

GENERAL NOTES

- L 001 GUARDRAIL SHALL CONFORM TO THE NCDOT STANDARD SPECIFICATIONS EXCEPT AS NOTED AND AS SHOWN ON PLANS.  
H 001 \*\*\* PG. 4 (1) \*\*\*
- L 002 20" TRIPLE TUBULAR CORRUGATED BEAM RAIL SHALL BE 10 GAGE.  
H 002 \*\*\* PG. 4 (2) \*\*\*
- L 003 POST, BASE ANGLES AND/OR BASE PLATES, 6" DIA. TUBES, AND OFFSET BLOCKS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M183. SHIMS SHALL MEET THE REQUIREMENTS OF ASTM A-570 GRADE 33 OR A-611 GRADE C.  
H 003 \*\*\* PG. 4 (3) \*\*\*
- L 004 POST, BASE ANGLES AND/OR BASE PLATES, TUBES, BLOCKS, AND SHIMS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.  
H 004 \*\*\* PG. 4 (4) \*\*\*
- L 005 POST 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.  
H 005 \*\*\* PG. 4 (5) \*\*\*
- L 006 ''BP'' POST HEIGHT TO BE DETERMINED IN THE FIELD BY THE CONTRACTOR.  
H 006 \*\*\* PG. 4 (6) \*\*\*
- L 007 PROPOSED RAIL POST MAY BE SHIFTED SLIGHTLY TO CLEAR REINFORCING STEEL. STANDARD SLOTS MAY BE USED IN THE RAIL TO ALLOW ADJUSTMENT.  
H 007 \*\*\* PG. 4 (7) \*\*\*
- L 008 HOLES SHALL BE DRILLED USING A ROTARY DRILL OR A ROTARY IMPACT DRILL. 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.  
H 008 \*\*\* PG. 4 (8) \*\*\*
- L 009 POST SPACINGS AS SHOWN ON THE PLANS SHALL BE CHECKED BEFORE HOLES ARE DRILLED IN THE 20" TRIPLE TUBULAR CORRUGATED BEAM RAIL. STANDARD SLOTS WILL BE ALLOWED. FIELD PUNCHING OF THE HOLES OR SLOTS WILL NOT BE PERMITTED.  
H 009 \*\*\* PG. 4 (9) \*\*\*
- L 010 CURVED RAIL USAGE: 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.  
H 010 \*\*\* PG. 4 (10) \*\*\*
- L 011 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 PLAINS, 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.

H 011 \*\*\* PG. 5 (11) \*\*\*

L 012 ALL CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.

H 012 \*\*\* PG. 5 (12) \*\*\*

L 013 VERTICAL SLOTS IN THE 6" DIA. TUBE ALLOW FOR SOME VERTICAL ADJUSTMENT OF RAIL HEIGHT IN ORDER TO OBTAIN THE CENTERLINE OF RAIL HEIGHT OF 1'-10" ABOVE RIDING SURFACE.

H 013 \*\*\* PG. 5 (13) \*\*\*

L 014 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.

H 014 \*\*\* PG. 5 (14) \*\*\*

L 015 LAP BEAM RAIL JOINTS IN DIRECTION OF TRAFFIC.

H 015 \*\*\* PG. 5 (15) \*\*\*

L 016 CONCRETE ANCHOR NOTES

H 016 \*\*\* PG. 5 (16) \*\*\*

L 017 CONCRETE ANCHORS SHALL CONSIST OF A STUD, THREADED ON ONE END, WITH A NUT AND WASHER. THE ANCHORS SHALL BE INSTALLED WITH AN ADHESIVE ANCHORING SYSTEM. EXPANSION ANCHORS WILL NOT BE ALLOWED.

H 017 \*\*\* PG. 5 (17) \*\*\*

L 018 CONCRETE ANCHORS SHALL PROVIDE A MINIMUM SAFE PULLOUT STRENGTH OF 2875 POUNDS FOR A 3/4" DIA. BOLT OR 4075 POUNDS FOR A 1" DIA. BOLT. THESE STRENGTHS SHALL BE BASED UPON 1/4 THE ACTUAL PULLOUT STRENGTH OF THE ANCHOR IN 3500 PSI CONCRETE. CERTIFIED TEST REPORTS FROM AN APPROVED TESTING LABORATORY SHALL BE FURNISHED TO THE ENGINEER FOR THE PULLOUT STRENGTHS.

H 018 \*\*\* PG. 6 (18) \*\*\*

L 019 STUD BOLTS, NUTS AND WASHERS ARE TO BE GALVANIZED TO CONFORM TO THE REQUIREMENTS OF AASHTO M232.

H 019 \*\*\* PG. 6 (19) \*\*\*

L 020 AT THE CONTRACTOR'S OPTION, STAINLESS STEEL CONCRETE ANCHORS MAY BE USED AS AN ALTERNATE FOR THE GALVANIZED ANCHORS. THEY SHALL MEET OR EXCEED THE MECHANICAL REQUIREMENTS FOR THE GALVANIZED ANCHORS. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

H 020 \*\*\* PG. 6 (20) \*\*\*

L 021 CONCRETE ANCHORS SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

H 021 \*\*\* PG. 6 (21) \*\*\*

L 022 NOTES (USE WITH POST BP1 ONLY): TUBULAR BEAM POSTS ARE TO BE MOUNTED AGAINST THE EXISTING CONCRETE RAIL. HOLES FOR THE 5/8" DIA. BOLTS, THRU THE EXISTING CONCRETE RAIL OR POST, SHALL BE 3/4" DIA.. HOLES SHALL BE HORIZONTAL AND SHALL BE DRILLED WITH A ROTARY OR ROTARY IMPACT DRILL. IMPACT TOOLS WILL NOT BE PERMITTED.

- H 022 \*\*\* PG. 6 (22) \*\*\*
- L 023 NOTE (USE WITH POST BP1 OR BP2 ONLY): 5/8" DIA. AND/OR 1" DIA. BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-307 AND SHALL BE GALVANIZED TO CONFORM TO THE REQUIREMENTS OF AASHTO M232.
- H 023 \*\*\* PG.6 (23) \*\*\*
- L 024 NOTE (USE WITH POST BP2 OR POST BP3 ONLY): HOLES FOR THE 1" DIA. BOLTS THRU THE EXISTING SIDEWALK SHALL BE 1 1/8" DIA.. ALL HOLES SHALL BE VERTICAL AND SHALL BE DRILLED WITH A ROTARY OR ROTARY IMPACT DRILL. IMPACT TOOLS WILL NOT BE PERMITTED.
- H 024 \*\*\* PG. 6 (24) \*\*\*
- L 025 THE CONTRACTOR MAY, AT HIS OPTION, USE ADHESIVELY ANCHORED \_\_\_\_\_ (ANCHOR BOLTS/DOWELS ) IN PLACE OF \_\_\_\_\_.
- H 025 \*\*\* 12-4 \*\*\*
- L 026 THE CONTRACTOR SHALL REMOVE THE EXISTING RAIL POST AND RESPACE THEM AT A MAXIMUM SPACING OF 6'-6". SEE NEW POST SPACING DETAIL.
- H 026 \*\*\* \*\*\*\*\*