



RIVET REPLACEMENT CRITERIA

NOTES:

1. RIVETS SHALL BE REPLACED WITH BOLTS OF EQUAL DIAMETER.
2. ALL BOLTS ARE ASSUMED TO BE 7/8"Ø ASTM A325 HIGH STRENGTH BOLTS. SEE TABLE.
3. REMOVAL OF RIVETS AND REPLACEMENT WITH HS BOLTS SHALL BE PAID UNDER ITEM NO. 586.05.
4. DIMENSIONS SHOWN IN PARENTHESIS ARE FOR 1"Ø RIVETS.
5. IT IS ASSUMED THAT RIVETS REQUIRING REPLACEMENT ARE LOCATED IN THE TOP FLANGE OF STEEL BOX BEAMS, PIERS 67 TO 70. FLANGE THICKNESS VARIES FROM 1 3/4" TO 2".

RIVETS REPLACEMENT NOTES:

1. THE FOLLOWING NOTES DO NOT APPLY TO THE REMOVAL OF RIVETS FOR THE PURPOSE OF MAKING VARIOUS STRUCTURAL STEEL REPAIRS INDICATED ON THE PLANS OR AS ORDERED BY THE ENGINEER.
2. DETERIORATED RIVETS NOT COVERED UNDER NOTE 1 ABOVE WILL BE INSPECTED BY THE ENGINEER, WHO WILL ORDER THAT SPECIFIC RIVETS BE REPLACED WITH 7/8"Ø OR HIGH-STRENGTH BOLTS IN ACCORDANCE WITH FOLLOWING GUIDELINES.
3. RIVETS (CATEGORY B) WITH DIMENSIONS OF BOTH HEADS MEETING OR SURPASSING EACH OF THE MINIMUM REQUIREMENTS SHOWN FOR CONDITION "B" MAY BE LEFT IN PLACE SUBJECT TO CONDITIONS DESCRIBED IN NOTES 6 AND 7.
4. RIVETS NOT MEETING THE REQUIREMENTS OF CONDITION "B", BUT HAVING DIMENSIONS WHICH MEET OR SURPASS AT BOTH HEADS EACH OF THE MINIMUM REQUIREMENTS SHOWN FOR CONDITION "C", MAY BE LEFT IN PLACE SUBJECT TO THE FOLLOWING CONDITIONS:
 - A) THERE IS NO PRYING ACTION FROM APPLIED STRESS OR CREVICE CORROSION (SEE NOTE 7) WHICH TENDS TO SEPARATE THE CONNECTED PARTS.
 - B) RIVETS HEADS DO NOT HAVE ADDITIONAL LOSSES DESCRIBED IN NOTE 6.
 - C) RIVETS MAY BE LEFT IN PLACE TO THE EXTENT THAT THEIR NUMBER DOES NOT EXCEED 20% OF CONNECTION OR 50% OF STITCH RIVETS IN ANY ONE PORTION OF A MEMBER.
 - D) WHERE THE ABOVE PERCENTAGES ARE EXCEEDED THE NUMBER OF RIVETS OVER THE PRESCRIBED PERCENTAGE SHALL BE REPLACED WITH 7/8"Ø HIGH-STRENGTH BOLTS.
 - E) WHEN SELECTING RIVETS FOR REPLACEMENT TO MEET THE ABOVE PERCENTAGE REQUIREMENTS, THE WORST RIVETS IN ANY GROUP OR CONNECTION SHALL BE SELECTED FOR REPLACEMENT.
5. RIVETS (CATEGORY D) NOT MEETING THE REQUIREMENTS OF CONDITION "C" AT EITHER HEAD SHALL BE REPLACED BY 7/8"Ø HS BOLTS.
6. REPLACEMENT WILL ALSO BE REQUIRED FOR ANY RIVET EXHIBITING ADDITIONAL LOSS IN THE FORM OF PITS OR GOUGES AT THE EDGES OF EITHER HEAD PROJECTING BEYOND THE SHANK WHERE SUCH LOSS REDUCES THE SECTION BELOW THE LIMITS SHOWN FOR CONDITION "B".
7. WHERE CREVICE OR INTERFACE CORROSION BETWEEN CONNECTED PARTS IS PRESENT THE RIVETS ADJACENT TO THAT AREA SHALL BE REPLACED AFTER CLEANING BETWEEN THE PARTS REGARDLESS OF THE CONDITION OF THE RIVETS.
8. DIMENSIONS SHOWN ON THESE SKETCHES FOR CONDITIONS "B" AND "C" ARE MINIMUM REQUIREMENTS FOR BOTH DRIVEN AND MANUFACTURED HEADS. THE MINIMUM HEIGHT OF HEAD IS MEASURED TO THE CENTER OF THE RIVET. THE MINIMUM DIAMETER APPLIES TO THAT DIRECTION IN WHICH IT IS THE SMALLEST.
9. ALL HIGH-STRENGTH BOLT CONNECTION SHALL BE ASSEMBLED WITH A HARDENED WASHER UNDER BOTH THE BOLT HEAD AND NUT. WHERE NECESSARY WASHERS MAY BE CLIPPED ON ONE SIDE TO A POINT NOT CLOSER THAN 1/8" OF THE BOLT DIAMETER FROM THE CENTER OF THE WASHER. THE CONTRACTOR SHALL TAKE NECESSARY FIELD MEASUREMENTS TO DETERMINE PROPER GRIP LENGTHS.
10. IF REAMING IS REQUIRED TO DRESS UP THE RIVET HOLES, AND IF AFTER REAMING THE HOLES EXCEED THE TOLERANCES SHOWN IN THE SPECIAL PROVISIONS THE CONTRACTOR SHALL INSTALL THE NEXT LARGER SIZED BOLT.
11. RIVETS SHALL BE REMOVED ALTERNATELY, AND REPLACED WITH HS BOLT ONE AT A TIME.

AFFIX SEAL:
ON:

ALTERED BY:
ON:

AS-BUILT REVISIONS
DESCRIPTION OF ALTERATIONS:

PIN

BRIDGES

CULVERTS

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

CONTRACT NUMBER

RIVET REPLACEMENT DETAILS

DRAWING NO. RR-1
SHEET NO. 329

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.