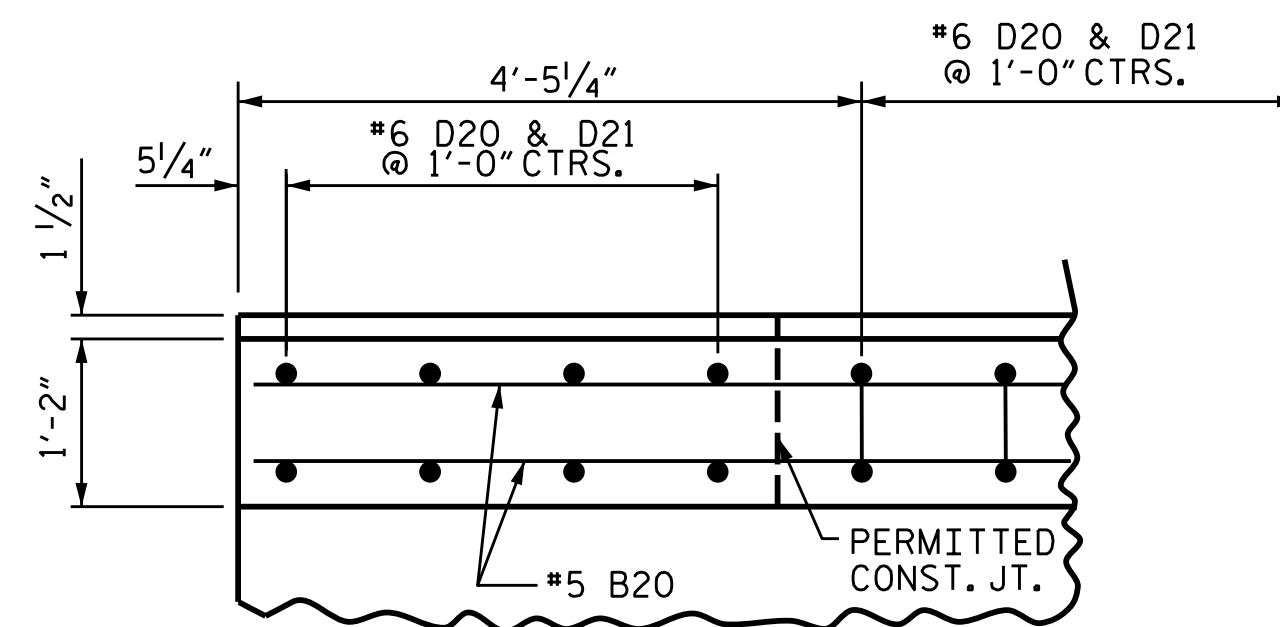


ELEVATION

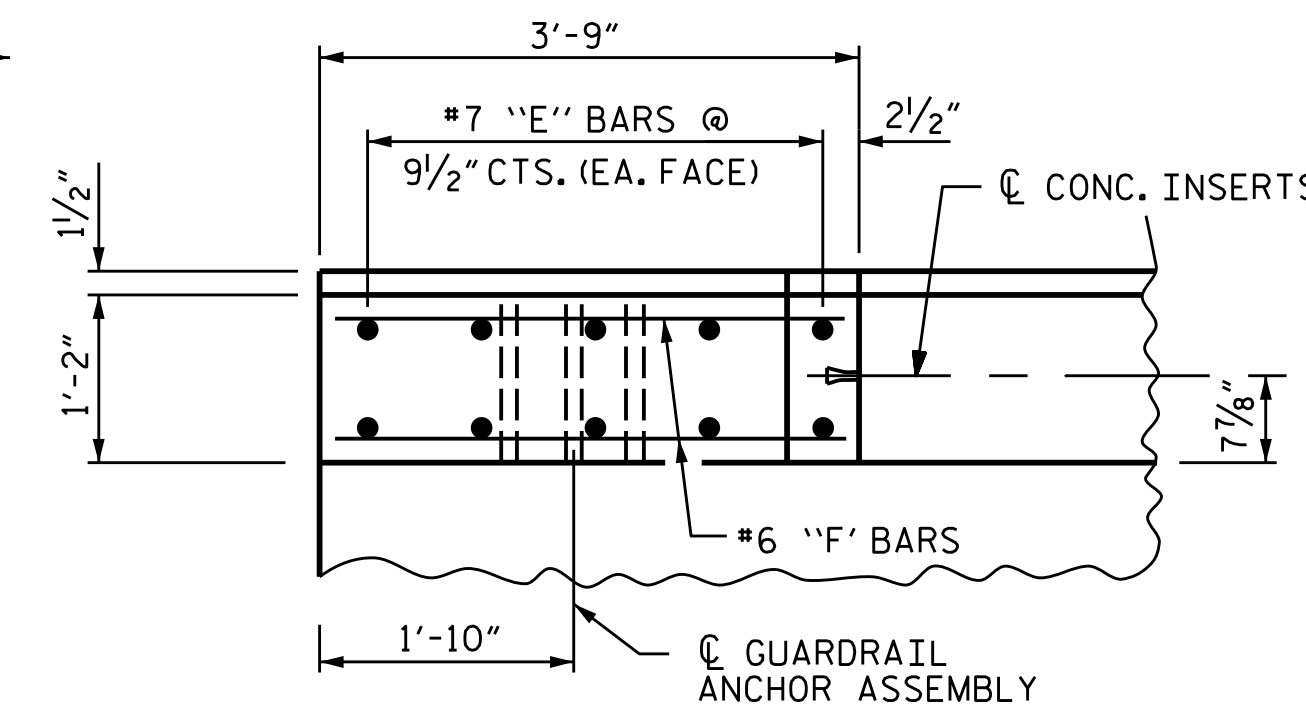
NOTE : FOR ATTACHMENT OF METAL RAIL TO END POST, SEE STANDARD NO. BMR2. * MATCH EXISTING JOINT OPENINGS

NOTES:

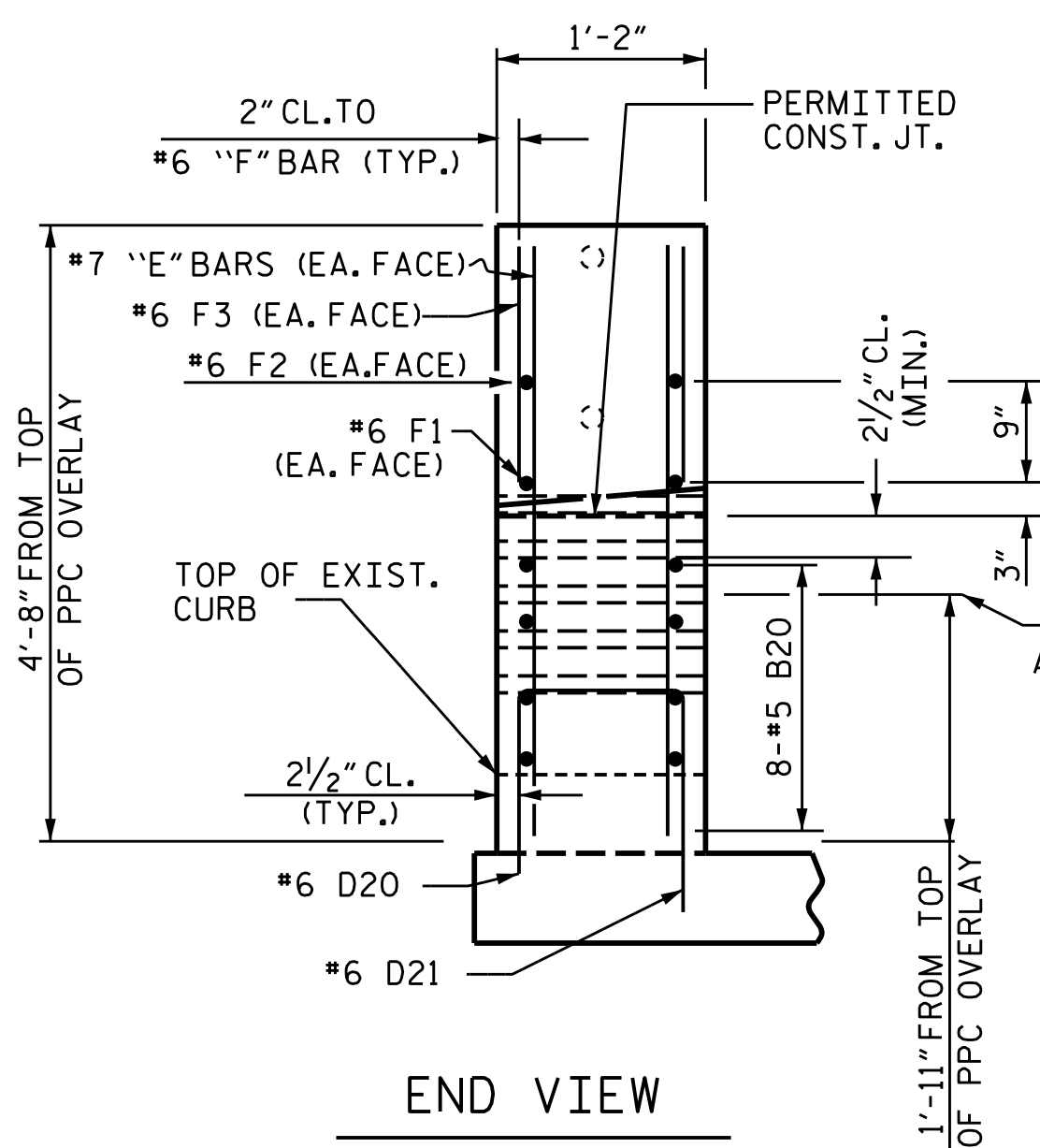
- FOR 2-BAR METAL RAIL RETROFIT, SEE SPECIAL PROVISIONS.
- COORDINATE THIS SHEET WITH INFO ON THE SHEET FOR ELECTRICAL REPAIRS TO THE NAVIGATIONAL LIGHT SYSTEM, SHEET S-29.
- COORDINATE THIS SHEET WITH INFO ON THE SHEETS FOR THE 2-BAR METAL RAIL IN SPANS 1-28, SHEETS S-10 THRU S-12.
- COORDINATE THIS SHEET WITH INFO ON THE SHEET FOR CONCRETE PARAPET AND END POST DETAILS AND ANCHORAGE DETAILS, SHEETS S-13 & S-14.
- ALL REINFORCING STEEL IN THE PROPOSED 2-BAR METAL RAIL PARAPET IN SPANS 29-65 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. A CONTRACTION JOINT SHALL BE LOCATED AT EACH THIRD POINT BETWEEN BARRIER RAIL EXPANSION JOINT. 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.
- FOR CONCRETE INSERTS, SEE SHEET S-12.



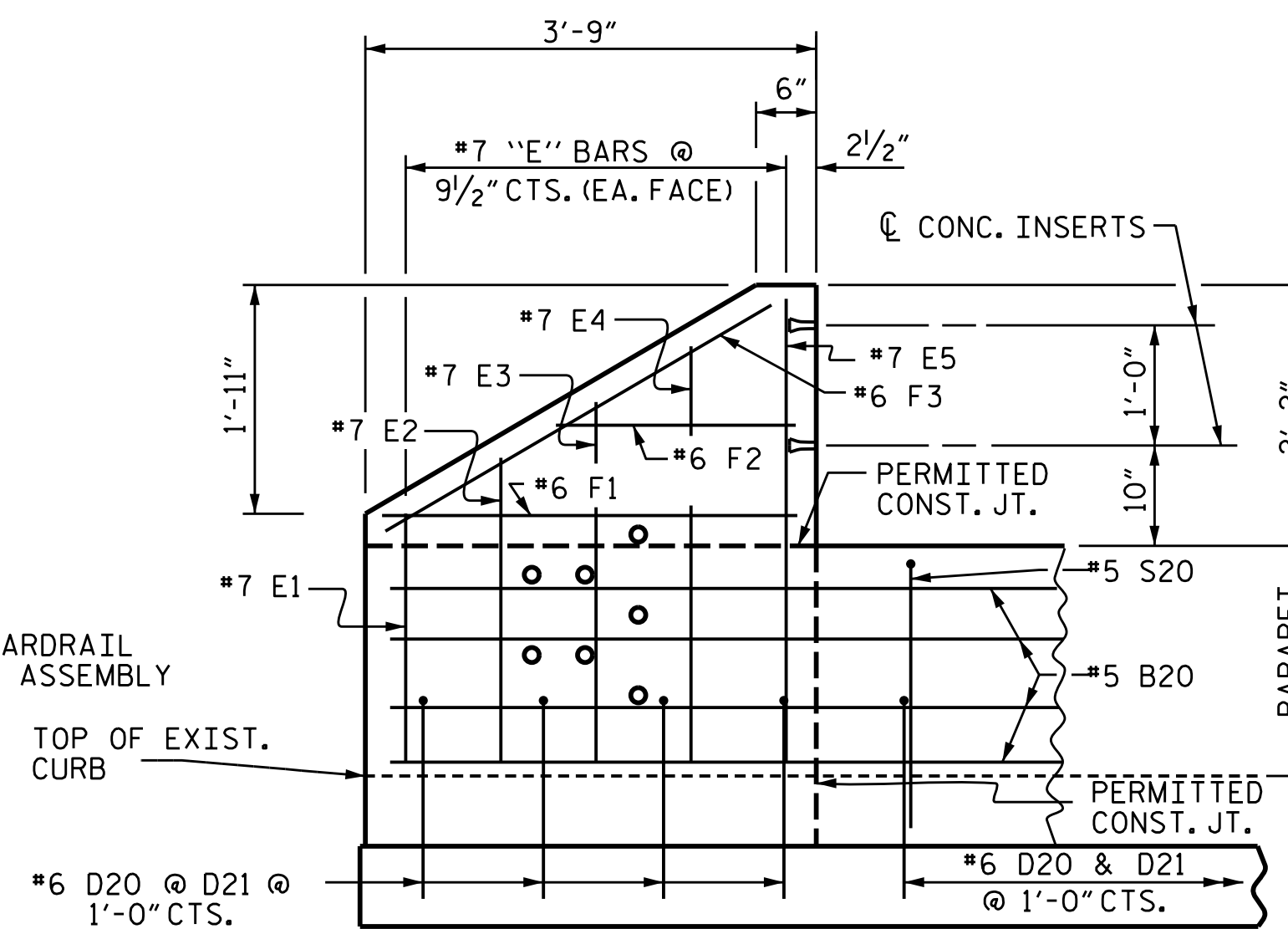
PLAN OF PARAPET



PLAN OF END POST



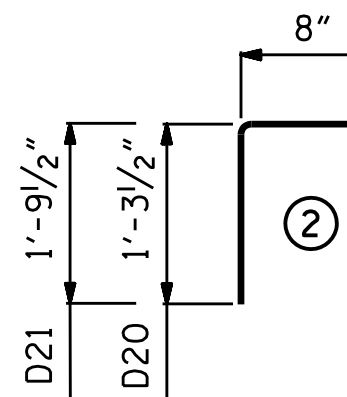
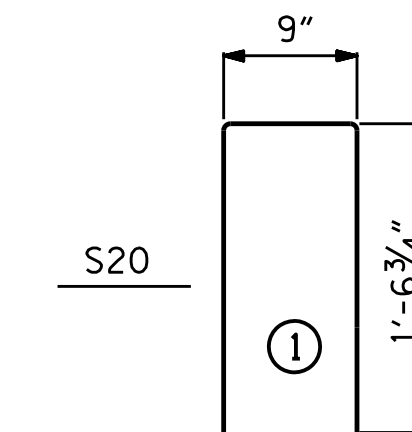
END VIEW



ELEVATION

PARAPET AND END POST FOR TWO BAR RAIL

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL
65'-0" SPANS (SPANS 29-37, 63 & 64)

FOR 2 PARAPETS AND RAILS						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
* B20	48	#5	STR.	21'-1"	1056	
* S20	132	#5	1	3'-11"	540	
* D20	132	#6	2	1'-10"	364	
* D21	132	#6	2	2'-6"	496	
* EPOXY COATED REINFORCING STEEL				LBS.	2456	
CLASS AA CONCRETE				CU. YDS.	10.8	
2-BAR METAL RAIL				LIN. FT.	130	
TOTAL LENGTH OF PARAPET				LIN. FT.	130	

BILL OF MATERIAL
CHANNEL SPANS (SPANS 50-52)

FOR 2 PARAPETS AND RAILS						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
* B20	160	#5	STR.	21'-0"	3508	
* B20	80	#5	STR.	21'-2"	1768	
* S20	650	#5	1	3'-11"	2658	
* D20	650	#6	2	1'-10"	1791	
* D21	650	#6	2	2'-6"	2443	
* EPOXY COATED REINFORCING STEEL				LBS.	12167	
CLASS AA CONCRETE				CU. YDS.	53.7	
2-BAR METAL RAIL				LIN. FT.	648	
TOTAL LENGTH OF PARAPET				LIN. FT.	648	

BILL OF MATERIAL
92'-0" SPANS (SPANS 38-49, 53-62)

FOR 2 PARAPETS AND RAILS						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
* B20	64	#5	STR.	22'-5"	1498	
* S20	186	#5	1	3'-11"	761	
* D20	186	#6	2	1'-10"	513	
* D21	186	#6	2	2'-6"	699	
* EPOXY COATED REINFORCING STEEL				LBS.	3470	
CLASS AA CONCRETE				CU. YDS.	15.2	
2-BAR METAL RAIL				LIN. FT.	184	
TOTAL LENGTH OF PARAPET				LIN. FT.	184	

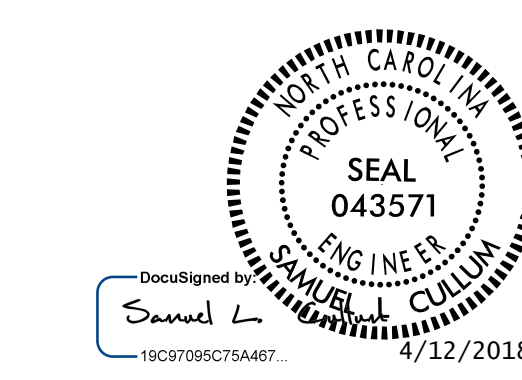
BILL OF MATERIAL
SPAN 65

FOR 2 PARAPETS, RAILS & END POSTS						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
* B20	16	#5	STR.	21'-0"	351	
* B20	16	#5	STR.	20'-9"	347	
* B20	16	#5	STR.	22'-0"	367	
* S20	124	#5	1	3'-11"	507	
* D20	132	#6	2	1'-10"	364	
* D21	132	#6	2	2'-6"	496	
* E1	4	#7	STR.	1'-11"	16	
* E2	4	#7	STR.	2'-5"	20	
* E3	4	#7	STR.	2'-11"	24	
* E4	4	#7	STR.	3'-5"	28	
* E5	4	#7	STR.	3'-9"	31	
* F1	4	#6	STR.	3'-0"	18	
* F2	4	#6	STR.	1'-11"	12	
* F3	4	#6	STR.	3'-7"	21	
* EPOXY COATED REINFORCING STEEL				LBS.	2601	
CLASS AA CONCRETE				CU. YDS.	10.8	
2-BAR METAL RAIL				LIN. FT.	123.25	
TOTAL LENGTH OF PARAPET				LIN. FT.	123.25	
END POSTS				NO.	2	

PROJECT NO. 15BPR.25
BRUNSWICK COUNTY
BRIDGE NO. 14

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
BRIDGE RAIL RETROFIT
END POSTS DETAILS &
BILL OF MATERIALS
SPANS 29-65



KCA 4800 SIX FORKS ROAD SUITE 120
KISINGER CAMPO & ASSOCIATES RALEIGH, NC 27609
(919) 882-7839

DRAWN BY : JACOB H. DUKE DATE : 03-2018
CHECKED BY : DIEGO A. AGUIRRE DATE : 03-2018
DESIGN ENGINEER OF RECORD : SAMUEL L. CULLUM DATE : 03-2018

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-28
1			3			SUBS
2			4			111

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED