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

SIGN CONNECTION

TYPE E: 2 BRACKETS

NOTES:
1. Calculate cantilever "C". (Refer to Sign-840 series)
2. Use inset Table 1 to determine if hangers are required.
3. Determine the sign area. (sq. ft.)
4. Use Table 2 on sheet 3, determine the size and number of columns required.
5. Determine "B" using the largest required column. (B = 0")
6. Use Table 2 on sheet 3, determine the size and number of columns required.
7. Type "E" connection denotes a two-bracket sign connection.
8. Type "F" connection denotes a three-bracket sign connection.

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

COLUMN HANGER AND SELECTION PROCEDURE:

A. COLUMN
1. Determine "B" using the largest required column. (B = 0")
2. L = 1/2 of the distance between the top of the sign and the top clip angle bolt.
3. H = 2.0 + (H + B)/2.0
4. Determine the sign area. (sq. ft.)
5. Use Table 1 on sheet 3, determine the size and number of columns required.

B. HANGER
1. Calculate cantilever "C". (Refer to Sign-840 series)
2. Use Table 2 on sheet 3, determine the size and number of columns required.
3. Type "E" connection denotes a two-bracket sign connection.
4. Type "F" connection denotes a three-bracket sign connection.

SIGN CONNECTION

TYPE F: 3 BRACKETS

DETAIL A

DIAPHRAGM DETAIL

SECTION B - B

DETAIL C

PLAN VIEW

DETAIL B

ELEVATION

DIAPHRAGM DETAIL

SEE DETAILS D & B

DEPARTMENT DIRECTOR
MICHIGAN DEPARTMENT OF TRANSPORTATION

CHECKED BY:
DRAWN BY:
PREPARED
DIRECTOR, BUREAU OF FIELD SERVICES
DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT
MICHIGAN DEPARTMENT OF TRANSPORTATION

BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR BOLTED BRIDGE CONNECTION OLD TYPE E & F (90°)

APPROVED BY:
Kirk T. Steudle
BADU
DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT

NOTE: THE ORIGINAL SIGNED COPY IS KEPT ON FILE AT THE MICHIGAN DEPARTMENT OF TRANSPORTATION.
NOT TO SCALE

MICHIGAN DEPARTMENT OF TRANSPORTATION

SPECIAL DETAILS

04/16/13

SIGN-831-A

SHEET 3 of 4

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

Table 2.

<table>
<thead>
<tr>
<th>Lb (L. FT.)</th>
<th>SIGN AREA (SQ. FT.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>

NOTES:
1. All bolts shall be galvanized high strength bolts (ASTM A-325), all bolts, nuts and washers shall be hot-dip galvanized as per ASTM A-153. Nuts shall be tapped 0.015 oversize.
2. All sign components shall be .125" (1/8") clamped together. All sign components shall be A-36 steel and shall be hot-dip galvanized according to ASTM A-153.
3. Sign location may be shifted to avoid joints or obstructions.
4. Sign connection to supporting columns shall have the same bolt arrangement as shown for connecting to existing supports for beam tapers and changes in plan width. Sign connection on sheet B.
5. Bottom edge of sign shall be horizontal, when installed it shall be a minimum of 1'-6" above the lower beam soffit range of 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. The angle between sign & support facia must be an angle of 45° or less. See Sign-840 series.

DETAIL B

If bridge web is less than 3/16" thick add 3/8" x 3/4" x 0" plate on inside face.

DETAIL D

(SHOWING ANGLES "IN" ORIENTATION)