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<td>NO. OF DIGITS</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------</td>
</tr>
<tr>
<td>24&quot;x24&quot;</td>
<td>1 or 2</td>
</tr>
<tr>
<td>30&quot;x24&quot;</td>
<td>3</td>
</tr>
<tr>
<td>36&quot;x24&quot;</td>
<td>4</td>
</tr>
<tr>
<td>36&quot;x36&quot;</td>
<td>1 or 2</td>
</tr>
<tr>
<td>45&quot;x36&quot;</td>
<td>3</td>
</tr>
</tbody>
</table>

Series of Digits "D"

M1-6A
Standard State Route Marker
TYPICAL TENTH-OF-MILEMARKER INSTALLATION

Notes: All Milemarkers and Tenth of Milemarkers
Shall be Fabricated With High Intensity
Encapsulated Lense Reflective Sheeting
(Section M9.30.2)
TYPICAL MILEMARKER INSTALLATION

NOTE: If Milemarker Panel is 3', the embedment will be 2 1/2'.
If Panel is 4', the embedment will be 3'.

COLOR
BACKGROUND-GREEN REFLECTORIZED
NUMBERS-WHITE REFLECTORIZED
PIN & BOLT HEADS TO BE PAINTED SAME COLOR AS PANEL BACKGROUND
NUMBERS TO BE SERIES "C"

* Optically center numeral about vertical centerline

<table>
<thead>
<tr>
<th>EXPWY-FWY USE</th>
<th>CONVENTIONAL USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>12</td>
</tr>
<tr>
<td>B</td>
<td>24</td>
</tr>
<tr>
<td>C</td>
<td>1/2</td>
</tr>
<tr>
<td>D</td>
<td>3</td>
</tr>
<tr>
<td>E</td>
<td>4C</td>
</tr>
<tr>
<td>F</td>
<td>3</td>
</tr>
<tr>
<td>G</td>
<td>10C</td>
</tr>
<tr>
<td>H</td>
<td>-</td>
</tr>
<tr>
<td>J</td>
<td>4</td>
</tr>
<tr>
<td>K</td>
<td>1 1/2</td>
</tr>
<tr>
<td>L</td>
<td>4 5/8</td>
</tr>
<tr>
<td>M</td>
<td>4 7/8</td>
</tr>
</tbody>
</table>
TYPICAL H1-2

- **Ø0.37" MOUNTING HOLE**
- **R1.50"**
- **Yellow Reflectorizing Buttons**
- **Thickness 0.080" Aluminum or Galvanized Steel**
- **Yellow (Non-Reflective)**

**TYPICAL LOCATION FOR H1-2**

Mounting Height Shall Be 4'0" To Bottom Of Sign.

**DIRECTION OF TRAFFIC**
TYPICAL ABUTMENT WARNING PANEL (H1-3 LEFT & RIGHT)

MATERIAL: SHALL BE 0.080 THICKNESS ALUMINUM, OR 3/4" PLYWOOD

COLORS:
ALTERNATE YELLOW AND BLACK STRIPES
YELLOW STRIPES TO BE REFLECTORIZED
ALTERNATE WHITE AND ORANGE STRIPES FOR CONSTRUCTION AND MAINTENANCE OPERATIONS, BOTH REFLECTORIZED.

* OR GREATER TO CLEAR GUARD RAIL BY MAXIMUM OF 6'
ATTENUATOR PANEL

FOR G.R.E.A.T. SYSTEM BARRIER NOISE COVER

TYPICAL PAVEMENT MARKINGS

NOTE: See next page for pavement markings table.
<table>
<thead>
<tr>
<th>PAVEMENT MARKINGS TABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PAVEMENT MARKINGS</strong></td>
</tr>
<tr>
<td><strong>4&quot; WHITE</strong></td>
</tr>
<tr>
<td><strong>8&quot; WHITE</strong></td>
</tr>
<tr>
<td><strong>12&quot; WHITE</strong></td>
</tr>
<tr>
<td><strong>4&quot; YELLOW</strong></td>
</tr>
<tr>
<td><strong>EDGE LINE (RIGHT)</strong></td>
</tr>
<tr>
<td><strong>CHANNELIZING LINE (GORE)</strong></td>
</tr>
<tr>
<td><strong>GORE CHEVRONS</strong></td>
</tr>
<tr>
<td><strong>EDGE LINE (LEFT)</strong></td>
</tr>
<tr>
<td><strong>LANE LINE (ONE WAY TRAFFIC)</strong></td>
</tr>
<tr>
<td><strong>TAPER LINE</strong></td>
</tr>
<tr>
<td><strong>SHOULDER LINE</strong></td>
</tr>
<tr>
<td><strong>CHANNELIZING LINE</strong></td>
</tr>
</tbody>
</table>

SEE ALTERNATE MARKINGS, MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (PAGES 3B-15 & 3B-17)
Table

<table>
<thead>
<tr>
<th>No.</th>
<th>Color</th>
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<tbody>
<tr>
<td>M1-4</td>
<td>Single White Delineator</td>
</tr>
<tr>
<td>M1-7</td>
<td>Double White Delineator</td>
</tr>
<tr>
<td>M1-8</td>
<td>Single Amber Delineator</td>
</tr>
</tbody>
</table>

**DELINEATOR SPACING**

**TYPICAL ELEVATION FOR DELINEATORS**

**TYPICAL P-9 POSTS**
INSTALLATION OF TYPE SS HIGHWAY GUARD RAIL
FOR PROTECTION OF OVERHEAD SIGN POSTS.

PLAN VIEW

TRAILING END

ELEVATION VIEW

NOTES:
1-LENGTHS OF HIGHWAY GUARD SHOWN ARE MEASUREMENTS ALONG FACE OF RAILING
2-FOR DESCRIPTIONS, MATERIAL AND CONSTRUCTION METHODS, SEE SPECIFICATIONS AND 401.10 AND 401.5.0-401.10.0
3-FOR BACK UP PLATE DETAILS SEE 401.5.0 AND 401.9.0
4-DETAILS SHOWN HEREIN ALSO APPLY TO THRIE BEAM GUARD RAIL, EXCEPT AS OTHERWISE NOTED.
5-WHEN PLACED IN MEDIAN, CHANGE TO THRIE BEAM & HEIGHT OF 2'-6 1/2"+1'
6-POST TYPES SHALL NOT BE INTERCHANGED IN ANY CONTINUOUS RUN OF GUARD RAIL. BRACKETS SHALL BE SIMILAR TO POST.
OVERHEAD STRUCTURE GUARD RAIL INSTALLATION

FULL SPAN - 2:1 SLOPE & CANTILEVER STRUCTURES

FULL SPAN - 4:1 SLOPE

Table for Overhead Sign Protection 403.3

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLOPE</td>
<td>VERTICAL SECTION</td>
<td>BEAM</td>
</tr>
<tr>
<td>2:1</td>
<td>1'-6&quot;±1&quot;</td>
<td>3'-9&quot;±2&quot;</td>
</tr>
<tr>
<td>4:1</td>
<td>6'-0&quot;±1&quot;</td>
<td>7'-9&quot;±2&quot;</td>
</tr>
<tr>
<td>6:1</td>
<td>16'-0&quot;±1&quot;</td>
<td>17'-9&quot;±2&quot;</td>
</tr>
</tbody>
</table>

Table of Offsets for Guardian Rail Flared Ends

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERTICAL CURB</td>
<td>VERTICAL SECTION</td>
<td>BEAM</td>
</tr>
<tr>
<td>0'-9&quot;±2&quot;</td>
<td>2'-6&quot;±2&quot;</td>
<td>5'-9&quot;±2&quot;</td>
</tr>
<tr>
<td>SLOPED EDGING</td>
<td>1'-6&quot;±1&quot;</td>
<td>3'-3&quot;±2&quot;</td>
</tr>
<tr>
<td>TYPE &quot;A&quot; BERM</td>
<td>2'-0&quot;±1&quot;</td>
<td>3'-9&quot;±2&quot;</td>
</tr>
</tbody>
</table>
TEMPORARY PAVEMENT MARKINGS IN WORK ZONES

Undivided 2 or 3 Lane Highway

| 3 days * 14 days More than |
| or less or less 14 days |

Undivided Multi-Lane Highway

| 14 days 14 days More than |
| or less or less 14 days |

Divided Multi-Lane Highways

| 14 days 14 days More than |
| or less or less 14 days |

NOTES

1) Low volume highways should be defined in accordance with statewide policy as approved by the FHWA Division Office. It is recommended that up to 400-500 ADT be considered a low volume road.

2) Signs may be used instead of pavement markings on low volume roads for up to 2 weeks, after which permanent markings are required.

3) On other than low volume roads temporary or permanent markings shall be in place before road is opened to traffic.

4) Edgelines are required after 14 days on all interstate and rural multi-lane highways, and on other highways when state policy calls for edgelines.

5) For more information see MUTCD, Part IV, Sections 6D-1 and 6D-3.
HIGHWAY SIGN SUPPORTS AND SIGN SUPPORT FOUNDATIONS

(NON-BREAKAWAY SUPPORTS)

The contractor may select any structural sign support meeting the design criteria of the current edition of the American Association of State Highway Officials' specifications for design and construction of structural supports for highway signs and Section 828 of the standard specifications.

Reinforced concrete foundations for sign supports selected shall conform to the applicable tabulation requirements based on the section modulus at the bottom of the sign support post.

The foundations listed are intended for a single pole in the direction normal to the sign, but the number of poles parallel to the sign shall conform with the construction drawings. If it is desired to use other than single pole supports, the contractor shall design the foundations for same and submit his design calculations with sketches.

Acceptance of the designs of the sign supports and sign support foundations will be contingent on the department's review and approval of design calculations and shop drawings submitted by the contractor.

The information given below is to be used in conjunction with the table on page 16. These tables are not to be used for the design of cantilever sign foundations.

**TYPICAL SIGN SUPPORT FOUNDATION**

**GENERAL NOTES**

The contractor may select any structural sign support meeting the design criteria of the current edition of the American Association of State Highway Officials' specifications for design and construction of structural supports for highway signs and Section 828 of the standard specifications.

Reinforced concrete foundations for sign supports selected shall conform to the applicable tabulation requirements based on the section modulus at the bottom of the sign support post.

The foundations listed are intended for a single pole in the direction normal to the sign, but the number of poles parallel to the sign shall conform with the construction drawings. If it is desired to use other than single pole supports, the contractor shall design the foundations for same and submit his design calculations with sketches.

Acceptance of the designs of the sign supports and sign support foundations will be contingent on the department's review and approval of design calculations and shop drawings submitted by the contractor.

The information given below is to be used in conjunction with the table on page 16. These tables are not to be used for the design of cantilever sign foundations.
### FOR OVERHEAD DIRECTIONAL SIGNS

#### NON-BREAKAWAY SUPPORTS

<table>
<thead>
<tr>
<th>Section Modulus at Bottom of Support Arm (4)</th>
<th>B</th>
<th>D</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1793') WALL THICKNESS</td>
<td>20.2</td>
<td>36' 6'-6'</td>
<td>8'-6'</td>
</tr>
<tr>
<td>21.0</td>
<td>37.2</td>
<td>36' 6'-6'</td>
<td></td>
</tr>
<tr>
<td>23.2</td>
<td>42' 6'-6'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.6</td>
<td>42' 6'-6'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.6</td>
<td>42' 6'-6'</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section Modulus at Bottom of Support Arm (4)</th>
<th>B</th>
<th>D</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>(4253) WALL THICKNESS</td>
<td>30.1</td>
<td>36' 6'-6'</td>
<td>8'-6'</td>
</tr>
<tr>
<td>36.4</td>
<td>36' 6'-6'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40.0</td>
<td>36' 6'-6'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>42.2</td>
<td>36' 6'-6'</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### THE SECTION MODULI LISTED ABOVE ARE TO BE USED FOR STEEL SIGN SUPPORT POLES WITH AN ALLOWABLE WORKING STRESS OF 49,764 P.S.I. IF POLES OF AN ALTERNATE MATERIAL ARE USED THE ACTUAL DEPTH OF FOUNDATION SECTION MODULUS OF THE POLES SHALL BE MULTIPLIED BY THE RATIO OF ALLOWABLE WORKING STRESS PLUS THE 1/2" REVEAL.

| MINIMUM DISTANCE FROM CENTER OF THE ANCHOR BOLTS TO THE FACE OF THE CONCRETE SHALL BE 5" |

| (2500') WALL THICKNESS | 20.1 | 36' 6'-6' | 8'-6' |
| 23.9 | 36' 6'-6' |
| 25.6 | 36' 6'-6' |
| 30.1 | 36' 6'-6' |

| (5000') WALL THICKNESS | 20.1 | 36' 6'-6' | 8'-6' |
| 23.9 | 36' 6'-6' |
| 25.6 | 36' 6'-6' |
| 30.1 | 36' 6'-6' |

### (25'-12") WALL THICKNESS

| 29.19 | 30' 6'-6' | 12'-6' |
| 31.31 | 36' 6'-6' |

### (55'-2") WALL THICKNESS

| 29.19 | 30' 6'-6' | 12'-6' |
| 31.31 | 36' 6'-6' |

### (2586') WALL THICKNESS

| 21.01 | 42' 6'-6' |
| 24.41 | 36' 6'-6' |
| 25.81 | 36' 6'-6' |

### (6250') WALL THICKNESS

| 21.01 | 42' 6'-6' |
| 24.41 | 36' 6'-6' |

* THE SECTION MODULI LISTED ABOVE ARE TO BE USED FOR STEEL SIGN SUPPORT POLES WITH AN ALLOWABLE WORKING STRESS OF 49,764 P.S.I. IF POLES OF AN ALTERNATE MATERIAL ARE USED THE ACTUAL DEPTH OF FOUNDATION SECTION MODULUS OF THE POLES SHALL BE MULTIPLIED BY THE RATIO OF ALLOWABLE WORKING STRESS PLUS THE 1/2" REVEAL.

** MINIMUM DISTANCE FROM CENTER OF THE ANCHOR BOLTS TO THE FACE OF THE CONCRETE SHALL BE 5"
TYPICAL SIGN INSTALLATION AND LOCATION

GENERAL NOTES

Breakaway sign supports shall be fabricated from structural steel and shall conform to the breakaway design shown on these pages of "Standard Ground Mounted Sign Supports Breakaway Design" and to the applicable requirements of the Massachusetts Department of Public Works "Standard Specifications for Highways and Bridges."

Steel


All structural steel shall conform to ASTM-A36. Flange holes for fuse bolts shall be drilled.

All high strength bolts, nuts, and washers shall conform to ASTM-A325. Tighten the high strength bolts in the base plate connection only to the torque shown in the table. Do not over tighten.

Notched steel fuse plates shall conform to the requirements of ASTM-A36.

All holes shall be drilled. All plate cuts shall be saw cuts.

All bolts other than high strength bolts shall conform to ASTM-A307 Class A.

All bolts, nuts, and washers shall be galvanized as per ASTM-A135. Structural steel shall be galvanized as per ASTM-A123 after fabrication except as noted.

In all cases the bottom of the footing shall be placed to the design depth.

Aluminum

Panels, attachments, and hardware shall conform to the requirements of M.D.P.W. Specifications.
ALUMINUM PANEL DETAILS

Panel Bolt ASTM-B211
Aluminum Alloy 2024-T4
3/8"-16 x 3/4" Long

Post Clip

NOTE: All Extruded Aluminum Panels Shall Have Side Moulding.

ISOMETRIC SHOWING SIGN COMPONENTS

CHASSIS

Panel Bolt & Washer
Aluminum Alloy 6063-T6
ASTM-B221

Panel Bolt ASTM-B211
Aluminum Alloy 6063-T6
ASTM-B221

NOTE: The Post Clip Method May Be Used With A Tee Beam Section In Ground Mounted Signs Only. The Post Clips Must Be Used At Each Aluminum Channel Attached To The Sign Panel. Post Clips Shall Not Be Used With "Z" Bar Sections. Bolts Must Be Used If A "Z" Bar Section Is Used.

NOTE: Panel Bolts To Be Placed Symmetrically About Each Post

REAR ELEVATION

Showing Arrangement Of Post Clips (Both Posts Or All Posts) And Panel Bolts.
ALUMINUM PANEL DETAILS

THICKNESS SIGN Panel:
Aluminum Panel (Type B) Aluminum
Alloy 6063-T6
ASTM-B221.

NOTE: Each Tee Beam shall be
attached by 10 Post Clips
-4 on the Exit and 6 on
the Sign Panel.

ISOMETRIC SHOWING METHOD OF
ATTACHMENT FOR EXIT TAB
(E5-2 TO SIGN PANEL)

The Post Clip Method may be used
with a Tee beam section on
ground mounted signs only.
The Post Clips must be used at
each Aluminum Channel.
Attached to the Sign panel.
Post clips shall not be used
with "Z" bar sections.
Bolts must be used in a "Z" bar
section is used.
Post clips on ground signs only.

For Post Clip and Bolt
Detail—See "Standard
Ground Panel Design."

Each Tee Beam shall be attached
by 12 Post Clips, 6 on the Exit Tab
and 6 on the Sign Panel.

ISOMETRIC SHOWING METHOD OF
ATTACHMENT FOR EXIT TAB
(E1-5) TO SIGN PANEL.
POST CLIP AND BOLT DETAIL
(FOR EXTRUDED ALUMINUM)

ALUMINUM PANEL DETAILS
TYPICAL EXIT TAB (E1-5, INTEGRAL PART OF E1-1 TYPE SIGN)

- Height of Sign - Radius
  - Up to 2' - 3'
  - 2'5" to 4' - 6'
  - 4'5" to 6' - 9'
  - 6'5" & Over - 12'

The minimum distance for X shall be one (1) foot.

- ONE DIGIT (EXIT 0) L=7'-0''
- TWO DIGITS (EXIT 00) L=8'-6''
- THREE DIGITS (EXIT 000) L=10'-0''
- FOUR DIGITS (EXIT 0000) L=12'-0''

Legend & Border - White (Reflect.)
Background - Green (Reflect.)
Arrow Design - "A"

ARROW & ONLY=APPROX. 46 Sq. Ft. Of Paint
TYPICAL INSTALLATION FOR SIGNS WITH AREA OVER 20 SQ.FT. UP TO 40 SQ.FT.

NOTE:—EAST OF LONGITUDE 71° 41' USE 55 x 10 POSTS.
WEST OF LONGITUDE 71° 41' USE 54 x 7.7 POSTS.
SPACING OF POSTS AND FOUNDATION DETAIL
AS SHOWN FOR SIGNS UP TO 5'-0" IN WIDTH
OVER 5'-0" IN WIDTH SPACING BETWEEN POSTS= 0.6 X WIDTH
FOR BASE CONNECTION AND FUSE PLATE
DATA SEE PAGE 23.

FURNISH 2-.012"+THICK AND 2-.032"±THICK
SHIMS PER POST. SHIMS SHALL BE
FABRICATED FROM BRASS SHIM STOCK
OR STRIP CONFORMING TO ASTM—B36

SHIM DETAIL

STIFFENER PLATE DETAIL
SEE TABLE FOR DIMENSION
### Base Connection Data Table

<table>
<thead>
<tr>
<th>Bolt Size &amp; Torque</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>T&lt;sub&gt;1&lt;/sub&gt;</th>
<th>T&lt;sub&gt;2&lt;/sub&gt;</th>
<th>W</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/8&quot; x 3 1/2&quot;</td>
<td>5&quot;</td>
<td>2&quot;</td>
<td>1 1/2&quot;</td>
<td>2 1/2&quot;</td>
<td>1 1/4&quot;</td>
<td>3&quot;</td>
<td>1/4&quot;</td>
<td>1/4&quot;</td>
<td></td>
</tr>
<tr>
<td>With 1/2&quot; Thread</td>
<td>TORQUE</td>
<td>450&quot;#</td>
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See Pages 29 & 30 for Base Plate Assembly

### Fuse Plate Data Table

<table>
<thead>
<tr>
<th>Fuse Plate DIA.</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>J</th>
<th>K</th>
<th>L</th>
<th>N</th>
<th>D&lt;sub&gt;4&lt;/sub&gt;</th>
<th>T&lt;sub&gt;4&lt;/sub&gt;</th>
<th>BOLT WT. OF EACH</th>
<th>FUSE PL.</th>
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<tbody>
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<td>2 1/2&quot;</td>
<td>1 1/2&quot;</td>
<td>4&quot;</td>
<td>2 1/2&quot;</td>
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</tr>
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<td>1 1/2&quot;</td>
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<td>1 1/2&quot;</td>
</tr>
<tr>
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<td>1 1/4&quot;</td>
<td>1 1/4&quot;</td>
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<tr>
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<td>1 1/4&quot;</td>
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See Pages 27 For Fuse Plate Details

### Foundation Data

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<th>SHAFT SIZE</th>
<th>BASE SIZE</th>
<th>DEPTH</th>
<th>CONC. SHAFT</th>
<th>MIA.</th>
<th>DEPT.</th>
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<td>2'-0&quot;</td>
<td>2'-0&quot;</td>
<td>2'-0&quot;</td>
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<td>2'-0&quot;</td>
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</tr>
<tr>
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<td>V10 X 26</td>
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<td>2'-0&quot;</td>
<td>2'-0&quot;</td>
</tr>
<tr>
<td>S 4 X 7.7</td>
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<td>1'-0&quot;</td>
<td>1'-0&quot;</td>
<td>1'-0&quot;</td>
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<td>1'-0&quot;</td>
<td>1'-0&quot;</td>
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<tr>
<td>S 5 X 10.0</td>
<td>1'-0&quot;</td>
<td>1'-0&quot;</td>
<td>1'-0&quot;</td>
<td>1'-0&quot;</td>
<td>1'-0&quot;</td>
<td>1'-0&quot;</td>
<td>1'-0&quot;</td>
<td>1'-0&quot;</td>
</tr>
</tbody>
</table>

See Page 22 For Foundation Details

* IF ROCK, LEDGE OR WATER ENCOUNTERED, ALTERNATE FOOTINGS MAY BE EMPLOYED ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.
POST WEIGHT DATA

POST SIZE | WEIGHT
----------|--------
W6 x 12   | 158.4 LB.
S4 x 7.7  | 96.1 LB.
S5 x 10.0 | 122.6 LB.

* LAST FIGURES=POST WEIGHT PER FOOT. NO TAPER

WEIGHT DATA IS THE WEIGHT OF ITEMS SHOWN FOR ONE POST–INCLUDES 10' OF POST LENGTH, POST FOUNDATION STUB, RELATED BASE CONNECTION PLATES AND STIFFENERS, FRICTION FUSE PLATE AND ALL HIGH STRENGTH BOLTS, NUTS, AND WASHERS.

FOR SIGNS HAVING A TOTAL AREA OVER 20 SQ. FT. TO 40 SQ. FT.

POST WEIGHT DATA

POST SIZE | WEIGHT
----------|--------
V6 x 12   | 128.4 LB.
V6 x 15   | 160.1 LB.
V8 x 18   | 197.2 LB.
V8 x 21   | 229.3 LB.
V10 x 22  | 259.6 LB.
V10 x 26  | 301.7 LB.
V12 x 26  | 302.3 LB.
V12 x 30  | 353.1 LB.
V12 x 40  | 460.6 LB.
S4 x 7.7  | 76.9 LB.
S5 x 10.0 | 97.6 LB.

* LAST FIGURES=POST WEIGHT PER FOOT.

WEIGHT DATA IS THE WEIGHT OF ITEMS SHOWN FOR ONE POST–INCLUDES TOP 6' OF POST, BOTTOM 4' OF POST, POST FOUNDATION STUB, RELATED BASE CONNECTION PLATES AND STIFFENERS, FRICTION FUSE PLATE AND ALL HIGH STRENGTH BOLTS, NUTS, AND WASHERS.

FOR SIGNS HAVING A TOTAL AREA OVER 40 SQ. FT.
Plywood Panel or 0.25" Sheet Aluminum

3/4" Plywood Panel or 0.25" Sheet Aluminum

4" (Nom.) Steel Pipe—10.79#/ft., Length 10'

See Page 22 For Shim Detail

3000 psi Cement Concrete Footing

Max. 6''

D-6 with D-8
NOTES:
1. The first full height post encountered in the direction of travel shall be marked by a "red" delineator and the last full height end post in the section shall be marked by a "green" delineator.
2. Delineators shall be fabricated from reflective sheeting.
3. P9 posts shall be erected within 6" perpendicular to the web of guardrail post.

[Diagram: Delination For Guardrail Termini]
POST COPING DETAILS


NOTE: Cut Surface Will Not Be Treated Until Plate Is Installed With All Bolts Fully Tightened.

THE POST CLIP METHOD MAY BE USED WITH A TEE BEAM SECTION ON GROUND MOUNTED SIGNS ONLY. THE POST CLIPS MUST BE USED AT EACH ALUMINUM CHANNEL ATTACHED TO THE SIGN PANEL. POST CLIPS SHALL NOT BE USED WITH "Z" BAR SECTIONS. BOLTS MUST BE USED IF A "Z" BAR SECTION IS USED.

SIDE VIEW
Flange Holes For Hinge Shall Be Drilled Or Sub-Punched & Reamed.

Cut To 1/16" From Fillet Leg

Beveled Washers For S5x10.0 & S4x7.7 Posts, Flat Washer On Others.

ASTM-A325 Bolts (For Bearing Type Connection.)

Field Note: All fuse plate bolts shall be 2 3/4" in length and have 2 1/4" of thread on the end of the bolt. All friction fuse bolts shall be tightened in the presence of the Department's representative in the field and in accordance with the requirements of Article 2.10.20, with a wrench calibrated daily at the Contractor's expense at the project site with a hydraulic bolt tension calibrator to obtain the following tension in each bolt:

<table>
<thead>
<tr>
<th>Bolt Size</th>
<th>Tension</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot;</td>
<td>12,000 lbs.</td>
</tr>
<tr>
<td>5/8&quot;</td>
<td>19,000 lbs.</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>28,000 lbs.</td>
</tr>
<tr>
<td>7/8&quot;</td>
<td>36,000 lbs.</td>
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</tbody>
</table>

This installation procedure shall comprise the inspection required by the above mentioned specification. Fabricator shall assemble the signs in the shop with suitable erection bolts for shipment to the project whereupon said bolts shall be replaced with the specified hi-strength bolts and tested to the values shown above. Inspection shall be accordance with the above mentioned Article 2.10.20 except that the inspection wrench shall be a torque wrench and that all bolts installed on the various fuse plates shall be inspected.

DETAIL "A" HINGE
PROCEDURE FOR ASSEMBLY

OF BASE CONNECTION

1. ASSEMBLE POST TO STUB WITH BOLTS AND WITH ONE FLAT WASHERS ON EACH BOLT BETWEEN PLATES.
2. Shim as required to plumb post.
3. Tighten all bolts the maximum possible with 10 TO 12" WRENCH TO BED WASHERS AND SHIMS AND TO CLEAN BOLT THREADS, THEN LOOSEN EACH BOLT IN TURN AND RETIGHTEN IN A SYSTEMATIC ORDER TO THE PRESCRIBED TORQUE. SEE TABLE ON PAGE 22.
4. AFTER THE INITIAL TORQUING A SECOND NUT WILL BE USED TO ENSURE THAT THE FIRST NUT WILL NOT BACK OFF.
5. THE CONTRACTOR TOGETHER WITH A DEPARTMENT INSPECTOR WILL RETURN TO THE SIGN FOR TWO INTERVALS OF 30 DAYS FOR THE PURPOSE OF MAINTAINING THE PRESCRIBED TORQUE.
6. IMMEDIATELY AFTER THE SECOND RE-TORQUING THE TOP NUT SHALL BE REMOVED AND THE THREAD SHALL BE BURIED JUST ABOVE THE FIRST NUT USING A CENTER PUNCH, IN ORDER TO ENSURE THAT THE PRESCRIBED TORQUE IS MAINTAINED.
H.S. BOLT WITH HEX HD, HEX NUT & 3 WASHERS WITH EACH BOLT. SEE TABLE FOR BOLT DIAMETER AND TORQUE. SEE BOLTING PROCEDURE.

STUB POST

SIGN POST

SEE STIFFENER PLATE DETAIL ON PAGE 22

TOP OF FOUNDATION
(SEE FOUNDATION DETAIL ON PAGE 23)

STUB PROJECT
(SEE TABLE ON PAGE 23)

SEE TABLE ON SHEET 23 FOR DIMENSIONS

SECTIONS SHOWN ARE FOR INSTALLATIONS ON RIGHT SHOULDER AND IN GORE. FOR INSTALLATIONS ON LEFT SHOULDER, PLATE AND SLOT BEVELS ARE OPPOSITE HAND.

NOTE:
WELD=FLGE,
THICKNESS=1/16"
Provide 3/4" dia. max. hole in base plate for gunk drainage.

Section A-A
Sections shown are for installations on right shoulder and in gore. Plate slot bevels are opposite hand from that shown for installations on left shoulder.

BASE CONNECTION DATA TABLE

<table>
<thead>
<tr>
<th>Non Pipe Size</th>
<th>Bolt Size &amp; Torque</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>T</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>4'</td>
<td>1/8&quot; x 3 1/2&quot; with 1/2&quot; thread</td>
<td>5'</td>
<td>7'</td>
<td>1'</td>
<td>3 1/2</td>
<td>2'</td>
<td>6'</td>
<td>2'</td>
<td>4'</td>
</tr>
<tr>
<td>5'</td>
<td>3/8&quot; x 3 3/4&quot; with 1 3/4&quot; thread</td>
<td>6'</td>
<td>9'</td>
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<td>4'</td>
<td>6'</td>
<td>8'</td>
<td>1'</td>
<td>7'</td>
</tr>
<tr>
<td>6'</td>
<td></td>
<td>7'</td>
<td>10 1/2</td>
<td>1 1/2</td>
<td>4'</td>
<td>8'</td>
<td>8'</td>
<td>1'</td>
<td>7'</td>
</tr>
</tbody>
</table>

Plates for base connection shall conform with the requirements of ASTM-A36.

BREAKAWAY SIGN SUPPORTS SHALL CONFORM TO THE BREAKAWAY DESIGN SHOWN ON THE SHEETS FOR "GROUND MOUNTED SIGN SUPPORTS BREAKAWAY DESIGN FOR THE D-6 AND D-6 WITH D-6 SIGN OR SIGN ASSEMBLY" AND THE MASS. DEPT. OF PUBLIC WORKS "STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES."

THE STEEL POSTS SHALL BE SEAMLESS STEEL PIPE AND SHALL CONFORM TO THE ASTM DESIGNATION A53.

ALL HIGH STRENGTH BOLTS, NUTS, AND WASHERS SHALL CONFORM TO ASTM-A325.

TIGHTEN THE HIGH STRENGTH BOLTS IN THE BASE PLATE CONNECTION ONLY TO THE TORQUE SHOWN IN THE TABLE. DO NOT OVERTIGHTEN.

ALL BOLTS, OTHER THAN HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM-A307 CLASS A.

ALL STEEL HARDWARE SHALL BE GALVANIZED AS PER ASTM-A153.

SEAMLESS STEEL PIPE AND BASE PLATES SHALL BE GALVANIZED AS PER ASTM-A123.

IN ALL CASES THE BOTTOM OF THE FOOTING SHALL BE PLACED TO THE DESIGN DEPTH.

THE LEGEND AND BORDER FOR D-6 SIGNS SHALL BE HIGH INTENSITY ENCAPSULATED LENSES.
TYPICAL PANEL ATTACHMENT TO OVERHEAD SUPPORT

5" DIA. BOLT WITH FLAT AND LOCK WASHERS AND HEX NUT STAINLESS OR GALVANIZED STEEL.

4"X3\(\frac{1}{16}\)X\(\frac{1}{4}\) ALUM. Z-BAR

1\(\frac{1}{2}\)" U-BOLT WITH FLAT AND LOCK WASHERS AND HEX NUTS STAINLESS OR GALVANIZED STEEL.

U-BOLT DETAIL

1" DIA. STAINLESS OR GALVANIZED STEEL U-BOLT WITH HEX. NUTS AND FLAT AND LOCKWASHERS.

B D
6.9" 4'
9.0" 6'
11.1" 8'

\(\frac{3}{2}\) X \(\frac{1}{2}\) X \(\frac{3}{16}\) ANGLE

9" WIDE SLOT TYP.

ENLARGED DETAIL OF TOP OF CONNECTING ANGLE.

SIGN HEIGHT

8" DIA. BOLT WITH FLAT AND LOCK WASHERS AND HEX NUT STAINLESS OR GALVANIZED STEEL.

\(\frac{7}{8}\) DIA. STAINLESS OR GALVANIZED STEEL U-BOLT WITH HEX. NUTS AND FLAT AND LOCKWASHERS.

SPAN CHORD DIA.

2" MIN.
TYPICAL PANEL ATTACHMENT TO OVERHEAD SUPPORT (CONT'D)

**TYPE A**
Vertical member for sign with no 6" panel

9" wide x 2-" LG.
Punch for U-bolt TYP.

**TYPE B**
Vertical member for sign with 6" panel, otherwise same as above
With or Without Tab

10'3½

4' OR 5'

10' OR 6'

Edge of Shoulder or Curb Line

Elevation of panels and embedment of footing same as D6 with D8

Double D-6 with D-8
SIGN BRACKET FOR DOUBLE D-6

4" Post Cap I.D. = 4\(\frac{5}{8}\)" Wall Thickness

5" Post Cap I.D. = 5\(\frac{3}{4}\)" Wall Thickness

FOR PLYWOOD PANEL

FOR ALUMINUM PANEL

TOP VIEW

Drill both walls in alignment for \(\frac{7}{16}\)" hole & bolt with 3/8"x6" hex. head bolt & hex. nut for 4" Post Cap, & \(\frac{3}{8}\)"x7" hex. head bolt & hex. nut for 5" Post Cap.

FRONT VIEW

SIGN BRACKET FOR D-6
For plywood panel use 3/8"x1/2" hex. head bolt & hex. nut with lock washer & Gal. Flat Washer

NOTE:
For 0-8 Attachment Use 2 Clamps For Each sign

CLAMP FOR D-8 ATTACHMENT
SIGN WIDTH IN FEET
WIND ZONE 1 EAST OF LONGITUDE 71°-41'

NOTE: When the design of a structure falls between the two lines on the chart, ALWAYS GO UP to the next nearest line to choose the size of the section

NOTE:
"X" EQUALS THE AVERAGE HEIGHT FROM THE GROUND LINE TO THE BOTTOM EDGE OF THE SIGN AT POST LOCATIONS MAXIMUM DISTANCE 12'.

V = 90 MPH, P = 35 PSF x Cd Ch

APPROVED:

BRIDGE ENGINEER

TRAFFIC ENGINEER
NOTE: When the design of a structure falls between the two lines on the chart, always go up to the next nearest line to choose the size of the section.

**SIGN WIDTH IN FEET**

**WIND ZONE 2 WEST OF LONGITUDE 71°-41°**

V = 70 MPH, P = 21.2 PSF x Cd Ch

Nomographs to be used where signs panels are over 40 s.f.

**NOTE:** X equals the average height from the ground line to the bottom edge of the sign at post locations; maximum distance 12'.
GENERAL NOTES

The signs, foundations, and supports shall be fabricated and erected to conform with the following:

The Department's Standard Specifications for Highways and Bridges (1988 edition and as subsequently amended.)

The Department's Manual on Uniform Traffic Control Devices (Current edition of the MUTCD with subsequent amendments.)


The Department has standardized certain signs and supports, pavement markings, and other delineation. The design, placement, etc. of these as shown herein shall be used on all contracts as needed.

All stiffeners, bolts, nuts, clamps, and angles (steel or aluminum) must be designed by the contractor or his agent to withstand all design loads and forces.

When designs other than those shown as Department Standards are recommended, permission to use other designs must be obtained from the Department before fabrication or erection.
Temporary Wooden Yielding Supports

NOTES:
1. FOR SIGNS OVER 50 SQ. FT., CALCULATIONS MUST BE SUBMITTED FOR WIND LOAD AND POST SIZE.
2. USE 6" X 6" DOUGLAS FIR OR SOUTHERN YELLOW PINE.
PAVEMENT MARKINGS AND SIGNING FOR
TRANSITION FROM 4 LANES DIVIDED TO 2 LANES

DO NOT PASS

36'x36'

BEGIN CENTER LINE

12' LANE WIDTH

END CROSS HATCHING AT 26' PAVEMENT WIDTH OR WHEN D=600' WHICHEVER IS SHORTER

8' YELLOW CROSS HATCHING LINES AT 20' SPACING AND 45° ANGLE

8' YELLOW CHANNELIZING LINES

12' LANE WIDTH

MATCH LINE "A"

MATCH LINE "A"

36'x36'

200'

750'

8' YELLOW CHANNELIZING LINES

MATCH LINE "A"

MATCH LINE "A"

24'x30'

30'x30'

MATCH LINE "A"

MATCH LINE "A"

36'x36'

200'±

300'

36'x36'

LANE ENDS HERES LEFT
CLIMBING LANES

* Taper as per MDPW Highway Design Manual

**LEGEND**

18.3 BEGINING OF NO-PASSING ZONE.
28.4 END OF NO-PASSING ZONE.
28.3 BASED ON LIMITED SIGHT DISTANCE.
18.4 OPPOSITE BEGINING OF CLIMBING LANE.
**DD SIGN SUPPORT PROTECTION**

**TRAFFIC FLOW**

**EDGE TRAVELED WAY**

**EDGE SHOULDER OR DECEL LANE**

WOOD CHIPS (PLACED)
2' BEYOND MATURE GROWTH

*55 PFEITZER JUNIPERS SPACED 6' O.C.*

CONTROL LINE @ 30'

D.D. SUPPORT

* OR OTHER APPROVED SPECIES AND/OR SPACING

**PLAN**

**FOOTING**

FACE OF FOOTING

EDGE OF PAVEMENT 20'

PLANTING LIMITS

1' 20'

2'

**ELEVATION**

6:1

ORIGINAL GROUND
**GROUND INSTALLATION**

**METHOD OF INSTALLATION**

**STEP 1** Drive Sign Post Anchor To Within 3 or 4' Of Surface.

**STEP 2** Pre-cut Anchor Sleeve So That The Holes Will Match And Still Be Flush With Top Of Sign Post Anchor, Drive Anchor Sleeve Until Holes Match As Noted Above, Then Drive Both The Sign Post Anchor And Anchor Sleeve Until One Hole Is Exposed Above Ground For Bolt Connection.

**STEP 3** Insert Sign Post And Bolt In Place.

**NOTE:** Driving Caps Must Be Used To Drive Posts. Retain 4'-0" Depth To Reach Theoretical Frost Line.

**GENERAL NOTES**

BREAKAWAY SIGN SUPPORTS SHALL BE FABRICATED FROM STEEL AND SHALL CONFORM TO THE BREAKAWAY DESIGN SHOWN ON THIS SHEET OR "GROUND MOUNTED SIGN SUPPORTS BREAKAWAY DESIGN FOR SIGNS WITH AREA 20 SQ. FT. AND BELOW" AND THE MASS. DEPT. OF PUBLIC WORKS 'STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES'.

THE STEEL POSTS SHALL CONFORM TO ASTM-A366. THE CROSS SECTION OF THE POST SHALL BE SQUARE TUBE FORMED OF 12 GAUGE (205 U.S. GAUGE) COLD-ROLLED CARBON STEEL SHEETS WHICH HAVE BEEN ZINC COATED (2.5 oz.) CONFORMING TO ASTM-A525, CAREFULLY ROLLED TO SIZE AND WELDED DIRECTLY IN THE CORNER BY HIGH FREQUENCY RESISTANCE WELDING OR EQUAL, AND EXTERNALLY SCARFED TO AGREE WITH CORNER RADIUS. STANDARD OUTSIDE CORNER CORNER RADIUS SHALL BE 5/32' PLUS OR MINUS 1/64'.

ALL BOLTS SHALL CONFORM TO ASTM-A307, CLASS A.


<table>
<thead>
<tr>
<th>SIGN SIZE</th>
<th>TELESCOPIC POST SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 SF. AND UNDER</td>
<td>1-1/4&quot;x11&quot; 3/4&quot;</td>
</tr>
<tr>
<td>OVER 5 SF.</td>
<td>1-1/2&quot;x2&quot;</td>
</tr>
<tr>
<td>OVER 10 SF.</td>
<td>2&quot;x2&quot;</td>
</tr>
<tr>
<td>OVER 15 SF.</td>
<td>2-1/2&quot;x2&quot;</td>
</tr>
<tr>
<td>UP TO 20 SF.</td>
<td>2-1/2&quot;x2&quot;</td>
</tr>
</tbody>
</table>

**INSTALLATION FOR CONCRETE OR BITUMINOUS CONCRETE SURFACES**

**METHOD OF INSTALLATION**

**STEP 1** Sign post anchor can be driven through black top surface without first making a hole. In concrete, however, breaking a hole will be necessary. Drive sign post anchor to within 3 or 4' of surface.

**STEP 2** Pre-cut anchor sleeve so that holes will match and still be flush with top of sign post anchor. Drive anchor sleeve until holes match as noted above, then drive both the sign post anchor and anchor sleeve until one hole is exposed above ground for bolt connection.

**STEP 3** Insert sign post and bolt in place.

**NOTES:**

1. Driving caps must be used to drive posts.
2. Sign with a width of 4' or greater require 2 posts.
3. This erection procedure applies to Uni-cut supports. Other P-5 square tube small sign supports on the approved product lists, such as Allied Quick Punch and Allied Postmate, may deviate from this procedure. In those cases, the manufacturer's recommendations shall be followed.
Use 3/8' Dia. Hot Dipped Galvanized Button Head Bolt With A Slot In Head And Nut With Lockwasher, With A Minimum Of 1/4' Of Threads Beyond Nuts On All Signs After They Are Securely Fastened. (For Plywood Use 3/8' Dia. Bolt)

- 0.125' Sheet Aluminum
- 3/4' Plywood

POST ASSEMBLY APPROVED

ALTERNATE

4'-0' 8'-0' MAX

SHEET .080 ALUMINUM OR 3/4' PLYWOOD

TYPICAL INSTALLATION FOR SIGNS WITH AREA OVER 10 SQ. FT. UP TO AND INCLUDING 20 SQ. FT.

SIGNS WITH A WIDTH OF 4' AND OVER SHALL REQUIRE TWO POSTS.

TYPICAL INSTALLATION FOR SMALL SIGNS (UP TO 20 SQ.FT.)
ALUMINUM CAP FOR 1\(\frac{3}{4}\)" POST - (FOR USE WITH R6-1)
EZE-ERECT SIGN POST INSTALLATION*

BOLTS: 5/16"-18 UNC x 2", GRBD, FOR 4.0 LB POSTS
5/16"-18 UNC x 1 3/4", GRBC, FOR 2.0, 2.25, 2.5 & 3.0 LB POSTS
DO NOT USE 5/16" GRBC BOLTS ON 4.0 LB POSTS

1 A-DRIVE BASE POST TO WITHIN 12 IN. OF GROUND LEVEL.
B-ATTACH RETAINER-SPACER STRAP WITH ONE BOLT, NUT, AND LOCK-WASHER THROUGH BOTTOM HOLE OF STRAP AND SIXTH HOLE OF BASE POST. TOP HOLE OF STRAP SHOULD LINE UP WITH TOP HOLE IN BASE POST.
C-ROTATE STRAP 90° TO LEFT

2 A-DRIVE BASE POST TO 4 IN. ABOVE GROUND
B-ROTATE STRAP TO VERTICAL POSITION

3 A-ATTACH SIGN POST WITH TWO BOLTS, NUTS, AND LOCKWASHERS IN BOTTOM AND FIFTH HOLES. THESE CORRESPOND WITH SMALL HOLES IN STRAP.
B-INSERT ONE BOLT THROUGH SIGN POST AND BOTTOM OF LONG SLOT IN STRAP. TIGHTEN ALL NUTS SNUGLY BEFORE COMPLETE-LY TIGHTENING ASSEMBLY.

* Notwithstanding references to the availability of 3 and 4 lb./linear ft. posts, the size vs. post weight table on page 50 shall govern.
ATTACHMENT OF SIGN POST TO BASE POST

- SIGN POST
- RETAINER SPACER STRAP
- BASE POST
- HEX HEAD, INTEGRAL FLANGE BOLT, NUT AND LOCK WASHER, 4 REQ'D.
EZE-ERECT BASE POST

3/8" Dia. Holes on 1.00" Centers, Except First and Fifth are 3/8" x 1/2" slots
Punched 18 Holes Bottom Pointed
Available in 2.5, 3.0 & 4.0 lb/ft
Length -3'6" and 4'0"

EZE-ERECT SIGN POST

3/8" Dia. Holes on 1.00" Centers
Punched Full Length Available in 2.0, 2.25, 2.5, 3.0 & 4.0 lb/ft
Length -6'0", 7'0", 8'0", 9'0", 10'0", 11'0", and 12'0"
HEX HEAD-INTEGRAL FLANGE BOLT, NUT AND LOCKWASHER

5/16"-18 UNC x 2.0' Long (for 4.0 lb. posts) or 5/16"-18 UNC x 1 3/4' (for 2.0, 2.25, 2.5 & 3.0 lb. posts)
Bolt per ASTM A354, Grade BD or Grade BC
Nut per ASTM A563, Grade DH
Lockwasher is heavy duty external toothed.
Finish-Cadmium plated per ASTM A165-80, Type DS, except using clear chromate

<table>
<thead>
<tr>
<th>SIGN SIZE</th>
<th>CHANNEL POST POST-WITH STRAP (EZE-ERECT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 S.F. AND UNDER</td>
<td>1-2 LB./FT.</td>
</tr>
<tr>
<td>OVER 5 S.F., UP TO 10 S.F.</td>
<td>1-2.25 LB./FT.</td>
</tr>
<tr>
<td>* OVER 10 S.F., UP TO 20 S.F.</td>
<td>2-2.25 LB./FT.</td>
</tr>
</tbody>
</table>

* NOTE: Signs with a width of 4' and over shall require 2 posts.

GALVANIZING FINISH
RETAINER-SPACER STRAP
For 2.5 and 4.0 lb/ft Sign Posts
Material-Mild Steel
Finish-Hot Dip Galvanize Per ASTM A-123
## PLASTIC DRUMS

<table>
<thead>
<tr>
<th>ITEM #</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>859.</td>
<td>REFLECTORIZED DRUM</td>
</tr>
<tr>
<td>859.1</td>
<td>REFLECTORIZED DRUM WITH FLASHER (TYPE A) - Used to continually warn drivers that they are approaching or proceeding in a hazardous area (see MUTCD Sect. 6E4,6E5).</td>
</tr>
<tr>
<td>859.2</td>
<td>REFLECTORIZED DRUM WITH LIGHT (TYPE C) - Steady burn device used to delineate the edge of the traveled way on lane closures, detour curves, lane changes and other similar conditions (see MUTCD Sect. 6E4,6E5).</td>
</tr>
</tbody>
</table>

### NOTES:

1. DRUM DESIGN AND APPLICATION SHALL BE AS PER THE CURRENT EDITION OF THE MUTCD.

2. DRUMS SHALL BE APPROXIMATELY 36" IN HEIGHT, HAVING A MINIMUM WALL THICKNESS OF 3/32" AND A MINIMUM DIAMETER OF 18" REGARDLESS OF ORIENTATION.

3. DRUM MATERIAL MUST BE APPROVED U.V. RESISTANT, LOW DENSITY, IMPACT RESISTANT LINEAR POLYETHYLENE (OR APPROVED EQUIVALENT). METAL DRUMS ARE PROHIBITED FROM USE ON ALL STATE HIGHWAY PROJECTS.

4. SHEETING SHALL BE APPROVED ORANGE AND WHITE TYPE IV REFLECTORIZED SHEETING CONFORMING TO M.9.30.0.

5. ALL DRUMS SHALL BE WELL MAINTAINED INCLUDING REMOVAL OF DUST OR ROAD FILM, SO AS TO NOT REDUCE REFLECTIVE EFFICIENCY. WHEN A DRUM LOSES TARGET VALUE IT SHALL BE REPLACED.

6. WHEN A DRUM IS NO LONGER NEEDED IT SHALL BE STORED IN A DRUM STORAGE AREA, UNLESS IT IS REQUIRED FOR FUTURE USE WITHIN A FIVE DAY PERIOD, IN WHICH CASE IT MAY BE STORED ON LOCATION.

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**Date:** 7/18/90

**Traffic Engineer:**

**Chief Engineer:**

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