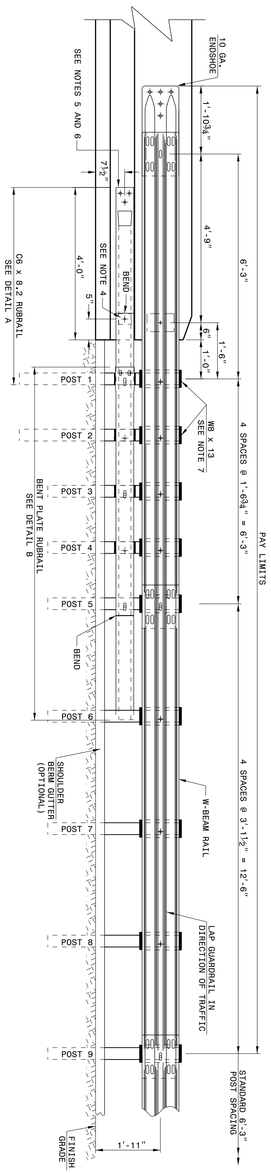
PROJECT REFERENCE NO.	SHEET NO.
B-4761	2C-2

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

SHEET 4 OF 7
862D03

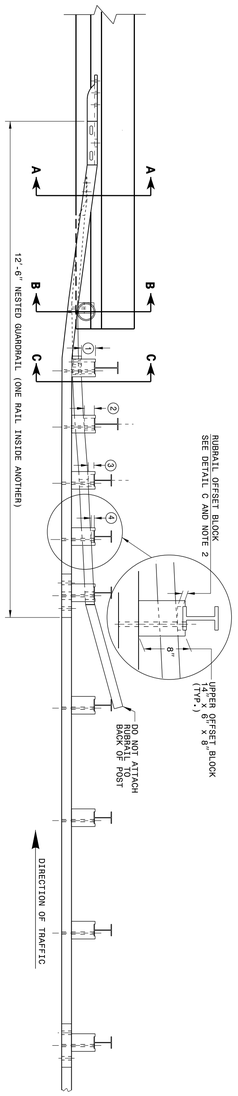
ENGLISH DETAIL DRAWING FOR
GUARDRAIL ANCHOR UNIT
GUARDRAIL ANCHOR UNIT TYPE B-77
FOR F-SHAPE BARRIER

ELEVATION



GENERAL NOTES:
1) THROUGH 5 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 5⅛" BUTTONHEAD BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKS ONLY TO POSTS 2 AND 4. SECURE RUBRAIL AND BLOCKOUTS TO POSTS 1 AND 3 WITH A 5⅛" 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 5⅛" x 6" CHEMICALLY ANCHORED BUTTONHEAD BOLT AND REINFORCED 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 ⅝" x 6" CHEMICALLY ANCHORED BOLTS WITH WASHERS. MAXIMUM PROJECTION FOR BOLTS IS 1½".
   (a) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR THE W-BEAM END SHOE USING A 4 BOLT HOLD DOWN PLATE (SEE STD. DWG. 862.04). INSERT ASSEMBLY IS ALLOWED ON PRECAST REINFORCED CONCRETE BARRIER (SEE STD. DWG. 857.01).
   (b) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR THE W-BEAM END SHOE BEHIND THE NESTED W-BEAM ELEMENTS. INSTALL THE W-BEAM END SHOE AS SHOWN ON STRUCTURE PLANS. DETAILED ON THE STRUCTURE PLANS.
   (c) POSTS 1 AND 2 ARE W6 x 15, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W6 x 8.5.

PLAN



GUARDRAIL ANCHOR UNIT TYPE B-77

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

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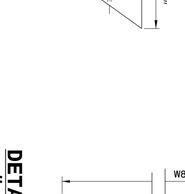
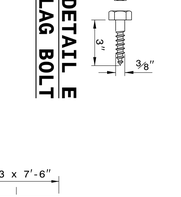
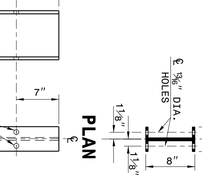
SHEET 5 OF 7
862D03

SECTION A-A



SECTION B-B

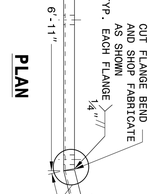




RUBRAIL BLOCKS 7" HIGH x 4" WIDE			
POST	THICKNESS	BOLT	LENGTH
①	4¼"		9"
②	3¼"		5" *
③	2"		6"
④	1"		3" *

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

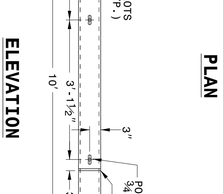
DETAIL C
RUBRAIL BLOCKOUT

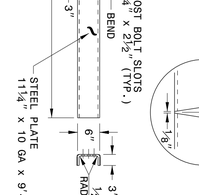


PLAN

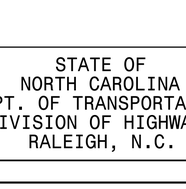
ELEVATION

DETAIL A
C6 x 8.2 RUBRAIL

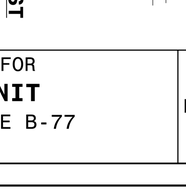




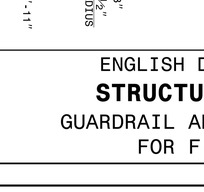
SECTION C-C



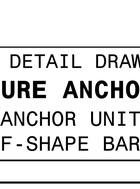
FRONT SIDE
DETAIL D
SLOPED RUBRAIL BLOCKOUT



DETAIL E
LAG BOLT



ELEVATION
DETAIL B
BENT PLATE RUBRAIL



PLAN

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

PLAN

GUARDRAIL ANCHOR UNIT TYPE B-77

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SHEET 5 OF 7
862D03

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$$$$$$$USERNAME$$$$$$$

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton

DocuSigned by: Joel Howerton B73F3D17DCDC45F...

3/24/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT
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