

**NOTES**

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE BOX BEAM SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE BOX BEAMS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUDED AFTER THE TENSIONING OF THE STRANDS.

ALL DIAPHRAGM POCKETS SHALL BE GROUDED AND CURED PRIOR TO THE POST-TENSIONING OF THE STRANDS

THE 2 1/2" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH GROUT. THE 2 1/2" Ø DOWEL HOLES AT EXPANSION ENDS OF SLAB SECTIONS SHALL BE FILLED WITH JOINT SEALER MATERIAL TO 1/2" ABOVE THE TOP OF DOWELS AND THEN FILLED WITH GROUT.

THE JOINT SEALER MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF TYPE B LOW MODULUS SILICONE SEALANT. THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

FOR PRESTRESSED CONCRETE BOX BEAMS, SEE SPECIAL PROVISIONS.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE BOX BEAM UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 5000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE BOX BEAM UNIT ENDS.

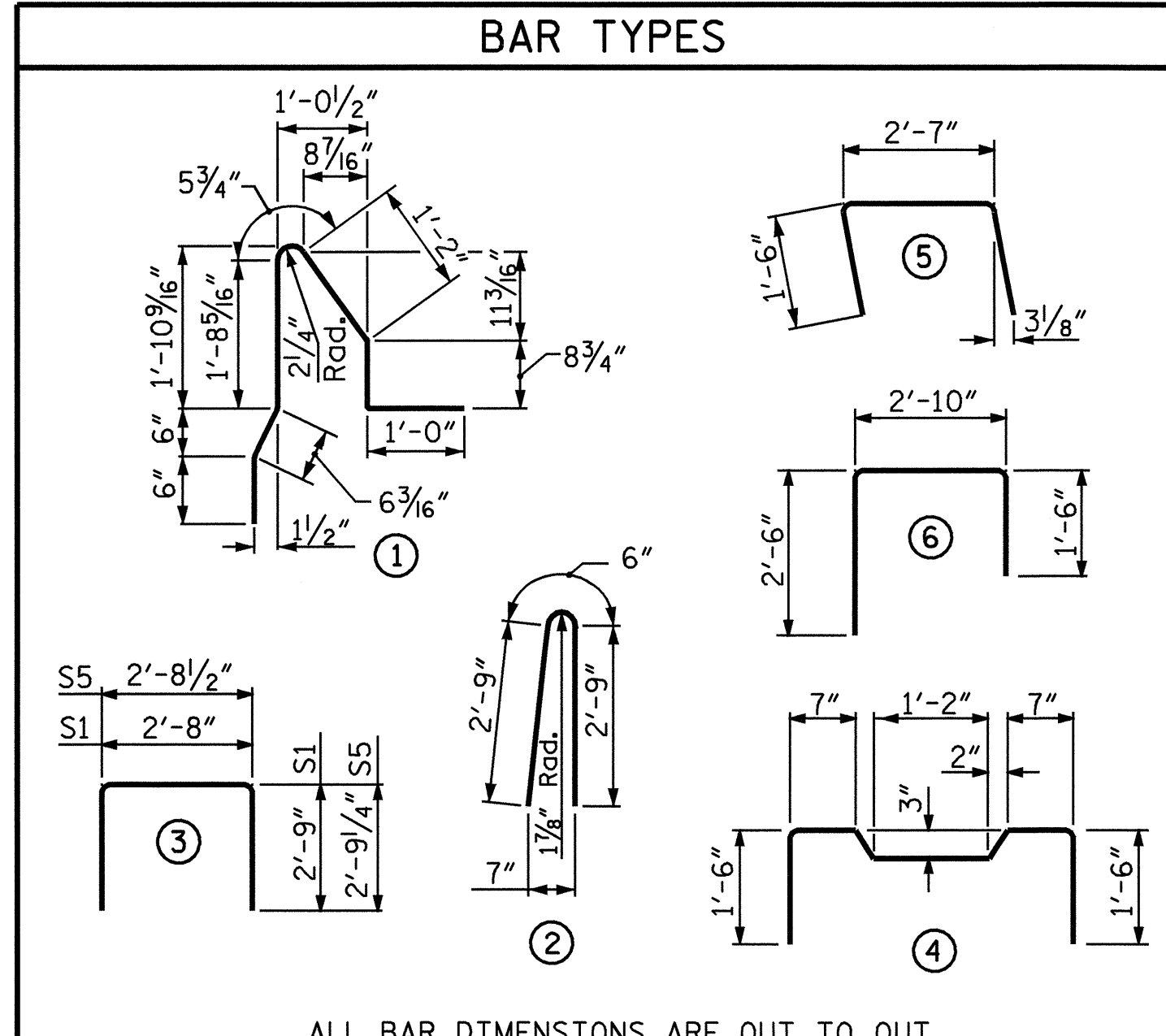
APPLY EPOXY PROTECTIVE COATING TO BOX BEAM UNIT ENDS. FOR EPOXY PROTECTIVE COATING, SEE SPECIAL PROVISIONS.

VERTICAL GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL AND IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. A JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

FOR ELASTOMERIC BEARINGS, SEE SPECIAL PROVISIONS.

ELASTOMER IN ALL BEARINGS SHALL BE 60 DUROMETER HARDNESS.

GRADE 270 STRANDS	
AREA ( SQUARE INCHES )	0.6" Ø L.R.
ULTIMATE STRENGTH ( LBS. PER STRAND )	58,600
APPLIED PRESTRESS ( LBS. PER STRAND )	43,950



ALL BAR DIMENSIONS ARE OUT TO OUT  
**BILL OF MATERIAL FOR ONE BOX BEAM SECTION**

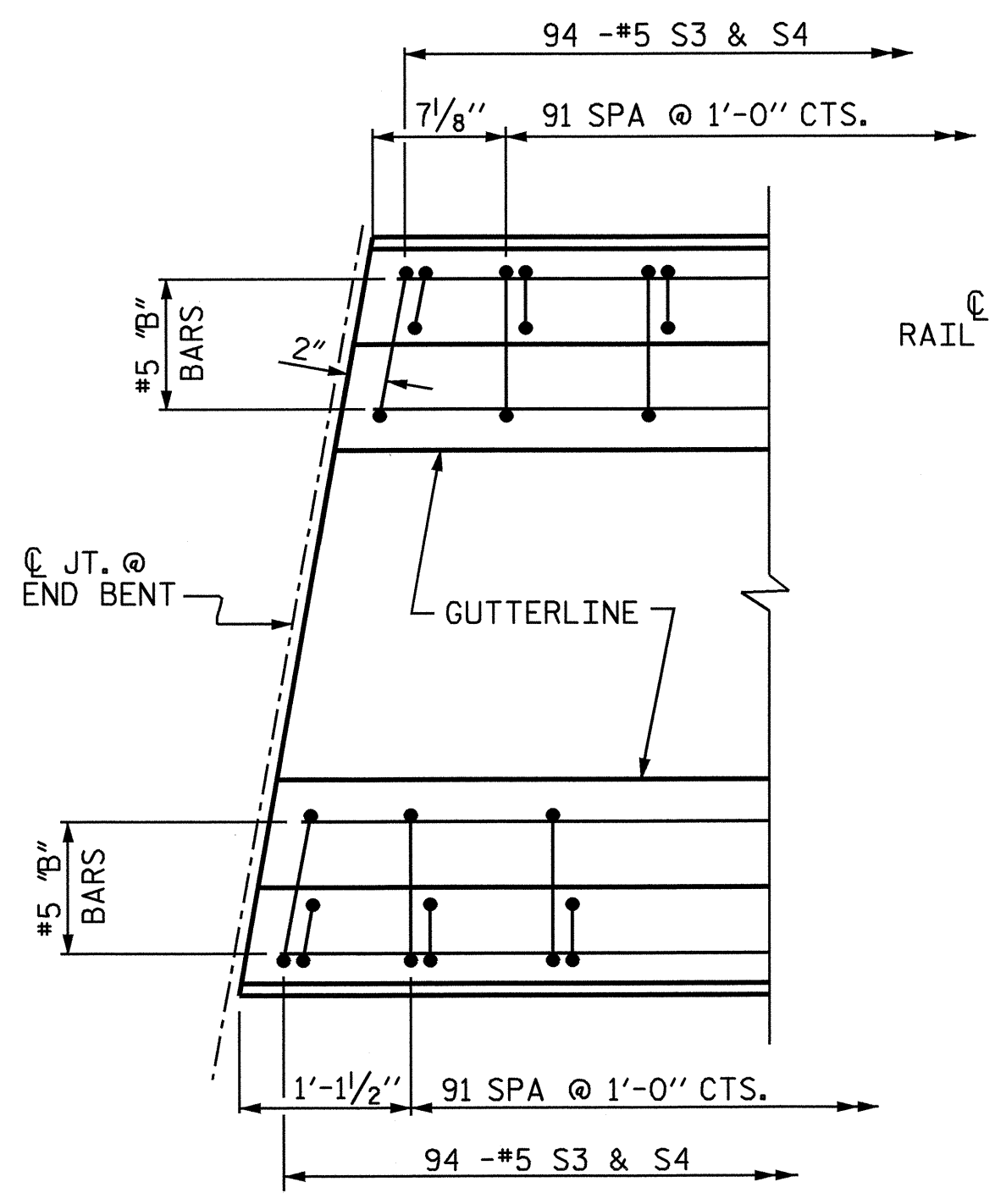
BAR NUMBER	SIZE	TYPE	EXTERIOR UNIT		INTERIOR UNIT	
			LENGTH	WEIGHT	LENGTH	WEIGHT
B1	24	# 4 STR	24'-5"	391	24'-5"	391
S1	200	# 4	8'-2"	1091	8'-2"	1091
S2	95	# 5	5'-11"	586	5'-11"	586
*S3	94	# 5	6'-1"	596		
S5	12	# 4	8'-3"	66	8'-3"	66
U1	8	# 4	5'-7"	30	5'-7"	30
U2	8	# 4	6'-10"	37	6'-10"	37
REINFORCING STEEL			LBS.	2201		
* EPOXY COATED REINFORCING STEEL			LBS.	596		
6,500 P.S.I. CONCRETE			CU. YDS.	18.6		
0.6" Ø L.R. STRANDS			No.	24		

**BILL OF MATERIAL FOR BARRIER RAIL**

BAR	TOTAL NO.	SIZE	TYPE	LENGTH	WEIGHT
*S4	188	#5	2	6'-0"	1177
*B2	56	#5	STR	22'-10"	1334
* EPOXY COATED REINFORCING STEEL				LBS.	2511
CLASS AA CONCRETE				CU. YDS.	22.0
TOTAL LIN. FT. OF CONC. BARRIER RAIL					185.50

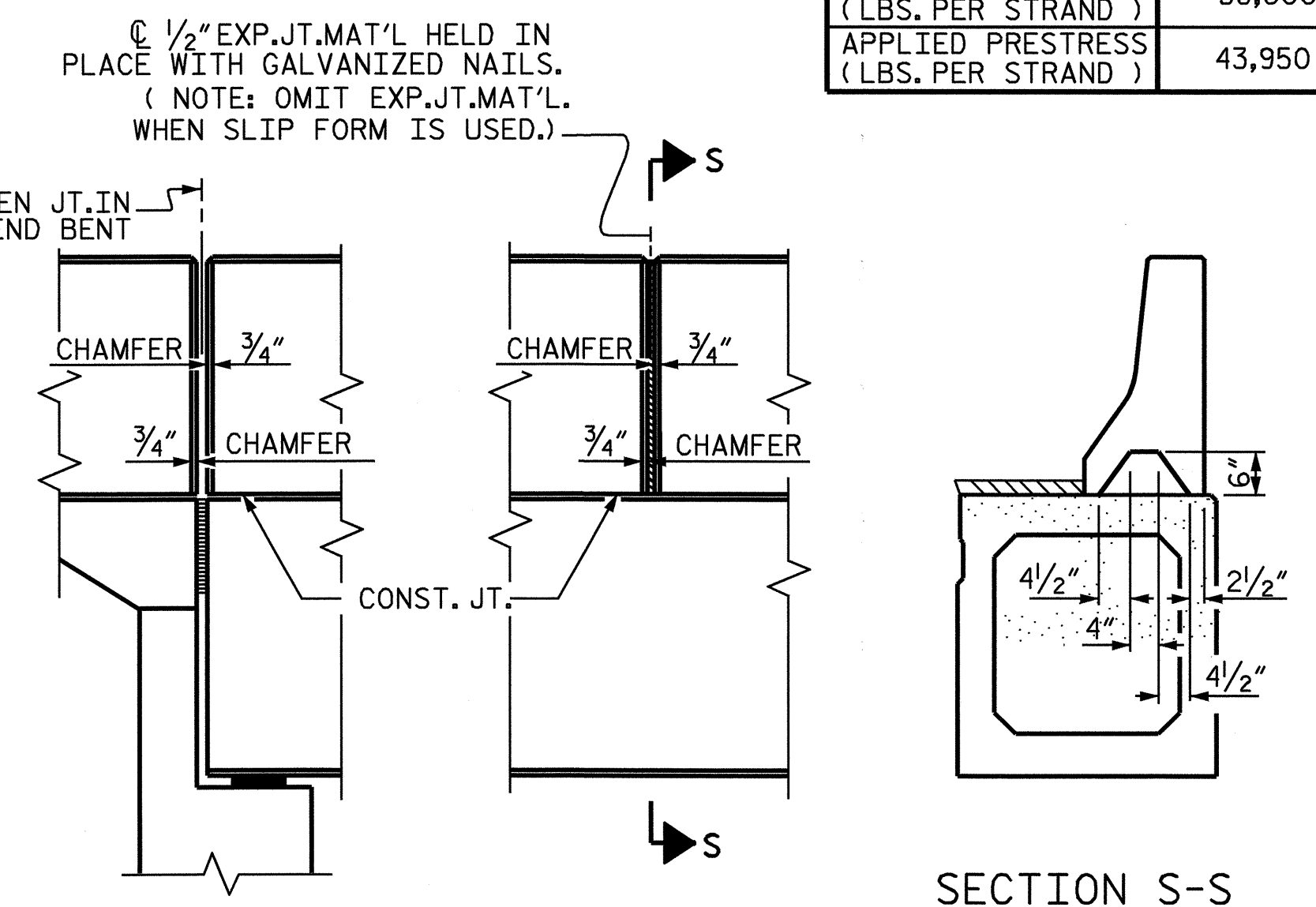
**BOX BEAMS REQUIRED**

UNIT TYPE	NUMBER	LENGTH	TOTAL LENGTH
INTERIOR	10	92'-8 5/8"	927'-2 1/4"
EXTERIOR	2	92'-8 5/8"	185'-5 1/4"
TOTAL NUMBER	12	92'-8 5/8"	1112'-7 1/2"



**PLAN**

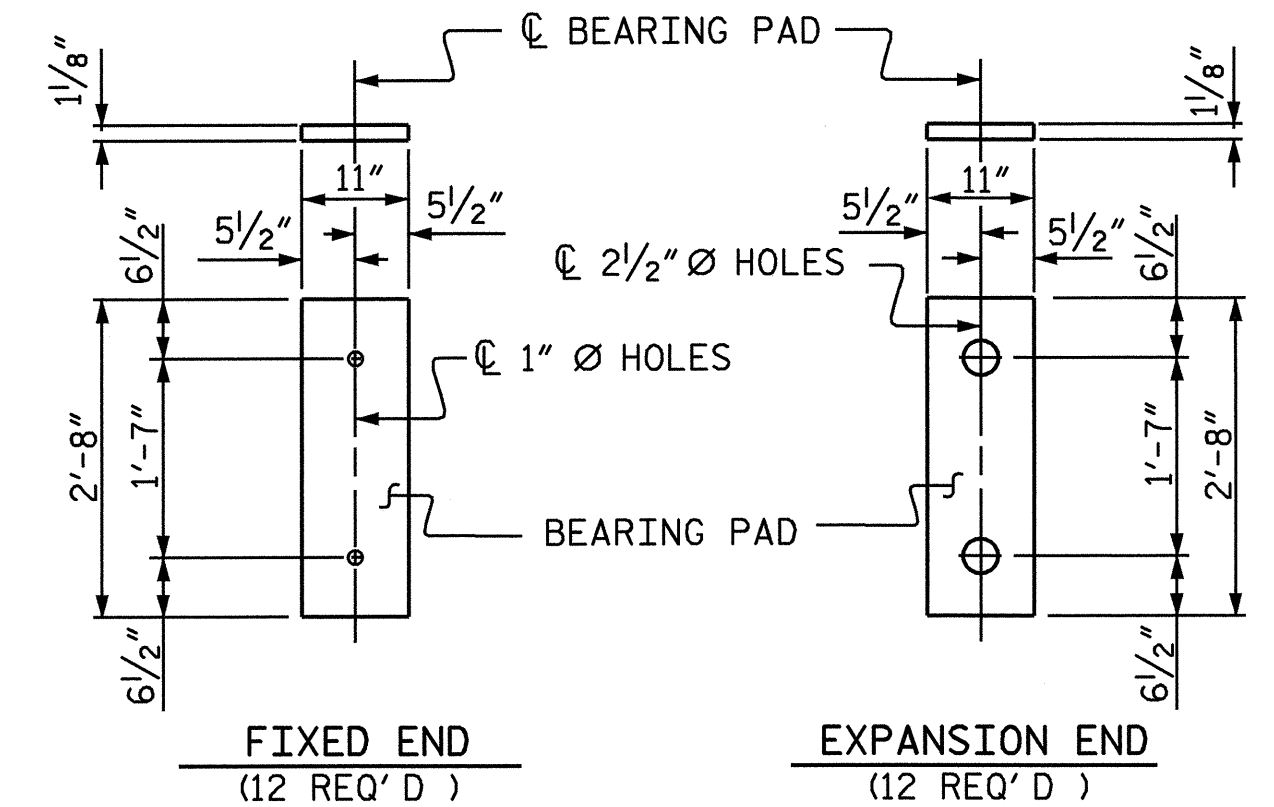
FOR SPACING OF #5S3 & #5S4 BARS, SEE "PLAN OF SPANS"



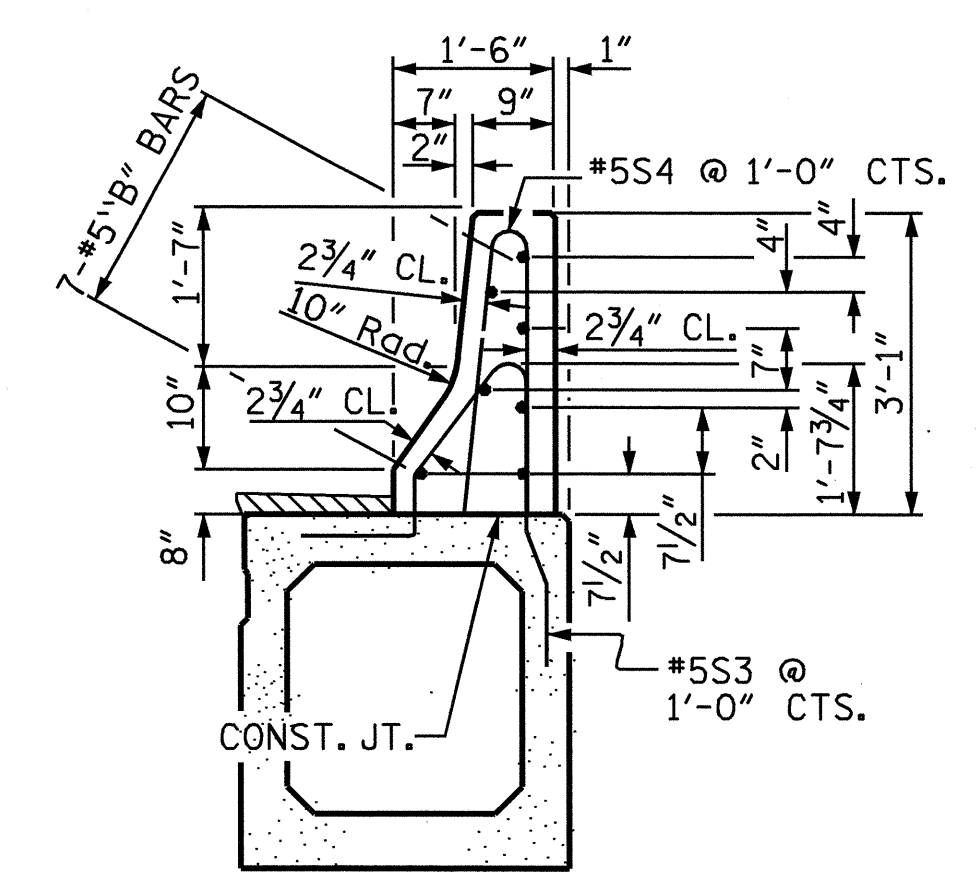
**ELEVATION AT EXPANSION JOINTS**

**BARRIER RAIL DETAILS**

SECTION S-S AT DAM IN OPEN JOINT (THIS IS TO BE USED ONLY WHEN SLIP FORM IS USED)



**ELASTOMERIC BEARING DETAILS**



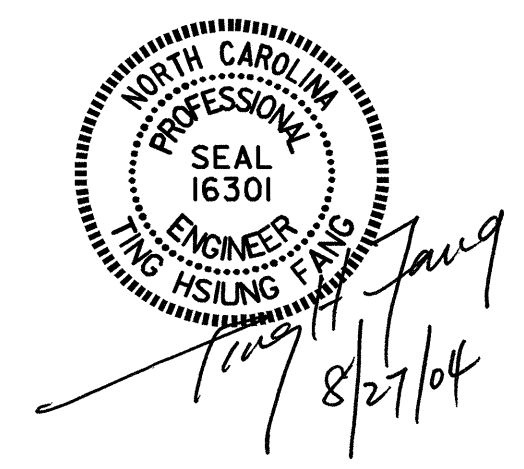
**SECTION THRU RAIL**

**DEAD LOAD DEFLECTION AND CAMBER**

0.6" Ø LOW RELAXATION STRAND TENTH POINTS	EXTERIOR AND INTERIOR BOX BEAM										
	0	.1	.2	.3	.4	.5	.6	.7	.8	.9	0
CAMBER (BOX BEAM ALONE IN PLACE)	0.0	0.091	0.173	0.237	0.277	0.291	0.277	0.237	0.173	0.091	0.0
* DEFLECTION DUE TO SUPERIMPOSED D.L.	0.0	0.022	0.041	0.056	0.065	0.069	0.065	0.056	0.041	0.022	0.0
FINAL CAMBER	0.0	13/16"	1 1/16"	2 3/16"	2 9/16"	2 11/16"	2 9/16"	2 3/16"	1 9/16"	1 3/16"	0.0

\* INCLUDES FUTURE WEARING SURFACE  
ALL VALUE ARE SHOWN IN FEET, EXCEPT "FINAL CAMBER" WHICH IS SHOWN IN INCHES.

PROJECT NO. B-3696  
ROCKINGHAM COUNTY  
STATION: 17+87.50 -L-



STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION  
RALEIGH  
3'-0" X 3'-3"  
PRESTRESSED  
CONCRETE BOX  
BEAM UNIT  
SPAN A

REVISIONS						SHEET NO. S-7
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 18
2			4			

DRAWN BY : T.H. FANG  
CHECKED BY : W.K. FISCHER  
DATE : 4/12/04  
DATE : 4/20/04