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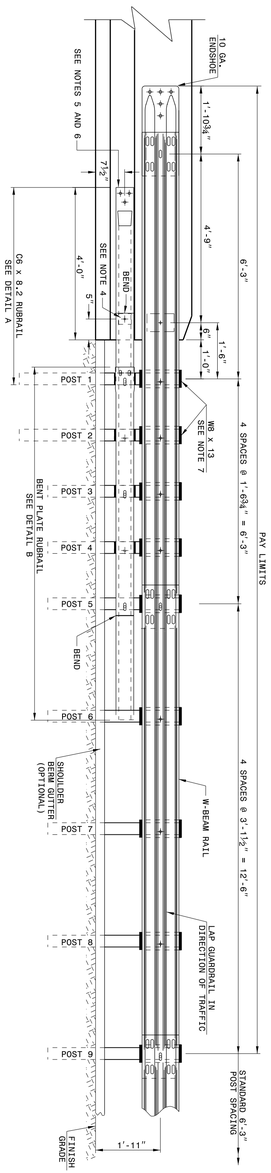
PROJECT REFERENCE NO.	SHEET NO.
R-5769	2C-1

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

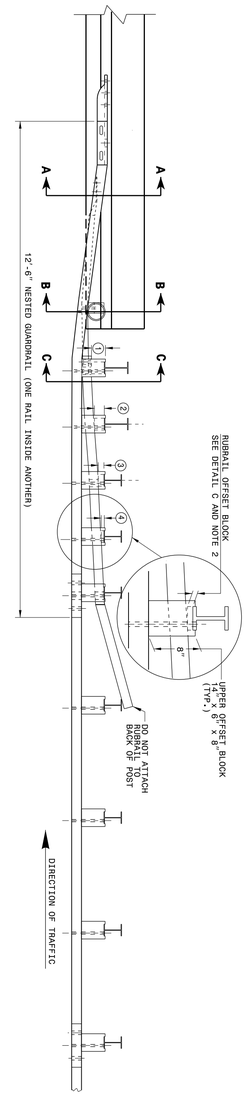
SHEET 4 OF 7
862D03

ENGLISH DETAIL DRAWING FOR
GUARDRAIL ANCHOR UNIT
GUARDRAIL ANCHOR UNIT TYPE B-77
FOR F-SHAPE BARRIER

ELEVATION



PLAN



GENERAL NOTES:
1) THROUGHOUT THIS DETAIL, REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
2) RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET VERTICALLY AND GROUPED WITH 5½" BUTTONHEAD BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKS ONLY TO POSTS 2 AND 4. SECURE RUBRAIL AND BLOCKOUTS TO POSTS 1 AND 3. RUBRAIL IS SECURED WITH A 5⅝" x 4½" BUTTONHEAD BOLT. RUBRAIL IS FLARED TO BACK OF POST 6 AND NOT SECURED.
3) STEEL SPACER TUBE IS A SCHEDULE 40 GALVANIZED PIPE 6" INSIDE DIAMETER x 9" LONG. ATTACH TUBE TO GUARDRAIL ONLY WITH A 5⅝" x 4½" BUTTONHEAD BOLT AND GALVANIZED PLATE WASHER.
4) SEE DETAIL D FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE ⅜" x 3" LAG BOLT WITH FLAT WASHER.
5) SHOP FABRICATE THE C6 x 8.2 RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE F SHAPE AND ATTACH FLUSH WITH THE SLOPED TOE OF THE BARRIER OR BRIDGE RAIL.
6) ANCHORAGE: FOR EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR RUBRAIL USING THREE 5⅝" x 6" CHEMICALLY ANCHORED BOLTS WITH WASHERS. MAXIMUM PROJECTION FOR BOLTS IS ½". ANCHOR THE W-BEAM END SHOE USING A 4 BOLT HOLD DOWN PLATE (SEE STD. DWG. 862.04).
   (a) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR THE W-BEAM END SHOE BEHIND THE NESTED W-BEAM ELEMENTS. A 4 BOLT INSERT ASSEMBLY IS ALLOWED ON PRECAST REINFORCED CONCRETE BARRIER (SEE STD. DWG. 857.01).
   (b) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, DETAILED ON THE STRUCTURE PLANS. INSTALL THE W-BEAM END SHOE BEHIND THE NESTED W-BEAM ELEMENTS.
   (c) INSTALL THE BACKUP PLATE AS DETAILED ON THE STRUCTURE PLANS.
7) POSTS 1 AND 2 ARE W8 x 13, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W6 x 8.5.

DocuSigned by:
Joel Howerton
NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
8/24/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: J HOWERTON DATE: 06-22-12
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FILE SPEC.: _____

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNIT
GUARDRAIL ANCHOR UNIT TYPE B-77
FOR F-SHAPE BARRIER

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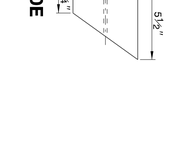
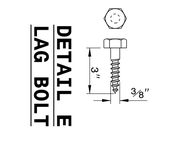
SHEET 5 OF 7
862D03

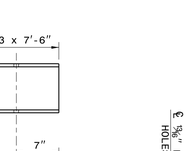
SECTION A-A



SECTION B-B



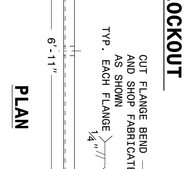
SECTION C-C



RUBRAIL BLOCKS 7" HIGH x 4" WIDE			
POST	THICKNESS	BOLT LENGTH	
①	4½"	9"	
②	3½"	5"	*
③	2"	6"	
④	1"	3"	*

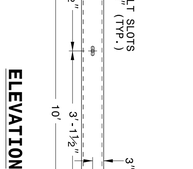
* BOLTS FOR POSTS 2 AND 4 ARE USED TO ATTACH BLOCK. RUBRAIL NOT ATTACHED TO BLOCK.

DETAIL C
RUBRAIL BLOCKOUT



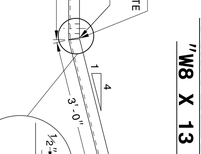
PLAN

ELEVATION



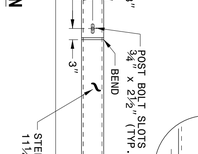
DETAIL A
C6 x 8.2 RUBRAIL

SLOPED RUBRAIL BLOCKOUT



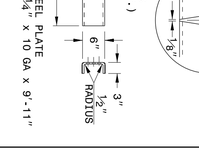
PLAN

DETAIL D
SLOPED RUBRAIL BLOCKOUT

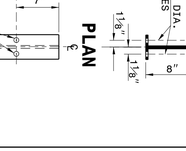


ELEVATION

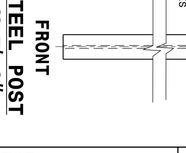
DETAIL B
BENT PLATE RUBRAIL



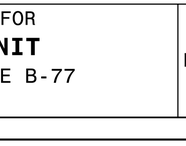
GUARDRAIL ANCHOR UNIT TYPE B-77



SECTION C-C

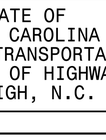


FRONT



SIDE

DETAIL E
LAG BOLT



DETAIL F STEEL POST
"W8 X 13 X 7'-6"

FRONT

SIDE

PLAN

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SHEET 5 OF 7
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