# Illinois Tollway Standard Drawing Revisions

## Section F Sign Structure

<table>
<thead>
<tr>
<th>Standard</th>
<th>Modification Summary</th>
<th>Effective: 03-01-2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1-10</td>
<td>OVERHEAD SIGN STRUCTURE SPAN TYPE STRUCTURE DETAILS</td>
<td></td>
</tr>
<tr>
<td>Sheet 1</td>
<td>Added washer and nuts callout in View C-C. Added Note 9 for design span length.</td>
<td></td>
</tr>
<tr>
<td>Sheet 2</td>
<td>Revised callout for angle size on Detail A, Section A-A, Section B-B, Section G-G and Section F-F.</td>
<td></td>
</tr>
<tr>
<td>Sheet 3</td>
<td>Update Anchor Bolt Detail to show Hex Nut and Lock Nut.</td>
<td></td>
</tr>
<tr>
<td>Sheet 4</td>
<td>Changed grade beam to Class DS Concrete.</td>
<td></td>
</tr>
<tr>
<td>F8-08</td>
<td>OVERHEAD SIGN STRUCTURE SIGN, LUMINARE AND BEACON SUPPORTS</td>
<td></td>
</tr>
<tr>
<td>Sheet 1</td>
<td>Added beacon detail.</td>
<td></td>
</tr>
<tr>
<td>F4-11</td>
<td>OVERHEAD SIGN STRUCTURE CANTILEVER TYPE STRUCTURE DETAILS</td>
<td></td>
</tr>
<tr>
<td>Sheet 2</td>
<td>Updated Table C: Post - Wall Thickness.</td>
<td></td>
</tr>
<tr>
<td>Sheet 4</td>
<td>Update Anchor Bolt Detail to show Hex Nut and Lock Nut. Added lock nut to both elevations.</td>
<td></td>
</tr>
<tr>
<td>Sheet 5</td>
<td>Added lock nut to both elevations.</td>
<td></td>
</tr>
<tr>
<td>Sheet 6</td>
<td>Revised concrete column slits to be shown continuous.</td>
<td></td>
</tr>
<tr>
<td>F11-08</td>
<td>MILEPOST MARKER</td>
<td></td>
</tr>
<tr>
<td>Sheet 1</td>
<td>Added vertical clearance of the Milepost in 'SECTION WITHOUT GUTTER'.</td>
<td></td>
</tr>
<tr>
<td>Sheet 2</td>
<td>Revised barrier mount detail and General notes.</td>
<td></td>
</tr>
<tr>
<td>F13-05</td>
<td>OVERHEAD SIGN STRUCTURE MONOTUBE TYPE (STEEL) MAINLINE STRUCTURE DETAILS</td>
<td></td>
</tr>
<tr>
<td>Sheet 1</td>
<td>Added handhole on Elevation, Section A-A and Plan.</td>
<td></td>
</tr>
<tr>
<td>Sheet 2</td>
<td>Added handhole on Plan and Elevation.</td>
<td></td>
</tr>
<tr>
<td>Sheet 3</td>
<td>Added handhole on Plan and Elevation.</td>
<td></td>
</tr>
<tr>
<td>Sheet 4</td>
<td>Added installation and inspection requirement of Structural Steel, Note 3.</td>
<td></td>
</tr>
<tr>
<td>Sheet 5</td>
<td>Added handholes on Section A-A. Added note for installation and inspection of splice bolts. Added lock nut to Column Base anchor bolts.</td>
<td></td>
</tr>
<tr>
<td>Sheet 6</td>
<td>Added Heavy Hex Nut to the Anchor Bolt Assembly and Side Elevation. Revised barrier dimensions and updated dimension detail of reinforcement of bar details and bar list.</td>
<td></td>
</tr>
<tr>
<td>Sheet 7</td>
<td>Added Heavy Hex Nut to the Median Foundation for Plaza Frames. Revised barrier dimension.</td>
<td></td>
</tr>
<tr>
<td>Sheet 8</td>
<td>Revised barrier dimensions and updated dimension detail of reinforcement of bar details and bar list.</td>
<td></td>
</tr>
<tr>
<td>F14-05</td>
<td>OVERHEAD SIGN STRUCTURE BUTTERFLY TYPE STRUCTURE DETAILS</td>
<td></td>
</tr>
<tr>
<td>Sheet 4</td>
<td>Added Heavy Hex Nut to the Anchor Bolt Assembly and Side Elevation.</td>
<td></td>
</tr>
<tr>
<td>Sheet 5</td>
<td>Added Heavy Hex Nut to the Anchor Bolt Assembly to Front and Side Elevation.</td>
<td></td>
</tr>
<tr>
<td>Sheet 6</td>
<td>Updated crashwall height.</td>
<td></td>
</tr>
<tr>
<td>F15-04</td>
<td>OVERHEAD SIGN STRUCTURE MONOTUBE TYPE (STEEL) STRUCTURE DETAILS FOR AET RAMP</td>
<td></td>
</tr>
<tr>
<td>Sheet 2</td>
<td>Added handhole on Plan and Elevation.</td>
<td></td>
</tr>
<tr>
<td>Sheet 3</td>
<td>Added handhole on Plan and Elevation.</td>
<td></td>
</tr>
<tr>
<td>Sheet 4</td>
<td>Added installation and inspection requirement of Structural Steel, Note 3.</td>
<td></td>
</tr>
<tr>
<td>Sheet 5</td>
<td>Added handholes on Section A-A. Added note for installation and inspection of splice bolts. Added lock nut to Column Base anchor bolts.</td>
<td></td>
</tr>
<tr>
<td>Sheet 6</td>
<td>Added Heavy Hex Nut to the Anchor Bolt Assembly and Side Elevation. Revised barrier dimensions and updated dimension detail of reinforcement of bar details and bar list.</td>
<td></td>
</tr>
<tr>
<td>Sheet 7</td>
<td>Added Heavy Hex Nut to Side Face Barrier and Barrier Base Elevation. Revised barrier dimensions and updated dimension detail of reinforcement of bar details and bar list and quantities.</td>
<td></td>
</tr>
<tr>
<td>F16-03</td>
<td>OVERHEAD SIGN STRUCTURE MONOTUBE TYPE (STEEL) STRUCTURE DETAILS FOR CASH-IPO RAMP</td>
<td></td>
</tr>
<tr>
<td>Sheet 2</td>
<td>Added handhole on Plan and Elevation.</td>
<td></td>
</tr>
<tr>
<td>Sheet 3</td>
<td>Added handhole on Plan and Elevation.</td>
<td></td>
</tr>
<tr>
<td>Sheet 4</td>
<td>Added Heavy Hex Nut to the anchors in Column Base. Added installation and inspection requirement of Structural Steel, Note 3.</td>
<td></td>
</tr>
<tr>
<td>Sheet 5</td>
<td>Added handholes on View A-A. Added note for installation and inspection of splice bolts.</td>
<td></td>
</tr>
<tr>
<td>Sheet 6</td>
<td>Added Heavy Hex Nut to the Anchor Bolt Assembly and Side Elevation. Revised barrier dimensions and updated dimension detail of reinforcement of bar details and bar list and quantities.</td>
<td></td>
</tr>
<tr>
<td>Sheet 7</td>
<td>Revised barrier dimensions and updated dimension detail of reinforcement of bar details and bar list and quantities.</td>
<td></td>
</tr>
<tr>
<td>F17-05</td>
<td>OVERHEAD SIGN STRUCTURE SPAN TYPE (STEEL) STRUCTURE DETAILS</td>
<td></td>
</tr>
<tr>
<td>Sheet 2</td>
<td>Revised dimensions to allow for intermediate span lengths between the design truss types</td>
<td></td>
</tr>
<tr>
<td>Sheet 3</td>
<td>Revised the 58 typical dimension to varies</td>
<td></td>
</tr>
<tr>
<td>Sheet 5</td>
<td>Added Heavy Hex Nut to the Anchor Bolts.</td>
<td></td>
</tr>
<tr>
<td>Sheet 6</td>
<td>Added Heavy Hex Nut to the Anchor Bolt Assembly and Detail B.</td>
<td></td>
</tr>
<tr>
<td>Sheet 8</td>
<td>Updated crashwall height and Concrete SI quantity.</td>
<td></td>
</tr>
<tr>
<td>F18-00</td>
<td>PARAPET MOUNTED SIGN SUPPORT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Add mounting details for the sign support on the parapet.</td>
<td></td>
</tr>
<tr>
<td>F19-00</td>
<td>NOISE ABATEMENT WALL MOUNTED SIGN SUPPORT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Add mounting details for the sign support on the noise abatement wall.</td>
<td></td>
</tr>
<tr>
<td>F20-00</td>
<td>MEDIAN BARRIER MOUNTED SIGN SUPPORT</td>
<td>Add mounting details for the sign support on the median barrier.</td>
</tr>
</tbody>
</table>
TABLE 11: MATERIAL SPECIFICATIONS FOR STRUCTURAL STEEL AND FASTENERS

<table>
<thead>
<tr>
<th>ELEMENT OF STRUCTURE</th>
<th>SPECIFICATION</th>
<th>MINIMUM TYPICAL THICKNESS</th>
<th>MINIMUM TYPICAL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEEL POST</td>
<td>ASTM A500</td>
<td>2&quot;</td>
<td>24'</td>
</tr>
<tr>
<td>STEEL PIPE</td>
<td>ASTM A500</td>
<td>1-1/4&quot;</td>
<td>4’</td>
</tr>
<tr>
<td>STEEL PLATE</td>
<td>ASTM A500</td>
<td>3/16&quot;</td>
<td>25’</td>
</tr>
<tr>
<td>STAINLESS STEEL</td>
<td>TYPE 302</td>
<td>3/16&quot;</td>
<td>25’</td>
</tr>
</tbody>
</table>

N.B.: ALL STEEL FASTENERS SHALL SATISFY THE REQUIREMENTS OF ASTM A325, ASTM A490, OR AN APPROVED ALTERNATE.

GENERAL NOTES:
1. This is a graphic showing Cantilever Type Overhead Sign Structure Details.
2. The project includes a cantilever sign placed at the end of a roadway.
3. The structure is designed to withstand wind loads and ensure adequate vertical clearance.
4. All top and leading edge bolts shall be tightened against the base plate with a minimum torque of 5500 ft-lb.

CONSTRUCTION SPECIFICATIONS:
1. All materials, except as shown, fabrication, erection, and installation requirements. All materials, except as shown, shall conform to the latest Illinois Tollway Supplemental Specifications.
2. The cantilever sign structure is designed for 35 PSF wind pressure on the sign panel.

DESIGN SPECIFICATIONS:
1. The trusses and the standard truss are designed to satisfy the 2013 AASHTO LRFD Design Specifications for structural steel and the 2012 AASHTO LRFD Bridge Design Specifications for concrete.
2. The cantilever sign structure is designed for 35 PSF wind pressure on the sign panel.

DESIGN UNIT STRESSES FOR REINFORCED CONCRETE:
1. Class C Concrete: Fc = 3,500 psi
2. Class D Concrete: Fc = 4,200 psi

LOADING:
1. The Cantilever Trusses are designed for an 18'-0" deep sign panel with a maximum width of 24'-0".
2. All cantilever trusses are designed for 35 psi wind pressure on the truss members and sign panel.

DATE: 2-07-2014

Sheets 1 of 12

STANDARD F4-11
TABLE C: TRUSS AND POST DETAILS FOR 18'-0'' (MAX.) SIGN HEIGHT

<table>
<thead>
<tr>
<th>DESIGNSPANLENGTH</th>
<th>TRUSS TYPE</th>
<th>TRUSS SIZE</th>
<th>TRUSS HEIGHT</th>
<th>MAX. SPAN</th>
<th>POST BASE</th>
<th>POST SIZE</th>
<th>REINFORCEMENT</th>
<th>CHORD</th>
<th>PANELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>20'</td>
<td>20'-0'</td>
<td>2'-6''</td>
<td>1'-0''</td>
<td>15'-0''</td>
<td>2'/2''</td>
<td>3'/3''</td>
<td>1'/2''</td>
<td>2'/2''</td>
<td>5'</td>
</tr>
<tr>
<td>25</td>
<td>25'-0'</td>
<td>3'-4''</td>
<td>1'-0''</td>
<td>15'-0''</td>
<td>2'/2''</td>
<td>3'/3''</td>
<td>1'/2''</td>
<td>2'/2''</td>
<td>5'</td>
</tr>
<tr>
<td>30</td>
<td>30'-0'</td>
<td>4'-2''</td>
<td>1'-0''</td>
<td>15'-0''</td>
<td>2'/2''</td>
<td>3'/3''</td>
<td>1'/2''</td>
<td>2'/2''</td>
<td>5'</td>
</tr>
<tr>
<td>40</td>
<td>40'-0'</td>
<td>5'-0''</td>
<td>1'-0''</td>
<td>15'-0''</td>
<td>2'/2''</td>
<td>3'/3''</td>
<td>1'/2''</td>
<td>2'/2''</td>
<td>5'</td>
</tr>
<tr>
<td>50</td>
<td>50'-0'</td>
<td>6'-0''</td>
<td>1'-0''</td>
<td>15'-0''</td>
<td>2'/2''</td>
<td>3'/3''</td>
<td>1'/2''</td>
<td>2'/2''</td>
<td>5'</td>
</tr>
</tbody>
</table>

NOTES:
1. Truss members shall be spaced a minimum of 12 times the wall thickness of the largest connecting members to ensure proper wall spacing.
2. For sections B-B, C-C, D-D, E-E and F-F see sheet 3 of this series.
3. For sign support details, see Illinois Tollway Standard Drawing F4-11, for type 1 truss - architectural sign support details. See sheet 2 of this series.
4. Orientation of interior diagonals shown in section A-A depicts booster to facilitate drainage of liquid. Also, alternate interior diagonals at alternate panel studs.
5. Design span lengths shall be spaced a minimum of 12 times the wall thickness of the largest connecting members to ensure proper wall spacing.
6. TRUSS MEMBERS AND DETAILS TRUSS & SIGN PANELS MAY BE REPLACED WITH PANELS OF SIMILAR TYPES.
7. TRUSS & SIGN PANELS SHALL BE SPACED A MINIMUM OF 3 TIMES THE WALL THICKNESS OF THE LARGEST CONNECTING MEMBERS TO ENSURE PROPER WELD SPACING.
8. TRUSS MEMBERS SHALL BE CUT TOE EDGE OF DIAGONAL TO FIT CHORD AND POST END JOINT DETAIL.
9. TRUSS & SIGN PANELS MAY BE REPLACED WITH PANELS OF SIMILAR TYPES.
10. TRUSS & SIGN PANELS SHALL BE SPACED A MINIMUM OF 3 TIMES THE WALL THICKNESS OF THE LARGEST CONNECTING MEMBERS TO ENSURE PROPER WELD SPACING.
NOTES:
1. OZING TOP if required to fully seat plate. Repairs damaged galvanizing before assembly.
2. After tightening lower connection bolts, fill cap with non-hardening silicone only.
3. For exterior exposure and acceptable to the engineer.
4. After galvanizing, collar I.D. shall equal O.D. of galvanized post plus 1".
5. Optimum full penetration weld in collar. "Poor locations maximum 1/8" appx. A-ray on US R600 all bolts shown are high strength.
6. NOTE 3 and NOTE 6 SEE DETAIL 5.
7. OZING TOP if required to fully seat plate. Repairs damaged galvanizing before assembly.

SECTION B-B

SECTION C-C

SECTION E-E

SECTION F-F

CONTROLED WASHERS

OVERRIDE SIGN STRUCTURE

CANTILEVER TYPE

OVERHEAD SIGN STRUCTURE DETAILS

TABLE D: BOLT SCHEDULE

<table>
<thead>
<tr>
<th>BOLT SIZE</th>
<th>POST SPACING (x)</th>
<th>BOLT SPACING (y)</th>
<th>MINIMUM GAP (z)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot;</td>
<td>1/8&quot;</td>
<td>1/8&quot;</td>
<td>1/8&quot;</td>
</tr>
<tr>
<td>1/8&quot;</td>
<td>1/8&quot;</td>
<td>1/8&quot;</td>
<td>1/8&quot;</td>
</tr>
<tr>
<td>5/32&quot;</td>
<td>1/8&quot;</td>
<td>1/8&quot;</td>
<td>1/8&quot;</td>
</tr>
</tbody>
</table>

DATE: 3-31-2014

SHEET 3 OF 12

STANDARD F4-11
OVERHEAD SIGN STRUCTURE
CANTILEVER TYPE
STRUCTURE DETAILS

NOTE:
DAMPER: ONE DAMPER PER TRUSS. IN LBS., STOCKBRIDGE-TYPE
29" MINIMUM BETWEEN ENDS OF WEIGHTS.

SEE TABLE C ON SHEET 2 OF THIS SERIES

TOP CHORD TO CROSS TUBE
U-BOLT DETAIL

STANDARD F4-11

APPROVED: 3-3-2014
PLAN

SECTION A-A

NOTE:
1. DMS TYPE 2W - WALK-IN SHALL BE ATTACHED TO TRUSS AS CLOSE TO PANEL JOWLS AS POSSIBLE.
2. VERIFY SIGN SUPPORT MEMBER LENGTH PRIOR TO FABRICATION.
3. DMS TYPE 2W - WALK-IN MANUFACTURER SHALL DESIGN, PROVIDE AND INSTALL HORIZONTAL MOUNTING MEMBERS. VERTICAL SPACING OF HORIZONTAL MEMBERS SHALL BE DESIGNED BY DMS TYPE 2W - WALK-IN MANUFACTURER. VERIFY VERTICAL SPACING WITH HOLES FOR STAINLESS STEEL U-BOLT.

TABLE I: SIGN SUPPORT TABLE

<table>
<thead>
<tr>
<th>SIGN WIDTH</th>
<th>NUMBER OF SIGN SUPPORTS REQUIRED</th>
</tr>
</thead>
<tbody>
<tr>
<td>LESS THAN</td>
<td>GREATER THAN</td>
</tr>
<tr>
<td>8'-0&quot;</td>
<td>18'-6&quot;</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

TABLE J: DMS TYPE 2W - WALK-IN Support Detail

<table>
<thead>
<tr>
<th>MAXIMUM TRUSS LENGTH</th>
<th>MAXIMUM HEIGHT</th>
<th>MAXIMUM DEPTH</th>
<th>MAXIMUM WIDTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>2W</td>
<td>8'-0&quot;</td>
<td>3'-4&quot;</td>
<td>4'-12&quot;</td>
</tr>
</tbody>
</table>

STAINLESS STEEL U-BOLT DETAIL

OVERHEAD SIGN STRUCTURE CANTILEVER TYPE STRUCTURE DETAILS

STANDARD F4-11
TYPICAL FRONT ELEVATION

- Bracket and grating dimensions are nominal and may vary based on actual DMS Type 2W - Walk-in dimensions. All walked support brackets using devices.

BRACKET AND GRATING DIMENSIONS

- Nominal, limited for clarity. For Section A-A, see Sheet 12 of this series.

SECTION A-A

PLACE ALL SIGN AND WALKWAY BRACKETS AS CLOSE TO PANEL POINTS AS PRACTICAL.

NOTES:

- Space walkway brackets and sign brackets wide for efficiency and within limits shown.
- * = 1/2" maximum, 4" minimum end of sign to 6" or nearest bracket.
- * = 6" maximum, 4" minimum end of walkway bracket to 6" or nearest support brackets, Mostly for Section A-A, see Sheet 12 of this series.
- Walkway and truss grating width dimensions are nominal and may vary ± 1/2" based on available standard width.
- Place all sign and walkway brackets close to panel points as practical.
- DMS Type 2W - Walk-In shall have the door at the end, opposite the walkway secured in a closed position.

BRACKET TABLE

<table>
<thead>
<tr>
<th>Length of Bracket</th>
<th>Width of Grating</th>
<th>Quantity Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>1'-0&quot; - 2'-0&quot;</td>
<td>Less Than 3'-0&quot;</td>
<td>1</td>
</tr>
<tr>
<td>2'-0&quot; - 4'-0&quot;</td>
<td>Less Than 3'-0&quot;</td>
<td>2</td>
</tr>
<tr>
<td>4'-0&quot; - 5'-0&quot;</td>
<td>3'-0&quot; - 5'-0&quot;</td>
<td>3</td>
</tr>
<tr>
<td>5'-0&quot; - 7'-0&quot;</td>
<td>5'-0&quot; - 7'-0&quot;</td>
<td>4</td>
</tr>
<tr>
<td>7'-0&quot; - 10'-0&quot;</td>
<td>7'-0&quot; - 10'-0&quot;</td>
<td>5</td>
</tr>
</tbody>
</table>

OVERHEAD SIGN STRUCTURE
CANTILEVER TYPE
STRUCTURE DETAILS

STANDARD F4-11
NOTES:

1. DRILLING HOLES IN GRATING MAY BE DONE IN SHOP OR FIELD, BASED ON CONTRACTOR'S PREFERENCE AND SUBJECT TO ACCURATE ALIGNMENT.

2. IF MINIMAL JOINT PRESENTS, WELD ANGLE TO POSTS AND 2" EXTENSION BARS. SEE SHEET 12 OF THIS SERIES.

3. 1/2" x 1/2" x 2" PLATE ADDED TO WALKING POSTS TO PROTECT LOCATIONS THAT CONTACT GRATING.

4. DMS TYPE 2W - WALK-IN MANUFACTURED SMALL DESIGN AND SUPPLY HARDWARE FOR CONNECTION TO POSTS. BOLTS SHALL BE STAINLESS STEEL OR HOT DIP GALVANIZED HIGH STRENGTH PER IDOT SPECIFICATIONS.

DETAILS:

SECTIONS B-B

WALKWAY GRATING

SECTION W-W

DETAIL W

WALKWAY GRATING

SECTION D-D

DETAIL D

NOTE:

1. DRILLING HOLES IN GRATING MAY BE DONE IN SHOP OR FIELD, BASED ON CONTRACTOR'S PREFERENCE AND SUBJECT TO ACCURATE ALIGNMENT.

2. IF MINIMAL JOINT PRESENTS, WELD ANGLE TO POSTS AND 2" EXTENSION BARS. SEE SHEET 12 OF THIS SERIES.

3. 1/2" x 1/2" x 2" PLATE ADDED TO WALKING POSTS TO PROTECT LOCATIONS THAT CONTACT GRATING.

4. DMS TYPE 2W - WALK-IN MANUFACTURED SMALL DESIGN AND SUPPLY HARDWARE FOR CONNECTION TO POSTS. BOLTS SHALL BE STAINLESS STEEL OR HOT DIP GALVANIZED HIGH STRENGTH PER IDOT SPECIFICATIONS.
SIGN AND LUMINAIRE SUPPORT DETAIL

NOTES:

1. SIGN PANEL SHALL BE ATTACHED TO TRUSS AS CLOSE TO PANEL JOINTS AS POSSIBLE.
2. LUMINAIRE SUPPORT MEMBERS TO BE INSTALLED ONLY WHEN SIGN STRUCTURE IS TO BE ILLUMINATED.
3. BEACON SUPPORT MEMBERS TO BE INSTALLED ONLY WHEN FLASHING BEACON IS ILLUMINATED.
Hinge Joint

See Sheet 2 in This Series for Minimum Dimensions

Post & Foundation

2"

3"

#3 Bar Spiral at 8" Pitch

3 Extra Turns Min. Equally Spaced

2" Cl.

Top & Bottom

8 #5 Bars

Projection

Stub

Fuse Plate

Remove All Galvanizing Flaps or Seams in WASHER Contact Areas (TYP.)

FUSE PLATE DETAIL

FUSE PLATE

ALL BOLTS WITH HEX NUT AND WASHERS PER BOLT TYP.

FULLY TIGHTENED.

COATED UNTIL THE FUSE PLATE IS INSTALLED AND BOLTS ARE COATED WITH AN APPROVED GALVANIZING. POST FLANGE SHALL BE SAW CUT AFTER GALVANIZING

AND SAW CUT FLANGE AND FILLET AREAS (TYP.) BEFORE MAKING CUT

†" DIA. DRILL FOR ALL "POINT 1" AND "POINT 2" LOCATIONS, "CLEARANCE LINE" MUST BE AT OR ABOVE TOP OF STUB POST.

BREAKAWAY SIGN SUPPORT DETAILS

GENERAL NOTES

USE THE LATEST EDITION OF THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LAMINAR, AND TRAFFIC SIGNALS.

CONSTRUCTION: STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

LOADING: FOR 80 MPH WIND VELOCITY PLUS 30% GUST FACTOR NORMAL TO SIGN.

DESIGN STRESSES: STRUCTURAL STEEL - PER AASHTO M232.

WASHERS SHALL BE GALVANIZED IN ACCORDANCE WITH CURRENT AWS SPECIFICATIONS.

MATERIALS: ALL HIGH STRENGTH STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO STANDARD SPECIFICATIONS.

WELDING: ALL WELDING TO BE CONTINUOUS UNLESS OTHERWISE SHOWN. ALL WELDING TO BE DONE IN ACCORDANCE WITH CURRENT AWS SPECIFICATIONS.

HADE MATERIALS:

SOIL PRESSURE

FACTOR NORMAL TO SIGN.

LOADING:

CONSTRUCTION:

DESIGN:

MATERIALS:

WELDING:

GENERAL NOTES

STUB POST PROJECTION - SEE FOUNDATION TABLE SHEET 2 OF THIS SERIES

ADDITIONAL INFORMATION SHALL BE NEEDED TO FOUNDATION WHEN THE UNREINFORCED SECTION BECOMES MORE THAN 3".

SIGN POST & STUB POST AREAS (TYP.)

TYP.

MINUS ˆ" (TYP.)

POST FLANGE THICKNESS

FOR BOLT DIAMETER, TORQUE AND BOLTING PROCEDURE.

FOR 80 MPH WIND VELOCITY PLUS 30% GUST

AND THE SPECIAL PROVISIONS.

THE LATEST EDITION OF THE "AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LAMINAR, AND TRAFFIC SIGNALS".

ALL HIGH STRENGTH STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO STANDARD SPECIFICATIONS.

FOR 80 MPH WIND VELOCITY PLUS 30% GUST FACTOR NORMAL TO SIGN.

STRUCTURAL STEEL - PER AASHTO M232.

HIGH STRENGTH STEEL BOLTS, NUTS AND HARDENED WASHERS SHALL CONFORM TO STANDARD SPECIFICATIONS.

SIGN PANEL

SUBJECT TO LOCATION SKETCH

SIGN POST & STUB POST

** FOR ALL "POINT 1" AND "POINT 2" LOCATIONS, "CLEARANCE LINE" MUST BE AT OR ABOVE TOP OF STUB POST.
**Foundation Table**

<table>
<thead>
<tr>
<th>POST</th>
<th>FOUNDATION TABLE</th>
<th>REINFORCEMENT</th>
<th>SUB POST</th>
<th>HOLES AND PROJECTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Base Connection Data Table**

<table>
<thead>
<tr>
<th>POST</th>
<th>BASE CONNECTION DATA TABLE</th>
<th>FUSE PLATE BOLT SIZE TABLE</th>
<th>FUSE PLATE BOLT SIZE TABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Procedure for Assembly of Base Connection**

1. Assemble post to stub with 4 x 3/8" bolts and one of the three flat washers on each bolt repetition of plate as shown.
2. Bolts may be used between plates to level posts.
3. Tighten bolts in base plate in a systematic order to the required torque.
4. Loosen each bolt and return to the required torque in the same order as initial tightening.
5. Space or center punch points at juncture of bolt and nut to prevent nut from loosening.

**Equivalent Torque Values**

<table>
<thead>
<tr>
<th>BOLT DIA.</th>
<th>BOLT TENSION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Procedure for Fuse Plate Bolt Tightening**

All friction fuse bolts shall be tightened in the shop as approved by the engineer according to one of the following methods:

1. Turn-of-Nut Tightening.
2. Tightening by use of a direct tension indicator.

The above methods of installation and tightening shall conform to the latest issue of the specification for structural joints using ASTM A-325 or A-490 bolts. For slip-critical connections as issued by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation.

Tightening shall be to such a degree as to obtain the following minimum residual tension in each bolt:

<table>
<thead>
<tr>
<th>MIN. RESIDUAL</th>
<th>MIN. RESIDUAL</th>
<th>MIN. RESIDUAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot;</td>
<td>10,000</td>
<td>1&quot;</td>
</tr>
<tr>
<td>1 1/4&quot;</td>
<td>12,000</td>
<td>2&quot;</td>
</tr>
<tr>
<td>1 1/2&quot;</td>
<td>14,000</td>
<td>2 1/2&quot;</td>
</tr>
<tr>
<td>1 3/4&quot;</td>
<td>17,000</td>
<td>3&quot;</td>
</tr>
</tbody>
</table>

**Attention:**

- **Quantity of Class II concrete consists of all concrete necessary for the foundation (cubic yards).**
- **This includes reinforcement bars and typical shaping required for one foundation.**
- **Includes weight of stub post with angles, Gussets, base plates, bolts, nuts, washers, plus base plates and Gussets on main posts, plus fuse plate of any with bolts, nuts and washers (one post).**

---

**Details Sheet 2 of 4**

**Illinois Railways**

**Breakaway Sign Support Details**

**Standard F9-05**
**CONDITION 1 - SIGN INSTALLATION**

(*) FORESLOPE 1:6 (V:H) OR FLATTER

1. **UNSHIELDED SLOPE**

- Roadway Pavement
- Paved Shoulder
- 4'-0" Aggregate Shoulder

2. **HINGE JOINT**

3. **PRIMARY PANEL**

4. **SECONDARY PANEL**

5. **TOP OF CONCRETE FOOTING FLUSH WITH GROUND (TYP.)**

6. **GROUND LINE**

**CONDITION 2 - SIGN INSTALLATION**

(*) FORESLOPE 1:6 (V:H) OR FLATTER

1. **UNSHIELDED SLOPE**

- Roadway Pavement
- Paved Shoulder
- 4'-0" Aggregate Shoulder

2. **HINGE JOINT**

3. **PRIMARY PANEL**

4. **SECONDARY PANEL**

5. **TOP OF CONCRETE FOOTING FLUSH WITH GROUND (TYP.)**

6. **GROUND LINE**

**CONDITION 3 - SIGN INSTALLATION**

1. **UNSHIELDED SLOPE**

- Roadway Pavement
- Paved Shoulder
- 4'-0" Aggregate Shoulder

2. **HINGE JOINT**

3. **PRIMARY PANEL**

4. **SECONDARY PANEL**

5. **TOP OF CONCRETE FOOTING FLUSH WITH GROUND (TYP.)**

6. **GROUND LINE**

**NOTES:**

1. SEE SIGN INSTALLATION SCHEDULE IN CONTRACT PLANS FOR DIMENSIONS.

2. THE DIMENSIONS OF ALL POSTS FOR GROUND MOUNTED SIGNS ARE BASED ON DESIGN CROSS SECTIONS. THE CONTRACTOR SHALL VERIFY REQUIRED POST LENGTHS IN THE FIELD PRIOR TO SUBMITTING SHOP DRAWINGS AND POST FABRICATION TO MAINTAIN THE CLEARANCES SHOWN.

3. SIGN FOUNDATION ELEVATIONS TO BE BASED ON FINISHED SLOPES.

4. ANY ADDITIONAL SIGN TO BE ADDED LATER MUST BE SUPPORTED BY THE EXISTING SIGN PANEL AND NOT THE SIGN POST. MINIMUM CLEARANCES SHALL BE MAINTAINED.

5. SIGNS THAT ARE PLACED WELL OUTSIDE THE CLEAR ZONE MAY BE INSTALLED WITH A MINIMUM HEIGHT OF 5 FEET, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE HORIZONTAL ELEVATION OF THE NEAR EDGE OF TRAVELED ROADWAY.

6. MINIMUM WEIGHT OF LOWEST POST SHALL BE 7'-0" MEASURED BETWEEN STAB PROJECTION AND HINGE JOINT.

7. FOR TWO POSTS SPACED LESS THAN 7 FEET APART, EACH POST SHALL HAVE A MASS LESS THAN 18 lb/ft.

8. WHEN THE TOTAL COMBINED WEIGHT OF THE TWO POSTS LOCATED WITHIN 7 FEET OF EACH OTHER EXCEEDS 600 lbs., THE SIGN SHALL BE PLACED WELL OUTSIDE THE CLEAR ZONE OR BE SHIELDED FROM VEHICULAR IMPACT.
NOTES:

1. SEE SIGN INSTALLATION SCHEDULE IN CONTRACT PLANS FOR DIMENSIONS.

2. THE DIMENSIONS OF ALL POSTS FOR GROUND MOUNTED SIGNS ARE BASED ON DESIGN CROSS SECTIONS. THE CONTRACTOR SHALL VERIFY REQUIRED POST LENGTHS IN THE FIELD, PRIOR TO SUBMITTING SHOP DRAWINGS AND POST FABRICATION TO MAINTAIN THE CLEARANCES SHOWN.

3. SIGN FOUNDATION ELEVATIONS TO BE BASED ON FINISHED SLOPES.

4. ANY ADDITIONAL SIGN TO BE ADDED LATER MUST BE SUPPORTED BY THE EXISTING SIGN PANEL AND NOT THE SIGN POST. MINIMUM CLEARANCES SHALL BE MAINTAINED.

5. SIGNS THAT ARE PLACED WELL OUTSIDE THE CLEAR ZONE MAY BE INSTALLED WITH A MINIMUM HEIGHT OF 5 FEET, MEASURED VERTICALLY FROM THE BOTTOM OF THE SIGN TO THE HORIZONTAL ELEVATION OF THE NEAR EDGE OF TRAVELED ROADWAY.

6. MINIMUM HEIGHT OF LOWEST POST SHALL BE 7'-0" MEASURED BETWEEN STUB PROJECTION AND HINGE JOINT.

7. FOR TWO POSTS SPACED LESS THAN 7 FEET APART, EACH POST SHALL HAVE A MASS LESS THAN 18 LB/FT.

8. WHEN THE TOTAL COMBINED WEIGHT OF THE TWO POSTS LOCATED WITHIN 7 FEET OF EACH OTHER EXCEEDS 600 LBS., THE SIGN SHALL BE PLACED WELL OUTSIDE THE CLEAR ZONE OR BE SHIELDED FROM VEHICULAR IMPACT.

SHIELDED SLOPE

CONDITION 1 - SIGN INSTALLATION

CONDITION 2 - SIGN INSTALLATION

CONDITION 3 - SIGN INSTALLATION

APPROVED DATE: 1-1-2010

SHEET 4 OF 4

SHIELDED SLOPE

STANDARD F9-05

BREAKAWAY SIGN SUPPORT DETAILS
GROUND MOUNT SIGN POSITIONING

TANGENT SECTION

CURVE SECTION

MEDIAN BARRIER SIGN POSITIONING

TANGENT SECTION

CURVE SECTION

LEGEND

DIRECTION OF TRAFFIC

RETAINING WALL OR NOISE WALL

SECTION WITH GUTTER

SECTION WITHOUT GUTTER

NOTE: MILEPOST MARKER HEIGHT FROM EDGE OF SHOULDER
NOT TO SCALE

BARRIER MOUNT DETAIL

TELESCOPING STEEL POSTS

GROUND MOUNT DETAIL

GENERAL NOTES:
1. ALL ANCHOR BOLTS FOR MIDDLE BARRIER MOUNT DETAIL SHALL BE ¾" Dia., RED HEAD "TRUBOLT" OR APPROVED EQUAL.
2. ALL DIMENSIONS ARE IN INCHES UNLESS SHOWN OTHERWISE.
3. FOLLOWING ARE THE STEPS FOR FASTENING THE MILEPOST MARKER SIGN PANEL. ALL MOUNTING DETAILS SHOWN ON THIS SHEET APPLY:
   a. Center all fasteners on the sign panel.
   b. Start and finish the fastener spacing using a minimum of 2'-0" from the top and bottom edge of the sign panel.
   c. The distance between successive fasteners shall not exceed 2'-0".
   d. Center the ¾" Dia. bolt in the middle of the sign.
   e. Use the same attachment for back to back milepost marker signs.
4. DISTANCE FROM THE EDGE OF SHOULDER TO THE BOTTOM OF THE MILEPOST MARKER SIGN SHALL BE A MINIMUM OF 4'-0" REGARDLESS OF BARRIER TYPE.
5. THE TOP SECTION SHALL BE TELESCOPED INTO THE BASE SECTION 12 INCHES AND FASTENED TOGETHER.
6. FOR ATTACHMENT TO BRIDGE PARAPET USE BARRIER WALL MOUNT DETAIL. ONLY ONE PANEL REQUIRED WHEN ATTACHED TO PARAPET ALONG OUTSIDE SHOULDERS.
7. BARRIER MOUNT DETAIL 2)

MILEPOST MARKER

STANDARD F11-06

2'-0" x 2'-0" x 1'-0" (2 GA)
2'-0" x 2'-0" x 2'-2" (2 GA)
2" x 2" x VARIES (12 GA)
2" x 2" x 5'-0" (2 GA)
2 1/8" x 2" x 12'-0" (4 GA)
NOTES:
1. SEE PLANS FOR SIGN SIZE AND LOCATION.
2. MAXIMUM PLAZA SIGN AREA IS 108 SQ. FT.
   MAXIMUM PLAZA SIGN LENGTH IS 36 FT.
ENTRANCE MONOTUBE PLAN

ENTRANCE MONOTUBE ELEVATION

NOTES:
1. FOUNDATIONS FOR PLAZA FRAMES ARE SHOWN ON SHEETS 6 AND 7 OF THIS SERIES.
2. FOR SECTIONS A-A, H-H, K-K, BASE PLATE SKIRT AND HAND HOLE DETAILS SEE SHEET 5 OF THIS SERIES.
3. FOR SECTION P-P SEE SHEET 4 OF THIS SERIES.
4. PROVIDE CAMBER AT MIDSPAN OF STRUCTURE.
5. DISCONTINUE 3/8" SQUARE BAR TO ALLOW 1/2" T & U-BOLT INSTALLATION.
6. WORK THIS SHEET WITH OVERHEAD SIGN STRUCTURES ENTRANCE MONOTUBE TYPE STEEL MAINLINE SUMMARY AND TOTAL BILL OF MATERIAL SHEET.

MONOTUBE FRAME TABLE

<table>
<thead>
<tr>
<th>TYPE</th>
<th>SPAN &quot;S&quot;</th>
<th>FRAME COLUMN</th>
<th>FRAME BEAM</th>
<th>CAMBER &quot;A&quot;</th>
<th>&quot;B&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>6'-0&quot;</td>
<td>HSS 18x6,500</td>
<td>HSS 18x6,500</td>
<td>2&quot;</td>
<td>1'-0&quot;</td>
</tr>
<tr>
<td>II</td>
<td>3'-0&quot;</td>
<td>HSS 18x6,500</td>
<td>HSS 18x6,500</td>
<td>4&quot;</td>
<td>2'-0&quot;</td>
</tr>
<tr>
<td>III</td>
<td>8'-0&quot;</td>
<td>HSS 18x6,500</td>
<td>HSS 18x6,500</td>
<td>4½&quot;</td>
<td>1'-10&quot;</td>
</tr>
</tbody>
</table>

BASE PLATE PLAN

MONOTUBE FRAMES

OVERHEAD SIGN STRUCTURE MONOTUBE TYPE STEEL MAINLINE STRUCTURE DETAILS

STANDARD F13-05
EXIT MONOTUBE PLAN

EXIT MONOTUBE ELEVATION

NOTES:
1. SEE SHEET 2 OF THIS SERIES FOR MONOTUBE FRAME TABLE, VIEW L-L, BASE PLATE DETAIL, AND ADDITIONAL NOTES.
2. WORK THIS SHEET WITH OVERHEAD SIGN STRUCTURES EXIT MONOTUBE STEEL SUMMARY AND TOTAL BILL OF MATERIAL SHEET.
GENERAL NOTES:
1. SEE THE ILLINOIS TOLLWAY STRUCTURE DESIGN MANUAL FOR MINIMUM VERTICAL CLEARANCE.
2. AFTER ADJUSTMENTS TO LEVEL FRAME BEAM AND ENSURE ADEQUATE VERTICAL CLEARANCE, TIGHTEN ALL TOP AND LEVELING NUTS AGAINST THE BASE PLATE WITH A MINIMUM TORQUE OF 200 LB.-FT. THEN PLACE STAINLESS STEEL WASHER AROUND THE PERIMETER OF THE BASE PLATE, SECURE TO BASE PLATE WITH STAINLESS STEEL BANDING.
3. REINFORCEMENT BARS DESIGNATED "EF" SHALL BE EPOXY COATED.

STRUCTURAL STEEL:
1. MATERIAL FOR THE MONOTUBE FRAME SHALL CONFORM TO THE REQUIREMENT OF ASTM A500 GRADE B, OTHER STRUCTURAL STEEL SHAPES AND PLATES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A53 UNLESS NOTED OTHERWISE.
2. PIPES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A53 GRADE B.
3. ANCHOR BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325 (AASHTO M164). OTHER BOLTS EXCLUDING ANCHOR BOLTS SHALL BE HIGH STRENGTH AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM F1554 (AASHTO M314). INSTALLATION AND INSPECTION OF ANCHOR BOLTS SHALL COMPLY WITH ILLINOIS TOLLWAY SPECIAL PROVISION "INTELLIGENT TRANSPORTATION SYSTEMS GANTRY FRAME STEEL". ANCHORS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A533 (AASHTO M32). SEE SHEET 6 OF THIS SERIES FOR GALVANIZED LENGTH.
5. BOLTS EXCLUDING ANCHOR BOLTS AND U-BOLTS SHALL BE HIGH STRENGTH AND SHALL CONFORM TO THE REQUIREMENTS OF ASTM A325 (AASHTO M164) GRADE 55, WITH A MINIMUM TENSILE STRENGTH OF 70,000 PSI.
6. ANCHOR BOLTS MAY BE EPOXY COATED.
7. HARDENED STEEL WASHERS SHALL CONFORM TO ASTM F436 AND GALVANIZED ACCORDING TO ASTM A153 (AASHTO M232).
8. TUBES FOR MONOTUBE FRAME, PIPES, STRUCTURAL STEEL SHAPES AND PLATES SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123 AFTER FABRICATION.
9. THE MONOTUBE FRAME BEAM, COLUMNS, BASE PLATE MATERIAL, AND SPLICES ARE CONSIDERED TENSION MEMBERS AND SHALL CONFORM TO THE IMPACT TESTING REQUIREMENT, ZONE 2.
10. WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS USING E70-XX ELECTRODES, AND SHALL CONFORM TO AWS D1.1 - "STRUCTURAL WELDING CODE - STEEL". ALL WELDS ON ARCHITECTURAL EXPOSED STEEL (AES) MEMBERS ARE TO BE GROUND SMOOTH AND FILLED.

NOTE:
VERIFY DIMENSION "V" WITH CAMERA MANUFACTURER.
**SECTION A-A**

**SECTION B-B**

**SECTION C-C**

**NOTES:**

2. FOR LOCATION OF ELECTRICAL JUNCTION BOXES ON THE WALL, SEE ELECTRICAL DETAIL SHEETS.

3. FOR SINGLE FACE BARRIER FOUNDATION DETAILS FOR PLAZA FRAMES SEE SHEET 6 OF THIS SERIES.

4. QUANTITIES FOR SINGLE FACE BARRIER ARE DETERMINED USING "C" = 10'. IF DIMENSION "C" IS GREATER THAN 10', ADJUST QUANTITIES ACCORDINGLY.

---

**ESTIMATED QUANTITY**

FOR ONE SINGLE FACE BARRIER

<table>
<thead>
<tr>
<th>ITEM</th>
<th>UNIT</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONCRETE STRUCTURES</td>
<td>CU. YD</td>
<td>33.6</td>
</tr>
<tr>
<td>REINFORCEMENT BARS, EPOXY COATED</td>
<td>POUND</td>
<td>5,840</td>
</tr>
<tr>
<td>PROTECTIVE COAT</td>
<td>SQ. YD</td>
<td>40.7</td>
</tr>
</tbody>
</table>
TRUSS UNIT TABLE

| TRUSS UNIT |
|------------|-------------|
| TRUSS SIZE | MAXIMUM SIZE |
| MINIMUM TYP. | TYP. |
| TRUSS MEMBERS AND DETAILS |
| TRUSS SUPPORT POST COLUMN |
| TOP & BOTTOM CHORD |
| M-MAXWEB | VERTICAL |
| HORIZONTAL | MAXWEB |
| MINWEB | MINWEB |
| LIMITS FOR PANEL | DIMENSION |
| IOF | |

NOTES:

1. There are twice as many horizontal diagonals as there are interior diagonals.
2. Post flanges shall be attached to each truss unit with the truss unit numbered to coincide with the catalog number of the unit. Truss units shall be inscribed with the catalog number of the unit. Truss units shall be marked to indicate proper flange assembly.
3. Maximum weld thickness shown. Thicker wall is permitted upon engineer's approval.

OVERHEAD SIGN STRUCTURE BUTTERFLY TYPE STRUCTURE DETAILS

STANDARD F14-05
SIDE ELEVATION

PLAN

NOTES:
1. SIDE ELEVATION AND PLAN VIEW ARE SHOWN FOR FOUNDATION LOCATED IN PAVED MEDIAN.
2. SEE SHEET 5 OF THIS SERIES FOR REINFORCEMENT DETAILS.
3. COORDINATE CONDUIT SIZE, LOCATION AND QUANTITY WITH ELECTRICAL PLANS. CONDUITS SHALL BE PLACED TO MISS REINFORCEMENT BARS. DO NOT CUT REINFORCEMENT BARS.
4. FOUNDATION LOCATED IN PAVED ROADWAY MEDIAN.

SECTION D-D

SECTION D-D

APPROVED DATE

CHIEF ENGINEERING OFFICER

OVERHEAD SIGN STRUCTURE

BUTTERFLY TYPE

STRUCTURE DETAILS

STANDARD F14-05

ILLINOIS HIGHWAY
**TYPICAL FRONT ELEVATION**

**SECTION A-A**

- Place all sign brackets as close to panel points as practical.
- Number of sign brackets per column may vary.
- Butterfly type sign brackets may be located in shoulder area.

**SECTION B-B**

**BRACKET TABLE**

<table>
<thead>
<tr>
<th>Sign from</th>
<th>Length of Sign (ft)</th>
<th>Number of Brackets Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-14</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>14-20</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>20-26</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>26-32</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**NOTES:**

1. Sign brackets vary for efficiency and must be shown.
2. 4" X 4" maximum, 4" minimum end of sign type to nearest bracket.
3. Maximum DMS Type 2 beam = 20' max. length.
4. Maximum depth includes depth of DMS Type 2 plus connection to beam.
5. DMS Type 2 manufacturer shall design and supply hardware for connection.
6. Bolts shall be stainless steel or hot-dip galvanized high strength.

**MANUFACTURER'S MOUNTING DEVICES.**

- Steel bolts shall be stainless steel or hot-dip galvanized high strength.
- Provide two stainless steel washers and two hexagon locknuts per bolt.

**APPROVED:**

3-31-2014

**CHIEF ENGINEERING OFFICER:**

**STANDARD F14-05**

**OVERHEAD SIGN STRUCTURE BUTTERFLY TYPE STRUCTURE DETAILS**

**SHEET 8 OF 8**
SIGN TABLE

<table>
<thead>
<tr>
<th>SIGN</th>
<th>MAXIMUM AREA</th>
<th>MAXIMUM LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLAZA SIGN</td>
<td>24 sq. ft.</td>
<td>8'-0&quot;</td>
</tr>
<tr>
<td>1-PASS OR PAY ONLINE</td>
<td>60 sq. ft.</td>
<td>20'-0&quot;</td>
</tr>
</tbody>
</table>

NOTE:
1. SEE CONTRACT PLANS FOR SIGN SIZE AND LOCATION.
2. PROVIDE ENTRANCE AND EXIT MONOTUBE FRAME STATIONS ON CONTRACT PLANS.
AET RAMP ENTRANCE MONOTUBE PLAN

NOTES:
1. FOUNDATIONS FOR MONOTUBE FRAMES ARE SHOWN ON SHEET 6 OF THIS SERIES.
3. SEE SHEET 4 OF THIS SERIES FOR SECTION P-P.
4. PROVIDE CAMERA AT MIDSPAN OF STRUCTURE.
5. LOCATE OPTIONAL BOLTED FIELD SPlice NEAR MIDSPAN.
6. NOTE THIS SHEET WITH OVERHEAD SIGN STRUCTURE ENTRANCE MONOTUBE TYPE (STEEL) AET RAMP SUMMARY AND TOTAL BILL OF MATERIAL SHEET.

ENTRANCE MONOTUBE FRAME TABLE

| Span |
|------|------|------|
| 50' MAX. |
| HSS 12.75x0.500 |
| HSS 12.75x0.500 |
| 1'/6 |

SHEET 2 OF 7

OVERHEAD SIGN STRUCTURE DETAILS
MONOTUBE TYPE STEEL
STRUCTURE DETAILS
FOR AET RAMP
STANDARD F15-04
NOTES:
1. SEE SHEET 2 OF THIS SERIES FOR SECTION S-S, BASE PLAN AND ADDITIONAL NOTES.
2. SEE SHEET 4 OF THIS SERIES FOR SECTION O-O.
3. SEE SHEET 5 OF THIS SERIES FOR SECTIONS A-A AND G-G, AND BASE PLATE SKIRT.
4. WORK THIS SHEET WITH OVERHEAD SIGN STRUCTURE EXIT MONOTUBE TYPE (STEEL) AET RAMP SUMMARY AND TOTAL BILL OF MATERIAL SHEET.
GENERAL NOTES:
1. After adjustments to level frame beam and ensure adequate vertical clearance, tighten all top and leveling nuts against the base plate with a minimum torque of 200 lb-ft. Then place stainless steel washers around the perimeter of the base plate. Secure to base plate with stainless steel banding.
2. Reinforcement bars designated "1" shall be epoxy coated.

STRUCTURAL STEEL:
1. Material for the monotube frame shall conform to the requirements of ASTM A500 Grade B. Base plate and stiffener plate shall conform to ASTM A709 Grade 50. Other structural steel shapes and plates shall conform to the requirements of ASTM A36, unless noted otherwise.
2. Pipes shall conform to the requirements of ASTM A53 Grade B.
3. Anchor bolts shall conform to the requirements of ASTM A325 (AASHTO M314) Grade 55, with a minimum tensile strength of 60,000 psi. Installation and inspection of anchor bolts shall comply with Illinois Tollway Special Provision "Intelligent Transportation Systems Gantry Frame 'Steel'." Anchors shall be galvanized in accordance with ASTM A653 (AASHTO M232). See Sheet 8 of this series for galvanized length.
5. Bolts (excluding anchor bolts and U-bolts) shall be high strength steel bolts.
6. Pipes for monotube frame, pipes, structural steel shapes and plates shall be galvanized in accordance with ASTM A123 after fabrication.
7. The monotube frame, columns, base plate material, and splices are considered tension members and shall comply with the impact testing requirements, zone 2.

DESIGN LOADING:
Wind Load Criteria
Sign Panel 35 P.S.F.
Column/Beam 35 P.S.F.

Equipment Loads
Camera Assembly 8 lb.
Antenna 20 lb.

Design Stresses for Reinforced Concrete:
\[ f_c' = \text{Compressive strength of concrete (Class SI)} \]
\[ f_c' = \text{Compressive strength of concrete (Class DS)} \]
\[ f_y = \text{Yield strength of reinforcement bars (Grade 60)} \]

Foundation:
Minimum unconfined compressive strength, \( q_u \) for all layers of cohesive soils (clays) shall be 1.25 ton/sq ft at monotube frames.

DESIGN SPECIFICATIONS:

CONSTRUCTION SPECIFICATIONS:
SINGLE FACE BARRIER FOUNDATION FOR PLAZA FRAMES

NOTE A:
1. CONDUCT CONDUIT SIZE, LOCATION AND QUANTITY WITH ELECTRICAL PLANS. PROVIDE CONDUIT COUPLERS AS REQUIRED.
2. CONDUITS SHALL BE PLACED TO MISS REINFORCEMENT. CUTTING OF REINFORCEMENT SHALL NOT BE ALLOWED.

NOTE B:
PROTECTIVE COAT SHALL BE APPLIED TO THE TRAFFIC AND TOP FACES OF THE BARRIER AND TOP OF GUTTER.

FOUNDATION NOTE:
The foundation details shown are based on the presence of mostly common cohesive soil conditions (silty or sandy clay), with an average unconfined compressive strength (CU) of 3 ksi and CSL of 1 ft, which must be determined by previous soil investigations at the jobsite. When other conditions are indicated, the boring data shall be included in the plans and the foundation dimensions shown shall be the result of specific designs. If conditions encountered in the field are different than those indicated, the contractor shall notify the engineer to determine if the foundation dimensions need to be modified.

LEGEND:
F.F. - FRONT FACE
B.F. - BACK FACE
C.T. - CENTER

ESTIMATED QUANTITY

ITEM
CLASS 51 CONCRETE
CLASS 51 CONCRETE
REINFORCEMENT BARS, EPOXY COAT
PROTECTIVE COAT

UNIT
YD. 6.6
YD. 3.8
POUND
POUND

SINGLE FACE BARRIER FDN.
1.4
6.6
2.360
4.4

NOTE:
QUANTITIES FOR SINGLE FACE BARRIER FOUNDATION ARE DETERMINED USING "C" = 10". IF "C" IS GREATER THAN 10", ADJUST QUANTITIES ACCORDINGLY.

BAR d1(E), u1(E), u2(E) AND u2(E)

BAR d2(E)

BAR LIST--ONE FOUNDATION

END
**NOTES:**

1. PROTECTIVE COAT SHALL BE APPLIED TO THE TRAFFIC AND TOP FACES OF THE BARRIER, GUTTER AND TO THE ENTRANCE SIDE FACE AT THE BEGINNING OF THE RAMP PLACE PAVEMENT FOR THE FULL HEIGHT OF THE BARRIER.

2. ELECTRICAL JUNCTION BOXES SHALL BE EXTERIOR MOUNTED ON THE BACK FACE OF BARRIER.

3. FOR SINGLE FACE BARRIER FOUNDATION DETAILS FOR MONOTUBE FRAMES, SEE SHEET 6 OF THIS SERIES.

4. QUANTITIES FOR SINGLE FACE BARRIER ARE DETERMINED USING "C" = 10" IF DIMENSION "C" IS GREATER THAN 10", ADJUST QUANTITIES ACCORDINGLY.

5. SEE OVERHEAD SIGN STRUCTURE ENTRANCE MONOTUBE TYPE STEEL MONOTUBE FRAMES, SEE SHEET 6 OF THIS SERIES. FOR COMPLETE BILL OF MATERIAL IN CONTACT PLANS FOR COMPLETE BILL OF MATERIAL.

**PAY LIMIT FOR SINGLE FACE BARRIER BASE ELEVATION**

**ITEM UNIT TOTAL**

- CONCRETE STRUCTURES CY. YD. 33.9
- REINFORCEMENT BARS, EPOXY COATED POUND 5,850
- PROTECTIVE COAT UNIT 432

**BAR LIST - FOR ONE BARRIER**

<table>
<thead>
<tr>
<th>BAR NO.</th>
<th>SIZE</th>
<th>LENGTH</th>
<th>SHAPE</th>
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<tbody>
<tr>
<td>d3(E)</td>
<td>124</td>
<td>3'-7&quot;</td>
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</tr>
<tr>
<td>d4(E)</td>
<td>124</td>
<td>3'-8&quot;</td>
<td></td>
</tr>
<tr>
<td>h3(E)</td>
<td>10</td>
<td>3'-9&quot;</td>
<td></td>
</tr>
<tr>
<td>h4(E)</td>
<td>248</td>
<td>5'-3&quot;</td>
<td></td>
</tr>
<tr>
<td>h5(E)</td>
<td>29</td>
<td>9'-1&quot;</td>
<td></td>
</tr>
<tr>
<td>u4(E)</td>
<td>248</td>
<td>5'-3&quot;</td>
<td></td>
</tr>
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</table>

**SECTION A-A**

**SECTION B-B**

**SECTION C-C**

**PAY LIMIT FOR FOUNDATION FOR OVERHEAD SIGN STRUCTURE BASED ON DIMENSION "C" = 10"**

**SEE NOTE 3**

**FRAME COLUMN**

**BONDED CONST. JOINT**

**SEE NOTE 2**

**OVERHEAD SIGN STRUCTURE MONOTUBE TYPE (STEEL) STRUCTURE DETAILS FOR NET RAMP SUMMARY AND TOTAL BILL OF MATERIAL.**

**STANDARD F15-04**

**DATE: 10-14-2014**

[Signature]
SINGLE FACE BARRIER FOUNDATION / ISLAND, AS SHOWN ON CONTRACT PLANS

MONOTUBE FRAME

TRANSITION
SEE SHEET 6 OF THIS SERIES

SINGLE FACE BARRIER
SEE SHEET 6 OF THIS SERIES

CASH-IPO RAMP TOLL PLAZA PLAN

CASH-IPO RAMP TOLL PLAZA ELEVATION

SIGN TABLE

<table>
<thead>
<tr>
<th>SIGN</th>
<th>MAXIMUM AREA</th>
<th>MAXIMUM LENGTH</th>
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</thead>
<tbody>
<tr>
<td>PLAZA SIGN</td>
<td>24 S.F.</td>
<td>8'-0&quot;</td>
</tr>
<tr>
<td>1-PASS ONLY SIGN</td>
<td>20 S.F.</td>
<td>4'-0&quot;</td>
</tr>
<tr>
<td>CASH ONLY SIGN</td>
<td>20 S.F.</td>
<td>4'-0&quot;</td>
</tr>
</tbody>
</table>

NOTE:
1. SEE CONTRACT PLANS FOR SIGN SIZE AND LOCATION.
2. PROVIDE MONOTUBE FRAME STATION IN CONTRACT PLANS.
3. CASH ONLY SIGN OR 1-PASS ONLY SIGN. SEE CONTRACT PLANS FOR SIGN PLACEMENT.
CASH-IPO RAMP MONOTUBE PLAN

CASH-IPO RAMP MONOTUBE ELEVATION

NOTES:
1. WORK THIS SHEET WITH OVERHEAD SIGN STRUCTURE MONOTUBE TYPE (STEEL) CASH-IPO RAMP, SUMMARY AND TOTAL BILL OF MATERIAL SHEET.
2. FOUNDATION FOR MONOTUBE FRAME IS SHOWN ON SHEET 5 OF THIS SERIES.
4. SEE SHEET 3 OF THIS SERIES FOR SECTION P-P AND BASE PLATE SKIRT.
5. PROVIDE CAMBER AT MIDSPAN OF STRUCTURE.
6. LOCATE OPTIONAL BOLTED FIELD SPLICE NEAR MIDSPAN.
7. OMIT ANTENNA AND ANTENNA MOUNTING ASSEMBLY ABOVE CASH ONLY LANE.
SINGLE FACE BARRIER FOUNDATION FOR PLAZA FRAMES

NOTE A:
1. CONDUIT SIZE, LOCATION AND QUANTITY WITH ELECTRICAL PLANS, PROVIDE CONDUIT COUPLERS AS REQUIRED.
2. CONDUITS SHALL BE PLACED TO MISS REINFORCEMENT. CUTTING OF REINFORCEMENT SHALL NOT BE ALLOWED.
3. COST INCLUDED IN FOUNDATION FOR OVERHEAD SIGN STRUCTURE.
4. PROTECTIVE COAT SHALL BE APPLIED TO THE TRAFFIC AND TOP FACES OF BARRIER AND TOP OF GUTTER.

FOUNDTIONS:
THE FOUNDATION DETAILS SHOWN ARE BASED ON THE PRESENCE OF MODERATE TO DEEP SOIL CONDITIONS MODERATE TO DEEP SOIL CONDITIONS WITH AN AVERAGE UNCONFINED COMPRESSIVE STRENGTH (CU) OF 1000 PSI, WHICH WOULD BE DETERMINED BY PREVIOUS SOIL INVESTIGATIONS AT THE SITE. WHEN OTHER CONDITIONS ARE PRESENT, THE BORING DATA SHALL BE INCLUDED IN THE PLANS AND THE FOUNDATION DIMENSIONS SHOWN SHALL BE THE RESULT OF SITE SPECIFIC DESIGN. IF CONDITIONS ENCOUNTERED IN THE FIELD ARE DIFFERENT THAN THOSE INDICATED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER TO DETERMINE IF THE FOUNDATION DIMENSIONS NEED TO BE MODIFIED.

LEGEND:
F.F. = FRONT FACE
B.F. = BACK FACE
C.T.S. = CENTERS

REINFORCEMENT BAR SCHEDULE

<table>
<thead>
<tr>
<th>ITEM</th>
<th>UNIT</th>
<th>SINGLE FACE BARRIER FOAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASS SI CONCRETE</td>
<td>CUL YD.</td>
<td>3.8</td>
</tr>
<tr>
<td>CLASS D CONCRETE</td>
<td>CUL YD.</td>
<td>6.6</td>
</tr>
<tr>
<td>REINFORCEMENT BARS, EPOXY COATED</td>
<td>POUND</td>
<td>2,360</td>
</tr>
<tr>
<td>PROTECTIVE COAT</td>
<td>SD. YD.</td>
<td>4.4</td>
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</table>

NOTE:
QUANTITIES FOR SINGLE FACE BARRIER FOUNDATION ARE DETERMINED USING "C" > 10", IF DIMENSION "C" IS GREATER THAN 10", ADJUST QUANTITIES ACCORDingly.

OVERHEAD SIGN STRUCTURE
MONOTUBE TYPE (STEEL)
STRUCTURE DETAILS
FOR CASH-IPO RAMP

STANDARD F16-03

SHEET 5 OF 6
**CUT IN FIELD AS REQUIRED TO FIT TAPER**

**BASED ON DIMENSION “C” = 10”**

**PAY LIMIT FOR FOUNDATION FOR OVERHEAD SIGN STRUCTURE 5” CTS.**

---

**PAY LIMIT FOR SINGLE FACE BARRIER**

**BAR LIST - ONE BARRIER**

<table>
<thead>
<tr>
<th>BAR</th>
<th>NO.</th>
<th>SIZE</th>
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<th>SHAPE</th>
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</thead>
<tbody>
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<td>d4(e)</td>
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<td>4&quot;</td>
<td>3'-8&quot;</td>
<td></td>
</tr>
<tr>
<td>d5(e)</td>
<td>57</td>
<td>5&quot;</td>
<td>3'-9&quot;</td>
<td></td>
</tr>
<tr>
<td>u4(e)</td>
<td>10</td>
<td>5&quot;</td>
<td>9'-0&quot;</td>
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</tr>
</tbody>
</table>

**NOTES:**

1. PROTECTIVE COAT SHALL BE APPLIED TO THE TRAFFIC AND TOP FACES OF THE BARRIER, GUTTER AND TO THE ENTRANCE SIDE FACE AT THE BEGINNING OF THE RAMP PLAZA PAVEMENT FOR THE FULL HEIGHT OF THE BARRIER.

2. ELECTRICAL JUNCTION BOXES SHALL BE EXTERIOR MOUNTED ON THE BACK FACE OF BARRIER.

3. FOR SINGLE FACE BARRIER FOUNDATION DETAILS FOR MONOTUBE FRAMES, SEE SHEET 5 OF THIS SERIES.

4. QUANTITIES FOR SINGLE FACE BARRIER ARE DETERMINED USING “C” = 10”; IF DIMENSION “C” IS GREATER THAN 10”, ADJUST QUANTITIES ACCORDINGLY.

5. WORK THIS SHEET WITH OVERHEAD SIGN STRUCTURE MONOTUBE TYPE STEEL structure details for cash-up ramp summary and total bill of material sheet.
OVERHEAD SIGN STRUCTURE
SPAN TYPE (STEEL) STRUCTURE DETAILS

DAMPER NOTE:
One damper per truss, L31 type, stockbridge-type - 20" minimum between ends of weights.

TRUSS DAMPING
DEVICE CONNECTION DETAIL
(TYPICAL)

ELEVATION
STEEL OVERHEAD SIGN TRUSS

DAMPING DEVICE MOUNTING
TUBE U-BOLT DETAIL
(TYPICAL)

TOP CHORD TO CROSS TUBE
U-BOLT DETAIL
(TYPICAL)
NOTES:
1. The foundation details shown are based on the presence of mostly cohesive soil conditions (clay or clayey silt) with an equivalent undrained shear strength of 1.5 psf or more. If conditions in the field are different than those indicated, the Contractor shall notify the Engineer to determine if the foundation dimensions need to be modified.
2. All material, fabrication, and construction requirements shall be in accordance with Section 704 of the Illinois Tollway Supplemental Specifications.
3. Concrete shall be placed monolithically, without construction joints unless noted otherwise.
4. Backfill shall be placed per Section 5 of the IDOT Standard Specification and prior to erection of end support post.
5. Provide normal surface finish followed by concrete sealer application on all concrete surfaces except bottom of grade beam and drilled shafts.
6. All rebar designated shall be epoxy coated. Rebar shall be positioned so that there will be no interference between vertical reinforcement and anchor bolts.
7. No concrete or decomposable forms shall be used. Use 6" thick white concrete for form. All concrete forms shall be removed before concrete is placed.
8. If necessary to increase steel end support height above the limitations shown in 3.2.1, the Contractor shall be directed to do so.
9. Steel reinforcement in grade beam shall be spaced to miss anchor bolts.
10. All rebar designated shall be spaced to miss anchor bolts.
11. Concrete shall be placed monolithically, without construction joints unless noted otherwise.
12. All rebar designated shall be epoxy coated. Rebar shall be positioned so that there will be no interference between vertical reinforcement and anchor bolts.
13. No concrete or decomposable forms shall be used. Use 6" thick white concrete for form. All concrete forms shall be removed before concrete is placed.
14. If necessary to increase steel end support height above the limitations shown in 3.2.1, the Contractor shall be directed to do so.
**OVERHEAD SIGN STRUCTURE FOUNDATION**

**PLAN**

- **SIDE ELEVATION**
- **SECTION B-B**
- **SECTION D-D**
- **END VIEW**

**BAR LIST - EACH FOUNDATION**

<table>
<thead>
<tr>
<th>BAR NUMBER</th>
<th>SIZE</th>
<th>LENGTH</th>
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<tbody>
<tr>
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<td>12&quot;</td>
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<tr>
<td>s(E)</td>
<td>#5</td>
<td>12&quot;</td>
</tr>
<tr>
<td>v(E)</td>
<td>#9</td>
<td>12&quot;</td>
</tr>
</tbody>
</table>

**NOTES:**

1. See Sheet 7 of this series for foundation notes and design details.
2. For sign structure base plate detail, see Sheet 6 of this series.
4. Coordinate conduit size, location, and quantity with electrical plans. Conduit shall be placed to miss reinforcement bars, if not cut reinforcement splices.
5. Protective coat shall be applied to the traffic and top faces of barrier and top face of gutter.

**MEDIAN BARRIER FOUNDATION SCHEDULE**

<table>
<thead>
<tr>
<th>DESIGN PRESSURE TYPE</th>
<th>#</th>
<th>X</th>
<th>B</th>
<th>CLASS OF CONCRETE</th>
<th>REINFORCEMENT</th>
<th>PROTECTIVE COAT</th>
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<tr>
<td>100-5</td>
<td>7&quot;</td>
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<td>75&quot;</td>
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<td>2020</td>
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**NOTES:**

- See Sheet 7 of this series for foundation notes and design details.
- For sign structure base plate detail, see Sheet 6 of this series.
- Reference Illinois Tollway standard drawing C5 for gutter slope.
- Coordinate conduit size, location, and quantity with electrical plans. Conduit shall be placed to miss reinforcement bars, if not cut reinforcement splices.
- Protective coat shall be applied to the traffic and top faces of barrier and top face of gutter.
**NOTES:**

- SPACE WALKWAY BRACKETS AND SIGN BRACKETS FOR EFFICIENCY AND WITHIN LIMITS SHOWN.
- **f** = 12" MAXIMUM, 4" MINIMUM (END OF SIGN TO CENTER OF SUPPORT FRAMES) | 12" ON OVERHEAD TRUSSES.
- **g** = 12" MAXIMUM, 4" MINIMUM (END OF WALKWAY GRATING TO CENTER OF SUPPORT FRAMES) | 12" ON OVERHEAD TRUSSES.
- **h** = 6'-0" MAXIMUM (~ TO ~ SIGN AND/OR WALKWAY SUPPORT BRACKETS, W6X9)

**SECTION F-F**

- MATERIAL AND WALKWAY SHALL SPAN A MINIMUM OF THREE BRACKETS BETWEEN SPLICES AND/OR GAP JOINTS.
- PLACE ALL SIGN AND WALKWAY BRACKETS AS CLOSE TO PANEL POINTS AS PRACTICAL.
- GRATING AND WALKWAY SPACED AS NECESSARY.

**BRACKET TABLE**

```
<table>
<thead>
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<th>BRACKET TABLE</th>
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</table>
```

**OVERHEAD SIGN STRUCTURE**

- SPAN TYPE (STEEL)
- STRUCTURE DETAILS
- STANDARD F17-05

**APPROVED**

- SHEET 10 OF 12
- 15-20-2014

**CHIEF ENGINEERING OFFICER**
NOTES:

1. INSTALL STANDARD FORCE-FIT END CAPS OR WELD 5/8" END PLATES WITH 5/8" CAPS, AND "C" RING SMOOTH WALL CLEAR.

2. HORIZONTAL HANDRAIL MEMBER SHALL BE CONNECTION FORM 1/2" O.D., PROVIDE 3/8" Ø HOLE IN 1/2" Ø PIPE FOR 3/8" Ø BOLT. FIELD INSTALL 3/8" Ø HOLE IN HORIZONTAL RAIL MEMBER. PROVIDE WASHER AND LOCKNUT FOR BOLT. USE 3/8" EXTRUSION IN 1/2" Ø HOLES ON 100 RAIL AT ENDS OR "C".

3. 3/8" TYPE 304L STAINLESS STEEL CHAIN, APPROXIMATELY 12 LINKS PER FOOT.

ALTERNATE SAFETY CHAIN ATTACHMENT

ITEMS NOT SHOWN SAME AS "SIDE ELEVATION" OF "HANDRAIL DETAILS"...
NOTES:
1. FOR MATERIAL, FABRICATION, ERECTION, AND OTHER REQUIREMENTS, REFER TO ILLINOIS TOLLWAY "STRUCTURAL SUPPORT FOR SIGN PANELS" SPECIAL PROVISION.
2. PROJECT DETAILS ARE NOT INTENDED FOR PORTABLE AND/OR PRECAST BARRIER.
3. DESIGN CONFORMS TO THE 2015 EDITION OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS WITH 2017 INTERIM SPECIFICATIONS THERETO. DESIGN WIND SPEEDS OF 3-S GUST WITH SPEED OF 120 MPH PLUS 14% GUST FACTOR, AND A WIND IMPORTANCE FACTOR OF 1.0 (50 YEAR MEAN RECURRENCE INTERVAL) FOR THE SUPPORTING STRUCTURES.
4. INSTALLATION SHALL BE DONE IN ACCORDANCE WITH ILLINOIS TOLLWAY SPECIAL PROVISION "SIGN INSTALLATION".
5. TWO STIFFENER PLATES (ONE ON EACH SIDE OF POST) SHALL BE WELDED AS SHOWN ON PLANS IN DIRECTION PERPENDICULAR TO SIGN.
6. WELDED PLATES MAY BE USED IN LIEU OF THE BENT PLATE OF MOUNTING PLATE SHOWN. ALL STEEL ELEMENTS SHALL BE GALVANIZED AFTER FABRICATION.
7. INSTALLATION SHALL BE DONE IN ACCORDANCE WITH ILLINOIS TOLLWAY SPECIAL PROVISION "SIGN INSTALLATION".
8. INSTALLATION SHALL BE DONE IN ACCORDANCE WITH ILLINOIS TOLLWAY SPECIAL PROVISION "SIGN INSTALLATION".
9. THIS STANDARD SHALL BE USED TO MOUNT SIGN SUPPORT ON SINGLE FACE PARAPETS CONSTRUCTED ON BRIDGES, WALLS AND MONUMENT SIGNS.

MATERIAL SPECIFICATIONS FOR STRUCTURAL STEEL AND FASTENERS

<table>
<thead>
<tr>
<th>ELEMENTS OF STRUCTURAL STEEL</th>
<th>MINIMUM YIELD STRENGTH (K.S.I.)</th>
<th>MINIMUM ULTIMATE STRENGTH (K.S.I.)</th>
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</thead>
<tbody>
<tr>
<td>STEEL POST</td>
<td>42</td>
<td>50</td>
</tr>
<tr>
<td>STEEL PLATE</td>
<td>50</td>
<td>60</td>
</tr>
<tr>
<td>STEEL ANCHOR BOLT</td>
<td>100</td>
<td>120</td>
</tr>
</tbody>
</table>

FRICATION CAP PADS

Elastomeric pads shall be installed between the steel post and the concrete barrier, face, roadway side, and top of parapet.
NOTES:
1. ALL ANCHOR BOLTS FOR MEDIAN BARRIER MOUNTED SIGN SUPPORT ASSEMBLY SHALL BE 3/8" DIA. EXPANSION ANCHORS.
2. THE TOP SECTION SHALL BE TELESCOPED INTO THE BASE SECTION 12 INCHES AND FASTENED TOGETHER.
3. DESIGN COMPANIES TO USE THE 2015 EDITION OF THE AMERICAN STANDARD SPECIFICATIONS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS WITH 2017 INTERIM SPECIFICATIONS PERTAINING TO DESIGN WIND SPEEDS OF 50 MPH WITH SPEED OR 120 MPH PLUS 14% GUST FACTOR, AND A WIND IMPORTANCE FACTOR OF 0.3 (50 YEAR MEAN RECURRENCE INTERVAL) FOR THE SUPPORTING STRUCTURES.
4. BOLTS AND POST ASSEMBLY SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M111 OR AS SPECIFIED IN THE SPECIAL PROVISION "TELESCOPING STEEL SIGN SUPPORT, BARRIER ASSEMBLY".
5. BASE AND POST ASSEMBLY SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH AASHTO M111 OR AS SPECIFIED IN THE SPECIAL PROVISION "TELESCOPING STEEL SIGN SUPPORT, BARRIER ASSEMBLY".
6. ALL MATERIALS FOR THE SIGN SUPPORT ASSEMBLY SHALL BE INCLUDED IN THE COST OF "TELESCOPING STEEL SIGN SUPPORT, BARRIER ASSEMBLY".
7. ALL MATERIALS FOR THE SIGN SUPPORT ASSEMBLY SHALL BE INCLUDED IN THE COST OF "TELESCOPING STEEL SIGN SUPPORT, BARRIER ASSEMBLY".