

NOTES

THE BARRIER RAIL IN EACH SPAN SHALL NOT BE CAST UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN CAST AND HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.

ALL REINFORCING STEEL IN BARRIER RAILS SHALL BE EPOXY COATED.

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. THE CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINTS. ONLY ONE CONTRACTION JOINT IS REQUIRED AT MIDPOINT OF BARRIER RAIL SEGMENTS LESS THAN 20 FEET IN LENGTH AND NO CONTRACTION JOINTS ARE REQUIRED FOR THOSE SEGMENTS LESS THAN 10 FEET IN LENGTH.

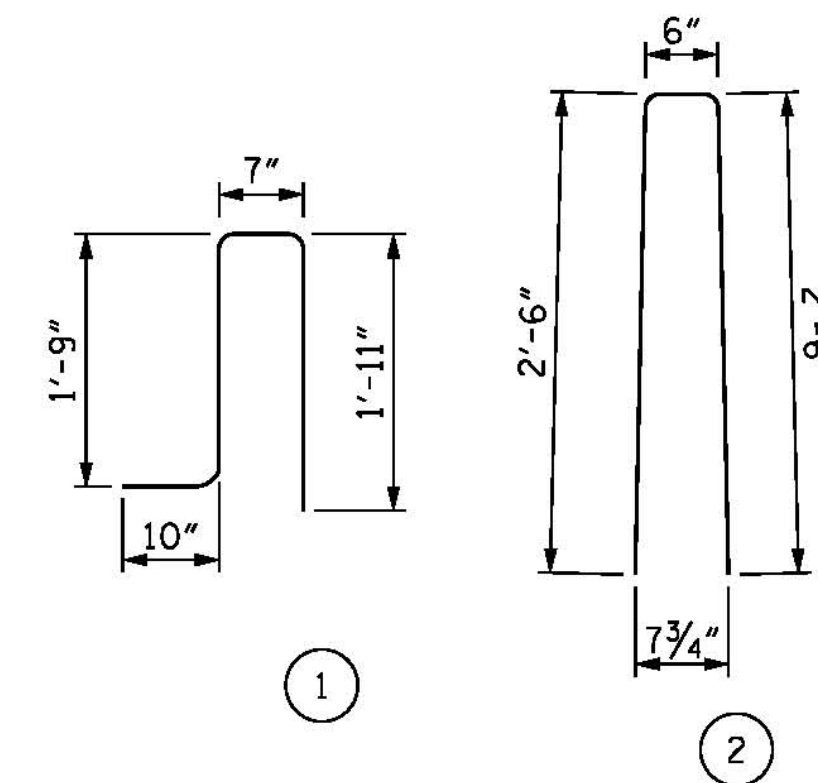
#5 S1 AND #5 S2 BARS MAY BE SHIFTED SLIGHTLY AS NECESSARY TO AVOID GIRDER REINFORCING.

CONTRACTOR SHALL HAVE THE OPTION OF ADHESIVELY ANCHORING THE VERTICAL CONCRETE BARRIER RAIL TO THE DECK AT NO ADDITIONAL COST TO THE DEPARTMENT. IF THE CONTRACTOR ELECTS TO USE ADHESIVE ANCHORS, SECTION 420-13 OF THE STANDARD SPECIFICATIONS SHALL APPLY AND LEVEL TWO FIELD TESTING IS REQUIRED. THE YIELD LOAD OF THE #5 BAR IS 18.6 KIPS. IN ADDITION, IF THE OPTION TO USE ADHESIVE ANCHORS IS CHOSEN, THE CONTRACTOR SHALL SUBMIT DESIGN CALCULATIONS PREPARED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF NORTH CAROLINA THAT DEMONSTRATES THAT THE COMBINATION OF THE CHOSEN ADHESIVE AND EMBEDMENT DEPTH OF THE POST-INSTALLED #5 BARS IS SATISFACTORY FOR BARRIER RAIL ANCHORAGE CONSISTENT WITH TL-3 SELECTION CRITERIA PRESCRIBED IN THE AASHTO LRFD DESIGN SPECIFICATIONS.

FOR MULTI-USE PATH LIGHTING DETAILS, SEE ELECTRICAL PLANS.

FOR VERTICAL CONCRETE BARRIER RAIL LAYOUT, SEE "VERTICAL CONCRETE BARRIER RAIL, PARAPET AND RAIL POST LAYOUT" SHEET.

BAR TYPES

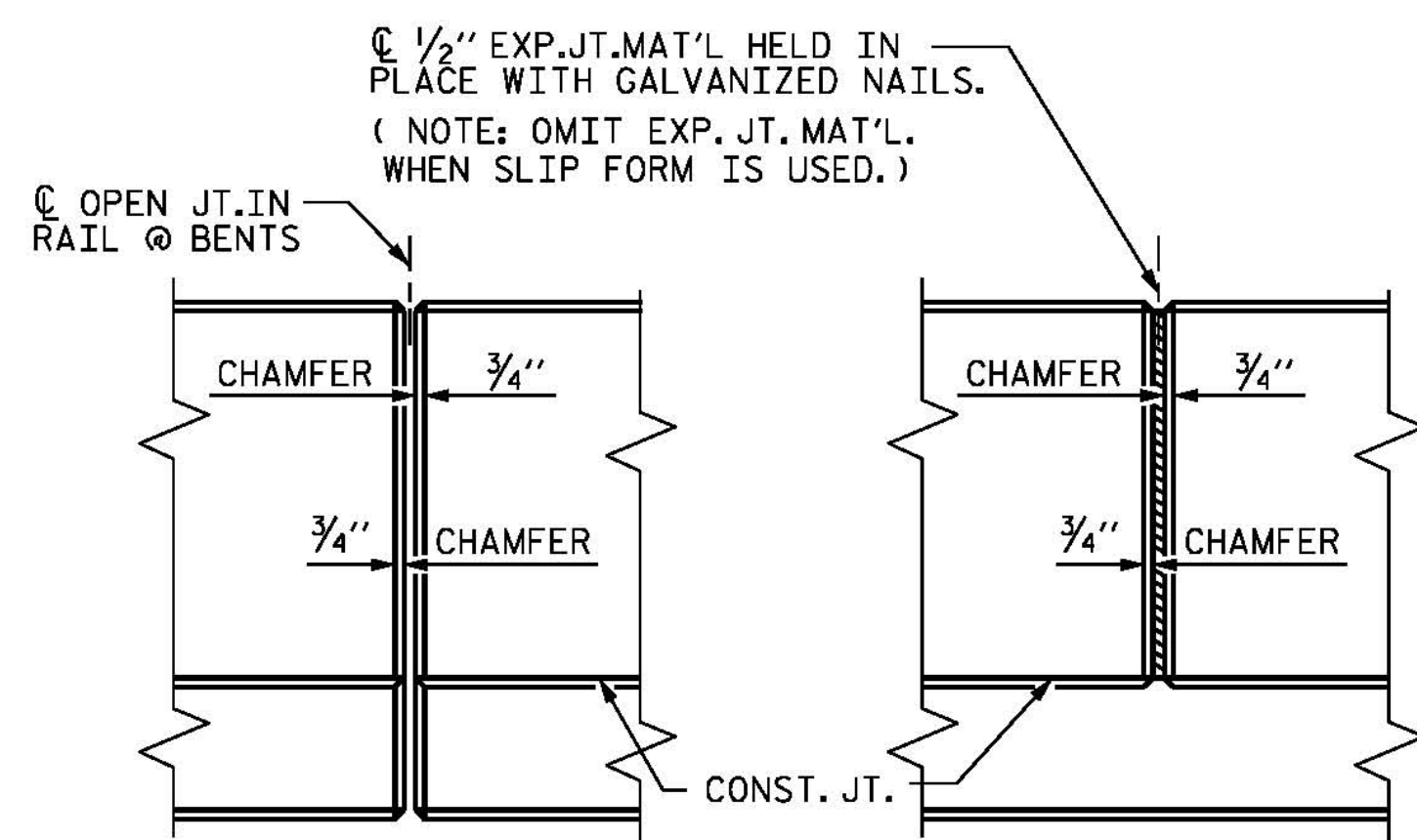


ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL

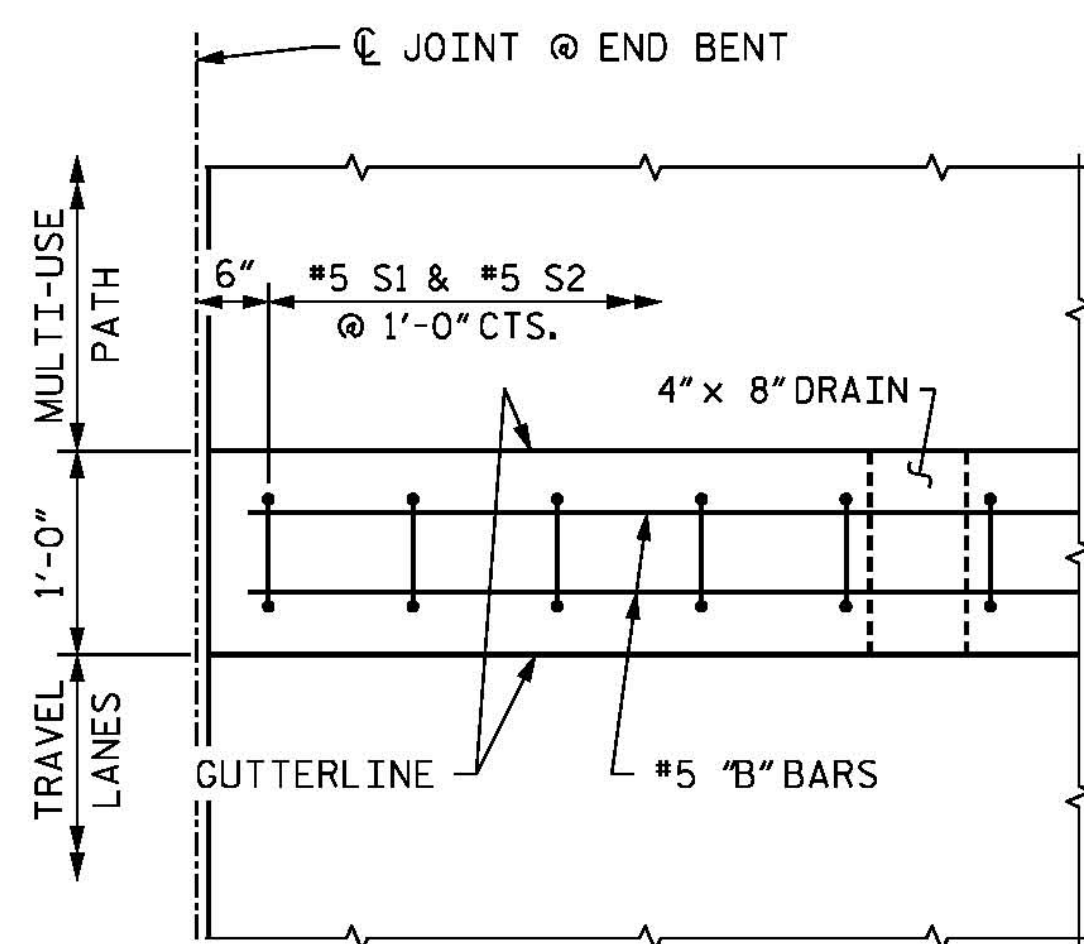
FOR VERTICAL CONCRETE BARRIER RAIL ONLY					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B101	888	#5	STR	29'-7"	27400
B102	16	#5	STR	5'-9"	96
B103	8	#5	STR	15'-7"	130
B104	8	#5	STR	18'-1"	151
B105	16	#5	STR	16'-10"	281
B106	16	#5	STR	16'-0"	267
B107	48	#5	STR	26'-3"	1314
B108	8	#5	STR	21'-7"	180
B109	8	#5	STR	25'-6"	213
B110	8	#5	STR	23'-7"	197
B111	8	#5	STR	27'-1"	226
B112	16	#5	STR	20'-8"	345
S1	3752	#5	1	5'-1"	19893
S2	3752	#5	2	5'-6"	21523

EPOXY COATED REINFORCING STEEL	LBS.	72,216
CLASS AA CONCRETE	C.Y.	340.0
VERTICAL CONCRETE BARRIER RAIL	L.F.	3,746.99

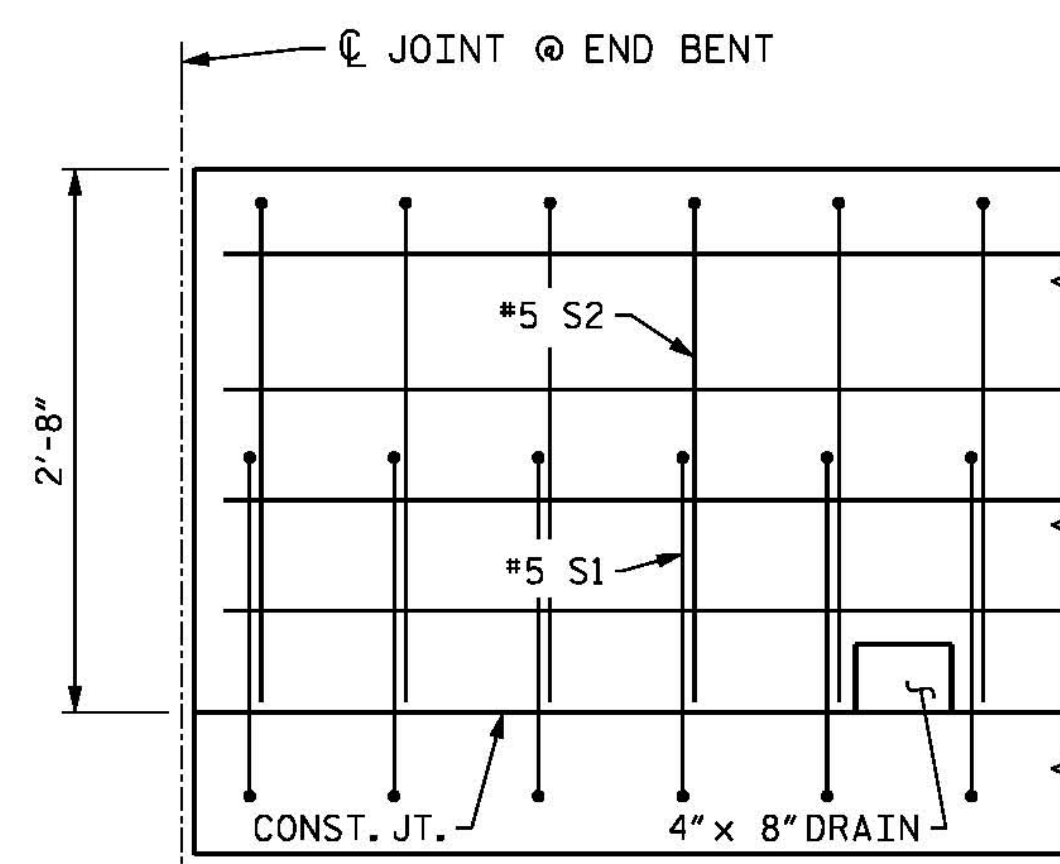


ELEVATION AT EXPANSION JOINTS

BARRIER RAIL DETAILS

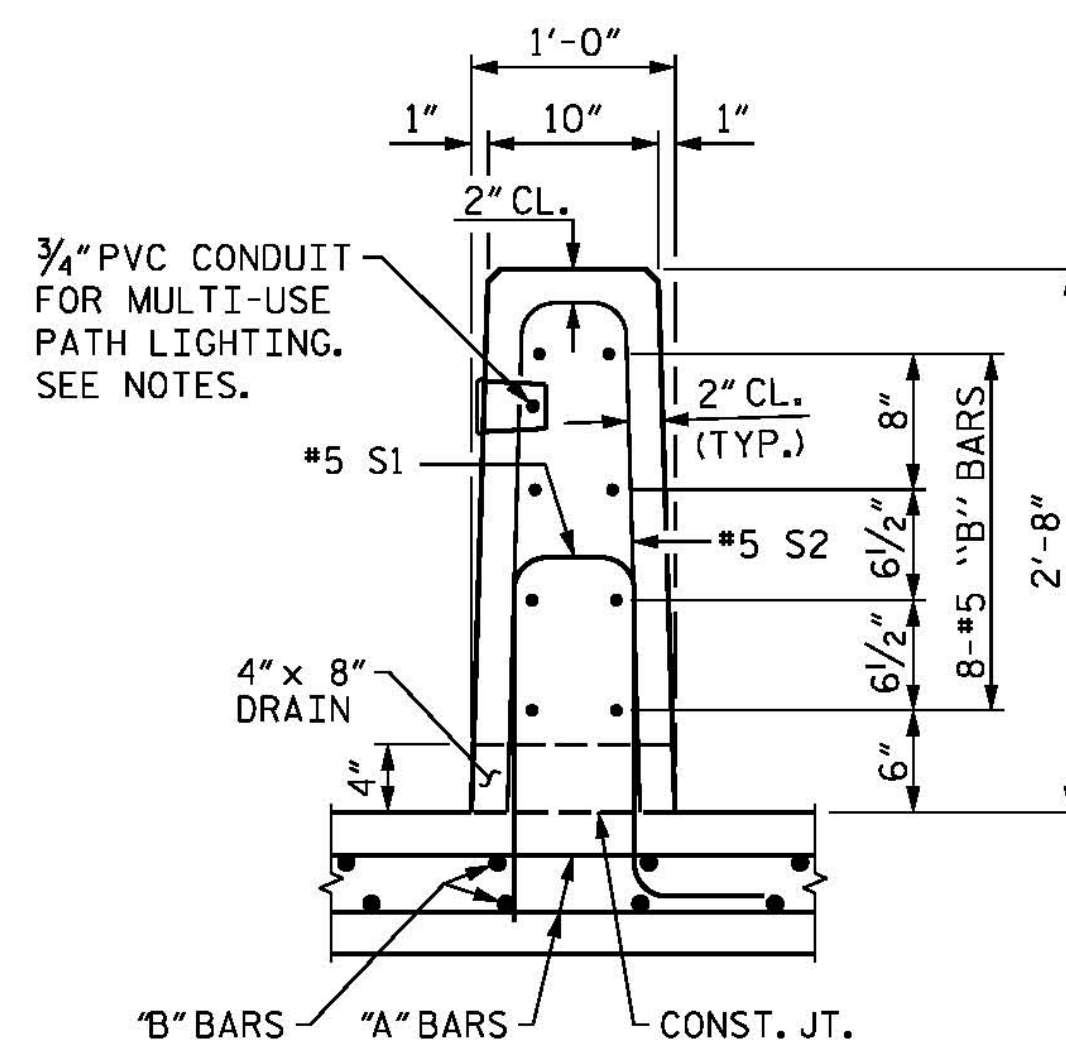


PLAN



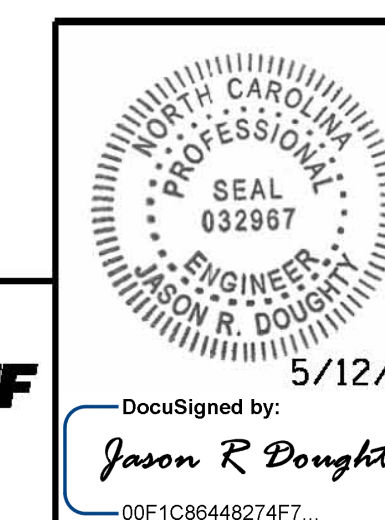
ELEVATION

END OF RAIL DETAILS



SECTION THRU RAIL

PROJECT NO. B-4929
PENDER COUNTY
 STATION: 38+13.81 -L2-



PARSONS BRINCKERHOFF
 434 FAYETTEVILLE STREET
 SUITE 1500
 RALEIGH, NC 27601
 LICENSE NO. F-0165

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 STANDARD
 VERTICAL
 CONCRETE
 BARRIER RAIL

REVISIONS

NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO.
S-113
 TOTAL SHEETS
 278

**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

STD. NO. CBR2

5/10/2016 400_223_B4929_SMU_CBR.dgn

DESIGNED BY: J. SMITH DATE: FEB 2016
 DRAWN BY: K. WHITE DATE: FEB 2016
 CHECKED BY: E. DAVIS DATE: FEB 2016
 DESIGN ENGINEER OF RECORD: J. DOUGHTY DATE: MAY 2016

DRAWN BY: MAA 5/10 REV. 10/1/11 MAA/GM
 CHECKED BY: GM 5/10 REV. 12/5/11 MAA/GM
 REV. 6/13 MAA/GM