TO BE USED FOR MAINTENANCE PURPOSES FOR EXISTING BRIDGE CONNECTIONS ONLY.

Table 1.

<table>
<thead>
<tr>
<th>CANTILEVER LENGTH IN FEET &quot;C&quot; (MAX. 18'-0&quot;)</th>
<th>COLUMN NO HANGER</th>
<th>HANGER</th>
<th>DIAPHRAGM</th>
</tr>
</thead>
<tbody>
<tr>
<td>#6 X 7.85</td>
<td>C &lt; 5</td>
<td>C ≥ 5</td>
<td>C ≥ 12</td>
</tr>
<tr>
<td>#5 X 5.37</td>
<td>C &lt; 7</td>
<td>C ≥ 7</td>
<td>C ≥ 12</td>
</tr>
</tbody>
</table>

*SEE DIAPHRAGM DETAIL SHEET #2

COLUMN HANGER AND SELECTION PROCEDURE:

A. COLUMN
1. Determine "B" using the longest required column. (B = 0")
2. L₀ = 1/2 of the distance between the top of the sign and the top clip angle bolt.
   L = 1/2 [(H + B) - 2.01]
3. Determine the sign area. (sq. ft.)
4. Use Table 2 on sheet 3, determine the size and number of columns required.

B. HANGER
1. Calculate cantilever "C". (Refer to Sign-840 series)
2. Use inset Table 1 to determine if hangers are required.

NOTES:
1.) Type "E" connection denotes a two-bracket sign connection.
2.) Type "F" connection denotes a three-bracket sign connection.

PLAN VIEW

TYPE E: 2 BRACKETS
SIGN CONNECTION

TYPE F: 3 BRACKETS
SIGN CONNECTION

Michigan Department of Transportation
BUREAU OF HIGHWAY DEVELOPMENT
STANDARD PLAN FOR
BOLTED BRIDGE CONNECTION
OLD TYPE E & F (θ ≥10°)
3" x 2 1/2" x 3/8" x 0'- 5 1/2" Angle (steel) place 1/8" elastomeric (or equivalent) pad to cover entire surface area between steel & aluminum sections.

TO BE USED FOR MAINTENANCE PURPOSES FOR EXISTING BRIDGE CONNECTIONS ONLY.
If bridge beam web is less than 7/16" thick, add 3 1/2" x 3" x 2'-0" steel E on inside face.

If bridge beam web is less than 7/16" thick, add 36"x3"x3/8" plate on this side of web.

(SHOWING ANGLES "IN" ORIENTATION)
3/4 Ø Stainless steel (ASTM 300 Series) expansion anchor bolt with one flat washer and nylon insert locknut, centered in 13/16" Ø holes in hanger

Bridge fascia

Hanger 6" x 3/8"? -

1 1/4" - 3 1/2"

2 1/2" (Typ.)

1 3/4"

3 1/2" (Typ.)

3 1/2"

2 1/2"

5 1/2"

2 1/2"

2 1/2" Min. typ.

2 1/2" 5 1/2" 8" 5 1/2" 2 1/2"

24"

Drill 11/16" Ø holes to template for 2 1/2" x 5/8" Ø bolts, nuts, flat washers & lock washers.

SECTION C - C

NOTES:

1. All bolts shall be galvanized high strength bolts (ASTM A-325). All bolts, nuts, and washers shall be hot-dip galvanized according to ASTM A-153. Nuts shall be tapped 0.015" oversize.

2. All alum. components shall be 6061 - T6 alum. alloy. All steel components shall be A-36 and shall be hot-dip galvanized according to ASTM A-123.

3. Sign location may be shifted to avoid joints or stiffeners.

4. Sign connection to mounting support columns shall have the same bolt arrangement as shown for connections for sign to mounting supports for cantilevers and trusses. (Typical plan VIII-700, Sign Connection Details)

5. Bottom edge of sign shall be horizontal when erected and shall be a minimum of 1'-6" above the lower bridge beam flange at all points.

6. Expansion anchors shall be chosen from the current qualified products list.

7. Expansion anchors shall be installed as per manufacturer's recommendations.

8. \( \theta \) = angle between sign & bridge fascia. Angle \( \theta \) is a function of permissible cantilever "C" and sign length "L". See Sign-840 series.

Table 2.

<table>
<thead>
<tr>
<th>SIGN AREA (SQ. FT.)</th>
<th>SIGN AREA (SQ. FT.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>40</td>
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<tr>
<td>120</td>
<td>120</td>
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</tbody>
</table>

NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.