

RETROFIT EXISTING RAIL WITH TUBULAR BEAM GUARDRAIL (WITH WEARING SURFACE)

W 152 X 13.4 POST

15.88mm Ø-

CONST. JT.

TO BE PLUMB

ANCHORS TO BE EMBEDDED

A MINMUM OF 83mm WITH

A PROJECTION OF 44mm

ABOVE THE CONCRETE.

203

346

150

305

177

CONCRETE ANCHOR NOTES:

- IN THE ROADWAY SPECIAL PROVISIONS.

 B) THE ANCHOR BEING TESTED SHALL WITHSTAND A LOAD EQUAL TO 18.8 KN WHEN TESTED AS SPECIFIED IN THE ROADWAY SPECIAL

- 4. THE 19.05mm DIAMETER CONCRETE ANCHOR SHALL CONSIST OF A STUD, THREADED ON ONE END, WITH NUT AND WASHERS. THE ANCHOR SHALL BE GALVANIZED TO CONFORM TO THE REQUIREMENTS OF ASTM A-153M.

 5. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL ANCHORS MAY BE USED AS AN ALTERNATE FOR THE GALVANIZED CONCRETE ANCHORS. THEY SHALL MEET OR EXCEED THE MECHANICAL REQUIREMENTS FOR THE GALVANIZED ANCHORS. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE
- ENGINEER. 6. EXPANSION ANCHORS WILL NOT BE PERMITTED.
- NOTES: TUBULAR BEAM POSTS ARE TO BE MOUNTED AGAINST THE EXISTING CONCRETE RAIL. HOLES FOR THE 15.88mm DIAMETER BOLTS, THRU THE EXISTING CONCRETE RAIL OR POST, SHALL BE 19mm DIAMETER.

STATE | PROJECT NO. | SHEET NO. SHEETS 2-FF R-2610A N.C. F.A. PROJ. NO.

GENERAL NOTES:

- 1. THE 508mm TRIPLE TUBULAR CORRUGATED BEAM RAIL SECTION SHALL BE FABRICATED BY WELDING TWO (2) 508mm TRIPLE CORRUGATED BEAM RAIL ELEMENTS AS SHOWN AND THE GUARDRAIL SHALL CONFORM TO THE NCDOT STANDARD SPECIFICATIONS EXCEPT AS NOTED AND SHOWN ON THE PLANS.
- 2. 508mm TRIPLE TUBULAR CORRUGATED BEAM RAIL SHALL BE 10
- POSTS, BASE ANGLES AND/OR BASE PLATES, 152mm Ø DIA. TUBES, AND OFFSET BLOCKS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-36M. SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A-570M GRADE 33 OR A-611 GRADE C.
- 4. POSTS, BASE ANGLES AND/OR BASE PLATES, TUBES, BLOCKS AND SHIMS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM
- 5. POSTS ARE TO BE PLUMB. SHIMS MAY BE USED BENEATH THE ROADWAY EDGE OF THE BASE ANGLES AND/OR BASE PLATES AS NECESSARY FOR POST ALIGNMENT. PROVIDE ONE 3mm AND TWO
- 1.6mm STEEL SHIMS FOR 25 % OF THE POSTS ON THE BRIDGE. 6. "BP" POST HEIGHT TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR.
- 7. PROPOSED RAIL POST MAY BE SHIFTED SLIGHTLY TO CLEAR REINFORCING STEEL. STANDARD SLOTS MAY BE USED IN THE RAIL TO ALLOW ADJUSTMENT.
- 8. HOLES SHALL BE DRILLED HORIZONTAL OR VERTICAL USING A ROTARY DRILL OR A ROTARY IMPACT DRILL. IMPACT TOOLS WILL NOT BE PERMITTED. CARBIDE TIPPED BITS SHALL BE USED UNLESS REINFORCING STEEL IS ENCOUNTERED. AN APPROPRIATE BIT FOR DRILLING THROUGH REINFORCING STEEL SHALL BE USED WHEN NECESSARY. THE CONTRACTOR SHALL BE PREPARED TO DRILL THROUGH REINFORCING STEEL AT TIMES.
- 9. POST SPACINGS AS SHOWN ON THE PLANS SHALL BE CHECKED BEFORE HOLES ARE DRILLED IN THE 508mm TRIPLE TUBULAR CORRUGATED BEAM RAIL. STANDARD SLOTS WILL BE ALLOWED. FIELD PUNCHING OF THE HOLES OR SLOTS WILL NOT BE PERMITTED.
- 10. A SEALANT WILL BE REQUIRED IN THE AREA OF THE ANCHOR BOLTS AND WILL BE PLACED IN THE FOLLOWING MANNER: A. BEFORE THE BASE PLATE HAS BEEN SET IN PLACE, IF THE GROUT DOES NOT COMPLETELY FILL THE ANCHOR HOLE, SEAL THE AREA AROUND EACH CONCRETE ANCHOR BOLT TO KEEP MOISTURE FROM ENTERING THE HOLE.
 - B. AFTER THE BASE PLATE HAS BEEN SET IN PLACE AND BEFORE THE WASHERS AND NUTS HAVE BEEN PLACED ON THE BOLT, SEAL THE HOLE REMAINING AROUND THE ANCHOR BOLT. THE SEALANT SHALL BE A ONE-COMPONENT POLYSULFIDE GUN GRADE
 - MEETING FEDERAL SPECIFICATION TT-S-230. SEALANT SHALL BE GRAY IN COLOR AND APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATION. THE FOLLOWING SEALANTS MEET THE ABOVE REQUIREMENTS:
 - "SONOLASTIC ONE PART", MANUFACTURED BY SONNEBORN-DESOTO CO., DES PLAINES, ILLINOIS, 60018. "THOROSPAN ONE COMPONENT", MANUFACTURED BY STANDARD DRY WALL PRODUCTS, INC., MIAMI, FLORIDA, 33166 "HORNFLEX ONE COMPONENT". MANUFACTURED BY W. R. GRACE AND CO., CAMBRIDGE, MASSACHUSETTS, 02140.
- 11. ALL CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO
- THE SATISFACTION OF THE ENGINEER. 12. VERTICAL SLOTS IN THE 152mm TUBE ALLOW FOR SOME VERTICAL ADJUSTMENT OF RAIL HEIGHT IN ORDER TO OBTAIN THE CENTERLINE
- OF RAIL HEIGHT OF 560mm ABOVE RIDING SURFACE. 13. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES." ELECTROSLAG WELDING WILL NOT BE PERMITTED.
- 14. LAP BEAM RAIL JOINTS IN DIRECTION OF TRAFFIC. 15. CURVED RAIL USAGE: CURVED RAILS ARE TO BE USED ON BRIDGES WITH HORIZONTAL AND/OR VERTICAL CURVES. THE CONTRACTOR MAY AT HIS OPTION HAVE THE REQUIRED CURVATURE IN THE RAIL FORMED IN THE SHOP OR IN THE FIELD. THE RAIL SHALL CONFORM WITHOUT BUCKLING OR KINKING TO THE REQUIRED CURVATURE IN A UNIFORM MANNER ACCEPTABLE TO THE ENGINEER.

R-2610A PROJECT NO. CHATHAM COUNTY STATION: SHEET 3 OF 6

> STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

RAIL WITH BEAM GUARDRAIL

REVISIONS					SHEET NO.
BY:	DATE:	NO.	BY:	DATE:	
		3			TOTAL SHEETS
		A			1

- FOR ADHESIVELY ANCHORED BOLTS OR DOWELS, SEE ROADWAY SPECIAL PROVISIONS.
 THE CONCRETE ANCHORS SHALL BE TESTED AS FOLLOWS:

 A) THE CONTRACTOR SHALL TEST 5% OF THE TOTAL NUMBER OF BOLTS PER SPAN IN THE AREA OF THE CURB FOR LOAD TESTS AS DESCRIBED

CORRUGATED BEAM

- PROVISIONS.

 C) THE SUCCESSFULLY TESTED ANCHOR MAY BE USED IN THE FINAL RAIL ASSEMBLY, IF APPROPRIATELY LOCATED. IF NOT SO LOCATED, OR IF THE ANCHOR FAILS THE TEST, THE TEST AREA SHALL BE REPAIRED AS DAMAGED CONCRETE, SEE 'GENERAL NOTES'.
- 3. EMBEDMENT SHOWN ON THE PLANS IS A MINIMUM, BUT THE MANUFACTURER'S RECOMMENDATIONS SHALL BE FOLLOWED.

15.88mm DIAMETER BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-307 AND SHALL BE GALVANIZED TO CONFORM TO THE REQUIREMENTS OF ASTM A-153M.

ASSEMBLED BY: M.E. POOLE DATE: 10/03 CHECKED BY: J.R. DLIGGTNS DATE: 10/03 DRAWN BY: N. M. RUFFIN DATE : 5/88 STANDARD _DATE : _ CHECKED BY : ____

254

BOLT THRU CONCRETE POST

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