## STRUCTURAL STEEL POST FOR GROUND MOUNTED SIGNS

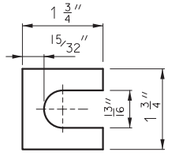
| POST | | BOLT | | | WASHER | | | BASE CONNECTION DATA TABLE (IN.) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DES. NO. | NOM SIZE (IN. X LBS/FT) | DIA IN. | LENGTH IN. | TORQUE IN./LB. | OD IN. | ID IN. | THICK IN. | A | B | C | D | E | F | G | W | R |
| 1 | W6x9 | | | | | | | | | | | | | | | |
| 2 | W6x15 | $\frac{5}{8}$ | $2\frac{3}{4}$ | 345 | $1\frac{5}{16}$ | $\frac{11}{16}$ | $\frac{1}{8}$ | 5 | 2 | $1\frac{1}{4}$ | $2\frac{3}{4}$ | $1\frac{1}{8}$ | $\frac{3}{4}$ | $\frac{1}{2}$ | $\frac{1}{4}$ | $\frac{11}{32}$ |
| 3 | W8x18 | | | | | | | | | | | | | | | |
| 4 | W10x22 | | | | | | | | | | | | | | | |
| 5 | W10x26 | $\frac{3}{4}$ | $3\frac{1}{2}$ | 555 | $1\frac{15}{32}$ | $\frac{13}{16}$ | $\frac{1}{8}$ | 6 | $2\frac{1}{4}$ | $1\frac{3}{8}$ | $3\frac{1}{2}$ | $1\frac{1}{4}$ | 1 | $\frac{3}{4}$ | $\frac{5}{16}$ | $\frac{13}{32}$ |
| 6 | W12x35 | | | | | | | | | | | | | | | |

## POST AND FOOTING DATA TABLE

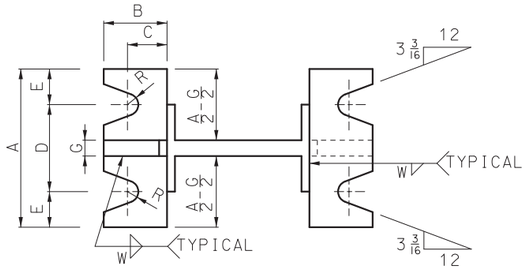
| POST | | | | | FOOTING | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| POST DES. NO. | NOM. SIZE | WEIGHT | | STUB LENGTH | DIA. | LEVEL GROUND | | 6:1 GRADE | | 4:1 GRADE | | 3:1 OR 2:1 GRADE | |
| | | LBS/FT | LBS/IN | | | DEPTH | C.Y. | DEPTH | C.Y. | DEPTH | C.Y. | DEPTH | C.Y. |
| 1 | W6 | 9.0 | 0.75 | 3′-0″ | 15″ | 3′-0″ | 0.14 | 3′-2″ | 0.15 | 3′-3″ | 0.16 | 3′-6″ | 0.17 |
| 2 | W6 | 15.0 | 1.25 | 4′-0″ | 24″ | 4′-0″ | 0.47 | 4′-2″ | 0.50 | 4′-3″ | 0.51 | 4′-6″ | 0.54 |
| 3 | W8 | 18.0 | 1.50 | 4′-6″ | 28″ | 4′-6″ | 0.71 | 4′-8″ | 0.73 | 4′-9″ | 0.74 | 5′-0″ | 0.78 |
| 4 | W10 | 22.0 | 1.83 | 5′-0″ | 36″ | 5′-0″ | 1.31 | 5′-2″ | 1.36 | 5′-3″ | 1.39 | 5′-6″ | 1.45 |
| 5 | W10 | 26.0 | 2.17 | 5′-0″ | 36″ | 5′-0″ | 1.31 | 5′-3″ | 1.37 | 5′-5″ | 1.43 | 5′-9″ | 1.52 |
| 6 | W12 | 35.0 | 2.92 | 5′-6″ | 36″ | 5′-6″ | 1.44 | 5′-9″ | 1.52 | 5′-11″ | 1.56 | 6′-3″ | 1.65 |

SHEET METAL BOLT RETAINER CUT FROM 30 GAGE GALVANIZED SHEET METAL. PLACE BETWEEN BASE PLATES. SIZE VARIES TO FIT PLATE. BOLT HOLES TO BE $\frac{1}{16}$″ LARGER THAN REQUIRED BOLT SIZE.

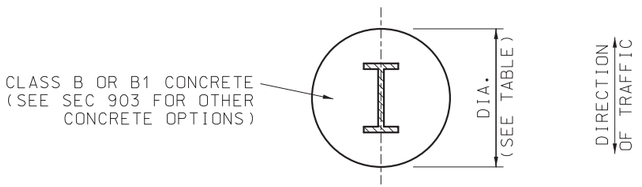
BOLT RETAINER



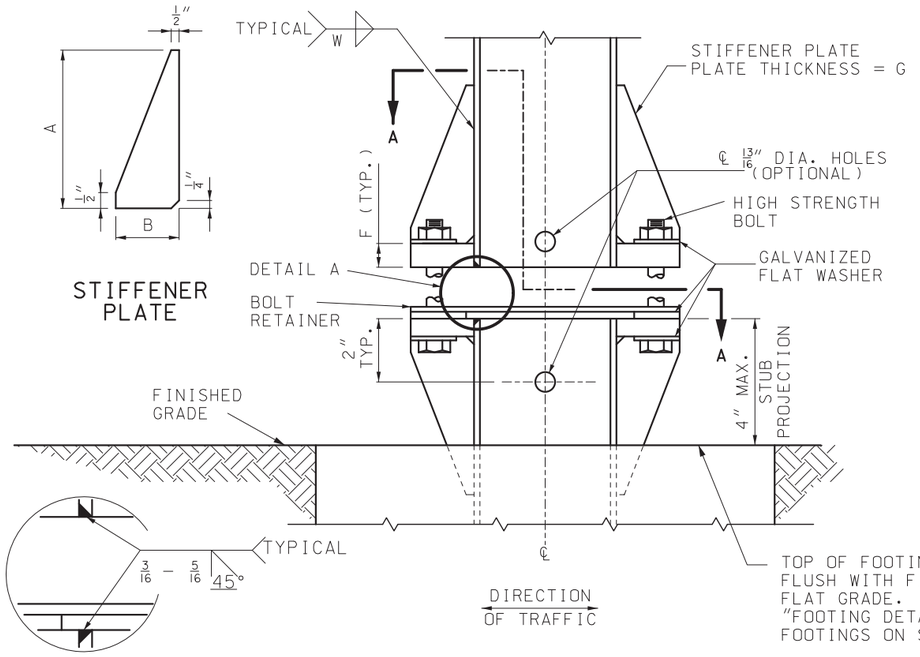

SHIM



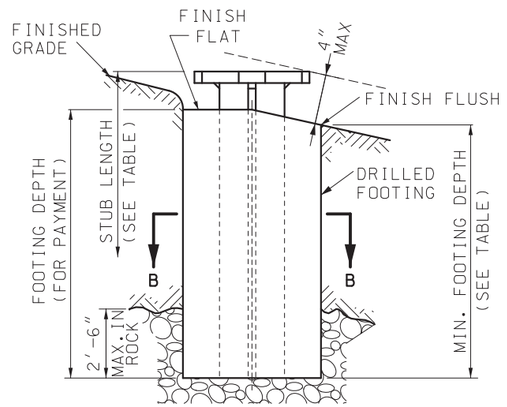

SECTION A-A




SECTION B-B




ELEVATION




FOOTING DETAIL

GENERAL NOTES:

DESIGN SPECS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS – 1985 (EXCEPT 2001 AND LATEST INTERIMS FOR STRUCTURAL STEEL POSTS).

POSTS, PERFORATED FUSE PLATE AND SPLICE PLATE TO BE GALVANIZED AFTER FABRICATION.

METAL PROJECTING BEYOND THE PLANE OF THE PLATE FACE WILL NOT BE ALLOWED.

REMOVE ALL GALVANIZING RUNS OR BEADS IN THE WASHER AREA.

ALL STRUCTURAL STEEL STIFFENER PLATES AND BASE PLATES, FOR GROUND MOUNTED SIGNS SHALL MEET THE REQUIREMENTS OF ASTM A 36 OR AASHTO M 270 GRADE 50, MINIMUM YIELD 50,000 PSI.

IN THE EVENT THE DISTANCE BETWEEN THE TOP OF THE FOOTING AND THE BOTTOM OF THE SIGN IS LESS THAN 7′-9″, THE SIGN HEIGHT AND POST LENGTH IS TO BE INCREASED SUFFICIENTLY TO ACCOMMODATE THIS MINIMUM SPACING.

HINGE PLATES NOT REQUIRED ON SINGLE POST SIGNS OR ANY SIGNS USING PIPE POSTS.

NUTS ON HINGE PLATE BOLTS SHALL BE TIGHTENED TO THE REQUIRED MINIMUM BOLT TENSION VALUES SHOWN IN TABLE 1 SEC. 1080 OF THE STANDARD SPECIFICATIONS.

THE NUT SHALL BE FREE RUNNING. IF THE NUT WILL NOT SPIN ON THE BOLT BECAUSE OF GALVANIZING IRREGULARITIES, A LUBRICANT SHALL BE APPLIED.

ALL BREAKAWAY ASSEMBLY BOLTS SHALL BE TIGHTENED IN A SYSTEMATIC MANNER TO THE PRESCRIBED TORQUE SHOWN ON THIS DRAWING.

EACH BREAKAWAY ASSEMBLY BOLT SHALL BE LOOSENED AND RE-TIGHTENED TO THE REQUIRED TORQUE IN THE SAME ORDER AS THE INITIAL TIGHTENING.

THE THREADS SHALL BE BURRED AT THE NUT USING A CENTER PUNCH TO PREVENT NUT FROM LOOSENING.

POST LENGTH QUANTITY SHOWN ON PLANS INCLUDES STUB.

1″ X $2\frac{1}{2}$″ HIGH STRENGTH BOLTS FOR PIPE POSTS SHALL BE OF THE DESIGNATION AASHTO M 164 OR ASTM A 449. ALL OTHER HIGH STRENGTH BOLTS SHALL BE OF THE DESIGNATION ASTM F3125 GRADE A325.

FURNISH TWO .012″± AND TWO .0032″± THICK SHIMS PER POST FROM BRASS SHIM STOCK OR STRIP, DESIGNATION ASTM B 36. SHIM AS REQUIRED TO PLUMB POST.

HIGH STRENGTH BOLTS WITH HEX NUT AND THREE WASHERS WITH EACH BOLT ARE TO BE GALVANIZED.

OPTIONAL HOLES ($\frac{13}{16}$″ ROUND FOR "I" SHAPE POSTS AND $\frac{9}{16}$″ ROUND FOR PIPE POST BASE PLATES) AS SHOWN IN "ELEVATIONS" ARE TO BE USED AS AID FOR GALVANIZING ONLY.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STATE OF MISSOURI
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NUMBER PE-2008019578
PROFESSIONAL ENGINEER
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MO-PE-2008019578

# POST INSTALLATION DETAILS

## POST AND FOOTING DETAILS WIDE FLANGE (WF) POSTS

DATE EFFECTIVE: 10/1/2025
DATE PREPARED: 7/7/2025

903.03BU

SHEET NO. 1 OF 12

## WIDE FLANGE STRUCTURAL STEEL POSTS DESIGN DATA

| POST DES. NO. | NOM. SIZE (IN.) | WEIGHT LB/FT | WEIGHT LB/IN | DEPTH (IN.) | FLANGE WIDTH (IN.) | FLANGE THICK (IN.) | WEB THICK (IN.) |
|---|---|---|---|---|---|---|---|
| 1 | W6 | 9 | 0.75 | 5 7/8 | 4 | 3/16 | 3/16 |
| 2 | W6 | 15 | 1.25 | 6 | 6 | 1/4 | 1/4 |
| 3 | W8 | 18 | 1.50 | 8 1/8 | 5 1/4 | 5/16 | 1/4 |
| 4 | W10 | 22 | 1.83 | 10 1/8 | 5 3/4 | 3/8 | 1/4 |
| 5 | W10 | 26 | 2.17 | 10 3/8 | 5 3/4 | 7/16 | 1/4 |
| 6 | W12 | 35 | 2.92 | 12 1/2 | 6 1/2 | 1/2 | 5/16 |

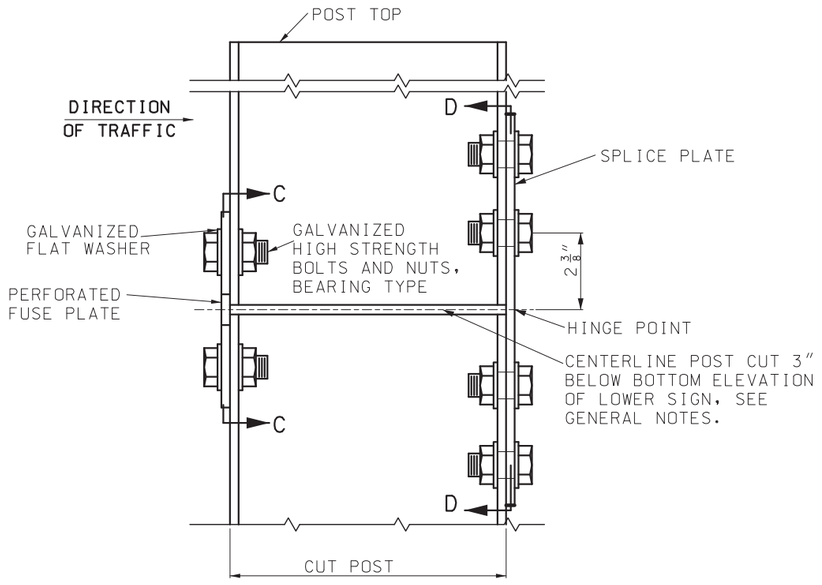
## PERFORATED FUSE PLATE DATA TABLE

| POST DESIGN NO. | F (IN.) | G (IN.) | H (IN.) | J (IN.) | K (IN.) | L (IN.) | M (IN.) | N (IN.) | d1 (IN.) | d2 (IN.) | P (IN.) | BOLT DIA. (IN.) | WT. (EA.) (LBS.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4 1/4 | 1 | 1 1/8 | 4 | 2 1/4 | 7/8 | 1 | 1/2 | 9/16 | 3/4 | 3/16 | 1/2 | 0.76 |
| 2 | 5 | 1 1/4 | 1 1/4 | 6 | 3 1/2 | 1 1/4 | 1 1/2 | 3/4 | 11/16 | 1 1/4 | 1/4 | 5/8 | 1.67 |
| 3 | 5 | 1 1/4 | 1 1/4 | 5 1/4 | 2 3/4 | 1 1/4 | 1 1/4 | 3/4 | 11/16 | 1 1/16 | 1/4 | 5/8 | 1.51 |
| 4 | 6 | 1 1/2 | 1 1/2 | 5 3/4 | 2 3/4 | 1 1/2 | 1 3/8 | 13/16 | 13/16 | 1 1/8 | 5/16 | 3/4 | 2.52 |
| 5 | 6 | 1 1/2 | 1 1/2 | 5 3/4 | 2 3/4 | 1 1/2 | 1 3/8 | 13/16 | 13/16 | 1 1/8 | 5/16 | 3/4 | 2.52 |
| 6 | 6 | 1 1/2 | 1 1/2 | 6 1/2 | 3 1/2 | 1 1/2 | 1 5/8 | 13/16 | 13/16 | 1 5/16 | 3/8 | 3/4 | 3.35 |

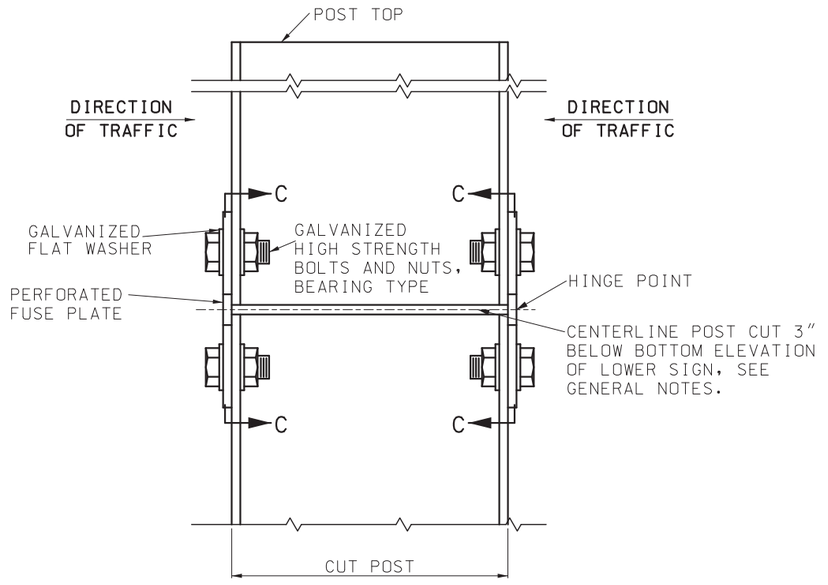
## SPLICE PLATE DATA TABLE

| POST DESIGN NO. | J (IN.) | K (IN.) | L (IN.) | U (IN.) | d1 (IN.) | BOLT DIA. (IN.) | WT. (EA.) (LBS.) | WASHER OD IN. | WASHER ID IN. | WASHER THICK IN. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4 | 2 1/4 | 7/8 | 3/16 | 9/16 | 1/2 | 2.45 | 1 3/16 | 5/8 | 1/8 |
| 2 | 6 | 3 1/2 | 1 1/4 | 1/4 | 11/16 | 5/8 | 4.89 | 1 5/16 | 11/16 | 1/8 |
| 3 | 5 1/4 | 2 3/4 | 1 1/4 | 5/16 | 11/16 | 5/8 | 5.32 | | | |
| 4 | 5 3/4 | 2 3/4 | 1 1/2 | 5/16 | 13/16 | 3/4 | 5.75 | 1 15/32 | 13/16 | 1/8 |
| 5 | 5 3/4 | 2 3/4 | 1 1/2 | 7/16 | 13/16 | 3/4 | 8.04 | | | |
| 6 | 6 1/2 | 3 1/2 | 1 1/2 | 1/2 | 13/16 | 3/4 | 10.47 | | | |

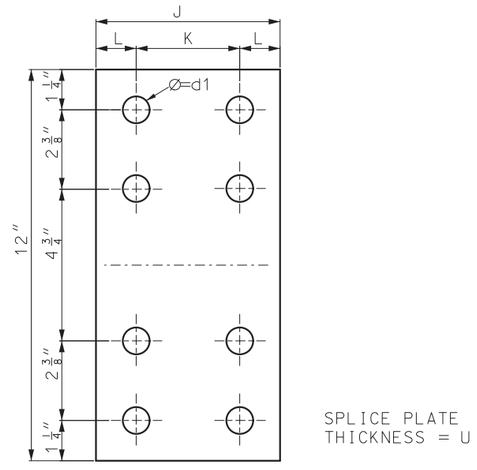
THE WEIGHT OF STRUCTURAL STEEL POSTS SHOWN IN THE CONTRACT HAS BEEN COMPUTED USING THE WEIGHTS SHOWN.




ONE DIRECTION BREAKAWAY

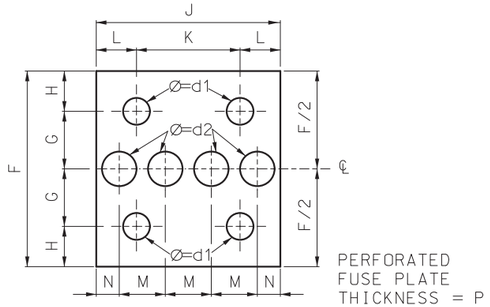



TWO DIRECTION BREAKAWAY




ELEVATION D–D

## PERFORATED FUSE PLATE AND SPLICE PLATE DETAIL




ELEVATION C–C

ALL HOLES SHALL BE DRILLED. ALL PLATE CUTS SHALL PREFERABLY BE SAW CUTS. HOWEVER: FLAME CUTTING WILL BE PERMITTED PROVIDED ALL EDGES ARE GROUND.

PERFORATED FUSE PLATE AND SPICE PLATE SHALL BE FABRICATED FROM ASTM A 36 STRUCTURAL STEEL.

NOTES:

FOR GENERAL NOTES, SEE SHEET 1.

FOR ROADWAYS WHERE TRAFFIC MAY STRIKE THE BACKSIDE OF THE POST, PERFORATED FUSE PLATES SHALL BE INSTALLED ON BOTH SIDES OF THE POST.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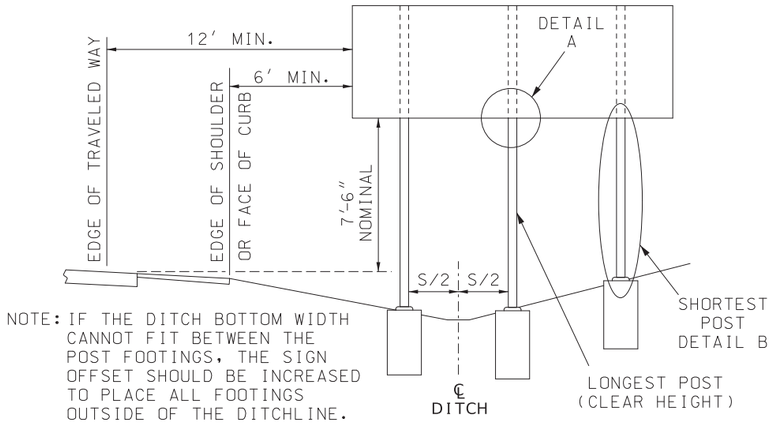
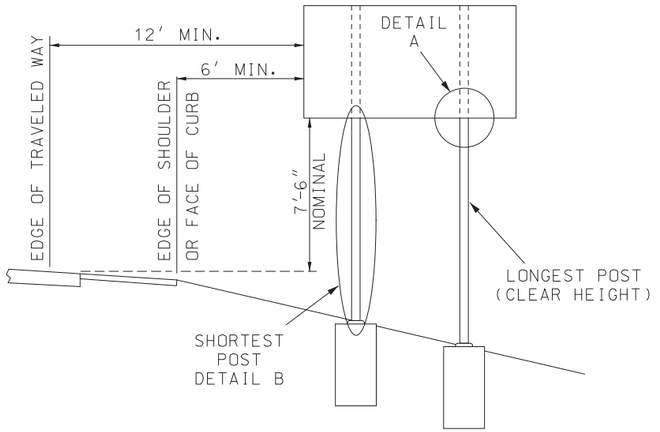
# POST INSTALLATION DETAILS
## HINGE DETAILS
## WIDE FLANGE (WF) POSTS

DATE EFFECTIVE: 10/1/2025
DATE PREPARED: 7/7/2025

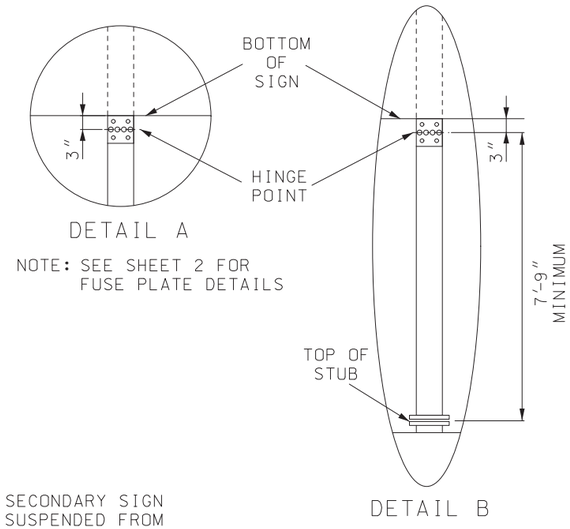
903.03BU




DITCH SECTION



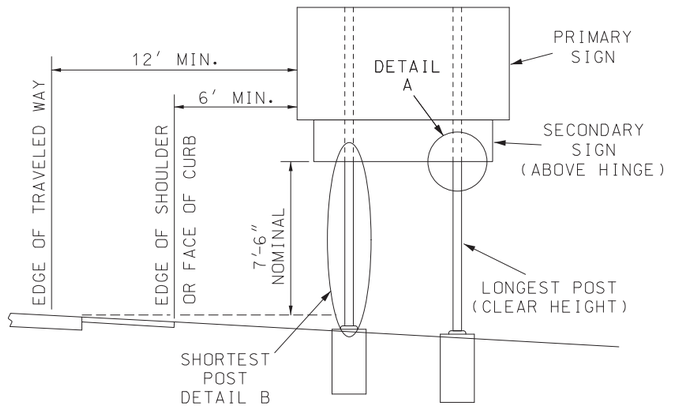

FILL SECTION



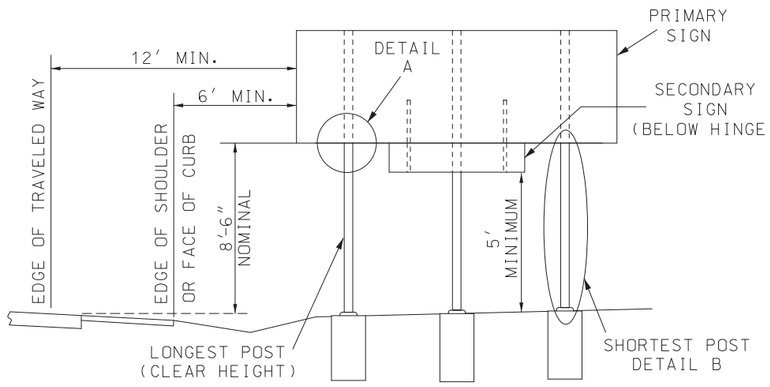

DETAIL A

NOTE: SEE SHEET 2 FOR FUSE PLATE DETAILS

DETAIL B




SECONDARY SIGN INSTALLATION ATTACHED TO SIGN POSTS

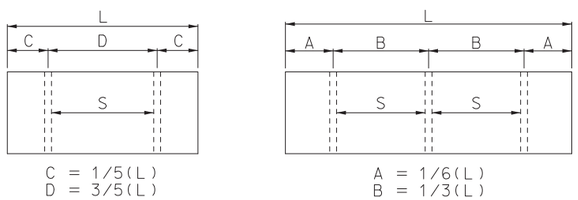



NOTE: THIS METHOD IS ONLY USED IF THE SECONDARY SIGN IS TOO NARROW TO ATTACH TO ALL POSTS.

SECONDARY SIGN INSTALLATION SUSPENDED FROM PRIMARY SIGN


SIGN SKEWED 93° FROM ROADWAY TO MINIMIZE REFLECTIVE GLARE

SIGN ORIENTATION




POST DESIGNS 3, 4, 5 AND 6 (18 LBS/FT OR HEAVIER) "S" SHALL BE A MINIMUM OF 7′

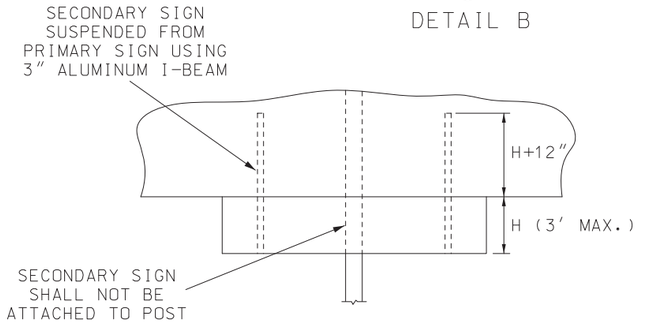
POST DESIGNS 1 AND 2 "S" MAY BE LESS THAN 7′

FOR "L" OF 6′ TO 17′ TYPICALLY USE TWO POSTS

FOR "L" GREATER THAN 17′ TYPICALLY USE THREE POSTS

DO NOT USE THREE POSTS FOR "L" LESS THAN 11′

POST SPACING




SUSPENDED SIGN DETAIL

GENERAL NOTES:

FOR ADDITIONAL INFORMATION ON THE INSTALLATION OF WIDE FLANGE POSTS, SEE SHEET 1 AND 2.

THE MOUNTING HEIGHT OF THE SIGN, MEASURED FROM THE ROAD SURFACE, SHALL ONLY BE INCREASED TO ENSURE THE SHORTEST POST IS A MINIMUM 7′9″.

THE CORRECT NUMBER AND SIZE OF POSTS REQUIRED IS CALCULATED BASED ON THE SIGN HEIGHT, WIDTH AND THE CLEAR HEIGHT. THE CLEAR HEIGHT IS THE LENGTH OF THE LONGEST POST MEASURED FROM THE TOP OF THE STUB TO THE HINGE POINT AND DIRECTLY EFFECTS THE NUMBER AND SIZE OF POSTS REQUIRED TO SUPPORT A SIGN.

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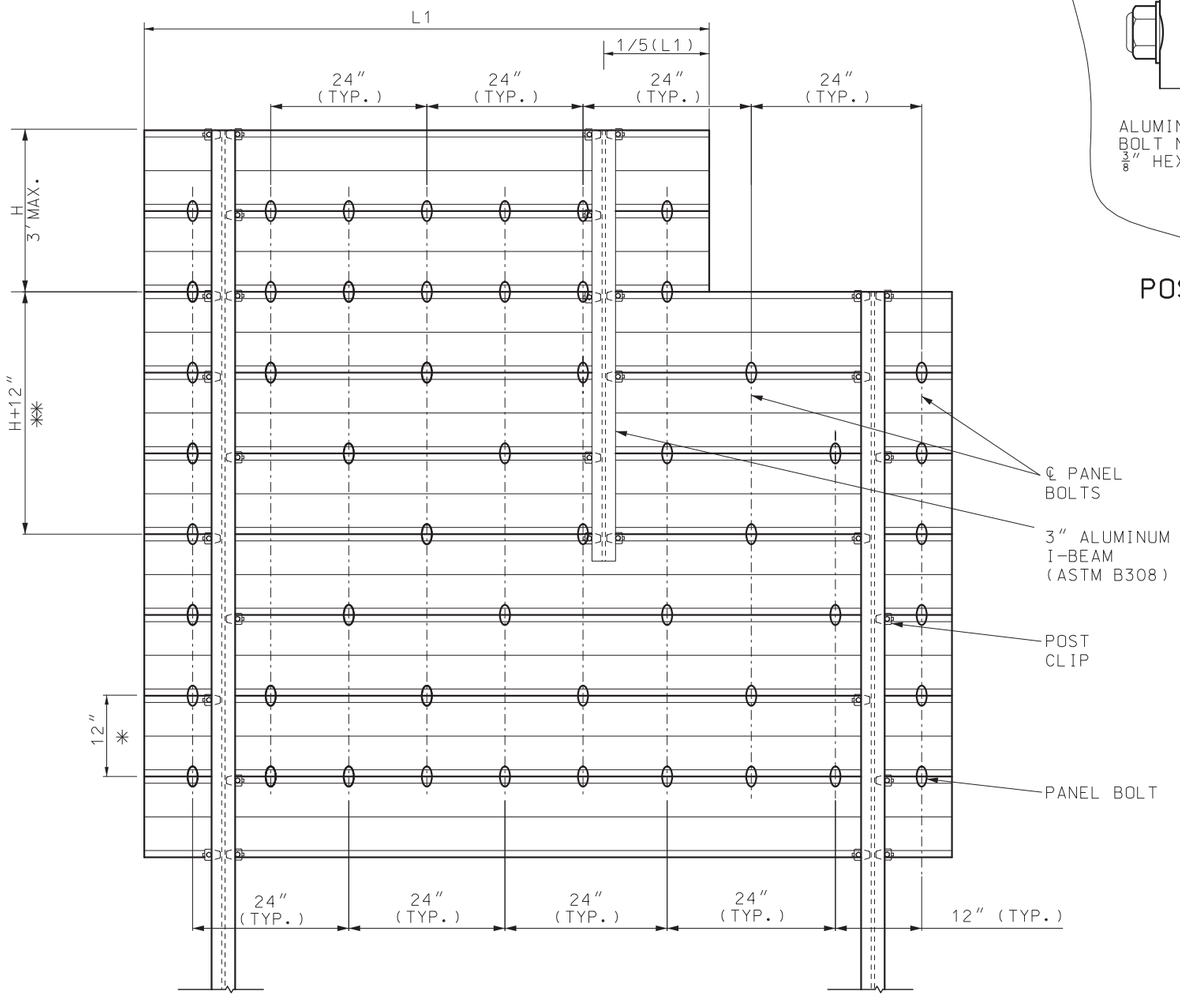
# POST INSTALLATION DETAILS

## TYPICAL SECTION, MOUNTING HEIGHT AND POST SPACING WIDE FLANGE (WF) POSTS

DATE EFFECTIVE: 10/1/2025
DATE PREPARED: 7/7/2025

903.03BU

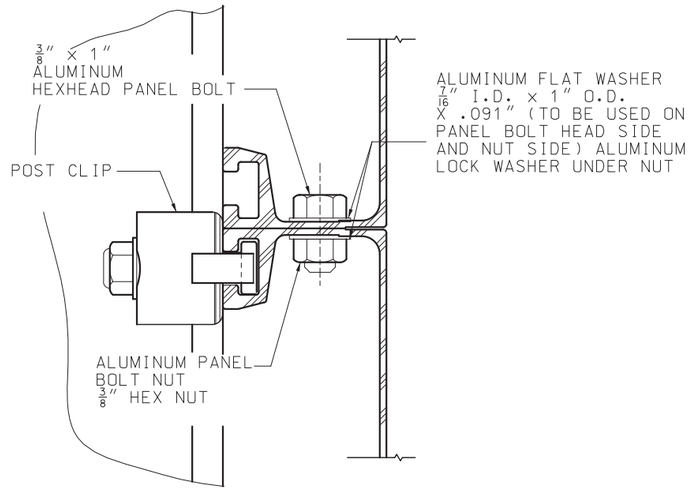
SHEET NO. 3 OF 12



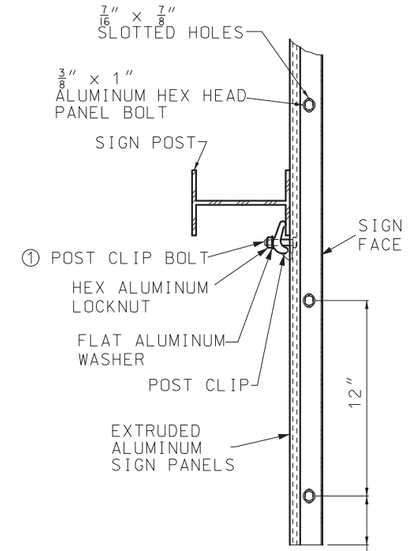

## PANEL BOLT LOCATION

* EXTRUDED ALUMINUM PANEL.

** APPLIES TO SIGNS SUSPENDED ABOVE OR BELOW THE PRIMARY SIGN IF SECONDARY SIGN IS NOT ATTACHED TO THE MAIN SIGN POSTS.




## POST CLIP DETAIL




## PART PLAN

① SIGNS SHALL BE FIELD ATTACHED TO POSTS WITH POST CLIPS AND BOLTS, SEE POST CLIP DETAIL. THE SHANK OF THE POST CLIP BOLT SHALL FIT TIGHTLY AGAINST THE POST FLANGE AFTER THE LOCKNUTS ARE TORQUED. LOCKNUTS ON THE POST CLIP BOLTS SHALL BE TORQUED TO 225 INCH-POUNDS WHEN USING DRY, CLEAN, UNLUBRICATED THREADS.

NOTES:

FOR GENERAL NOTES, SEE SHEET 1.

FOR EXTRUDED ALUMINUM PANEL AND POST CLIP DETAILS, SEE STANDARD PLAN 903.02.

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# SIGN MOUNTING DETAILS
## WIDE FLANGE (WF) POSTS

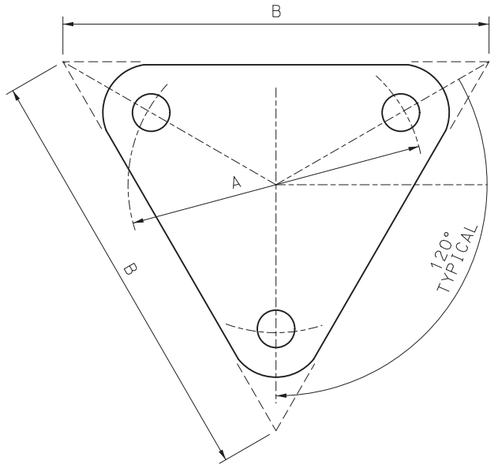
DATE EFFECTIVE: 10/1/2025
DATE PREPARED: 7/7/2025

903.03BU

SHEET NO. 4 OF 12

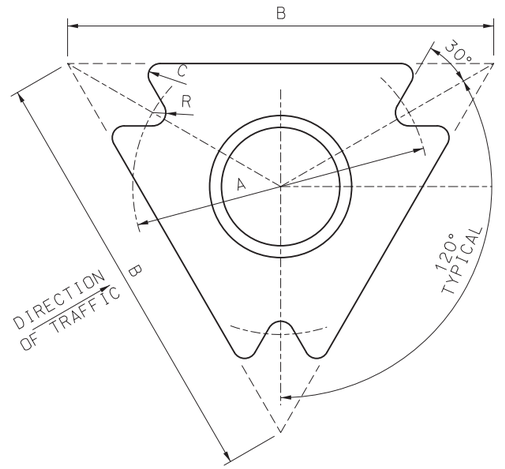
| ROUND PIPE POST FOR GROUND MOUNTED SIGNS | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| POST | BOLT | | | WASHER | | | BASE CONNECTION DATA TABLE (IN.) | | | | | |
| NOM SIZE (IN.-ID) | DIA | LENGTH | TORQUE | OD | ID | THICK | A | B | C | R | T | W |
| | IN. | IN. | IN./LB. | IN. | IN. | IN. | | | | | | |
| 2 1/2 | 1/2 | 3 1/2 | 140 | 1 1/16 | 17/32 | 1/8 | 6 1/4 | 9 | 1/4 | 9/32 | 1 | 1/4 |
| 4 | 5/8 | 3 3/4 | 345 | 1 5/16 | 11/16 | 1/8 | 7 3/16 | 10 | 1/4 | 3/8 | 1 | 5/16 |

| ROUND PIPE POST AND FOOTING DATA TABLE | | | | | | |
|---|---|---|---|---|---|---|
| NOM. SIZE (IN.) | WEIGHT | | STUB LENGTH | FOOTING | | CONCRETE |
| | LBS/FT | LBS/IN | | DIA. | DEPTH | C.Y. |
| 2 1/2 | 5.79 | 0.48 | 4'- 3 1/2" | 12" | 4'-6" | 0.13 |
| 4 | 10.79 | 0.90 | 5'- 3 1/2" | 18" | 5'-6" | 0.36 |

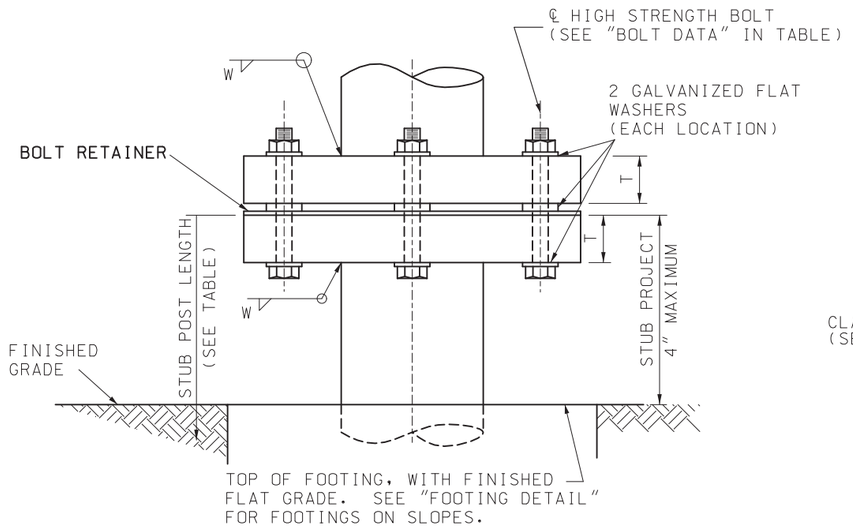



BOLT RETAINER

SHEET METAL BOLT RETAINER CUT FROM 30 GAUGE GALVANIZED SHEET METAL. PLACE BETWEEN BASE PLATES. SIZE VARIES TO FIT PLATE. BOLT HOLES SHALL BE 1/16" LARGER THAN REQUIRED BOLT SIZE.

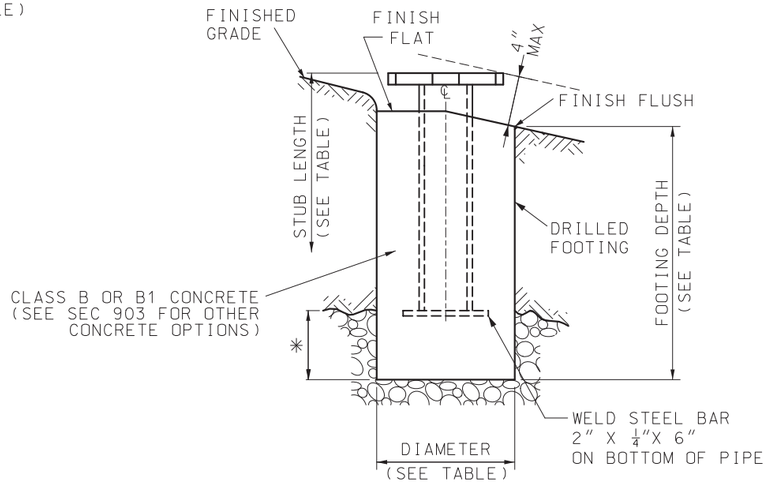



PLAN VIEW




ELEVATION
(STEEL PIPE POST BASE CONNECTION)

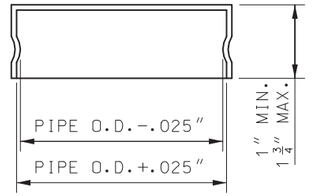
MULTI-DIRECTION SLIP BASE




* 2' MAXIMUM IN ROCK FOR 2" DIA. PIPE,
3' MAXIMUM IN ROCK FOR 4" DIA. PIPE.

FOOTING DETAIL

ROLLED CRIMP TO ENGAGE PIPE O.D.




FRICTION CAP

NOTE:

FOR GENERAL NOTES, SEE SHEET 1.

FOR MOUNTING HEIGHT AND OFFSET DETAILS, SEE SHEET 11.


MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
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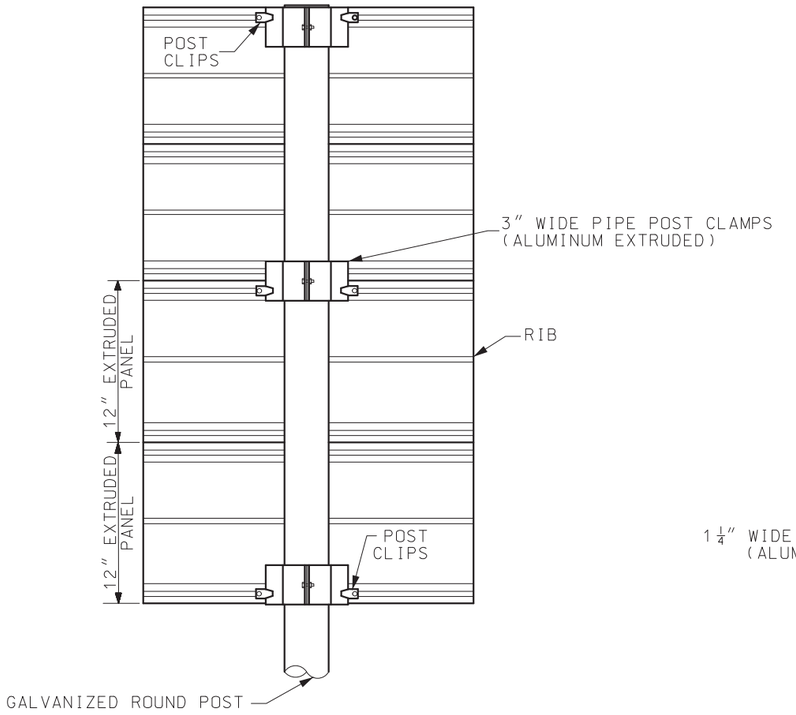
STATE OF MISSOURI
JONATHAN A. NELSON
NUMBER PE-2008019578
PROFESSIONAL ENGINEER
JONATHAN A. NELSON - CIVIL
MO-PE-2008019578

# POST INSTALLATION DETAILS

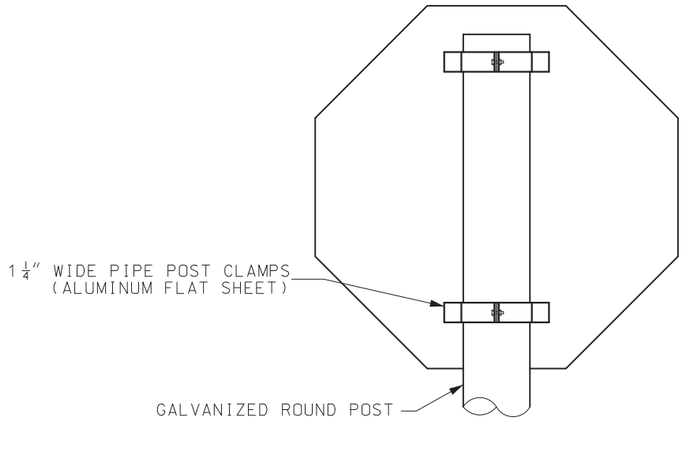
## PIPE POST

DATE EFFECTIVE: 10/1/2025
DATE PREPARED: 7/7/2025

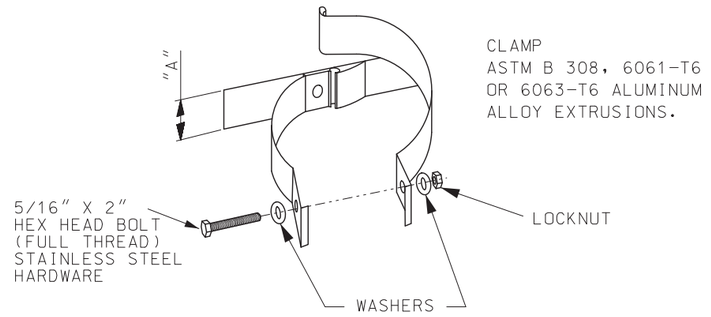
903.03BU




PROFILE VIEW

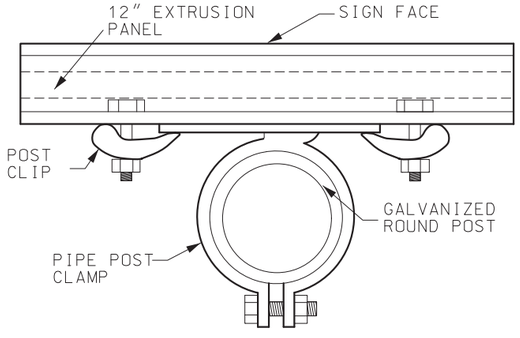



PROFILE VIEW



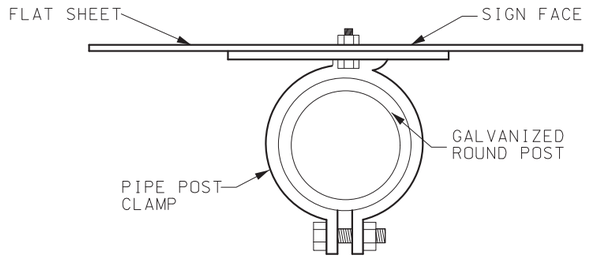

## CLAMP TYPE SIGN SUPPORT FOR PIPE POST

| WIDTH OF PIPE POST CLAMP | |
|---|---|
| SIGN TYPE | MINIMUM "A" |
| FLAT | 1 1/4" |
| STRUCTURAL | 3" |




PLAN VIEW

MOUNTING DETAILS FOR EXTRUDED PANELS ON PIPE POST




PLAN VIEW

MOUNTING DETAILS FOR FLAT SHEET ON PIPE POST

NOTES:

FOR GENERAL NOTES, SEE SHEET 1.

FOR MOUNTING HEIGHT AND OFFSET DETAILS, SEE SHEET 11.

FOR DETAILS OF EXTRUDED ALUMINUM PANEL AND POST CLIP DETAILS, SEE STANDARD PLAN 903.02.

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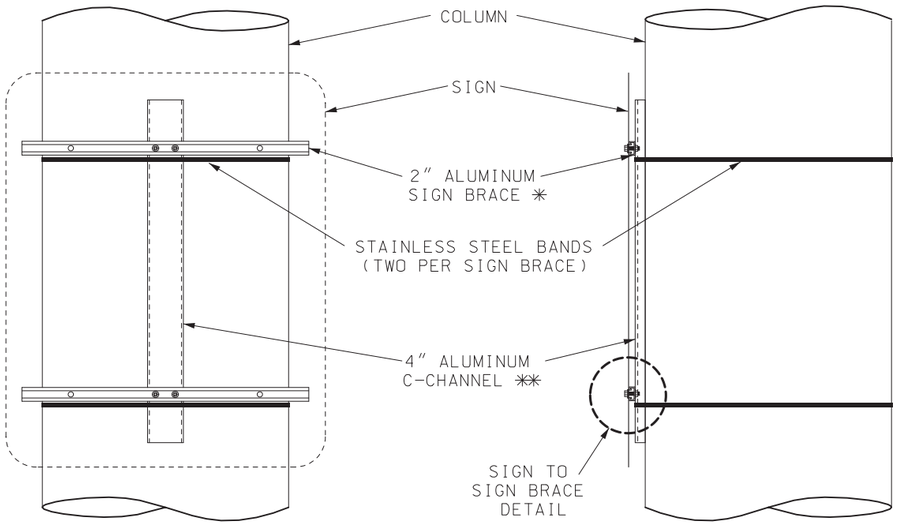
# SIGN MOUNTING DETAILS
## PIPE POST

DATE EFFECTIVE: 10/1/2025
DATE PREPARED: 7/7/2025

903.03BU

SHEET NO. 6 OF 12

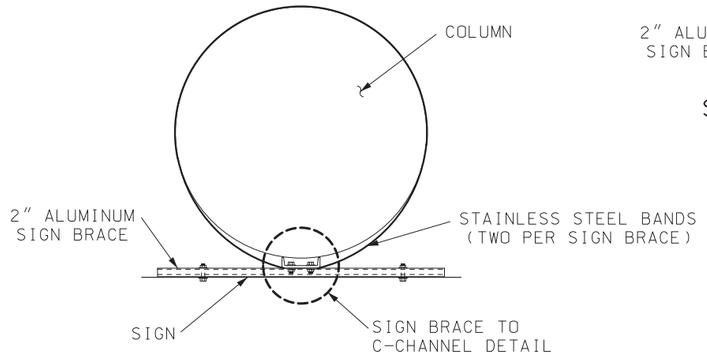



ELEVATION

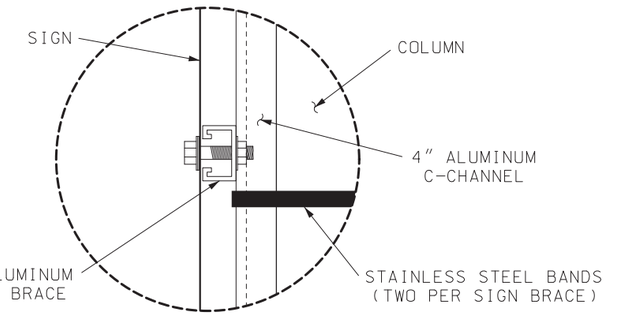
SIDE

✳ MAY BE PERFORATED.
NUMBER OF SIGN BRACES DETERMINED BY
HOLE PUNCHING ON STD PLAN 903.02.

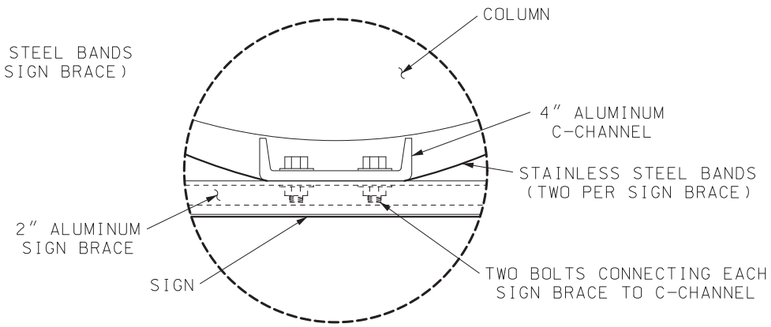
✳✳ STRUCTURAL 6061T6, MIN. 2.50 LBS/FT




PLAN

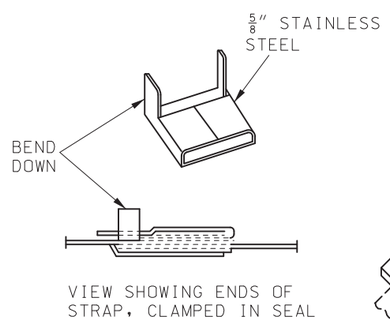



SIGN TO SIGN BRACE DETAIL

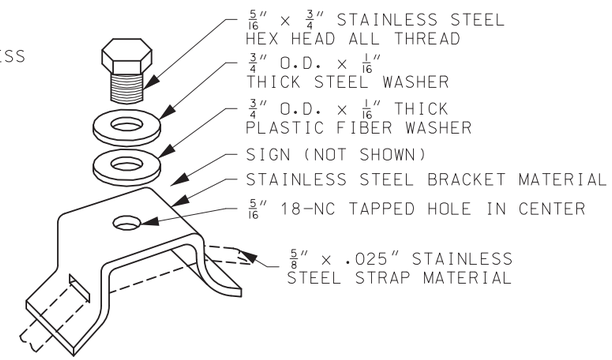



SIGN BRACE TO C-CHANNEL DETAIL

## SPECIAL MOUNTING FOR FLAT SHEET ≥ 36″ WIDE ON ROUND STRUCTURES LOCATED ON FREEWAYS




STRAP SEAL




FLARED LEG SIGN BRACKET

## MOUNTING DETAILS FOR FLAT SHEET ON ROUND STRUCTURES

NOTES:

FOR GENERAL NOTES, SEE SHEET 1.

FOR MOUNTING HEIGHT AND OFFSET DETAILS, SEE SHEET 11.

SPECIAL MOUNTING BASED ON SIGN WIDTH IN CONJUNCTION WITH ROADWAY TYPE.

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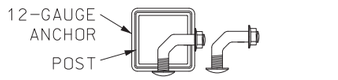
# SIGN MOUNTING DETAILS
## ROUND STRUCTURES

DATE EFFECTIVE: 10/1/2025
DATE PREPARED: 7/7/2025

903.03BU

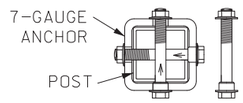
SHEET NO.
7 OF 12




$\frac{5}{16}$" CORNER BOLT AND NUT

MINIMUM 1 CORNER BOLT REQUIRED

12-GAUGE ANCHOR

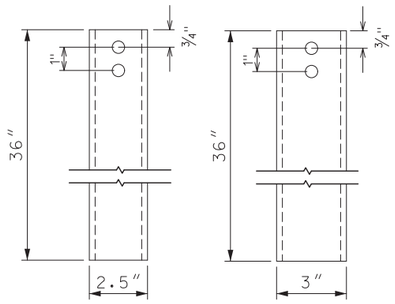



$\frac{3}{8}$" x 3.5" SHOULDER BOLT AND NUT

2 SHOULDER BOLTS REQUIRED,
INSTALLED PERPENDICULAR TO EACH OTHER

7-GAUGE ANCHOR

## ANCHOR BOLT DETAIL




FOR 2" POST FOR 2.5" POST

BOLT HOLE DIAMETER – $\frac{17}{32}$"
2 PER SIDE ON ALL 4 SIDES

## 7-GAUGE ANCHOR FABRICATION DETAIL

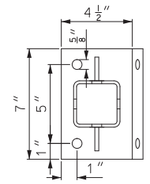
ANCHOR TUBE SHALL BE 7-GAUGE

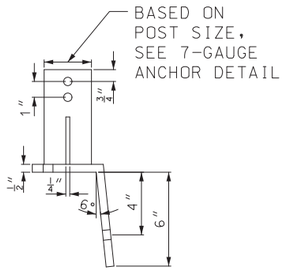
1/2" X 4 1/2"GALVANIZED MECHANICAL FASTENERS SHALL BE USED TO ATTACH ANCHOR TO BARRIER WALL

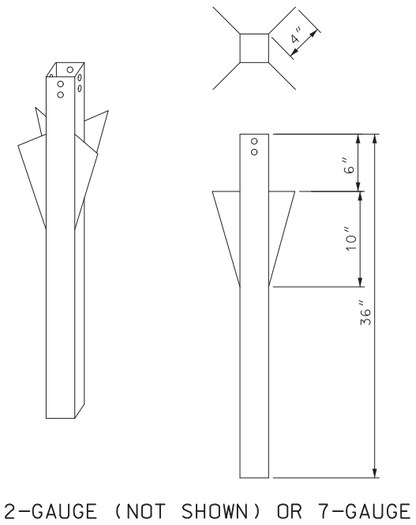
SHOULDER BOLTS SHALL BE USED TO ATTACH PSST POST TO ANCHOR (SEE ANCHOR BOLT DETAIL)

ANCHOR SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION PER SECTION 1080

FURNISHING AND INSTALLATION OF BARRIER WALL POST ANCHOR FOR PSST SHALL BE PAID PER EACH AS CONCRETE POST ANCHOR

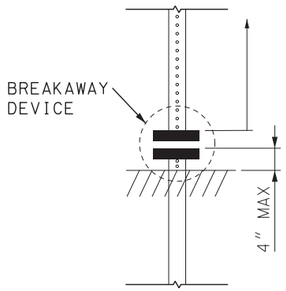



12-GAUGE (NOT SHOWN) OR 7-GAUGE

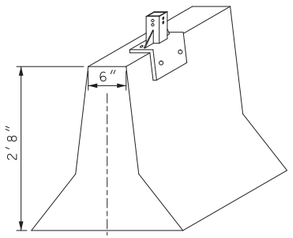
## OMNIDIRECTIONAL/STABILIZED DRIVEN ANCHOR DETAIL

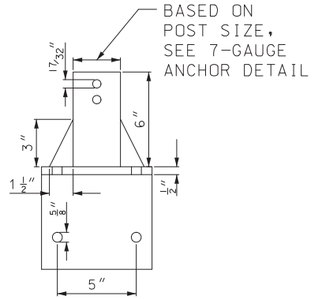



2.5" + 2.25" POST COMPRISED OF 2.5" PSST WITH 6-FT INSERT OF 2.25" PSST THAT RUNS UP FROM THE BREAKAWAY DEVICE

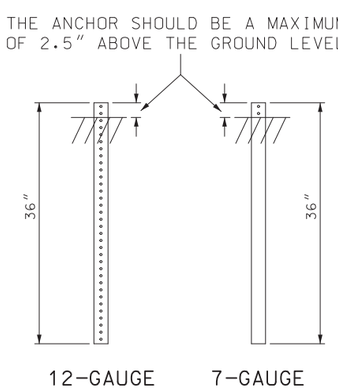
THE BREAKAWAY DEVICE PORTION FIXED TO THE GROUND ANCHOR SHALL BE NO HIGHER THAN 4" ABOVE THE FINISHED GRADE

## BREAKAWAY AND 2.5" + 2.25" POST DETAIL

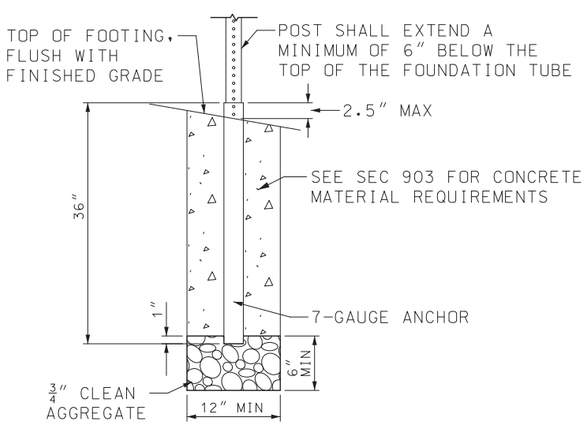


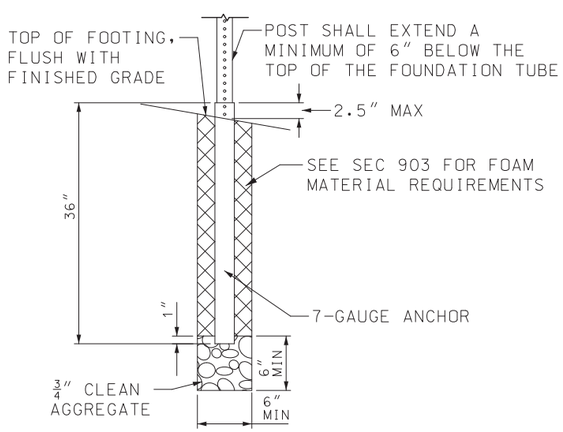

## BARRIER WALL MOUNTING DETAIL




## DRIVEN ANCHOR INSTALLATION DETAIL




## CONCRETE FOOTING DETAIL




## POLYURETHANE FOAM FOOTING DETAIL

NOTES:

FOR GENERAL NOTES, SEE SHEET 1.

FOR MOUNTING HEIGHT AND OFFSET DETAILS, SEE SHEET 11.

ALL BREAKAWAY DEVICES USED ON AN INSTALLATION SHALL BE CERTIFIED NCHRP 350 COMPLIANT.

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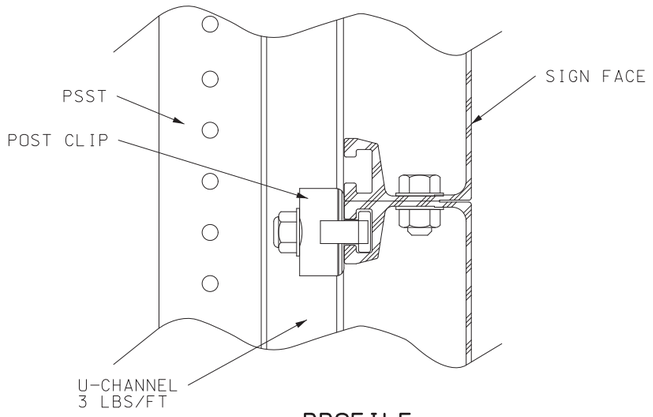
# POST INSTALLATION DETAILS

## PERFORATED SQUARE STEEL TUBE (PSST)

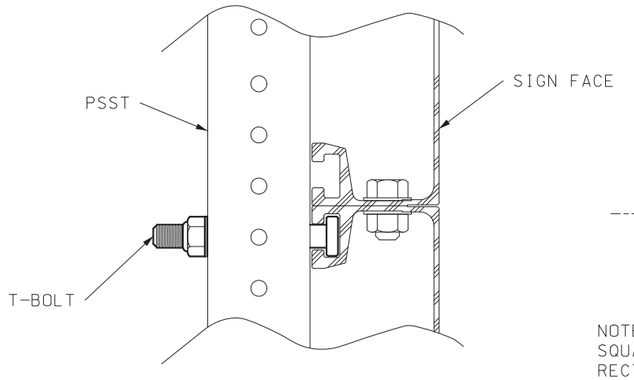
DATE EFFECTIVE: 10/1/2025
DATE PREPARED: 7/7/2025

903.03BU

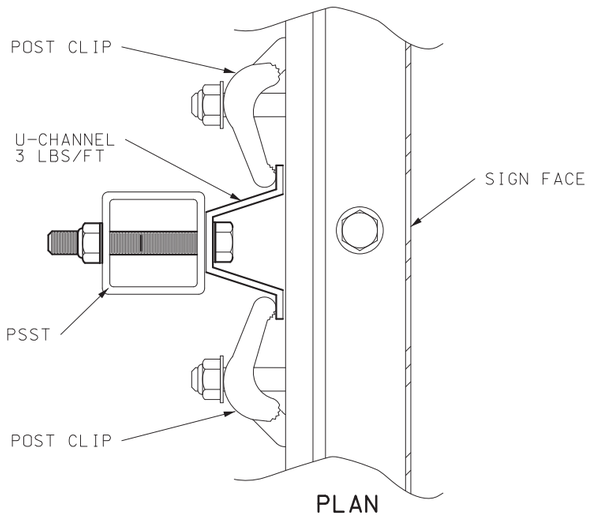
SHEET NO. 8 OF 12




PROFILE

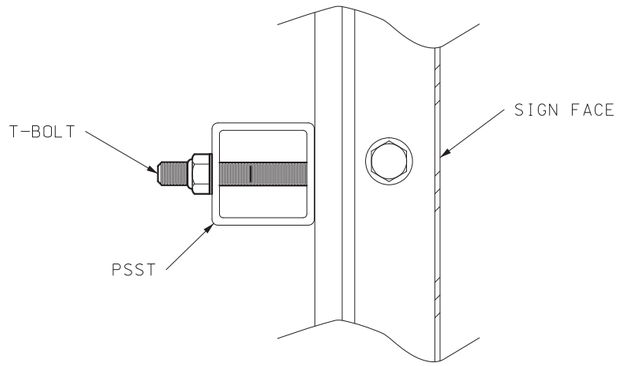



PROFILE




PLAN

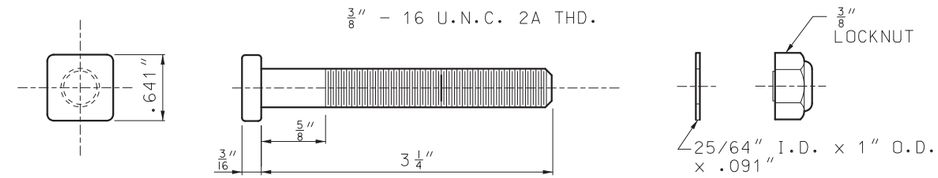
POST CLIP METHOD



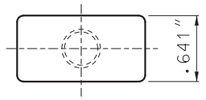

PLAN

T-BOLT METHOD

EXTRUDED PANEL MOUNTING DETAIL




NOTE:
SQUARE BOLT HEAD SHOWN MAY BE REPLACED WITH RECTANGULAR BOLT HEAD WITH THE NARROW DIMENSION EQUAL TO .641".




BOLT - $1\frac{3}{4}$ x $\frac{3}{8}$ ALUMINUM
BOLT - $3\frac{1}{4}$ x $\frac{3}{8}$ ALUMINUM
HEX LOCKNUT - $\frac{3}{8}$" ALUMINUM
WASHER - ALUMINUM

T-BOLT DETAIL

NOTES:
- ALUMINUM BOLTS SHALL BE ASTM B 211, 2024-T4 OR 6061-T6
- ALUMINUM FLAT WASHERS SHALL BE ASTM B 209, ALCLAD 2024-T4 OR 2024-T4
- ALUMINUM LOCK NUTS (NYLON INSERT) SHALL BE ASTM B 211 OR 2017-T4

| NUMBER OF BOLTS TO ATTACH STEEL CHANNEL TO PSST POST | |
|---|---|
| SIGN HEIGHT | NO. OF BOLTS PER PSST POST USED |
| 1' | 2 |
| 2' | 3 |
| 3' | 4 |
| 4' | 5 |
| 5' | 6 |
| 6' | 7 |
| 7' | 8 |

NOTES:

FOR THE GENERAL NOTES, SEE SHEET 1.

FOR MOUNTING HEIGHT AND OFFSET DETAILS, SEE SHEET 11.

FOR POST CLIP DETAILS, SEE STANDARD PLAN 903.02.

ALTERNATE PSST MOUNTING HARDWARE USE SHALL BE ON APPROVED LIST.

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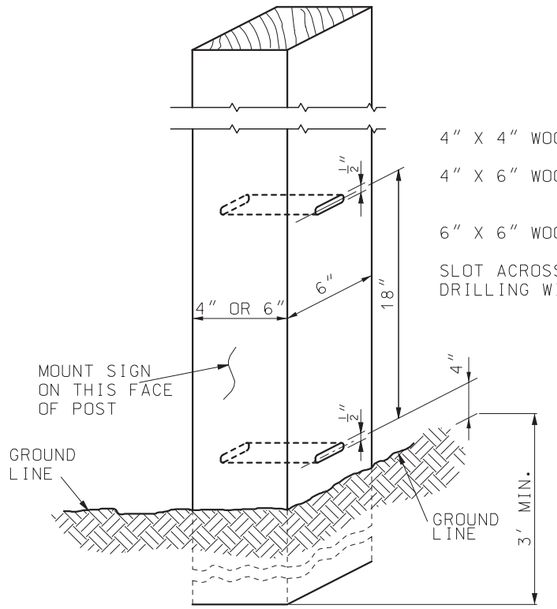
# SIGN MOUNTING DETAILS
## PERFORATED SQUARE STEEL TUBE (PSST)

DATE EFFECTIVE: 10/1/2025
DATE PREPARED: 7/7/2025

903.03BU

SHEET NO.
9 OF 12




4" X 4" WOOD POST – NO SLOTS OR HOLES REQUIRED

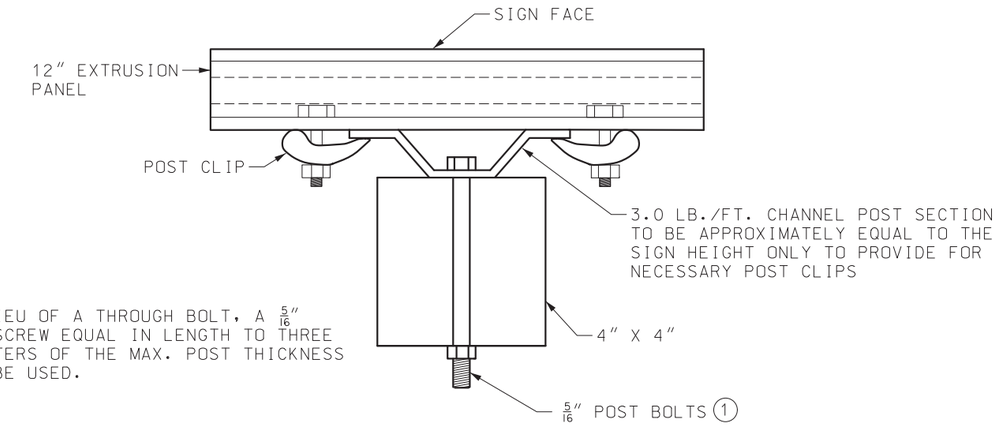
4" X 6" WOOD POST – $1\frac{1}{2}$" X $\frac{1}{2}$" SLOT ON 6" SIDE OR $1\frac{1}{2}$" DIA. HOLE ON 6" SIDE

6" X 6" WOOD POST – 2" X $\frac{1}{2}$" SLOT OR 2" DIA. HOLE

SLOT ACROSS NEUTRAL AXIS FORMED BY SUCCESSIVE DRILLING WITH $\frac{1}{2}$" BIT.

WOOD POST DETAIL

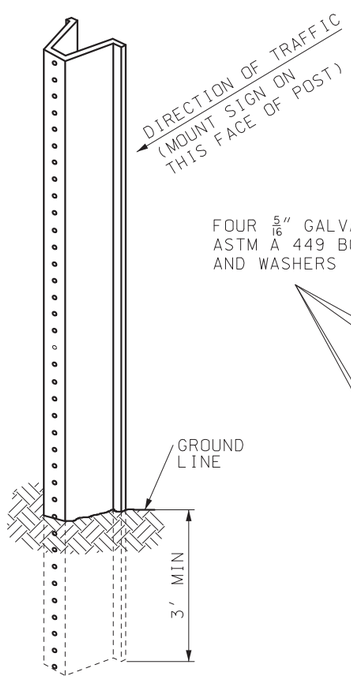
| NUMBER OF BOLTS TO ATTACH STEEL CHANNEL TO WOOD POST | |
|---|---|
| SIGN HEIGHT | NO. OF BOLTS PER WOOD POST USED |
| 1' | 2 |
| 2' | 3 |
| 3' | 4 |
| 4' | 5 |
| 5' | 6 |
| 6' | 7 |
| 7' | 8 |



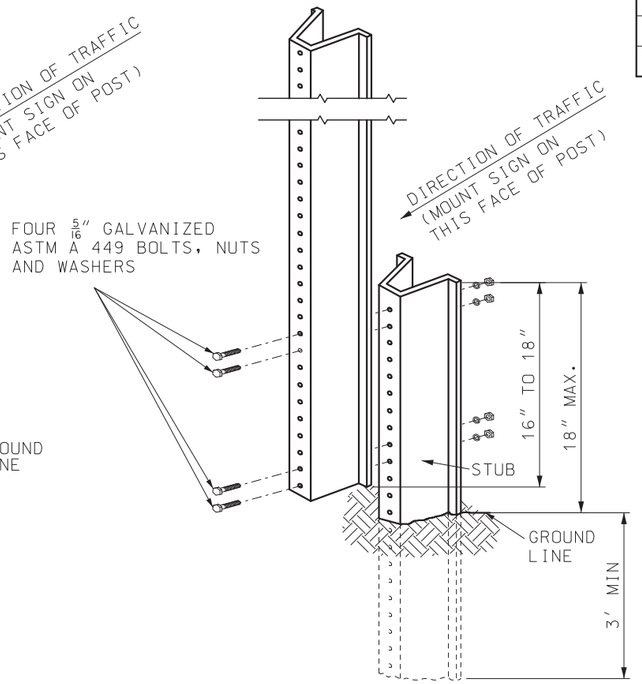

(1) IN LIEU OF A THROUGH BOLT, A $\frac{5}{16}$" LAG SCREW EQUAL IN LENGTH TO THREE QUARTERS OF THE MAX. POST THICKNESS MAY BE USED.

PLAN VIEW

MOUNTING DETAILS FOR EXTRUDED PANELS ON WOOD POST




U-CHANNEL POST DETAIL




U-CHANNEL STUB DETAIL OPTIONAL INSTALLATION

| | POST TYPE | |
|---|---|---|
| SIGN AREA (SQ.FT.) | U-CHANNEL | WOOD |
| ≤ 10 | 1 – 3.0 LB./FT.✳ | 1 – 4" X 4"✳ |
| > 10 ≤ 16 | 2 – 3.0 LB./FT. | 2 – 4" X 4"<br>1 – 4" X 6"✳ |
| > 16 ≤ 24 | 2 – 3.0 LB./FT. | 2 – 4" X 6" |
| > 24 ≤ 30 | 3 – 3.0 LB./FT. | 2 – 4" X 6" |
| > 30 ≤ 50 | N/A | 2 – 6" X 6" |

✳ SIGNS GREATER THAN 4 FEET IN WIDTH REQUIRE TWO POSTS, EXCEPT DIAMOND SHAPED WARNING SIGNS, YIELD SIGNS, AND ONE WAY SIGNS.

POST SIZE REQUIREMENTS

NOTES:

FOR GENERAL NOTES, SEE SHEET 1.

ALL POSTS SHALL BE EMBEDDED A MINIMUM OF 3 FEET INTO THE GROUND.

U-CHANNEL POST-STUB OVERLAP SHALL BE POSITIONED ENTIRELY BETWEEN GROUND LINE AND 18" ABOVE GROUND LINE.

FOR POST CLIP DETAILS, SEE STANDARD PLAN 903.02.

FOR MOUNTING HEIGHT AND OFFSET DETAILS, SEE SHEET 11.

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# POST INSTALLATION DETAILS

## WOOD AND U-CHANNEL POST

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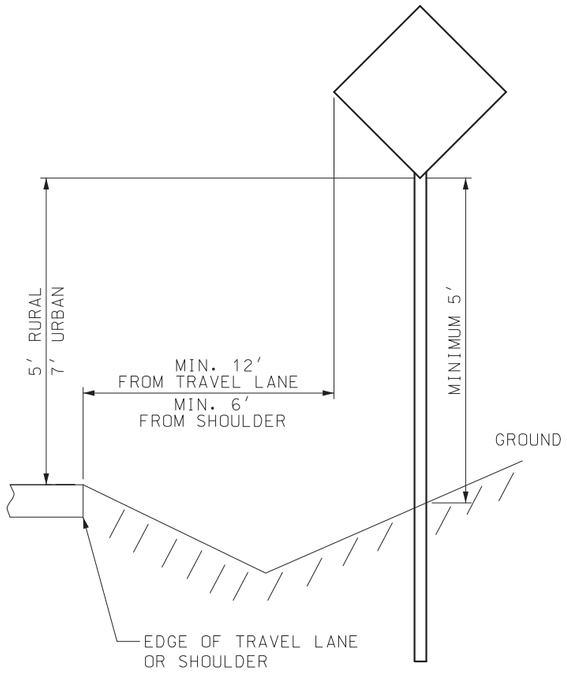
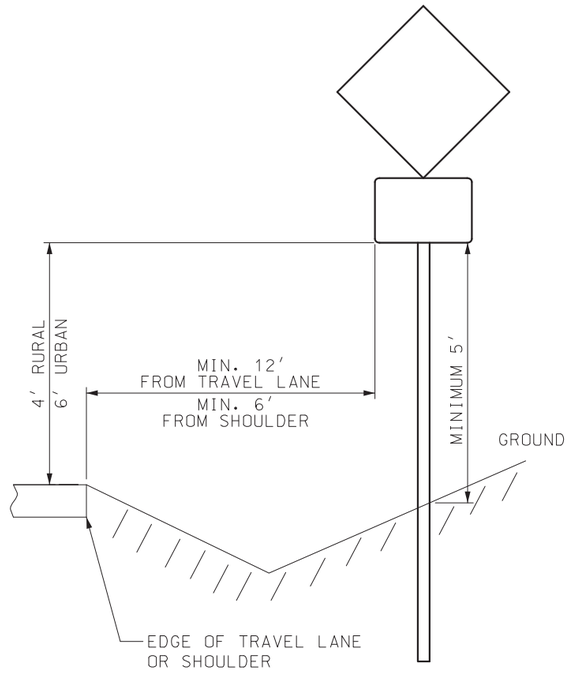
DATE PREPARED: 7/7/2025

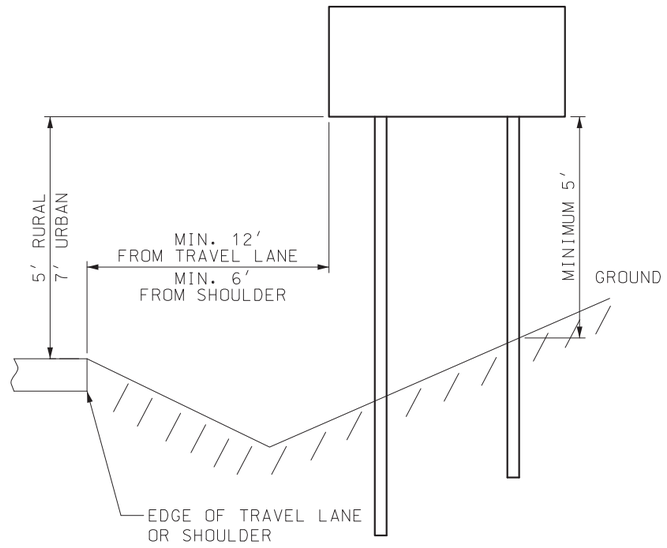
903.03BU



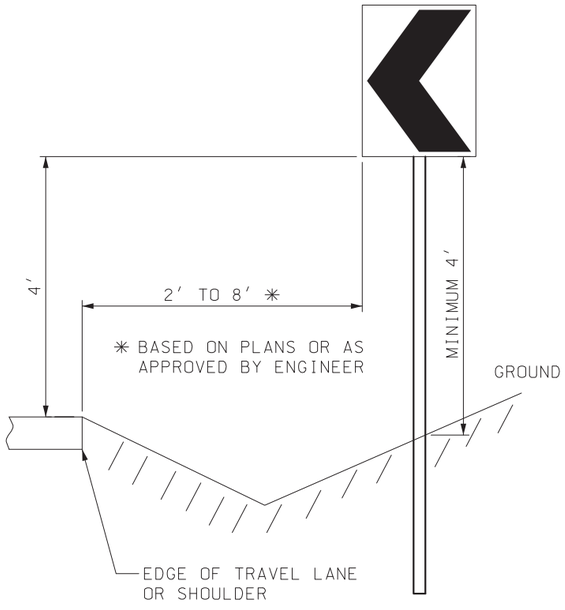

ONE POST – SINGLE SIGN



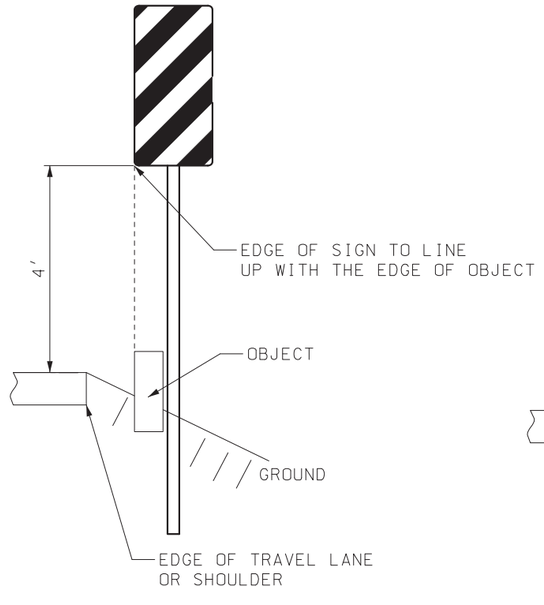

ONE POST – SINGLE SIGN WITH SUPPLEMENTAL PLAQUE



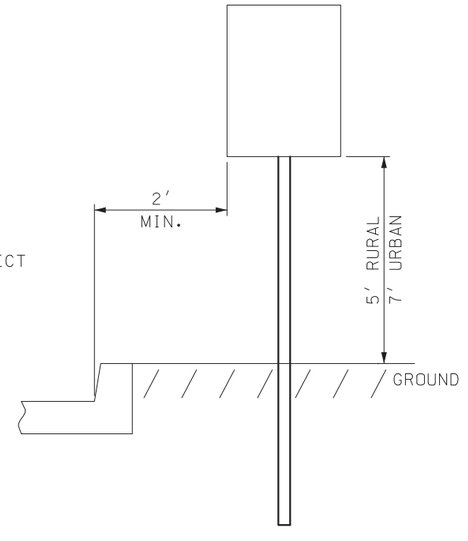

TWO POST




CHEVRON SIGN




TYPE 3 OBJECT MARKER




ADJACENT TO CURB

GENERAL NOTES:

SIGN MOUNTING BOLTS SHALL BE INSTALLED WITH A NYLON WASHER AGAINST THE SIGN FACE WITH A STEEL WASHER BETWEEN THE NYLON WASHER AND BOLT HEAD.

A LOCKNUT SHALL BE USED TO FASTEN THE SIGN TO THE POST.

VERTICAL CLEARANCE FROM THE ROADWAY SHALL BE MET AND INCREASED ONLY TO MEET THE MINIMUM VERTICAL CLEARANCE FROM THE GROUND.

HORIZONTAL OFFSET MAY BE ADJUSTED BASED ON FIELD CONDITIONS.

MOUNTING HEIGHT DETAILS

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

STATE OF MISSOURI
JONATHAN A. NELSON
NUMBER PE-2008019578
PROFESSIONAL ENGINEER
JONATHAN A. NELSON - CIVIL
MO-PE-2008019578

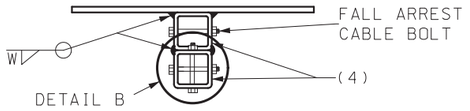
# SIGN MOUNTING DETAILS

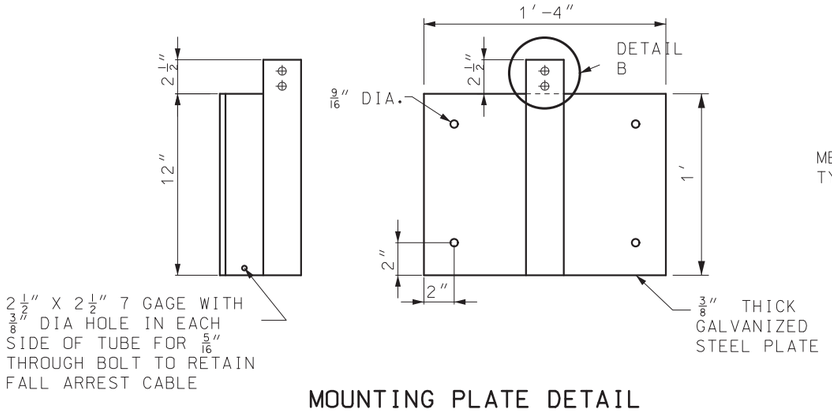
## MOUNTING HEIGHT & OFFSET PIPE POSTS, PSST, WOOD & U-CHANNEL POSTS

DATE EFFECTIVE: 10/1/2025
DATE PREPARED: 7/7/2025

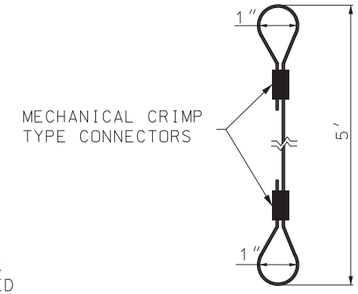
903.03BU

SHEET NO. 11 OF 12

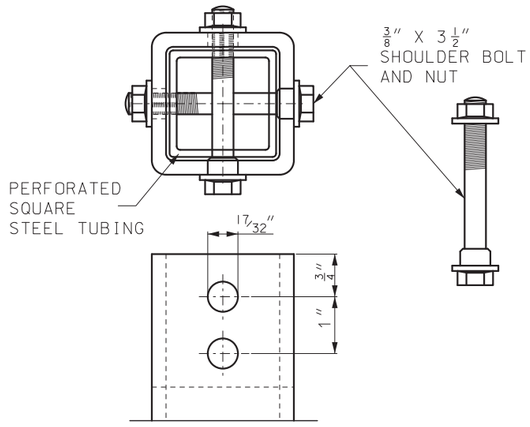


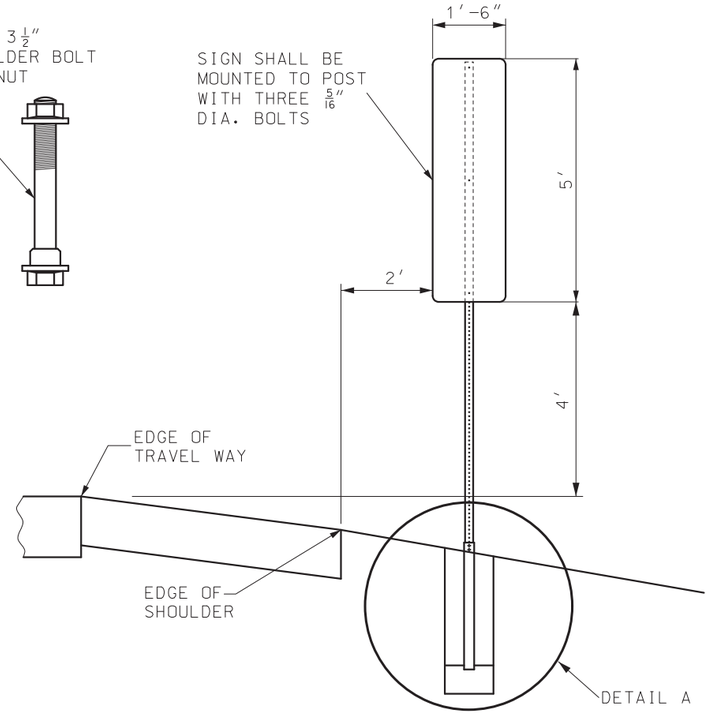

## MOUNTING PLATE DETAIL



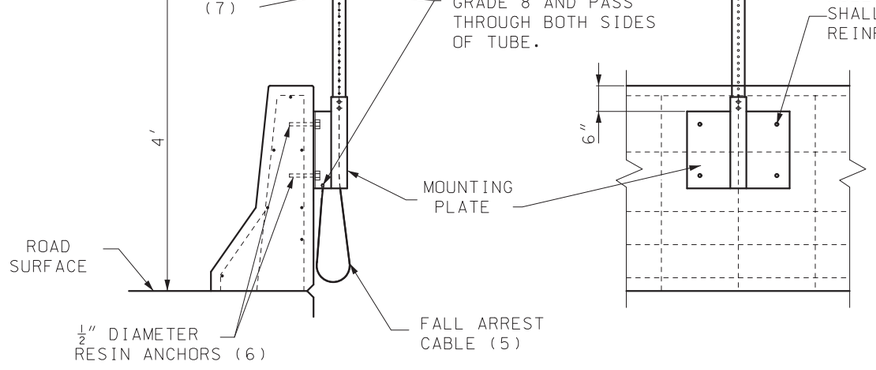

## FALL ARREST CABLE DETAIL

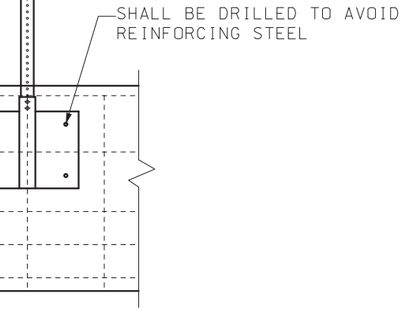



## DETAIL B SHOULDER BOLT

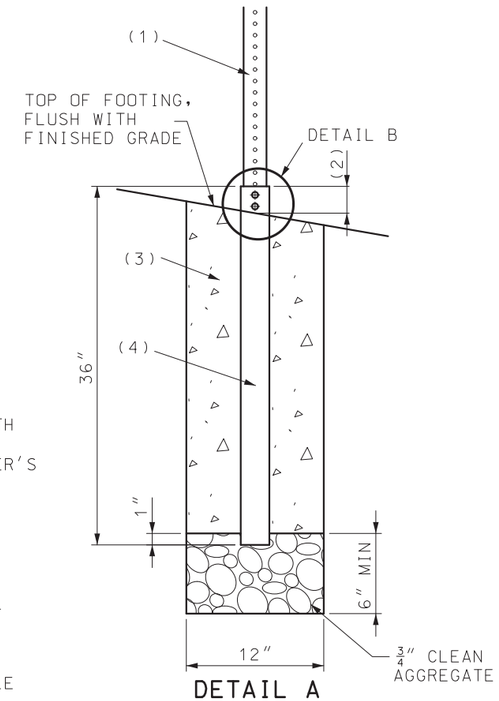



## GROUND INSTALLATION




## BARRIER WALL INSTALLATION




## DETAIL A

(1) PERFORATED SQUARE STEEL TUBE 2″ X 2″ (O.D.) 12 GAUGE. TUBE SHALL EXTEND A MINIMUM OF 6″ BELOW THE TOP OF THE FOUNDATION TUBE.

(2) TUBE TO EXTEND ABOVE FOUNDATION ONLY ENOUGH TO ALLOW BOLT TO BE INSERTED, 2½″ MAXIMUM.

(3) SEE SEC 903 FOR CONCRETE MATERIAL REQUIREMENTS. POLYURETHANE FOAM IS NOT AN ALLOWABLE OPTION.

(4) 2½″ × 2½″ (O.D.) SQUARE TUBE GALVANIZED 7 GAUGE WITH TWO 17/32″ DIAMETER HOLES IN EACH FACE ¾″ BELOW TOP OF TUBE.

(5) ⅛″× 5′ LONG STAINLESS STEEL CABLE (ASTM A 492 TYPE 304 MINIMUM BREAKING STRENGTH 200 LBS.) WITH A 1″ DIA. LOOP AT EACH END LOOPS FORMED BY MECHANICAL CRIMP TYPE CONNECTION PER MANUFACTURER'S SPECIFICATIONS. CABLE IS TO BE RUN INSIDE PERFORATED SQUARE STEEL TUBE. CABLE IS TO BE USED ONLY WHEN SIGN MOUNTING LOCATION IS OVER ANOTHER TRAVELED WAY.

(6) ½″ DIAMETER RESIN ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH SEC 1039. AN APPROVED MECHANICAL TYPE ANCHOR MAY BE USED IF THE DEVICE EQUALS OR EXCEEDS THE PULL TEST REQUIREMENTS OF SEC 1039.

(7) FALL ARREST CABLE TO BE SECURED TO NEXT FULL HOLE BELOW SIGN.

NOTES:

FOR GENERAL NOTES, SEE SHEET 1.

PERFORATED SQUARE STEEL TUBE SHALL BE SECURED TO FOUNDATION TUBE OR BARRIER WALL MOUNTING PLATE WITH A SHOULDER BOLT PER PERFORATED SQUARE STEEL TUBE MANUFACTURER'S SPECIFICATION.

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# SIGN MOUNTING DETAILS
# EMERGENCY REFERENCE MARKERS

DATE EFFECTIVE: 10/1/2025
DATE PREPARED: 7/7/2025

903.03BU

SHEET NO.
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