**Intermediate Diaphragm**

2 columns of bolts with C15x33.9 shown on left.

3 columns of bolts with MC18x42.7 shown on right.

See diaphragm design table for diaphragm and bolt requirements.

**Diagram Design Table**

<table>
<thead>
<tr>
<th>Depth of Rolled Beam</th>
<th>Diaphragm Size</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>&lt; 30”</td>
<td>C15x33.9</td>
<td>2 bolts @ 3&quot;</td>
</tr>
<tr>
<td>30” &lt; D ≤ 36”</td>
<td>MC18x42.7</td>
<td>2 bolts @ 3&quot;</td>
</tr>
</tbody>
</table>

**Intermediate Diaphragm Notes**

**General**

These standard diaphragms are limited to tangent rolled beam members with beam spacings ≥ 10.5 ft.

The fabricator shall check longitudinal diaphragm spacing so that interference with bolted splices, anchor bolts, complete flange welding or flange welded splices and bearing stoppers is avoided. Spacing shall be adjusted to provide at least six (6) inches of longitudinal clearance.

**Material**

All intermediate diaphragm material shall be A709 Grade 36, 50 or 50W. The type and grade shall be the same as that specified for the structure main steel.

**Fasteners**

All bolts shall be 1” # A325, Grade 50, with threads excluded from the shear plane.

For galvanized, metalized and painted steel, type 1 galvanized bolts shall be used. For bare A709 Grade 36 steel, type 3 bolts shall be used. Each anchor assembly shall include a bolt, nut and two (2) washers, tightened according to CMS #5 prior to deck placement.

Minimum edge distances for bolts shall be 1½”.

All holes to be 1¼” dia. in connection plates and 1⅞” dia. in diaphragm.
SCUPPER NOTES:

GENERAL: THE DESIGNER SHALL SHOW THE LOCATION OF THE SCUPPERS IN A PLAN VIEW OF THE BRIDGE DECK ON THE CONTRACT DOCUMENTS.

SUPPLEMENTAL REINFORCEMENT: ENFORCE THE CONCRETE DECK AT THE SCUPPER CORNERS OBLIQUELY. THE CURB LINE WITH ONE #4 BAR, 3'-0" LONG ORIENTED AT 45° TO THE LONG AXES OF THE SCUPPERS AND LOCATED JUST BELOW THE TRANSVERSE BAR IN THE TOP MAT OF STEEL.

MATERIAL: FURNISH STRUCTURAL STEEL TUBING ACCORDING TO TYP. STRUCTURAL TUBING IN ACCORDANCE WITH ASTM A606. ALL OTHER MATERIAL SHALL BE ASTM 50 OR 50W. GALVANIZE SUPPORT ANGLES, BARS, BOLTS, NUTS AND WASHERS IN ACCORDANCE WITH R-02.

DECK CROWN/SUPERELEVATION: CUT THE TOP OF THE STEEL TUBING SQUARE FOR CROSS SLOPES 0° PER FOOT AND LESS. BUT THE TOP OF THE TUBING PARALLEL TO THE DECK SURFACE FOR CROSS SLOPES GREATER THAN 0° PER FOOT.

FASTENER NOTES:

1. THE SIZE OF THE SLOTTED HOLES SHALL BE 3/8" x 1".
   THE SLOT SHALL BE HORIZONTAL IN THE 3/8" x 1" BAR AND VERTICAL IN THE ANGLE. HOLES SHALL BE #4 MILD STEEL TYPE 5, GALVANIZED, WITH HEX NUTS AND TWO WASHERS TIGHTEN ACCORDING TO 513.

2. THE HOLES SHALL BE 1" DIAMETER A325 TYPE 1 GALVANIZED FOR GALVANIZED, METALIZED OR PAINTED STRUCTURES OR #4 MILD STEEL TYPE 5 FOR BARE WEATHERING STEEL STRUCTURES. EACH ASSEMBLY SHALL INCLUDE A BOLT, NUT AND TWO WASHERS. TIGHTEN ACCORDING TO 513.

3. THE BOLTS SHALL BE 3/8" DIAMETER A325 TYPE 1 GALVANIZED FOR BARE WEATHERING STEEL STRUCTURES. EACH ASSEMBLY SHALL INCLUDE A BOLT, NUT AND TWO WASHERS. TIGHTEN ACCORDING TO 513.

4. THE SLOT SHALL BE HORIZONTAL IN THE 3/8" x 1" BAR AND VERTICAL IN THE ANGLE. HOLES SHALL BE #4 MILD STEEL TYPE 5, GALVANIZED, WITH HEX NUTS AND TWO WASHERS TIGHTEN ACCORDING TO 513.

5. THE SLOTTED HOLES SHALL BE 3/8" x 1".
   THE SLOT SHALL BE HORIZONTAL IN THE 3/8" x 1" BAR AND VERTICAL IN THE ANGLE. HOLES SHALL BE #4 MILD STEEL TYPE 5, GALVANIZED, WITH HEX NUTS AND TWO WASHERS TIGHTEN ACCORDING TO 513.

BASIS OF PAYMENT: THE DEPARTMENT WILL PAY FOR THE SUPPLEMENTAL REINFORCEMENT DESCRIBED ABOVE SEPARATELY UNDER ITEM 455.