NOTES

STRUCTURAL CONCRETE INSERT

THE STRUCTURAL CONCRETE INSERT ASSEMBLY SHALL CONSIST OF THE FOLLOWING COMPONENTS:

A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 38mm.

B. 1 - 19.05mm Ø x 41mm BOLT WITH WASHER. BOLT SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLT AND WASHER SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLT AND WASHER MAY BE USED AS AN ALTERNATE FOR THE 19.05mm Ø x 41mm GALVANIZED BOLT AND WASHER. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)

C. WIRE STRUT SHOWN IN THE CONCRETE INSERT ASSEMBLY DETAIL IS THE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 689 MPa. AS AN OPTION, A 11mm Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 620 MPa. IS ACCEPTABLE.

NOTES

METAL RAIL TO END POST CONNECTION

THE METAL RAIL TO END POST CONNECTION SHALL CONSIST OF THE FOLLOWING COMPONENTS :

A. 12mm PLATES SHALL CONFORM TO AASHTO M270 GRADE 250 AND SHALL BE GALVANIZED AFTER FABRICATION.

B. 19.05mm STRUCTURAL CONCRETE INSERT SHALL HAVE A WORKING LOAD SHEAR CAPACITY OF 21.4 kN. THE FERRULES SHALL ENGAGE A 19.05mm Ø x 41mm BOLT WITH 51mm O.D. WASHER IN PLACE. THE 19.05mm Ø x 41mm BOLT SHALL HAVE N.C. THREADS.

C. CAP SCREWS FOR RAIL ATTACHMENT TO ANGLE SHALL CONFORM TO THE REQUIREMENTS OF ASTM F593 ALLOY 305 STAINLESS STEEL. CAP SCREWS TO BE CENTERED IN SLOTS AT 16°C.

D. STANDARD CLAMP BARS (SEE METAL RAIL SHEET).

E. 13mm Ø PIPE SLEEVES (IF REQUIRED) TO BE GALVANIZED.

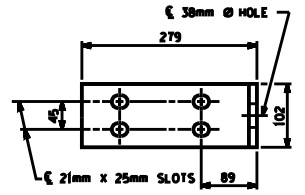
THE COST OF THE STANDARD CLAMP BARS AND CAP SCREWS USED IN THE METAL RAIL TO END POST CONNECTION SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR METERS OF 1 OR 2 BAR METAL RAILS.

THE 19.05mm STRUCTURAL CONCRETE INSERT WITH BOLT SHALL BE ASSEMBLED IN THE SHOP.

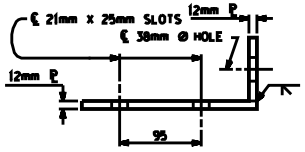
THE COST OF THE 19.05mm STRUCTURAL CONCRETE INSERT ASSEMBLY, AND THE 12mm PLATES COMPLETE IN PLACE SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE CONTRACTOR, AT HIS OPTION, MAY USE AN ADHESIVE BONDING SYSTEM IN LIEU OF THE STRUCTURAL CONCRETE INSERT EMBEDDED IN THE END POST. IF THE ADHESIVE BONDING SYSTEM IS USED, THE 19.05mm Ø x 41mm BOLT WITH WASHER SHALL BE REPLACED WITH A 19.05mm Ø x 165mm BOLT AND 51mm O.D. WASHER. ALL SPECIFICATIONS THAT APPLY TO THE 19.05mm Ø x 41mm BOLT SHALL APPLY TO THE 19.05mm Ø x 165mm BOLT. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED.

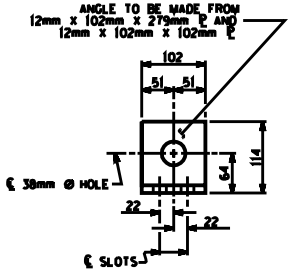
PLAN OF RAIL POST SPACINGS



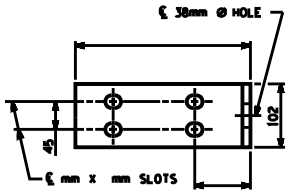
ELEVATION



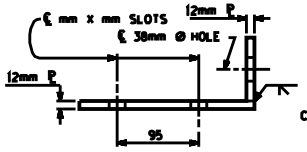
TOP VIEW



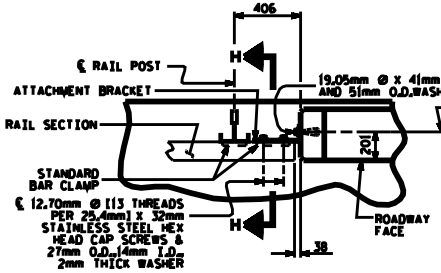
END VIEW (FIX AND EXP.)



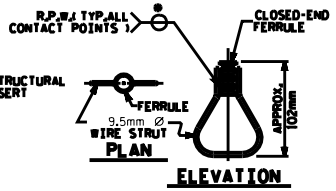
ELEVATION



TOP VIEW



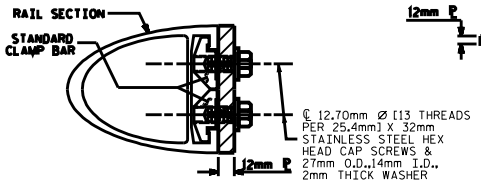
PLAN - RAIL AND END POST



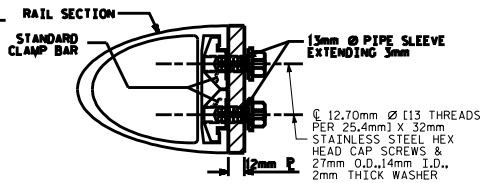
ELEVATION

STRUCTURAL CONCRETE INSERT

* EACH WELDED ATTACHMENT OF WIRE TO FERRULE SHALL DEVELOP THE TENSILE STRENGTH OF THE WIRE.



SECTION H-H (FIX)



SECTION H-H (EXP.)

FIXED

EXPANSION

DETAILS FOR ATTACHING METAL RAIL TO END POST

PROJECT NO. _____

_____ COUNTY

STATION: _____

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
RAIL POST SPACINGS
AND
END OF RAIL DETAILS
FOR ONE OR TWO BAR METAL RAILS

ASSEMBLED BY :	DATE :
CHECKED BY :	DATE :
DRAWN BY : WJH 3/89	REV. 10/17/00 LES/RDH
CHECKED BY : CRH 3/89	REV. 5/7/03 RWM/JTE
	REV. 5/1/08 TLA/CW

USE 2014.2 SCALE FOR PLOT SCALE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS

STD. NO. BMR2SM