNESSES OVER 2 1/4" USE 1/2" FILLET WELDS. USE MINIMUM PREHEAT OF 300°F.
 ⑥ SEE DETAIL B303 FOR PINTLE DISTANCE K.

APPROVED: SEPT. 8, 1992
 OFFICE of BRIDGES and STRUCTURES

STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION
 SOLE PLATE
 PRESTRESSED CONCRETE BEAMS
 (FOR BEARINGS WITH PINTLES)

REVISION
 11/19/92 KLV

DETAIL NO.
 B303

APPROVED: AUGUST 4, 1992
 OFFICE of BRIDGES and STRUCTURES

STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION
 CURVED PLATE BEARING ASSEMBLY
 PRESTRESSED CONCRETE BEAMS
 (EXPANSION)

DATE:
 DR:
 CHK:
 DETAIL NO.
 B311

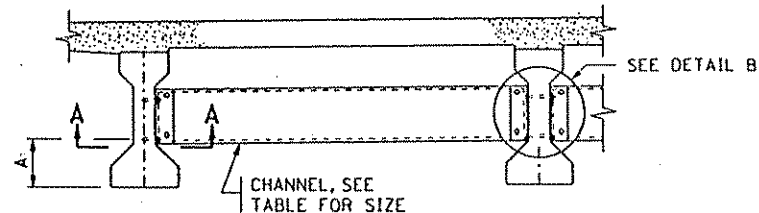
TITLE:
 MISC. BRIDGE DETAILS

DRWN: CAD
 CHK: DAD
 5-18-95
 S.P. 02-609-04

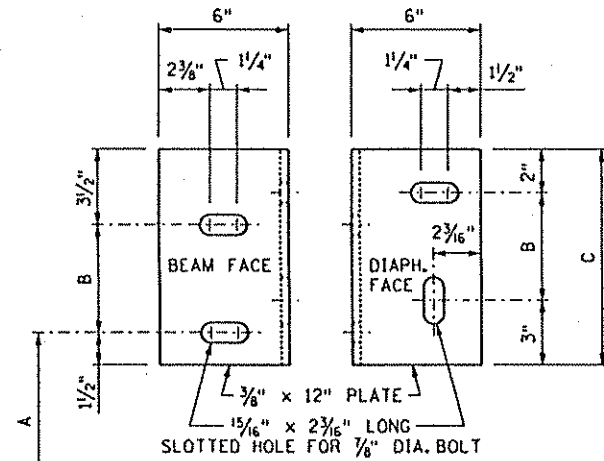
BRIDGE NO.
 02536

TABLE

BEAM HEIGHT	DISTANCE			CHANNEL SIZE	
	A	B	C		
28M	1'-0"	5"	10"	C10x15.3	
BULB TEE	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'-3 3/4"	1'-1"	1'-6"	MC18x42.7	



PART TRANSVERSE SECTION AT DIAPHRAGM

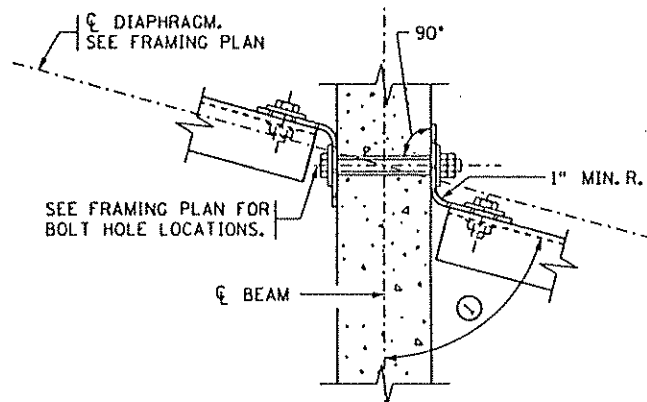


DIAPHRAGM CONNECTION FOR BEAMS

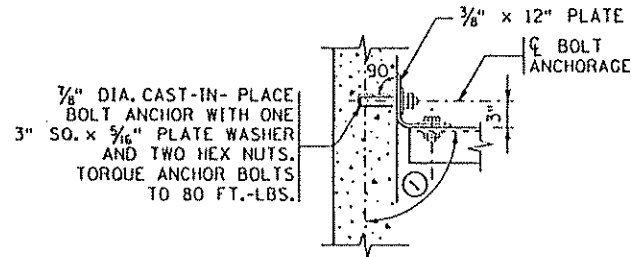
BOTTOM OF BEAM

7/8" DIA. HIGH STRENGTH BOLTS WITH HEX NUT AND ONE 3" SO. x 5/16" PLATE WASHER ON SLOTTED SIDE AND HARDENED WASHER ON DIAPHRAGM SIDE.

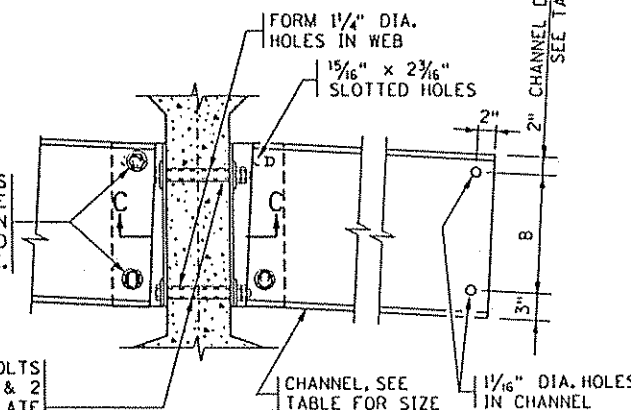
7/8" DIA. HIGH STRENGTH BOLTS WITH 2 HEX NUTS OR EQUAL & 2 HARDENED 3" SO. x 5/16" PLATE WASHERS EACH, AT ALL INTERIOR BEAM DIAPH. CONNECTIONS ②



SECTION C-C
TYPICAL SECTION AT CONTINUOUS INTERIOR DIAPHRAGMS



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



DETAIL B
INTERIOR BEAM WITH CONTINUOUS LINE OF 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 7/8" BOLT CONNECTION THE CONTRACTOR MAY SUBMIT DETAILS OF A CAST-IN-PLACE ANCHORAGE TO THE ENGINEER FOR APPROVAL.

GENERAL NOTES:

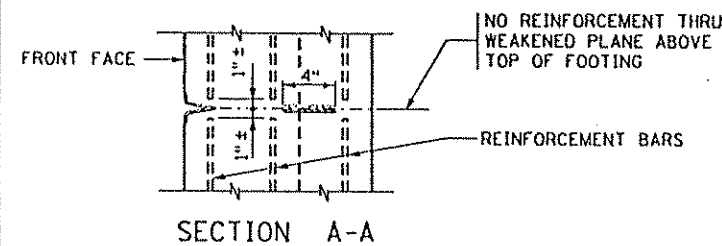
SEE SPEC. 2405.3M FOR INSTALLATION

THE LEG OF THE 12" PLATE SHALL BE SHOP BENT TO CONFORM TO THE DIAPHRAGM. A 3/8" x 6" x 6" ANGLE MAY BE USED FOR DIAPHRAGMS PERPENDICULAR TO BEAMS.

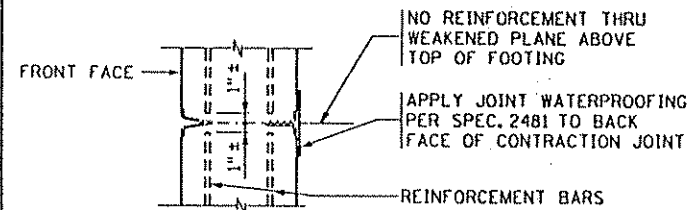
FOR BOLT LENGTHS GREATER THAN 9", USE HIGH STRENGTH BOLTS PER SPEC. SAE GRADE 5 OR BETTER.

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.



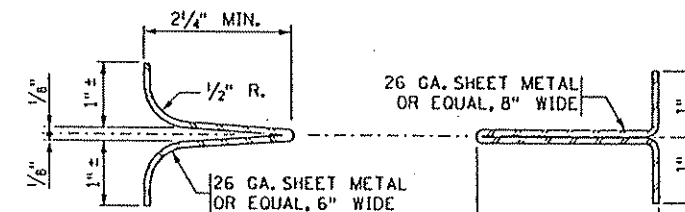
SECTION A-A



SECTION B-B

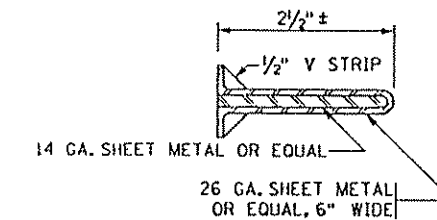


SECTION C-C



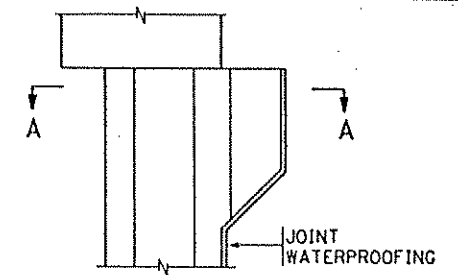
BRIDGE SEAT AND FRONT STRIP

BACK STRIP

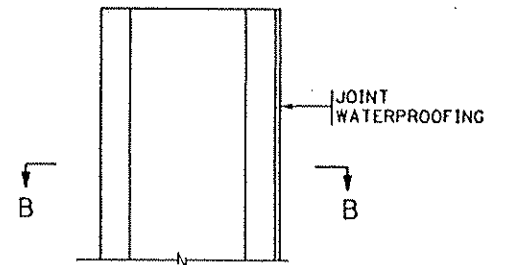


ALTERNATE BRIDGE SEAT AND FRONT STRIP

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.
Ronald Benson
Date 1/23/95 Reg. No. 20722

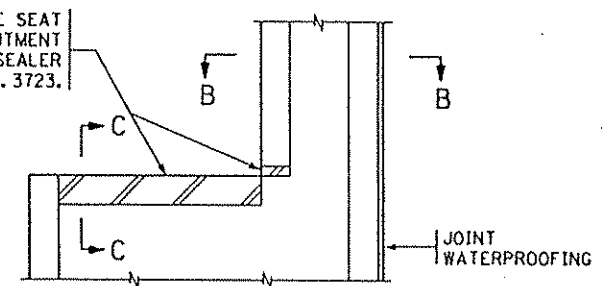


SECTION THRU WALL (WITH END BLOCK)



SECTION THRU WALL (WITHOUT END BLOCK)

SEAL ACROSS BRIDGE SEAT AND 1" UP FACE OF ABUTMENT WITH CONCRETE JOINT SEALER PER SPEC. 3723.



SECTION THRU BRIDGE SEAT

PART SECTION THRU ABUTMENT AT JOINT

NOTES:

THE METHODS AND MATERIALS INDICATED ON THIS SHEET SHALL BE CONSIDERED AS SUGGESTED ONLY. VARIATIONS WILL BE PERMITTED, SUBJECT TO APPROVAL BY THE ENGINEER, BUT MUST PROVIDE DUMMY JOINTS OF A DEPTH SHOWN, AND A WIDTH AT THE FRONT FACE OF THE ABUTMENT OF NOT GREATER THAN 5/16". THE SEPARATION OF THE HORIZONTAL REINFORCEMENT BARS SHALL NOT BE LESS THAN 1 1/2" NOR MORE THAN 3", CENTERED AS SHOWN, REGARDLESS OF THE PROCEDURE USED FOR FORMING THE DUMMY JOINT.

IF THE FRONT AND BRIDGE SEAT STRIPS ARE GALVANIZED METAL, THEY SHALL BE SECURELY FASTENED TO THE FORMS SO THAT THEY WILL BE REMOVED WITH THE FORMS. IF SUITABLE PLASTIC OR OTHER DURABLE MATERIAL, SATISFACTORY TO THE ENGINEER, IS USED, THE MATERIAL MAY BE LEFT IN PLACE.

THE BACK STRIP MAY BE GALVANIZED METAL, A SUITABLE PLASTIC, OR OTHER DURABLE MATERIAL SATISFACTORY TO THE ENGINEER. THE BACK STRIP SHALL REMAIN IN PLACE AFTER THE FORMS ARE REMOVED.

THE COST OF FORMING THE JOINT SHALL BE INCLUDED IN THE PRICE BID FOR OTHER ITEMS.

APPROVED: AUGUST 4, 1992
OFFICE of BRIDGES and STRUCTURES

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
STEEL INTERMEDIATE DIAPHRAGM
(FOR 28M - 45M PRESTRESSED CONC. BEAM SPANS AND 30" BULB TEE BEAMS)

DETAIL NO.
B403

APPROVED: AUGUST 4, 1992
OFFICE of BRIDGES and STRUCTURES

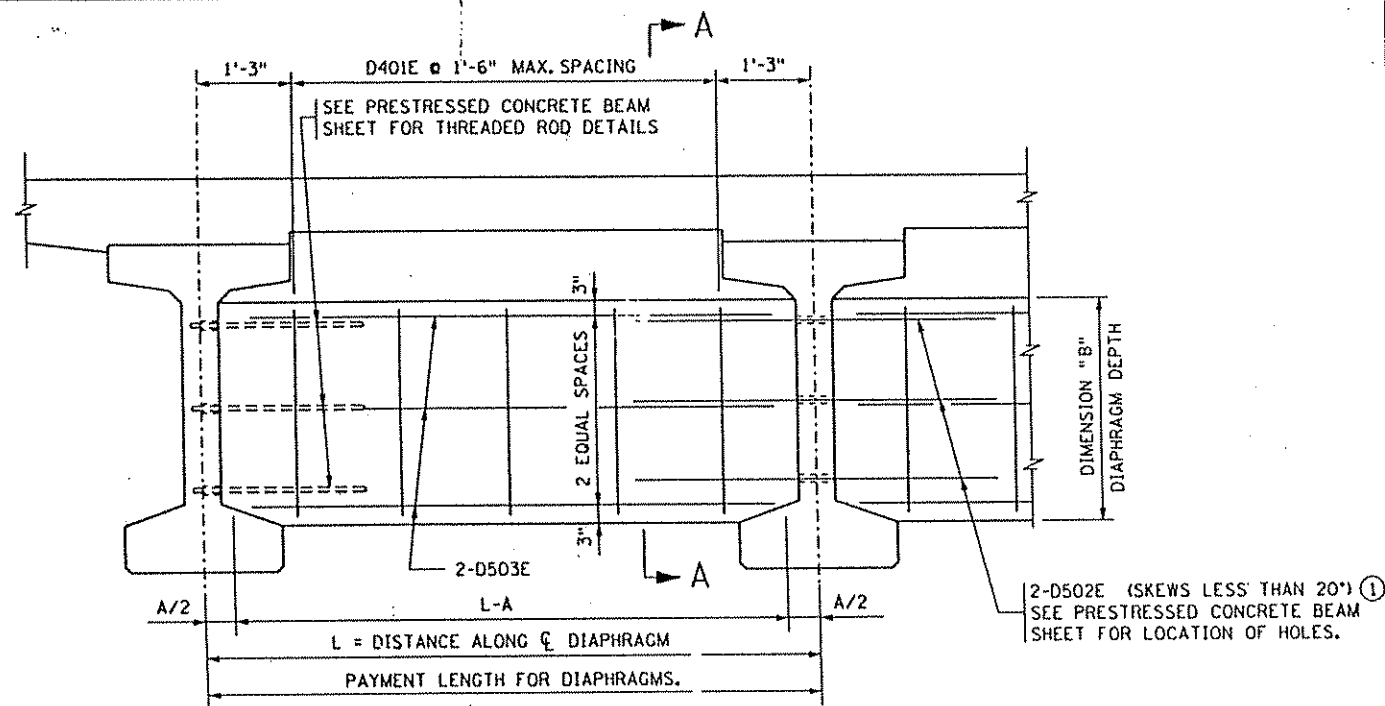
STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
CONTRACTION JOINT

DATE: _____
DR: _____
CHK: _____
DETAIL NO.
B801

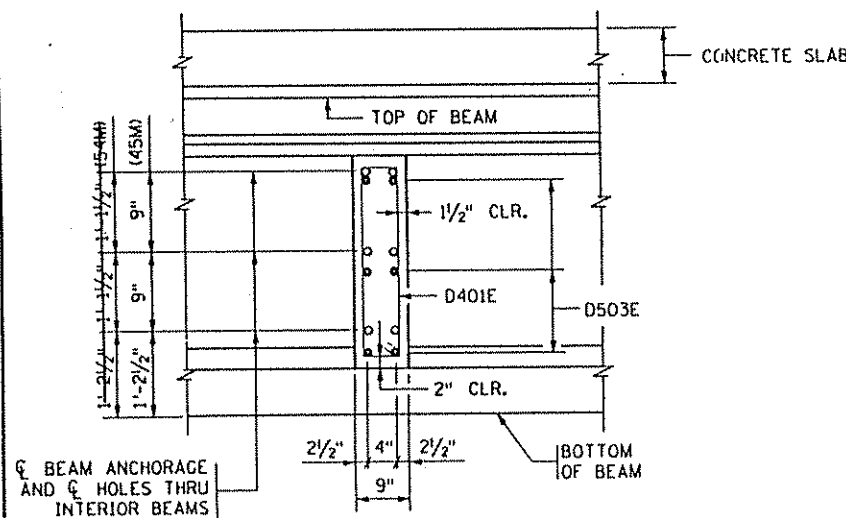
TITLE: MISC. BRIDGE DETAILS

DRWN: CAD
CHK: DAD
APPROVED: 5-18-95
S.P. 02-609-04

BRIDGE NO.
02536



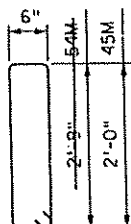
PART TRANSVERSE SECTION



SECTION A-A

BEAM HEIGHT	DIM. "A" VOLUME COMP.	DIM. "B" DIAPHRAGM DEPTH	D401E LENGTH
45M-45"	7/4"	2'-4"	5'-9"
54M-54"	6 3/8"	3'-1"	7'-3"

CONCRETE VOLUME PER DIAPHRAGM
 $\frac{(L-A) \times B \times 0.75}{27} = \text{CUBIC YARDS}$



D401E

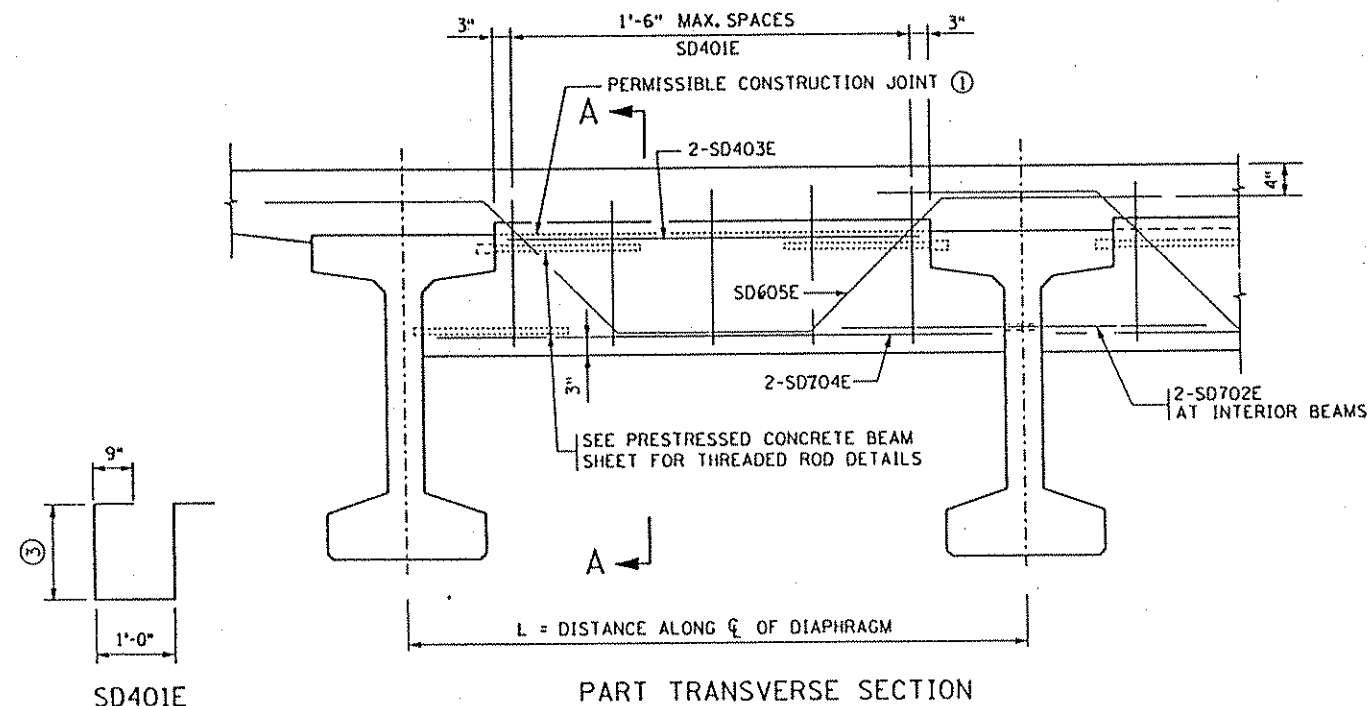
BAR NO.	NO.	LENGTH	SHAPE	LOCATION
D401E	35	5'-9"	TIE-VERTICAL	
D502E	24	5'-0"	HORIZONTAL-THRU BEAM	
D503E	30	7'-7"	HORIZONTAL	

GENERAL NOTES

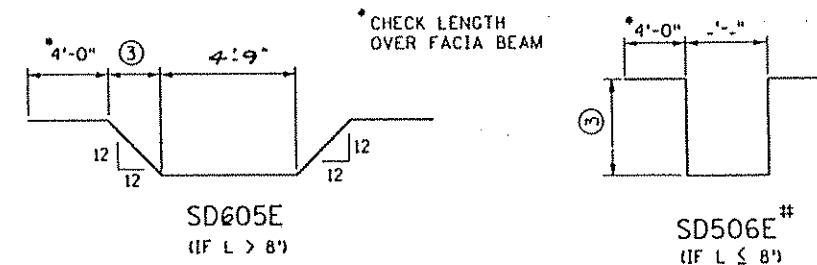
DIAPHRAGMS TO BE CONCRETE MIX NO. 3Y43

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.



PART TRANSVERSE SECTION
(L > 8' SHOWN)



DISTANCE "L" ALONG CL OF DIAPHRAGM	BARS REQUIRED			
	STRAIGHT		BENT	
	NO.	SIZE	NO.	SIZE
UP TO 8'	2	6	1	5
OVER 8' TO 11'	2	7	1	6
OVER 11' TO 13'	2	8	1	8
OVER 13' TO 15'	2	9	1	10
OVER 15' TO 18'	2	11	1	11

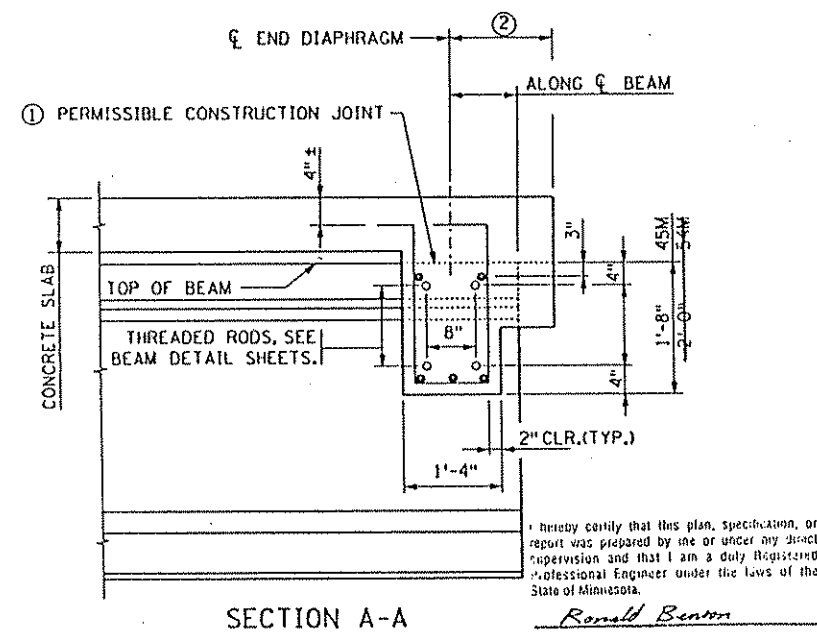
BAR NO.	NO.	LENGTH	SHAPE	LOCATION
SD401E	70	6'-8"	TIE	VERTICAL TIE
SD702E	16	5'-0"	—	LONG. THRU BEAM
SD403E	20	7'-11"	—	LONG. TOP
SD704E	20	9'-11"	—	LONG. BOTTOM
SD605E	10	18'-8"	—	LONGITUDINAL
SD506E			—	LONGITUDINAL

NOTES:

DIAPHRAGM CONCRETE TO BE MIX NO. 3Y43.

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

- ① USE OF CONSTRUCTION JOINT REQUIRES CLEARANCE FOR EXPANSION DEVICE. WHEN CONSTRUCTION JOINT IS USED AT THIS LOCATION, DIAPHRAGM FALSEWORK SHALL REMAIN IN PLACE UNTIL COMPLETION OF SLAB CURING PERIOD.
- ② PERPENDICULAR TO CENTERLINE OF DIAPHRAGM. SEE PLANS FOR DIMENSION.
- ③ 2'-1" (45M); 2'-6" (54M) BASED ON 2" STOOL AND 9" DECK.



SECTION A-A

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.
Ronald Benson
 Date: 1/23/95 Reg. No. 22737

APPROVED: AUGUST 4, 1992
 OFFICE of BRIDGES and STRUCTURES

STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION
CONCRETE INTERMEDIATE DIAPHRAGM
 (45M - 54M PRESTRESSED CONCRETE BEAM SPANS)

DATE: _____
 DIR: _____
 CHK: _____
 DETAIL NO. **B813**

APPROVED: APRIL 6, 1993
 OFFICE of BRIDGES and STRUCTURES

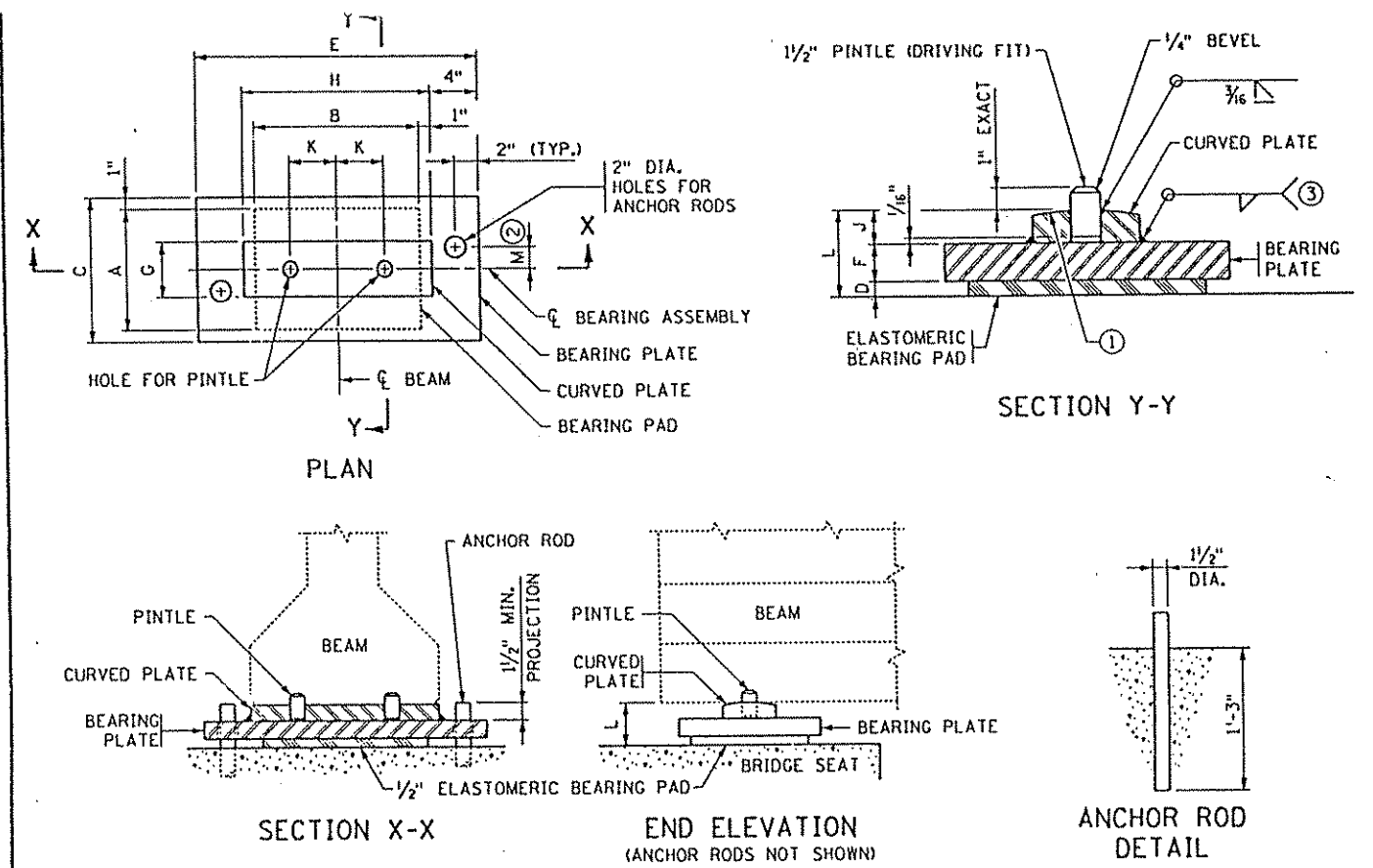
STATE OF MINNESOTA
 DEPARTMENT OF TRANSPORTATION
CONCRETE END DIAPHRAGM
 (45M - 54M PRESTRESSED CONCRETE BEAM SPANS)
 (PARAPET ABUTMENTS)

DETAIL NO. **B814**

TITLE: MISC. BRIDGE DETAILS

DRWN: CAD
 CHK: DAD
 S.P. 02-609-07
 SHEET 17 OF 20 SHEETS

APPROVED: 5-18-95
 BRIDGE NO. 02536



TABLE

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

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 1/2" PINTLES.

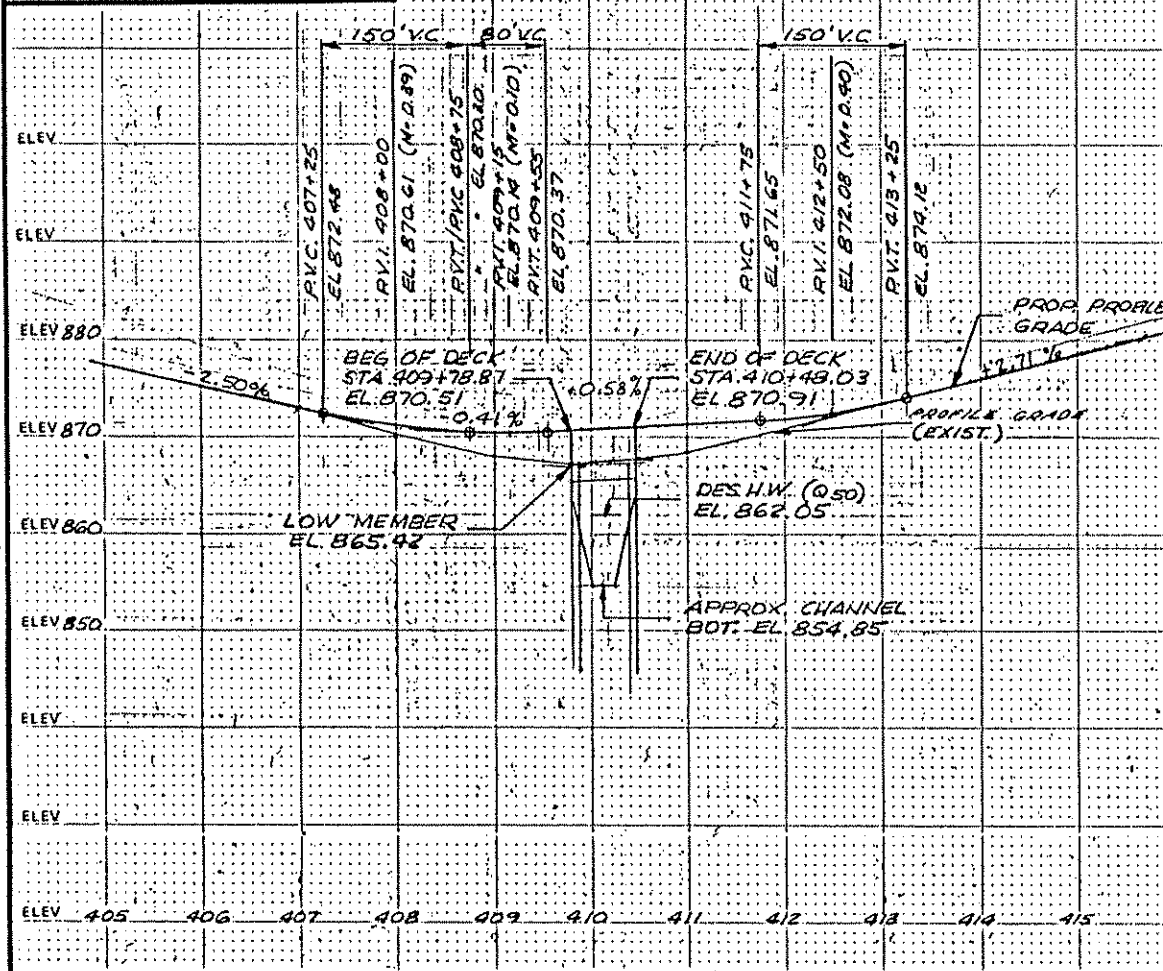
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Minnesota.
Ronald Benton
 Date 1/23/95 Reg. No. 27717

APPROVED: JANUARY 12, 1993	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION CURVED PLATE BEARING ASSEMBLY PRESTRESSED CONCRETE BEAMS (FIXED)	REVISION 4/12/94 NKL	DETAIL NO. B310
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TITLE: MISC. BRIDGE DETAILS	DRWN: CAD CHK: DAD	APPROVED: 5-18-95	BRIDGE NO. 02536
	S.P. 02-609-04 SHEET 18 OF 20 SHEETS		

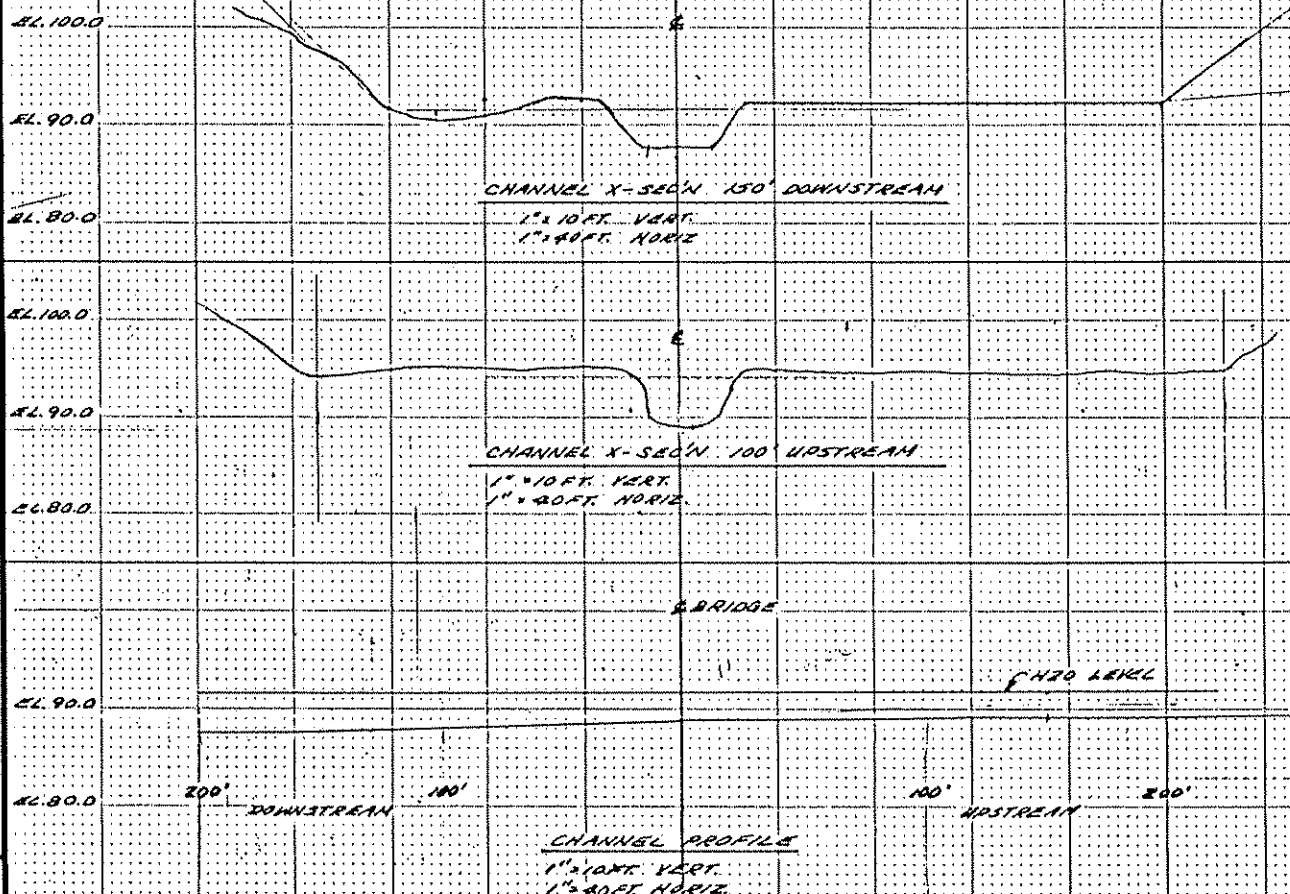
CONTRACTED PROFILE

SCALE: HOR. 1" = 50' VER. 1" = 10'



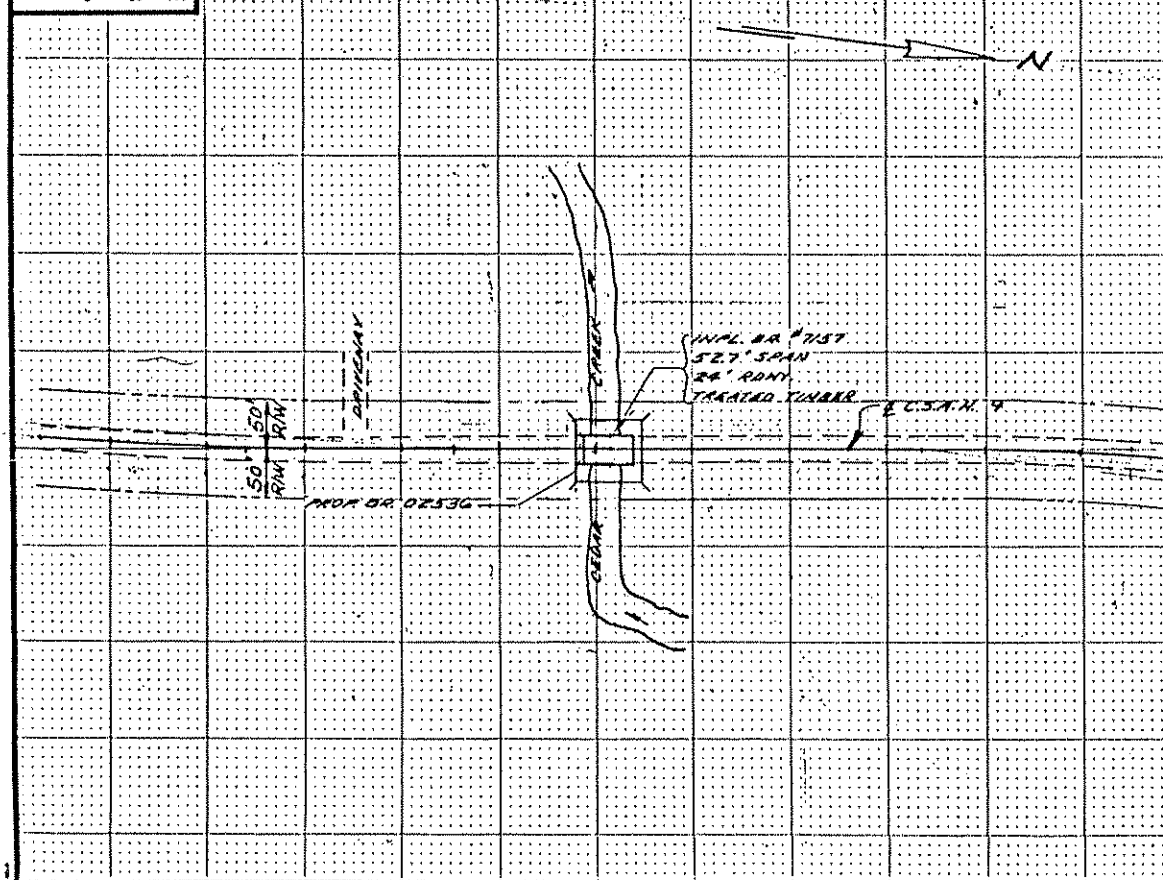
TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN



PLAT

SCALE: 1" = 100'



Fed. Proj. No.

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

- Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating.
- 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.
- Apparent highwater elevation: Obtained from
- Other data: Approx. velocity of water at time of survey

HYDRAULIC ENGINEERS RECOMMENDATION

DATE 6-25-79

Stream or ditch designation: CEDAR CREEK
 Drainage area: 84 SQ. MI.
 Max. flood on record: UNKN. Design flood (yr. freq.): 50 yr. freq. 930 C.F.S.
 Max. observed highwater elevation: UNKN. Design highwater elevation: 862.05
 Design mean velocity through structure: 2.7 F.P.S.
 Low superstructure at or above elevation: 865.05
 Flowline elevation: 854.85 Skew angle: NONE
 Waterway area req'd. below elevation: 862.05 SQ. FT. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 1160 C.F.S. at stage 862.35 and mean velocity of 3.3 F.P.S. with 5' Ft. swellhead. The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources.

FOUNDATION ENGINEERS RECOMMENDATION

DATE

Bridge survey sheets made from: ERICKSON ENG. 5-3-79

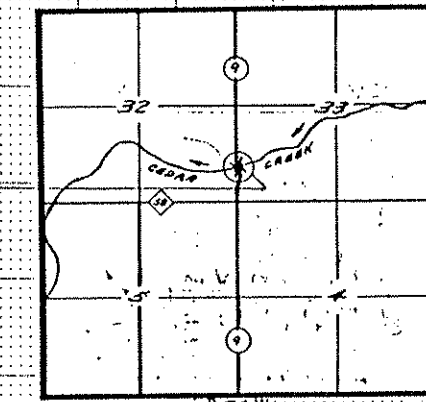
Bench mark elevation: 866.05 (M.S.L. 1929 ADJ.)

Location: SPKS IN RE # 87 STA. 10+89

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

AT MILE POINT: ON C.S.A.H. 9 (T.I., C.S.A.H., CR, etc.)
 PROPOSED BRIDGE LOCATED 6 MILES S.O. OF ST. FRANCIS
 SEC. 33 TWP. 35N R. 34W
 TOWNSHIP OAK GROVE COUNTY ANDA
 BRIDGE NO. 02536
 5-18-95



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.
 Ronald Benard
 Date 1/23/95 Reg. No. 22711

